CALL TO ORDER: Welcome to the Three Rivers Levee Improvement Authority (TRLIA) meeting. As a courtesy to others, please turn off cell phones, pagers, or other electronic devices which might disrupt the meeting. Thank you.

I ROLL CALL – Directors Atwal, Brown, Griego, Nicoletti, Ritchie

II PUBLIC COMMUNICATIONS: Any person may speak about any subject of concern within the jurisdiction of TRLIA which is not on today’s agenda. The total amount of time allotted shall be limited to a total of 15 minutes and each individual or group will be limited to no more than 5 minutes. Prior to this time, speakers are requested to fill out a “Request to Speak” card and submit it to the secretary.

III CONSENT AGENDA: Matters listed are considered to be routine and can be enacted by one motion.
   A. Approve minutes of the meeting of April 5, 2016.

IV ACTION ITEMS
   A. Approve Amendment No. 7 to agreement with CTA Engineering and Surveying in the amount of $190,000 for services and authorize Executive Director to execute upon review and approval of Counsel.
   B. Authorize Executive Director to issue final construction bid document for 200-year Western Pacific Interceptor Canal West Levee Improvement Project with a tentative bid opening date of May 27, 2016.
   C. Approve Amendment No. 19 to agreement with HDR Engineering in the amount $1,533,361 for construction management services for the Western Pacific Interceptor Canal 200-year project and authorize Executive Director to execute upon review and approval of Counsel.

V BOARD AND STAFF MEMBER REPORTS

VI CLOSED SESSION
   A. Conference with Legal Counsel – Existing Litigation, Govt. Code 54956.9(d)(1) – A. Teichert & Son, Inc. v. TRLIA and TRLIA Board of Directors, Yuba County Superior Court No. CVPT 15-0000922
   B. Pending litigation pursuant to Government Code §54956.9(a) - TRLIA vs. Latigo Farms LLC, et al., YCSCCVEG 14-0000222, APNs 014-360-011 and 014-360-013

The complete agenda is available at the Yuba County Government Center, 915 8th Street, Suite 109 Marysville, and www.trlia.org. Any disclosable public record related to an open session item on the agenda and distributed to all or a majority of the Board less than 72 hours prior to the meeting is available at Suite 109 during normal business hours. In compliance with the Americans with Disabilities Act, the meeting room is wheelchair accessible and disabled parking is available. If you have a disability and need disability-related modifications or accommodations to participate in this meeting, please contact the Clerk of the Board's office at (530) 749-7510 or (530) 749-7353 (fax). Requests must be made one full business day before the start of the meeting.


VII **ADJOURN**
THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

APRIL 5, 2016

MINUTES

A meeting of the Board of Directors of the Three Rivers Levee Improvement Authority (TRLIA) was held on the above date, commencing at 3:30 p.m., within the Government Center, Marysville, California, with a quorum being present as follows: Directors Sarbdeep Atwal, Rick Brown, Mary Jane Griego, John Nicoletti, and Edward Ritchie. Also present were Executive Director Paul Brunner, Counsel Andrea Clark, and Secretary/Clerk of the Board of Supervisors Donna Stottlemyer. Chair Griego presided.

I  ROLL CALL: Directors Atwal, Brown, Griego, Nicoletti, Ritchie – All present.

II  PUBLIC COMMUNICATIONS: None.

III  CONSENT AGENDA: Matters listed are considered to be routine and can be enacted by one motion.

MOTION: Move to approve        MOVED: John Nicoletti       SECOND: Sarbdeep Atwal
AYES: Sarbdeep Atwal, Rick Brown, Mary Jane Griego, John Nicoletti, Edward Ritchie
NOES: None                    ABSTAIN: None               ABSENT: None

A. Approve meeting minutes of March 15, 2016. Approved.

IV  ACTION ITEMS

A. Adopt resolution approving transfer of ownership of Olivehurst Detention Basin to County of Yuba and authorizing Executive Director to execute grant deed. Executive Director Paul Brunner recapped acquiring the property, transferring to County ownership, and responded to inquiries.

MOTION: Move to approve        MOVED: Rick Brown       SECOND: John Nicoletti
AYES: Sarbdeep Atwal, Rick Brown, Mary Jane Griego, John Nicoletti, Edward Ritchie
NOES: None                    ABSTAIN: None               ABSENT: None

Adopted Resolution No. 2016-4 which is on file in TRLIA Resolution Book No. 10.

B. Adopt resolution adopting Western Pacific Interceptor Canal 200-year Standard Project final mitigated negative declaration and mitigation monitoring and reporting program, approving Western Pacific Interceptor Canal 200-year Standard Project, and authorizing Executive Director to execute notice of determination. Executive Director Paul Brunner and Counsel Andrea Clark recapped the declaration, program, determination, and responded to inquiries.

MOTION: Move to approve        MOVED: John Nicoletti       SECOND: Sarbdeep Atwal
AYES: Sarbdeep Atwal, Rick Brown, Mary Jane Griego, John Nicoletti, Edward Ritchie
NOES: None                    ABSTAIN: None               ABSENT: None

Adopted Resolution No. 2016-5 which is on file in TRLIA Resolution Book No. 10.
C. Approve H&H Trucking proposal in the amount of $80,548 for aggregate base to be installed on existing roads within Feather Setback Area and authorize Executive Director to execute agreement upon review and approval of Counsel. Construction Manager Doug Handen and Executive Director Paul Brunner recapped and responded to Board inquiries.

MOTION: Move to approve MOVED: John Nicoletti SECOND: Sarbdeep Atwal
AYES: Sarbdeep Atwal, Rick Brown, Mary Jane Griego, John Nicoletti, Edward Ritchie
NOES: None ABSTAIN: None ABSENT: None

V      BOARD AND STAFF MEMBER REPORTS

Executive Director Paul Brunner:
- Floodplain Management Association (FMA) 2016 Annual Conference September 6-9-2016 in Sacramento
- Yuba Levee Financing Authority funding for cash flow

VI      ADJOURN: 4:04 p.m.

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Chair

ATTEST: DONNA STOTTEMEYER
CLERK OF THE BOARD OF SUPERVISORS
AND SECRETARY OF THE PUBLIC AUTHORITY

-------------------------------------------------------------------------------------

Approved: __________________________
April 19, 2016

TO: Three Rivers Levee Improvement Authority Board
FROM: Paul Brunner, Executive Director
Larry Dacus, Design Manager
SUBJECT: Consider Approval of Seventh Contract Amendment to CTA Engineering and Surveying Professional Services Contract

Recommended Action:
Approve a contract Amendment Seven (attached) in the amount of $190,700 to the basic CTA Engineering and Surveying contract for engineering services and authorize Executive Director to sign and execute upon review of General Counsel.

Discussion:
TRLIA entered into a professional services contract with CTA on March 2, 2010 to perform surveying services for the Yuba, Feather, and Bear levee repairs land acquisition actions. CTA has also been providing real estate support for the Upper Yuba Levee Improvement Project (UYLIP) as a direct consultant to TRLIA since Amendment 5. The original contract has been amended six times to accomplish additional tasks and additional unforeseen effort for the original tasks.

CTA has been providing surveying services in a timely and professional manner and has knowledge and experience of survey conditions in Yuba County and with the parcels that were acquired as part of the TRLIA Levee Improvement Program. Cadastral requirements of the DWR Real Estate Division for land transfer continue to be more complicated than originally assumed. This has required much more coordination and the revision of some previous work. DWR Real Estate is also requiring a record of survey for all land transfers and that all land boundaries be monumented. This is additional work for which TRLIA requires CTA assistance. In addition TRLIA will require real estate surveying assistance for two new projects; the FESSRO Project in the Feather River Setback Area and the Goldfields UFRR Project. CTA is best suited to provide these additional efforts. The proposed amendment increases the budget for surveying services by CTA by $190,700 to a total budget amount of $408,115. The budget adjustments for the new tasks and for the tasks that CTA is currently performing for TRLIA are shown on Exhibit 1 to the Seventh Amendment. This amendment will also extend the contract termination date to December 31, 2018.
**Fiscal Impact:**
This amendment increases the current contract amount of $217,415 by $190,700 to a total contract amount of $408,115. The expenses for performing these services are partially funded by the State through numerous funding agreements and cost sharing percentages as detailed below:

<table>
<thead>
<tr>
<th>Funding Agreement</th>
<th>Cost Sharing Percentage (State/Local)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Feather EIP Segment 1</td>
<td>70/30</td>
</tr>
<tr>
<td>2. Feather EIP Segment 2</td>
<td>82.5/17.5</td>
</tr>
<tr>
<td>3. Feather EIP Segment 3</td>
<td>70/30</td>
</tr>
<tr>
<td>4. WPIC EIP</td>
<td>70/30</td>
</tr>
<tr>
<td>5. UYLIP EIP</td>
<td>70/30</td>
</tr>
<tr>
<td>6. FESSRO</td>
<td>100/0</td>
</tr>
<tr>
<td>7. Goldfields UFRR 200-Year</td>
<td>79/21</td>
</tr>
</tbody>
</table>

**Attachment:**
CTA Engineering and Surveying Amendment 7 with Exhibit 1
AMENDMENT NO. 7

AGREEMENT FOR PROFESSIONAL SERVICES
FOR
ENGINEERING SERVICES
BETWEEN
THREE RIVERS LEVEE IMPROVEMENT AUTHORITY AND
CTA ENGINEERING AND SURVEYING

THIS SEVENTH AMENDATORY AGREEMENT is made effective April ___________, 2016, by and between Three Rivers Levee Improvement Authority ("TRLIA") and CTA Engineering and Surveying ("Consultant"), who agree as follows:

1. **Recitals.** This Amendment is made with reference to the following background recitals:

   1.1. Effective March 2, 2010 the parties entered into an Agreement for Professional Services relating to Surveying Services for TRLIA’s Construction Program for an amount of $47,500 and a contract termination date of December 31, 2011.

   1.2. Effective August 3, 2010 the parties entered into the first Amendatory Agreement that increased the budget by $14,500 for a total contract amount of $62,000.

   1.3. Effective February 15, 2011 the parties entered into the second Amendatory Agreement that increased the budget by $75,000 for a total contract amount of $137,000.

   1.4. Effective January 17, 2012 the parties entered into the third Amendatory Agreement that extended the contract termination date to December 31, 2012.

   1.5. Effective August 28, 2012 the parties entered into the fourth Amendatory Agreement that increased the budget by $28,000 for a total contract amount of $165,000 and extended the contract termination date to December 31, 2013.

   1.6. Effective January 21, 2014 the parties entered into a fifth Amendatory Agreement that added an additional Task 11 (Upper Yuba River RE Support), reallocated tasks budgets, and extended the contract termination date to December 31, 2015.

   1.7. Effective February 17, 2015 the parties entered into a sixth Amendatory Agreement that increased the budget by $52,415 to a total contract amount of $217,415 and extended the contract termination date to December 31, 2016.
1.8. Article C.24 of the AGREEMENT, states that modifications or amendments to the terms of the AGREEMENT shall be in writing and executed by both parties;

1.9. TRLIA and the CONSULTANT desire to amend the AGREEMENT;

NOW, THEREFORE, TRLIA and the CONSULTANT agree as follows.

2. **Seventh Amendment to Agreement.** The Professional Services Agreement is hereby amended as follows:

2.1. The payment, budget, and not-to-exceed amounts, Condition B.1 in Attachment B to the Agreement for Professional Services between TRLIA and CTA Engineering and Surveying will be modified to add two additional tasks and increased by $190,700 to a total contract amount of $408,115. The budget increases for the added tasks and among the existing tasks are shown on the attached Exhibit 1.

2.2. The Termination Date in Clause 2 and A.2 is amended to extend to December 31, 2018.

3. **No Effect on Other Provisions.** Except for the amendments in Section 2, the remaining provisions of the Professional Services Agreement as amended shall be unaffected and remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on ________________, 2016.

THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

CTA ENGINEERING AND SURVEYING

_________________________  ____________________________
Paul G. Brunner            Kevin A. Heeney
Executive Director          Vice-President

ATTEST:

DONNA STOTLEMEYER
CLERK OF THE BOARD OF DIRECTORS

APPROVED AS TO FORM:

ANDREA P. CLARK
GENERAL COUNSEL
## CTA TRILIA Tasks and Budget

Revised April 6, 2016

<table>
<thead>
<tr>
<th>Task Description</th>
<th>Current Total Budget as of Amendment 6</th>
<th>Revised Total Budget for Amendment 7</th>
<th>Budget Increase</th>
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<tbody>
<tr>
<td>Task 1 - Segment 2 ROW Record Maps \ RE Support</td>
<td>$ 17,900</td>
<td>$ 42,200</td>
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<td>Task 2 - Segment 2 ROW Line Marking and ROS</td>
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<td>Task 3 - Segment 2 Rice Property Road Abandonment</td>
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<td>Task 4 - Setback Levee Land Use Mapping</td>
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<td>Task 5 - FRLRP Segment 1 RE Support</td>
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<td>Task 6 - FRLRP Segment 3 RE Support</td>
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<td>Task 7 - Upper Bear River RE Support</td>
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<td>Task 8 - WPIC RE Support</td>
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<td>Task 9 - Lower Yuba River RE Support</td>
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<td>Task 10 - Miscellaneous Survey Services</td>
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<td>$ 16,415</td>
<td>$ 5,000</td>
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<td>Task 11 - Upper Yuba River RE Support</td>
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<td>$ 49,930</td>
<td>$ 26,640</td>
</tr>
<tr>
<td>Task 12 - FESSRO Project RE Support *</td>
<td>$ -</td>
<td>$ 25,000</td>
<td>$ 25,000</td>
</tr>
<tr>
<td>Task 13 - Goldfields UFRR Project RE Support *</td>
<td>$ -</td>
<td>$ 50,000</td>
<td>$ 50,000</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>$ 217,415</strong></td>
<td><strong>$ 408,115</strong></td>
<td><strong>$ 190,700</strong></td>
</tr>
</tbody>
</table>

\* Amendment 7 New Tasks

Budget Increase $ 190,700
April 19, 2016

TO: Three Rivers Levee Improvement Authority Board
FROM: Paul G. Brunner, Executive Director
Doug Handen, Construction Manager
Claire Marie Turner, Project Manager
SUBJECT: Contract No. PH4 2016-01 200-yr Western Pacific Interceptor Canal (WPIC) West Levee Improvement Project, Sta. 0+00 to 310+00

Recommended Action:
Delegate the issuance of the final construction bid documents for the 200-yr WPIC West Levee Improvement Project (Station 0+00 to 310+00) to the Executive Director.

Background
TRLIA is proposing to improve the Western Pacific Interceptor Canal (WPIC) West Levee through the WPIC 200-Year Standard Project ("Project") to meet the California Department of Water Resources' Urban Levee Design Criteria for 200-year flood protection. The proposed project would correct geotechnical deficiencies related to seepage and slope stability along approximately 2 miles of the West Levee and would construct a landside access road along approximately 3.3 miles of the levee for future operations and maintenance activities. Levee remediation measures proposed for the West Levee include cutoff walls, drained berms, a stability berm, and landside fill. The project area is located in southern Yuba County, south of the town of Olivehurst and immediately east of State Route 70.

On April 5, 2016, TRLIA adopted the Western Pacific Interceptor Canal 200-Year Standard Project Final Initial Study and Mitigated Negative Declaration, the Mitigation Monitoring and Reporting Program, the Project, and authorized the filing of a Notice of Determination under the California Environmental Quality Act (CEQA).

Discussion
In order for the project to be completed in the 2016 construction season, the construction work needs to begin by July 1, 2016. Extending the construction into next year would add cost to the project. TRLIA staff is working on several key items that still need to be accomplished so that the construction work can proceed this year. These key items are incorporated into the items below.

Project Cost and Funding/EIP Program: The Engineer's Estimate for the construction cost of this project is $9,500,000. The State has approved the 200-yr WPIC West Levee Improvement Project for EIP funding (part of the UYLIP EIP agreement) and will share in the construction cost. The Funding Agreement cost sharing is Local 30% and State 70%. 

1053816.1
Permits: The following permits have been applied for and approvals are anticipated by June 2016. Construction work cannot proceed without the applicable permits.

- Central Valley Flood Protection Board Encroachment Permits (19020 Cut-off wall work and 19020-1 Berm/Access Corridor work)
  - Two encroachment permits were applied for incase the project needed to be separated into phases over two years due to USACE 408 delays
- U.S. Army Corps of Engineers 408 Permissions for 19020 and 19020-1
  - USACE delay in approval of the 408 permission to do cut-off wall work could push this portion of work into 2017.
- U.S. Army Corps of Engineers 404 Clean Water Act Individual Permit
- Regional Water Quality Control Board 401 Water Quality Certification
- California Department of Fish and Wildlife Lake and Streambed Alteration Agreement
- California Department of Fish and Wildlife Incidental Take Permit
- Union Pacific Railroad Permit
- PG&E agreement

Land acquisition: TRLIA is in the process of acquiring in fee the property that is needed for the project. The acquisition may not occur by the time construction is planned to begin; to this end, TRLIA is working with the property owners to obtain a Right of Entry to do the construction work while the fee acquisition takes place.

Bid Documents: Construction and proposed bid documents for the WPIC West Levee Improvement Project are currently being prepared based on the 100% design. The bid documents include plans, specifications, and Storm Water Pollution Prevention Plan that are anticipated to be ready to be issued for bid on April 27, 2016. The bid documents state that TRLIA reserves the right to award a contract based on the availability of funding, permits, and land possession. Bid results will be presented to the TRLIA Board for award.

Material Borrow Sources: The bid documents shall instruct the bidders that the Contractor is responsible for obtaining import material required to complete the project. The design engineer has determined that approximately 64,000 cubic yards (cut volume) are required to complete the project. The bid documents shall make reference to the Wheeler Ranch Detention Basin project as a potential import source that the Contractor may consider; however, the import source shall remain the responsibility of the Contractor. Contractors shall be encouraged to consider alternative, permitted sources of material (meeting contract specifications).

Anticipated schedule: The following are projected milestone dates and schedule for the bid and construction of the WPIC West Levee Improvement Project:

- **Completion of Bid Documents**: April 26, 2016
- **Advertise for Bid**: April 27, 2016
- **Open Bids**: May 27, 2016
- **Award of Bid**: June 7, 2016 (at TRLIA Board meeting)
- **Notice to Proceed for submittals**: June 8, 2016
- **Notice to Proceed for Construction**: June 24, 2016
- **Construction Period**: June 24, 2016 to October 31, 2016
**Fiscal Impact:**
Advertisement of the Project bid package does not have a direct fiscal impact. However, the forthcoming award of the contract will. The current estimated cost of the construction is approximately $9.5M.

Construction of the project is covered by the state/TRLIA UYLIP EIP funding agreement. Per the funding agreement the state/local cost share is 70/30. TRLIA’s near term cash flow projections show that there is a need to use the levee project funds (account 813) from the Yuba Levee Finance Authority (YLFA) to cover the local share for this project. The YLFA Board approved this action on April 13, 2016.

The reason for using the YLFA funds now instead of the original planned use which was to cover the 200-yr Goldfields project local share, is that the DWR retention/closeout funding for the Feather River and UYLIP EP projects is coming later than needed in order to meet cash flow needs to commence construction on the WPIC Project. The Feather EIP and UYLIP EIP retention/closeout state payments will be used to cover the local share for the 200-yr Goldfields project.

With YLFA 813 project funds TRLIA’s levee improvement work is fully funded; including the 200-yr Goldfields project.
TO: Three Rivers Levee Improvement Authority Board
FROM: Paul G. Brunner, Executive Director
       Doug Handen, Construction Manager
       Claire Marie Turner, Project Manager
SUBJECT: Contract No. PH4 2016-01
         200-yr Western Pacific Interceptor Canal (WPIC) West Levee Improvement
         Project Station 0+00 to 310+00

Recommended Action

Approve a contract Amendment 19 (Attach 1) in the amount of $1,533,361 to HDR Engineering, Inc. existing contract for the purpose of providing Construction Management (CM) Services for the 200-yr WPIC West Levee Improvement Project, and authorize Executive Director to sign and execute upon review of General Counsel.

Background

TRLIA is proposing to improve the Western Pacific Interceptor Canal 200-Year Standard Project (“Project”) to meet the California Department of Water Resources’ Urban Levee Design Criteria for 200-year flood protection. The proposed project would correct geotechnical deficiencies related to seepage and slope stability along approximately 2 miles of the West Levee and would construct a landslide access road along approximately 3.3 miles of the levee for future operations and maintenance activities. Levee remediation measures proposed for the West Levee include cutoff walls, drained berms, a stability berm, and landslide fill. The project area is located in southern Yuba County, south of the town of Olivehurst and immediately east of State Route 70.

On April 5, 2016, TRLIA adopted the Western Pacific Interceptor Canal 200-Year Standard Project Final Initial Study and Mitigated Negative Declaration, the Mitigation Monitoring and Reporting Program, the Western Pacific Interceptor Canal 200-Year Standard Project, and authorized the filing of a Notice of Determination under the California Environmental Quality Act (CEQA).

It is anticipated that the TRLIA Board will authorize the Executive Director to finalize and advertise the 200-yr WPIC bid documents at the April 19, 2016 TRLIA Board meeting.

Discussion

TRLIA has had success on completion and certification of prior construction projects in utilizing the project’s design consultant as the construction manager for the designed project. TRLIA staff believes that the personnel working on the design have important history and knowledge related to the design of the project that should be carried into the construction phase. The utilization of these personnel as part of the CM team serves to provide certain efficiencies during the course of
construction. These efficiencies tend to provide a smoother running project and also serve to reduce cost by eliminating duplication in staffing.

The attached HDR proposal, Amendment 19, in the amount of $1,533,361 is a time and material proposal. TRLIA will compensate HDR for only the actual hours work and materials utilized. HDR has provided the attached proposal (Attachment 2) for Construction Management services based on the anticipated duration of the construction of the project. The budget for services is based on the duration of the construction work and corresponding staffing as required for construction documentation and corresponding certification.

Construction Management Scope

The attached proposal provides detail as to the scope of services to be provided in the Construction Management contract. The following is a summary of the major activities and requirements included:

- Contract Administration
- Quality Assurance Inspection and Testing
- Geotechnical Quality Assurance
- Verification Surveys during and post construction
- Photo Documentation
- Final Construction Summary Report

Fiscal Impact:

The proposed contract amendment with HDR represents the 19th Amendment to the original contract with HDR. The current total contract with HDR is $11,109,186 if this amendment is approved and executed, the total revised contract amount shall be $12,642,547.

This project covered by the state/TRLIA UYLIP EIP funding agreement. Per the funding agreement the state/local cost share is 70/30.

TRLIA’s near term cash flow projections show that there is a need to use the levee project funds (account 813) from the Yuba Levee Finance Authority (YLFA) to cover the local share for this project. The YLFA Board approved this action on April 13, 2016.

The reason for using the YLFA funds now instead of the original planned use which was to cover the 200-yr Goldfields project local share, is that the DWR retention/closeout funding for the Feather River and UYLIP EIP projects is coming later than needed in order to meet cash flow needs to commence construction on the WPIC Project. The Feather EIP and UYLIP EIP retention/closeout state payments will be used to cover the local share for the 200-yr Goldfields project.

With YLFA 813 project funds TRLIA’s levee improvement work is fully funded; including the 200-yr Goldfields project.

Attachments:
1. Contract Amendment No. 19
2. Scope of Work and Fee Summary
NINETEENTH AMENDMENT
TO
AGREEMENT FOR PROFESSIONAL SERVICES
BETWEEN
THREE RIVERS LEVEE IMPROVEMENT AUTHORITY
AND
HDR ENGINEERING, INC.

THIS NINETEENTH AMENDATORY AGREEMENT is made and entered into this ___ day of ___________ 2016, by and between the Three Rivers Levee Improvement Authority, ("TRLIA"), a California Joint Powers Authority, and HDR Engineering, Inc. ("CONSULTANT").

WHEREAS, TRLIA and CONSULTANT entered into an agreement on December 13, 2005 to provide professional services for Engineering Design and Environmental Studies for Phase 4 Levee Repairs - Upper Yuba River, Continuation of Phase 2 Construction Management (2006), and FEMA Certification of Contract Work ("Agreement");

WHEREAS, a FIRST AMENDATORY AGREEMENT, executed February 14, 2006, increased the maximum not to exceed contract fee from $2,580,038 by $118,955 to $2,698,993; and

WHEREAS, a SECOND AMENDATORY AGREEMENT, executed March 7, 2006, increased the maximum not to exceed contract fee from $2,698,993 by $117,649 to $2,876,642; and

WHEREAS, a THIRD AMENDATORY AGREEMENT, executed August 8, 2006, increased the maximum not to exceed contract fee from $2,876,642 by $661,193 to $3,537,835; and

WHEREAS, a FOURTH AMENDATORY AGREEMENT, executed October 16, 2007, increased the maximum not to exceed contract fee from $3,537,835 by $280,000 to $3,817,835; and

WHEREAS, a FIFTH AMENDATORY AGREEMENT, executed August 5, 2008, increased the maximum not to exceed contract fee from $3,817,835 by $954,524 to $4,772,359; and

WHEREAS, a SIXTH AMENDATORY AGREEMENT, executed September 9, 2008, extended the time of services rendered to December 31, 2009; and

WHEREAS, a SEVENTH AMENDATORY AGREEMENT, executed May 12, 2009, increased the maximum not to exceed contract fee from $4,772,359 by $2,416,874 to $7,189,233 and extended the time of services rendered to December 31, 2010; and

WHEREAS, an EIGHTH AMENDATORY AGREEMENT, executed September 15, 2009 increased the maximum not to exceed contract fee from $7,189,233 by $155,846 to $7,345,079; and

WHEREAS, a NINTH AMENDATORY AGREEMENT, executed July 20, 2010 increased the maximum not to exceed contract fee from $7,345,079 by $1,473,064 to $8,818,143; and

WHEREAS, a TENTH AMENDATORY AGREEMENT, executed August 12, 2011 increased the maximum not to exceed contract fee from $8,818,143 by $162,879 to $8,981,022; and
WHEREAS, an ELEVENTH AMENDATORY AGREEMENT, executed October 18, 2011 increased the maximum not to exceed contract fee from $8,981,022 by $636,668 to $9,617,690; and

WHEREAS, a TWELFTH AMENDATORY AGREEMENT, executed February 21, 2012 increased the maximum not to exceed contract fee from $9,617,690 by $50,000 to $9,667,690 and extended the contract date to December 31, 2013; and

WHEREAS, a THIRTEENTH AMENDATORY AGREEMENT, executed September 18, 2012 increased the maximum not to exceed contract fee from $9,667,690 by $59,762 to $9,727,452; and

WHEREAS, a FOURTEENTH AMENDATORY AGREEMENT, executed October 24, 2012 increased the maximum not to exceed contract fee from $9,727,452 by $29,873 to $9,757,325; and

WHEREAS, a FIFTEENTH AMENDATORY AGREEMENT, executed May 7, 2013 increased the maximum not to exceed contract fee from $9,757,325 by $625,084 to $10,382,409; and

WHEREAS, a SIXTEENTH AMENDATORY AGREEMENT, executed January 21, 2014 extended the Termination Date of the Agreement to December 31, 2014; and

WHEREAS, a SEVENTEENTH AMENDATORY AGREEMENT, executed October 21, 2014 increased the maximum not to exceed contract fee by $726,777 from $10,382,409 to $11,109,186, and extended the Termination Date of the Agreement to December 31, 2015 WHEREAS, Article C.24 of the AGREEMENT, states that modifications or amendments to the terms of the AGREEMENT shall be in writing and executed by both parties; and

WHEREAS, a EIGHTEENTH AMENDATORY AGREEMENT, executed December 15th, 2015 extended the Termination Date of the Agreement to December 31, 2017; and

WHEREAS, TRLIA and CONSULTANT desire to amend Agreement;

NOW, THEREFORE, TRLIA and CONSULTANT agree as follows:

1. Exhibit A of AGREEMENT shall be amended to perform those additional services as described in Exhibit A of this NINETEENTH AMENDMENT.

2. ATTACHMENT B, Provision B.1 of the Agreement shall be revised to increase the maximum not to exceed contract fee from $11,109,186 by $1,533,361 to $12,642,547.

All other terms and conditions contained in AGREEMENT shall remain in full force and effect.

This Amended agreement is hereby executed on this ____ day of ________________, 2016.
Scope and Fee Estimate for WPIC West Levee Improvements

Construction Management (Amendment No. 19)

Three Rivers Levee Improvement Authority

Yuba County, CA

April 1, 2016
Project Understanding

During the last 10 years, the Three Rivers Levee Improvement Authority (TRLIA) has designed and constructed improvements to the levees within their jurisdiction in order to attain accreditation from the Federal Emergency Management Agency (FEMA) for a 100-year level of flood protection. On May 27, 2010, the TRLIA levee systems attained FEMA accreditation for a 100-year level of flood protection.

The State of California (Senate Bill 5, 2007) has mandated that levees protecting urban or urbanizing areas, defined as those areas that have or are projected to have populations of 10,000 persons or more, shall have a 200-year level of flood protection by the year 2025. The California Code of Regulations requires that the agency responsible for the flood protection system have a plan for attaining a 200-year level of flood protection by the year 2016. The State of California Department of Water Resources (DWR) provided engineering criteria for a 200-year flood event the Urban Levee Design Criteria (ULDC).

As part of Amendments 13 and 15 to the original TRLIA contract (HDR Contract number 0071393), HDR Engineering, Inc. (HDR) evaluated the Western Pacific Interceptor Canal (WPIC) West Levee and the Bear River North Levee (east of the setback levee constructed in 2006) for compliance with the ULDC. Of the total 6.3 miles of the WPIC West Levee, HDR identified 2.1 miles that did not meet ULDC for geotechnical purposes. The 0.8 miles of the Bear River North Levee (east of the setback levee) evaluated met ULDC for geotechnical purposes.

HDR developed levee improvement measures for each of the ULDC deficient reaches, as summarized in the Final Geotechnical Alternatives Analysis report dated December 5, 2014. Where multiple levee improvement measures were identified for a specific reach, TRLIA and representatives from the project team (HDR, MBK Engineers, AECOM, and Bender-Rosenthal) evaluated the remedial measures. Remedial measures selected for final design are summarized in Table 1.

Table 1. WPIC Levee Improvement Features

| Levee | Reach | Start Station | End Station | Length (ft) | Levee Improvement Feature
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>WPIC</td>
<td>1B</td>
<td>10+50</td>
<td>23+50</td>
<td>1,300</td>
<td>73' deep cutoff wall</td>
</tr>
<tr>
<td>WPIC</td>
<td>2B</td>
<td>115+00</td>
<td>118+00</td>
<td>300</td>
<td>Ditch backfill to Elevation 45' (NAVD88)</td>
</tr>
<tr>
<td>WPIC</td>
<td>3</td>
<td>145+50</td>
<td>165+60</td>
<td>2,100</td>
<td>55' deep cutoff wall</td>
</tr>
<tr>
<td>WPIC</td>
<td>4</td>
<td>190+00</td>
<td>195+00</td>
<td>500</td>
<td>2' tall drain berm</td>
</tr>
<tr>
<td>WPIC</td>
<td>4C</td>
<td>195+00</td>
<td>216+00</td>
<td>2,100</td>
<td>2' tall drain berm</td>
</tr>
<tr>
<td>WPIC</td>
<td>4E</td>
<td>239+50</td>
<td>247+50</td>
<td>800</td>
<td>50' deep cutoff wall</td>
</tr>
<tr>
<td>WPIC</td>
<td>5B</td>
<td>260+00</td>
<td>277+00</td>
<td>1,700</td>
<td>10' tall stability berm</td>
</tr>
<tr>
<td>WPIC</td>
<td>5D</td>
<td>287+00</td>
<td>310+50</td>
<td>2,350</td>
<td>Landside toe low area fill to Elevation 52' (NAVD88)</td>
</tr>
</tbody>
</table>

As part of Amendment 17 to the original TRLIA contract (HDR Contract number 0093437), HDR completed engineering design to the 100% submittal stage for the WPIC Levee improvement features shown in Table 1 above. In addition to the levee improvement features presented in Table 1, an access road will be constructed from about Station 136+00 to 308+00 along the WPIC West Levee landside toe. As part of Amendment 17, HDR will continue to work on the engineering design of the WPIC Levee improvements through the bid documents.
TRLIA has requested HDR prepare this scope of work (SOW) and fee estimate for the
construction management of the WPIC West Levee improvements presented in Table 1 and
shown on the 100% plan set (and later bid documents).

A preliminary project schedule has been prepared and is included herein. For the purpose of
this SOW, it is assumed that construction of the WPIC West Levee improvements will occur
within one construction season beginning on July 1, 2016 and ending by December 31, 2016. It
is assumed that pre-construction activities will begin in June 2016 and post-construction
activities will finish by February 28, 2017.

Scope of Work
HDR will provide construction management services during construction of the WPIC West
Levee improvements. HDR will administer the construction contract established between TRLIA
and the Contractor and will provide Quality Assurance (QA) services.

This SOW has been divided into 8 tasks:

1. Project Management
2. Contract Administration
3. Engineering Services during Construction
4. Geotechnical QA Inspection and Testing
5. Agency Coordination
6. Final Completion/Project Closeout
7. Construction and Post-Construction Survey
8. Construction Documentation

1 Project Management

1.1 Project Management
HDR’s project manager will manage the construction management contract scope, schedule,
and budget for all HDR Team project activities. In addition, the project manager will coordinate
with the client, sub-consultant teams, agencies and stakeholders throughout the duration of the
project. HDR will help facilitate coordination between TRLIA, United States Army Corps of
Engineers (USACE), DWR, the Central Valley Flood Protection Board (CVFPB), local
reclamation districts, and other agencies involved to discuss design issues throughout the
duration of the project. The project manager will oversee the construction management staff and
office staff for all segments of this SOW.

HDR’s project manager will prepare the Project Guide for this SOW, which will include
descriptions of the project team, contact information, communication protocols, SOW and task
assignments, technical requirements, a detailed schedule, budgets, project administration and
documentation protocols. The Project Guide will be distributed to the HDR Team members and
TRLIA and be updated as needed.
Deliverables

- Project Guide (submitted electronically)

Assumptions

- Contract duration is from June 2016 to February 2017.

1.2 Progress Reports and Invoicing

HDR will prepare monthly progress reports that document project activities and update the project schedule and budget status. Items that the progress report will include are:

1. Financial status summary including an earned value analysis by task
2. Project schedule and deliverables
3. Current activities list
4. Issues list (design, schedule, and QA/QC issues)
5. QA/QC review status
6. Decision log

Deliverables

- Monthly progress reports
- Monthly schedule updates

Assumptions

- None

1.3 Progress Meetings

HDR will participate in monthly calls or meetings with TRLIA, MBK and representatives from TRLIA’s environmental and Right of Way (ROW) consultants. The intent of the monthly progress meetings will be to discuss the overall program progress and outstanding issues, including coordination, schedule and agency coordination.

Deliverables

- None

Assumptions

- HDR team representatives will include the project manager and specific design leads, as appropriate.

2 Contract Administration

2.1 Document Control

HDR will act as the communication hub for the project and will be responsible for the coordination and filing of construction related documents. All communication and correspondence to and from the Contractor, TRLIA, HDR and HDR’s sub-consultants will go
through HDR’s construction management team. This task involves processing and controlling large volumes of paperwork.

All documents will be filed in accordance with the Local Assistance Procedures Manual for conformance with federal contract administration requirements. TRLIA will be copied on all correspondence. Typical documents copied to TRLIA during the contract will include, but not limited to, the following:

- Contractor/Resident Engineer correspondences
- Contractor submittals
- Requests for information (RFI)
- Contract change order (CCO)
- Claims
- Traffic control and safety issues
- Public relation issues
- Weekly statement of working days
- Progress pay recommendations

2.1.1 Submittal Management
The Project Specifications require the Contractor to provide construction submittals for the various elements of work. Upon receipt of a construction submittal the Resident Engineer will date stamp and log the submittal then distribute it to the appropriate review parties in accordance with the Project Specifications. The Resident Engineer will provide submittal review time frames in accordance with the Project Specifications.

2.1.2 Request for Information (RFI)
HDR will manage Contractor submitted RFIs during construction. RFIs will be addressed by HDR’s construction management team, HDR’s design team, TRLIA, or others as needed. The Resident Engineer will log and track the RFIs to assure timely response, conduct meetings with the Contractor and/or others as needed for RFI resolution, and prepare responses to the Contractor.

2.1.3 Contract Change Order (CCO)
CCOs will be issued to the Contractor on behalf of TRLIA. The Resident Engineer will evaluate, negotiate (as directed by TRLIA), and prepare all CCOs. In reviewing potential CCOs, the Resident Engineer will:

- Keep TRLIA informed on status of all CCOs
- Maintain a log of proposed CCOs, indicating action dates and status
- Identify source of potential CCO (owner-directed, unforeseen site conditions, etc.)
- Determine if the condition is actually a changed condition and document if valid
- Coordinate with TRLIA and the design team regarding impacts to the definable features of work
- Independently evaluate cost and schedule impacts of CCOs and document findings
- Determine if extra working days are warranted due to schedule/critical path impacts
2.1.4 Claims Management
The Resident Engineer will evaluate, log, and prepare documents and supporting evidence in all claims during the construction period. Each claim and supporting documents will be assembled into a report and submitted to TRLIA for their review and use. HDR will be available to provide additional support if further actions are required after the construction is complete.

2.1.5 Schedule Management
The Resident Engineer will review both the base construction schedule and schedule updates to confirm adherence to the Project Specifications and progress of work. Three-week look-ahead schedules will be requested by the Resident Engineer from the Contractor. Submitted schedules will be noted as acceptable or returned with corrections for Contractor resubmittal. CCOs, Contractor delay, and weather impacts will be analyzed to determine schedule impact. In addition, a Weekly Statement of Working Days will be developed by the Resident Engineer and submitted to the Contractor.

Deliverables
- Correspondence
- Submittals
- RFIs
- CCOs
- Claims
- Schedule updates
- Weekly Statement of Working Days

Assumptions
- One (1) full-time Resident Engineer will be needed (6 days/week) through the duration of the construction project (assumed 27 weeks)
- One (1) part-time document controller will be needed (3 days/week) through the duration of the construction project (assumed 27 weeks)

2.2 Payment Control

2.2.1 Project Payments
The Resident Engineer will review the project pay estimate submitted by the Contractor. Each contract pay item will be verified with our field measurement and confirmed by the Inspector’s Field Daily Reports. Quantity justifications for each item of work will be filed independently in the project files. Estimate verification will include any increase/decrease in cost as a result of approved CCOs. Once the Resident Engineer has found the payment acceptable, he will submit it to TRLIA for processing.
2.2.2 Certified Contractor and Sub-Consultant Payrolls/DBE Verification

The Resident Engineer will review and coordinate all Contractor and HDR’s sub-consultant certified payroll manpower utilization reports and compare them against the Inspector’s Field Daily Reports. This includes confirming Labor Compliance Program in accordance with AB 1506 and the Davis-Bacon Act. The Resident Engineer will verify that the Contractor has conformed to the contract Disadvantaged Business Enterprise (DBE) requirements. The Resident Engineer will perform Contractor and sub-contractor employee interviews following State and Federal guidelines twice a month. The Resident Engineer will also verify that the Contractor posts all specified posters, notices, and wage determinations at the job site.

Deliverables

- Project Pay Estimate

Assumptions

- One (1) full-time Resident Engineer will be needed in combination with Document Control task (6 days/week) through the duration of the construction project (Assumed 27 weeks)

3 Engineering Services during Construction

3.1 Meetings

3.1.1 Kick-Off Meeting

HDR will attend a kick-off meeting with TRLIA, the Contractor, and HDR’s sub-consultants to discuss the definable features of the project. The intent of this meeting is to review contract administration procedures, document control responsibilities, and meet key staff.

3.1.2 Construction Progress Meetings

HDR will hold weekly construction progress meetings with TRLIA, the Contractor, and other agencies, as required, to identify work completed, plan and coordinate activities for the coming weeks, discuss project issues and potential problems, and facilitate solutions to construction issues. HDR will provide the meeting agenda, record and transcribe the meeting minutes, assign action items, and distribute/review previous meeting minutes to relevant parties in order to put closure to completed items.

Deliverables

- Meeting agendas
- Meeting minutes

Assumptions

- Meetings will be held at the Contractor’s field office
- Meetings will last 1 to 4 hours through the duration of the construction project
3.2 Inspections

3.2.1 Design Team Inspections
HDR is the designer of record for the WPIC West Levee improvements and will conduct design inspections on an as needed basis to confirm construction activities are proceeding in general conformance with the Project Plans and Specifications, and other applicable documents. This work will be performed by HDR when already on site (e.g., for Contractor meetings). Design inspections would include observations of borrow activities, earthwork, and cutoff wall construction (does not include trench logging, which is included in Task 4) on an as needed basis.

Deliverables
- Design inspections Field Daily Report

Assumptions
- Design inspections will coincide with on-site meetings and other milestones.

3.2.2 Resident Engineer Oversight and Construction Management Inspections
The Resident Engineer will prepare a daily diary of project events and conversations between HDR and the Contractor. The Resident Engineer will serve as the point of contact for coordination among TRLIA, HDR’s design team, the Contractor, inspectors, material testers, utility companies, and respond to permit requirements per the permit administrator. The Resident Engineer’s responsibilities include, but are not limited to:

- Preparation of construction management reports
- Clarifications and interpretations of contract documents
- Oversight of testing and documentation
- Oversight of inspection and documentation
- Oversight of correction of defective work
- Utility Coordination
- Prepare punch list and update As-Built record drawings as the work progresses
- Monitor traffic detours/lane closures and verify that they are opened in a timely manner

HDR will also provide construction inspection to confirm that the construction complies with the Project Plans, Specifications, and other applicable documents. Inspectors will develop daily inspection field dailies for documentation of the project progress and as part of the QA program. Furthermore, these reports may be used in support of extra work billings, contract disputes, differing site conditions, and As-Built record drawings. The inspector’s responsibilities include:

- Provide day-to-day written inspection reports on work performed by the Contractor, including work activities, issues encountered and solutions agreed upon, weather, and progress photos of the work and field conditions
- Document work performed and manpower
- Schedule QA material testing, flag deficiencies, and coordinate corrective measures as required for failing tests
- Confirm construction activities are proceeding in general conformance with the Project Plans and Specifications and provide feedback on proposed remedial action from the Contractor
- Perform quantity estimations based on completed work for progress payments

HDR will document the Contractor's progress through video taping and digital photography with date and time of the recording included in the imagery. Photos and videos would be taken during inspections and field visits with hand held devices. HDR will document non-compliance issues as well as other site conditions as requested by TRLIA.

**Deliverables**
- Resident Engineer Field Daily Reports, including photo documentation
- Test results

**Assumptions**
- One (1) full-time Resident Engineer will be needed in combination with Contract Administration task (Task 2) (6 days/week) through the duration of the construction project (assumed 27 weeks)
- One (1) additional Resident Engineer will be needed on a part-time basis during the night shift work (6 days/week) through the duration of the cutoff wall construction (assumed 7 weeks)
- One (1) full-time Inspector will be needed (6 days/week) through the duration of the construction project (assumed 27 weeks)
- One (1) additional Inspector will be needed on a part-time (10 hours/week) basis during peak construction times (assumed 20 weeks)

3.2.3 **Review of Contractor Surveys**
HDR will review contractor surveys to confirm that work is completed in accordance with the Construction Documents and to confirm in-place quantities for Contractor progress payments.

**Deliverables**
- Calculated quantities and any deviations from bid quantities

**Assumptions**
- The Contractor will provide Contractor survey data in AutoCAD format for comparison

3.3 **Storm Water Pollution Prevention**
HDR will review the Contractor's management of the Storm Water Pollution Prevention Plan (SWPPP) and confirm the SWPPP is managed in accordance with the Regional Water Quality Control Board (RWQCB) General Permit. HDR's responsibilities include:
- Uploading SWPPP documents into the Storm Water Multi Application Reporting and Tracking System (SMARTS)
- Submitting Notice of Intent and the Notice of Termination to the State Water Resources Control Board
• Reviewing the Contractor's management of the SWPPP for contract compliance and accept/reject
• Confirm Contractor has placed appropriate Best Management Practices (BMPs) onsite and addressed the BMPs and pollution risk in the SWPPP
• Confirm Contractor has placed approved storm water run-off and run-on controls
• Confirm Contractor develops a Rain Event Action Plan (REAP) 48-hours prior to a rain event probability of 50% or greater
• Verify Risk Level Monitoring Requirements Adherence Numeric Action Level are enforced
• Inspect and document Contractor's management of the SWPPP
• View "discharge" location(s) within 24 hours of each Rain Event, and report illicit discharges, if any
• Provide oversight of any Contractor required repairs and adjustments to project BMPs

Deliverables
• None

Assumptions
• Oversight of the Contractor's management of the SWPPP will be performed by the Inspector at a minimum of every week, immediately before a rain event, every 24 hours during a rain event, and immediately after a rain event
• Development of the Notice of Termination will be prepared based on field photograph and videos taken by the Inspector
• SWPPP is a living document and needs to be continually updated and documented.

4 Geotechnical QA Inspection and Testing

4.1 Geotechnical QA Testing
HDR will provide geotechnical QA testing for the WPIC West Levee improvements construction. This task includes on-site observation and testing, laboratory testing, engineering oversight, and preparation of a final QA report summarizing soil placement and materials sampling. The laboratory testing is outlined below.

4.1.1 Inspection and QA Testing
A Construction Inspector will be provided on a full-time basis for QA and observation of earthwork and grading activities related to levee degrade, working platform construction of temporary clay cap, construction of berms, random earthwork fills, development of the borrow site, final levee embankment, and new gravel and asphalt base sections.

QA field and laboratory testing will be performed at a rate of approximately one (1) test for every five (5) Contractor QC tests. If QA testing is performed at a different frequency, the fee estimate will vary. QA earthwork field and laboratory test results will be included in the final geotechnical testing QA report.
Engineering office support during construction will include attending meetings, reviewing project documents including submittals, RFIs, and CCOs, and providing a weekly summary of field and laboratory test results.

**Deliverables**

- Final geotechnical testing QA report (included in the Construction Documentation Report, see task 8.1)

**Assumptions**

- One (1) full-time Construction Inspector will be needed (6 days/week) through the duration of the earthwork portion of the construction project (15 weeks total; 4 weeks for earthwork construction prior to cutoff wall construction, 7 weeks for cutoff wall construction, and 4 weeks for earthwork construction after cutoff wall construction.)
- One (1) full-time Construction Inspector/Staff Geotechnical Engineer will be needed during cutoff wall construction for night shift work (7 weeks total.)
- Field personnel will be subject to prevailing wages under California State Law for public works projects.
- One (1) part-time Staff Geotechnical Engineer will be needed (12 hours/week) through the duration of the earthwork portion of the construction project (15 weeks total)
- One (1) part-time Principal Geotechnical Engineer will be needed (6 hours/week) through the duration of the earthwork portion of the construction project (15 weeks total)
- This QA scope and the attached cost estimate are based on assumed durations and should be revised once the contractor’s construction schedule is available.
- QA Laboratory testing will include per the Project Specifications:
  - ASTM D1556 Sand Cone Density Test
  - ASTM D698 Standard Proctor Compaction Curve
  - ASTM D698 Two Point Standard Proctor Compaction Curve Check Point
  - ASTM D2216 Moisture Content
  - ASTM D698 Compaction Test (Aggregate Base)
  - ASTM D2487 USCS Classification
  - ASTM D422 Soil Gradation
  - ASTM D4318 Atterberg Limits
  - ASTM D5084 Permeability
  - ASTM D6938 Nuclear Gauge Density Test
  - ASTM C117 Bulk Sample Gradation
  - ASTM C39 Compressive Strength
  - Asphalt Concrete density tests – Marshall Method

**4.1.2 Geotechnical Trench Logging**

HDR will provide a QA inspector/engineer who will perform geotechnical trench logging of the open trench cutoff walls and deep mix method (DMM) cutoff wall for the WPIC West Levee improvement construction. As part of the trench logging, HDR will develop a cutoff wall trench log, documentation, and communication plan. This plan will be the basis for QA logging and documentation during construction of the cutoff walls.
The QA inspector/engineer will document the materials encountered during the excavation for the slurry walls. The QA inspector/engineer will evaluate whether the materials encountered at the target design depths are consistent with the design assumptions and whether the cutoff wall can be terminated at the design depths. If needed, the QA inspector/engineer will recommend deepening of the cutoff wall, using the agreed communication protocols, to a depth of up to ten (10) feet, per the Project Specifications. If the desired key-in materials are not encountered within the estimated design depth plus ten (10) feet, the QA inspector/engineer will immediately inform HDR’s Resident Engineer. The QA inspector/engineer will also perform or observe performance of field testing of trench slurry, sounding of the trench bottom, mixing of soil-bentonite (SB) backfill, field testing of SB backfill, and preparation of SB backfill samples for laboratory testing. Laboratory testing will be performed on the samples of the SB backfill for gradation (ASTM D422) and permeability (ASTM D5084).

For the DMM cutoff walls, the QA inspector/engineer will review results of the pre-construction explorations (Borings and CPTs) in real time to evaluate whether the results match with the assumed design conditions. The QA inspector/engineer will also determine the need for advancing the pre-construction explorations beyond the target depths based on currently proposed wall depths. Based on the findings of the pre-construction explorations, the QA inspector/engineer will provide a recommended target depth to the Contractor, using the agreed communication protocols, if there is a need for deepening the cutoff wall up to ten (10) feet, per the Project Specifications. If the desired key-in materials are not encountered within the estimated design depth plus ten (10) feet, the QA inspector/engineer will immediately inform HDR’s Resident Engineer. During the DM M wall construction, the QA inspector/engineer will document the as-constructed cutoff wall depths. The QA inspector/engineer will also observe performance of the DMM equipment including the batch plant and the preparation of soil cement bentonite (SCB) backfill samples for laboratory testing. Laboratory testing will be performed on the samples of the SCB cutoff wall material for bulk gradation (ASTM C117), compressive strength (ASTM C39), and permeability (ASTM D5084).

The QA inspector/engineer will prepare cutoff wall trench logs during the cutoff wall excavations that will be included in the final geotechnical QA testing report. QA cutoff wall field and laboratory test results will be included in the final geotechnical testing QA report.

**Deliverables**

- Trench log documentation
- Laboratory testing results of slurry mix

**Assumptions**

- Cutoff wall construction will be 24-hours per day, 6-days a week and completed in 2-shifts
- Three cutoff wall headings (2-open trench and 1-DMM) will be completed during the 2016 construction season
- The open trench and DMM cutoff walls will not be completed simultaneously
- Assumed duration of slurry wall construction is 7 weeks
• For each work shift of the open trench cutoff wall construction, one (1) QA inspector/engineer will be at each heading
• For each work shift of the DMM cutoff wall construction, one (1) QA inspector/engineer will be at each heading
• A total of 50 rig shifts are estimated for the DMM cutoff wall and 44 rig shifts are estimated for the open trench cutoff walls. It is estimated that there will be an approximately two (2) week period when up to two (2) additional QA inspector/engineers may be needed for QA observation.
• Coring of the DMM wall is not included

5 Agency Coordination
HDR will coordinate with other members of the TRLIA team (including the environmental, public outreach and real estate teams) as needed and as directed by TRLIA to discuss design issues, meet program needs, and to help facilitate project approvals

HDR will attend coordination meetings with TRLIA’s environmental and right of way teams on an as needed basis.

Deliverables
• None

Assumptions
• Up to 10 meetings in Yuba City will be required for public outreach.

6 Final Completion/Project Closeout
The post-construction services include project closeout after issuance of substantial completion of construction from the Contractor. This task will consolidate punch lists of remaining work, compile record drawing information, and provide one (1) copy of marked-up red-lines of the project drawings to HDR’s design team.

6.1 Punch List
In accordance with “Final Inspection” of the Project Specifications, after the Contractor has completed all deficient items noted on the final punch list and final clean-up prior to Contractor de-mobilization, the Resident Engineer will coordinate all closeout procedures. This includes a final walk-through of the project with TRLIA, and other personnel or agencies that have a vested interest in the completed facilities. HDR will review TRLIA of key milestones such as substantial completion and liquidated damage issues, coordinate closeout procedures, and monitor the Contractor’s progress to finalize all project records, complete and correct As-Built record drawings, and other documentation required by the contract documents. Ultimately, HDR will prepare and advise TRLIA on final payment and contract documentation.

Deliverables
• Final payment forms
Assumptions
- None

6.2 Record Drawings
HDR will obtain the Contractor's A s-Built record drawings, required documents, lien releases, and written warranties. Based on CCQs and field revisions to the construction drawings, HDR will compile record drawings of the WPIQ West Levee constructed improvements. This set of record drawings will show the reported location of the work and significant changes made during the construction process. Because these record drawings are based on unverified information provided by other parties that will be assumed reliable, HDR cannot and does not warrant their accuracy. It is assumed that no changes will be made to title sheets, standard details, demolition/staging, traffic control plans, and the horizontal control plan.

HDR will review these documents and make a recommendation to TRLIA regarding final acceptance. On acceptance of the final inspection, the Resident Engineer and Inspector will perform a final review of the record drawings. Once the final review is complete, drawings will be submitted to TRLIA.

Deliverables
- Record drawings

Assumptions
- Information provided by the Contractor is assumed reliable.

7 Construction and Post-Construction Survey
HDR will provide surveying services prior to, during and after construction is completed, including the following:
- Establish Survey Control for Construction
- Stake Temporary Construction Easement
- Interim As-Built Surveys
- Post Construction As-Built Verification
- Pre and Post Construction Survey of the borrow site

Verification of the final grade will be accomplished by ground surveys to establish a 3-D surface, complete with cross-sections at 200-foot intervals. All control surveys will be supported by field notes, record documents and electronic drawing files in ACAD 2004 or newer format.

Deliverables
- Tabular report and exhibit showing horizontal positions, elevations and description of control monuments for survey control
- Exhibit showing delineation of current site conditions for Interim As-Built Survey
- Exhibit in AutoCAD Civil 3D showing design lines and grades and the final finished construction lines and grades based on field surveys
Assumptions

- Up to 10 Interim As-Built Surveys will be requested

8 Construction Documentation

8.1 Construction Documentation Report

HDR will prepare a construction documentation report upon completion of all construction activities for WPIC West Levee improvement project and after receipt of all contractor reports, surveys, and documentation. The construction documentation report will generally include the following:

- Project overview and description
- Summary of criteria and standards used to develop the approved design plans
- Summary of design process
- QA/QC Procedures and Test Results
- Material Testing Results
- Construction Plan and Profile sheets
- Cutoff Wall Profiles
- Preconstruction, during construction and post construction photographs
- Summary of issues encountered during construction
- Summary of deviations from the approved Construction Documents
- Provide an opinion as to whether the project was constructed in substantial conformance with the Construction Documents.

Deliverables

- Draft and Final Construction Documentation Report (submitted electronically)

Assumptions

- Contractor QA/QC reports and As-Built record drawings will be provided to HDR
- Draft Construction Documentation Report will be submitted to TRLIA, MBK and agencies for one round of review prior to preparing the Final Construction Documentation Report

8.2 Conform Drawings

Upon completion of the construction contract, HDR will compile a set of Conformed Documents. The Conformed Documents (plans and specifications) will be based on Contractor provided marked-up drawings and specifications, data furnished to HDR by the Contractor, and changes from CCOs and issued revisions. The intent of the Conform Documents is to show the reported locations of the work and significant changes made during the construction process. It is assumed that no changes will be made to title sheets, standard details, demolition/staging, traffic control plans, and the horizontal control plan.

Deliverables

- Conform Drawings and Specifications (submitted electronically)
Assumptions

- As-Built record drawing information including changes will be provided by the Contractor

9 Project Schedule

The preliminary project schedule provided below provides the basis for the work effort anticipated for this SOW. The contractor will provide a construction schedule prior to the start of construction which may differ from the start times and duration shown here.

Preliminary Schedule

<table>
<thead>
<tr>
<th>Task</th>
<th>Start Date (Weeks to Complete)</th>
</tr>
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<tbody>
<tr>
<td>Notice to Proceed</td>
<td>6/7/2016</td>
</tr>
<tr>
<td>Mobilization/Submittal Review</td>
<td>6/7/2016 (6 weeks)</td>
</tr>
<tr>
<td>Clearing, grubbing, and stripping</td>
<td>7/19/2016 (4 weeks)</td>
</tr>
<tr>
<td>Levee degrade, road construction, and landslide fills</td>
<td>8/16/2016 (4 weeks)</td>
</tr>
<tr>
<td>Cutoff Wall Construction</td>
<td>9/13/2016 (7 weeks)</td>
</tr>
<tr>
<td>Levee re-construction</td>
<td>11/1/2016 (4 weeks)</td>
</tr>
<tr>
<td>Levee re-surfacing</td>
<td>11/29/2016 (3 weeks)</td>
</tr>
<tr>
<td>Hydroseeding</td>
<td>12/20/2016 (1 week)</td>
</tr>
<tr>
<td>Demobilization/Site Clean-Up</td>
<td>12/27/2016 (3 weeks)</td>
</tr>
<tr>
<td>Provide all as-built/record drawings and contract close-out reports</td>
<td>by 12/31/2016</td>
</tr>
<tr>
<td>Construction Documentation Report</td>
<td>by 1/31/2017</td>
</tr>
</tbody>
</table>