



**American Samoa Power Authority**

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Pago Pago, American Samoa 96799

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**REQUEST FOR QUOTATIONS (RFQ)**

**FOR**

**SUPPLY & DELIVERY OF ELECTRO-MECHANICAL EQUIPMENT FOR WELL #24  
CONNECTION PROJECT**

**December 13, 2018**

**RFQ NO. ASPA19.005.ESD-WTR**

Closing Date/Time: January 3, 2019 at 2:00 pm American Samoa Time

QUOTATION Delivery Location: Procurement Office  
New Operations Building  
Tafuna Power Plant Compound

**APPROVED FOR ISSUANCE:**

**ASPA Acting Executive Director**

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**NOTICE TO OFFERORS**

**ISSUANCE DATE:** December 13, 2018

**RFQ NO.** ASPA19.005.ESD-WTR

**PROJECT NAME:** SUPPLY & DELIVERY OF ELECTRO-MECHANICAL EQUIPMENT FOR WELL #24 CONNECTION PROJECT

**CLOSING DATE/TIME:** January 3, 2019 at 2:00 pm American Samoa Time

The American Samoa Power Authority (ASPA) invites Quotations for the Supply & Delivery of Electro-Mechanical Equipment for Well #24 Connection Project.

Technical Specifications: The complete description of required deliverables is listed in the **Attachment H**.

Documents:

This RFQ may be viewed online on ASPA Website [www.aspower.com](http://www.aspower.com). Offerors may also pick up a complete package at:

ASPA Procurement Office  
New Operations Building  
Tafuna Power Plant Compound  
Tafuna, American Samoa 96799

For more information about this RFQ, you may contact ASPA:

Ioana S. Uli, Procurement Manager  
Procurement Office  
Telephone (684) 248-1247  
[bids@aspower.com](mailto:bids@aspower.com)

**The American Samoa Power Authority reserves the right to:**

1. Reject all Quotations and reissue a new or amended RFQ;
2. Request additional information from any Offerors submitting a Quotation;
3. Negotiate a Contract with the firm selected for award; and
4. Waive any non-material violations of rules set up in this RFQ at its sole discretion.

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Approved for Issuance: Acting Executive Director

**QUOTATIONS INVITATION**

AMERICAN SAMOA POWER AUTHORITY:  
Procurement Office  
P.O. BOX PPB  
PAGO PAGO, AS 96799  
(684) 248-1234

**ISSUANCE DATE:** December 13, 2018

**RFQ NO.** ASPA19.005.ESD-WTR

**PROJECT NAME:** Supply & Delivery of Electro-Mechanical Equipment for Well #24 Connection Project

1) This Request for Quotation shall require an original, one PDF electronic copy, and five hard copies to be submitted in a sealed envelope, box, or other enclosure. All submittals must be received at ASPA Procurement Office no later than **2:00 p.m. on January 3, 2019**. The envelope or box must be labeled:

**ASPA Procurement Office  
Attn: Ioana S. Uli, Procurement Manager  
P.O. Box PPB, Pago Pago, AS 96799.  
RFQ NO.ASPA19.005.ESD-WTR**

**PROJECT NAME: SUPPLY & DELIVERY OF ELECTRO-MECHANICAL EQUIPMENT FOR WELL #24 CONNECTION PROJECT**

**Quotations must be in the actual possession of the Procurement Manager at the location indicated, on or prior to the exact date and time indicated above.**

A copy of this solicitation and any addenda may be obtained from our Internet Website at: <http://www.aspower.com> by selecting the Procurement link and the associated solicitation number.

Late submittals will not be opened or considered and will be determined as non-responsive. The prevailing clock shall be ASPA Procurement Manager clock. All Offerors shall provide sufficient written and verifiable information that responds to the requirements set forth herein, the Contract Documents, and in the Scope of Work OR Material Specifications.

Offerors may submit their Quotations through the following means:

Electronic File Transfer – The Offeror may submit the Quotation using the electronic mail facility. This will enable the Offerors to upload Quotation file by email attachment. The Quotations must be uploaded before **2:00 PM on January 3, 2019, American Samoa Time.**

**NOTICE TO OFFERORS:**

This Quotation is subject to the attached General Terms and Conditions of the Request for Quotations for:

**RFQ NO.ASPA19.005.ESD-WTR  
SUPPLY & DELIVERY OF ELECTRO-MECHANICAL EQUIPMENT FOR WELL #24 CONNECTION PROJECT**

The undersigned offers and agrees to furnish within the time specified, the articles and services at the price stated opposite the respective terms listed on the schedule provided, unless otherwise specified by an Offeror. In consideration of the expense of the American Samoa Power Authority in opening, tabulating, and evaluating this and other Quotations, and other considerations such as the schedule, the undersigned agrees that this Quotation shall remain firm and irrevocable

for One Hundred Twenty Day (120) calendar days from the listed Quotation opening date or until a construction services agreement may be jointly enacted between ASPA and the undersigned party.

It is the responsibility of each Offeror before submitting a Quotation to (a) examine the documents contained in the Quotation package thoroughly; (b) visit the site or to otherwise become familiar with local conditions that may in any manner affect cost, progress, or performance of the work; (c) become familiar with federal, territorial, and local laws and ordinances, rules and regulations that may in any manner affect cost, progress, or performance of the work; (d) study and carefully correlate Offeror's observations with the Quotation package documents; and (d) notify ASPA of all conflicts, errors, or discrepancies in the Quotation package documents.

Soliciting or accepting any gift, gratuity, favor, entertainment, kickback or any items of monetary value from any person who has or is seeking to do business with ASPA is prohibited. Any vendor knowing of this type of activity is encouraged to report in confidence to ASPA's legal department so the matter can be dealt with.

SIGNED: \_\_\_\_\_ DATE \_\_\_\_\_

**AMERICAN SAMOA POWER AUTHORITY**

**SPECIAL REMINDER TO PROSPECTIVE OFFERORS**

Offerors are reminded to read the Quotation Solicitation Instructions and General Terms and Conditions attached to a QUOTATION Invitation to ascertain that all of the following requirements (see check boxes) of the Quotation are submitted in the Quotation envelope at the date and time for Quotation opening.

- [x]            **1.        QUOTATION FORMS**  
Attachment A: Quotation Transmittal Form  
Attachment B: Quotation Form  
Attachment C: Offeror's Qualifications Sheet  
Attachment D: Disclosure Statement  
Attachment E: Non-Collusion Affidavit of Prime Offeror  
Attachment F: Technical Specifications

- [x]            **2.        BUSINESS LICENSE**  
  
Offerors must submit current business AND current contractor's license as stated below (see General Terms and Condition for more information).

- [x]            **3.        QUOTATION**  
  
The Quotation must include all of the following to be deemed responsive:
- a. The contractor's Quotation price for the purchase and delivery of all materials listed in the Quotation Form.
  - b. All items as listed above in #1 from Attachments A to F.

**This Notice must be signed and returned in the Quotation envelope. Failure to comply with requirements will mean disqualification and rejection of the Quotation.**

I, \_\_\_\_\_, authorized representative of \_\_\_\_\_, acknowledge receipt of this special reminder to prospective Offerors together with Quotation#: **RFQ NO.ASPA19.005.ESD-WTR-Supply & Delivery of Electro-Mechanical Equipment for Well #24 Connection Project**

this date of \_\_\_\_\_, 2018.

\_\_\_\_\_  
Offeror's Representative's Signature

**GENERAL TERMS AND CONDITIONS OF THE REQUEST FOR QUOTATIONS  
(SUPPLY CONTRACTS)**

**1. QUOTATION PREPARATION INSTRUCTION**

The Quotation must contain two (2) parts. Offerors shall prepare their Quotations in detail accordingly.

1. Prior Related Experience/Past Performance – A description of the firm’s related experience, background, past performance and credentials as stated on the Offeror Qualification Sheet, Attachment D, which is incorporated herein as if fully set forth.
2. Contract Price – The contractor’s Quotation price for all services and materials, including a breakdown of project costs (e.g. estimated costs for materials, cost for labor, shipping, customs fees, 8% excise tax, etc.) must be provided on the Quotation Form, Attachment C.

All blank spaces in the Quotation form must be completed in ink. **Prices Quotation shall be in United States dollars in both words and figures where required.** No changes shall be made in the phraseology of the forms. Written amounts shall govern in cases of discrepancy between the amounts stated in writing and the amounts stated in figures. In case of discrepancy between unit prices and totals, unit prices will prevail. Any Quotation shall be deemed informal which contains omissions, erasure, alterations or additions of any kind, or prices uncalled for, or in which any of the prices are obviously unbalanced, or which in any manner shall fail to conform to the conditions of the Notice to Offerors. The Offeror shall sign the Quotation in the space provided. If the Offeror is a corporation, the legal name of the corporation shall be set for the above, together with the signature of the officer or offices authorized to sign Contracts on behalf of the corporation. The typewritten name shall be inserted with each signature. If the Offeror is a partnership, the true name of the firm shall be set forth above, together with the signature of the partner or partners authorized to sign Contracts on behalf of the partnership. If signature is by an agent, other than an officer of a corporation or a member of a partnership, a notarized power-of-attorney must be on file with ASPA prior to opening of Quotations or submitted with the Quotation, otherwise the Quotation will be regarded as not properly authorized.

Offerors are expected to examine the specifications, invitations, and all instructions. Failure to do so will be at the Offeror’s risk.

Quotations must be in ink or printed on the Quotation Form(s) furnished herewith. Quotations submitted in partial will be rejected. Quotations containing alterations will be rejected unless the alterations are crossed out and corrections thereof printed in ink or typewritten adjacent thereto and initialed by the person signing the Quotation. In addition, a statement must be furnished with the Quotation signed by the Offeror explaining the correction of the alteration or erasure.

If the Offeror is a partnership, a letter of authorization shall be furnished and signed by all of the general partners. If the Offeror is a proprietor, and the person signing the Quotation is other than the owner, a letter of authorization signed by the owner shall be furnished.

The Offeror must sign his Quotation correctly and in ink. If the Quotations is offered by an individual or partnership, his name, office and post addresses must be shown. If offered by a corporation, the person signing the Quotations must give his name, title and business address. Anyone signing a Quotation as agent must file legal evidence of his authority to do so, and that the signature is binding upon the firm or corporation.

Alternate Quotations will not be considered unless authorized by the invitation. Alternate Quotations are those offered which do not meet the specification and are not considered approved equal to the item specified.

When not otherwise specified, the Offeror must state a definite time of proposed delivery. Time, if stated as a number of days will include Sundays and holidays.

**Submission of Quotations:**

RFQ NO. ASPA19.005.ESD-WTR  
SUPPLY & DELIVERY ELECTRO-MECHANICAL EQUIPMENT FOR WELL #24 CONNECTION PROJECT

All interested parties must submit sealed Quotations subject to the Terms and Conditions of the Request for Quotations and General Conditions, which are incorporated herein by reference, and such other provisions and specifications are attached or incorporated by reference.

Quotations shall be submitted to the ASPA Procurement Office no later than **January 3, 2019 at 2:00 pm, American Samoa Time**.

### **Rejection of Quotations**

ASPA may, after opening but prior to award and within the time specified for acceptance, reject any or all Quotations, or the Quotation for any one or more commodities or contracted services included in the proposed contract, when the public interest will be served thereby.

## **2. ATTACHMENTS**

- Attachment A: Quotation Transmittal Form
- Attachment B: Quotation Form
- Attachment C: Offeror's Qualifications Sheet
- Attachment D: Disclosure Statement
- Attachment E: Non-Collusion Affidavit of Prime Offeror
- Attachment F: Technical Specifications

## **3. PRE-QUOTATION QUESTIONS**

Any pre-Quotation questions and/or clarifications shall be submitted in writing to the Procurement Office via [bids@aspower.com](mailto:bids@aspower.com) through electronic mail or in hard copy. All pre-Quotation questions must be received no later than **4:00 p.m. on December 7, 2018**. After that time, ASPA will issue addenda to address any questions and/or clarifications as may be necessary on **December 14, 2018**.

## **4. PAYMENT TERMS**

Net 30 days upon receipt of materials.

Payment terms may be negotiable. (Pre-payment is not acceptable)

## **5. TYPE OF CONTRACT**

Services, materials, product or equipment provided and delivered by the successful Offeror will be performed under a firm fixed-price, lump sum contract agreement. The successful Offeror, as an independent contractor shall furnish the necessary equipment, personnel, tools, parts, supplies, insurance, licenses, and all other required items and services and otherwise do all things necessary to meet the requirements specified in these documents to the satisfaction of ASPA on a per unit cost basis.

The Contractor shall be an independent contractor and not an agent or employee of ASPA.

ASPA will not be held responsible in any way for claims filed by the Contractor or its employees for services performed under the terms of this RFQ or the contract.

## **6. AWARD OF CONTRACT**

Within thirty (30) calendar days after the opening of Quotations, unless otherwise stated in the Notice to Offerors, ASPA will accept one of the Quotations in accordance with the section entitled "Basis of Award," below. The acceptance of the Quotation will be by written Notice of Award, mailed or delivered to the office designated in the Quotation. In the event of failure of the lowest responsive, responsible Offeror to sign and return the Contract with acceptable payment and performance bonds, as prescribed herein, ASPA may award the contract to the next lowest responsive, responsible qualified Offeror. Such award, if made, will be made within ninety (90) days after the opening of Quotations. Before a Contract is finalized, ASPA may require the apparent low Offeror to submit a complete statement of the origin, composition, manufacture and availability of replacement parts and services for any or all



materials to be used in the work, together with samples. These samples may be subjected to the tests provided for in these Contract Documents to determine their quality and fitness for the work.

## **7. PRIMARY OFFEROR**

The award, if made, will be to a single Offeror. The selected primary Offeror will be responsible for successful performance of all subcontractors and support services offered in response to this Quotation. Furthermore, the ASPA will consider the primary Offeror to be the sole point of contact regarding contractual matters for the term of the Agreement. The Offeror must not assign financial documents to a third-party without prior written approval by ASPA, and an amendment to the resulting Agreement.

## **8. BUSINESS LICENSE**

All Offerors shall be appropriately licensed in accordance with the state, territory, and/or country of the Offeror's origin and shall be skilled and regularly engaged in the general type and capacity of work called fo under this RFQ.

## **9. INSURANCE**

The Contractor shall obtain the insurance coverage designated herein and pay all costs associated therewith. Such insurance shall be for the coverage of the shipment of materials to ASPA Tafuna Warehouse inside the Tafuna Compound.

## **10. BASIS OF AWARD**

Award is made to the lowest responsive, responsible Offeror providing the best value to the American Samoa Power Authority.

At the time of Quotation opening, each Quotation will be checked for the presence or absence of required information in conformance with the submission requirements of this RFQ.

ASPA will evaluate each Quotation to determine its responsiveness to the published requirements.

Unless the Procurement Manager determines that satisfactory evidence exists that a "mistake" has been made, as set forth in Procurement Rule § 3-114, Offerors will not be permitted to revise their Quotations after Quotation opening.

Negotiations are not allowed and price and complete shipping charges, taxes, customs fees is the major determining factor for selection and award.

Quotations will be evaluated by according to ASPA's Procurement Rules and criteria set forth in these Quotation documents.

## **11. QUALIFICATION OF OFFEROR**

ASPA may make such investigations as it deems necessary to determine an Offeror's ability to enter into and perform the agreement, and the Offeror shall furnish to ASPA such information and data for this purpose as ASPA may request, or the Offeror may be deemed non-responsive.

## **12. MULTIPLE QUOTATIONS – COLLUSION**

If more than one Quotation is submitted by any one party or in the name of its clerk, partner or other person; all Quotations submitted by said party may be rejected by ASPA. This shall not prevent an Offeror from submitting alternate Quotations when called for. A party who has proposed prices on materials is not thereby disqualified from quoting prices to other Offerors or from submitting a Quotation directly to ASPA.

If ASPA believes that collusion exists among any Offerors, none of the participants in such collusion shall be considered.

Quotations in which the contract prices are unbalanced or unrealistic may be rejected at ASPA's sole discretion.

## **13. OFFEROR'S UNDERSTANDING**

RFQ NO. ASPA19.005.ESD-WTR  
SUPPLY & DELIVERY ELECTRO-MECHANICAL EQUIPMENT FOR WELL #24 CONNECTION PROJECT

Each Offeror must understand and acknowledge the conditions relating to the execution of the work and it is assumed that it will make itself thoroughly familiar with all of the Contract Documents prior to execution of the written contract.

Each Offeror shall inform itself of, and shall comply with, federal and territorial statutes and ordinances relative to the executing of the work. This requirement includes, but is not limited to, applicable regulations concerning protection of public and employee safety and health, environmental protection, historic preservation, the protection of natural resources, fire protection, burning and non-burning requirements, permits, fees, and similar subjects.

**Costs of Transportation.** The Contractor will be expected but not required to include in its Quotation, among other things, costs of transporting product, excise tax (8%), customs fees, equipment and materials to and from the American Samoa Power Authority Tafuna Warehouse.

**Equipment Warranty and Maintenance Requirements.** All Quotations should include the warranty cost of equipment and workmanship warranty, or length of warranty specified in the materials specifications, attached hereto as Attachment B. Warranties shall include the cost of all parts, labor, equipment, shipping, and onsite visits to repair or replace any deficient equipment, material, or workmanship.

#### **14. WITHDRAWAL OF QUOTATION**

Any Quotation may be withdrawn prior to the scheduled time for the opening of Quotations by notifying ASPA in a written request. No QUOTATION may be withdrawn after the time schedule for opening of Quotations.

#### **15. OPENING AND EVALUATION OF QUOTATIONS**

In accordance with ASPA Procurement Rule §3-110, Quotations will be opened and recorded on the assigned date and at the time indicated above at the Procurement Conference Room located inside the New Operations Building at the ASPA Tafuna Plant or in another place designated by the ASPA Procurement Manager in writing.

#### **16. EXECUTION OF CONTRACT**

The Contractor shall, after receiving the Notice of Award, sign a contract and deliver to ASPA the contract, together with all any requirements included in this Quotation document.

#### **17. ASSIGNMENT**

The Contractor shall not assign, transfer, convey or otherwise dispose of the award or the contract, or its right, title or interest therein, or its power to execute such contract, to any other persons, firms or corporations without the prior consent in writing of ASPA.

#### **18. RFQ CONDITIONS**

This RFQ does not commit ASPA to award a contract or to pay any cost incurred in the preparation of a Quotation. The American Samoa Power Authority reserves the right to:

Reject any Offeror for being non-responsive to RFQ requirements contained in this RFQ or for being non-responsible;

Reject all Quotations and reissue an amended RFQ;

Negotiate a contract with the Offeror selected for award; and

Waive any non-material violations of rules contained in this RFQ.

ASPA reserves the right to issue any addendum to this RFQ. Offerors shall send ASPA a signed form confirming receipt of any addendum, and shall submit supporting/additional information as required by any addendum. In the event that an Offeror fails to acknowledge receipt of any such addendum in the space provided, such Offeror's Quotation shall be considered irregular and will be accepted by ASPA only if it is in ASPA's best interest, as determined by ASPA in its sole discretion. In the event that addenda are not received until after the Offeror has

submitted its Quotation, a supplementary Quotation may be submitted revising the original Quotation. Such supplementary Quotations must be received by ASPA prior to the scheduled time for opening of Quotations.

**19. COMPLIANCE WITH LAWS**

Offerors who are awarded a contract under this solicitation shall comply with the applicable standards, provisions and stipulations of all pertinent Federal and/or local laws, rules and regulations relative to the performance of this contract and the furnishing of goods.

**20. AWARD, CANCELLATION, AND REJECTION**

Contract award shall be made to the responsible Offeror submitting the lowest responsive Quotation. No other factors or criteria shall be used in the evaluation.

ASPA reserves the right to waive any minor irregularities in the Quotation received. The Procurement Manager shall have the authority to award, cancel, or reject Quotations, in whole or in part for any one or more items if she determines it is in the best public interest. It is the policy of ASPA to award contracts to qualified Offerors. ASPA reserves the right to increase or decrease the quantity of the items for award and make additional awards for the same type items based on the Quotation prices for a period of thirty (30) days after the original award.

**21. OFFEROR'S QUALIFICATION DATA**

It is the intention of ASPA to award a contract only to the Contractor who is able to furnish satisfactory evidence that it has the requisite experience and ability and that it has sufficient capital, facilities and plant to enable it to perform the work successfully and promptly and to complete it within the term set forth in the contract. Each Offeror shall submit as part of the total QUOTATION package, the following information:

Name of organization;

Address and phone number of home office, principal place of business and locations and contact information for any branch offices;

Type of business structure, e.g., corporation, partnership, joint venture, proprietorship;

Place of organization or state of incorporation;

Names and addresses for all owners for businesses other than corporations;

For corporations, list the names and addresses of directors, officers and stockholders with twenty percent (20%) ownership interest or greater;

Places, including individual states and territories of the United States, where registered as a foreign corporation;

Name of awarding agency or owner for which work was performed;

Dates of performance;

Whether performance was completed within the specified time under the contract and, if not, why;

The names and addresses of three references, at least one of which should be a bank or other lending institution, governmental agency or bonding company.

**22. Delivery and Remedies for Default**

All Quotation prices are to include delivery to the place designated by ASPA which shall be **CIF American Samoa Power Authority Tafuna Warehouse**. No charges for delivery, parcel post, packing, cartage, insurance, license fees, or for any other purpose will be paid by ASPA.

All items covered by this contract shall be subject to inspection and acceptance at destination. Any material found to be damaged, as well as broken seals on packages or unmarked packages shall be removed and replaced by the Contractor at no cost to ASPA.

In the event any item furnished by the Contractor in performance of the contract should fail to comply with the specifications established as a basis for award of the Invitation, ASPA may reject the same, and it shall thereupon become the duty of the Contractor to reclaim and remove the same forthwith without expense to ASPA, and immediately to replace all such rejected items with others conforming to said specifications; provided that should the Contractor fail, neglect or refuse to do so, ASPA shall thereupon have the right to purchase in the open market, at the then prevailing price, a corresponding quantity of any such items, and to deduct from any monies due or that may thereafter become due to the Contractor the difference between the price named in the contract and the actual cost thereof to ASPA. In addition and without limiting any other remedies available to ASPA, the Contractor shall be liable for all losses, costs and expenses incurred by ASPA.

Acceptance of items at destination shall not relieve the Contractor from the obligation to correct any incomplete, inaccurate, or defective deliveries in accordance with these General Conditions. The time of delivery as set forth herein is an integral part of this Solicitation and resulting contract. If Contractor fails to make delivery within the time established and agreed upon by both parties, ASPA may, at its option, declare the Contractor to be in default, and his Quotations and resulting contract to be null and void or ASPA shall charge the Contractor a fee of \$100 per day until the default has been remedied. Contractors shall be excused from performing hereunder during the time and to the extent that they are prevented from obtaining, delivering, or performing in the customary way because of fire, strike, acts of God, partial or total interruption, providing it is satisfactorily established that the non-performance is not due to fault or negligence of the party not performing.

Offeror shall indicate in its Quotation the lead time for delivering.

ASPA shall be notified by the vendor if the product ordered cannot be delivered within the time period to give ASPA the opportunity to secure product elsewhere.

ASPA reserves the right to purchase products on open market if vendor cannot supply products within time specified in this contract.

### **Prices**

All prices Quotation shall be firm and not subject to increase if accepted during the acceptance period. Quotations containing an "escalation clause" will not be considered unless specifically authorized by ASPA in the Request for Quotations.

For each item Quotation, a unit price and a total for the quantity must be stated. The unit price shall always control.

All prices shall be CIF (Cost, Insurance and Freight) destination. The seller hereunder must at his own expense and risk, transport the goods to the American Samoa Power Authority Tafuna Warehouse.

### **Product Guarantee**

Products sold under the contract must be guaranteed by the vendor. Orders not filled and partials shall be indicated on the packing list. Vendor shall inform the Procurement Manager of anticipated delivery date for unfilled and partial orders.

### **Return Policy**

Products can be returned for full credit within 30 days from the date of purchase. If an item is received damaged or defective, the vendor will replace the item at no charge. Should ASPA encounter a warranty/return issue, the product will be returned to the vendor for full credit or a replacement.

### **Specifications**

All specifications included as a part of this Invitation are designed to set forth the level of quality and performance desired by ASPA, and is intended to be descriptive, not restrictive. Whenever any article, material, or equipment is described by use of a product or brand name, or by using the name of a manufacturer or vendor, the use of same is for informative purposes only, and the term "or equal" if not inserted, is implied.

Offerors may submit alternate offers on items they deem to be equal or superior in quality and performance to the specifications set forth. However, such offers must designate the manufacturer, brand or trade name, and model number of the items offered, and be accompanied by descriptive material in the form of literature, catalog cuts and specifications fully describing the items proposed, and detailing any deviations from the specification established by ASPA. Failure to provide this information will be at Offeror's risk and may be cause for rejection of the items offered.

ASPA reserves the right to require such additional information, samples and, if practicable, demonstration of items offered as may be necessary to allow a full and complete evaluation of all Quotations. Samples and/or demonstrations will be supplied promptly and free of charge to ASPA. Failure to provide samples within a set of business days agreed upon by both parties may be grounds for Quotation rejection. Samples will upon request, and if not destroyed by testing, be returned at the Offeror's expense.

The responsibility to determine the equivalence of quality and performance of any item offered to the specifications established for this Invitation rests solely with ASPA and its decision shall be final.

ASPA reserves the right to require such additional information, samples and, if practicable, demonstration of items

#### **Warranty**

The Contractor warrants;

- that goods, supplies, materials, and equipment covered by this contract conform to the specifications, design, drawings, samples and other descriptions referred to in this contract;
- that such goods, supplies, materials, and equipment are free from defects in materials and workmanship, patent or latent; and
- that such goods, supplies, materials and equipment are fit for ordinary purposes for which they are used, and fit for such particular purposes as the Contractor has reason to know or should know.

#### **23. Conflict of Interest**

No member, officer, or employee of ASPA during his/her tenure or for one year thereafter shall have any interest, direct or indirect, in any property included, or any contract for property, materials, or services to be furnished or used in connection with this contract or the proceeds thereof.

#### **24. Assignment**

The Contractor's obligation and duties under this contract shall not be assigned in whole or in part by the Contractor without the prior written approval of ASPA.

#### **25. Indemnification**

Contractor agrees to investigate, defend and hold ASPA harmless from and against any and all loss, damage, liability, claims, demands, detriments, cost, charges and expense (including attorney's fees), and causes of action of whatsoever character which ASPA may incur, sustain or be subjected to, arising out of or in any way connected to the services to be performed by Contractor or subcontractor under this Contract and arising from any cause, except the sole negligence of ASPA.

**ATTACHMENT A**

**QUOTATION TRANSMITTAL FORM**

Date: \_\_\_\_\_

AMERICAN SAMOA POWER AUTHORITY  
American Samoa Government

To Whom It May Concern:

The undersigned (hereafter called an Offeror), \_\_\_\_\_(Corporation,  
Partnership or Individual)

hereby proposes and agrees to furnish all the necessary information pertaining to:

**RFQ NO.ASPA19.005.ESD-WTR**

**Supply & Delivery of Electro-Mechanical Equipment for Well #24 Connection Project**

In accordance with the Materials Specification (Attachment B), General Terms and Conditions, the Project Specifications, Approved Design and Construction Plans, and other procurement requirements specified in this document for the prices stated in the itemized Quotation form(s) attached hereto, plus any and all sums to be added and/or deducted resulting from all extra and/or omitted work in accordance with the unit and/or lump sum prices stated in the itemized Quotation form attached hereto.

The undersigned has read and understands the Quotation requirements, and is familiar with and knowledgeable of the local conditions at the island-wide location(s) where the work is to be performed. The Offeror has read the RFQ Instructions and General Terms and Conditions attached to ascertain that all of the requirements (see boxes) of the Quotation are submitted in the Quotation envelope, with an original, one PDF electronic copy, and five (5) hard copies, at the date and time for Quotation opening. (See Page 6 of this document, "SPECIAL NOTICE TO PROSPECTIVE OFFERORS" to verify that all submittal requirement boxes have been checked).

\_\_\_\_\_  
Signed

Seal

Date: \_\_\_\_\_

**ATTACHMENT B**

**QUOTATION FORM**

TO: American Samoa Power Authority, Attn: Procurement Manager  
 ADDRESS: P.O. Box PPB, Pago Pago, American Samoa, 96799  
 TITLE: **Supply & Delivery of Electro-Mechanical Equipment for Well #24 Connection Project**  
 RFQ NO. ASPA19.005.ESD-WTR

Item	QTY	UNIT	DESCRIPTION	U/COST	AMOUNT
<b>MECHANICAL EQUIPMENT AND MATERIALS</b>					
1	2	sets	4"Ø Grundfos/Franklin or approved equal submersible pump model 85S75-5, equipped with built-in check valve and SS suction strainer.		
2	2	ea	3" X 4" 316SS pump coupling reducer		
3	1	set	4"Ø MJK brand Mag Flux flow meter, 7200 sensor, ANSI, 304 SS carbon steel flanges, 316 SS electrodes with SCADA, ModBus, RS485, USB & Bluetooth communication module.		
4	1	set	MJK Mag Flux converter and display with wall mounting housing (with MJK sensor mounted connection board, 120 VAC).		
5	2	ea	MJK Mag Meter sensor connection board, 120VAC		
6	30	feet	Mag Flux sensor cable, 7/16" O.D. (green color cable)		
7	10	ea	4"X20 feet PVC-1120 sch80 Code H, Johnson Screens® heavy duty riser/column pipes, 160 PSI@73°F, ASTM-D1785, NSF61		
8	10	ea	4"Ø SS heavy duty riser/column pipes coupling		
9	2	ea	4"Ø SS Flomatic heavy duty riser/column pipe check valve		
10	2	ea	4"Ø single arc rubber expansion joint, FLGXFLG		
11	3	ea	4"ØX 3/4"ØSS single strap pipe saddle		
12	2	ea	4"Ø 316SS grounding ring flange.		
13	2	ea	3/4" Ø Plast-O-Matic brand PVC air release valve (ARV) assembly, threaded type, 0-60 PSI operating pressure		
14	2	ea	2-1/2"Ødial face, 0-100 PSI pressure range, water/oil filled, 1/2" lower mount		
15	1	ea	4"X4"X4" ductile iron tee, FLGXFLGXFLG		
16	2	ea	4"ØLug style, wafer type, gear operated butterfly valve with operating handwheel (OHW)		
17	2	ea	4"Øglobe type spring loaded silent check valve, FLGXFLG		
18	1	ea	4"ØX24"(L) ductile iron spool pipe, FLGXFLG		
19	3	ea	4"ØX12"(L) ductile iron spool pipe, FLGXFLG		
20	1	ea	4"ØX36"(L) ductile iron spool pipe, FLGXFLG		
21	1	ea	4"ØX80"(L) ductile iron spool pipe, FLGXFLG		
22	3	ea	4"ØX45° ductile iron elbow, FLGXFLG		
23	1	ea	6"ØX4"Ø ductile iron reducer, FLGXFLG		
24	1	ea	6"Ø ductile iron sleeve coupling for PVCC900		
25	15	ea	4"ØX1/8"Ø thick red rubber flanged gasket		
26	150	ea	5/8"ØX3" SS hex head bolts, nuts and flat washers		

27	20	ea	5/8"ØX6-1/2"(L) full thread SS head bolts, nuts and flat washers		
<b>ELECTRICAL EQUIPMENT AND MATERIALS</b>					
1	1	roll	Size #6AWGX1000 feet, 4-wire with ground Hydroflex-flexible rubber submersible pump cable, Ethylene Propylene Rubber (EPR) insulation, Chlorinated Polyethylene Rubber (CPE) outer jacket flat cord submersible cable		
2	2	sets	4"Ø, 10 HP Franklin submersible motor assembly, three (3) phase, 230 volts, 60 hzAC		
3	2	sets	15 HP, Variable Frequency Drive (VFD) brand motor control, 230 volts, SINGLE (1) PHASE incoming voltage – THREE (3) PHASE outgoing voltage, 60hzAC, VLT Aqua Drive, E66 NEMA 4X/IP66 outdoor/indoor rated enclosure with conformal coating and fused disconnect, analog I/O, lightning arrester all rating and 2 years warranty. VFD shall Danfoss, Allen Bradley or approved equal.		
4	2	sets	VFD spare fuses rated at 15 HP, 230 volts(1 pack – 3 fuses)		
5	4	ea	Danfoss brand pressure transmitter, 0-100 pressure range		
6	2	ea	Cutler Hammer / Allen Bradley, Three (3) phase molded case circuit breaker, 3-pole, 100 Amps. 230 volts, 18 KAIC@230V, with terminal lugs.		
7	1	ea	Platt Electric Supply Meter sockets with bypass, 200 Amps., three (3) phase, 7 jaw, ring type, 4-wire, 300V, surface mount, top/bottom feed, test block bypass, NEMA3R, 30"X14"X6", 127TB, Item # 015640, Mfg. Copper B-Line		
8	2	ea	Allen Bradley, 100K05D300 Contactor		
9	2	ea	Allen Bradley, 100K12D10M Contactor		
Above price shall include all costs such as, shipping, insurance and taxes and other cost that may be incurred to satisfy the full requirements of the Bid Documents.					
Total Base Bid ( FOB/CIF ASPA Tafuna):				\$ _____	
_____ (Amount in Words)					

The OFFEROR shall submit together with this QUOTATION all other resources, together with a corresponding schedule required to complete the job. QUOTATIONS without the foregoing will be considered non-responsive and may cause the rejection of the QUOTATION at ASPA's sole discretion. All blanks on the QUOTATION Form shall be typewritten or handwritten in blue or black ink.

1. SUBCONTRACTORS. A list of intended subcontracting firms or businesses together with the type or description of the work to be subcontracted shall be attached to this QUOTATION Form.



IN WITNESS THEREOF, the undersigned has caused this instrument to be executed by its duly authorized officers on this \_\_\_\_\_ day of \_\_\_\_\_, 2018.  
OFFEROR:

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

**ATTACHMENT C**

**OFFEROR'S QUALIFICATIONS SHEET**

(Please Print or Type and Complete All Sections. An incomplete section will be considered non-responsive. Use additional sheets if necessary.)

1. Name of Offeror \_\_\_\_\_

2. Name of Official Representative \_\_\_\_\_

3. Business Address/e-mail  
\_\_\_\_\_  
\_\_\_\_\_

4. Telephone, Fax and Official Contact Person  
\_\_\_\_\_  
\_\_\_\_\_

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5. Type of Business Structure (Please check)

\_\_\_\_ Corporation    \_\_\_\_ Partnership    \_\_\_\_ Joint Venture

\_\_\_\_ Proprietorship

NOTE: Corporations must complete the recordation of their Articles of Incorporation, which is evidenced by the Certificate of Incorporation issued by the Treasurer of the American Samoa Government. Copies of partnership agreements and articles of incorporation should be submitted to the Revenue Branch along with this application form and relevant documents. Aliens cannot operate sole ownership enterprises, and partnerships with aliens are subject to review by the Immigration Board.

6. Number of years the Offeror has been engaged in its current company business under the present firm name indicated \_\_\_\_\_

7. Type of work generally performed by Offeror

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8. List all major projects of a similar nature for the supply of materials for Water Pipe Projects, which have been completed by the Offeror within the last three years, the total dollar amount of each project and the owner/contact person as a reference (attach additional sheets as necessary).

- Order Name \_\_\_\_\_  
Date Completed \_\_\_\_\_ Total Order Cost \$ \_\_\_\_\_  
Name of Owner \_\_\_\_\_  
Owner's phone number \_\_\_\_\_

- Order Name \_\_\_\_\_  
Date Completed \_\_\_\_\_ Total Order Cost \$ \_\_\_\_\_  
Name of Owner \_\_\_\_\_  
Owner's phone number \_\_\_\_\_

- Order Name \_\_\_\_\_  
Date Completed \_\_\_\_\_ Total Order Cost \$ \_\_\_\_\_  
Name of Owner \_\_\_\_\_  
Owner's phone number \_\_\_\_\_

9. Have you ever sued or been sued by any Government Agency?

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10. If so, name the agency and reasons thereof

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11. If so, state case settlement, if settled

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**ATTACHMENT D  
DISCLOSURE STATEMENT**

This form must be completed by all Offerors and submitted with the QUOTATION.

I \_\_\_\_\_ (Name of owner or partner- all partners must complete a form) of \_\_\_\_\_, the Offeror that has  
(Name of company)

submitted the attached QUOTATION:

(Complete one of the two following statements)

1. I **have no** immediate relatives (parents, children or siblings) who are currently employed by the American Samoa Power Authority (ASPA).

\_\_\_\_\_  
(Title) (Signed)

2. I have immediate relatives (parents, children or siblings) who are currently employed by ASPA.

Their names and positions in are as follows.

Name	Relationship to Offeror	Position in ASPA
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\_\_\_\_\_  
(Signed) (Title)

Note: It is not against ASPA procurement rules for the relatives of ASPA employees to Quotation on and receive government contracts provided they disclose such relationships at the time of Quotation submission.

**ATTACHMENT E**  
**NON-COLLUSION AFFIDAVIT OF PRIME OFFEROR**

\_\_\_\_\_ being first duly sworn deposes and says that:

1. He/She is \_\_\_\_\_ (Owner, Partner, Representative or Agent) of \_\_\_\_\_ the Offeror that has submitted the attached Quotation.
2. He is fully informed regarding the preparation and contents of the attached Quotation and of all pertinent circumstances regarding such Quotation.
3. Such Quotation is genuine and is not a collusive or false Quotation.
4. Neither the said Offeror nor any of its officers, partners, owner, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Offeror, firm or person to submit a collusive or false Quotation in connection with the Contract for which the attached Quotation has been submitted or to refrain from Quoting in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Offeror, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against American Samoa Power Authority or any person interested in the proposed Contract; and
5. The price or prices Quotation in the attached Quotation are fair and proper, and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Offeror or any of its agent's representatives, owners, employees, or parties in interest, including this affiant.

\_\_\_\_\_  
(Signed)

\_\_\_\_\_  
(Title)

Subscribed and sworn to before me

This \_\_\_\_\_ day of \_\_\_\_\_, 2018

\_\_\_\_\_  
(Signed)                      \_\_\_\_\_  
(Title)

My Commission expires: \_\_\_\_\_, 20\_\_\_\_

## ATTACHMENT F

### MATERIALS AND EQUIPMENT SPECIFICATION

#### **SUBMERSIBLE PUMP**

**OPERATING REQUIREMENTS** - The pumps shall meet the following operating requirements: The submersible pump shall be Franklin or ASPA approved equal.

<b>Item</b>	<b>DESCRIPTION</b>	<b>Well # 24</b>
1	Number of Units	2
2	Capacity/Design Flow, GPM	80
3	Total Dynamic Head, feet	165
4	Minimum pump efficiency @ Design Head, %	73
7	RPM	3450
8	Maximum diameter of pump bowl including cable guard, inches	4
9	Submersible Grundfos or Franklin Pump Model or approved equal, 6"Ø	85S75-5
10	Submersible Motor Horsepower Rating, HP, 4"Ø	10
11	Submersible Motor Voltage Rating, Volts	230
12	Phase / Hertz	Three (3) / 60
13	Variable Frequency Drive (VFD) Motor Control Rating, HP	15
14	Voltage Rating, Volts	230
15	Phase / Hertz	Three(3) / 60

#### **PUMP CONSTRUCTION**

Pump Element - The submersible impellers shall be of the semi-open or enclosed type, constructed of 304 stainless steel fully welded impellers and diffusers with split cone taper lock collets and diffusers to resist corrosion, PTFE floating wear ring, ceramic bearing journal and Nitrile rubber fluted bearing. Maximum operating temperature - 140 °F / 60 °C. The pump shaft shall be of type 431 stainless steel. Franklin or ASPA approved equal.

#### **UPVC COLUMN / DROP PIPES SPECIFICATION**

##### **1.0 SCOPE**

The Polyvinyl Chloride (PVC) drop pipe for potable water submersible pumps shall be threaded mechanical jointing system, corrosion free and inert to chemicals. The drop pipe to be supplied shall be 4"Ø in nominal pipe size.

##### **2.0 REFERENCE DOCUMENTS**

- **ASTM D1784** - Standard Specification for Rigid PVC Compounds and Chlorinated PVC Compounds.
- **ASTM D 1785** – Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedule 40, 80 and 120.
- **ASTM D2837** – Standard Test Method for Obtaining Hydrostatic design Basis for Thermoplastic Pipe materials.
- NSF International:  
**NSF 61** – Drinking Water system Components – Health Effects

### 3.0 **REQUIREMENTS**

- 3.1 **Materials:** Pipe and couplings shall be made from unplasticized PVC compounds having a minimum cell classification of 12454, as defined in ASTM D1784. The compound shall qualify for a Hydrostatic Design Basis (HDB) of 4,000 PSI for water @ 73.4°F, in accordance with the requirements of ASTM D2837.
- 3.2 **Approvals:** PVC drop pipe shall be certified NSF 61 standard for potable drinking water.
- 3.3 **Physical Requirements:** Standard pipe laying length of 20 or 10 feet long heavy duty threaded joints.
- 3.4 **Performance:** All pipe supplied shall meet the performance requirements of ASTM D1785 for schedule 80 pipe.
- 3.5 **Joints:** Pipe shall be joined using a threaded Female X Female precision-machined NPT thread to provide continuous restraint with evenly distributed loading. The joining system shall incorporate elastomeric sealing gaskets which are designed to provide a watertight seal.
- 3.6 **Adapters:** Drop pipe shall be joined to pumps, check valves, pit less adapters as provided by the same manufacturer.
- 3.7 **Markings:** Drop pipe shall be legibly and permanently marked in ink with the following information:
- Manufacturer and Trade Name
  - Nominal Size and Schedule Rating
  - Manufacturing Date Code
  - NSF 61

The PVC column/riser pipes shall be schedule 80 pipes for potable water (NSF Standard 61). Each column/riser pipes shall be furnished in 3.0 meters (10 ft) or 6.0 meters (20 ft) maximum length whichever available and shall be connected with heavy duty stainless steel threaded couplings.

#### **SUBMERSIBLE PUMP CHECK VALVE**

The 4"Ø submersible pump check valve Series 80 DI/SS VFD shall be constructed with ductile iron body, unleaded body NSF certified 372, corrosion resistant internal components, stainless steel valve guide, ductile iron follower, Buna nitrile FDA approved elastomer disc and 316 stainless steel spring. The pump check valve shall be a threaded type connection manufactured by Flomatic Valves or ASPA approved equal.

#### **SUBMERSIBLE MOTOR 6-INCH & 8-INCH WATER WELL**

## **1.0 General**

Submersible motors shall be of a heavy duty design stainless steel construction with no ferrous metals in design. The submersible motors must conform to the latest applicable NEMA MG1, Motors & Generators for physical dimensions, ANSI/NFPA 70, USA National Electric Code, ANSI/UL 778 Motor Operated Water Pumps and ANSI/NSF 61 Drinking Water Systems Components standards.

### **2.0 Motor Load Design Point:**

- 2.1** Service Factor Selection: The pump HP requirement must not exceed the motor Service Factor output rating when running at a minimum of 3450 RPM and 60Hz.

### **3.0 Nameplate Minimum Information:**

- 3.1** Manufacturer's name, model number and origin of manufacture must be indicated on the nameplate.  
**3.2** Motor full load rating must be indicated on the nameplate.  
**3.3** Motor full load RPM must be  $\geq 3450$  RPM at 60Hz for 6-inch motors and this must be indicated on the nameplate.  
**3.4** Motor Service Factor must be indicated on the nameplate.  
**3.5** Motor maximum Service Factor amps must be indicated on the nameplate.  
**3.4** A maximum ambient of  $\geq 30^{\circ}\text{C}$  with a minimum cooling flow requirement of 0.5 ft/sec (16 cm/sec) is required and this must be indicated on the nameplate.  
**3.5** The stator must be designed for a UL thermal insulation of Class F or higher and this must be indicated on the nameplate.  
**3.6** The nameplate must be permanently placed on the motor.

### **4.0 Physical Construction**

- 4.1** The motor must be capable of operating at  $\pm 10\%$  of the nameplate voltage rating.  
**4.2** The motors must have a hermetically sealed stator area with solid resin encapsulation of the winding and winding area.  
**4.3** The motor shaft shall be splined per NEMA for mating with the motor/pump coupling.  
**4.4** The motor must be of a double flange design on all motors  $\geq 47\text{kg}$  (100 lbs).  
**4.5** The motor must have a lead connection that will allow it to be easily replaced in the field.  
**4.6** The internal motor cooling and lubricating solution (fill solution) shall be factory installed and designed to remain in the motor for the life of the motor.  
**4.7** The internal fill solution shall require no service after shipment from the motor manufacturer's factory prior to installation.  
**4.8** There must be a spring assisted rubber diaphragm pressure compensation system that is suitable for  $\geq 500$  PSI.  
**4.9** The internal of the motor shall be sealed from the exterior environment with a positive sealing one-way check valve and a rotating mechanical shaft seal. All other opening shall be positively sealed with a compressed rubber or threaded mechanical seal.  
**4.10** The internal fill solution shall be a water and/or FDA approved propylene glycol based solution – NO OIL BASED FILL SOLUTIONS ARE ACCEPTABLE.  
**4.11** The thrust bearings shall be Kingsbury type with a carbon thrust disk and stainless steel leveling pads.  
**4.12** The radial bearings shall be carbon sleeves with steel shaft journals.  
**4.13** The shaft seal shall be a mechanical rotating seal with silicon carbide seal faces.  
**4.14** The motor must have an internal heat sensor in direct contact with the winding that can communicate an over heat motor condition with above ground equipment through the power cables. The heat sensor shall not require any additional wiring from the motor to the control panel to communicate the overheat condition.  
**4.15** The motor must have been energized and run tested by the manufacturer prior to shipment for verification that the motor meets both the requirements of the bid and the information the manufacturer or its representative provided to the bidder and system designers.  
**4.16** Submergence test must be conducted by the manufacturer prior to shipment to confirm the motor and its lead are suitable for underwater installation. This submergence test must be conducted at  $\geq 500$  PSI.



## **5.0 Motor Efficiency:**

**5.1** 6-inch motors must have a Full Load efficiency of:

**5.1.1** 11– 45 kW (15-60 Hp) 3-Phase of 81% minimum.

## **ELECTRO-MAGNETIC MAG METER**

### **SYSTEM DESCRIPTION**

Sensors, signal processors, displays, hardware and wiring to produce flow indication, flow totals, data logging, flow trend lines, SCADA system communications, control I/O and alarm data along with transmitting a linear signal proportional to the current flow rate in the closed pipe location indicated in the plans.

The electromagnetic flow measurement system shall consist of a Flow Sensor which uses Faradays law of electromagnetic induction along with a microprocessor based Flow Converter and Display.

The flow meter shall have built in self-diagnostics, technician service functions and be suitable for use with the manufacturer's system certifying kit to confirm meter's sensor functions, accuracy of electronics including a calibration check of electronics at a zero flow and a mid-range flow rates, and for confirming all components meet factory specifications for accuracy and feature operation.

### **FLOW SENSOR**

**Construction:** The sensor shall be produced from 304 stainless steel pipe, coils, 316L stainless steel electrodes and a hard rubber liner, soft rubber liner, or PTFE liner as required for compatibility with the media. The sensor shall have a 304 stainless steel outer jacket, carbon steel ANSI 150 psi ANSI Class D or ANSI Class E flanges. Carbon steel flanges shall be protected with two part epoxy coating for corrosion resistance.

**Installation:** A minimum of 3 pipe diameters up stream and 2 pipe diameters down stream of straight smooth pipe are recommended. (Consult Factory for any variations.)

- a. Flow Sensor Operating Temperature shall be: Media Temperature -25°C to 110°C (-13°F to +230°F), Ambient Temperature -30°C to 80°C (-22°F to + 176°F).
- b. Flow Sensor Sizing shall conform to the manufacturer's sizing recommendations for the expected flow rates per the table below:

**Flow Sensor Sizing**

Min and max flow:								
Size	Qmin:	Qmax:	Size:	Qmin:	Qmax:	Size:	Qmin:	Qmax:
	0.6 fts	30 fts		0.6 fts	30 fts		0.6 fts	30 fts
	[gpm]	[gpm]		[gpm]	[gpm]		[gpm]	[gpm]
			¾"	0.005	40.76	2½"	10.52	523.0
			1"	1.550	77.82	3"	15.03	796.0
			1½"	2.540	127.4	4"	24.87	1246
¼"	0.001	4.45	1½"	3.084	190.7	5"	38.02	1946
½"	0.550	28.0	2"	6.226	310.7	6"	55.01	2800

  

Min and max flow:								
Size:	Qmin:	Qmax:	Size:	Qmin:	Qmax:	Size:	Qmin:	Qmax:
	0.6 fts	30 fts		0.6 fts	30 fts		0.6 fts	30 fts
	[gpm]	[gpm]		[gpm]	[gpm]		[gpm]	[gpm]
8"	99.50	4070	18"	506.3	25210	36"	2017	100800
10"	155.4	7780	20"	620.8	31120	40"	2407	124500
12"	224.1	11205	24"	900.1	44010	48"	3584	170300
14"	305.1	15258	28"	1220	74020	20mA output is factory preset to Qmax.		
16"	398.5	19910	32"	1504	79620			

- c. Flow Sensor shall be capable of being installed for permanent burial or submergence up to 30 ft. (IP 68/NEMA 6P) using manufacturer’s submergence and waterproofing kits. Flow sensor shall be capable of temporary (30 minutes) submergence up to 3 ft. (IP 67) without a submergence kit.
- d. Flow Sensor shall be full bore internal diameter throughout to reduce liner erosion and reduce turbulence at high flow ranges.
- e. Flow Sensor shall be factory calibrated and wet tested to deliver ±0.25% reading accuracy for sizes from ¼ inch up to 12 inch diameters, and ±0.5% reading accuracy up from 14 inch to 20 inch diameters, ±1% reading accuracy from 24 inch to 40 inch diameters, and ±2% reading accuracy in sizes above 40 inches diameter. Accuracies will be NIST Traceable.
- f. Flow Sensor shall be delivered with a calibration certificate for verification of performance.
- g. The Flow Sensor shall have calibration and flow set up data marked on the sensor.
- h. No tools or instruments shall be required to enter or confirm calibration data during set-up.
- i. The Flow Sensor shall have no electronic components except the electrodes and coils.
- j. Flow Sensor shall be capable of operating in 100% humidity on a permanent basis with manufacturer’s recommended gel potting.
- k. Flow sensor shall be capable of being mounted in at angles up to 45° from vertical around the centre axis of a horizontal pipe.
- l. Flow Sensor shall be capable of being installed in any direction without regard to flow direction.
- m. The Flow Sensors 316L electrodes shall be lobed so as to create a scouring effect with flow through the tube.
- n. The Flow Sensor shall also include a grounding electrode to eliminate the need for grounding rings in wastewater applications (except when using non-conducting pipe).

**FLOW CONVERTER**

- a. Flow Converter shall have an enclosure rating of IP 67 (NEMA 6).

- b. Flow Converter shall have a measurement accuracy of  $\pm 0.1\%$ .
- c. Flow Converter shall energize and detect signals generated at the flow Sensor electrodes and self-adjust frequency and amplitude to maximize accuracy across a wide range of flow velocities.
- d. Flow Converter shall include program for periodic self-cleaning off the Flow Sensor electrodes using cyclic reverse polarization systems to prevent material attachment and to detach plated materials.
- e. Flow Converter shall be capable of measuring fluid velocities in low 0 to 0.2m/S (0.6ft/sec.) and up to a maximum velocity up to 10m/s (30ft/sec).
- f. Maximum accuracies shall be achieved from 2% of the flow sensors maximum flow rate up through the sensors maximum flow rate.
- g. Flow Converter shall be a flow rate transmitter with a fully scaleable 4-20mA output proportional to all or part of the full-scale flow rate and capable of transmitting with a maximum line load of 800  $\Omega$ .
- h. The Flow Converter shall be capable of transmitting a 4-20mA output proportional to the flow in either direction, or 4-20 mA proportional to flow in both directions, selectable after installation.
- i. Flow Converter shall have one voltage free electromechanical relay rated for a maximum of 50VDC at 1 Amp one voltage free relay rated for 50VAC/VDC 120mA max. Both relays are programmable for totalizer counter output, batch counters, high/low flow alarm, system error, empty pipe alarm, and flow direction indication.
- j. The Flow Converter shall accept one external digital input rated at a maximum of 30VDC with a signal less than 5VDC registered as = 0 and a signal greater than 10 VDC as registered as = 1, minimum pulse length 100ms. Digital input can be used for reset of batch counters, start and stop batches or alarm acknowledgement.
- k. The Flow Converter shall be capable of reading flow in both directions and have three re-settable totalizers and three non-resettable totalizers capable of totalizing the total flow or net flow in both directions.
- l. The Flow Converter shall have two batch counters utilizing dynamic adaptive batch counting to minimize under shooting and over shooting of batch volume by self-adjusting the batch cycle based on actual batch size measurement results.
- m. Flow Converter shall have a MODBUS RTU-mode for control and communication using either the MJK MagFlux Display unit or for communication with a PLC. The manufacturer shall supply a document with the list of program registers upon request.
- n. Flow Converter shall use an RS 485 communication interface capable of transmitting up to 3000 ft. the controls and data in the MODBUS RTU mode to a PLC or MJK Display Unit.
- o. Flow Converter shall be capable of operating without a display, with a remote display, with an integral display or as a member of a group of two to four converters working from a single display.
- p. Flow converter shall be capable of being operated remote to the Flow Sensor.
- q. Converter shall have CE conformance for radio signal input and output immunity.
- r. Flow converter shall have user adjustable low flow cut off for automatic zeroing of flow rate, totalizing and mA output. No external switching shall be required to achieve zero flow.

- t. Flow Converter dimensions with cover or display unit attached shall not exceed 6.4" W x 5.9"H x 3.5"D.
- u. Flow Converter and must be capable of interchanging with any other flow sensor from the same manufacturer, without the use of electronic memory media exchange.
- v. Flow Converter must be capable of being remote mounted up to 150 ft from the flow sensor and require only one set of communication cabling to the sensor for operation.

## **DISPLAY UNIT**

- a. Display Unit shall be a white dot matrix 64 x128 pixel graphic backlit display.
- b. Display Unit shall allow up to four lines of customizable text with automatic font scaling allowing maximum size up to ½ an inch for the primary measurement parameter.
- c. Display Unit shall indicate flow, flow direction, volume, totalizers, configuration, and set-up operations in plain English text.
- d. The Display Unit shall display a graphical trend line of the flow history which can be expanded to show greater detail down to 5 minutes increments of flow rates.
- e. The Display Unit shall collect 160,000 flow data points with date and time at user specified time intervals, and data log daily flow totals.
- f. The Display Unit shall communicate with the Flow Converter using a MODBUS RTU mode using RS485 communications on standard twisted wires for distances up to 3000 ft.
- g. The Display Unit shall be capable of controlling, configuring, and data logging for up to four Flow Converters and flow sensors at the same time with simultaneous displays of measurements.
- h. The Display unit shall also have options for Modbus or Profibus data transmission in addition to the Converter communications modes.
- i. The Display Unit shall hold all settings in a flash memory in the event of a power outage. Battery back-up is not acceptable.
- j. The Display Unit shall have a USB port for connection or options for Blue Tooth communication to a personal computer for downloading data in CSV file types suitable for use with commonly available spreadsheet and data management software. The USB port shall also be capable of letting the operator store all flow meter settings as a file on a PC, configure the flow meter converter from a PC, upload software updates, and upload standard configurations.
- k. The Display Unit shall be able to be remote mounted up to 3000 feet from Flow Converters.
- l. The Display Unit shall have four keypad buttons for configuration and operation by the user and for use as a digital input for control.
- m. The Display unit shall be capable of showing 'pop-up' alarm messages which shall persist as long as the alarm condition exists and will disappear 5 minutes after alarm stops.

## **MATERIALS**

- 1. All instruments and sensors shall be supplied by one manufacturer to ensure consistent fit and system-wide functioning.
- 2. Provide:
  - a. Flow Sensor compatible with flow rate and media.

- b. Flow Converter capable of converting conductive liquid velocity signal into flow rate and transmitting proportional signal, totalizing signal and relay signals.
  - c. Display Unit capable of displaying all measurements and set-up functions, and capable of providing data logging functions and program uploads.
  - d. Provide MJK MagFlux Electromagnetic Flow Meter System and recommended spare parts.
  - e. Calibration shall be by registering the Flow Sensor's serial number to the Flow Converter by keying it into the Display Unit. Use of memory chips or other electronic media for this purpose is not allowed.
2. System shall start-up and accurately measure immediately after Flow Sensor registration.
- a. Operator shall use the integral keypad on the Display unit to program relays for error alarms, limit alarms, totalizer output, batch control output, digital inputs and all operating parameters and variables.
  - b. Operator shall use an alarm re-set to manually cancel alarm messages.
  - c. The flow meter shall have built in self-diagnostics, technician service functions and be suitable for use with a system certifying kit to confirm meter's sensor functions and accuracy of electronics including a calibration check of electronics at a zero flow and a mid-range flow rate for confirming all components meet factory specifications for accuracy and feature operation.
3. Warranty
- a. The Vendor or manufacturer of the electro - magnetic mag meter shall guarantee for one year of operation that the equipment shall be free from defects in design, materials and workmanship.

Vendor shall, at no cost to the owner, repair or replace any component that is proven to have failed during the warranty period due to a manufacturing defect.

#### **AIR RELEASE VALVE ASSEMBLY**

The thermoplastic air release valve (ARV) shall be furnished with a poppet seals. The ARV valve shall also be EPDM/Viton Elastomer with a pressure rating of 150 PSI. Maximum air flow of 8SCFM and a liquid flow of 60 GPM. Operating pressure shall be at maximum of 20 PSI. The valve shall be of Plast-O-Matic Model ARV075PT-PV or ASPA approved equal.

#### **PRESSURE GAUGES**

All pressure gauges shall be 2-1/2' minimum dial with black enamel finish with chrome plated ring. Accuracy shall be 1/2 of 1% of scale range. Range shall be 0-100 PSI. The movement shall be constructed of stainless steel, rust proof and corrosion resistant and equipped with recalibration mechanism. Gauges mounting locations shall have female connection, tee handle shut-off cocks installed between gauge and gauge tap. Pressure gauges shall be Ashcroft or ASPA approved equal.

#### **BUTTERFLY VALVES**

Butterfly valves shall be cast iron body, lug style, wafer type. The valve shall be equipped with Operating Hand Wheel (OHW). Valves shall be DeZurik model KGC-ES or ASPA approved equal.

#### **SINGLE ARC RUBBER EXPANSION JOINT**

The rubber expansion joint shall be with full face flanges and retaining rings drilled to 150# ANSI or JIS standards. Materials of construction shall be of precision molded, neoprene type or other elastomer tube and cover, suitable for water system, and multiple plies of polyester or nylon cord. The arc is necessary to achieve proper movements.

### **DUCTILE IRON FLANGED FITTINGS (TEES, ELBOWS, REDUCERS)**

Flanged Fittings shall be manufactured of Ductile Iron in accordance with all applicable terms and provisions of standards ANSI/AWWA C110/A21.10. Flanged surfaced shall be faced and drilled in accordance with ANSI Class 125 B16.1. All Ductile Iron Flanged Fittings shall be rated for water pressure of 150 PSI. Fittings are Cement-Lined and seal coated in accordance with ANSI/AWWA C140/A21.4. All coated fittings shall meet the requirements of NSF-61. Interiors shall be lined and seal coated in accordance with ANSI/AWWA C104/A21.04, "Cement-mortar lining for Ductile Iron Pipe and Fittings for water" unless otherwise specified.

### **GLOBE TYPE SILENTCHECK VALVE**

The Check Valve shall be globe style, silent type flanged with integral spring to close the valve to eliminate water hammer. The valve seat and disk shall be made of 316 stainless steel, 316SS body with maximum pressure rating of 200 psi. Valves shall be of Flomatic, APCO, or ASPA approved equal.

### **SUBMERSIBLE PUMP CABLE**

Submersible pump cable shall be flat type 4-wire flexible K strand with 90°C Dry, 90°C Wet. Ethylene Propylene Rubber (EPR) insulation and Chlorinated Polyethylene Rubber (CPR) outer jacket. Voltages shall be rated at 600 volts. Submersible cables shall be of Hydroflex or Paige Electric or approved equal and shall be MSHA and RoHS approved.

### **VARIABLE FREQUENCY DRIVE (VFD) MOTOR CONTROL**

#### **VARIABLE FREQUENCY DRIVE (VFD)**

The Danfoss/Allen Bradley or approved equal Variable Frequency Drive (VFD) shall be **IP66 / enclosed type NEMA 4X with integral fused disconnect**. The Drive shall meet the following requirement listed below:

#### **Main Supply:**

##### **Single (1) Phase Input and Three (3) Phase Output Power Supply:**

Supply Voltage:	180 - 300 Volts, ± 10%
Supply Frequency:	60 hzAC
Displacement Power factor (cos Ø) near unity:	(> 0.98)
Switching on Input Supply, L1, L2, L3:	1 - 2 times/min

#### **Output Data (U, V, W)**

Output Voltage:	0 - 100% of Supply
Switching on Output:	Unlimited
Ramp Times:	1 - 3600 seconds
Closed Loop:	0 - 132 Hz

#### **Digital Inputs**

Programmable Digital Inputs:	6*
Logic:	PNP or NPN
Voltage Level:	0 - 24 VDC

\* Two of the inputs can be used as digital outputs

**Analogue Reference Inputs**

Analogue Inputs: 2  
 Modes: Voltage or Current  
 Voltage Level: -10 to + 10 V (scalable)  
 Current Level: 0/4 to 20 mA (scalable)

**Pulse Inputs**

Programmable Pulse Input: 2  
 Voltage level: 0 - 24 VDC (PNP positive logic)  
 Pulse Input Accuracy: (0.1 - 110 kHz)

\* Two of the digital inputs can be used for pulse inputs

**Analogue Output**

Programmable analogue outputs: 1  
 Current range @ analogue output: 0/4 - 20 mA

**Relay Outputs**

Programmable relay outputs: (240 VAC, 2A)

**Field Bus Communication**

ModBus, RTU, ModBus TCP, BacNet, DeviceNet, ProfiBus, CanOpen, Ethernet and Profinet, **SCADA** connection

**Temperature**

Ambient Temperature: up to 55°C

**BUILT - IN PROTECTION**

System Overload  
 Motor Failures  
 Motor & Drive overloading  
 Voltage Disturbances  
 Power Surges  
 Loss of Phase  
 Phase to Phase and Phase to Ground Short Circuit  
 Ground Fault  
 Switching on Input/Output  
 Electrical disturbances  
 Over Voltage  
 Over Current  
 Under Voltage  
 External Fault  
 Over Temperature

**Compact Pressure Transducer**

Type: Danfoss MBS3000  
 Accuracy, max.: 1.00%  
 Accuracy, typical: 0.5%  
 Output signal type: 4 - 20 mA, 2 - wire transmitter  
 Operating temp.: - 40 to 185 °F  
 Process Connection: 1/4" NPT, Male  
 Pressure Range: 0 – 16 Bar  
 Pressure unit reference: Gauge (relative)  
 Response time, max. (ms) 4 ms  
 Pressure connection standard: ANSI/ASME B1.20.1