



City of Biggs

Agenda Item for the
Next regular City Council Meeting
December 9, 2014 at 6:30pm

**To: Honorable Mayor
And Members of the City Council**

Date: December 4, 2014

From: Brian Martin, PE – City Engineer

Subject: Proposal for City Mapping Services for Discussion and Direction

Background

The City's water, sewer, storm drainage and electrical system maps have not been updated in many years and do not reflect the many changes and additions to the City's infrastructure facilities that have taken place in past years.

The purpose of updating these facility maps is to maintain accurate information on the location and nature of facilities for use by the City's operations and maintenance staff, administration and management staff, and by the community and design consultants for ongoing planning, operation, and maintenance. The level of detail in a system map can range from one (large size) wall exhibit to a detailed, interactive, live/active map. The level of effort necessary to complete a system map will also vary dependent on the desired end-product and its use. Striking the right balance between the cost and detail of system maps is a discretionary decision for the City staff and officials, and should be based on the anticipated use (benefit) of the information and deliverables.

A proposal to prepare City System Maps has been prepared by Bennett Engineering Services and is attached for reference. This proposal was discussed at the last Public Works Committee Meeting. At that time the proposal did not include storm drainage facilities or electrical system facilities. The Public Works Committee asked that the proposal be modified to include storm drainage and electrical facilities. The attached proposal includes those facilities.

It is the intent that this item be a discussion and direction item. There are different ways to address the facilities mapping in the City and it is probably best to consider all options including a phased approach.

**Utility System Maps
for
City of Biggs, CA**



TRUSTED ENGINEERING ADVISORS

Bennett Engineering Services
1082 Sunrise Avenue, Suite 100
Roseville, California 95661

T 916.783.4100

F 916.783.4110

www.ben-en.com

Date: December 01, 2014

Proposal #p11-416-08

Prepared for: Mark Sorensen, City Administrator
Brian Martin, City Engineer

Prepared by: Matthew J. Wheeler, P.E., Bennett Engineering Services, Inc.

PROPOSAL

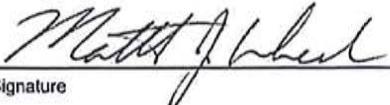
Bennett Engineering Services (BEN|EN) appreciates the opportunity to provide technical consulting engineering support to the City of Biggs for planning, permitting, operation, and maintenance needs related to the City's utility systems. We understand the City desires to update its water distribution, sewer collection, storm drain conveyance, and electrical facilities maps.

The purpose of updating facility maps is to maintain accurate information on the location and nature of facilities for use by system operators, administration and management, and by the community and design consultants for ongoing planning, operation, and maintenance. The level of detail in a system map can range from one (large size) wall exhibit to a detailed, interactive, live/active map. The level of effort necessary to complete a system map will also vary dependent on the desired end-product and its use. Striking the right balance between the cost and detail of a system map is a discretionary decision for the City staff and officials, and should be based on the anticipated use (benefit) of the information and deliverables.

At the request of City staff, we have prepared this proposed scope of work (attached) to update the City's base maps for these utilities, and (if desired) prepare Book Atlas Facility Maps for selected infrastructure. Our team of engineers and drafters are ready to begin this work immediately. We will coordinate closely with City staff to establish a desired schedule for field reconnaissance and completing the maps and/or book atlas.

Please contact Matt Wheeler at 916-771-6158 or MWheeler@ben-en.com with questions or to discuss. Thank you,

BENNETT ENGINEERING SERVICES, INC.

 12-01-2014
Signature Date

Matthew J. Wheeler, P.E.
Printed Name

Project Director
Title

Attachments: Exhibit A – Scope of Services
Exhibit B – 2014 Billing Rate Sheet

EXHIBIT A: Scope of Services

To AGREEMENT BETWEEN CLIENT AND CONSULTANT

Client: City of Biggs
Consultant: Bennett Engineering Services Inc
Project: City Utility System Maps p11-146-08
Date: December 01, 2014



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TASK 1. Basic Wall-Mount Facility Maps

Update existing City mapping of water distribution, sewer collection, electrical system, and/or storm drainage utilities in AutoCAD using current available (electronic and hard-copy printed) information on constructed infrastructure. Level of detail to include plan-view mainline locations for infrastructure such as: pipelines, manholes, valves, fire hydrants, power/light poles, transformers, drain inlets, ditches, and air release valves. Plot plan will be produced at 200-scale and include legend symbols and/or label call-outs for: pipe size, valves, manholes, and hydrants.

Task Option 1.1. Sewer Utility System Map Update

Deliverable: Electronic (CAD and .pdf) files and wall-mount size plot of entire City sewer utility system map on street overlay.

Task Option 1.2. Sewer and Water Utilities Map Update

Deliverable: Electronic (CAD and .pdf) files and wall-mount size plots of entire City utility system map for two utilities on street overlay.

Task Option 1.3. Sewer, Water, and Electrical System Map Update

Deliverable: Electronic (CAD and .pdf) files and wall-mount size plots of entire City utility system map for three utilities on street overlay.

Task Option 1.4. Sewer, Water, Electrical, and Storm Drain System Map Update

Deliverable: Electronic (CAD and .pdf) files and wall-mount size plots of entire City utility system map for all four utilities on street overlay.

Assumptions:

- This task assumes electronic files available in AutoCAD format from City of Biggs USDA Waterline Rehabilitation Project (2006 by CEC) and North Biggs Estates Subdivision Project (2009 by McCain Associates) for use as base drawings.
- City records available which include additional utilities (electronic or hard-copy files) to be added to BEN|EN electronic files for utility system map update.
- No field surveying will be necessary to complete mapping effort for this task level.
- Electrical facilities system information (location and descriptions) would be gathered by others and made available to BEN|EN for inclusion in base map.

TASK 2. Book Atlas System for Facility Maps

Using information and CAD files produced during Task 1.0, BEN|EN will prepare and assemble a Book Atlas for the City's system utilities. Book atlas will include a key map and drawings printed on 11x17 sheets for binding and reproduction. Book atlas sheets will be drawn to 20-scale or better.

INITIALS:

Task Option 2.1. Sewer Utility Atlas Book

Deliverable: Electronic (CAD and .pdf) files and three (3) hard copy sets of single (sewer) utility system book atlas. Wall-mount facility map also included.

Task Option 2.2. Sewer and Water Utilities Atlas Books

Deliverable: Electronic (CAD and .pdf) files and three (3) hard copy sets of two (sewer and water) utility systems atlas books. Wall-mount facility maps also included.

Task Option 2.3. Sewer, Water, and Electrical Utilities Atlas Books

Deliverable: Electronic (CAD and .pdf) files and three (3) hard copy sets of three (sewer, water, and electrical) utility systems atlas books. Wall-mount facility maps also included.

Task Option 2.4. Sewer, Water, Electrical, and Storm Drain Utilities Atlas Books

Deliverable: Electronic (CAD and .pdf) files and three (3) hard copy sets of all four (sewer, water, electrical, and storm drain) utility systems atlas books. Wall-mount facility maps also included.

TASK 3. System Inventory

BEN|EN will develop an inventory numbering system for pipelines, valves, manholes, catch basins, ditches, and fire hydrants for identification and tracking. This effort will include development of an inventory numbering system and tables on the utility atlas sheets as well as generating a system inventory spreadsheet to include in the appendix of the system atlas. Information (where available) to be populated in the system inventory tables and spreadsheet include: Age, Diameter, Length, Material, Depth, Inverts, Last inspection date, and Field notes.

Task Option 3.1. System Inventory for Sewer Utility

Deliverable: Inventory tables added to sheets for sewer utility system atlas, and separate inventory spreadsheet for City utility staff use.

Task Option 3.2. System Inventory for Both Sewer and Water Utilities

Deliverable: Inventory tables added to sheets for (both) sewer and water utility system atlas books, and separate inventory spreadsheets for City utility staff use.

Task Option 3.3. System Inventory for Sewer, Water, and Storm Drain Utilities

Deliverable: Inventory tables added to sheets for (all three) sewer, water and storm drain utility system atlas books, and separate inventory spreadsheets for City utility staff use.

Assumptions:

- This task assumes record data and field notes available for compilation into system atlas inventory tables and spreadsheets.
- This task assumes no current inventory naming convention in use for City sewer, water, or storm drain facilities.
- Electrical facilities system inventory will be prepared by City staff

TASK 4. System Infrastructure Detail and Condition Assessment – Additive Tasks

Task options are independent. Select either or both.

Task Option 4.1. Field Surveying

BEN|EN will conduct field surveying of existing sewer and/or storm drain infrastructure system where information not currently available on record drawings. Survey information to be gathered will include: manhole rim elevations, pipe invert elevations,

INITIALS:

horizontal locations. Information will be added to CAD base maps and inventory tables on sewer system book atlas.

Task Option 4.2. Condition Assessment

BEN|EN will review current sewer and/or storm drain system inspection and field observation data (provided by City staff) and assess infrastructure condition for individual pipe/manhole elements. Condition assessment information will be added to inventory tables on sewer system and/or storm drain system book atlas.

Fee Estimate

The fee estimate for work performed under this Work Scope is dependent on the Tasks and Additive Task Options selected for this agreement. The fee estimate for each level of effort is summarized below (select one):

| | | |
|-------------------|--------------------------|------------|
| Option 1A | Task 1.1 | \$ 3,300 |
| Option 1B | Task 1.2 | \$ 5,100 |
| Option 1C | Task 1.3 | \$ 7,100 |
| Option 1D | Task 1.4 | \$ 8,500 |
| Option 2A | Task 2.1 | \$ 43,000 |
| Option 2B | Task 2.2 | \$ 65,000 |
| Option 2C | Task 2.3 | \$ 79,000 |
| Option 2D | Task 2.4 | \$ 97,000 |
| Option 3A | Tasks 2.1 and 3.1 | \$ 62,000 |
| Option 3B | Tasks 2.2 and 3.2 | \$ 90,000 |
| Option 3C | Tasks 2.3 and 3.2 | \$ 104,000 |
| Option 3D | Tasks 2.4 and 3.3 | \$ 126,000 |
| Additional | Task 4.1 – Additive Task | \$ TBD |
| Additional | Task 4.2 – Additive Task | \$ TBD |

INITIALS:

BENNETT ENGINEERING SERVICES

Rate Schedule | 2014

Professional Staff

| <i>Professional Staff</i> | <i>Hourly Rate</i> | <i>Professional Staff</i> | <i>Hourly Rate</i> |
|----------------------------------|--------------------|------------------------------------|--------------------|
| Principal Engineer | \$188 | Designer IV | \$140 |
| Project Manager IV | \$175 | Designer III..... | \$125 |
| Project Manager III..... | \$162 | Designer II..... | \$115 |
| Project Manager II..... | \$155 | Designer I..... | \$105 |
| Project Manager I..... | \$148 | CAD Tech IV | \$120 |
| Engineer VI..... | \$168 | CAD Tech III | \$110 |
| Engineer V | \$160 | CAD Tech II | \$100 |
| Engineer IV | \$152 | CAD Tech I | \$90 |
| Engineer III | \$145 | Inspector III..... | \$130 |
| Engineer II | \$137 | Inspector II..... | \$120 |
| Engineer I | \$125 | Inspector I..... | \$105 |
| City Engineering Consultant..... | \$125 | Administrative | \$65 |
| Engineering Tech IV | \$125 | Engineering Intern..... | \$60 |
| Engineering Tech III..... | \$115 | Special Technical Consultant | \$150 |
| Engineering Tech II..... | \$105 | Expert Witness..... | \$375 |
| Engineering Tech I..... | \$95 | | |

Additional Rate Information

- ▶ Direct expenses (including, but not limited to, mileage, reproduction, postage, online assessor mapping fees, etc.) & subconsultant costs will be billed at cost plus fifteen percent (15%).
- ▶ Standard hourly rates do not apply to a demand to perform work during an overtime period.
- ▶ Hourly rates include all compensation for wages, salary-related benefits, overhead, general office administration, and profit.
- ▶ Direct project administrative hours will be billed at the rate shown above.
- ▶ These rates are subject to change with thirty (30) days notice.