

CONSULTING AGREEMENT AMENDMENT

May 9, 2017

John Roberts
Executive Director
The Natomas Basin Conservancy
2150 River Plaza Drive, Suite 460
Sacramento, California 95833-3647

Reference: Natomas Basin Conservancy SAFCA Wetlands Monitoring

Dear Mr. Roberts:

This letter is Amendment Number three (3) to the original Agreement dated June 17, 2015 between ICF Jones & Stokes, Inc. (hereinafter referred to as "ICF"), and The Natomas Basin Conservancy (hereinafter referred to as "Client"), for ICF provision of services related to the *Natomas Basin Conservancy SAFCA Wetlands Monitoring* (the "Project") and, as such, is subject to the terms and conditions set forth in said Agreement. In summary, the Agreement is amended as follows:

Scope of Work

The Supplemental Scope of Work to be provided by ICF under this Amendment is set forth in the attached Exhibit A and included herein by reference. The amended scope of work from USGS is attached. The cost estimate includes hours for project management and oversight and annual reporting from ICF.

Period of Performance:

Incorporation of the continuation of the Scope of Work does not require an extension to the period of performance.

Compensation:

The impact associated with the Scope of Work herein has been assessed at an additional \$12,161.00 (Twelve Thousand One Hundred Sixty One and 00/100 Dollars). Incorporation of this Amendment increases the total Agreement value from \$60,924.00 to \$73,085.00.

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Except as specifically modified by this Amendment, all terms and conditions of the original Agreement as amended thereto between ICF and Client remain in full force and effect.

Please indicate your acceptance of the terms of this Amendment by signing.

ACCEPTED & AGREED:

Accepted for:
The Natomas Basin Conservation

Accepted for:
ICF Jones & Stokes, Inc.

Signature _____

Signature _____

By _____

By _____

Title _____

Title _____

Date _____

Date _____

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Exhibit A Scope of Work and Cost Estimate

Natomas Basin Conservancy SAFCA Wetlands Monitoring

Project Summary

Objective

The objective of this project is to evaluate giant gartersnake (*Thamnophis gigas*) distribution within the SAFCA giant gartersnake dispersal canal in the western Natomas Basin. Continued occupancy monitoring of the canal will provide information about the rate at which giant gartersnakes colonize and disperse through the canal, and contribute to estimates of the probability of occurrence of giant gartersnakes throughout the Natomas Basin.

Scope of Work

This project will involve trapping for giant gartersnakes and analyzing the resulting data using an occupancy modelling approach. We will trap three stretches of the canal (N of Elverta Road, S of Elkhorn Boulevard, and along the E edge of Teal Bend Golf Course S of Walnut Road) with transects of 50 modified floating funnel traps (Casazza et al. 2000, Halstead et al. 2013). We will deploy traps in a removal design for 21 consecutive days or until the capture of two individual giant gartersnakes, whichever comes first, between 15 July and 15 September 2017. We will place traps along canal bank, which serve as natural drift fences, and check traps daily while they are deployed.

We will measure, determine the sex of, and uniquely mark all captured individual snakes. Individuals will be marked with a unique code branded on the ventral scales with a disposable cautery (Winne et al. 2006) and, if > 50 g, a passive integrated transponder (PIT) tag. We will record the location of each captured individual with GPS, and release it at its location of capture immediately after processing.

We will characterize sampled areas in several ways. We will collect data on the composition of microhabitats and the composition of vegetation at every fifth trap and at a random point within 5 m of each characterized trap. We will record the number of non-target aquatic organisms in every fifth trap, and empty sampled traps daily. We will leave potential prey species in all other traps to serve as bait to increase detection probabilities. We will also record environmental conditions (daily air and water temperatures, daily water levels, etc.) that might affect detection probabilities (Halstead et al. 2011).

We will analyze the resulting data to determine the proportion of the canal occupied. Because these sites are so few in number (3), these data will be included in a larger analysis of the probability of occurrence of giant gartersnakes in the Natomas Basin. We will use Bayesian analysis of single-season occupancy models (Royle and Dorazio 2008, Kéry 2010, Kéry and Schaub 2011) using both uninformative and informative priors on the detection process (Halstead et al. 2011). We will select among competing models using variable selection

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techniques (Kuo and Mallick 1998, Royle and Dorazio 2008). We will use finite population inference (Link and Barker 2010) to assess the probability that stretches of the dispersal canal, individually and collectively, were occupied by giant gartersnakes.

Table 1. Cost Estimate for Biological Effectiveness Monitoring along the SAFCA GGS Dispersal Canal in 2017

Task	Employee Name	Consulting Staff			Subcontractor		Labor Total	Direct Expenses	Total Price
		Project Role	Labor Classification	Subtotal	USGS	Subtotal			
	Leslie D	Giffen T	Schiff D		USGS				
	Project Manager	Editor	GIS Specialist		Bio Tech				
		Sr Consult III	Assoc Consult I	Assoc Consult III					
Task 1. Project Mangement		2				\$390	\$0	\$390	
						\$0	\$0	\$0	
Task 2. Giant Garter Snake Monitoring						\$0	\$10,155	\$10,155	\$10,155
						\$0	\$0	\$0	
Task 4. Annual Report		1	1	2		\$600	\$0	\$600	
Total hours		3	1	2					
ICF E&P 2015 Billing Rates		\$195	\$115	\$145					
Subtotals		\$585	\$115	\$290		\$990	\$10,155	\$10,155	\$11,145
Direct Expenses									
523.05 Travel, Auto, incld. Mileage at current IRS rate (.535/mile)									
Mark up on all non-labor costs and subcontractors: 10%								\$1,016	
Direct expense subtotal								\$1,016	
Total price									\$12,161