

DIV OF WATER RESOURCES  
1313 SHERMAN STREET, ROOM 818  
DENVER, CO 80203

DATE: 02-16-12

**IMPORTANT**  
The PO# and Line # must  
appear on all invoices,  
packing slips, cartons  
and correspondence

ACC: 02-15-12



**PURCHASE  
ORDER**  
STATE OF COLORADO

Buyer: ALLAN SMITH  
Phone Number: 303-866-3292  
Agency Contact: MATT GAVIN EXT 7003  
Phone Number: 970 352 8712

P.O. # OE PEA 12000000036 Page# 01

State Award #

FEIN 840706869 Phone: 719-657-2519  
Vendor Contact: MICHAEL FUCHS  
Purchase Requisition #:

BID #

V FUCHS RANCHES INC  
E  
N  
D 1620 COUNTY ROAD 14A  
O DEL NORTE CO 81132  
R

**Invoice in Triplicate**

To: DIVISION OF WATER RESOURCES  
1313 SHERMAN STREET, ROOM 818  
DENVER, CO 80203

**Payment will be made by this agency**

Ship To: DIVISION OF WATER RESOURCES  
1313 SHERMAN STREET, ROOM 818  
DENVER, CO 80203

Delivery/Installation Date: 06-15-12  
F.O.B. DESTINATION STATE PAYS NO FREIGHT

**INSTRUCTIONS TO VENDOR:**

1. If for any reason, delivery of this order is delayed beyond the delivery/installation date shown, please notify the agency contact named at the top left. (Right of cancellation is reserved in instances in which timely delivery is not made.)
2. All chemicals, equipment and materials must conform to the standards required by OSHA.
3. NOTE: Additional terms and conditions on reverse side.

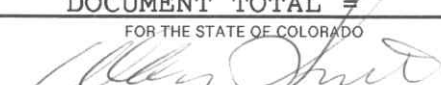
**SPECIAL INSTRUCTIONS:**

| LINE<br>ITEM  | COMMODITY/ITEM<br>CODE | UNIT OF<br>MEASUREMENT | QUANTITY | UNIT COST | TOTAL ITEM COST |
|---|------------------------|------------------------|----------|-----------|-----------------|
| CONTRACTOR CERTIFIES THAT WITHIN THE SIX MONTHS PRIOR TO THE EXECUTION OF THIS CONTRACT S/HE HAS NOT BEEN EMPLOYED BY A STATE AGENCY, NOR HAS ANY EMPLOYEE OF THE CONTRACTOR BEEN EMPLOYED BY A STATE AGENCY WHERE SUCH EMPLOYMENT WAS DIRECTLY INVOLVED WITH MATTERS THAT ARE WITHIN THE SCOPE OF THIS CONTRACT. PURSUANT TO 24-18-206 C.R.S., A PERSON WHO KNOWINGLY VIOLATES THIS CONDITION OR ANY OTHER CONDITION SPECIFIED IN ARTICLE 18, PART II C.R.S. COMMITS A CLASS 1 MISDEMEANOR (18-1.3-501) FUNDING FOR THIS PURCHASE WAS PROVIDED BY THE DEPARTMENT OF HOMELAND SECURITY, FEMA, CDFA# 97 0410 |                        |                        |          |           |                 |
| 001   | 96252000000            |                        |          |           | \$4,000.00      |
| PROVIDE DAM BREACH ANALYSIS & FLOOD WAVE INUNDATION MAPPING FOR FUCHS DAM LOCATED NEAR DEL NORTE-SEE ATTACHED-CMS #41034  |                        |                        |          |           |                 |

DOCUMENT TOTAL = \$4,000.00

THIS PO IS ISSUED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS  
This PO is effective on the date signed by the authorized individual.

EPSPD PAA

FOR THE STATE OF COLORADO  
  
Authorized Signature

2/16/12  
Date

# Purchase Order Terms and Conditions

- 1. Offer/Acceptance.** If this purchase order ("PO") refers to vendor's bid or proposal, this PO is an ACCEPTANCE of vendor's OFFER TO SELL in accordance with the terms and conditions of the "solicitation" identified in vendor's bid or proposal. The solicitation includes an RFP, IFB, or any other form of order by buyer. If a bid or proposal is not referenced, this PO is an OFFER TO BUY, subject to vendor's acceptance, demonstrated by vendor's performance or written acceptance of this PO. Any COUNTER-OFFER TO SELL automatically CANCELS this PO, unless a change order is issued by buyer accepting a counter-offer. This PO shall supersede and control over any vendor form(s) or part(s) thereof included in or attached to any bid, proposal, offer, acknowledgment, or otherwise, in the event of inconsistencies or contradictions, regardless of any statement to the contrary in such form(s) or parts thereof. **2. Safety Information.** All chemicals, equipment and materials proposed and/or used in the performance of this PO shall conform to the requirements of the Occupational Safety and Health Act of 1970. Vendor shall furnish all Material Safety Data Sheets (MSDS) for any regulated chemicals, equipment or hazardous materials at the time of delivery.
- 3. Changes.** Vendor shall furnish products and/or services strictly in accordance with the specifications and price set forth for each item. This PO shall not be modified, superseded or otherwise altered, except in writing signed by purchasing agent and accepted by vendor. Each shipment received or service performed shall comply with the terms of this PO, notwithstanding invoice terms or acts of vendor to the contrary, unless this PO has been modified, superseded or otherwise altered in accordance with this section.
- 4. Delivery.** Unless otherwise specified in the solicitation or this PO, delivery shall be FOB destination. Buyer is relying on the promised delivery date, installation, and/or service performance set forth in vendor's bid or proposal as material and basic to buyer's acceptance. If vendor fails to deliver or perform as and when promised, buyer, in its sole discretion, may cancel its order, or any part thereof, without prejudice to its other rights, return all or part of any shipment so made, and charge vendor with any loss or expense sustained as a result of such failure to deliver or perform as promised. Time is of the essence.
- 5. Intellectual Property.** Any software, research, reports, studies, data, photographs, negatives or other documents, drawings or materials (collectively "materials") delivered by vendor in performance of its obligations under this PO shall be the exclusive property of buyer. Ownership rights shall include, but not be limited to, the right to copy, publish, display, transfer, prepare derivative works, or otherwise use the materials. Vendor shall comply with all applicable Cyber Security Policies of the State of Colorado (the "State"), or buyer, as applicable, and all confidentiality and non-disclosure agreements, security controls, and reporting requirements.
- 6. Quality.** Buyer shall be the sole judge in determining "equals" with regard to quality, price and performance. All products delivered shall be newly manufactured and the current model, unless otherwise specified.
- 7. Warranties.** All provisions and remedies of the Colorado Uniform Commercial Code, CRS, Title 4 ("C.U.C.C."), relating to implied and/or express warranties are incorporated herein, in addition to any warranties contained in this PO or the specifications.
- 8. Inspection and Acceptance.** Final acceptance is contingent upon completion of all applicable inspection procedures. If products or services fail to meet any inspection requirements, buyer may exercise all of its rights, including those provided in the C.U.C.C. Buyer shall have the right to inspect services provided under this PO at all reasonable times and places. "Services" as used in this section includes services performed or tangible material produced or delivered in the performance of services. If any of the services do not conform to PO requirements, buyer may require vendor to perform the services again in conformity with PO requirements, without additional payment. When defects in the quality or quantity of service cannot be corrected by re-performance, buyer may (a) require vendor to take necessary action to ensure that future performance conforms to PO requirements and (b) equitably reduce the payment due vendor to reflect the reduced value of the services performed. These remedies do not limit the remedies otherwise available in this PO, at law, or in equity.
- 9. Cash Discount.** The cash discount period will start from the later of the date of receipt of acceptable invoice, or from date of receipt of acceptable products/services at the specified destination by an authorized buyer representative.
- 10. Taxes.** Buyer and the State are exempt from all federal excise taxes under Chapter 32 of the Internal Revenue Code [No. 84-730123K] and from all State and local government sales and use taxes [CRS, Title 39, Article 26, Parts I and II]. Such exemptions apply when materials are purchased for the benefit of State, except that in certain political subdivisions (e.g., City of Denver) vendor may be required to pay sales or use taxes even though the ultimate product or service is provided to buyer. Buyer shall not reimburse such sales or use taxes.
- 11. Payment.** Buyer shall pay vendor for all amounts due within 45 days after receipt of products or services and a correct notice of amount due. Interest on the unpaid balance shall begin to accrue on the 46th day at the rate set forth in CRS §24-30-202(24) until paid in full. Interest shall not accrue if a good faith dispute exists as to buyer's obligation to pay all or a portion of the amount due. Vendor shall invoice buyer separately for interest on delinquent amounts due, referencing the delinquent payment, number of day's interest to be paid, and applicable interest rate.
- 12. Vendor Offset.** [Not Applicable to Inter-governmental POs] Under CRS §24-30-202.4 (3.5), the State Controller may withhold payment under the State's vendor offset intercept system for debts owed to State agencies for: (a) unpaid child support debts or arrearages; (b) unpaid balances of tax, accrued interest, or other charges specified in CRS §39-21-101, et seq.; (c) unpaid loans due to the Student Loan Division of the Department of Higher Education; (d) amounts required to be paid to the Unemployment Compensation Fund; and (e) other unpaid debts owing to the State as a result of final agency determination or judicial action.
- 13. Assignment and Successors.** Vendor shall not assign rights or delegate duties under this PO, or subcontract any part of the performance required under this PO, without the express, written consent of buyer. This PO shall inure to the benefit of and be binding upon vendor and buyer and their respective successors and assigns. Assignment of accounts receivable may be made only upon written notice furnished to buyer.
- 14. Indemnification.** If any article sold or delivered under this PO is covered by a patent, copyright, trademark, or application therefore, vendor shall indemnify and hold harmless buyer from any and all loss, liability, cost, expenses and legal fees incurred on account of any claims, legal actions or judgments arising out of manufacture, sale or use of such article in violation or infringement of rights under such patent, copyright, trademark or application. If this PO is for services, vendor shall indemnify, save, and hold harmless buyer, its employees and agents, against any and all claims, damages, liability and court awards including costs, expenses, and attorney fees and related expenses, incurred as a result of any act or omission by vendor, or its employees, agents, subcontractors or assignees, arising out of or in connection with performance of services under this PO.
- 15. Independent Contractor.** Vendor shall perform its duties hereunder as an independent contractor and not as an employee. Neither vendor nor any agent or employee of vendor shall be deemed to be an agent or employee of buyer. Vendor and its employees and agents are not entitled to unemployment insurance or workers compensation benefits through buyer and buyer shall not pay for or otherwise provide such coverage for vendor or any of its agents or employees. Unemployment insurance benefits will be available to vendor and its employees and agents only if coverage is made available by vendor or a third party. Vendor shall pay when due all applicable employment, income, and local head taxes incurred pursuant to this PO. Vendor shall not have authorization, express or implied, to bind buyer to any agreement, liability or understanding, except as expressly set forth herein. Vendor shall (a) provide and keep in force workers' compensation and unemployment compensation insurance in the amounts required by law, (b) provide proof thereof when requested by buyer, and (c) be solely responsible for its acts and those of its employees and agents.
- 16. Communication.** All communication concerning administration of this PO, prepared by vendor for buyer's use, shall be furnished solely to purchasing agent.
- 17. Compliance.** Vendor shall strictly comply with all applicable federal and state laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.
- 18. Insurance.** Vendor shall obtain, and maintain, at all times during the term of this PO, insurance as specified in the solicitation, and provide proof of such coverage as requested by purchasing agent.
- 19. Termination Prior to Shipment.** If vendor has not accepted this PO in writing, buyer may cancel this PO by written or oral notice to vendor prior to shipment of goods or commencement of services.
- 20. Termination for Cause.** (a) If vendor refuses or fails to timely and properly perform any of its obligations under this PO with such diligence as will ensure its completion within the time specified herein, buyer may notify vendor in writing of non-performance and, if not corrected by vendor within the time specified in the notice, terminate vendor's right to proceed with the PO or such part thereof as to which there has been delay or a failure. Vendor shall continue performance of this PO to the extent not terminated and be liable for excess costs incurred by buyer in procuring similar goods or services elsewhere. Payment for completed services performed and accepted shall be at the price set forth in this PO. (b) Buyer may withhold amounts due to vendor as buyer deems necessary to reimburse buyer for excess costs incurred in curing, completing or procuring similar goods and services. (c) If after rejection, revocation, or other termination of vendor's right to proceed under the C.U.C.C. or this clause, buyer determines for any reason that vendor was not in default or the delay was excusable, the rights and obligations of buyer and vendor shall be the same as if the notice of termination had been issued pursuant to termination under §21.
- 21. Termination in Public Interest.** Buyer is entering into this PO for the purpose of carrying out the public policy of the State, as determined by its Governor, General Assembly, and Courts. If this PO ceases to further the public policy of the State, buyer, in its sole discretion, may terminate this PO in whole or in part and such termination shall not be deemed to be a breach of buyer's obligations hereunder. This section shall not apply to a termination for vendor's breach, which shall be governed by §20. Buyer shall give written notice of termination to vendor specifying the part of the PO terminated and when termination becomes effective. Upon receipt of notice of termination, vendor shall not incur further obligations except as necessary to mitigate costs of performance. For services or specially manufactured goods, buyer shall pay (a) reasonable settlement expenses, (b) the PO price or rate for supplies and services delivered and accepted, (c) reasonable costs of performance on unaccepted supplies and services, and (d) a reasonable profit for the unaccepted work. For existing goods, buyer shall pay (e) reasonable settlement expenses, (f) the PO price for goods delivered and accepted, (g) reasonable costs incurred in preparation for delivery of the undelivered goods, and (h) a reasonable profit for the preparatory work. Buyer's termination liability under this section shall not exceed the total PO price plus a reasonable cost for settlement expenses. Vendor shall submit a termination proposal and reasonable supporting documentation, and cost and pricing data as required by CRS §24-106-101, upon request of buyer.
- 22. PO Approval.** This PO shall not be valid unless it is executed by purchasing agent. Buyer shall not be responsible or liable for products or services delivered or performed prior to proper execution hereof.
- 23. Fund Availability.** Financial obligations of buyer payable after the current fiscal year are contingent upon funds for that purpose being appropriated, budgeted and otherwise made available. If this PO is funded in whole or in part with federal funds, this PO is subject to and contingent upon the continuing availability of federal funds for the purposes hereof. Buyer represents that it has set aside sufficient funds to make payment for goods delivered in a single installment, in accordance with the terms of this PO.
- 24. Choice of Law.** State laws, rules and regulations shall be applied in the interpretation, execution, and enforcement of this PO. The C.U.C.C. shall govern this PO in the case of goods unless otherwise agreed in this PO. Any provision included or incorporated herein by reference which conflicts with such laws, rules, and regulations is null and void. Any provision incorporated herein by reference which purports to negate this or any other provision in this PO in whole or in part shall not be valid or enforceable or available in any action at law, whether by way of complaint, defense, or otherwise. Unless otherwise specified in the solicitation or this PO, venue for any judicial or administrative action arising out of or in connection with this PO shall be in Denver, Colorado. Vendor shall exhaust administrative remedies in CRS §24-109-106, prior to commencing any judicial action against buyer.
- 25. Public Contracts for Services.** [Not Applicable to offer, issuance, or sale of securities, investment advisory services, fund management services, sponsored projects, intergovernmental POs, or information technology services or products and services] Vendor certifies, warrants, and agrees that it does not knowingly employ or contract with an illegal alien who will perform work under this PO and will confirm the employment eligibility of all employees who are newly hired for employment in the United States to perform work under this PO, through participation in the E-Verify Program or the Department program established pursuant to CRS §8-17.5-102(5)(c). Vendor shall not knowingly employ or contract with an illegal alien to perform work under this PO or enter into a contract or PO with a subcontractor that fails to certify to vendor that the subcontractor shall not knowingly employ or contract with an illegal alien to perform work under this PO. Vendor shall (a) not use E-Verify Program or Department program procedures to undertake pre-employment screening of job applicants during performance of this PO, (b) notify subcontractor and buyer within three days if vendor has actual knowledge that subcontractor is employing or contracting with an illegal alien for work under this PO, (c) terminate the subcontract if subcontractor does not stop employing or contracting with the illegal alien within three days of receiving notice, and (d) comply with reasonable requests made in the course of an investigation, undertaken pursuant to CRS §8-17.5-102(5), by the Colorado Department of Labor and Employment. If vendor participates in the Department program, vendor shall deliver to the buyer a written, notarized affirmation that vendor has examined the legal work status of such employee, and shall comply with all of the other requirements of the Department program. If vendor fails to comply with any requirement of this provision or CRS §8-17.5-101 et seq., buyer may terminate this PO for breach and, if so terminated, vendor shall be liable for damages.
- 26. Public Contracts with Natural Persons.** Vendor, if a natural person eighteen (18) years of age or older, hereby swears and affirms under penalty of perjury that he or she (a) is a citizen or otherwise lawfully present in the United States pursuant to federal law, (b) shall comply with the provisions of CRS §24-76.5-101 et seq., and (c) has produced a form of identification required by CRS §24-76.5-103 prior to the date vendor delivers goods or begins performing services under terms of the PO.

## FEMA Grant Inundation Mapping Funding Program

February 14, 2012

DSE Project No. 03-02

### Applicant

Fuchs Ranches, Inc.  
Mr. Michael Fuchs, P.E.  
1620 County R. 14-A  
Del Norte, CO 81132  
Phone: (719) 657-2519  
e-mail: [fuchsranchinc@gmail.com](mailto:fuchsranchinc@gmail.com)

### DWR Project Engineer

Matt Gavin, P.E.  
Div. 3 Dam Safety Engineer  
[Matt.Gavin@state.co.us](mailto:Matt.Gavin@state.co.us)  
(970) 247-1845 ext. 7003

---

### Introduction

One of the objectives of the 2010 FEMA grant awarded to the Colorado Safety of Dams Program is to improve the inundation mapping and Emergency Action Plans (EAP) for High and Significant hazard dams. Inundation mapping provides first responders and local law enforcement with critical information on the impacts a dam failure could have on the general public located downstream. This information is key in the early warning and safe evacuation of the affected public. Fuchs Ranches owns and operates Fuchs Dam located near Del Norte, CO and will be receiving funds from the above grant to assist in developing an EAP for the reservoir.

### Scope of Work

Attachment A includes a scope of work developed by Deere and Ault Inc. In summary, the consultant will be providing the following services:

- Breach Modeling and Inundation Mapping: Consultant will perform the inundation mapping analysis in accordance with the SEO's 2007 Rules and Regulations for Dam Safety and Construction. Development of the breach modeling and flood routing will include the necessary field work and file review to determine the peak discharge and inundation area expected to occur from failure of the Fuchs dam. The mapping modeling reach is expected to extend from the dam to the Rio Grande River downstream of Del Norte. The minimum level of analysis will be the "Simple" level as described in Table 1 of the Guidelines for Dam Breach Analysis.

### Deliverables

The following will be provided to the State Engineers Office for the above mentioned dam.

1. One (1) Copy of the Technical Memorandum describing the inundation mapping analysis.
2. Three (3) Copies of the inundation maps.
3. One (1) DVD of the inundation maps, ESRI GIS inundation mapping shape files, supporting ESRI GIS files, .pdf of the inundation maps, and supporting spreadsheets and hydraulic models.

---

### Schedule/Cost

The above mentioned work will take approximately 90 working days to accomplish and is expected to be completed by June 15<sup>th</sup>, 2012. **The cost to be contributed to the above scope of work is not to exceed \$4,000.** The balance of the project will be funded by Fuchs Ranches and change orders to this grant are not permitted. The owner can request payment of this amount once the final mapping product is reviewed and accepted by the State Engineers Office, and the above deliverables are submitted. The above is considered waived from review by paragraphs A7 & A8 – Grants to Non-Political Subdivisions, Federal and Non-Federal Funds dated July 1, 2010.

# Attachment A

---

**DEERE & AULT**  
**CONSULTANTS, INC.**

February 9, 2012

Mr. Michael Fuchs, P.E.  
Fuchs Ranches, Inc.  
1620 County Rd 14-A  
Del Norte, Colorado 81132

**Re: Proposal for Inundation Mapping for Fuchs Reservoir**

Dear Mr. Fuchs:

Deere & Ault Consultants, Inc. (D&A) has been requested to submit this proposal to Fuchs Ranches, Inc. for the preparation of dam breach inundation mapping for the dam at Fuchs Reservoir. We understand that the purpose of the breach modeling and the associated inundation mapping is for inclusion in the Emergency Action Plan for this reservoir.

**SCOPE OF STUDY**

The scope of this study is to perform dam breach modeling in accordance with the latest Breach Guidelines published by the Colorado Dam Safety Branch. The level of analysis shall be "Simple" as described in Table 1 of the Guidelines for both the breach modeling and flood inundation mapping. Flood routing models and inundation mapping shall be based on the USGS 10-meter Digital Elevation Model (DEM) or best available topographic mapping. Field measurements of bridges/culverts at critical sections shall be incorporated into the model as necessary.

The limits of the dam breach flood mapping shall extend from Fuchs Reservoir downstream to where the breach flood impacts are no longer significant. The inundation mapping downstream from Fuchs Reservoir is expected to extend from the dam down the East Fork of Pinos Creek to Pinos Creek and terminate in the Rio Grande approximately 1,000 feet downstream of Del Norte.

The inundation limits shall be prepared in UTM coordinates (NAD 83, Zone 13 – meters) which shall be overlaid on base mapping that includes color aerial imagery (2009 or newer). The inundation map shall be printed in color on a minimum sheet size of 11"x17". The inundation extents shall be clearly illustrated along with peak discharge estimates, peak flood wave arrival times and peak flood wave depths at critical locations. Roads, highways and critical infrastructure (schools, hospitals, fire stations, etc.) shall be annotated and any roads expected to be overtopped by the flood wave shall be identified. The map shall include a legend noting the dam name and DAMID, a north arrow and graphic scale.

### **PROPOSED METHODOLOGY**

D&A will perform a clear day dam failure analysis for the dam at Fuchs Reservoir and route the resulting outflow hydrographs downstream using HEC-HMS. Breach parameters shall be estimated in accordance with methodologies recommended by the Office of the State Engineer, Dam Safety Branch. Hydraulic parameters including width of flow, depth of flow, and velocity of flow at critical locations shall be estimated using the Corps of Engineers' HEC-RAS computer model. A steady-state water surface profile resulting from the peak flow rates at various locations shall be generated.

Topographic information for the floodplains shall be based on USGS 10-meter DEMs from the National Elevation Dataset (NED) elevation data. NED data was initially derived from the USGS 7.5-minute quadrangle elevation data and was then processed to filter out production artifacts from the existing data. The NED is updated every two months to include new and improved elevation source data and is considered the best available raster elevation dataset. D&A has the ability to contour the DEM at any desired interval using 3D Analyst in ArcGIS. The quality of the output elevation contours shall be controlled by comparing the index contours to the USGS 7.5-minute topographic images.

It is anticipated that field surveys of critical bridges in the study reach will not be necessary. A meeting shall be held with Matt Gavin of the Colorado Division of Water Resources to present preliminary dam breach parameters, water surface profile modeling, and inundation mapping and to discuss if field measurements are necessary for critical bridges.

Inundation maps of the clear day failures of the dam shall be overlaid on 1-meter resolution aerial photography.

### **DELIVERABLES**

The deliverables for this project shall include a letter report for the inundation mapping analysis (stamped by a Colorado P.E.), 10 hard copies of the inundation maps, and 2 CDs containing: digital files of the inundation limits that are compatible with ESRI ARCView software, PDF file of the inundation maps, and supporting spreadsheets and hydraulic/hydrologic models.

### **SCHEDULE**

Work on this project will begin in March 2012 with delivery of the final product no later than June 15, 2012.

### **COST**

Assuming that the inundation mapping does not extend downstream of the limit discussed, the estimated cost for completing these task items is \$12,000. This estimate is summarized in the attached Table 1. The work shall be performed on an hourly basis for services rendered with a not-to-exceed fee of \$12,000. In the event that additional services are requested, the Company shall be advised of the

Mr. Michael Fuchs, P.E.  
February 9, 2012  
Page 3

additional cost for such services prior to performance of the work. Invoices shall be submitted on a monthly basis.

Thank you for considering D&A's proposal to perform these hydrologic and hydraulic evaluations for the Fuchs Ranches. The scope replaces Task 6 of our proposal to you dated January 16, 2012. Please do not hesitate to call me at (303) 651-1468 with any questions or comments you may have regarding this proposal.

Sincerely,

DEERE & AULT CONSULTANTS, INC.

A handwritten signature in black ink, appearing to read 'Mark A. Severin', with a stylized flourish at the end.

Mark A. Severin, P.E.  
Principal, Project Manager

Attachments

Q:\0467 Fuchs Reservoir Inundation Mapping\Proposals\Fuchs Reservoir Inundation Mapping Proposal.doc

---



**TABLE 1**  
EAP Inundation Mapping for Fuchs Reservoir

| Item No. | Description   | Hourly Rates |       |       |      |      | SUBTOTAL | Expenses | Total by Task (rounded to nearest \$100) |
|----------|---|--------------|-------|-------|------|------|----------|----------|--|
|          |   | \$245        | \$160 | \$112 | \$85 | \$84 |          |          |  |
| 1        | Development of Inundation Mapping for Fuchs Reservoir |              |       |       |      |      |          |          |  |
| 1a       | Breach Parameters                                     |              | 4     |       |      |      | \$640    |          | \$600                                    |
| 1b       | Outflow Hydrograph and Routing                        |              | 4     | 1     | 4    |      | \$1,092  |          | \$1,100                                  |
| 1c       | Water Surface Profile Modeling                        |              | 16    | 4     | 20   |      | \$4,708  |          | \$4,700                                  |
| 1d       | Inundation Mapping                                    | 1            | 4     |       | 8    |      | \$1,565  |          | \$1,600                                  |
| 1e       | Preparation of Memo and Initial Submittal             | 2            | 8     | 2     |      | 2    | \$2,162  |          | \$2,200                                  |
| 1f       | Revisions and Final Submittal                         | 1            | 4     | 1     | 8    | 2    | \$1,845  |          | \$1,800                                  |
|          |   |              |       |       |      |      |          |          |  |
| Totals   |   | 4            | 40    | 8     | 40   | 4    | \$12,012 | \$0      | \$12,000                                 |



Ryan Edwards

WATER CONSERVATION BOARD  
1313 SHERMAN STREET, ROOM 721  
DENVER, CO 80203

DATE: 03-09-12



**PURCHASE  
ORDER**  
STATE OF COLORADO

Buyer: ALLAN SMITH  
Phone Number: 303-866-3292  
Agency Contact: STEVEN SHULL  
Phone Number: 303 866 3441

**IMPORTANT**  
The PO# and Line # must  
appear on all invoices,  
packing slips, cartons  
and correspondence

P.O. # OE PDA 12000000065 Page# 01

ACC: 03-08-12

State Award #

FEIN 840706869 Phone: 719-657-2519  
Vendor Contact:  
Purchase Requisition #:

BID #

VENDOR  
FUCHS RANCHES INC  
1620 COUNTY ROAD 14A  
DEL NORTE CO 81132

**Invoice in Triplicate**

To: DIVISION OF WATER CONSERVATION  
1313 SHERMAN STREET, ROOM 721  
DENVER, CO 80203

**Payment will be made by this agency**

Ship To: DIVISION OF WATER CONSERVATION  
1313 SHERMAN STREET, ROOM 721  
DENVER, CO 80203

**INSTRUCTIONS TO VENDOR:**

1. If for any reason, delivery of this order is delayed beyond the delivery/installation date shown, please notify the agency contact named at the top left. (Right of cancellation is reserved in instances in which timely delivery is not made.)
2. All chemicals, equipment and materials must conform to the standards required by OSHA.
3. NOTE: Additional terms and conditions on reverse side.

Delivery/Installation Date: 06-30-12  
F.O.B. DESTINATION STATE PAYS NO FREIGHT

**SPECIAL INSTRUCTIONS:**

GOODS ARE NOT TO BE DELIVERED, OR SERVICES PERFORMED  
PRIOR TO 7/01/2011

| LINE<br>ITEM | COMMODITY/ITEM<br>CODE   | UNIT OF<br>MEASUREMENT | QUANTITY | UNIT COST | TOTAL ITEM COST |
|--------------|--|------------------------|----------|-----------|-----------------|
| 001          | 91843000000  |                        |          |           | \$8,000.00      |
|              | SEV TAX GRANT-PERFORM A BREACH STUDY FOR THE FUCHS DAM WHICH<br>IS DOWNSTREAM OF THE RIO GRANDE RIV. PER SOW. CMS#41799. |                        |          |           |                 |

DOCUMENT TOTAL = \$8,000.00

THIS PO IS ISSUED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS  
This PO is effective on the date signed by the authorized individual.

FOR THE STATE OF COLORADO

EPSPD PAA

*Allen Smith*  
Authorized Signature

3/9/12  
Date

February 16, 2012

Project: Inundation Mapping for Fuchs Ranches, Inc.

Vendor: Fuchs Ranches, Inc.; 1620 County Road 14A; Del Norte, CO 81132

Phone: (719) 657-2519

c/o Mr. Michael Fuchs

Consultant: Deere & Ault Consulting, Inc.; 600 S. Airport Rd, Building A, Suite 205; Longmont, CO 80503

Phone: (303) 651-1468

c/o Mr. Mark Severin, P.E.

CWCB funding source: Severance Tax Trust Fund Operational Account

## SCOPE OF WORK

Deere & Ault Consulting, Inc. (Consultant), at the direction of Fuchs Ranches, Inc. (Vendor), will perform a dam breach modeling study and flood inundation mapping for Fuchs Dam. The study shall be in accordance with the latest Breach Guidelines published by the Colorado Dam Safety Branch. The level of analysis shall be "Simple," as defined in Table 1 of the Guidelines for both the breach modeling and flood inundation mapping. Flood routing models and inundation mapping shall be based on USGS 10-meter Digital Elevation Model (DEM) or best available topographic mapping. Field measurements of bridges and culverts at critical sections shall be incorporated into the model as necessary. The limits of the dam breach flood mapping shall extend from reservoir/dam, downstream to the location where breach flood impacts become negligible.

The downstream limit of the inundation mapping for Fuchs Dam is expected to extend down the East Fork of Pinos Creek and terminate in the Rio Grande River, approximately 1,000 feet downstream of Del Norte. Preliminary results will determine if additional modeling is required.

The inundation limits shall be prepared in UTM coordinates (NAD 83, Zone 13 – meters) which shall be overlaid on base mapping that includes color aerial imagery (2009 or newer). The inundation map shall be printed in color on a minimum sheet size of 11"x 17". The inundation extents shall be clearly illustrated and include peak discharge estimates, peak flood wave arrival times and peak flood wave depths at critical locations. Roads, highways and critical infrastructure (schools, hospitals, fire stations, etc.) shall be annotated and any roads expected to be overtopped by the flood wave shall be identified. The map shall include a legend noting the dam, DAMID, north arrow and a graphic scale.

## PROPOSED METHODOLOGY

The Consultant shall perform a clear day dam failure analysis of the dam and route the resulting outflow hydrographs downstream using HEC-HMS. Breach parameters shall be estimated in accordance with methodologies recommended by the Office of the State Engineer, Dam Safety Branch. Hydraulic parameters, including width of flow, depth of flow and velocity at critical locations shall be estimated using the Corps of Engineer's HEC-RAS computer modeling software. A steady-state water surface profile resulting from peak flow rates at various locations shall be generated. Topographic information for the floodplains shall be based on USGS 10-meter DEMs from the National Elevation Dataset (NED) elevation data.

For the Preliminary analysis the Consultant shall contact pertinent local, county and state jurisdictions to obtain information regarding bridge opening dimensions and roadway elevations at potentially critical locations. Consultant shall present preliminary water surface profile modeling and inundation mapping results to the Colorado Division of Water Resources to determine the critical locations that require field measurements. Field verified survey data at these locations shall be utilized in the final modeling and mapping results.

#### DELIVERABLES

The Vendor shall provide the CWCB the following: a final report for the inundation mapping analysis stamped by a licensed Colorado professional engineer; digital files of the inundation limits, maps and supporting spreadsheets; and hydraulic/hydrologic models.

#### SCHEDULE

Work may initiate on the date of the State's Purchase Order and delivery of the final product is due no later than June 30, 2012.

#### BUDGET

The estimated cost for completing the project is \$12,000 based on Consultant's current rate schedule and projection of effort. The estimate is summarized in the attached Table(s). The Consultant shall invoice Vendor on a Time and Materials basis for services performed.

#### PAYMENT

The State shall pay Vendor up to \$8,000 for Consultant's project related invoices following receipt of final deliverables. The Vendor is responsible for all expenses in excess of the State's contribution. Any overages or increases in project costs shall be the responsibility of the Vendor.

##### Estimated Project Cost Sharing:

|            |                 |
|------------|-----------------|
| Company    | \$ 0            |
| FEMA Grant | \$ 4,000        |
| CWCB Grant | <u>\$ 8,000</u> |
| TOTAL      | \$12,000        |

CWCB shall issue payment following receipt and processing of Vendor's Request for Payment submittal. The Request for Payment must include: a summary of Consultant's labor effort and direct costs in accordance with the attached estimate, copies of corresponding invoices from Consultant, and identification of any major issues with proposed or implemented corrective actions. All products, data, and information developed as a result of this grant must be provided to the CWCB in hard copy and electronic format as part of project documentation prior to CWCB issue of payment.