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Patrick Castillo, PE
New Mexico Environment Department
Drinking Water Bureau
121 Tijeras Ave NE, Ste. 1000
Albuquerque, NM 87102-3400

Re: Review of the Plans, Specifications and Bidding Documents for the project La Mesa Water Cooperative, NM3500123, Well #3 Arsenic Treatment Facility

Dear Mr. Castillo:

Enclosed are responses to comments received for the Plans, Specifications and Bidding Documents, received from NMED in an email dated February 10, 2021.

NMED Comments:

REGULATORY DEFICIENCIES:

1. It is unclear in the disinfection and sampling plan if the chemicals that will be directly added to the water supply conform to ANSI/NSF 60. NM 20.7.10.400.K?

Response: Sodium Hypochlorite (10%) manufactured by Dixichlor and provided by DPC Enterprises meets all NSF 60 and ANSI requirements. See attached specification sheet.

2. Please clarify if pressure gauges are provided before and after the bag filters. Standard 4.3.7.5.k

Response: Sheet D-203 Water Supply Line calls out item #29 "SGT" (Sample port, pressure gauge and pressure transmitter assembly) is located before and after bag filter. Sheet d-209 Detail F-2 Backwash Supply Line calls out item #58 "G" (pressure gauge assembly) before and after bag filter.

SANITARY DISCREPANCIES:

1. It is unclear if there is site security/fencing for the treatment facility/tank. NMAC 20.7.10.400.B

Response: All treatment processes and water storage tanks are housed within the CMU block building. The man doors are 16-gauge steel hollow-core doors with dead bolts and locking handles. The roll-up door is 18-gauge steel curtain with interior latches and electric motor drive. The site does not have fencing as the governing Home Owners Association will not approve fencing within the La Mesa Subdivision. The design and security provisions are consistent with other facilities owned by the La Mesa Water Cooperative and other Mutual Domestic organization facilities within the area.

2. The submittal shows a sloped floor in the new building; however, it is unclear if floor surfaces are well drained with a ¼ inch per foot minimum slope. Standards 5.1.13

Response: In review of Standard 5.1.13, the floor is concrete and impervious, we have revised the finished floor slope to be ¼" per foot minimum slope. "Well drained" is a non-specific requirement. Given the facility design flow rate of 150-gpm, maximum depth of water will be approximately 5/32" deep. Velocity of water across the floor will be approximately 0.5-ft/sec. We believe that this will qualify as "well-drained."

3. It is recommended that the contractor be required to sign a notarized affidavit that disinfection was completed in conformance with the appropriate AWWA standards as described in the disinfection plan. Alternatively, the contractor should prepare a detailed disinfection report to be submitted with the notice of project completion.

Response: We have added Section 33 1300 – Disinfection of Water Systems, as attached, to the supplemental technical specifications for the project. Under paragraph 1.2.B the contractor will provide a detailed plan for disinfection and all bacteriological results following disinfection. Under paragraph 1.2.C, the contractor will provide a written affidavit that disinfection was completed in accordance with AWWA Standards for Disinfection.

NOTES & RECOMMENDATIONS

1. The arsenic removal treatment provided for this system will require at least a Water Supply Level 3 operator per NM 20.7.4.12.A. Please confirm that an operator at the appropriate level will be operating the system. NM 20.7.4.12.A

Response: LMWC is contracted with water operator Phil Carter. He is certified Water Supply Level 3, Certificate # 0383

We believe this letter addresses all your questions. Please call 505.948.5214 for any additional questions.

Sincerely,

Brian J. Ambrogi, PE
Water and Wastewater Operations Manager
Wilson & Company

SECTION 33 1300

DISINFECTING OF WATER SYSTEMS

PART 1. GENERAL

1.1 SECTION INCLUDES

A. The work under this Section consists of required procedures necessary to disinfect water utility systems (pipelines, equipment, and structures).

B. The Contractor shall provide all materials, labor, equipment, transportation, and other items required to perform disinfection of water system utility as required by applicable codes and regulations, and as specified herein.

C. Disinfection shall include but not be limited to the flushing of water system, chlorine disinfections, and final flushing.

1.2 SUBMITTALS

A. Contractor shall prepare and submit a detailed facility disinfection plan in accordance with AWWA standards for disinfection as referenced herein.

B. Provide Owner and Engineer with a written record of dates of disinfection, disinfectant used, procedure used, and results of bacteriological testing.

C. Following disinfection, the contractor shall provide a signed and dated affidavit stating that all components of the new facility and associated piping have been disinfected in accordance with AWWA standards for disinfection.

1.3 REFERENCES

A. The applicable provisions of the latest editions of the References listed below shall govern the Work covered under this Section, unless there is a conflict between said References and the requirements of this Section. In the case of such a conflict, the requirements of this Section shall apply.

B. American Water Works Association (AWWA).

C. "Standard Methods for the Examination of Water and Wastewater", American Public Health Association, AWWA, and Water Pollution Control Federation.

1.4 QUALITY ASSURANCE

A. All disinfection and testing procedures shall be in accordance with applicable Federal, State, and local standards.

B. Materials for disinfection shall conform to AWWA C651, AWWA C652, AWWA

C653 in order to accomplish the necessary results for disinfection of the full system.

PART 2. PRODUCTS

2.1 CHLORINE

A. Liquid shall conform to AWWA B301 - Standard for Liquid Chlorine.

B. Store in a cool, dark, and dry environment to minimize deterioration.

PART 3. EXECUTION

3.1 METHODS AND PROCEDURES

A. General

1. Disinfection procedures shall as a minimum be in accordance with the following specifications and regulations.

    a. AWWA C651 - Disinfecting Water Mains

    b. AWWA C652 - Disinfection of Water Storage Facilities

    c. AWWA C653 – Disinfection of Water Treatment Plants

B. Preliminary Flushing of Water Pipeline

1. The flushing velocity shall not be less than 2.5 feet per second.

2. Water discharged from the flushing operation shall be conducted to approved natural drainage channels, storm sewers, or other locations in accordance with applicable laws, ordinances and regulations.

3. Water Pipeline shall be flushed until debris and sediment are removed from pipeline.

C. Chlorination of Water Pipelines

1. The chlorine solution shall be applied to the water pipe with a chemical

feed pump designed for feeding chlorine solutions. Feed lines shall be of such material and strength as to withstand safely the maximum pressures that may be created by the pumps. All connections shall be checked for tightness before the hypochlorite solution is applied to the main.

2. Water from the existing distribution system or other approved sources of supply shall be made to flow at a constant, measured rate into the newly laid pipeline. The water shall receive a dose of the chlorine solution, also fed at a constant, measured rate. The two rates shall be proportioned so that the chlorine concentration in the water in the pipe is maintained at a minimum of 50 mg/l available chlorine.

3. During the application of the chlorine, valves shall be manipulated to prevent the treatment dosage from flowing back into the line supplying the water.

4. Chlorine application shall not cease until the entire line or structure is filled with the chlorine solution.

5. The chlorinated water shall be retained in the line for at least 24 hours, during which time all valves and hydrants in the section treated shall be operated in order to disinfect the appurtenances. At the end of this 24 hour period, the treated water shall contain no less than 25 mg/l chlorine throughout the length of the main.

D. Chlorination of Water Storage Structures

1. Finished water storage structures shall be disinfected in accordance with Method 1 of Section 4.3 of AWWA Standard C652.

2. During the application of the chlorine, valves shall be manipulated to prevent the treatment dosage from flowing back into the line supplying the water or the water distribution system.

E. Chlorination of Water Treatment Facilities

1. The entire new treatment facility (including treatment units, piping, fittings, valves, and appurtenances not otherwise covered under Disinfection for Water Pipelines) shall be thoroughly cleaned before the new facility is disinfected and placed in service.

2. Disinfection shall be required for all parts of the treatment process that are normally in contact with disinfected water under normal plant operations.

3. Disinfection for mixed media filters shall be in accordance with Section 4.4.3 – 4.4.4 of AWWA C653.

4. Sufficient chlorine shall be injected into the backwash water to produced a free chlorine residual of at least 25-mg/L throughout the filter. The chlorinated water shall be allowed to stand in the filter for at least 12-hrs. At the end of the 12-hr. contact time the chlorinated water shall be tested to determine the amount of free chlorine residual. If the chlorine residual is less than 15-mg/L the disinfection process shall be repeated. Sufficient tests shall be taken from the top and bottom of the unit to ensure the lowest chlorine concentration within the unit is read.

5. Following a successful 12-hour disinfection process, the filter shall be run to waste or backwashed thoroughly to remove the highly chlorinated water.

F. Final Flushing of Water Distribution and Supply System

1. After the applicable retention period, the chlorinated disinfection water shall be flushed from the line or structure.

2. Chlorine residual determination shall be made to ascertain that the heavily chlorinated water has been removed. The pipelines or structures shall be flushed until the residual chlorine concentration is less than 1 mg/l.

3. If there is a possibility that chlorinated discharge will cause damage to the environment, a neutralizing chemical shall be applied to the water to be wasted.

G. Bacteriological Sampling and Testing

1. Sampling and testing shall be conducted in accordance with AWWA Manual M12 - Simplified Procedures for Water Examination.

2. Samples for bacteriologic analysis shall be collected in sterile bottles treated with sodium thiosulfate.

3. Bacteriological tests shall be performed by an Ohio EPA certified laboratory. Coordination with, and any charges by an Ohio EPA certified laboratory, is the responsibility of the CONTRACTOR.

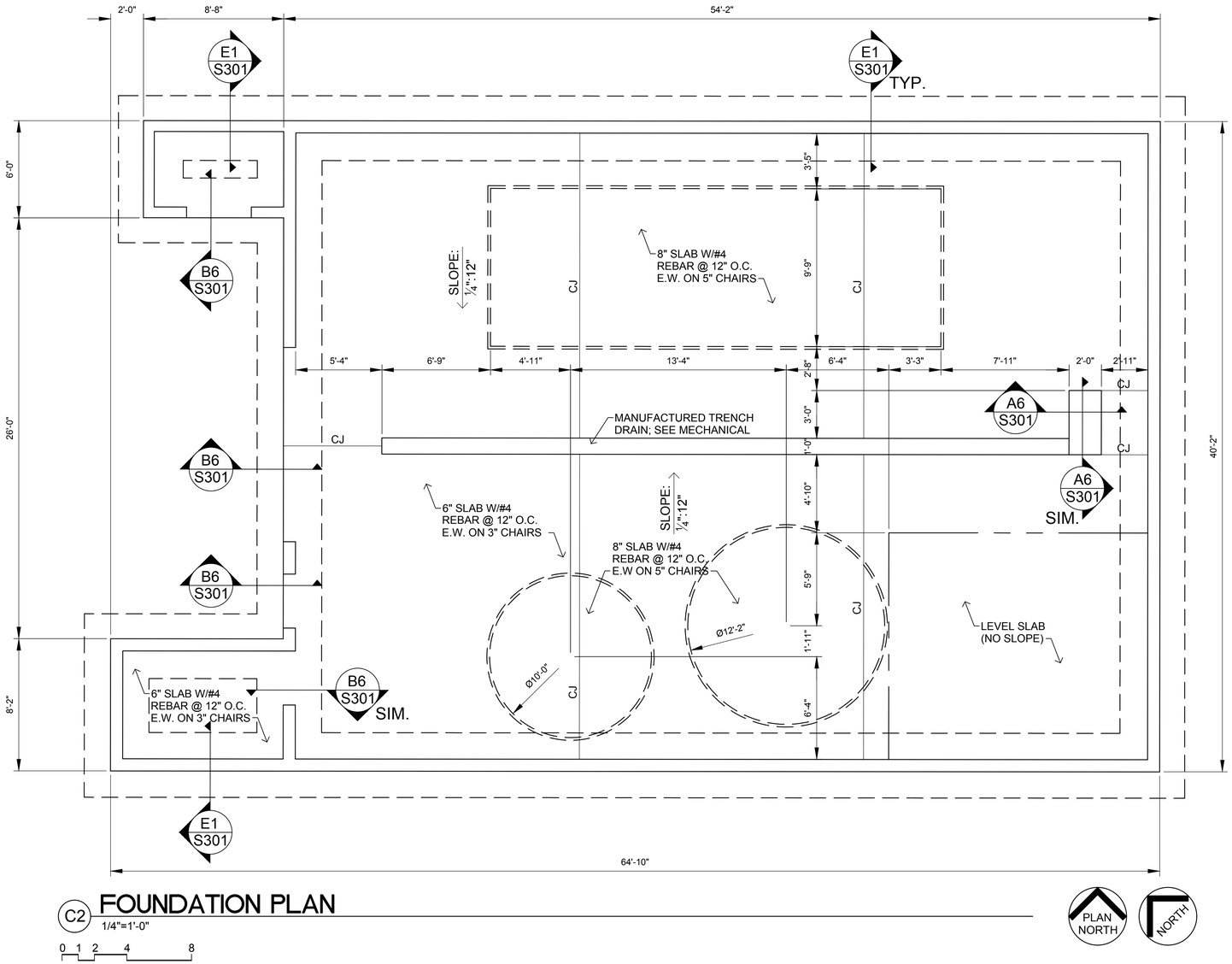
4. After final flushing, a sample shall be collected from the structure and/or from the pipeline at 1000-foot intervals, evenly spaced along the line. Samples shall be tested for coliform organisms in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater". The testing shall be by either the multiple tube fermentation technique or the membrane filter technique. Two samples shall be taken,

from each location, at least 24 hours apart.

5. If the initial disinfection fails to produce satisfactory samples, disinfection shall be repeated until satisfactory samples have been obtained.

6. When the samples are satisfactory, the pipeline or structure may be placed in service upon receiving notification the Owner and/or Engineer.

END OF SECTION



C2 FOUNDATION PLAN

1/4"=1'-0"

0 1 2 4 8

PLAN NORTH

NORTH

STRUCTURAL NOTES

THE STRUCTURAL DESIGN WAS PREPARED USING THE FOLLOWING DATA:

A. CODE
- INTERNATIONAL BUILDING CODE - 2009 EDITION
- RISK CATAGORY: II

B. DESIGN DEAD LOADS
- ROOF DEAD LOAD: 20 PSF

C. DESIGN ROOF LIVE LOAD
- REDUCIBLE PER TRIBUTARY AREA: 20 PSF

D. DESIGN ROOF SNOW LOAD
- GROUND SNOW LOAD - P_g: 10 PSF
- FLAT ROOF SNOW LOAD - P_f: 10 PSF
- SNOW EXPOSURE FACTOR - C_e: 1.0
- SNOW THERMAL FACTOR - C_t: 1.0
- SNOW IMPORTANCE FACTOR - I_s: 1.0

E. DESIGN WIND LOAD
- ULTIMATE WIND SPEED (3 SEC GUST): 115 MPH
- NOMINAL WIND SPEED (3 SEC GUST): 90 MPH
- WIND EXPOSURE CATEGORY: C

F. DESIGN SEISMIC LOAD
- MAPPED RESPONSE ACCETERATION PARAMETERS
  - S_s: .552
  - S_1: .171
- SOIL SITE CLASS: D
- MAXIMUM RESPONE ACCELERATION PARAMETER
  - S_{MS}: .749
  - S_{M1}: .362
- DESIGN RESPONSE ACCELERATION PARAMETERS
  - S_{DS}: .500
  - S_{D1}: .241
- SEISMIC IMPORTANCE FACTOR - I_s: 1.0
- RESPONSE MODIFICATION COEFFICIENT - R: 3.5
- SEISMIC DESIGN CATEGORY: D
- DEISMIC RESPONSE COEFFICIENT - C_s: .143
- SEISMIC BASE SHEAR: C_s x DL

G. DESIGN STRESSES
- CONCRETE: f'_c = 3,500 PSI
- REINFORCING STEEL: f_y = 60,000 PSI
- CONCRETE MASONRY: f'_m = 1,500 PSI
- MASONRY GROUT: f'_c = 2,000 PSI

H. FOUNDATIONS
- ALLOWABLE SOIL PRESSURE: 2,000 PSI

FOUNDATIONS AND SLABS-ON-GRADE:

1. CENTER ALL FOOTINGS UNDER WALLS, UNLESS NOTED OTHERWISE.
2. PLACE ONE LAYER OF 30# FELT IN JOINTS BETWEEN THE EDGE OF INTERIOR FLOOR SLABS-ON-GRADE AND ADJACENT FOUNDATION WALLS.
3. THE CONTRACTOR SHALL EMPLOY A SOILS ENGINEER TO TEST AND APPROVE THE FILL MATERIALS AND PLACEMENT UNDER INTERIOR FLOOR SLABS-ON-GRADE AND THE BEARING CAPACITY OF SOILS UNDER ALL FOOTINGS.

CAST-IN-PLACE CONCRETE:

1. SEE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR SLEEVES AND OPENINGS REQUIRED IN CONCRETE WORK.
2. PROVIDE CORNER BARS AT OUTSIDE FACE OF CONCRETE WALLS AND GRADE BEAMS. CORNER BARS SHALL BE 4'-0" LONG, LAPPING WITH AND MATCHING THE SIZE OF THE HORIZONTAL BARS.
3. LAP ALL REINFORCING STEEL MARKED CONTINUOUS 36 BAR DIAMETERS AT SPLICES, UNLESS SHOWN OTHERWISE.
4. THE CONTRACTOR SHALL EMPLOY INSPECTORS TO PROVIDE SPECIAL INSPECTIONS OF CONCRETE ONCSTRUCTION PER TABLE 1704.4 OF THE INTERNATIONAL BUILDING CODE

CONCRETE MASONRY

1. PROVIDE BOND BEAMS IN 8 INCH MASONRY WALLS WITH 1 - #5 CONTINUOUS HORIZONTAL REINFORCEMENT AT ROOF LEVELS AND AT THE TOP OF MASONRY PARAPET WALLS.
2. PROVIDE BOND BEAMS IN 8 INCH MASONRY WALLS WITH 1 - #5 CONTINUOUS REINFORCEMENT AT A VERTICAL SPACING OF 48 INCHES ON CENTER.
3. PROVIDE HORIZONTAL CORNER REINFORCING BARS IN BOND BEAMS. BARS SHALL BE 4'-0" LONG, LAPPING WITH AND MATCHING THE SIZE OF THE CONTINUOUS BARS.
4. PROVIDE CONTINUOUS JOINT WIRE REINFORCEMENT WITH #9 SIDE RODS AT A MAXIMUM VERTICAL SPACING OF 16 INCHES ON CENTER FOR ALL MASONRY WALLS. PROVIDE PREFABRICATED WIRE SECTIONS AT ALL MASONRY WALL CORNERS.
5. PROVIDE FULL MORTAR BEDDING AT FACE SHELL LOCATIONS. PROVIDE FULL MORTAR BEDDING AT CROSS WEBS AT LOCATIONS OF GROUTED CELLS. REMOVE EXCESS MORTAR AS WORK PROGRESSES.
6. TERMINATE GROUT POURS 1 1/2 INCHES BELOW TOP OF UPPER MASONRY UNIT TO FORM A POSITIVE KEY FOR SUBSEQUENT GROUT PLACEMENT.
7. GROUT ALL EMBEDDED BOLTS IN PLACE WITH A MINIMUM OF 1/2 INCH OF GROUT BETWEEN THE BOLT AND MASONRY.
8. SPLICE VERTICAL REINFORCEMENT 48 BAR DIAMETERS. SECURE REINFORCEMENT IN PLACE WITH WIRE POSITIONERS AT THE TOP AND BOTTOM OF CELLS FOR EACH POUR PRIOR TO GROUTING. CONSOLIDATE GROUT BY MECHANICAL VIBRATION DURING PLACEMENT. USE LOW LIFT GROUTING TECHNIQUES. LIMIT GROUT POURS TO 5 FEET VERTICAL HEIGHT.
9. FOR ALL OPENINGS 4'-0" OR LESS IN MASONRY WALLS NOT OTHERWISE SHOWN USE AN 8 INCH DEEP BOND BEAM REINFORCED WITH 1- #5 BARS. FOR ALL OPENINGS GREATER THAN 4'-0" USE A 16" DEEP BOND BEAM REINFORCED WITH 2- #5 BARS.
10. SPECIAL INSPECTIONS AND TESTS OF MASONRY CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE PROGRAM OF TMS 402/ACI 530/ASCE 5 AND TMS 602/ACI 530/ASCE 6 TABLE 3.1.2 - LEVEL B QUALITY ASSURANCE.

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SEAL

KELLY R. HEATH
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18915
PROFESSIONAL ENGINEER
1/5/2021

PROJECT NAME

LMWC WELL 3 ARSENIC
TREATMENT FACILITY

BY	DESCRIPTION	DATE	REV.

PROJECT NO:	16-600-204-00
DESIGNED BY:	GMG
DRAWN BY:	GMG
CHECKED BY:	JAU
DATE:	JANUARY 05, 2021

SHEET TITLE

FOUNDATION PLAN

SHEET NO:

S-101

3/1/2021