



Working Together for a
Better Tomorrow. Today.

SPECIFICATION PACKAGE

for

DISTRIBUTED CONTROL SYSTEM CONSOLE UPGRADE – PLATTE GENERATING STATION

Bid Opening Date/Time

Thursday, December 15, 2011 @ 2:00 P.M. (local time)
City of Grand Island, City Hall
100 East 1st Street, P.O. Box 1968
Grand Island, NE 68802-1968

Contact

City of Grand Island – Utilities Department
Platte Generating Station
308/385-5496

Date issued: November 29, 2011

**ADVERTISEMENT TO BIDDERS
FOR
DISTRIBUTED CONTROL SYSTEM CONSOLE UPGRADE
CITY OF GRAND ISLAND, NEBRASKA**

Sealed bids will be received at the office of the City Clerk, 100 E. First Street, P.O. Box 1968, Grand Island, Nebraska 68802, until THURSDAY, DECEMBER 15, 2011 at 2:00 p.m. local time for Distributed Control System Console Upgrade, FOB the City of Grand Island, freight prepaid. Bids will be publicly opened at this time in the Grand Island City Hall Council Conference Room #1 located on 1st floor of City Hall. Submit an original and three copies. Bid proposal package is also available on-line at www.grand-island.com under Business-Bid Calendars. Bids received after the specified time will be returned unopened to sender.

The successful bidder will be required to comply with fair labor standards as required by Nebraska R.R.S.73-102 and comply with Nebraska R.R.S. 48-657 pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. Successful bidder shall maintain a drug free workplace policy. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

Each bidder shall submit with the bid a certified check, a cashiers check, or bid bond payable to the City Treasurer in an amount no less than five percent (5%) of the bid price which shall guarantee good faith on the part of the bidder and the entering into a contract within fourteen (14) days at the bid price if accepted by the City. **Your certified check, cashier's check or bid bond must be submitted in a separate envelope attached to the outside of the envelope containing the bid. Each envelope must be clearly marked indicating its contents. Failure to submit the necessary qualifying information in clearly marked and separate envelopes will result in your bid not being opened or considered.** Surety companies authorized to do business in the State of Nebraska must issue bid bonds.

Bids will be evaluated by the Purchaser based on price, schedule, quality, adherence to schedule, plan and specifications, economy and efficiency of operation, experience and reputation of the bidder, ability, capacity, and skill of the bidder to perform contract required and adaptability of the particular items to the specific use intended.

The Purchaser reserves the right to reject any or all bids, to waive irregularities therein, and to accept whichever bid that may be in the best interest of the City, at its sole discretion.

No bidder may withdraw his bid for a period of thirty (30) days after date of bid opening.

RaNae Edwards, City Clerk

**Advertised 12/1/2011
Grand Island Independent**

DISTRIBUTED CONTROL SYSTEM CONSOLE UPGRADE
BID DATA FORM

CITY OF GRAND ISLAND
 GRAND ISLAND, NE

The undersigned bidder, having examined all specifications and other bidding documents, and all addenda thereto, and being acquainted with and fully understanding all conditions relative to the specified materials and equipment, hereby proposes to provide such equipment FOB the City of Grand Island, freight prepaid, at the following price:

<u>ITEM DESCRIPTION</u>	<u>EXTENDED COST</u>
Base Bid:	
Material	\$ _____
Labor	\$ _____
Applicable Sales tax*	\$ _____
Total Base Bid	\$ _____
Additional Option 1: Computers, including tax	\$ _____
Additional Option 2: Annual Software Support	\$ _____

* If bidder fails to include sales tax in their bid price or takes exception to including sales tax in their bid price, the City will add a 7.0% figure to the bid price for evaluation purposes; however, the City will only pay actual sales tax due.

- By checking this box, Bidder acknowledges that Addenda Number(s) _____ were received and considered in Bid preparation.
- By checking this box, Bidder acknowledges the specified completion date of the project is **December 30, 2012**.

According to Nebraska Sales and Use Tax Requirements, Section 1-017, Contractors, check which option you have selected to file with the Nebraska Department of Revenue:

Nebraska law provides a sales and use tax exemption on contractor labor charges for the construction, repair, or annexation of any structure used for the generation, transmission, or distribution of electricity. Separately stated contractor labor would be exempt, all materials are taxable according to the contractor's option.

Option 1 (Section 1-017.05)_____ Option 2 (Section 1-017.06)_____ Option 3 (Section 1-017.07)_____

If the Nebraska sales and use tax election is not filed or noted above, the contractor will be treated as a retailer under Option 1 for sales and use tax purposes.

 Bidder Company Name Date

 Company Address City State Zip

 Print Name of Person Completing Bid Signature

Telephone No. _____ Fax No. _____

By checking this box, Bidder acknowledges there are Exceptions noted to the bid.
NOTE: Any exceptions to specifications must be fully explained on a separate sheet attached to bid.

CHECKLIST FOR BID SUBMISSION

FOR

DISTRIBUTED CONTROL SYSTEM CONSOLE UPGRADE

Bids must be received by the City Clerk before 2:00 p.m. on Thursday, December 15, 2011.

The following items must be completed for your bid to be considered.

- A signed original and three copies of the bidding documents.
- A reference list of at least three projects of similar scope and complexity, including phone numbers and contact names.
- A summary of the experience of the Supervisor proposed for this project.
- Firm lump sum pricing; firm unit pricing in case adjustments are necessary, and breakout of sales tax pricing.
- Separate line items for computer equipment and annual software support maintenance proposed for this project.
- A proposed project schedule showing all milestones and City of Grand Island personnel requirements to meet schedule.
- A description of the system proposed, including equipment, controls, alarms and operation.
- Selection of Nebraska Sales Tax Option.
- Acknowledgment of Addenda Number(s) _____.
- Bidders must complete and sign the Bid Data Form provided in these Documents. All blank spaces must be filled in. Bidders shall acknowledge receipt of any Addenda information on the Bid Data Form.
- A certified check, cashiers check or bid bond in a separate envelope attached to the **outside of the envelope containing the bid**. Each envelope must be clearly marked indicating its contents. Failure to submit the necessary qualifying information in clearly marked and separate envelopes will result in your bid not being opened.

Please check off each item as completed.

Company

Signature

Telephone No. _____

Fax No. _____

INSTRUCTIONS TO BIDDERS

1. GENERAL INFORMATION.

The following instructions outline the procedure for preparing and submitting Bids. Bidders must fulfill all requirements as specified in these Documents.

2. TYPE OF BID.

Bidders shall be required to submit prices for all items listed in the Bid Data Form.

3. PREPARATION OF BIDS.

Bidders shall use only the Bid Data Form provided in these Documents. All blank spaces in the Bid Data Form, must be filled in, preferably in BLACK ink, in both words and figures where required. No changes to the wording or content of the forms is permitted. Written amounts shall govern in case of discrepancy between the amounts stated in writing and the amounts stated in figures.

Prices stated shall be f.o.b. with freight and full insurance paid by Bidder, to the job site located in Grand Island.

The Bidder shall acknowledge receipt of all addenda in the Bid Data Form. Bids received without acknowledgement or without the Addendum enclosed will be considered informal.

4. SUBMISSION OF BIDS.

All Bids must be submitted intact not later than the time prescribed, at the place, and in the manner set forth in the ADVERTISEMENT FOR BIDS. Bids must be made on the Bid Data Form provided here in. Each Bid must be submitted intact in a sealed envelope, so marked as to indicate its contents without being opened, and delivered in person or addressed and mailed in conformance with the instructions in the ADVERTISEMENT FOR BIDS.

5. BID SECURITY.

Bids must be accompanied by cash, a certified check, or cashier's check drawn on a bank which is insured by the Federal Deposit Insurance Corporation, or a bid bond issued by a Surety authorized to issue such bonds in the state where the Work is located, in the amount of 5 percent of the bid amount payable to OWNER. This bid security shall be given as a guarantee that the Bidder will not withdraw his Bid for a period of 30 days after bid opening, and that if awarded the Contract, the successful Bidder will execute the attached Contract and furnish a properly executed Performance Bond and Payment Bond each in the full amount of the Contract price within the time specified.

The Attorney-in-Fact that executes this bond in behalf of the Surety must attach a notarized copy of his power of attorney as evidence of his authority to bind the Surety on the date of execution of the bond. Where State Statute requires, certification by a resident agent shall also be provided.

6. RETURN OF BID SECURITY.

Within 15 days after the award of the Contract, the OWNER will return the bid securities to all Bidders whose Bids are not to be further considered in awarding the contract. All other retained bid securities will be held until the Contract has been finally executed, after which all bid securities, other than Bidders' bonds and guarantees which have been fortified, will be returned to the respective Bidders whose Bids they accompanied.

7. BASIS OF AWARD.

The award will be made by the OWNER on the basis of the Bid from the lowest responsive, responsible Bidder which, in the OWNER's sole and absolute judgment will best serve the interest of the OWNER. All Bids will be considered on the following basis:

Conformance with the terms of the Bid Documents.

Bid price.
Cost of installation.

Suitability to project requirements.
Delivery time.

Responsibility and qualification of Bidder.

The OWNER reserves the right to reject all Bids, or any Bid not in conformance with the intent of the Bid Documents, and to waive any informalities and irregularities in said Bids.

8. EXECUTION OF CONTRACT.

The successful Bidder shall, within 15 days after receiving notice of award, sign and deliver to the OWNER the Contract hereto attached together with the acceptable bonds as required in these Bid Documents. Within 15 days after receiving the signed Contract with acceptable bond(s) from the successful Bidder, the OWNER's authorized agent will sign the Contract. Signature by both parties constitutes execution of the Contract.

9. PERFORMANCE AND PAYMENT BONDS.

The successful Bidder shall file with the OWNER Performance and Payment Bonds in the full amount (100 percent) of the Contract price, as security for the faithful performance of the Contract and the payment of all persons supplying labor and materials for the Work under this Contract, and to cover all guarantees against defective workmanship or materials, or both, for a period of 1 year after the date of final acceptance of the Work by the OWNER. The Surety furnishing these bonds shall have a record of service satisfactory to the OWNER, be authorized to do business in the State where the OWNER's project is located and shall be named on the current list of approved Surety Companies, acceptable on Federal bonds as published by the Audit Staff, Bureau of Accounts, U.S. Treasury Department.

The Attorney-in-Fact (Resident Agent) who executes these bonds on behalf of the Surety must attach a notarized copy of his power-of-attorney as evidence of his authority to bind the Surety on the date of execution of the bond.

10. TIME OF COMPLETION.

The time of completion of the Work to be performed under this Contract is the essence of the Contract. The time allowed for the completion of the Work is stated in the Bid Data Form.

11. GRATUITIES AND KICKBACKS.

City Code states that it is unethical for any person to offer, give, or agree to give any City employee or former City employee, or for any City employee or former City employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefor. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

12. FISCAL YEAR.

The City of Grand Island, Nebraska operates on a fiscal year beginning October 1st and ending on the following September 30th. It is understood and agreed that any portion of this agreement which will be performed in a future fiscal year is contingent upon the City Council adopting budget statements and appropriations sufficient to fund such performance.

CONTRACT AGREEMENT

THIS AGREEMENT made and entered into by and between **[SUCCESSFUL BIDDER]**, hereinafter called the Contractor, and the **CITY OF GRAND ISLAND, NEBRASKA**, hereinafter called the City.

WITNESSETH:

THAT, WHEREAS, in accordance with law, the City has caused contract documents to be prepared and an advertisement calling for bids to be published for *DISTRIBUTED CONTROL SYSTEM CONSOLE UPGRADE*; and

WHEREAS, the City, in the manner prescribed by law, has publicly opened, examined, and canvassed the bids submitted, and has determined the aforesaid Contractor to be the lowest responsive and responsible bidder, and has duly awarded to the said Contractor a contract therefore, for the sum or sums named in the Contractor's bid, a copy thereof being attached to and made a part of this contract;

NOW, THEREFORE, in consideration of the compensation to be paid to the Contractor and of the mutual agreements herein contained, the parties have agreed and hereby agree, the City for itself and its successors, and the Contractor for itself, himself, or themselves, and its, his, or their successors, as follows:

ARTICLE I. That the following documents shall comprise the Contract, and shall together be referred to as the "Agreement" or the "Contract Documents";

1. This Contract Agreement.
2. City of Grand Island's Specification for this project.
3. **[NAME OF SUCCESSFUL BIDDER]** bid signed and dated **[DATE OF BID]**.

In the event of any conflict between the terms of the Contract Documents, the provisions of the document first listed shall prevail.

ARTICLE II. That the contractor shall (a) furnish all tools, equipment, superintendence, transportation, and other construction materials, services and facilities; (b) furnish, as agent for the City, all materials, supplies and equipment specified and required to be incorporated in and form a permanent part of the completed work; (c) provide and perform all necessary labor; and (d) in a good substantial and workmanlike manner and in accordance with the requirements, stipulations, provisions, and conditions of the contract documents as listed in the attached General Specifications, said documents forming the contract and being as fully a part thereof as if repeated verbatim herein, perform, execute, construct and complete all work included in and covered by the City's official award of this contract to the said Contractor, such award being based on the acceptance by the City of the Contractor's bid;

ARTICLE III. That the City shall pay to the Contractor for the performance of the work embraced in this contract and the Contractor will accept as full compensation therefore the sum (subject to adjustment as provided by the contract) of **[DOLLAR AMOUNT] (\$00.00)** for all services, materials, and work covered by and included in the contract award and designated in the foregoing Article II; payments thereof to be made in cash or its equivalent in the manner provided in the General Specifications.

The total cost of the Contract includes:

Base Bid:	\$.00
Sales Tax on Materials/Equipment:	\$.00
Sales Tax on Labor:	<u>\$.00</u>
Total	\$.00

The City of Grand Island, Nebraska operates on a fiscal year beginning October 1st and ending on the following September 30th. It is understood and agreed that any portion of this agreement which will be performed in a future fiscal year is contingent upon the City Council adopting budget statements and appropriations sufficient to fund such performance.

ARTICLE IV. The Contractor hereby agrees to act as agent for the City in purchasing materials and supplies for the City for this project. The City shall be obligated to the vendor of the materials and supplies for the purchase price, but the Contractor shall handle all payments hereunder on behalf of the City. The vendor shall make demand or claim for payment of the purchase price from the City by submitting an invoice to the Contractor. Title to all materials and supplies purchased hereunder shall vest in the City directly from the vendor. Regardless of the method of payment, title shall vest immediately in the City. The Contractor shall not acquire title to any materials and supplies incorporated into the project. All invoices shall bear the Contractor's name as agent for the City. This paragraph will apply only to these materials and supplies actually incorporated into and becoming a part of the finished product of the DISTRIBUTED CONTROL SYSTEM CONSOLE UPGRADE.

ARTICLE V. That the Contractor shall start work as soon as possible after the contract is signed and the required bonds and insurance are approved, and that the Contractor shall deliver the equipment, tools, supplies, and materials F.O.B. Platte Generating Station, and complete the work on or before **December 30, 2012.**

ARTICLE VI. The Contractor agrees to comply with all applicable State fair labor standards in the execution of this contract as required by Section 73-102, R.R.S. 1943. The Contractor further agrees to comply with the provisions of Section 48-657, R.R.S. 1943, pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. During the performance of this contract, the Contractor and all subcontractors agree not to discriminate in hiring or any other employment practice on the basis, of race, color, religion, sex, national origin, age or disability. The Contractor agrees to comply with all applicable Local, State and Federal rules and regulations. The Contractor agrees to maintain a drug-free workplace policy and will provide a copy of the policy to the City upon request. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

GRATUITIES AND KICKBACKS

City Code states that it is unethical for any person to offer, give, or agree to give any City employee or former City employee, or for any City employee or former City employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or

subcontract, or to any solicitation or proposal therefor. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

[SUCCESSFUL BIDDER]

By _____ Date _____

Title _____

CITY OF GRAND ISLAND, NEBRASKA

By _____ Date _____
Mayor

Attest: _____
City Clerk

The contract is in due form according to law and hereby approved.

Attorney for the City Date _____

DRAFT



*Working Together for a
Better Tomorrow, Today.*

REQUEST FOR BIDS - GENERAL SPECIFICATIONS

The Bid shall be in accordance with the following and with all attached BID DATA and DETAILED SPECIFICATIONS.

All prices are to be furnished and installed FOB, Grand Island, Nebraska. **All prices shall be firm, and shall include all sales and use taxes as lawfully assessed under laws and regulations of the State of Nebraska.** * If bidder fails to include sales tax in their bid price or takes exception to including sales tax in their bid price, the City will add a 7.0% figure to the bid price for evaluation purposes; however, the City will only pay actual sales tax due.

Bids shall include the following on the **outside** of the mailing envelope: **“Distributed Control System Console Upgrade”**. All sealed bids are due no later than **Thursday, December 15, 2011 at 2:00 p.m. local time**. Submit **an original and three copies** of the bid to:

Mailing Address: City Clerk
City Hall
P. O. Box 1968
Grand Island, NE 68802

Street Address: City Clerk
City Hall
100 E. First Street
Grand Island, NE 68801

Bids will be opened at this time in the City Hall Council Conference Room #1 located on 1st floor of City Hall. Any bid received after the specified date will not be considered. No verbal bid will be considered.

Bids will be evaluated by the Purchaser based on price, schedule, quality, adherence to schedule, plan and specifications, economy and efficiency of operation, experience and reputation of the bidder, ability, capacity, and skill of the bidder to perform contract required and adaptability of the particular items to the specific use intended.

The successful bidder will be required to comply with fair labor standards as required by Nebraska R.R.S.73-102 and comply with Nebraska R.R.S. 48-657 pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. Contractor shall maintain a drug free workplace policy. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

The equipment and materials must be new, the latest make or model, unless otherwise specified. Prior to approving the invoice for payment, the City reserves the right to thoroughly inspect and test the equipment to confirm compliance with specifications. Any equipment or material which does not meet the City's requirements will be returned at vendor's expense for correction. The invoice will be paid after approval at the next regularly scheduled Council meeting and occurring after departmental approval of invoice; the City Council typically meets the second and fourth Tuesday of each month. Invoices must be received well in advance of Council date to allow evaluation and processing time.

Each bidder shall submit with the bid a certified check, a cashiers check, or bid bond payable to the City Treasurer in an amount no less than five percent (5%) of the bid price which shall guarantee good faith on the part of the bidder and the entering into a contract within fourteen (14) days at the bid price if accepted by the City. **Your certified check, cashier's check or bid bond must be submitted in a separate envelope attached to the outside of the envelope containing the bid.** Each envelope must be clearly marked indicating its contents. **Failure to submit the necessary qualifying information in clearly marked and separate envelopes will result in your bid not being opened or considered.** Surety companies authorized to do business in the State of Nebraska must issue bid bonds.

Successful bidder shall comply with the City's insurance requirements; performance and payment bonds are required for this project as outlined in the Detailed Specifications and Instructions to Bidders.

All bids shall be valid for at least thirty (30) working days after the bid deadline for evaluation purposes.

All bids must be on the bid form and must be signed and dated to be accepted. Please contact Lynn Mayhew at 308-385-5495, for questions concerning this specification.

DETAILED SPECIFICATIONS
FOR
DISTRIBUTED CONTROL SYSTEM CONSOLE UPGRADE
PLATTE GENERATING STATION

1. GENERAL

1.1. SCOPE

This specification describes the general requirements for HMI replacement to the distributed control system at the Platte Generating Station. The Contractor shall provide, FOB Platte Generating Station, the console upgrades and technical assistance. The Platte Generating Station is located at 1035 West Wildwood Drive, Grand Island, Nebraska 68801.

1.2. DESCRIPTION

The existing operator console system consists of two ABB OIS 42 servers installed in 1995 and two OIS 46 servers upgraded in 2006 mounted in two driver cabinets with three single screen OIC 41 clients and four Windows XP client workstations. There are two Engineering Work Stations, one located in the Relay room and a second located in the System-techs office.

1.3. EQUIPMENT REQUIREMENTS

General

The Contractor shall provide and a complete system including engineering, design, drawings, and commissioning. All components shall be new and unused. Project requirements shall include the following.

- a) Provide a 5000 tag redundant system.
- b) Provide two fully redundant connectivity servers and software licenses.
- c) Provide Six (6) operator workplace licenses with (2) monitor support.
- d) Provide Two (2) Engineering Workplace Licenses and four (4) Licenses to view a window into the system.
- e) Provide six (6) Dell PC workstations including supporting software with dual 20" monitors and over under mount to existing consoles.
- f) Provide two (2) Dell PC's with monitor for EWS.
- g) Provide Two Dell Connectivity Servers.
- h) Provide a Power System for support of CIU's and Power distribution for servers, Ethernet switches, and KVM.
- i) Server Cabinet.
- j) Required Ethernet Cabling.
- k) Rack mount KVM Console with KVM switch.
- l) Two (2) Dell 24 Port managed Ethernet switches.
- m) Two (2) INICI03 CIU's for connection to the loop.
- n) Provide Engineering to build screens for the following Allen Bradley PLC processes:
 - a. Sootblower Sequencing
 - b. FlyAsh operations
 - c. Bunker Monitoring
 - d. KVB Mill Fire Monitoring
 - e. Retention Pond Pump E-stop
- o) Provide technical assistance for installation and logistical support.
- p) Provide on-site technical training to plant staff.
- q) The system must be able to be upgraded and allow for additional DCS I/O to be added and be compatible with Bailey INFI 90 for future equipment. ie. Baghouse and scrubber.
- r) Provide engineering to modify screens for boiler fuel and air for low NOx burner modifications to occur during same outage.

1.4. HMI SOFTWARE

The software shall meet the minimum requirements of sections 2.0 -4.0

1.5. INSTALLATION

The Contractor shall provide all material and technical supervision for a complete installation, including

mounting hardware and connectors and an on-site representative to direct City staff during installation and commissioning.

1.6. PROVIDED BY CITY OF GRAND ISLAND

The City of Grand Island shall provide:

- a) Error free Harmony Tag Database
- b) All graphics files
- c) All Symbol Files
- d) Trend database/definition
- e) Alarm comments defined
- f) Composer Project
- g) Engineering Units Descriptors defined
- h) Logic States Descriptors defined
- i) Text Select strings defined

1.7. SCHEDULE

The system is to be installed during the Fall 2012 Shutdown, that is tentatively scheduled to start September 27, 2012 and last six weeks. The system must be tested and not delay startup. A project schedule shall be included in the bid showing all milestones and City of Grand Island personnel requirements to meet schedule.

1.8. SHIPPING AND HANDLING

All equipment and associated material shall be shipped FOB to Platte Generating Station and shall be included in the quotation.

1.9. WARRANTY

All materials and installation shall be guaranteed from defects for one year after acceptance by the City.

1.10. REFERENCES

A minimum of three references, including phone numbers and contact names, of similar scope shall be furnished with the Bid.

1.11. EVALUATION OF BIDS

The Contractor is expected to base his bid on materials and equipment which fully comply with these specifications. The computers shall be bid as a separate line item. All computer specs shall be included in the bid. The computers may be purchased separate by the City of Grand Island. The bidder must include as a separate line item any annual support fees (maintenance contract) to maintain the software. The Contractor is also encouraged to submit any additional data which may assist in the bid evaluation. Alternate bids may be submitted, however the Contractor must first submit a lump sum price as herein described and then describe the alternate proposal. The bids will be evaluated on the total base bid.

1.12. INSURANCE REQUIREMENT

The Contractor shall provide insurance in accordance with the attached INSURANCE REQUIREMENTS.

1.13. CONTACT

Technical questions, inquiries or site visit arrangements regarding this specification may be directed to Lynn Mayhew at (308) 385-5492.

2. HMI SOFTWARE PLATFORM

2.1. The proposed HMI software runtime application platform shall allow the system user to configure, maintain and view all plant functions. At a minimum, the system shall support the following functions:

- a) Operations
- b) Control
- c) Alarm and events
- d) Trending
- e) Reporting
- f) History data collection
- g) Engineering

- h) Maintenance
- i) DCS Device Management
- j) System Diagnostics

- 2.2. The main interface to the HMI software programming platform, described herein, shall include tree navigation, panes for previewing, and property listings. This interface shall enable creation, deletion and organization of various plant 'objects' by function, location, control hardware, object type, or customized tree structure.
- 2.3. The HMI software programming platform shall promote engineering efficiency by using object-oriented features such as object types and inheritance. For example, when adding a trend display to a control tag of a specific type, such as a flow controller, the user shall have the option of associating the display to all tags of that type by adding it to the object type generically.
- 2.4. The HMI software runtime application platform shall allow the linking and displaying of documentation in various formats such as MS Word, MS Excel, MS PowerPoint and Acrobat PDF.
- 2.5. SECURITY AND ACCESS CONTROL

The HMI software runtime application platform shall include a configurable, comprehensive user security and access control function. This function shall govern the presentation of and access to displays, data, and system functions at all system workstations. Vendor shall provide a system that is capable of assigning each user an individual account with a unique User Identification (User ID) and password combination. The system shall support an unlimited number of unique user accounts and administer user access rights through enforcement of Microsoft Windows domain policies.

Vendor shall provide a system that shall require individual users to establish and maintain a confidential password associated with their account. The system shall be designed to enforce the modification of the password at regular intervals. This interval shall be established by the system administrator.

Vendor shall provide a system that shall support the organization of users into the following five (5) user groups for the purpose of establishing system access and permission profiles on a group-by-group basis.

- Administrator
- PICS Engineer
- Shift Manager
- Area Supervisor
- Operator

Each of the above user groups shall have some or all of the following roles assigned to them. These roles are examples and the groups are not limited to these roles.

- a) Read – Permits a user to read information.
- b) Configure – Permits a user to configure the system.
- c) Operate – Permits a user to operate the system.
- d) Tune – Permits a user to tune a process.
- e) Inhibit Tags – Permits the operator the choice to manually turn off alarm indications for individual tags or an entire alarm group. Alarm tones will not sound, alarm relays will not trigger and alarm acknowledgment.
- f) Administrate – Permits a user to do administration of the system.
- g) Download – Allows a download to a controller or other equipment.

Vendor shall provide a system that provides User Group Security Assignments as identified in Appendix A.

Vendor shall provide a system configured for a minimum of 30 concurrent users to monitor and control the system from the various plant locations listed in Appendix B.

Vendor shall provide a system configured for a minimum of 30 concurrent remote (onsite or offsite) users to view live plant graphics. Access shall be user authenticated and read only. Users shall not be able to

operate the plant from a remote location. Remote access shall be via a web browser rather than client/server technology.

Vendor shall provide a system that will provide functionality to restrict access to other workstation functions and applications (i.e. desktop, word processor, shutdown scripts) based upon the profile of the logged in user.

Vendor shall provide a system that will provide functionality to switch the logged-in user from within the system application without returning to the Operating System login dialog. The function of switching a user shall not result in the loss of the currently displayed screen or require re-navigation to the function currently displayed.

Vendor shall provide a system that shall support the automatic logoff of a user session after a pre-established duration of inactivity at the workstation.

This duration shall be configurable by the system administrator.

Vendor shall provide a system that enables any changes made in the HMI software runtime application platform to be tracked in a single audit trail.

These changes include operation, engineering, and maintenance actions (for example, an operator changing a set-point, an engineer changing or deleting a configuration parameter, or a technician calibrating a device). This audit 'message' shall include but not be limited to:

- a) The date and time the change was made
- b) User name of the individual making the change
- c) Location from where the change was made
- d) The type of change
- e) The item that the change was made to
- f) The object, property or aspect affected by the change

The system shall support thirty-two (32) alphanumeric character tag names.

The system shall provide a common set of engineering unit abbreviations to be used for display on graphics, reports, logs, trends, etc. Provide functionality to modify the list with additional abbreviations per project requirements.

2.6. SYSTEM MANAGEMENT

The system shall provide a comprehensive suite of system management functions that simplify the task of system administration from set-up to operation and maintenance. The system management functions shall oversee the entire system.

Vendor shall provide a system that shall ensure system configuration integrity by providing system-wide backup and restore capabilities. A minimum of two backups on separate electronic media shall be needed for:

- a) HMI configuration
- b) Historical data storage configuration
- c) Reporting definition
- d) Trend configuration
- e) Asset maintenance triggers configuration
- f) Operational faceplates
- g) Graphical elements
- h) Graphic displays

Vendor shall provide a system that allows back-ups to be initiated on either a manual or scheduled basis. Back-ups shall not impact performance of operation.

Vendor shall provide a system that shall provide functionality to import/export subsets of the system configuration, such as individual applications, graphics, or device configurations.

Vendor shall provide a system that provides collection tools to gather and consolidate system-wide diagnostic data for system maintenance purposes.

Vendor shall submit for approval by the Customer a formal written policy for assessing, deploying, and validating security hot fixes. This policy shall provide validation of security patches which have the potential to impact system operation within two weeks of its availability. The validation status of each hot fix shall be communicated through a publicly accessible website. Upon review of draft, Customer shall return to Vendor which shall incorporate changes into final draft.

Vendor shall include as part of its work and provide a reputable current, off the-shelf virus protection package such as Norton or McAfee that has been validated for use with the supplied system. This package shall be installed on all system workstations, and contain the latest version of Virus definition files and scan engine. Vendor shall submit for approval by the Customer a formal written policy for assessing, deploying, and validating virus definition rollouts. As delivered, the virus package shall be configured to have no noticeable impact on system performance, reaction time, or daily operations. The price shall include the cost of 1 year virus definition and scan engine updates.

Vendor shall provide software licensing management mechanism that does not affect running process operations. Interrupting or shutting down operations while modifying the license management mechanism is not acceptable. Specifically, the software licensing mechanism shall include provisions for:

- a) Expanding licensing parameters
- b) Upgrading functionality
- c) Licensing management function failure

2.7. SYSTEM TOPOLOGY

The Vendor is responsible for providing an as-built system architecture drawing at the end of the project.

The system shall utilize an intuitive, easy-to-use, common system interface for direct access to plant equipment operation. The HMI hardware will include flat screen color monitors, keyboards, and pointing devices (i.e. mouse).

In addition to local clients, the HMI system architecture shall accommodate remote access from 'thin' clients using standard PCs with minimum vendor specific software installed. These 'thin' clients shall provide operational capabilities and access to historical information. The remote clients shall adhere to the various access controls that are generally supported by local operator workstations.

Vendor shall provide detailed documentation on the design and configuration of the supported network topologies, network redundancy, Domain Controller, DNS configuration, and recommended operating system configuration settings.

To guarantee the integrity of all time-critical information, the HMI system will provide system-wide time synchronization with existing systems for all processing units handling time related data. For those units performing the time tagging (i.e. controller), accuracy of time distribution shall be +/- 0.5 ms, while alarm and event presentation of this time stamped event shall have a resolution of 1 ms.

The data protocol used by the data communication system shall safeguard against false data transmission, provide error detection / correction, and node failure detection. It shall initiate an automatic switch to the redundant channel or module upon failure of the primary. The failure and its successful switchover shall be individually annunciated to the operator.

2.8. AVAILABILITY AND RELIABILITY

Vendor shall provide a system that shall be designed such that a single point of component failure cannot cause loss of plant control.

Vendor shall design a system that allows fail-over redundancy designs to be bumpless, immediate, and automatic without effect to control, operator display or data acquisition. All failovers shall be annunciated to the operator.

The following system areas shall have redundancy:

Client/Server network and associated computer network cards

Vendor shall design the system such that loss of redundancy at a higher level shall not affect the redundancy options at a subordinate level. Redundancy options shall be multiplexed so that one failure does not have a cascade affect on the availability of other components. Failures shall be presented to users through standard HMI alarm and event functions. Remote notification shall be possible through standard HMI paging options.

2.9. HMI RESPONSE TIMES

Vendor shall provide a system that, assuming the worst case scenario, ensures that the display response time shall not exceed 2 seconds. Display response time is defined as the elapsed time between the display call-up command and display call-up with dynamic data included.

Vendor shall provide a system that, assuming the worst case scenario, ensures that the display update time shall not exceed 1 second. Display update time is defined as the time required to refresh dynamic data on an active display.

3. HUMAN SYSTEM INTERFACE

3.1. GENERAL

Each system user interface shall be capable of performing process operations and engineering as applicable including asset management, historian, reporting, and field device management. Access to various applications that are included shall be dependent on user login.

3.2. OPERATOR WORKSTATIONS

System workstations will be distributed throughout the plant. Regardless of physical location, each shall have identical functionality and system data access. All system tags shall be accessible (viewable and controllable) from every system workstation. Upon user log-in, the workstation shall be automatically personalized to a 'workstation' with specific user role and functions as specified in Section 2.5.

Operator Workstations shall support multiple monitors (up to 4) in various arrangements (i.e. 4 across or in a square formation) where the cursor and displays shall have the ability to pass seamlessly from monitor to monitor.

Operator Workstations shall include multiple areas that are each configurable to user preferences. Provide functionality to place areas at any location on the workstation. At a minimum, these areas shall include:

- a) Alarm Display that shall include alarm groups and a listing of most recent alarms. This area shall be located at the top or bottom of the workstation.
- b) Display Area that provides the main viewing area for process displays, faceplates, trends, documentation, and other operational views.
- c) Navigation Area that shall include search tools, selected tag shortcut tools with links to graphics, faceplates, trends and alarm/event lists, and user specific favorite links.
- d) Status Area that shall display the workstation status and diagnostics, current user login information, and operator specific messages.

Vendor shall provide a system that allows each operator workstation to include configurable filters to restrict access or refine information presentation.

In order to make sure that the operator always sees important information,

Vendor shall provide functionality to declare an area at the top and an area at the bottom as SAFE. This means that no other pop-up windows can cover these areas. It shall also be possible to customize the content of the SAFE areas as well as customizing the size of each part.

In order to make sure the operator always has the most important information visible it shall be possible to set the priority of information, i.e. an Alarm List shall always pop up above a drawing or a process graphic. The priority of information shall be open for customization by an Administrator.

It shall be possible to select if a display will be shown in the base or as in a popup window.

Certain critical operations such as starting motors, changing set points, equipment trips, etc. shall, as a configurable option, requiring at least two-step actions by an operator.

The system architecture shall be such that a component failure, which may cause unavailability of an operator workstation, does not prevent the operator from operation and control of the plant or any area of the plant. This means that the operator then shall have the ability to perform the same functions by logging into another workstation. Also, operator workstations shall have identical capabilities, databases, system tags, and keyboards and be interchangeable for all functions including interactive graphics.

The process graphic functions required to support the Operator Workstation are defined in Section 3.6.

Faceplate requirements to support the Operator Workstation are defined in Section 3.6.

3.3. LOOP CONNECTION POINTS

ABB INFI-90 Loop connection point interface cards shall be ABB EtherNet CIU which includes the IET800 and NIS21 Modules.

3.4. NAVIGATION

To promote operational consistency and ease of use, navigation in the various workstations shall be intuitive and similar to a web browser such as Microsoft's Internet Explorer.

Most selections shall be selectable with a single or double click of a mouse.

There shall be options for the number of steps that users are required to perform in order to make changes.

- a) Single step
- b) Secondary confirmation step
- c) Re-authentication
- d) Supervisor authentication.

Navigation tools shall be available for quick, intuitive access to relevant data and displays needed to properly control the process. The following are required navigational tools:

- a) Favorite display menus
- b) Display folders with lists of pre-defined display menus
- c) Tag entry box with quick search function where quick search is automatically done after typing in letters and pausing.
- d) History menu with forward and back buttons shall be available that contains a list of previously accessed displays
- e) 'Pin' or 'tack' function that will protect a display or overlapping display from being replaced.
- f) Shortcut links shall be available for accessing various displays and other information.
- g) Function keys shall be programmable to bring up any display with one operation action.

3.5. SYSTEM NAVIGATION

With every plant entity that is represented by an object, a menu allowing access to various, relevant information, properties, and configuration templates shall be available. This menu shall be available via a right mouse click by the user and be filterable based on the individual's job function as to remove any irrelevant, nuisance information.

The menu shall have the option to have 'sub –trees' to allow grouping of similar type displays in order to keep the list as small as possible for easy, intuitive navigation.

The menu shall contain links to displays such as, but limited to, the following:

- a) Graphic displays and elements
- b) Alarm and event lists
- c) Audit trail lists
- d) Trends
- e) Links to documentation
- f) Links to web displays
- g) Links to 3rd party applications

3.6. DISPLAYS

General

To ensure consistency throughout the system, Vendor shall submit for approval by the Customer graphic display format before development. The Vendor shall incorporate any requested changes with no additional cost to the Customer. All displays shall be developed in a consistent, logical approach.

Vendor shall provide graphic displays that are high-resolution graphics. Completely user-configurable, graphic displays shall be built from a library of predefined standardized symbols. Provide functionality to create project specific symbols and add them to the library.

Vendor shall provide functionality to move, minimize, resize, and print displays using a consistent, logical approach.

Vendor shall provide real-time data on active displays that continuously update without requiring user interaction. The refresh rate of the data shall be configurable with a minimum refresh rate of once per second.

Vendor shall provide a driver that is capable of updating all tags in the console database at a frequency of one second or less.

Vendor shall ensure that all database "writes" from a graphic screen shall actuate the final control device within two seconds.

Vendor shall ensure that each INFI-90 loop (Loops 1 and 2) shall have its own complete, globally accessible HMI database.

At a minimum, Vendor shall ensure that the following display attributes are configurable:

- a. The location of the initial call-up of a display shall be configurable to be:
 - i. At the cursor;
 - ii. Offset relative to a previously called up display;
 - iii. Pre-defined X-Y coordinates.
- b. The size of the display upon initial call up.
- c. The stacking order to determine which displays are in front of other displays
- d. Whether the display is fixed in size or can be re-sized.
- e. Whether the display is pinned as to prevent it from being closed accidentally.

Vendor shall ensure that for multi-monitor workstation arrangements, selected displays, including pop-up displays, shall be configurable to appear on a specified monitor.

Vendor shall provide functionality to add, modify, or delete a graphic without removing the workstation from service.

Vendor shall ensure that numeric data displays shall be individually configurable in any color and with a minimum of five (5) digit fields available for display (not including decimal point or sign).

Vendor shall provide functionality to display numeric and text data in at least ten different font types and sizes. All font options (i.e. bold, italic, underscore, strikethrough) shall be available.

Vendor shall ensure that multi-state device displays shall have each state displayed with unique foreground / background color combinations.

Vendor shall provide functionality to display numerical data in configurable horizontal or vertical bar graphics, for example indicating the level of fluid in a tank.

Vendor's graphic builder shall support full-vector graphics that enable distortion-free scaling with maintained resolution.

3.7. PROCESS GRAPHIC DISPLAYS

Vendor shall ensure that interactive, dynamic faceplates for controllable devices shall be available from the associated process graphic display.

Vendor shall ensure that graphical elements on the process graphic display shall indicate changes to data values through foreground color changes, background color changes, shape changes, or any combination of these (e.g. flashing).

Vendor shall ensure that each process graphic display shall be capable of handling a minimum of 200 dynamic display elements.

Vendor shall ensure that there shall be no limitations to placement of dynamic and non-dynamic elements within the process graphic display.

3.8. FACEPLATE DISPLAYS

Vendor shall ensure that faceplate displays for analog and digital control elements shall be available from any graphic or other type of display where the element is referenced. Additional elements for faceplate display shall include analog inputs, manual output stations, and digital inputs/outputs.

Vendor shall ensure that multiple faceplate views are available. Depending on user's preference and job function, each view provides more or less information. At a minimum, the system shall support the following views:

The Reduced View shall be optimized to be as small as possible while displaying relevant information and most used operator commands.

The Faceplate View, or normal view, is larger than the reduced view and contains additional information and operator commands.

Expanded view shall contain more information and functionality than the faceplate view displaying the maximum amount of information and is intended for engineers, technicians, and/or advanced operators.

Vendor shall provide faceplate views that contain the following:

- a) Tag Name
- b) Tag Description
- c) Control Mode and set point input status
- d) Process input, set point and output values (described via bar graph and numerically).
- e) Loop diagnostics including set point and process variable status, high/low and deviation alarms, etc.

Vendor shall display 'High' and 'Low' process alarms on the faceplate. Upon return to normal, the faceplate shall indicate return to normal.

For discrete multi-state devices, Vendor shall display graphical and text indication of control states on the faceplate.

Based on user permissions, Vendor shall ensure that it shall be possible through either the keyboard or pointing devices to perform the following from a faceplate display in a single action:

- a) Change control mode and adjust outputs
- b) Change set point
- c) Change multi-state device positions

Vendor shall ensure that group and detail displays shall show dynamic process and status information. These displays shall contain operator faceplates that allow an operator to change mode or control parameters of a control loop.

3.9. STANDARD DISPLAYS

For system alarms, status, and diagnostic information, Vendor shall ensure that standard displays shall include:

System status displays which presents operational status of the communication network, communication devices, controllers, and associated I/O modules.

Diagnostic displays which presents on-line and off-line diagnostics for major system components including hardware and software services.

Vendor shall ensure that the HMI system enables Customer personnel to perform remote diagnostic collection and analysis. (E.g. loop, PCU, module and console errors).

3.10. TREND DISPLAYS

Vendor shall provide the following functionality:

- a) Trend Displays shall present both run-time and historical data seamlessly regardless if data resides in short term or long-term data storage.
- b) To help in comparing two data sets, Trend Displays shall have the capability of having its traces be individually offset by duration of time.
- c) User shall have the capability to modify Trend Displays by adding or removing traces.
- d) Provide functionality to add a trace to a trend display by selecting the corresponding Tag on a graphic display and drag and drop it on the trend display
- e) User shall have the capability to copy and paste Trend trace data into other applications such as MS Excel.
- f) Trend Displays shall have a feature that allows the user to 'zoom' into a specific section to increase the time resolution and provide more detailed information.
- g) Trend Displays shall be able to display two values as X/Y plots.
- h) Trend display background colors shall be configurable.

3.11. GROUP DISPLAYS

For displays of a similar type, such as trends, faceplates, alarm lists, Vendor shall provide functionality to display them in groups of various quantities and sizes. For example, 10 faceplates can be grouped in a 2x5 arrangement or 4 trends can be grouped in a 2x2 arrangement.

HMI Information and Diagnostic Displays (see Appendix C for examples)

System Status Overview Display:

- a) The HMI system shall include an overview display showing the status of each node in the DCS system. At minimum it shall identify the following:
- b) Node status (online, offline)
- c) Node errors (module errors, communication errors, system errors (fan, power, temperature))

3.12. LOOP TOPOLOGY DISPLAY

The HMI system shall include a dynamic loop topology display showing all active nodes on the INFI-90 loop in their sequential order in the loop. The display shall update to remove nodes from the display as their status changes from online to offline as well as reorder the display to represent the new sequential order.

For example: if the current active node list is Node1, Node2, Node3, NodeXX and Node2 changes status to offline, then the updated list would show Node1, Node3, NodeXX.

The display shall automatically update at an interval no greater than 30 seconds. It shall be possible to update the display manually.

Node Topology Display:

For each DCS node in the system it shall be possible to call up a display that will show the following information for all modules in that node:

- a) The address of the module in the node.
- b) The type of module
- c) The firmware revision on the module
- d) The mode of the module.

The display shall automatically update at an interval no greater than 30 seconds. It shall be possible to update the display manually.

Event and Loop Counter Display:

For each DCS node in the system it shall be possible to call up an event and loop counter type display that at a minimum will show:

- a) The count for the number of receive errors on fiber channel 1 and fiber channel 2.
- b) The count for the number of transmit errors.
- c) The count for total loop traffic errors.
- d) The elapse time since the error counter has been last reset.

Communication Module Details Display:

For each DCS node in the system it shall be possible to call up a display that will show the following information about all communication module(s) installed in that node:

- a) Type module.
- b) Firmware revision.
- c) Memory bytes (used/unused).
- d) Dipswitch settings.
- e) It shall be possible to update the display manually.

At minimum the HMI system shall be able to display the following information for each Network Processing Module (NPM) in the system:

- a) Module type
- b) Firmware revision
- c) Mode (e.g. Online, Offline)
- d) Error Code bytes 3-5 and descriptions
- e) Backup NPM Installed (e.g. Yes, No)
- f) Which NPM Running (Primary, Backup)
- g) NPM Status (Execute, Standby, Fail)
- h) Control way Errors

At minimum the HMI system shall be able to display the following information for each Multi-Function Processor (MFP) Module:

- a) Module type
- b) Firmware revision
- c) Mode (e.g. Online, Offline)
- d) Status (e.g. Configuration, Error, Execute)
- e) NVRAM Status (Good, Fail)
- f) Error Code bytes 3-5 and descriptions
- g) Backup MFP Installed (e.g. Yes, No)
- h) Which MFP Running (Primary, Backup)
- i) MFP Backup Failure
- j) Control way Errors

3.13. ALARM AND EVENTS Management

The HMI shall be the primary plant annunciation device. For any point in the system, real or calculated, alarm conditions shall be adequately indicated on the workstation monitor and a single step action shall call up plant, area, and/or tag alarm displays.

Vendor shall provide functionality from each workstation to audibly annunciate each priority of alarm via a variable, configurable tone horn. In order to customize tones, the tone horn shall use standard sound files (i.e. .wav files). Sound level shall be capable of being modulated in the 50-120 dB range.

Vendor shall ensure that Alarm and Event logs shall be stored and available for retrieval for a minimum of 30 days on each server.

Vendor shall provide functionality to access alarm displays from any other workstation display in no more than two user actions. Separate lists for alarms and events shall be available. Provide ability for user to navigate through multi-page lists using forward or backward functions.

Vendor shall ensure that Alarm and Event Lists shall be available on the plant, area, group, tag, and device levels.

At a minimum, for analog points, Vendor shall ensure that the configurable triggers for process alarms shall include:

- a) Process variable high
- b) Process variable high high
- c) Process variable low
- d) Process variable low low
- e) Process variable rate-of-change high
- f) Process variable deviation from set point
- g) Process variable invalid value

At a minimum, for digital points, Vendor shall ensure that the configurable triggers for process alarms shall include:

- a) Either state
- b) Change of state

Vendor shall provide functionality to direct generated alarms and events to the plant printing system.

Vendor shall provide functionality to assign a priority to each alarm with the system accommodating at least 20 priority levels. The user shall have the ability to configure each level based on priority name, horn sound, and color annunciation.

Vendor shall provide functionality to assign alarm groups by process area, process location, asset type, and alarm priority.

Vendor shall ensure that the alarm display format shall be user configurable. However, the system shall provide a default alarm and event display that presents alarm and events in ascending order of time-based occurrence.

Vendor shall ensure that the alarm and event display shall sequentially display the following at a minimum:

- a) Process alarms
- b) System alarms
- c) Process events
- d) System events
- e) Operator actions

The system shall indicate process alarm state changes. At a minimum, these include:

- a) Unacknowledged alarm
- b) Unacknowledged alarms - returned to normal
- c) Acknowledged alarm
- d) Acknowledged alarms - returned to normal

Vendor shall ensure that the alarm and event display shall sequentially display Acknowledged alarms in a different color than unacknowledged alarms. Acknowledged cleared alarms shall disappear from the display.

Vendor shall ensure that the color of alarms and events displayed in graphics and in alarm and event summary displays shall be identical to the existing INFI-90 HMI system.

From any workstation in the system, Vendor shall ensure that it shall be possible with the proper authorization to acknowledge alarm conditions in no more than two actions. Acknowledgement from one workstation shall update the alarm state on every other system workstation.

From any workstation in the system, Vendor shall ensure that it shall be possible with the proper authorization to acknowledge alarm conditions as follows:

- a) Globally acknowledge alarms
- b) Acknowledge alarms by priority
- c) Acknowledge alarms by area

Vendor shall provide functionality to navigate from an individual alarm in the alarm list to any configured display or information attached to the Tag. A list with references to process displays where the alarming tag is represented shall be easily accessible.

Vendor shall ensure that alarm information shall be available in the following display formats:

- a) Active Alarm displays present a full window listing of all currently active alarms. From this display, provide functionality to acknowledge alarms on an individual basis or a per page basis.
- b) Alarm History displays present a full window listing of the most recent alarm events. This includes all state changes.
- c) Alarm band displays present the most recent unacknowledged alarms in a dedicated area of the operator workstation. This display shall always be visible to the user. Opening a display shall not cause overlap and covering of the alarm area.

Vendor shall ensure that alarm displays shall include a one-line alarm message with the following information:

- a) Alarm time stamp including date and time (hours, minutes, seconds)
- b) Tag Name
- c) Tag Description
- d) Alarm Description
- e) Alarm Priority
- f) Alarm State
- g) Desired state and actual state (for discrete alarms)
- h) Alarm limit and actual value with engineering units (for analog alarms)

3.14. PROCESS ALARM MASKING

Vendor shall provide functionality to mask alarms on a point-y-point or group basis. This can be accomplished by:

Automatically masking alarms upon the occurrence of another alarm or the equipment being out of service.

Manually masking alarms. This manual function is based on user privileges.

Vendor shall ensure that all masking functions shall be logged in the system audit trail. A list of hidden or masked alarms shall be available from the operator workstation.

3.15. TUNING

The HMI system shall include the ability to tune control modules from the workstations.

A tuning display shall be available to present data and to allow the tuning of control loops. The tuning display shall include a:

- a) Manual/auto station for the loop.
- b) Trend element for fast monitoring of the control output, set point, and process variable during tuning.
- c) PCU block specification detail element for adjusting loop tuning parameters.

Vendor shall ensure that controller tuning parameters shall be protected and only be visible and/or accessible with the right security and authentication from the workstation keyboard via password or key

4. ENGINEERING

4.1. GENERAL

Vendor shall provide an Engineering Workstation that utilizes an intuitive, easy-to-use, common system interface for direct access to all plant objects.

Vendor shall ensure that each Engineering Workstation shall have the minimum PC and peripheral software requirements specified in sections 3.2.10.6 and 3.2.10.7. See Appendix B for project specific quantity of Engineering Workstations.

4.2. SYSTEM CONVERSION

Vendor shall ensure that the graphics provided with the upgraded HMI shall have the same "look and feel" as the current graphics. To retain the same "look and feel", the new graphics will present to the operator:

The same static information as the current graphics.

The same dynamic information/tags as the current graphics.

The same screen to screen navigation as the current graphics.

The same process control access points as the current graphics.

The same faceplate pop-ups as the current graphics.

The same color code standards as the current graphics.

The same or better screen resolution as the current graphics which is 1280 x 1024.

Vendor shall ensure that graphic "conversion" will be a direct conversion of the current Bailey/ABB graphics or newly created graphics.

Vendor shall ensure that the new system, at a minimum, shall provide the same functionality as the current system.

Vendor shall estimate graphic conversion costs based on the complexity of the graphics. The following definitions apply when assessing complexity of a graphic:

A static item such as a steam line shall be counted as one item regardless of the number of graphic elements that are used to build the item.

A static item such as a reactor shall use minimal graphic elements to construct the reactor. In case of dispute, the Customer is the final arbiter of the definition and count.

A dynamic item is defined as:

- a) Display of a process value, set-point, output, etc.
- b) Display of a single trend. Additions to a trend are counted as an additional dynamic item.
- c) Display of an alarm window or alarm history window.

A pop-up is defined as any of the following:

- a) Display of a message.
- b) Display of an alarm condition.

- c) A pop-up graphic (that has not already been accounted as a regular graphic) shall be evaluated as a regular graphic.

A script could be necessary for the graphic to function as the previously unconverted graphic functioned.

A script is defined as any of the following:

- a) Any combination of code and logic that uses Visual Basic or any other programming language.
- b) Programming language is defined as any language commercially available or the Vendor's proprietary programming language.

MINIMUM INSURANCE REQUIREMENTS
CITY OF GRAND ISLAND, NEBRASKA

The successful bidder shall obtain insurance from companies authorized to do business in Nebraska of such types and in such amounts as may be necessary to protect the bidder and the interests of the City against hazards or risks of loss as hereinafter specified. This insurance shall cover all aspects of the Bidder's operations and completed operations. Failure to maintain adequate coverage shall not relieve bidder of any contractual responsibility or obligation. Minimum insurance coverage shall be the amounts stated herein or the amounts required by applicable law, whichever are greater.

1. WORKERS COMPENSATION AND EMPLOYER'S LIABILITY

This insurance shall protect the Bidder against all claims under applicable State workers compensation laws. This insurance shall provide coverage in every state in which work for this project might be conducted. The liability limits shall not be less than the following:

Workers Compensation	Statutory Limits
Employers Liability	\$100,000 each accident
	\$100,000 each employee
	\$500,000 policy limit

2. BUSINESS AUTOMOBILE LIABILITY

This insurance shall be written in comprehensive form and shall protect the Bidder, Bidder's employees, or subcontractors from claims due to the ownership, maintenance, or use of a motor vehicle. The liability limits shall be not less than the following:

Bodily Injury & Property Damage	\$ 500,000 Combined Single Limit
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3. COMPREHENSIVE GENERAL LIABILITY

The comprehensive general liability coverage shall contain no exclusion relative to explosion, collapse, or underground property. The liability limits shall be not less than the following:

Bodily Injury & Property Damage	\$ 500,000 each occurrence
	\$1,000,000 aggregate

4. UMBRELLA LIABILITY INSURANCE

This insurance shall protect the Bidder against claims in excess of the limits provided under employer's liability, comprehensive automobile liability, and commercial general liability policies. The umbrella policy shall follow the form of the primary insurance, including the application of the primary limits. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	\$1,000,000 each occurrence
	\$1,000,000 general aggregate

5. ADDITIONAL REQUIREMENTS

The City may require insurance covering a Bidder or subcontractor more or less than the standard requirements set forth herein depending upon the character and extent of the work to be performed by such Bidder or subcontractor.

Insurance as herein required shall be maintained in force until the City releases the Bidder of all obligations under the Contract.

The Bidder shall provide and carry any additional insurance as may be required by special provisions of these specifications.

6. CERTIFICATE OF INSURANCE

Satisfactory certificates of insurance shall be filed with the City prior to starting any work on this Contract. **The certificates shall show the City as an additional insured on all coverage except Workers Compensation. The certificate shall state that thirty (30) days written notice shall be given to the City before any policy is cancelled (strike the "endeavor to" wording often shown on certificate forms). If the bidder cannot have the "endeavor to" language stricken, the bidder may elect to provide a new certificate of insurance every 30 days during the contract. Bidder shall immediately notify the City if there is any reduction of coverage because of revised limits or claims paid which affect the aggregate of any policy.**