



PIMA COUNTY

FLOOD CONTROL

MEMORANDUM

DATE: December 16, 2014

*S. Shields*  
Suzanne Shields, P.E.  
Director

TO: C. H. Huckelberry  
County Administrator

FROM:

SUBJECT: El Corazón Bank Protection and River Park Project Amendment #1 – Additional Services Requested

The purpose of this memorandum is to request your approval to amend the El Corazón Bank Protection and River Park Project contract (see attached Amendment #1) awarded to Kimley Horn. Per your December 9, 2014 memorandum, the following is a detailed explanation of the additional services that are needed to address the following issues:

**Geotechnical Design**

These services are required due to a change in the existing site conditions at the CalPortland sand and gravel pit. During the initial site investigations, several large subsurface debris fields were identified requiring a revised project alignment. Services include additional borehole depth and additional test pit investigations.

**Architectural Treatments**

These services are needed to address the pedestrian bridge selection memorandum. Services requested will provide improvements to the selected precast concrete girder pedestrian bridge view shed.

The amount of the original design contract is \$999,075. This amendment equates to a five percent increase of approximately \$49,923. No time extension is required.

If you have any questions, please call me at 724-4680.

SS/JS/tj

Attachment

c: John Bernal, Deputy County Administrator – Public Works  
Bill Zimmerman, Deputy Director – Regional Flood Control District  
John Spiker, Civil Engineering Manager – Regional Flood Control District

*APPROVED / DENIED*

*Chuck Huckelberry*  
Chuck Huckelberry, County Administrator

*12/22/14*

Date

*APPROVED / DENIED*

*John Bernal*  
John Bernal, Deputy County Administrator – Public Works

*12/9/14*

Date



**(5CORZN) El Corazon  
Bank Protection and River  
Park Project Design  
Engineering Services:  
Amendment #1**

PROJECT NAME: El Corazon Bank Protection and River Park  
PROJECT NUMBER: 5CORZN

**BACKGROUND**

Additional Services for the El Corazon Bank Protection and River Park Project (5CORZN) consist of providing additional Geotechnical services, designing architectural treatments for two pedestrian bridges crossing the Rillito River and CDO Wash respectively, and additional project coordination associated with these additional tasks.

- Each bridge is approximately 400 linear feet long
- Each bridge has 800 lf of handrail length for project total of 1600 lf
- Architectural treatments may be integrated into handrail or placed in close proximity to the bridge (along bridge approach ramps)

**SCOPE OF SERVICES**

The scope of work is described below and follows original scope task numbers:

**Task I: Project Coordination**

Consultant shall provide coordination between the District, subconsultants, and other entities throughout these additional services. This task includes project invoicing, progress reports, and updating of the project schedule.

**Task VIII: Geotechnical**

Subconsultant Golder, shall provide additional services to include the following:

- Additional Borehole Depth
- Revised test pits and borehole locations as result of Rillito Bridge alignment change
- Additional Test Pit Investigation
- Test Pits for Seepage
- MSHA training

A detailed scope is attached and incorporated herein as Exhibit 4.

**Task XV: Bridge Architectural Treatment**

**Concepts**

XV.1---Kick-off meeting to discuss ideas, provide images



**XV.2**---Provide two concept sketches with the following parameters

Functional Parameters:

- The following is provided by Structural Engineer separate from this contract:
  - Rail system must repel 2-ton maintenance truck
  - The railing is attached to the curb on each side of the travel area
  - Curb is concrete
- People do not need to grasp the rail- it is a barrier
- The architectural treatments:
  - Must conform to all other ADA requirements
  - Must be resistant to graffiti and vandalism
  - Must discourage possible climbing, deformation or breakage

Aesthetic Parameters:

- Architectural treatments should be integrated into rail/ bridge system
- Architectural treatments must be highly visible from I-10
- Architectural treatments should integrate motion and/ or sound and/ or water if possible

**XV.3**---Meet with Structural Engineer as needed to determine feasibility of concepts

**XV.4**---Present concepts, preliminary costs and advantages and/or risks to RFCD

Deliverables

- Two (2) concept sketches
- Preliminary structural review
- Preliminary cost estimate

*RFCD will choose one concept or select elements to move forward to 50% Design*

**60% Design**

**XV.5**---Generate 60% design, specials and cost estimate

**XV.6**---Meet and discuss with structural engineer to evaluate integration of architectural treatments with structural

**XV.7**---Meet and discuss with a fabricator for additional input on constructability

**XV.8**---Team meeting with RFCD to include this architectural treatment team, Structural Engineer, and project team as needed, to discuss integration of design with the site and structural needs

Deliverables

- 60% design with sketches or renderings as needed for clarity



- 60% materials board
- 60% construction details
- 60% specifications
- 60% structural review
- 60% cost estimate

### **90% Design**

**Task XV.9**--Generate 90% design, specials and cost estimate

**Task XV.10**--Meet with RFCD for final design review

### **Deliverables**

- 90% design with sketches or renderings as needed for clarity
- 90% construction details
- 90% specifications
- 90% structural review
- 90% cost estimate

### **Final Design - Conditional**

At this time RFCD and the design team can determine whether Final PS&E's are needed, or whether the contractor can be directed to provide the final intricate detailing in Shop Drawings. At a minimum, this task includes meeting to discuss the appropriate direction

**XV.11**--Meet with RFCD

### **SCHEDULE**

The proposed schedule for Task XV is shown below and is subject to change:

<b><u>XV.1 Kick-off Meeting</u></b>	November 20 <sup>th</sup>
<b><u>XV.2 Concept</u></b>	December 10 <sup>th</sup>
<b><u>XV.4 RFCD Meeting</u></b>	December 17 <sup>th</sup>
<b><u>XV.5 60% Design</u></b>	January 15 <sup>th</sup>
<b><u>XV.8 RFCD Meeting</u></b>	January 22 <sup>th</sup>



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<u>XV.9 90% Design</u>	February 25 <sup>th</sup>
<u>XV.10 RFCD Meeting</u>	March 15th
<u>XV.11 RFCD Meeting</u>	TBD

#### EXCLUSIONS

Electrical/Lighting Design

Structural Design (provided separate from this contract)

END OF EXHIBIT 'A'

**Exhibit 1 - Cost Proposal Summary**  
**5CORZN - El Corazon Bank Protection and Linear Park Project - Amendment #1**  
**November 25, 2014**

(Costs Rounded to the Nearest \$1.00)

<b>ESTIMATED DIRECT LABOR</b>			
Classification	Estimated Man-Hours	Hourly Rate	Labor Costs
Project Principal	0	\$205	\$ -
Project Manager	36	\$196	\$ 7,056
Senior Professional	76	\$153	\$ 11,628
Professional	132	\$119	\$ 15,708
Junior Professional	0	\$101	\$ -
Tech Support	0	\$92	\$ -
Admin Support I	4	\$116	\$ 464
Admin Support II	6	\$67	\$ 402
<b>Total Man-Hours</b>	<b>254</b>	<b>Total Labor Costs</b>	<b>\$ 35,258</b>

<b>ESTIMATED DIRECT EXPENSES</b>	
(See Exhibit 3)	
Item	Cost
Mileage	\$ 0
Reproductions	\$ 540
<b>Total Direct Expenses</b>	<b>\$ 540</b>

<b>ESTIMATED OUTSIDE SERVICES AND CONSULTANTS</b>	
Golder	\$ 14,125
	\$ 14,125
<b>Total Estimated Outside Services</b>	<b>\$ 14,125</b>

Direct Labor	\$ 35,258
Total Direct Expenses	\$ 540
Total Estimated Outside Services	\$ 14,125
Contingency	\$ 0
<b>TOTAL ESTIMATED (NOT TO EXCEED) COST</b>	<b>\$ 49,923</b>

**5CORZN - El Corazon Bank Protection and Linear Park Project - Amendment #1**  
**November 25, 2014**  
**CLASSIFICATION**

Task	Description	Project Principal	Project Manager	Senior Professional	Professional	Junior Professional	Tech Support	Admin Support I	Admin Support II	Total
<b>El Corazon Bank Protection and Linear Park Project</b>										
I	Project Coordination (Additional Services)									30
VIII	Geotech (Additional Services)									
XV	Bridge Architectural Treatment									
	Concepts									
	XV.1 Kick-off meeting	1		2						3
	XV.2 Concept Sketches (2)	1		12	40					55
	XV.3 Meet with Structural Engineer	1		2	2					5
	XV.4 Present concepts, cost, advantages and risks to RFCD	1		2						3
	60% Design									
	XV.5 Generate 60% design, materials board, details, specials and cost estimate	1		30	50					2
	XV.6 Meet with Structural Engineer	1		2	2					5
	XV.7 Meet with fabricator			2	2					4
	XV.8 Meet with RFCD and Corazon team	1		2						3
	90% PS&Es and Maintenance Protocols									
	XV.9 Generate 90% design, details, specials and cost estimate	1		18	36					57
	XV.10 Meet with RFCD	1		2						3
	Final Design									
	XV.11 Meeting to discuss appropriate direction for Final Design		1	2						3
	<b>Total</b>	0	36	76	132	0	0	4	6	<b>254</b>

Classification Rate	Project Principal \$205.00	Project Manager \$196.00	Senior Professional \$153.00	Professional \$119.00	Junior Professional \$101.00	Tech Support \$92.00	Admin Support I \$116.00	Admin Support II \$57.00
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**Exhibit 3 - Estimated Direct Expenses**  
**5CORZN - El Corazon Bank Protection and Linear Park Project - Amendment #1**  
**November 25, 2014**

(Costs Rounded to the Nearest \$1.00)

<b>MILEAGE</b>			
<u>Location</u>	<u>No. of Trips</u>	<u>Miles</u>	<u>Total Miles</u>
(2) Meetings	0	0	0
(1) Site Visit	0	0	0
Total Estimated Miles			0
<b>Total Cost at \$ 0.58 per mile</b>			<b>\$ 0</b>
<b>REPRODUCTIONS</b>			
<u>Type</u>	<u>Amount</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Plotting and sheet preparation	20	\$ 10.00	\$ 200
Photocopy (8 1/2" x 11")	50	\$ 0.15	\$ 8
Photocopy (11" x 17")	50	\$ 0.25	\$ 13
Displays (24" x 36")	4	\$ 80.00	\$ 320
Mylars	0	\$ 14.00	\$ 0
<b>Total Estimated Reproductions</b>			<b>\$ 540</b>
<b>TOTAL ESTIMATED DIRECT EXPENSES</b>			<b>\$ 540</b>



October 27, 2014

1133-92519 Rev 1

Mr. Scott Altherr, PE, CFM  
Kimley-Horn and Associates, Inc.  
333 East Wetmore, Suite 280  
Tucson, Arizona 85705

**RE: REQUEST FOR CONTRACT MODIFICATION NO. 1 FOR GEOTECHNICAL  
SERVICES, EL CORAZON BANK PROTECTION AND RIVER PARK  
PROJECT(5CORZN)**

Dear Scott:

Golder Associates Inc. (Golder) respectfully submits this request for additional budget to Kimley-Horn and Associates, Inc. (KHA) and the Pima County Regional Flood Control District (RFCD) in support of the El Corazon Bank Protection and River Park Project. Golder's original scope and fee for the project is included in our cost proposal dated October 14, 2013 which was incorporated into the executed contract agreement between Golder and KHA on November 7, 2013. The original approved contract amount is \$83,177.33.

**1.0 JUSTIFICATION**

During and prior to Golder's drilling and test-pitting field investigation program, there were changes in the scope of our work which are described in the following sections.

**New Rillito Creek Pedestrian Bridge Alignment**

Golder was notified by KHA on June 16, 2014 of a debris field conflict with the alignment of the Rillito Creek pedestrian bridge. That conflict required additional analysis by the project team and an eventual realignment of the bridge. The revised bridge alignment required Golder to drill two new abutment boreholes as well as miscellaneous additional tasks associated with moving the borehole locations. Additionally, after the alignment was set and the new locations marked and Blue Staked, the monsoon season set in and we were not able to access the pier boreholes. The final pier borehole investigation was delayed until October, requiring an additional round of field-marking and Blue Stake coordination. The conditions of the Rillito Creek following late monsoon storms were such that backhoe support was required to assist the drill rig in accessing the borehole locations.

**Pier Borehole Depth Increase Due to Scour**

Pier boreholes were originally scoped at 75 feet deep. Golder computed that 85 foot deep pier boreholes were needed based on preliminary scour depths and bridge loads provided at the start of the drilling program. Boreholes must extend a minimum of 10 feet below the planned drilled shaft tip elevation. The incremental cost for the additional 10 feet is much less than having to come back and drill additional boreholes.

## **Additional Time for Original Backhoe Test Pit Investigation**

The original test pit investigation consisted of a total of 16 pits. Southlands Engineering, LLC (Southlands), Golder's drilling and backhoe subconsultant, estimated a total of 16 hours to complete these investigations. The actual time to complete these investigations was 32 hours. The reason for this was the difficult access conditions and the fact that the pits were so far apart requiring significant time to move between investigation locations.

## **Additional Test Pits to Characterize Excavation Seepage**

Golder's initial test pit investigations did not intercept saturated soil or near-surface perched groundwater. This was because the pits were not located where the soil cement alignment was near the active channel of the Santa Cruz River, which is where effluent flows daily.

Based on discussions with the project team, Golder was tasked with performing three additional backhoe test pits to determine how close to the flowing effluent the contractor may be able to excavate before encountering groundwater. This information is important to determine if dewatering methods will be required to construct the soil cement toe-down.

## **Additional Items**

Southlands did not include costs for site-specific health and safety training from Cal-Portland. This was a requirement as Cal-Portland is an MSHA site. Additional project management time was required to handle coordination with Southlands, and other project management tasks.

## **2.0 ADDITIONAL SCOPE**

The additional services we anticipate to perform include:

- 10 labor hours and approximately \$1,400 in direct costs from Southlands under Task 3 (Field Investigations) to deepen pier boreholes from 75 feet to 85 feet
- 20 labor hours in Tasks 2 and 3 associated with adjusting investigation plan for new Rillito Creek bridge alignment, re-marking boreholes in the field, coordinating with Blue Stake locators, and logistics
- 22 labor hours under Task 3 and approximately \$4,000 in direct cost from Southlands for increased test pitting time, three additional test pits, and backhoe support during drilling of the final three pier boreholes
- 16 labor hours and approximately \$1,500 in direct cost from Southlands to drill two additional abutment boreholes at the revised Rillito Creek bridge site
- Approximately \$500 in direct costs under Task 3 from Southlands for site-specific health and safety training at Cal-Portland
- 6 labor hours under Task 7 (Project Management)

### 3.0 ESTIMATED ADDITIONAL COSTS

The total estimated costs for these additional services are anticipated to be \$14,124.69. This would bring the total contract amount to \$97,302.02. Specific incremental hours per labor classification and total costs for each of the tasks discussed above are listed in the attached Table 1.

Golder's remaining scope of work includes obtaining additional piezometer readings (estimated at \$1,000), abandoning the two piezometers (estimated at \$3,000), and completing final report and providing assistance to Kimley-Horn with special provisions, addressing geotechnical-related questions during the design process, and project meeting and administrative tasks (estimated at \$4,000).

If additional budget is required to continue the design effort as the project develops or if a significant change in scope develops, Golder will submit an additional change order request and obtain KHA approval in advance of exceeding this maximum amount. We look forward to continuing our partnering with KHA and the members of the project team. Please contact us at (520) 888-8818 if you have any questions or comments.

Sincerely,

**GOLDER ASSOCIATES INC.**



Randy Post, PE  
Senior Project Engineer

Michael L. Pegnam, PE  
Associate/Senior Consultant

Attachments: Table 1

RP/MLP/sj

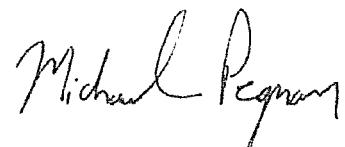


Table 1: Additional Scope and Fee Derivation (Contract Modification Request 1)

CLIENT: Kimley-Horn Associates, Inc.		PROJECT: El Corazon Bank Protection and River Park Project (SCORZ2N)		TASK: ALL		ESTIMATED BUDGET: \$14,124.69		MAJOR TASK ITEMS						
								1	2	3	4	5	6	7
								Health & Safety (est. man-hrs.)	Project Work Plan & Data Collection (est. man-hrs.)	Field Investigations (est. man-hrs.)	Laboratory Testing (est. man-hrs.)	Analysis & Report (est. man-hrs.)	Design Phase (est. man-hrs.)	Project Mgmt & Meetings (est. man-hrs.)
GAI PERSONNEL		HOURLY RATE		TOTAL HOURS		BILLINGS								
ENGINEERS		\$160.43		12.0		\$1,576.08								
Project Manager	Senior Engineer	\$131.34												
St. Project Engineer	St. Senior Engineer	\$113.15												
Project Engineer	St. Project Engineer	\$94.60												
Staff Engineer	St. Staff Engineer	\$82.28												
Engineer Total														
SUPPORT STAFF		\$60.99		\$66.34										
Clerical	Clerical	\$60.99												
CAD	CAD	\$66.34												
Support Staff Total														
Total GAI Personnel Billings		74.00		\$6,677.44										
DIRECT JOB COSTS		SUB TOTAL		TOTAL COSTS		(\$)								
OFFICE SERVICE FEE														
% of Fees														
LAB TESTING														
COMPUTER/CADD														
MISC. EXPENSES														
Graphics: Rental														
Geophysics: Equip Shipping														
County Permits														
Buckets and other field supplies														
Nuclear Gauge Charges														
SUBSISTENCE/TRAVEL EXPENSE														
AIRFARE/TRAVEL														
VEHICLE EXPENSES		\$50.00				\$50.00								
Fuel														
Rental														
Total Direct Costs						SUB TOTAL								
SUBCONTRACTED SERVICES						TOTAL COSTS								
Drilling/Backhoe Services (Southlands)														
Laboratory Services (ConfermaTECH)														
Total Subcontracted Charges		0.0%				\$7,397.25								
Administration Charges						\$7,397.25								
Total Subcontractor Billings						\$14,124.69								
TOTAL BILLINGS						\$12,327.13								

Exhibit 4

