



BIGGS & MATHEWS, INC.

Consulting Engineers

September 23, 2013

Joel Klumpp, Team Leader
Technical Review & Oversight Team MC-159
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Re: City of Wichita Falls- PWS ID No. 2430001
Temporary Direct Potable Reuse Project
Response to Conditional Approval Letter (9/5/2013)

Dear Mr. Klumpp:

On September 13, 2013, representatives from the City of Wichita Falls (City) and Biggs & Mathews, Inc. met with the Texas Commission on Environmental Quality (TCEQ) staff to discuss several topics outlined in the September 5, 2013 TCEQ Conditional Approval Letter issued to the City for the Temporary Direct Potable Reuse (DPR) Project.

Based on discussions during this meeting, there were numerous items that TCEQ and the City agreed should be modified for clarification purposes and then there were discussions relative to certain requirements in the approval document that the City requested be modified or amended with justification to be provided by the City to TCEQ for their review and consideration.

Therefore, please review and give due consideration to the following applicable items:

September 5, 2013 Conditional Letter of Approval Comments:

1. **Page 5 Item 6b & Page 11 Items 23 & 24:** The City questions the TCEQ's requirement on pages 5 and 11, for the shutdown of the Microfiltration Cell based on 2 consecutive 5-minute periods of 0.1 NTU or greater effluent. The City has discussed this with the TCEQ on several occasions and thought that both had reached a decision to change this shutdown trigger to something less restrictive.

The TCEQ stated that it based their decision to leave it at this level based on all previous correspondence with the City regarding the approval of the Microfiltration Plant and the current rules governing the operation of Microfiltration Plants.

The City respectfully submits the following points that are counter to the TCEQ's arguments:

* In the TCEQ's April 30, 2012 letter no such turbidity requirement exists. The letter states: "To comply with TCEQ rules and federal requirements, water treatment plants that use membranes for

pathogen removal credit must conduct periodic DITs to verify the removal efficiency of the membrane treatment process.... A water system with a properly designed, operated, and maintained membrane system is given a 3.0-log credit for Giardia reduction, a 2-log credit for Cryptosporidium reduction and a 2.0-log credit for virus reduction when coagulation, flocculation and clarification is applied upstream of the membranes."

* In the TCEQ letter dated December 15, 2010, it states: "Title 30 of Texas Administrative Code (TAC) §290.43(G)(3)(B) was amended in January of 2008 to require removal credit awarded to a membrane filtration system be based on the lower of either the log removal value (LRV) proven by a direct integrity test (LRV_{DIT}) or the log removal value proven by a challenge study (LRV_{C-Test})."

The City of Wichita Falls is providing the DIT daily for the LRV_{DIT}.

* In the TCEQ letter dated August 19, 2004 the "Monitoring, Operating and Reporting Requirements for Membrane Installations" were provided, referencing several rules, 30 TAC §290.42(c)(1), §290.42(d)(1), §290.46(e)(1), and §290.111(b)(2)(B). On page 4 of 6 of that guidance document it states: "If a FilterTrak laser turbidimeter is used to monitor the performance of an individual membrane rack...the plant may set the alarm so that it summons the operators if the turbidity level rises above 100 mNTU (0.10 NTU) for two consecutive (5 minute) readings... the automatic system must automatically take a membrane rack out of service if the turbidity level for that rack rises above 0.20 NTU for two consecutive (5minute) readings" unless an operator is present.

Several of those rules have been amended or no longer exist.

The current rule TAC §290.111 (f)(2)(D)(v) states:" A system must immediately conduct a direct integrity test on any membrane unit that produces filtered water with turbidity level above 0.15 NTU on two consecutive (5minute) readings. The executive director must establish alternate site-specific control limits for systems that use other approved technology in lieu of turbidimeters to continuously monitor the performance of membrane units."

Action: The City respectfully requests that the TCEQ change the Microfiltration shutdown triggers to 2 consecutive 15-minute readings of 0.1 NTU or greater, or shutdown if 2 consecutive 5 minute readings of 0.2 NTU or greater.

2. **Page 6 of 25 Item 8:** The TCEQ acknowledged that the EPA Method 1623 had fallacies and that the PCR method that the City of Wichita Falls was developing may not yield comparable results. The TCEQ further acknowledged that the EPA Method determines the presence of Giardia and Cryptosporidium at the genus level and was not specific to species that caused human infection, as the PCR method is capable of performing. The City stated that they anticipate the EPA Method detecting Giardia/Cryptosporidium, while the PCR method did not show any human pathogenic organisms. It is the City's hope that the two methods will develop into a method that will validate that any Giardia/Cryptosporidium that is detected by the EPA Method 1623 will be confirmed as human pathogenic/non-pathogenic species by the PCR.

Action: None.

3. **Page 7 Item 11:** The TCEQ clarified that the maximum concentrations of Virus/Giardia/Cryptosporidium, specified on Page 7 of the Conditional Approval Letter, to be allowed in the Final Water being discharged to the Public were superseded by the TCEQ's e-mail response from Marlo Berg on July 29, 2013, which stated that 15 Liters of Distribution Entry Point (EP) is to be collected/analyzed for EPA Method 1623 analysis and that as long as the results of that analysis came back at "below detection limits" that the TCEQ would recognize the water as meeting the required maximum concentrations for Virus/Giardia/Cryptosporidium.

Action: The City respectfully requests that this clarifying language be added to the TCEQ's Conditional Approval Letter.

4. **Page 9 Item 12g:** The TCEQ will require the existing backwash supply line be disconnected from the existing backwash pumps during the verification testing. In addition, TCEQ will require the City to backwash the DPR filters with the treated effluent water from the 2010 clearwell. In order to meet these requirements, the City intends to utilize the 2010 transfer pumps for backwash in lieu of the existing backwash pumps located in the High Service Pump Station. In addition, as requested, the City will disconnect the backwash line coming from the existing High Service Pump Station. Finally, for your review and consideration, we have included three (3) sheets of drawings that we believe complies with the backwash supply requirements set forth by TCEQ.

Action: The City request approval of the attached temporary backwash supply drawings.

5. **Page 10 Item 18e:** The City requested that the TCEQ clarify whether it meant Nitrite or Nitrate. The TCEQ stated that it did mean to list Nitrite.

Action: None.

6. **Page 11 Item 20:** The City expressed its displeasure with the lowering of Removal Credit from 3.0 log to 2.8 log after the City submitted the California Challenge Study. The City believes that the TCEQ is not justified in this re-assessment, for the following reasons:

- * The TCEQ has an NSF/EPA performed Challenge Study that while it was not performed in accordance with EPA rules, it still demonstrated the membranes ability to remove Virus and Cryptosporidium at 6.5 log.

- * The California Challenge Study was performed with elements that had their integrity breached. California's analysis of their own Study's data led them to grant a 4.0 log removal for the membranes, as well as accept them for use in reuse applications.

- * The City's Daily Integrity Testing indicates that it can demonstrate on a daily basis a log removal of 3.5.

The City does not believe this is a dead issue and will continue to work to convince the TCEQ that 3.0 + log Removal Credit for Microfiltration is justified.

Action: The City respectfully requests that the TCEQ re-evaluate the assigned log Removal Credits for the Microfiltration and move them to a level that is capable of being reinforced with the Daily Integrity Testing.

Full Scale Verification Protocol Comments:

A. Items requiring TCEQ Action

1. The City of Wichita Falls pointed out the Lead is performed within the Full Metal Scan (Location 1A / Sample #15) and that requiring Lead again at Location 1A / Sample #22 on Page 3 (of 21) was redundant. The TCEQ acknowledged that requesting Lead again would be redundant and therefore not necessary.

Action: The TCEQ needs to delete Location 1A / Sample #22 (Lead) from the Conditionally Approved Full Scale Verification Protocol and renumber the samples at that location accordingly.

2. The City pointed out that the TCEQ required Bromide to be monitored at several Locations within its original Guidance from March 4, 2013, and that it had changed to Bromate in the Conditionally Approved Full Scale Verification Protocol Letter dated September 5, 2013. The TCEQ acknowledged that it desired Bromide to be monitored, and not Bromate.

Action: The TCEQ needs to change Bromate to Bromide in the Conditionally Approved Full Scale Verification Protocol for;

Location 1A / Sample #25,

Location 2A / Sample # 10,

Location 20A / Sample #20,

Location 21A / Sample #12,

Location 23A / Sample # 12,

Location 28A / Sample #15 and

Location 29A / Sample #7.

3. The City questioned why the TCEQ indicated that the unregulated constituents were marked as Requested by Wichita Falls, when the TCEQ had them listed in the Protocol Guidance received March 4, 2013. The TCEQ acknowledged that the unregulated constituents were listed in their Full Scale Verification Protocol Guidance (March 4, 2013 e-mail), but were recommended not required. The City misinterpreted the TCEQ's intent from their Guidance documents and added it to their protocol thinking it was required.

Action: Since these constituents are not required by the TCEQ, the City of Wichita Falls wants the unregulated constituents deleted from the TCEQ's Approved Full Scale Verification Protocol at the following locations;

Location 1A / Samples # 27 through #35,

Location 10A / Samples #19 and #20,

Location 20A / Samples #26 through #34,

Location 23A / Samples #21 through #29,

Location 28A / Samples #22 and #23, and

Location 40A / Samples #27 through #35

4. The City requested that the TCEQ clarify what their intent was on requiring an “Effluent Flow Rate” (Location 10A / Sample #2) and then a “Selected MF Unit Effluent Flow Rate” (Location 10A / Sample #4), since they appear to be the same thing. The TCEQ clarified that Location 10A / Sample #2 was meant to be a “Combined Effluent Flow Rate”, since there would more than one Microfiltration Cell operating during the Full Scale Verification Study.

Action: The TCEQ needs to change Location 10A / Sample #2 to read “Combined MF Effluent Flow Rate” in the Approved Full Scale Verification Protocol.

5. The City requested that the TCEQ justify their requirement for monitoring SDI (Location 10A / Sample #11). The City bases its request to delete the SDI from Location 10A / Sample #11 for the following reasons:

- * There are no published guidelines for what this value would actually indicate for Microfiltration.
- * SDI is normally a process monitoring parameter for Reverse Osmosis.

The TCEQ indicated that they wanted to establish an SDI level for Microfiltration.

Action: The City respectfully requests that the TCEQ again consider deleting the SDI from Location 10A / Sample #11, since it is not protective of public health and is typically utilized for process control of Reverse Osmosis and not Microfiltration.

6. The City requested that the TCEQ consider changing the monitoring of Nitrate (Location 16A / Sample #5), TDS (Location 16A / Sample #6) and TSS (Location 16A / Sample #7) be monitored once a day, rather than the TCEQ’s required every 4-hours. The City justified their request by informing the TCEQ that these tests are performed at the Analytical Laboratory level in Wichita Falls and were not an Operations Level test. The reason for this is that the Nitrate is monitored using Ion Chromatography, and the TDS / TSS require a drying oven and 24 hours to dry. Additionally, the Nitrate monitoring that occurs at Location 20A, occurs Daily and the City feels that with the expected rejection of Nitrate (90%) through the Reverse Osmosis, that daily is more than adequate for monitoring the Feed Water to the RO.

Action: The City respectfully requests that the TCEQ change the monitoring frequency of Nitrate (Location 16A / Sample #5), TDS (Location 16A / Sample #6) and TSS (Location 16A / Sample #7) from every 4-hours to daily.

7. The City requested that the TCEQ justify their requirement for monitoring Alkalinity at Location 20A / Sample #15 and Location 22A / Sample #7. The City bases its request to delete the Alkalinity for the following reasons:

* Alkalinity is used for process control of the Coagulation process and it is not applicable to monitor it at this location.

* The Alkalinity will be adjusted further downstream in the process by blending it with Raw Surface Water and then by the addition of Calcium Hydroxide in the Softening Process. For these reasons, the level of Alkalinity at this point is moot and will not be utilized by operations staff for process control. The TCEQ indicated that they wanted to establish an Alkalinity level at this point in the event that additional treatment processes will be required in the future, for which Alkalinity may interfere with. The City is unaware of any treatment technologies that would be applicable for this location (and

downstream before Blending with Surface Water) that Alkalinity would be a factor in determining effectiveness/interference of the process.

Action: The City respectfully requests that the TCEQ again consider deleting the Alkalinity from Location 20A / Sample #15 and Location 22A / Sample #7, since it is not a) a regulated constituent, b) protective of public health, and c) does not need to be monitored for process control.

8. The City requested a change in the Temperature (Location 23A / Sample #3) parameter being monitored every 15 minutes at this location. The City justified its request to change this to daily with the following rationale:

- * The Secondary Reservoir is a large body of water (115 MG) and is not subject to extreme temperature variation on the scale of 15 minute intervals.
- * This location is not being utilized for CT Credit calculation.
- * The logic utilized by the TCEQ to require temperature monitoring so Disinfectant levels could be adjusted to compensate for CT deficiency, cannot apply at this location since Chlorine Dioxide is being utilized and increasing it would put the City at risk of violating the Disinfection By-Product regulations for Chlorite.
- * The location is off-site and would require the purchase of an on-site probe to monitor.
- * Temperature has no Human Health effects associated with it.
- * There is nothing treatment wise that the City can do about temperature changes, if they occur.

Therefore, the City has recommended that the Temperature be monitored on a Daily frequency, rather than the every 15-minute frequency that the TCEQ has listed in its Conditionally Approved Full Scale Verification Protocol Letter. The TCEQ indicated that it was receptive to this recommendation by the City.

Action: The TCEQ needs to change the frequency of monitoring temperature at Location 23A / Sample #3 from every 15-minutes to Daily.

9. The City informed the TCEQ that when it had combined the "Raw Secondary Reservoir Water" location with the "Start of Disinfection Zone" location on its submittal to the TCEQ, it had the pH for the "Start Disinfection Zone" in the protocol. However, when the TCEQ split those locations back into two separate location, it added the pH to Location 23A / Sample #4 (Raw Secondary Reservoir Water), which was not part of the TCEQ's original Guidance (March 4, 2013) for the Full Scale Verification Protocol. Additionally, the frequency was listed as every 4-hours. The City recommends that the pH be monitored at this location once daily, to coincide with the Temperature measurement and that it be utilized at both Locations 23A / Sample #4 and Location 24A / Sample #2.

Action: The City respectfully requests that the TCEQ change the frequency of monitoring pH at Location 23A / Sample #4 from every 4-hours to Daily, and that the sample be monitored at one location (23A) and recorded for both locations 23A & 24A (Sample #2).

10. The City pointed out that Location 24A is a "Start Disinfection Zone" location and therefore monitoring the pH and Temperature every 4-hours is not necessary. The City recommended to the TCEQ that the monitoring frequency be changed to from every 4-hours to Daily. . To justify this

rationale, the City also informed the TCEQ that the site is off-site and the operations staff would have to drive out to the site every 4 hours to collect the sample.

Action: The City respectfully requests that the TCEQ change the monitoring frequency for pH and Temperature at Location 24A from every 4-hours to Daily.

11. The City reiterated to the TCEQ once again that Location 25A and Location 26A are off-site locations and that requiring monitoring there every 4-hours can be difficult, given all of the other monitoring that is taking place at the DPR facility. Therefore, the City requested that the TCEQ change the monitoring frequency for these 2 locations from once every 4-hours to Daily. The City justifies this request with the following:

- * The City has 20+ years of disinfection experienced with this Raw Water Source and the Chlorine Dioxide Disinfectant.

- * The City historically does not utilize these Disinfection Zones for its CT Calculation and has had no problem meeting CT credit using only the last Disinfection Zone on this pipeline. In the 20+ years the City has used Chlorine Dioxide, the City has only had to use these Disinfection Zones a couple of times for CT Credit.

- * Any problems associated with the Disinfectant/CT Calculation will be quickly caught at the Disinfection Zone within the DPR Facility (location 27A) at Cypress Water Treatment Plant and can be adjusted.

Therefore, the City again requests that the TCEQ change all of the monitoring frequencies at these locations from every 4-hours to Daily.

Action: The City respectfully requests that the TCEQ change the monitoring frequencies at Locations 25A and 26 A for Chlorine Dioxide Residual (Sample #1), pH (Sample #2) and Temperature (Sample #3) from every 4-hours to Daily.

12. The City noted that there was a requirement for Chlorite reduction calculations at Location 29A / Sample #2, but there were no corresponding Chlorite monitoring upstream anywhere. Therefore, the City feels that the appropriate locations to monitor for Chlorite would be at Location 20A, Location 27A and Location 28A.

Action: The City respectfully requests that the TCEQ add Chlorite monitoring at Location 20A, Location 27A and Location 28A. The City will use the monitoring from Location 28A and Location 20A for the % reduction calculation at Location 29A / Sample #2.

13. The City pointed out that the pH (Location 38A / Sample #7) and Temperature (Location 38A / Sample #8) is the same as it would be at Location 36A / Samples #5 and #6, just a few seconds upstream.

Action: The City respectfully requests that the TCEQ allow the City to utilize the "every 15-minute" monitoring of pH & Temperature at Location 36A and record it for the "every 4-hour" monitoring for pH and Temperature at Location 38A.

14. The City asked TCEQ to justify why it was requesting mNTU & NTU measurements for Turbidity at Location 40A. The TCEQ explained that it only wanted one of the two readings, based on which type of Turbidimeter the City was utilizing at Location 40A. The City informed the TCEQ that it would be utilizing a Turbidimeter that recorded in NTU's. The TCEQ acknowledged that this is acceptable.

Action: The City respectfully requests that the TCEQ remove Turbidity (mNTU) Location 40A / Sample #3 from the Conditionally Approved Full Scale Verification Protocol and renumber the samples for Location 40A.

15. The City requested justification from the TCEQ on the monitoring of TDS at Location 40A / Sample #5 every 15-minutes. The City stated that all TDS monitoring upstream of this point are typically "once a Day". The City additionally stated that it felt the monitoring upstream would be more than adequate to intercept any TDS issues that might arise. And finally, this monitoring point is post 2010 SWTP, which is a plant that does not have the capability of removing any TDS if it is present at unacceptable levels. The City recommended that the monitoring frequency of TDS at Location 40A / Sample #5 be changed from every 15-minutes to Daily. The TCEQ stated that it would evaluate the request.

Action: The City respectfully requests that the TCEQ change the monitoring frequency of TDS at Location 40A / Sample #5 from every 15-minutes to once a day.

16. The City requested that the TCEQ clarify the performance of the CT calculations. At Location 41A and Location 42A, it appears that the TCEQ is requiring the performance of CT every 8 hours. The City stated that it was going to follow the existing TCEQ rules regarding the performance of CT calculations, which states that they are to be performed at least once every 24 hours, unless the flow rate through the plant changes, at which time a new CT is calculated. Since the 45-Day Full Scale Verification Study will be performed at a constant Flow Rate of 4 MGD, the City will perform a Full CT calculation once a day, using the lowest value obtained from the every 8-hour simulated 10 MG GST calculations.

Action: The City would like for the TCEQ to acknowledge that this methodology for CT calculation during the Full Scale Verification Study is acceptable to them.

B. Items Agreed Upon by Both Parties

1. The TCEQ agreed to change the location description of Sample #1 (page 2 of 21) from "DPR Transmission Pipeline" to "Aeration Basin Meter", due to the flow being monitored prior to the Chlorine Contact Basin (CCB).

An alternate method for flow measurement that could be utilized (and is probably more accurate) would be to combine the DPR Pipeline Flow and any flow that is metered leaving the CCB. This would take into account any flow reductions that would be seen at the Secondary Clarifier due to Activated Sludge wasting. The City recommends this method for flow measurement at this point.

Action: Request TCEQ decide which method it prefers the City to utilize and alter the description for Location 1A / Sample #2.

2. The City informed the TCEQ that there were no NELAP Certified Laboratories approved for TOC or Alkalinity analysis. The TCEQ agreed that since the City was conducting its own TOC and Alkalinity analysis for compliance with TOC reduction rules, that it would allow the City to perform this analysis without having to send it off to an outside laboratory.

Action: The City will provide documentation of TOC and Alkalinity analysis approval for regulatory reporting, within the Full Scale Verification Report.

3. The TCEQ acknowledged that it would be practical to measure the Free Ammonia (before Chlorination) at Location 1A, rather than Location 2A.

Action: The City will collect and analyze for Free Ammonia at Location 1A, but will report it under Location 2A for the ease of TCEQ review.

4. The City pointed out that the "Influent Temperature" at Location 4A / Sample #2 is the same as it would be at Location 3A / Sample #8 (14 seconds upstream). The TCEQ acknowledged that it would not anticipate a significant temperature change in 14 seconds, and that the reading for Temperature at Location 3A / Sample #8, could be utilized as the Influent Temperature" reading for Location 4A / Sample #2.

Action: The City will only monitor Temperature once (at Location 3A) and record it twice (Locations 3A & 4A).

5. The City pointed out that the "Influent Flow Rate" at Location 5A and Location 6A are actually monitored at Location 2A, where the pumps take it out of the Chlorine Contact Basin. The TCEQ agreed that the City could monitor the "Influent Flow" at Location 2A and record it at Location 5A / Sample #1 and Location 6A / Sample #1.

Action: The City will monitor Location 5A / Sample #1 and Location 6A / Sample #1 at Location 2A.

6. The City pointed out that the pH (Location 11A / Sample #5) and Temperature (Location 11A / Sample #6) is the same as it would be at Location 10A / Samples #5 and #6 several seconds upstream. The TCEQ acknowledged that it would not anticipate a significant change in pH and Temperature in such a short period of time, and that the reading for pH (Location 10A / Sample #6) and Temperature (Location 10A / Sample #7), could be utilized as the pH (Location 11A / Sample #5) and Temperature (Location 11A / Sample #6) readings.

Action: The City will only monitor pH & Temperature once (at Location 10A) and record it twice (Locations 10A & 11A).

7. The City pointed out that the SDI (Location 16A / Sample #8) is the same as it would be at Location 13A / Sample #6 (23 seconds upstream). The TCEQ acknowledged that the City could monitor the SDI at Location 13A and record it for both Location 13A and 16A.

Action: The City will only monitor SDI at Location 13A and record it twice (Locations 13A & 16A).

8. The City pointed out that the pH (Location 16A / Sample #9) is the same as it would be at Location 14A / Sample #2 (23 seconds upstream). The TCEQ acknowledged that the City could monitor the pH at Location 16A and record it for both Location 14A and 16A.

Action: The City will only monitor pH at Location 16A and record it twice (Locations 14A & 16A).

9. The City pointed out that the pH (Location 24A / Sample #2) and Temperature (Location 24A / Sample #3) is the same as it would be at Location 23A / Samples #4 and #3 (90 seconds upstream). The TCEQ acknowledged that it would not anticipate a significant change in pH and Temperature in 90 seconds, and that the reading for pH (Location 23A / Sample #4) and Temperature (Location 23A / Sample #3), could be utilized as the pH (Location 24A / Sample #2) and Temperature (Location 23A / Sample #4) readings.

Action: The City will only monitor pH & Temperature once (at Location 23A) and record it twice (Locations 23A & 24A).

10. The City informed the TCEQ that the Fluoride level, pre-fluosilicic injection (Location 37A / Sample #1) would actually be taken at Location 35A and will record it at Location 37A / Sample #1. The TCEQ acknowledged this.

Action: The City will sample the pre-fluosilicic injection Fluoride concentration at Location 35A and record the results at Location 37A / Sample #1, for TCEQ's review.

11. The City stated concerns about getting into this 45-Day Full Scale Verification Study and something changing either at the TCEQ level or the EPA level that would cause the TCEQ not to accept the data, e.g. a protocol changes or a new rule is promulgated.

The City basis this concern on the previous Reuse Pilot that was performed by the City and rejected by the TCEQ. During the City's running of their Pilot, utilizing a TCEQ approved Pilot Protocol (sans any Cryptosporidium monitoring requirements), the TCEQ changed their Piloting Protocols to include Cryptosporidium monitoring. The City was not informed of this change or that it would adversely impact the approval of their Pilot data. When the City submitted its Pilot data, the TCEQ failed to approve it because the Cryptosporidium data was missing.

Therefore, the City brought it to the TCEQ's attention that during this 45-Day Full Scale Verification Study, any changes to Rules, Protocols, etc. need to be immediately communicated to the City by the TCEQ, if they would adversely impact the approval of the Full Scale Verification Study. Additionally, the City would not consider any mid-stream changes to the protocol a "re-start" of the Study, while the 45-Day Full Scale Verification Study was being conducted. The City agreed to integrate any changes into the protocol, at the point from which they were notified by TCEQ, meaning that if the TCEQ changed the protocol during the last week of the Study to require a weekly monitoring of Constituent XYZ, the TCEQ will only receive the last week's worth of monitoring for Constituent XYZ.

The TCEQ stated that any regulatory changes, such as for Perchlorate (pending), would have a compliance window of several years and that it would not constitute an immediate change to the 45-Day Full Scale Verification Study.

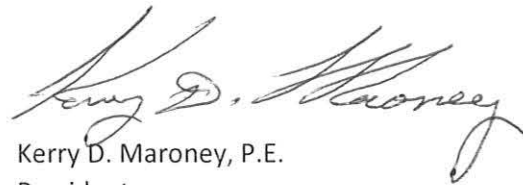
Action: The TCEQ will notify the City immediately of any changes to the protocol, so that it can be

integrated into the City's 45-Day Full Scale Verification Study within the remaining time of the Study, and not require a re-start of the Study nor fail to approve the Study based on a lack of data for said changes.

If you have any questions concerning our comments and or requests, please contact us.

Sincerely,

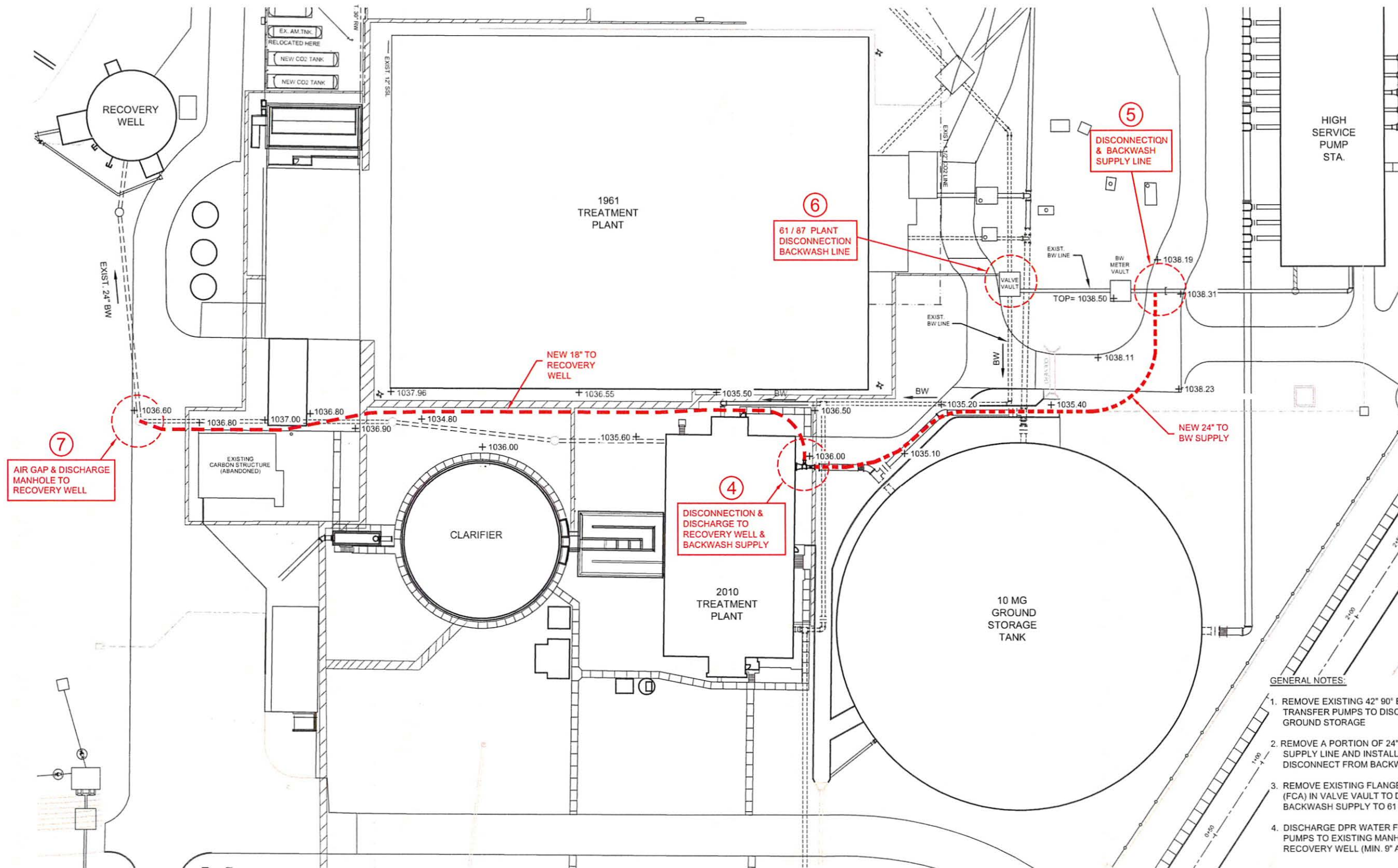
BIGGS & MATHEWS, INC.

A handwritten signature in black ink, appearing to read "Kerry D. Maroney". The signature is fluid and cursive, with the first name "Kerry" and last name "Maroney" clearly distinguishable. The initials "D." are written between the first and last names.

Kerry D. Maroney, P.E.
President

Cc: Russell Schreiber, P.E.
Public Works Director
City of Wichita Falls, Texas

Daniel Nix
Public Utilities Operations Manager
City of Wichita Falls, Texas



LEGEND

- + 1038.11 EXISTING GROUND SPOT GRADES
- ⑤ CONNECTION NUMBER

GENERAL NOTES:

1. REMOVE EXISTING 42\" 90° BEND AT 2010 TRANSFER PUMPS TO DISCONNECT FROM GROUND STORAGE
2. REMOVE A PORTION OF 24\" PIPE FROM BACKWASH SUPPLY LINE AND INSTALL 24\" 90° BEND TO DISCONNECT FROM BACKWASH PUMPS.
3. REMOVE EXISTING FLANGED COUPLING ADAPTOR (FCA) IN VALVE VAULT TO DISCONNECT BACKWASH SUPPLY TO 61 & 87 PLANTS.
4. DISCHARGE DPR WATER FROM 2010 TRANSFER PUMPS TO EXISTING MANHOLE AND TO RECOVERY WELL (MIN. 9\" AIR GAP).

EXISTING 42\" FROM 2010 TRANSFER PUMPS CONNECTION - PLAN
1\" = 30'-0\"

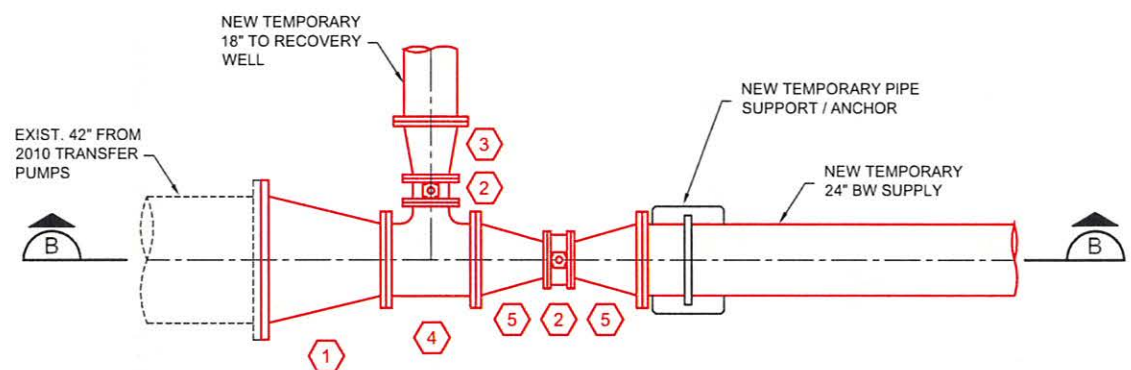
CYPRESS W.T.P.
CONNECTION DETAIL

TEMPORARY DIRECT POTABLE
REUSE CONVEYANCE FACILITIES
CITY OF WICHITA FALLS, TEXAS



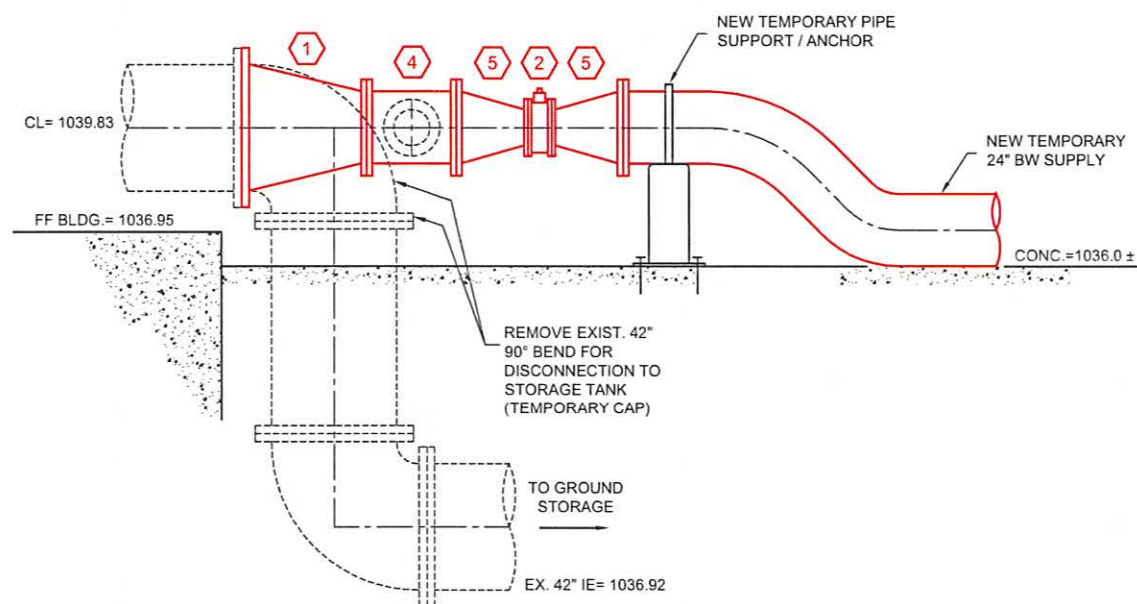
BIGGS & MATHEWS, INC.
CONSULTING ENGINEERS
2500 BROOK AVENUE
WICHITA FALLS, TX 76301
F: (840) 766-3383
TEXAS REGISTERED ENGINEERING FIRM F-834

DATE	DESCRIPTION	BY	DATE	SHEET
2-5-2013		KDM		4
		JMJ	AS SHOWN	
		KDM	REVISED	7



CONNECTION No. 4 - PLAN VIEW

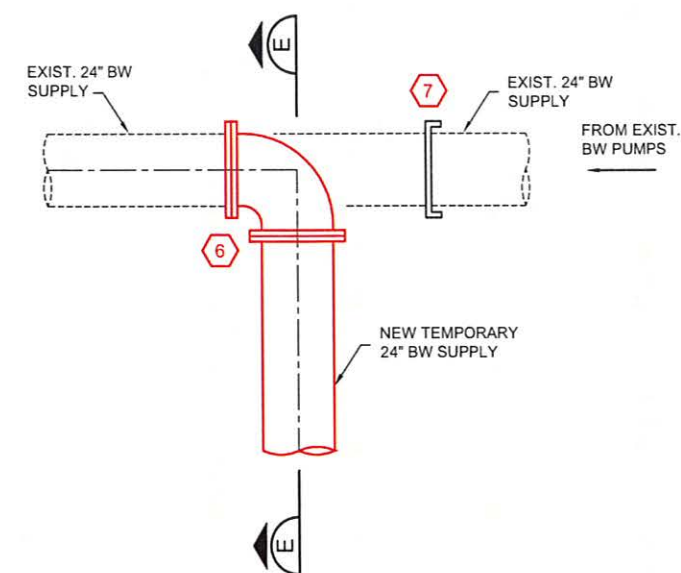
3/8" = 1'-0"



SECTION B

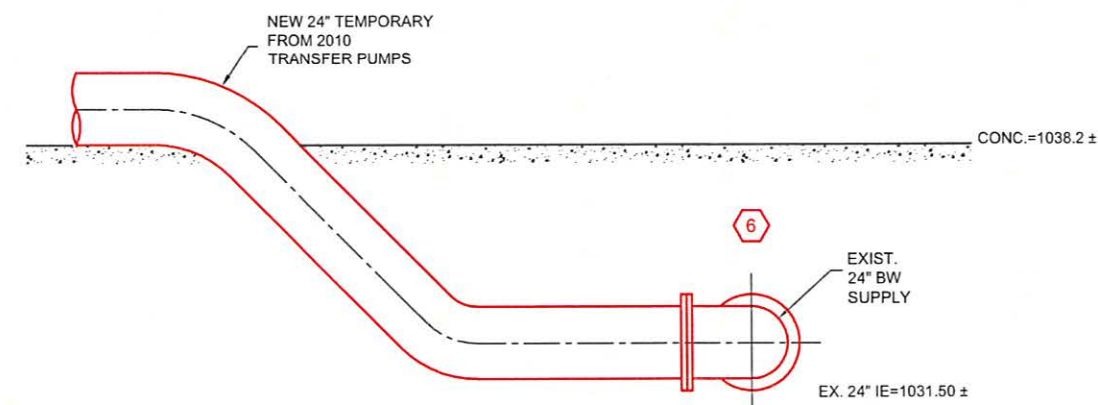
PARTIAL LIST OF MATERIALS

ITEM	QTY.	DESCRIPTION
1	1	42" x 24" D.I. FLANGED REDUCER
2	2	12" FLANGED BUTTERFLY VALVES
3	1	12" x 18" D.I. FLANGED REDUCER
4	1	24" x 12" D.I. FLANGED TEE
5	2	24" x 12" D.I. FLANGED REDUCER
6	1	24" D.I. FLANGED 90° BEND
7	1	24" TEMPORARY CAP



CONNECTION No. 5 - PLAN VIEW

3/8" = 1'-0"



SECTION E

3/8" = 1'-0"

CYPRESS W.T.P.
CONNECTION DETAIL

TEMPORARY DIRECT POTABLE
REUSE CONVEYANCE FACILITIES

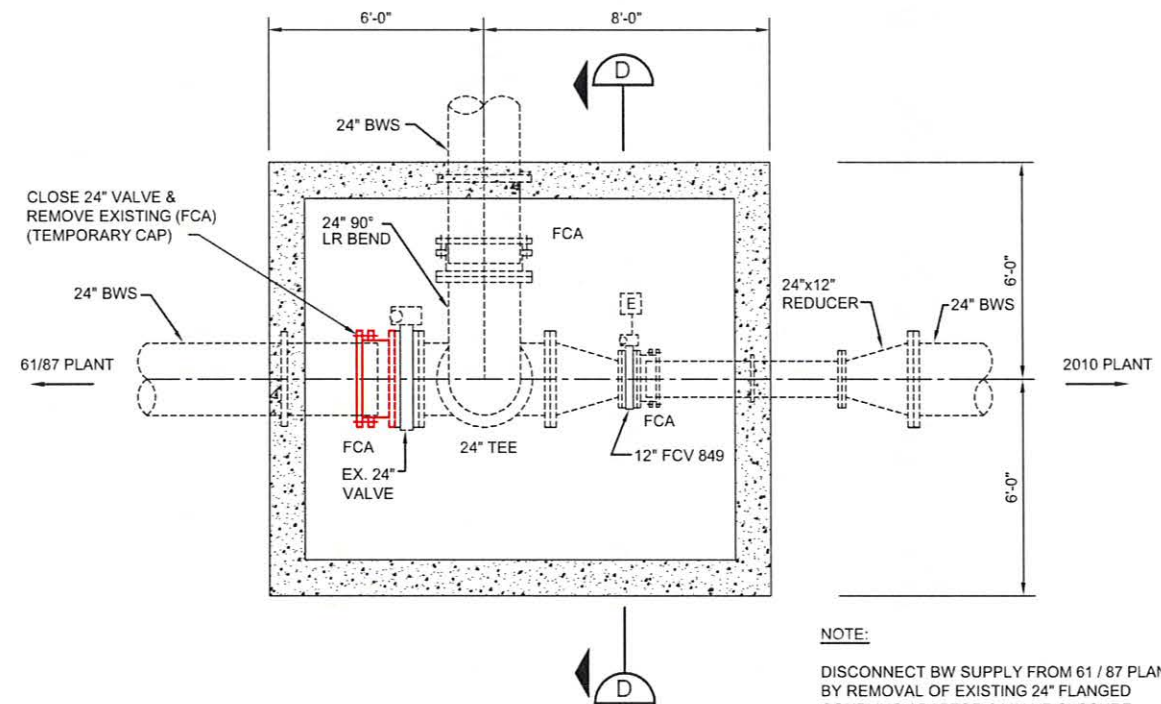
CITY OF WICHITA FALLS, TEXAS

BIGGS & MATHEWS, INC.
CONSULTING ENGINEERS

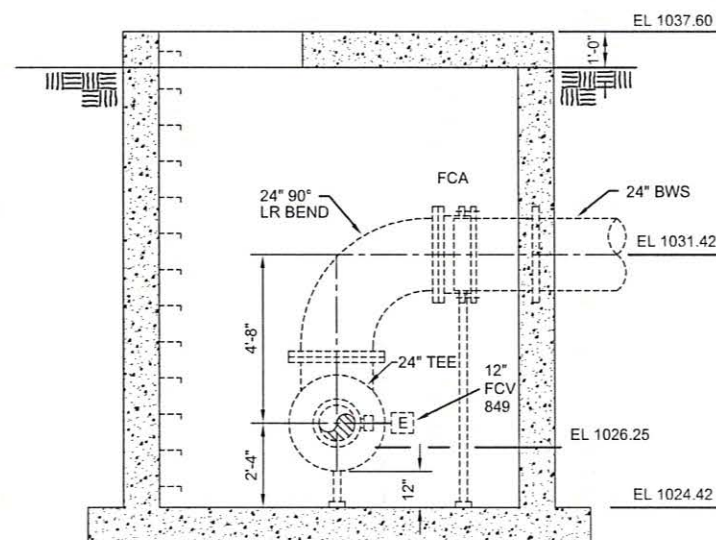
2500 BROOK AVENUE V: (940) 766-0156
WICHITA FALLS, TX 76301 F: (940) 766-3383
TEXAS REGISTERED ENGINEERING FIRM F-532



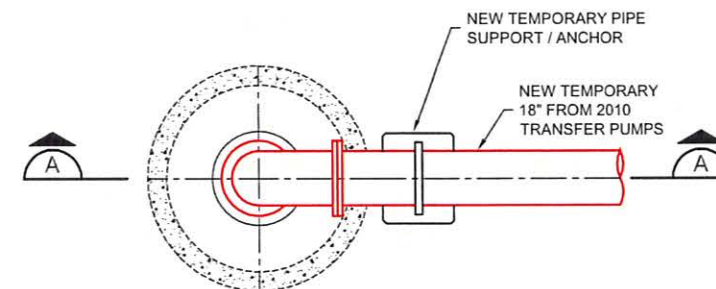
DATE:	DESCRIPTION:	DN: KDM	DATE: 2-5-2013	SHEET
		DW: JMJ	SCALE: AS SHOWN	5
		CK: KDM	REVISED:	OF 7



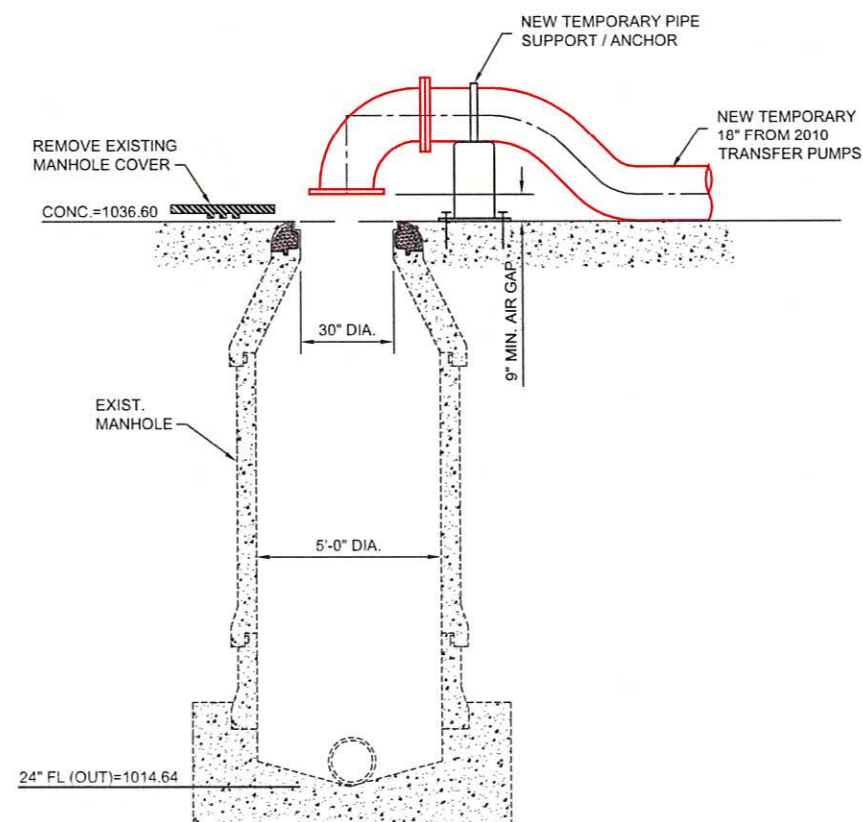
CONNECTION No. 6 - PLAN VIEW
3/8" = 1'-0"



SECTION D
3/8" = 1'-0"



CONNECTION No. 7 - PLAN VIEW
3/8" = 1'-0"



SECTION A

CYPRESS W.T.P.
CONNECTION DETAIL

TEMPORARY DIRECT POTABLE
REUSE CONVEYANCE FACILITIES

CITY OF WICHITA FALLS, TEXAS

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2500 BROOK AVENUE V: (940) 766-0156
WICHITA FALLS, TX 76301 F: (940) 766-3383
TEXAS REGISTERED ENGINEERING FIRM F-2334



DATE	DESCRIPTION	DN	KDM	DATE	2-5-2013	SHEET
		DW	JMJ	SCALE	AS SHOWN	6
		CK	KDM	REVISED		OF 7