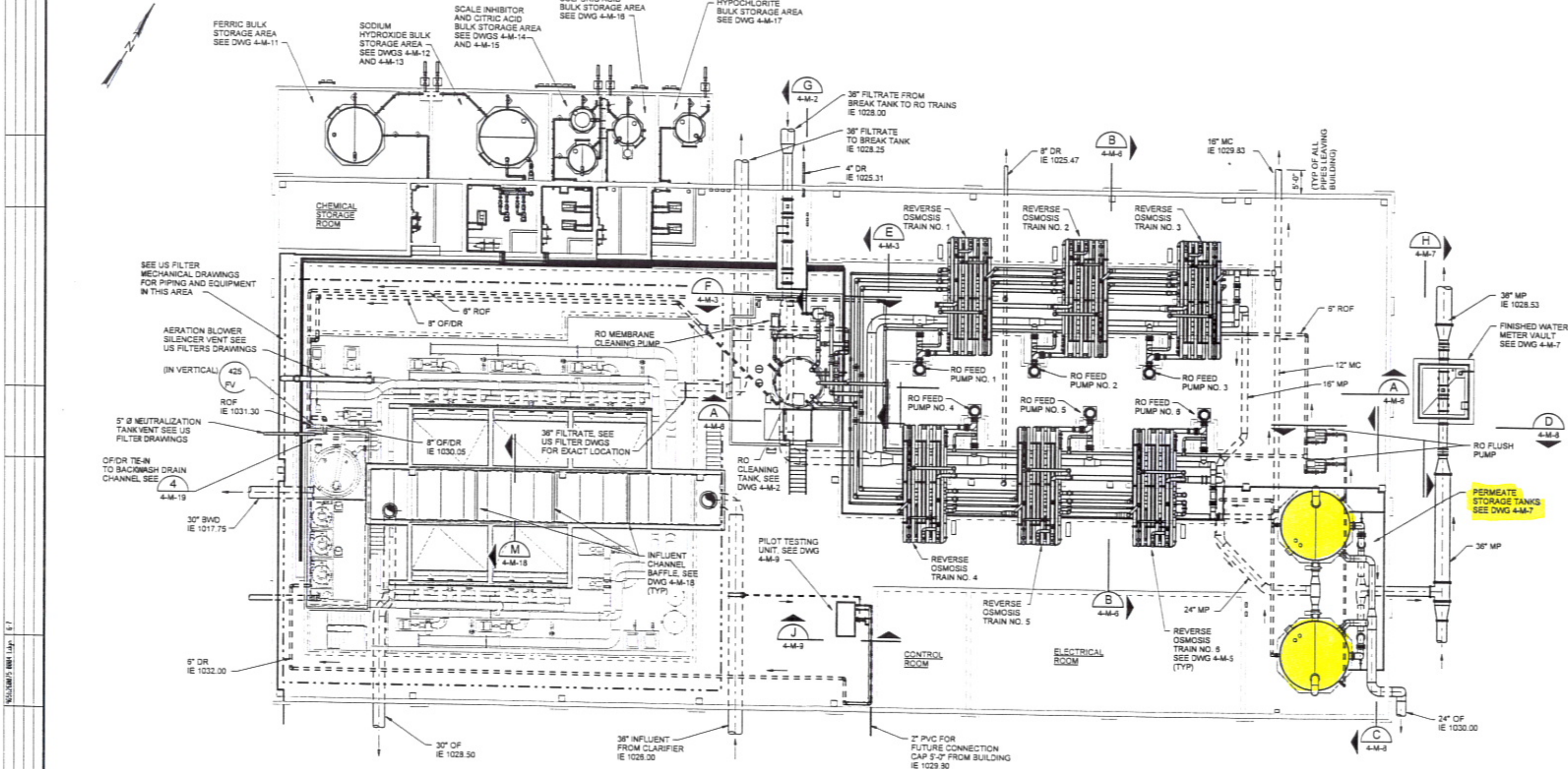




NOTES:

1. FOR CONTINUATION OF ALL PIPING OUTSIDE BUILDING SEE YARD PIPING DRAWINGS.
2. CONCRETE ENCASE ALL PIPING UNDERNEATH SLAB AS PER DETAIL 3316 TO A DISTANCE OF 4'-0" BEYOND EDGE OF BUILDING.

PLAN
3/32"=1'-0"



DSGN	J HENKE / C MINNEY	NO	DATE	REVISION	BY	APVD
DR	965140m01.dwg					
CHK	SM PASTEUR					
APVD	T. PTAK					
	J. PEARSON					

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.



CH2MHILL

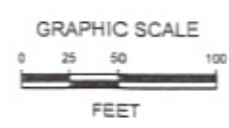
CYPRESS WTP EXPANSION
WICHITA FALLS, TEXAS

MEMBRANE BUILDING
MECHANICAL

OVERALL PLAN

DWG	4-M-1
DATE	SEPT 2002
PROJ	159651.CD

04-SEP-2002 15:42:46 965140m01.dwg



DPR FACILITIES

- 1 FLOW CONTROL VAULT
- 2 MEMBRANE CLARIFIER
- 3 MF TREATMENT
- 4 MEMBRANE SLUDGE P.S.
- 5 BREAK TANK
- 6 R.O. TREATMENT
- 7 R.O. METER VAULT
- 8 REUSE TEMPORARY STORAGE LAAGOON NO. 3
- 9 REUSE PUMP STATION
- 10 REUSE FLOW METER
- 11 SPLITTER BOX
- 12 2010 RAPID MIX / PARSHALL FLUME
- 13 2010 CLARIFIER
- 14 2010 SLUDGE P.S.
- 15 2010 RECARBONATION BASIN
- 16 2010 FILTERS
- 17 2010 TRANSFER PUMPS
- 18 2010 10 M.G. STORAGE TANK
- 19 2010 RECOVERY WELL P.S.
- 20 2010 LAAGOON VALVE VAULT
- 21 BRINE PUMP STATION

FLOW STREAM I.D.

- RSW Raw Surface Water
- TWW Treated Wastewater
- CTWW Clarifier Treated Wastewater
- ROWW Reverse Osmosis Treated Wastewater
- SW / WW Combined Surface Water & Wastewater
- T-SW / WW Treated Combined Surface Water & Wastewater
- MF / RO REJECT Reject Water from MF / RO Treatment Facilities

TEMPORARY SITE PIPING MODIFICATIONS

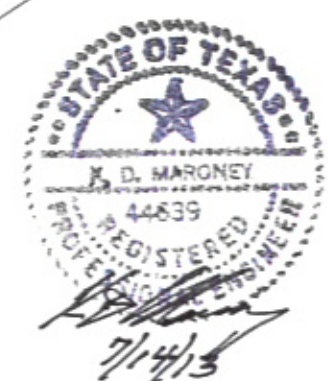
TEMPORARY DIRECT POTABLE REUSE TREATMENT FACILITIES

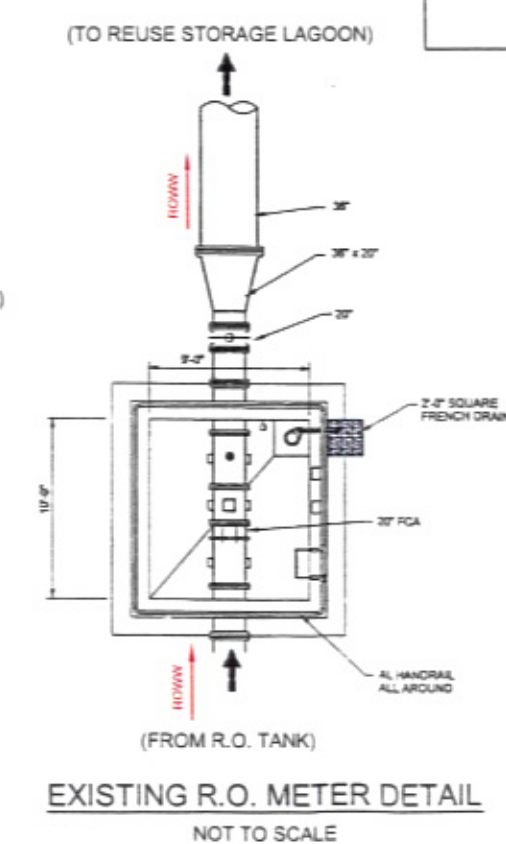
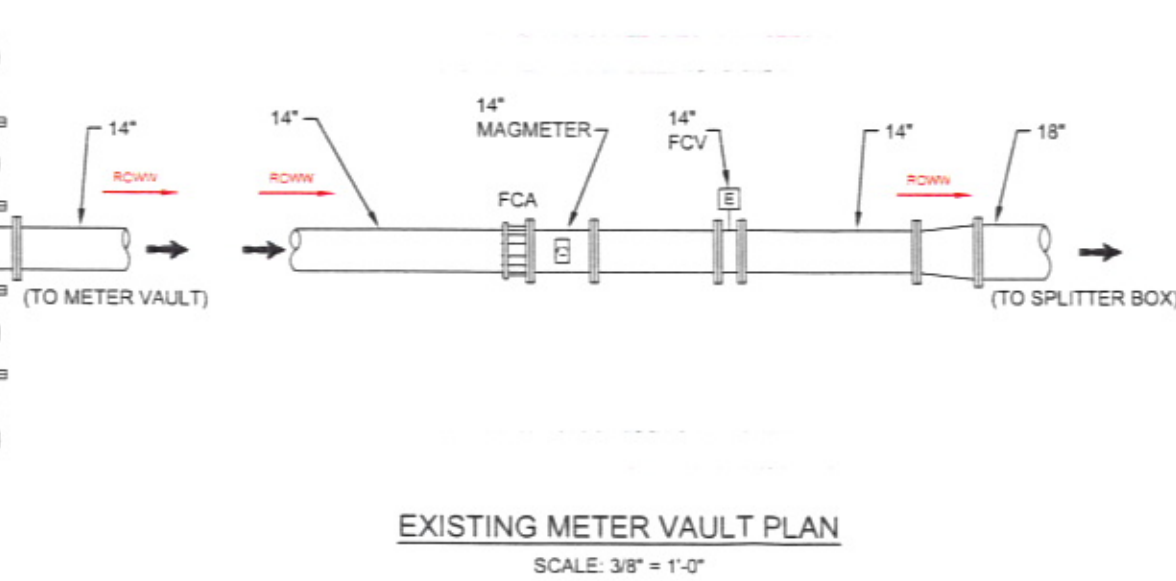
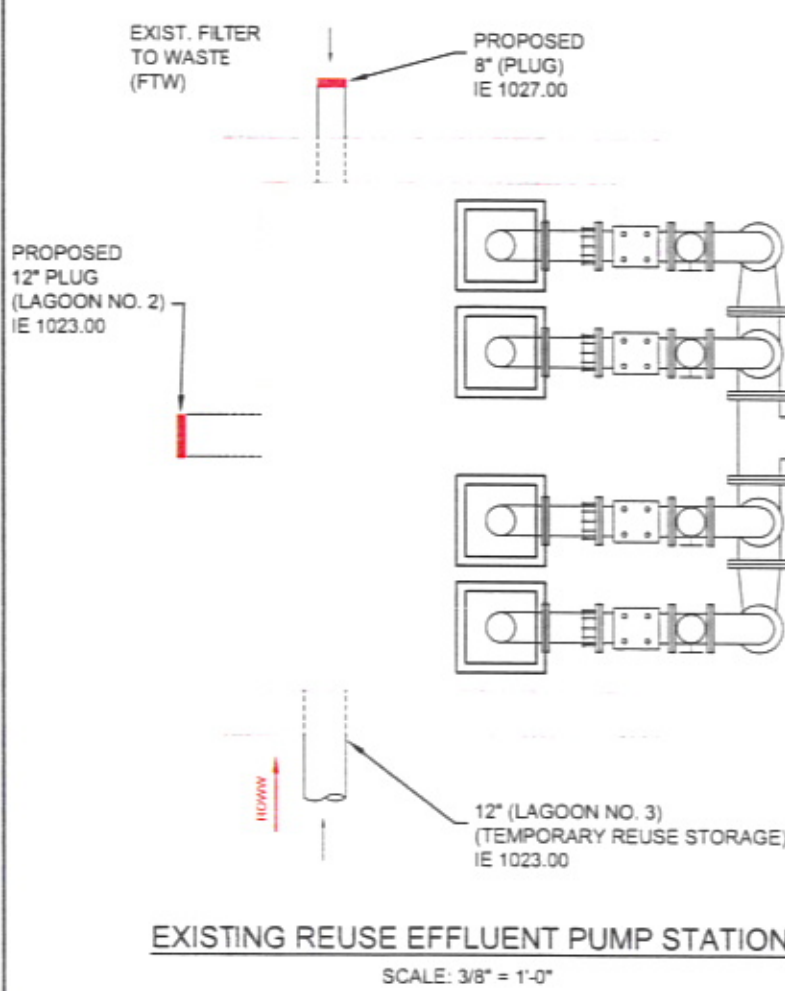
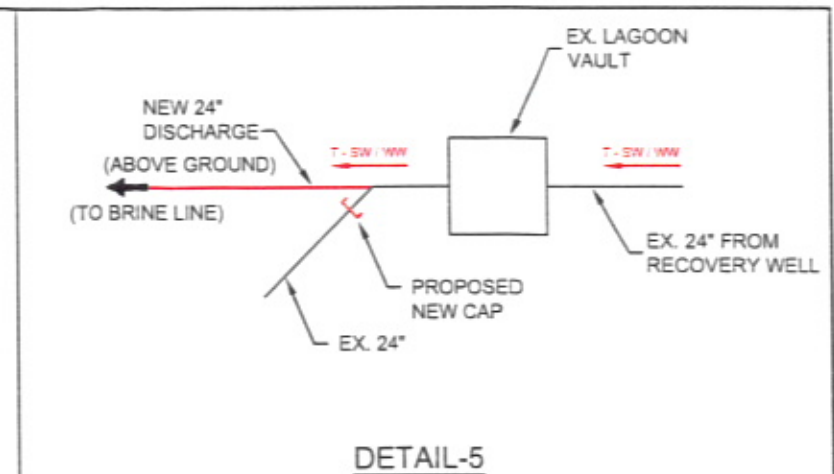
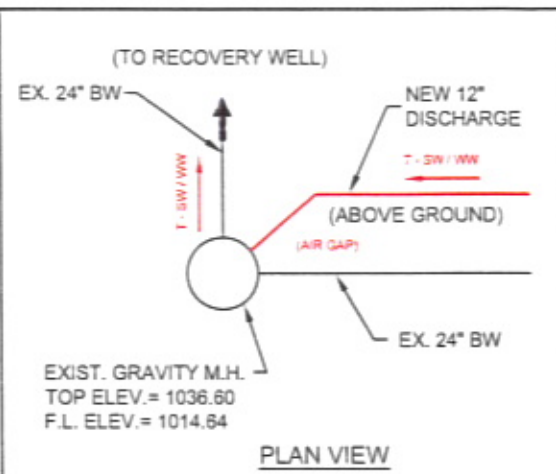
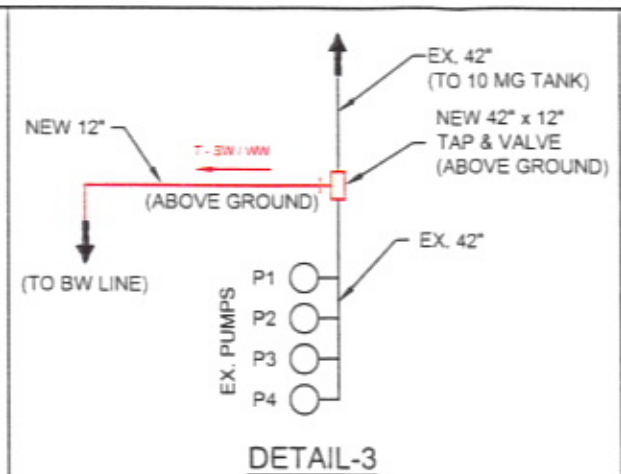
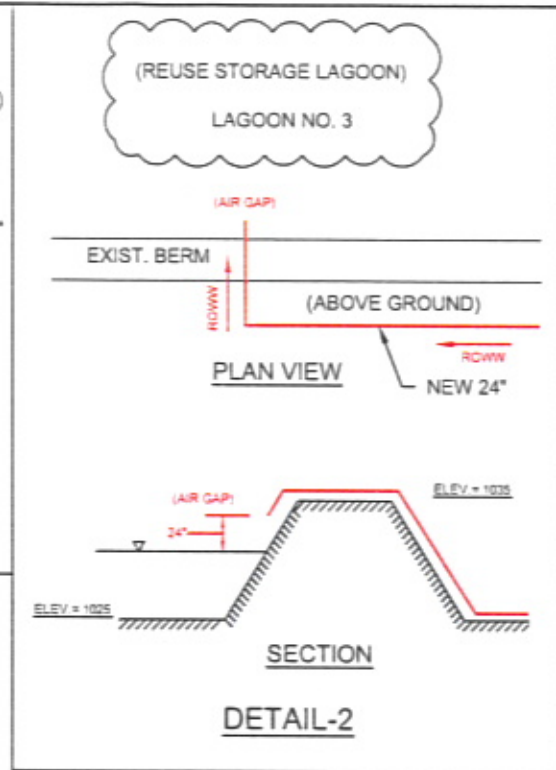
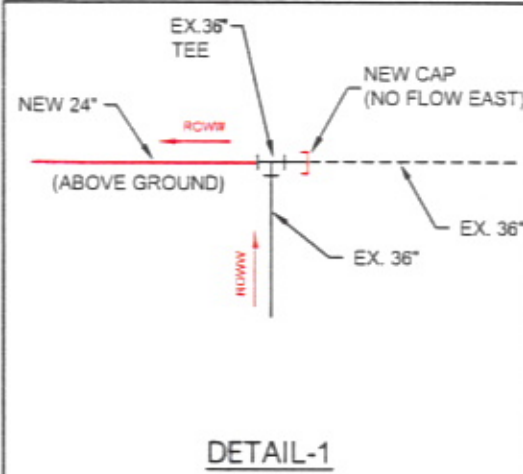
CYPRESS W.T.P.

CITY OF WICHITA FALLS, TEXAS

BIGGS & MATHEWS, INC.
CONSULTING ENGINEERS
2500 BROOK AVENUE
WICHITA FALLS, TX 76701
TELEPHONE (817) 266-1156
FAX (817) 266-1157
TEXAS REGISTERED ENGINEERING FIRM F-104

REVISIONS		DATE		SHEET	
DATE	DESCRIPTION	BY	KDM	DATE	2-5-2013
09	JMU	SCALE	AS SHOWN	1	
09	KDM	REVISION		2	



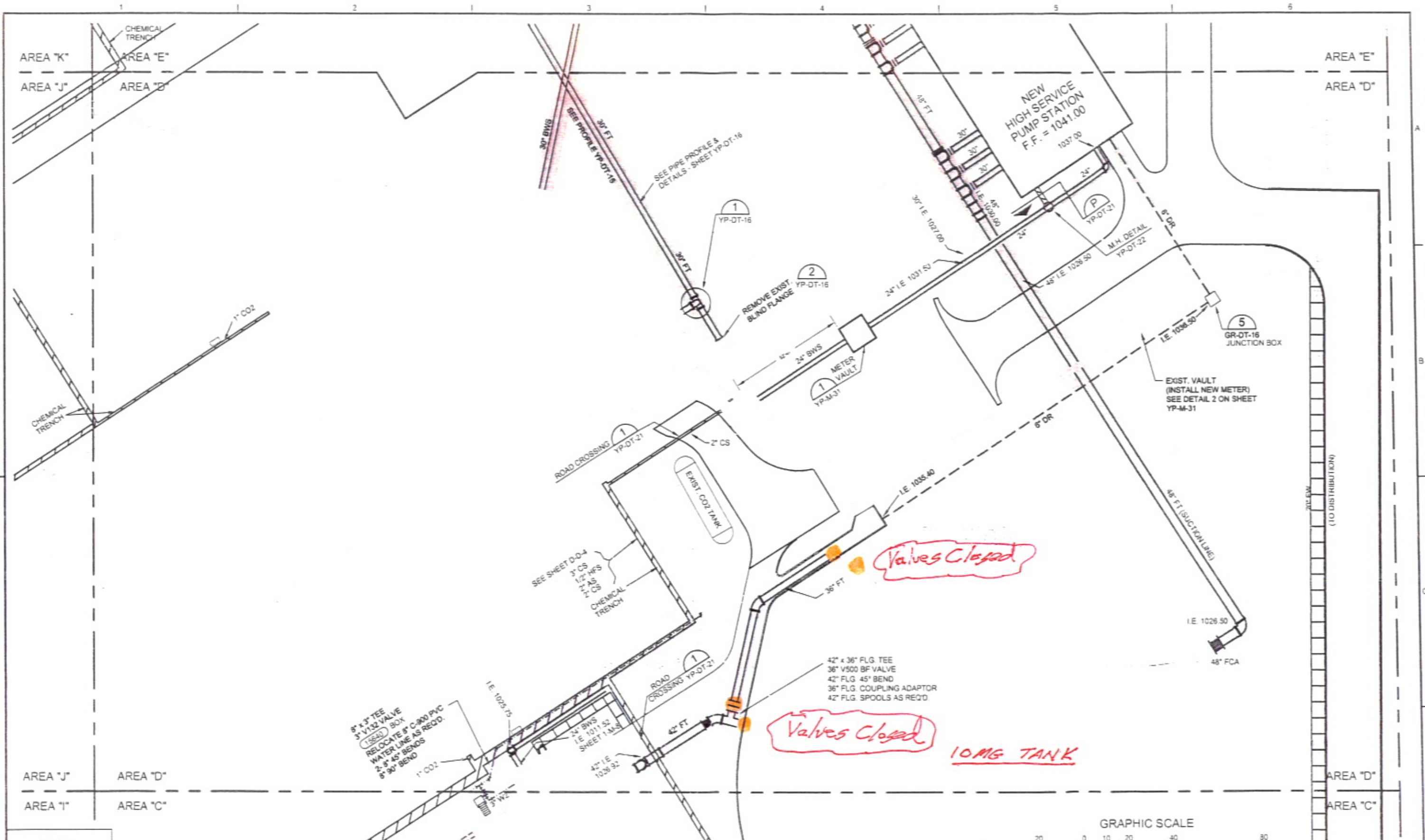


FLOW STREAM I.D.	
RSW	Raw Surface Water
TWW	Treated Wastewater
CTWW	Clarifier Treated Wastewater
RCWW	Reverse Osmosis Treated Wastewater
SW / WW	Combined Surface Water & Wastewater
T-SW / WW	Treated Combined Surface Water & Wastewater
MF / RO REJECT	Reject Water from MF / RO Treatment Facilities

TEMPORARY SITE PIPING MODIFICATIONS
TEMPORARY DIRECT POTABLE REUSE TREATMENT FACILITIES
CYPRESS W.T.P.
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BIGGS & MATHEWS, INC.
CONSULTING ENGINEERS
2500 BROOK AVENUE
WICHITA FALLS, TX 76791
TEL: (817) 266-1200
FAX: (817) 266-1201
WWW.BIGGS-ENGINEERS.COM

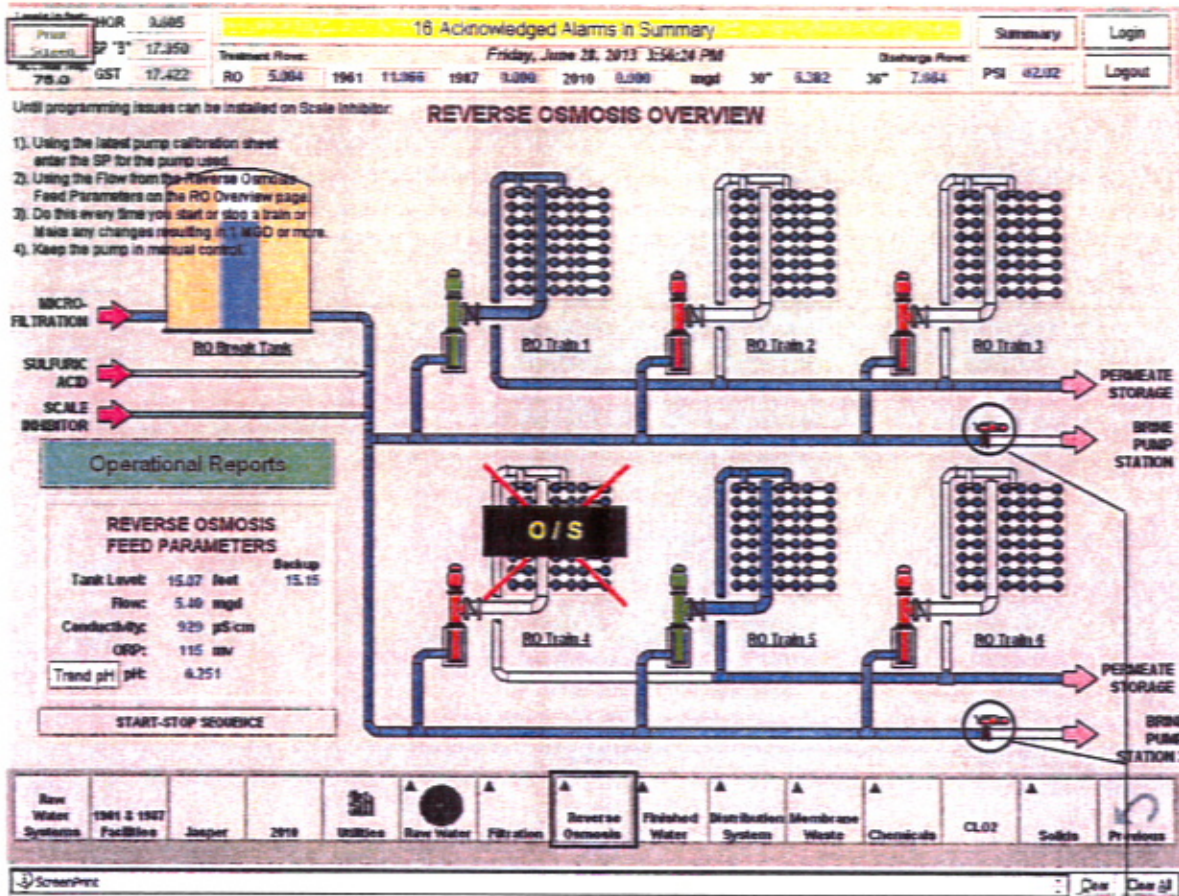
DATE	DESCRIPTION	BY	CHKD	DATE	SHEET
2-5-2013	2-5-2013	JMU	KDM	2-5-2013	2
	SCALE AS SHOWN				
	REVISED				2



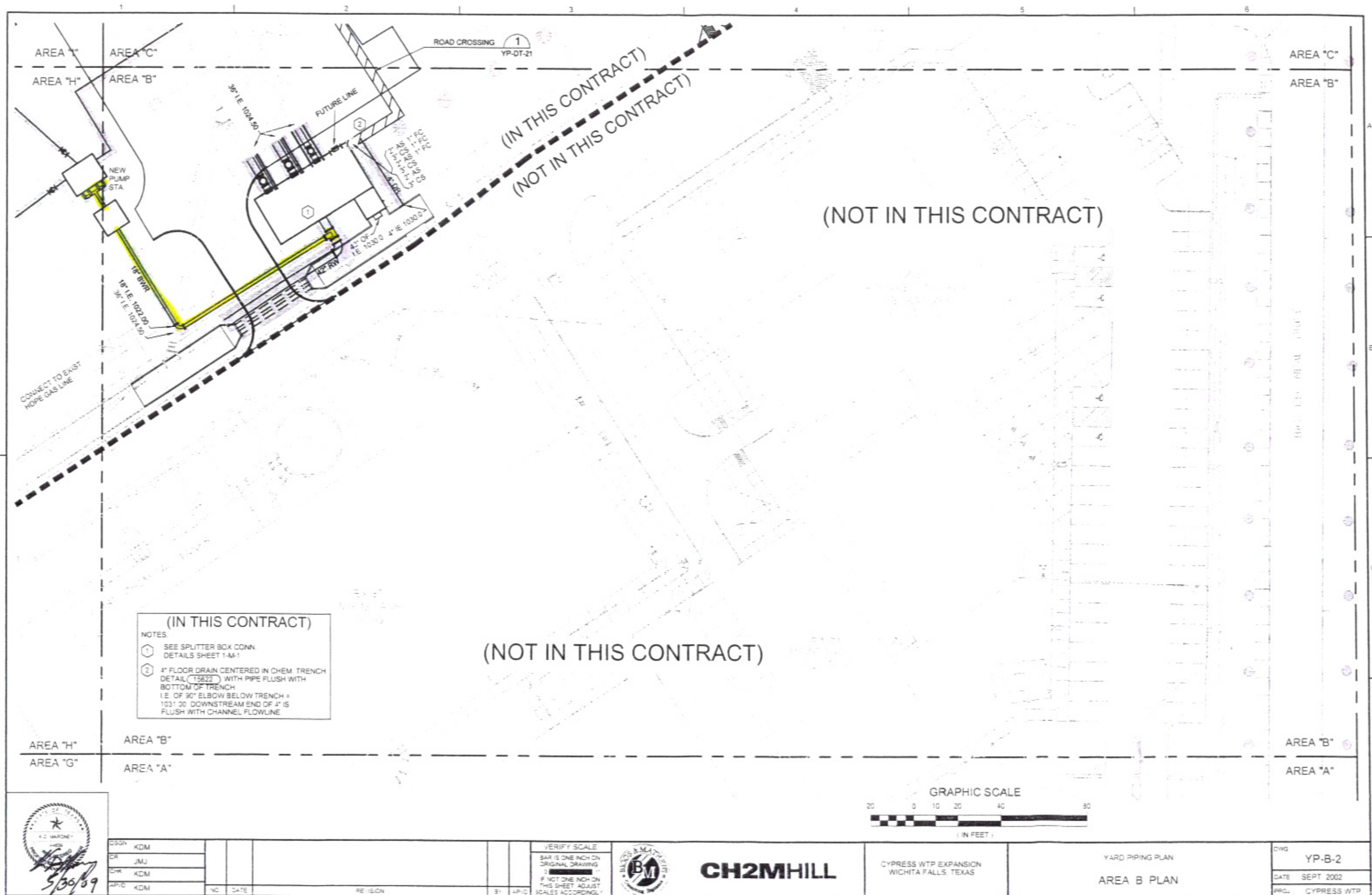
DESIGN	KDM	NO.	DATE	REVISION	BY	APP'D
DR	JMJ					
CHK	KDM					
APP'D	KDM					

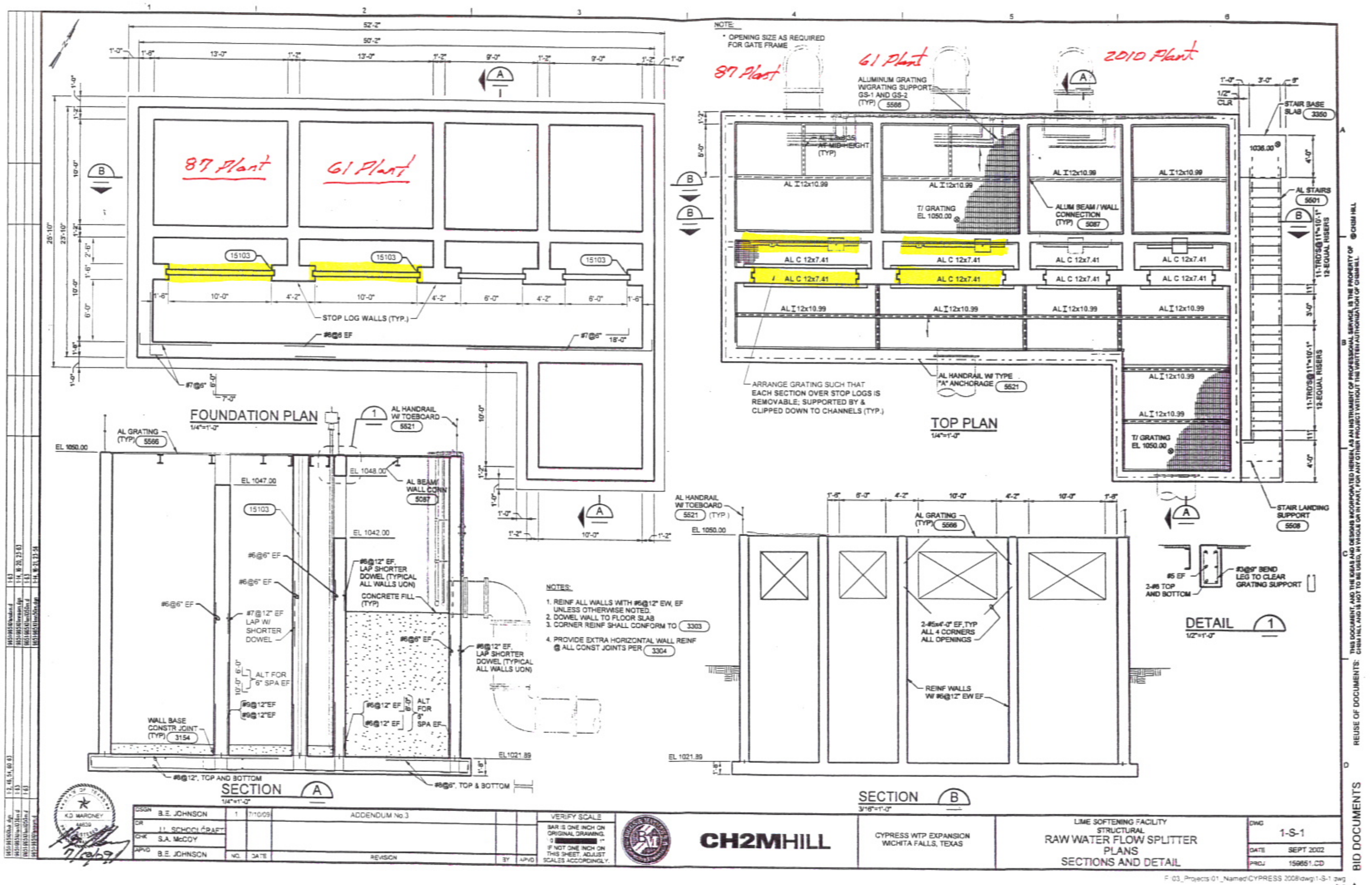


VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY	CH2MHILL	CYPRESS WTP EXPANSION WICHITA FALLS, TEXAS	YARD PIPING PLAN AREA D PLAN	DWG YP-D-4 DATE SEPT. 2002 PROJ. CYPRESS WTP
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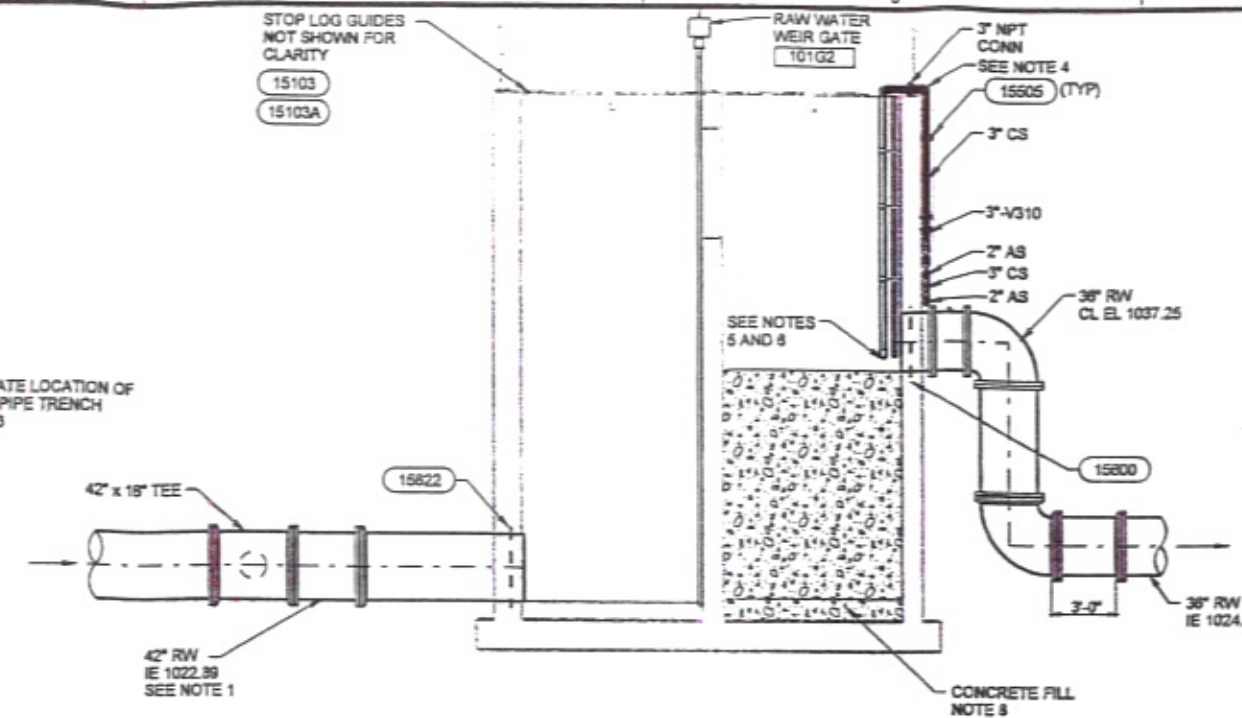


RO BY_PASS VALVES





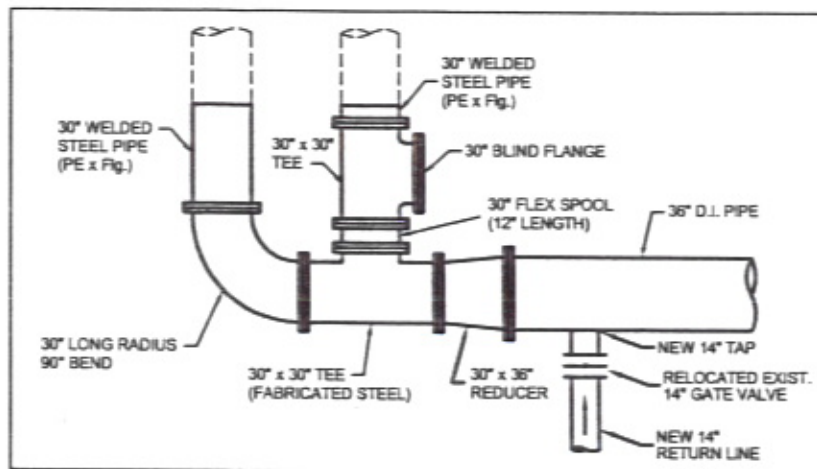
1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9	7.0	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	46.0	46.1	46.2	46.3	46.4	46.5	46.6	46.7	46.8	46.9	47.0	47.1	47.2	47.3	47.4	47.5	47.6	47.7	47.8	47.9	48.0	48.1	48.2	48.3	48.4	48.5	48.6	48.7	48.8	48.9	49.0	49.1	49.2	49.3	49.4	49.5	49.6	49.7	49.8	49.9	50.0	50.1	50.2	50.3	50.4	50.5	50.6	50.7	50.8	50.9	51.0	51.1	51.2	51.3	51.4	51.5	51.6	51.7	51.8	51.9	52.0	52.1	52.2	52.3	52.4	52.5	52.6	52.7	52.8	52.9	53.0	53.1	53.2	53.3	53.4	53.5	53.6	53.7	53.8	53.9	54.0	54.1	54.2	54.3	54.4	54.5	54.6	54.7	54.8	54.9	55.0	55.1	55.2	55.3	55.4	55.5	55.6	55.7	55.8	55.9	56.0	56.1	56.2	56.3	56.4	56.5	56.6	56.7	56.8	56.9	57.0	57.1	57.2	57.3	57.4	57.5	57.6	57.7	57.8	57.9	58.0	58.1	58.2	58.3	58.4	58.5	58.6	58.7	58.8	58.9	59.0	59.1	59.2	59.3	59.4	59.5	59.6	59.7	59.8	59.9	60.0	60.1	60.2	60.3	60.4	60.5	60.6	60.7	60.8	60.9	61.0	61.1	61.2	61.3	61.4	61.5	61.6	61.7	61.8	61.9	62.0	62.1	62.2	62.3	62.4	62.5	62.6	62.7	62.8	62.9	63.0	63.1	63.2	63.3	63.4	63.5	63.6	63.7	63.8	63.9	64.0	64.1	64.2	64.3	64.4	64.5	64.6	64.7	64.8	64.9	65.0	65.1	65.2	65.3	65.4	65.5	65.6	65.7	65.8	65.9	66.0	66.1	66.2	66.3	66.4	66.5	66.6	66.7	66.8	66.9	67.0	67.1	67.2	67.3	67.4	67.5	67.6	67.7	67.8	67.9	68.0	68.1	68.2	68.3	68.4	68.5	68.6	68.7	68.8	68.9	69.0	69.1	69.2	69.3	69.4	69.5	69.6	69.7	69.8	69.9	70.0	70.1	70.2	70.3	70.4	70.5	70.6	70.7	70.8	70.9	71.0	71.1	71.2	71.3	71.4	71.5	71.6	71.7	71.8	71.9	72.0	72.1	72.2	72.3	72.4	72.5	72.6	72.7	72.8	72.9	73.0	73.1	73.2	73.3	73.4	73.5	73.6	73.7	73.8	73.9	74.0	74.1	74.2	74.3	74.4	74.5	74.6	74.7	74.8	74.9	75.0	75.1	75.2	75.3	75.4	75.5	75.6	75.7	75.8	75.9	76.0	76.1	76.2	76.3	76.4	76.5	76.6	76.7	76.8	76.9	77.0	77.1	77.2	77.3	77.4	77.5	77.6	77.7	77.8	77.9	78.0	78.1	78.2	78.3	78.4	78.5	78.6	78.7	78.8	78.9	79.0	79.1	79.2	79.3	79.4	79.5	79.6	79.7	79.8	79.9	80.0	80.1	80.2	80.3	80.4	80.5	80.6	80.7	80.8	80.9	81.0	81.1	81.2	81.3	81.4	81.5	81.6	81.7	81.8	81.9	82.0	82.1	82.2	82.3	82.4	82.5	82.6	82.7	82.8	82.9	83.0	83.1	83.2	83.3	83.4	83.5	83.6	83.7	83.8	83.9	84.0	84.1	84.2	84.3	84.4	84.5	84.6	84.7	84.8	84.9	85.0	85.1	85.2	85.3	85.4	85.5	85.6	85.7	85.8	85.9	86.0	86.1	86.2	86.3	86.4	86.5	86.6	86.7	86.8	86.9	87.0	87.1	87.2	87.3	87.4	87.5	87.6	87.7	87.8	87.9	88.0	88.1	88.2	88.3	88.4	88.5	88.6	88.7	88.8	88.9	89.0	89.1	89.2	89.3	89.4	89.5	89.6	89.7	89.8	89.9	90.0	90.1	90.2	90.3	90.4	90.5	90.6	90.7	90.8	90.9	91.0	91.1	91.2	91.3	91.4	91.5	91.6	91.7	91.8	91.9	92.0	92.1	92.2	92.3	92.4	92.5	92.6	92.7	92.8	92.9	93.0	93.1	93.2	93.3	93.4	93.5	93.6	93.7	93.8	93.9	94.0	94.1	94.2	94.3	94.4	94.5	94.6	94.7	94.8	94.9	95.0	95.1	95.2	95.3	95.4	95.5	95.6	95.7	95.8	95.9	96.0	96.1	96.2	96.3	96.4	96.5	96.6	96.7	96.8	96.9	97.0	97.1	97.2	97.3	97.4	97.5	97.6	97.7	97.8	97.9	98.0	98.1	98.2	98.3	98.4	98.5	98.6	98.7	98.8	98.9	99.0	99.1	99.2	99.3	99.4	99.5	99.6	99.7	99.8	99.9	100.0	100.1	100.2	100.3	100.4	100.5	100.6	100.7	100.8	100.9	101.0	101.1	101.2	101.3	101.4	101.5	101.6	101.7	101.8	101.9	102.0	102.1	102.2	102.3	102.4	102.5	102.6	102.7	102.8	102.9	103.0	103.1	103.2	103.3	103.4	103.5	103.6	103.7	103.8	103.9	104.0	104.1	104.2	104.3	104.4	104.5	104.6	104.7	104.8	104.9	105.0	105.1	105.2	105.3	105.4	105.5	105.6	105.7	105.8	105.9	106.0	106.1	106.2	106.3	106.4	106.5	106.6	106.7	106.8	106.9	107.0	107.1	107.2	107.3	107.4	107.5	107.6	107.7	107.8	107.9	108.0	108.1	108.2	108.3	108.4	108.5	108.6	108.7	108.8	108.9	109.0	109.1	109.2	109.3	109.4	109.5	109.6	109.7	109.8	109.9	110.0	110.1	110.2	110.3	110.4	110.5	110.6	110.7	110.8	110.9	111.0	111.1	111.2	111.3	111.4	111.5	111.6	111.7	111.8	111.9	112.0	112.1	112.2	112.3	112.4	112.5	112.6	112.7	112.8	112.9	113.0	113.1	113.2	113.3	113.4	113.5	113.6	113.7	113.8	113.9	114.0	114.1	114.2	114.3	114.4	114.5	114.6	114.7	114.8	114.9	115.0	115.1	115.2	115.3	115.4	115.5	115.6	115.7	115.8	115.9	116.0	116.1	116.2	116.3	116.4	116.5	116.6	116.7	116.8	116.9	117.0	117.1	117.2	117.3	117.4	117.5	117.6	117.7	117.8	117.9	118.0	118.1	118.2	118.3	118.4	118.5	118.6	118.7	118.8	118.9	119.0	119.1	119.2	119.3	119.4	119.5	119.6	119.7	119.8	119.9	120.0	120.1	120.2	120.3	120.4	120.5	120.6	120.7	120.8	120.9	121.0	121.1	121.2	121.3	121.4	121.5	121.6	121.7	121.8	121.9	122.0	122.1	122.2	122.3	122.4	122.5	122.6	122.7	122.8	122.9	123.0	123.1	123.2	123.3	123.4	123.5	123.6	123.7	123.8	123.9	124.0	124.1	124.2	124.3	124.4	124.5	124.6	124.7	124.8	124.9	125.0	125.1	125.2	125.3	125.4	125.5	125.6	125.7	125.8	125.9	126.0	126.1	126.2	126.3	126.4	126.5	126.6	126.7	126.8	126.9	127.0	127.1	127.2	127.3	127.4	127.5	127.6	127.7	127.8	127.9	128.0	128.1	128.2	128.3	128.4	128.5	128.6	128.7	128.8	128.9	129.0	129.1	129.2	129.3	129.4	129.5	129.6	129.7	129.8	129.9	130.0	130.1	130.2	130.3	130.4	130.5	130.6	130.7	130.8	130.9	131.0	131.1	131.2	131.3	131.4	131.5	131.6	131.7	131.8	131.9	132.0	132.1	132.2	132.3	132.4	132.5	132.6	132.7	132.8	132.9	133.0	133.1	133.2	133.3	133.4	133.5	133.6	133.7	133.8	133.9	134.0	134.1	134.2	134.3	13
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[illegible]

SECTION B
3/16"=1'-0"

12. INSTALL BACKFLOW PREVENTORS V-843 IN EACH CS AND AS LINE SERVICE INSIDE TRENCH. FOR ALL 2" AND LARGER AS AND CS LINES, SPLIT FLOW IN TWO 1" BRANCHES. INSTALL BACKFLOW PREVENTORS IN EACH BRANCH AND JOIN TO ORIGINAL SIZE PIPE DOWNSTREAM.

DWG	1-M-1
DATE	SEPT
PROJ	15065

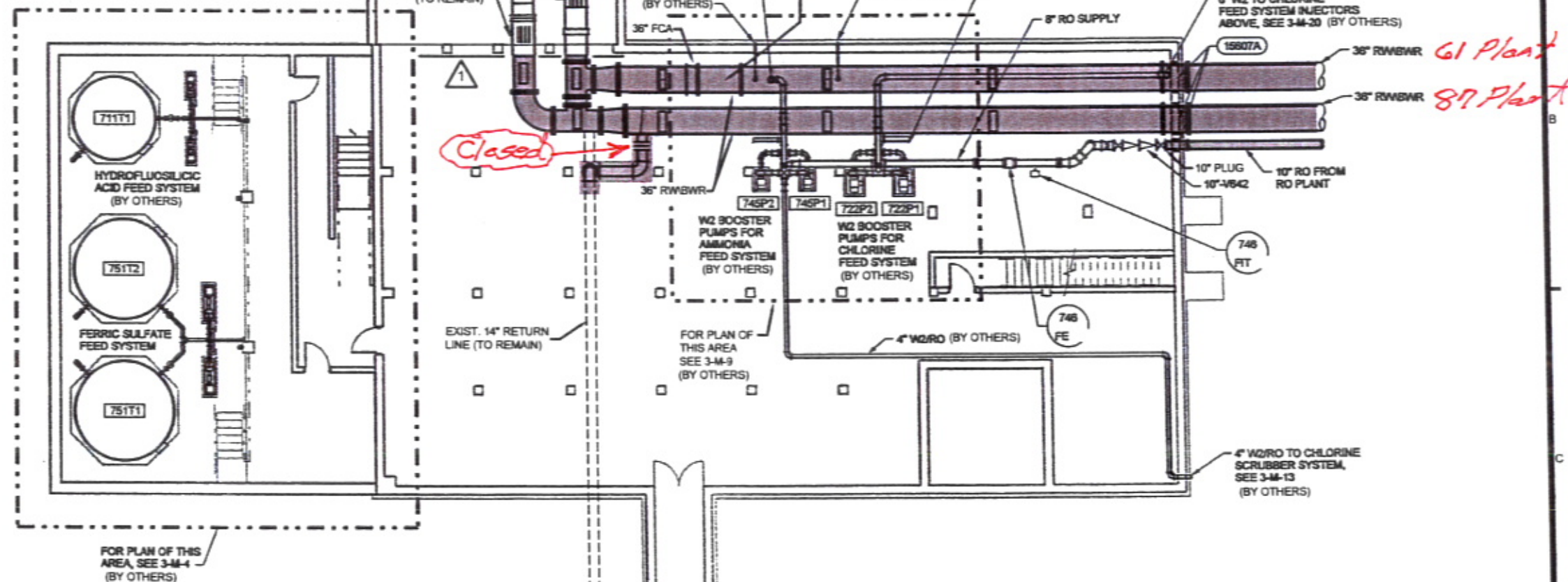


RW/BWR PIPING DETAIL NEAR 1

GENERAL NOTES:

1. YARD PIPING SHALL INCLUDE 36" RW/BWR PIPING IN CHEMICAL BUILDING BASEMENT TO WELDED STEEL PIPE SEAM NOTED AS .
2. ALL CHEMICAL FEED SHALL BE BY OTHERS.
3. CONTRACTOR SHALL PROVIDE PIPING SUPPORT FOR RW/BWR LINE AS SHOWN.

 END YARD PIPING AT WELDED STEEL PIPE CONNECTION



CHEMICAL BUILDING PIPING

1/8" = 1'-0"



DESIGN JMU
CHK JMU
APP KDM
DATE 6/30/03

NO. DATE REVISION

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

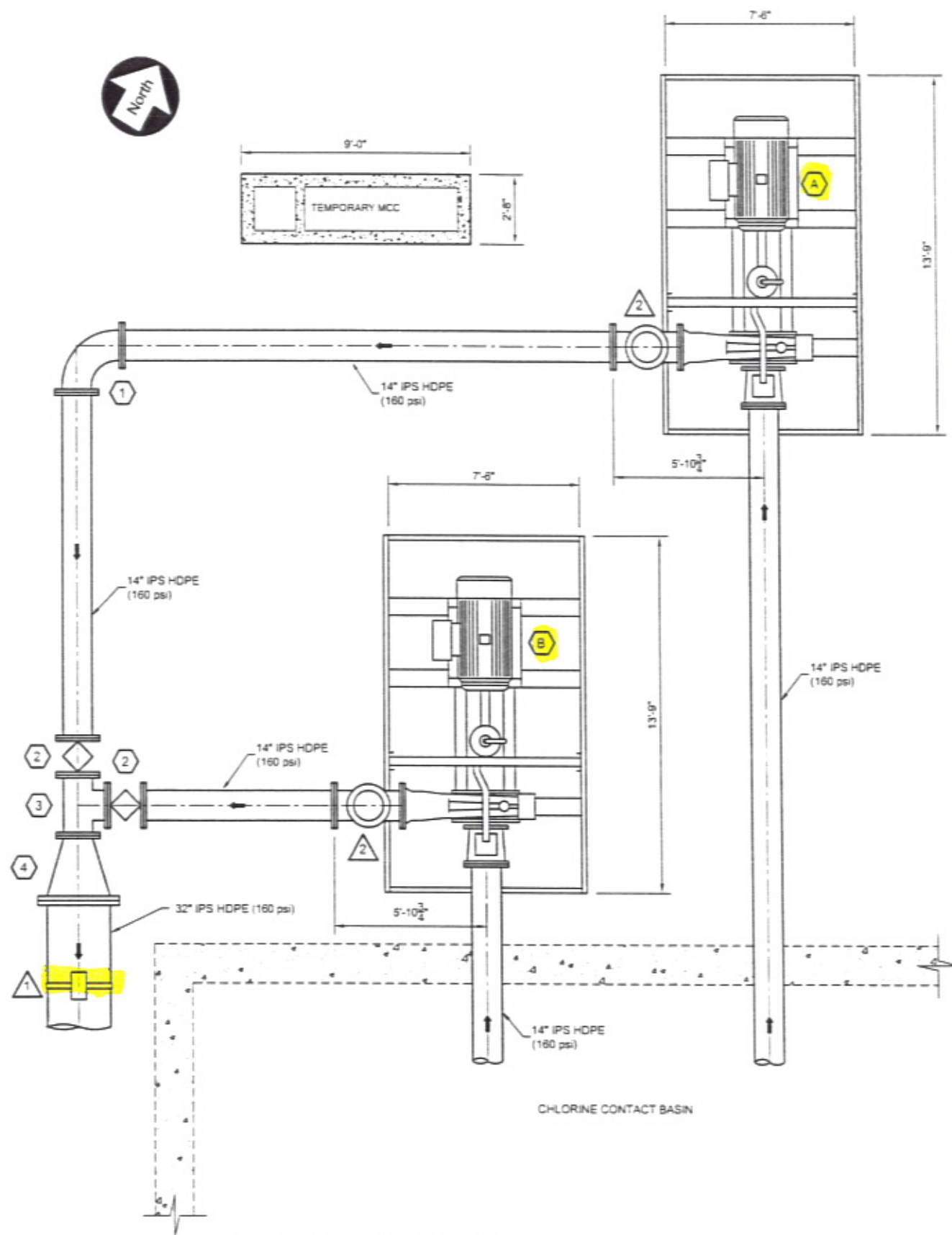


CH2MHILL

CYPRESS WTP EXPANSION
WICHITA FALLS, TEXAS

YARD PIPING - PHASE 1
CHEMICAL BLDG. PIPING DETAILS

DWG YP-M-33-Phase 1
DATE MARCH 2003
PROJ CYPRESS WTP



PROPOSED TEMPORARY SKID MOUNTED PUMPS - PLAN VIEW
3/8" = 1'-0"

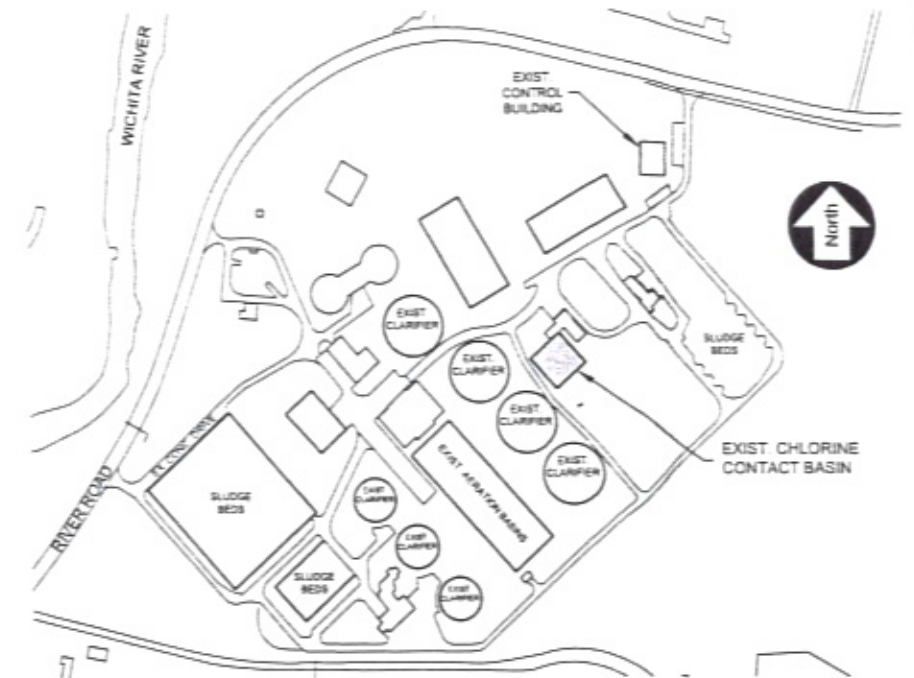
PARTIAL LIST OF MATERIALS

ITEM	QTY.	DESCRIPTION
1	1	14" D.I. FLANGED LONG RADIUS 90° BEND
2	2	14" D.I. FLANGED PLUG VALVES
3	1	14" x 14" D.I. FLANGED TEE
4	1	14" x 30" D.I. FLANGED REDUCER
A	1	480 V. 3-PHASE SKID MOUNTED ELECTRIC MOTOR DRIVEN PUMP AND CONTROLLED BY VFD...
B	1	SKID MOUNTED DIESEL DRIVEN STAND-BY PUMP AND CONTROLLED BY VFD...
A	1	DOPPLER STRAP ON FLOW METER WITH RATE OF FLOW, TOTALIZER AND DATA LOGGER. (GREYLINE INSTRUMENTS, INC.)
2	2	14" CHECK VALVE

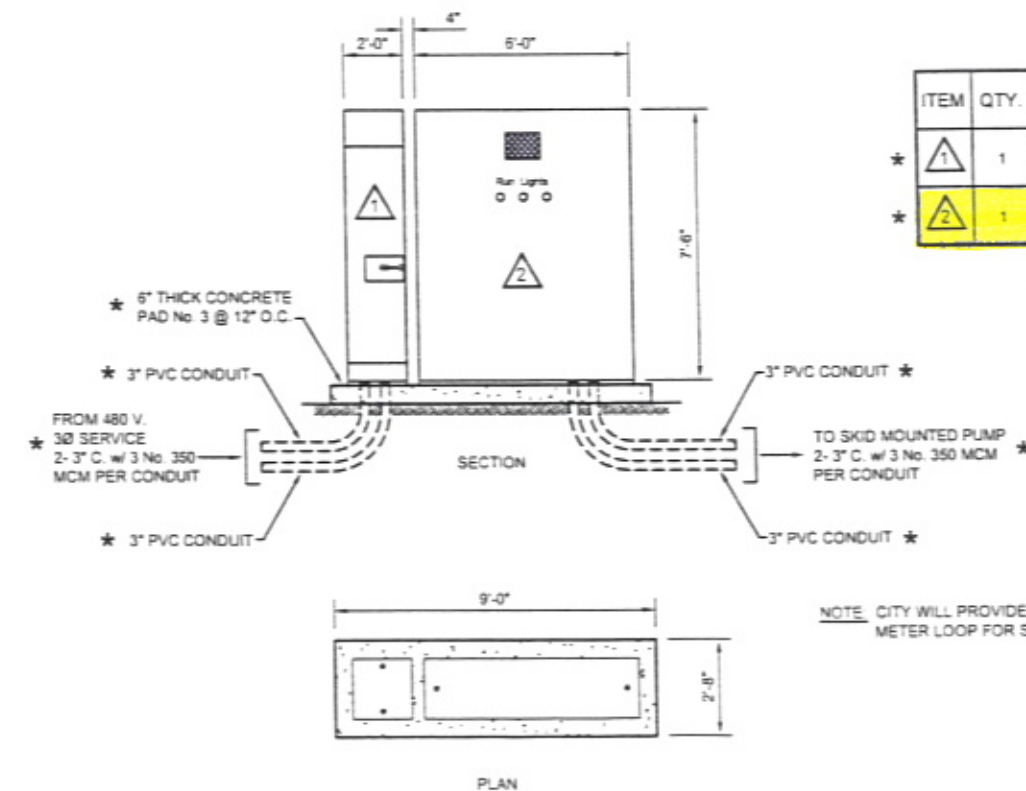
PUMP HEAD AND FLOW REQUIREMENTS (2-PUMPS) (THREE POINTS ON PUMP CURVE)

5000 GPM @ 270' TDH
5500 GPM @ 250' TDH
8500 GPM @ 235' TDH

CONTRACTOR SHALL SUBMIT PUMP CURVE FOR APPROVAL PRIOR TO PURCHASE.



EXISTING CHLORINE CONTACT BASIN - LOCATION MAP
NOT TO SCALE



TEMPORARY 450 H.P. VFD PANEL
3/8" = 1'-0"

TEMPORARY MCC		
ITEM	QTY.	DESCRIPTION
1	1	MIN. 600 AMP. 480 V. 3-POLE MAIN BREAKER
2	1	MIN. 450 H.P. 480 V VFD CONTROLLER

NOTE: * BY CONTRACTOR.

NOTE: CITY WILL PROVIDE SITE POWER AND METER LOOP FOR SKID MOUNTED PUMP.

PUMP DETAILS
RIVER ROAD W.W.T.P.

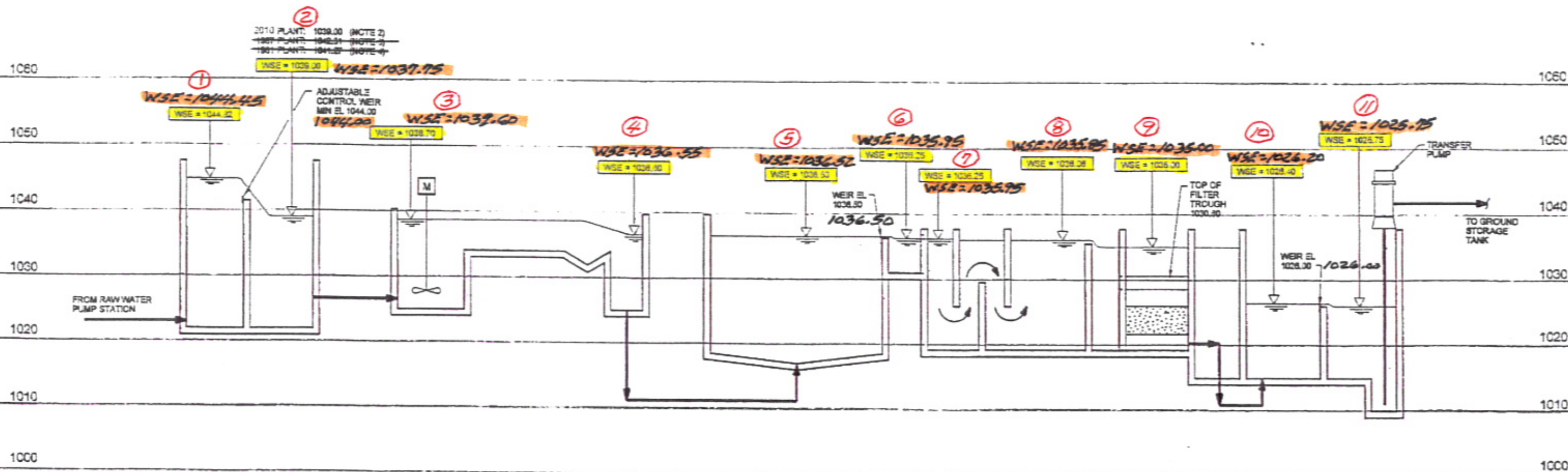
TEMPORARY DIRECT POTABLE
REUSE CONVEYANCE FACILITIES

CITY OF WICHITA FALLS, TEXAS

BIGGS & MATHEWS, INC.
CONSULTING ENGINEERS
2805 SPOOK AVENUE
WICHITA FALLS, TX 76701
TELEPHONE: (817) 266-1111
FAX: (817) 266-1112
WWW.BIGGS-AND-MATHEWS.COM



DATE	DESCRIPTION	BY	CHKD	DATE	SHEET
5-14-13	REVISED PER CITY COMMENTS	DM	JML	5-14-13	24
5-17-13	REVISED	DM	KCM	5-17-13	25



RAW WATER SPLITTER BOX RAPID MIX PARSHALL FLUME CLARIFIER RECARBONATION CHAMBER FILTERS PIPE GALLERY CLEARWELL

2010 PLANT

NOTES:

1. HYDRAULIC PROFILE AND WATER SURFACE ELEVATIONS REPRESENTED IN THIS DRAWING CORRESPOND TO THE NEW 2010 PLANT, EXCEPT WHERE INDICATED.
2. WATER SURFACE ELEVATIONS (WSE) SHOWN FOR 2010 PLANT CORRESPOND TO MAXIMUM FLOW OF 10 MGD.
3. WSE FOR 1981 PLANT AT SPLITTER BOX IS BASED ON FIELD MEASURED MAX WSE AT RIVER WELL EQUAL TO 1040.1 AND A MAX FLOW OF 16 MGD, 8 MGD PER TRAIN.
4. WSE FOR 1981 PLANT AT SPLITTER BOX IS BASED ON FIELD MEASURED MAX WSE AT FLOW SPLIT OF NORTH AND SOUTH TRAINS EQUAL TO 1037.5 AND A MAX FLOW OF 10 MGD, 5 MGD PER TRAIN.

4 MGD

10 MGD



DESIGN	A. AMAYA	DATE	
CHECKED	W. PEARSON	DATE	
APPROVED	L. DAVIS	DATE	
	A. PEARSON	DATE	

VERIFY SCALE
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CYPRESS WTP EXPANSION
WICHITA FALLS, TEXAS



GENERAL

HYDRAULIC PROFILE

DWG	G-17
DATE	SEPT 2002
PROJ	199861.CD