PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

BOARD OF DIRECTORS
ROBERT E. ALVARADO
Division 1
JOE ESTES
Division 2
MARCO HENRIQUEZ
Division 3
KATHY MAC LAREN
Division 4
VINCENT DINO
Division 5

DENNIS LaMOREAUX
General Manager
ALESHIRE & WYNDER LLP
Attorneys

July 17, 2018

# AGENDA FOR A SPECIAL MEETING OF THE BOARD OF DIRECTORS OF THE PALMDALE WATER DISTRICT to be held at the District's office at 2029 East Avenue Q, Palmdale

## WEDNESDAY, JULY 18, 2018

## 6:00 p.m.

*NOTES:* To comply with the Americans with Disabilities Act, to participate in any Board meeting please contact Dawn Deans at 661-947-4111 x1003 ASAP to inform us of your needs and to determine if accommodation is feasible.

Agenda item materials, as well as materials related to agenda items submitted after distribution of the agenda packets, are available for public review at the District's office located at 2029 East Avenue Q, Palmdale (Government Code Section 54957.5). Please call Dawn Deans at 661-947-4111 x1003 for public review of materials.

***PUBLIC COMMENT GUIDELINES:*** **The prescribed time limit per speaker is three-minutes. Please refrain from public displays or outbursts such as unsolicited applause, comments, or cheering. Any disruptive activities that substantially interfere with the ability of the District to carry out its meeting will not be permitted and offenders will be requested to leave the meeting. (PWD Rules and Regulations, Appendix DD, Sec. IV.A.)**

Each item on the agenda shall be deemed to include any appropriate motion, resolution, or ordinance to take action on any item.

1) Pledge of Allegiance/Moment of Silence.

2) Roll Call.

3) Adoption of Agenda.

4) Action Items – Action Calendar (The public shall have an opportunity to comment on any action item as each item is considered by the Board of Directors prior to action being taken.)

   4.1) Consideration and possible action on award of contract for construction of the Littlerock Reservoir Sediment Removal Project – Phase 1: Grade Control Structure under Specification No. 1802. ($10,675,808.00 – Budgeted, Water Revenue Bonds, Series 2018A – Engineering/Grant Manager Riley/Project Manager Thompson Sr.)

4.2) Consideration and possible action on Change Order No. 1 to the contract with ASI Construction LLC for construction of the Littlerock Reservoir Sediment Removal Project – Phase I: Grade Control Structure under Specification No. 1802. ($1,400,000.00 Reduction – Budgeted, Water Revenue Bonds, Series 2018A – Engineering/Grant Manager Riley/Project Manager Thompson Sr.)

4.3) Consideration and possible action on approval of contract amendment with Aspen Environmental to complete preconstruction biological surveys for Littlerock Sediment Removal Project. ($1,238,287.00 – Budgeted, Water Revenue Bonds, Series 2018A – Engineering/Grant Manager Riley)

5) Adjournment.

DENNIS D. LaMOREAUX,
General Manager

DDL/dd

# P A L M D A L E  W A T E R  D I S T R I C T

## *B O A R D  M E M O R A N D U M*

**DATE:** July 16, 2018 **July 18, 2018**

**TO:** BOARD OF DIRECTORS **Special Board Meeting**

**FROM:** Mr. Peter Thompson Sr., Project Manager

**VIA:** Mr. James Riley, Engineering/Grant Manager
Mr. Dennis D. LaMoreaux, General Manager

**RE:** ***AGENDA ITEM NO. 4.1 – CONSIDERATION AND POSSIBLE ACTION ON AWARD OF CONTRACT FOR THE CONSTRUCTION OF THE LITTLEROCK RESERVOIR SEDIMENT REMOVAL PROJECT – PHASE 1: GRADE CONTROL STRUCTURE UNDER SPECIFICATION NO. 1802. ($10,675,808.00 – BUDGETED, WATER REVENUE BONDS, SERIES 2018A – ENGINEERING/GRANT MANAGER RILEY)***

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**Recommendation:**

Staff recommends that the Board award a contract to ASI Construction LLC from Colorado Springs, CO in the not-to-exceed amount of $10,675,808.00 for the construction of the Littlerock Reservoir Sediment Removal Project – Phase 1 - Grade Control Structure located in Angeles National Forest at the Littlerock reservoir near Littlerock, CA under Specification No. 1802.

**Alternative Options:**

Reject all bids and rebid project next year.

**Impact of Taking No Action:**

Bids will expire and project will be delayed until next year.

**Background:**

Completion of this project would allow for the commencement of sediment removal operations within the reservoir for the purpose of restoring and maintaining the reservoir's capacity to the volume achieved after completion of the Littlerock Dam reconstruction by ASI in 1994.

The following is an evaluation of the bid submitted by ASI Construction LLC. This evaluation is base on information submitted on the bid forms, including the bid amount, project references, contractor's and subcontractor's licenses, and insurance.

ASI Construction LLC, located at 1880 Office Club Pointe, Ste 2000, Colorado Springs, CO holds a current and active Class A – General Engineering Contractor License. The contractor's state license number is 1015565. This license was first issued on April 7, 2017. The license expiration date is April 30, 2019.

The total bid price in the bid proposal submitted by ASI Construction LLC is $10,675,808.00. A bidder's bond in the amount of 10 percent of the total bid price was submitted with the bid proposal. The surety company providing the bid bond is Fidelity and Deposit Company of Maryland.

The criterion for responsibility pertains to whether the bidder is regularly engaged in this type of work and whether they can perform the work satisfactorily as promised. The contractor is required to provide payment and performance bonds to protect the District's interest.

ASI Construction LLC, as the lowest responsive, responsible bidder, holds a valid worker's compensation insurance policy (Policy number WC 106456001 with Zurich American Insurance Company effective from June 1, 2018 through June 1, 2019.)

The contractor's past performance record has been utilized to evaluate the general competency of the contractor for the performance of the work. To demonstrate the bidder's capability and experience of having completed similar projects successfully, the bid documents require that the contractor submit a list of all projects completed by the contractor during the last three years involving work of similar type and complexity and comparable value.

It is required that no less than 60 percent of the work be performed by the contractor's own forces without subcontracting. It appears that ASI Construction LLC will perform 98.3 percent of the work and meets the limitations on the subcontracting work.

Responsiveness of the bid pertaining to compliance with the material terms of the bid documents has been reviewed and deemed acceptable.

ASI Construction LLC, as the lowest responsible bidder, has met the criterion of providing the lowest bid price of qualified firms at $10,675,808.00. The lowest qualified bid price is $675,810.00, or 5.95 percent, lower than the next lowest bidder.

**Strategic Plan Initiative/Mission Statement:**

This item is under Strategic Initiative No. 1 – Water Resource Reliability.
This item directly relates to the District's Mission Statement.

**Budget:**

Budgeted – Water Revenue Bonds, Series 2018A

**Supporting Documents:**

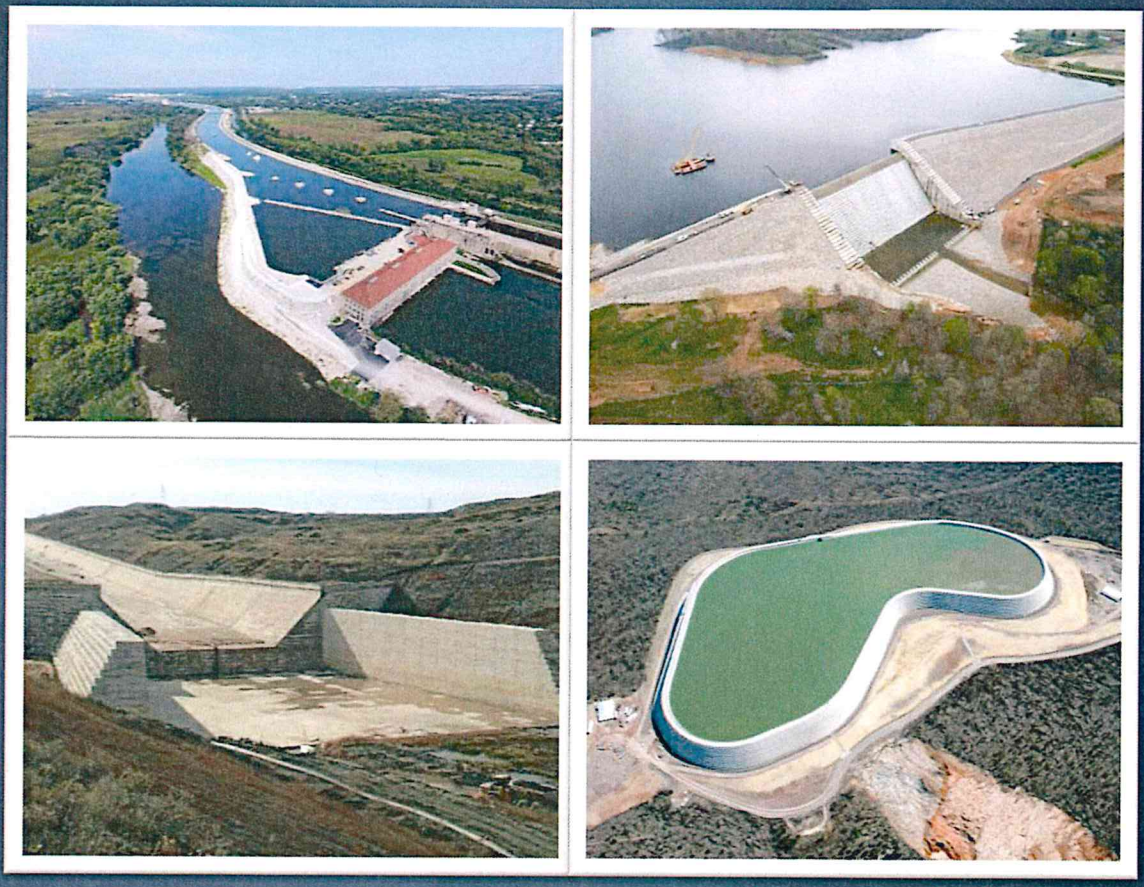
- Bid Results Summary
- Proposal Package from Lowest Responsible Bidder

# PALMDALE WATER DISTRICT
# SPECIFICATION NO. 1802 BID SUMMARY

| CONTRACTOR | ASI CONSTRUCTION LLC | KIEWIT INFRASTRUCTURE WEST CO. | |
|---|---|---|---|
| **ITEM** | **COST** | **COST** | |
| **MOBILIZATION AND SITE PREPARATION** | $1,336,000.00 | $1,790,000.00 | |
| **CONTROL OF WATER** | $1,562,000.00 | $1,427,000.00 | |
| **EARTHWORK** | $1,857,800.00 | $2,213,000.00 | |
| **RCC GRADE CONTROL STRUCTURE** | $3,825,542.00 | $4,398,750.00 | * |
| **STONE PROTECTION** | $1,706,866.00 | $1,247,868.00 | |
| **SITE RESTORATION** | $321,600.00 | $274,000.00 | |
| **ALL OTHER WORK INDICATED NOT INCLUDED ABOVE** | $66,000.00 | $1,000.00 | |
| **LUMP SUM TOTAL** | **$10,675,808.00** | **$11,351,618.00** | * |

* KIEWIT COST IS BASED ON EXCLUDING FORM WORK

# PROPOSAL FOR THE LITTLEROCK RESERVOIR SEDIMENT REMOVAL PROJECT – PHASE 1: GRADE CONTROL STRUCTURE




**SUBMITTED TO:**
JRILEY@PALMDALEWATER.ORG
PALMDALE WATER DISTRICT
ATTN: JAMES RILEY
2029 EAST AVENUE Q
PALMDALE, CA 93550

# PROPOSAL

## BIDDER'S DECLARATION
## SPECIFICATION NO. 1802

Gentlepersons:

The undersigned hereby proposes to perform all work for which a contract may be awarded them and to furnish any and all plant, labor, services, material, tools, equipment, supplies, transportation, utilities, and all other items and facilities necessary therefor as provided in the Contract Documents, and to do everything required therein for the construction of the Grade Control Structure
as specifically set forth in documents entitled Specification No. 1802 – Littlerock Reservoir Sediment Removal Project – Phase-1: Grade Control Structure
together with addenda thereto, all as set forth on the drawings and in the specifications and other Contract Documents (hereinafter the "Work"); and they further propose and agree that, if this Proposal is accepted, they will contract in the form and manner stipulated to perform all the Work called for by drawings, specifications, and other Contract Documents, and to complete all such Work in strict conformity therewith within the time limits set forth therein, and that they will accept as full payment therefor the prices set forth in the Bid Sheet(s) forming a part hereof.

(check one)

- o Cash
- o Cashiers check
- o Certified check
- X Bid Bond

properly made payable to Palmdale Water District, hereinafter designated as the Owner, for the sum of $ **1,067,580.80** , which amount is not less than 10 percent of the total amount of this bid, is attached hereto and is given as a guarantee that the undersigned will execute the Agreement and furnish the required bonds and insurance if awarded the contract and, in case of failure to do so within the time provided, the

(check one)

- o cash shall be retained as liquidated damages by the Owner
- o proceeds of said check shall be retained as liquidated damages by the Owner
- o Surety's liability to the Owner for the face amount of the Bond shall be considered as established.

*ASI acknowledges receipt of Addendum 1.

It is understood and agreed that:

1. The undersigned has carefully examined all the Contract Documents, as defined in Section N-12 of the Notice Inviting Bids, including, but not limited to, the bid quantities, any specifications regarding materials to be used, the contract provisions relating to payment for extra work and the procedures for seeking extensions of time.

2. The undersigned, by investigation at the site of the work, by review of any records available for inspection at the offices of utilities in the area affected by the Work, at any applicable public works departments, and otherwise, is satisfied as to the nature and location of the work and is fully informed as to all conditions and matters which can in any way affect the work or the cost thereof, including the location of all underground facilities in the area affected by the Work.

3. The undersigned fully understands the scope of the Work and has checked carefully all words and figures inserted in this Proposal and further understands that the Owner will in no way be responsible for any errors or omissions in the preparation of this Proposal.

4. The undersigned will execute the Agreement and furnish the required Performance and Payment Bonds and proof of insurance coverage within ten (10) days (not including Sundays and holidays) after Owner's notice of acceptance of this Proposal; and further, that, unless otherwise specified in the Special provisions, this Proposal may not be withdrawn for a period of forty-five (45) days after the date set for the opening thereof, notwithstanding the award of contract to another bidder. If the undersigned bidder withdraws this Proposal within said period, said bidder shall be liable under the provisions of the Bid Security, or said bidder and their surety shall be liable under the Bid Bond, as the case may be.

5. The undersigned hereby certifies that this Proposal is genuine and not sham or collusive or made in the interest or in behalf of any person not herein named, and the undersigned has not directly or indirectly induced or solicited any other bidder to put in a sham bid, or any other person, firm, or corporation to refrain from bidding; the undersigned has not in any manner sought by collusion to secure for themselves an advantage over any other bidder.

6. In conformance with current statutory requirement of the Labor Code of the State of California, the undersigned certifies as follows:

> **I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract.**

NOW, in compliance with the Notice Inviting Bids and all the provisions hereinbefore stipulated, the undersigned, with full cognizance thereof, hereby proposes to perform the entire work for the prices set forth in the attached Bid Sheet(s) upon which award of contract will be made.

The undersigned bidder declares that the license held by them is theirs, is current and valid, and is in a classification appropriate to the work to be undertaken.

The undersigned declares under penalty of perjury under the laws of the State of California that the foregoing is true and correct. Executed at Mt. Morris, PA, ~~California~~.

Dated June 18 2018

Bidder: ASI Construction LLC

By: Scott A. Kiger

Title: CEO

Bidder's post-office address:

1880 Office Club Pointe, Ste. 2000

Colorado Springs, CO 80 20

Telephone No.: (719) 647-2821

Facsimile No.: (719) 647-2890

Corporation organized under the laws of the State of Pennsylvania

Contractor's License(s): 1025565

Expiration Dates: 4/30/19

Surety or sureties:

Zurich American Insurance Company, c/o Andrew Bly, Account Manager, Alliant Insurance Services, Inc., 1501 Reedsdale Street, Suite 3005, Pittsburgh, PA 15233

**CONTRACTORS ARE REQUIRED BY LAW TO BE LICENSED AND REGULATED BY THE CONTRACTORS' STATE LICENSE BOARD WHICH HAS JURISDICTION TO INVESTIGATE COMPLAINTS AGAINST CONTRACTORS IF A COMPLAINT IS FILED WITHIN THREE YEARS OF THE DATE OF THE ALLEGED VIOLATION. ANY QUESTIONS CONCERNING A CONTRACTOR MAY BE REFERRED TO THE REGISTRAR, CONTRACTORS' STATE LICENSE BOARD, P.O. BOX 26000, SACRAMENTO, CALIFORNIA 95826.**

# BID SCHEDULE
# SPECIFICATION NO. 1802

**Schedule of Prices for Construction of**
**System Improvements**
**for**
**Palmdale Water District**

**BID SCHEDULE**

| Item | Description | Quantity | Units | Unit Cost | Item Cost |
|---|---|---|---|---|---|
| A | Mobilization and Site Preparation | | | | |
| A1 | Mobilization (maximum 5% of bid items below) | 1 | LS | $500,000.00 | $500,000.00 |
| A2 | Temporary facilities | 1 | LS | $150,000.00 | $150,000.00 |
| A3 | Development of staging areas and access | 1 | LS | $200,000.00 | $200,000.00 |
| A4 | Construction survey | 1 | LS | $65,000.00 | $65,000.00 |
| A5 | Site preparation and BMPs | 1 | LS | $350,000.00 | $350,000.00 |
| A6 | Demolition | 1 | LS | $71,000.00 | $71,000.00 |
| **Subtotal Item A** | | | | | $1,336,000.00 |
| | | | | | |
| B | Control of Water | | | | |
| B1 | Design and install dewatering system | 1 | LS | $350,000.00 | $350,000.00 |
| B2 | Operate dewatering system | 1 | LS | $430,000.00 | $430,000.00 |
| B3 | Install isolation berm | 1 | LS | $250,000.00 | $250,000.00 |
| B4 | Install surface flow bypass | 1 | LS | $500,000.00 | $500,000.00 |
| B5 | Remove dewatering system/surface flow | 1 | LS | $32,000.00 | $32,000.00 |
| **Subtotal Item B** | | | | | $1,562,000.00 |
| | | | | | |
| C | Earthwork | | | | |
| C1 | Clearing and grubbing | 1 | LS | $36,000.00 | $36,000.00 |
| C2 | Shoring and excavation safety | 1 | LS | $114,000.00 | $114,000.00 |
| C3 | RCC structure excavation (soil) | 1 | LS | $700,000.00 | $700,000.00 |
| C4 | Rock excavation (allowance) | 200 | CY | $160.00 | $32,000.00 |
| C5 | RCC structure backfill | 1 | LS | $822,000.00 | $822,000.00 |
| C6 | Grading and disposal of excess material | 1 | LS | $15,000.00 | $15,000.00 |
| C7 | Removal of unsuitable material (allowance) | 200 | CY | $64.00 | $12,800.00 |
| C8 | Engineered fill (allowance) | 2000 | CY | $63.00 | $126,000.00 |
| | | | | | $1,857,800.00 |

| Item | Description | Quantity | Units | Unit Cost | Item Cost |
|---|---|---|---|---|---|
| D | RCC Grade Control Structure | | | | |
| D1 | Provide, set up, and test RCC plant | 1 | LS | $274,000.00 | $274,000.00 |
| D2 | Prepare RCC mix test sections | 1 | LS | $50,000.00 | $50,000.00 |
| D3 | Provide drainage layer and weep hole materials | 1 | LS | $166,000.00 | $166,000.00 |
| D4 | Prepare subgrade and install drainage layer | 1 | LS | $241,000.00 | $241,000.00 |
| D5 | Cement for RCC | 1610 | TONS | $170.00 | $273,700.00 |
| D6 | Fly ash for RCC | 540 | TONS | $160.00 | $86,400.00 |
| D7 | Produce and install RCC | 1 | LS | $2,734,442.00 | $2,734,442.00 |
| **Subtotal Item D** | | | | | $3,825,542.00 |
| | | | | | |
| E | Stone Protection | | | | |
| E1 | Provide Type A Stone Protection materials | 12,571 | TONS | $75.00 | $942,825.00 |
| E2 | Install Type A Stone Protection | 12,571 | TONS | $28.00 | $351,988.00 |
| E3 | Provide Type B Stone Protection materials | 3,418 | TONS | $67.00 | $229,006.00 |
| E4 | Install Type B Stone Protection | 3,418 | TONS | $19.00 | $64,942.00 |
| E5 | Provide Type C Stone Protection materials | 1,495 | TONS | $61.00 | $91,195.00 |
| E6 | Install Type C Stone Protection | 1,495 | TONS | $18.00 | $26,910.00 |
| **Subtotal Item E** | | | | | $1,706,866.00 |
| | | | | | |
| F | Site Restoration | | | | |
| F1 | Restore site recreation facilities | 1 | LS | $189,000.00 | $189,000.00 |
| F2 | Provide erosion control and revegetation | 1 | LS | $14,000.00 | $14,000.00 |
| F3 | Install Type 1 Revegetation | 1 | LS | $18,000.00 | $18,000.00 |
| F4 | Install Type 2 Revegetation | 1 | LS | $53,000.00 | $53,000.00 |
| F5 | Install Type 3 Revegetation | 1 | LS | $38,000.00 | $38,000.00 |
| F6 | Site clean up and waste management | 1 | LS | $9,600.00 | $9,600.00 |
| **Subtotal Item F** | | | | | $321,600.00 |
| | | | | | |
| | | | | | |
| G | All other work indicated not included in items A through F above | 1 | LS | $66,000.00 | $66,000.00 |
| | | | | | |
| | | | | | |
| | | | | | |
| Total of Items A through G | | | | | $10,675,808.00 |
| | | | | | |
| | | | | | |

# INFORMATION REQUIRED OF BIDDER

EQUIPMENT/MATERIAL SOURCE INFORMATION

The bidder shall indicate opposite each item of equipment or material listed below, the name of the manufacturer or supplier of the equipment or material proposed to be furnished under the bid. **Failure to comply with this requirement will render the proposal informal and may cause its rejection.** Awarding of a contract under this bid will not imply approval by the Owner of the manufacturers or suppliers listed by the bidder. No substitution will be permitted after award of contract unless equipment or material of the listed manufacturer or supplier cannot meet the specifications.

| Specification | Equipment/Material | Manufacturer/Supplier |
|---|---|---|
| | SEE ATTACHED LIST | |

LIST OF PROPOSED SUBSTITUTIONS

The bidder may name a proposed substitute manufacturer with an add or deduct amount which will be considered after award. The Contract award, if any, will be on Base Bid amounts.

| Spec Section | Equipment Manufacturer | Add | Deduct |
|---|---|---|---|
| | NONE | | |
| | | | |

ASI Construction LLC
1880 Office Club Pointe, Suite 2000, Colorado Springs, Colorado 80920 T: +1 (719) 647-2821 F: +1 (719) 647-2890
"A Shaft Drillers International Company"

## LIST OF SUPPLIERS FOR THE LITTLEROCK RESERVOIR BELOW GRADE STRUCTURE

ASI Construction LLC anticipates using the following suppliers:

| Item | Supplier |
|---|---|
| Cement | **Cal Portland** |
| Fly Ash | **Salt River Materials** |
| RCC Aggregates | **Western Materials** |
| Stone Protection | **Owl Rock Products** |
| | |
| | |
| | |

# INFORMATION REQUIRED OF BIDDER

SITE INSPECTION AND UNDERGROUND UTILITIES REVIEW -- Describe when, by whom, and in what manner (a) the site for this proposed work was inspected and (b) records of local utility providers were reviewed on behalf of the bidder (NOTE: Failure to demonstrate diligent effort in ascertaining local conditions which may affect the Work will render this Proposal informal or nonresponsive and may result in its rejection):

Richard King, Estimating Manager for ASI Construction LLC, attended the mandatory pre-bid meeting on May 30, 2018. During the site visit sponsored by the Owner and Engineer, a detailed utility investigation of the site was performed by our representative in attendance. The project location is adjacent to an abandoned campground owned by the US Forest Service. The rough camping area is no longer in use and no visible signs of underground or overhead utilities were observed during the site visit. Therefore, we have determined that no further utility investigation is required to bid this project. Upon award and prior to beginning actual construction operations, our Team will call the toll free number and follow the local underground utility marking protocol.

COMPARABLE PROJECT EXPERIENCE -- In accordance with Section I-5 of the Instructions to Bidders, describe at least five (5) comparable projects completed by bidder within past thirty-six (36) month period, including dates completed, location of work, size of project in dollars, names, addresses, and phone numbers of persons in charge of project construction, and the name and address of the public agency or firm for whom the project was constructed (NOTE: Failure to include at least five (5) jobs similar in size and scope to that contemplated under the Contract Documents will render this Proposal informal or non-responsive and may result in its rejection):

In the attached Statement of Capabilities, ASI has provided this required information.

# CONTRACTOR'S LICENSING STATEMENT

The undersigned is licensed in accordance with the laws of the State of California providing for the registration of Contractors.

Contractor's License Number(s), Type(s) and Expiration Date(s): 1025565

Expiration Date: 4/30/19

Name of Individual Contractor (print or type): _____

Signature of Owner: _____

Business Address: _____

or

Name of Partnership or Firm: _____

Business Address: _____

Signature, name, title and address of partners signing on behalf of the partnership:

Signed: _____ Name: _____

Title: _____ Address: _____

Signed: _____ Name: _____

Title: _____ Address: _____

Signed: _____ Name: _____

Title: _____ Address: _____

or

Name of ~~Corporation~~ LLC: ASI Construction LLC

Business Address: 1880 Office Club Pointe, Ste. 2000, Colorado Springs, CO 80920

Corporation organized under the laws of the State of Pennsylvania

LLC

SEAL

Scott A. Kiger, CEO

Signature of Secretary of ~~Corporation~~ LLC

**NOTE: CURRENT COPIES OF ALL APPLICABLE LICENSES MUST BE ATTACHED TO THIS PROPOSAL.**

STATE OF CALIFORNIA

# CONTRACTORS STATE LICENSE BOARD

Pursuant to Chapter 9 of Division 3 of the Business and Professions Code
and the Rules and Regulations of the Contractors State License Board,
the Registrar of Contractors does hereby issue this license to:

**ASI CONSTRUCTION LLC**
**DBA ASI ENGINEERING**

**License Number 1025565**

to engage in the business or act in the capacity of a contractor in the following classifications:

A - GENERAL ENGINEERING CONTRACTOR
C57 - WELL DRILLING

Witness my hand and seal this day,

April 10, 2017

**Issued April 7, 2017**

Agustin "Augie" Beltran, Board Chair

This license is the property of the Registrar of Contractors, is not transferable, and shall be returned to the Registrar upon demand when suspended, revoked, or invalidated for any reason. It becomes void if not renewed.

Cindi A. Christenson, Registrar of Contractors

13L-24 (REV. 03/15)

OSP 15 136646
AUDIT NO: 627290

# LIST OF SUBCONTRACTORS

The bidder is required to furnish the following information in accordance with the provisions of Sections 4100 to 4114, inclusive, of the Public Contract Code of the State of California.

Subcontractors must be listed if they will provide work, labor or service in an amount in excess of one-half (1/2) of one percent (1%) of the total bid.

**THAT PORTION OF THE WORK TO BE PERFORMED BY SUBCONTRACTORS SHALL, IN THE AGGREGATE, NOT EXCEED 40% OF ALL WORK PERFORMED, BASED UPON THE TOTAL DOLLAR VALUE OF THE WORK.**

| Subcontractor | License No. & Type | Main Office Address | % of Total Dollar Work | Value of Subcontract | Description |
|---|---|---|---|---|---|
| Ollson Associates | TBD | Denver, CO | 0.17% | $177,000 | Quality Control |
| | | | | | |
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**MANDATORY FORM**

**(NOTE: THE FOLLOWING FORM SHALL BE USED WHERE THE BIDDER DESIRES TO FURNISH A BOND INSTEAD OR CHECK OR CASH.)**

# BID SECURITY FORM

## BID BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, ASI Construction LLC as principal and Fidelity and Deposit Company of Maryland as surety, are held and firmly bound unto Palmdale Water District (hereinafter "Owner,") in the sum of $_____, to be paid to the Owner, its successors, and assigns, for which payment, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that if the certain Proposal of the above Principal for construction of the Grade Control Structure as specifically set forth in documents entitled Specification No. 1802 – Littlerock Reservoir Sediment Removal Project – Phase 1: Grade Control Structure all in accordance with the Contract Documents, including specifications and drawings on file at the offices of the Owner, is not withdrawn within the period of 45 days after the date set for the opening of bids or as otherwise provided in the Special Provisions, notwithstanding the award of the contract to another bidder, and that if said Proposal is accepted by the Owner through action of its legally constituted contracting authorities and if the above bound principal, its heirs, executors, administrators, successors and assigns, shall duly enter into and execute a contract for such construction and shall execute and deliver

the required Performance and Payment Bonds and proof of insurance coverage within ten (10) days (not including Sundays and holidays) after the date of notifications by and from said Owner, then this obligation shall become null and void, otherwise it shall be and remain in full force and effect.

IN WITNESS WHEREOF, we hereunto set our hands and seals this day of June 6, 20 18

(SEAL)

ASI Construction LLC
(Principal)

By _____
Scott A. Kiger, CEO

(SEAL)

Fidelity and Deposit Company of Maryland
(Surety)

By _____
Andrew Bly, ~~Attorney-in-Fact~~

**NOTE:**

(1) This bid bond form is a **mandatory form**.

(2) The bid bond form should specify an exact number of dollars which shall not be less than ten percent (10%) of the total amount of the bid.

(3) The bid bond form must be acknowledged before notary publics, and a legally sufficient power of attorney must be attached to the bid bond to verify the authority of the party signing on behalf of the surety.

## CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT — Civil Code § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy of validity of that document.

State of Pennsylvania )
) ss
County of Allegheny )

On June 6, 2018, before me, Marisa B. Warford, Notary Public, personally appeared Andrew Bly, who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is~~/are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity~~(ies)~~, and that by his/~~her/their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature: Marisa B Warford

(Seal)

Marisa B. Warford, Notary Public

Commonwealth of Pennsylvania - Notary Seal
Marisa B. Warford, Notary Public
Allegheny County
My commission expires October 26, 2021
Commission number 1174471
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

## CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

**Civil Code § 1189**

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy of validity of that document.

State of Pennsylvania )
) ss
County of Greene )

On June 14, 2018, before me, ~~SCOTT A. KIGER~~ Carol A. Mayle CAM, personally appeared Scott A. Kiger, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(ies), and that by his/~~her/their~~ signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature: Carol A Mayle

(Seal)

Carol A Mayle, Notary Public
(Print Name)

NOTARY PUBLIC OFFICIAL SEAL
CAROL A MAYLE
State of West Virginia
My Commission Expires
September 15, 2022
495 Buckeye Rd Core, WV 26541

# THE FIDELITY AND DEPOSIT COMPANY

OF MARYLAND
600 Red Brook Blvd., Suite 600, Owings Mills, MD 21117

**Statement of Financial Condition**
As Of December 31, 2017

## ASSETS

| | | |
|---|---|---|
| Bonds | | $ 131,463,323 |
| Stocks | | 23,365,385 |
| Cash and Short Term Investments | | 15,943,690 |
| Reinsurance Recoverable | | 7,520,824 |
| Federal Income Tax Recoverable | | 62,266 |
| Other Accounts Receivable | | 35,672,323 |
| TOTAL ADMITTED ASSETS | | $ 214,027,811 |

## LIABILITIES, SURPLUS AND OTHER FUNDS

| | | |
|---|---|---|
| Reserve for Taxes and Expenses | | $ 580,990 |
| Ceded Reinsurance Premiums Payable | | 42,235,595 |
| Securities Lending Collateral Liability | | 0 |
| TOTAL LIABILITIES | | $ 42,816,584 |
| Capital Stock, Paid Up | $ 5,000,000 | |
| Surplus | 166,211,227 | |
| Surplus as regards Policyholders | | 171,211,226 |
| TOTAL | | $ 214,027,811 |

Securities carried at $62,198,396 in the above statement are deposited with various states as required by law.

Securities carried on the basis prescribed by the National Association of Insurance Commissioners. On the basis of market quotations for all bonds and stocks owned, the Company's total admitted assets at December 31, 2017 would be $213,515,173 and surplus as regards policyholders $170,698,588.

I, DENNIS F. KERRIGAN, Corporate Secretary of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing statement is a correct exhibit of the assets and liabilities of the said Company on the 31st day of December, 2017.

*Corporate Secretary*

State of Illinois
City of Schaumburg } SS:

Subscribed and sworn to, before me, a Notary Public of the State of Illinois, in the City of Schaumburg, this 9th day of March, 2018.

*Notary Public*

OFFICIAL SEAL
DARRYL JOINER
Notary Public - State of Illinois
My Commission Expires 2/24/2022

**ZURICH AMERICAN INSURANCE COMPANY**
**COLONIAL AMERICAN CASUALTY AND SURETY COMPANY**
**FIDELITY AND DEPOSIT COMPANY OF MARYLAND**
**POWER OF ATTORNEY**

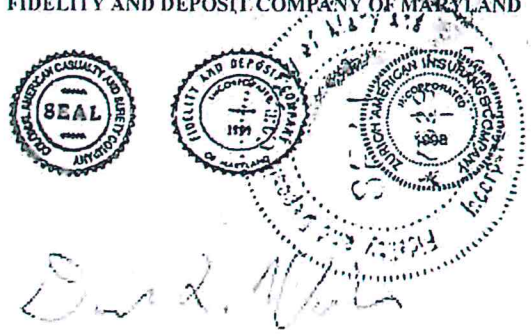
KNOW ALL MEN BY THESE PRESENTS: That the ZURICH AMERICAN INSURANCE COMPANY, a corporation of the State of New York, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, a corporation of the State of Maryland, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND a corporation of the State of Maryland (herein collectively called the "Companies"), by **DAVID MCVICKER, Vice President,** in pursuance of authority granted by Article V, Section 8, of the By-Laws of said Companies, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, do hereby nominate, constitute, and appoint **James L. BLY, Pamela L. NUNEZ and Andrew BLY, all of PITTSBURGH, , EACH** its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver, for, and on its behalf as surety, and as its act and deed: **any and all bonds and undertakings,** and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Companies, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the ZURICH AMERICAN INSURANCE COMPANY at its office in New York, New York., the regularly elected officers of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at its office in Owings Mills, Maryland., and the regularly elected officers of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at its office in Owings Mills, Maryland., in their own proper persons.

The said Vice President does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article V, Section 8, of the By-Laws of said Companies, and is now in force.

IN WITNESS WHEREOF, the said Vice-President has hereunto subscribed his/her names and affixed the Corporate Seals of the said **ZURICH AMERICAN INSURANCE COMPANY, COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and FIDELITY AND DEPOSIT COMPANY OF MARYLAND,** this 21st day of June, A.D. 2017.

**ATTEST:**

**ZURICH AMERICAN INSURANCE COMPANY**
**COLONIAL AMERICAN CASUALTY AND SURETY COMPANY**
**FIDELITY AND DEPOSIT COMPANY OF MARYLAND**




By: _____
*Assistant Secretary*
*Dawn E. Brown*

_____
*Vice President*
*David McVicker*

**State of** Maryland
County of Baltimore

On this 21st day of June, A.D. 2017, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, **DAVID MCVICKER, Vice President, and DAWN E. BROWN, Assistant Secretary,** of the Companies, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and acknowledged the execution of same, and being by me duly sworn, deposeth and saith, that he/she is the said officer of the Company aforesaid, and that the seals affixed to the preceding instrument are the Corporate Seals of said Companies, and that the said Corporate Seals and the signature as such officer were duly affixed and subscribed to the said instrument by the authority and direction of the said Corporations.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.



_____
Constance A. Dunn, Notary Public
My Commission Expires: July 9, 2019

## EXTRACT FROM BY-LAWS OF THE COMPANIES

"Article V, Section 8, Attorneys-in-Fact. The Chief Executive Officer, the President, or any Executive Vice President or Vice President may, by written instrument under the attested corporate seal, appoint attorneys-in-fact with authority to execute bonds, policies, recognizances, stipulations, undertakings, or other like instruments on behalf of the Company, and may authorize any officer or any such attorney-in-fact to affix the corporate seal thereto; and may with or without cause modify of revoke any such appointment or authority at any time."

## CERTIFICATE

I, the undersigned, Vice President of the ZURICH AMERICAN INSURANCE COMPANY, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing Power of Attorney is still in full force and effect on the date of this certificate; and I do further certify that Article V, Section 8, of the By-Laws of the Companies is still in force.

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the ZURICH AMERICAN INSURANCE COMPANY at a meeting duly called and held on the 15th day of December 1998.

RESOLVED: "That the signature of the President or a Vice President and the attesting signature of a Secretary or an Assistant Secretary and the Seal of the Company may be affixed by facsimile on any Power of Attorney...Any such Power or any certificate thereof bearing such facsimile signature and seal shall be valid and binding on the Company."

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at a meeting duly called and held on the 5th day of May, 1994, and the following resolution of the Board of Directors of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at a meeting duly called and held on the 10th day of May, 1990.

RESOLVED: "That the facsimile or mechanically reproduced seal of the company and facsimile or mechanically reproduced signature of any Vice-President, Secretary, or Assistant Secretary of the Company, whether made heretofore or hereafter, wherever appearing upon a certified copy of any power of attorney issued by the Company, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seals of the said Companies, this 6th day of June, 2018.

Michael Bond, Vice President

**TO REPORT A CLAIM WITH REGARD TO A SURETY BOND, PLEASE SUBMIT ALL REQUIRED INFORMATION TO:**

Zurich American Insurance Co.
Attn: Surety Claims
1299 Zurich Way
Schaumburg, IL 60196-1056

**MANDATORY FORM**

**TO BE EXECUTED BY EACH BIDDER**

# NON-COLLUSION AFFIDAVIT

STATE OF PENNSYLVANIA )
)SS
COUNTY OF GREENE )

Scott A. Kiger , being first duly sworn, declares that he/~~she~~ is
[NAME]

CEO of ASI Construction LLC
(SOLE OWNER, A PARTNER, PRESIDENT, SECRETARY, ETC.) [IDENTITY OF BIDDER]

the party submitting a bid for a contract covering Specification No. 1802 – Littlerock Reservoir Sediment Removal Project – Phase 1: Grade Control Structure
(DESCRIBE NATURE OF CONTRACT)

that such a bid is not made in the interest of or on behalf of any undisclosed person, partnership, company, association, organization, or corporation; that such bid is genuine and not collusive or sham; that said bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, nor that anyone shall refrain from bidding; that said bidder has not in any manner, directly or indirectly, sought by agreement, communications or conference with anyone to fix the bid price of said bidder or any other bidder, nor to fix any overhead, profit, or cost element of such bid price, nor of that of any other bidder, nor to secure any advantage against the public body awarding the contract or anyone interested in the proposed contract; that all statements contained in such bid are true; and, further, that said bidder has not, directly or indirectly, submitted their bid price or any breakdown thereof, nor the contents thereof, nor divulged information or data relative thereto, nor paid and will not pay any fee in connection therewith to any corporation, partnership, company, association, organization, bid depository, nor to any member or agent thereof, nor to any other individual except to such person or persons as have a partnership or other financial interest with said bidder in their general business.

Dated: June 18, 2018

Signed: ~~_____~~
Scott A. Kiger, CEO
[TITLE]

Subscribed and sworn to before me this 14 day of June, 20 18, by

Scott A. Kiger, proved to me on the basis of satisfactory evidence to be the person who appeared before me.

Carol A Mayle
Notary Public

**SEAL**

NOTARY PUBLIC OFFICIAL SEAL
CAROL A MAYLE
State of West Virginia
My Commission Expires
September 15, 2022
495 Buckeye Rd Core, WV 26541

ASI
"A Shaft Drillers International Company"

June 18, 2018

**VIA EMAIL TO:** jriley@palmdalewater.org
Palmdale Water District
Attn: James Riley
2029 East Avenue Q
Palmdale, CA 93550

RE: Statement of Capabilities for the Littlerock Reservoir Sediment Removal Project – Phase 1: Grade Control Structure

Mr. Riley:

ASI Construction LLC (ASI), a wholly-owned subsidiary of Shaft Drillers International LLC (SDI), welcomes the opportunity to submit our Statement of Capabilities for the Littlerock Reservoir Grade Control Structure Project (Littlerock Project). As a self-performing heavy civil contractor with a legacy as an industry leader in the dam and water resource market, ASI brings significant, directly-applicable experience to address the needs of the Palmdale Water District (PWD).

## ASI CONSTRUCTION LLC

Over the past 40-years, ASI personnel have constructed over 170 new dam and dam modification projects, both conventional concrete and roller compacted concrete (RCC), as well as numerous reservoir, levee, channel, and water transmission projects. ASI personnel have a reputation for being a prominent national specialist in the construction and rehabilitation of RCC dams and other structures as detailed in this Statement of Capabilities.

Additionally, ASI was recently selected to offer specialty RCC consulting services to Peace River Hydro Partners on owner BC Hydro's Site C Clean Energy Project near Fort St. John, British Columbia. At the time, Site C was the largest infrastructure project to be built in Canada. The project includes, in pertinent part, a powerhouse RCC buttress with a maximum height of 230 ft and a total RCC volume of approximately 2.6 million CY, being built on the Peace River in northeast B.C. Construction of the project started in the summer 2015 and will be completed in 2024. ASI's contract involved providing key personnel to teach the local personnel on the latest improvements involving placing large amounts of RCC in a short construction season window using ASI's specialty equipment and formwork systems along with training for the local personnel operating the 5 onsite RCC batch plants and 1 conventional concrete batch plant. ASI provided support for the 2017 construction season. Site C will be a source of clean, reliable and affordable electricity in B.C. for more than 100 years.

ASI personnel have received some of the most prestigious awards in the dam and water resource market for its successful project completions. ASI is consistently recognized as one of the top dam, reservoir and water resources construction firms in the US. ASI personnel have received the US Society on Dams Award of Excellence in the Constructed Project three times for their work on the Pine Brook Reservoir (Colorado, 2007), Taum Sauk Pumped Storage Project (Missouri, 2010) and Deep Creek Reservoir (North Carolina, 2013) and have also received the Association of State Dam Safety Officials Rehabilitation Project of the Year Award for their work on the Monument Lake Dam Improvement Project (Colorado, 2001) and the Beaver Park Dam and Reservoir Improvement Project

(Colorado, 2016). Most recently, in 2018, ASI received the Texas Public Works Association award for the recently completed Upper Brushy Creek Dam in Cedar Park, Texas.

ASI is one of the few self-performing, heavy-civil contractors to specialize specifically in the dam, hydropower and water resources markets. The leadership of our firm is filled with professionals who have spent virtually their entire careers planning, permitting, designing, building and maintaining these structures—a claim very few other contractors can make.

## THE RIGHT TEAM FOR THE LITTLEROCK PROJECT

The Littlerock Project will require extensive pre-planning, scheduling, and management to be successful. In addition, this critical project will require a construction contractor with sufficient personnel and equipment resources. Because dam and water resource construction IS our primary business, ASI has a depth of resources suited to address the aggressive schedule presented by the Littlerock Project that few competitors can offer. ASI has the experience, resources, and qualifications to complete the Littlerock Project in a safe, timely, cost effective, and professional manner.

ASI personnel completed the Littlerock Dam & Reservoir Restoration Project for the Palmdale Water District in 1994. This $12.5 million-dollar project involved buttressing and raising an existing arch buttress dam with a new, attached, conventional concrete-faced RCC dam, 165-ft-high, with a crest length of 700 ft. The work included 115,000 CY of RCC, 25,000 CY of conventional concrete, controlled blasting, miscellaneous site and mechanical work.

ASI possesses all resources necessary to self-perform all the substantial work elements that make-up this project:

- ***Management Resources:*** All of our managers, supervisors and engineers assigned to the project are experienced with RCC construction.
- ***Labor Resources:*** ASI employs a substantial pool of traveling craft supervisors and craftsmen experienced with RCC construction, and we have many long-term employees in the region. These experienced foremen and tradesmen can train and mentor our locally-hired employees and our subcontractor employees less familiar with the unique aspects of RCC construction work.
- ***Equipment Resources:*** ASI and its parent, Shaft Drillers International LLC, maintain an owned-equipment inventory of more than $100,000,000. Equipment includes heavy earthmoving equipment, marine equipment, batch plants, drilling equipment and numerous fleet vehicles. In addition, national accounts are maintained with major equipment vendors, which ensures our ability to efficiently and cost effectively supplement the fleet, if necessary. ASI has the financial wherewithal to acquire the specific equipment necessary to construct this project in a cost and schedule efficient manner.
- ***Vendor and Subcontractor Relationships:*** Being routinely involved in dam construction for literally decades, ASI has fostered working relationships with many of the specialty vendors and subcontractors that this project will require along with regional commodity-materials vendors (i.e. aggregates, cement, flyash). With this experience ASI has selected the vendors and subcontractors we know will perform to the quality and schedule requirements of this project.
- ***Financial Strength:*** ASI and its parent, Shaft Drillers International LLC, possess the strong financial capability, bonding capacity, and insurance coverage necessary to perform a project of this magnitude.

"A **Shaft Drillers International** Company"

With respect for and in recognition of both the project objectives and inherent challenges, ASI respectfully asks for the opportunity to meet and exceed the expectations of the PWD, project team members and stakeholders.

Please contact me if you have any follow-up questions or information requests regarding our proposal and/or this Statement of Capabilities.
Thank you for your consideration.

Respectfully Submitted,

**ASI Construction LLC**

Richard W. King

Richard W. King
Estimating Manager
Cell: (719) 248-2647

"A Shaft Drillers International Company"

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## SECTION 1: WORK PLAN

Upon selection of ASI Construction LLC (ASI) as the contractor of choice by the Palmdale Water District (PWD), we will begin the preliminary work tasks of preparing plans and procedures for the construction of the Grade Control Structure. Some of these plans and procedures will be a dewatering plan, stream bypass plan, excavation plan, roller compacted concrete (RCC) mix designs and placement procedure, rip rap placement plan, and site restoration plan.

Erosion protection devices and natural barriers will be installed prior to any land disturbance. These devices will include silt fence, straw waddles, environmental fence, and other site-specific features.

Due to the short work period in which to construct this project, the unknown duration of the dewatering program will be significant. For this reason, we plan to install the dewatering system as soon after award as possible. Our plan is to install deep wells approximately 10 wells each 45-50 feet deep strategically located around the structure footprint to maximize the groundwater drawdown. Our schedule anticipates one week to install the deep wells and three weeks to draw the groundwater down below the bottom of the future excavation.

Excavation will be performed by a CAT 349 (or similar) excavator and three CAT 740 (or similar) articulated haul trucks. The excavated material will be used to construct the upstream and downstream diversion berms to keep surface water from entering the work zone. Excess material not needed for these berms will be stockpiled on the right side of the valley wall for future use as structure backfill. The rate of excavation will be dependent on the rate of drawdown of the groundwater, but our schedule anticipates excavating approximately 3,000 cubic yards per day from the Grade Control Structure footprint. At this rate, we anticipate completing the excavation in approximately one month. Depending on the groundwater drawdown rate and the corresponding excavation rate, we believe this activity will work more than 10 hours per day and more than 5 days per week.

When the planned subgrade for the grade control structure has been reached, the Owner, Engineer, of their geotechnical representative will inspect and approved the subgrade for bearing capacity. If the results of this inspection are satisfactory, we will begin installation of the RCC structure. If the results indicate a deeper excavation is required, that additional excavation will be performed until an acceptable subgrade condition is achieved.

During the dewatering and excavation processes, the RCC batch plant will be mobilized and erected at a site determined to be most advantageous to the transport of batched RCC to the structure. Our current plan is to set the batch plant in the existing campground areas but will investigate further the possibility of setting up in the valley floor. Once a location is determined, we anticipate 3 weeks to erect the batch plant and an additional week to construct the RCC Test Section.

When the approved subgrade has been achieved, we anticipate constructing the stepped formwork and RCC lift placements at a rate of one RCC lift per shift (approximately 500 cubic yards per shift). This process will require approximately one month to complete the grade control structure. We plan to provide a proven method of face compaction to help the Owner and Engineer accept a sloped face in lieu of the stepped face shown on the drawings. Our proposal is based on the as-designed structure, including the steps, but we believe there is both time and money to be saved should the sloped facing be acceptable. Currently ASI anticipates this savings to be approximately $200,000.

Depending on the progress of the RCC structure, ASI may need to begin the backfill operation prior to completion of the final lifts of RCC. This backfill operation on the completed RCC lifts is typical in this type of application and would normally lag the active RCC lifts by 3 to 4 feet. Prior to general backfill soils being placed, the require underdrain system of clean stone and drain pipe will be install. Backfill material will be that which was placed in stockpiles during the excavation will then be compacted on top of the drain fill until the finished grade elevations are reached.

After completing the backfill, stone rip rap will be placed upstream and downstream of the grade control structure to prevent erosion.

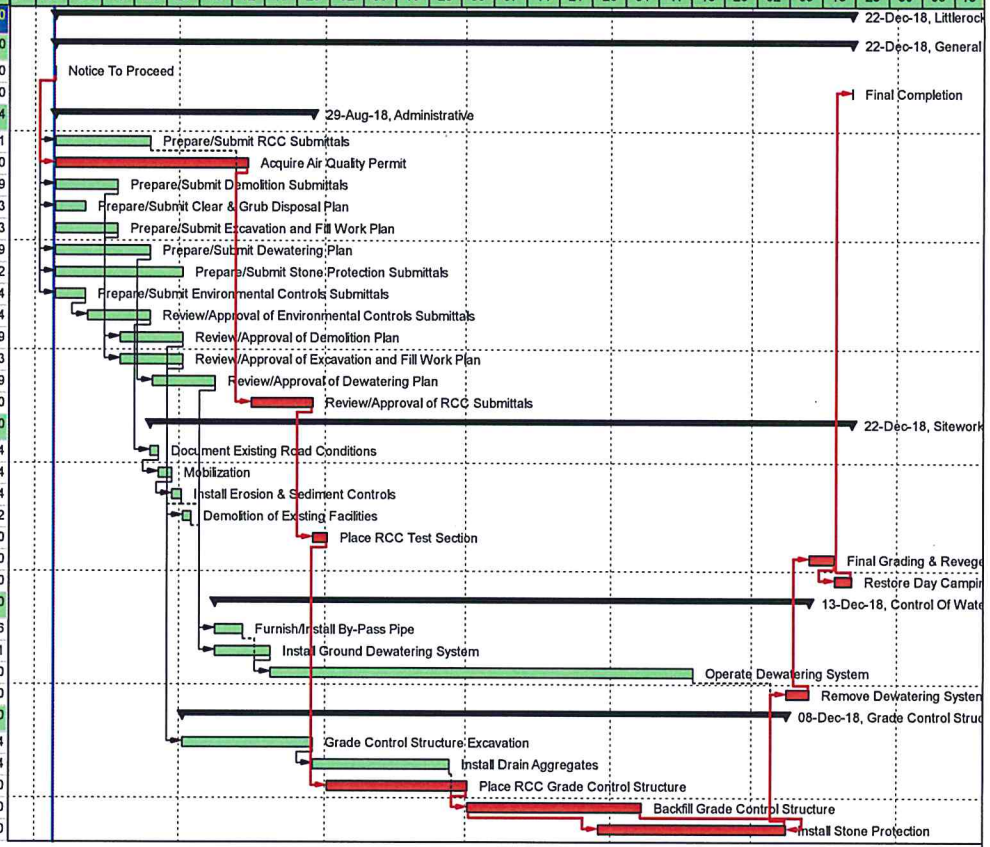
At the completion of the RCC placements, the batch plant will be taken down and the site restored to its original condition. Campgrounds will be regraded, shelters replaced and the area reseeded as needed.

## SECTION 2: PROJECT SCHEDULE

ASI's mission is to meet and exceed the PWD's expectations in all aspects, including completing the project on or before the contract completion date. This mission requires developing and maintaining an accurate project schedule – a schedule which reflects an understanding of the order and interdependence of major work activities. Our team has provided a summary level Primavera P6 Construction Schedule, which will be replaced with a more detailed project schedule after contract award.

Littlerock Reservoir Grade Control Structure Project | Classic WBS Layout | 18-Jun-18 11:34

| Activity ID | Activity Name | Original Duration | Start | Finish | Calendar | Total Float |
|---|---|---|---|---|---|---|
| **Littlerock Reservoir Grade Control Structur** | | 119 | 05-Jul-18 | 22-Dec-18 | | 0 |
| **General Conditions** | | 170 | 05-Jul-18 | 22-Dec-18 | 7 Day Workweek | 0 |
| A1000 | Notice To Proceed | 0 | 05-Jul-18 | 05-Jul-18 | 7 Day Workweek | 0 |
| A1300 | Final Completion | 0 | 22-Dec-1 | 22-Dec-18 | 7 Day Workweek | 0 |
| **Administrative** | | 56 | 05-Jul-18 | 29-Aug-18 | 7 Day Workweek | 114 |
| A1010 | Prepare/Submit RCC Submittals | 21 | 05-Jul-18 | 25-Jul-18 | 7 Day Workweek | 21 |
| A1030 | Acquire Air Quality Permit | 42 | 05-Jul-18 | 15-Aug-18 | 7 Day Workweek | 0 |
| A1040 | Prepare/Submit Demolition Submittals | 14 | 05-Jul-18 | 18-Jul-18 | 7 Day Workweek | 29 |
| A1050 | Prepare/Submit Clear & Grub Disposal Plan | 7 | 05-Jul-18 | 11-Jul-18 | 7 Day Workweek | 163 |
| A1060 | Prepare/Submit Excavation and Fill Work Plan | 14 | 05-Jul-18 | 18-Jul-18 | 7 Day Workweek | 3 |
| A1070 | Prepare/Submit Dewatering Plan | 21 | 05-Jul-18 | 25-Jul-18 | 7 Day Workweek | 19 |
| A1080 | Prepare/Submit Stone Protection Submittals | 28 | 05-Jul-18 | 01-Aug-18 | 7 Day Workweek | 142 |
| A1090 | Prepare/Submit Environmental Controls Submittals | 7 | 05-Jul-18 | 11-Jul-18 | 7 Day Workweek | 4 |
| A1100 | Review/Approval of Environmental Controls Submittal | 14 | 12-Jul-18 | 25-Jul-18 | 7 Day Workweek | 4 |
| A1150 | Review/Approval of Demolition Plan | 14 | 19-Jul-18 | 01-Aug-18 | 7 Day Workweek | 29 |
| A1190 | Review/Approval of Excavation and Fill Work Plan | 14 | 19-Jul-18 | 01-Aug-18 | 7 Day Workweek | 3 |
| A1140 | Review/Approval of Dewatering Plan | 14 | 26-Jul-18 | 08-Aug-18 | 7 Day Workweek | 19 |
| A1020 | Review/Approval of RCC Submittals | 14 | 16-Aug-1 | 29-Aug-18 | 7 Day Workweek | 0 |
| **Sitework** | | 155 | 25-Jul-18 | 22-Dec-18 | 6 Day Workweek w/ Holidays | 0 |
| A1110 | Document Existing Road Conditions | 2 | 25-Jul-18 | 27-Jul-18 | 6 Day Workweek w/ Holidays | 4 |
| A1120 | Mobilization | 2 | 27-Jul-18 | 30-Jul-18 | 6 Day Workweek w/ Holidays | 4 |
| A1130 | Install Erosion & Sediment Controls | 3 | 30-Jul-18 | 01-Aug-18 | 6 Day Workweek w/ Holidays | 4 |
| A1160 | Demolition of Existing Facilities | 2 | 01-Aug-1 | 03-Aug-18 | 6 Day Workweek w/ Holidays | 32 |
| A1210 | Place RCC Test Section | 4 | 29-Aug-1 | 01-Sep-18 | 6 Day Workweek w/ Holidays | 0 |
| A1280 | Final Grading & Revegetation | 6 | 13-Dec-1 | 18-Dec-18 | 6 Day Workweek w/ Holidays | 0 |
| A1290 | Restore Day Camping Areas | 4 | 18-Dec-1 | 22-Dec-18 | 6 Day Workweek w/ Holidays | 0 |
| **Control Of Water** | | 87 | 08-Aug-1 | 13-Dec-18 | | 0 |
| A1170 | Furnish/Install By-Pass Pipe | 6 | 08-Aug-1 | 14-Aug-18 | 6 Day Workweek w/ Holidays | 26 |
| A1180 | Install Ground Dewatering System | 12 | 08-Aug-1 | 20-Aug-18 | 6 Day Workweek w/ Holidays | 21 |
| A1240 | Operate Dewatering System | 90 | 20-Aug-1 | 18-Nov-18 | 7 Day Workweek | 20 |
| A1270 | Remove Dewatering System | 5 | 08-Dec-1 | 13-Dec-18 | 6 Day Workweek w/ Holidays | 0 |
| **Grade Control Structure** | | 133 | 01-Aug-1 | 08-Dec-18 | 6 Day Workweek w/ Holidays | 0 |
| A1200 | Grade Control Structure Excavation | 30 | 01-Aug-1 | 29-Aug-18 | 6 Day Workweek w/ Holidays | 4 |
| A1260 | Install Drain Aggregates | 30 | 29-Aug-1 | 27-Sep-18 | 6 Day Workweek w/ Holidays | 4 |
| A1220 | Place RCC Grade Control Structure | 30 | 01-Sep-1 | 01-Oct-18 | 6 Day Workweek w/ Holidays | 0 |
| A1230 | Backfill Grade Control Structure | 40 | 01-Oct-18 | 07-Nov-18 | 6 Day Workweek w/ Holidays | 0 |
| A1250 | Install Stone Protection | 40 | 29-Oct-18 | 08-Dec-18 | 6 Day Workweek w/ Holidays | 0 |




Remaining Level of Effort | Actual Work | Critical Remaining Work | Summary
Actual Level of Effort | Remaining Work | Milestone



TASK filter: All Activities

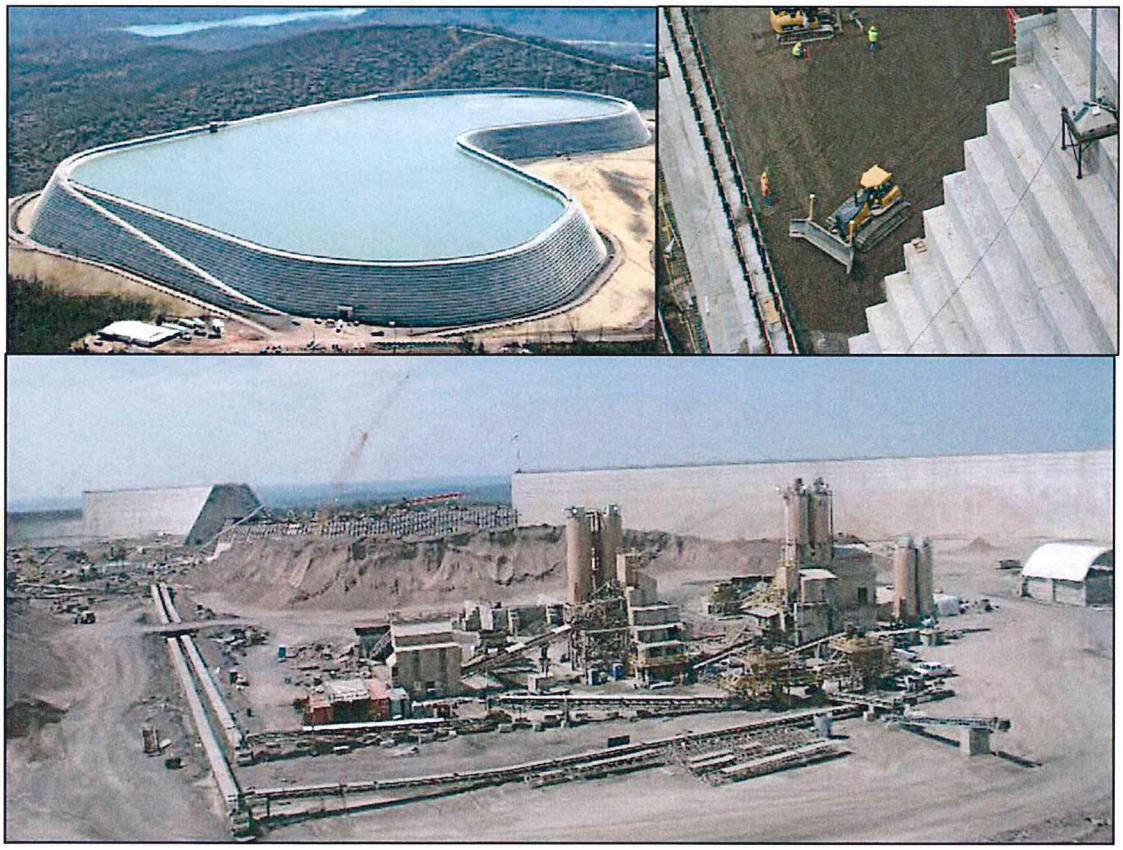
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## SECTION 3: RELEVANT PROJECT EXPERIENCE

While most large heavy civil contractors work in many diverse construction markets, ASI has made its reputation and built its experience in just one market - DAMS. This wealth of decades of experience provided by ASI will ensure that the Littlerock Project is built on-time and on-budget for the benefit of the PWD.

Some of the achievements our people can claim in dam construction include:

- Completion of the largest RCC dam in United States, with approximately 3.25 million cubic yards of RCC and mass concrete (Taum Sauk Dam, 2010);
- Construction of Australia's two largest new dams since the 1960's, including the Cotter Dam Enlargement Project, which is the largest RCC dam in Australia (Cotter Dam, 2013 and Wyaralong Dam, 2011);
- Three -time recipient of the United States Society on Dams Award of Excellence in the Constructed Project (2013, 2010, 2007); the highest award a dam project can receive in the US;
- ASI personnel have worked on dam projects in 27 states within the US and on six major international dam projects, spanning 6 of the world's continents.



Picture 1:
Taum Sauk Plant Upper Reservoir Dam (MO) RCC Placement and
On-Site Aggregate Processing and Batch Plant

ASI's operating principles are summarized as follows:

> *"Sophisticated engineering and construction technologies, an honest commitment to fair business dealings along with a partnering approach to our work, and a genuine culture of safety and quality management are the foundations that we build on in all of our projects. ASI maintains an operations-driven focus where performance defines success in all aspects of our business."*

In accordance with the instructions in the Bid Package, ASI has provided detailed information on the following projects that are comparable to the Littlerock Project:

| Project Name and Location | Year Completed | RCC Quantity | Project Value |
|---|---|---|---|
| **Safety Upgrades and Repairs at Marine Corps Base Quantico; Quantico, VA** | 2018 | 12,000 CY | $9,358,918 |
| **Western Branch Reservoir Dam Safety Modifications; Suffolk, VA** | 2017 | 10,341 CY | $21,894,541 |
| **Fort Peck Plunge Pool; Valley County, MT** | 2017 | 101,000 CY | $38,982,094 |
| **Lockport Pool Major Rehabilitation, Stage IC, Forebay Wall Project, Phase 1; Lockport, IL** | 2016 | 77,000 CY | $33,250,962 |
| **Duck River Reservoir Phase II Dam and Raw Water Intake Project; Cullman, AL** | 2016 | 158,000 CY | $52,254,240 |
| **Clear Lake Dam Replacement; Georgetown, CO** | 2016 | 7,000 CY | $6,180,000 |
| **Mountain Creek Flood Retarding Structure #10; Midlothian, TX** | 2015 | 12,000 CY | $6,206,565 |
| ***Nesbitt Dam Rehabilitation; Scranton, PA** | 2012 | 40,000 CY | $22,274,000 |
| ***Deep Creek Watershed Dam 5D; Yadkin County, NC** | 2010 | 50,000 CY | $8,188,082 |
| ***Taum Sauk Plant Upper Reservoir Dam; Annapolis, MO** | 2010 | 2,851,000 CY | $405,000,000 |
| ***Littlerock Dam & Reservoir Restoration Project; Palmdale, CA** | 1994 | 115,000 CY | $12,500,000 |

*Historical Project added for reference and substantiation of ASI's capabilities in constructing RCC dams and other structures. No further information is included on these projects as they are outside the 36-month construction period requested by the Owner.

Detailed Highlight Sheets for these projects follow with the requested information:

1. Safety Upgrades and Repairs at Marine Corps Base Quantico; Quantico, VA
2. Western Branch Reservoir Dam Safety Modifications; Suffolk, VA
3. Fort Peck Plunge Pool; Valley County, MT
4. Lockport Pool Major Rehabilitation, Stage IC, Forebay Wall Project, Phase 1; Lockport, IL
5. Duck River Reservoir Phase II Dam and Raw Water Intake Project; Cullman, AL
6. Clear Lake Dam Replacement; Georgetown, CO
7. Mountain Creek Flood Retarding Structure #10; Midlothian, TX

**Please note that work completed prior to March 27, 2017 was performed by ASI personnel while employed by ASI Constructors, Inc.**

# SAFETY UPGRADES AND REPAIRS AT MARINE CORPS BASE QUANTICO

Quantico, VA USA



**Fast Facts**

**Contract Value:**

$9,358,918

## PROJECT HIGHLIGHTS

The repair and safety upgrades at the Marine Corps Base in Quantico consisted of the following:

Lunga Dam: Design and construction of a roller-compacted concrete auxiliary spillway within the existing earthen embankment, design and construction of seepage collection system, design and installation of a method for low level reservoir release at the end of the existing embankment conduit, design and installation of a secondary closure on the main intake tower sluice gate, replacement of existing intake tower components, sealing of cracks in ogee spillway and clearing of accumulated sediment in front of main sluice gate.

Breckinridge Dam: Design and construction of additions to the embedded corewall / dam section of the concrete gravity dam for diverting flow from earthen abutments, design and installation of a secondary closure on the main intake tower sluice gate, design and construction of seepage collection system, design and construction of erosion protection along downstream toe, replacement of existing intake components, clearing of accumulated sediment in front of main sluice gate and clearing of accumulated debris within outlet tunnel and replacement of trash screen.

Gray's Reservoir Dam: Restoration of reservoir to design capacity by removal of deposited materials, disposal of deposited material off Government property, placement of erosion protection along downstream toe, removal and disposal of abandoned trash screen machinery, installation of grated cover, safety railing, intake sluice gate system, intake trash screen system, design and installation of a walkway from left abutment to intake structure, design and installation of manually operated all-weather solar powered lighting along walkway and at intake structure, repair of leaking concrete raw water pipe connected to intake structure, replacement of quote mark air and vacuum release quote mark valve and quote mark suction blow-off assembly quote mark on concrete raw water pipe. Other components of the work include all aspects of health and safety planning and execution, site preparation, surface and groundwater management (to include permanent seepage and erosion control measures), excavation and onsite stockpiling of debris, utility removal/relocation, noise control during construction, site grading, and site restoration (to include fencing, paving, restoration of above and below-ground utilities).

### NOTABLE FEATURES

These dams did not meet safety requirements and needed to be upgraded and repaired to safely provide water to MCB Quantico.

A portion of MCB Quantico's water is provided from a supply system that consists of Lunga Dam, Breckinridge Dam, and Gray's Reservoir Dam.

**Reference / Owner:**

U.S. Army Corps of Engineers
Norfolk District
803 Front Street
Norfolk, VA 23510-1096
T: 1 (757) 201-6244
Paula M. Beck
Contracting Officer
paula.m.beck@usace.army.mil

**Engineer:**

Same as above

**Completion Date:**

January 2018

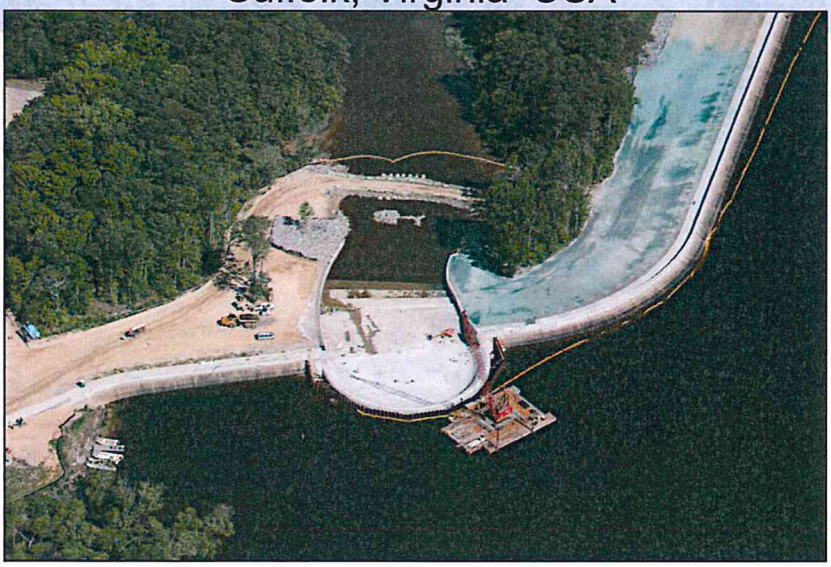
**Job Number:**

Job # 14-25

ASI

# WESTERN BRANCH RESERVOIR DAM SAFETY MODIFICATIONS

Suffolk, Virginia USA



**Fast Facts**

**Role:**
General Contractor

**Type of Dam:**
Earthen Embankment

**Dam Height:**
45 feet

**Crest Length:**
1,900 feet

**Roller-Compacted Concrete:**
10,341 CY

**Contract Value:**
$21,894,541

## PROJECT HIGHLIGHTS

The Western Branch Reservoir Dam Safety Modifications Project included remedial measures to upgrade the Western Branch Reservoir Dam to modern safety standards. The existing, earth embankment dam is about 1,900-feet long by 45-feet high with appurtenances that include a semi-circular reinforced concrete spillway crest, spillway chute slab and training walls, intake tower, embankment parapet walls, and upstream slope paving. The work included the construction of a new 500-foot wide roller-compacted concrete (RCC) secondary spillway, embankment reinforcement, a combined steel sheet and soil mix cutoff wall, renovation of the spillway and chute, replacing the concrete parapet wall, a new roadway on the crest, other access improvements, as well as repairs to various dam appurtenances. Project also work consisted of the installation of cofferdams and managing dewatering efforts while working on an earthen embankment dam.





## NOTABLE FEATURES

ASI personnel placed 9,782 CY in the spillway and 559 CY on the access road for a total of 10,341 CY.

130,000 SF of interlocking concrete pavers and 5,000 CY Structural Concrete.

Three temporary sheet pile cofferdams 1,000 LF and two permanent sheet pile cutoff walls 1,000 LF.

Excavation of 100,000 CY and 1,900 LF of Existing Concrete Parapet Demolition.

Concrete Demolition of Existing Primary Spillway Concrete.

**Reference / Owner:**
City of Norfolk
Cherryl Barnett
Engineering Manager
Department of Utilities
401 Monticello Avenue,
Suite 200
Norfolk, VA 23510
T: (757) 664-6745
Cherryl.Barnett@norfolk.gov

David Speer, PE
Department of Utilities
Division of Wastewater
1316 Ballentine Blvd
Norfolk, VA 23504
T: (757) 664-6724
David.Speer@norfolk.gov

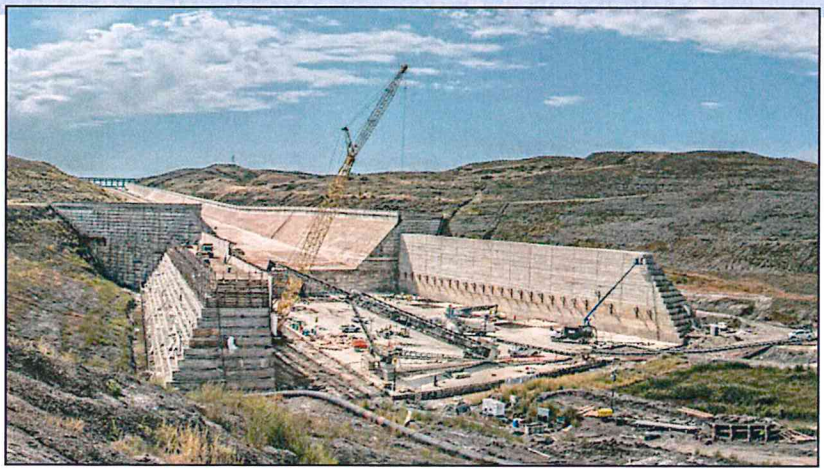
**Engineer:**
GEI Consultants
400 Unicorn Park Drive
Woburn, MA 01801
T: (781) 721-4034

**Completion Date:**
July 2017

**Job Number:**
Job # 14-26

# FORT PECK PLUNGE POOL

Valley County, Montana USA



## Fast Facts

**Type of Dam:**
Hydraulic earthfil

**Dam Height:**
250 feet

**Crest Length:**
50 feet

**Type of Spillway:**
Controlled overflow, 8x bulkhead gates

**Conventional Concrete:**
6,800 CY

**RCC Volume:**
101,000 CY

**Contract Value:**
$38,982,094

## PROJECT HIGHLIGHTS

The Fort Peck Dam on the Missouri River was subjected to severe flooding in 2011. This required operating its spillway for approximately four months with peak discharges more than double the previous maximum discharge since the project was constructed in 1938. The hole scoured at the downstream end of the spillway exposed much of the cutoff structure supporting the spillway chute. There was less than 30 feet of embedment remaining of the original 70 feet. There was a valid concern that the spillway cutoff structure was undermined.

The work on the Fort Peck Plunge Pool was part of $234 million that was being spent on more than 100 projects along the Missouri River to stabilize the Corp's system of dams and levees from Fort Peck to the Missouri River's junction with the Mississippi River.

The purpose of this project was to improve the stability of the existing cutoff structure by filling a significant portion of the scour hole with roller-compacted concrete (RCC) and installing tieback anchors through the existing left cutoff wall. In addition, training walls were used to facilitate placement of backfill to support the existing cutoff structure wing walls and to help divert erosive flow away from the critical locations near the intersection of the existing cutoff center wall and wing walls. Other work performed by ASI personnel included expanding a 175 foot apron length to 250-feet and 350-feet, widening the base of the training walls to facilitate future expansion and deepening the cutoff wall. Work by ASI personnel also included constructing a reinforced concrete cap on the apron to increase longevity of the repair and repairing concrete surface damage (spalling and cracks) on the existing spillway chute.



## NOTABLE FEATURES

Fort Peck is the largest hydraulically filled dam in the United States. The Fort Peck Dam is the highest of six major dams along the Missouri River.

Installation of 185 horizontal and 1,056 vertical anchors (horizontal 14,180 LF / vertical 38,512 LF) of post-tensioned bar anchors at 70 feet to 100 feet in length for the horizontal and 24 feet to 43 feet in length for the vertical.

Daily low temperatures were below freezing.

**Reference / Owner:**
U.S. Army Corps of Engineers
USACE District
2000 Fort Point Road
Galveston, TX 77553
Sara Jackets
Tel. (402) 995-2424

**Engineer:**
U.S. Army Corps of Engineers
USACE District
2000 Fort Point Road
Galveston, TX 77553
Sara Jackets
Tel. (402) 995-2424

**Completion Date:**
June 2017

**Job Number:**
Job # 12-19

# LOCKPORT POOL MAJOR REHAB., STAGE 1C, FOREBAY WALL PROJECT, PHASE 1

Lockport, Illinois USA



**Fast Facts**

**Type of Dam:**
Roller-Compacted Concrete

**Dam Height:**
43 feet

**Crest Length:**
1,600 feet

**Conventional Concrete:**
2,400 CY

**RCC Volume:**
77,000 CY

**Contract Value:**
$33,250,962

## PROJECT HIGHLIGHTS

The work for the Lockport Pool Major Rehabilitation, Stage IC, Forebay Wall Project, Phase I located in Lockport, Will County, Illinois included mobilization and demobilization; clearing and grubbing of trees and vegetation; installation of new temporary conduit; removal of existing communication cable and conduit; removal of existing chain-link fencing and gates; removal of existing flagpole, turbine and stone wall appurtenances; removal of existing guardrail; and construction of temporary construction access road with processed rock fill and rock surfacing. Work also included installation of jersey barriers; removal, salvaging, processing and stockpiling of existing stone retaining wall; excavation, processing and stockpiling of existing rock fill embankment; and construction of secant pile shoring wall. Work included excavation, processing and stockpiling of existing bedrock; placement of dental concrete; placement of roller-compacted concrete (RCC) for construction of an RCC wall; installation of a seepage control drainage system with perforated and solid PVC pipe and manholes; placement of Portland cement concrete (PCC); placement of impervious fill material; placement of processed rock fill; construction of two secant pile cutoff walls; installation of observation wells; and construction of maintenance garage with concrete foundation and slab. Work also included construction of a new lower access road with processed rock fill, granular subbase, and RCC pavement; placement of granular subbase and ACC pavement; reinstallation of existing chain-link fencing; installation of new chain-link fencing; installation of new guardrail; removal of existing and installation of new electrical and associated items; removal of existing onsite structures including maintenance garage, concrete cinder tower, and light tower; and reinstallation of existing flagpole, turbine, and stone wall appurtenances; and disposal of excess material.



**NOTABLE FEATURES**

Project was awarded the Dan W. Renfro Partnering Award; Mississippi Valley AGC - Mississippi Valley Construction Roundtable.

RCC was placed in 3 months (77,000 CY).

Project finished almost 5 months ahead of schedule.

Forebay Wall demolition adjacent to operational canal and lock.

6,820 CY rip rap placed.

Project consisted of installing cofferdams and managing dewatering efforts, also working on or near an earthen embankment dam.

**Reference / Owner:**
Scott D. Harris
U.S. Army Corps of Engineers - Rock Island District
1450 Rock Island Drive
Rock Island, IL 61201
T: (309) 794-5443

**Engineer:**
Mark R. Pratt, P.E.
Administrative Contracting Officer
U.S. Army Corps of Engineers - Rock Island District
1500 Rock Island Drive
Rock Island, IL 61204
T: (309) 794-5474
F: (309) 794-5795
C: (309) 737-6893

**Completion Date:**
September 2016

**Job Number:**
Job # 14-22

# DUCK RIVER RESERVOIR PHASE II DAM AND RAW WATER INTAKE PROJECT

Cullman, Alabama USA



**Fast Facts**

**Type of Dam:**
New RCC Dam

**Dam Height:**
135 feet

**Crest Length:**
295 feet

**Dam Length:**
2,400 feet

**RCC Volume:**
158,000 CY

**Conventional Concrete:**
10,000 CY

**Contract Value:**
$52,254,240

## PROJECT HIGHLIGHTS

The Duck River Reservoir Project, located in Cullman, AL provides much needed water storage for the City. Work consisted of construction of a hybrid RCC dam and spillway.

Site work consisted of common excavation and rock excavation in the dam footprint. Foundation preparation for the dam included dental excavation, foundation cleaning and mapping, placing dental and leveling concrete, and drilling and pressure grouting of the rock foundation. Two cofferdams were constructed to divert the Duck River through a 10-foot diameter reinforced concrete diversion pipe. The dam consists of a roller-compacted concrete (RCC) spillway with an access gallery, a 110-foot high embankments with a clay core and rock fill zones, and a conventional concrete stilling basin that measures approximately 100-feet long by 300-feet wide. The production of RCC was accomplished by mining rock from an onsite quarry, crushing the shot rock to produce aggregates, and the concrete was produced by an onsite batch plant. The earthen embankments are comprised primarily of clay, shot rock, and rip-rap, all of which were produced on site. The stilling basin is constructed with uplift pressure drains, chute blocks, and dentated sills. Water intake was achieved from five intake screens mounted on a 78-foot high intake tower constructed from conventional concrete. The intake tower foundation is anchored using prestressed anchors. Raw water intake is regulated using cast iron sluice gates. Two runs of 48-inch carbon steel pipe convey water, with one running to an outlet chamber located under the spillway and one extending towards the City of Cullman's water treatment center. Water flow is regulated using a valve system, highlighted by a 48-inch cone valve in the outlet chamber.

Other items of interest included a precast control building, 190-foot boat ramp, geotechnical and process control instrument installation, application of shotcrete and rock bolt installation to stabilize rock slopes.

**NOTABLE FEATURES**

650 acre reservoir which will meet water needs for the next 75 years.

Reservoir provides Cullman with additional drought- resistance.

Placement of the first RCC on the DRP was on December 4th or 185 days from the NTP.

Approximate GERCC quantity (vertical face) 55,000 SF.

**Reference / Owner:**
City of Cullman
Cullman Alabama Economic Development
106 Second Avenue NE
Cullman, AL 35055
Dale Greer
T: 1 (256) 739-1891
daleg@cullmaneda.org

**Engineer:**
CH2MHill
2112 Eleventh Avenue S. Ste. 320
Birmingham, AL 35205
Rick Riker
T: 1 (541) 602-3167
Rick.Riker@CH2M.com

**Completion Date:**
August 2016

**Job Number:**
Job # 14-07

# CLEAR LAKE DAM REPLACEMENT

Georgetown, CO USA



**Fast Facts**

**Type of Dam:**
New (Replacement) RCC Dam

**Dam Height:**
35 feet

**Crest Length:**
250 feet

**RCC Volume:**
7,000 CY

**Conventional Concrete:**
1,500 CY

**Contract Value:**
$6,180,000

## PROJECT HIGHLIGHTS

The Clear Lake Dam is located in Georgetown, CO and this project was part of the Georgetown Hydroelectric Project, owned and operated by Public Service Company of Colorado, d/b/a Xcel Energy. Clear Lake provides storage for winter-period operation of the hydroelectric plant and is also an important recreational facility in the region. Following state safety inspections, FERC expressed concerns about the dam's inadequate spillway capacity. The existing small, ungated spillway had the capability of passing the estimated 50-year flood prior to the dam being overtopped, however overtopping of the Clear Lake Dam during a large flood could result in dam failure. The project consisted of the removal of the existing embankment dam and the construction of a new RCC dam in the same location. Execution of the project work by ASI personnel required continuous water division around the area of the dam replacement. The water diversion system included multiple pumps and diversion pipelines capable of addressing seasonal flow rates, ranging from 25 cubic feet per second (cfs) to 80 cfs. Additional pumps were required for dewatering and control of water.





**NOTABLE FEATURES**

Remote project location.

Safety modifications.

**Reference / Owner:**
Public Service Company of Colorado,
d/b/a Xcel Energy
Sonny Buczek, P.E.
Sr. Project Manager
1800 Larimer Street
Suite 400
Denver, CO 80202
T: (303) 571-7201
F: (303) 294-2982

**Engineer:**
W.W. Wheeler & Associates, Inc.
Steve Jamieson, P.E.
3700 S. Inca Street
Englewood, CO 80110
T: (303) 761-4130
F: (303) 761-2802

**Completion Date:**
October 2016

**Job Number:**
Job # 14-12

# MOUNTAIN CREEK FRS #10

Midlothian, Texas USA



**Fast Facts**

**Role:**
General Contractor

**Type of Dam:**
Earthfill

**Dam Height:**
50 feet

**RCC Quantity:**
12,000 CY

**Contract Value:**
$6,206,565

## PROJECT HIGHLIGHTS



The MC-10 project included draining the existing Padera Lake, removing and replacing the principal spillway pipe and outlet structures, excavating, lime treating and replacing certain areas of the existing dam embankment, raising and widening the existing dam cross section, and constructing a new RCC emergency spillway. Principal items of work included approximately 100,000 CY of excavation/backfill and 12,000 CY of RCC. Work also included installation of a new concrete intake tower with a new slide gate to control outflow through the new principal spillway pipe and installation of new upstream rip rap slope protection as well as a new rip rap lined outlet channel. The project required the construction of a contractor-designed earthen cofferdam to control water. In May 2015, the project site received 15 inches of rain in 3 days causing the cofferdam to overtop twice. TV and radio stations were broadcasting the dam's imminent failure and predicting the loss of property and lives. Although damaged, the cofferdam held back the lake and prevented the catastrophic release of flood waters and thousands of tons of sediment downstream, which would have put the public at risk and potentially cause severe damage to the dam itself.



**NOTABLE FEATURES**

50,000 CY of lime treated earthfill.

Installation of a new under drain and toe drain.

Daily high temperatures were above 90 degrees Fahrenheit.

**Reference / Owner:**
Dalworth Soil & Water Conservation District
320 Westway Place,
Suite 511
Arlington, TX

**Engineer:**
NRCS
Tom Beach
101 South Main Street
Temple, TX 76501-7602
Tel.: +1 (254) 743-6352
Fax: +1 (254) 743-6356

**Completion Date:**
December 2017

**Job Number:**
Job # 14-10

## SECTION 4: ASI PROJECT TEAM

ASI takes great pride in our teams' delivery of some of the most complex heavy civil projects nationwide for owners such as the U.S. Army Corps of Engineers, the U.S. Natural Resource Conservation Service, and various flood control and water conservancy districts. Successful delivery of each project arises from our commitments to "Plan the Work and Work the Plan." Our teams capitalize on past experiences and leading-edge technology to meet aggressive budgets and demanding schedules. Realizing the specialized RCC work tasks that will be completed for the Littlerock Project, ASI has identified RCC dam specialists with decades of construction experience throughout the US for the Littlerock Project.




The following key personnel may be utilized for the construction of the Littlerock Project:

**John F. Bowen, President**

Mr. Bowen has over twenty-five years of dam and water facility construction management, project management, and cost estimating experience. He is responsible for acquisition and project management oversight for all ASI's projects from procurement to closeout. Mr. Bowen has amassed a wealth of experience and earned a strong reputation throughout the dam and water resource construction industry for his in-depth experience in the construction of RCC dams. Project sizes range from $500,000 to over $400,000,000, exclusively in dam and water facility heavy civil construction.

**Bill Fuller, Construction Manager**

For 46 years, Bill Fuller has built dams, tunnels, power plants, treatment plants, runways, crushers, and numerous concrete and steel structures. His amazing accumulation of experience sheds light on ASI's diversity and appetite for challenging projects. He is known for his innovation and "can do" attitude. Following an early 6-year career start in underground mining, Bill quickly moved through the ranks as a carpenter and carpenter superintendent for ASI. For 24 years, he has been General Superintendent, Operations Manager, and/or Construction Manager on many of ASI's most demanding and successful projects. *Bill, very likely, has more bottom-line RCC construction responsibility than most, if not all, others who have worked in his capacity. Consequently, Bill is recognized by industry leaders and RCC experts as an RCC production expert in his own right.*

A few of Bill's notable accomplishments include superintending or having construction management responsibility for each of ASI's RCC projects; construction of 150-foot-high, award-winning job delivery systems, components, concrete handling and placement innovations; and providing method and equipment consultation for each of ASI's international involvements. Other experience includes coffer dam installation, drilling and grouting, rock excavation, design of access and egress methods, piling installation, and managing welding and fabrication for all types of temporary and permanent construction tasks.

In addition to his Construction Manager role, Bill is a Manager of all ASI concrete plants, conveyor systems, telebelts, and pump trucks. These tasks include selection, means and methods, plant set-up, plant removal, and job specific plant and conveyor modifications.

**Jim Brower, RCC Superintendent**

James Brower has over 38 years of experience in RCC and many diverse water resource projects including new dams, dam rehabilitations and many other similar water conveyance projects. He is experienced in RCC production, placement, roller use, moisture levels, direct hands on experience on lifts, bedding grout, control joints, and facing concrete. Mr. Brower's responsibilities have included managing foremen and crews effectively, development of short interval schedules, managing timekeeping and daily task planners, ensuring the implementation of daily tool box meetings to discuss safety, quality and productivity and then practice and manage safety on the project site and with teams. He also manages equipment utilization, reads and understands plans and specifications, plans the project to minimize delays, maximize efficiency and ensure a smoothly run project. He develops project schedules, CPM schedules, short interval scheduling, indirect labor schedules and equipment schedules. He schedules and coordinates subcontractor activities, deliveries, handling, storage, inspections, and placement of materials and equipment on the job site with vendors, He monitors task/project progress and adjusts schedules, work crews, and deliveries as required and ensures that all project reporting and documentation is completed in a timely manner.

**Other Positions**

Safety, Quality Control and Project Manager positions will be filled prior to Notice of Award if ASI is the successful proposer.

ASI is committed to providing the necessary staffing at all phases of the Littlerock Project. Should additional personnel be required during the Littlerock Project, sufficient resources are available to ramp up staffing as needed to satisfy project requirements and stay on schedule.

## SECTION 5: ASI EQUIPMENT RESOURCES

ASI and its parent, Shaft Drillers International LLC, maintain an owned-equipment inventory of over $100,000,000. Equipment includes heavy earthmoving equipment, marine equipment, batch plants, drilling equipment and numerous fleet vehicles. In addition, national accounts are maintained with major equipment vendors, which ensures our ability to efficiently and cost effectively supplement the fleet, if necessary. ASI has the financial wherewithal to acquire the specific equipment necessary to construct this project in a cost and schedule efficient manner.

ASI owns and operates over a dozen portable RCC plants capable of producing both Roller Compacted and Conventional concrete. These plants have production capacities ranging from 80 cubic yards per hour to 400 cubic yards per hour.



ASI anticipates using one of our Apache plants for the Littlerock project as seen on the nearby photo, which has a capacity of 150 cubic yards per hour. The Apache can accurately blend up to four aggregates and both cement and fly ash. Components are weighed and dropped into the hopper just below the top of the diagonal silo. They then are dropped into the compulsory mixer (blue equipment at center of photo). Water is introduced and the powerful twin shaft mixer completely mixes the entire batch in less than a minute. After mixing, a gate at the bottom allows the mixed RCC to gradually transport onto a load out conveyor, which then feeds the diagonal truck loading conveyor seen in the foreground of the plant. The entire process takes about two minutes and is controlled by a computerized batching system.

# SECTION 6: SAFETY

## APPROACH TO SAFETY

ASI is committed to accomplishing the work activities in a safe and workmanlike manner and to pursuing a safety program that is designed to provide a safe and healthful workplace for ASI employees, its subcontractors, vendors, and other project partners.



Figure 1: "No Walk By" Policy

Empowers every individual project team member to stop unsafe work activities

ASI recognizes the following factors as being critical to providing a safe and healthful workplace: preventing workplace injuries, knowledge of safe work practices, knowledge of safety and health regulations, and working together as a team to "make it happen." ASI chooses to manage its safety program using a team-based philosophy. While there will be dedicated personnel assigned to the safety management organization, ASI employs a "no-walk-by" policy that encourages personnel at all levels to be responsible for the safety of those around them. This policy empowers every individual project team member with the authority to stop unsafe work activities until a corrective action is taken to provide a safe environment. ASI's success with the safety management approach is demonstrated with consistent EMR ratings that are less than 1.0. See following page.

## SAFETY OF SUBCONTRACTORS

ASI has established procedures to review and require that subcontractor safety programs, training, procedures and initiatives coordinate with ASI own standards of safety. The process is intended to help ensure that, in the event subcontractors are utilized by ASI as part of a work program, each subcontractor's safety programs, OSHA compliance, training, confirmations, documentations and statistical results of previous safety performance are in accordance with requirements of both ASI and their customer. Under this program and its associated processes, any subcontractor will be reviewed and qualified by ASI prior to performing work as a subcontractor as part of an ASI project.

Subcontractor personnel will utilize, cooperate with, attend and support all pertinent components of safety programs and procedures; safety orientation, training, tailgate talks. Review and evaluation will be performed by ASI Safety Compliance Manager, or a qualified third party as designated by the Safety Compliance Manager. Written materials, submissions, results and documentations of subcontractor pre-qualification reviews will be maintained by the Safety Compliance Manager in a file for a period to be determined in coordination with ASI designated legal counsel. Subcontractors assigned by the ASI to a project will attend initial safety and planning meetings; project safety orientations; incident, injury and illness response planning and coordination meetings. Subcontractor personnel will participate in these and other such activities as required in preparation for working safely at the project location. The subcontractor will attend weekly safety and daily meetings; qualification and/or certification requirements; periodic safety meetings and awareness activities; safety inspections; incident reporting and investigation procedures; and other such safety, health and incident prevention initiatives as may be established for all workers at a project location. Subcontractor personnel will participate in and cooperate with Job Hazard Analysis (JHA), Activity Hazard Analysis (AHA) and Job Safety Observations (JSO) as established for the project workplace.

## EMR LETTER

Construction Services Group

April 16, 2018

**RE: ASI Construction LLC**
**NCCI Risk ID #911271990**

To Whom It May Concern:

Please accept this letter as evidence of the E-Mod history for ASI Construction LLC. These apply on an interstate basis to all NCCI states.

| Effective | EMR |
|---|---|
| 5/22/2017-5/22/2018 | .81 |
| 3/27/2017-5/22/2017 | .93 |
| **Previously under ASI Constructors Inc NCCI Risk ID #911981564** | |
| 7/1/2016-3/27/2017 | .90 |
| 7/1/2015-7/1/2016 | .95 |
| 7/1/2014-7/1/2015 | .95 |
| 7/1/2013-7/1/2014 | .91 |
| 7/1/2012-7/1/2013 | .97 |

If you require additional information, please feel free to call.

Sincerely,

Lynnell Frank
Account Manager

## SECTION 7: QUALITY

ASI gives consideration to Quality on every project at every stage, from bid preparation through final completion. Multiple personnel in upper management and at the project level have been trained by the US Army Corps of Engineers on Construction Quality Management and maintain current USACE/NAVFAC certifications. After award, our team will finalize and maintain an effective, project specific Littlerock Project Contractor's Quality Control (CQC) Plan consisting of the procedures and organization necessary to produce a product that meets or exceeds the contract documents. The preliminary project-specific CQC program described herein is based on corporate templates that have been prepared for use, as appropriate, in the development of project-specific plans based on the size, complexity, and specific requirements of each project.

The CQCSM will be onsite and fully engaged for the major features of work on the project and will have sufficient supporting quality control resources (supporting personnel, third party testing, etc.) to assist with quality control issues as it pertains to this contract. Any personnel serving as Quality Control personnel for their respective portion of work shall report to the CQCSM on quality control matters.

The CQC organization will vary from time to time as the project progresses. However, the CQCSM shall have at his disposal the staff/organization he deems necessary to perform the requirements of this project. The CQC system is designed as an interactive program, whereby the onsite CQCSM receives support from all sides including, but not limited to, third party QC field inspection and laboratory services, direct & corporate managers, and documentation support. ASI is committed to providing the necessary resources required to execute the quality control plan.

### QUALITY CONTROL PROGRAM OUTLINE

The quality control process involves various tasks that can be generally categorized by chronologically as planning, work, and follow-up phases. Successful implementation of quality control measures throughout each phase for definable feature of work is essential to achieving compliance with specified requirements.
The planning phase is performed prior to beginning each definable work task. This phase includes, but may not be limited to, the following tasks:

a. Review the contract drawings and each paragraph of applicable specifications, reference codes, and standards to ensure adequate knowledge and understanding of the specific project requirements for performance and quality control inspection and testing.
b. Discuss procedures for controlling quality of the work, and document construction tolerances and workmanship standards for the work task.
c. Review submittals and determine that they are complete in accordance with the Contract Documents.
d. Verify that all materials and/or equipment have been tested, submitted, and approved.
e. Review provisions that have been made to provide required control inspection and testing and confirm the scheduling of on-site and off-site testing with the ASI CQC organization and/or PWD, as applicable.
f. Examine the work area to assure that all required preliminary work has been completed and is following the contract.
g. Examine required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
h. Verify that submittal comments, if any, have been incorporated.

i. Discuss the results of planning with PWD, and conduct the planning meeting with the CQCSM, CMAR, Superintendent, other CQC personnel as applicable, and foreman responsible for the task. Instruct applicable workers as to the acceptable level of workmanship required.

The work phase occurs after all the requirements of the planning phase have been met and just prior to and during the initial period of performance for each definable feature of work. Tasks associated with the work phase include the following:

a. Notify PWD at least 24 hours in advance of beginning the work and confirm that planning phase requirements have been satisfied.
b. Examine the Work to ensure it is in full compliance with the contract documents.
c. Verify adequacy of controls to ensure full compliance with project requirements, including control inspection and testing frequencies and methods.
d. Verify that the established levels of workmanship meet acceptable workmanship standards and compare workmanship to sample panels, as appropriate.
e. Repeat the work phase for each new crew to work on the definable work task and any time that acceptable quality standards are not being satisfied.

The follow-up phase is the period during and after performance of each definable feature of work. Tasks associated with follow-up include the following:

a. Assurance of continued compliance with the contract drawings and specifications
b. Control testing and/or inspections as required by the specifications
c. Monitoring deficient work for correction
d. Prepare and submit daily QC reports
e. Preparing as-built drawings and other documentation, as required by the contract.
f. Address the "trickle-down" effect of any changes in the field conditions or as-built product of each feature of work on the remaining project work requirements.
g. Ensure that all deficient items are promptly corrected.

## TRACKING AND RESOLUTION OF ISSUES

The tracking log provides a history of the quality of work being performed and ensures that all deficiencies are adequately addressed in a timely manner. The purpose of tracking deficiencies is to minimize the amount of substandard work on a project through education, creating awareness within the workforce of project standards, and effectively disciplining those involved with the project to enhance the quality of the finished product.
As the project progresses, deficient work may be detected regarding administrative functions, safety issues or violations, technical requirements, and other field issues. Deficiencies will be identified and documented appropriately when detected. Deficiencies that are corrected immediately will not be recorded on the tracking log if completed by the end of the work day but will be noted in the daily QC report. Those that cannot be fully resolved with immediate action will be logged and tracked accordingly.

The entries on the tracking log will be maintained as an Excel spreadsheet to allow for expansion and sorting as to the nature of the deficiency, time & date, and the severity, as well as targeting specific trades, supervisors and work features.

## ENSURING QUALITY FROM SUBCONTRACTORS

To ensure the quality of construction, all subcontractors who are responsible for specific definable features of work shall be required to designate a CQC representative who will be responsible for controlling the quality of their work. This representative will in most cases have dual responsibilities. Prior to commencing to work, each subcontractor will be made fully aware of ASI's CQC Plan and the expectations, roles and responsibilities therein.

## SECTION 8: CLARIFICATIONS

1. Pricing is based on current wages from the following Owner referenced site https://www.dir.ca.gov/Public-Works/Prevailing-Wage.html

2. Pricing is based on locally available Flyash. This may require mix design modification.

3. Pricing for RCC steps is included in the Bid Form. If steps are revised to allow sloped facing, the price can be reduced by $225,000.

4. Pricing reflects installing RCC during the normal day shift. If day-time temperatures are prohibitively high, night placements will be required. If required, we will need 25 nights to complete the placements.

5. Pricing reflects completing the project by December 31, 2018.

6. Pricing includes restoration of disturbed campground asphalt areas only. No provision is included for Forest Service road repairs.

# APPENDIX A - ASI TEAM RESUMES

ASI Construction LLC
1880 Office Club Pointe, Suite 2000, Colorado Springs, Colorado 80920 T: +1 (719) 647-2821 F: +1 (719) 647-2890
"A Shaft Drillers International Company"

**JOHN F. BOWEN**
President

**YEARS WITH FIRM:** Since 2017 **TOTAL YEARS OF INDUSTRY EXPERIENCE:** Since 1990

## KEY QUALIFICATIONS:

Mr. Bowen has over twenty-five years of dam and water facility construction management, project management, and cost estimating experience. He is responsible for acquisition and project management oversight for all ASI's projects from procurement to closeout. Mr. Bowen has amassed a wealth of experience and earned a strong reputation throughout the dam and water resource construction industry for his in-depth experience in the construction of RCC dams. Project sizes range from $500,000 to over $400,000,000, exclusively in dam and water facility heavy civil construction.

Mr. Bowen's duties include management of all project acquisitions and oversight of all company operations, including responsibility for tracking and managing all project budgets, schedules, contract issues, and maintaining positive client relations.

John has led the construction of some of the largest RCC projects in the United States and abroad to include the $405 million Taum Sauk Upper Reservoir Rebuild Project which included 3.3 million CY of RCC to complete the construction of an RCC gravity dam with conventional concrete facing. This project was awarded the 2010 USSD Award of Excellence in the Constructed Project. The Wyaralong Dam Project in Beaudesert, Australia, involved the construction of an RCC dam 1,600 feet in length and 157 feet high. This project was awarded the 2011 Alliance Contracting Excellence Awards (Category A- Major Project Alliances) in Sydney, Australia. Additionally, Mr. Bowen directed the construction of the $32 million Hickory Log Dam in Canton, GA—the tallest non-federal dam in state of Georgia. This project consisted of the construction of a 188-foot high by 1050-foot long RCC gravity dam and ancillary facilities in only 6 months.

## PROFESSIONAL LICENSES AND EDUCATION:

Bachelor of Science, Civil Engineering, University of Virginia - 1990
Engineer in Training, Virginia

## EXPERIENCE RECORD:

**President for the following ASI Projects:**
**Highline Canal Diversion Dam Replacement (CO);** $1.3 MM
**Modifications to the Lake Ogletree Spillway (AL);** $15.8 MM
**Upper Brushy Creek Dam 7 Modernization (TX);** $17.8 MM
**Arkansas River Levee Improvements Phase 3 (CO);** $4.6 MM

**Buckeye Lake Dam Improvements CMAR (OH)-** $110 MM
**Lower Bois d'Arc Reservoir CMAR Team (TX) -** $800 MM
**Hope Mills Dam Replacement Design-Build (NC) -** $8 MM
**Quantico Marine Corps Base Design-Build 3 Dams** - $8 MM
**Western Branch Dam -** $21.9 MM
**Lockport Pool Major Rehabilitation, Stage 1C Forebay Wall (IL)** - $31.9 MM
**Duck River Reservoir Phase II Reservoir and Dam (AL) –** $53 MM
**Green River Raw Water Reservoir (WY) -** $15.6 MM
**Joint Booster Pump Station #3 Reservoir (TX)** - $11.4 MM
**Beaver Park Dam Rehabilitation (CO)** - $8.9 MM
**Arkansas River Levee Improvements (CO) -** $3.6 MM
**Mountain Creek FRS #10 (TX) –** 5.6 MM
**Upper Dam (ME) -** $16.1 MM
**Fort Peck Plunge Pool (MT)** - $33.9 MM
**Spring River Dam (AR)** - $3.15 MM
**Ute Reservoir Intake Screens, Tunnel and Pump Forebay Shaft (NM)** - $13.98 MM
**Rocky Pen Run Dam & Reservoir Hydraulic Structures (VA)** - $33.5 MM
**Lake Texoma Outfall to Wylie WTP Raw Water Pipeline Plant Bid Package #3 Balancing Reservoir (TX) -** $21.59 MM
**Stagecoach Spillway Replacement, Tacoma Hydroelectric Project (CO) -** $3.9 MM
**Los Alamos Canyon Dam Modifications (NM) -** $2.65 MM
**Terrace Reservoir Spillway (CO)** - $4.2 MM
**Modifications to Lake Roberts Dam (NM)** - $5.3 MM
**Lower Occoquan Dam Rehabilitation (VA)** - $3.6 MM
**SDS Pueblo Dam Connection General Construction (CO) -** $5.6 MM
**Pathfinder Dam Spillway Modifications (WY) -** $2.67 MM
**New Creek Site 14 Dam (WV) -** $3.98 MM
**Cabresto Dam Rehabilitation (NM) -** $5.5 MM
**Dutch Fork Lake Dam Renovations (PA) -** $3.5 MM
**T. Nelson Elliot Dam Safety Modifications (VA) -** $6.4 MM
**Canton Lake Dam Weir and Hydraulic Structures (OK) -** $42 MM
**Dry Comal Creek Flood Retarding Structure (TX) -** $12.7 MM
**Nesbitt Dam Project –** $19 MM - Dam Rehabilitation
**Burlington Dams Rehabilitation -** $4 MM - Dam Rehabilitation
**Hudson Ranch 1 Geothermal Project –** $10 MM - Geothermal Plant
**Harry S. Truman Project -** $2.6 MM
**Big Haynes -** $1.8 MM - Dam Rehabilitation
**Lake Rush Dam Modifications -** $3.2 MM - Dam Rehabilitation
**Pathfinder Dam -** $2.7 MM - Dam Rehabilitation
**Wyaralong Dam Project Australia -** $348 MM AUD (project) - New Dam
**Wide Hollow Water Supply Storage Facility -** $8.4 MM
**Cotter Dam Enlargement Project Australia -** $362 MM AUD – New Dam
**Dog River Dam Emergency Repairs -** $1.3 MM – Renovation
**Deep Creek Dam –** $7.7 MM - New Dam
**Bear Creek Dam Rehabilitation Project –**$10 MM - Construction of an RCC Berm (Dam)
**Dog River Dam Modifications –** $11.4 MM - Spillways and Outlet Modifications
**Catawba Dam ESSI Project –** $13.6 MM - Dam Modification and Rehabilitation
**USAF Academy Repair Non-Potable Reservoir No.2 -** $3.1 MM - Dam Rehabilitation

**Repair/Alter Storm Water System Phase II - Big Lake Dam -** $1.1 MM - Dam Rehabilitation
**Taum Sauk Plant - Upper Reservoir Reconstruction Project –** $405 MM – New Dam
**Modifications to Dams Y-15 and Y-16 Yellow River Watershed (NC) -** $6.1 MM – Spillways/Outlet Modification
**Hickory Log Dam - Phase II (NC) -** $6.36 MM – New Dam

**Vice President for the following ASI Projects:**
**Indiana Army Ammunitions Plant (IN) -** $1.9 MM - Dam Rehabilitation
**Pine Brook Dam and Reservoir (CO) -** $4.0 MM - New Dam and Reservoir
**Little Puerco Wash Flood Protection (NM) -** $3.37 MM - New Dam
**San Juan Chama DWP Diversion Dam (NM) -** $15.3 MM - New Dam
**Franklin Dam Replacement (KY) -** $4.98 MM - New Replacement Dam
**Marrowbone Creek Dam No. 1 (VA) -** $2.48 MM - Dam Rehabilitation
**Yellow River Dam Y-17 Rehabilitation (GA) -** $1.45 MM - Dam Rehabilitation
**Piute Dam Rehabilitation (UT) -** $4.2 MM - Dam Rehabilitation
**Upper Stillwater Dam (UT) -** $5.59 MM - Dam Rehabilitation
**Standley Lake Dam Rehabilitation (CO) -** $32.5 MM - Dam Rehabilitation
**Loch Raven Dam Rehabilitation (MD) -** $28.9 MM - Dam Rehabilitation
**Wolf Creek Tunnel Lining and Roadway Project (CO) -** $12.24 MM
**Bluestone Lake Dam (WV) -** $20.4 MM

**Cobbs Creek Reservoir Dam and Facilities Construction; Henrico County, VA**
Completion: January 2022 Contract Value: $32,600,000 (ASI)
Client: MEB-Haymes Joint Venture
Cobbs Creek Reservoir is Henrico County's $280 million project to secure its drinking water needs for the next 50 years. The Cobbs Creek Reservoir is a regional water supply project located on approximately 1800 acres in Cumberland County, Virginia. The project—with a 15-billion-gallon raw water storage capacity within a 1,100-acre normal pool—is intended to meet customer needs for the next 50 years. Raw water will be diverted to the reservoir from the James River when river flows are adequate, and controlled releases from the reservoir will be made when the flows in the James River are inadequate to support regional demands. The project includes a 160-foot-high, 4,000-foot-long primary embankment dam and concrete intake tower, a 30-foot-high saddle dam, and associated spillway, river intake, pump station, transfer pipeline, outlet works, and maintenance vehicle access bridges.

ASI, as a subcontractor to MEB-Haymes Joint Venture, will complete the concrete structures and pipe encasements for the project and other work scopes including 2 intake structures, 2 intake valve vaults, concrete encasement for large diameter conveyance pipe, raw water pump station concrete, 72" transfer pipeline and encasement, transfer pipeline meter vault, transfer pipeline valve vault, energy dissipator, reservoir drain valve vault. 84" outlet works pipe install and encasement, inlet/outlet tower, 60" outlet works pipe install and encasement, low level inlet riser, impact basin and spillway structure. ASI will blast and process the aggregates needed for dam construction with an onsite aggregate processing plant. ASI will also batch and deliver the concrete needed for the project with an onsite concrete batch plant. Construction will commence in June 2017. Completion is anticipated by 2022.

**Upper Brushy Creek Dam 7 Modernization; Cedar Park, TX** Contract Value: $17,819,013
Completion: March 2018 (Est.)
Client: Upper Brushy Creek Water Control & Improvement Dist.

Upper Brushy Creek Dam 7 is a 2,250-foot long earthen embankment dam. The embankment height ranges from 35 to 40 feet across most of the structure with its tallest portion of 56 feet being in the vicinity of the principle spillway outfall. Originally constructed in 1965 by the NRCS, it is now owned by the Upper Brushy Creek Water Control and Improvements District (WCID). The Upper Brushy Creek Dam 7 Modernization Project included the construction of a new labyrinth spillway within the pre-existing auxiliary spillway channel along with additional channel widening, slope armoring, landscaping features, surface treatments, and the installation of a decorative concrete sidewalk. Key components to the installation of the 330-foot wide labyrinth spillway was the mass amount of rock excavation required to establish the footprint of the structure and the relocation of approximately 1,560 linear feet of sanitary sewer line that passed through that area as well. Key project quantities include: Construction of a 330- foot wide, reinforced concrete, labyrinth spillway; Labyrinth Weir Length- approximately 1,980 linear feet; Stepped chute discharge channel with baffle blocks and stilling basin; Architectural facing on stepped chutes and exterior portions of the training walls; 29,895 SY of embankment and surface preparation, and the installation of 19,930 CY of rip rap armoring; Construction of approximately 3,000 linear feet of colored concrete sidewalk and approximately 2,600 linear feet of decorative guardrail; Earthen cofferdam.

**Fort Peck Plunge Pool; Fort Peck, MT** Contract Value: $38,982,094
Client: U.S. Army Corps of Engineers
Completion: June 2017
Fort Peck Dam on the Missouri River was subjected to severe flooding in 2011. This required operating its spillway for approximately 4 months with peak discharges more than double the previous maximum discharge since the project was constructed in 1938. The hole scoured at the downstream end of the spillway exposing much of the cutoff structure supporting the spillway chute. Less than 30 feet of embedment remained of the original 70 feet leading to concerns that the spillway cutoff structure was undermined. The purpose of this project was to improve the stability of the existing cutoff structure by filling a significant portion of the scour hole with Roller Compacted Concrete (RCC) and installing tieback anchors through the existing left cutoff wall. In addition, training walls were used to facilitate placement of backfill to support the existing cutoff structure wing walls and to help divert erosive flow away from the critical locations near the intersection of the existing cutoff center wall and wing walls. Other work to be performed included expanding a 175-foot apron length to 250-feet and 350-feet; widening the base of the training walls to facilitate future expansion; deepening the cutoff wall; constructing a reinforced concrete cap on the apron to increase longevity of the repair; and repairing concrete surface damage (spalling and cracks) on the existing spillway chute.

**Duck River Reservoir Phase II Dam and Raw Water Intake Project; Cullman, AL**
Completion: August 2016 Contract Value: $51,795,292
Client: City of Cullman
The Duck River Reservoir was a $110 million-dollar, long-term project to meet the water needs of Alabama for the next 75 years. The Duck River project created a 640-acre lake with a 32-million-gallon-per-day capacity in northeast Cullman County, which works in conjunction with the area's current sole major water source, Lake Catoma. Site work consisted of common and rock excavation in the dam footprint. Foundation preparation for the dam included dental excavation, foundation cleaning and mapping, placing dental and leveling concrete, and drilling and pressure grouting of the rock foundation. Two cofferdams were constructed to divert the Duck River through a 10-foot diameter reinforced concrete diversion pipe. The new dam consisted of a roller compacted concrete (RCC) spillway with an access gallery, a 110-foot high

embankments with a clay core and rock fill, and a conventional concrete stilling basin that measures approximately 100-feet long by 300-feet wide. The production of RCC was accomplished by mining rock from an onsite quarry, crushing the shot rock to produce aggregates, and the concrete was produced by an onsite batch plant. The earthen embankments were comprised primarily of clay, shot rock, and rip-rap, all of which are being produced on site. The stilling basin was constructed with uplift pressure drains, chute blocks, and dentated sills. Water intake was achieved from five intake screens mounted on a 78-foot high intake tower constructed from conventional concrete. The intake tower foundation was anchored using prestressed anchors. Raw water intake is regulated using cast iron sluice gates. Two runs of 48-inch carbon steel pipe convey water, with one running to an outlet chamber located under the spillway and one extending towards the City of Cullman's water treatment center. Water flow is regulated using a valve system, highlighted by a 48-inch cone valve in the outlet chamber. Other items include a precast control building, 190-foot boat ramp, geotechnical and process control instrument installation, application of shotcrete and rock bolt installation to stabilize rock slopes.

**Lake Texoma Outfall to Wylie WTP Raw Water Pipeline Plant; Howe, TX**
Completion: November 2013 Contract Value: $21,589,000
Client: North Texas Municipal Water District
This project consisted of connecting to the existing 72-inch outfall pipeline near existing Lake Texoma Outfall; construction of a dual-cell 240 Million Gallon Balancing Reservoir; installation of approximately 1400 LF of 96-inch and 300 LF of 78-inch installation also include the 78" magmeter. Each cell was lined with geocomposite and HDPE liner and topped with 12" of soil cement. Work also included 224,000 SY of geocomposite and liner, and installation of in-line isolation valves and air-release valves. Final project quantities included 79,000 CY of soil cement and 6,330 CY of conventional concrete.

**Rocky Pen Run Dam & Reservoir Hydraulic Structures; Stafford, VA**
Completion: November 2013 Contract Value: $35,500,000
Client: Stafford County
The Rocky Pen Run Dam and Reservoir Project consisted of the construction of an earthen embankment dam, a 26.5 MGD raw water pump station, rock excavation, labyrinth weir crested chute spillway and stilling basin, intake tower and pipeline, saddle dike, and impoundment preparation for the reservoir area. The construction of the dam consisted of 275,000 CY of excavation (including rock), placement of approximately 1 million CY of multiple distinct zones of select material. The multiple zones of the dam consisted of a core, intermediate shell, outer shell, and chimney and blanket drains. The upstream and downstream slopes are 3H:1V and 2.5H:1V respectively, with the various interior zones having steeper slopes. Riprap was placed on portions of the upstream slope. Approximately 16,000 CY of conventional concrete was utilized for the concrete structures.

**Cotter Dam Enlargement Project; Canberra, Australia (ACT)**
Client: Bulk Water Alliance Contract Value: $362,000,000 AUD (Project)
Completion: June 2013
The Cotter Dam Enlargement Project involved the design and construction of a new 260-foot-high RCC dam approximately 1,000 feet down-stream of the existing 100-foot-high Cotter Dam. The new dam is a concrete gravity dam with a grout enriched RCC face. Flood flows were passed over the dam through principal and auxiliary spillways. Because of the hot and arid conditions in the region, strict temperature controls were implemented for the concrete to

reduce cracking of the concrete during the curing process. The project was a design build alliance between owner, engineer and contractor.

**Hudson Ranch 1 Geothermal Project; Calpatria, CA** Contract Value: $10,736,510
Client: Hudson Ranch I Power LLC, Dallas, TX
Completion: July 2011
The Hudson Ranch I project was a 49.9 megawatt (MW) Geothermal power generating facility developed within the Salton Sea known resource area in Calipatria, California. The project involved the erection of the major foundations including a turbine-generator structure, cooling tower, wellhead separators, crystallizers, water tanks, primary and secondary clarifier tanks, pipeline supports, and various ancillary structures. Raw water ponds and perimeter flood protection embankments were constructed at the perimeters of the geothermal plant site. The project utilized state of the art flash steam technology and became operational in 2012.

**Wyaralong Dam Project; Beaudesert, Australia**
Client: Queensland Water Infra. Pty Ltd (QWI) (Project) Contract Value: $348,000,000 AUD
Completion: March 2011
The Wyaralong Dam provides an extra 17,000 acre-feet of water every year and is 1,600 ft in length and 157 ft high. The Wyaralong Dam Alliance was comprised of a team of highly skilled professionals consisting of leading construction, design and infrastructure specialists with collective individual experience on hundreds of dams. The works package included the construction of a 150,000 CY roller compacted concrete dam, built across the river channel, and designed to pass flood flows over a centrally-placed spillway within the embankment itself. The dam was designed to withstand full flood and earthquake loading in accordance with the Queensland Dam Safety Management Guidelines and the Australian National Committee on Large Dams (ANCOLD) Guidelines. This project won the 2011 Alliance Contracting Excellence Award.

**Taum Sauk Upper Reservoir Rebuild Project; Annapolis, MO** Contract Value: $405,000,000
Completion: April 2010
Client: AmerenUE
The project consisted of the reconstruction of the Taum Sauk Plant Upper Reservoir including excavation, material crushing/processing, and RCC production and placement to replace the existing rock fill dam after a catastrophic failure. The Taum Sauk Plant - Upper Reservoir Rebuild Project consisted of returning an existing AmerenUE Pumped Storage Generation Facility to working condition after the Upper Reservoir suffered a breach in the existing concrete faced rockfill dam. The facility falls under the jurisdiction of the Federal Energy Regulatory Commission (FERC) and the project was constructed to satisfy requirements imposed by FERC for a return to service. These requirements were fulfilled by replacing the concrete face rockfill dam with a new symmetrical RCC dam. RCC aggregates = 6,000,000 TN - were produced by crushing the remaining rockfill dam materials after removal of the concrete facing element. The major work activities associated with this process consisted of excavation, rock excavation, crushing, foundation cleaning, dental/leveling concrete placement, RCC placement, upstream and downstream formwork, and 300,000 CY conventional concrete facing placement. Three RCC batch plants and one conventional concrete batch plant were erected onsite to produce materials required for dam construction. The dam axis has a length of 6,750 LF and the dam was constructed in a series of 9 monoliths each containing +/- 300,000 cubic yards of RCC. This project was awarded the 2010 USSD Award of Excellence in the Constructed Project.

**Hickory Log Dam; Canton, GA** Contract Value: $32,000,000
Completion: June 2007
Client: Cobb County-Marietta Water Authority
The project consisted of the construction of a 188-foot high by 1050-foot long RCC gravity dam and ancillary facilities. Major items of work include placement of approximately 230,000 cubic yards of RCC and approximately 15,000 cubic yards of foundation and reinforced conventional concrete, and 120,000 square feet of upstream face precast facing panels with PVC geo-membrane. Notable features of the project included: double shift RCC production, 400 CY/HR onsite RCC Plant, 100% conveyor delivery, tallest non-federal dam in state of Georgia and completed in 6 months.

**Loch Raven Dam Rehabilitation; Baltimore, MD** Contract Value: $28,861,000
Completion: September 2005
Client: City of Baltimore, MD
The rehabilitation of the Loch Raven Dam consisted of the construction of 75,000 CY RCC and conventional concrete buttress at an existing mass concrete dam. The work included a phased cofferdam diversion of Gunpowder River through the work site; demolition and reconstruction of the spillway outlet transition and approximately 180' of 10' diameter PCCP outlet conduit. It included installation of 58 high capacity post-tensioned cable of 120' in length each and anchors at 7,170' drill length, with 6,850' strand length; and construction of a miter gate closure system. Existing shotcrete and deteriorated concrete were removed from the spillway by mechanical and hydro-blasting methods. The work also included the rehabilitation of the existing outlet gates, intake screen rakes and the gate house; the excavation of 57,000 CY rock and common excavation, 60,000 CY RCC, and 15,000 CY conventional concrete; and also other miscellaneous site work. The project was delivered 5 months ahead of schedule.

**Standley Lake Dam Improvement; Westminster, CO** Contract Value: $32,510,700
Completion: October 2004
Client: Cities of Westminster; Thornton & Northglenn, CO
The Standley Lake Dam is in Westminster, Colorado and provides water storage for the cities of Westminster, Thorton, and Northglenn. The renovation work began in August of 2002 to correct embankment slope stability problems and enlarge the spillway to meet Colorado safety standards. The rehabilitation of the Standley Lake Dam included the construction of new, tunneled outlet works with a multi-level intake, the placement of additional berms on the downstream face to enhance dam stability and emergency spillway construction. The project included excavation of 1.4 million CY spillway channel and construction of embankment stability berm. New outlet works involved twin 72-inch diameter micro-tunnel wet taps of the existing reservoir with drives of approximately 650 FT and 1,220 FT at depths of 80 FT to 110 FT below water surface. It also included retrieval pit excavation and construction of two underwater intake structures. Work included construction of a 35-FT diameter reinforced concrete lined valve shaft 100 FT deep, excavation of 1,000 FT of 11.5 FT horseshoe conventional tunnel with 102-inch diameter steel conduit liner along with 2,750 FT of buried 102-inch steel conduit liner, and 720 FT of buried 84-inch steel conduit. Work included stream release facilities with two 36-inch fixed cone valves, a new valve house, new 7,500 CY concrete labyrinth weir spillway and 26,000 CY RCC in eight drop structures. Work also included abandonment of existing outlet works through the dam.

**Buckhorn Reservoir Expansion; Wilson, NC** Contract Value: $17,544,000
Completion: June 1999

Client: City of Wilson, NC
The Buckhorn Reservoir Expansion project consisted of the construction of a new 84,000 CY, 44 ft. high, 2,562 ft. crest length RCC dam. Major items of work included developing and implementing phased stream diversion; foundation dewatering, grout dam foundation; construction of a starter wall; preparation and placement of precast concrete panels on the upstream face with PVC geomembrane; installation of the dam foundation and internal drains; placement of RCC, bedding mixes, and conventional concrete for the RCC dam, spillway, intake structure, downstream weir and miscellaneous structures. Clearing and grubbing, related road improvements, miscellaneous site, mechanical, electrical and instrumentation work were also completed.

**Estimating Manager for ASI RCC**
Responsible for all company work acquisitions to maintain $50 million annual work program in heavy-civil engineering construction involving dam and water facility construction. Tasks included overall management of estimating department, responsibility for cost estimate preparation, proposal preparation, prime contract negotiation, subcontract and vendor contract negotiation, and project startup. Responsibilities also include company marketing and participation in industry trade associations.

**TECHNICAL PAPERS & PRESENTATIONS:**
Presentation: November 1998, PCA RCC Dam & Dam Rehabilitation Short Course & Tour, Buckhorn, NC
Presentation: September 2004, International RCC Dams Seminar & Study Tour, Atlanta, GA
Presentation: September 2009, RCC 2009 St. Louis, MO

**PROFESSIONAL EXPERIENCE:**

| | |
|---|---|
| **March 2017 to Present** | **ASI Construction LLC; Colorado Springs, Colorado**<br>President |
| **December 2005 to March 2017** | **ASI Constructors, Inc.; Pueblo West, Colorado**<br>President |
| **June 1993 to November 2005** | **ASI RCC, Inc.; Buena Vista, Colorado**<br>Vice President |
| **July 1990 to May 1993** | **Lodigiani USA, Ltd.; Fairfax, Virginia** |
| **1988 to 1989** | **John F. Bowen & Associates; McLean, Virginia** |

ASI Construction LLC
1880 Office Club Pointe, Suite 2000, Colorado Springs, Colorado 80920 T: +1 (719) 647-2821 F: +1 (719) 647-2890
"A Shaft Drillers International Company"

**WILLIAM (BILL) D. FULLER**
Construction Manager

**YEARS WITH FIRM:** Since 2017 **TOTAL YEARS OF INDUSTRY EXPERIENCE:** Since 1971

**KEY QUALIFICATIONS:**

For 46 years, Bill Fuller has built dams, tunnels, power plants, treatment plants, runways, crushers, and numerous concrete and steel structures. His amazing accumulation of experience sheds light on ASI's diversity and appetite for challenging projects. He is known for his innovation and "can do" attitude. Following an early 6-year career start in underground mining, Bill quickly moved through the ranks as a carpenter and carpenter superintendent for ASI. For 24 years, he has been General Superintendent, Operations Manager, and/or Construction Manager on many of ASI's most demanding and successful projects. Bill, very likely, has more bottom-line RCC construction responsibility than most, if not all, others who have worked in his capacity. Consequently, Bill is recognized by industry leaders and RCC experts as an RCC production expert in his own rite.

A few of Bill's notable accomplishments include superintending or having construction management responsibility for each of ASI's RCC projects; construction of 150-foot-high, award-winning job delivery systems, components, concrete handling and placement innovations; and providing method and equipment consultation for each of ASI's international involvements. Other experience includes coffer dam installation, drilling and grouting, rock excavation, design of access and egress methods, piling installation, and managing welding and fabrication for all types of temporary and permanent construction tasks.

In addition to his Construction Manager role, Bill is a Manager of all ASI concrete plants, conveyor systems, telebelts, and pump trucks. These tasks include selection, methods, plant set-up, plant removal, and job specific plant and conveyor modifications.

**PROFESSIONAL LICENSES:** Blasting License

**EXPERIENCE RECORD:**

**Arkansas River Levee Improvements Phase 4; Pueblo, CO**
Client: Pueblo Conservancy District Contract Value: $3,317,353
Completion: March 2018
This ASI project involved the remediation/reconstruction of approximately 2,550 LF of the existing Arkansas River Levee. The Project included lowering, by approximately 12', an additional 850 LF of the levee as well as remediation of the BHE/HARP Diversion Structure. The current Arkansas River Levee consists of an existing earthen embankment between 22' and 35' tall (water side) which is faced with reinforced concrete approximately 10" thick. This Project Phase 4 included lowering a portion of the levee and hauling materials off-site, removing and crushing existing reinforced concrete facing from the Levee embankment and replacing with new all reinforced concrete facing, foundations, and subgrade materials, complete with all incidentals of construction. Existing concrete removed from the Levee was crushed on-site and used as subgrade material as well as top of Levee surfacing material. ASI personnel previously completed Phases 1 and 3 of the Arkansas River Levee Improvements.

**Site C Clean Energy Project; Fort St. John, B.C. Canada**
Client: Peace River Hydro Partners
Duration: 04/2017 – 12/2017
ASI Construction LLC provided consulting services support to Peace River Hydro Partners (PRHP) on owner BC Hydro's Site C Clean Energy Project near Fort St. John, British Columbia. At the time, Site C was the largest infrastructure project to be built in Canada. The project included: Construction of a 1600-person worker accommodation lodge. All access roads and a temporary construction bridge across the river downstream of the site. Approximately 32 million $m^3$ (41.9 million $yd^3$) of excavation for structures, including approach channel and tailrace. River diversion works, including construction of: Two 10.8 m (35 ft) internal diameter concrete-lined tunnels between 700 m to 800 m (2300-2600 ft) in length. Associated cofferdams and intake and outlet structures. Earthfill dam – central core zoned earth embankment approximately 1,050 m (3450 ft) long and 60 m (200 ft) above the present river level with a total volume approximately 20 million m3 (26.2 million $yd^3$). Approximately 800 m (2,625 ft) long spillway and powerhouse Roller-compacted concrete (RCC) buttress with a maximum height of 70 m (230 ft) and a total RCC volume of approximately 2 million m3 (2.6 million $yd^3$). All being built on the Peace River in northeast B.C. When built, it will provide 1,100 megawatts (MW) of capacity, and produce about 5,100 gigawatt hours (GWh) of electricity each year — enough energy to power the equivalent of about 450,000 homes per year in B.C. Construction of the project started in the summer 2015 and will be completed in 2024. ASI's Contract with PRHP involved providing the key personnel to teach the local personnel on the latest improvements involving placing large amounts of RCC in a short construction season window using ASI's specialty equipment and formwork systems along with training for the local personnel operating the 5 onsite RCC Batch Plants and 1 CVC Batch Plant. ASI provided support for the 2017 construction season. Site C will be a source of clean, reliable and affordable electricity in B.C. for more than 100 years.

**Fort Peck Plunge Pool; Fort Peck, MT** Contract Value: $33,897,764
Client: U.S. Army Corps of Engineers
Completion: Summer 2017
Fort Peck Dam on the Missouri River was subjected to severe flooding in 2011. This required operating its spillway for approximately 4 months with peak discharges more than double the previous maximum discharge since the project was constructed in 1938. The hole scoured at the downstream end of the spillway exposing much of the cutoff structure supporting the spillway chute. Less than 30 feet of embedment remained of the original 70 feet leading to concerns that the spillway cutoff structure was undermined. The purpose of this project was to improve the stability of the existing cutoff structure by filling a significant portion of the scour hole with Roller Compacted Concrete (RCC) and installing tieback anchors through the existing left cutoff wall. In addition, training walls were used to facilitate placement of backfill to support the existing cutoff structure wing walls and to help divert erosive flow away from the critical locations near the intersection of the existing cutoff center wall and wing walls. Other work to be performed included expanding a 175-foot apron length to 250-feet and 350-feet; widening the base of the training walls to facilitate future expansion; deepening the cutoff wall; constructing a reinforced concrete cap on the apron to increase longevity of the repair; and repairing concrete surface damage (spalling and cracks) on the existing spillway chute.

**Arkansas River Levee Improvements Phase 3; Pueblo, CO** Contract Value: $4,649,719
Completion: March 2017
Client: Pueblo Conservancy District
The Arkansas Levee Phase III Project involved the remediation and reconstruction of approximately 3,300 LF of the existing Arkansas River Levee. Work included removal and

crushing of concrete facing from the existing levee and replacing with new reinforced concrete facing, including reconditioning the subgrade. A significant cofferdam and dewatering effort was required to facilitate the concrete work. Further, the project schedule required work over the winter months at an accelerated pace to avoid flood conditions and not impact water demands and transfers. Close coordination, cooperation, and communication was required with the project stakeholders: Pueblo Conservation District, Colorado Department of Transportation (CDOT), the Design Team, the Pueblo Board of Water Works, the Union Pacific and BNSF Railroads, the City of Pueblo, and Black Hills Energy.

**Clear Lake Dam Replacement; Georgetown, CO** Contract Value: $8,644,825
Completion: October 2016
The Clear Lake Dam is in Georgetown, CO and is part of the Georgetown Hydroelectric Project, owned and operated by Public Service Company of Colorado, d/b/a Xcel Energy. Clear Lake provides storage for winter-period operation of the hydroelectric plant and is also an important recreational facility in the region. Following state safety inspections, FERC expressed concerns about the dam's inadequate spillway capacity. The existing small, ungated spillway had the capability of passing the estimated 50-year flood prior to the dam being overtopped. Overtopping of Clear Lake Dam during a large flood could result in dam failure. The project consisted of the removal of the existing embankment dam and the construction of a new 7,000 CY RCC dam in the same location. Execution of the project work required continuous water division around the area of the dam replacement. The water diversion system included multiple pumps and diversion pipelines capable of addressing seasonal flow rates, ranging from 25 CFS to 80 CFS. Additional pumps were required for dewatering and control of water.

**Upper Dam; Rangeley, ME** Contract Value: $18,602,156
Completion: October 2016
Client: Brookfield Renewable Energy
The Upper Dam is located at the headwaters of the Androscoggin River watershed in Western Maine near the New Hampshire border. The Upper Dam is part of an extensive water storage system to regulate flows of the Androscoggin River for downstream hydroelectric power generation, flood control, and other industrial uses. The project is a turnkey remediation and replacement of Upper Dam. The work at the Upper Dam involved the complete renewal of the spillway structure, the remediation of 20,000 CY of embankments and the design and the allowance for future installation of a minimum flow turbine generator. The improvements were part of FERC Part 12 modifications and were driven primarily by the need to safely pass flows under Probable Maximum Flood conditions. Notable features of work at the Upper Dam entailed installation of over 1,000 feet of sheetpile cofferdams, installing two concrete spillway structures, totaling 7,600 CY of reinforced concrete- complete with two large radial gates and two large vertical split leaf gates, installing a saddle dam, and raising the entire crest of the earthen dam embankments. All work was completed at a remote, historical high-hazard dam with much of the access cutoff by the reservoir. The Upper Dam design-build project was designed and constructed by ASI under full FERC review on Lake Mooselookmeguntic, the third largest reservoir in Maine.

**Green River Raw Water Reservoir; Green River, WY** Contract Value: $15,571,346
Completion: September 2016
Client: Green River–Rock Springs–Sweetwater City, Joint Powers Water Board
The Green River Raw Water Reservoir project consisted of the construction of an approximate 350-acre foot Raw Water Reservoir upgradient of the existing JPWB Water Treatment Plant in Green River, WY. The primary element general construction components consisted of approximately 320,000 CY of mass excavation, including rock and unclassified; approximately 200,000 CY of dam embankment construction, including filter drains; approximately 30,000 CY of

soil cement step, slab, plate and wall; approximately 2,200 CY of cast-in-place concrete reservoir inlet and outlet structures, and drainage control structures; and approximately 50,000 CY of smooth and textured geomembrane reservoir lining. Work also included installation of approximately 3,300 LF of exterior 30 inch and 36 inch PVC Reservoir supply and discharge piping, including connections to the existing system. Work included interior pump and 30-inch steel piping modifications to the existing river intake structure. Secondary project components included normal project administration, reservoir instrumentation, roadway and bridge construction, fencing and security, irrigation systems, and seeding and reclamation. Notable mechanical/electrical work included installation of four vertical turbine pumps, along with four 121 horsepower motors, and four 323-528-volt Variable Frequency Drives (VFDs) and installation of new 30-inch fabricated steel header to tie new pumps into plant system. Work also included installation of two 24-inch sluice gates, one 42-inch sluice gate, and one 24-inch canal gate and installation of two 30 inch Flowmeters, and one 36-inch Flowmeter, used to control flow to and from the reservoir and plant.

**Canton Lake Dam Weir and Hydraulic Structures; Blaine County, OK**
Completion: January 2015 Contract Value: $42,019,233
Client: USACE District, Tulsa
At Canton Lake, the Government constructed an auxiliary spillway adjacent to the right abutment of the existing spillway. This auxiliary spillway is controlled by a weir and nine fuse gates. The auxiliary spillway is located in the auxiliary channel which is 480 feet wide and was partially excavated up to the auxiliary spillway location to final channel grade. Vertical diaphragm walls are approximately 50 feet tall line the auxiliary channel. Construction activities included placement of a concrete weir (sill) approximately 35 feet deep by 70 feet long and spanning the 480-foot-wide channel (approximately 40,000 CY of concrete placement); concrete water intake monolith approximately 40 feet tall with a 47 x 15 feet base; concrete intake conduit approximately 11 feet square and 250 feet long; and concrete fusegates, nine each, approximately 30 feet tall and 50 feet wide. Construction activities also included, structural and mass concrete placement requiring on-site batch plant, formwork, shoring of existing diaphragm walls, excavation, and de-watering. The final phase included further excavation to connect the new spillway to the reservoir.

**Arkansas River Levee Improvements - Phase I; Pueblo, CO**
Client: Pueblo Conservancy District Contract Value: $3,436,220
Duration: 11/2014 - 03/2015
The project involves the remediation/reconstruction of approximately 3300 linear feet of the existing Arkansas River Levee from the 11th Street Bridge to the southeast. The current levee consists of an existing earthen embankment approximately 40' tall which is faced with reinforced concrete approximately 10" thick. The Phase One project includes lowering of the existing embankment by approximately 12' and removing and replacing all reinforced concrete facing and foundations, complete with all incidentals of construction. 2.5 miles of Levee work, including repairing and/or replacing the plinth (the footing at the toe of the levee); replacing all or a portion of the concrete panels; repairing and/or replacing the small parapet wall at the crest; fixing portions of the embankment underlying the panels; maintaining (not damaging) the existing step pools.

**Stagecoach Spillway Replacement, Tacoma Hydroelectric Project; Durango, CO**
Completion: December 2013 Contract Value: $3,925,092
Client: Xcel Energy
The Stagecoach Spillway was demoed in order to build a new concrete dam and spillway. At the south end of the lake, the Terminal Dam releases water for Xcel's hydroelectric plant, Tacoma Station, on the Animas River. Stagecoach is located on the north end and releases water in the event of an emergency. As a result of the seepage, the Division of Water Resources required the level of water behind the dam be maintained 4 feet below full and the lower water level meant less

flow for Tacoma Station. Stagecoach Dam was listed as high-hazard because it is part of an overall high hazard project of major dams regulated in Southwest Colorado. The Stagecoach Spillway Replacement included clearing, grubbing, preparation of a staging/ stockpile areas, and improvement of the access road. Work included installation of a new culvert crossing in the inlet channel, stripping and stockpiling topsoil, demolition of the timber crib Stagecoach Dam and wooden spillway planking, soil and rock excavation and foundation preparation and cleaning. Work also included placing dental concrete, backfill concrete, and slush grout, installing rock anchors under the new spillway slab, placing structural concrete for the new labyrinth spillway, processing on-site soils to furnish and placing Zone 1 Fill and Zone 2 Fill in the spillway backfill embankment. Work included processing on-site riprap, excavated rock, rock from the existing timber crib dam, or other quarry sites to furnish and placing Type 1 riprap or Type 2 riprap, furnish from off-site sources and place Gravel Filter, base course, Type 1 riprap bedding, and Type 2 riprap bedding and installing toe drain pipe and the structural concrete toe drain headwalls. Work also included installing dam instrumentation, the log boom, the boat dock, and chain link fencing, and reclamation at the Stagecoach Spillway Site and the access road.

**Rocky Pen Run Dam & Reservoir Hydraulic Structures; Stafford, VA**
Completion: November 2013 Contract Value: $35,500,000
Client: Stafford County
The Rocky Pen Run Dam and Reservoir Project consisted of the construction of an earthen embankment dam, a 26.5 MGD raw water pump station, rock excavation, labyrinth weir crested chute spillway and stilling basin, intake tower and pipeline, saddle dike, and impoundment preparation for the reservoir area. The construction of the dam consisted of 275,000 CY of excavation (including rock), placement of approximately 1 million CY of multiple distinct zones of select material. The multiple zones of the dam consisted of a core, intermediate shell, outer shell, and chimney and blanket drains. The upstream and downstream slopes are 3H:1V and 2.5H:1V respectively, with the various interior zones having steeper slopes. Riprap was placed on portions of the upstream slope. Approximately 16,000 CY of conventional concrete was utilized for the concrete structures.

**Lake Texoma Outfall to Wylie WTP Raw Water Pipeline Plant; Howe, TX**
Completion: November 2013 Contract Value: $21,589,000
Client: North Texas Municipal Water District
This project consisted of connecting to the existing 72-inch outfall pipeline near existing Lake Texoma Outfall; construction of a dual-cell 240 Million Gallon Balancing Reservoir; installation of approximately 1400 LF of 96-inch and 300 LF of 78-inch installation also include the 78" magmeter. Each cell was lined with geocomposite and HDPE liner and topped with 12" of soil cement. Work also included 224,000 SY of geocomposite and liner, and installation of in-line isolation valves and air-release valves. Final project quantities included 79,000 CY of soil cement and 6,330 CY of conventional concrete.

**Cabresto Lake Dam; Questa, NM** Contract Value: $5,086,000
Completion: November 2012
The Cabresto Dam, located near Questa, New Mexico in a high altitude and very sensitive sub-alpine environment, has experienced significant seepage issues in recent years and has an undersized spillway. Due to these deficiencies, the New Mexico Office of the State Engineer placed the dam under a significant restriction. The decision was made to remove the existing dam and construct a new dam approximately 160 feet downstream that could safely impound Cabresto Lake and pass the spillway design flood. The new dam consists of a zoned earthen embankment with multi-level outlet works and an overtopping spillway with a low-flow notch and stilling basin.

The overtopping spillway consists of 7,000 CY roller-compacted concrete (RCC) with 1,700 CY conventional concrete surface plating.

**Mt. St. Helens Sediment Retention Structure, Cowlitz, WA** Contract Value: $2,243,250
Completion: October 2012
Client: USACE
This contract involved raising the spillway crest elevation of the existing Sediment Retention Structure (SRS). The SRS was constructed in the late 1980's to trap sediment eroding from the debris avalanche on Mt. St. Helens. ASI was a subcontractor to LKE on this job and performed the RCC work.

**Dry Comal Creek Flood Retarding Structure; New Braunfels, TX** Contract Value: $12,824,647
Completion: September 2012
Client: Comal County
This project consisted of constructing a roller-compacted concrete flood control structure. Major work activities for this project consisted of excavating 21,000 CY rock, a 990-foot-long and 20-foot-deep cutoff wall, and batching and placing 82,000 CY of roller compacted concrete, 4,600 CY of structural concrete, and 9,000 CY of grout-enriched roller compacted concrete. Work also included foundation prepping and grouting.

**New Creek Site 14 Dam Rehabilitation; Grant County, WV** Contract Value: $4,574,723
Completion: September 2012
Client: Heeter Construction
The New Creek Site 14 Dam is an earthfill embankment dam that was constructed in 1963. Many of the appurtenant structures of the dam had reached the end of their functional and operational lives and required rehabilitation. These rehabilitation activities consisted of improving the reinforced concrete intake riser, auxiliary spillway, and downstream slope of the embankment. The intake riser was replaced with a new, 75-foot-tall, freestanding reinforced concrete riser, which included new control gates to control reservoir releases. The existing, undersized, auxiliary spillway was improved with the addition of a 28,000 CY roller compacted concrete stepped chute spillway. Finally, the downstream slope was flattened, which included the installation of a filter and drain system and extending the principal spillway pipe and outlet works downstream to accommodate the expanded downstream face.

**Nesbitt Dam Project; Scranton, PA** Contract Value: $22,274,100
Completion: September 2012
Client: Pennsylvania American Water Company
The project work included rehabilitating the Pennsylvania American Water Company's Nesbitt Dam, a stone masonry dam with earthfill buttress and RCC overtopping, as mandated by the Pennsylvania Department of Environmental Protection, Bureau of Waterways Engineering Division of Dam Safety to comply with current dam safety requirements. The primary objectives of the project included increasing total spillway capacity to convey the Probable Maximum Flood (PMF), improving stability, and correcting observed seepage problems. The major work elements included excavation and backfill along with installation of filters and drains embedded in zoned materials. Other elements included the installation of relief and temporary dewatering wells, foundation grouting, installation of various water diversions both temporary and permanent, temporary and permanent shoring wall. Approximately 37,860 CY of roller-compacted concrete was utilized in the spillway with conventional facing, armored slopes, and two training walls. Approximately 86,000 CY of excavation work, with 19,700 CY of approved backfill was also completed. Over 6,000 CY of total conventional concrete, including a new ogee and stepped armoring, was added and 2,419 feet of high capacity post tensioned rock anchors. Work also included installing and maintaining erosion and sediment controls, and the rehabilitation of the gallery mechanical, and bridge.

**T. Nelson Elliott Dam Safety Modifications; Manassas, VA** Contract Value: $7,148,214
Completion: June 2012
Client: City of Manassas, VA
The T. Nelson Elliott Dam is in Prince William County, Virginia and is a composite dam that consisted of both concrete and earthen sections. The dam is 1,306 feet long and 74 feet high from the dam crest to the stream. The dam was designed in 1968 by Hayes, Seay, Mattern & Mattern and is categorized as a Class I (high hazard) dam by the Virginia Department of Conservation and Recreation (DCR), which is the regulatory agency that has jurisdiction over the dam. The purpose of the T. Nelson Elliott Dam Improvements Project was to improve the dam to satisfy the DCR requirement that a Category I (high hazard) dam be designed to safely pass the Probable Maximum Flood (PMF) event. The dam was originally designed to safely pass 50% of the PMF. The right embankment was stripped and a RCC overlay of 8,500 CY was placed and covered. Twenty-eight (28) post-tensioned anchors were installed through the crest of the dam. Work included parapet walls on the left abutment and right embankment, a new Obermeyer gate along the spillway, a retention wall around a transmission tower and a new throttling knife gate.

**Harry S. Truman Project; Warsaw, MO** Contract Value: $2,637,447
Completion: June 2011
Client: United States Army Corps of Engineers
The Harry S. Truman Dam and Powerhouse work included drilling 194 4-inch holes, forming and pouring 1,300 CY concrete using tremie pipes, setting 93 deformed bar anchors, drilling 148 4-inch drain holes up to 40 ft. deep all 50-ft. underwater and/or from a barge. Work included the placement of a concrete overlay over the spillway basin floor of the Harry S. Truman Dam and Powerhouse. The overlay was placed by tremie pipe method under approximately 48 ft. of water. ASI was responsible for designing the concrete mix, developing a placement method, cleaning the basin floor, installing grouted anchors, placing formwork, placing the concrete to the lines and grades specified, and installing drains as specified to meet the requirements of this specification and any incidental related work.

**Wide Hollow Water Supply Storage Facility; Escalante, UT** Contract Value: $8,178,956
Completion: March 2011
Client: New Escalante Irrigation/Wide Hollow Water Conservancy
The Wide Hollow Water Supply Storage Facility work included removing the existing embankment and foundation materials, then reconstructing the foundation and embankment to a higher elevation that would restore the structure's original storage capacity. Significant features of the construction included site preparation and restoration, removal of the existing embankment and foundation, construction of a new embankment, installation of outlet works, construction of spillways, construction of features at the Escalante Petrified Forest State Park to address impacts from the raised water level and mitigation efforts to compensate for loss of wetland and riparian habitats. ASI processed 76,060 tons of select import materials from an owner provided borrow source, performed 450,000 CY selective excavation, 600,000 CY zoned embankment, and provided extensive dewatering including deep wells, educator pumps, and open trench techniques in highly variable strata.

**Catawba Dam ESSI Project; Nebo, NC** Contract Value: $14,092,710
Completion: April 2010
Client: Duke Energy Corporation
The Catawba Dam Embankment Seismic Stability Improvements (ESSI) is a component of the Bridgewater Hydroelectric Development which was constructed close to 100 years ago. The facility falls under the Federal Energy Regulatory Commission and the project was constructed to satisfy

requirement imposed by FERC in order to return to service. These requirements were fulfilled by resurfacing and extending the existing spillway, adding a buttress and wing wall, and upgrading the minimum flow release system. There were two batch plants on site to produce the required concrete for these improvements. The major work activities associated with process consisted of foundation cleaning, dental/leveling concrete placement, RCC placement, spillway demo / resurfacing, and conventional concrete placement.

**Big Lake Dam Repair/Alter Storm Water System Phase II; Dobbins AFB, GA**
Completion: April 2008
Client: Dobbins AFB Contract Value: $1,159,853
The Big Lake Dam project was a rehabilitation project of an existing dam built in 1906. Over time, water had undermined the stability of the structure. ASI coordinated with the Owner and Engineer to design an RCC gravity buttress of the existing dam. The new 6,670 CY RCC dam, with onsite RCC production by an ASI batch plant, provides additional stability and protects the area from potential flooding. In addition to designing and constructing the new dam, ASI personnel also conducted value-engineering to ensure the owner met their target budget without compromising the integrity and appearance of the dam.

**Genesee Dam # 2 Project; Idledale, CO** Contract Value: $6,100,000
Completion: October 2007
Client: Genesee Water and Sanitation District
The Genesee Dam #2 Project consisted of the construction of a new 95-ft-tall by 550-ft-long RCC gravity dam with principal riser spillway and outlet conduit and appurtenant structures. The project required 40,000 CY dam foundation excavation, development of on-site quarry, crushing and screening of 70,000 tons of RCC aggregate, on-site production of 34,500 CY RCC and 5,000 CY conventional concrete. The project was located in steep mountain canyon that significantly impacted construction operations and sequencing.

**Dry Creek Reservoir Enlargement; Berthoud, CO** Contract Value: $2,800,000
Completion: October 2006
Engineer: Boyle Engineering Corporation
The project consisted of the construction of a 12,500 CY RCC stepped chute emergency spillway with two-cycle labyrinth weir control structure built as a monolith in a 65 ft. by 8500 ft. earthfill embankment. The work also included the construction of 1,850 CY reinforced concrete structures including a spillway, principal outlet intake structure, outlet structure, and 36-inch diameter outlet pipe encasement.

**Franklin Dam Replacement; Franklin, KY** Contract Value: $4,850,000
Completion: February 2006
Client: City of Franklin, KY
Construction of a new RCC gravity replacement dam. Required phased river diversion partial demolition of existing rock-filled gabion dam, and construction of a new 475' long, 24' high RCC gravity dam and reinforced concrete ogee spillway and stilling basin. Required 14,000 CY earth excavation, 2,500 rock excavation, dewatering, foundation grouting, construction of 10,400 CY RCC dam and 2,000 CY reinforced concrete spillway, placement of 7,500 CY embankment and riprap, and site work.

**Tom Miller Dam Modernization Project; Austin, TX** Contract Value: $10,450,000
Completion: November 2004
Client: Lower Colorado River Authority

The Tom Miller Dam is located on the Colorado River within the city limits of Austin, Texas and was built to provide hydroelectricity and store water, creating Lake Austin. Named for an Austin mayor, Mr. Robert Thomas Miller, the dam was built from 1938 to 1940 atop the remains of two earlier structures, both called the Austin Dam. The first was built from 1890 to 1893, and the other from 1909 to 1912. Massive floods destroyed both structures. The current dam began operating in 1940 and is currently leased to the Lower Colorado River Authority, who maintains and operates the dam. The project work consisted of stability modifications to a concrete dam and spillway. The work included installation of 55 post-tensioned tendon anchors in the spillway crest and dam abutment; in-water installation of 207, 40' long stitch anchors in 30' deep stilling basin; demolition and reconstruction of 1,100 CY of concrete in the downstream deck slabs of five gate bays; placement of 3,200 CY of mass fill tremie concrete in the hollow core sections of the dam; and placement of 600 CY of structural concrete fill in upper hollow section of the dam. All access upstream and downstream was from barges.

**Standley Lake Dam Improvement; Westminster, CO** Contract Value: $32,510,700
Completion: October 2004
Client: Cities of Westminster; Thornton & Northglenn, CO
The Standley Lake Dam is in Westminster, Colorado and provides water storage for the cities of Westminster, Thorton, and Northglenn. The renovation work began in August of 2002 to correct embankment slope stability problems and enlarge the spillway to meet Colorado safety standards. The rehabilitation of the Standley Lake Dam included the construction of new, tunneled outlet works with a multi-level intake, the placement of additional berms on the downstream face to enhance dam stability and emergency spillway construction. The project included excavation of 1.4 million CY spillway channel and construction of embankment stability berm. New outlet works involved twin 72-inch diameter micro-tunnel wet taps of the existing reservoir with drives of approximately 650 FT and 1,220 FT at depths of 80 FT to 110 FT below water surface. It also included retrieval pit excavation and construction of two underwater intake structures. Work included construction of a 35-FT diameter reinforced concrete lined valve shaft 100 FT deep, excavation of 1,000 FT of 11.5 FT horseshoe conventional tunnel with 102-inch diameter steel conduit liner along with 2,750 FT of buried 102-inch steel conduit liner, and 720 FT of buried 84-inch steel conduit. Work included stream release facilities with two 36-inch fixed cone valves, a new valve house, new 7,500 CY concrete labyrinth weir spillway and 26,000 CY RCC in eight drop structures. Work also included abandonment of existing outlet works through the dam.

**Cougar Dam Diversion Tunnel, Lake Taps and Gates; Blue River, OR**
Completion: February 2002 Contract Value: $12,830,000
Client: U.S. Army Corps of Engineers

The project included a live, wet lake tap and machine excavation/enlargement of existing 12 ft outlet tunnel to 16.75 ft; the tunnel is horseshoe shaped and 950 ft long. The work included drill and blast gate chamber excavation within a tunnel 20 ft x 32 ft x 65 ft; a mechanical excavation of a 35 ft tunnel plug prior to tap was required access through new gates; marine removal and replacement of underwater bulkhead that required mix-gas diving to 270 ft depth from 150 ton barge-mounted crane on the reservoir. The work also included placement of 8,500 cy reinforced concrete tunnel lining; installation of four high-pressure, bonnetted slide gates 3 ft x 6 ft; the work also included temporary support of the tunnel and portal, along with a steel liner and transition placement; concrete backfill; and consolidation grouting, ring grouting, and skin grouting upstream of gate chamber. The work was performed beneath an existing rockfill 405 ft high dam with a 1,650 ft crest length.

**Wesley Seale Dam Spillway Rehabilitation; Corpus Christi, TX** Contract Value: $18,193,990
Completion: April 2001
Client: City of Corpus Christi, TX
The Wesley Seale Dam is located in Corpus Christi, Texas. The project work consisted of onsite production, delivery and placement of 72,000 CY of mass concrete and 16,000 CY of conventional reinforced concrete to stabilize the existing dam structure. The project work involved river diversion; cofferdam construction; extensive dewatering; the use of 700 sand drains to relieve hydrostatic pressure from beneath the structures; construction of subdrains; structural rehabilitation; 45 multi-strand tendon anchors installed from barges; spillway gate rehabilitation and extensions; instrumentation, earthwork, and road work; and also a new administration building.

**Washakie Dam Safety Modifications; Fort Washakie, WY** Contract Value: $3,878,190
Completion: February 2001
Client: Eastern Shoshone and Northern Arapaho Tribes
The project consisted of safety modifications to the existing earthen dam. Major items of work included the development and implementation of phased stream diversion; foundation dewatering; internal seepage collection drain system; low-permeability blanket seepage barrier upstream; deep toe drain collector system; demolition of existing outlet works and installation of new conduit and stilling basin; replace outlet work control gates and operator with modifications to gate chamber and structure. The project also included the construction of a new service spillway and footbridge; raising and leveling the crest of the main dam and three dikes; and new instrumentation.

**Buckhorn Reservoir Expansion; Wilson, NC** Contract Value: $17,544,000
Completion: June 1999
Client: City of Wilson, NC
The Buckhorn Reservoir Expansion project consisted of the construction of a new 84,000 CY, 44 ft. high, 2,562 ft. crest length RCC dam. Major items of work included developing and implementing phased stream diversion; foundation dewatering, grout dam foundation; construction of a starter wall; preparation and placement of precast concrete panels on the upstream face with PVC geomembrane; installation of the dam foundation and internal drains; placement of RCC, bedding mixes, and conventional concrete for the RCC dam, spillway, intake structure, downstream weir and miscellaneous structures. Clearing and grubbing, related road improvements, miscellaneous site, mechanical, electrical and instrumentation work were also completed.

**Tie Hack Dam & Reservoir; Buffalo, WY** Contract Value: $9,440,610
Completion: October 1997
Client: City of Buffalo, WY

Construction of new RCC dam, 155 ft. high, 550 ft. crest length. The project included on-site aggregate and concrete production, new outlet works installation, and appurtenant features. Construction methods were significantly impacted by the dam's location in a steep-sided canyon with no downstream access.

**Peterson Dam Rehabilitation Project; Greeley, CO** Contract Value: $1,722,121
Completion: November 1995
Client: City of Greeley, CO
Remote high mountain replacement of existing dam with a new 10,000 CY RCC Dam, approximately 70 ft. high, 230 ft. long, including construction of service spillway and outlet works.

**Littlerock Dam and Reservoir Restoration Project; Palmdale, CA**
Completion: June 1994
Client: Palmdale Water District Contract Value: $12,500,000
The project involved buttressing and raising an existing arch buttress dam with a new, attached, conventional concrete-faced 115,000 CY RCC dam. Features included foundation rock blasting and excavation, considerable concrete demolition, high pressure water blast surface preparation of existing dam, construction of a new outlet works system, shot-creting the existing dam's upstream face, producing, delivering and placing the RCC buttress, constructing a new 320 ft. (100m) ogee spillway, and raising the existing dam.

**New Elmer Thomas Dam; Lawton, OK** Contract Value: $4,161,275
Completion: June 1993
Client: U.S. Fish & Wildlife Service
Construction of a new RCC Dam and appurtenant features to include: 35,000 CY of RCC with vertical formed upstream face and sloped formed downstream face; approximately 200 ft. of gallery; steel pipe outlet; a 55-ft. intake tower; sluice gates; approximately 25,000 CY of drilled/shot rock excavation; and a 55 ft. inlet tower with high-head sluice gates.

**Morris Sheppard Dam, Possum Kingdom Reservoir; Waco, TX** Contract Value: $6,729,000
Completion: November 1991
Client: Brazos River Authority
Rehabilitation of existing slab and buttress; concrete dam involving batching; and placement of approximately 90,000 CY of ballast concrete.

**Comanche Dam; Rustic, CO** Contract Value: $1,874,580
Completion: September 1990
Client: City of Greeley, CO
The Comanche Dam Rehabilitation project, located high in the Colorado mountains, involved the excavation (330,000 CY) of a remote earthfill dam, the replacement of the outlet works, and rebuilding the zoned earthfill dam. The project also included constructing a new RCC spillway. Approximately 5,000 cy of RCC was batched on-site in a central mix drum plant utilizing RCC aggregates processed on-site.

**Quail Creek South Dam; St. George, UT** Contract Value: $5,506,809
Completion: July 1990
Client: Washington County Water Conservancy District
Construction of roller-compacted concrete dam featuring 165,000 CY RCC with a conventional concrete, vertical upstream face and outlet tower.

**Humphrey's Dam Rehabilitation; Creede, CO** Contract Value: $755,245
Completion: July 1989
Client: ECI
The Humphrey's Dam Rehabilitation Project consisted of the repair and replacement of the deteriorated downstream face of existing thin arch concrete dam. Project included outlet rehabilitation and 5,000 CY of earthwork. All work was completed during one winter season in a remote mountain project site location.

**Stagecoach Dam and Reservoir Project; Oak Creek, CO** Contract Value: $5,597,368
Completion: November 1988
Client: Upper Yampa Water Conservancy District
The project work involved constructing a new RCC dam in an extremely tight canyon. Work included on-site aggregate crushing and washing; diversion of the Upper Yampa River; 41,000 cy rock excavation; gallery tunneling; construction of the concrete cofferdam, intake tower and 72-inch outlet works, and 0.9 MW hydroelectric power house and related appurtenances. The high mountain climate provided a very short construction season, and the 50,000 CY RCC dam was placed in an award-winning 35-day placement schedule.

**Lower Chase Creek Dam; Morenci, AZ** Contract Value: $2,000,000
Completion: June 1987
Client: Phelps Dodge Corp.
The project involved the construction of a new 30,000 CY RCC Dam. The project involved on-site aggregate processing, excavating the dense Gila Conglomerate foundation (30,000 CY), and constructing the 90-ft-high, 400-ft-long RCC dam. The work also included 3,025 CY structural concrete and 30,000 CY earth excavation.

**Grindstone Canyon Dam; Ruidoso, NM** Contract Value: $7,500,000
Completion: November 1986
Client: Village of Ruidoso, NM
The project involved the construction of a new 117,000 CY RCC dam, 130 ft high, 1,350 ft long, constructed for pumped municipal water storage. The project included 15,000 CY conventional concrete, clearing the heavily timbered reservoir and dam site, excavation for the dam and future treatment plant, quarried aggregate processing (280,000 CY), multilevel intake, outlet works, and a smooth faced ogee weir spillway and related appurtenances. Included 4,000 CY earthwork, 80,000 CY rock excavation, 72,000 CY earthwork, 170,000 CY quarry excavation. The 5th RCC dam in U.S. was placed in 55-day period.

**Middle Fork Dam; Parachute, CO** Contract Value: Confidential
Completion: November 1984
Client: Exxon Company USA
The project involved constructing a new RCC dam on a previously excavated earth-fill dam foundation. Other features of the project included constructing a temporary 50-ft-high sheet pile wall staging platform; foundation preparation; construction of a multilevel intake tower and associated outlet works; and placement of the RCC dam. ASI designed, proposed, and built a stepped downstream face using conventional concrete, which has since been frequently used in many RCC dam designs.

**New Mexico Highway Bridge No. BRS 1519 (4); Rio Arriba County, NM**
Client: New Mexico Dept. of Highways Contract Value: $908,000
Construction of 160 ft. two span, concrete girder bridges over the Chama River.

**Arkansas River and Colorado Canal Bridges; Pueblo, CO** Contract Value: $833,000
Client: Pueblo County, CO
Three span, concrete girder bridge over Arkansas River and single span bridge over canal.

**Gunnison County Airport Runway Extension; CO** Contract Value: $1,300,000
Client: Gunnison County
A 2,000-ft. extension to existing runway to accommodate commercial air traffic. The location required extensive dewatering of perched groundwater.

**Riverside Slide Snow Shed; Red Mountain Pass, CO**
Client: Colorado Dept. of Highways, Denver, CO
Construction of a new reinforced concrete snow shed to deflect avalanches from the roadway. This project featured 30,000 CY of rock excavation and 30,000 CY controlled blasting.

**Wolf Creek Snow Shed; Wolf Creek Pass, CO**
Client: Colorado Dept. of Highways, Denver, CO
Rehabilitation of existing snow shed. This project featured hand excavation of supporting caissons.

**Granite South Project No. FC 024-1(21); Granite, CO**
Client: Colorado Dept. of Highways, Denver, CO
Construction of existing two-lane mountain highway. Project included extensive rock excavation and controlled highway blasting.

**Highway Bridge Replacement; Gunnison County, CO**
Client: Federal Highway Administration, Gunnison County, CO
The replacement of three bridges along the Taylor River. To minimize the impact on tourist traffic, these bridges were completed in the autumn.

**Texas Creek Bridge Replacement; Texas, Creek CO**
Client: Colorado Dept. of Highways, Denver, CO
Rehabilitation of existing double-wide bridge and associated roadwork.

**Railroad Underpass; Pueblo, CO**
Client: C & S Railroad, Pueblo, CO
Erection and backfill of ARMCO pear-shaped, steel underpass structure. The 300 ft. X 29 ft. multi-plate was completed in the winter of 1982.

**No. 6 Crusher Facilities, Climax Mine Site; Climax, CO**
Client: Climax Molybdenum Co., Climax, CO; Contract Value: $19,600,000
Complete installation of open pit crushing facility including an 84-inch gyratory crusher, twin 60 inch standards, conveyor systems, and dust collection. Project located at 11,500 ft. elevation.

**Mayflower Decant Line, Climax Mine Site; Climax, CO**
Client: AMAX, Climax Molybdenum Co., Climax, CO Contract Value: $1,350,000
Concrete encasement of twin 42-inch steel pipeline for tailings dam at Climax Mine near Leadville Colorado. This project featured installation of 2,200 ft. of steel pipe and the placement of 6,000 CY of reinforced concrete.

**Truck Wash Facility, Climax Mine Site; Climax, CO**
Client: AMAX, Climax Molybdenum Co., Climax, CO

Completion of a washing facility for open pit trucks at the Climax Mine. The building site was located at an elevation of 11,600 ft.

**PROFESSIONAL EXPERIENCE:**

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| **03/2017 to Present** | **ASI Construction LLC; Pueblo West, CO**<br>Construction Manager |
| **12/2005 to 03/2017** | **ASI Constructors, Inc.; Pueblo West, CO**<br>Construction Manager<br>Superintendent |
| **04/1987 to 2005**<br>1991 to 2005<br>1987 to 1991 | **ASI RCC, Inc., Buena Vista, Colorado**<br>Vice President<br>General Superintendent |
| **06/1977 to 07/1987** | **Avery Structures, Inc., Buena Vista, Colorado**<br>Construction Manager |
| **1971 to 1977** | **Climax Molybdenum Mine, Climax, Colorado**<br>Member of Load and Production Crew (blasting) |

ASI Construction LLC
1880 Office Club Pointe, Suite 2000, Colorado Springs, Colorado 80920 T: +1 (719) 647-2821 F: +1 (719) 647-2890
"A Shaft Drillers International Company"

**JAMES T. BROWER**
RCC Superintendent

**YEARS WITH FIRM:** Since 2017 **TOTAL YEARS OF INDUSTRY EXPERIENCE:** Since 1980

## KEY QUALIFICATIONS:

James Brower has over 38 years of experience in RCC and many diverse water resource projects including new dams, dam rehabilitations and many other similar water conveyance projects. He is experienced in RCC production, placement, roller use, moisture levels, direct hands on experience on lifts, bedding grout, control joints, and facing concrete. Mr. Brower's responsibilities have included managing foremen and crews effectively, development of short interval schedules, managing timekeeping and daily task planners, ensuring the implementation of daily tool box meetings to discuss safety, quality and productivity and then practice and manage safety on the project site and with teams. He also manages equipment utilization, reads and understands plans and specifications, plans the project so as to minimize delays, maximize efficiency and ensure a smoothly run project. He develops project schedules, CPM schedules, short interval scheduling, indirect labor schedules and equipment schedules. He schedules and coordinates subcontractor activities, deliveries, handling, storage, inspections, and placement of materials and equipment on the job site with vendors, He monitors task/project progress and adjust schedules, work crews, and deliveries and adjust these as required and ensures that all project reporting and documentation is completed in a timely manner.

## RCC PROJECT EXPERIENCE:

- Safety and environmental controls.
- Quality control and reporting.
- Equipment selection and procurement.
- Scheduling and cost tracking.
- Concrete plant and conveying systems procurement and installation.
- Training.

## EXPERIENCE RECORD:

ASI Construction LLC (since 1978) is an industry leader in the dam and water resource construction market, providing services worldwide. Our company is a self-performing, heavy-civil contractor that specializes in the construction and rehabilitation of dams (RCC, earthfill, and concrete), hydroelectric and renewable energy facilities, pipelines, tunnel/shaft rehabilitation, storm/sanitary sewer system improvements, and other major water resource projects. ASI has successfully completed numerous award-winning heavy civil construction projects in the water resource field, including more than one-hundred dam and dam rehabilitation projects and over thirty new RCC dams.

**Notable RCC Projects:**

**Fort Peck Plunge Pool; Glasgow, MT**
Client: U.S. Army Corps of Engineers Contract Value: $38,982,094
**Notable RCC accomplishments: 100,000 CY of RCC with GERCC facing. Improving the stability of the existing cutoff structure by filling a significant portion of the scour hole with RCC.**
Fort Peck Dam on the Missouri River was subjected to severe flooding in 2011. This required operating its spillway for approximately 4 months with peak discharges more than double the previous maximum discharge since the project was constructed in 1938. The hole scoured at the downstream end of the spillway exposed much of the cutoff structure supporting the spillway chute. Less than 30 feet of embedment remained of the original 70 feet. There was a valid concern as to if the spillway cutoff structure was undermined. The purpose of this project was to improve the stability of the existing cutoff structure by filling a significant portion of the scour hole with roller-compacted concrete (RCC) and installing tieback anchors through the existing left cutoff wall. In addition, training walls will be used to facilitate placement of backfill to support the existing cutoff structure wing walls and to help divert erosive flow away from the critical locations near the intersection of the existing cutoff center wall and wing walls. Other included expanding a 175-foot apron length to 250-feet and 350-feet; widening the base of the training walls to facilitate future expansion; deepening the cutoff wall; constructing a reinforced concrete cap on the apron to increase longevity of the repair; and repairing concrete surface damage (spalling and cracks) on the existing spillway chute.

**Mountain Creek Flood Retarding Structure #10; Midlothian, TX**
Client: Dalworth Soil & Water District Contract Value: $6,206,565
Completion: December 2016
**Notable RCC accomplishments: 12,000 CY RCC emergency spillway.**
Construction of a new 12,000 CY RCC emergency spillway and concrete intake tower at Padera Lake, south of Fort Worth, Texas. In May 2015, the project site received 15 inches of rain in 3 days causing the cofferdam to overtop twice. TV and radio stations were broadcasting the dam's imminent failure and predicting the loss of property and lives. Through the efforts of ASI personnel to save the dam, and although damaged, the cofferdam held back the lake and prevented the catastrophic release of flood waters and thousands of tons of sediment downstream, which would have put the public at risk and potentially cause severe damage to the dam itself.

**Canton Lake Dam Weir and Hydraulic Structures; Canton, OK**
Client: USACE Contract Value: $42,019,233
Completion: January 2015
**Notable RCC accomplishments: This project consists of constructing a roller-compacted concrete flood control structure and mass concrete placement requiring on-site batch plants.**
Construction included placement of a concrete weir (sill) 35 feet deep by 70 feet long and spanning the 480-foot-wide channel (approximately 40,000 CY of concrete placement); concrete water intake monolith 40 feet tall with a 47 by 15 feet base; concrete intake conduit approximately 11 feet square and 250 feet long; and concrete fusegates, nine each, approximately 30 feet tall and 50 feet wide. Construction activities also included, structural and mass concrete placement requiring on-site batch plant, formwork, shoring of existing diaphragm walls, excavation, and de-watering. The final phase included further excavation to connect the new spillway to the reservoir. Largest fuse gate spillway in the US.

**Cabresto Lake Dam; Questa, NM**
Client: NMOSE Dam Safety Bureau Contract Value: $5,086,000
Completion: November 2012
**Notable RCC accomplishments: The overtopping spillway consists of roller-compacted concrete (RCC) with conventional concrete surface plating.**
The Cabresto Dam, located near Questa, New Mexico in a high altitude and very sensitive sub-alpine environment, has experienced significant seepage issues in recent years and has an undersized spillway. Due to these deficiencies, the New Mexico Office of the State Engineer placed the dam under a significant restriction. The decision was made to remove the existing dam and construct a new dam approximately 160 feet downstream that could safely impound Cabresto Lake and pass the spillway design flood. The new dam consists of a zoned earthen embankment with multi-level outlet works and an overtopping spillway with a low-flow notch and stilling basin. The overtopping spillway consists of 7,000 CY RCC with 1,700 CY conventional concrete surface plating.

**Dry Comal Creek Flood Retarding Structure; New Braunfels, TX**
Client: Comal County Contract Value: $12,824,647
Completion: September 2012
**Notable RCC accomplishments: This project consisted of constructing a roller-compacted concrete flood control structure on a tributary of the Dry Comal Creek, in Comal County, Texas (80,663 CY RCC).**
Construction of new, 85-foot-high flood retarding structure to prevent future flooding after catastrophic floods decimated the region in 1998. Major work activities for this project consisted of excavating 21,000 CY rock, a 990-foot-long and 20-foot-deep cutoff wall and batching and placing 82,000 CY of RCC, 4,600 CY of structural concrete, and 9,000 CY of grout enriched roller compacted concrete. Work also included foundation prepping and grouting. Over 50 ASI personnel worked around the clock, six days a week, to obtain the substantial completion date of July 31, 2012 for a deadline mandated for the county to get a $12.2 million federal grant.

**Wyaralong Dam Project; Beaudesert, Australia**
Client: Queensland Water Infra. Pty Ltd (QWI) Contract Value: $348,000,000 AUD (Project)
Completion: March 2011
**Notable RCC accomplishments: 150,000 CY RCC dam.**
The Wyaralong Dam provides an extra 17,000 acre-feet of water every year and is 1,600 ft in length and 157 ft high. The Wyaralong Dam Alliance was comprised of a team of highly skilled professionals consisting of leading construction, design and infrastructure specialists with collective individual experience on hundreds of dams. The works package included the construction of a 150,000 CY RCC dam, built across the river channel, and designed to pass flood flows over a centrally-placed spillway within the embankment itself. The dam was designed to withstand full flood and earthquake loading in accordance with the Queensland Dam Safety Management Guidelines and the Australian National Committee on Large Dams (ANCOLD) Guidelines. This project won the 2011 Alliance Contracting Excellence Award.

**Taum Sauk Upper Reservoir Rebuild Project; Annapolis, MO**
Client: AmerenUE Contract Value: $405,000,000
Completion: April 2010
**Notable RCC accomplishments: 2,851,000 CY RCC gravity dam. Awarded the 2010 USSD Award of Excellence in the Constructed Project.**
The project consisted of the reconstruction of the Taum Sauk Plant Upper Reservoir including excavation, material crushing/processing, and RCC production and placement to replace the

existing rock fill dam after a catastrophic failure. The Taum Sauk Plant - Upper Reservoir Rebuild Project consisted of returning an existing AmerenUE Pumped Storage Generation Facility to working condition after the Upper Reservoir suffered a breach in the existing concrete faced rockfill dam. The facility falls under the jurisdiction of the Federal Energy Regulatory Commission (FERC) and the project was constructed to satisfy requirements imposed by FERC for a return to service. These requirements were fulfilled by replacing the concrete face rockfill dam with a new symmetrical RCC dam. RCC aggregates = 6,000,000 TN - were produced by crushing the remaining rockfill dam materials after removal of the concrete facing element. The major work activities associated with this process consisted of excavation, rock excavation, crushing, foundation cleaning, dental/leveling concrete placement, RCC placement, upstream and downstream formwork, and 300,000 CY conventional concrete facing placement. Three RCC batch plants and one conventional concrete batch plant were erected onsite to produce materials required for dam construction. The dam axis has a length of 6,750 LF and the dam was constructed in a series of 9 monoliths each containing +/- 300,000 cubic yards of RCC.

**Nesbitt Dam Project; Scranton, PA**
Client: Pennsylvania American Water Company Contract Value: $22,274,100
Completion: September 2012
**Notable RCC accomplishments: 37,860 CY of RCC utilized in the spillway.**
The project work included rehabilitating the Pennsylvania American Water Company's Nesbitt Dam, a stone masonry dam with earthfill buttress and RCC overtopping, as mandated by the Pennsylvania Department of Environmental Protection, Bureau of Waterways Engineering Division of Dam Safety to comply with current dam safety requirements. The primary objectives of the project included increasing total spillway capacity to convey the Probable Maximum Flood (PMF), improving stability, and correcting observed seepage problems. The major work elements included excavation and backfill along with installation of filters and drains embedded in zoned materials. Other elements included the installation of relief and temporary dewatering wells, foundation grouting, installation of various water diversions both temporary and permanent, temporary and permanent shoring wall. Approximately 37,860 CY of RCC was utilized in the spillway with conventional facing, armored slopes, and two training walls. Approximately 86,000 CY of excavation work, with 19,700 CY of approved backfill was also completed. Over 6,000 CY of total conventional concrete, including a new ogee and stepped armoring, was added and 2,419 feet of high capacity post tensioned rock anchors. Work also included installing and maintaining erosion and sediment controls, and the rehabilitation of the gallery mechanical, and bridge.

**Salado Creek Watershed Dam 15R Phase II; San Antonio, TX**
Client: San Antonio River Authority Contract Value: $4,705,840
Completion: September 2004
**Notable RCC accomplishments: 23,000 CY emergency RCC spillway.**
Project involved the completion of second phase of a flood control embankment dam structure with principal spillway, drawdown structure, and RCC emergency spillway. Included excavation of 100,000 CY dam foundation to limestone bedrock subgrade; foundation cleanup; construction of 264,000 CY zoned earth-fill embankment; construction of 23,000 CY RCC emergency spillway; construction of 500 CY reinforced concrete principal spillway riser and outlet conduit; installation of 30-inch drawdown conduit; and relocation of 30 ft sanitary sewer. The project was completed 3 months ahead of schedule.

**Leyden Dam Flood Control Improvements; Arvada, CO**
Client: City of Arvada Contract Value: $1,576,500
Completion: December 2001
**Notable RCC accomplishments: RCC emergency spillway.**

Construction of an RCC emergency spillway through the dam, a new drop inlet spillway, new outlet pipe extension, manhole structure and terminal structure. Includes demolition of existing intake structure and control structure, and of 100 LF of existing spillway at the upstream end and 59 LF at the downstream end. New stepped RCC emergency chute spillway and new 36" outlet works. Principal quantities include 25,000 CY excavation, 6,500 CY embankment, 10,000 CY RCC, and 640 CY conventional concrete.

**Pickle Jar Dam & Reservoir; Blackhawk, CO**
Client: Paradise Valley Estates Contract Value: $1,408,200
Completion: July 2001
**Notable RCC accomplishments: New RCC spillway.**
Design-Build project for construction of new 6,000 CY RCC dam, including outlet tower and gates, spillway, and appurtenant structures. Dam is 53' high with a crest length of 184', located at an elevation of 8,700'.

**Pueblo Dam Modification; Pueblo, CO**
Client: Bureau of Reclamation Contract Value: $9,346,659
Completion: March 2000
**Notable RCC accomplishments: RCC stilling basin and concrete overlay.**
Project involving in-filling the existing stilling basin with RCC and overlaying the RCC with concrete. Salient features include drilling of foundation drains; high pressure water blasting of the existing concrete; installation of well point dewater system; producing, delivering, and placing RCC in the existing stilling basin and creating a new upstream face for the stilling basin at a 2:1 slope with RCC; installation of an elevated diversion; drilling and grouting of rock bolts and anchor bars; overlaying the RCC with conventional concrete including reinforcing steel; and grouting of induced cracks in the RCC.

**Rocky Gulch Dam; Morenci, AZ**
Client: Phelps Dodge Mine Company, Phoenix, AZ Contract Value: Confidential
Completion: June 1994
**Notable RCC accomplishments: 8,500 CY RCC containment dam.**
Project consisted of 8,500 CY RCC containment dam, with conventional upstream face and spillway.

**Littlerock Dam and Reservoir Restoration Project; Palmdale, CA**
Client: Palmdale Water District Contract Value: $12,500,000
Completion: June 1994
**Notable RCC accomplishments: Construction of a new RCC Dam and appurtenant features including 40,000 CY of RCC with vertical formed upstream face and sloped formed downstream face.**
The project involved buttressing and raising an existing arch buttress dam with a new, attached, conventional concrete-faced 115,000 CY RCC dam. Features included foundation rock blasting and excavation, considerable concrete demolition, high pressure water blast surface preparation of existing dam, construction of a new outlet works system, shotcreting the existing dam's upstream face, producing, delivering and placing the RCC buttress, constructing a new 320 ft. (100m) ogee spillway, and raising the existing dam.

**New Elmer Thomas Dam; Lawton, OK**
Client: U.S. Fish & Wildlife Service, Denver, CO Contract Value: $4,161,275
Completion: June 1993
**Notable RCC accomplishments: Construction of a new RCC Dam and appurtenant features including 40,000 CY of RCC with vertical formed upstream face and sloped formed downstream face.**
Construction of a new RCC Dam and appurtenant features to included: 35,000 CY of RCC with vertical formed upstream face and sloped formed downstream face; approximately 200 ft. of gallery; steel pipe outlet; a 55-ft. intake tower; sluice gates; approximately 25,000 CY of drilled/shot rock excavation; high-head sluice gates.

**Other Dam and Water Resource Projects:**

**Arkansas River Levee Improvements Phase 4; Pueblo, CO**
Client: Pueblo Conservancy District Contract Value: $3,317,353
Completion: March 2018
This ASI project involved the remediation/reconstruction of approximately 2,550 LF of the existing Arkansas River Levee. The Project included lowering, by approximately 12', an additional 850 LF of the levee as well as remediation of the BHE/HARP Diversion Structure. The current Arkansas River Levee consists of an existing earthen embankment between 22' and 35' tall (water side) which is faced with reinforced concrete approximately 10" thick. This Project Phase 4 included lowering a portion of the levee and hauling materials off-site, removing and crushing existing reinforced concrete facing from the Levee embankment and replacing with new all reinforced concrete facing, foundations, and subgrade materials, complete with all incidentals of construction. Existing concrete removed from the Levee was crushed on-site and used as subgrade material as well as top of Levee surfacing material. ASI personnel previously completed Phases 1 and 3 of the Arkansas River Levee Improvements.

**Upper Brushy Creek Dam 7 Modernization; Cedar Park, TX**
Client: Upper Brushy Creek Water Control & Improvement Dist. Contract Value: $17,819,013
Completion: March 2018
Construction of a 330-foot wide reinforced concrete labyrinth spillway, stepped chute discharge channel with baffle blocks and stilling basin, architectural facing on stepped chutes and exterior portions of the training walls, 29,895 SY of embankment and surface preparation, installation of 19,930 CY of rip rap armoring, construction of approximately 3,000 LF of colored concrete sidewalk, 2,600 LF of decorative guardrail. Earthen cofferdam.

**Lake Texoma Outfall to Wylie WTP Raw Water Pipeline Plant; Howe, TX**
Completion: November 2013 Contract Value: $21,589,000
Client: North Texas Municipal Water District
Construction of dual-cell 240 Million Gallon Balancing Reservoir using 79,000 CY of soil cement, placed 12" thick. Installation of 1400 LF of 96-inch and 300 LF of 78-inch steel pipe in reinforced concrete encasement. Project completed for Garney Construction acting as the CMAR. This project was completed successfully with zero injuries.

**Pathfinder Dam; Natrona County, WY**
Client: U.S. Dept of the Interior, USBR and the State of Wyoming Contract Value: $3,570,963
Completion: April 2012
The Pathfinder Dam is located on the North Platte River approximately 47 miles southwest of Casper, Wyoming. The dam is a cyclopean dam, which was originally constructed between 1905 and 1909; it is included on the National Register of Historic Places. Modifications were made to the left abutment of the dam. A new ogee crested spillway modification consisted of the following primary features, including the Ogee Crested Spillway, rock excavation and a walkway extension. The ogee crested spillway constructed was a reinforced concrete structure approximately 800-feet long, located on an excavated bench upstream of the existing flat crested weir. Approximately 7,700 CY of the granite outcropping was blasted and excavated just downstream from the existing flat crested weir. In addition, approximately 2,540 CY of granite bedrock was excavated on the left abutment of the ogee crested spillway. The existing walkway was also extended.

**Medina Lake Main Dam Outlet Gate Replacement; Mico, TX**
Client: Bexar Metro Water District Contract Value: $1,437,550
Completion: May 2004
Project included repairs to two underwater gate operators, replacement of two gates, 100 CY concrete hydro demolition, 120 CY structural demolition, placement of 200 CY of structural concrete, access road construction and miscellaneous electrical work.

**Monument Lakes Dam Rehabilitation; Monument, CO**
Client: Town of Monument Contract Value: $3,184,200
Completion: July 2002
Reconstruction of spillway outlet works. Included excavation of earth dam, dredging of interior reservoir area, drainage zone, toe drain, and new embankment.

**Jackson Lake Reservoir Dam; Fort Morgan, CO**
Client: Jackson Lake Reservoir & Irrigation Co. Contract Value: $3,184,200
Completion: January 2002
Repair project involving constructing a 6-foot-wide stepped soil-cement overlay on the upstream side of an existing earth-fill dam. The existing dam is 22-foot-high with a crest length of 11,600 feet. Included 41,000 CY soil-cement and excavation of 25,700 CY of riprap and unclassified material.

**Trout Creek Dam; Buena Vista, CO**
Client: Paul Moltz Contract Value: $750,000
Completion: May 2000
Design-Build 11,000 CY, 101' high, RCC dam with a crest length of 130 ft. The vertical upstream face and 2' stepped downstream face were conventionally formed, cast-in-place concrete. Horizontal water-stop was placed in the upstream face cold joints. The project included 1,990 CY conventional concrete, two 24" steel outlet pipes, and aggregate screened on-site. RCC was placed by conveyor to crane delivery, and bedding grout and conventional concrete was placed by crane delivery.

**Stratmoor Sanitation Emergency Watershed Protection; Security, CO**
Client: USDA, NRCS Contract Value: $50,448
Completion: March 2000
Repairs to the embankment of Fountain Creek near Security, CO. Involved the placement of geotextile and riprap along a steep embankment with difficult access.

**Stewart Reservoir #1; Buena Vista, CO**
Client: Peter & Suzanne Paddock
Completion: February 2000
New concrete dam approximately 50 feet long and 8 feet high. Included 30 CY concrete; 300 CY earthwork; 9,000 SF of poly liner; riprap; 12" outlet gate and piping; 100 LF of 6" PVC fine waterline.

**Goose Lake Dam Watershed Modifications; Boulder, CO**
Client: City of Boulder Contract Value: $617,843
Completion: December 1999
Superintendent for Diversion Pipe Installation, project included installation of a new inlet works and improvement of the watertight integrity of the existing timber crib & concrete dam located at 10,500 ft. elevation. Included the placement of a conventional concrete curb and the installation of a polyethylene geomembrane on the vertical face of the 400 ft. long dam. Three zones of aggregate were produced on site and placed on the upstream face of the dam to protect the geomembrane.

**McClure Reservoir & Dam Spillway Joint Repair; Santa Fe, NM**
Client: PNM Water Services Contract Value: $119,200
Completion: January 1999
Earthwork Foreman, the project included sawcut, demolition, and replacement of concrete spillway joints.

**Henderson 2000 Earthworks & Logging; Parshall, CO**
Client: Climax Molybdenum Company
Project involved earthwork for conveyor right-of-way. Work included 30,000 CY controlled blasting and rock excavation; 400,000 CY mass excavation and fill; MSE walls and slopes; multiplate tunnels; and aggregate road base processing and installation.

**Lincoln Connection Canal Lining and Erosion Repair; Aspen, CO**
Client: Twin Lakes Reservoir & Canal Company, Aspen, CO Contract Value: $2,856,000
Completion: September 1997
The project consisted of major reconstruction of an existing unlined canal at an elevation of 10,500 ft located above Aspen, CO. The work included blasting enlargement in rock; on-site aggregate crushing and washing; and concrete production to complete a 5,000 ft long rectangular cross-section canal. The work also included four avalanche cover sections and two overflow spillways. Substantial completion occurred in one four-month construction season, attributable to the negotiated, "quasi" design/build format, and notable construction intensity. Construction access was through a transcontinental water diversion tunnel.

**Green Mountain Dam Spillway Slope Protection; Loveland, CO**
Client: Bureau of Reclamation
Completion: April 1997
Batch plant Operator, project included reconstruction of inlet slope including removal of existing concrete slope protection, earthwork, installation of geotextile filter fabric, and construction of rock filled gabions.

**Magic Mountain Dam; Denver, CO**
Client: Mobile Premix Concrete
Completion: September 1996

Construction of toe drains; supplying pipe and appurtenant structures; and reconstruction of outlet works including installation of gate stem and operator.

**McCullough Water Treatment Center, Stanley Canyon Facilities; Colorado Springs, CO**
Client: City of Colorado Springs Contract Value: $2,600,000
Completion: May 1994
Batch plant operator and Labor Foreman, project was a Subcontract to National Projects, Inc. to complete construction of energy dissipation facilities. Work includes: 150,000 CY of excavation and fill; 96" - 108" steel penstock manifold; 36" sleeve valves; architectural concrete building; water and sewer lines; electrical duct banks and 2,500 LF of access road.

**Morris Sheppard Dam, Possum Kingdom Reservoir; Waco, TX**
Client: Brazos River Authority Contract Value: $6,729,000
Completion: November 1991
Rehabilitation of existing slab and buttress; concrete dam involving batching; and placement of approximately 90,000 CY of ballast concrete.

**PROFESSIONAL EXPERIENCE:**

| | |
|---|---|
| **03/2017 - Present** | **ASI Construction LLC; Colorado Springs, Colorado**<br>RCC Superintendent |
| **01/2008 - 03/2017** | **ASI Constructors, Inc.; Pueblo West, Colorado**<br>Superintendent |
| **10/2004 – 12/2007** | **Western Summit Constructors; Colorado Springs, CO**<br>Dirt Foreman for the Northern Water Reclamation Facility in Colorado Springs, CO |
| **11/2006 – 10/2004** | **R.E. Monks; Colorado Springs, CO**<br>Pipe Superintendent for the Powers and Woodman Interchange, CO |
| **09/1996 to 10/2006**<br>1997-2006<br>1990-1997 | **ASI RCC, Inc., Buena Vista, Colorado**<br>Batch plant operator and Project Superintendent<br>Foreman and Crane Operator |
| **1987 – 08/1990** | **Moltz Constructors, Inc; Cody, WY**<br>Iron worker and Foreman |
| **1979-1987** | **Avery Structures, Inc, Buena Vista, CO**<br>Iron worker and Carpenter/Labor Foreman |

# P A L M D A L E  W A T E R  D I S T R I C T

## *B O A R D  M E M O R A N D U M*

**DATE:** July 17, 2018 **July 18, 2018**

**TO:** BOARD OF DIRECTORS **Special Board Meeting**

**FROM:** Mr. Peter Thompson Sr., Project Manager

**VIA:** Mr. James Riley, Engineering/Grant Manager
Mr. Dennis D. LaMoreaux, General Manager

**RE:** ***AGENDA ITEM NO. 4.2 – CONSIDERATION AND POSSIBLE ACTION ON CHANGE ORDER NO. 1 TO THE CONTRACT WITH ASI CONSTRUCTION LLC FOR CONSTRUCTION OF THE LITTLEROCK RESERVOIR SEDIMENT REMOVAL PROJECT – PHASE 1: GRADE CONTROL STRUCTURE UNDER SPECIFICATION NO. 1802. ($1,400,000.00 REDUCTION – BUDGETED, WATER REVENUE BONDS, SERIES 2018A – ENGINEERING/GRANT MANAGER RILEY/PROJECT MANAGER THOMPSON SR.)***

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**Recommendation:**

Staff recommends that the Board approve Change Order No. 1 as presented.

**Alternative Options:**

There are no alternative options.

**Impact of Taking No Action:**

There will be no reduction in the contract amount for Specification No. 1802.

**Background:**

Change Order No 1 is comprised of work scope and cost reductions and additional costs as defined by letter from contractor proposing cost reduction measures as follows:

| | |
|---|---|
| Elimination of formed steps | $225,000.00 |
| Reduction of backfill quantity | $328,000.00 |
| Removal of asphalt/concrete restoration from contract | $180,000.00 |
| Redesign of basin rip rap | $659,893.00 |
| Relieving contractor from payment of owners Inspection overtime | $60,000.00 |
| Additional costs related to reduced scope | -$52,893.00 |

Total Cost Reduction Association with Change Order No. 1:$1,400,000.00

Approval of Change Order No. 1 will allow this project to be completed this year with funds available through Water Revenue Bonds, Series 2018A.

BOARD OF DIRECTORS
PALMDALE WATER DISTRICT
VIA: Mr. James Riley, Engineering/Grant Manager
Mr. Dennis D. LaMoreaux, General Manager July 17, 2018

**Strategic Plan Initiative/Mission Statement:**

This item is under Strategic Initiative No. 1 – Water Resource Reliability.
This item directly relates to the District's Mission Statement.

**Budget:**

Budgeted – Water Revenue Bonds, Series 2018A.

**Supporting Documents:**

- Change Order No. 1
- ASI Cost Reduction Measures letter
- Contractor's Revised Bid Schedule

# CHANGE ORDER

No. 1

PROJECT Construction of the Littlerock Reservoir Sediment Removal Project – Phase 1: Grade Control Structure

DATE OF ISSUANCE July 18, 2018 EFFECTIVE DATE July 18, 2018

OWNER Palmdale Water District

OWNER's Contract No. Specification No. 1802

CONTRACTOR ASI Construction LLC ENGINEER P.W.D.

**You are directed to make the following changes in the Contract Documents.**

**Description:** Work scope and cost reductions and additional costs as defined by attached letter from contractor proposing cost reduction measures as follows: Elimination of formed steps - $225,000.00, Reduction of backfill quantity - $328,000.00, Removal of asphalt/concrete restoration from contract- $180,000.00, Redesign of stilling basin rip rap - $659.893.00, Relieving contractor from payment of owner's inspection overtime - $60,000.00, Additional costs related to reduced scope - $52,893.00. Total proposed cost reduction associated with this change order is - $1,400,000.00

**Reason for Change Order:** *Original contract amount exceeded contract budget*

**Attachments:** *ASI Cost Reduction Measures*

*Contractor's Revised Bid Schedule*

| **CHANGE IN CONTRACT PRICE**: | **CHANGE IN CONTRACT TIMES:** |
|---|---|
| Original Contract Price<br>$ 10,675,808.00 | Original Contract Times<br>Completion: 170 Days |
| Net Changes from previous Change Orders No. 0 to No. 0<br>$ 0.00 | Net Changes from previous Change Orders No. 0 to No. 0<br>0 – Day Extension<br>Days |
| Contract Price prior to this Change Order<br>$ 10,675,808.00 | Contract Times prior to this Change order<br>Completion: 170 Days<br>Days |
| Net Increase (decrease of this Change Order)<br>$ -1,400,000.00 | Net Increase (decrease of this Change Order)<br>0 – Day Extension<br>Days |
| Contract Price with all approved Change Orders<br>$ **9,275,808.00** | Contract Times with all approved Change Orders<br>Completion: 170 Days |

# CHANGE ORDER

No. 1

PROJECT Construction of the Littlerock Reservoir Sediment Removal Project – Phase 1: Grade Control Structure

DATE OF ISSUANCE July 18, 2018 EFFECTIVE DATE July 18, 2018

OWNER Palmdale Water District

OWNER's Contract No. Specification No. 1802

CONTRACTOR ASI Construction LLC ENGINEER P.W.D.

| RECOMMENDED: | APPROVED: | ACCEPTED: |
|---|---|---|
| By:_____ | By: _____ | By:_____ |
| PWD, Engineering Manager | PWD, General Manager | Contractor (Authorized Signature) |
| Date: _____ | Date: _____ | Date: _____ |

ASI Construction LLC
1880 Office Club Pointe, Suite 2000, Colorado Springs, Colorado 80920 T: +1 (719) 647-2821 F: +1 (719) 647-2890
"A Shaft Drillers International Company"

July 17, 2018

VIA EMAIL TO: jriley@palmdalewater.org
James Riley
Palmdale Water District
2029 East Avenue Q
Palmdale, CA 93550

Re: Cost Reduction Confirmation – Littlerock Reservoir Below Grade Structure

Dear Mr. Riley,

The following is ASI Construction LLC's (ASI) confirmation of our previous correspondence and discussions on ways to reduce the cost of the Littlerock Reservoir – Below Grade Structure project for the Palmdale Water District. We have represented the topics discussed and agreed to as well as quantified the new item to provide a basis from which you can move forward with the award of this contract and a corresponding Change Order #1 to ASI.

1. ***Eliminate Formed Steps:*** ASI provided a price reduction of ***$225,000*** in our original proposal to eliminate the formed steps of the structure. After discussing the Engineer's concern regarding adequate compaction on the sloped face, we believe that our means and methods illustrated at the meeting using an over-built width to allow the main roller function to occur on the top of the lift and providing a compaction plate attachment to a small excavator to compact the slope will meet the specification requirement. We have constructed this feature on previous projects. This alternative has considered the additional RCC volume required to over-build the sloped face to guarantee that the fullness of the design cross-section of the structure is provided. We encourage the Owner to accept this cost-saving measure with the full confidence that the designed feature will function as intended. As discussed at the meeting, should the Owner or Engineer be required to add color to the exposed surface of the top of the structure or provide some other visually appealing finish to the exposed surface, ASI could provide these enhancements to the Owner for a nominal charge.

2. ***Reduce Quantity of Backfill:*** ASI is suggesting that a quantity of the materials excavated to construct the Grade Control Structure be placed, compacted, and contoured in the defined stockpile areas along the right edge of the stream alignment and against the right-side canyon wall downstream of the structure. The final location and contours of this remaining stockpile will be discussed between the Palmdale Water District, Northwest Hydraulic Consultants, and Aspen Environmental Group and the decision of the group will be supplied to the Engineer by ASI in the form of a shop drawing for approval. By placing the excavated material in this location at the time of excavation and not re-handling this material for a backfill operation, the Owner can realize a cost reduction. The flow channel of the existing stream will not be impacted by this material until such time as the Grade Control Structure is inundated during a flood event. Our current estimated excavation quantity is 120,000 CY. ASI has estimated 40,000 CY will be required to backfill the upstream excavation and provide nominal cover material on the downstream RCC, leaving approximately 80,000 CY of material in the stockpile. Since this item is a lump sum bid value, should the general assumption of 1/3 of the excavation will be used for backfilling and 2/3 of the

excavation will stay in the stockpile not hold true, ASI reserves the right to adjust our lump sum accordingly. Allowing for additional compaction at the time of placement, minimal final grading required to the surface of the stockpile, and retention of assigned In-Direct costs to this item, we estimate a cost of $4.10/CY would be saved by not re-handling the material intended for backfilling the structure. Therefore, 80,000 CY x $4.10/CY = ***$328,000*** cost reduction.

3. ***Remove Asphalt/Concrete Restoration:*** ASI has included a cost of ***$180,000*** to hire a subcontractor to mobilize to the site and restore the concrete curb and asphalt that may be damaged in the designated staging areas resulting from the Below Grade Structure project. Our opinion is that restoring these areas later as part of a larger and possible redesigned campground footprint would be in the District's best interest. ASI will remove only those features necessary to build the Below Grade Structure and return the affected area to a level, gravel surface. Then at some point in the future, as determined by mutual consent of the U.S. Forest Service and the District, a surface restoration package could be issued to address these surface areas as well as others that may develop after this project is complete. After the shelter structures are removed to a temporary storage location, ASI will cover the remaining concrete slabs with sufficient fill to protect them from damage during construction. Similarly, ASI will provide aggregate ramps at all curb crossing in an effort to protect the curb from damage. Even with our best practices in this regard, we believe it is possible that 200 linear feet of curb may be damaged and need replacing in the parking area near the shelters.

4. ***Redesign Stilling Basin Rip Rap:*** The design of the stilling basin Stone Protection has been revised to reflect a 4-foot thick section of Stone Protection with a gradation designation of Type A1 that extends across the base up the slope to a point 10-feet vertically from the invert elevation as per the sketch from the Engineer. Additionally, the Stone Protection on the slopes above the Type A1 Stone Protection has been changed to a Type B Stone Protection. While the Engineer is allowing the RCC Test Section to be installed below the Type A1 Stone Protection in the base section, the use of that area for the Test Section will be at ASI's discretion.

   The corresponding cost adjustments that result from this design change are as follows:

   - Eliminate all Type A Stone Protection 12,571 Ton @ $103.00/Ton = <$1,294,813.>
   - Option A - Use 4-feet of Type A1 Stone Protection in the base section and lower slope area of 5,300 Ton @ $100.00/Ton = $530,000.
   - Use Type B Stone Protection on side slopes above Type A1 Stone Protection for an additional 1,220 Ton @ $86.00/Ton = $104,920.

   Net Cost Reduction – Option A **<$659,893.>**

5. ***Owner's Inspection Overtime:*** To meet our construction schedule, ASI has included ***$60,000*** to pay the Owner's inspection forces. If this expense can be covered in a different fashion, ASI would remove this money completely from our proposal.

In summary, the above values will be incorporated into the Revised Bid Form in the following manner:

1. Eliminate Formed Steps (Item D7) <$225,000>

| | | |
|---|---|---|
| 2. | Reduce Quantity of Backfill (Item C5) | <$328,000> |
| 3. | Remove Asphalt/Concrete Restoration (Item F1) | <$180,000> |
| 4. | Redesign Stilling Basin Rip Rap/RCC Option A Scenario (Items E1 thru E4) | <$659,893> |
| 5. | Eliminate Owner's Inspection Overtime (Item G1) | <$60,000> |
| 6. | Captured In-Directs from Reduced Scope Items | 52,893. |
| | **Potential Cost Reduction for Change Order #1** | **$1,400,000** |

You will notice that on the Revised Bid Form which is attached, we have tried to correlate the cost modifications to the Bid Items that best fit the situation. Consequently, our "Mobilization" price has gone down to comply with the 5% maximum amount allowed for this item and we have increased our price for the "All Other Work Indicated Not Included in Items A through F Above" to reflect our In-Direct costs that were previously included in work scopes that have been eliminated. As clarified in the Engineer's comments regarding the Stone Protection work, the quantities represented on the Revised Bid Form include the weight of the Filter Layer aggregate and the Type A, B, and C Stone Protection respectively in the various Stone Protection Items.

We trust this confirmation of Cost Reduction choices provide adequate detail and value to allow the award of the project to move forward. However, should you need additional information please feel free to contact us.

ASI Construction LLC



Richard W. King
Estimating Manager

# REVISED BID SCHEDULE
# SPECIFICATION NO. 1802

**Schedule of Prices for Construction of**
**System Improvements**
**for**
**Palmdale Water District**

**BID SCHEDULE**

| Item | Description | Quantity | Units | Unit Cost | Item Cost |
|---|---|---|---|---|---|
| A | Mobilization and Site Preparation | | | | |
| A1 | Mobilization (maximum 5% of bid items below) | 1 | LS | $450,000.00 | $450,000.00 |
| A2 | Temporary facilities | 1 | LS | $150,000.00 | $150,000.00 |
| A3 | Development of staging areas and access | 1 | LS | $200,000.00 | $200,000.00 |
| A4 | Construction survey | 1 | LS | $65,000.00 | $65,000.00 |
| A5 | Site preparation and BMPs | 1 | LS | $350,000.00 | $350,000.00 |
| A6 | Demolition | 1 | LS | $71,000.00 | $71,000.00 |
| **Subtotal Item A** | | | | | $1,286,000.00 |
| | | | | | |
| B | Control of Water | | | | |
| B1 | Design and install dewatering system | 1 | LS | $350,000.00 | $350,000.00 |
| B2 | Operate dewatering system | 1 | LS | $430,000.00 | $430,000.00 |
| B3 | Install isolation berm | 1 | LS | $250,000.00 | $250,000.00 |
| B4 | Install surface flow bypass | 1 | LS | $500,000.00 | $500,000.00 |
| B5 | Remove dewatering system/surface flow | 1 | LS | $32,000.00 | $32,000.00 |
| **Subtotal Item B** | | | | | $1,562,000.00 |
| | | | | | |
| C | Earthwork | | | | |
| C1 | Clearing and grubbing | 1 | LS | $36,000.00 | $36,000.00 |
| C2 | Shoring and excavation safety | 1 | LS | $114,000.00 | $114,000.00 |
| C3 | RCC structure excavation (soil) | 1 | LS | $700,000.00 | $700,000.00 |
| C4 | Rock excavation (allowance) | 200 | CY | $160.00 | $32,000.00 |
| C5 | RCC structure backfill | 1 | LS | $494,000.00 | $494,000.00 |
| C6 | Grading and disposal of excess material | 1 | LS | $15,000.00 | $15,000.00 |
| C7 | Removal of unsuitable material (allowance) | 200 | CY | $64.00 | $12,800.00 |
| C8 | Engineered fill (allowance) | 2000 | CY | $63.00 | $126,000.00 |
| | | | | | $1,529,800.00 |

| Item | Description | Quantity | Units | Unit Cost | Item Cost |
|---|---|---|---|---|---|
| D | RCC Grade Control Structure | | | | |
| D1 | Provide, set up, and test RCC plant | 1 | LS | $274,000.00 | $274,000.00 |
| D2 | Prepare RCC mix test sections | 1 | LS | $50,000.00 | $50,000.00 |
| D3 | Provide drainage layer and weep hole materials | 1 | LS | $166,000.00 | $166,000.00 |
| D4 | Prepare subgrade and install drainage layer | 1 | LS | $241,000.00 | $241,000.00 |
| D5 | Cement for RCC | 1610 | TONS | $170.00 | $273,700.00 |
| D6 | Fly ash for RCC | 540 | TONS | $160.00 | $86,400.00 |
| D7 | Produce and install RCC | 1 | LS | $2,509,442.00 | $2,509,442.00 |
| **Subtotal Item D** | | | | | $3,600,542.00 |
| | | | | | |
| E | Stone Protection | | | | |
| E1 | Provide Type A Stone Protection materials | 12,571 | TONS | | |
| E2 | Install Type A Stone Protection | 12,571 | TONS | | |
| E1R | Provide Type A1 Stone Protection | 5,300 | TONS | $74.00 | $392,200.00 |
| E2R | Install Type A1 Stone Protection | 5,300 | TONS | $26.00 | $137,800.00 |
| E3 | Provide Type B Stone Protection materials | 4,650 | TONS | $67.00 | $311,550.00 |
| E4 | Install Type B Stone Protection | 4,650 | TONS | $19.00 | $88,350.00 |
| E5 | Provide Type C Stone Protection materials | 1,495 | TONS | $61.00 | $91,195.00 |
| E6 | Install Type C Stone Protection | 1,495 | TONS | $18.00 | $26,910.00 |
| **Subtotal Item E** | | | | | $1,048,005.00 |
| | | | | | |
| F | Site Restoration | | | | |
| F1 | Restore site recreation facilities | 1 | LS | $9,000.00 | $9,000.00 |
| F2 | Provide erosion control and revegetation | 1 | LS | $14,000.00 | $14,000.00 |
| F3 | Install Type 1 Revegetation | 1 | LS | $18,000.00 | $18,000.00 |
| F4 | Install Type 2 Revegetation | 1 | LS | $53,000.00 | $53,000.00 |
| F5 | Install Type 3 Revegetation | 1 | LS | $38,000.00 | $38,000.00 |
| F6 | Site clean up and waste management | 1 | LS | $9,600.00 | $9,600.00 |
| **Subtotal Item F** | | | | | $141,600.00 |
| | | | | | |
| | | | | | |
| G | All other work indicated not included in items A through F above | 1 | LS | $107,861.00 | $107,861.00 |
| | | | | | |
| | | | | | |
| | | | | | |
| Total of Items A through G | | | | | $9,275,808.00 |
| | | | | | |
| | | | | | |

# P A L M D A L E  W A T E R  D I S T R I C T

## *B O A R D  M E M O R A N D U M*

**DATE:** July 16, 2018 **July 18, 2018**

**TO:** BOARD OF DIRECTORS **Special Board Meeting**

**FROM:** Mr. James A. Riley, Engineering/Grant Manager

**VIA:** Mr. Dennis D. LaMoreaux, General Manager

**RE:** ***AGENDA ITEM NO. 4.3 – CONSIDERATION AND POSSIBLE ACTION ON APPROVAL OF CONTRACT AMENDMENT WITH ASPEN ENVIRONMENTAL TO COMPLETE PRECONSTRUCTION BIOLOGICAL SURVEYS FOR LITTLEROCK SEDIMENT REMOVAL PROJECT. ($1,283,287 – BUDGETED, WATER REVENUE BONDS, SERIES 2018A - ENGINEERING/GRANT MANAGER RILEY)***

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**Recommendation:**

Staff recommends that the Board:

Approve Contract Amendment No. 11 with Aspen Environmental to complete preconstruction biological surveys, monitoring during construction, and permit development and compliance for the Littlerock Sediment Removal Project in the amount of $1,283,287.

**Alternative Options:**

The Board may choose to not approve the contract amendment.

**Impact of Taking No Action:**

If the Board does not approve, the permits required for the grade control structure would likely be jeopardized, and regulatory agencies could order the District to stop the work.

**Background:**

The District completed in May 2017 the Final Environmental Impact Report and the Final Environmental Impact Statement for the Littlerock Sediment Removal Project. On June 20, 2017, the U.S. Forest Service issued the Record of Decision to allow the construction of the sediment removal project.

Final design of the grade control structure has been completed, and construction is expected to begin in late August of 2018. The mitigation and monitoring plan presented in the Final EIR/EIS commits the District to conduct preconstruction surveys for biological resources, monitoring during construction, and permit development and compliance as presented in the included Scope of Work for this Board Memorandum.

**Strategic Plan Initiative/Mission Statement:**

This item is under Strategic Initiative No. 1 – Water Supply Reliability

This item directly relates to the District's Mission Statement.

**Budget:**

Budgeted – Water Revenue Bonds, Series 2018A

**Supporting Documents:**

- Exhibit A - Scope of Work from Aspen Environmental
- Exhibit B – Proposed Fee from Aspen Environmental

# EXHIBIT A
# Scope of Work
# for the Grade Control Structure
# Pre-Construction and Construction Activities and the
# Sediment Removal Excavation Plan
# July 2018

Below is a description of the scope of work proposed by Aspen Environmental Group (Aspen) for completion of the pre-construction and construction activities associated with the grade control structure and preparation of the sediment removal excavation plan for Palmdale Water District's (District) Littlerock Reservoir Sediment Removal Project.

## Task 1: Plan Preparation

The Special Use Authorization (SUA) will be issued by the Forest Service after the completion of all environmental clearance documents, acquisition of permits, issuance of District and USDA Forest Service (Forest Service or USFS) decisions. Aspen will continue to support the District by providing any additional information required by the USFS to finalize the SUA for the project.

The District's Standard Project Commitments (SPCs) require the preparation of plans that must be reviewed by the District and USFS. These include restoration guidance, biological resource methods that would be employed during construction, and grade control structure and sediment removal activities. Aspen will prepare the required plans identified in the SPCs presented in the adopted Mitigation Monitoring and Reporting Program (MMRP) and USFS Record of Decision (ROD), and coordinate with agency staff to ensure each environmental document is completed in a format acceptable to the District, USFS, and the regulatory agencies. The required plans include:

- Worker Environmental Training Plan. Aspen will prepare a worker environmental training plan that identifies the sensitive biological (per SPC BIO-1b) and cultural resources that occur in the project area. The plan will provide guidance to the District and the construction contractors of required steps during construction and will include a training manual, visual aids, and a PowerPoint presentation given by Aspen resource specialists (i.e., biology and archaeology). Aspen will provide guidance to field crews regarding the sensitive biological resources that occur in the project area. In addition, Aspen will include the required steps related to cultural resources monitoring and response to inadvertent discoveries made during construction.
- Sensitive Species Relocation Plan. This plan will provide guidelines for avoiding and minimizing potential impacts to aquatic wildlife, including animals designated by the California Department of Fish and Wildlife (CDFW) as species of special concern that may be stranded if flows in the creek are curtailed or restricted during stream diversion or construction of the grade control structure.
- Exotic Species Removal Plan. This plan would be developed to ensure that all equipment used in ponded or flowing water has been properly cleaned and inspected for non-native mussels or snails. The plan would highlight procedures for cleaning, reporting, and documenting all equipment used on the project.
- Cultural Resources Monitoring Program (CRMP). Per SPC CUL-1, Aspen will design and implement a monitoring program, in consultation with the District and USFS, to ensure the effectiveness of cultural resources monitoring activities. The monitoring program will include preparation of a CRMP. The CRMP will establish qualification criteria applicable to cultural resource monitors, describe protocols and procedures governing full-time and intermittent monitoring during construction activities, identify high and moderate sensitivity areas, list key contact persons and contact information, provide safety

protocols, and identify a clear process for responding to inadvertent discoveries of cultural resources or human remains.

- Dust Control Plan (DCP). Per SPC AQ-2 and the Antelope Valley Air Quality Management District (AVAQMD), a dust control plan is required prior to construction to reduce fugitive dust. Aspen's in-house personnel have the required training certification to prepare the DCP. As such, Aspen will complete the DCP as required for AVAQMD Rule compliance consistent with the dust control commitments presented in the adopted MMRP and ROD. The Air Pollution Control Officer (APCO) must approve the DCP before commencement of construction activities. The DCP will include mitigation for fugitive dust during project activities at the Reservoir and from vehicle travel to the Reservoir work areas.
- Spill Response Plan (SRP). Per SPC WQ-1, a spill response plan is required prior to construction to protect surface water quality. Aspen will prepare a SRP that describes the required materials and methodology to quickly and effectively contain and remove any spill or accidental release of hazardous materials. The SRP will detail the types of tools, materials, and clothing necessary for minor excavation and soil removal in the event of a spill, as well as detailing appropriate containers for hazardous materials and contaminated soil. The SRP will also identify the nearest landfills for disposing of such hazardous materials and soil spoils. As part of preparation, the requirements of the Spill Response Plan will be coordinated with, and incorporated within, the project Stormwater Pollution Prevention Program (SWPPP). Additionally, to implement the Spill Response Plan, Aspen will provide worker training on proper containment and disposal of hazardous materials.
- Traffic Control and Management Plan (TCMP). Aspen will prepare a TCMP utilizing the fundamental principles outlined in the California Joint Utility Traffic Control Manual, the California Manual of Uniform Traffic Control Devices (CA MUTCD), and other applicable manuals and guidelines. The TCMP is intended to be flexible and a "living document" that may be revised to address unanticipated/differing conditions and potential improvements. Because the project does not require encroachment into public roadways, no permits are necessary. The TCMP is intended to present the actions to be implemented to minimize impacts to the traveling public by haul truck trips during sediment removal of the project, including provisions for construction site safety and temporary traffic controls. The roles and responsibilities of key project stakeholders related to the TCMP prior to and during construction will be described in the TCMP. The preparation of the TCMP also assumes coordination with local and State transportation agencies to ensure that their requirements have been addressed adequately.
- Roadway Restoration Plan (RRP). The RRP will outline procedures for conducting long-term seasonal Pavement Condition Index (PCI) and annual repair strategies for roadway damage on Reservoir access roads and paved parking areas for review and approval by the Forest Service. The RRP will also include terms and conditions addressing potential damage along public roads, for the approval by the City of Palmdale, Los Angeles County, and/or Caltrans, as appropriate for public roadways comprising the sediment disposal truck travel routes. Aspen will provide technical support for all negotiations and correspondence with all jurisdictions regarding any fair-share funding agreements for roadway damage repairs.

**Deliverables**

- Worker Environmental Training Plan
- Sensitive Species Relocation Plan
- Exotic Species Removal Plan
- Cultural Resources Monitoring Program
- Dust Control Plan
- Spill Response Plan
- Traffic Control and Management Plan
- Roadway Restoration Plan

## Task 2: Biological Surveys, Construction Period Sweeps, and Worker Training

Aspen will provide support to the District in conducting required biological surveys and reporting identified in Standard Project Commitments. The USFS has also requested that Aspen assist with Forest Service monitoring, which may include hydrology, botany, wildlife, fisheries, or other monitoring that the USFS identified in the Final EIS/EIR and ROD.

**Required Surveys**. The objectives of this task are to conduct surveys per the specified permit requirements, and to prepare concise reports that document the results of the surveys. All locations of sensitive species or target wildlife will be flagged in the field, logged using a Trimble GPS (or equivalent), and documented using District approved forms. This task assumes that pre-construction surveys for Least Bell's vireo, Southwestern willow flycatcher, arroyo toads, sensitive herpetofauna, ringtail, desert kit fox, American badger, burrowing owls, nesting birds, bats, plants, and other sensitive resources have been conducted by Aspen under a previous authorization.

**General Assumptions**

- Assumes surveys for desert tortoise and Swainson's hawks will not be conducted as the District does not propose to use the sediment deposition areas during construction of the grade control structure.
- Additional monitoring or survey requirements identified in future plans or agency permits would be addressed under a separate scope if needed.

**Deliverables**

- Biological Survey Report documenting current site conditions and the results of the field surveys.

**Conduct Biological Clearance Sweeps.** The objectives of this task are to conduct 4-hour pre-construction sweeps for any area that has been left idle for more than three to four days to ensure nesting birds or other sensitive biological resources are not present prior to and during construction of the grade control structure. All locations of sensitive species or target wildlife will be flagged in the field, logged using a Trimble GPS (or equivalent), and documented using District approved forms.

**General Assumptions**

- Aspen assumes one biologist can inspect cleared sites in approximately four hours. Clearance for nesting birds requires a separate biologist to walk meandering transects looking for territorial or nesting behavior.

**Deliverables**

- Monthly Compliance Reporting.

**Worker Training**. Aspen will conduct worker training for all project personnel as identified in the approved Worker Environmental Training Plan prepared under Task 1. The information will be provided through a Power Point presentation addressing the sensitivity of all biological, cultural, and other resources in the project area. The presentation will be fully explanatory and presented in laymen's terms, so it can be included with any other worker training presented by the District. Worker training will also include contractor requirements under the Dust Control Plan, Fire Management Plan, SWPPP, and Spill Response Plan. Each worker will be provided a hard hat sticker and small pamphlet that describes the key contact information and sensitive resources that may occur. Each worker will be asked to sign a sheet acknowledging that the training was understood prior to the commencement of work.

**General Assumptions**

- Aspen assumes one biologist (with support by technical specialists) will conduct three annual trainings at the job site or at the District office located in Palmdale.
- Aspen assumes one archaeologist will conduct three annual trainings at the job site or at the District office.

**Deliverables**

- Copy of training material and worker handouts.

## Task 3: Construction Period Clearance Requirements & Monitoring and Reporting

This task identifies specific actions that are required for the construction of the grade control structure at Rocky Point. These include fencing the work area, constructing a diversion, conducting surveys for arroyo toad and nest surveys, ongoing compliance monitoring, and reporting requirements to support sediment removal activities.

**Required Surveys, Fencing, Monitoring, and Reporting**. The objectives of this task are to focus efforts on clearing the work area of arroyo toads, sensitive herpetofauna, or other sensitive species. Fencing may have to be placed multiple times to ensure the area remains intact as the water level recedes. The intent is to fence wetted areas that have a lower potential to support arroyo toads. Aspen will conduct clearance surveys to ensure the area is free from arroyo toads. During construction Aspen will monitor the work area in compliance with permit requirements. Monitoring reports will be generated on a weekly basis and will include a summary of all biological monitoring conducted, a summary of activities observed, the status of any nests, or biological resource concerns that were noted on the project site, and any compliance items identified. These reports will be submitted to the District in electronic format, and Aspen will consult with the District on the format and content of these reports. It is expected that these documents will also be submitted to the USFS. This task assumes that focused surveys for arroyo toad followed by the initial placement of silt fencing (exclusion fencing) around the proposed work area have been conducted under a previous authorization (approved on 4/9/2018) for Aspen to conduct pre-construction surveys under Task 2.

**Air Quality Monitoring and General Compliance Reporting**. Monitoring shall occur during all ground disturbances to ensure fugitive dust is compliant with AQMD's approved Dust Plan. The monitor shall ensure all construction equipment has approved Tier III stickers and paperwork from AQMD (as applicable) prior to initial use.

**Fire Monitoring and General Compliance Reporting**. The monitor shall check the Forest Service Project Activity Level (PAL) prior to each workday and ensure the contractor is in compliance with any restrictions of the PAL level. The monitor shall ensure adequate on-site fire prevention equipment is available at all times.

**Water Quality Monitoring and General Compliance Reporting**. The monitor shall be knowledgeable in the requirements of the Spill Response Plan and SWPPP and check each workday to ensure the contractor is in compliance with all BMPs, SPCs, procedures, and requirements. The monitor shall ensure adequate spill response equipment is available at all times.

**Cultural Resources Monitoring and Reporting.** The Cultural Resource monitor shall be familiar with the types of prehistoric and historical resources that could be present at the work site. The monitor shall also meet the Secretary of the Interior's standards for professional archaeology or will be supervised by an archaeologist meeting these standards. Per SPC CUL-1, monitoring shall occur intermittently in areas determined to have moderate archaeological sensitivity at the discretion of the Principal archaeologist. Digital daily monitoring reports will be generated by the monitor whenever present onsite during construction. A Phase I Cultural Resources Monitoring Report (CRMR) will be prepared at the conclusion of construction monitoring activities. The Phase I CRMR will include a summary of all cultural monitoring conducted, a summary of activities observed, provide details related to any cultural resources identified during construction, and include recommendations for further management of identified resources. The CRMR will be submitted to the District in electronic format. Aspen will consult with the District and USFS on the format and content of the CRMR. It is expected that these documents will be submitted to the California Historical Resources Information System (CHRIS) upon final approval by the District and USFS.

**General Assumptions**

- Per the requirements of the Biological Opinion and Forest Service requirements, assumes two biologists to conduct clearance surveys for arroyo toads for up to ten days. Assumes at least one fence failure due to human or storm related damage.
- Per the requirements of the Biological Opinion, Forest Service Requirements, and expected permit conditions from the U.S. Army Corps of Engineers, RWQCB, and CDFW, full time biological monitoring will be required when working in the creek bed. Assumes one full time monitor for 168 days and one-part time monitor for 72 days at 12 hours per day with 12 days of night work with two monitors. This would allow for monitoring up to seven days a week for six months if needed.
- Assumes all other pre-construction surveys will be completed concurrently with toad and avian surveys.
- Consistent with regulatory requirements, assumes one additional monitor will be available during the nesting season to inspect and remove inactive nests, clear equipment, conduct daily sweeps for birds, and monitor active nests for three months. This monitor may not be required depending on the activity of birds in the work area.
- Assumes a lead biologist is available one day every two weeks to address potential compliance concerns or agency requirements.
- Assumes air quality, fire, and water quality monitoring would be part of the general full- and part-time on-site monitoring.
- Assumes one data manager is required to document and provide compliance reporting at 1 day per week for monitoring of all resource issues for the duration of construction activities.
- Assumes an air quality, fire, and water quality technical specialist is available a minimum of two hours per week to address potential compliance concerns or agency requirements, including USFS requirements.
- Assumes a half-hour of supervision per day of cultural resources monitoring.
- Assumes the District will retain and schedule any required Native American monitors, per USFS specification.
- Scope and cost does not include time and labor for preparation and implementation of a Cultural Resources Evaluation and Treatment Plan (CRTP), as the scope of the Plan must first be determined in consultation with managing land agencies and consulting Native American tribal representatives. The CRTP would be prepared prior to start of the sediment removal phase of the project.
- Assumes coordination with USFS cultural resources staff and the District, based on findings of the MMRP and ROD for the Littlerock Reservoir Sediment Removal Project.
- Assumes one data manager will compile cultural resources daily monitoring report data, at a ½ hour per day of monitoring.
- Assumes one on-site cultural resources supervisory visit.
- Assumes one cultural resources monitor present for 1 day of each week.
- Assumes duration of construction activities that require a cultural resource monitor present will equal 4 months.
- Assumes 8 hours of District and USFS support related to cultural resources and tribal cultural resources.
- Assumes 2 rounds of review for the Cultural Resources Monitoring Report.

**Deliverables/Activities**

- Report documenting the results of fence installation, clearance surveys, and monitoring.
- Weekly and monthly monitoring and compliance reports.
- Cultural Resources Monitoring Report

## Task 4: Contract Bid Review Assistance

The Aspen Team (including Northwest Hydraulics [NHC]) will support the District during the construction contractor bidding process to answer questions and attend a pre-bid site walk. NHC will prepare any necessary addenda, if requested by the District, as additional services. The finalized grade control structure plans and specification would be provided to the District for inclusion in the bid packet, as necessary. The Aspen/NHC Team will assist in evaluation of bids, assist the District to answer construction contractor questions, attend a pre-construction meeting, review technical submittals and shop drawings, and provide a technical briefing to construction contractor inspection personnel.

**Air Quality Equipment Permitting.** Aspen assumes that the construction contractor will be responsible for obtaining required permits or registrations for all equipment brought onsite to comply with mandatory emission guidelines and SPCs in the adopted MMRP and ROD. These permits/registrations require detailed equipment information that would not be available to Aspen. However, Aspen can work with the District to ensure that the contract bid language is clear and can review contractor submittals to ensure that they have the appropriate equipment air quality permits and registrations (or that they have clearly noted their responsibility to comply with the approved Dust Control Plan).

**Deliverables**

- Attend pre-bid site walk.
- Prepare for and attend a pre-construction meeting.
- Review and provide comments on contractor submittals.
- Contractor personnel briefings.
- Grade control structure plans and specifications suitable for bid packet.

**Note:** This scope of work assumes that main access road conditions would be monitored during construction and sections of damaged road repaired or replaced as needed, and that a specific paving plan would not be developed. At this time, no design work is anticipated for utility systems.

## Task 5: Prepare 90-Percent Master Excavation Plans

Using the existing 30-percent excavation plans as a basis, the Aspen Team (i.e., NHC) will prepare 90-percent plans and specifications, including staging and access areas for excavation of the Reservoir to 3,500-acre-foot capacity, specifications for hauling and disposal of the material, and specifications for environmental compliance. The plans will indicate the proposed finished grades in the Reservoir and will use available topography/bathymetry as a base map for existing conditions. NHC will prepare a Draft SWPPP for the sediment removal project. These plans and SWPPP will serve as a master excavation plan on which the subsequent yearly excavation plans (Starting with Phase 1, see Task 12) will be based.

**Deliverables**

- 90-percent Master Plans and Specifications for final Reservoir contours to bring the Reservoir to 3,500-acre-foot capacity.
- Draft Master SWPPP for sediment removal.

## Task 6: Prepare 100-Percent Master Excavation Plans

Based on comments from the District, the Aspen Team (i.e., NHC) will prepare 100-percent (final) master excavation plans and SWPPP.

**Deliverables**

- 100-percent Master Plans and Specifications for final Reservoir contours to bring the Reservoir to 3,500-acre-foot capacity.
- Final Master SWPPP for sediment removal.

## Task 7: Prepare Preliminary Excavation Phasing and Logistics Plan

The Aspen Team (including NHC) will prepare a preliminary excavation phasing and logistics plan for annual excavation over a period of 7 to 12 years to return the reservoir to 3,500-acre-foot capacity. The purpose of this plan will be to demonstrate how Reservoir excavation phasing will be conducted, and how annual excavation and disposal of material will be accomplished. The plan will include anticipated annual base excavation amounts, procedures for monitoring and identifying the amount of sediment inflow between annual excavation periods, procedures for draining the Reservoir prior to excavation, sediment disposal locations, and transportation routes.

The plan will include sediment monitoring procedures for annual maintenance removal of incoming sediment after the reservoir reaches 3,200-acre-foot capacity.

Each yearly excavation plan, beginning with the first year (Phase 1, see Task 12) will be based on the results of this phasing and logistics plan within the context of the master plan developed under Task 6.

**Deliverables**

- Preliminary excavation phasing and logistics plan.

## Task 8: Prepare Final Excavation Phasing and Logistics Plan

Based on comments from the District, Aspen/NHC will prepare a 100-percent (final) excavation phasing and logistics plan.

**Deliverables**

- Final excavation phasing and logistics plan.

## Task 9: 30-Percent Road Repair Plans

NHC, with geotechnical assistance from SAGE engineers, will evaluate the existing road and make recommendations for repairs/modifications to support anticipated construction loads and two-way truck travel during sediment removal. After review by the District, NHC will prepare preliminary (30 percent) plans and specifications for the repair/modification of Chesebro Road from the National Forest Boundary to the Rocky Point area of the Littlerock Reservoir, and repair of the main driveway and parking areas to be used for access and staging. Road repair is assumed to include pavement design for an overlay of existing paving with grinding or removal/replacement of locally damaged or deficient areas, and no reconstruction of drainage facilities or slope stabilization. Technical specifications and SWPPP will be prepared for environmental compliance and paving. It is expected that several options would be available to the District for roadway repair. Please note that the roadway repair tasks (i.e., Tasks 9, 10, and 11) may need to be revised after plan development to determine the specific requirements related to road repair requirements.

**Deliverables**

- 30-percent roadway repair plans and SWPPP.

## Task 10: 90-Percent Road Repair Plans

Based on comments from the District and selection of an initial roadway repair plan, Aspen/NHC will prepare 90-percent roadway repair plans and SWPPP. The selection of an initial roadway repair plan will be incorporated into the long-term Roadway Restoration Plan, identified in Task 1 (Plan Preparation).

**Deliverables**

- 90-percent roadway repair plans and SWPPP.

## Task 11: 100-Percent Road Repair Plans

Based on comments from the District, Aspen/NHC will prepare 100-percent (final) roadway repair plans and SWPPP.

**Deliverables**

- 100-percent roadway repair plans and SWPPP.

## Task 12: Prepare Phase 1 Excavation Plan

Based on the final master excavation and phasing and logistics plans developed under Tasks 6 and 8, NHC will prepare 90-percent excavation plans, specifications and SWPPP for a first phase of excavation. The Phase 1 plans will indicate proposed grades for a first year of sediment removal in a designated Phase 1 excavation area. The excavation work is expected to be completed on a unit price basis with the excavation quantities determined by pre-construction surveys. Based on comments from the District, NHC will prepare final (100-percent) Phase 1 excavation plans and SWPPP.

It is assumed that the excavation phasing and logistics plan (Task 7) will recommend topographic mapping to be conducted each year after draining the Reservoir and before the start of excavation for use as a basis for the year's work and payment. An update to the currently available topography will be performed by aerial survey when the Reservoir is drained for construction of the Grade Control Structure for the Phase 1 excavation plan; the aerial survey is included in the estimated Task 12 costs for this scope of work. This information will be used in the Phase 1 excavation plan described in Task 12.

In each year of construction, we assume that the topography will be updated just prior to construction when the Reservoir is drained, and that this will be used as the basis for quantities and payment in the construction contract and would also be used in the design of the subsequent phase of sediment removal. These additional flights and plan preparation subsequent to Phase 1 are not included in the current scope.

The excavation phasing and logistics plan assumes that the removed sediment would be transported to the gravel pits in Palmdale as analyzed in the EIS/EIR. If the location of disposal changes resulting in the method or conditions that needed for transportation and disposal of the material, a commensurate scope and budget modification may be needed to include changed location/conditions into the plan.

**Deliverables**

- 90-percent Phase 1 excavation plan and SWPPP.
- 100-percent Phase 1 excavation plan and SWPPP.

## Task 13: Construction Staking

In coordination with the Contractor and the District, NHC will perform layout computations and create a staking diagram for construction of the grade control structure. In addition, NHC will provide an initial set of layout stakes for water control facilities, overall layout of the grade control structure, and initial grading.

A second set of stakes will be provided after initial excavation to offset structure locations and grades. Also, one additional field check of constructed structure location and grades will be provided.

## Task 14: Roller Compacted Concrete (RCC) Quality Assurance

NHC will provide inspection support to the District to provide quality assurance for the RCC. NHC and Ken Hansen will: a) respond to questions and provide review of mix design submittal from Contractor; b) provide field review of plant set-up and test section placement, and review test results; c) provide guidance to District inspectors on inspection and testing; d) provide four 2-day construction observations and guidance on RCC production and placement; and e) coordinate with District inspectors during construction to answer questions, respond to any problems in construction, and track progress. It is assumed that the Contractor will provide basic RCC quality control and testing.

## Task 15: Project Management

The purpose of this task is to manage the Aspen Project Team and maintain close communication between lead agencies (i.e., District and USFS), staff members, and the project team members. This task is also intended to ensure that the project is running on time and within budget, and that all work products are of the highest quality.

**Local Agency Quarry Permit Coordination.** Sediment deposition at quarries would require permits from the City of Palmdale. Based on initial discussions with the quarry operators, Aspen has included analysis in the EIS/EIR that addresses the requirements of these permits to ensure that the quarries can use the EIS/EIR to support their permit filings. Aspen will work with the District (and support quarries, as requested by the District) to ensure that the quarries obtain the local agency permits they would need for sediment deposition. Additionally, Aspen will be available to support District efforts in any negotiations with quarries or in determining other sediment disposal options, as necessary.

**Project Coordination Activities.** The Aspen Project Manager would communicate, as necessary, with the project team members and lead and permitting agency staff to ensure compliance with the schedule, scope of services, and budget. The Project Manager would coordinate the team's work and provide management liaison between the project team and lead agencies for communication of issues, transmittal of comments, financial management, and other project management matters, such as contract processing. As part of this task and based on previous activities for the project, Aspen will prepare bi-weekly status updates for distribution to the team. In addition, based on the current practice for the project, this task assumes the Aspen Project Manager's coordination of, and participation in, periodic status updates via phone and/or email. Assuming a one-year schedule for this scope of work, approximately 26 status updates would be provided.

**Project Meetings.** Based on our experience with the project thus far and other similar project efforts, Aspen's Project Manager or one other senior staff member would attend up to 6 project meetings at Palmdale Water District, USFS District Office, or the Reservoir site. It is assumed that one to two meetings each would occur after the kick-off for construction. Other meetings may be attended on a time-and-materials basis, additional to the proposed budget and with prior authorization of the District.

**Deliverables**

- 26 Bi-Weekly Status Reports and/or Bi-Weekly Status Calls
- 6 Meetings
- Monthly Invoices and Progress Reports

## Project Team

To provide continuity, the project team will consist of Aspen Environmental Group supported by previous project design team members NHC and Ken Hansen to assist with the pre-construction and construction activities of the grade control structure. In addition, previous team member Garland and Associates, Inc.

with over 30 years of experience in traffic engineering and transportation planning, will be assisting with preparation of the Traffic Control and Management Plan, which requires plans for installation of a temporary traffic control signal at the intersection of Cheseboro Road and Pearblossom Highway.

## EXHIBIT B – PROPOSED FEES

### Cost Assumptions

Exhibit B-1 summarizes Aspen's key assumptions incorporated into the proposed scope of work, and the associated cost is presented in Exhibit B-2. Aspen's proposed cost to complete the tasks described above for the pre-construction and construction activities associated with the Littlerock Reservoir Sediment Removal Project's grade control structure and sediment removal excavation plan is **$1,283,287**. Estimated costs for each task are displayed in Exhibit B-2 (Proposed Cost). Proposed costs are based on the work program and understanding of the services desired by the District.

Exhibit B-1. Summary of Important Assumptions and Optional Tasks

| |
|---|
| Task 1: Plan Preparation |
| • Aspen will prepare a Worker Environmental Training Plan that provides guidance to field crews regarding sensitive biological and cultural resources. Plan will include training manual, visual aids, and a PowerPoint presentation. Aspen resource specialists will use these materials to provide worker training under Task 2. |
| • Aspen will prepare a Sensitive Special Relocation Plan that provides guidelines for avoiding and minimizing potential impacts to aquatic wildlife. |
| • Aspen will prepare an Exotic Species Removal Plan that highlights procedures for cleaning, reporting, and documenting all equipment used on the project. |
| • Aspen will prepare a Cultural Resources Monitoring Program that establishes qualification criteria applicable to cultural resource monitors, describes protocols and procedures governing full-time and intermittent monitoring during construction activities, identifies high and moderate sensitivity areas, lists key contact persons and contact information, provides safety protocols, and identifies a clear process for responding to inadvertent discoveries of cultural resources or human remains. |
| • Aspen will prepare a Dust Control Plan that includes mitigation for fugitive dust during project activities at the Reservoir and from vehicle travel to the Reservoir work areas. |
| • Aspen will prepare a Spill Response Plan that (1) describes required materials and methodology to contain and remove any spill or accidental release of hazardous materials; (2) details the types of tools, materials, and clothing necessary for minor excavation and soil removal in the event of a spill; (3) details appropriate containers for hazardous materials and contaminated soil; and (4) identifies the nearest landfills for disposing of hazardous materials and soil spoils. Aspen will provide worker training on proper containment and disposal of hazardous materials. |
| • Aspen will prepare a Traffic Control and Management Plan that presents provisions for construction site safety and temporary traffic controls, and describes the roles and responsibilities of key project stakeholders related to the TCMP. |
| • Aspen will prepare a Roadway Restoration Plan that outlines procedures for conducting long-term seasonal Pavement Condition Index and annual repair strategies for roadway damage on Reservoir access roads and paved parking areas. The RRP will also include terms and conditions addressing potential damage along public roads. |
| Task 2: Biological Surveys, Construction Period Sweeps, and Worker Training |
| • Aspen will prepare a Biological Survey Report that documents current site conditions and the results of field surveys conducted under Task 2. |
| • No surveys will be conducted for desert tortoise and Swainson's hawks under this scope of work. |
| • One (1) biologist will conduct a 4-hour pre-construction sweep for any area that has been left idle for more than three to four (3-4) days. Clearance for nesting birds will require two (2) biologists. Aspen will provide monthly reports documenting compliance with this requirement. |
| • During field surveys and biological clearance sweeps, all locations of sensitive species or target wildlife will be flagged in the field, logged using a Trimble GPS (or equivalent), and documented using District approved forms. |
| • Additional monitoring or survey requirements identified in future plans or agency permits will be addressed under a separate scope of work. |
| • One (1) biologist and one (1) archaeologist, with support by technical specialists, will conduct three (3) annual worker trainings at the job site or at the District office. The training information will be provided through a PowerPoint presentation and visual aids submitted to the District under Task 1. Worker training will include contractor requirements under the Dust Control Plan, Fire Management Plan, SWPPP, and Spill Response Plan. Workers will be provided a hard hat sticker and small pamphlet that describes the key contact information and sensitive resources that may occur, and each worker will be asked to sign a sheet acknowledging that the training was understood prior to the commencement of work. |
| Task 3: Construction Period Clearance Requirements & Monitoring and Reporting |
| • All pre-construction surveys will be completed concurrently with toad and avian surveys. |

Exhibit B-1. Summary of Important Assumptions and Optional Tasks

- Clearance surveys for arroyo toads will be conducted by two (2) biologists for up to ten (10) days. Assumes at least one fence failure due to human or storm related damage.
- One full time monitor will be required for 168 days and one-part time monitor will be required for 72 days at 12 hours per day. Two (2) monitors would be required for 12 days of night work. This would allow for monitoring up to seven days a week for six months if needed.
- One (1) monitor will be available during the nesting season to inspect and remove inactive nests, clear equipment, conduct daily sweeps for birds, and monitor active nests for three months. This monitor may not be required depending on the activity of birds in the work area.
- One (1) lead biologist will be available one (1) day every two (2) weeks to address potential compliance concerns or agency requirements.
- Aspen will submit weekly monitoring reports to the District in electronic format that will include a summary of all biological monitoring conducted, a summary of activities observed, the status of any nests, or biological resource concerns that were noted on the project site, and any compliance items identified. It is expected that these reports will also be submitted to the USFS.
- An air quality, fire, and water quality technical specialist will be available a minimum of two (2) hours per week to address potential compliance concerns or agency requirements, including USFS requirements.
- An air quality monitor shall be present during all ground disturbance activities. A fire monitor shall check the Forest Service PAL prior to each workday. A water quality monitor shall ensure that adequate spill response equipment is available at all times. Scope of work assumes air quality, fire, and water quality monitoring would be part of the general full- and part-time on-site monitoring.
- Scope of work assumes one (1) on-site cultural resources supervisory visit. One (1) cultural resources monitor will be on-site for one (1) day of each week. This scope assumes a half-hour supervision per day of cultural resources monitoring. The District will retain and schedule any required Native American monitors, per USFS specification.
- Duration of construction activities that require a cultural resource monitor present will equal four (4) months.
- Scope of work assumes eight (8) hours of District and USFS support related to cultural resources and tribal cultural resources.
- Aspen will submit a Phase I CRMR at the conclusion of construction monitoring activities. This report will be submitted to the District in electronic format. This report will also be submitted to the California Historical Resources Information System upon final approval by the District and USFS. Scope of work assumes two (2) rounds of review for the CRMR.
- Scope of work assumes coordination with USFS cultural resources staff and the District, based on the MMRP and ROD.
- Scope and cost does not include time and labor for preparation and implementation of a Cultural Resources Evaluation and Treatment Plan (CRTP). The CRTP would be prepared under a separate scope of work for the sediment removal phase of the project.
- Assumes one (1) data manager is required to document and provide compliance reporting at one (1) day per week for the duration of construction monitoring for all resource issues including, biology, cultural, air quality, water quality, fire, etc.

Task 4: Contract Bid Review Assistance

- Aspen/NHC Team will attend a pre-bid site walk.
- Aspen/NHC Team will prepare for and attend a pre-construction meeting, review technical submittals and shop drawings, and provide a technical briefing to construction contractor inspection personnel.
- Aspen/NHC Team will provide the District with finalized grade control structure plans and specifications for inclusion in the bid packet.
- Scope of work assumes that the construction contractor will be responsible for obtaining required permits or registrations for all equipment brought onsite to comply with mandatory emission guidelines and SPCs in the adopted MMRP and ROD.
- Scope of work assumes that main access road conditions will be monitored during construction and sections of damaged road repaired or replaced as needed, and that a specific paving plan will not be developed. No design work is anticipated for utility systems.

Task 5: Prepare 90-Percent Master Excavation Plans

- Aspen/NHC Team will provide the District with 90-percent master plans and specifications for District review.
- Aspen/NHC Team will provide the District with a Draft Master SWPPP for the sediment removal project for District review.

Task 6: Prepare 100-Percent Master Excavation Plans

- Aspen/NHC Team will incorporate any District edits/comments and will provide the District with 100-percent master plans and specifications.
- Aspen/NHC Team will incorporate any District edits/comments and will provide the District with a Final Master SWPPP for the sediment removal project.

Task 7: Prepare Preliminary Excavation Phasing and Logistics Plan

- Aspen/NHC Team will provide the District with a preliminary excavation phasing and logistics plan for District review.

Task 8: Prepare Final Excavation Phasing and Logistics Plan

- Aspen/NHC Team will incorporate any District edits/comments and will provide the District with a final excavation phasing and logistics plan.

## Exhibit B-1. Summary of Important Assumptions and Optional Tasks

### Task 9: 30-Percent Road Repair Plans

- Aspen/NHC Team will make recommendations for repairs/modifications along truck travel routes. After receiving input from the District, Aspen/NHC will provide the District with 30-percent roadway repair plans and specifications for District review.
- Aspen/NHC Team will provide the District with a Draft SWPPP for the roadway repair for District review.

### Task 10: 90-Percent Road Repair Plans

- Aspen/NHC Team will incorporate any District edits/comments and will provide the District with 90-percent roadway repair plans and specifications for a 2nd review by the District.
- Aspen/NHC Team will incorporate any District edits/comments and will provide the District with a revised SWPPP for the roadway repair.

### Task 11: 100-Percent Road Repair Plans

- Aspen/NHC Team will incorporate any District edits/comments and will provide the District with 100-percent roadway repair plans and specifications.
- Aspen/NHC Team will incorporate any District edits/comments and will provide the District with a Final SWPPP for the roadway repair.

### Task 12: Prepare Phase 1 Excavation Plan

- Aspen/NHC Team will provide the District with a 90-percent Phase 1 excavation plan for District review.
- Aspen/NHC Team will provide the District with a Draft SWPPP for the first phase of excavation for District review.
- Aspen/NHC Team will provide the District with a 100-percent Phase 1 excavation plan.
- Aspen/NHC Team will provide the District with a Final SWPPP for the first phase of excavation.
- Scope of work assumes that an update to the currently available topographic mapping will be conducted by aerial survey when the reservoir is drained for construction of the Grade Control Structure for the Phase 1 excavation plan. Scope of work does not include additional aerial flights and plan preparation subsequent to Phase 1.
- The excavation phasing and logistics plan assumes that sediment removed would be transported the gravel pits in Palmdale as analyzed for the EIS/EIR.

### Task 13: Construction Staking

- NHC will provide an initial set of layout stakes for water control facilities, overall layout of the grade control structure, and initial grading. A second set of stakes will be provided after initial excavation to offset structure locations and grades. One (1) additional field check of constructed structure location and grades will be provided.

### Task 14: Roller Compacted Concrete (RCC) Quality Assurance

- NHC and Ken Hansen will: a) respond to questions and provide review of mix design submittal from Contractor; b) provide field review of plant set-up and test section placement, and review test results; c) provide guidance to District inspectors on inspection and testing; d) provide four 2-day construction observations and guidance on RCC production and placement; and e) coordinate with District inspectors during construction to answer questions, respond to any problems in construction, and track progress.
- Scope of work assumes the Contractor will provide basic RCC quality control and testing.

### Task 15: Project Management

- Aspen will coordinate to ensure that quarries have the necessary local agency permits for sediment deposition prior to start of excavation.
- Aspen's Project Manager will coordinate and participate in approximately 26 status updates with the District via phone and/or email. This scope of work assumes a one-year schedule.
- Aspen's Project Manager or one other senior staff member would attend up to six (6) project meetings at Palmdale Water District, USFS District Office, or the Reservoir site. It is assumed that one to two (1-2) meetings each would occur after the kick-off for construction. Other meetings may be attended on a time-and-materials basis, additional to the proposed budget and with prior authorization of the District.
- Aspen will prepare bi-weekly status updates for distribution to the team.

## EXHIBIT B-2 – PROPOSED COST

| Task | Description | Cost |
|---|---|---|
| Task 1 | Plan Preparation | $92,565 |
| Task 2 | Surveys, Construction Period Sweeps & Work Training | $34,808 |
| Task 3 | Construction Period Clearance, Monitoring & Reporting | $670,782 |
| Task 4 | Contract Bid Review Assistance | $57,381 |
| Task 5 | 90-Percent Master Excavation Plan | $53,812 |
| Task 6 | 100-Percent Master Excavation Plan | $19,555 |
| Task 7 | Preliminary Excavation Phasing and Logistics Plan | $32,899 |
| Task 8 | Final Excavation Phasing and Logistics Plan | $10,323 |
| Task 9 | 30-Percent Road Repair Plan | $82,087 |
| Task 10 | 90-Percent Road Repair Plan | $61,469 |
| Task 11 | 100-Percent Road Repair Plan | $24,818 |
| Task 12 | Phase 1 Excavation Plan | $37,729 |
| Task 13 | Construction Staking | $25,956 |
| Task 14 | RCC Quality Assurance | $52,796 |
| Task 15 | Project Management | $26,310 |
| | **TOTAL** | **$1,283,287** |