

Master Pump Station 360 Refurbishment Plans

Located in City of Bonita Springs, Lee County
Section 01, Township 48 South, Range 25 East

Plans Prepared For:



Bonita Springs Utilities, Inc.
11900 E. Terry Street
Bonita Springs, FL 34135
Telephone: (239) 992-0711
Fax: (239) 992-9223

Property Data:

Site Location: 11401 Bonita Beach Road S.E. & Duck Lake Loop
Latitude: 26°19'51.3"N, Longitude: 81°45'53.4"W
Folio ID No.: 10294839
Strap No.: 01-48-25-B1-00002.004A
FEMA Zone: AE
Base Flood Elevation: 10.0 ft.

Legal Description:

Par in NE 1/4 of NW 1/4
Desc in OR 2450, PG 3262



Know what's below.
Call before you dig.

DESIGN TICKET No.:



Location Map
N.T.S.

Prepared by:



GradyMinor

Civil Engineers • Land Surveyors • Planners • Landscape Architects
Cert. of Auth. EB 0005151 Cert. of Auth. LB 0005151 Business LC 26000266
Bonita Springs: 239.947.1144 www.GradyMinor.com Fort Myers: 239.690.4380

Q. Grady Minor and Associates, P.A.
3800 Via Del Rey
Bonita Springs, Florida 34134



Dwg No.

- | Dwg No. | Description |
|---------|---|
| 1 | COVER SHEET AND INDEX OF DRAWINGS |
| 2 | GENERAL NOTES |
| 3 | AERIAL PHOTOGRAPH, EXISTING CONDITIONS, GROUTING, AND DEMOLITION PLAN |
| 4 | EXISTING DETAILS AND SECTIONS |
| 5 | PROPOSED SITE AND UTILITY PLAN |
| 6 | PROPOSED DETAILS AND SECTIONS |
| 7 | PROPOSED DETAILS AND SECTIONS |
| 8 | PUMP STATION DETAILS |
| 9 | WASTEWATER DETAILS |
| 10 | COMBINATION WATER/WASTEWATER DETAILS |
| 11 | WATER DETAILS |
| 12 | BACKFLOW DETAILS |

ORIGINAL SHEET SIZE: 11"x17"

ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN REDUCED OR ENLARGED IN SIZE BY REPRODUCTIONS. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.

Revisions

REV	DATE	DESCRIPTION	BY

ALEXANDER PAUL DUNKO, P.E.
Q. GRADY MINOR & ASSOC., P.A.
3800 VIA DEL REY
BONITA SPRINGS, FL 34134
FLORIDA P.E. LICENSE NO. 88695
EB/LB 0005151

Master Pump Station 360
Refurbishment Plans

GradyMinor



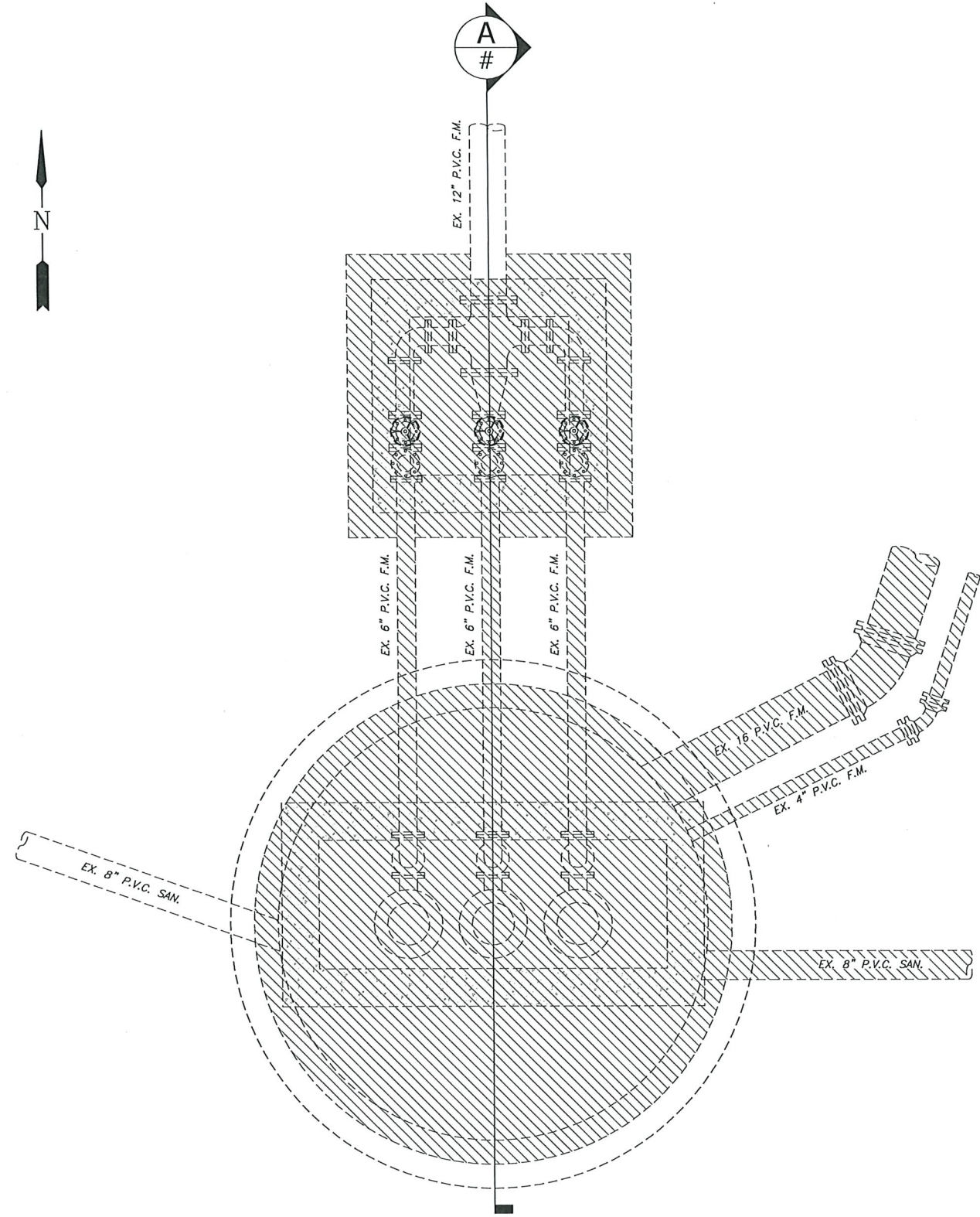
DATE: JANUARY, 2024
FILE NAME: BSU19-COVER (SHEET 1-2).DWG
JOB CODE: BSU19
DRAWING NUMBER 1 OF 12

SUBMITTAL
100% PLANS

GENERAL NOTES:

- 1. ALL WORK SHALL CONFORM TO BONITA SPRINGS UTILITIES (B.S.U.) STANDARD SPECIFICATIONS AND DETAILS. IF A CONTRADICTION IS DISCOVERED BETWEEN B.S.U. STANDARDS, THE PROJECT DRAWINGS, AND/OR THE PROJECT SPECIFICATIONS, THE STRICTER REQUIREMENT SHALL BE ASSUMED.
- 2. EROSION CONTROL STRUCTURES, SEDIMENT SUMPS, AND OTHER BMP FEATURES REQUIRED SHALL BE INSTALLED BEFORE CONSTRUCTION BEGINS.
- 3. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION. ANY DEVIATION IN PLAN INFORMATION SHALL BE REPORTED TO THE ENGINEER AND OWNER.
- 4. CONTRACTOR IS REQUIRED TO OBTAIN FROM THE ENGINEER AND OWNER WRITTEN APPROVAL FOR ANY DEVIATION IN PLANS AND/OR SPECIFICATIONS.
- 5. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC AND USAGE OF THE EXISTING STREETS ADJACENT TO THE PROJECT. ALL TRAFFIC MAINTENANCE CONTROL SHALL BE IN ACCORDANCE WITH FLORIDA MANUAL OF TRAFFIC CONTROL AND SAFE PRACTICES FOR STREET CONSTRUCTION, MAINTENANCE, AND UTILITY OPERATIONS. TRAFFIC CONTROL OPERATION PROCEDURES SHALL BE SUBMITTED TO OWNER FOR APPROVAL PRIOR TO BEGINNING CONSTRUCTION.
- 6. CONTRACTOR SHALL ATTEND PRE-CONSTRUCTION MEETING WITH OWNER AND ENGINEER PRIOR TO START OF CONSTRUCTION.
- 7. ALL FILL SLOPES SHALL BE PROPERLY COMPACTED AS REQUIRED PER B.S.U. STANDARDS AND SHALL BE SODDED AS DIRECTED BY OWNER WITHIN 24 HOURS OF FINAL GRADING.
- 8. THE CONTRACTOR IS RESPONSIBLE FOR REPLACEMENT OF ALL DAMAGED LANDSCAPE MATERIAL. THE CONTRACTOR SHALL PROTECT ALL TREES, BUSHES, AND IRRIGATION SYSTEMS DURING CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REPLACE ANY EXISTING LANDSCAPING (I.E. SOD, BUSHES, TREES, ETC.) AND IRRIGATION PIPE, SPRINKLER HEADS, AND ALL IMPROVEMENTS THAT MAY HAVE TO BE REMOVED OR HAVE BEEN DAMAGED OR INJURED DURING CONSTRUCTION. THE CONTRACTOR IS REQUIRED TO COORDINATE WITH BONITA BAY FOR SURROUNDING AREA LANDSCAPE REPAIRS.
- 9. THE CONTRACTOR SHALL REPLACE OR REPAIR ANY DAMAGED PROPERTY OR IMPROVEMENTS TO A CONDITION EQUAL TO OR BETTER THAN EXISTED PRIOR TO CONSTRUCTION AT THE CONTRACTOR'S EXPENSE.
- 10. CONTRACTOR SHALL OBTAIN ALL STATE, COUNTY, AND LOCAL PERMITS NEEDED TO PERFORM THE WORK.
- 11. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATION, DEPTH, SIZE, QUANTITY, AND MATERIAL TYPE OF ALL UNDERGROUND UTILITIES IN THE WORK AREA PRIOR TO CONSTRUCTION USING PROCEDURES AND METHODS AS REQUIRED BY THE CONTRACT DOCUMENTS. THE LOCATION, TYPE, AND QUANTITY OF EXISTING UTILITIES SHOWN ON THIS PLAN IS APPROXIMATE AND SHALL BE DETERMINED BY THE CONTRACTOR PRIOR TO BEGINNING CONSTRUCTION.
- 12. THE CONTRACTOR IS REQUIRED TO FULLY INVESTIGATE THE SITE PRIOR TO SCHEDULING OR COMMENCING THE WORK.
- 13. THE CONTRACTOR IS RESPONSIBLE FOR BACKFILLING AND GRADING ALL DISTURBED AREAS.
- 14. THE CONTRACTOR SHALL ACCURATELY PLOT THE LOCATIONS AND ELEVATIONS OF ALL IMPROVEMENTS INSTALLED ON A FINAL SET OF RECORD DRAWINGS WHICH SHALL BE DELIVERED TO THE ENGINEER IMMEDIATELY.
- 15. DRIVEWAYS, SIDEWALKS, AND OTHER RIGHT-OF-WAY OR EASEMENT ENCROACHMENTS SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS OR BETTER, AND TO THE SATISFACTION OF THE ENGINEER.
- 16. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO SAFEGUARD ALL EXISTING STRUCTURES, UTILITIES, AND SURVEY MARKERS IN THE AREA.
- 17. GRAVITY MAINS AND FITTINGS SHALL BE SDR26 P.V.C.
- 18. THE CONTRACTOR SHALL COMPLY WITH ALL NPDES REGULATIONS INCLUDING SILT FENCE AND STORMWATER INLET PROTECTION, AND SHALL OBTAIN A DEWATERING PERMIT IF REQUIRED.

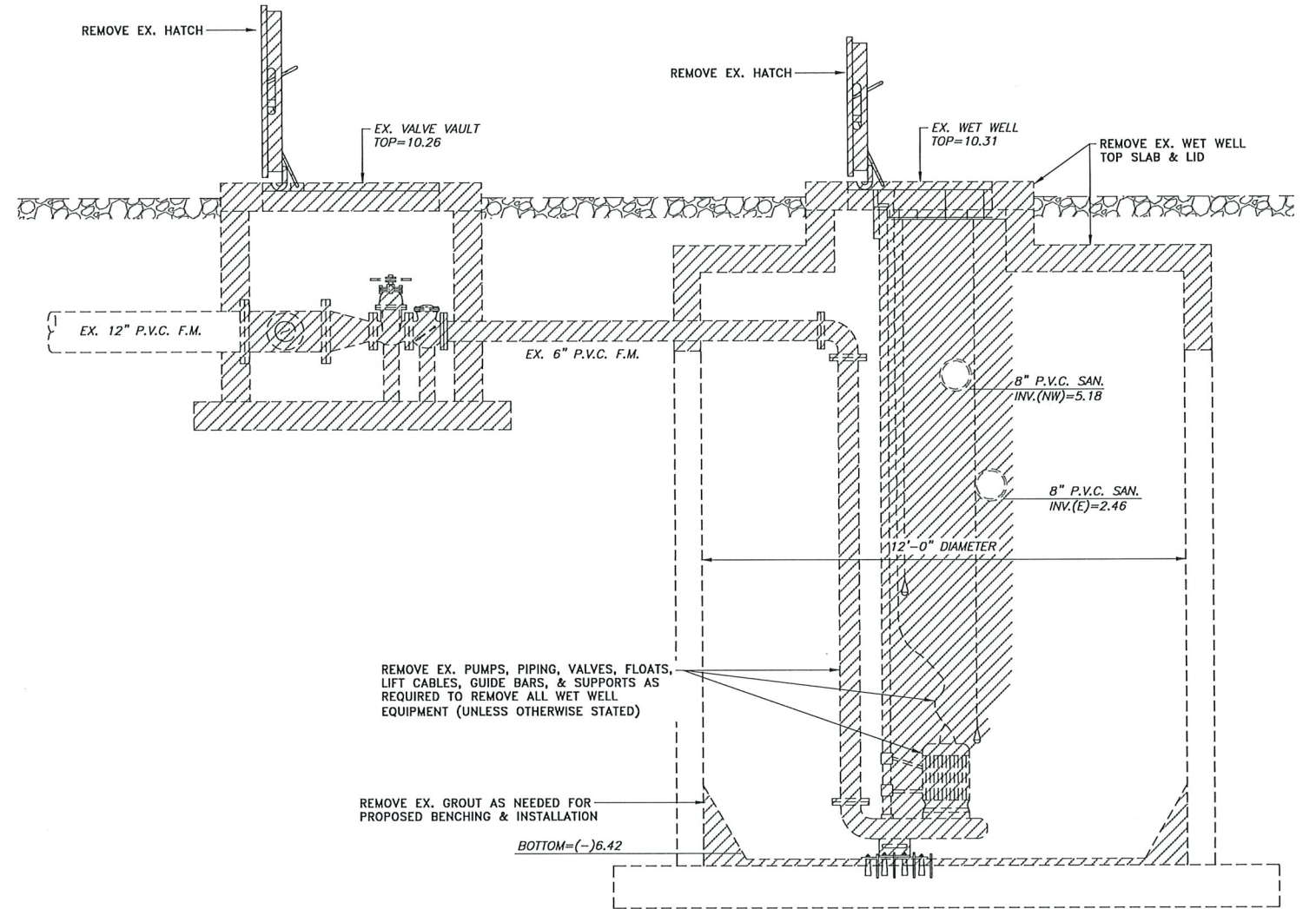
G:\ENGINEERING\PROJ-ENG\B\BSU19\OTDINGS\SUBMITTAL\TYPE\CONST\BSU19-COVER (SHEET 1-2) 2/13/2025 10:55 AM



PLAN VIEW
NOT TO SCALE

NOTES:

1. REMOVE EX. CONTROL PANEL & ALL ASSOCIATED ELECTRICAL CONDUITS.
2. REMOVE ALL EX. DUCTILE IRON PIPING, VALVES, & APPURTENANCES OF VALVE VAULT. DUCTILE IRON PIPING BEYOND VALVE VAULT SHALL BE REMOVED UP TO PVC/D.I. ADAPTOR AS NECESSARY.
3. CONTRACTOR SHALL COORDINATE w/F.P.L. FOR REPOSITIONING OF ELECTRICAL METER & ASSOCIATED ELECTRICAL CONDUIT.
4. CONTRACTOR SHALL PLUG ALL EX. PENETRATIONS INTO THE WETWELL THAT WILL NO LONGER BE USED & GROUT FILL. CONTRACTOR SHALL REMOVE ABANDONED PIPE AS NECESSARY.
5. ALL EQUIPMENT REMOVED SHALL REMAIN THE PROPERTY OF B.S.U.



SECTION A
NOT TO SCALE



Revision	Date	Description	By

DESIGNED BY:	A.P.D.
DRAWN BY:	E.M.N.
APPROVED:	A.P.D.
JOB CODE:	BSU19
SCALE:	AS NOTED



Civil Engineers • Land Surveyors • Planners • Landscape Architects
Cert. of Auth. EB 0005151 Cert. of Auth. LB 0005151 Business LC 26000266
Bonita Springs: 239.947.1144 www.GradyMinor.com Fort Myers: 239.690.4380

Q. Grady Minor and Associates, P.A.
3800 Via Del Rey
Bonita Springs, Florida 34134

MASTER PUMP STATION 360

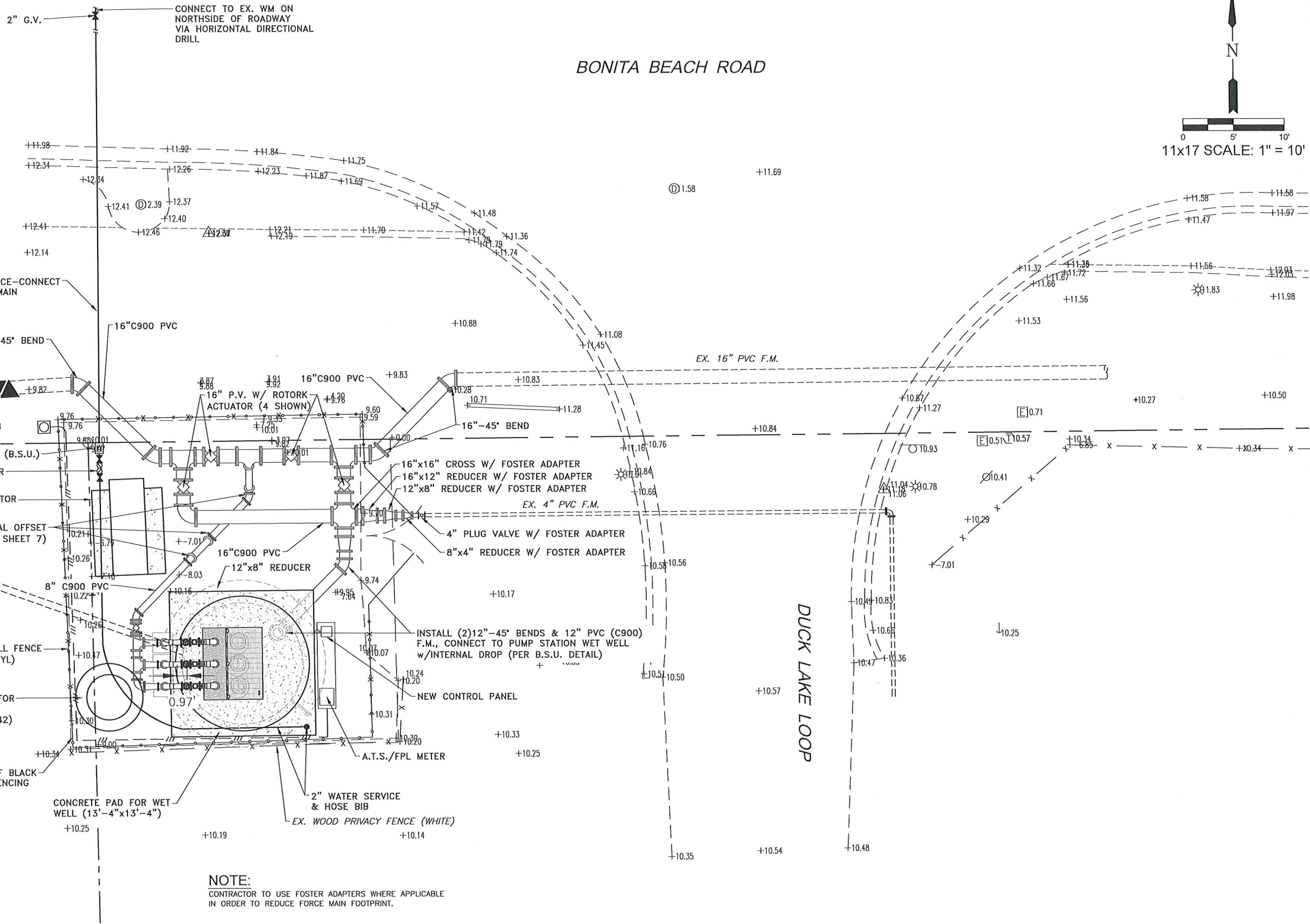
EXISTING DETAILS AND SECTIONS

ELEVATIONS SHOWN HEREON ARE BASED UPON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD '88)
CONVERSION FACTOR TO NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD '29) IS (+)

ALEXANDER PAUL DIANKO, P.E.
FLORIDA P.E. LICENSE NO. 88695

MUNICIPALITY:	BONITA SPRINGS
SEC/TWN/RGB:	01/48S/25E
DATE:	JANUARY, 2024
SUBMITTAL TYPE:	100% PLANS
SHEET	4 OF 12

C:\ENGINEERING\PROJ-ENG\B\BSU19\01DWGS\SUBMITTYPE\CONST\BSU19-PS.DET SHEET 4.6 & 7 2/13/2025 10:55 AM



NOTE:
CONTRACTOR TO USE FOSTER ADAPTERS WHERE APPLICABLE
IN ORDER TO REDUCE FORCE MAIN FOOTPRINT.



Revision	Date	Description	By

DESIGNED BY:	A.P.D.
DRAWN BY:	E.M.N.
APPROVED:	A.P.D.
JOB CODE:	BSU19
SCALE:	1"=10'



Civil Engineers • Land Surveyors • Planners • Landscape Architects
Cert. of Auth. EB 0005151 Cert. of Auth. LB 0005151
Bonita Springs: 239.947.1144 www.GradyMinor.com Fort Myers: 239.690.4380

Q. Grady Minor and Associates, P.A.
3800 Via Del Rey
Bonita Springs, Florida 34134

MASTER PUMP STATION 360

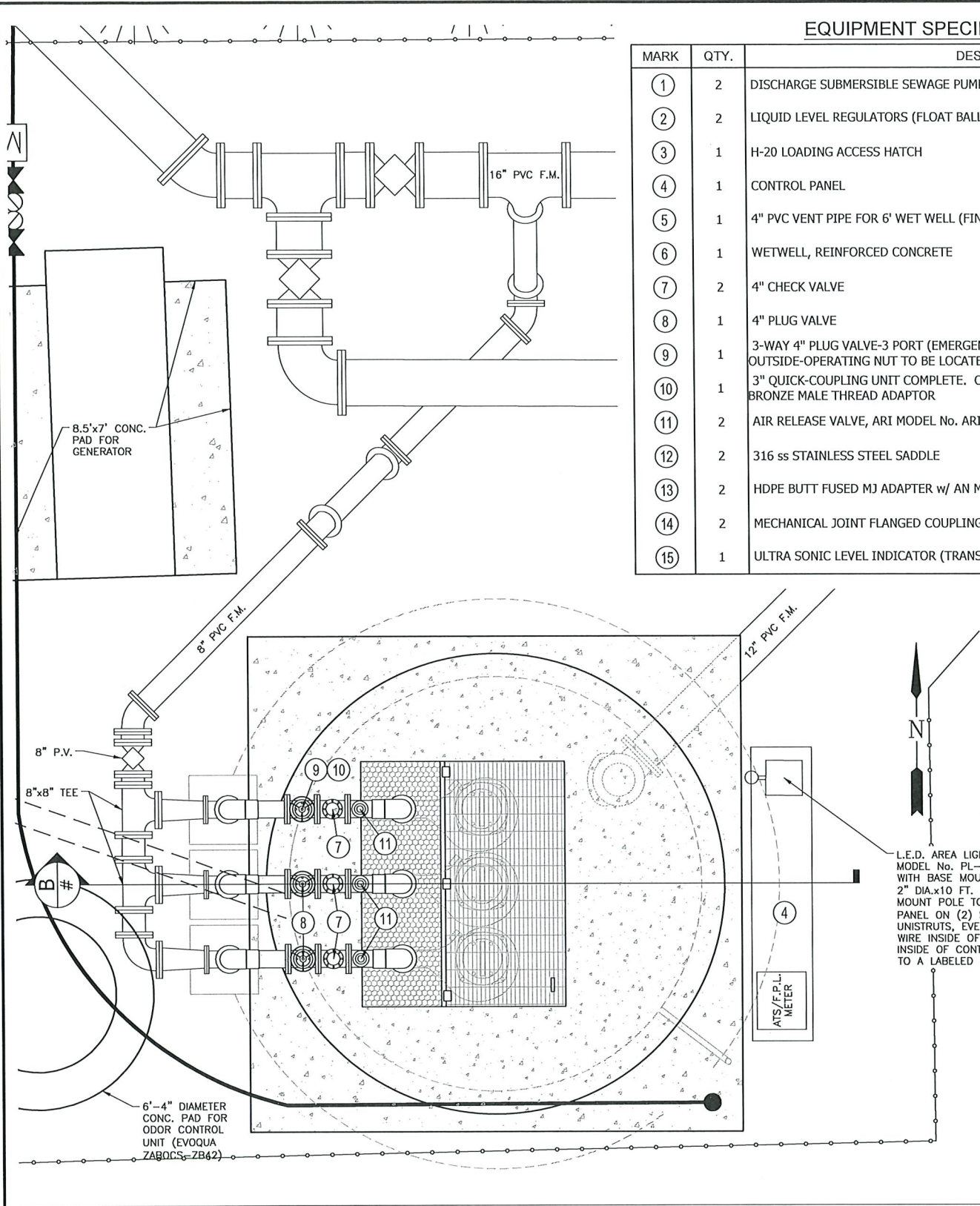
PROPOSED SITE AND UTILITY PLAN

ELEVATIONS SHOWN HEREON ARE BASED UPON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD '88)
CONVERSION FACTOR TO NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD '29) IS (+)

ALEXANDER PAUL DIANKO, P.E.
FLORIDA P.E. LICENSE NO. 88695

MUNICIPALITY:	BONITA SPRINGS
SEC/TWN/RGE:	01/48S/25E
DATE:	JANUARY, 2024
SUBMITTAL TYPE:	100% PLANS
SHEET	5 OF 12

CS:\ENGINEERING\PROJ-ENG\B\SUBMITTALS\SUBMITTAL\CONSTRUCTION\SITE & UTIL\ (SHEET 5) 2/13/2025 10:55 AM



PLAN VIEW
NOT TO SCALE

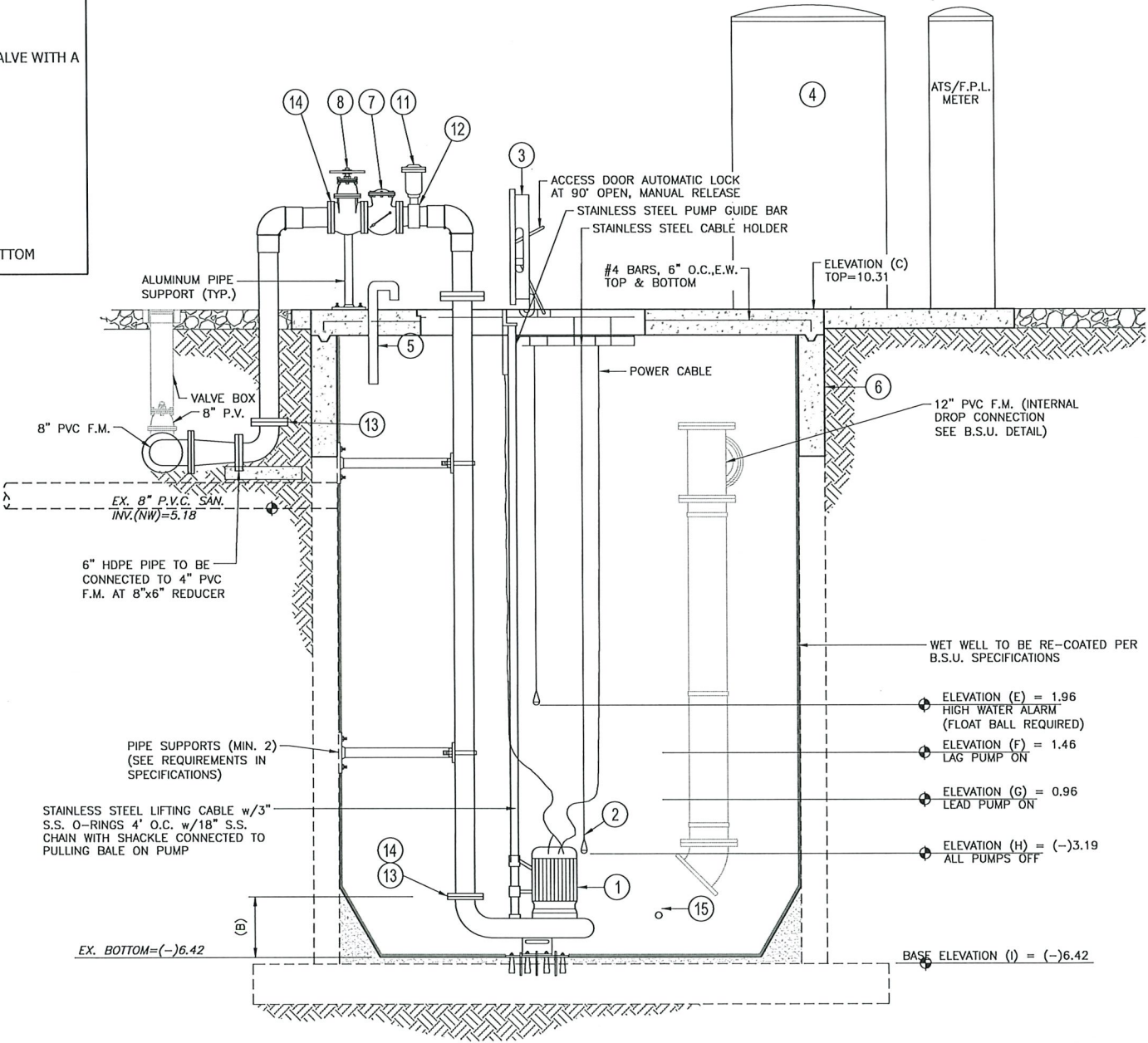
MARK	QTY.	DESCRIPTION
①	2	DISCHARGE SUBMERSIBLE SEWAGE PUMPS
②	2	LIQUID LEVEL REGULATORS (FLOAT BALLS)
③	1	H-20 LOADING ACCESS HATCH
④	1	CONTROL PANEL
⑤	1	4" PVC VENT PIPE FOR 6' WET WELL (FINAL DETERMINATION BY B.S.U.)
⑥	1	WETWELL, REINFORCED CONCRETE
⑦	2	4" CHECK VALVE
⑧	1	4" PLUG VALVE
⑨	1	3-WAY 4" PLUG VALVE-3 PORT (EMERGENCY PORT TO BE 3", FACING THE OUTSIDE-OPERATING NUT TO BE LOCATED ON TOP)
⑩	1	3" QUICK-COUPLING UNIT COMPLETE. CONNECT TO THIRD PORT 3-WAY VALVE WITH A BRONZE MALE THREAD ADAPTOR
⑪	2	AIR RELEASE VALVE, ARI MODEL No. ARI-D-040
⑫	2	316 ss STAINLESS STEEL SADDLE
⑬	2	HDPE BUTT FUSED MJ ADAPTER w/ AN MJ ACCESSORY KIT
⑭	2	MECHANICAL JOINT FLANGED COUPLING ADAPTERS
⑮	1	ULTRA SONIC LEVEL INDICATOR (TRANSDUCER) - 1ft. ABOVE WETWELL BOTTOM

PUMP DATA (M.P.S. 360)

NUMBER of PUMPS	3
DESIGN CAPACITY PER PUMP (g.p.m.)	-
TOTAL DYNAMIC HEAD (ft.)	-
MAX. HORSEPOWER PER PUMP (h.p.)	-
PUMP MANUFACTURER	FLYGT
PUMP MODEL No.	-
IMPELLER DIAMETER (mm.)	-
IMPELLER NUMBER	-
ELECTRIC SERVICE VOLTAGE (v)	460
ELECTRIC SERVICE PHASE	3

FDEP REQUIREMENTS:

CONTROL PANEL SHALL BE (3 PHASE) WITH ALL COMPONENTS FOR OPERATING TWO PUMPS AND LIQUID LEVEL REGULATORS, ALTERNATOR RELAYS, GENERATOR RECEPTACLE, ANGLE ADAPTER, AND NEMA 4X STAINLESS STEEL ENCLOSURE (WITH PHASE MONITORING AND LIGHTING ARRESTORS)



SECTION B
NOT TO SCALE



Revision	Date	Description	



Civil Engineers • Land Surveyors • Planners • Landscape Architects
Cert. of Auth. EB 0005151 Cert. of Auth. LB 0005151
Bonita Springs: 239.947.1144 www.GradyMinor.com Fort Myers: 239.690.4380

Q. Grady Minor and Associates, P.A.
3800 Via Del Rey
Bonita Springs, Florida 34134

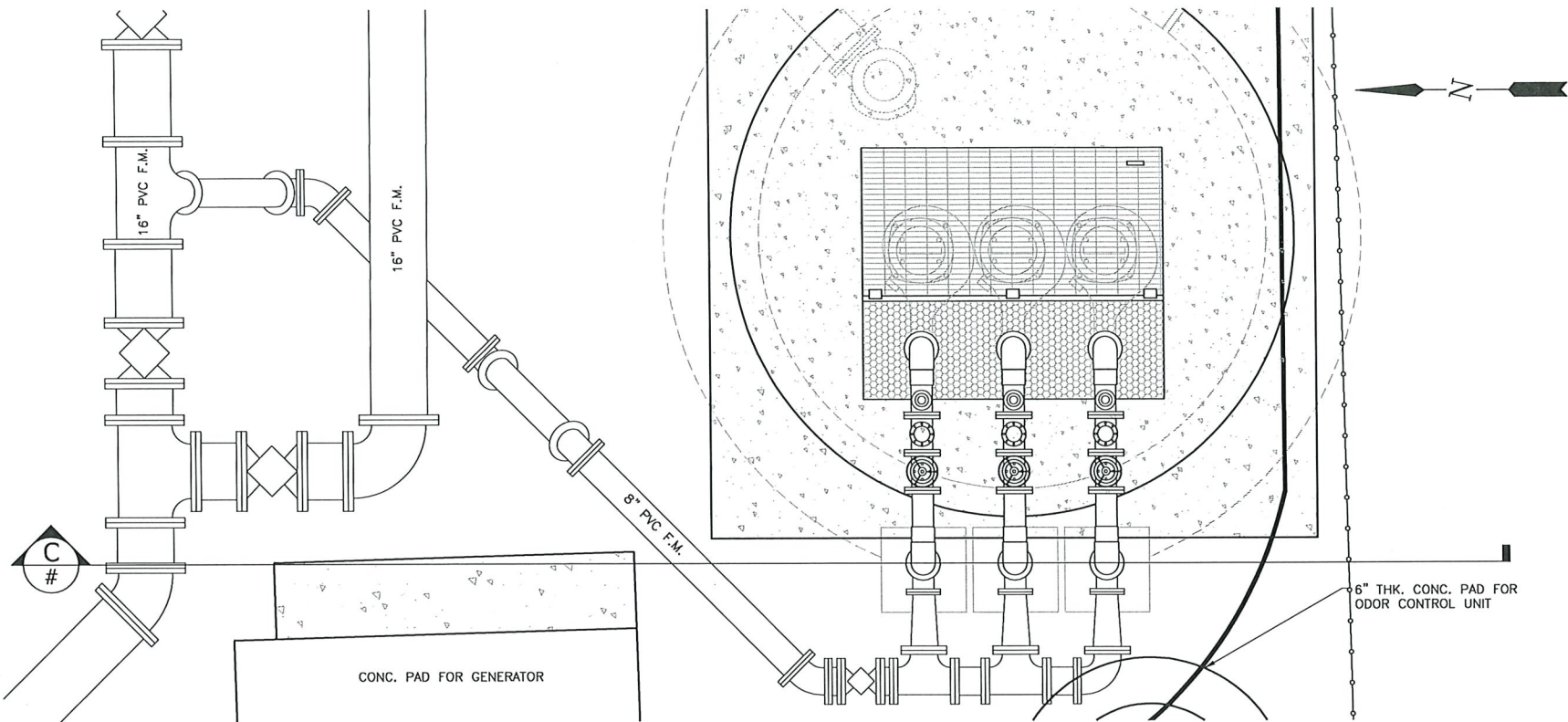
MASTER PUMP STATION 360

PROPOSED DETAILS AND SECTIONS

ELEVATIONS SHOWN HEREON ARE BASED UPON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD '88)
CONVERSION FACTOR TO NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD '29) IS (+)

ALEXANDER PAUL DUNKO, P.E.
FLORIDA P.E. LICENSE NO. 88695

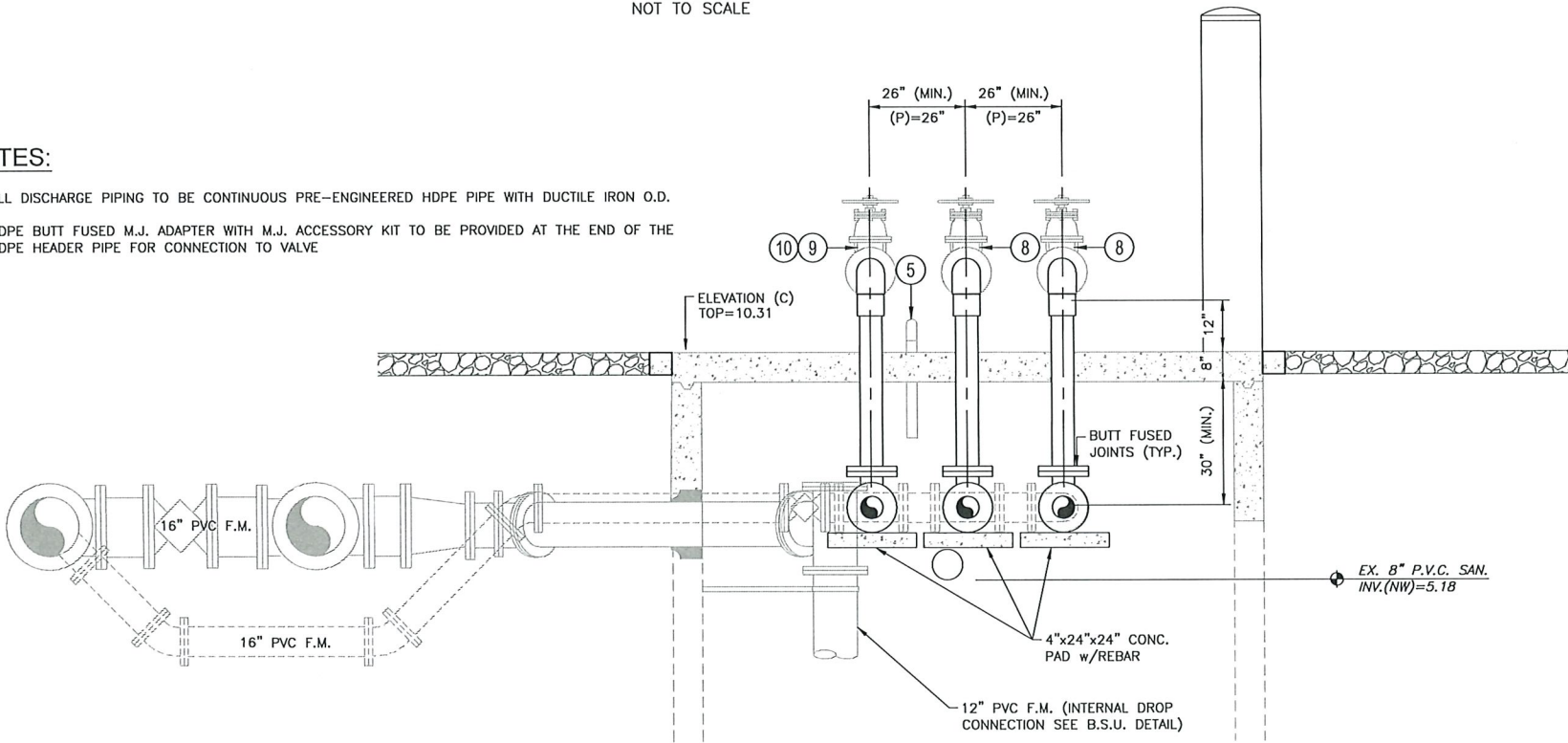
MUNICIPALITY:	BONITA SPRINGS
SEC/TWN/RGE:	01/48S/25E
DATE:	JANUARY, 2024
SUBMITTAL TYPE:	100% PLANS
SHEET	6 OF 12



PLAN
NOT TO SCALE

NOTES:

1. ALL DISCHARGE PIPING TO BE CONTINUOUS PRE-ENGINEERED HDPE PIPE WITH DUCTILE IRON O.D.
2. HDPE BUTT FUSED M.J. ADAPTER WITH M.J. ACCESSORY KIT TO BE PROVIDED AT THE END OF THE HDPE HEADER PIPE FOR CONNECTION TO VALVE



SECTION C
NOT TO SCALE

EQUIPMENT SPECIFICATIONS

MARK	QTY.	DESCRIPTION
①	2	DISCHARGE SUBMERSIBLE SEWAGE PUMPS
②	2	LIQUID LEVEL REGULATORS (FLOAT BALLS)
③	1	ACCESS HATCH
④	1	CONTROL PANEL
⑤	1	4" PVC VENT PIPE FOR 6' WET WELL (FINAL DETERMINATION BY B.S.U.)
⑥	1	WETWELL, REINFORCED CONCRETE
⑦	2	6" CHECK VALVE
⑧	1	6" PLUG VALVE
⑨	1	3-WAY 6" PLUG VALVE-3 PORT (EMERGENCY PORT TO BE 3", FACING THE OUTSIDE-OPERATING NUT TO BE LOCATED ON TOP)
⑩	1	3" QUICK-COUPLING UNIT COMPLETE. CONNECT TO THIRD PORT 3-WAY VALVE WITH A BRONZE MALE THREAD ADAPTOR
⑪	2	AIR RELEASE VALVE, ARI MODEL No. ARI-D-040
⑫	2	STAINLESS STEEL SADDLE
⑬	2	HDPE BUTT FUSED MJ ADAPTER w/ AN MJ ACCESSORY KIT
⑭	2	MECHANICAL JOINT FLANGED COUPLING ADAPTERS
⑮	1	ULTRA SONIC LEVEL INDICATOR (TRANSDUCER) - 1ft. ABOVE WETWELL BOTTOM

FDEP REQUIREMENTS:

CONTROL PANEL SHALL BE (3 PHASE) WITH ALL COMPONENTS FOR OPERATING TWO PUMPS AND LIQUID LEVEL REGULATORS, ALTERNATOR RELAYS, GENERATOR RECEPTACLE, ANGLE ADAPTER, AND NEMA 4X STAINLESS STEEL ENCLOSURE (WITH PHASE MONITORING AND LIGHTING ARRESTORS)



Revision	Date	Description	By

DESIGNED BY:	A.P.D.
DRAWN BY:	E.M.N.
APPROVED:	A.P.D.
JOB CODE:	BSU19
SCALE:	AS NOTED



Civil Engineers • Land Surveyors • Planners • Landscape Architects
Cert. of Auth. EB 0005151 Cert. of Auth. LB 0005151 Business LC 26000266
Bonita Springs: 239.947.1144 www.GradyMinor.com Fort Myers: 239.690.4380

O. Grady Minor and Associates, P.A.
3800 Via Del Rey
Bonita Springs, Florida 34134

MASTER PUMP STATION 360

PROPOSED DETAILS AND SECTIONS

ELEVATIONS SHOWN HEREON ARE BASED UPON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD '88)
CONVERSION FACTOR TO NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD '29) IS (+)

ALEXANDER PAUL DURKO, P.E.
FLORIDA P.E. LICENSE NO. 88695

MUNICIPALITY:	BONITA SPRINGS
SEC/TWN/RGB:	01/48S/25E
DATE:	JANUARY, 2024
SUBMITTAL TYPE:	100% PLANS
SHEET	7 OF 12

C:\ENGINEERING\PROJ-ENG\B\BSU19\01DWGS\SUBMITTAL\TYPE\CONST\BSU19-PS-DET-SHEET-4.6 & 7.1\3/2025 10:56 AM

PUMP STATION WETWELL DATA														
DIMENSIONS AND ELEVATIONS														
PS#	A	B	C	D	E	F	G	H	I	J	K	L	M	N
130	12"	15"	10.31	2.46	1.96	1.46	0.96	-3.19	-6.42	36"	4" (MIN)	15.41'	32"	48"
											4" (MIN)		32"	48"
											4" (MIN)		32"	48"
											4" (MIN)		32"	48"
PUMP DESIGN DATA														
PS#	MODEL	INPELLER	H.P.	RPM	PHASE & VOLTAGE	DESIGN FLOW DATA		FLOOD ELEV. DATA						
						DWELLING UNITS SERVED	AVERAGE DAILY FLOW (GPM)	PEAK DESIGN FLOW (GPM)	25 YR FL. ELE.	100 YR FL. ELE.				
1	**	433	20	1,750	3/460	N/A	N/A	815	N/A	10.31				
2	**	433	20	1,750	3/460	N/A	N/A	815	N/A	10.31				
3	**	464	15	1,755	3/460	N/A	N/A	449	N/A	10.31				

NETWORK/SYSTEM CALCULATIONS AND WET WELL STORAGE CALCULATIONS TO BE SUBMITTED TO B.S.U.

GENERAL NOTES

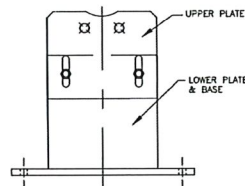
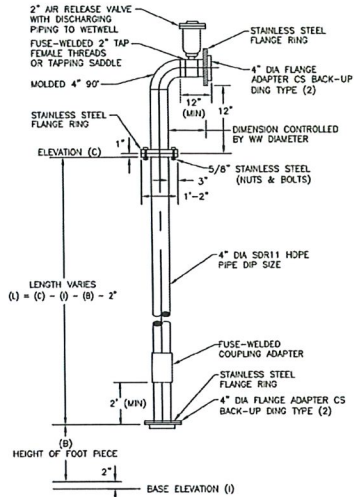
1. INSTALLATION OF COVER, PUMP ANCHOR BOLTS, GUIDE RAILS, ETC. MUST BE COORDINATED WITH THE DETAILS AND SPECIFICATIONS AS RECOMMENDED BY THE MANUFACTURER.
2. ALL ELEVATIONS ARE BASED ON N.A.V.D. 88 (NORTH AMERICAN VERTICAL DATUM).
3. PUMP STATION SHALL INCLUDE WETWELL COMPLETE WITH WALL AND SLAB CONSTRUCTION, ACCESS FRAMES AND DOORS AND ALL OTHER APPURTENANT CONSTRUCTION ITEMS AND MATERIALS.
4. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CLEARANCES FOR CONSTRUCTION AND MAINTENANCE OF ALL EQUIPMENT AND PARTS, INCLUDING BOLT AND NUT REMOVAL.
5. ALL WIRING INCLUDING ELECTRICAL SERVICE SHALL BE COPPER.
6. ELECTRICAL COMPONENTS SHALL BE EQUIPPED WITH NATIONAL ELECTRIC CODE AND BUILDING DEPARTMENT APPROVED CONDUIT PIPE "SEAL-OFF" BETWEEN CONTROL PANEL AND WETWELL.
7. ALL HARDWARE FOR INTERIOR WETWELL (NUTS, BOLTS ETC.) SHALL BE STAINLESS STEEL.
8. THE ELECTRIC SERVICE WIRING TO THE PUMP STATION CONTROL PANEL SHALL BE SIZED BY THE ELECTRICAL CONTRACTOR TO PROVIDE A VOLTAGE DROP NOT GREATER THAN 5% OF THE LINE VOLTAGE FROM POWER COMPANY WHEN ALL PUMPS ARE AT MAXIMUM START-UP LOAD.
9. THE CONTRACTOR SHALL SUBMIT THE FINAL LOCATIONS OF TRANSFORMER, ELECTRICAL SERVICE CONDUITS, PUMP STATION PIPING AND CONTROL PANEL LOCATIONS ON THE PLAN SET PRIOR TO CONSTRUCTION. FINAL APPROVAL REQUIRED BY BSU.
10. CHECK VALVES, PLUG VALVES, 3 WAY PLUG VALVES 6" OR LARGER TO MATCH PUMP DISCHARGE.
11. PATCH LEAKS, CRACKS AND JOINTS WITH PORTLAND CEMENT OR EQUIVALENT.
12. SHOP DRAWING SUBMITTALS REQUIRED FOR EACH PUMP STATION TO BSU.
13. ALL ABOVE GROUND PIPING WILL BE PAINTED WITH A UL RATED PAINT (REFER TO SPECIFICATIONS).
14. A REDUCED-PRESSURE PRINCIPLE ASSEMBLY (RP2) AND WATER SERVICE IS REQUIRED.
15. 10' COPPER GROUNDING ROD - GROUNDING SYSTEM REQUIRED FOR ALL MASTER PUMP STATIONS WITH GENERATORS. MORE MAY BE REQUIRED IF NO GROUND SHOWN ON METER.

PS-11



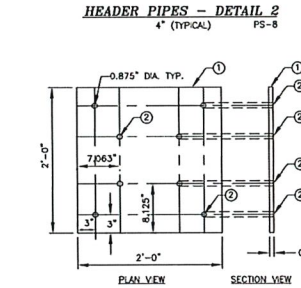
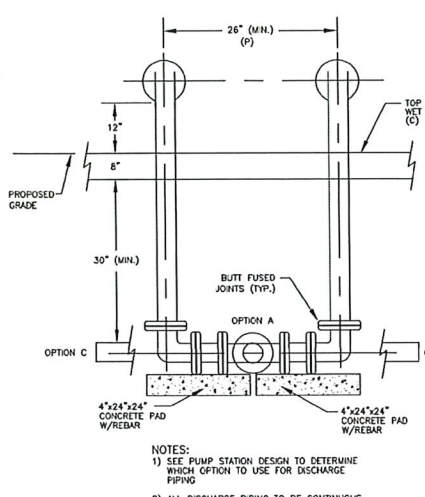
TOW AWAY
7 DAYS A WEEK
ZONE
24 HRS A DAY
UNAUTHORIZED VEHICLES
& VESSELS WILL BE TOWED
AT OWNER'S EXPENSE
FL. ST. STATS. 715.07 713.78

PUMP STATION SIGNAGE
PS-14



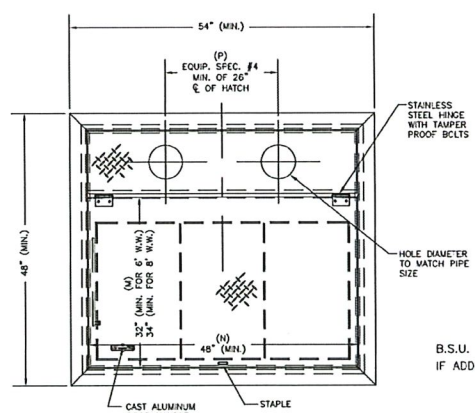
- NOTES:
1. IF THE PIPE SUPPORT CANNOT BE ANCHORED TO THE WET WELL SLAB, THEN AN ADDITIONAL SLAB WILL BE REQUIRED. THE ADDITIONAL SLAB WILL NEED TO BE PINNED TO THE WET WELL SLAB.
 2. CAN BE USED FOR LARGE METER ASSEMBLIES AND BACKFLOW PREVENTERS

PIPE SUPPORT
PS-13

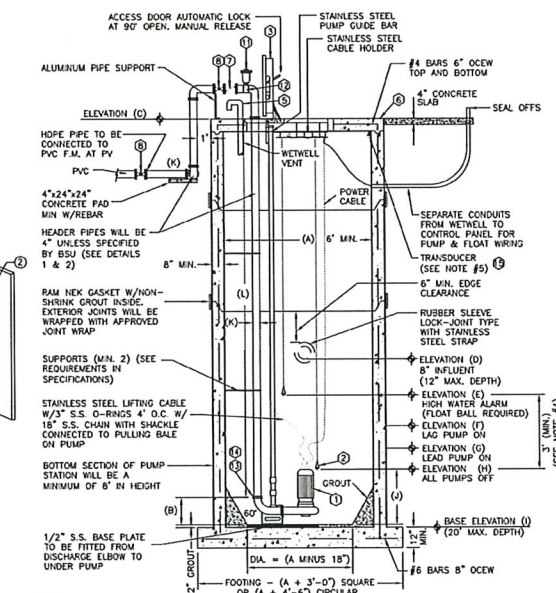
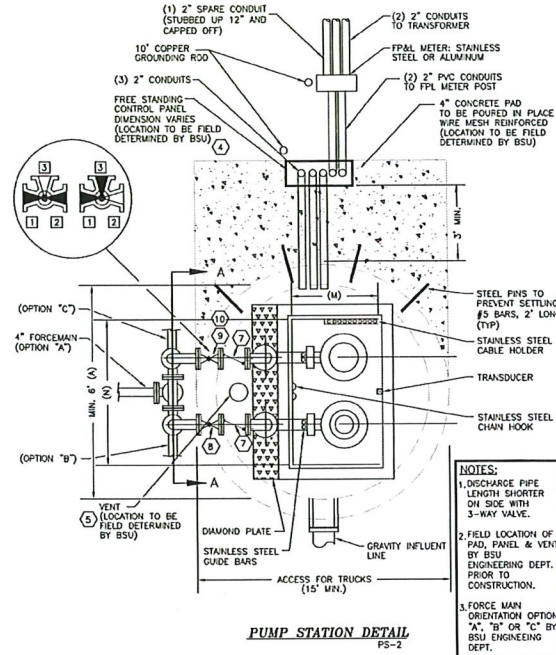


- NOTES:
1. 316 STAINLESS STEEL BASE PLATE
 2. 3/4" DIA. X8" STAINLESS STEEL WEDGE BOLT
 3. SCREEN ANCHORS, (8 EA.)

4" DIAMETER PUMP DISCHARGE BASE PLATE
PS-16



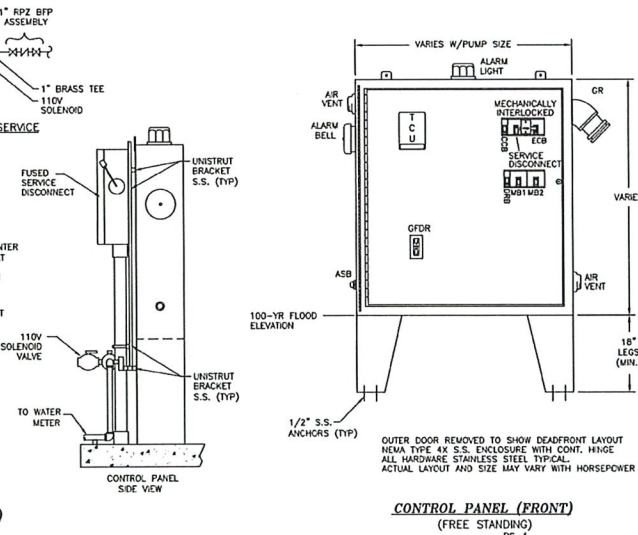
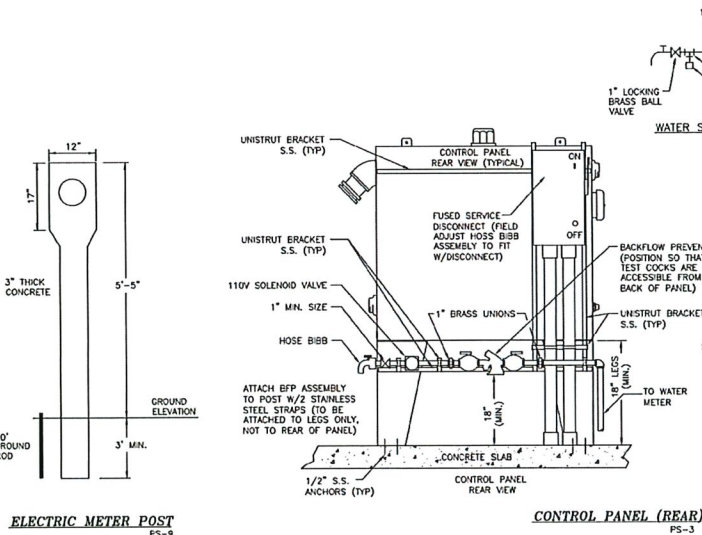
DETAIL PS-5 DELETED
DETAIL PS-12 DELETED
DETAIL PS-15 DELETED



- NOTES:
1. PRIOR AUTHORIZATION REQUIRED BY BSU FOR ANY WET WELL SIZE OTHER THAN 6'.
 2. ALL SURFACES WILL BE PREPARED BY SAND BLASTING PRIOR TO PAINTING OR COATING.
 3. STAINLESS STEEL U-BOLT AND BRACKET PIPE SUPPORTS SHALL BE REQUIRED TO SUPPORT ALL HEADER PIPES.
 4. LIQUID LEVEL REGULATORS (FLOAT BALLS) ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. (HIGH LEVEL FLOAT BALL REQUIRED).
 5. ULTRA SONIC LEVEL INDICATOR (TRANSDUCER) WILL BE MOUNTED AND POSITIONED SO AS TO NOT READ THE TOP OF THE PUMPS. MOUNTING BRACKETS WILL BE SUPPLIED BY BSU.

CONSULTANTS COMMENTS:

B.S.U. DETAIL SHEETS MUST REMAIN AS IS (NO ALTERATIONS)
IF ADDITIONAL DETAILS ARE REQUIRED SUBMIT ON SEPARATE SHEET



Revision	Date	Description	By

DESIGNED BY:	A.P.D.
DRAWN BY:	E.M.N.
APPROVED:	A.P.D.
JOB CODE:	BSU19
SCALE:	NOT TO SCALE



Civil Engineers • Land Surveyors • Planners • Landscape Architects
Cert. of Auth. EB 0005151 Cert. of Auth. LB 0005151
Bonita Springs: 239.947.1144 www.GradyMinor.com Fort Myers: 239.690.4380

O. Grady Minor and Associates, P.A.
3800 Via Del Rey
Bonita Springs, Florida 34134

MASTER PUMP STATION 360

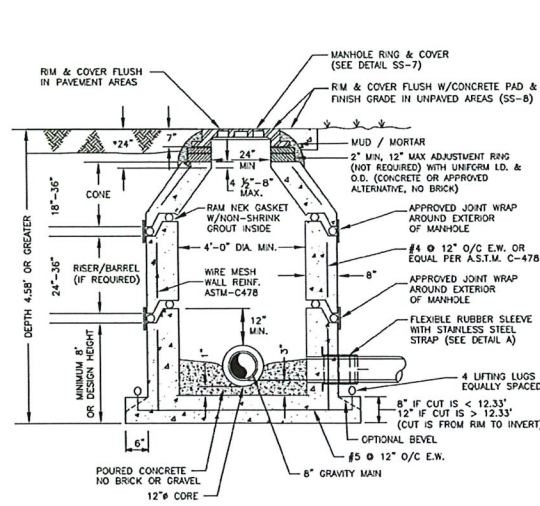
PUMP STATION DETAILS

ELEVATIONS SHOWN HEREON ARE BASED UPON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD '88)
CONVERSION FACTOR TO NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD '29) IS (+)

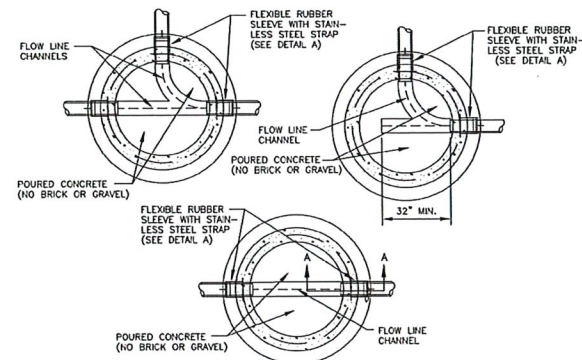
ALEXANDER PAUL DUNKO, P.E.
FLORIDA P.E. LICENSE NO. 88695

MUNICIPALITY:	BONITA SPRINGS
SEC/TWN/RGE:	01/48S/25E
DATE:	JANUARY, 2024
SUBMITTAL TYPE:	100% PLANS
SHEET	8 OF 12

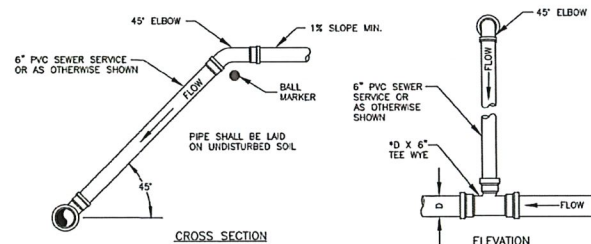
CA:\ENGINEERING\PROJ-ENG\B\BSU19\01 DWGS\SUBMITTAL TYPE\CONST\BSU19-DETAILS\PS-2.DWG 2/13/2025 10:55 AM



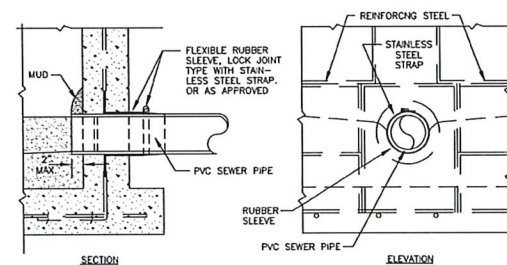
PRECAST MANHOLE - CONCENTRIC
SS-1



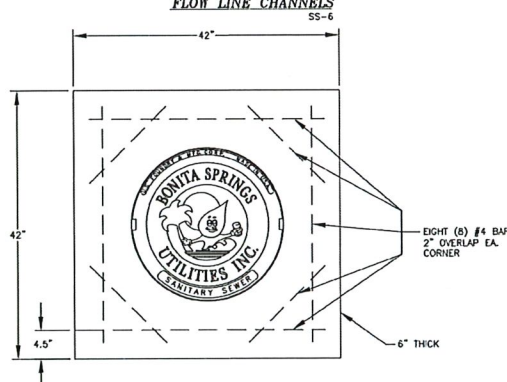
DROP MANHOLE CONNECTION
SS-3



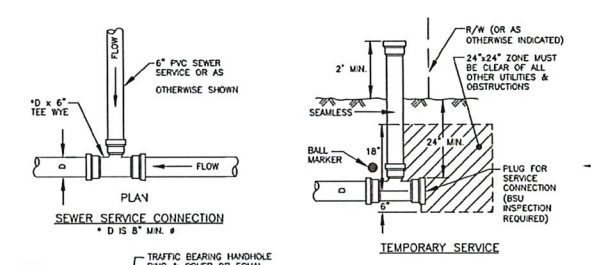
SEWER CONNECTION
FOR DEPTHS OVER 8 FEET
SS-10



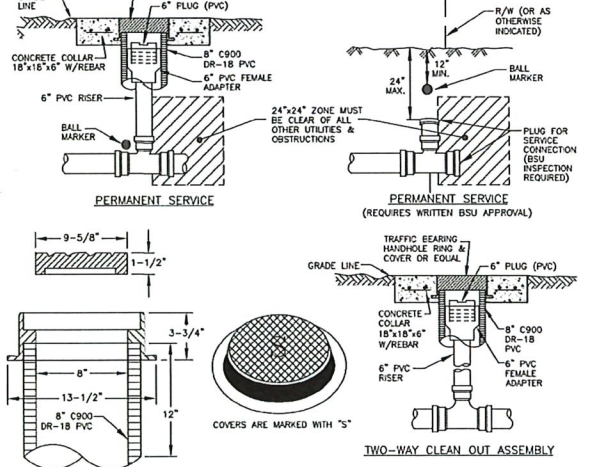
MANHOLE CONCRETE COLLAR
SS-8



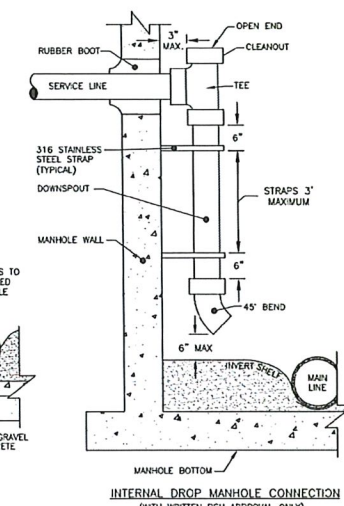
FLOW LINE CHANNELS
SS-6



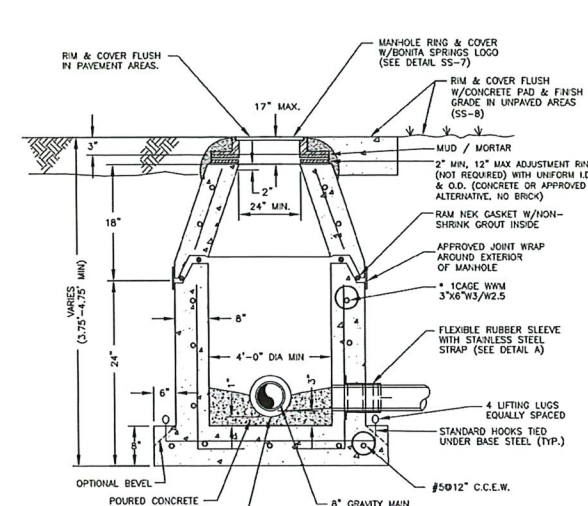
SEWER SERVICE CONNECTION
SS-9



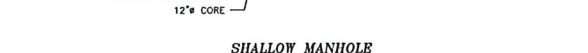
CLEANOUT ASSEMBLY
SS-9



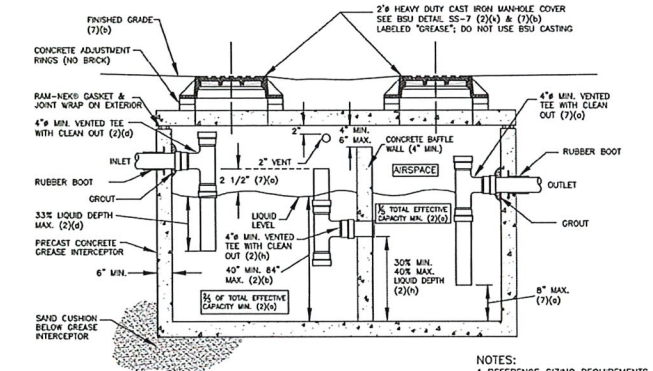
EXTERNAL DROP MANHOLE CONNECTION
SS-4



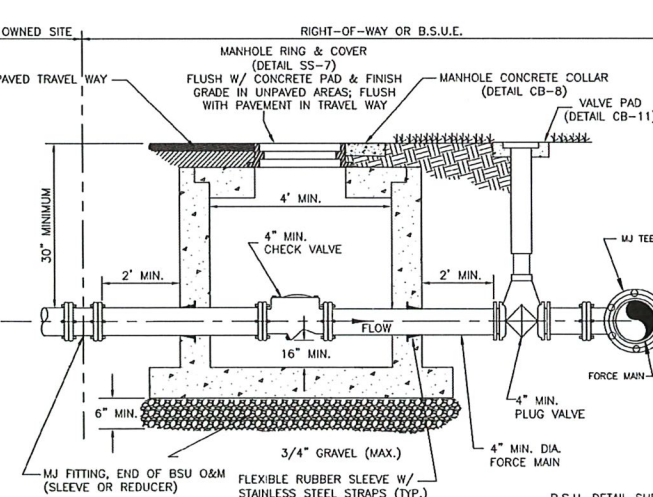
INTERNAL DROP MANHOLE CONNECTION
SS-4



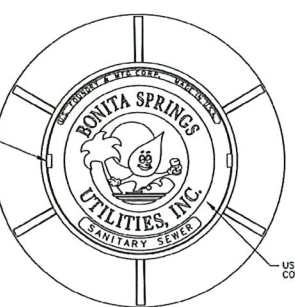
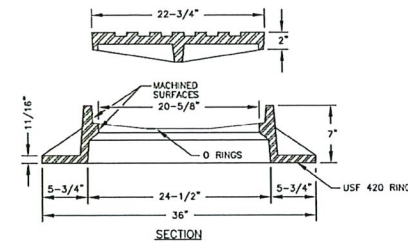
SHALLOW MANHOLE
SS-4



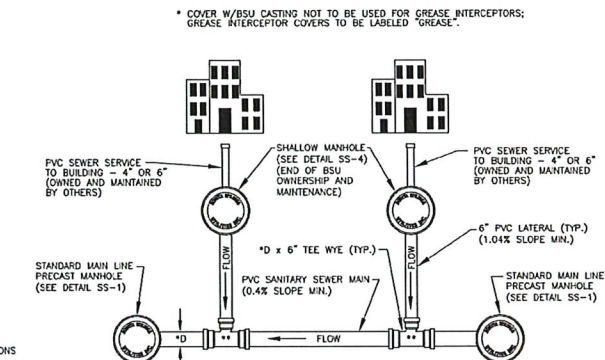
GRAVITY GREASE INTERCEPTOR
SS-11



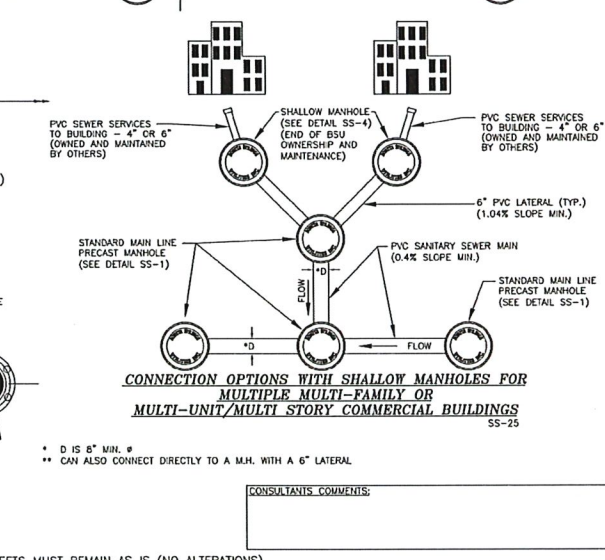
CHECK VALVE VAULT
SS-11



MANHOLE RING & COVER DETAIL
SS-7



CONNECTION OPTIONS WITH SHALLOW MANHOLES FOR
MULTIPLE MULTI-FAMILY OR
MULTI-UNIT/MULTI-STORY COMMERCIAL BUILDINGS
SS-25



CONNECTION OPTIONS WITH SHALLOW MANHOLES FOR
MULTIPLE MULTI-FAMILY OR
MULTI-UNIT/MULTI-STORY COMMERCIAL BUILDINGS
SS-25



Revision	Date	Description

DESIGNED BY:	A.P.D.
DRAWN BY:	E.M.N.
APPROVED:	A.P.D.
JOB CODE:	BSU19
SCALE:	NOT TO SCALE

GradyMinor
Civil Engineers • Land Surveyors • Planners • Landscape Architects
Cert. of Auth. EB 0005151 Cert. of Auth. LB 0005151
Bonita Springs: 239.947.1144 www.GradyMinor.com Fort Myers: 239.690.4380

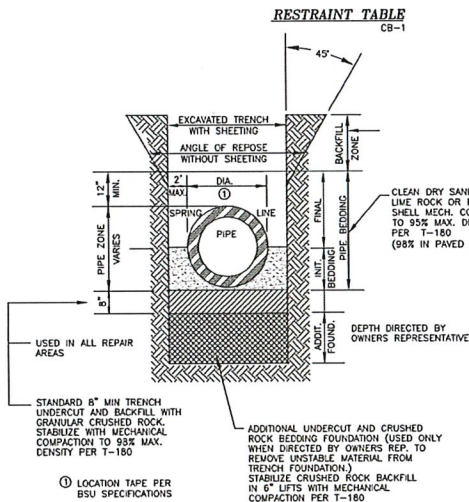
MASTER PUMP STATION 360
WASTEWATER DETAILS
ELEVATIONS SHOWN HEREON ARE BASED UPON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD '88)
CONVERSION FACTOR TO NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD '29) IS (+)

MUNICIPALITY: BONITA SPRINGS
SEC/TWN/RGE: 01/48S/25E
DATE: JANUARY, 2024
SUBMITTAL TYPE: 100% PLANS
SHEET 9 OF 12

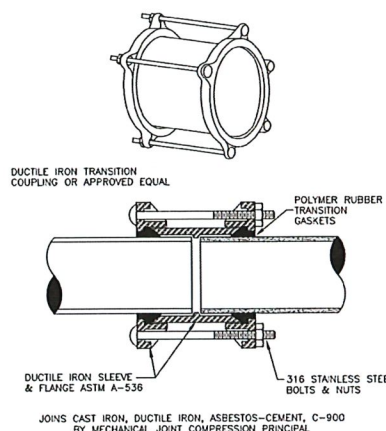
GA:ENGINEERING\PROJ-ENG\B\19\10\TOWNS\SUBMITTAL\CONSTR\BSU19-DETAILS\SHEET 8-121 2/13/2025 10:56 AM

RESTRAINT TABLE														
PIPE SIZE	HORIZONTAL BENDS					VERTICAL OFFSETS					TEES		REDUCERS (SEE NOTES)	
	90° BENDS Lr (FT.)	45° BENDS Lr (FT.)	22.5° BENDS Lr (FT.)	11.25° BENDS Lr (FT.)	45° BENDS Lr (FT.) (SEE NOTE 2)	DEAD ENDS Lr (FT.)	RUN SIZE	BRANCH SIZE	Lr (FT.)	Lbr (FT.)	SIZE	L(A) (FT.)	L(B) (FT.)	
4"	27	11	5	3	31	8	60	4"	4"	10	11	6 x 4	64	43
6"	37	15	7	4	43	11	84	6"	6"	10	34	8 x 6	60	46
8"	48	20	10	5	57	15	110	8"	8"	10	59	10 x 8	55	44
10"	57	24	11	6	68	17	131	10"	10"	10	80	12 x 10	46	38
12"	67	28	13	7	80	19	151	12"	12"	10	101	14 x 12	38	30
16"	88	36	18	9	104	24	196	16"	16"	10	136	18 x 16	30	24
20"	108	44	22	11	128	29	241	20"	20"	10	166	22 x 20	24	19
24"	128	52	26	13	152	34	286	24"	24"	10	196	26 x 24	19	15

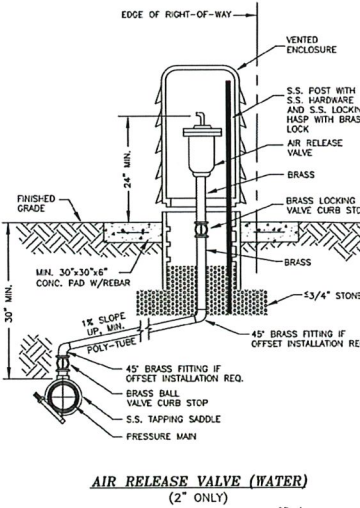
- NOTES:
- LENGTHS SHOWN ON THIS TABLE ARE TO BE INTERPRETED AS FOLLOWS:
 - Lr = RESTRAINED LENGTH FROM HIGH SIDE FITTING OF A VERT. BEND
 - Lb = RESTRAINED LENGTH FROM LOW SIDE FITTING OF VERT. BEND
 - Lr = RESTRAINED LENGTH ON BOTH SIDES FROM FITTING
 - Lr = RESTRAINED LENGTH TO FIRST JOINT OF RUN ON BOTH SIDES
 - Lbr = RESTRAINED LENGTH REQUIRED ON BRANCH FROM FITTING
 - L(A) = LENGTH OF PIPE ON SMALL SIDE FREE OF FITTING
 - L(B) = RESTRAINED LENGTH ON LARGE SIDE OF REDUCER
 - A SAFETY FACTOR = 2.5 IS USED FOR VERTICAL OFFSETS TO COMPENSATE FOR SATURATED SOIL CONDITIONS. A SAFETY FACTOR = 2.0 IS USED FOR ALL OTHER CASES.
 - (A) AND (B) ABOVE ARE TWO OPTIONS FOR PROVIDING THE REQUIRED THRUST RESTRAINT FOR THE FITTING. EITHER (A) LENGTH OF PIPE FREE OF FITTINGS (BENDS, TEES, REDUCERS OR VALVES) ON THE SMALL SIDE OF THE REDUCER WILL PROVIDE THE REQUIRED RESTRAINT OR (B) LENGTH CAN BE RESTRAINED ON THE LARGE SIDE OF THE FITTING.
 - THE FOLLOWING ARE ASSUMED:
 - 4" - 10" PIPE HAS 30" MIN. COVER
 - 12" - 24" PIPE HAS 36" MIN. COVER
 - 4" - 24" PIPE IS PVC
 - VALVES SHALL BE RESTRAINED ON EITHER SIDE OF THE FITTING AS A MINIMUM. IN LINE VALVES SHALL HAVE NO FITTINGS WITHIN THE LENGTHS SHOWN ON THIS TABLE. IN CASES WHERE THE LENGTH CAN NOT BE PROVIDED FREE OF FITTINGS, ADDITIONAL RESTRAINT SHALL BE REQUIRED AS APPROVED BY ENGINEER.
 - ALL DEAD END LINES, PERMANENT OR TEMPORARY, SHALL BE RESTRAINED PER THE ABOVE RESTRAINT TABLE.
 - ALL VALVES SHALL BE RESTRAINED AS DEAD ENDS, IN BOTH FLOW DIRECTIONS, PER THIS TABLE.



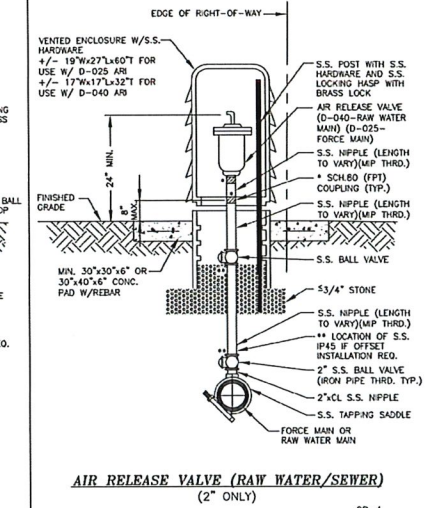
TRENCH CROSS SECTION CB-9



DUCTILE IRON TRANSITION COUPLING CB-5



AIR RELEASE VALVE (WATER) (2" ONLY) CB-4



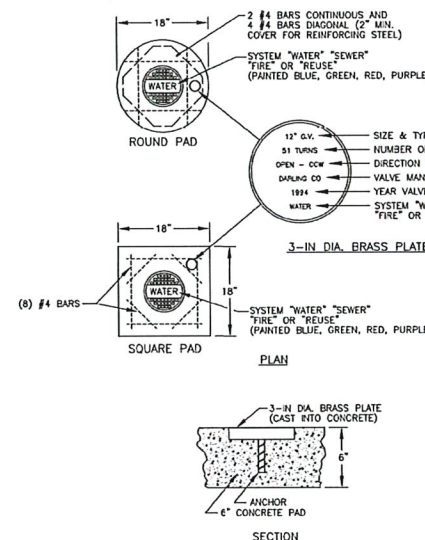
AIR RELEASE VALVE (RAW WATER/SEWER) (2" ONLY) CB-4

LOCATION OF PUBLIC WATER SYSTEM MAINS IN ACCORDANCE WITH F.A.C. RULE 62-555.314														
Other Pipe	Horizontal Separation					Crossings (1)					Joint Spacing @ Crossings (Full Joint Centered)			
	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main
Storm Sewer, Stormwater Force Main, Reclaimed Water (2)	3 ft. minimum	12 inches is the minimum, except for storm sewer, then 6 inches is the minimum and 12 inches is the preferred	Alternate 3 ft. minimum	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main
Vacuum Sanitary Sewer	10 ft. preferred 3 ft. minimum	12 inches preferred 6 inches minimum	Alternate 3 ft. minimum	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main
Gravity or Pressure Sanitary Sewer, Sanitary Sewer Force Main, Reclaimed Water (4)	10 ft. preferred 6 ft. minimum (3)	12 inches is the minimum, except for gravity sewer, then 6 inches is the minimum and 12 inches is the preferred	Alternate 6 ft. minimum	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main
Sanitary Sewer Force Main, Reclaimed Water (4)	10 ft. minimum	---	---	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main	Water Main

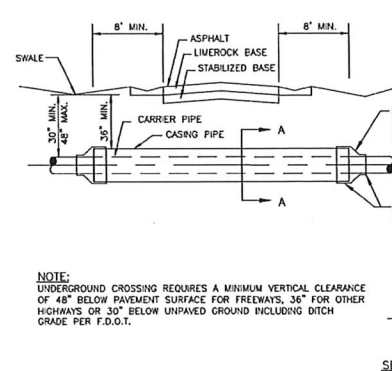
- (1) Water mains should cross above other pipe. When water mains must be below other pipe, the minimum separation is 12 inches.
 (2) Reclaimed water regulated under Part III of Chapter 62-400, F.A.C.
 (3) 16" for gravity sanitary sewer where the bottom of the water main is laid at least 6 inches above the top of the gravity sanitary sewer.
 (4) Reclaimed water not regulated under Part III of Chapter 62-400, F.A.C.

Disclosures - This document is provided for your reference only. Please refer to F.A.C. Rule 62-555.314 for additional disclaimer requirements.

CROSSING DETAIL CB-7

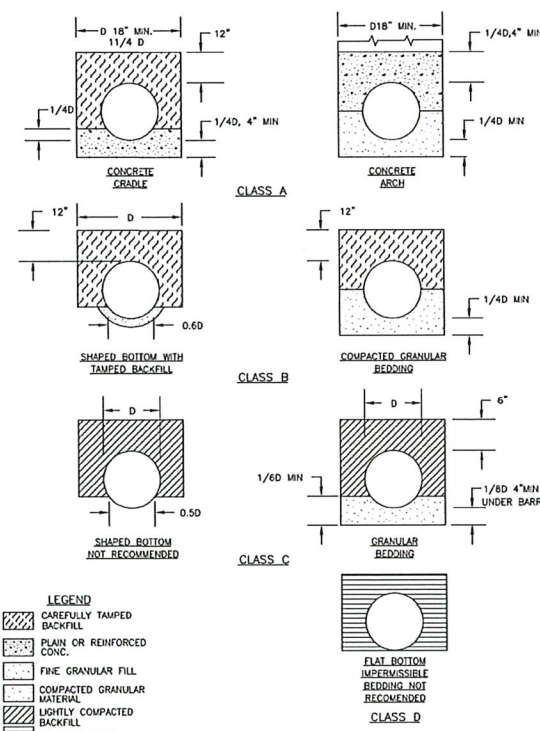


VALVE PAD CB-11

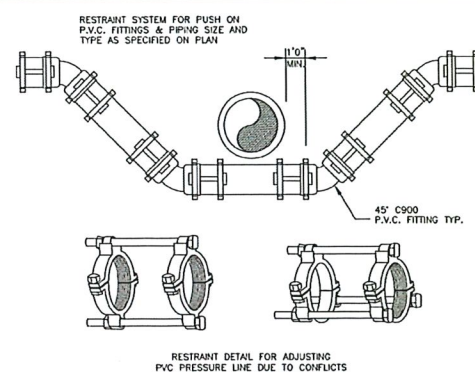


NOTE: UNDERGROUND CROSSING REQUIRES A MINIMUM VERTICAL CLEARANCE OF 48" BELOW PAVEMENT SURFACE FOR FREWAYS, 36" FOR OTHER HIGHWAYS OR 30" BELOW UNPAVED GROUND INCLUDING DITCH GRADE PER F.D.O.T.

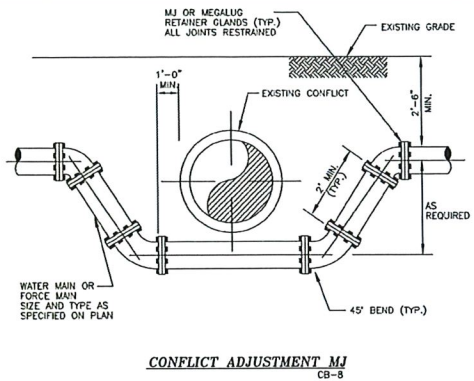
JACK AND BORE CB-10



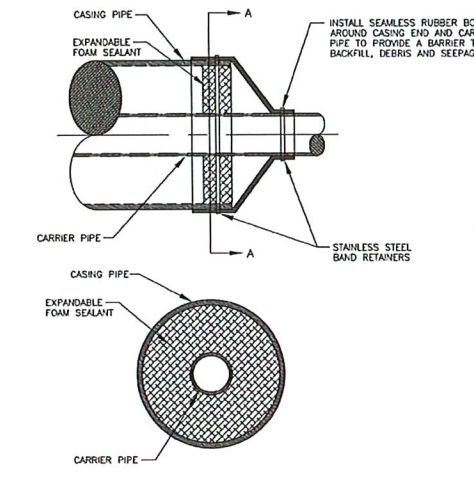
PIPE BEDDING CB-3



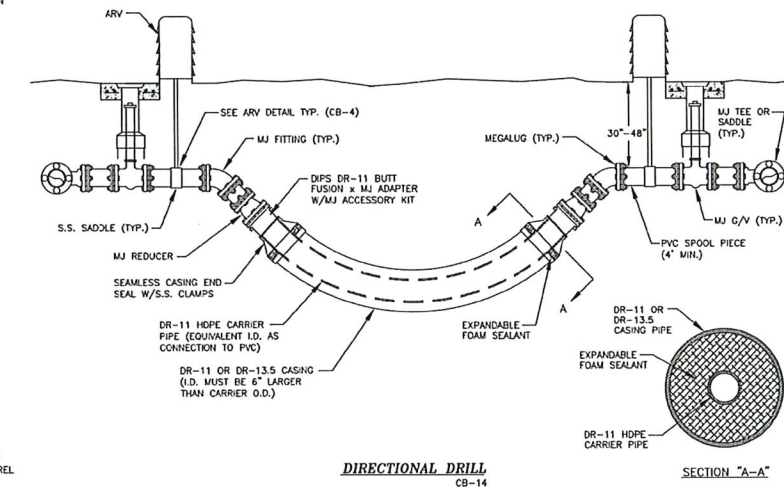
PVC PRESSURE LINE CONFLICT ADJUSTMENT FITTINGS CB-6



CONFLICT ADJUSTMENT MJ CB-8



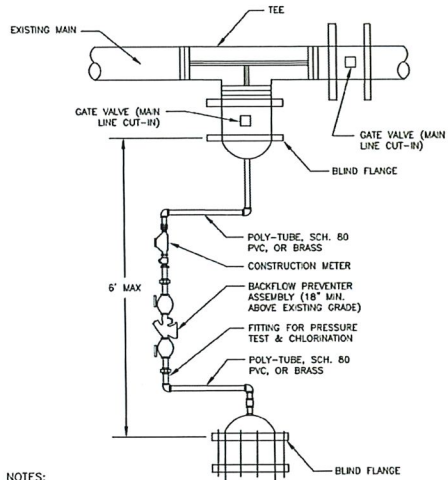
END SEAL/CASING PIPE CB-13



B.S.U. DETAIL SHEETS MUST REMAIN AS IS (NO ALTERATIONS) IF ADDITIONAL DETAILS ARE REQUIRED SUBMIT ON SEPARATE SHEET

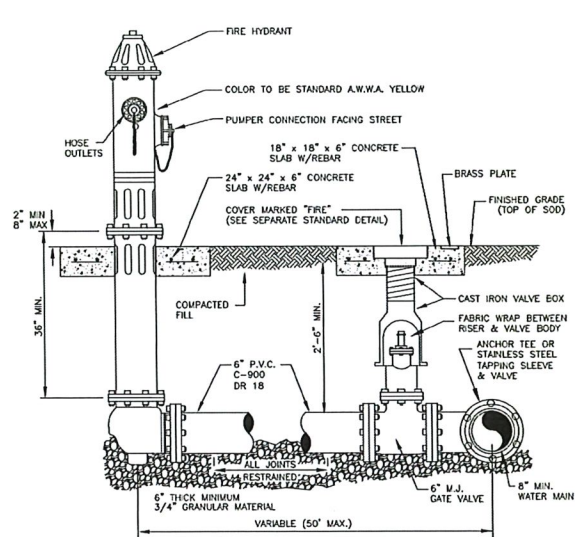
CONSULTANTS COMMENTS:

				DESIGNED BY:	A.P.D.
				DRAWN BY:	E.M.N.
				APPROVED:	A.P.D.
				JOB CODE:	BSU19
				SCALE:	NOT TO SCALE
Revision	Date	Description		By	

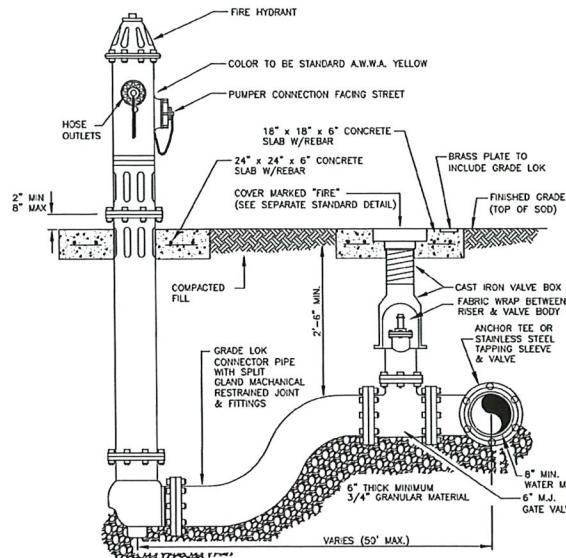


- NOTES:**
1. CONNECTION TO BE WITNESSED BY BONITA SPRINGS UTILITIES
 2. SYSTEM JUMPER ASSEMBLY MUST BE INSTALLED WITHIN 48 HOURS AFTER FULL BORE FLUSH

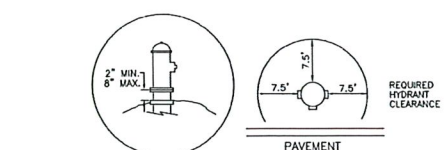
CONSTRUCTION JUMPER ASSEMBLY
W-1



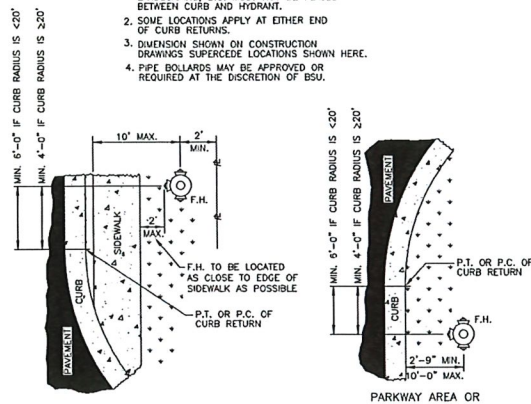
FIRE HYDRANT ASSEMBLY
W-2



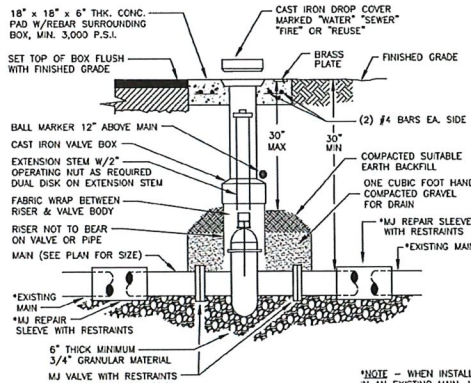
FIRE HYDRANT ASSEMBLY WITH GRADE-LOK ADAPTOR
W-3



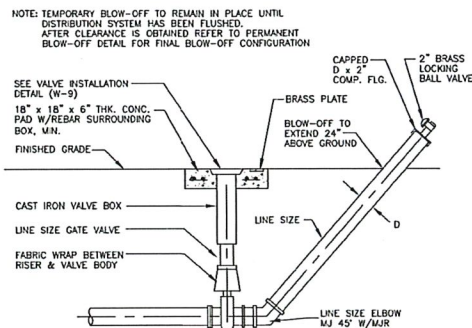
- NOTES:**
1. OBSTRUCTIONS SUCH AS UTILITY POLES, STREET SIGNS, IRRIGATION BOXES, FENCES, LANDSCAPING, ETC. MUST NOT BE PLACED BETWEEN CURB AND HYDRANT.
 2. SOME LOCATIONS APPLY AT EITHER END OF CURB RETURNS.
 3. DIMENSION SHOWN ON CONSTRUCTION DRAWINGS SUPERCEDE LOCATIONS SHOWN HERE.
 4. PIPE BOLLARDS MAY BE APPROVED OR REQUIRED AT THE DISCRETION OF BSU.



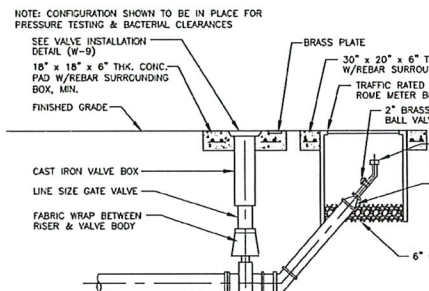
FIRE HYDRANT LOCATIONS/CLEARANCE
W-4



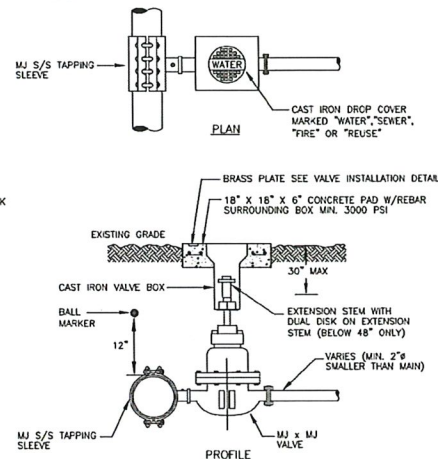
VALVE INSTALLATION
W-5



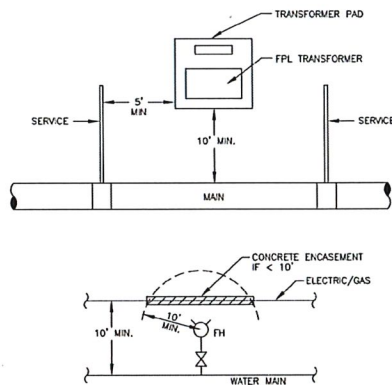
TEMPORARY BLOW-OFF ASSEMBLY DETAIL
W-6



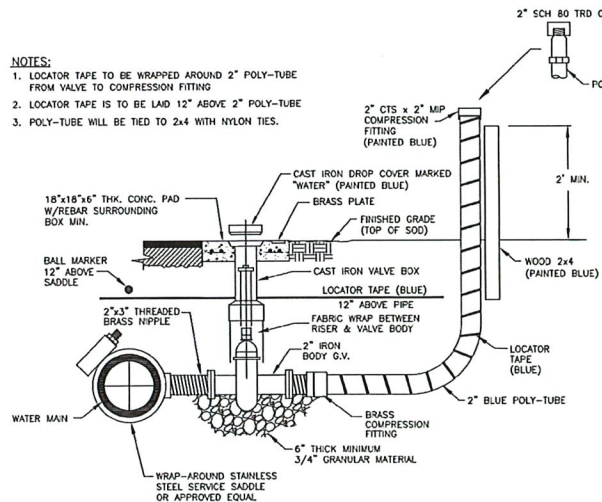
PERMANENT BLOW-OFF ASSEMBLY DETAIL
W-7



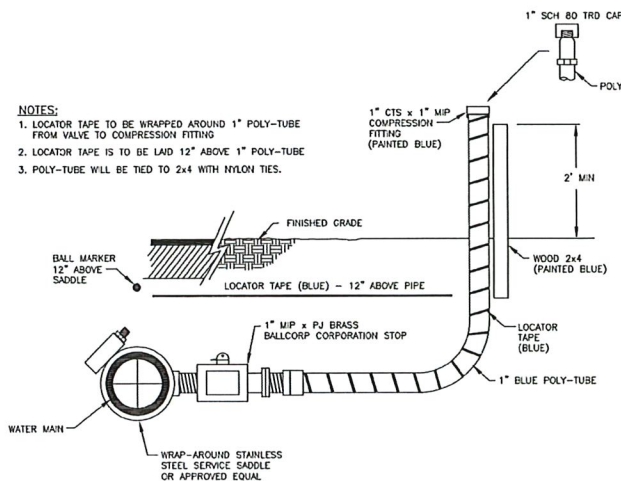
TAPPING SLEEVE AND VALVE
W-8



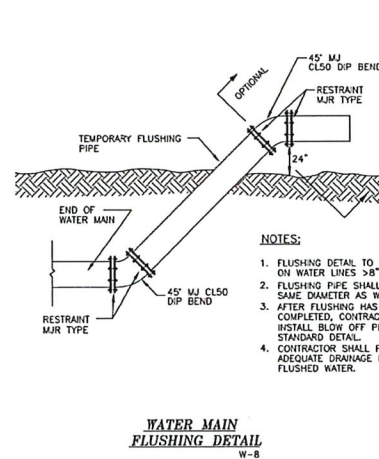
ELECTRICAL / GAS CLEARANCE
W-9



2\"/>



1\"/>



WATER MAIN FLUSHING DETAIL
W-12

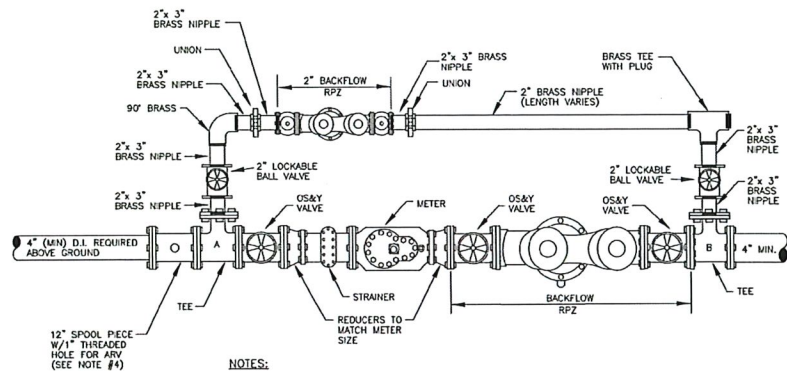
- NOTES:**
1. SEE VALVE INSTALLATION DETAIL FOR VALVE SUPPORT
 2. REQUIRES WRITTEN BSU APPROVAL

B.S.U. DETAIL SHEETS MUST REMAIN AS IS (NO ALTERATIONS)
IF ADDITIONAL DETAILS ARE REQUIRED SUBMIT ON SEPARATE SHEET

CONSULTANT'S COMMENTS:

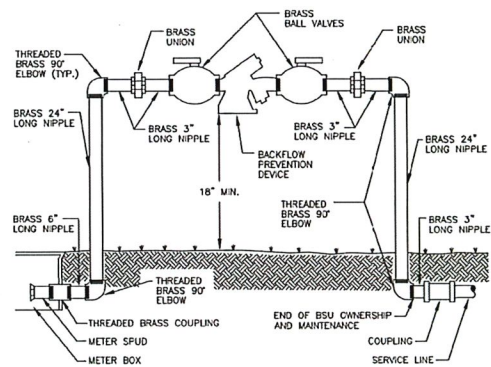
Revision	Date	Description	By

DESIGNED BY:	A.P.D.
DRAWN BY:	E.M.N.
APPROVED:	A.P.D.
JOB CODE:	BSU19
SCALE:	NOT TO SCALE



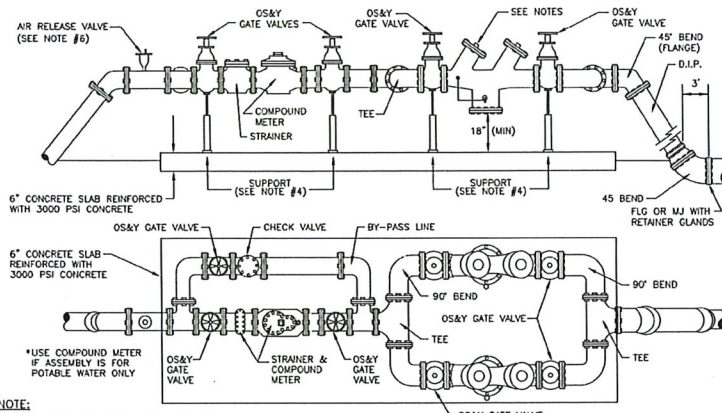
- NOTES:
1. METER SIZE DETERMINES CONFIGURATION SIZE BETWEEN TEE "A" & "B".
 2. ENTIRE APPARATUS TO BE PAINTED WITH UV RATED PAINT (EXCEPT METER).
 3. CONSULT BSU "BACKFLOW PREVENTION CROSS CONNECTION CONTROL PROGRAM" FOR APPROVED SIZES, MODEL NUMBERS & MANUFACTURERS.
 4. "N" STYLE BACKFLOWS REQUIRE A LOCATION FOR AN AIR RELEASE VALVE.

**STANDARD METER/BACKFLOW
ASSEMBLY DETAIL**
(3" OR LARGER)
BF-1



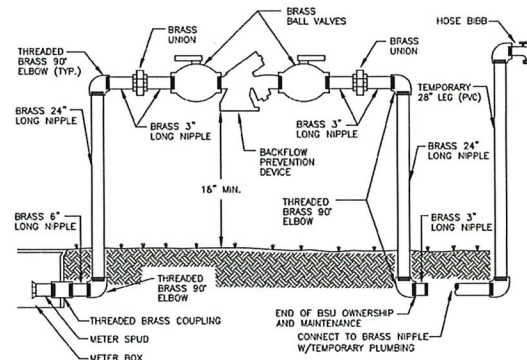
NOTE:
DEVICE DEPENDENT
ON DEGREE OF HAZARD.

BACKFLOW PREVENTION DEVICE 3/4", 1", 2"
(NEW INSTALLATIONS BY BSU,
EXCEPT FOR BACKFLOWS ON FIRE LINES)
BF-3



- NOTE:
1. IF CONTINUOUS SERVICE IS NOT REQUIRED, A SINGLE BACKFLOW PREVENTER MAY BE INSTALLED, AND TEES AND BENDS ELIMINATED.
 2. DEVICE DEPENDENT ON DEGREE OF HAZARD.
 3. METER BYPASS LINE OPTIONAL. DEPENDENT ON CUSTOMER NEEDS/CONTINUOUS SUPPLY DURING METER REPAIR.
 4. SUPPORT TO BE STAINLESS STEEL.
 5. CONSULT BSU "BACKFLOW PREVENTION CROSS CONNECTION CONTROL PROGRAM" FOR APPROVED SIZES, MODEL NUMBERS & MANUFACTURERS.
 6. "N" STYLE BACKFLOWS REQUIRE A LOCATION FOR AN AIR RELEASE VALVE.

**3" OR LARGER COMPOUND METER
AND BACKFLOW PREVENTER**
(ONLY WITH BSU PRIOR APPROVAL)
BF-2



NOTE:
DEVICE DEPENDENT
ON DEGREE OF HAZARD.

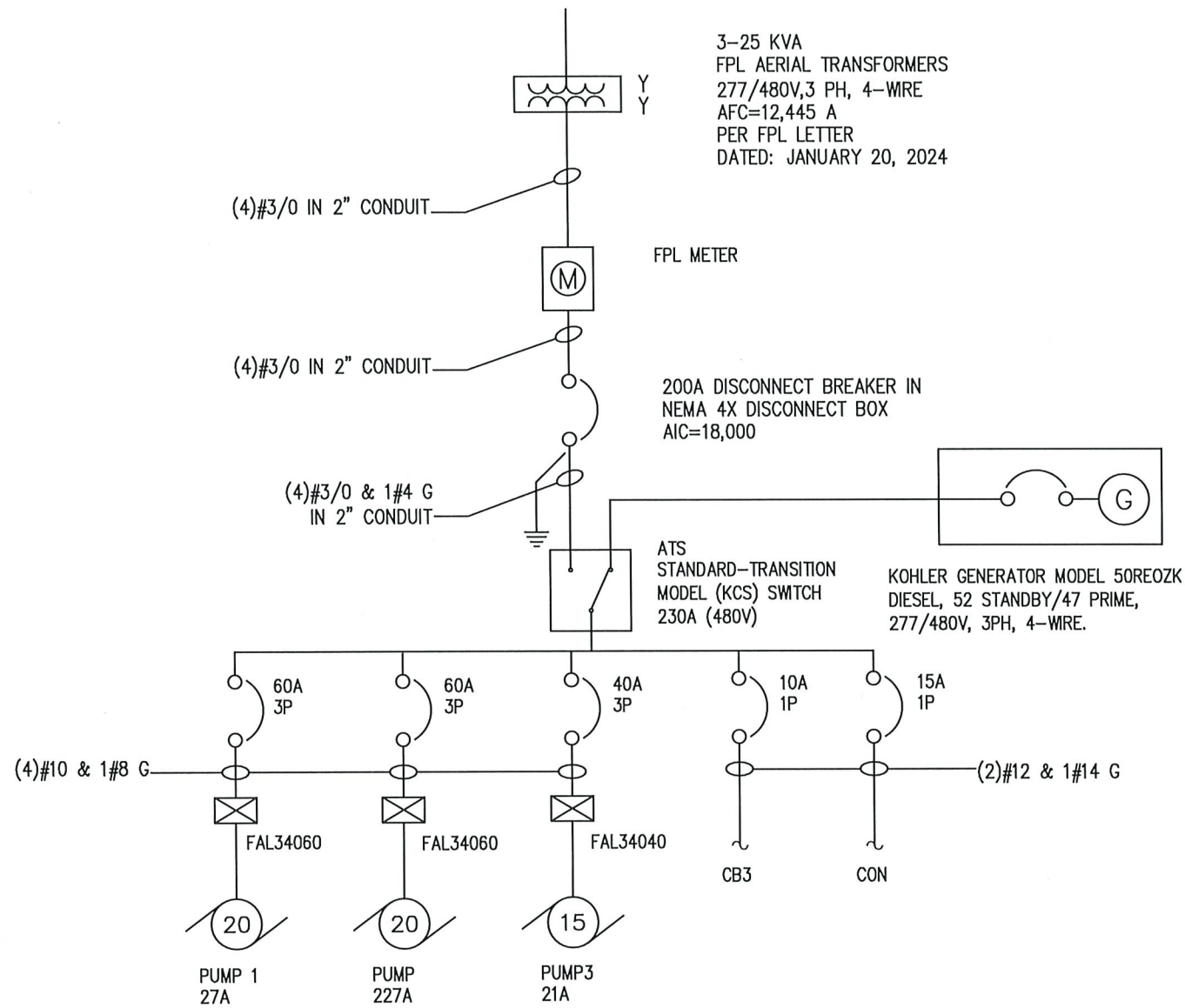
**CONTRACTOR'S TEMPORARY HOSE BIBB
BACKFLOW PREVENTION DEVICE 3/4", 1", 2"**
(INSTALLED BY BUILDER)
BF-5

CONSULTANT COMMENTS:

B.S.U. DETAIL SHEETS MUST REMAIN AS IS (NO ALTERATIONS)
IF ADDITIONAL DETAILS ARE REQUIRED SUBMIT ON SEPERATE SHEET

DETAIL BF-4 DELETED

				DESIGNED BY:	A.P.D.
				DRAWN BY:	E.M.N.
				APPROVED:	A.P.D.
				JOB CODE:	BSU19
				SCALE:	NOT TO SCALE
Revision	Date	Description	By		



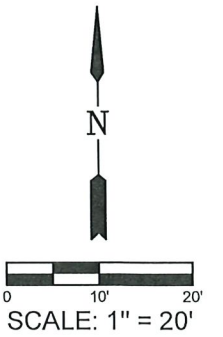
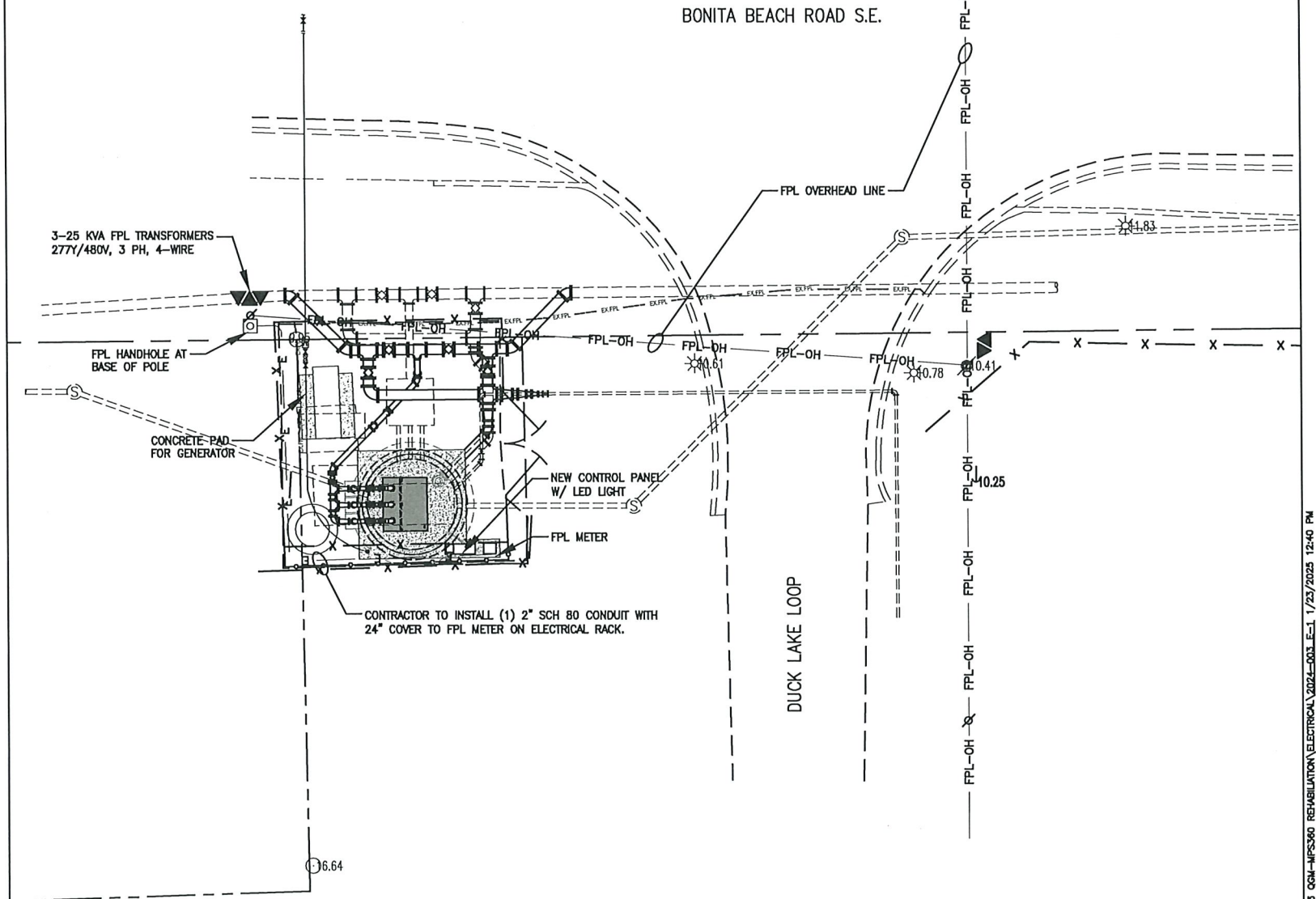
SINGLE LINE DIAGRAM - MASTER PUMP STATION NO. 360

SCALE: NTS

LOAD CALCULATION:

2 - 20.0 HP MOTORS AT 27.0 AMPS EACH	54.0 AMPS
1 - 15.0 HP MOTOR AT 21.0 AMPS	21.0 AMPS
MISC. CONTROL PANEL LOADS	5.0 AMPS
WHISPER BIOFILTER LOAD	5.0 AMPS
+ 25 % OF LARGEST MOTOR	6.8 AMPS
TOTAL	91.8 AMPS

SERVICE SIZE: #3/0 CU IS RATED FOR 200.0 AMPS



				DESIGNED BY:	TEH
				DRAWN BY:	TEH
				APPROVED:	TEH
				JOB CODE:	2024-003
				SCALE:	1" = 20'
Revision	Date	Description		By	

HOLLIS ENGINEERING CONSULTANTS, INC.

16900 Colony Lakes Boulevard Fort Myers, Florida 33908
Phone: (239) 481-2385 Cell: (239) 560-6541

Certificate of Authorization No. 26048

MASTER PUMP STATION NO. 360

ELECTRICAL DETAILS

ELEVATIONS SHOWN HEREON ARE BASED UPON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD '88)
CONVERSION FACTOR TO NATIONAL GEODEIC VERTICAL DATUM 1929 (NGVD '29) IS (+)####

THOMAS E. HOLLIS, P.E.
HOLLIS ENGINEERING ASSOCIATES, INC.
16900 COLONY LAKES BOULEVARD
FORT MYERS, FL 33908
FLORIDA P.E. LICENSE NO. 12938

MUNICIPALITY:	BONITA SPRINGS
SEC/TWN/RGE:	01/48S/25E
DATE:	01/2025
SUBMITTAL TYPE:	100%
SHEET E-10F	1

C:\HOLLIS ENGR FILES\2024-JOB FILES\2024-003 O&M-MPS360 REHABILITATION\ELECTRICAL\2024-003 E-1 1/23/2025 12:40 PM