

AN ORDINANCE OF THE CITY OF OSAGE BEACH, MISSOURI, AUTHORIZING THE MAYOR TO EXECUTE ECC QUOTE #220406FVC021R1 FROM ELECTRICAL CONTROL COMPANY (ECC) FOR SERVICES AND EQUIPMENT FOR THE REPLACEMENT OF THE SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) SYSTEM AT A NOT TO EXCEED COST OF \$142,277.00.

NOW THEREFORE, BE IT ORDAINED BY THE BOARD OF ALDERMEN OF THE CITY OF OSAGE BEACH, MISSOURI, AS FOLLOWS, TO WIT:

Section 1. The Board of Aldermen authorizes the purchase for services and equipment for the replacement of the Supervisory Control and Data Acquisition (SCADA) system as substantially the same terms and conditions as set out in the attached quotation ("Exhibit A").

Section 2. Total expenditures or liability authorized under this Ordinance shall not exceed One Hundred Forty-Two Thousand and Two Hundred Seventy-Seven Dollars. (\$142,277.00)

Section 3. The City Administrator is hereby authorized to take such further actions as are necessary to carry out the intent of this Ordinance.

Section 3. This Ordinance shall be in full force and effect from date of passage and approval by the Mayor.

READ FIRST TIME: April 21, 2022 READ SECOND TIME: April 21, 2022

I hereby certify that the above Ordinance No. 22.27 was duly passed on April 21, 2022 by the Board of Aldermen of the City of Osage Beach. The votes thereon were as follows:

Ayes: 6 Nays: 0 Abstentions: 0 Absent: 0

This Ordinance is hereby transmitted to the Mayor for his signature.

April 21, 2022  
Date

Tara Berreth  
Tara Berreth, City Clerk

Approved as to form:

Edward B. Rucker  
Edward B. Rucker, City Attorney

I hereby approve Ordinance No. 22.27.

April 21, 2022  
Date

Michael Harmison  
Michael Harmison, Mayor

ATTEST:

Tara Berreth  
Tara Berreth, City Clerk



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April 6, 2021

City of Osage Beach  
5757 Chapel Drive  
Osage Beach, MO 65065

Attn: Mr. Kevin Crooks

Project Name: SCADA Modifications  
Osage Beach, MO

Re: SCADA Computer Upgrade

ECC Quote #: 220406FVC02R1

Dear Mr. Crooks,

Per your request, Electric Controls Company, Inc. is pleased to provide the following scope of work for your consideration:

## **1 Office Central SCADA Computer**

### **1.1 Current System**

ECC is currently under contract with the City to provide TopView alarm dialer software on a City-supplied computer, which would be networked to and receive information from the existing SCADA computer. This project is detailed in ECC quotation #211227FVC01 dated 12/27/21.

It is my understanding that the existing SCADA computer is approx. 8 - 10 years old, has Windows Server operating system, and is running Wonderware Human-Machine Interface (HMI) software. We have found out that the existing server has 5 client licenses on it, so it could have networked computers connected to it (although none of them are being used at this time).

I have been informed that the SCADA computer is no longer reliable, hence your request for this quotation. Therefore, we recently (3/14/22) tried stopping the existing WIN911 alarm dialer software (currently running on the SCADA server computer) to see if that would improve reliability of the SCADA computer. That did well for about a day and a half, but then started having issues again.

We then planned on upgrading the existing Wonderware HMI software, and staying with all existing screens. We were informed that it may be possible to upgrade the existing Wonderware (software provider) with a free "patch", which would allow the existing Wonderware HMI software to be upgraded to run on a Windows 10 personal computer. When we provided the serial # for the existing Wonderware software to the provider, we were informed that your version could not be upgraded with the free "patch".

### **1.2 Proposed System**

When we discussed the option of upgrading the existing Wonderware software vs moving to the iFIX software, you indicated you were dissatisfied with the existing screens, and would like the screens to be modified to be more intuitively obvious and easier to navigate. You also wanted to be able to have

**Challenged to Excel  
Recognized for Achievement**

more functionality, such as report generation, as well as added networking capability. The existing Wonderware HMI license is for a Runtime only (no development can be done on it, without an upgraded/more expensive software license). For these reasons, I am recommending that ECC provide iFIX HMI software on a City-provided Windows 10 PC.

ECC is currently in possession of the Windows 10 personal computer that the City provided for ECC to install TopView alarm dialer software on. As discussed in our meeting at your office in late October, the existing SCADA server computer will no longer be required, and the new SCADA computer would have the HMI software on it, as well as the TopView alarm dialer software.

This proposal includes ECC providing and installing new iFIX software on the new SCADA computer (that the dialer software is being installed on), and providing updated/ revised HMI screens/trending screens, and connecting to the existing two Allen-Bradley PLC's at the office. I have included client computers as well.

### 1.3 Equipment/Services Provided by Electric Controls Company

#### (1) Central SCADA Computer HMI Software

Includes:

- A) HMI Software: Intellution iFIX Plus SCADA Pak Unlimited tag count Development software, with communications driver (for SCADA computer to communicate with (2) existing Allen-Bradley PLC's at the office)
- B) Historian Software: iHistorian Essential 1000 point software installed on SCADA computer (this software provides trending of various tags/information in chart (value vs time) format)
- C) Remote Access Software: Tight VNC for SCADA computer and/or other remote access devices (notebook computer/tablet/cell phone) OR Internet explorer for SCADA computer (which can access website such as LogMeIn – internet service/website provided by others)
- D) Programming of water screens
  - 1) Swiss Village tank and 3 wells
  - 2) Bluff Drive tank and well
  - 3) Columbia College tank and 2 wells
- E) Programming of approximately 40 – 50 lift station screens
- F) Engineering services for design, software installation, SCADA Computer programming, testing, startup, training, for equipment provided by ECC for this site
- G) Software does not include iFIX programming support (annual fee). ECC typically does not provide this option, as our customers typically rely on the systems integrator to program the software. This option typically adds approx. \$1,500.00 - \$2500.00 to the cost. ECC promotes the education of our customers, so they can be more self-sufficient, and will gladly provide training at additional cost, if desired.

Designation:

- A) Central SCADA Computer HMI Software

Notes:

- A) Price does not include anti-virus/malware software/protection. This software/service to be provided, installed, and maintained by the City.
- B) This section does not include spreadsheet/report generation software.
- C) The SCADA computer could communicate with future devices, such as a Motorola central SCADA unit, at such point as that may be added. Pricing for this option would be added at the time of added functionality.

- D) All existing data points in the SCADA computer would be programmed in the new HMI software. Price does not include new points not currently in the SCADA computer, although this can be added in the future.
- E) Price does not include static IP/network address/router/internet service/VPN/website to facilitate remote SCADA computer interface via remote connection software.

(1) SCADA Computer Spreadsheet Software

Includes:

- A) Spreadsheet Software: Intellution iHistorian and Excel Add-in software.  
Note: Spreadsheet software package writes data to spreadsheet, but does not allow user to prepare user-configurable "reports" from the data without manipulating data in the spreadsheet
- B) Engineering services for design, software installation, SCADA operation manual, SCADA Computer programming, testing, startup, training, for equipment provided by ECC for this site

Designation:

- A) Central SCADA Computer Spreadsheet Software

Notes:

- A) Spreadsheet:
  - i. Software programming to be performed/completed after SCADA computer has been installed and Owner has successfully manually filled out spreadsheets/reports.
  - ii. Owner to provide ECC with spreadsheet that is currently being filled out.
- B) Includes ECC in-house engineering time of 24 hours, and on-site time of 16 hours. Additional time required for report generation is at additional cost to the scope of work, at rates per ECC's Service Contract schedule of prices which can be provided upon request.
- C) Price does not include Microsoft Excel software. This to be provided by the City.

**1.4 Equipment/Services Provided by City**

- 1) Provide Microsoft Excel software, if required.

**2 Client SCADA Computer**

**2.1 Description**

Client computers could be used to provide operators access to SCADA computer information. This section provides for this software to be provided by ECC and installed on City-provided computers. Client computers can be added at a later date, if desired. The client software package would be a runtime (not development), as all development would take place on the SCADA computer. Per our discussion, the SCADA software package above can easily accommodate 4 client computers as provided.

## 2.2 Equipment/Services Provided by Electric Controls Company

### (4) Client SCADA Computer HMI Software

Includes:

- A) HMI Software: Intellution iFIX iClient runtime software (for remote connection to the central SCADA computer).
- B) Engineering services for design, software installation, SCADA Computer programming, testing, startup, training, for equipment provided by ECC for this site

Designation:

- A) Client SCADA Computer 1
- B) Client SCADA Computer 2
- C) Client SCADA Computer 3
- D) Client SCADA Computer 4

Notes:

- A) Price does not include networking/media between computers. This would be provided by the City. ECC would then program the computers with the client HMI software.
- B) Price does not include static IP/network address/router/internet service/VPN/website to facilitate remote SCADA computer interface via remote connection software.

## 2.3 Equipment/Services Provided by City

- 1) Provide networking/media between computers.
- 2) Provide static IP/network address/router/internet service/VPN/website to facilitate remote SCADA computer interface via remote connection software.

## 3 Central SCADA Unit

### 3.1 Description

A new Motorola ACE central SCADA unit would be provided at the office. This unit is in addition to, not in place of, the existing Allen-Bradley central PLC's. The Motorola central SCADA unit would communicate with new Motorola remote SCADA units (at various sites – see below). The Motorola SCADA units would not communicate with existing Allen-Bradley PLC's (although they can be programmed to do so, if required, at additional cost). The Motorola central SCADA unit can accommodate 30 freshwater sites and 96 wastewater sites (all remote sites would require a Motorola SCADA unit) without expansion. More information can be provided on the Motorola SCADA system if desired.

The SCADA computer would communicate with the new Motorola central SCADA unit to provide operator monitoring and control for the Motorola sites.

### 3.2 Equipment/Services Provided by Electric Controls Company

#### (1) Control Panel

Incoming Power: ~15 A, 120 VAC, 1-Phase, 2 wire

Enclosure: NEMA 12 wall-mount enclosure

- Constructed of mild steel painted ANSI 61 grey or beige
- With painted steel subpanel

Includes:

- A) 120 vac power filter
- B) Motorola ACE RTU/PLC (with UHF or VHF radio and coaxial surge suppressor)
- C) Coaxial cable, coaxial connectors, UHF or VHF antenna (assembly by ECC and installation by others on building roof/gable)
- D) Frequency coordination with FCC for UHF or VHF frequency license
- E) Engineering services for panel design, panel testing, software installation, SCADA/PLC operation manual, SCADA Unit/SCADA Computer programming, testing, startup, training, for equipment provided by ECC for this site

Designation:

- A) Central Motorola SCADA Unit

Notes:

- A) Price does not include installation. Panel provided for installation/wiring by City.

(1) Lot Spare Parts as follows

Includes:

- (1) SCADA Unit Radio (interchangeable with other Motorola ACE SCADA units)
- (1) SCADA Unit Power Supply (interchangeable with other Motorola ACE SCADA units)
- (1) SCADA Unit CPU (Central Processing Unit) (interchangeable with other Motorola ACE SCADA units)
- (1) SCADA Unit Input and Output card for each type provided by ECC in this scope of work (interchangeable with other Motorola ACE SCADA units)

Notes:

- A) Motorola ACE SCADA unit spare parts are interchangeable with other Motorola ACE SCADA units

### 3.3 Equipment/Services Provided by City

- 1) Install SCADA panel in building.
- 2) Provide and connect 120 vac power to panel.
- 3) Install and connect coaxial cable between panel and antenna on building roof.
- 4) Install antenna on building roof.
- 5) Run ethernet cable between panel and SCADA computer.

## 4 Passover Tank/Well Remote Site

### 4.1 Current System

This site does not currently have a SCADA unit. It does have a chlorine analyzer, but it is non-functional. The well is some distance from the tank. There is a water line run from the tank to the well, so the well can have a pressure transmitter to read tank level. A flow meter exists.

### 4.2 Proposed System

ECC would provide a new Motorola SCADA Remote Terminal Unit (RTU) at this site, which would communicate with the new Motorola Central SCADA unit in above section. ECC would also provide a new pressure transmitter with display, for installation in the well building.

A selector switch on the side of the SCADA control panel would be provided to allow operators to enter the building and reset the intrusion alarm within ~60 seconds to stop the intrusion switch from alarming at the SCADA computer when entering or leaving the building. This logic would be programmed in the local SCADA unit. Additionally, the operator could inhibit the alarm while in the station with the door open. Switch position would also be in the SCADA computer, and alarm if the switch is in the Inhibit position.

This RTU would provide primary control of the local well based upon pumping up the Passover Tank..

#### 4.3 Equipment/Services Provided by Electric Controls Company

(1) Control Panel

Incoming Power: ~15 A, 120 VAC, 1-Phase, 2 wire

Panel to Monitor: I/O as listed below

Panel to Control:

- A) (1) Well pump via contact closure output to remote existing motor starter/pump control panel

Enclosure: NEMA 12 wall-mount enclosure

- Constructed of mild steel painted ANSI 61 grey
- With painted steel subpanel

Includes:

- A) 120 vac power filter
- B) Motorola ACE RTU/PLC (with UHF or VHF radio and coaxial surge suppressor) connected to SCADA monitored/controlled points
- C) Coaxial cable, coaxial connectors, UHF or VHF antenna (assembly by ECC and installation by others on building exterior)
- D) Frequency coordination with FCC for UHF or VHF frequency license
- E) Engineering services for panel design, panel testing, software installation, SCADA/PLC operation manual, SCADA Unit/SCADA Computer programming, testing, startup, training, for equipment provided by ECC for this site

Designation:

- A) SCADA Control Panel

Notes:

- A) Price does not include installation. Control panel and other equipment provided for installation/wiring on project site by City.
- B) Price does not include antenna mount/mast/support structure/clamps (conduit) - to be provided and installed by City.

#### *Motorola ACE Input/Output Connections*

##### Digital Inputs

1. Intrusion (new door switch provided by ECC for building door)
2. Intrusion alarm inhibit selector switch in "Inhibit" position (new switch by ECC installed on side of SCADA panel).
3. Phase fault (if it exists in pump control panel)
4. Pump panel selector switch in Auto (new contact provided by ECC – installed on existing switch)
5. Pump run indication (from existing contact on existing motor starter)
6. Pump starter fault indication (from existing contact on motor starter)
7. Building low temperature (new thermostat provided on side of SCADA panel)

Analog Inputs

1. Elevated tank level (new transmitter provided by ECC, installed by City)
2. Flow (existing transmitter w/ 4 – 20 ma signal output)
3. Chlorine residual (new transmitter provided by ECC, installed by City)

Digital Outputs

1. Well pump demand (to existing well pump panel)

Analog Outputs

1. None

(1) Pressure Transmitter

Manufacturer: Siemens

Includes:

- A) Transmitter with block/bleed valve.
- B) Factory mounting bracket ("L" bracket)
- C) Lot engineering services for configuration and startup of transmitter

Designation:

- A) Elevated Tank Level

Notes:

- A) Price does not include equipment installation or pipe tap/corp stop/process connection. All equipment is provided for installation by others, unless otherwise indicated in this section.
- B) Price does not include custom mounting bracket/hardware/seal, if required.
- C) Price does not include conduit/shielded cable for 4 – 20 ma signal between transmitter and display/control device.

(1) Chlorine Analyzer

Manufacturer: Wallace and Tiernan

Includes:

- A) Analyzer to measure free OR total chlorine (specify at time of order)
- B) CL2 electrolyte/reagent
- C) Lot engineering services for programming and startup of chlorine monitor

Designation:

- A) Chlorine Analyzer

Notes:

- A) Analyzer requires 120 vac power
- B) Analyzer provides 4 – 20 ma signal to SCADA panel.
- C) Price does not include pipe tap/corp stop/process connection – to be connected by others.
- D) Analyzer requires process supply and drain to be connected by others
- E) Price does not include shielded cable for 4 – 20 ma signal between transmitter and display/control device.
- F) All equipment is provided for installation by others, unless otherwise indicated in this section.

**4.4 Equipment/Services Provided by City**

- 1) Install SCADA panel in building.
- 2) Provide and connect 120 vac power to panel.
- 3) Install and connect coaxial cable between panel and antenna on building side/gable.



- 4) Install antenna on building side/gable.
- 5) Provide, install, and wire all equipment connected to the SCADA panel, unless otherwise indicated above in the I/O section.

## **5 Columbia Tank and Wells**

### **5.1 Current System**

Columbia tower has a PLC. The (2) wells which it connects to do not have a PLC. There is a 9 pair copper stranded wire cable which connects the two wells to the PLC at the tank via hard-wire connection (contact closure for well demand/well run indication).

Columbia Well (small) has had its cable severed at some point in the past, and only runs in manual from the local well panel selector switch. Columbia Well (large), still has functioning copper cable.

### **5.2 Proposed System**

ECC would provide engineering services to troubleshoot the wiring issue. A new wire may need to be installed, or additional equipment may need to be put in place for short-haul wireless telemetry between these two sites. Information not currently connected would likely not be available on the SCADA system (such as well flow). Information not currently connected to the SCADA system could be added at additional cost to this or future SCADA system modifications.

### **5.3 Equipment/Services Provided by Electric Controls Company**

- (1) Lot "On-Site" Engineering /Services (at the project site)

Includes:

- A) Engineering services for troubleshooting communications functionality at these sites to facilitate/restore communication and automatic operation, as is currently programmed in the PLC's.

Notes:

- A) Price does not include any equipment/hardware. Should this be required, it would be done at additional cost to the project.
- B) This portion of the scope of work would be provided on-site on a time and material basis per ECC's standard Service Contract Schedule of Prices (which can be provided upon request).
- C) This section is estimated to take approximately 2 -4 days.

### **5.4 Equipment/Services Provided by City**

- 1) Provide/install/repair communication cable between sites as required.
- 2) Provide additional equipment as required for functionality (PLC/communication equipment)

## **6 Wastewater Lift Station Sites**

### **6.1 Current System**

Four of the existing lift stations indicated below have wetwell level transducers, but are not displaying on the SCADA computer.

## 6.2 Proposed System

ECC would provide engineering services to program existing Allen-Bradley PLC's to communicate existing wetwell level to the central PLC at the Office, and display on the SCADA computer, and trend.

## 6.3 Equipment/Services Provided by Electric Controls Company

### (1) Lot "On-Site" Engineering/Services (at the project site)

Includes:

- A) Engineering services for design PLC/SCADA Computer programming, testing to get existing wetwell level displaying on SCADA computer.

Notes:

- A) This portion of the scope of work would be provided on-site on a time and material basis per ECC's standard Service Contract Schedule of Prices (which can be provided upon request).
- B) This section is estimated to take approximately 2 -4 days.

## 7 Delivery:

1. Estimated equipment delivery 4 – 6 weeks after receipt of purchase order/signed agreement by ECC for all but the Motorola ACE portion. The Motorola ACE portion may take longer, as it is dependent on the FCC to issue a radio frequency license – see below note.
2. Please contact estimator BEFORE or AT TIME OF QUOTE if other arrangements are required.

## 8 Terms/Notes/Exclusions:

1. System Warranty
  - A. System warranty against defects in material and workmanship is the earlier of 18 months after the date of shipment or 1 year after the date of installation.
  - B. Warranty excludes surge/transient damage.
  - C. Warranty includes parts only for ECC-supplied equipment included in this scope of work, as all on-site work on this scope of work is to be performed on a Time & Material basis.
  - D. ECC is not liable for loss, damage, or expense directly or indirectly from the use of its products or services, or from any other cause.
2. Price does not include any applicable taxes or fees. Tax exempt certificate must accompany purchase order, or sales tax will be charged.
3. Price valid for 60 days.
4. Payment Terms
  - A. Net 30 days with 1 ½% per month add.
  - B. 100% of each invoice is due within 30 days of invoice date.
  - C. Retainage of any invoiced amount is unacceptable unless specifically agreed to in writing by ECC at the time of order, and shall in no case exceed a period of 90 days.
  - D. If payments are not timely received by ECC, and this account is turned over to an attorney for collections, Customer agrees to pay all reasonable costs and attorney fees incurred in collection of the past due amounts.
  - E. Payment as the project progresses is expected.
  - F. Back charges are not accepted by ECC unless prior written authorization is obtained from ECC.
5. Additional fees may be charged if ECC is required to provide additional bonding/insurance beyond ECC standard for this project.
6. Freight

- A. Price does not include freight. If shipped by ECC, freight is FOB Factory, pre-paid and added to invoice. Equipment may also be picked up or shipped by customer.
7. Price only includes items described in above scope of work. Items not specifically described in above scope, but which may be required, are assumed to be provided by others, and may result in additional cost to this contract if ECC is to provide. **Price does not include the following, unless specifically mentioned in the scope:**
- A. Spare parts
  - B. Equipment/mounting brackets/hardware/services/installation.
  - C. Performance/Payment bond.
  - D. Telephone line/internet service connection or coordination.
  - E. Conduit/wire runs.
  - F. Termination of wiring.
  - G. Demolition/removal of existing equipment.
8. Frequency coordination and FCC licensing process frequently takes from 120 – 180 days from date of filing process commencement. ECC will begin the filing process after receipt of purchase order and within 10 days of receiving longitude, latitude, and ground elevation from consulting engineer/customer. ECC does not guarantee completion time for the licensing process. This would only affect the Motorola ACE portion of the project.
9. The on-site portion of this scope of work would be provided on a time and material basis per ECC's standard Service Contract Schedule of Prices (which can be provided upon request). Only equipment/services rendered would be invoiced. No equipment/services beyond the agreed upon Not-To-Exceed amount listed would be provided without prior approval by the Owner.
10. Cancellation of purchase order after submittals have been prepared will result in cancellation fee of 25% of order.

Sincerely

Franklin V. Chott  
Electric Controls Company, Inc.

**9 Pricing:**

Qty	Description	Price
1	"In-House" Equipment/Engr. Services	\$ 111,877.00
1	Estimated "On-Site" Equipment/Engr. Services (Provided on T&M Basis)	\$ 19,800.00 – 30,500.00
Total Estimated Not-To-Exceed Price:		<b>\$ 142,377.00</b>

**Market Volatility Note: Due to the volatility of the commodities market, we reserve the right to adjust our pricing and delivery times based on the current market conditions that would affect this project, such as steel, conduit (PVC/steel/aluminum) and wire (copper/aluminum), as well as delivery times from our suppliers.**

**10 Purchasing:**

To purchase the above scope of work:

1. Please enter information below OR send purchase order w/ same information, and return to ECC.
2. Include copy of State Tax Exempt certificate with returned documents.

**Total Price Accepted If Different From Above**

(Indicate options above and total at right) ..... \$ \_\_\_\_\_ .00

Accepted By: Michael Harmon  
(Printed Name of Purchaser)

Purchase Order #: NA

Signature: [Signature]  
(Signature of Purchaser)

Date: 4 / 21 / 2023

Position: Mayor  
(Position of Purchaser)

Entity: City of Osage Beach  
(Company/Municipality/District)

Phone: (573) 309-3000

E-mail: Kcrook@osagebeach.org

Date of Month Payment Requests Need to be Turned in By: \_\_\_\_\_

Tax Exempt #: MO 12492302

Tentative Contract End Date: \_\_\_\_/\_\_\_\_/\_\_\_\_