RECLAMATION
Managing Water in the West

The City of Sanger Supervisory Control and Data Acquisition System Upgrade Project

Environmental Assessment: 18-16-MP
WaterSMART Small-Scale Water Efficiency Grant
Bureau of Reclamation, Mid-Pacific Region
Sacramento, California

U.S. Department of the Interior
Bureau of Reclamation, Mid-Pacific Region

May 2018

Mission Statements

The Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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List of Acronyms and Abbreviations

AFY	acre feet per year
CEQ	Counsel on Environmental Quality
City	City of Sanger
EA	Environmental Assessment
ITA	Indian Trust Asset
PLC	Programmable Logic Controllers
Proposed Action	Reclamation Issuing WaterSMART SWEP Grant of $75,000
Project	the City of Sanger SCADA System Upgrades for Accuracy, Efficiency, and Reliability
Reclamation	Bureau of Reclamation
SCADA	Supervisory Control and Data Acquisition
SHPO	State Historic Preservation Officer
SWEP	Small-Scale Water Efficiency Project
WaterSMART	Sustain and Manage America's Resources for Tomorrow

1. Introduction

In conformance with the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321, et seq.), Counsel on Environmental Quality (CEQ) regulations (40 CFR 1500-1508), Department of Interior regulations (43 CFR Part 46), the United States (U.S.) Bureau of Reclamation (Reclamation) prepared this Environmental Assessment (EA) to disclose potential environmental effects associated with issuing $75,000 in grant funding under a Sustain and Manage America's Resources for Tomorrow (WaterSMART) grant (the Proposed Action). This EA examines the potential direct, indirect, and cumulative effects to the affected environment associated with awarding a WaterSMART grant of $75,000 to The City of Sanger to help complete SCADA System Upgrades for Accuracy, Efficiency, and Reliability (the Project).

1.1 Background

In May of 2017, The City of Sanger applied for a WaterSMART grant, Reclamation's Funding Opportunity Announcement No. BOR-DO-17-F011, for funding assistance to upgrade to their Supervisory Control and Data Acquisition (SCADA) system. Reclamation selected to award the City $75,000 in funding, to be joined with $75,000 in funding from the City of Sanger's Water Fund Reserve to fund the entirety of the Project. The Project would be located at nine City-owned, fully enclosed operational well sites throughout City of Sanger in Fresno County, California (Figure 1). Outdated equipment would be removed and magnetic flow meters, programmable logic computers (PLCs), and associated communications equipment would be installed (Figure 2, Table 1).

Figure 1. City of Sanger Location Information

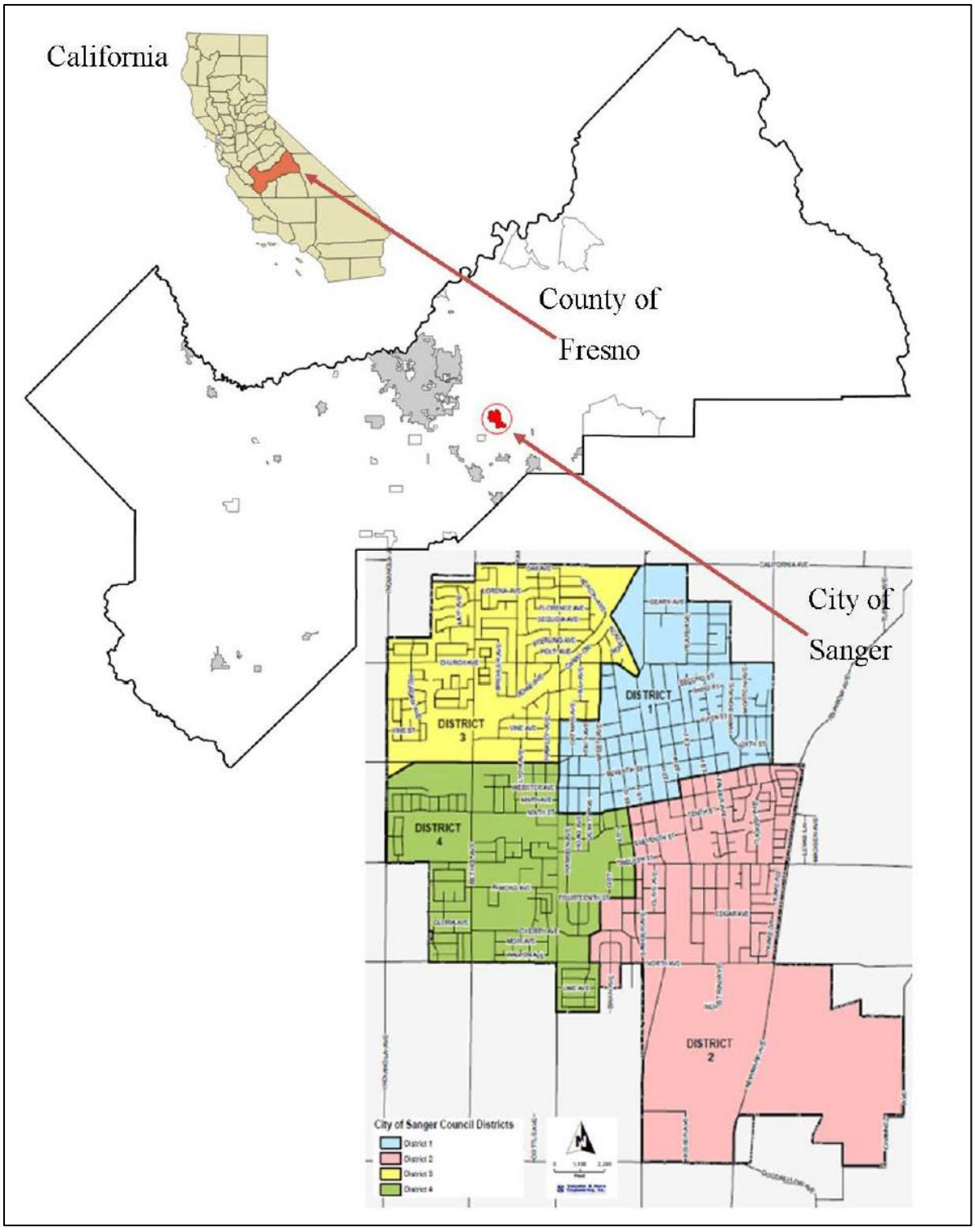


Figure 2. Project Well Locations

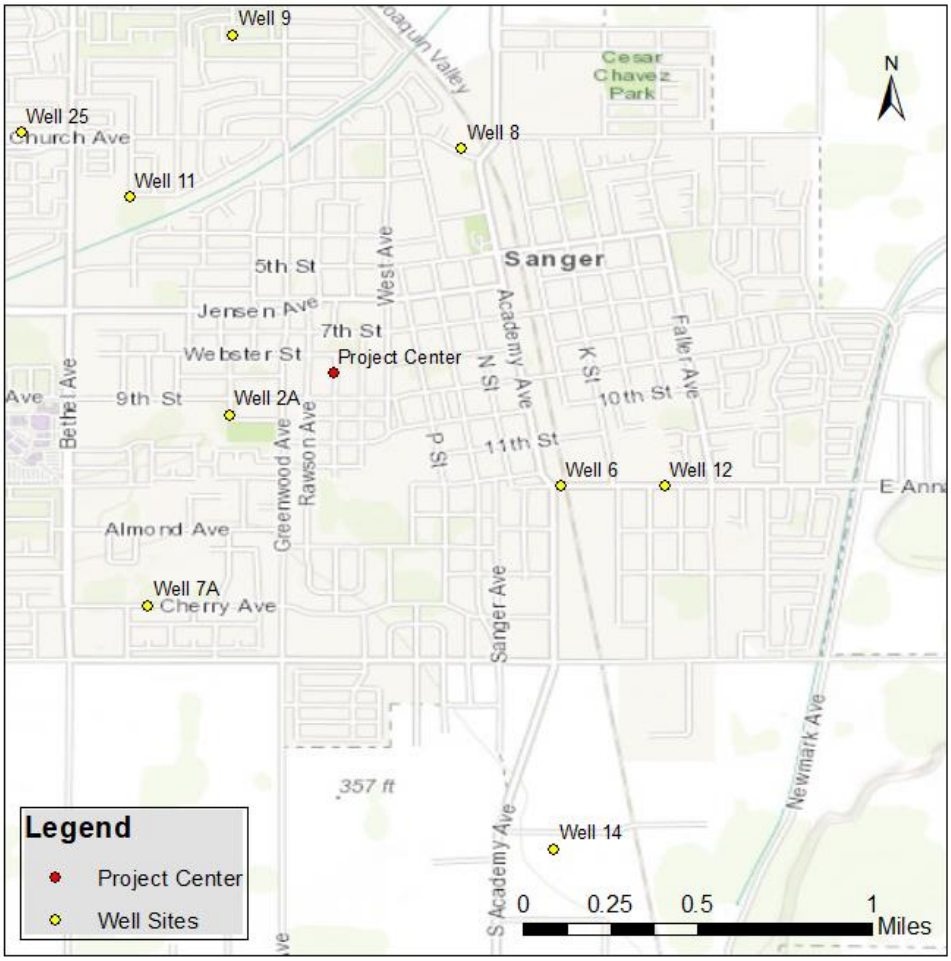


Table 1. Project Well Locations

Well Number	Street Address	Latitude	Longitude
2A	975 Greenwood Ave	36.7024536	-119.5676069
6	1110 Annadale Ave	36.6994961	-119.5538503
7A	2220 Cherry Ave	36.6945155	-119.5709867
8	217 L Street	36.7135204	-119.5579674
9	5 Greenwood Ave	36.7182398	-119.567489
11	2301 Jenni Ave	36.7114809	-119.5717289
12	770 Annadale Ave	36.699512	-119.5495246
14	1121 Muscat Ave	36.6843993	-119.5541105
25	2910 Church Ave	36.714176	-119.5762626
Project Center		**36.70419929**	**-119.5632808**

1.2 Need for the Proposal

Sanger has steadily grown in population since its first water works were developed in 1890. The City's Urban Water Management Plan, most recently updated in 2005, identifies policies to improve efficiency of their water system to account for this increasing population. Since this 2005 plan, the population of Sanger has increased over 14%, from 21,883 to over 25,000. Improving the City's technological abilities to monitor water usage would help to better meet the needs of the City's growing population.

The City of Sanger services commercial, institutional, industrial, and residential facilities and is capable of producing 14,458 acre feet of water per year (AFY) from its wells. Eight active wells and one standby well, averaging 235 feet deep, source groundwater from the Kings sub-basin. Here, the aquifer is recharged from the Kings River as well as snowmelt and runoff from the Sierra Nevada foothills. The City maintains storm water collection system and secondary effluent percolation basins, which increase the reliability of the City's water supply.

The City's current SCADA system relies on propeller flow meter and analog communication technologies to monitor flow rates and total volumes, utilizing EtherLogic SCADA equipment, for which technical support and replacement equipment are no longer available. The City has observed large discrepancies between measurements recorded by the current software system and those recorded at well heads, making it challenging for the City to accurately isolate leaks and monitor excessive usage. This outdated equipment has made effective water management in the City of Sanger difficult and has led to substantial water losses and a broadly unreliable water system. Implementation of the Project would allow the City of Sanger to more efficiently manage water resources, yielding both water and energy savings.

2. Alternatives Including the Proposed Action

This EA considers two possible actions: "No Action Alternative" and "Proposed Action". The No Action Alternative reflects future conditions without the Proposed Action and serves as a basis of comparison for determining potential effects to the environment.

2.1 No Action Alternative

Under a No Action Alternative, Reclamation would not award the City of Sanger $75,000 in WaterSMART grant funds for the Proposed Action. Although it is possible that The City could find alternate sources of funding for the Proposed Action, for purposes of this EA the consequences of Reclamation not providing funding for the Proposed Action would result in no upgrades to the SCADA system and the continued use of the existing system.

2.2 Proposed Action and Project

Under the Proposed Action Alternative, Reclamation would provide partial funding for the Project in the amount of $75,000 through a WaterSMART Small-scale Water Efficiency Program (SWEP) Grant. Reclamation's Proposed Action would help the City of Sanger conduct SCADA system upgrades to improve the accuracy, reliability, and efficiency of their system. The City of Sanger would install programmable logic controllers (PLCs), modern magnetic flow meters, and associated digital communications equipment in enclosed facilities at nine well sites throughout the City (Figures 3a-d).

At each site, current propeller flow meters, some of which are over 20 years old, would be removed and magnetic flow meters would be installed. Magnetic flow meters are modern pulse counters would measure water flow at each well more accurately and efficiently than the outdated propeller flow meters, that currently send incorrect readings to the SCADA system in place. Eight 10-inch magnetic flow meters would be installed at each of the operational well sites and one 8-inch magnetic flow meter would be installed at the standby well.

PLCs would also be installed at each of the nine sites to further automate the well systems. Measurements from the magnetic flow meter would be conveyed to the PLC-based SCADA system using digital communication systems at each well site. The well sites communicate with the main SCADA system at City Hall using electronic line-of-sight digital communication systems. The nine well sites each have a transmitter and receiver for two-way communication with City Hall. PLCs are modern, industrial computers that serve as automation controllers, and are known for their accuracy and reliability in outdoor settings and under harsh conditions. These PLCs and flow meters would be digitally linked to the SCADA system to allow the City to monitor well flow, pressure, chlorine, door alarm, and the on/off alarm and to control some operational aspects of the well from City Hall by logging into a VPN or LogMeIn system. The wells would be able to be shut down from City Hall or remotely with a compatible electronic device.

To minimize the effect on the community, these installations would take place following peak demand season, and would take approximately seven months to complete. Each well would be shut down individually for an estimated four hours to remove the old equipment and install the new. The City owns the well sites and has authority to issue the relevant necessary permits. No groundbreaking or new construction would occur at the well structures, only retrofitting of existing infrastructure and installation of electronic devices at fully-enclosed sites.

Figure 3. Project Location Sites

Figure 3a. Sample well site facility 1

Figure 3b. Sample well-site facility 2

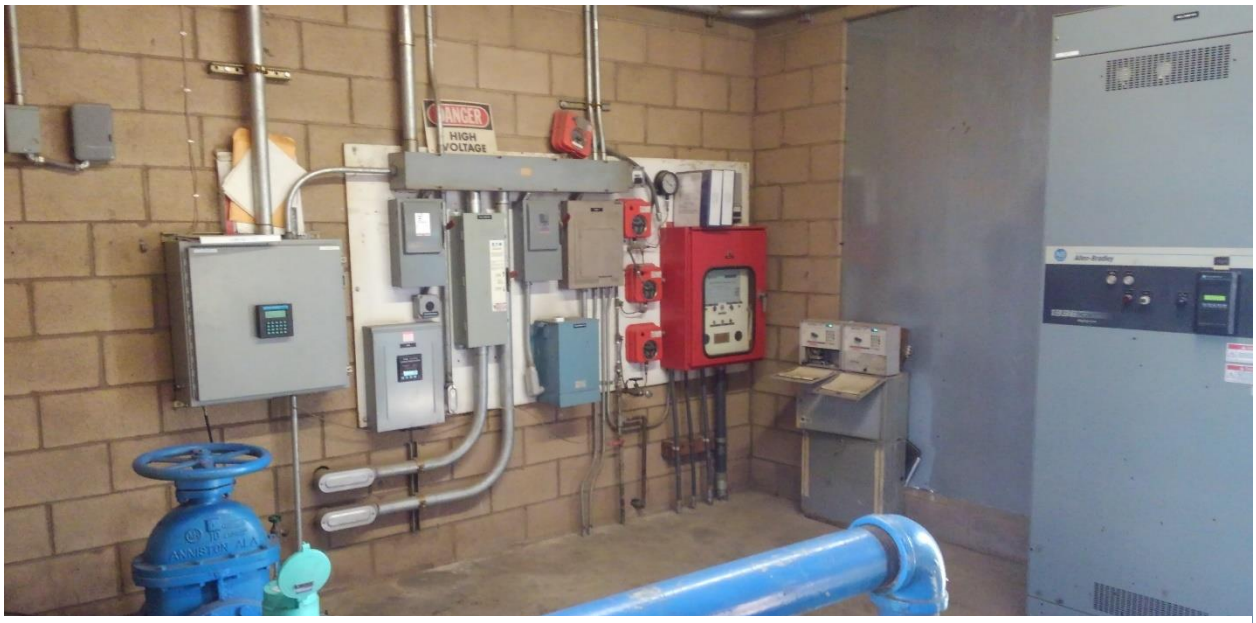


Figure 3c. Sample well-site facility interior, site of PLC installation

Figure 3d. Sample current propeller flow meters, to be retrofitted with magnetic flow meters

3. Environmental Consequences

3.1 Required Resource Discussions

Department of Interior Regulations, Executive Orders, and Reclamation guidelines require a discussion of Indian sacred sites, Indian Trust Assets, and Environmental Justice when preparing environmental documentation. Impacts to these resources were considered and found to be minor or absent. Brief explanations for their elimination from further consideration are provided below.

3.1.1 Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in property or rights held in trust by the U.S. for Indian Tribes or individual Indians. Indian reservations, Rancherias, and Public Domain Allotments are common ITAs in California. The nearest ITA is the public land allotment 50H S120, a parcel of land or real estate holding that may or may not be affiliated with a particular tribe or is in the process of being recorded, which is about 19 miles north of the project site. The Proposed Action does not have a potential to affect ITAs (Appendix A).

3.1.2 Indian Sacred Sites

Sacred sites are defined in Executive Order 13007 (May 24, 1996) as "any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site". This EO requires that federal agencies accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and avoids adversely affecting the physical integrity of such sacred sites. The Proposed Action would not be located on nor impact any federal lands and therefore would not affect access to or use of Indian sacred sites.

3.1.3 Environmental Justice

Executive Order 12898 requires each federal agency to identify and address disproportionately high and adverse human health or environmental effects, including social and economic effects of its program, policies, and activities on minority populations and low-income populations. No significant changes in nearby communities or practices would result from the Proposed Action. Implementing the Proposed Action is not likely to have adverse effects to any populations and implementing the Proposed Action would therefore not have disproportionately high or adverse human health or environmental effects on low-income or minority populations.

3.2 Environmental Consequences of the No Action Alternative

Under the No Action Alternative, Reclamation would not award the City of Sanger with a WaterSMART grant of $75,000. Although it is possible the City may find alternate sources of

funding for the Project, for the purposes of this EA, the consequences of Reclamation not undertaking the Proposed Action would result in the City being unable to implement the Project. Under this alternative, there would be no upgrades to the SCADA system and substantial water losses would continue. Here, as the current system would remain in place, there would be no change to the surrounding environment.

3.3 Environmental Consequences the Proposed Action

The proposed action includes the replacement of flow meters and communications equipment and the installation of PLCs, and does not require any construction or physical modification outside of existing developed facilities. As such, the project would have no effect on species in the project area. The installation and use of the new equipment would neither increase nor decrease current traffic, nor operations and maintenance activities at the well facilities. The proposed action would increase water management efficiency by providing real time data acquisition and timelier implementation of water management decisions. Having an accurate measurement of the flow level at each well would allow the City to isolate and reduce water losses. The City of Sanger does not anticipate any negative impacts to the surrounding environment, cultural resources, protected or endangered species.

Eliminating these substantial water losses would increase the efficiency and sustainability of the system, reducing the potential for groundwater over-drafting. The same quantities can be provided to consumers by pumping less water, conserving electricity, reducing wear on pumps and other equipment, and benefitting ratepayers by decreasing operation costs and therefore allowing a lower municipality utility charge. The City estimates that if just half of the present water losses are eliminated, over 80 million gallons of water per year (5% x 5,000 acre feet x 325,851 gallons per acre foot) would be conserved. Energy efficiency would also be improved, as less electricity would be required to pump these smaller quantities of water.

3.4 Cumulative Effects

According to CEQ regulations for implementing the procedural provisions of NEPA, a cumulative impact is defined as:

> the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

Because there would be no adverse effects associated with the Project, there are no cumulative effects to consider.

4. Consultation and Coordination

4.1 Agencies and Persons Consulted

Reclamation consulted and coordinated with The City of Sanger.

4.2 Endangered Species Act

Section 7 of the federal Endangered Species Act (ESA) (16 USC § 1531 et seq.) requires federal agencies, in consultation with the Secretary of the Interior, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of critical habitat for these species.

The Proposed Action and Project do not include ground disturbance or construction activities. It does not result in changes in operations and maintenance activities from current levels and occurs within existing developed facilities. Therefore, there would be no effect to Federally listed species or their critical habitat. Reclamation has determined consultation under Section 7 is not necessary.

4.3 National Historic Preservation Act

The National Historic Preservation Act of 1966, as amended (Title 54 USC § 306108.), requires that federal agencies give the Advisory Council on Historic Preservation an opportunity to comment on the effects of an undertaking on historic properties, properties that are eligible for inclusion in the National Register. The 36 CFR Part 800 regulations implement Section 106 of the National Historic Preservation Act.

Section 106 of the National Historic Preservation Act requires federal agencies to consider the effects of federal undertakings on historic properties and properties determined eligible for inclusion in the National Register. Compliance with Section 106 follows a series of steps that are designed to identify interested parties, determine the area of potential effects, conduct cultural resource inventories, determine if historic properties are present within the area of potential effects, and assess effects on any identified historic properties.

The activities associated with the Proposed Action and Project include no ground disturbance, no change in land use, and no change in the use of existing conveyance infrastructure. Reclamation has determined there would be no potential to affect historic properties pursuant to CFR 800.3 (a)(1) (Appendix B).

Appendix A Indian Trust Assets Compliance

Indian Trust Assets
Request Form

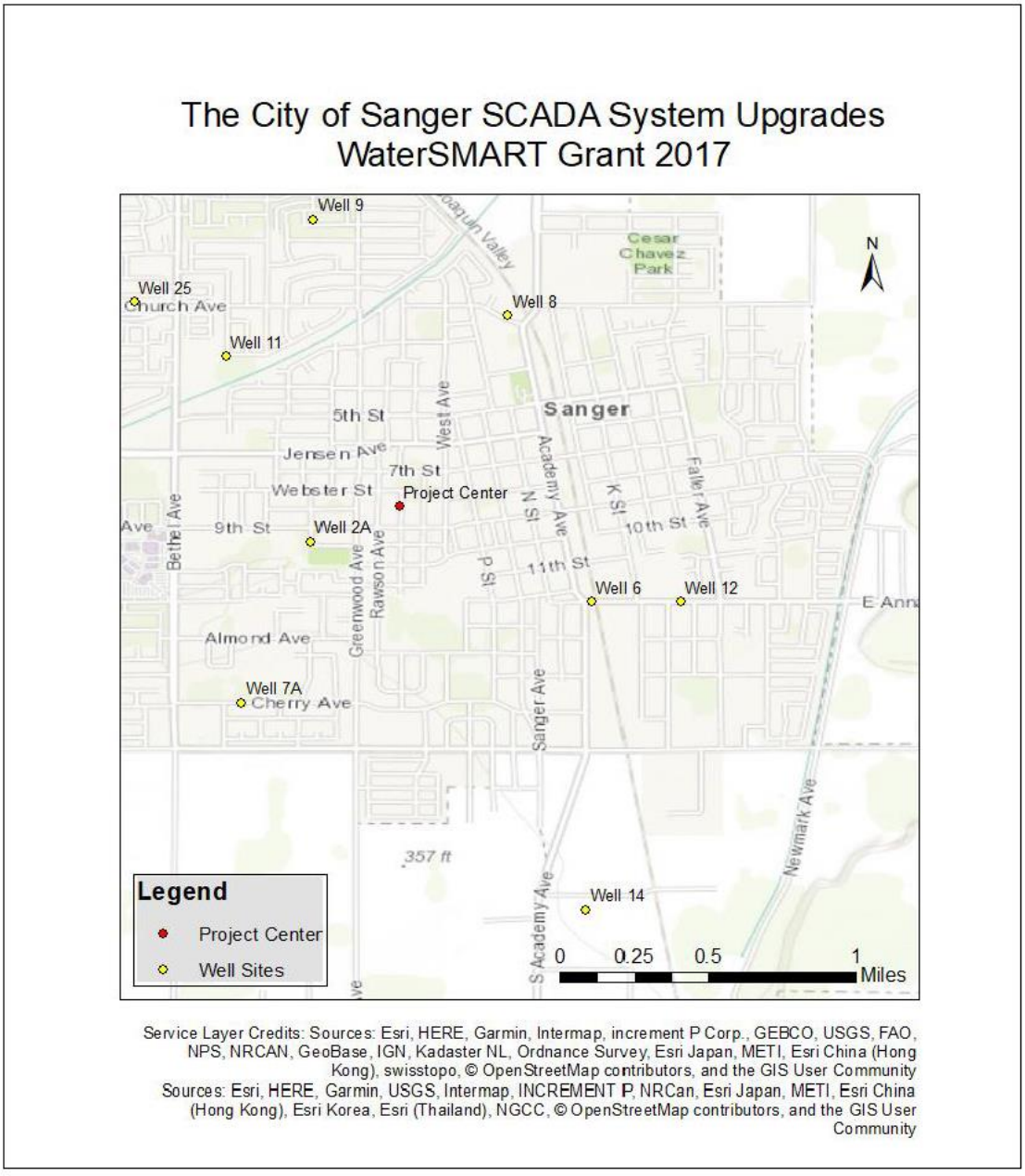
**Please send your request to: Kevin Clancy

Date:

Requested by	Katie Flahive, x5044
Fund	18XR0687NA
WBS	RX1852790.13000000
Cost Center	2015200
Region # (if other than MP)	MP
Project Name	City of Sanger SCADA System Upgrades for Accuracy, Efficiency, and Reliability
CEC or EA Number	18-16-MP
Project Description	Reclamation proposes to provide grant funding to The City of Sanger to improve its Supervisory Control and Data Acquisition system. To improve accuracy, efficiency, and reliability of their SCADA system, the City of Sanger will install programmable logic controllers, modern magnetic flow meters, and associated digital communications equipment in enclosed facilities at nine well sites throughout the City.
***Project Location (Township, Range, Section, e.g., T12 R5E S10, or XY cords)**	PLCs, flow meters, and digital communications equipment will be installed at nine well sites throughout the city (Figure 1, Table 1).

*Please include map with request, if available

Figure 1. Project location



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25	2910 Church Ave	36.714176	-119.5762626
Project Center		**36.70419929**	**-119.5632808**

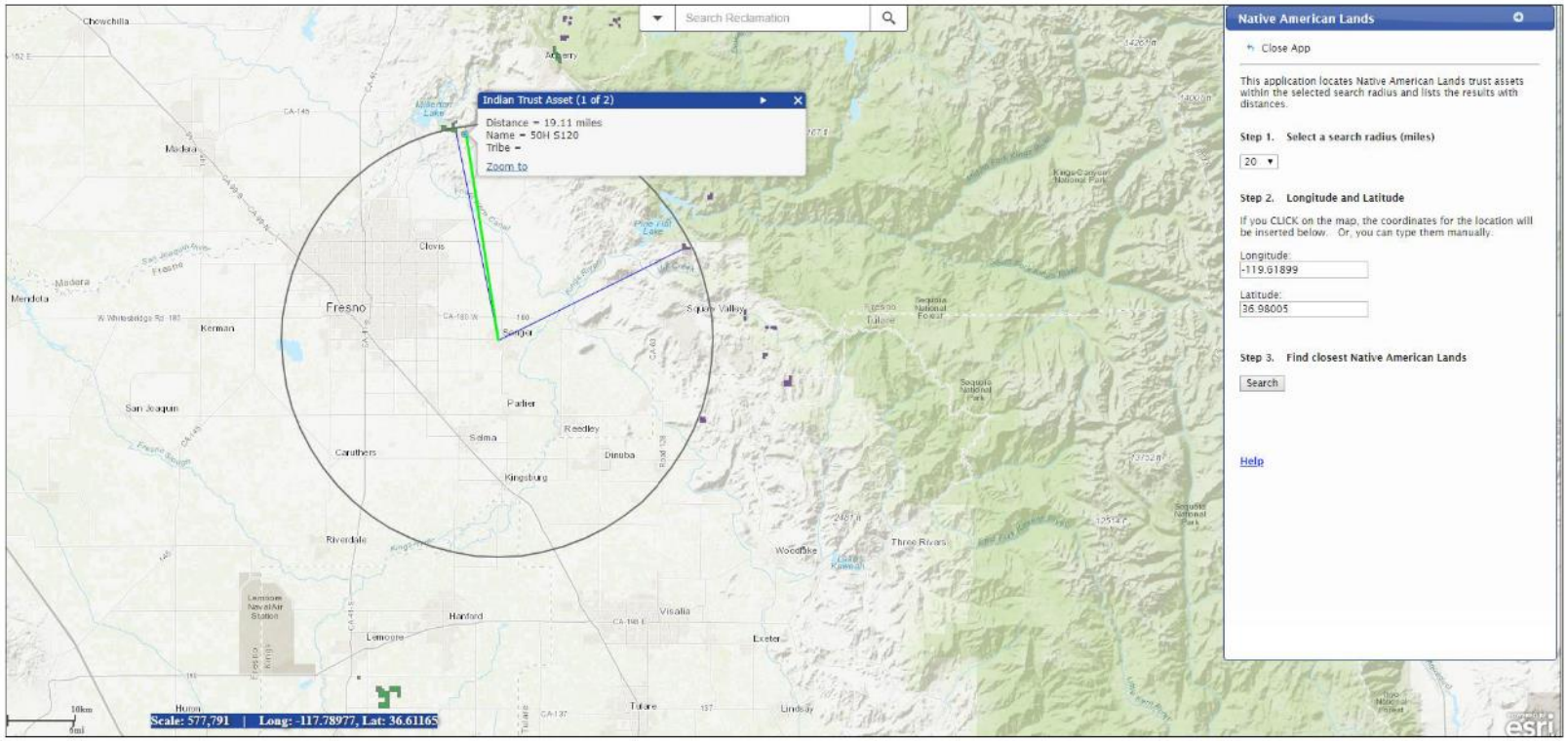
Kaitlin Flahive	**Kaitlin Flahive**	**03/08/2018**
Signature	Printed name of preparer	Date

ITA Determination:

The closest ITA to the Proposed Action is public land allotment 50H S120 (a parcel of land or real estate holding, that may or may not be affiliated with a particular tribe or is in the process of being recorded) which is about 19 miles north of the project site. (See attached image).

Based on the nature of the planned work it does not appear to be in an area that will impact Indian hunting or fishing resources or water rights nor is the proposed activity on actual Indian lands. It is reasonable to assume that the proposed action will not have any impacts on ITAs.

K. Clancy	Kevin Clancy	3/09/2018
Signature	Printed name of approver	Date


Search Reclamation
Indian Trust Asset (1 of 2)
Distance = 19.11 miles
Name = 50H S120
Tribe =
Zoom to
Native American Lands
Close App
This application locates Native American Lands trust assets within the selected search radius and lists the results with distances.
Step 1. Select a search radius (miles)
20
Step 2. Longitude and Latitude
If you CLICK on the map, the coordinates for the location will be inserted below. Or, you can type them manually.
Longitude:
-119.61899
Latitude:
36.98005
Step 3. Find closest Native American Lands
Search
Help
Fresno
Clovis
Sanger
Reedley
Parlier
Selma
Kingsburg
Dinuba
Riverdale
Visalia
Tulare
Hanford
Lemoore
Exeter
Woodlake
Three Rivers
Scale: 577,791 | Long: -117.78977, Lat: 36.61165

Appendix B Cultural Resources Compliance

CULTURAL RESOURCES COMPLIANCE
Division of Environmental Affairs
Cultural Resources Branch (MP-153)

MP-153 Tracking Number: 17-SCAO-201.001

Project Name: City of Sanger SCADA System Upgrades for Accuracy, Efficiency, and Reliability Grant Project

NEPA Document: E-18-16-MP

NEPA Contact: Katie Flahive, Natural Resources Specialist

MP-153 Cultural Resources Reviewer: BranDee Bruce, Architectural Historian

Date: April 5, 2018

Reclamation proposes to provide partial funding to the City of Sanger to conduct SCADA system upgrades to improve the accuracy, reliability, and efficiency of their system. Programmable logic controllers (PLCs), modern magnetic flow meters, and associated digital communications equipment are proposed for installation in existing enclosed facilities at nine well sites throughout the City. No ground disturbance or new construction will occur as a result of the proposed action, only the installation of electronic devices on existing wells.

Reclamation has determined the expenditure of Federal funds for the SCADA system is the type of activity that does not have the potential to cause effects on historic properties pursuant to 36 CFR § 800.3(a)(1). As such, Reclamation has no further obligations under Title 54 U.S.C. § 306108, commonly known as Section 106 of the National Historic Preservation Act (NHPA). The proposed action will not have significant impacts on properties listed or eligible for listing in the in the National Register of Historic Places.

This document conveys the completion of the cultural resources review and Section 106 process for this undertaking. Please retain a copy with the administrative record for this action. Should the proposed action change, additional review under Section 106, possibly including consultation with the State Historic Preservation Officer, may be required.