

***CE*DESIGNERS, Inc.**

108 EAST COMMERCIAL AVENUE
MONTEREY, TENNESSEE 38574

Phone: (931) 839-2350

Fax: (931) 839-6380

May 17, 2017

Mr. George C. Garden, P.E. BCEE/ Chief Engineer
Division of Water Resources
11th Floor, William R. Snodgrass TN Tower
312 Rosa L. Parks Avenue
Nashville, TN 37243-1102

RE: Genesis Village Waste Water System
Cumberland County, Tennessee
CED Job No. D-159

Dear Mr. Garden:

I appreciate your visit to my office on May 12, 2017 with your two associates. It is also helpful that you shared your half sized set of Plans marked with your concerns and shared verbally your mark-ups..

We have completed our revisions to the Plans based on the above comments. Please find attached two copies of the latest revision of these Plans 24"x36". I understand why you were having a problem with reading the half sized set. As I told you, we only work with 24"x36" sized sheets which have a readable sized notes and details. We make a commitment that any client who pays for a job will receive a sufficient number of copies of the full sized plans to operate the project. In the future the client can also request replacement sets of Plans.

These revised as-builts have the signature of Tim Huddleston as the operator and contractor verifying the correctness as provided to **C E DESIGNERS, INC.**

On Sheet 2 of the Plans, revisions have been made to reflect actual construction and to add clarity for the reader. Your notes were very helpful.

On Sheet 3 of the Plans, flow directional arrows were added to the Bioclere Section view for clarity.

Mr. George C. Garden, P.E. BCEE/ Chief Engineer
May 17, 2017
Page 2

Responding to your comments on Sheet 4 of the Plans required that we make a physical visit to the site to verify the orientation of the inside section views and of the Plan view.

I hope that having these sets will allow you to complete your as-built review and will give you a level of comfort with our work.

Yours,

A handwritten signature in black ink, appearing to read "Mike Callahan". The signature is fluid and cursive, with a long horizontal stroke extending to the left.

Mike Callahan, P.E.
Chief Executive Officer

MC:sc

Attachments: Mike Hines, P.E.
 Tim Huddleston
 Gary Emery
 C E File

SEWAGE WORKS

FOR

GENESIS VILLAGE ESTATES CUMBERLAND COUNTY, TENNESSEE



SCALE: 1"=2000'
LOCATION MAP

RECORD DRAWINGS:
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ACCORDANCE WITH OUR CONSTRUCTION
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BY THE CONTRACTOR.
DATE: 05 MAY 2017

CONTRACT I- WASTE WATER TREATMENT PLANT
JOB NUMBER D-159

DATE: OCTOBER 07, 2016

REVISED - OCTOBER 21, 2016

REVISED - NOVEMBER 04, 2016

REVISED - NOVEMBER 30, 2016

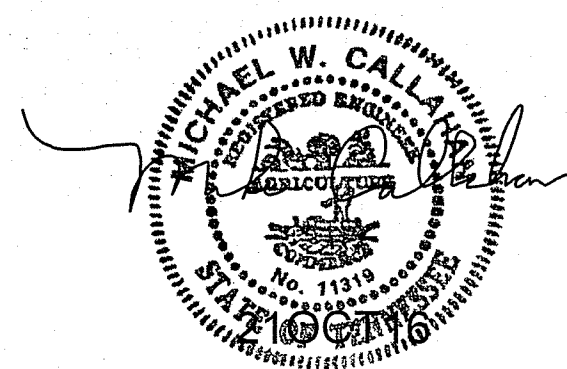
RECORD DRAWING - MAY 03, 2017

INDEX:

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
	TITLE SHEET
1.	SITE PLAN
2.	TREATMENT PLANT AERIAL VIEW
3.	TREATMENT PLANT SIDE VIEW
4.	TREATMENT PLANT DETAILS
5.	TREATMENT PLANT DETAILS

CE **DESIGNERS, Inc.**

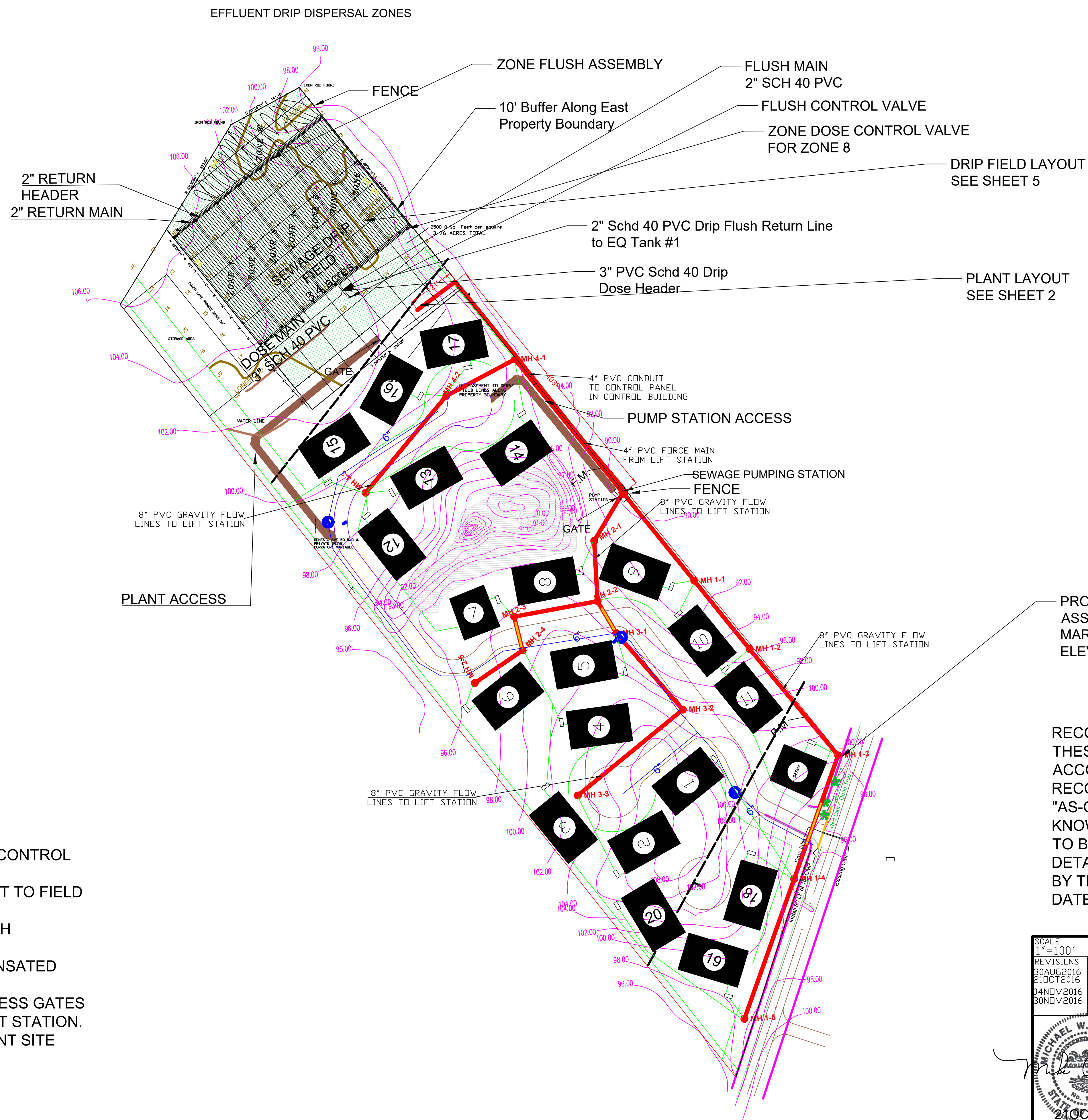
108 East Commercial Avenue
Monterey, Tennessee 38574



APPROVED

BY: Tim Huff
CUMBERLAND BASIN WASTEWATER
SYSTEMS, LLC.

SET NO. _____



DRIP CONSTRUCTION NOTES:

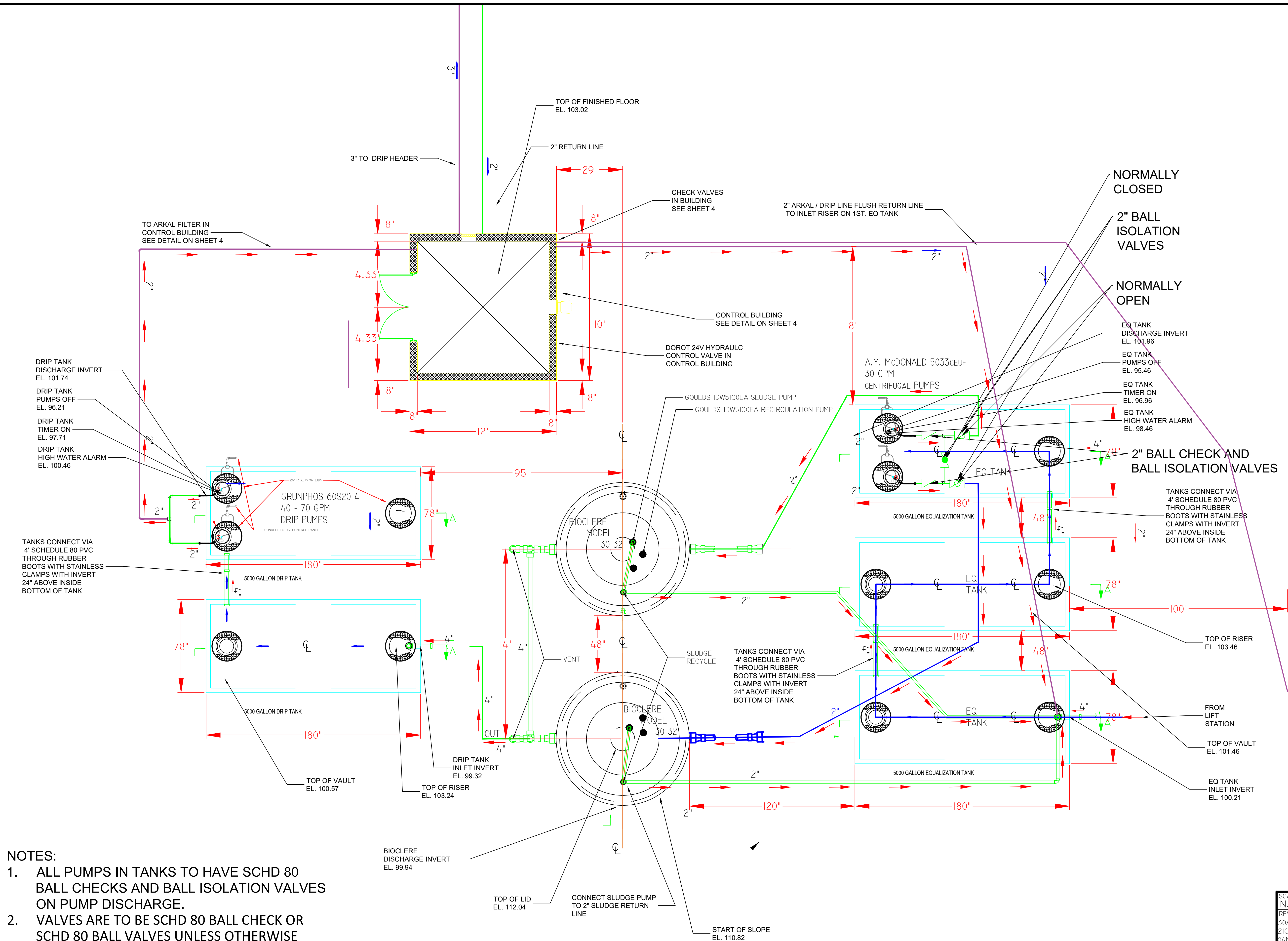
1. SEE TYPICAL DRIP ZONE DETAIL SHEET 4 FOR CONTROL VALVE LOCATIONS WITHIN ZONES.
2. CAV VALVE LOCATIONS APPROXIMATE SUBJECT TO FIELD LOCATION.
3. DRIP LINES TO BE ON NOMINAL 5' SPACING WITH ORIFICES ON 1' SPACING.
4. DRIP TUBE TO BE NETAFIM PRESSURE COMPENSATED UNIRAM 0.820" ID, 0.61 GPH.
5. 5' CHAIN LINK OR BARB WIRE FENCE WITH ACCESS GATES AROUND DRIP AND TREATMENT UNITS AND LIFT STATION.
6. 8' WIDE GRAVEL ACCESS DRIVES TO TREATMENT SITE AND LIFT STATION.



SCALE 1"=100'		SEWAGE WORKS	
REVISIONS	DESIGNED	SITE LAYOUT	
30AUG2016	EWC		
21OCT2016	DRAWN		
04NOV2016	EWC		
30NOV2016	CHECKED	FOR	
	MVC	GENESIS VILLAGE ESTATES	
		CUMBERLAND COUNTY, TN	
		DATE	21 OCT 2016
		JOB NO.	D-159
		SHEET	1

CEDESIGNERS, Inc.
100 EAST COMMERCIAL AVENUE
MONTEREY, TENNESSEE 38574

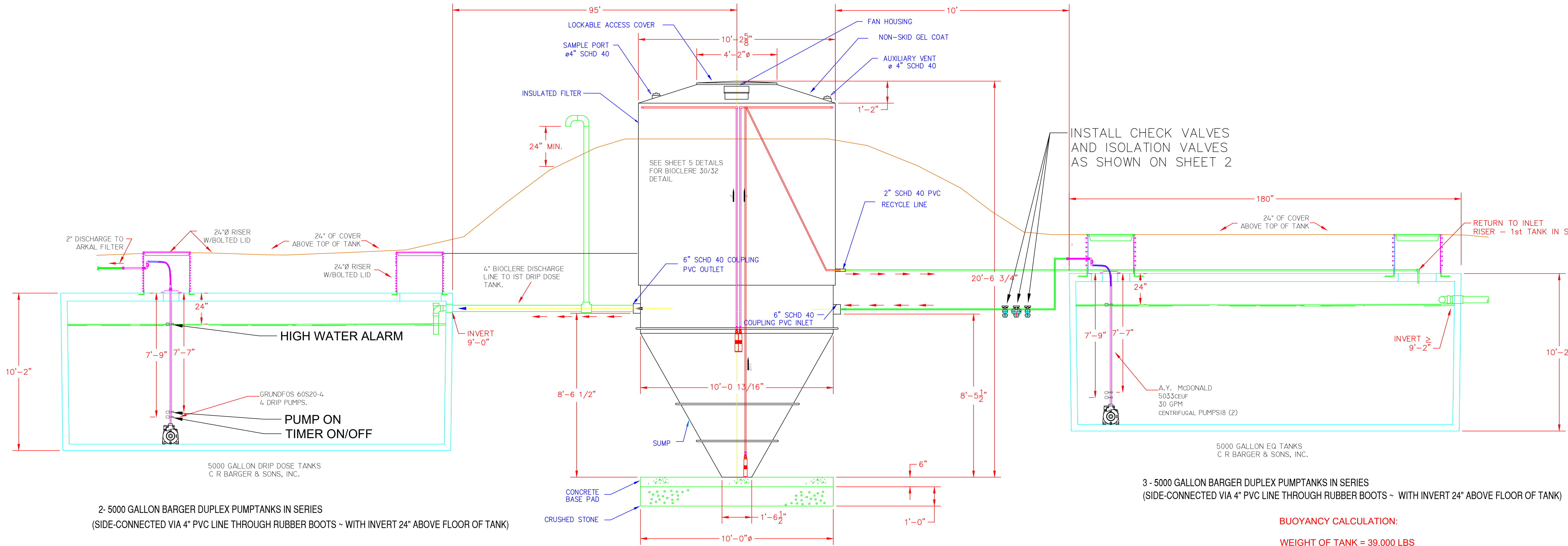
Description	Elevation
BM =	100.00
Top of Lift Station	93.00
Lift pumps OFF	82.00
Lift lead pump ON	83.00
Lag pump ON	86.00
High water alarm	87.00
Top of EQ tanks	101.46
Top of EQ risers	103.46
EQ inlet invert	100.21
EQ discharge invert	101.96
EQ pumps OFF	95.46
EQ timer ON	96.96
EQ high water alarm	98.46
Top of Bioclere	112.04
Bioclere inlet invert	100.02
Bioclere discharge invert	99.94
Drip tank top	100.57
Drip tank inlet invert	99.32
Drip discharge invert	101.74
Drip pump OFF	96.21
Drip timer ON	97.71
Drip high water	100.46
Control bldg floor	103.02



- NOTES:
1. ALL PUMPS IN TANKS TO HAVE SCHD 80 BALL CHECKS AND BALL ISOLATION VALVES ON PUMP DISCHARGE.
 2. VALVES ARE TO BE SCHD 80 BALL CHECK OR SCHD 80 BALL VALVES UNLESS OTHERWISE INDICATED.
 3. TANKS ARE 5,000 GALLON BARGER DUPLEX PUMP TANKS.
 4. ALL PIPING SOLVENT WELDED JOINT SCHD 40 PVC UNLESS OTHERWISE INDICATED.

RECORD DRAWINGS:
 THESE DRAWING WERE PREPARED IN ACCORDANCE WITH OUR CONSTRUCTION RECORDS. THEY SHOW THE PROJECT "AS-CONSTRUCTED" TO THE BEST OF OUR KNOWLEDGE BUT ARE NOT GUARANTEED TO BE CORRECT IN EACH AND EVERY DETAIL. THIS INFORMATION IS PROVIDED BY THE CONTRACTOR.
 DATE: 05 MAY 2017

SCALE N. T. S.	DESIGNED EWC	SEWAGE WORKS
REVISIONS 30AUG2016 21OCT2016 04NOV2016 30NOV2016	DRAWN EWC CHECKED MWC	TREATMENT PLANT - AERIAL VIEW
FOR GENESIS VILLAGE ESTATES CUMBERLAND COUNTY, TN		DATE 21 OCT 2016
CEDESIGNERS, Inc. 100 EAST COMMERCIAL AVENUE MONTEREY, TENNESSEE 38574		JOB NO. D-159
MICHAEL W. CALLAHAN Professional Engineer No. 11218 State of Tennessee 21 OCT 2016		SHEET 2



BUOYANCY CALCULATION:

WEIGHT OF TANK = 39,000 LBS
WEIGHT OF 24" OF COVER:
180"x78"x24"/1728 CU.IN./CU.FT.X80 LBS/CU.FT. = 15,600 LBS
WEIGHT OF MINIMUM 2" OF WATER IN TANK:
24"x170"x68"/1728 CU.IN./CU.FT.X62.4 LBS/CU.FT. = 10,019 LBS.
TOTAL WEIGHT = 64,619 LBS.

BUOYANCY:
180"x78"x122"/1728 CU.IN./CU.FT.X62.4 LBS/CU.FT. = 61,854 LBS.
NET BUOYANCY FORCE = 61,854 LBS - 64,619 LBS = -2,765 LBS.

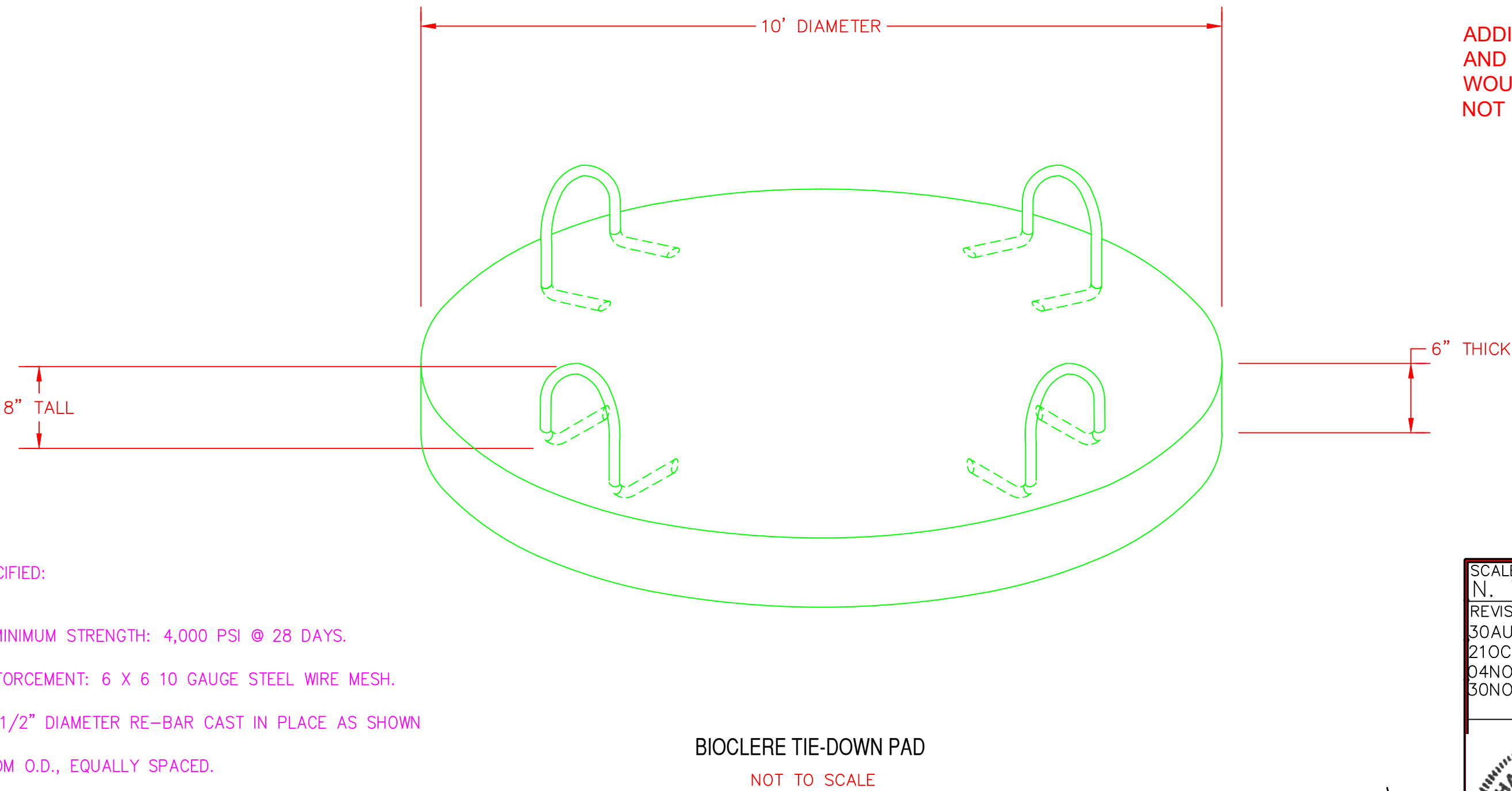
ADDITIONAL ANTIBUOYANCY FORCES OF WEIGHT OF INTERNAL PUMPS AND APPURTENANCES AND FRICTION OF SOIL AGAINST TANK SIDES WOULD ADD ADDITIONAL ANTIFLOTATION PROTECTION. TANKS WILL NOT FLOAT.


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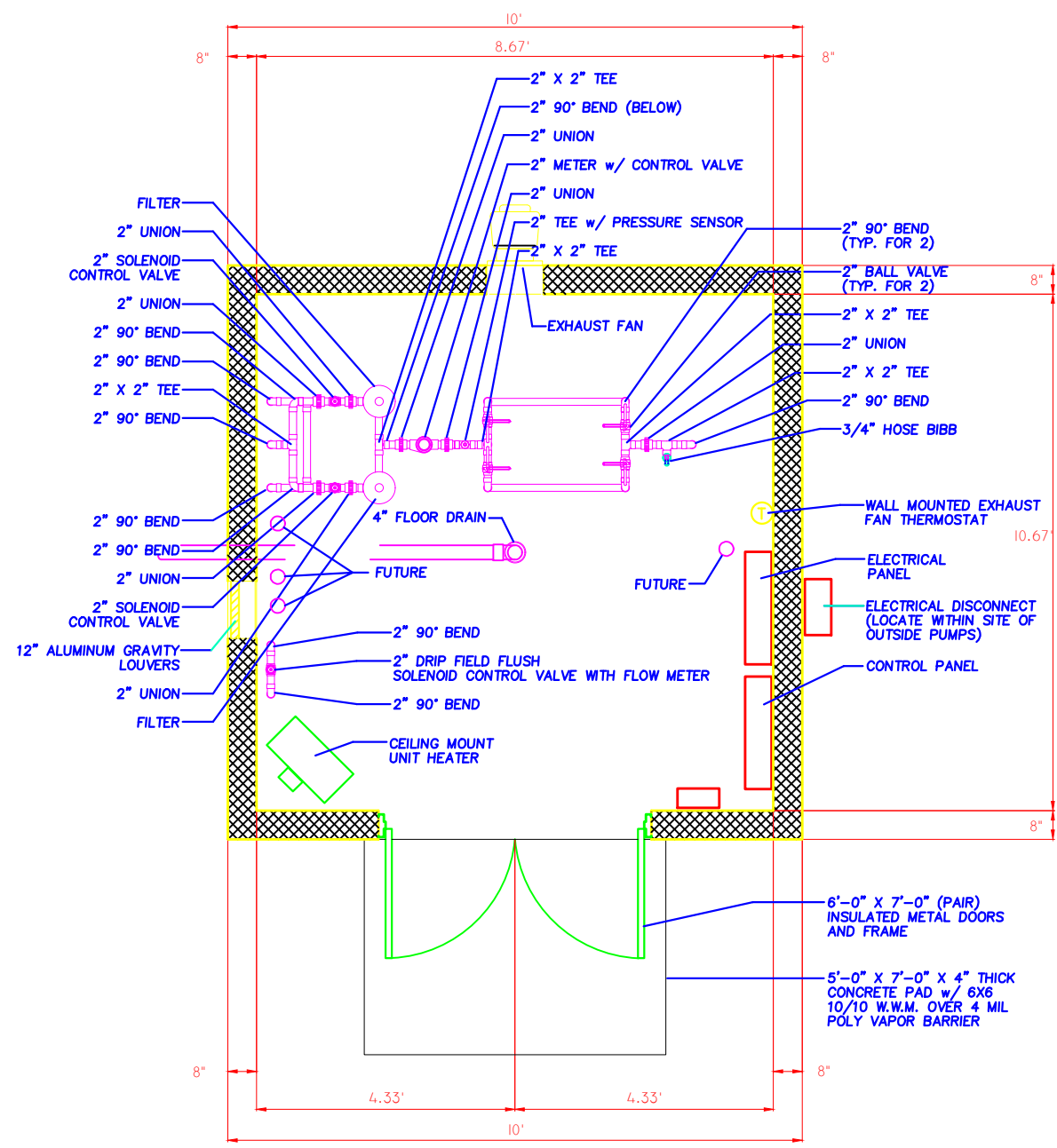
- NOTES:**
- TWO IDENTICAL BIOCLERE 30-32 UNITS IN PARALLEL.
 - EQ TANK PUMPS PIPED AND VALVED SO EACH PUMP CAN DOSE EITHER BIOCLERE OR BE ISOLATED FOR REPLACEMENT.
 - ALL PIPING CONNECTIONS TO TANKS, 4" SCHD 80 PVC, THROUGH RUBBER BOOTS WITH STAINLESS STEEL HOSE CLAMPS, INVERT TO BE 24" ABOVE FLOOR OF TANK.
 - PUMP CONTROL FLOATS TO BE SET WITH "TIMER ON" 7'9" BELOW TOP OF TANK, "PUMP ON" 2" ABOVE TIMER FLOAT, AND "HIGH WATER ALARM" 2' BELOW TOP OF TANK.
 - CUSTOM TELEMETRY CONTROL PANEL FROM JNM TECHNOLOGIES TO BE INSTALLED PER CBWS REQUIREMENTS.
 - ALL PIPING TO BE SCHD 40 PVC WITH SOLVENT WELDED JOINTS UNLESS OTHERWISE SPECIFIED.
 - ALL PUMPS TO HAVE SCHD 80 PVC BALL AND BALL CHECK VALVES ON DISCHARGE LINE.

Description	Elevation
BM =	100.00
Top of Lift Station	93.00
Lift pumps OFF	82.00
Lift lead pump ON	83.00
Lag pump ON	86.00
High water alarm	87.00
Top of EQ tanks	101.46
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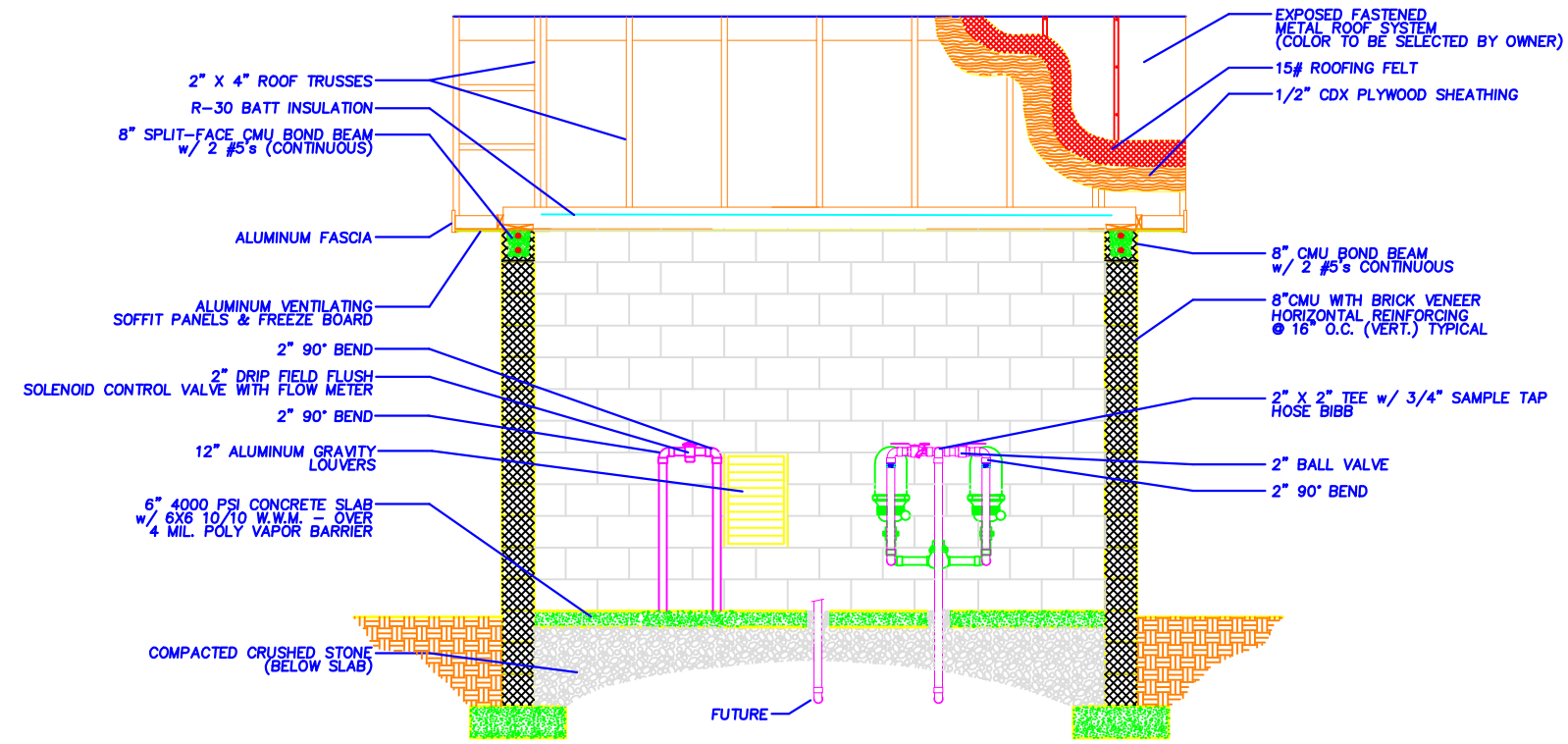
- NOTES: UNLESS OTHERWISE SPECIFIED:**
- CONCRETE MINIMUM STRENGTH: 4,000 PSI @ 28 DAYS.
 - STEEL REINFORCEMENT: 6 X 6 10 GAUGE STEEL WIRE MESH.
 - EYES: (4): 1/2" DIAMETER RE-BAR CAST IN PLACE AS SHOWN
6" FROM O.D., EQUALLY SPACED.
 - PAD TO BE SUPPLIED AND INSTALLED BY CONTRACTOR



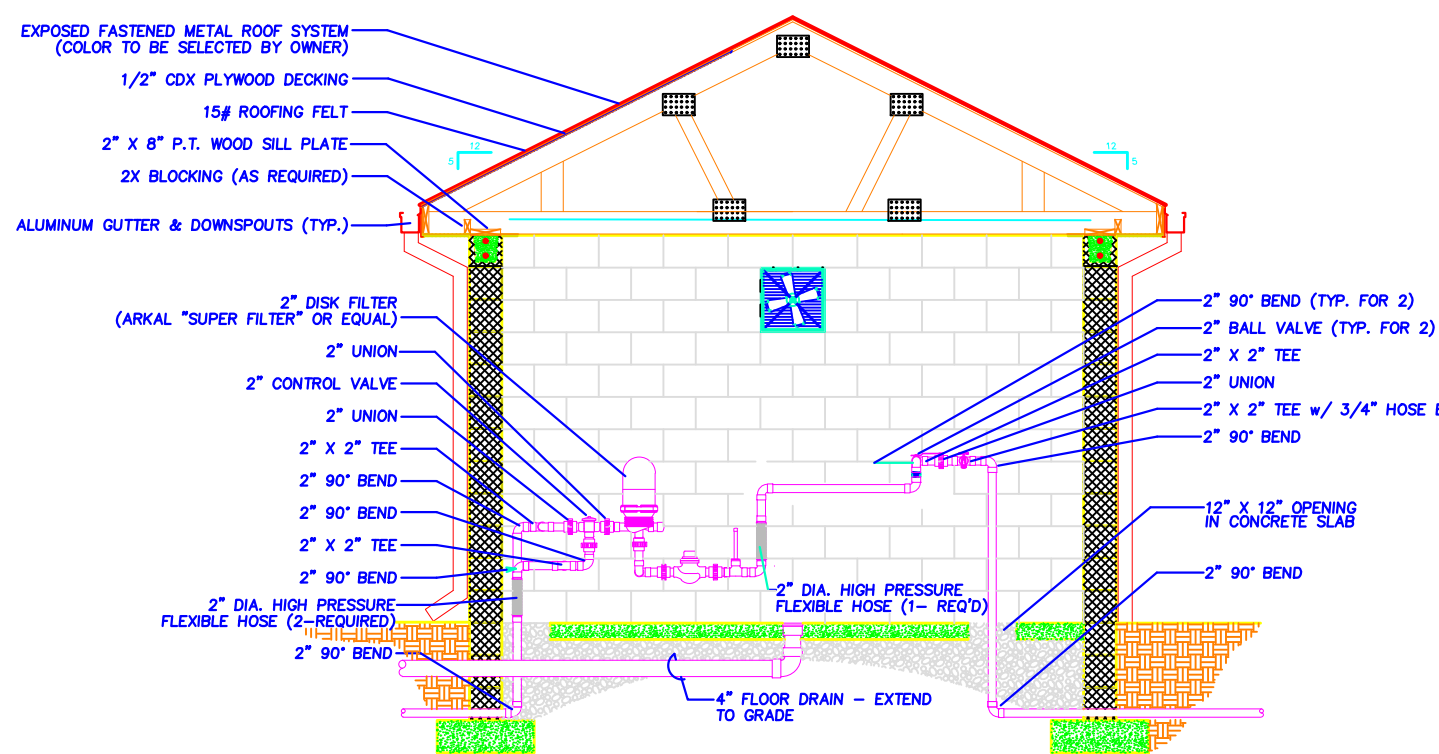
SCALE N. T. S.		SEWAGE WORKS	
REVISIONS	DESIGNED	TREATMENT PLANT – Side View	
30AUG2016	EWG		
21OCT2016	DRAWN		
04NOV2016	EWG		
30NOV2016	CHECKED	FOR GENESIS VILLAGE ESTATES CUMBERLAND COUNTY, TN	
	MWC		
			
CEDESIGNERS, Inc. 100 EAST COMMERCIAL AVENUE MONTEREY, TENNESSEE 38574			
DATE 21 OCT 2016		JOB NO. D-159	
SHEET 3			



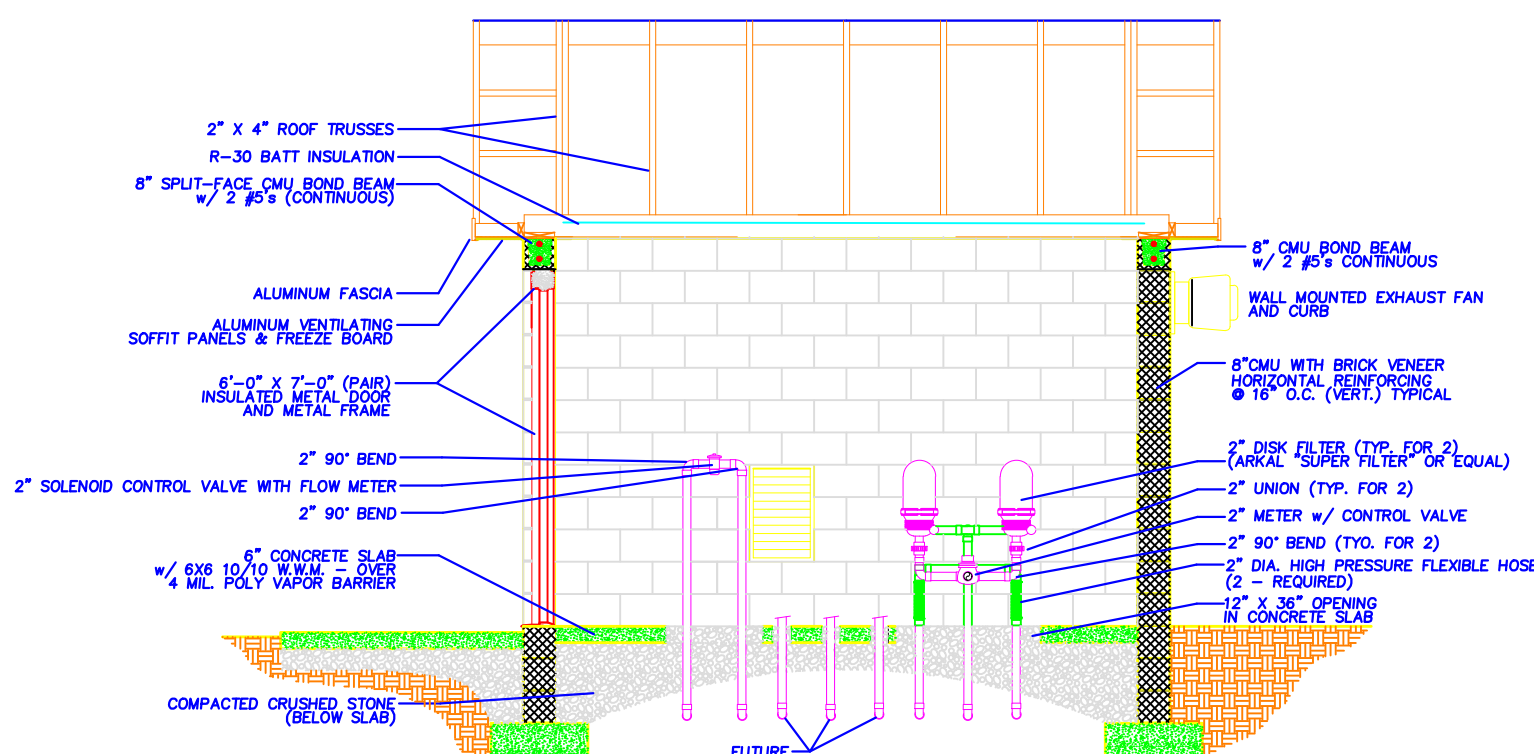
PLAN VIEW



FACING SOUTH EAST

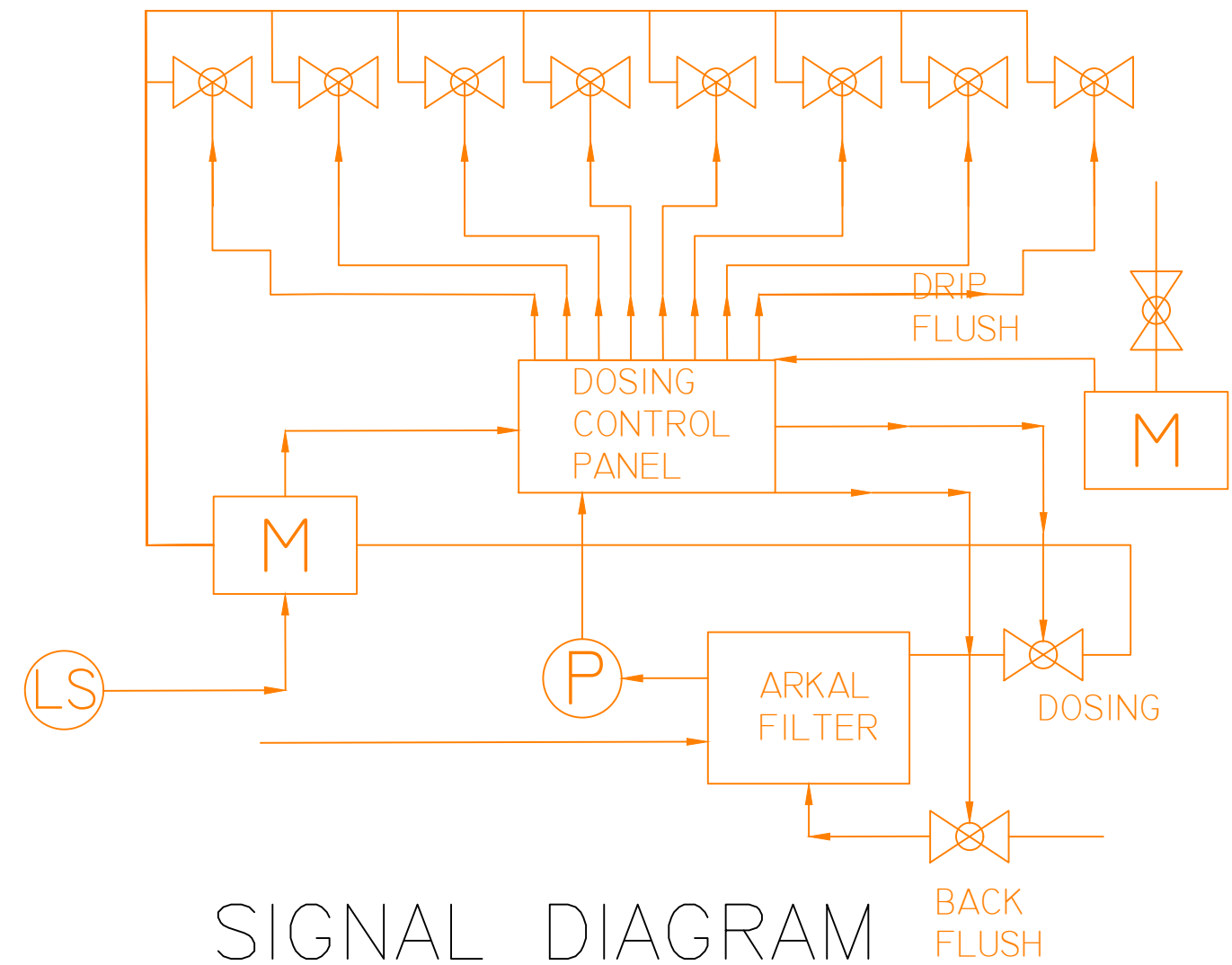


FACING NORTH EAST

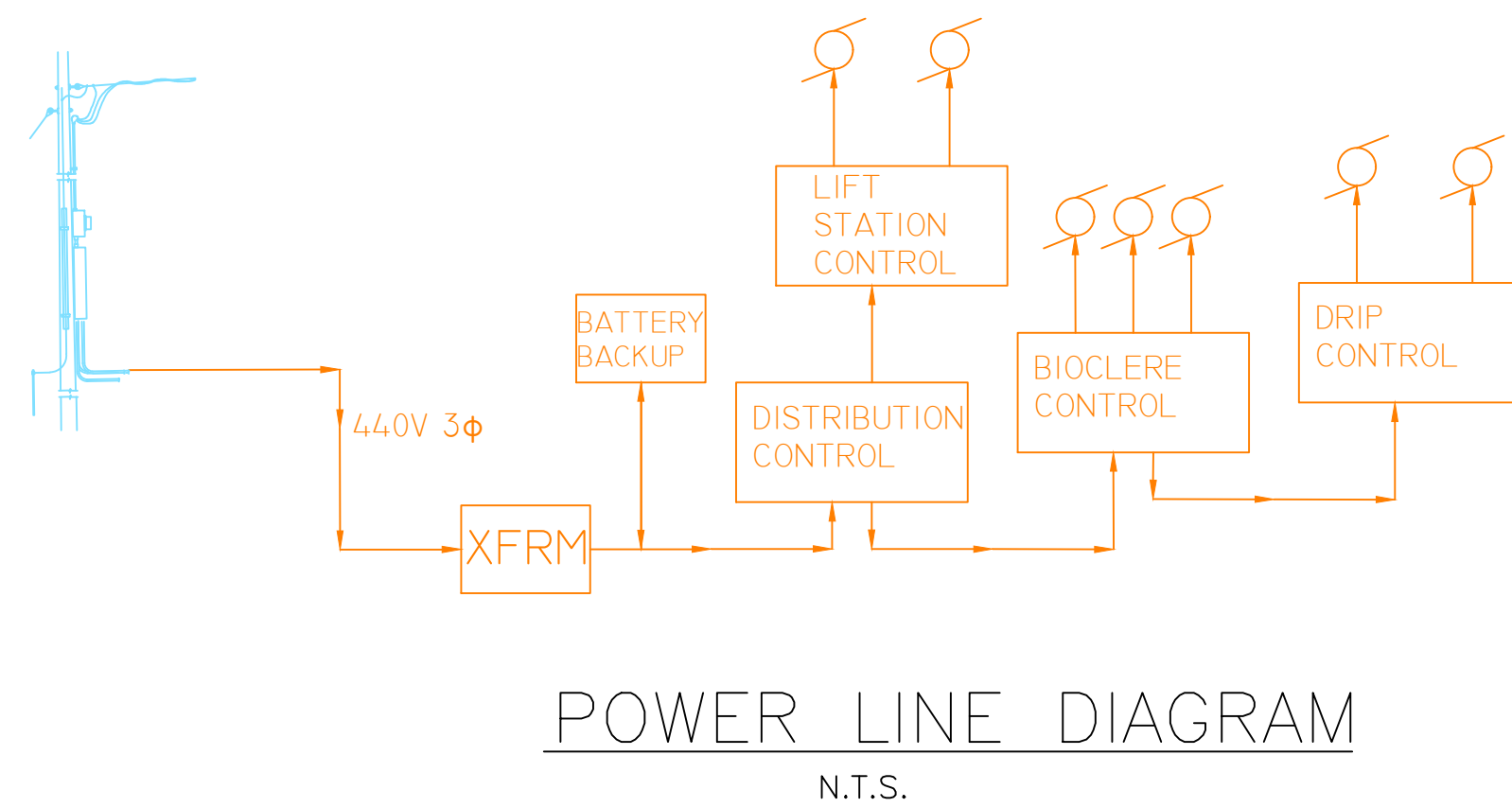


FACING NORTH WEST

CONTROL BUILDING
N.T.S.

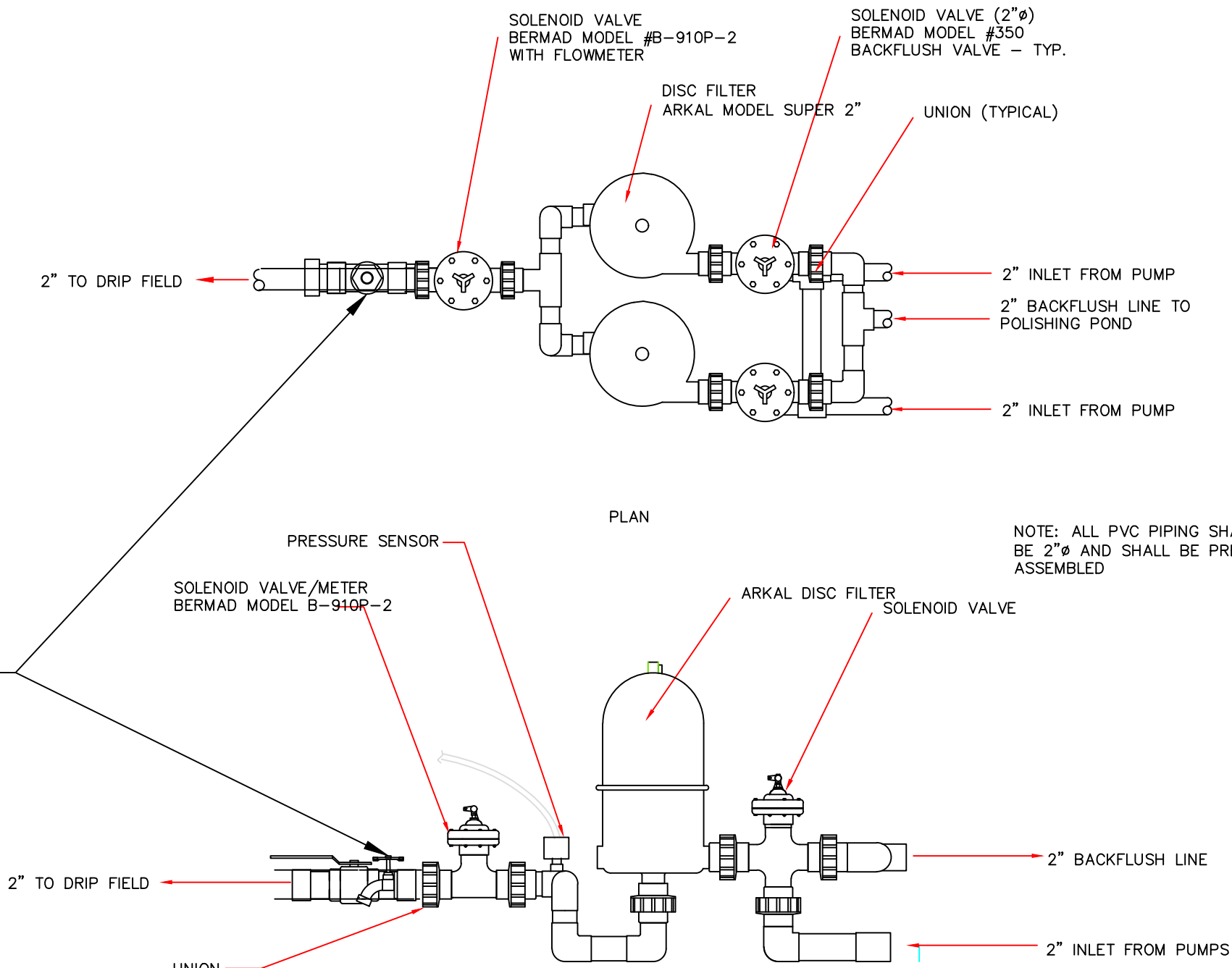


SIGNAL DIAGRAM
N.T.S.



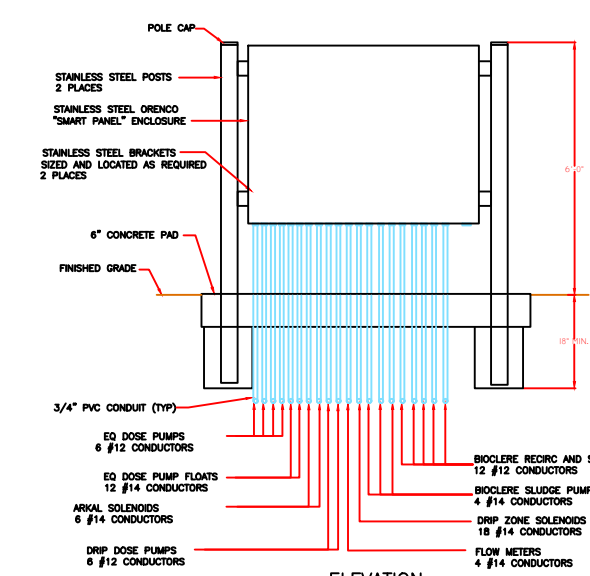
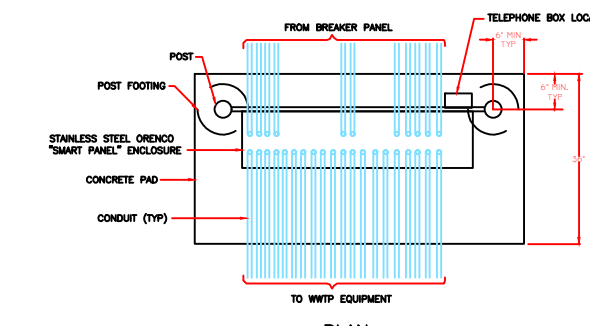
POWER LINE DIAGRAM
N.T.S.

MONITORING
SAMPLE TAP

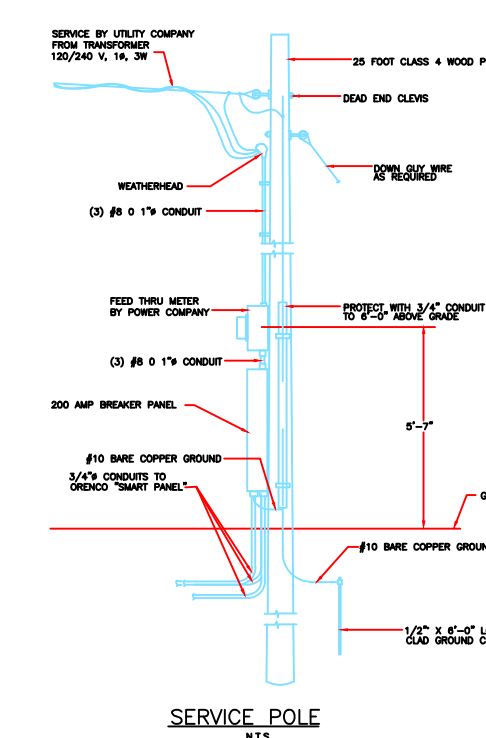


SECTION VIEW
DUAL ARKAL FILTER
WITH FLUSHING

- ELECTRICAL NOTES:
1. ELECTRICAL CONDUIT AND ASSOCIATED FITTINGS TO BE PVC SUITABLE FOR UNDERGROUND SERVICE.
 2. CONDUIT TO BE BURIED A MINIMUM OF 24" BELOW FINISHED GRADE. BENCHFLY SHALL BE FREE OF STONES AND FOREIGN DEBRIS FOR A MINIMUM OF 12" FROM CONDUIT.
 3. CONDUITS, EXCEPT SUBMERSIBLE TYPE, SHALL BE COPPER WITH THIN INSULATION. SUBMERSIBLE TYPE SHALL BE SUPPLIED PUMP MANUFACTURER AND INSTALLED BY A ELECTRICAL CONTRACTOR. MINIMUM WIRE SIZE TO BE #12 FOR CONDUCTORS AND #14 FOR CONTROL WIRES.
 4. ALL ELECTRICAL WORK TO BE IN ACCORDANCE WITH ALL APPLICABLE CODES AND INSPECTED BY THE AUTHORITY HAVING JURISDICTION.
 5. POLE WORK TO CONFORM TO WITH R.E.A. FORM 854 AND BULLETIN 50-3, AND AS REQUIRED BY THE ELECTRICAL UTILITY COMPANY.
 6. INSTALLATION SHALL BE LEFT IN NEAT AND WORKING CONDITION GUARANTEED FOR ONE YEAR INVOLVING FAULTY WORKMANSHIP OR MATERIALS.
 7. SERVICE PANEL SHALL BE RATED AT 200 AMPS AND TO BE APPROVED FOR USE BY THE AUTHORITY HAVING JURISDICTION.
 8. TELEMETRY TO BE VIA WIRELESS CELLULAR DATA TRANSMISSION BUILT INTO PANEL BY SUPPLIER.




CONTROL PANEL
N.T.S.



SERVICE POLE
N.T.S.

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	DRAWN EWC		
	CHECKED MWC		
FOR GENESIS VILLAGE ESTATES CUMBERLAND COUNTY, TN		DATE 21 OCT 2016	
		JOB NO. D-159	
		SHEET 4	

SCALE N.T.S.		SEWAGE WORKS
REVISIONS	DESIGNED	
30AUG2016	EWIC	
21OCT2016	DRAWN	
04NOV2016	EWIC	DETAILS
30NOV2016	CHECKED MWC	
		FOR
		GENESIS VILLAGE ESTATES CUMBERLAND COUNTY, TN
		DATE
		21 OCT 2016
		JOB NO.
		D-159
21 OCT 2016		SHEET 5