May 11, 2021

ADDENDUM NO. 2 TO SPECIFICATION NO. 1380W
WELLS 201, 202, 203 & 205 EQUIPPING

This addendum to the specifications is for the purpose of adding, clarifying, or deleting certain information to the construction drawings and project specifications as follows:

SPECIAL CONDITIONS

SC-75. Property Line Easements/License Agreements for Walls and Fences.
ADD the following paragraph to the end of SC-75:

Where called for on the plans 8-foot high chain-link fence shall be constructed per EMWD Standard Drawing D-672. EMWD Standard Drawing D-672 shall be modified for an 8-foot high fence, such that the footing depth for all fence posts shall be 3-feet minimum. Where called for on the plans, Vinyl privacy slats shall be constructed with the chain link fence for dust control. The privacy slats shall cover the bottom 3-feet of the chain link fence. The color of the privacy slats shall be per the Color Schedule on the drawings.

EMWD DETAILED PROVISIONS

Section 01185 Sequence of Work and Work Restrictions

ADD the following to 1.08 GENERAL SEQUENCE AND WORK RESTRICTIONS FOR POTABLE WELL SITES:

> H. The well sites are located within residential areas and adjacent to private property owners. The Contractor shall therefore schedule the construction of any permanent wall/fence to minimize the disturbance to the adjacent property owners. Once the wall/fence construction is started by the Contractor at a well site, that length of wall/fence adjacent to private properties must be completed within 60 consecutive calendar days. The Contractor remains responsible to secure the site during construction of the permanent site wall/fence.

Section 05300 Metal Roof Decking

REVISE 2.01 Metal Deck A. as follows:

A. Metal deck shall be manufactured from steel conforming to ASTM A446, having a minimum yield strength of 38,000 psi. All deck units shall be coated with a ~~G-90~~ **G-60** galvanized coating in accordance with ASTM A653.

DELETE 2.01 Metal Deck C. in its entirety and *replace* with:

C. The minimum metal roof deck shall be Verco PLB, 22 gauge, 1-1/2" deep x 36-inch wide B deck, or equal.

Section 11937 Deep Well Vertical Turbine Pumps

REVISE 1.01 General as follows:

1.01 GENERAL
This Specification is for close-coupled deep well vertical turbine pumps including discharge head, column and tube enclosed line-shaft assembly, strainer and oil lubrication system. All equipment furnished under this section shall be new and of current manufacture and shall be guaranteed free from defects in material, design, or workmanship. All parts of the pump exposed to water shall be of stainless steel, brass, heavy cast iron, or equivalent corrosion-proof material. Unless otherwise specified herein, all applicable provisions of ANSI/AWWA E-101, Part A, latest edition, for Vertical Turbine Pumps, are hereby made a part of these Specifications. The pumps shall be manufactured by Peerless, Goulds, Floway**, National Pump** or District approved equal.

Refer to the Detailed Well Pump Specification section and the Special Conditions for additional requirements/information.

Section 16160 Variable Frequency Drives

REVISE 1.08 HARMONIC DISTORTION STUDY AND DISTORTION LIMITS, subparagraph A.4 as follows:

4. If the harmonic distortion study indicates the need for harmonic suppression equipment, including: line reactors, ~~**passive filters**~~, isolation transformers, ~~**12- pulse VFDs**~~, or 18-pulse VFDs, these shall be provided at no additional cost to the District. Harmonic suppression utilizing active front end VFDs are acceptable. Shop drawings shall indicate the location of the harmonic suppression equipment. Harmonic suppression equipment and its location shall be subject to acceptance by the District, prior to commencing fabrication of the VFDs and associated harmonic suppression equipment. **Passive filters will not be allowed.**

REVISE 2.01 DESCRIPTION, subparagraph C as follows:

C. Unless specified otherwise, each VFD unit shall include, but not be limited to, the following major components: solid state VFD ~~**(6, 12, or 18-pulse)**~~ **(18-pulse)**, input line power molded case circuit breaker or motor circuit protector, input current-limiting fuses, line reactor, ~~**passive filter (if necessary)**~~, motor protection output filter (if necessary), EMI/RFI filter (if necessary), enclosure with door mounted operator interface and pilot devices, control power transformer, integrated controls, enclosure cooling fans, and enclosure space heater.

REVISE 2.11 HARMONIC DISTORTION SUPPRESSION, first paragraph as follows:

The electrical system shall be provided with the necessary equipment to protect the VFDs and power system(s) on the line side of the VFDs from harmonic distortion, as specified in Part 1.08 herein. Prior to equipment selection, a harmonic distortion study shall be performed to determine the characteristics and ratings of individual line reactors, ~~**passive filters,**~~ isolation transformers, ~~**12-pulse VFDs,**~~ 18-pulse VFDs, or other suppression equipment necessary to achieve the specified distortion limits. ~~**Unless indicated otherwise in the Specific Project VFD Requirements, active filters or active front end VFDs will not be allowed for suppression of harmonic distortion.**~~ **Active filters or active front end VFDs are acceptable for suppression of harmonic distortion. Passive filters will not be allowed.**

REPLACE 2.11 HARMONIC DISTORTION SUPPRESSION, subparagraph B in its entirety with:

B. <u>Passive Filters – Not Used</u>

CONSTRUCTION DRAWINGS

Sheet G-002
ADD the following to Sheet G-002 Site Work and Grading Notes:

14. Precast concrete vaults shall be designed to accommodate dead load, live load, impact, and any additional loads due to water table or adjacent loads imposed by structures. Live loads shall be based on H-20 loading per AASHTO Standard Specifications for Highways and Bridges. Concrete for pre-cast vaults shall be a minimum of 4,000 psi. Joint sealing compound comply Federal Specification SS-S-00210 (GSA-FSS). Shop drawing submittal for pre-cast concrete vaults shall include dimensions, materials of construction, and signed and sealed design calculations by a California registered engineer.

Sheet G-004
DELETE Sheet G-004 in its entirety and replace with attached.

Sheet C-502
ADD the following notes to Detail 2 on Sheet C-502:

3. Oil stop valve body shall be of PVC construction with an integral stainless-steel float and PVC slave valve.

4. Precast manhole shall per EMWD Standard Drawing SB-53, modified with flat top roof, per EMWD Standard Drawing SB-54. Cast iron manhole cover shall be per EMWD Standard Drawing SB-61, cover shall be marked "EMWD Drain."

Sheet S-001
DELETE Note 7 under Steel Deck Notes on S-001 General Structural Notes in its entirety and replace with the following:

7. Minimum deck section properties shall be as follows:

Gauge	Depth	I(in^4)	+S(in^3)	-S(in^e)
22	1 ½"			

QUESTIONS & ANSWERS

ABB, Inc.

Q1. I am the local ABB drives guy. I wanted to reach out to discuss EMWD Wells 201, 202, 203, & 205- 1380 project. The snippet below says no AFE or active filter. I am reaching out to see why no AFE? Below the snippet are reasons why ABB leads with AFE, but if still not accepted we will bid an 18 pulse.

2.11 HARMONIC DISTORTION SUPPRESSION

The electrical system shall be provided with the necessary equipment to protect the VFDs and power system(s) on the line side of the VFDs from harmonic distortion, as specified in Part 1.08 herein. Prior to equipment selection, a harmonic distortion study shall be performed to determine the characteristics and ratings of individual line reactors, passive filters, isolation transformers, 12-pulse VFDs, 18-pulse VFDs, or other suppression equipment necessary to achieve the specified distortion limits. Unless indicated otherwise in the Specific Project VFD Requirements, active filters or active front end VFDs will not be allowed for suppression of harmonic distortion.

The reason's ABB likes to bid AFE:

1. 40% less THDi compared to 18 pulse.

A Comparison

Effectiveness of Harmonic Mitigation Techniques

Technique	THDI% (current)
6-pulse rectifier, no mitigation (reference level)	72% or higher
6-p with 3% line reactors, or equivalent DC reactor	45-50%
6-p with 5% line reactors or equivalent DC reactor	35-45%
12 pulse rectifier with 5% impedance transformer	8-12%
Modern Passive trap filter	5%
18 pulse rectifier with 5% impedance transformer	5%
Active harmonic filter	4%
ACQ580-31 ULH	**3%**

2. Around 50% less the size of an 18 pulse.
3. We call our AFE- Ultra Low Harmonic because we tweak the firmware. We do this because it has no leading power factor that will mess with the generator. Generator issues are usually the main concern with AFE which we take out of the picture.
4. We are on our 4th generation of AFE. We have worked out any kinks compared to other manufacturers working on first gen AFE.
5. 4th gen also means good install base which also means economies of scale making our product as competitive on price as an 18 pulse.

A1. Harmonic suppression utilizing active front end VFDs are acceptable as modified by this addendum.

Caliagua

Q1. G-004 Unclear. Confirmation that site walls for 201 & 202 are split face exterior & precision face interior, w/ burnished stripe both int/ext.

A1. The site perimeter wall and pilaster at Wells 201, 202, and 205 shall be split face exterior and precision interior, per the revised Color Schedule attached to this Addendum.

Q2. G-004 Unclear. Confirmation that site walls for 203 are split face exterior & precision face interior, no stripe.

A2. The site perimeter wall at Well 203 shall be constructed of precision block without the burnished stripe. See the revised Color Schedule attached to this Addendum.

Q3. G-004 Unclear. Are all the buildings supposed to follow the same color schedule?

- 203 does not have stripes in the site wall, which leads me to believe that the building doesn't either.
- 205 has no site wall, so if it's clarified that building 203 has no stripe, does 205 follow 203 or 201 & 202?

A3. All buildings shall have the block pattern shown on the building elevations on S-201, and as listed on the Well Building Color Schedule, shown on G-004.

FenceCorp Industrial Commercial Fencing

Q1. At the 8' Chain Link (Vinyl) Privacy Link Fence is all material including Framework and Posts to be Vinyl Coated?

A1. All chain link fencing shall be constructed of galvanized steel per Section 02444, Vinyl coating is not required. Vinyl privacy slats shall be required where called for on the plans and constructed per this addendum.

Q2. Spec has been adjusted to show 8' high fence. Are we still to assume bracing with top and bottom tension wire?

A2. Bracing shall be per EMWD Standard Detail D-672, with reinforcing tension wire at the top and bottom of the fence.

Q3. Slatted fence creates quite a wind barrier are posts sizes and spacing to be adjusted?

A3. Post sizes and spacing shall be per EMWD Standard Detail D-672, as modified by SC-75 in this Addendum.

Q4. But the Chain link with slats: Call out is for Vinyl with beige slats by Manufacturer: Privacy Link. I have attached a cut sheet for Privacy link (to be Vinyl Coated Wire) just verifying this will be ok.

A4. All chain link fencing shall be constructed of galvanized steel per specification section 02444, Vinyl coated wire is not required. Vinyl privacy slats shall be required where called for on the plans and constructed per SC-75 in this addendum.

Ferguson Waterworks

Q1. Regarding the subject project and the recent Addenda #1 response to our question #5, I apologize for not making it clear. The question was in regard to the Oil Stop Valve/Separator on the drain lines as shown on Dwg. C502 detail 2 rather than the oil valve on the well.

Some manufactures (Contech/OWS Tech) offer PVC or Stainless Steel and we find nothing in the documents to tell us which EMWD would require. Please let us know if there is anyway possible.

A1. PVC.

National Pump

Q1. Did National Pump get approved for this job?

A1. Based on the submittal provided, National pump is now considered as an “or equal” to specified manufacturer’s as revised in this addendum for this project only.

Pacific Hydrotech

Q1. The spec book shows the roof deck as: ASC Steel Deck - 3" DGNF - 32 x 18/20 Gauge Deck w/ pan and a G90 Coating (G90 is a special order) (Expensive, Long Lead, Dedicated Trucking from Washington and probably super hard to procure in the near future) Only ASC Steel Deck Makes it. (NO COMPETITION) VERCO DOES NOT MAKE THIS IN A 32" WIDE SHEET

A1. See revisions to Specification Section 05300 Metal Roof Decking per this Addendum. ASC reference has been deleted and replaced with Verco or equal and a minimum 22 gauge, 1-1/2” B deck with a G-60 galvanized finish.

Q2. The plan view S102 Note 2 shows the roof deck as: VERCO DECK - 1 1/2" x 36" PLB - G60 - 22 Gauge May still be a long lead item in the near future do to the plate shortages but we can get an equivalent from ASC and also other manufacturers. (THIS IS A MUCH BETTER CHOICE, especially with the other challenges in the steel markets at this point.

A2. See revisions to Specification Section 05300 Metal Roof Decking per this Addendum. ASC reference has been deleted and replaced with Verco or equal and a minimum 22 gauge, 1-1/2" B deck with a G-60 galvanized finish.

Q3. The plan S-001 Deck Notes calls out the roof deck as: 1 1/2" x 36" PLB - G60 - 20 Gauge May still be a long lead item in the near future do to the plate shortages but we can get an equivalent from ASC and also other manufacturers.

A3. See revisions to Sheet S-001 per this Addendum. Deck material shall be a minimum of 22 gauge.

Eastern Municipal Water District

FOR Joe Mouawad, P.E.
General Manager

PE: MK
PM: MK
DFE: BAM
DE: S

JM:GK:ld:ae

ATTACHMENTS: Revised Construction Drawing G-004