CONTRACT 19-C-00033

BALLAST POINT PUMP STATION FORCEMAIN

CITY OF TAMPA
WASTEWATER DEPARTMENT
2545 GUY N. VERGER BOULEVARD
TAMPA, FL 33605

. BALLAST POINT BLVD.
PROJECT LOCATION

VICINITY MAP
No Scale
©OpenStreetMap contributors

. PEARL AVE
PROJECT LOCATION

INDEX TO DRAWINGS

SHEET NO.	DESCRIPTION
C0.0	COVER SHEET
C0.1	OVERALL PROJECT AREAS
C1.1	PEARL AVE. PROPOSED FM STA. 1+00 TO 6+10.05
C1.2	PEARL AVE. PROPOSED FM STA. 6+10.05 TO 11+20.00
C1.3	PEARL AVE. PROPOSED FM STA. 11+20.00 TO 16+00.00
C1.4	BALLAST PT. BLVD. PROPOSED FM STA. 1+00 TO 6+00.00
C1.5	BALLAST PT. BLVD. PROPOSED FM - PUMP STATION CONNECTION STATION LINE
C1.6	BALLAST PT. BLVD. PROPOSED FM - STERLING AVE. C/L STATION LINE
C2.1	DETAILS & NOTES
C2.2	DETAILS & NOTES

100% CONSTRUCTION DRAWINGS

BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION

MILLS and ASSOCIATES, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
3242 HENDERSON BOULEVARD * SUITE 300
TAMPA, FLORIDA 33609-3056
TELEPHONE: (813) 876-5869

FOR

CITY OF TAMPA
WASTEWATER DEPARTMENT
2545 GUY N VERGER BLVD.
TAMPA, FLORIDA 33605

DRWN BY: CVL DATE 07/16/20
DSGN BY: _____ DATE _____
CHKD BY: LEM DATE 07/16/20
SCALE: 1" = 20'

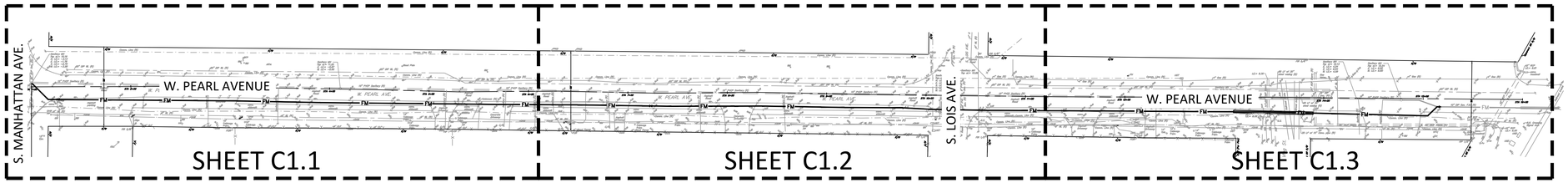
LAWRENCE E. MILLS
P.E. NO. 22324 - P.L.S. NO. 3141
E.B. NO. 3860 - L.B. NO. 3868
STATE OF FLORIDA

BALLAST POINT PS FORCEMAIN

COVER SHEET

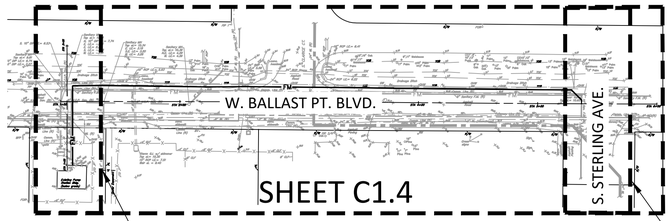
C0.0

JOB NO. 20-009



W. PEARL AVE. OVERALL PROJECT AREA

Scale: 1" = 60'



W. BALLAST PT. BLVD. OVERALL PROJECT AREA

Scale: 1" = 60'

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OVERALL PROJECT AREAS

C0.1

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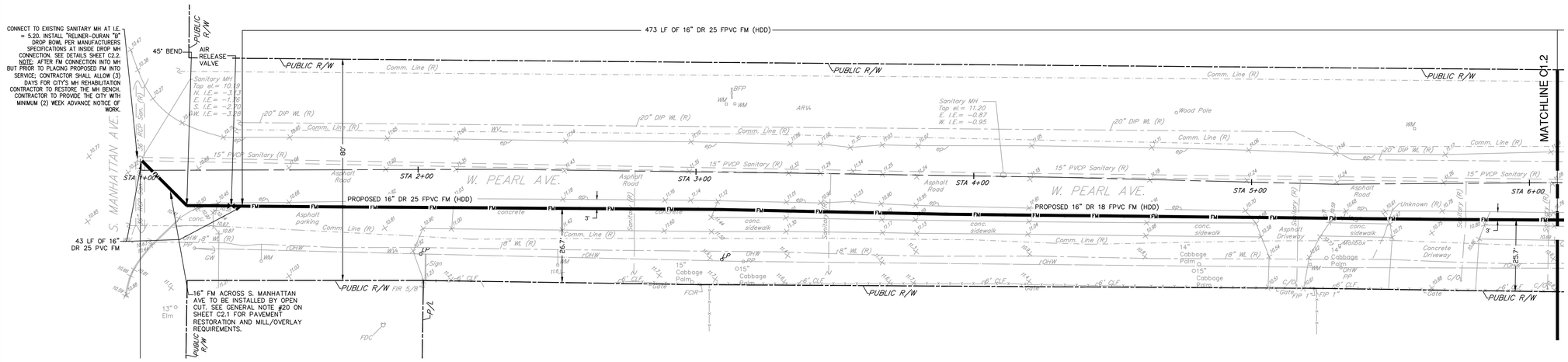
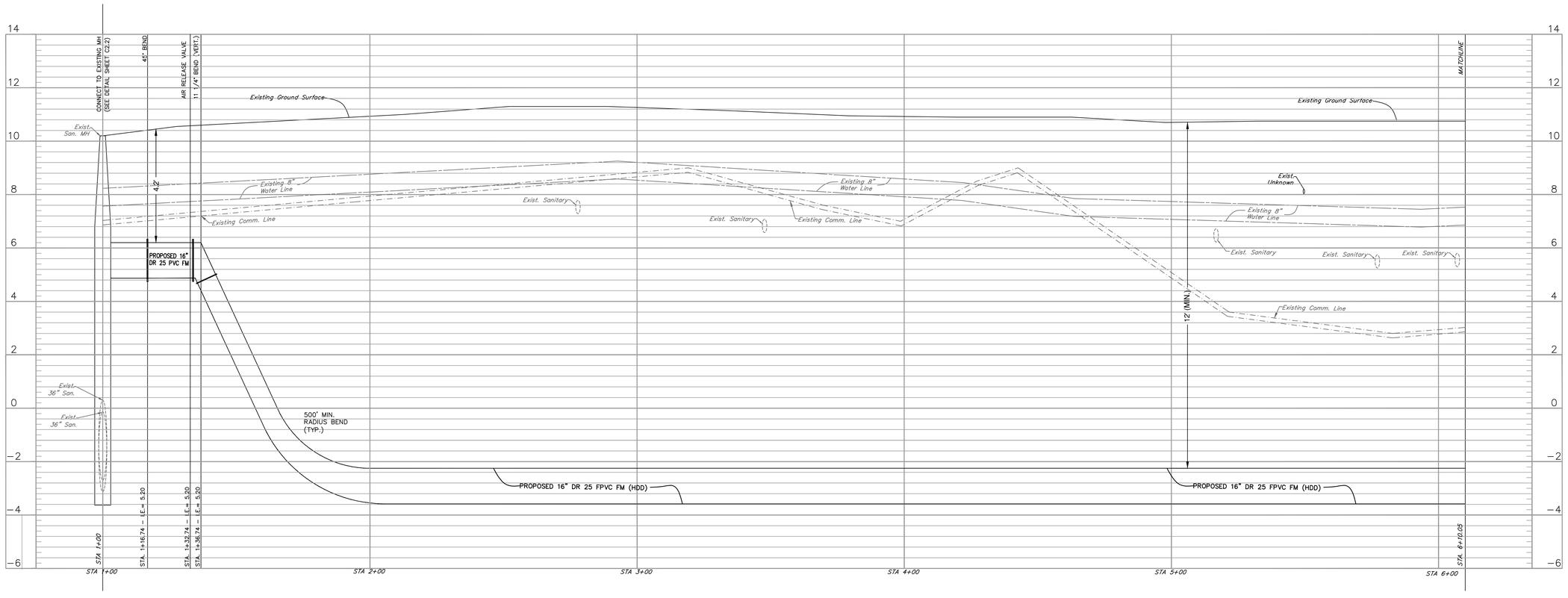


PLAN VIEW

Horizontal Scale: 1" = 20'



PROFILE VIEW

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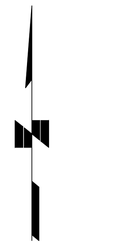

LEGEND (As Applicable)

BC	Back of Curb
BFP	Backflow Preventer
(C)	Calculated
CLF	Chain Link Fence
CMP	Corrugated Metal Pipe
CO	Clean Out
Conc.	Concrete
EP	Edge of Pavement
FDC	Fire Department Connector
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100% CONSTRUCTION DRAWINGS

BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION
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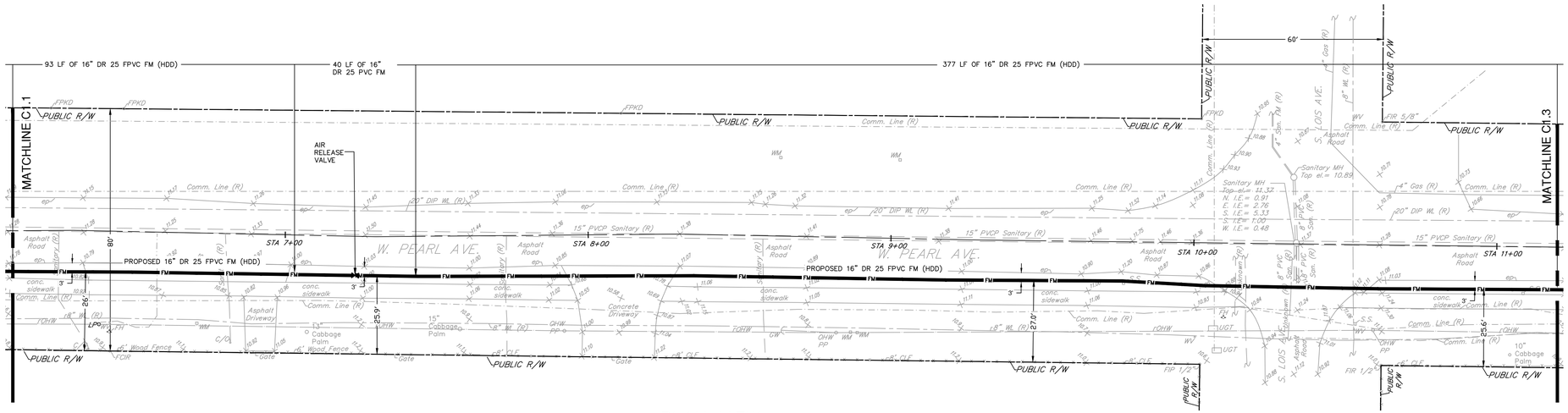
BALLAST POINT PS FORCEMAIN

PEARL AVE. PROPOSED FM
STA. 1+00 TO 6+10.05

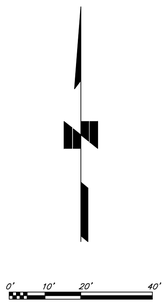
C1.1

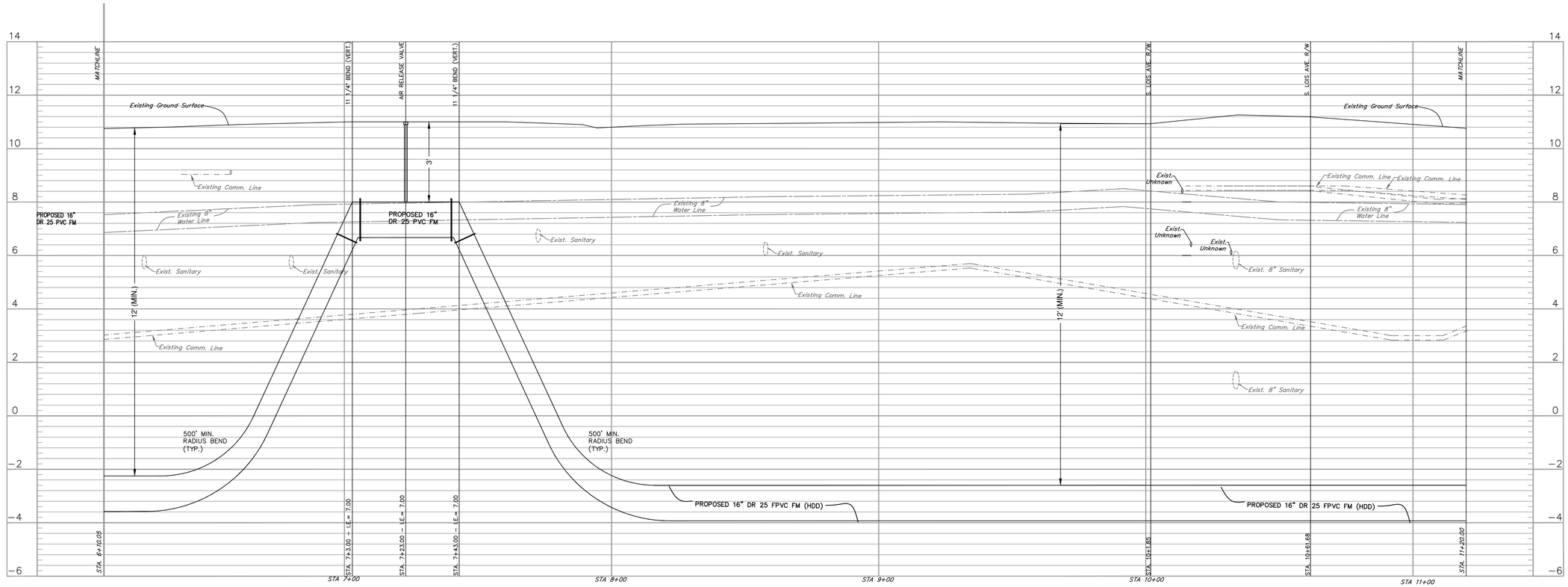
JOB NO. 20-009



PLAN VIEW

Horizontal Scale: 1" = 20'





PROFILE VIEW

Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 2'

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100% CONSTRUCTION DRAWINGS

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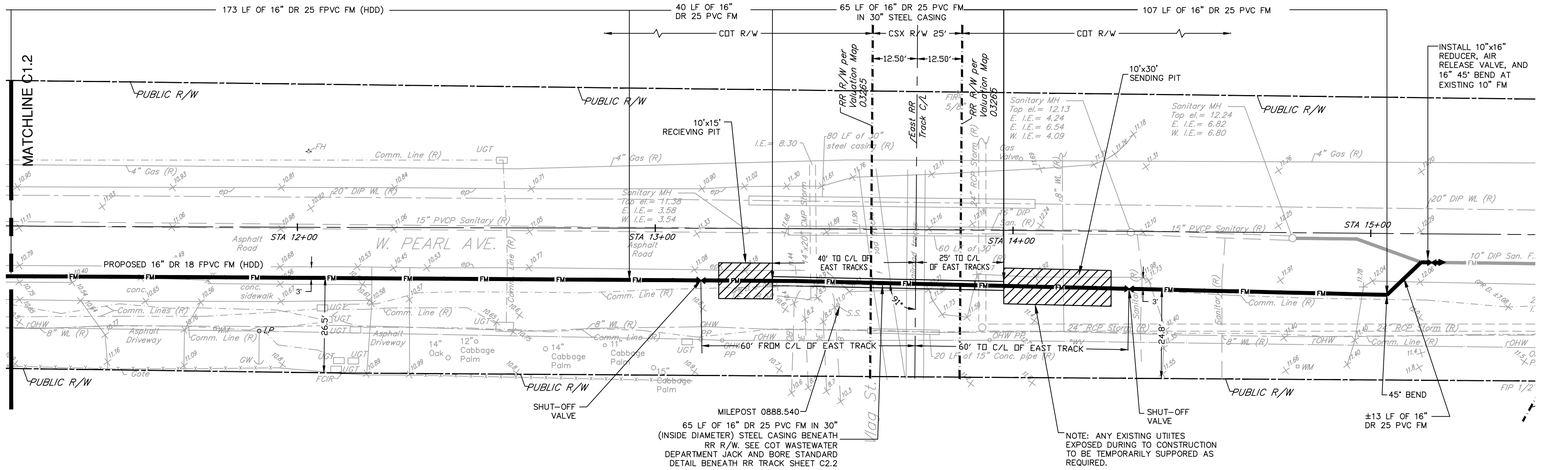
BALLAST POINT PS FORCEMAIN

PEARL AVE. PROPOSED FM
STA. 6+10.05 TO 11+20.00

C1.2

JOB NO. 20-009

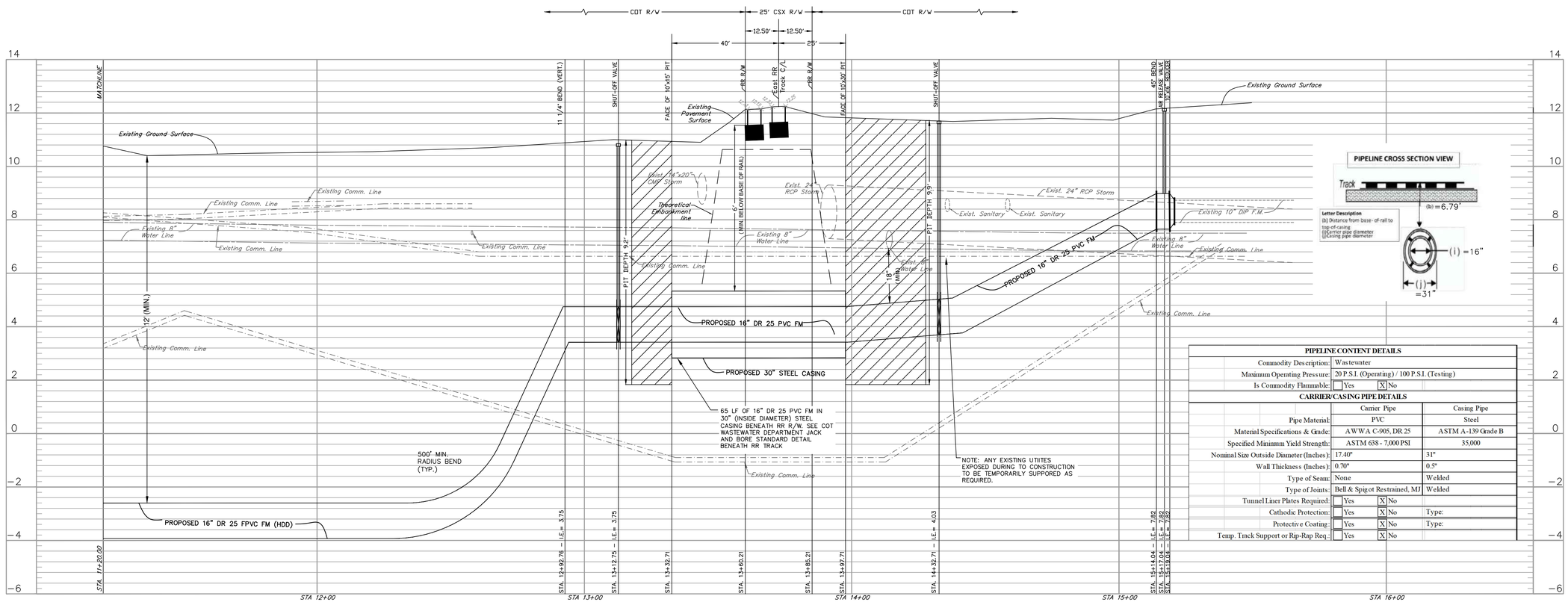


PLAN VIEW

Horizontal Scale: 1" = 20'

CSX CROSSING VICINITY MAP
NTS

0' 10' 20' 40'
SCALE 1" = 20'



PROFILE VIEW

Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 2'

PIPELINE CONTENT DETAILS		
Commodity Description:	Wastewater	
Maximum Operating Pressure:	20 P.S.I. (Operating) / 100 P.S.I. (Testing)	
Is Commodity Flammable:	☐ Yes ☒ No	
CARRIER/CASING PIPE DETAILS		
	Carrier Pipe	Casing Pipe
Pipe Material:	PVC	Steel
Material Specifications & Grade:	AWWA C-905, DR 25	ASTM A-139 Grade B
Specified Minimum Yield Strength:	ASTM 638 - 7,000 PSI	35,000
Nominal Size Outside Diameter (Inches):	17.40"	31"
Wall Thickness (Inches):	0.70"	0.5"
Type of Seam:	None	Welded
Type of Joints:	Bell & Spigot Restrained, MJ	Welded
Tunnel Liner Plates Required:	☐ Yes ☒ No	
Cathodic Protection:	☐ Yes ☒ No	Type:
Protective Coating:	☐ Yes ☒ No	Type:
Temp. Track Support or Rip-Rap Req.:	☐ Yes ☒ No	

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100% CONSTRUCTION DRAWINGS

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CVL	5/21/21	CSX COMMENTS			
CVL	11/2/21	16" FM REVISION PER COT COMMENT			

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C1.3

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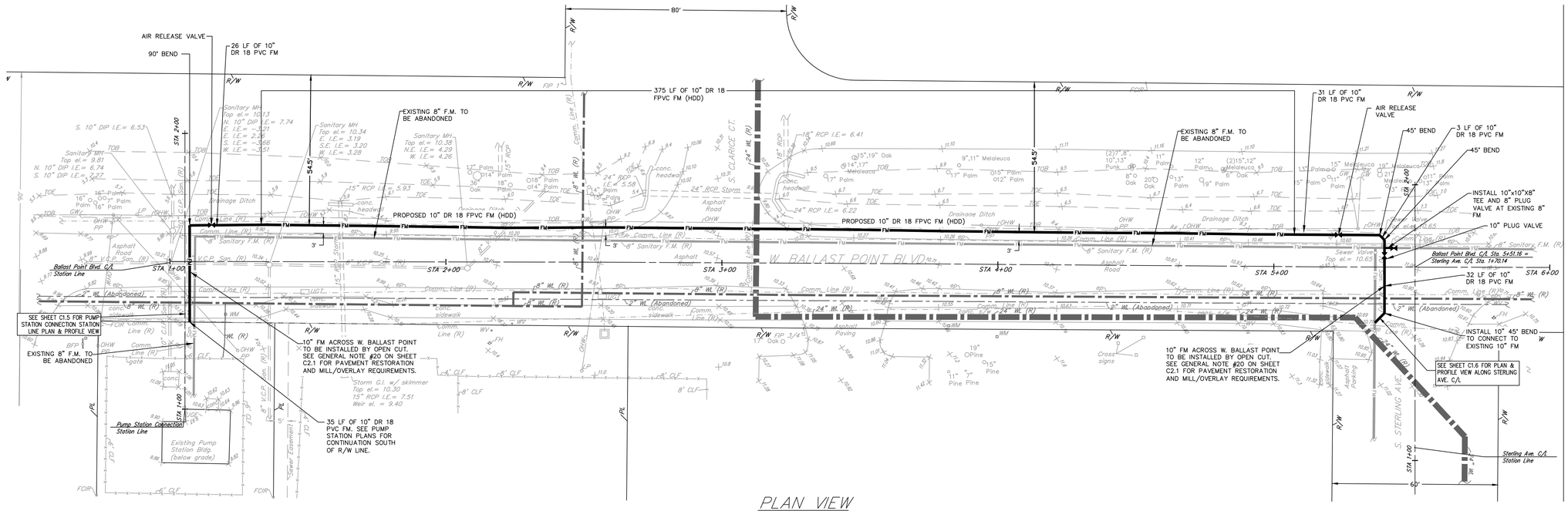
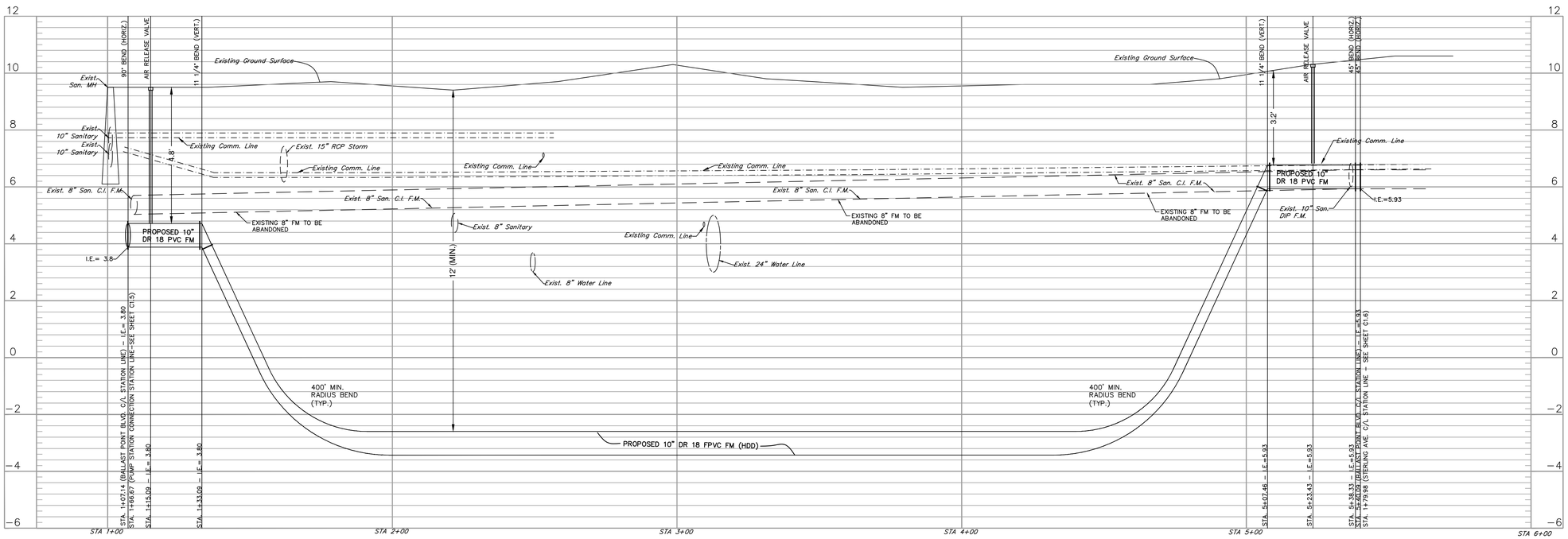


PLAN VIEW

Horizontal Scale: 1" = 20'



PROFILE VIEW

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0' 10' 20' 40'

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REVISIONS

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SHEET
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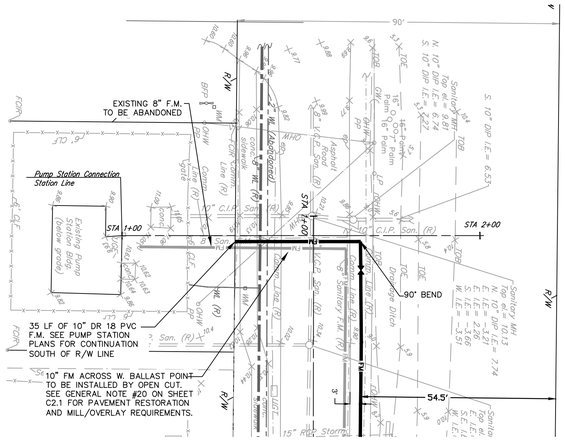

PUMP STATION CONNECTION PLAN VIEW

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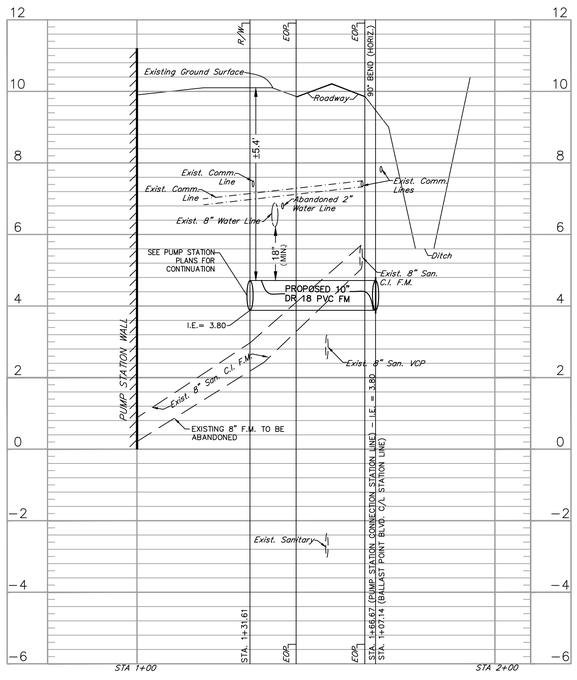

PUMP STATION CONNECTION PROFILE VIEW

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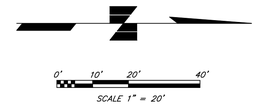

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OHW	Overhead Wires
(P)	Plat data
Ped. xing	Pedestrian Crossing
PK&D	Parker Kalon Nail & Disk (as noted)
(R)	Reported
PVC	Polyvinyl chloride
RCP	Reinforced Concrete Pipe
R/W	Right of Way
San.	Sanitary
SCO	Sanitary CO
SF	Square Feet
SIR	Set 5/8" IR with Cap: LB3868
S/W	Sidewalk
TBM	Temporary Bench Mark
TC	Top of Curb
TE	Top Elevation
T.O.B.	Top of Bank
(Typ.)	Typical
OHW	Overhead Wires
O/H	Overhang
UGE	Underground Electric
UP	Utility Pole
Ver.	Verizon
WM	Water Meter
WV	Water Valve

NOTES:

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2. ANY EXISTING UTILITES EXPOSED DURING CONSTRUCTION TO BE TEMPORARILY SUPPORTED AS REQUIRED.

100% CONSTRUCTION DRAWINGS

REVISIONS

BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION

MILLS and ASSOCIATES, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
3242 HENDERSON BOULEVARD * SUITE 300
TAMPA, FLORIDA 33609-3056
TELEPHONE: (813) 876-5869

FOR
CITY OF TAMPA
WASTEWATER DEPARTMENT
2545 GUY N VERGER BLVD.
TAMPA, FLORIDA 33605

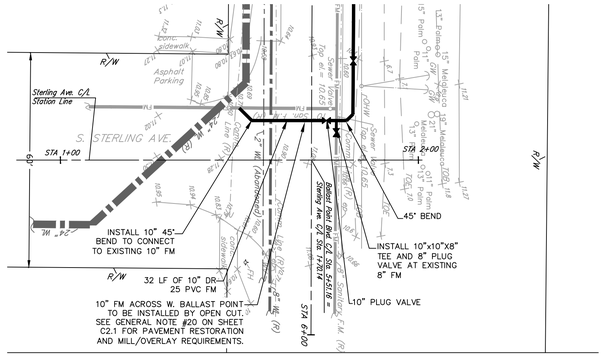
DRWN BY: CVL DATE 07/16/20
DSGN BY: _____ DATE _____
CHKD BY: LEM DATE 07/16/20
SCALE: 1"= 20'

LAWRENCE E. MILLS
P.E. NO. 22324 - P.L.S. NO. 3141
E.B. NO. 3860 - L.B. NO. 3868
STATE OF FLORIDA

PROJECT
BALLAST POINT PS FORCEMAIN
BALLAST PT. BLVD PROPOSED FM
PUMP STATION CONNECTION STATION LINE

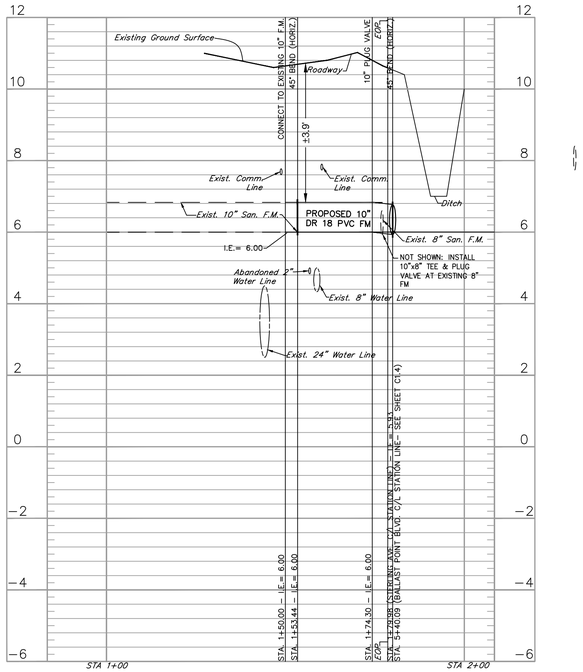
SHEET
C1.5

JOB NO.
20-009



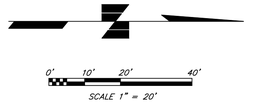
STERLING AVE. PLAN VIEW

Horizontal Scale: 1" = 20'



STERLING AVE. PROFILE VIEW

Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 2'



LEGEND (As Applicable)

BC	Back of Curb
BFP	Backflow Preventer
(C)	Calculated
CLF	Chain Link Fence
CMP	Corrugated Metal Pipe
CO	Clean Out
Conc.	Concrete
EP	Edge of Pavement
FDC	Fire Department Connector
FF	Finished Floor Elevation
FL	Flow Line
GI	Grate Inlet
GW	Guy Wire
H/C	Handicapped Parking Sign
HP	High Point
ID	Identification
IE	Invert Elevation
FOIR	Found Capped Iron Rod
FCM	Found Concrete Monument
FH	Fire Hydrant
FIR	Found Iron Rod
LB	Licensed Business
L.P.	Light Pole
(M)	Measured data
MEC	Match Existing Curb
MEP	Match Existing Pavement
MES	Mitered End Section
MH	Manhole
O/A	Overall
OR	Official Records
OHW	Overhead Wires
(P)	Plat data
Ped. xing	Pedestrian Crossing
PK&D	Parker Kalon Nail & Disk (as noted)
(R)	Reported
PVC	Polyvinyl chloride
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100% CONSTRUCTION DRAWINGS

REVISIONS

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LAWRENCE E. MILLS
P.E. NO. 22324 – P.L.S. NO. 3141
E.B. NO. 3860 – L.B. NO. 3868
STATE OF FLORIDA

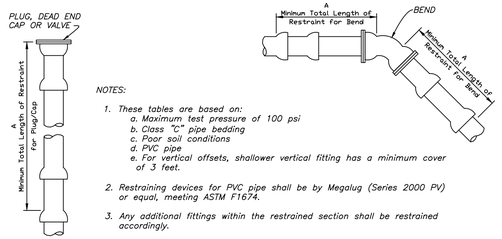
PROJECT
BALLAST POINT PS FORCEMAIN
BALLAST PT. BLVD PROPOSED FM
STERLING AVE. C/L STATION LINE

SHEET
C1.6

JOB NO.
20-009

GENERAL NOTES:

1. ELEVATION INFORMATION SHOWN ON THESE PLANS IS REFERENCED TO N.G.V.D. 1929 UNLESS OTHERWISE STATED.
2. LOCATIONS OF EXISTING UNDERGROUND UTILITIES WERE PREPARED FROM THE MOST RELIABLE INFORMATION AVAILABLE. VERIFY THE LOCATION AND DEPTH OF ALL PERTINENT UTILITIES PRIOR TO CONSTRUCTION. NOTIFY UTILITY COMPANIES AT LEAST 48 HOURS BEFORE BEGINNING CONSTRUCTION.
3. FORCE MAIN CONNECTION LOCATIONS ARE APPROXIMATE ONLY, BASED ON AS-BUILT PLANS AND/OR VISUAL OBSERVATIONS. CONTRACTOR SHALL EXCAVATE AS NECESSARY TO VERIFY SHOWN LOCATIONS.
4. WHEN CHANGING THE SEWAGE FLOW FROM THE EXISTING FORCE MAIN TO THE NEW FORCE MAIN, THE CONTRACTOR MAY BE REQUIRED TO PERFORM THE WORK DURING LOW-FLOW TIMES AT NIGHT. CONTRACTOR SHALL COORDINATE SUCH WORK WITH CITY STAFF AND THE PROPERTY OWNERS.
5. CONTRACTOR SHALL PROVIDE A BORING LOG TO DOCUMENT THE DEPTH AND HORIZONTAL LOCATION OF THE HDPE PIPE AT A MAXIMUM OF 15 FOOT INTERVALS.
6. THE MINIMUM CLEARANCE BETWEEN THE PROPOSED FORCE MAIN AND ALL CROSSING UTILITIES SHALL BE 18-INCHES, UNLESS NOTED OTHERWISE.
7. THE PROPOSED FORCE MAIN SHALL BE INSTALLED ACCORDING TO THE STATIONS, OFFSETS AND INVERT ELEVATIONS PROVIDED WITH NO INTERMEDIATE HIGH OR LOW POINTS BETWEEN THE SPECIFIED INVERT ELEVATIONS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
8. ALL FITTINGS AND BENDS SHALL BE DUCTILE IRON AWWA C-110 OR C-153. FITTINGS SHALL BE WRAPPED WITH GREEN POLYWRAP. FITTINGS SHALL BE LINED WITH PROTECTO 401 INTERIOR CERAMIC EPOXY.
9. PLUG VALVES SHALL BE DEZURIK 100% PORT PEF.
10. ALL FORCE MAIN VALVES, FITTINGS AND BENDS SHALL HAVE RESTRAINED MECHANICAL JOINTS UNLESS THE JOINTS ARE BUTT FUSED HDPE. ADDITIONALLY, ANY JOINTS WITHIN THE LIMITS TO BE RESTRAINED THAT ARE SHOWN ON THE PLANS SHALL ALSO BE RESTRAINED. RESTRAINING DEVICES SHALL BE "MEGA-LUG" AS MANUFACTURED BY EBAA IRON OR APPROVED EQUAL.
11. ALL PROPOSED FORCE MAIN PIPE SHALL HAVE 2 LOCATING WIRES IN ACCORDANCE WITH THE PIPE LOCATING WIRE DETAIL. THE WIRES SHALL BE RAISED AND TERMINATED AT ALL PLUG VALVES, AIR RELEASE VALVES AND TERMINAL MANHOLES, SIMILAR TO THAT SHOWN ON THE AIR RELEASE VALVE DETAIL.
12. AIR RELEASE BOXES SHALL BE INSTALLED IN GRASSED AREAS AND NOT IN PAVEMENT OR SIDEWALKS. FINAL LOCATIONS OF BOXES WILL DE DETERMINED IN THE FIELD AT HIGH POINTS.
13. CONTRACTOR SHALL ENSURE THAT WHEN PLANNING HIS LAYOUT FOR BORING ENTRANCE AND EXIT LOCATIONS, THAT HE DOES NOT BLOCK A SOLE DRIVEWAY TO THE FRONTING PROPERTY OWNER WITHOUT PROVIDING AN ALTERNATE ACCESS.
14. CONNECTIONS BETWEEN HDPE AND PVC OR DIP SHALL BE IN ACCORDANCE WITH THE HDPE TRANSITION DETAIL.
15. DURING THE M.O.T., THE CONTRACTOR SHALL MAINTAIN ALL PEDESTRIAN WALKWAYS AT ALL TIMES, INCLUDING, BUT NOT LIMITED TO, SIDEWALKS, PEDESTRIAN RAMPS, CROSSWALKS AND BUS STOPS WHEN WORK IS BEING PERFORMED ON OR IN THE VICINITY OF A SIDEWALK, CROSSWALK, BUS STOPS OR OTHER PEDESTRIAN WAY. THE CONTRACTOR SHALL RELOCATE THE PEDESTRIAN WAY TEMPORARILY OR PROVIDE PEDESTRIANS WITH A SIGNED, SAFE PASSAGE AROUND THE WORK ZONE. PEDESTRIAN DETOURS SHALL BE IN ACCORDANCE WITH FDOT INDEX 660.
16. PLUG VALVES SHALL BE DEZURIK OR APPROVED EQUAL
17. INSTALL AIR RELEASE VALVE (ARV) AT HIGH POINTS IN ACCORDANCE WITH STANDARD DETAILS AND AS DIRECTED BY THE CITY'S INSPECTOR. ARV BOX SHALL BE RATED FOR H-20 LOADING. FINAL LOCATION OF ARV SHALL BE IN GRASSED AREAS AND NOT IN SIDEWALK OR PAVEMENT. MARK FINAL LOCATION OF ARVs ON THE AS-BUILT DRAWINGS.
18. THE CONTRACTOR SHALL PROTECT ALL TREES IN THE VICINITY OF THE PROPOSED CONSTRUCTION IN ACCORDANCE WITH CHAPTER 13 OF THE CITY OF TAMPA CODE. NO TREES SHALL BE PRUNED WITHOUT PRIOR APPROVAL FROM THE CITY OF TAMPA PARKS & RECREATION DEPARTMENT, NATURAL RESOURCE DIVISION, AND SHALL BE COMPLETED BY A CERTIFIED ARBORIST. ROOT PRUNING MAY BE REQUIRED AT CERTAIN LOCATIONS AND SHALL BE COMPLETED IN ACCORDANCE WITH CHAPTER 13 TECHNICAL MANUAL SPECIFICATIONS.
19. CONTRACTOR SHALL OBTAIN A RIGHT-OF-WAY CLOSURE PERMIT FROM THE CITY OF TAMPA RIGHT-OF-WAY DEPARTMENT.
20. PAVEMENT RESTORATION SHALL CONSIST OF 8-INCH CRUSHED CONCRETE BASE, AND 2-INCH ASPHALT (SUPERPAVE SP-9.5) AT TRENCH. MILL AND OVERLAY 1" OF ASPHALT 10' ON EITHER SIDE OF TRENCH.
21. THE CONTRACTOR SHALL LIMIT CURVATURE IN ANY DIRECTION TO REDUCE FORCE ON THE PIPE DURING PULL-BACK. THE BEND RADII FOR FUSIBLE POLYVINYL CHLORIDE (PVC) PIPE SHALL NOT BE LESS THAN 400' FOR 12-INCH PIPE AND 10-INCH PIPE.
22. CONTRACTOR IS REQUIRED TO DEVELOP MOT DRAWINGS FOR THE MANHATTAN ROAD CLOSURE SHOWING DETOUR ROUTES, VARIABLE MESSAGE BOARDS, AND SIGNAGE. THE MOT MUST BE SIGNED AND SEALED BY AN ENGINEER AND SUBMITTED TO THE CITY'S PERMITTING OFFICE THROUGH ACCELA.
23. THE MINIMUM HORIZONTAL AND VERTICAL CLEARANCES BETWEEN THE PROPOSED FORCE MAIN AND ALL CROSSING UTILITIES SHALL BE 6 FEET AND 18 INCHES RESPECTIVELY.
24. THE MINIMUM CLEARANCE BETWEEN THE FORCE MAIN AND WATER LINE SHALL BE 12" UNDER ALL CIRCUMSTANCES. IF THE FORCE MAIN IS BELOW THE WATER LINE AND HAS BETWEEN 12" AND 18" OF CLEARANCE, OR IF THE FORCE MAIN IS ABOVE THE WATER LINE REGARDLESS OF CLEARANCE, THEN A NOMINAL 18' LENGTH OF PIPE SHALL BE CENTERED OVER/UNDER THE WATER LINE.



NOTES:

1. These tables are based on:
   a. Maximum test pressure of 100 psi
   b. Class "C" pipe bedding
   c. Poor soil conditions
   d. PVC pipe
   e. For vertical offsets, shallower vertical fitting has a minimum cover of 3 feet.
2. Restraining devices for PVC pipe shall be by Megalug (Series 2000 PV) or equal, meeting ASTM F1674.
3. Any additional fittings within the restrained section shall be restrained accordingly.
4. One standard length of PVC pipe (20 feet) shall be laid on either side of the fitting where possible.

HORIZONTAL OFFSET:

	RESTRAIN "A" (LF) *							
FITTING TYPE	4"	6"	8"	10"	12"	16"	18"	20"	24"
11-1/4°	1*	2*	2*	2*	3*	3*	3*	4*	4*
22-1/2°	2*	3*	3*	4*	5*	6*	6*	7*	8*
45°	4*	5*	7*	8*	9*	11*	13*	14*	16*
90°	9*	12*	15*	18*	21	27	29	32	37
PLUG / CAP / ISOLATION VALVE	26	36	47	56	66	85	94	102	119

A = MINIMUM FOOTAGE OF PIPE TO BE RESTRAINED

* MINIMUM ONE PIPE JOINT UPSTREAM AND DOWNSTREAM OF EACH FITTING SHALL BE RESTRAINED

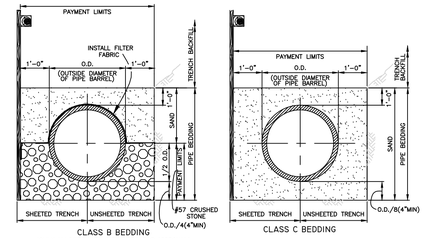
VERTICAL OFFSET:

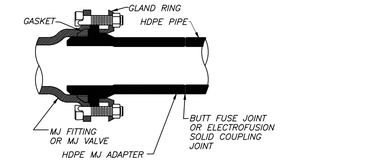
	RESTRAIN "A" (LF) *							
FITTING TYPE	4"	6"	8"	10"	12"	16"	18"	20"	24"
11-1/4°	3*	4*	5*	6*	7*	9*	10*	11*	12*
22-1/2°	5*	8*	10*	12*	14*	17*	19*	21	24
45°	11*	15*	20	23	28	35	39	43	50

A = MINIMUM FOOTAGE OF PIPE TO BE RESTRAINED

* MINIMUM ONE PIPE JOINT UPSTREAM AND DOWNSTREAM OF EACH FITTING SHALL BE RESTRAINED

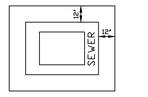
FITTING RESTRAINT DETAIL



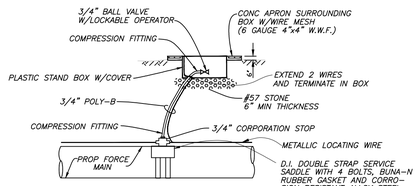


HDPE TRANSITION DETAIL
Not To Scale

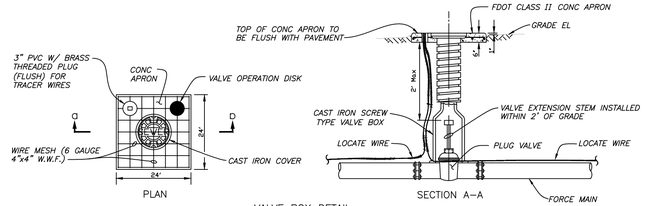
NOTE:
Schematic shown for standard MJ fitting and plug valves.



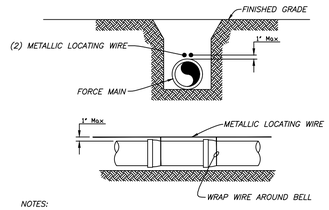
PLAN VIEW



AIR RELEASE VALVE DETAIL
NOT TO SCALE



VALVE BOX DETAIL
NOT TO SCALE



NOTES:

1. Pipe shall require 2 green insulated metallic locating wires capable of detection by a cable locator and shall be buried directly above the centerline of the pipe. Use duct tape as necessary to hold wire directly on top of pipe.
2. Direct bury pipe shall have (2) 12 gauge insulated solid copper wires. Directional drilled pipe shall have (2) 8 gauge insulated solid copper wires or (2) 10 gauge insulated copper clad steel wires. For directional drilled HDPE pipe a 1" conduit may be pulled back with the locating wires to ease installation and to prevent the wires from breaking.
3. Wire insulation must be suitable for buried service. HDPE or HMWPE are acceptable insulation materials. Nylon insulation is not acceptable.
4. Wires must be spliced together with wire connectors suitable for buried service. Connectors shall be corrosion and moisture proof such as DBR Kit by 3M, Snakebite by Copperhead Industries or equal. Twisting the wires and sealing with electrical tape alone is not acceptable.
5. All tracer wires must pass a continuity test in the presence of a City inspector. No pipe will be accepted by the City until a continuity test passes.
6. Locating wire shall terminate at the top of each valve box and air release valve. Wire shall be capable of extending 24" above top of box in such a manner so as not to interfere with valve operation.

IMPORTANT - FOR EACH OPERABLE VALVE:
PROVIDE A BRASS IDENTIFICATION TAG ANCHORED TO THE CONCRETE APRON THAT IS A MINIMUM 2" IN DIAMETER AND 1/8-INCH THICK. THE TAG SHALL BE ENGRAVED WITH "SEWER", SIZE OF VALVE, TYPE OF VALVE, AND DIRECTION AND NUMBER OF TURNS TO OPEN.

FOR EXAMPLE: A 4-INCH PLUG VALVE ON A WASTEWATER FORCE MAIN THAT REQUIRES 1¼ TURNS TO THE LEFT(COUNTERCLOCKWISE) TO BE FULLY OPEN WOULD REQUIRE THE FOLLOWING ON AN IDENTIFICATION TAG:

SEWER
4" P.V.
1¼ T.O.L.

2"

VALVE OPERATION DISK

100% CONSTRUCTION DRAWINGS

BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION

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FOR
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2545 GUY N VERGER BLVD.
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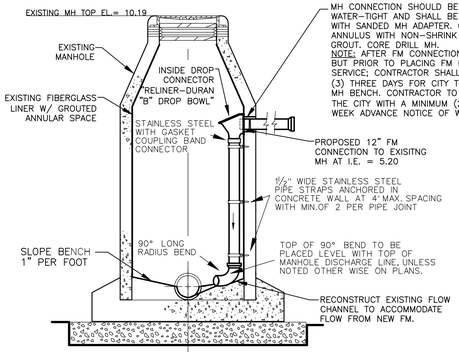
E.B. NO. 3860 - L.B. NO. 3868
STATE OF FLORIDA

BALLAST POINT PS
FORCEMAIN

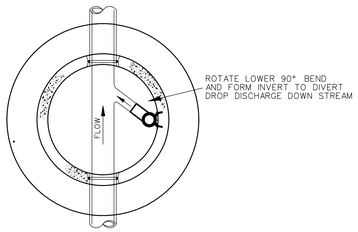
DETAILS AND NOTES

C2.1

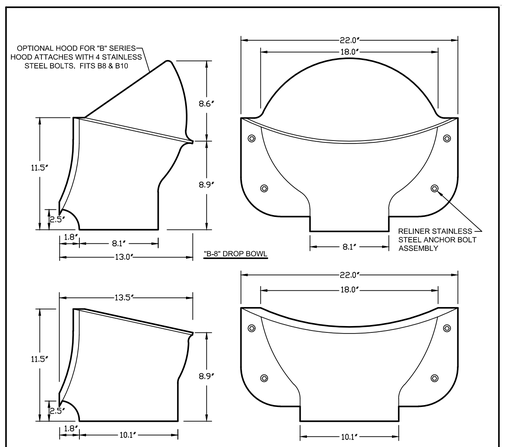
JOB NO.
20-009



ELEVATION



FORCE MAIN CONNECTION TO EXISTING MANHOLE DETAIL
NOT TO SCALE



MODEL #

B8DB - 18" DROP BOWL WITH 8" OUTLET - USE FOR 4' - 5' DIA MH
B8DBR84 - 18" DROP BOWL WITH 8" OUTLET - USE FOR 6' - 8' DIA MH
B8DBR144 - 18" DROP BOWL WITH 8" OUTLET - USE FOR 9' - 12' DIA MH
B10DB - 18" DROP BOWL WITH 10" OUTLET - USE FOR 4' - 5' DIA MH
B10R96 - 18" DROP BOWL WITH 10" OUTLET - USE FOR 6' - 8' DIA MH
B10R144 - 18" DROP BOWL WITH 10" OUTLET - USE FOR 9' -12' DIA MH

THE "B-8" BOWL WILL SERVICE UP THROUGH FULL 10" INLETS. THE "B-10" BOWL WILL SERVICE UP THROUGH FULL 12" INLETS. CAN BE USED FOR 15" AND 16" INLET MODERATE FLOWS. ALL SIZES ARE FOR RETROFIT OR NEW CONSTRUCTION. FABRICATED IN MARINE GRADE FIBERGLASS AND FINISHED IN BRIGHT WHITE GEL COAT.

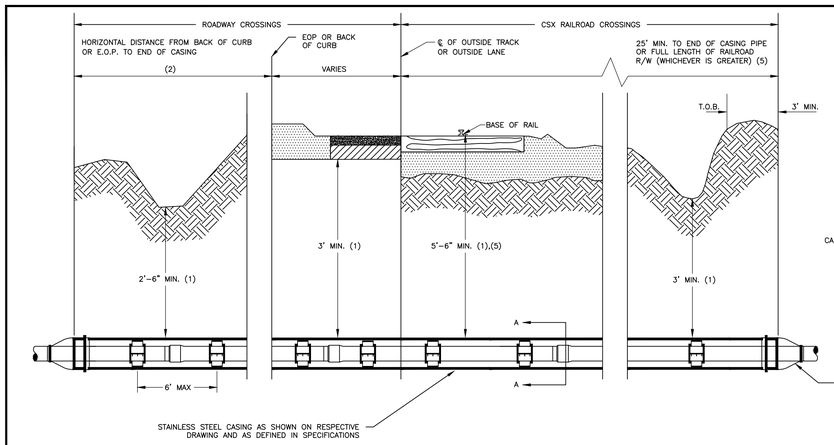
USE 4 RELINER ANCHOR ASSEMBLIES TO ATTACH DROP BOWL TO MANHOLE WALL. USE RELINER STAINLESS STEEL PIPE BRACKETS TO SUPPORT DOWN PIPE. EXTERNAL PIPE COUPLER REQUIRED. PROVIDE SWEEP AT DOWN PIPE OUTLET.

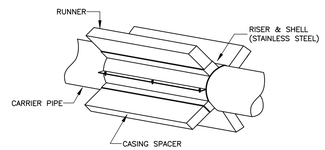
MADE IN U.S.A.
U.S. PAT. # 6074130
CANADIAN PAT. # 2269565

RELINER / DURAN, INC.
53 MT. ARCHER ROAD, LYME, CT. 06371
(800) 508-6001 FAX: (877)434-3191
WWW.RELINER.COM

DESCRIPTION	DATE	SCALE
B8 & B10 DROP BOWLS FOR ROUND WALLS	11/28/16	NONE
	DRAWING NUMBER	B8DB B10DB

B___-___



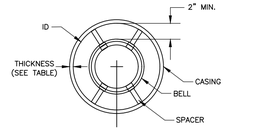


(CASCADE WATERWORKS MFG. CO.; ADVANCE PRODUCTS & SYSTEM, INC. OR APPROVED EQUAL).

NOTES:

1. VERTICAL DIMENSIONS TYPICAL FOR CASINGS
2. EXTEND 5' BEYOND CURB OR E.O.P. UNLESS ADDITIONAL DISTANCE IS REQUIRED BY ANOTHER AGENCY HAVING JURISDICTION OVER THE RIGHT OF WAY WHERE THE PIPELINE IS INSTALLED.
3. CASING PIPE SHALL CONFORM TO THE REQUIREMENTS OF AWWA C-200 AND ASTMA-139, GRADE B.
4. CASING PIPE SHALL BE SLOPED TO ONE END.
5. SEE CSX'S DESIGN & CONSTRUCTION STANDARD SPECIFICATIONS FOR PIPELINE OCCUPANCIES FOR MORE DETAILS AND REQUIREMENTS

CORRESPONDING CARRIER AND CASING PIPE SIZES													
NOMINAL INSIDE DIAMETER OF CARRIER PIPE (INCHES)	4	6	8	10	12	14	15	16	18	20	21	24	27
MINIMUM INSIDE DIAMETER OF CASING PIPE (INCHES)	12	18	20	24	30	30	30	30	36	36	36	48	48
MIN. CASING THICKNESS CITY, COUNTY & FDOT	⅜"											½"	
MIN. CASING THICKNESS RAILROADS (5)	⅜"				½"				9/16"			¾"	



SECTION A-A

CARRIER PIPE TO BE INSTALLED NEAR THE CENTER OF THE CASING PIPE. CASING SPACERS SHALL BE SIZED SO THAT CARRIER PIPE IS COMPLETELY SUPPORTED ON ALL SIDES AND CANNOT MOVE.

JACK & BORE DETAILS
Not to Scale

JACINTO CARLOS FERRAS, P.E. #49454
DESIGN DIVISION HEAD
WASTEWATER DEPARTMENT

No.	DATE	REVISIONS
3		
2		
1		

DES: DR
DRN: BL
CKD:
DATE:

CITY of TAMPA
WASTEWATER DEPARTMENT

STANDARD DETAILS
JACK & BORE DETAILS

W.O. ----
SHEET 14 of 15

100% CONSTRUCTION DRAWINGS

BY	DATE	DESCRIPTION	BY	DATE	DESCRIPTION

MILLS and ASSOCIATES, INC.
CONSULTING ENGINEERS & LAND SURVEYORS
3242 HENDERSON BOULEVARD * SUITE 300
TAMPA, FLORIDA 33609-3056
TELEPHONE: (813) 876-5869

FOR
CITY OF TAMPA
WASTEWATER DEPARTMENT
2545 GUY N VERGER BLVD.
TAMPA, FLORIDA 33605

DRWN BY: CVL DATE 07/16/20
DSGN BY: DATE
CHKD BY: LEM DATE 07/16/20
SCALE: 1"= 20'

LAWRENCE E. MILLS
P.E. NO. 22324 - P.L.S. NO. 3141
E.B. NO. 3860 - L.B. NO. 3868
STATE OF FLORIDA

BALLAST POINT PS FORCEMAIN
DETAILS AND NOTES

C2.2
JOB NO. 20-009