

# **Scope of Work**

## **Gunnison River Festival**

### **75 Ditch Diversion Improvements and Feature Enhancements**

The following is a proposal for design services for the “75” Ditch diversion structure located at the Gunnison Whitewater Park in Gunnison County, Colorado. The Gunnison River Festival will serve as the fiscal sponsor for this scope of work. The intent of the proposal is to provide design services for improvements associated with the existing diversion structure. The services are intended to improve safety for boat passage, maintain water delivery to the ditch, maintain aquatic habitat, while providing a recreation amenity.

#### **Task 1**

(a) Base Mapping Creation/Surveying: Recreation Engineering and Planning (REP) will team with Landmark Surveying to create a base survey of the Gunnison River through the project reach.

(b) REP and Landmark Surveying will survey cross sections at 50 foot intervals (longitudinal) for a distance of 200 feet above the crest of the diversion structure, through the diversion structure, continuing for a distance of 200 feet below the anticipated tail-out. REP and Landmark have teamed to map river-bed topography at several other sites. The base survey will create the foundation of future design work including HEC-RAS flood modeling.

(c) Deliverables will include hard copies and electronic versions (AutoCAD compatible) of the base surveys.

#### **Task 2**

(a) Design & Engineering: REP will create design plans for each of the 75 Ditch diversion site. The goal of the design will be to create improvements that enhance water delivery, minimize the need for annual maintenance, improve safety and navigability for recreational boaters and improve aquatic habitat.

(b) REP will create one draft design plan for the site to be submitted to the diversion owners and local agency representatives for review. The design will be modeled through HEC-RAS computer flood modeling in order to ensure that the design functions for water delivery and does not negatively impact base flood elevations. Once comments and revisions are assimilated design will be completed along with a cost and quantity estimate.

(c) Deliverables will include hard copies of the design plan in full size (24x36) format as well as 8 ½ x 11. Electronic pdf files will also be provided.

#### **Task 3**

- (a) HEC-RAS computer flood modeling: REP will create a HEC-RAS computer flood model for the diversion site demonstrating the functionality of the diversion at key flood rates and no negative impact to the regulatory flood at each site.
- (b) REP will create a baseline for the model using the base survey data. The improved geometry will be entered into the model and the model will be run to show that the diversion capability will be maintained (or improved if necessary) and that there will be no reduction in flood carrying capacity at the site.
- (c) Deliverables will include a summary report for each site. (\*note: This scope assumes that there is no existing base model for the 75 Ditch site.)

#### **Task 4**

- (a) Construction Administration: REP will assist the Contracting Agency with the bid process to select a qualified contractor and oversee construction activities.
- (b) Deliverables will include final engineering plans, specifications and a bid form for use by the contracting agency.

#### **Key Design Personnel**

Gary Lacy, P.E., REP: Gary Lacy has nearly 30 years of professional experience, in both the public and private sector, in planning, design, permitting, construction and project management in dam modification and removal as well as whitewater by pass channels and whitewater parks. Founded in 1983, Recreation Engineering and Planning (REP) has become the nation's leader in whitewater park design and boating safety improvements. As President and Chief Engineer of REP Gary will serve in a supervisory role on this project.

Shane Sigle, P.E., REP: Shane Sigle has worked on water rights and diversion projects for the last 9 years, including 2 years working on irrigation and stockwater projects in New Zealand. Shane's experience ranges from diversion structure sizing, design, and review to stream wide water rights assessments and augmentation plans. Shane has also provided expert testimony on water allocation and diversion cases. Current work includes designing fish passage and whitewater drop structures taking into account diversion structures on the Colorado River, Grand Junction, CO and the San Juan River, Pagosa Springs, CO. Shane will be involved in the hydraulic modeling phase.

Mike Harvey, CFM, REP: Project Manager, Mike Harvey has worked with many communities to successfully guide whitewater park, river restoration, dam modification, trails and greenway projects through planning, permitting, public-process, funding, design and construction phases. Mike has worked closely with both municipal governments and citizens groups in order to understand and meet community needs and goals. Mike has served REP as a project manager on projects of varying size and scope and in diverse communities around the country. Mike is based in Salida, Colorado and has overseen construction on past Gunnison Whitewater Park improvements. Mike will serve as the project manager.

Syd Schieren, PLS, Landmark: Landmark Surveying owner Syd Schieren, is a Professional Land Surveyor licensed in the State of Colorado, LS 37937, and practices in Salida, Colorado. Syd has a Bachelor of Science degree in Surveying and Mapping from Metropolitan State College of Denver and

graduated Cum Laude. He was awarded the “Bernsten International Scholarship in Surveying” as well as multiple awards from the Professional Land Surveyors of Colorado (PLSC). Syd is a member of the American Congress on Surveying and Mapping and a member of the Professional Surveyors of 3

Colorado. Since 1999, Syd has been living and surveying in the Upper Arkansas River Valley. Syd has managed a broad array of survey projects ranging from large tract subdivisions (>35 acres) to Planned Urban Development (P.U.D.) projects, Condominium Surveys, Boundary Line Adjustments and ALTA/ACSM Surveys. He has performed Topographic Surveys of everything from E.P.A. Superfund Sites to Riverbed Topography for whitewater park design. Syd is knowledgeable in Colorado boundary law and educated in resolving boundary disputes.

## BUDGET

Work Item	Task	Cost
1	<b>Project Design Review Meeting:</b> One REP representative will meet with key stakeholders (Ditch company, Water District, County) to identify goals for the project and complete preliminary field work.	Completed, 2009.
2	<b>Base Survey Data:</b> REP will contract directly with a P.L.S to obtain a base, bathymetric survey of the Gunnison River at the 75 Ditch diversion. This survey will form the base for all design work and hydraulic modeling.	\$4,590.00
3	<b>Hydraulic Modeling:</b> REP will complete a 1 dimensional HEC-RAS flood model in order to assess the proposed improvement's impact on the 100 yr flood event. A summary report of the findings will be submitted to the local floodplain administrator for review.	\$4,865.00
4	<b>Design:</b> Create a design for a drop structure below the existing diversion structure. The goals of the design will be to improve diversion capabilities, reduce regular maintenance needs of the diversion structure, enhance the safety characteristics of this feature for recreational boating, and enhance aquatic habitat. One draft design will be submitted to the key stakeholders for comment. One set of revisions is anticipated after the draft plan has been submitted. Includes Engineer's estimate of cost and quantities and specifications to be used for construction bidding.	\$4,810.00
5	<b>Construction Oversight:</b> REP staff will work with a qualified contractor to complete the proposed improvements. Construction should be planned for low flow periods (less than 300cfs). The estimate assumes 7 working days with REP staff on site.	\$6,800.00
6	<b>Additional Services:</b> Additional meetings, conference calls, reports, cost estimates, graphics and drawings, etc.	Hourly Rate As Requested
7	<b>Grant Administration/Public Input:</b> Grant reporting, administration,	\$3935.00

	budgeting, stakeholder meetings and public meetings.	
	<b>TOTAL (US Dollars)</b>	<b>\$25,000.00</b>

## ANTICIPATED SCHEDULE

	Summer 2010	Fall 2010	Winter 2010	Spring 2011	Summer 2011	Fall 2011	Winter 2011
<b>Task 1. Project Design and Planning</b>							
Base Mapping and Surveying							
Preliminary Design/ Hydraulic Modeling							
Submit Draft Design and Modeling for Review							
Final Design							
Constructing Bidding							
Secure necessary Permits and Local Approval							
Stockpile large and smaller diameter rock and rock acquisition							
<b>Task 2. Construction</b>							
Mobilization							
Water Control							
Grout (110 cubic yards @ \$190/ cubic yard)							
Excavator hours for pool shaping, backfill, material transport							
Construction Oversight							
<b>Task 3. Administration, Project Management and Reporting</b>							
Administration/ Project Management							
Reporting							

NOTE: The activities proposed for the spring of 2010 are tentative and based on dates of notice to proceed by funding entities.

PROJECT BUDGET						
	Total Cost	Upper Gunnison District Share	Colorado Water Conservation Board	Gunnison Basin Roundtable Statewide Fund	United Companies	Gunnison County
<b>Task 1. Project Design and Planning</b>						
Engineering Designs	\$25,000	\$0	\$25,000	\$0	\$0	\$0
Secure necessary permits and local approval	\$2,000	\$0	\$0	\$2,000	\$0	\$0
Stockpile large and smaller diameter rock	\$59,000	\$0	\$0	\$15,629	\$0	\$43,371
<b>Task Subtotal</b>	<b>\$86,000</b>	<b>\$0</b>	<b>\$25,000</b>	<b>\$17,629</b>	<b>\$0</b>	<b>\$43,371</b>
<b>Task 2. Construction</b>						
Mobilization	\$6,000	\$6,000	\$0	\$0	\$0	\$0
Water Control	\$18,000	\$18,000	\$0	\$0	\$0	\$0
Grout (110 cubic yards @ \$190/ cubic yard)	\$20,900	\$5,000	\$0	\$5,560	\$10,340	\$0
Excavator hours for pool shaping, backfill, material transport	\$12,000	\$3,650	\$0	\$8,350	\$0	\$0
Contingency	\$14,444	\$1,000	\$0	\$13,444	\$0	\$0
<b>Task Subtotal</b>	<b>\$71,344</b>	<b>\$33,650</b>	<b>\$0</b>	<b>\$27,354</b>	<b>\$10,340</b>	<b>\$0</b>
<b>Task 3. Administration, Project Management and Reporting</b>						
Administration/ Project Management	\$900	\$300	\$0	\$600	\$0	\$0
Reporting	\$640	\$115	\$0	\$525	\$0	\$0
<b>Task Subtotal</b>	<b>\$1,540</b>	<b>\$415</b>	<b>\$0</b>	<b>\$1,125</b>	<b>\$0</b>	<b>\$0</b>
<b>TOTAL COST</b>	<b>\$158,884</b>	<b>\$34,065</b>	<b>\$25,000</b>	<b>\$46,108</b>	<b>\$10,340</b>	<b>\$43,371</b>

## BUDGET & MATCHING FUNDS

## **PROJECT BUDGET**

### **Gunnison Whitewater Park / 75 Ditch Diversion Improvements and Feature Enhancements**

#### **Task 1. Project Design and Planning**

Final design and specifications

Secure necessary permits and local approval

Stockpile large and smaller diameter rock and rock acquisition as necessary

**Task Subtotal**

#### **Task 2. Construction**

Mobilization

Water Control

Grout (110 cubic yards @ \$190/cubic yard)

Excavator hours for pool shaping, backfill, material transport

Contingency

**Task Subtotal**

#### **Task 3. Administration, Project Management and Reporting**

Administration/Project Management

Reporting

**Task Subtotal**

**TOTAL COST**

#### **NOTES:**

This budget assumes no savings from in-kind services or products. However, United Companies has committed to provide grout at cost should funding be awarded. Additional Gunnison County has stockpiled large rock and will continue to provide material through the spring of 2010 to help reduce material costs.

			Colorado Watershed Restoration	Greater Outdoors Colorado
Total Cost	Colorado River District Share	Upper Gunnison District Share	Program Share	
\$23,000	\$10,000	\$9,000	\$2,000	\$2,000
\$2,000	\$0	\$2,000	\$0	\$0
\$59,000	\$14,000	\$13,000	\$23,000	\$9,000
<b>\$84,000</b>	<b>\$24,000</b>	<b>\$24,000</b>	<b>\$25,000</b>	<b>\$11,000</b>
\$6,000	\$2,500	\$2,500	\$500	\$500
\$18,000	\$4,000	\$12,000	\$1,000	\$1,000
\$20,900	\$3,000	\$12,000	\$2,500	\$3,400
\$12,000	\$2,000	\$2,000	\$4,000	\$4,000
\$14,244	\$3,000	\$4,000	\$4,200	\$3,044
<b>\$71,144</b>	<b>\$14,500</b>	<b>\$32,500</b>	<b>\$12,200</b>	<b>\$11,944</b>
\$900	\$300	\$300	\$150	\$150
\$640	\$325	\$115	\$100	\$100
<b>\$1,540</b>	<b>\$625</b>	<b>\$415</b>	<b>\$250</b>	<b>\$250</b>
<b>\$156,684</b>	<b>\$39,125</b>	<b>\$56,915</b>	<b>\$37,450</b>	<b>\$23,194</b>

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# PROJECT BUDGET

## Gunnison Whitewater Park / 75 Ditch Diversion Improvements and Feature Enhancements

		Colorado River	Upper Gunnison	Colorado	Greater	
		District Share	District Share	Watershed	Outdoors	
				Restoration	Colorado	
				Program Share		
<b>Task 1. Project Design and Planning</b>	<b>Total Cost</b>					
Final design and specifications	\$23,000	\$10,000	\$9,000	\$2,000	\$2,000	\$0
Secure necessary permits and local approval	\$2,000	\$0	\$2,000	\$0	\$0	\$0
Stockpile large and smaller diameter rock and rock acquisition as necessary	\$59,000	\$14,000	\$13,000	\$23,000	\$9,000	\$0
<b>Task Subtotal</b>	<b>\$84,000</b>	<b>\$24,000</b>	<b>\$24,000</b>	<b>\$25,000</b>	<b>\$11,000</b>	<b>\$0</b>
<b>Task 2. Construction</b>						
Mobilization	\$6,000	\$2,500	\$2,500	\$500	\$500	\$0
Water Control	\$18,000	\$4,000	\$12,000	\$1,000	\$1,000	\$0
Grout (110 cubic yards @ \$190/cubic yard)	\$20,900	\$3,000	\$12,000	\$2,500	\$3,400	\$0
Excavator hours for pool shaping, backfill, material transport	\$12,000	\$2,000	\$2,000	\$4,000	\$4,000	\$0
Contingency	\$14,244	\$3,000	\$4,000	\$4,200	\$3,044	\$0
<b>Task Subtotal</b>	<b>\$71,144</b>	<b>\$14,500</b>	<b>\$32,500</b>	<b>\$12,200</b>	<b>\$11,944</b>	<b>\$0</b>
<b>Task 3. Administration, Project Management and Reporting</b>						
Administration/Project Management	\$900	\$300	\$300	\$150	\$150	\$0
Reporting	\$640	\$325	\$115	\$100	\$100	\$0
<b>Task Subtotal</b>	<b>\$1,540</b>	<b>\$625</b>	<b>\$415</b>	<b>\$250</b>	<b>\$250</b>	<b>\$0</b>
<b>TOTAL COST</b>	<b>\$156,684</b>	<b>\$39,125</b>	<b>\$56,915</b>	<b>\$37,450</b>	<b>\$23,194</b>	<b>\$0</b>

### NOTES:

This budget assumes no savings from in-kind services or products. However, United Companies has committed to provide grout at cost should funding be awarded. Additionally, Gunnison County has stockpiled large rock and will continue to provide material through the spring of 2010 to help reduce material costs.

\$117,559

\$39,171.00

\$156,684

## PROJECT TIMELINE

### Gunnison Whitewater Park / 75 Ditch Diversion Improvements and Feature Enhancements

	Spring 2010	Summer 2010	Fall 2010	Winter 2010	Spring 2011
<b>Task 1. Project Design and Planning</b>					
Final design and specifications					
Secure necessary permits and local approval					
Stockpile large and smaller diameter rock and rock acquisition as necessary					
<b>Task 2. Construction</b>					
Mobilization					
Water Control					
Grout (110 cubic yards @ \$190/cubc yard)					
Excavator hours for pool shaping, backfill, material transport					
Contingency					
<b>Task 3. Adminstration, Project Management and Reporting</b>					
Administration/Project Management					
Reporting					

NOTE: The activities proposed for the spring of 2010 are tentative and based on funding from the Colorado River District which would be available by May 1st.