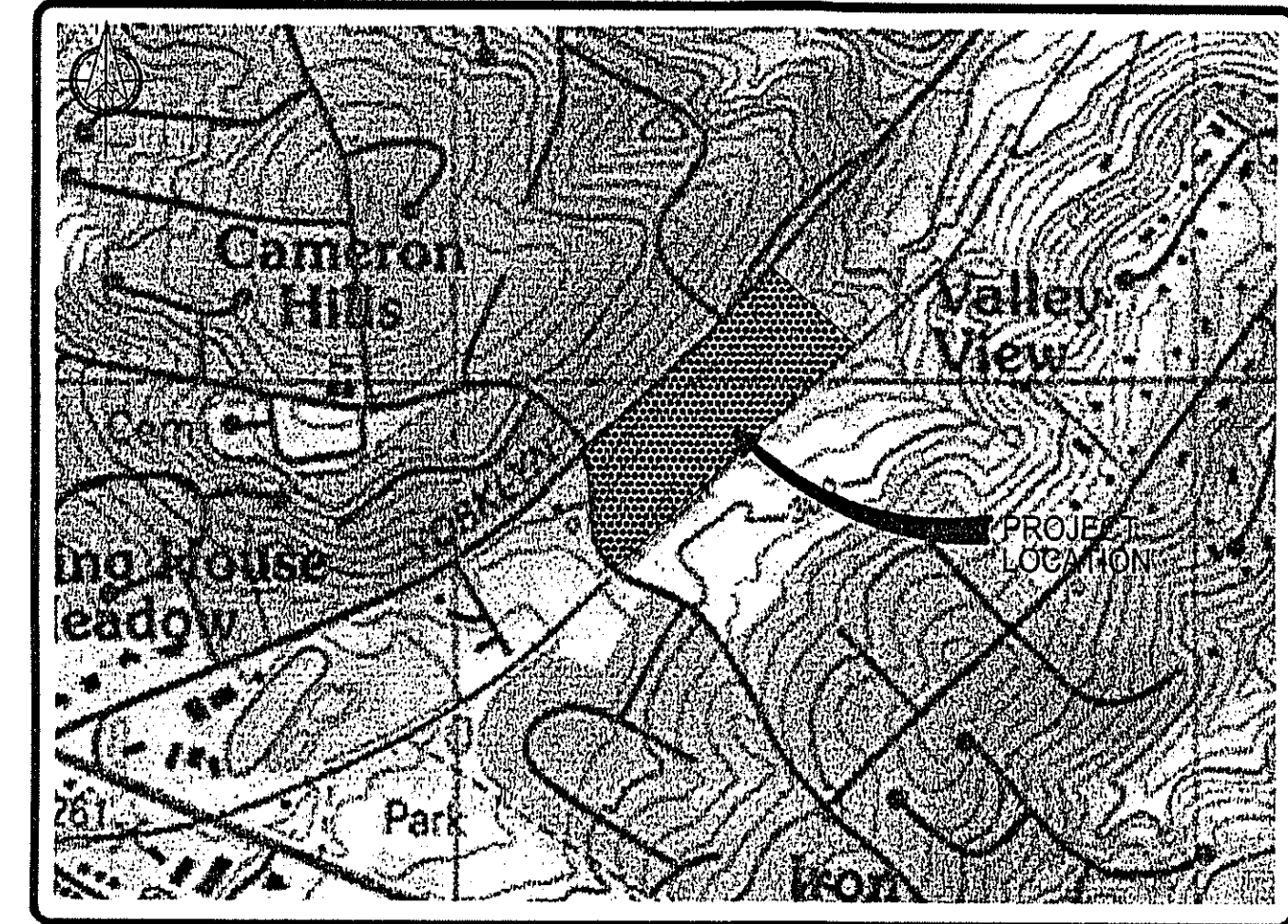


QUARRY WALK SEWAGE PUMPING STATION WILMINGTON~NEW CASTLE COUNTY~DELAWARE



LOCATION MAP SCALE: 1" = 800'

GENERAL NOTES:

1. SANITARY SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MOST RECENT NEW CASTLE COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION, SPECIAL PROVISIONS, SUPPLEMENTAL SPECIFICATIONS, STANDARD DETAILS AND THE RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES OR STRICTER STANDARDS IDENTIFIED BY THE ENGINEER.
2. THE CONTRACTORS SHALL BE RESPONSIBLE TO OBTAIN APPROVAL AND ACCEPTANCE OF THE SANITARY SEWER SYSTEM BY NEW CASTLE COUNTY UPON COMPLETION OF CONSTRUCTION. AS-BUILT PLANS, SIGNED AND SEALED BY A PROFESSIONAL LAND SURVEYOR OR PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF DELAWARE MUST BE SUBMITTED TO NEW CASTLE COUNTY BEFORE ACCEPTANCE.
3. DURING CONSTRUCTION, THE CONTRACTOR MUST HAVE IN HIS POSSESSION ON SITE, A SET OF CONSTRUCTION PLANS BEARING NEW CASTLE COUNTY'S STAMP OF APPROVAL.
4. THE CONTRACTOR SHALL NOT PLACE, PLANT, PUT OR SET ANY STRUCTURE WITHIN THE SANITARY SEWER EASEMENT.
5. A CONSTRUCTION PERMIT ISSUED BY THE STATE OF DELAWARE, DEPARTMENT OF TRANSPORTATION (DELDOT) IS REQUIRED BEFORE ANY WORK IS PERFORMED WITHIN A DELDOT RIGHT-OF-WAY. ALL WORK PERFORMED WITHIN DELDOT'S RIGHT-OF-WAY OR PROPERTY OWNED BY THE STATE OF DELAWARE SHALL BE PERFORMED IN ACCORDANCE WITH THE MOST RECENT DELDOT STANDARD SPECIFICATIONS AND UTILITY MANUAL.
6. SANITARY SEWER IS TO BE PUBLICLY OWNED AND MAINTAINED.
7. CONSTRUCTION SHALL NOT DEVIATE FROM THE PLANS AND SPECIFICATIONS APPROVED BY NEW CASTLE COUNTY WITHOUT WRITTEN PERMISSION FROM NEW CASTLE COUNTY'S DEPARTMENT OF SPECIAL SERVICES.
8. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS, DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK AND THE NEW CASTLE COUNTY DRAINAGE CODE, AS AMENDED.
9. TYPICAL SEQUENCE OF CONSTRUCTION:
 - A. CONTACT NEW CASTLE COUNTY DEPARTMENT OF SPECIAL SERVICES (48 HOUR NOTICE AT 395-5756) PRIOR TO ANY EXCAVATION OR ACTIVITY INVOLVING SANITARY SEWER CONSTRUCTION, PUMP STATION CONSTRUCTION OR LATERAL TIE-INS TO EXISTING LINES
 - B. CONSTRUCT PROPOSED SANITARY SEWER SYSTEM AS APPROVED BY NEW CASTLE COUNTY.
 - C. BACKFILL AND RE-GRADE AS REQUIRED.
 - D. PROVIDE HYDROSTATIC TEST ON THE FORCE MAINS IN THE PRESENCE OF A NEW CASTLE COUNTY INSPECTOR. THE HYDROSTATIC TEST PRESSURE SHALL BE 1.5 TIMES THE WORKING PRESSURE OR 100 PSI, WHICHEVER IS GREATER. THE TEST SHALL LAST FOR A MINIMUM OF 2 HOURS AND AT THE END OF THE TEST PERIOD, IF THE TEST PRESSURE HAS REMAINED CONSTANT, THE PIPELINE SHALL HAVE PASSED THE TEST. IF THE PIPE DOES NOT HOLD PRESSURE, THE LEAK SHALL BE LOCATED, PERMANENTLY REPAIRED AND THE TEST REPEATED.
 - E. PERFORM DRAW DOWN TEST ON THE PUMP STATION IN THE PRESENCE OF A NEW CASTLE COUNTY INSPECTOR TO VERIFY THE INSTALLATION MEETS DESIGN OPERATION CONDITIONS.
 - F. THE ENTIRE LENGTH OF TRACER WIRE SHALL BE LOCATED USING TYPICAL LOW FREQUENCY LINE TRACING EQUIPMENT, WITNESSED BY THE NEW CASTLE COUNTY INSPECTOR. CONTINUITY TESTING IN LIEU OF ACTUAL TRACING IS NOT ACCEPTABLE.
 - G. LATERAL CONNECTIONS FROM NEW HOMES / OFFICE BUILDINGS INTO THE SEWER LINE WILL NOT BE PERMITTED UNTIL AFTER FINAL ACCEPTANCE.
 - H. PRIOR TO NEW CASTLE COUNTY MAKING A FINAL INSPECTION, THE FOLLOWING ITEMS MUST BE COMPLETED:
 - I. ALL MANHOLES MUST BE BROUGHT TO GRADE AND HAVE CONCRETE COLLARS INSTALLED.
 - II. CHANNELS MUST BE COMPLETED IN ALL MANHOLES.
 - III. ALL MANHOLES, VAULTS AND SEWER PIPES MUST BE CLEANED, FLUSHED, AND FREE OF DEBRIS.
 - IV. AS-BUILT DRAWINGS (SIGNED AND SEALED BY A PROFESSIONAL LAND SURVEYOR OR PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF DELAWARE) WITH ONE (1) MYLAR AND THREE (3) SETS OF PRINTS MUST BE SUBMITTED TO NEW CASTLE COUNTY.
10. CERTIFICATES OF OCCUPANCY WILL NOT BE ISSUED UNTIL THE AS-BUILT DRAWINGS HAVE BEEN RECEIVED, REVIEWED AND APPROVED AND THE SANITARY SEWER CONSTRUCTION (INCLUDING ALL APPURTENANCES HAS BEEN ACCEPTED BY NEW CASTLE COUNTY).
11. MANHOLE COVER(S) ON PRIVATELY OWNED AND MAINTAINED SEWER SYSTEMS "SHALL NOT" BE LABELED "NEW CASTLE COUNTY".
12. WATER SERVICE PROVIDED BY ARTESIAN WATER COMPANY.

13. THESE DRAWINGS DO NOT INCLUDE NECESSARY ELEMENTS OF CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE COMPLETED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT, AND ALL FEDERAL, STATE AND LOCAL REQUIREMENTS.
14. EXISTING UTILITIES ARE SHOWN BASED ON THE BEST INFORMATION CURRENTLY AVAILABLE. LOCATIONS ARE NOT BASED ON A FIELD SURVEY. THE CONTRACTOR SHALL FIELD LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR MAY NEED TO TEST PIT IN ORDER TO DETERMINE THE LOCATION OF EXISTING UTILITIES.
15. THE CONTRACTOR SHALL PROTECT ALL UTILITIES DURING CONSTRUCTION. ANY UTILITY DAMAGED SHALL BE PROMPTLY AND FULLY RESTORED TO THE SATISFACTION OF THE UTILITY COMPANY AT THE CONTRACTOR'S EXPENSE. CONTRACTOR MAY NEED TO TEST PIT IN ORDER TO DETERMINE THE LOCATION OF EXISTING UTILITIES.
16. NOTIFY THE MISS UTILITY (1-800-282-8555) TWO WORKING DAYS, BUT NO MORE THAN 10 WORKING DAYS, PRIOR TO ALL EXCAVATION OR DEMOLITION ACTIVITIES.
17. THE CONTRACTOR SHALL PLAN AND IMPLEMENT ALL NECESSARY REQUIREMENTS OF THE DELAWARE UNDERGROUND UTILITY DAMAGE PREVENTION AND SAFETY ACT.
18. THE CONTRACTOR SHALL PROVIDE EROSION AND SEDIMENT CONTROL IN ACCORDANCE WITH THE SEDIMENT CONTROL ACT. ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK AND ALL APPLICABLE LOCAL REQUIREMENTS.
19. TRAFFIC AND SAFETY CONTROL SHALL BE MAINTAINED DURING CONSTRUCTION IN CONFORMANCE WITH THE CURRENT REVISION OF THE MANUAL ON DELAWARE TRAFFIC CONTROLS FOR STREET AND HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS.
20. ALL WORK WITHIN STATE MAINTAINED ROAD RIGHTS-OF-WAY SHALL MEET THE REQUIREMENTS AS SET FORTH IN THE CURRENT REVISION OF THE STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, DELAWARE DEPARTMENT OF TRANSPORTATION.
21. TEMPORARY REPAVING SHALL BE PROVIDED AND MAINTAINED FOR ALL PAVED AREAS DISTURBED BY CONSTRUCTION ACTIVITIES UNTIL FINAL REPAVING.
22. SEWERS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN. SEWERS CROSSING WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE WATER MAIN AND THE SEWER. CROSSINGS SHALL BE ARRANGED SO THAT THE SEWER JOINTS WILL BE AS FAR AS POSSIBLE FROM WATER MAIN JOINTS.
23. ALL LOCATING DISTANCES ARE MEASURED FROM THE CENTER OF THE OBJECT WITH THE EXCEPTION OF BUILDING CORNERS.
24. CONTRACTOR SHALL REVIEW AND IMPLEMENT RECOMMENDATIONS INCLUDED IN THE GEOTECHNICAL REPORT FOR THE SITE DATED JANUARY 23, 2015 AND PREPARED BY ADVANCED GEOSCIENCES INC.
25. CONTRACTOR SHALL CONFIRM LOCATION AND ELEVATIONS OF GRAVITY SEWER ALREADY INSTALLED.

SITE DATA:

1. TAX PARCEL NUMBER: 08-008-00-023
2. SOURCE OF TITLE: INSTRUMENT NUMBER 20160525-0024556
3. GROSS AREA: 20.4490± ACRES
4. EXISTING ZONING: S (SUBURBAN) PER NEW CASTLE COUNTY ZONING
5. TOPOGRAPHIC NOTE: TOPOGRAPHIC INFORMATION WAS FIELD SHOT BY McBRIDE AND ZIEGLER, INC., IN NOVEMBER 2016.
6. POSTAL ADDRESS: 838 YORKLYN ROAD, HOCKESSIN, DELAWARE 19707
7. SANITARY SEWER: GRAVITY FLOW AND PUMP STATION TO NEW CASTLE COUNTY SEWER SYSTEM.
8. DEBRIS DISPOSAL: NO DEBRIS WILL BE BURIED OR DISPOSED OF ON THIS SITE.
9. NO 100-YEAR FLOOD PLAIN EXISTS ON THIS PARCEL, IN ACCORDANCE WITH FLOOD INSURANCE RATE MAP 10003C0045K, DATED FEBRUARY 4, 2015
10. CRITICAL NATURAL AREAS: THE STATE INVENTORY OF CRITICAL NATURAL AREAS HAS BEEN EXAMINED AND NONE WERE FOUND TO EXIST ON THE SITE.
11. WETLANDS: THIS SITE WAS EVALUATED IN ACCORDANCE WITH THE 1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL TO IDENTIFY THE PRESENCE OF JURISDICTIONAL WETLANDS AND WETLANDS WERE FOUND TO EXIST ON THIS SITE. SEE WETLANDS REPORT BY WATERSHED ECO, LLC., DATED OCTOBER 5, 2017
12. BENCHMARKS: TOP OF NEW CASTLE COUNTY SANITARY SEWER MANHOLE 145-110 LOCATED BEHIND THE GUARDRAIL NEAR OLD WILMINGTON ROAD, EL. 311.84'
13. DESIGN FLOW DATA:
 - PROPOSED FLOW: 63 SINGLE FAMILY HOMES x 250 GPD/UNIT = 15,750 GPD
 - NCC MINIMUM: 45,000 GPD MINIMUM x 4 PF = 125 GPM
 - PROVIDED: 1440 GPM (BASED ON FORCE MAIN SIZE) ▲ ▲

SHEET INDEX:

1. COVER SHEET
2. BASE MAP
3. FORCE MAIN PLAN
4. FORCE MAIN PROFILE STATION 0+00 TO STATION 10+00
5. FORCE MAIN PROFILE STATION 10+00 TO STATION 17+11
6. FORCE MAIN DETAILS
7. SITE PLAN
8. SITE DETAILS
9. STRUCTURAL NOTES AND SPECIFICATIONS
10. STRUCTURAL PLAN
11. EXTERIOR ELEVATIONS
12. STRUCTURAL DETAILS
13. MECHANICAL FOUNDATION PLAN
14. MECHANICAL FLOOR PLAN
15. MECHANICAL SECTIONS (NOT INCLUDED)
16. MECHANICAL SECTIONS
17. MECHANICAL SECTIONS
18. MECHANICAL DETAILS
19. ELECTRICAL LEGEND
20. ELECTRICAL PLAN
21. ELECTRICAL DIAGRAMS

PROFESSIONAL ENGINEER CERTIFICATION:

I, SCOTT C. HOFFMAN, P.E., HEREBY CERTIFY THAT I AM A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF DELAWARE WITH A BACKGROUND IN CIVIL ENGINEERING AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, I CERTIFY THAT ALL OF THE INFORMATION ON THESE SANITARY SEWER DRAWINGS IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY ACCEPTED SURVEYING AND ENGINEERING STANDARDS AND PRACTICES AND BY THE NEW CASTLE COUNTY UNIFIED DEVELOPMENT CODE. ADDITIONALLY, THE SANITARY SEWER DESIGN HAS BEEN PREPARED IN ACCORDANCE WITH AND COMPLIES WITH ALL APPLICABLE REGULATIONS, CODES, STANDARDS, GUIDELINES, LAWS AND POLICIES, INCLUDING BUT NOT LIMITED TO CHAPTER 38 OF THE NEW CASTLE COUNTY CODE, THE DEPARTMENT OF PUBLIC WORKS WORKS POLICIES #6 AND #7, THE NEW CASTLE COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION AND AMENDMENTS AND THE RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES.

[Signature] 7/27/23
SIGNATURE AND SEAL OF DELAWARE P.E. DATE

OWNERS CERTIFICATION:

I, DRAKE CATTERMOLE, TRESID GROUP, LLC HEREBY CERTIFY THAT I AM CURRENT, LEGAL OWNER OF THE PROPERTY TO BE SERVED AND THAT THE SANITARY SEWER WILL BE CONSTRUCTED IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS, CODES, STANDARDS, GUIDELINES, LAWS AND POLICIES, INCLUDING BUT NOT LIMITED TO CHAPTER 38 OF THE NEW CASTLE COUNTY CODE, THE DEPARTMENT OF PUBLIC WORKS WORKS POLICIES #6 AND #7, THE NEW CASTLE COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION AND AMENDMENTS AND THE RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES.

[Signature] 8/2/23
SIGNATURE DATE

FOR USE BY DEPARTMENT OF SPECIAL SERVICES

The sanitary sewer design concept has been reviewed for compliance with the New Castle County Standard Specification and the Ten State Standards. This review is limited solely to the issue of compliance with the aforementioned standards and specifications, and New Castle County shall not be responsible for any other aspect or matter related to the design or installation of the proposed sanitary sewer.

[Signature] 8/3/23

PURPOSE NOTE:

1. PROJECT DESCRIPTION - THE PURPOSE OF THIS PLAN IS TO CONSTRUCT A SEWAGE PUMPING STATION AND 1.71± L.F., 8" DIA. DR 18 FORCE MAIN FROM THE PUMPING STATION TO NEW CASTLE COUNTY MANHOLE NO. 145-110

DUFFIELD ASSOCIATES
Soil, Water & the Environment
5400 LIMESTONE ROAD
WILMINGTON, DE 19808-1232
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FAX 302.239.8485
OFFICES IN DELAWARE, MARYLAND, PENNSYLVANIA AND NEW JERSEY
WEB: HTTP://DUFFIELD.COM
E-MAIL: DUFFIELD@DUFFIELD.COM

CHECKED BY: SCH
DESIGNED BY: DAC
DRAWN BY: DAC
FILE NAME: 11746_CoverShk
7/27/23

NO.	REVISION
1	ADDED REFERENCE FOR GEOTECHNICAL REPORT
2	SITE GRADING CHANGES
3	NEW CASTLE COUNTY COMMENTS
4	REVISE FORCE MAIN TO 8 INCH DIAMETER (CLIENT REQUESTED)

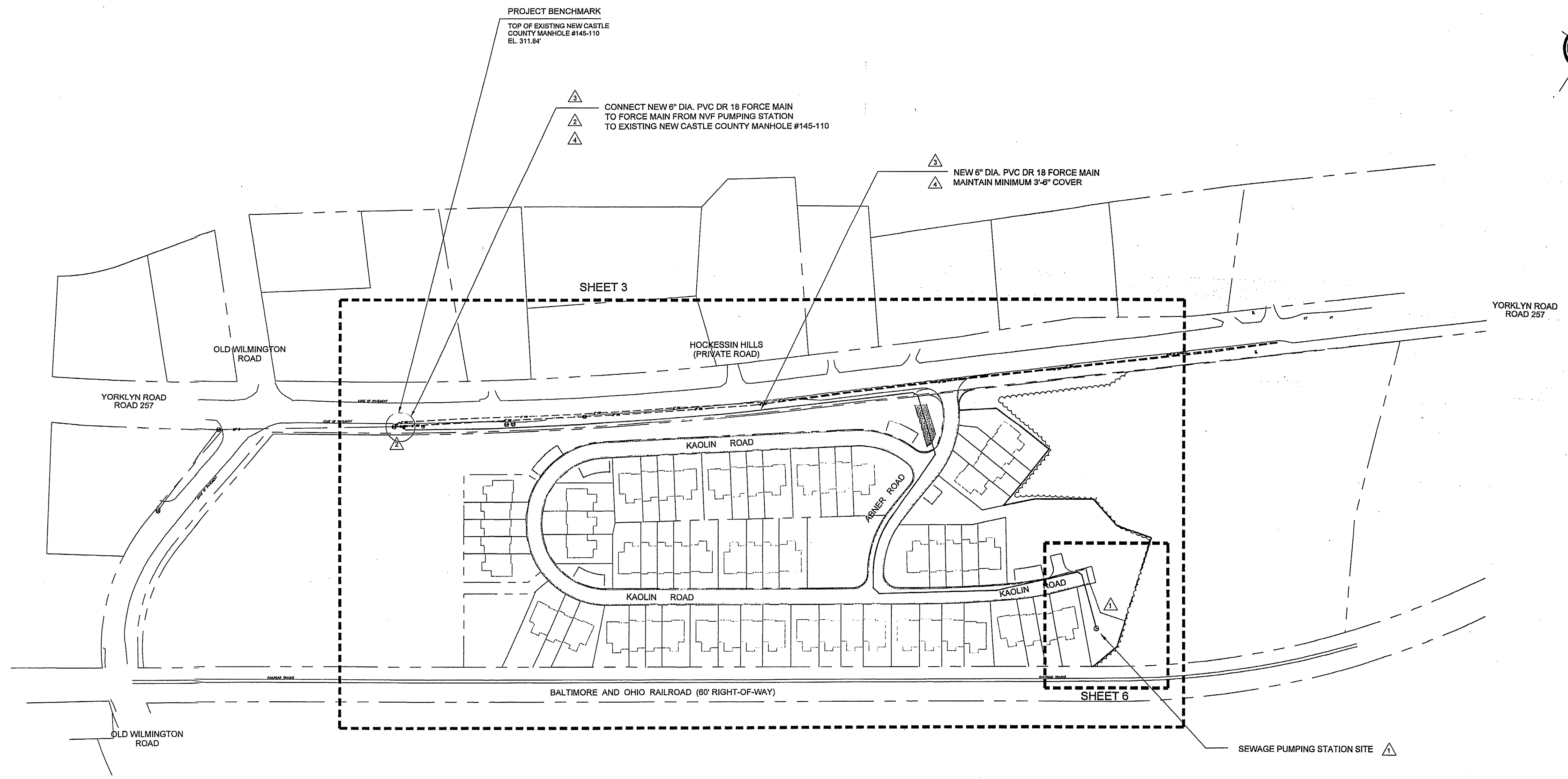
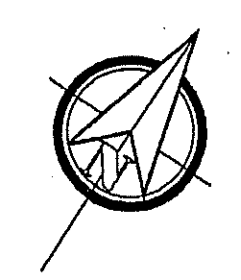
OWNER: TRESID GROUP LLC
PO BOX 115
WILMINGTON, DE 19706

COVER SHEET

**QUARRY WALK
SEWAGE PUMPING STATION**

WILMINGTON~NEW CASTLE COUNTY~DELAWARE

DATE: 8-21-2019
SCALE: NO SCALE
PROJECT NO. 11746.BA
SHEET: 1 OF 21



QUARRY WALK - BASE MAP
SCALE: 1" = 100'

LEGEND:

- PROPERTY LINE
- ADJACENT PROPERTY LINE
- EASEMENT LINE
- - - 6" FM --- EXISTING SANITARY FORCE MAIN
- - - 6" FM --- PROPOSED SANITARY FORCE MAIN
- - - 8" S --- EXISTING SANITARY SEWER LINE
- EXISTING SANITARY MANHOLE
- - - 8" W --- EXISTING WATER MAIN
- EXISTING WATER VALVE
- - - 8" S --- PROPOSED VALVE
- - - 8" S --- EXISTING SANITARY SEWER
- - - UE - - - UE --- EXISTING UNDERGROUND ELECTRIC
- - - UT - - - UT --- EXISTING UNDERGROUND TELEPHONE
- - - --- EXISTING UNDERGROUND GAS
- EXISTING FIRE HYDRANT
- EXISTING ELECTRIC POLE



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WEB: HTTP://DUFFIELD.COM
E-MAIL: DUFFIELD@DUFFIELD.COM

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DESIGNED BY:	SNC/DAC	DRAWN BY:	DAC

NO.	DATE	REVISION
1	1-21	NEW CASTLE COUNTY COMMENTS
2	3-29	REVISED BASED ON NEW CASTLE COUNTY COMMENTS
3	3-29	REVISED FORCE MAIN SIZE
4	8-30-20	PER PUMP SUPPLIER RECOMMENDATIONS
5	8-30-20	REVISE PUMP METER (CLIENT REQUESTED)
6	8-30-20	REVISE PUMP METER (CLIENT REQUESTED)

OWNER: TRESID GROUP LLC
YORKLYN, DE 19736

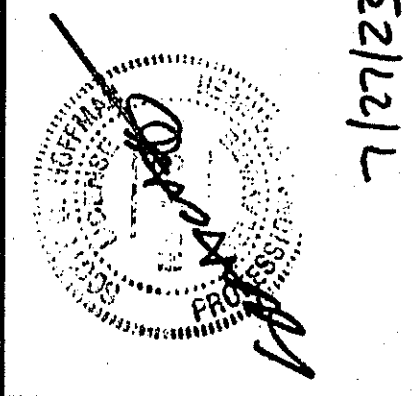
BASE MAP

QUARRY WALK

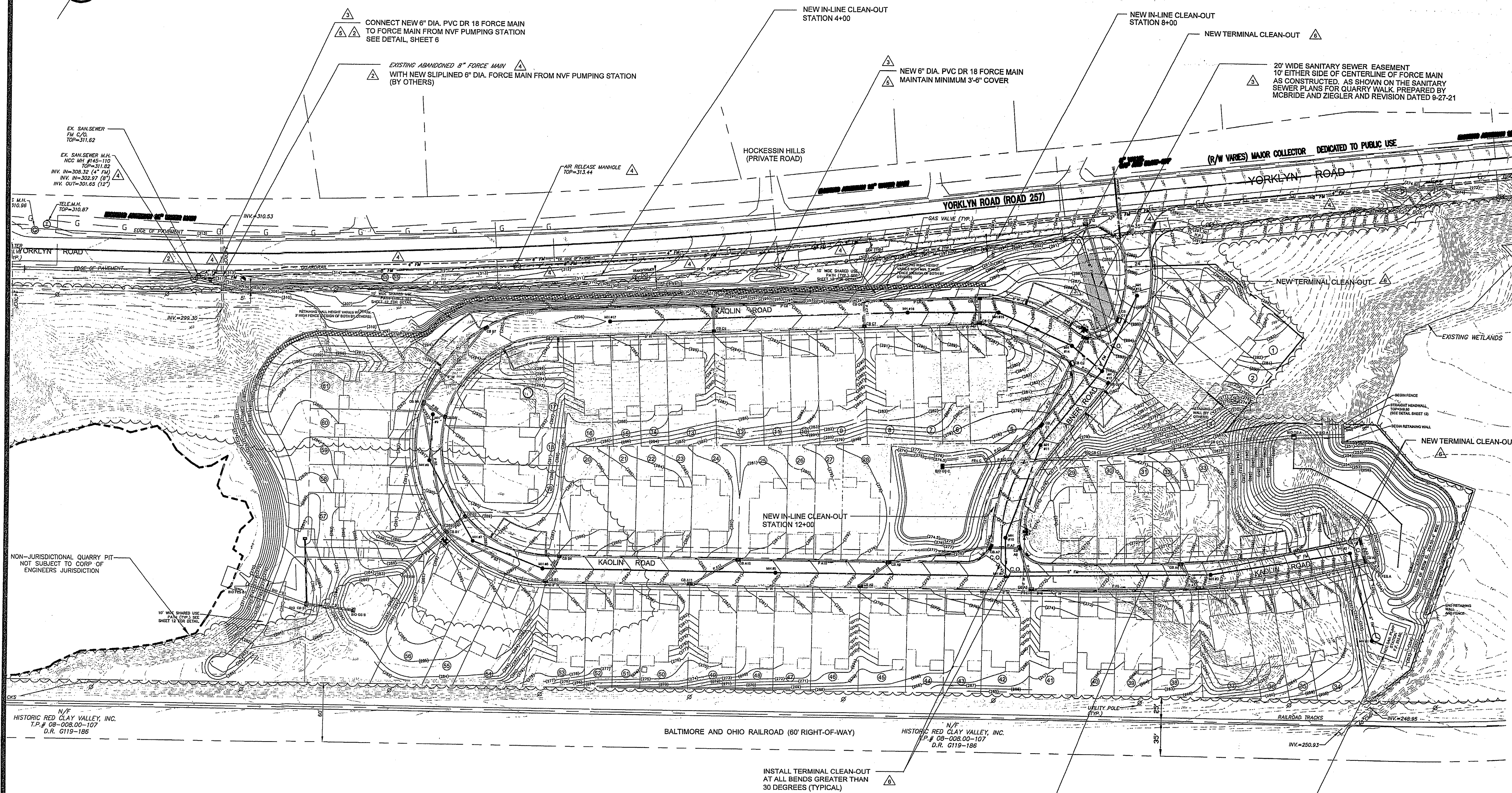
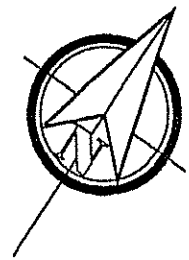
SEWAGE PUMPING STATION

WILMINGTON-NEW CASTLE COUNTY-DELAWARE

DATE: 8-21-2019
SCALE: 1" = 100'
PROJECT NO. 11746.BA
SHEET: 2 OF 21



7/27/23



CONNECT NEW 6" DIA. PVC DR 18 FORCE MAIN TO FORCE MAIN FROM NVF PUMPING STATION SEE DETAIL, SHEET 6

EXISTING ABANDONED 8" FORCE MAIN WITH NEW SLOPLINED 6" DIA. FORCE MAIN FROM NVF PUMPING STATION (BY OTHERS)

NEW IN-LINE CLEAN-OUT STATION 4+00

NEW 6" DIA. PVC DR 18 FORCE MAIN MAINTAIN MINIMUM 3'-6" COVER

NEW IN-LINE CLEAN-OUT STATION 8+00

NEW TERMINAL CLEAN-OUT

20' WIDE SANITARY SEWER EASEMENT 10' EITHER SIDE OF CENTERLINE OF FORCE MAIN AS CONSTRUCTED. AS SHOWN ON THE SANITARY SEWER PLANS FOR QUARRY WALK. PREPARED BY MCBRIDE AND ZIEGLER AND REVISION DATED 9-27-21

EX. SAN. SEWER FM C/O TOP=311.62

EX. SAN. SEWER M.H. NCC M.I. #145-110 TOP=311.85 INV. IN=308.32 (4" FM) INV. IN=302.97 (8" FM) INV. OUT=301.65 (12" FM)

AIR RELEASE MANHOLE TOP=313.44

HOCKESSIN HILLS (PRIVATE ROAD)

YORKLYN ROAD (ROAD 257)

(R/W VARIES) MAJOR COLLECTOR DEDICATED TO PUBLIC USE

YORKLYN ROAD

KAOLIN ROAD

NEW TERMINAL CLEAN-OUT

EXISTING WETLANDS

NEW TERMINAL CLEAN-OUT

NEW IN-LINE CLEAN-OUT STATION 12+00

KAOLIN ROAD

KAOLIN ROAD

NON-JURISDICTIONAL QUARRY PIT NOT SUBJECT TO CORP OF ENGINEERS JURISDICTION

N/V HISTORIC RED CLAY VALLEY, INC. T.P.# 08-008.00-107 D.R. G119-186

N/V HISTORIC RED CLAY VALLEY, INC. T.P.# 08-008.00-107 D.R. G119-186

BALTIMORE AND OHIO RAILROAD (60' RIGHT-OF-WAY)

INSTALL TERMINAL CLEAN-OUT AT ALL BENDS GREATER THAN 30 DEGREES (TYPICAL)

NEW 6" DIA. PVC DR 18 FORCE MAIN MAINTAIN MINIMUM 3'-6" COVER

SEWAGE PUMPING STATION SITE SEE SHEET 7

FORCE MAIN - PLAN SCALE: 1" = 50'

DUFFIELD ASSOCIATES
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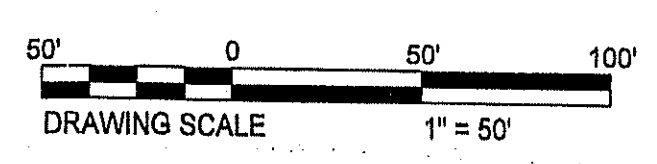
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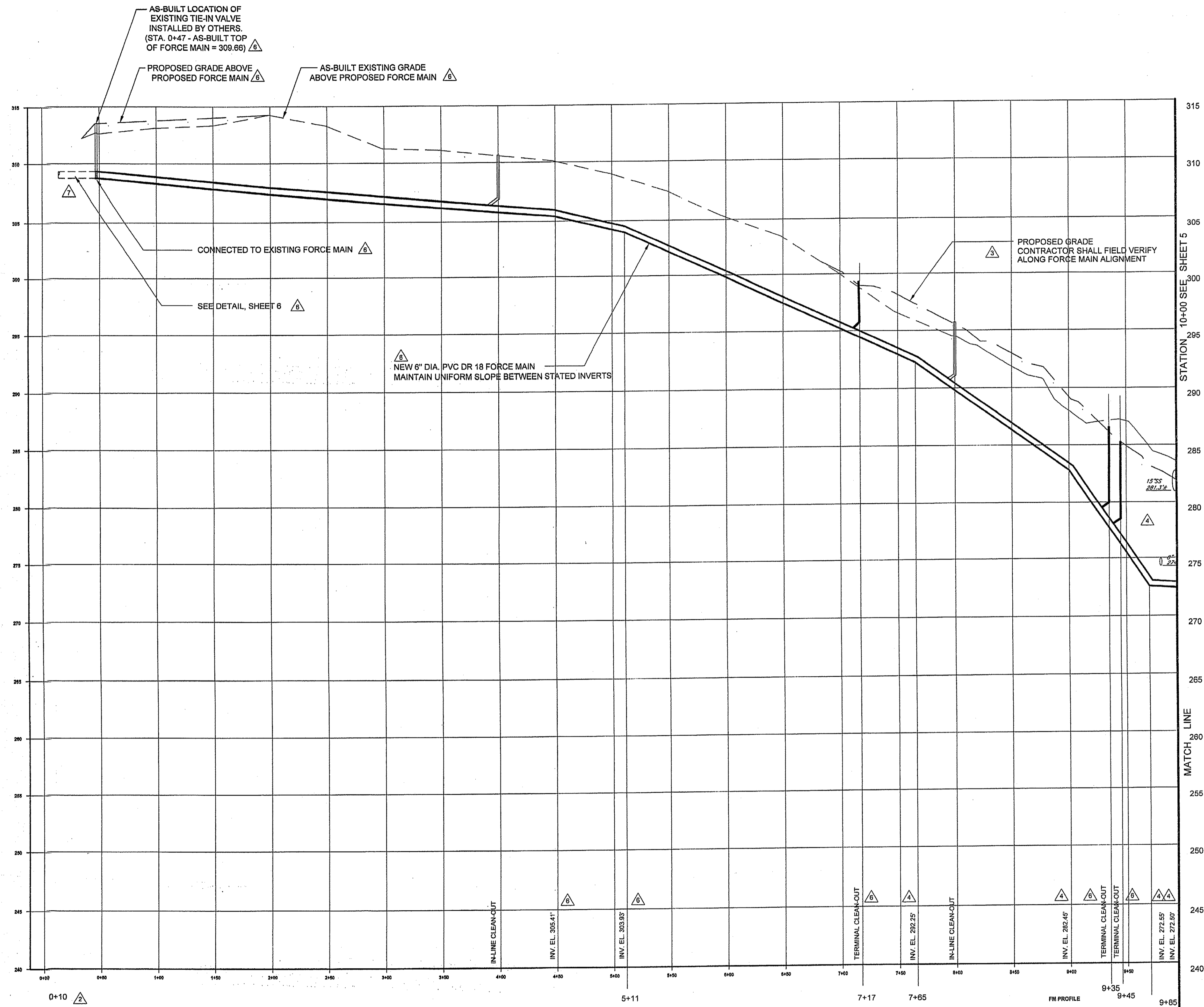
OWNER: TRESID GROUP LLC
PO BOX 115
YORKLYN, DE 19786

**FORCE MAIN PLAN
AND PROFILE
QUARRY WALK
SEWAGE PUMPING STATION**

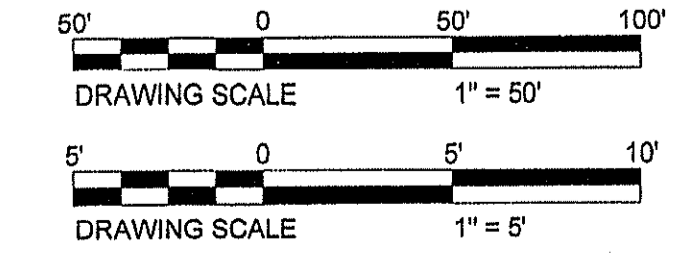
WILMINGTON-NEW CASTLE COUNTY-DELAWARE

DATE: 8-21-2019
SCALE: 1" = 50'
PROJECT NO. 11746.BA
SHEET: 3 OF 21





FORCE MAIN - PROFILE
 SCALE: HORIZ.: 1" = 50'
 VERT.: 1" = 5'



DUFFIELD ASSOCIATES
 Soil, Water & the Environment
 5400 LIMESTONE ROAD
 WILMINGTON, DE 19808-1232
 TEL: 302.239.6634
 FAX: 302.239.8485
 OFFICES IN DELAWARE, MARYLAND, PENNSYLVANIA AND NEW JERSEY
 WEB: HTTP://DUFFNET.COM
 E-MAIL: DUFFIELD@DUFFNET.COM

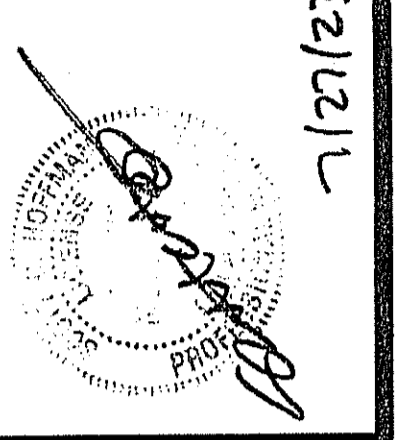
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DRAWN BY: DAC	FILE NAME: 11746_Site 2

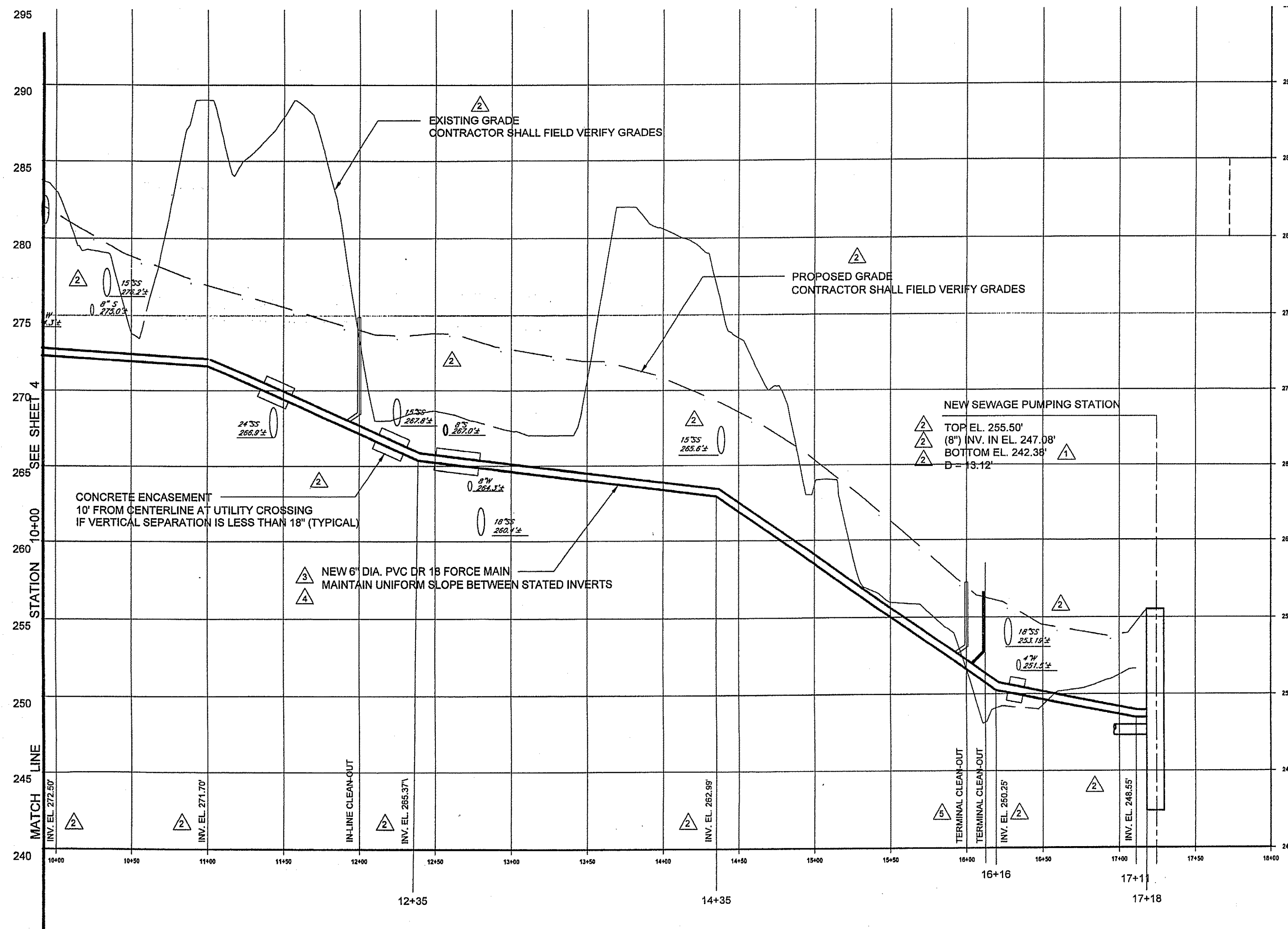
NO.	REVISION	DATE	BY
1	NEW CASTLE COUNTY COMMENTS		
2	REVISED BASED ON NEW CASTLE COUNTY COMMENTS	3-29-22	SCH
3	INF FORCE MAIN INTERCONNECTION		
4	SITE GRADING CHANGES		
5	REVISED FORCE MAIN SIZE	8-30-22	SCH
6	PER PUMP SUPPLIER RECOMMENDATIONS		
7	NEW CASTLE COUNTY COMMENTS	10-27	SCH
8	REVISE FORCE MAIN TO 6 INCH DIAMETER		
9	(CLIENT REQUESTED)	3-17-23	SCH

OWNER: TRESO GROUP LLC
 YORKLYN, DE 19786

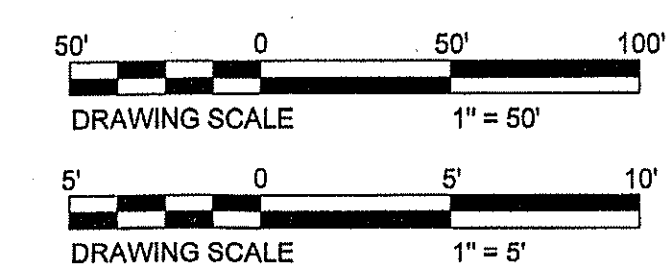
FORCE MAIN PROFILE
STATION 0+00 TO STATION 10+00
QUARRY WALK
SEWAGE PUMPING STATION
 WILMINGTON-NEW CASTLE COUNTY-DELAWARE

DATE: 8-21-2019
 SCALE: AS SHOWN
 PROJECT NO. 11746.BA
 SHEET: 4 OF 21





FORCE MAIN - PROFILE
 SCALE: HORIZ.: 1" = 50'
 VERT.: 1" = 5'



DUFFIELD ASSOCIATES
 Soil, Water & the Environment

5400 LIMESTONE ROAD
 WILMINGTON, DE 19808-1232
 TEL: 302.239.8844
 FAX: 302.239.8885

OFFICES IN DELAWARE, MARYLAND,
 PENNSYLVANIA AND NEW JERSEY

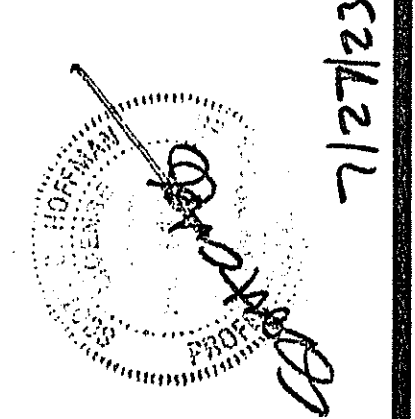
WEB: HTTP://DUFFINET.COM
 E-MAIL: DUFFIELD@DUFFINET.COM

DESIGNED BY:	SMC/DAC	CHECKED BY:	SCH
DRAWN BY:	DAC	FILE NAME:	11746_Sht_2
DATE:	8-20-2019	NO.	
DATE:	8-20-2019	REVISION	
DATE:	8-20-2019	NEW CASTLE COUNTY COMMENTS	
DATE:	8-20-2019	SITE GRADING CHANGES	
DATE:	8-20-2019	REVISED FORCE MAIN SIZE	
DATE:	8-20-2019	PER PUMP SUPPLIER RECOMMENDATIONS	
DATE:	8-20-2019	REVISED FORCE MAIN DIAMETER	
DATE:	8-20-2019	(CLIENT REQUESTED)	

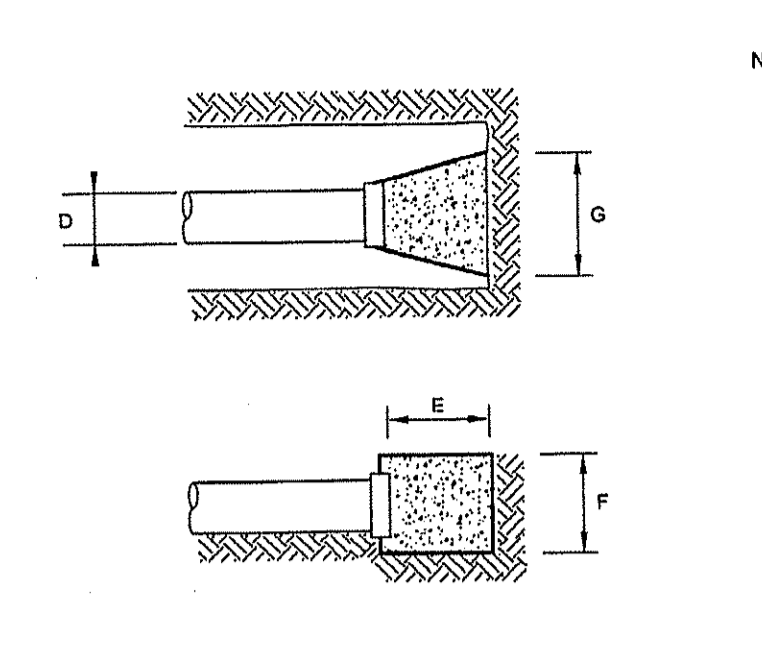
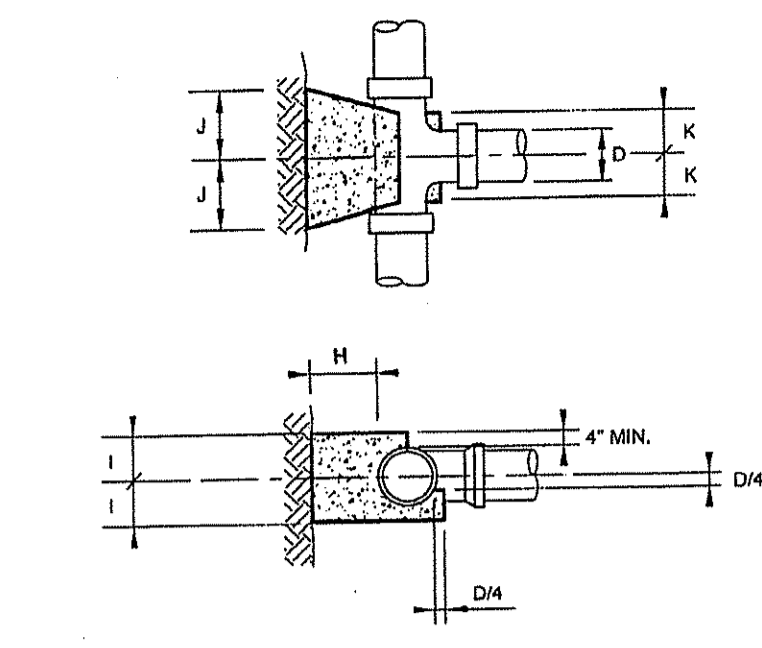
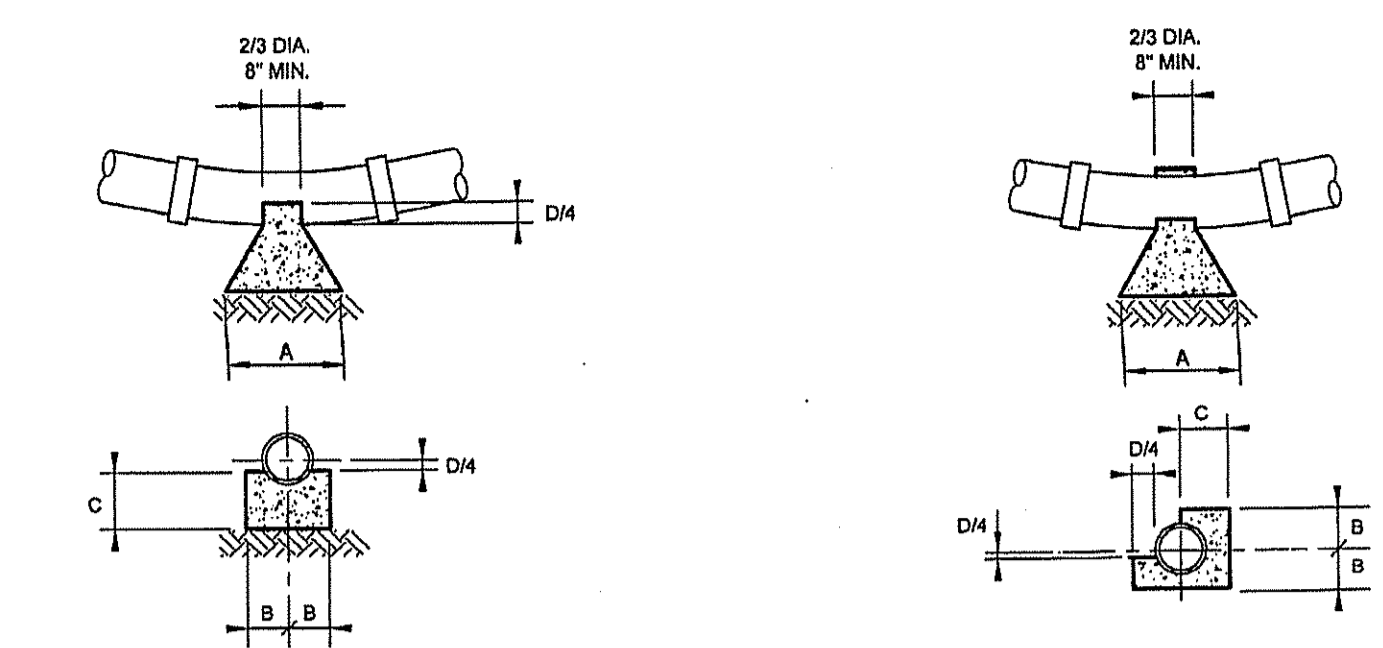
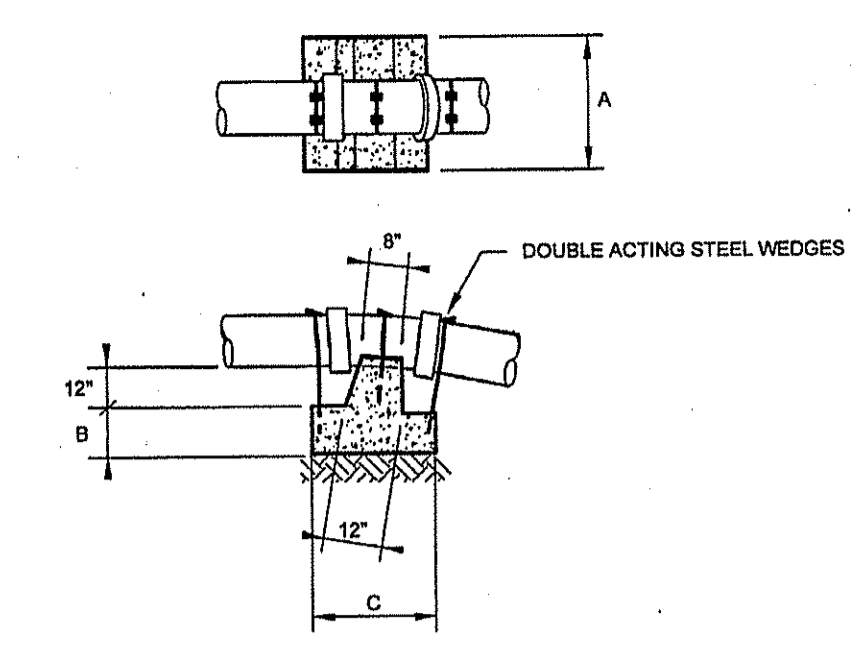
OWNER: TRESID GROUP LLC
 YORKTOWN, DE 19756

FORCE MAIN PROFILE
STATION 10+00 TO STATION 17+17
QUARRY WALK
SEWAGE PUMPING STATION
 WILMINGTON-NEW CASTLE COUNTY-DELAWARE

DATE: 8-21-2019
 SCALE: AS SHOWN
 PROJECT NO. 11746.BA
 SHEET: 5 OF 21



- NOTES:
1. PORTLAND CEMENT CONCRETE FOR BUTTRESSES SHALL BE 3000 PSI MINIMUM
 2. BUTTRESS DIMENSIONS SHOWN ARE MINIMUM DIMENSIONS BASED UPON SOIL BEARING CAPACITY OF 3000 P.S.F. AND STATIC WATER PRESSURE OF 150 P.S.I. WHERE PRESSURE EXCEEDS 150 P.S.I. OR WHERE SOIL BEARING CAPACITY IS LESS THAN 3000 P.S.F. SPECIAL BUTTRESS DESIGN IS REQUIRED.
 3. MINOR VARIATIONS IN BUTTRESS SHAPE WILL BE PERMITTED PROVIDED MINIMUM BEARING AGAINST SOLID GROUND IS MAINTAINED.
 4. CONCRETE TO MEET UNDISTURBED EARTH.



BUTTRESS FOR VERTICAL BENDS

SIZE	102	118	132
A	18" 18" 18"	24" 24" 24"	30" 30" 30"
B	18" 21" 18"	24" 27" 24"	30" 36" 30"
C	24" 24" 24"	30" 30" 30"	36" 36" 36"

REINFORCING BARS

SIZE	102	118	132
#4	3-4	4-4	5-4
#5	3-4	4-4	5-4
#6	3-4	4-4	5-4
#7	3-4	4-4	5-4

BUTTRESS FOR VERTICAL BENDS

BEND	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"
154	A	18"	24"	30"	36"	42"	48"	54"	60"	72"	84"
	B	18"	24"	30"	36"	42"	48"	54"	60"	72"	84"
	C	24"	30"	36"	42"	48"	54"	60"	72"	84"	96"

BUTTRESS FOR HORIZONTAL BENDS

BEND	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"
154	A	18"	24"	30"	36"	42"	48"	54"	60"	72"	84"
	B	18"	24"	30"	36"	42"	48"	54"	60"	72"	84"
	C	24"	30"	36"	42"	48"	54"	60"	72"	84"	96"

BUTTRESS FOR TEES

PIPE DIA.	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"
A	18"	24"	30"	36"	42"	48"	54"	60"	72"	84"	96"
B	18"	24"	30"	36"	42"	48"	54"	60"	72"	84"	96"
C	24"	30"	36"	42"	48"	54"	60"	72"	84"	96"	108"

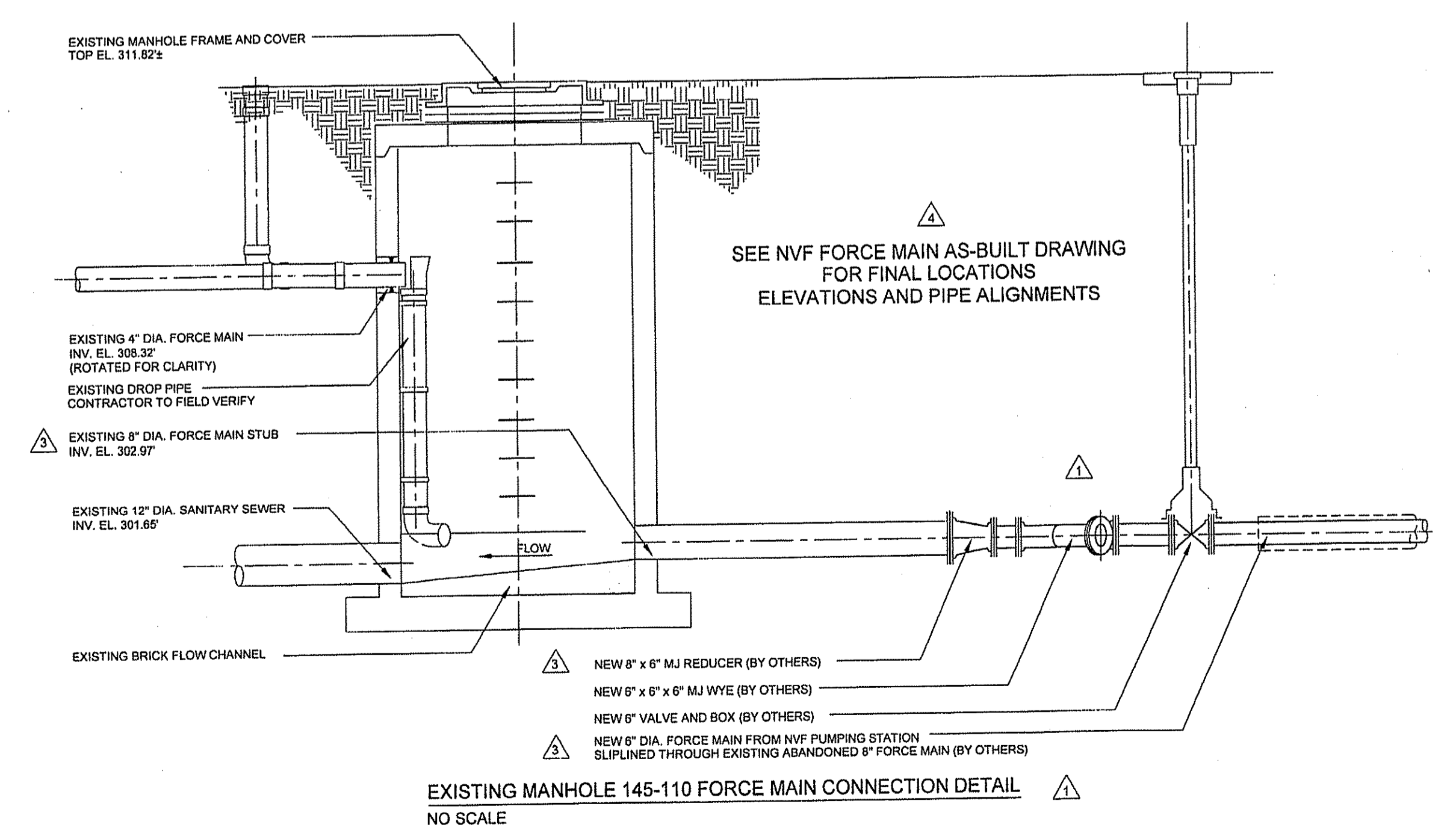
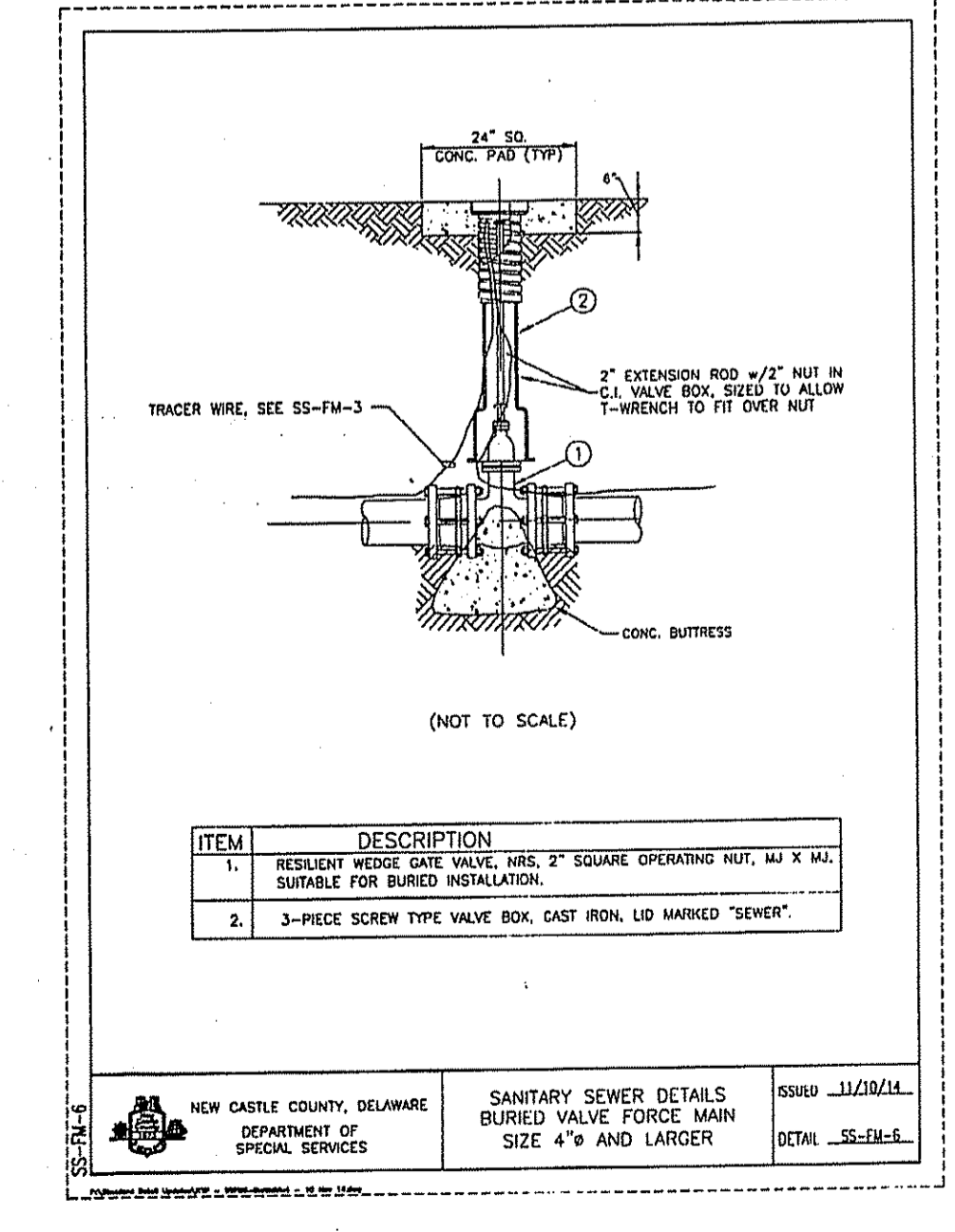
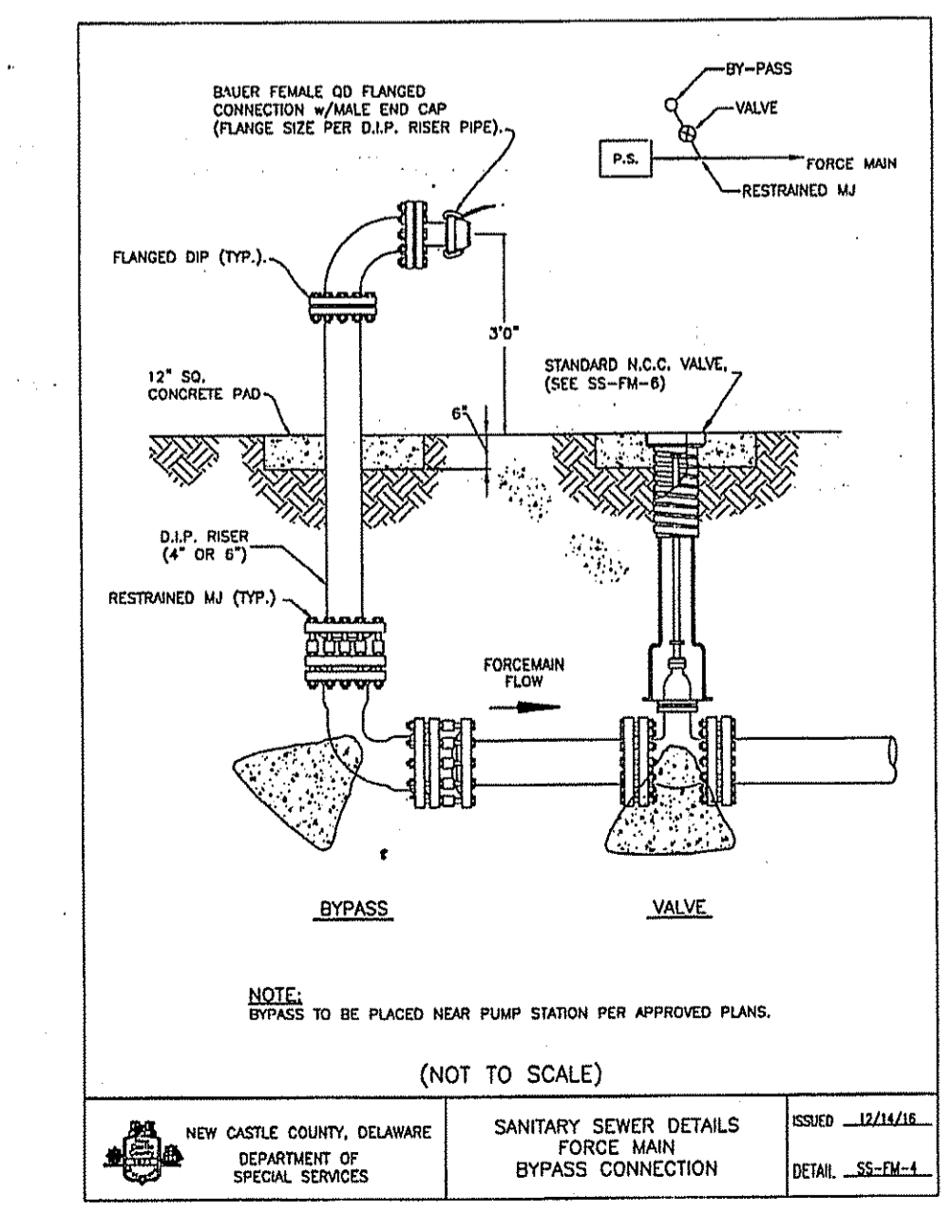
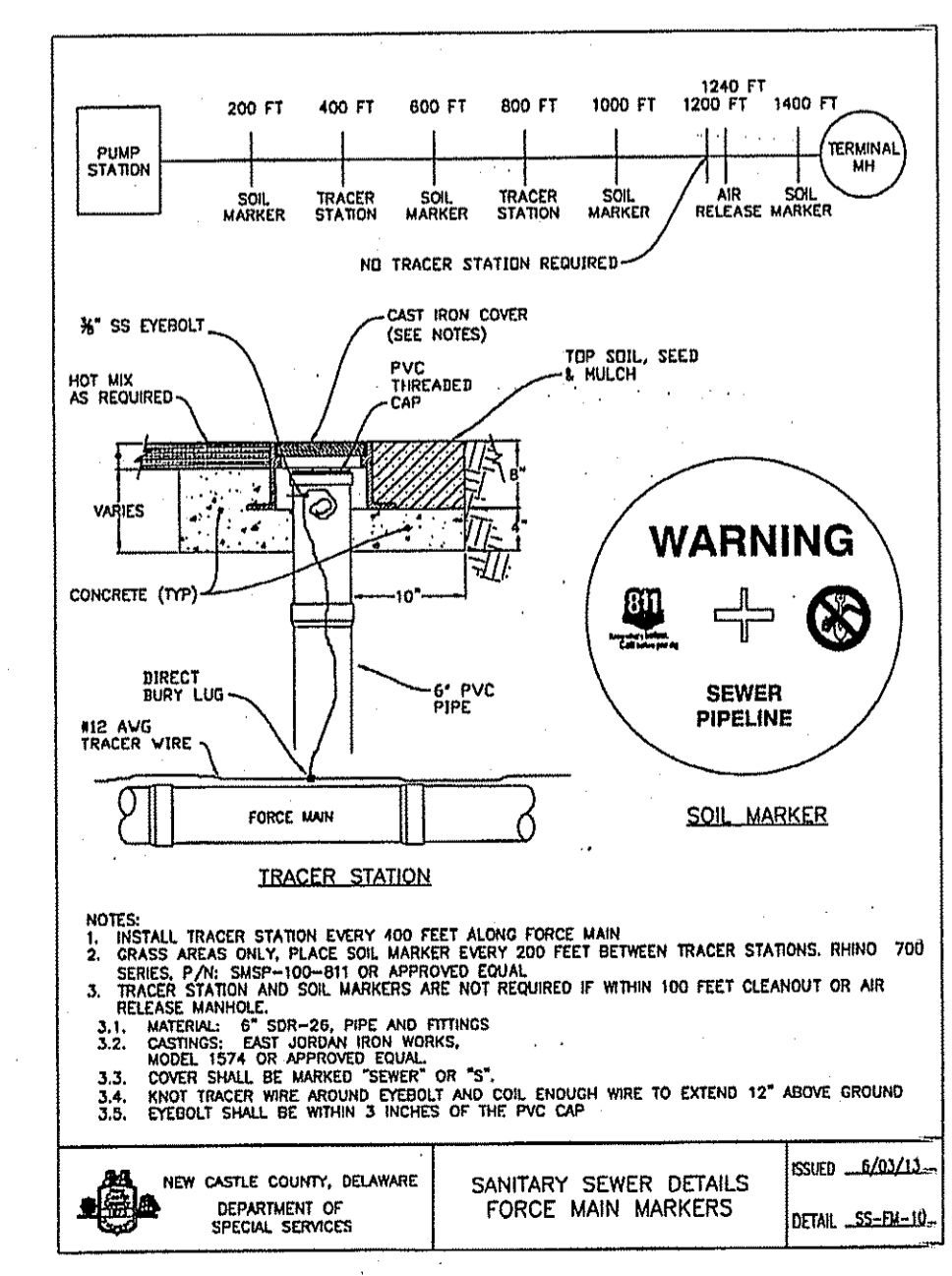
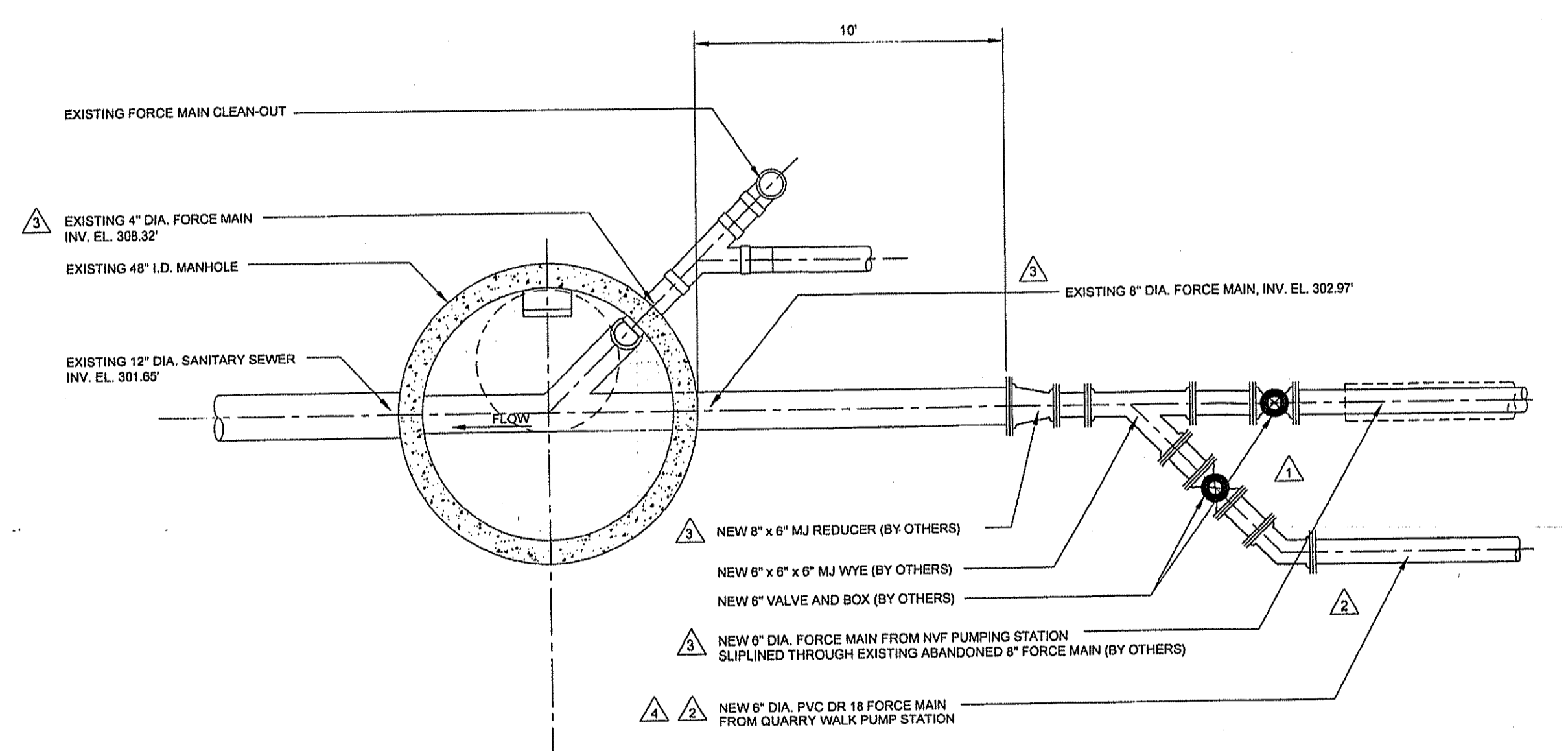
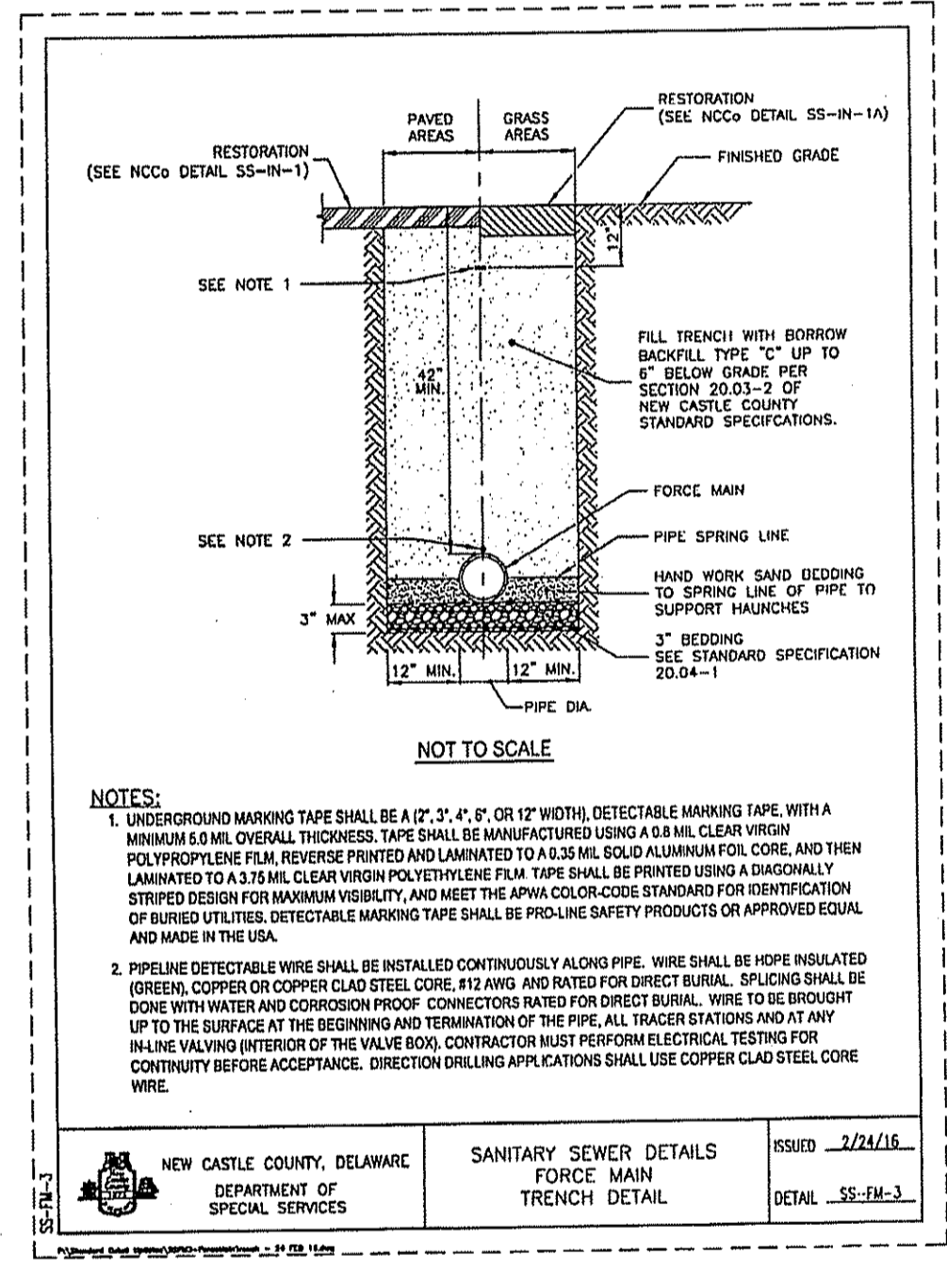
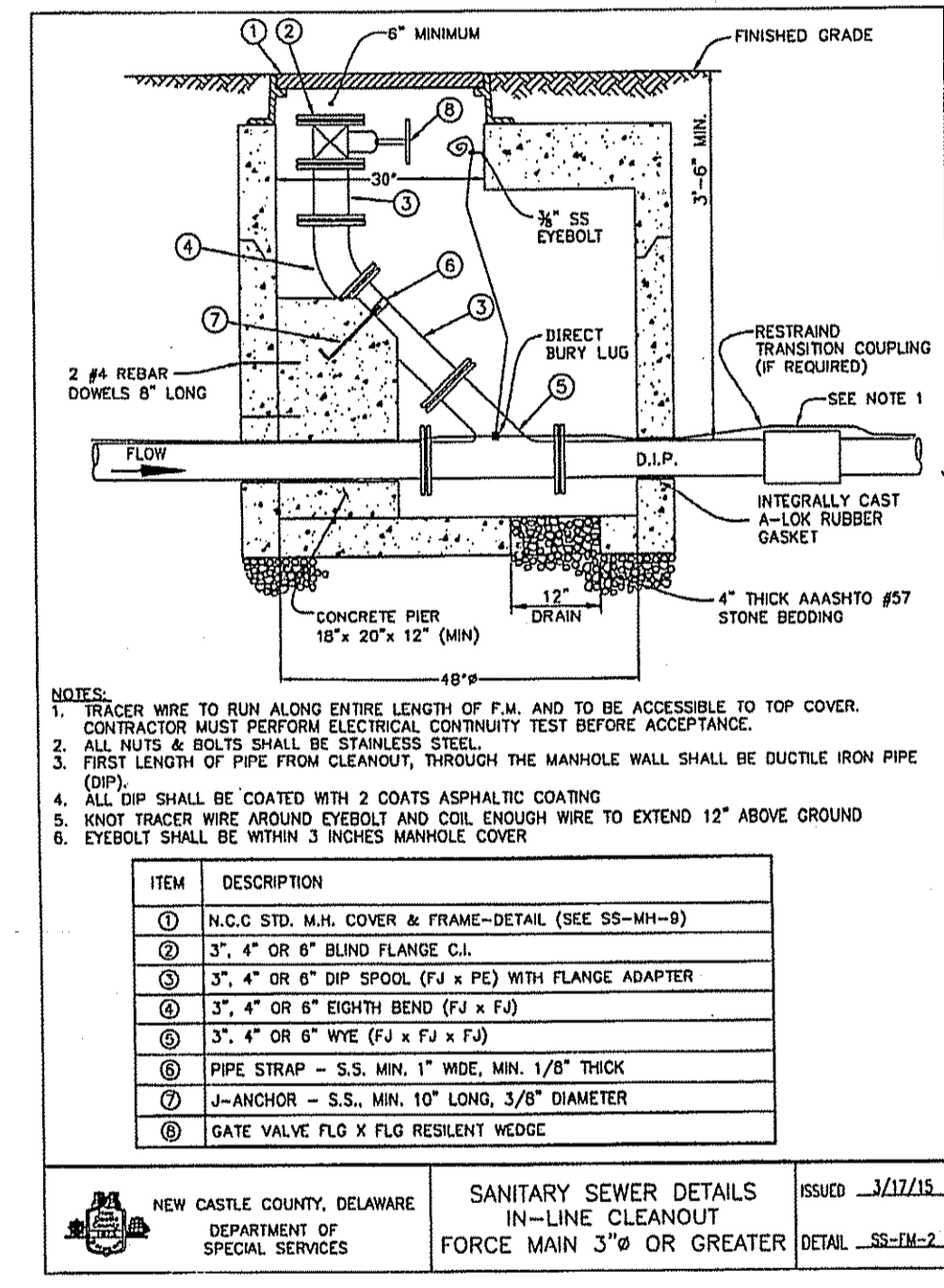
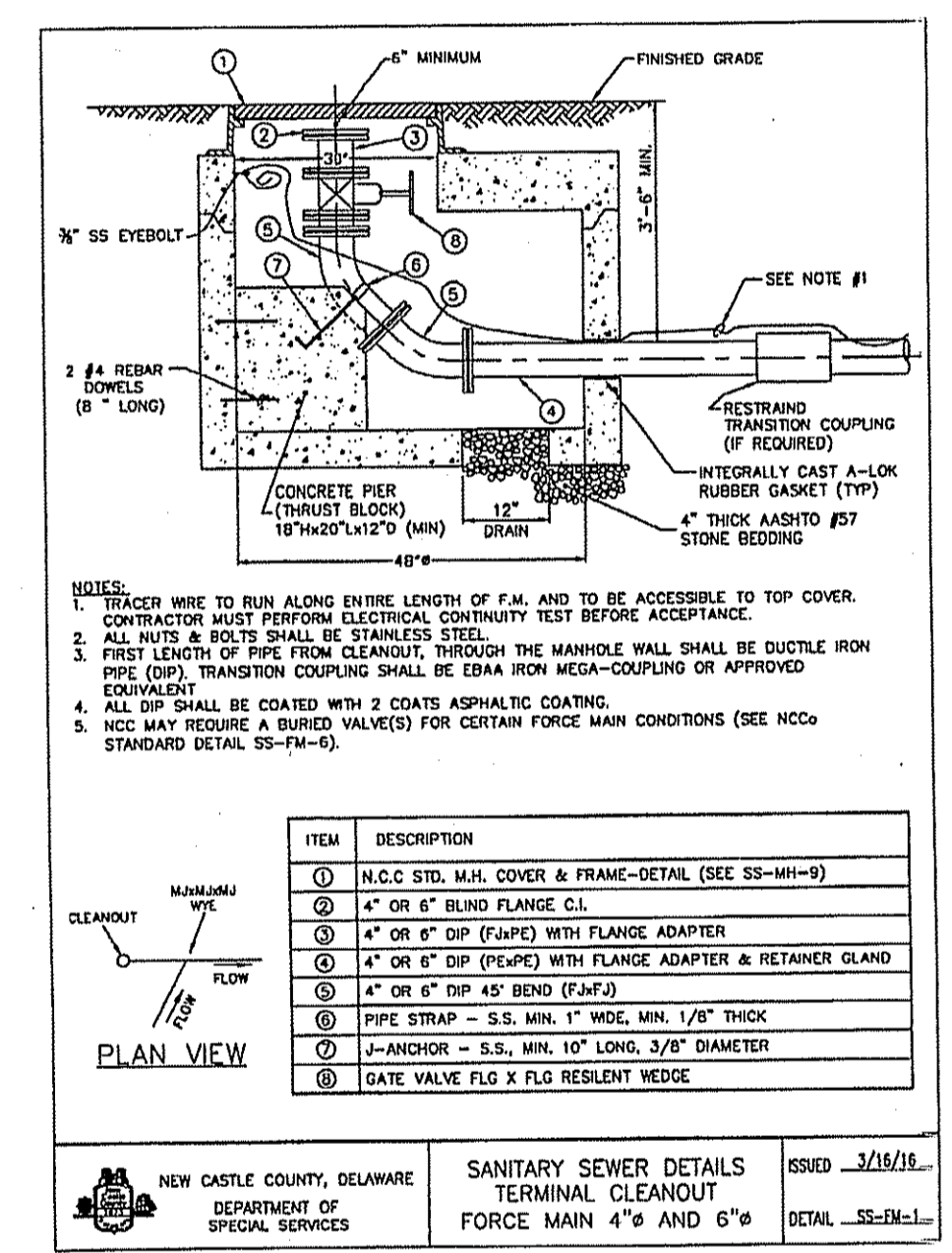
BUTTRESS FOR CAPS

PIPE DIA.	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"
A	18"	24"	30"	36"	42"	48"	54"	60"	72"	84"	96"
B	18"	24"	30"	36"	42"	48"	54"	60"	72"	84"	96"
C	24"	30"	36"	42"	48"	54"	60"	72"	84"	96"	108"

ANCHORAGE & CONCRETE BUTTRESSES FOR VERTICAL BENDS
 NO SCALE

CONCRETE BUTTRESSES FOR VERTICAL BENDS
 NO SCALE

CONCRETE BUTTRESSES FOR HORIZONTAL BENDS
 NO SCALE



CHECKED BY: [Signature]

DESIGNED BY: [Signature]

DATE: 11/7/12

FILE NAME: 11746_Site 2

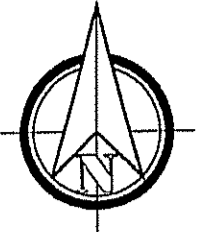
REVISION

No.	REVISION	DATE
1	REVISED BASED ON NEW CASTLE COUNTY COMMENTS	11/7/12
2	NVF FORCE MAIN CONNECTION	11/7/12
3	PER PUMP SUPPLIER RECOMMENDATIONS	11/7/12
4	REVISE FORCE MAIN TO 18" (CLIENT REQUESTED)	11/7/12

OWNER: TRESID GROUP LLC
 100 BOX 110
 YORK, PA, DE 17376

FORCE MAIN DETAILS
QUARRY WALK
SEWAGE PUMPING STATION
 WILMINGTON-NEW CASTLE COUNTY-DELAWARE

DATE: 8-21-2019
 SCALE: AS SHOWN
 PROJECT NO. 11746.BA
 SHEET: 6 OF 21



- NOTES:
1. SEE ALSO RECORD PLAN AND CONSTRUCTION PLANS FOR QUARRY WALK LLC PREPARED BY MCBRIDE AND ZIEGLER, INC.
 2. MANHOLE NO. 1 SHALL BE 5'-0" I.D. THROUGH FULL DEPTH AND BE EQUIPPED WITH AN ACCESS HATCH. SEE DETAIL, SHEET 8

HOT-MIX DRIVEWAY
SEE SHEET 8

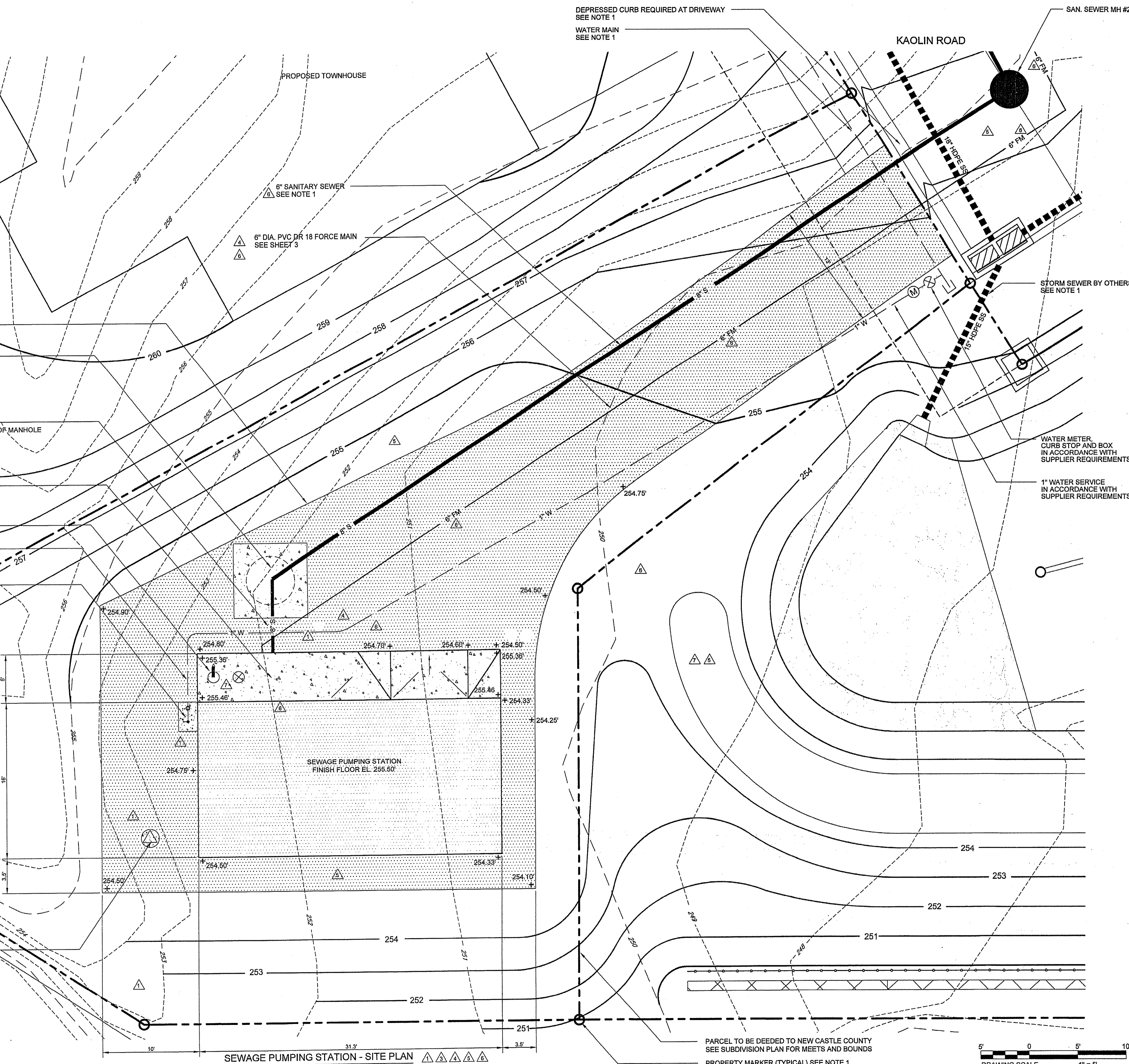
SAN. SEWER MH NO. 1
TOP = 254.60'
INV = 247.70'
DEPTH = 7.00'±
(SEE NOTES 1 AND 2)

6" DIA PVC @ 0.089 FT/FT
PIPE LENGTH MEASURED FROM CENTER OF MANHOLE
TO INVERT IN OF WET WELL

- 5'-0" WIDE CONCRETE SIDEWALK
- FORCE MAIN BY-PASS CONNECTION
- 1" DIA. HDPE WATER SERVICE
- FROSTPROOF YARD HYDRANT
SEE DETAIL, SHEET 8

TELEMETRY POLE
SEE DETAIL, SHEET 8

BALTIMORE AND OHIO RAILROAD



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Soil, Water & the Environment

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PENNSYLVANIA AND NEW JERSEY
WEB: HTTP://DUFFIELD.COM
E-MAIL: DUFFIELD@DUFFIELD.COM

CHECKED BY:	SCH
DESIGNED BY:	DAC
FILE NAME:	11746_Site_2
DRAWN BY:	DAC

NO.	REVISION
1	NEW CASTLE COUNTY COMMENTS
2	NEW CASTLE COUNTY COMMENTS
3	SITE GRADING CHANGES
4	REVISED FORCE MAIN SIZE
5	PER PUMP SUPPLIER RECOMMENDATIONS
6	REVISED PER MCBRIDE AND ZIEGLER
7	REVISED FORCE MAIN TO 18" DIA. (CLIENT REQUESTED)
8	NCC COMMENTS AND REVISED DESIGN

OWNER: TRESID GROUP LLC
PO BOX 115
YORKLYN, DE 19736

SITE PLAN

QUARRY WALK

SEWAGE PUMPING STATION

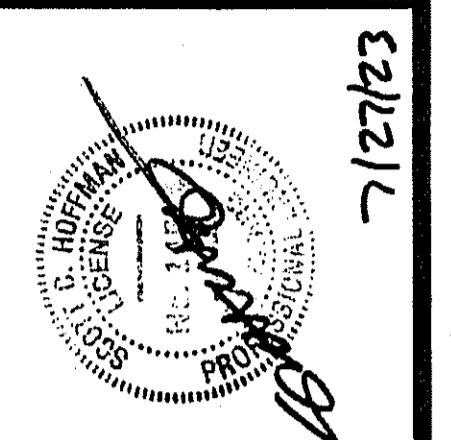
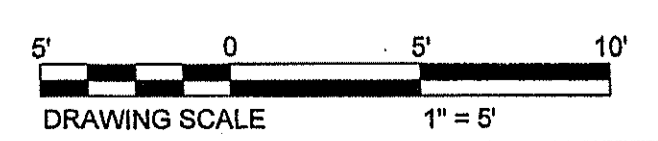
WILMINGTON-NEW CASTLE COUNTY-DELAWARE

DATE: 8-21-2019

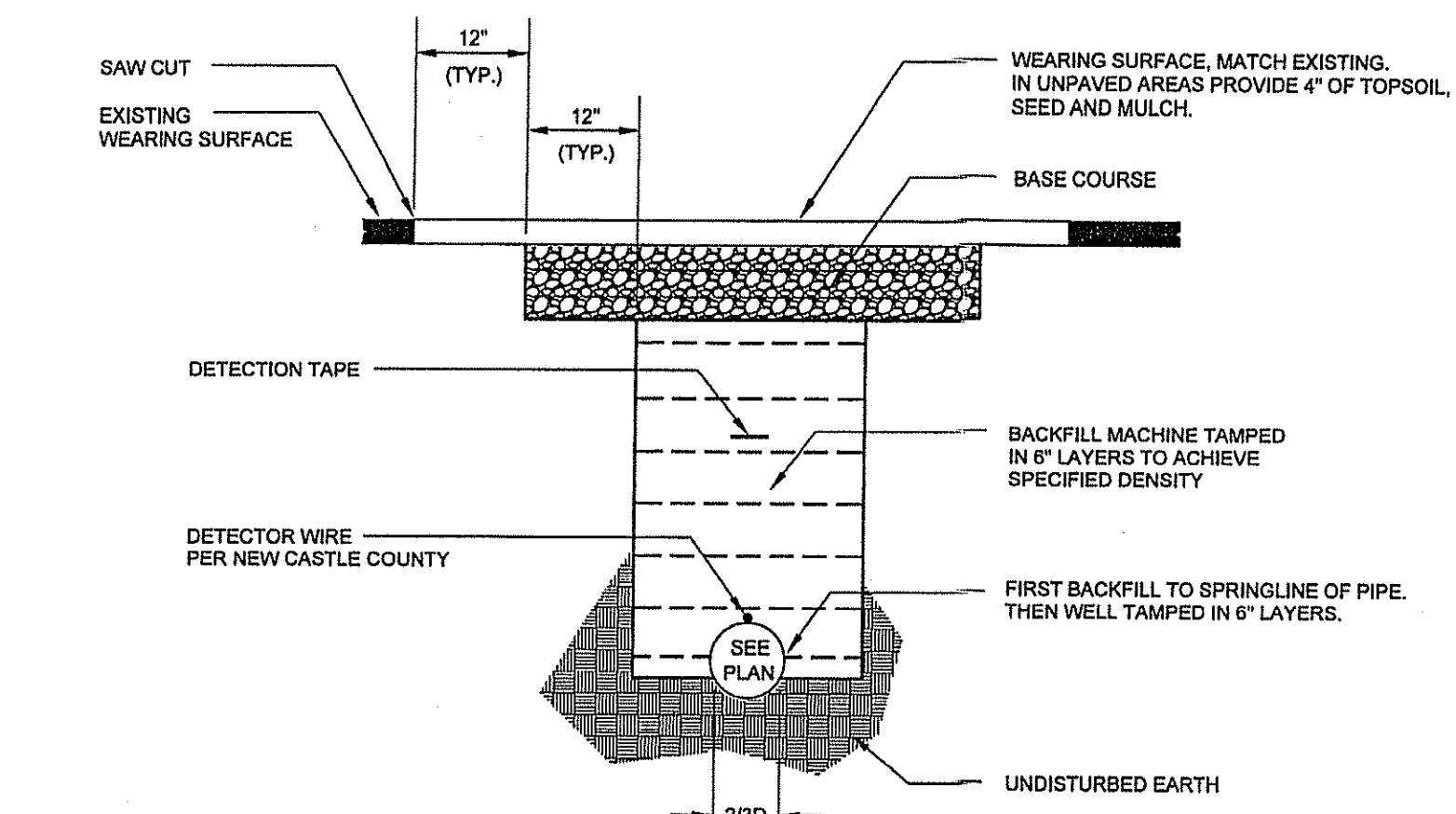
SCALE: 1" = 5'

PROJECT NO. 11746.BA

SHEET: 7 OF 21

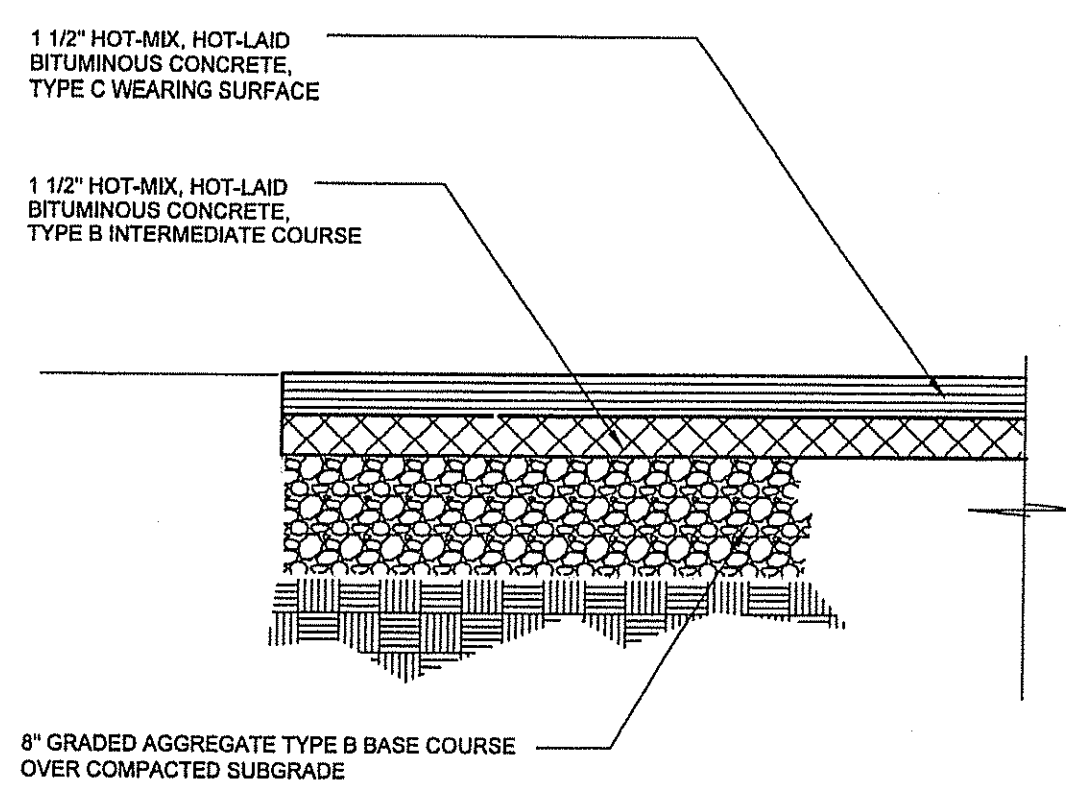


7/27/23

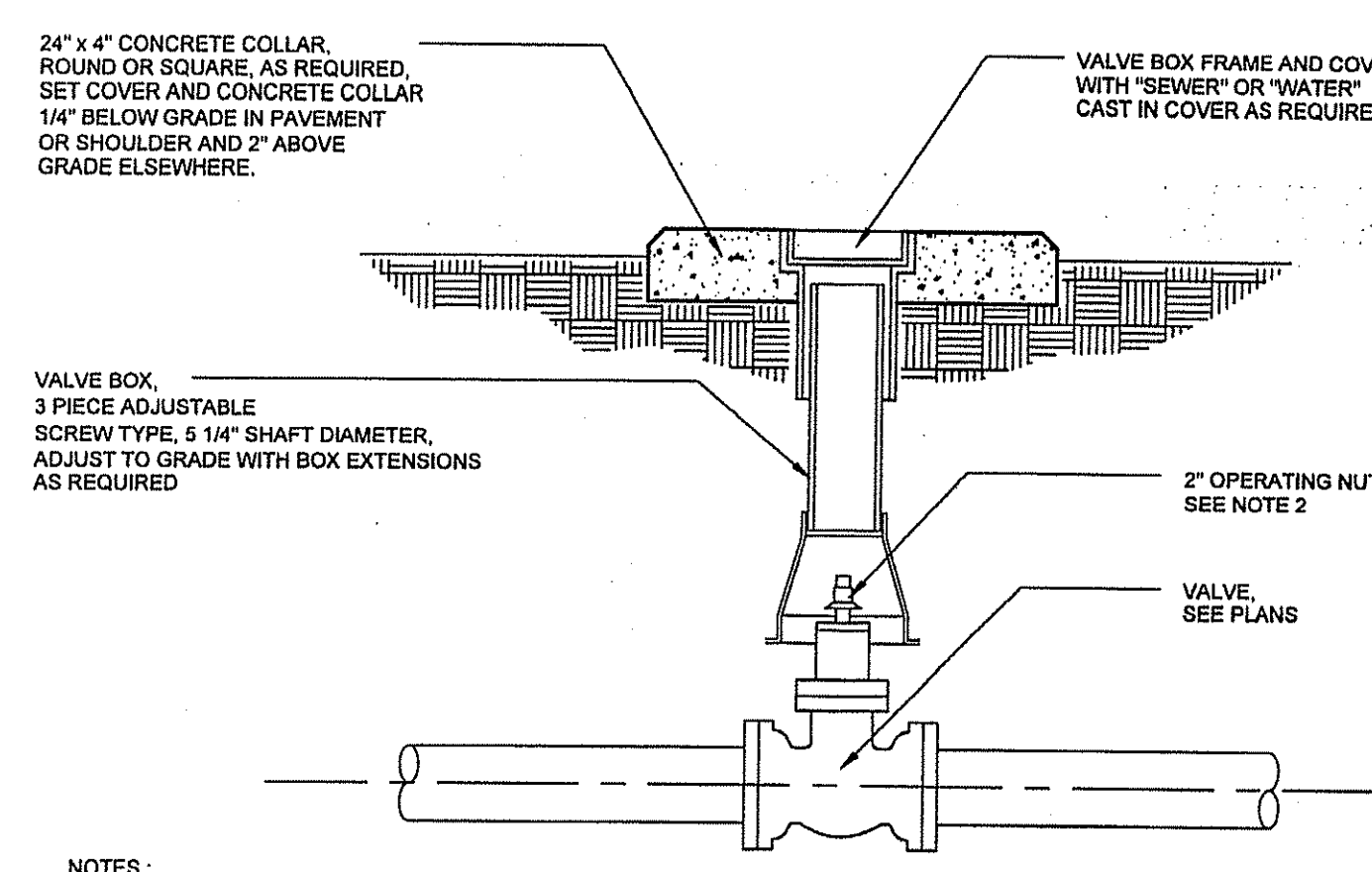


RESTORATION	BASE COURSE	INTERMEDIATE COURSE	WEARING SURFACE
HOT-MIX FLEXIBLE PAVING	8 INCHES GRADED AGGREGATE, TYPE B	1 1/2 INCHES HOT-MIX, HOT-LAID, BITUMINOUS CONCRETE, TYPE B	1 1/2 INCHES HOT-MIX, HOT-LAID, BITUMINOUS CONCRETE, TYPE C
NON-PAVED AREAS			4" TOPSOIL, SEED AND MULCH

PAVING AND PIPE TRENCH DETAIL
NO SCALE

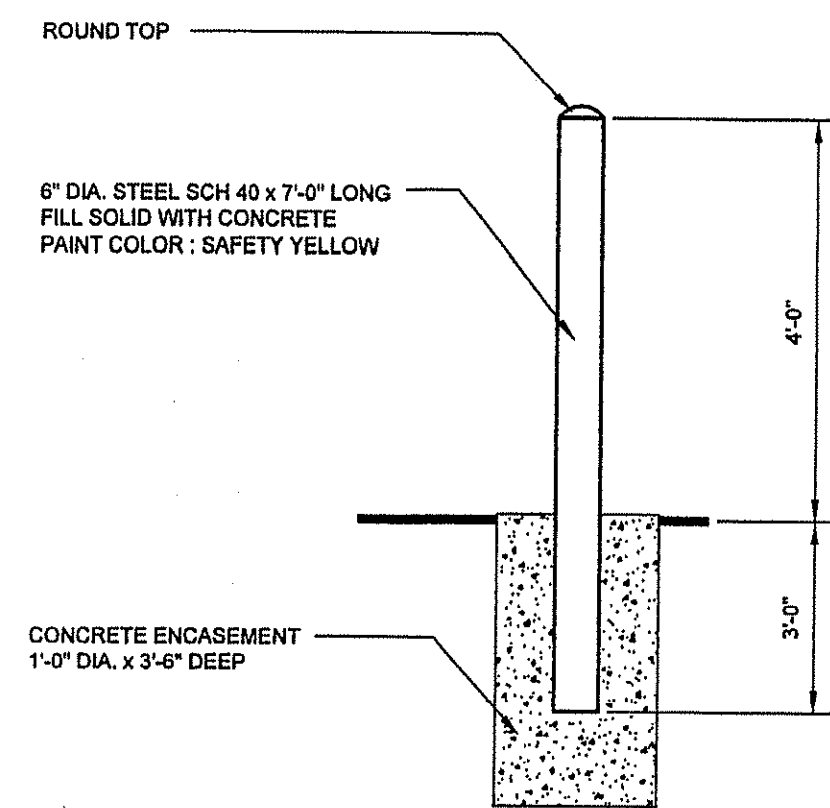


DRIVEWAY AND SITE PAVING DETAIL
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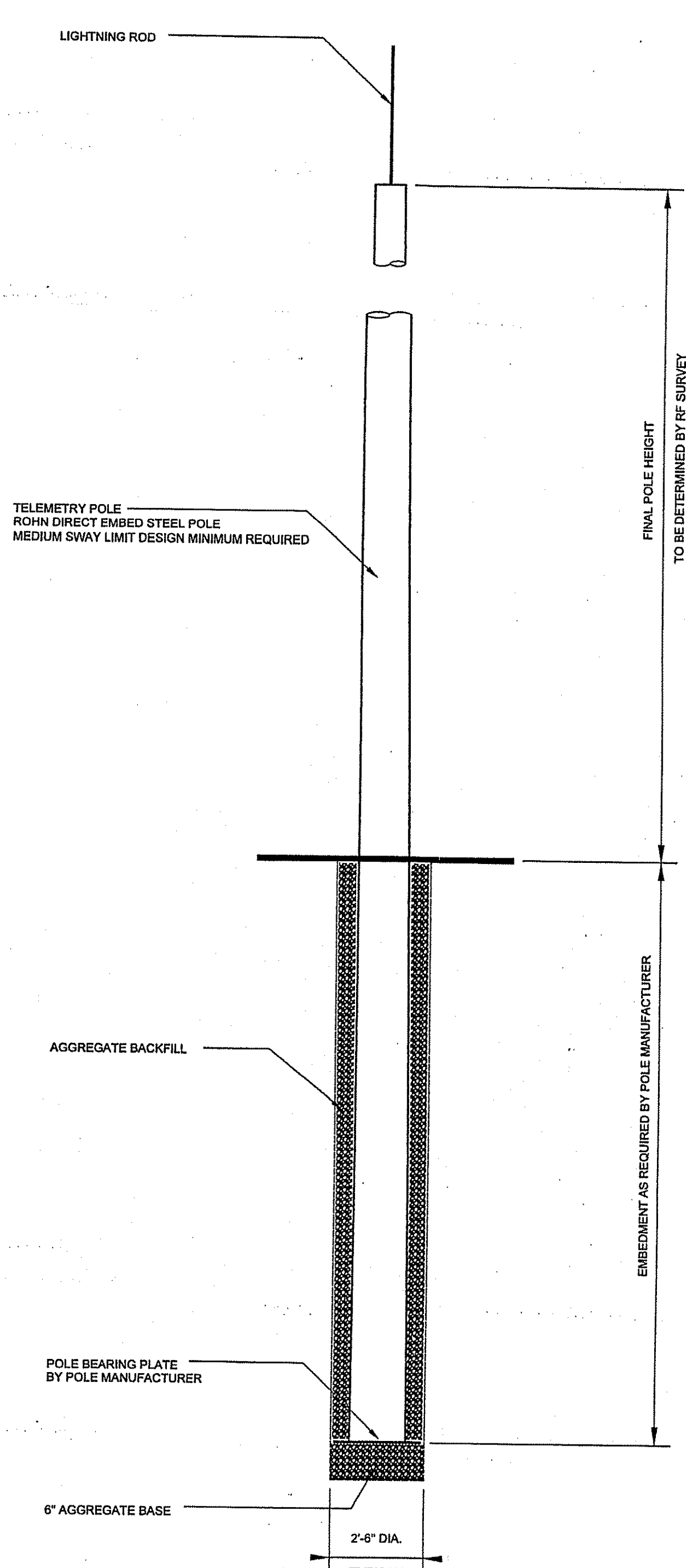


- NOTES:
- VALVE BOX REQUIRED FOR ALL BURIED VALVES. PROVIDE OPERATING WRENCH IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
 - PROVIDE 1 1/2" PIPE EXTENSION STEM WITH 2" OPERATING NUT, WITHIN 6" OF SURFACE WHEN TOP OF VALVE OPERATING NUT IS MORE THAN 5'-0" BELOW SURFACE.

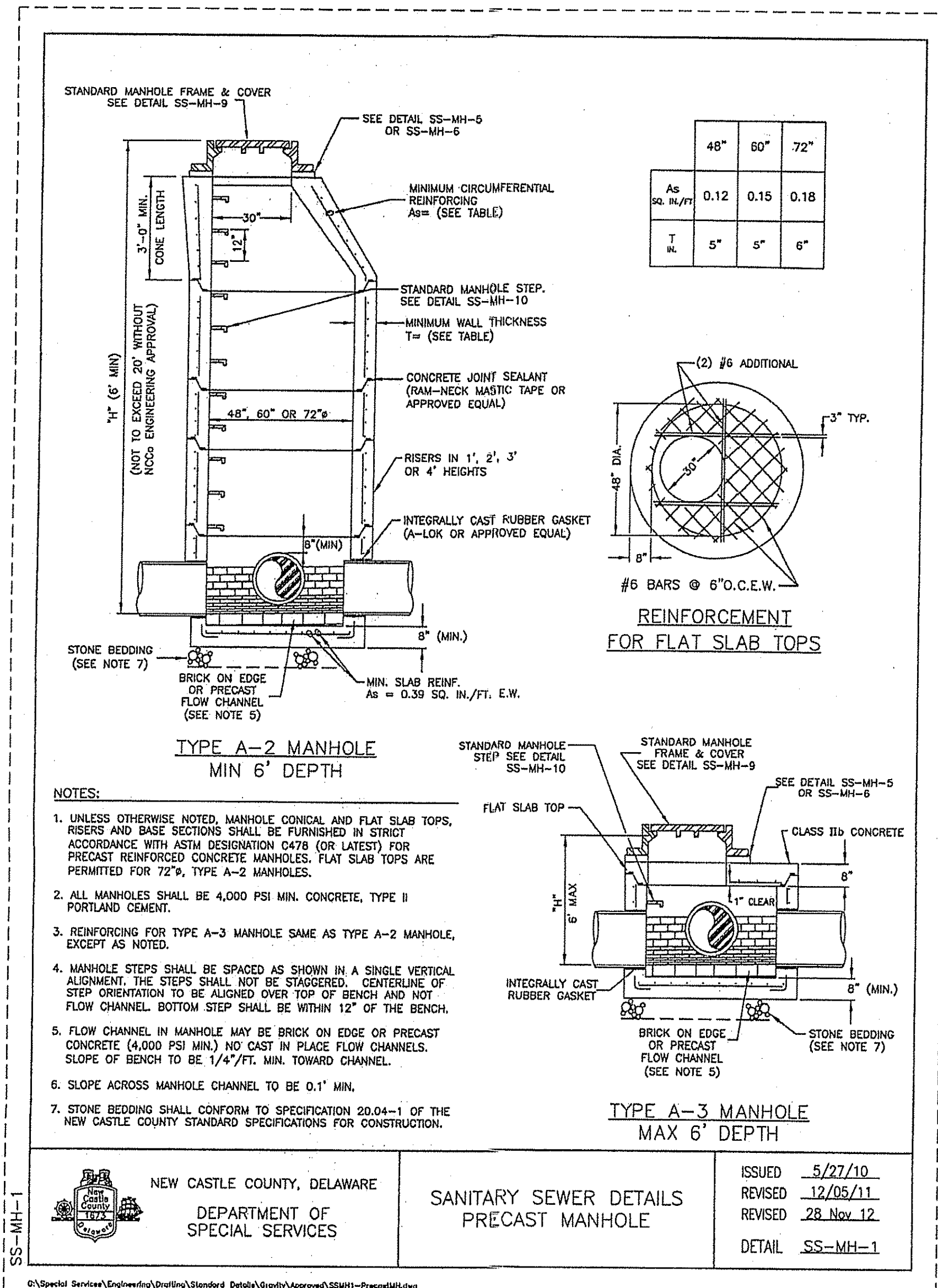
VALVE BOX DETAIL
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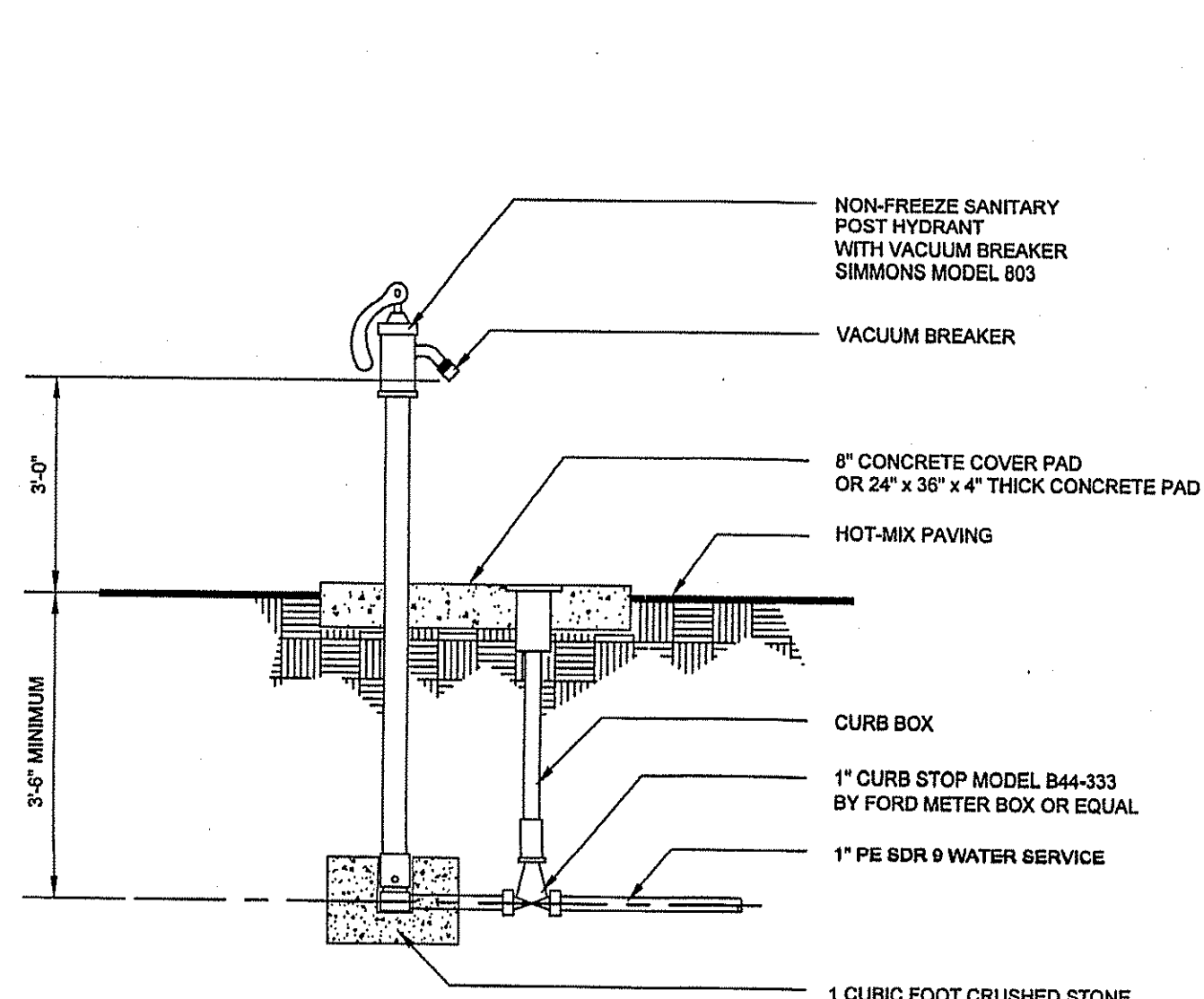
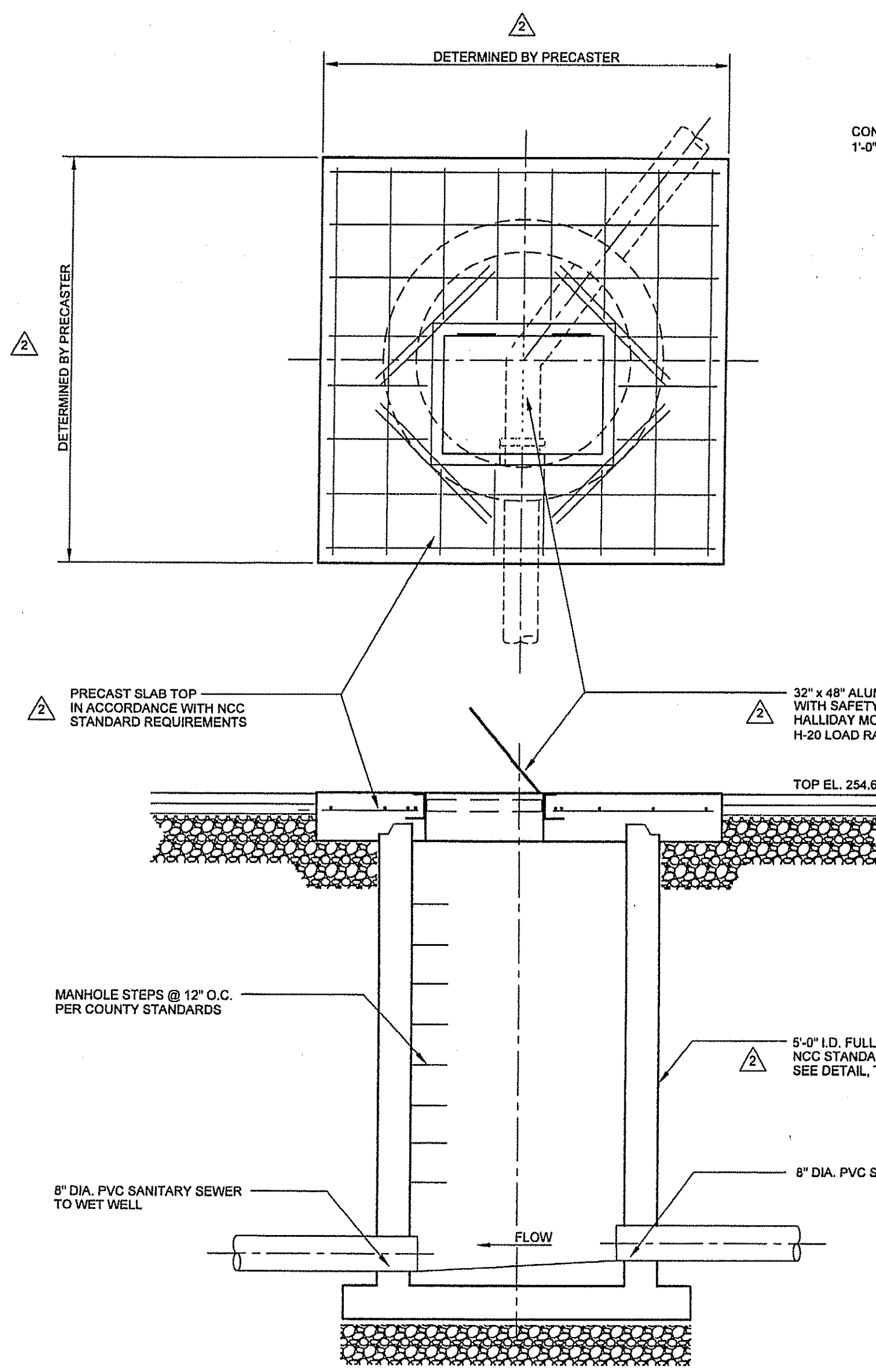
BOLLARD DETAIL
NO SCALE



TELEMETRY POLE DETAIL
NO SCALE



NEW MANHOLE NO. 1 DETAIL
NO SCALE



YARD HYDRANT DETAIL
NO SCALE

DUFFIELD ASSOCIATES
Soil, Water & the Environment

5400 LIMESTONE ROAD
WILMINGTON, DE 19808-1232
TEL: 302.239.6634
FAX: 302.239.8465

OFFICES IN DELAWARE, MARYLAND, PENNSYLVANIA AND NEW JERSEY
WEB: HTTP://DUFFINET.COM
E-MAIL: DUFFIELD@DUFFINET.COM

DESIGNED BY: DAC
CHECKED BY: SCH
DATE: 1-3-21
FILE NAME: 11746_SHE_2
DRAWN BY: DAC
DATE: 8-30-22

REVISION	DATE	BY	DESCRIPTION
1			NEW CASTLE COUNTY COMMENTS
2			NEW CASTLE COUNTY COMMENTS
3			SITE GRADING CHANGES

OWNER: TRISED GROUP LLC
PO BOX 118
YORKLIN, DE 19736

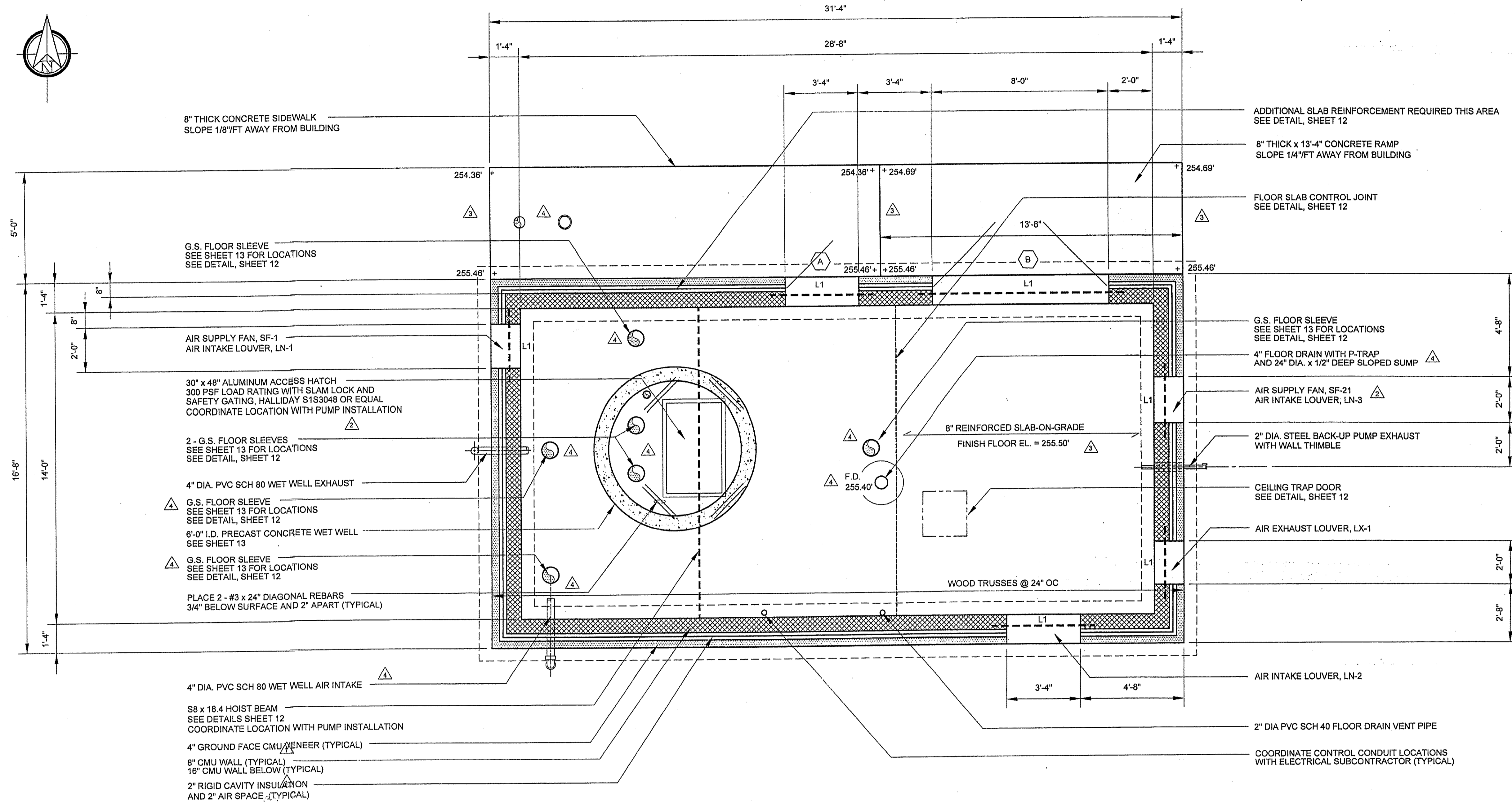
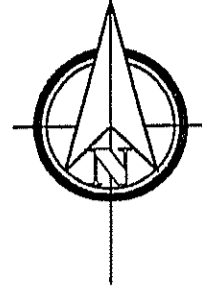
SITE DETAILS

QUARRY WALK

SEWAGE PUMPING STATION

WILMINGTON-NEW CASTLE COUNTY-DELAWARE

DATE: 8-21-2019
SCALE: AS SHOWN
PROJECT NO. 11746.BA
SHEET: 8 OF 21



SEWAGE PUMPING STATION - STRUCTURAL PLAN △ △ △

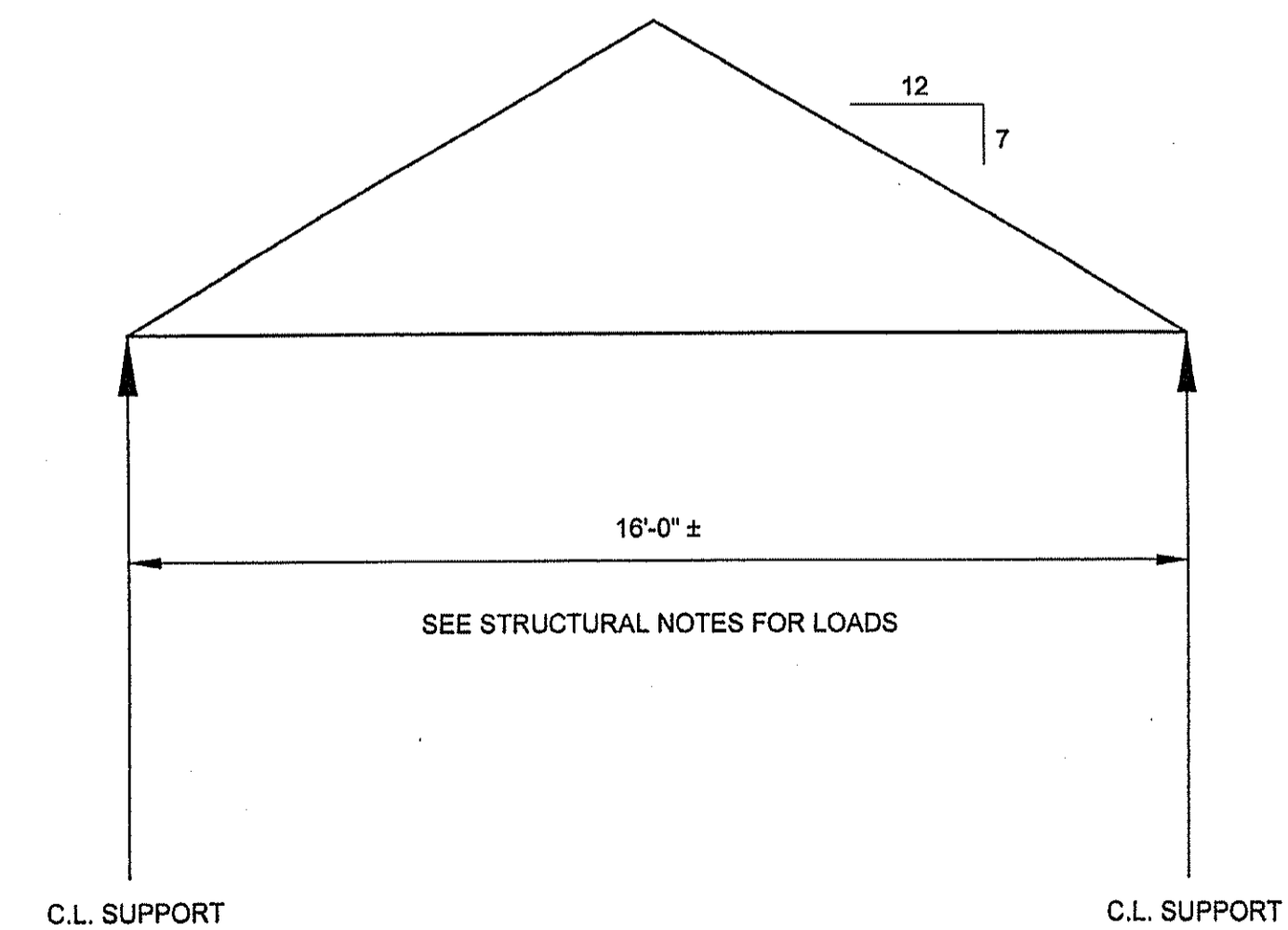
SCALE : 3/8" = 1'-0"

DOOR HARDWARE SCHEDULE			
QUANTITY	DEVICE	DESCRIPTION	FINISH
3 PER DOOR	HINGES	4 1/2" x 4 1/2" FULL MORTISE, FIVE KNUCKLE	BHMA 630
1 PER DOOR	EXIT DEVICE	ANSI 156.3, GRADE 1, MORTISE LOCK, PUSH PAD, LEVER-TYPE OUTSIDE TRIM	BHMA 630
1 PER DOOR	CLOSING DEVICE	ANSI A156.4, GRADE 1, ADJUSTABLE BACKCHECK AND HOLD-OPEN FUNCTION	BHMA 689
1 PER OPENING	THRESHOLD	4" WIDE x 1/4" HIGH FLUTED SADDLE TYPE	BHMA 717
1 PER DOOR	DOOR SHOE	1 3/4" WIDE x 1 5/16" HIGH, COLD WEATHER SEAL FLEXIBLE BETWEEN -70 F AND +250 F, STAINLESS STEEL FASTENERS	BHMA 717
1 DOUBLE DOORS	ASTRAGAL	FRP	MATCH DOOR

DOOR SCHEDULE					
IDENT.	TYPE	WIDTH	HEIGHT	THICKNESS	HAND
△ A	SINGLE	3'-0"	7'-2"	1 3/4"	LH12B
△ B	DOUBLE	3'-10"	7'-2"	1 3/4"	RHRBA

NOTES:

- DOORS AND FRAMES SHALL BE FRP STANDARD CONSTRUCTION SERIES AS MANUFACTURED BY CHEM-PRUF. COLOR SELECTED BY NEW CASTLE COUNTY FROM STANDARD COLOR OPTIONS.
- SEE LINTEL DETAILS, SHEET 12



DUFFIELD ASSOCIATES
Soil, Water & the Environment

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WILMINGTON, DE 19808-1232
TEL: 302.239.6634
FAX: 302.239.8485

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E-MAIL: DUFFIELD@DUFFIELD.COM

CHECKED BY: SEH
DESIGNED BY: DAC
DRAWN BY: DAC

FILE NAME: 11746.dwg
DATE: 8/21/2019

REVISION

No.	DATE	DESCRIPTION
1	8/21/2019	NEW CASTLE COUNTY COMMENTS
2	8/21/2019	NEW CASTLE COUNTY COMMENTS
3	8/21/2019	SITE GRADING CHANGES
4	8/21/2019	NCC COMMENTS AND REVISED DESIGN

OWNER: TRESID GROUP LLC
PO BOX 115
YORKLYN, DE 19736

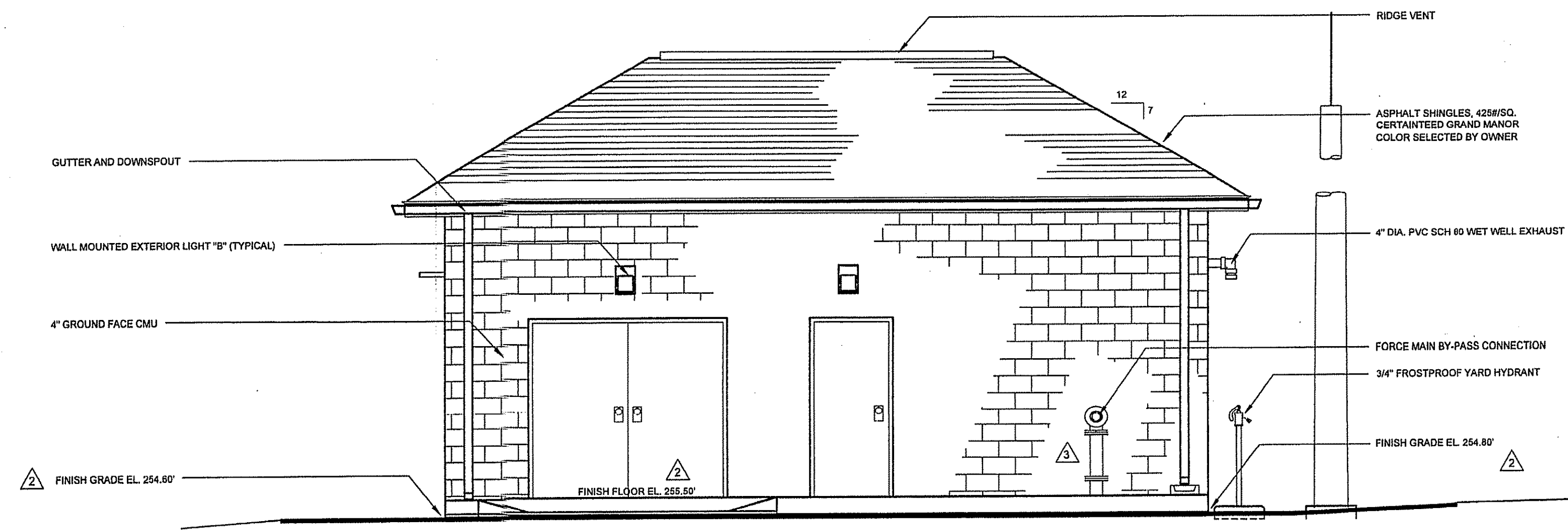
STRUCTURAL PLAN

QUARRY WALK

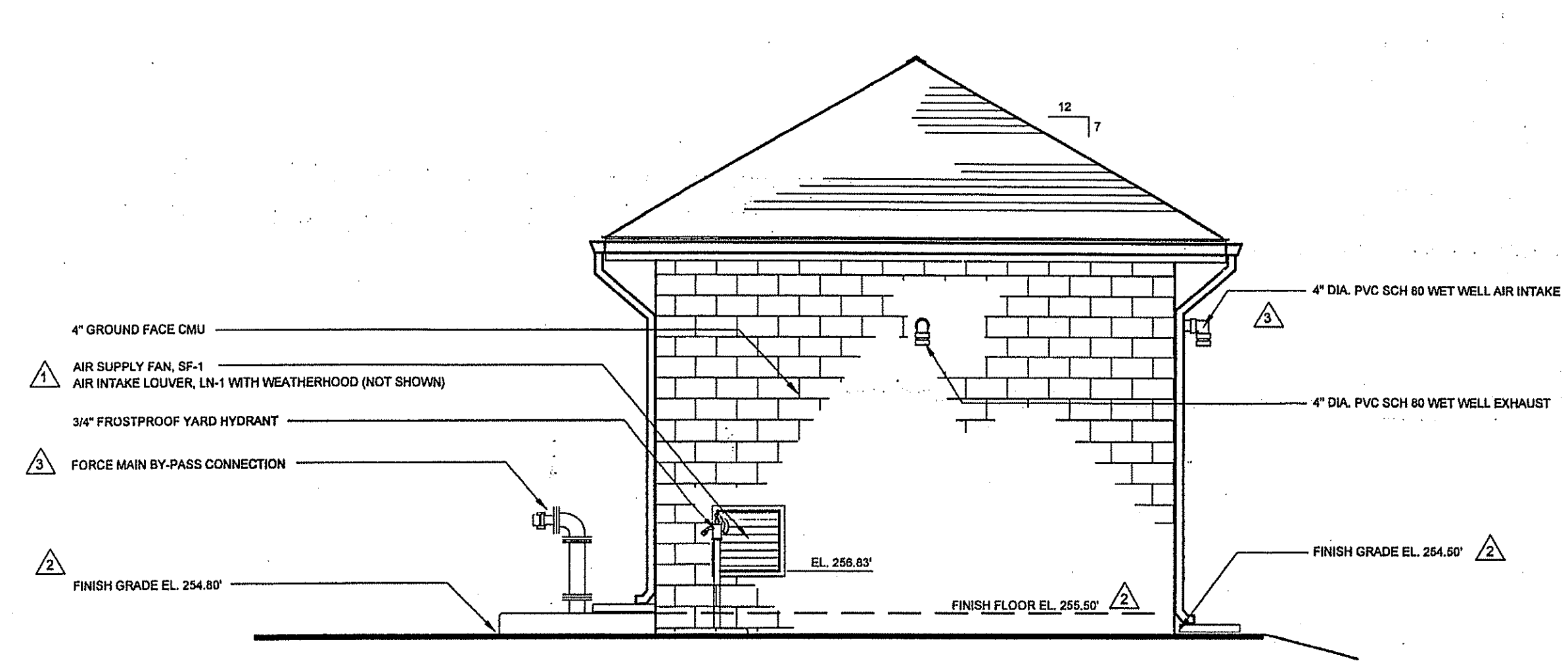
SEWAGE PUMPING STATION

WILMINGTON-NEW CASTLE COUNTY-DELAWARE

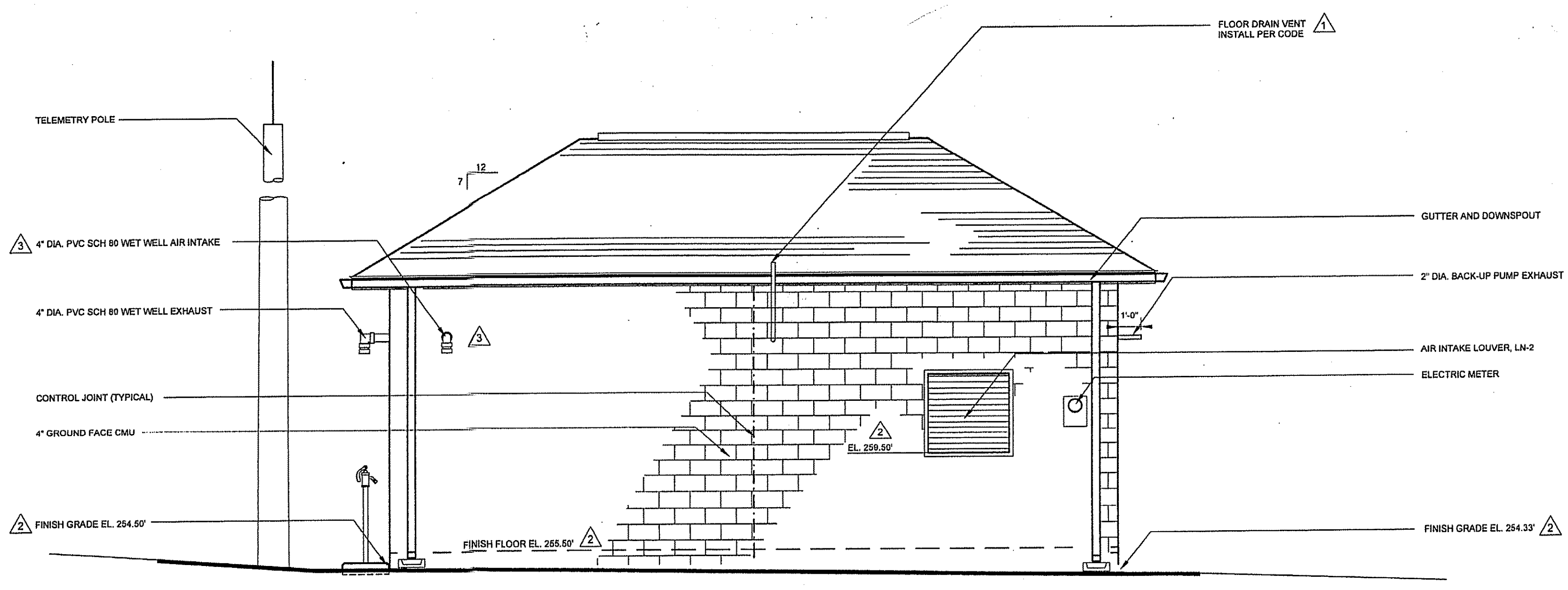
DATE: 8-21-2019
SCALE: 3/8" = 1'-0"
PROJECT NO. 11746.BA
SHEET: 10 OF 21



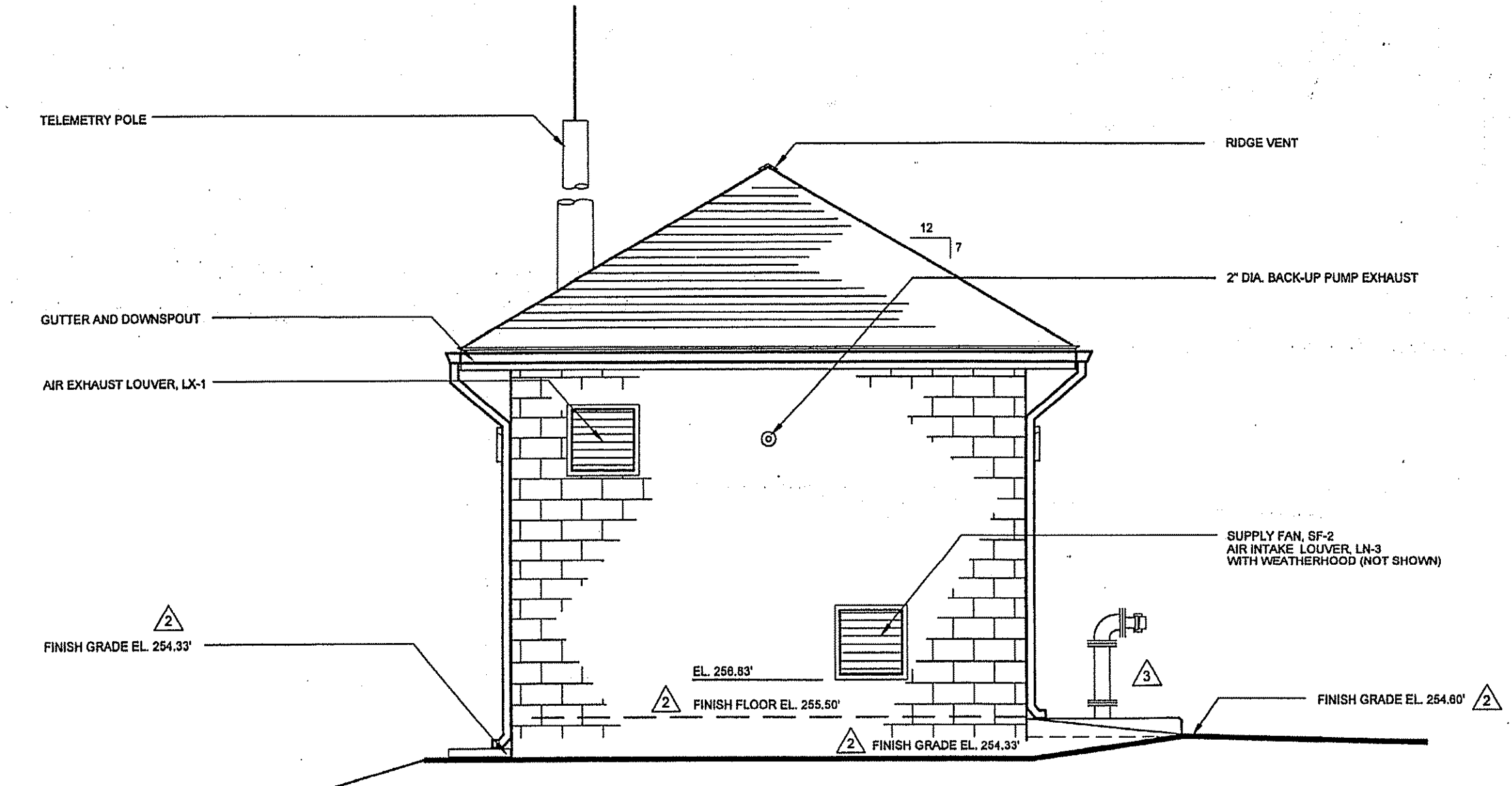
WESTERN EXTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



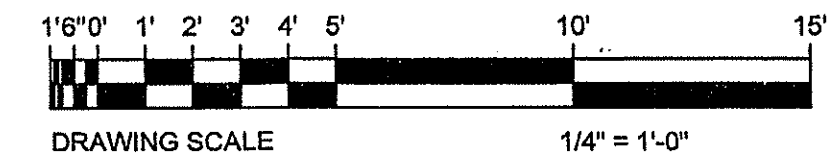
SOUTHERN EXTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



EASTERN EXTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



NORTHERN EXTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



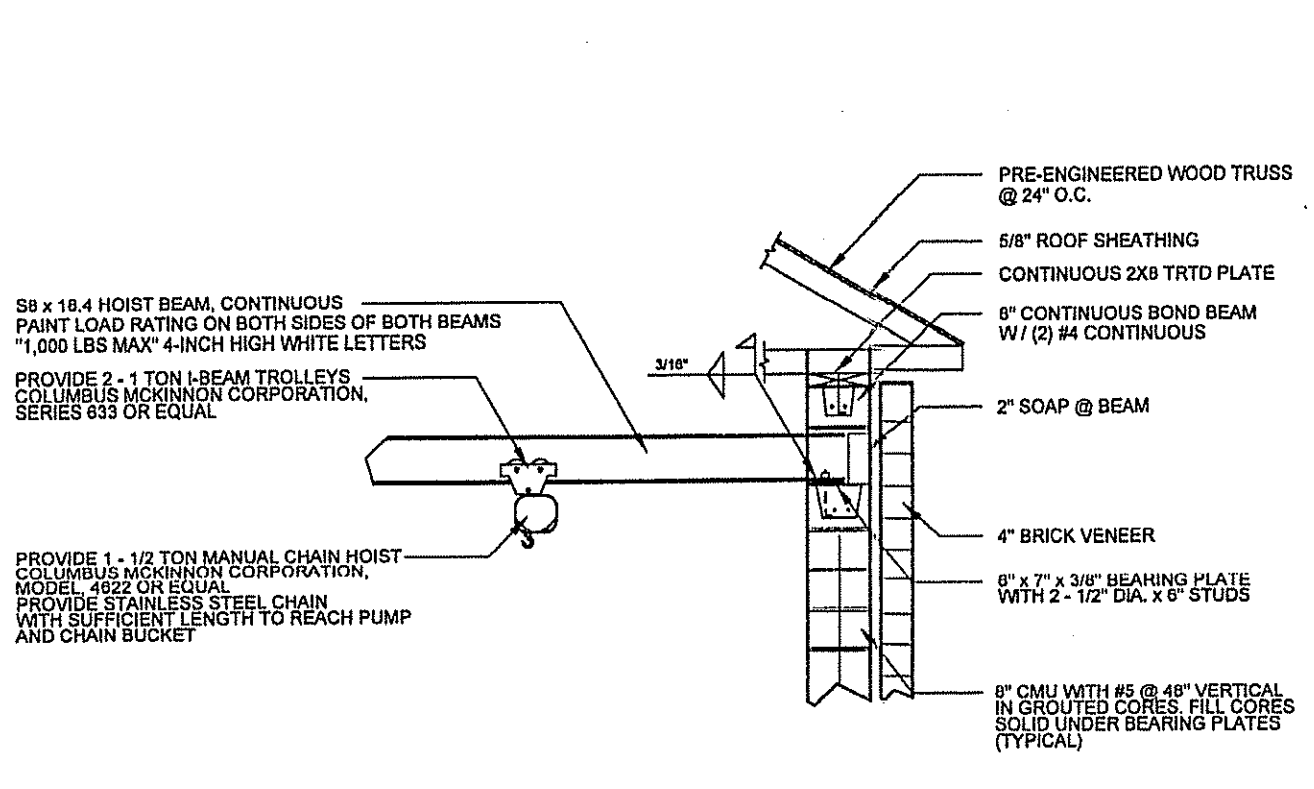
DUFFIELD ASSOCIATES
Soil, Water & the Environment
5400 LIMESTONE ROAD
DOWNTOWN DELAWARE
TEL: 302.330.8433
FAX: 302.239.8485
OFFICES IN DELAWARE, MARYLAND,
PENNSYLVANIA AND NEW JERSEY
WEB: HTTP://DUFFINET.COM
E-MAIL: DUFFIELD@DUFFINET.COM

DESIGNED BY:	DAC	CHECKED BY:	DAC
DRAWN BY:	DAC	FILE NAME:	111746.BA
DATE:	8-21-2019	NO.:	1
REVISION:	NEW CASTLE COUNTY COMMENTS	NO.:	2
	SITE GRADING CHANGES	NO.:	3
	NCC COMMENTS AND REPOSED DESIGN	NO.:	4

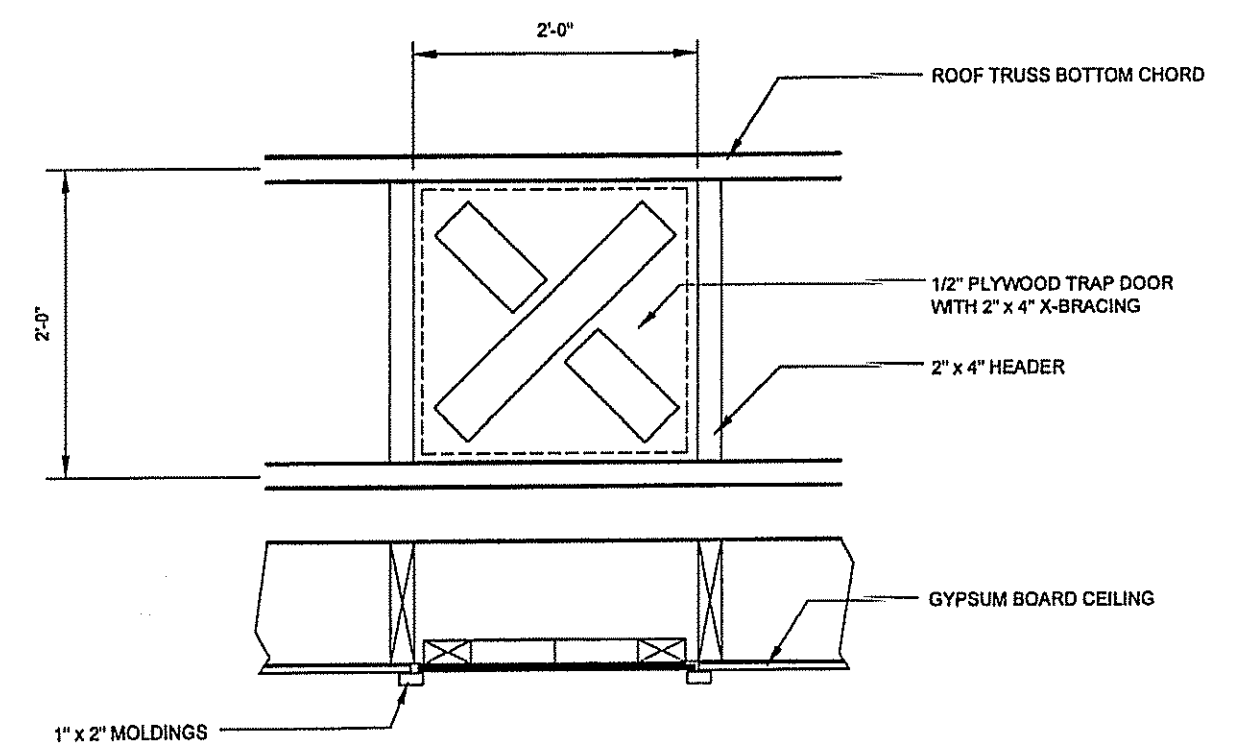
OWNER: TRESID GROUP LLC
100 BOX 100
WILMINGTON, DE 19716

EXTERIOR ELEVATIONS
QUARRY WALK
SEWAGE PUMPING STATION
WILMINGTON-NEW CASTLE COUNTY-DELAWARE

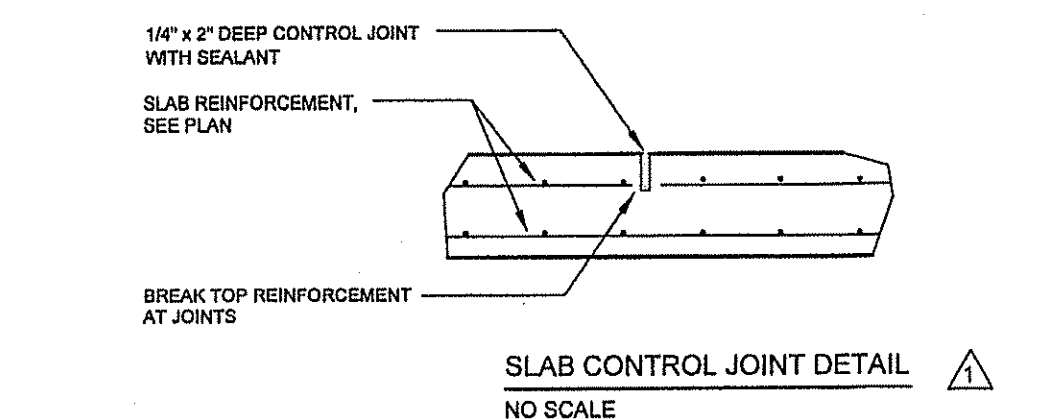
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SCALE: 1/4" = 1'-0"
PROJECT NO. 11746.BA
SHEET: 11 OF 21



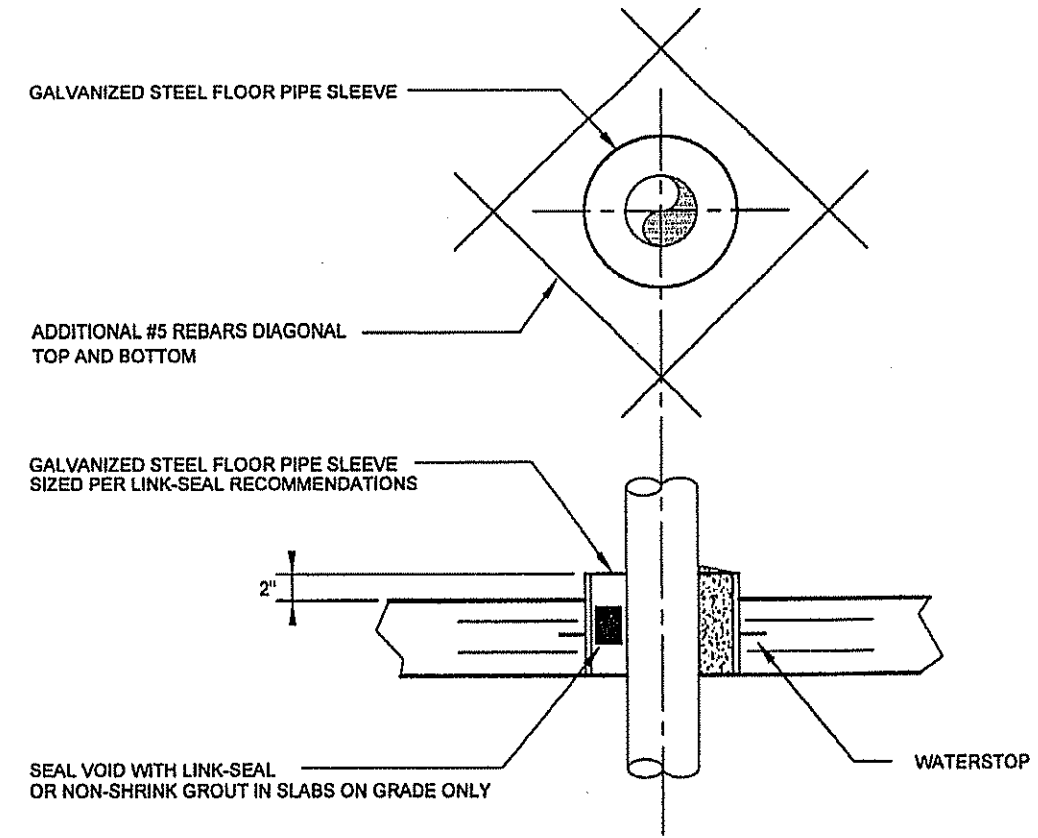
WALL AND TROLLEY BEAM CONNECTION DETAIL
NO SCALE



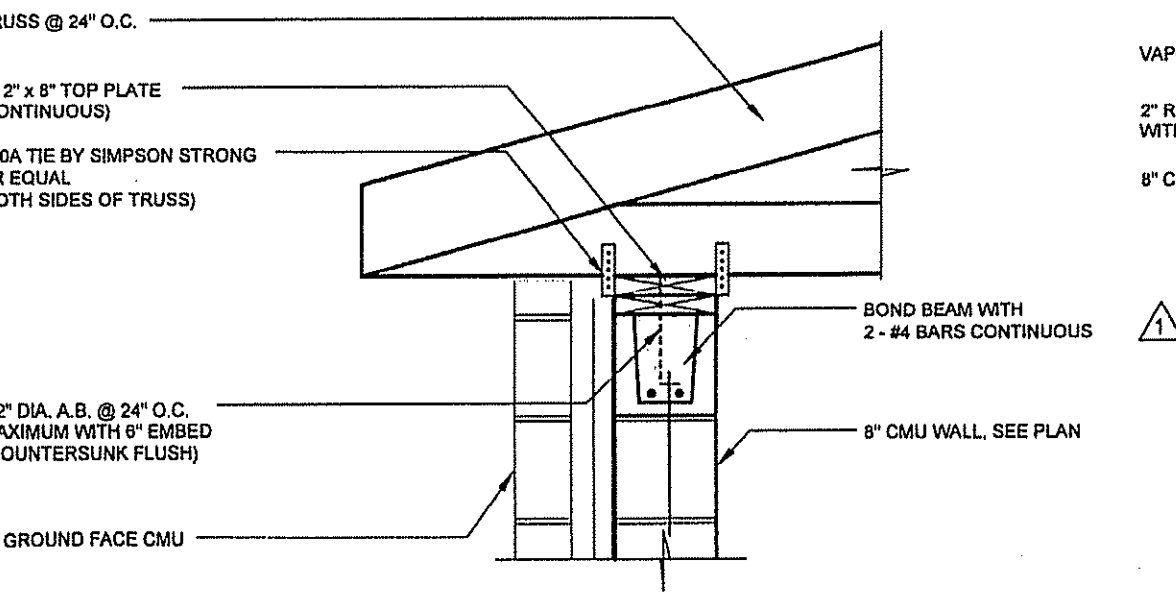
CEILING TRAP DOOR DETAIL
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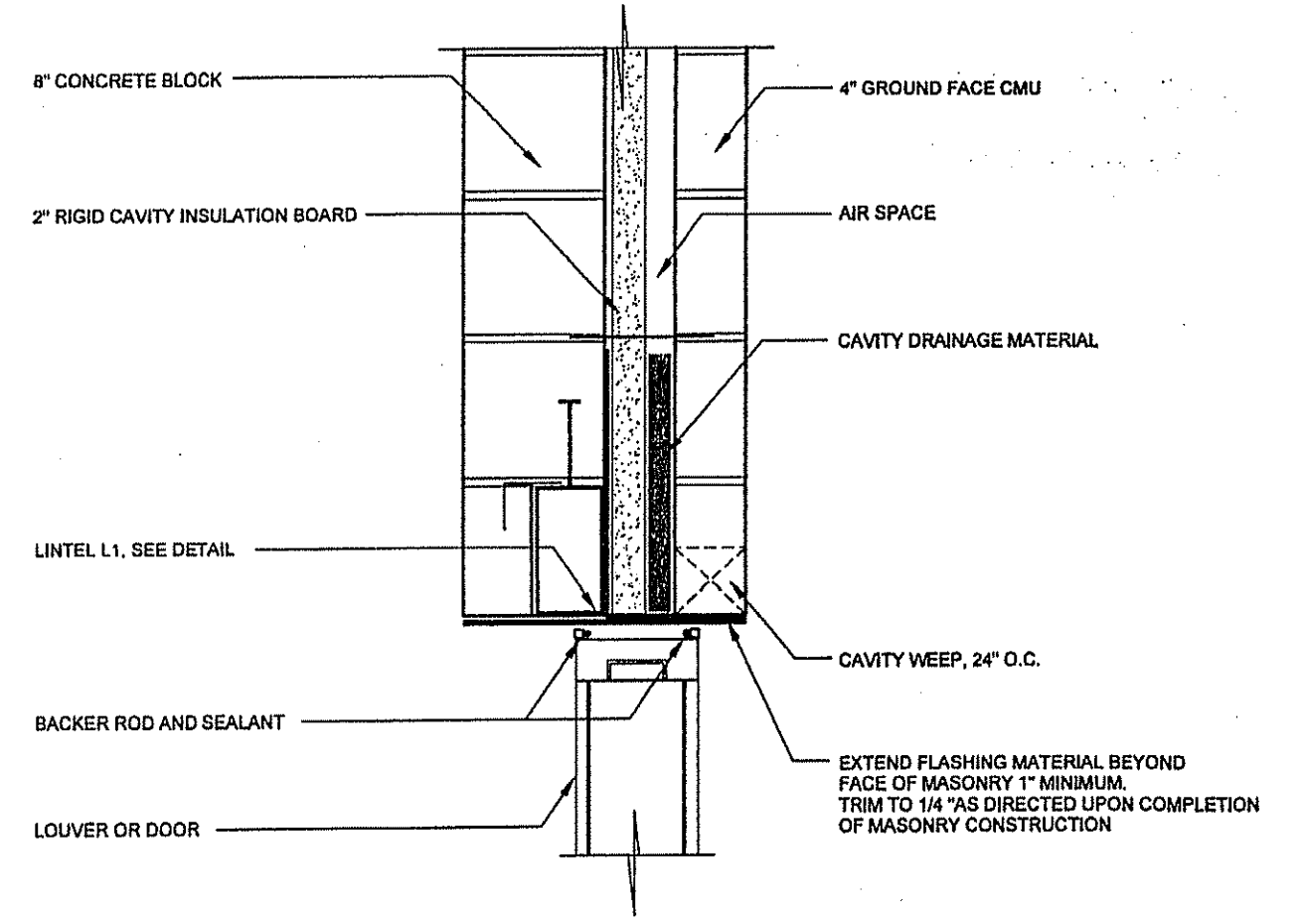
SLAB CONTROL JOINT DETAIL
NO SCALE



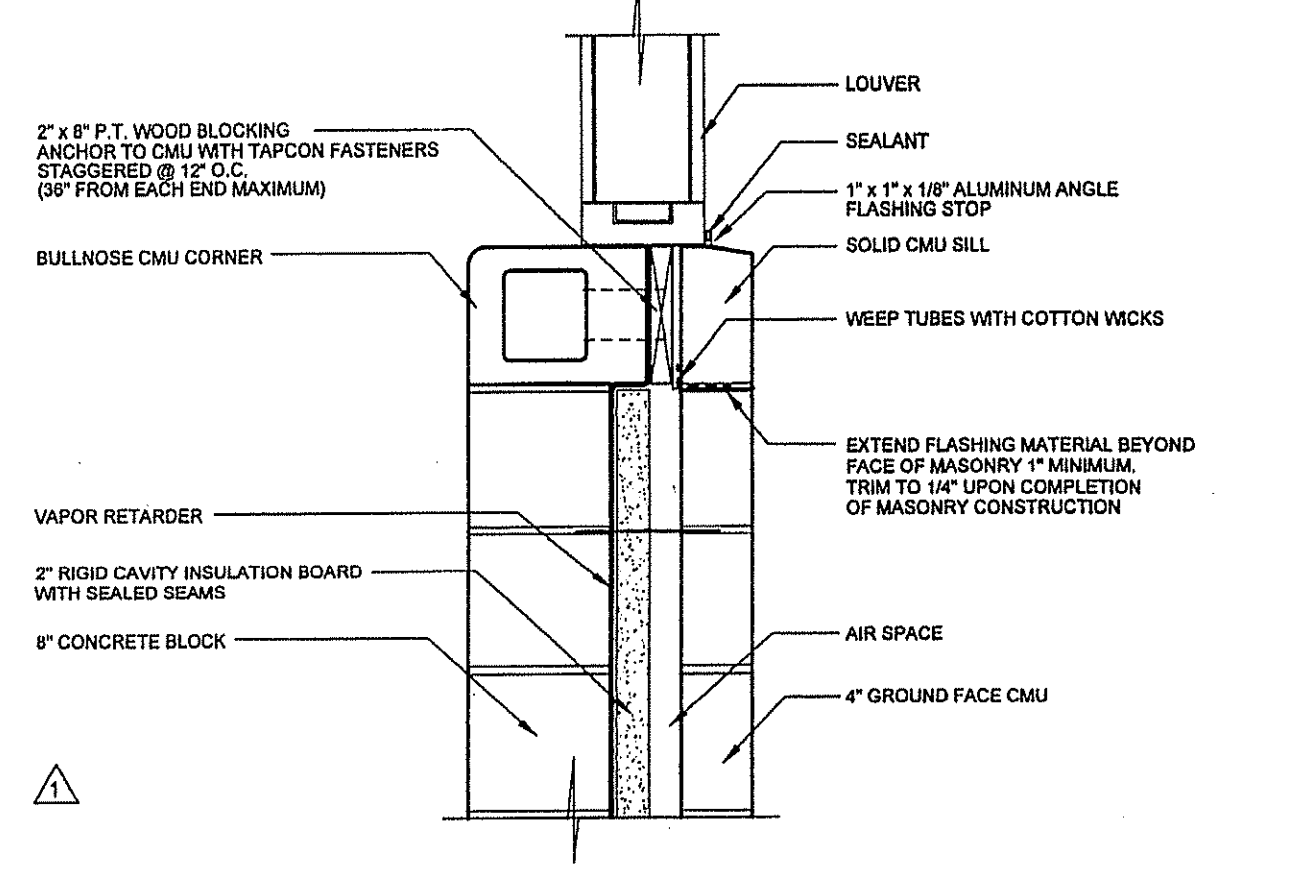
FLOOR PIPE SLEEVE DETAIL
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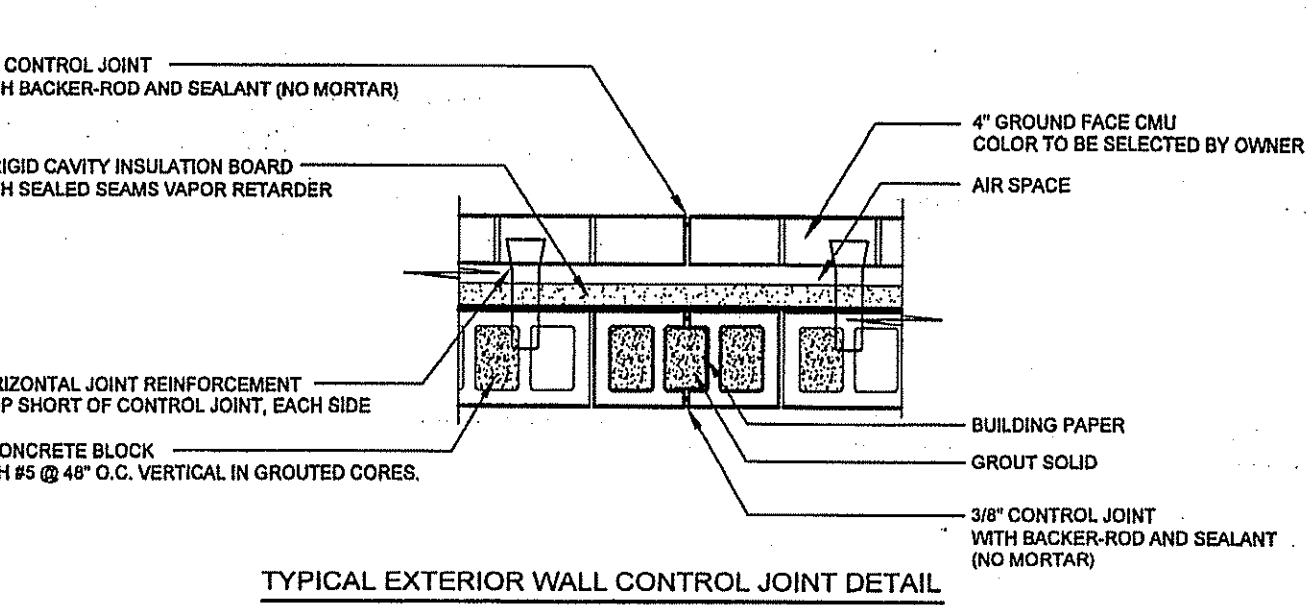
TYPICAL TRUSS BEARING DETAIL
NO SCALE



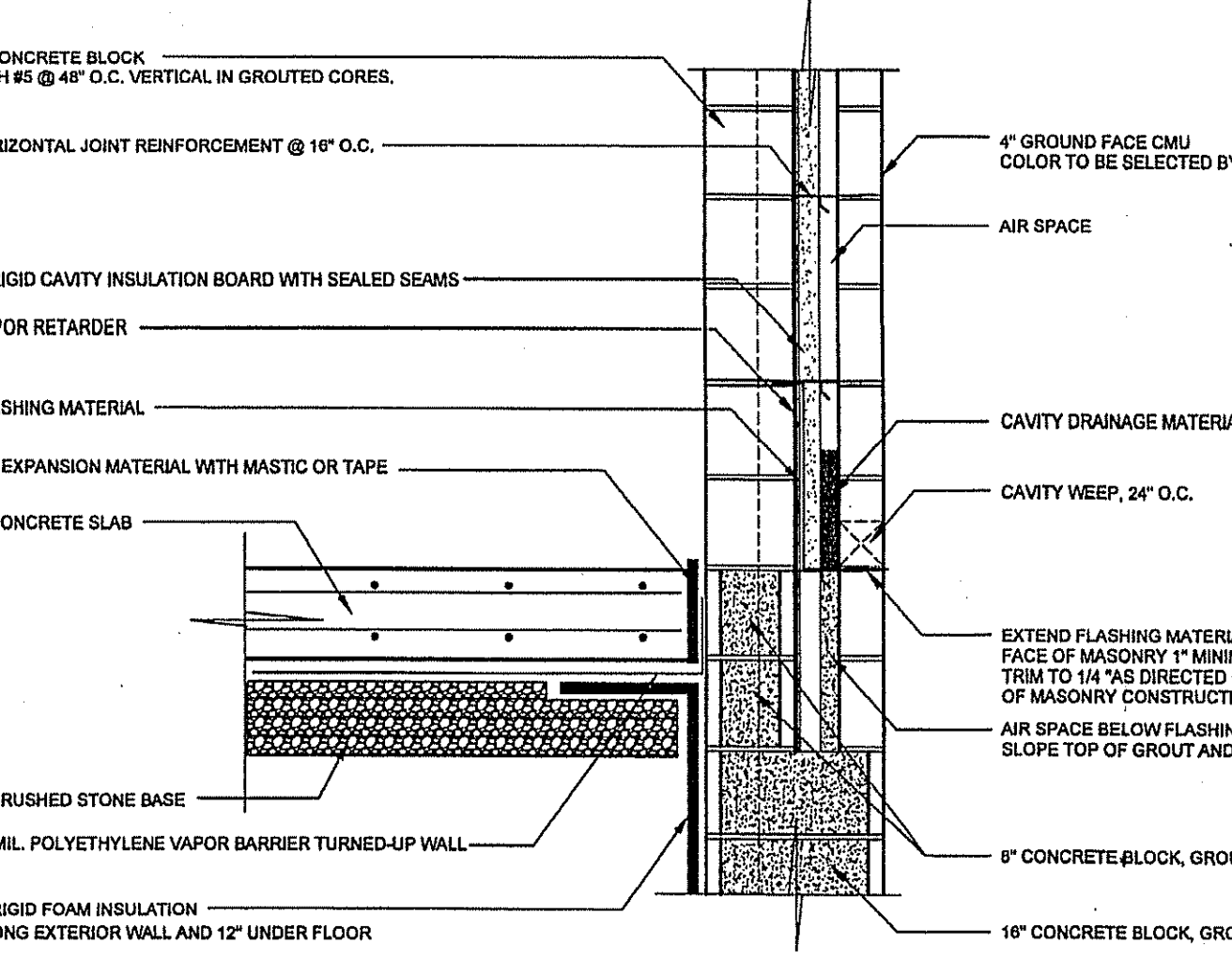
TYPICAL MASONRY OPENING HEAD FLASHING DETAIL
NO SCALE



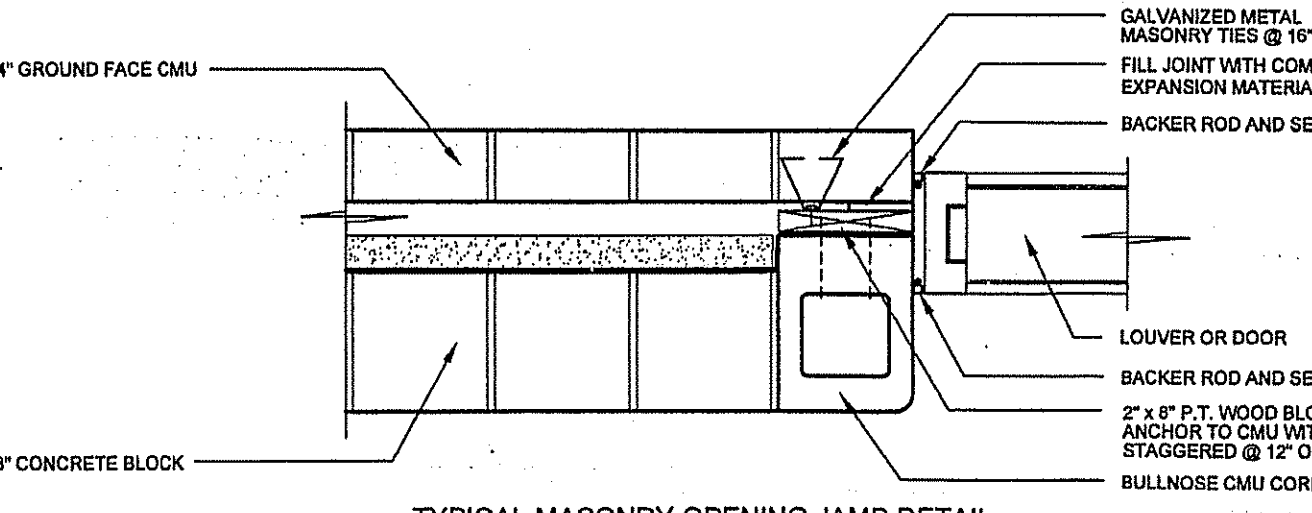
TYPICAL MASONRY OPENING SILL FLASHING DETAIL
NO SCALE



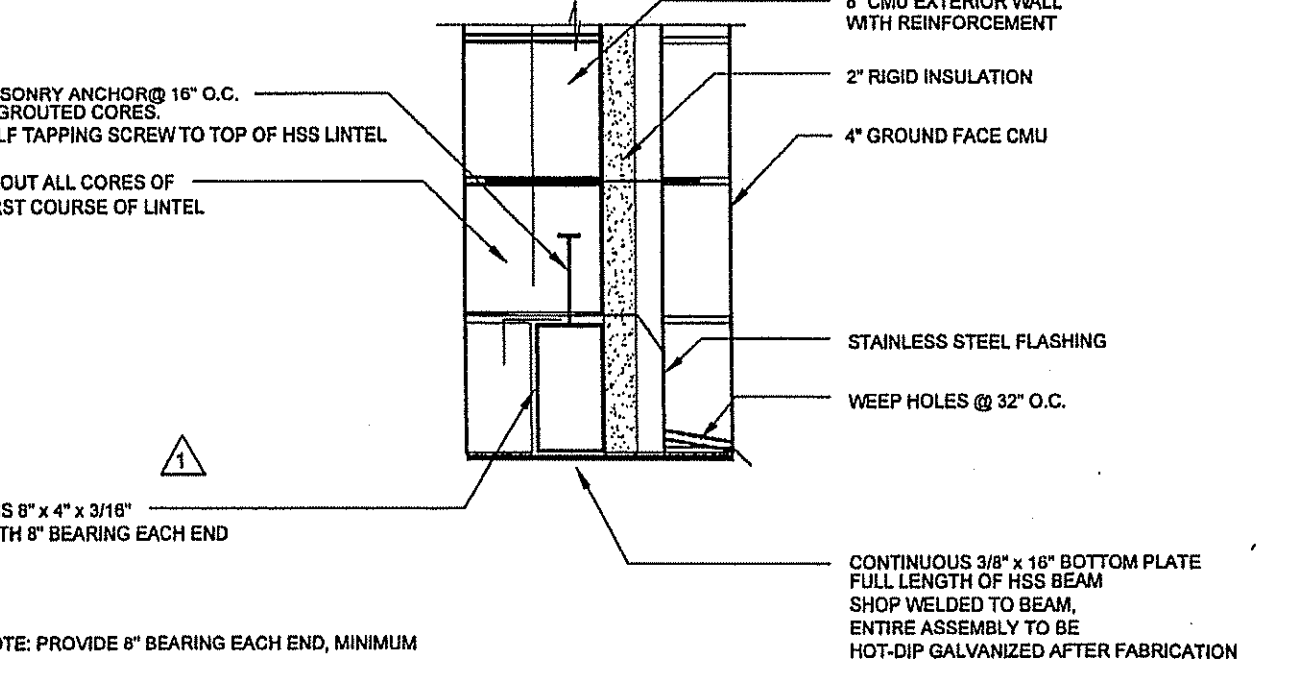
TYPICAL EXTERIOR WALL CONTROL JOINT DETAIL
NO SCALE



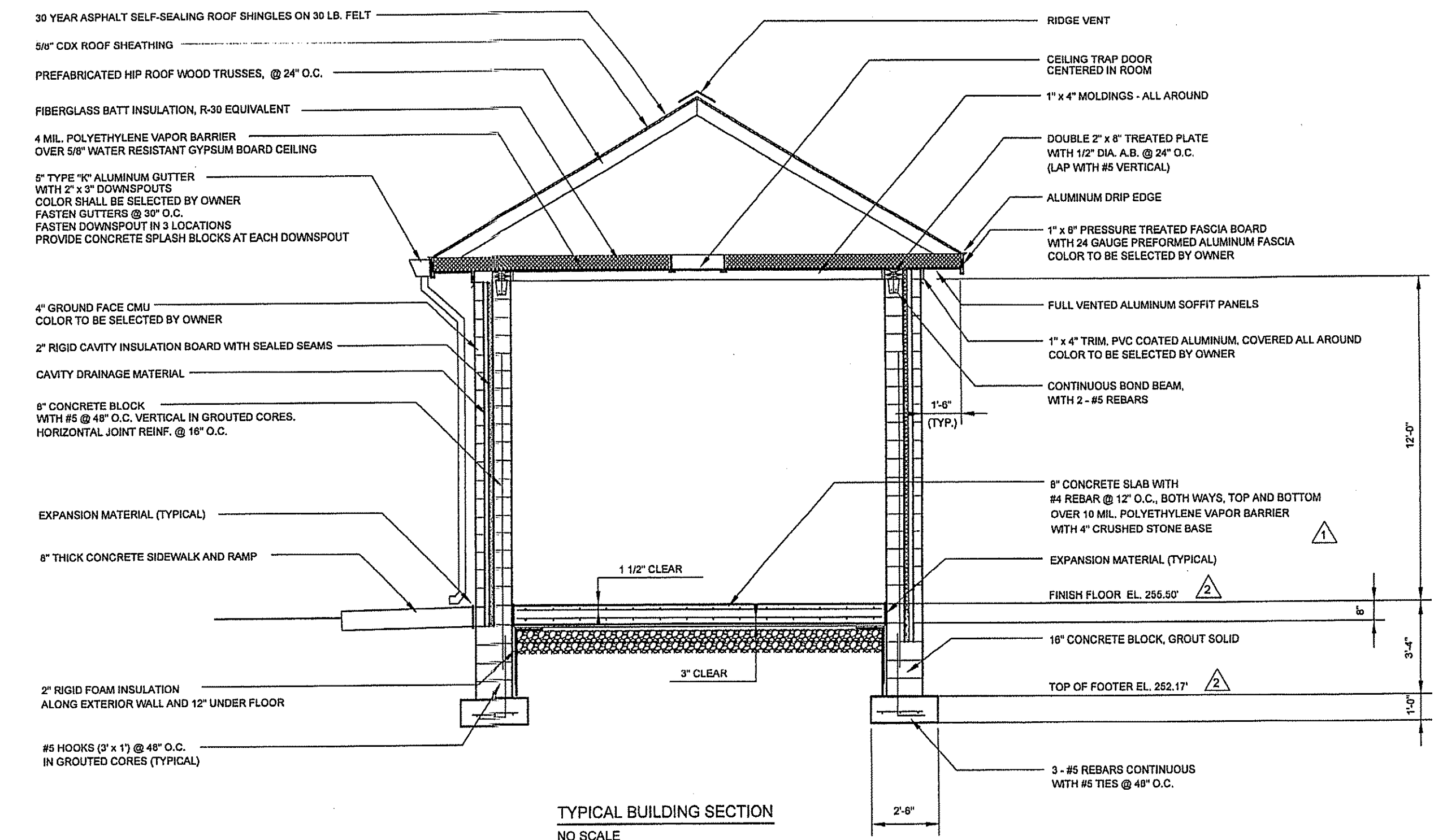
TYPICAL BASE FLASHING DETAIL - MASONRY BACKUP
NO SCALE



TYPICAL MASONRY OPENING JAMB DETAIL
NO SCALE



LINTEL L-1 DETAIL
NO SCALE



TYPICAL BUILDING SECTION
NO SCALE

DUFFIELD ASSOCIATES
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WILMINGTON, DE 19808-1232
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OFFICES IN DELAWARE, MARYLAND, PENNSYLVANIA AND NEW JERSEY
WEB: HTTP://DUFFNET.COM
E-MAIL: DUFFNET@DUFFNET.COM

CHECKED BY: SEH
DESIGNED BY: DAC
DRAWN BY: DAC
FILE NAME: 11746.BA
DATE: 8-21-2019

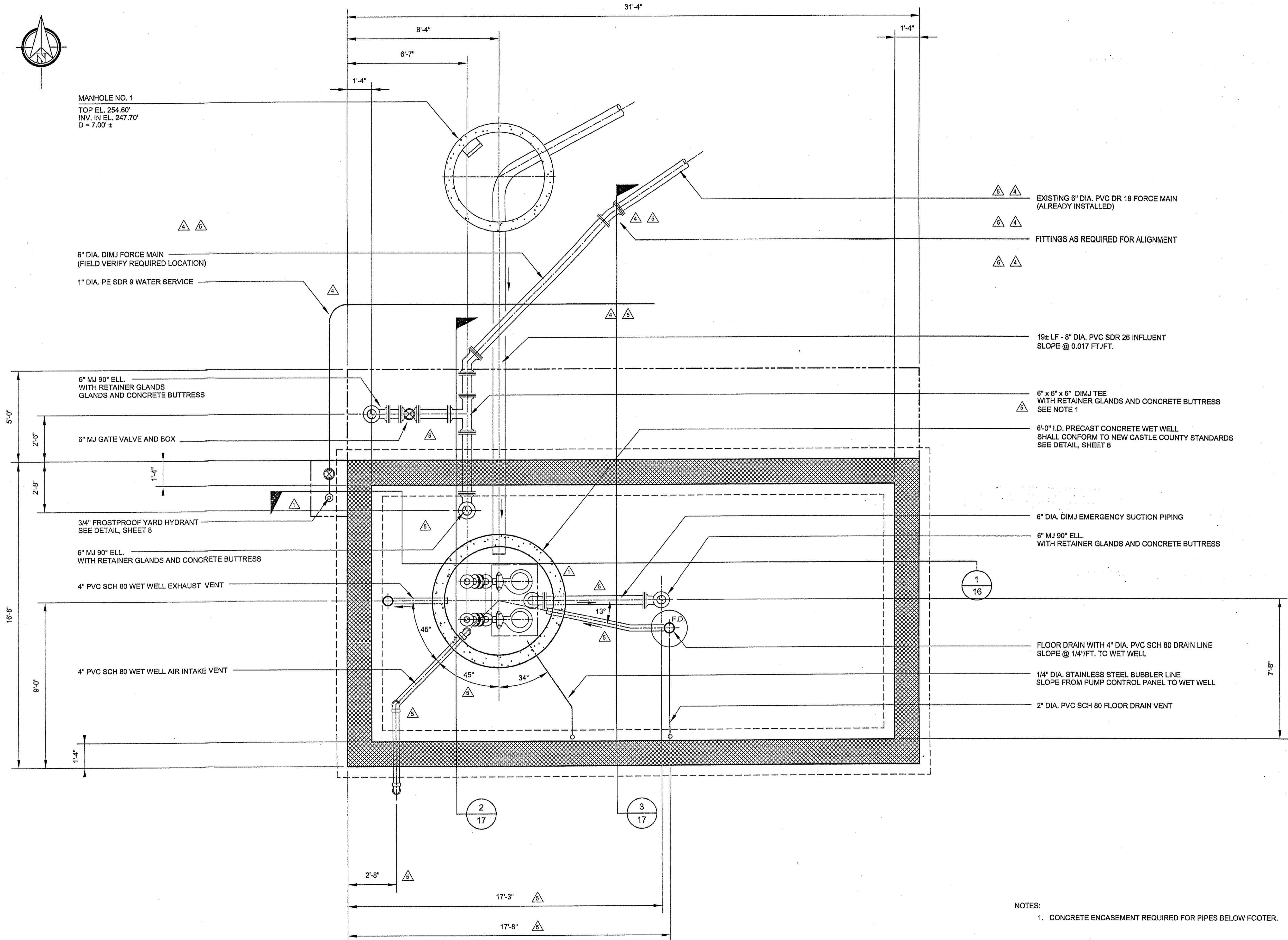
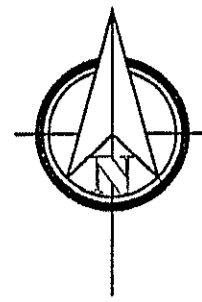
NO.	REVISION	DATE	BY	DESCRIPTION
1	NEW CASTLE COUNTY COMMENTS	8-21-2019	SEH	
2	SITE GRADING CHANGES	8-21-2019	SEH	
3	CLIENT REQUESTED REVISIONS	8-21-2019	SEH	

OWNER: TRESID GROUP LLC
PO BOX 115
YORKLYN, DE 19386

STRUCTURAL DETAILS

**QUARRY WALK
SEWAGE PUMPING STATION
WILMINGTON--NEW CASTLE COUNTY--DELAWARE**

DATE: 8-21-2019
SCALE: AS SHOWN
PROJECT NO. 11746.BA
SHEET: 12 OF 21



MANHOLE NO. 1
TOP EL. 254.60'
INV. IN EL. 247.70'
D = 7.00' ±

6" DIA. DIMJ FORCE MAIN
(FIELD VERIFY REQUIRED LOCATION)

1" DIA. PE SDR 9 WATER SERVICE

6" MJ 90° ELL.
WITH RETAINER GLANDS
GLANDS AND CONCRETE BUTTRESS

6" MJ GATE VALVE AND BOX

3/4" FROSTPROOF YARD HYDRANT
SEE DETAIL, SHEET 8

6" MJ 90° ELL.
WITH RETAINER GLANDS AND CONCRETE BUTTRESS

4" PVC SCH 80 WET WELL EXHAUST VENT

4" PVC SCH 80 WET WELL AIR INTAKE VENT

EXISTING 6" DIA. PVC DR 18 FORCE MAIN
(ALREADY INSTALLED)

FITTINGS AS REQUIRED FOR ALIGNMENT

19± LF - 8" DIA. PVC SDR 26 INFLUENT
SLOPE @ 0.017 FT./FT.

6" x 6" x 6" DIMJ TEE
WITH RETAINER GLANDS AND CONCRETE BUTTRESS
SEE NOTE 1

6'-0" I.D. PRECAST CONCRETE WET WELL
SHALL CONFORM TO NEW CASTLE COUNTY STANDARDS
SEE DETAIL, SHEET 8

6" DIA. DIMJ EMERGENCY SUCTION PIPING

6" MJ 90° ELL.
WITH RETAINER GLANDS AND CONCRETE BUTTRESS

FLOOR DRAIN WITH 4" DIA. PVC SCH 80 DRAIN LINE
SLOPE @ 1/4" FT. TO WET WELL

1/4" DIA. STAINLESS STEEL BUBBLER LINE
SLOPE FROM PUMP CONTROL PANEL TO WET WELL

2" DIA. PVC SCH 80 FLOOR DRAIN VENT

NOTES:
1. CONCRETE ENCASEMENT REQUIRED FOR PIPES BELOW FOOTER.

SEWAGE PUMPING STATION - MECHANICAL FOUNDATION PLAN

SCALE : 3/8" = 1'-0"

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E-MAIL: DUFFIELD@DUFFNET.COM

CHECKED BY: [Signature]
DESIGNED BY: [Signature]
DRAWN BY: [Signature]

NO.	REVISION	DATE	BY
1	NEW CASTLE COUNTY COMMENTS	1-8-21	SCH
2	NEW CASTLE COUNTY COMMENTS	1-8-21	SCH
3	NEW CASTLE COUNTY COMMENTS	1-8-21	SCH
4	REVISOR FORCE MAIN SIZE PER PUMP SUPPLIER RECOMMENDATIONS	8-21-19	SCH
5	NCC COMMENTS AND REVISED DESIGN	7-26-23	SCH

OWNER: TRESID GROUP LLC
PO BOX 111
YORKLIN, DE 19786

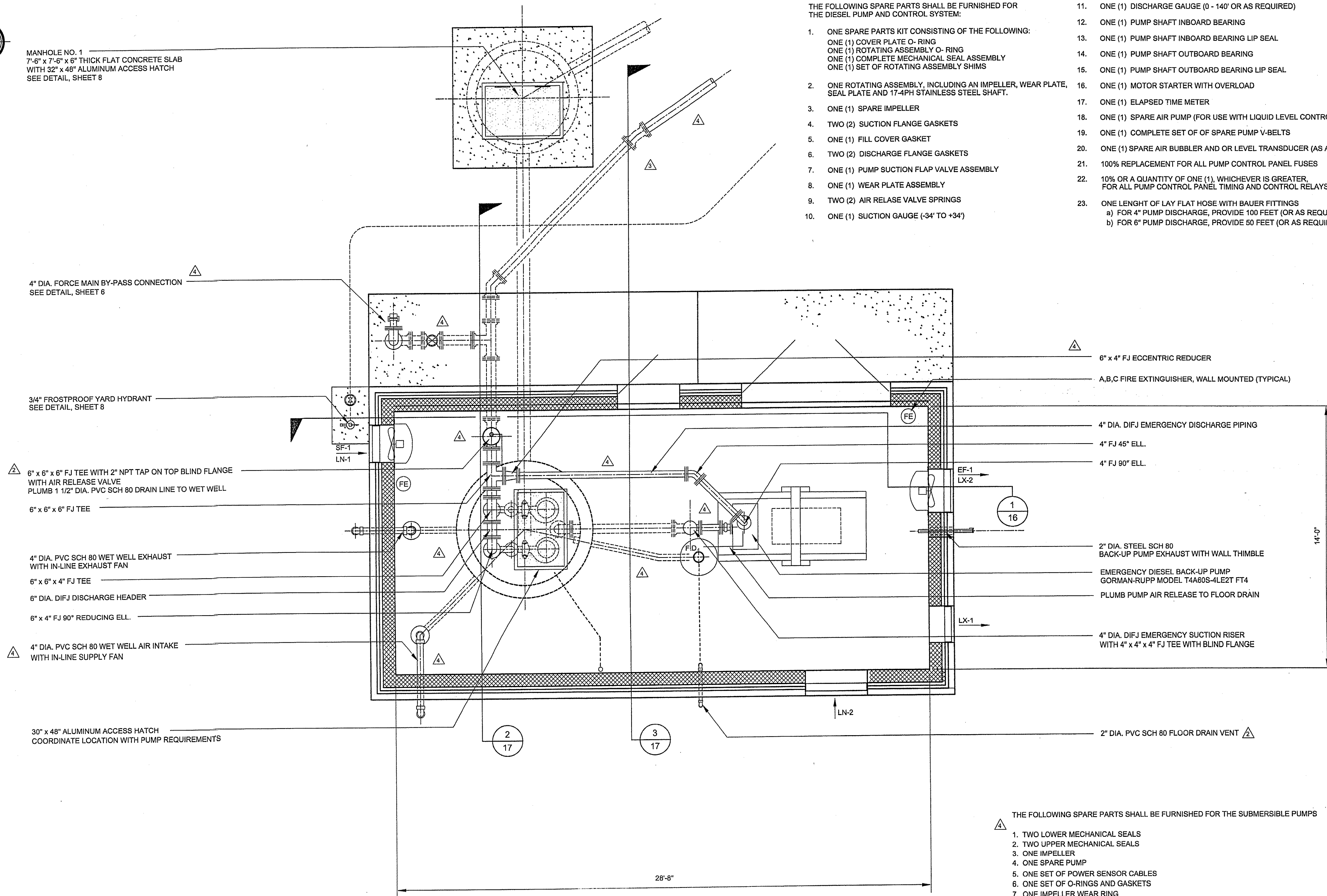
MECHANICAL FOUNDATION PLAN
QUARRY WALK
SEWAGE PUMPING STATION
WILMINGTON-NEW CASTLE COUNTY-DELAWARE

DATE: 8-21-2019
SCALE: 3/8" = 1'-0"
PROJECT NO. 11746.BA
SHEET: 13 OF 21





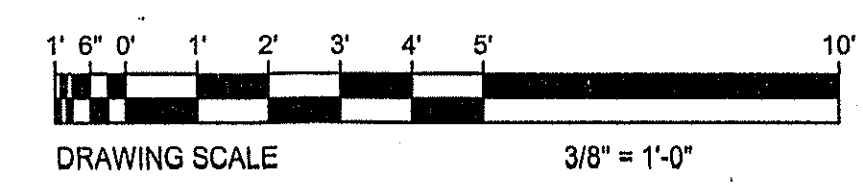
MANHOLE NO. 1
7'-6" x 7'-6" x 6" THICK FLAT CONCRETE SLAB
WITH 32" x 48" ALUMINUM ACCESS HATCH
SEE DETAIL, SHEET 8



- THE FOLLOWING SPARE PARTS SHALL BE FURNISHED FOR THE DIESEL PUMP AND CONTROL SYSTEM:
- ONE SPARE PARTS KIT CONSISTING OF THE FOLLOWING:
ONE (1) COVER PLATE O-RING
ONE (1) ROTATING ASSEMBLY O-RING
ONE (1) COMPLETE MECHANICAL SEAL ASSEMBLY
ONE (1) SET OF ROTATING ASSEMBLY SHIMS
 - ONE ROTATING ASSEMBLY, INCLUDING AN IMPELLER, WEAR PLATE, SEAL PLATE AND 17-4PH STAINLESS STEEL SHAFT.
 - ONE (1) SPARE IMPELLER
 - TWO (2) SUCTION FLANGE GASKETS
 - ONE (1) FILL COVER GASKET
 - TWO (2) DISCHARGE FLANGE GASKETS
 - ONE (1) PUMP SUCTION FLAP VALVE ASSEMBLY
 - ONE (1) WEAR PLATE ASSEMBLY
 - TWO (2) AIR RELEASE VALVE SPRINGS
 - ONE (1) SUCTION GAUGE (-34' TO +34')
 - ONE (1) DISCHARGE GAUGE (0 - 140' OR AS REQUIRED)
 - ONE (1) PUMP SHAFT INBOARD BEARING
 - ONE (1) PUMP SHAFT INBOARD BEARING LIP SEAL
 - ONE (1) PUMP SHAFT OUTBOARD BEARING
 - ONE (1) PUMP SHAFT OUTBOARD BEARING LIP SEAL
 - ONE (1) MOTOR STARTER WITH OVERLOAD
 - ONE (1) ELAPSED TIME METER
 - ONE (1) SPARE AIR PUMP (FOR USE WITH LIQUID LEVEL CONTROL SYSTEM)
 - ONE (1) COMPLETE SET OF SPARE PUMP V-BELTS
 - ONE (1) SPARE AIR BUBBLER AND OR LEVEL TRANSDUCER (AS APPROPRIATE)
 - 100% REPLACEMENT FOR ALL PUMP CONTROL PANEL FUSES
 - 10% OR A QUANTITY OF ONE (1), WHICHEVER IS GREATER, FOR ALL PUMP CONTROL PANEL TIMING AND CONTROL RELAYS
 - ONE LENGTH OF LAY FLAT HOSE WITH BAUER FITTINGS
a) FOR 4" PUMP DISCHARGE, PROVIDE 100 FEET (OR AS REQUIRED)
b) FOR 6" PUMP DISCHARGE, PROVIDE 50 FEET (OR AS REQUIRED)

- THE FOLLOWING SPARE PARTS SHALL BE FURNISHED FOR THE SUBMERSIBLE PUMPS
- TWO LOWER MECHANICAL SEALS
 - TWO UPPER MECHANICAL SEALS
 - ONE IMPELLER
 - ONE SPARE PUMP
 - ONE SET OF POWER SENSOR CABLES
 - ONE SET OF O-RINGS AND GASKETS
 - ONE IMPELLER WEAR RING
 - ONE CASING WEAR RING
 - ONE COMPLETE SET OF BEARINGS

SEWAGE PUMPING STATION - MECHANICAL FLOOR PLAN
SCALE: 3/8" = 1'-0"



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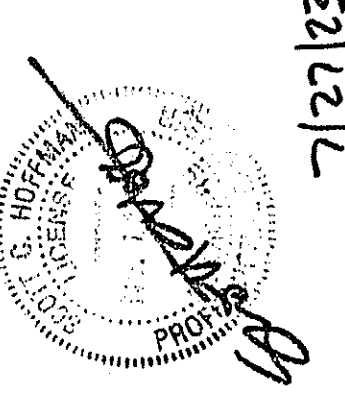
7/27/23

NO.	REVISION	DATE	BY	DESCRIPTION
1	NEW CASTLE COUNTY COMMENTS	4-2-21	SCH	
2	REVISOR FORCE MAIN	5-2-21	SCH	
3	PER PUMP SUPPLIER RECOMMENDATIONS	7-28-23	SCH	
4	NCCOMMENTS AND REVISED DESIGN			

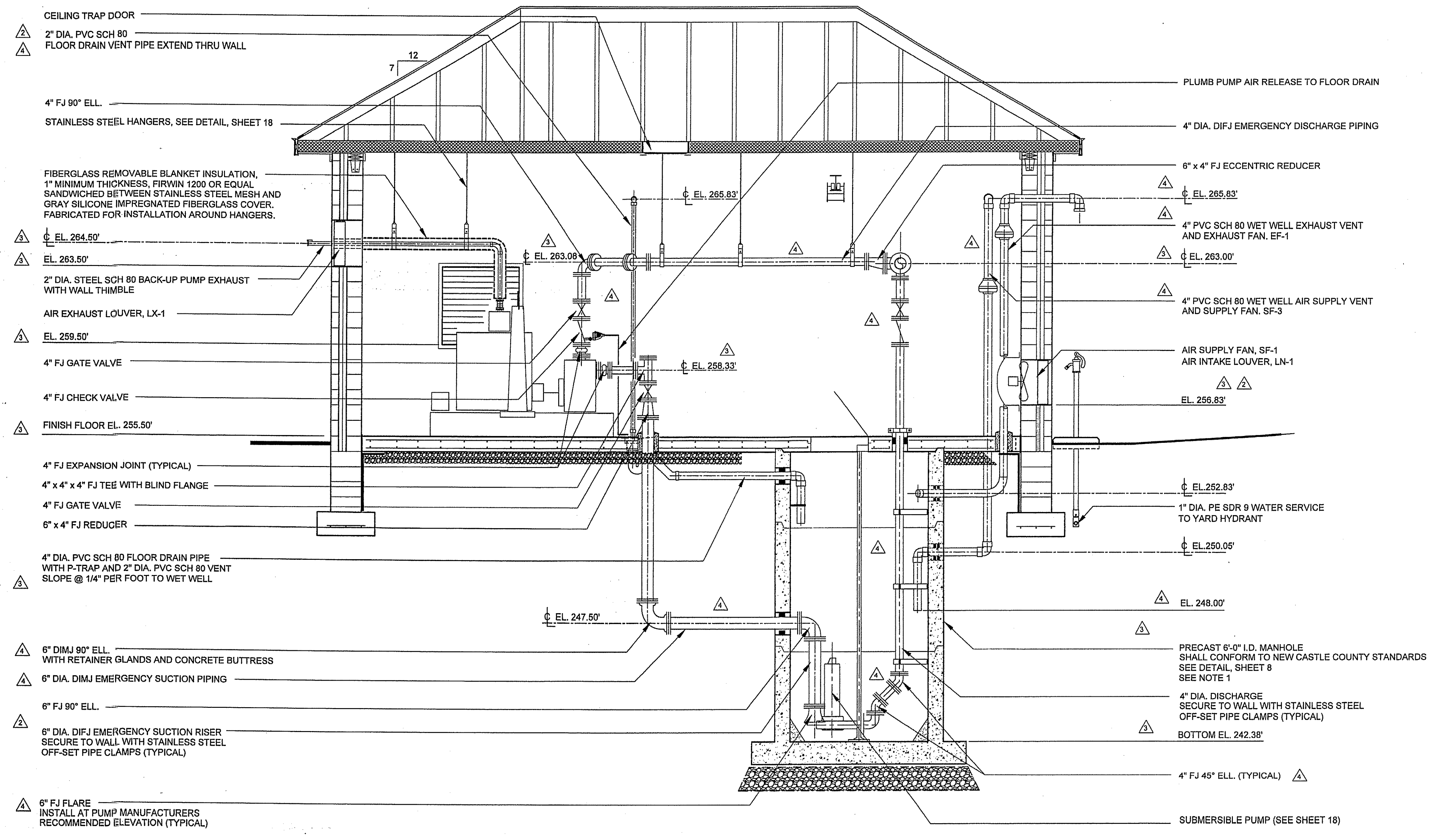
OWNER: TERESIO GROUP LLC
PO BOX 113
YORKLYN, DE 19736

MECHANICAL FLOOR PLAN
QUARRY WALK
SEWAGE PUMPING STATION
WILMINGTON-NEW CASTLE COUNTY-DELAWARE

DATE: 8-21-2019
SCALE: 3/8" = 1'-0"
PROJECT NO. 11746.BA
SHEET: 14 OF 21



7/27/23



CEILING TRAP DOOR
2" DIA. PVC SCH 80 FLOOR DRAIN VENT PIPE EXTEND THRU WALL

4" FJ 90° ELL.
STAINLESS STEEL HANGERS, SEE DETAIL, SHEET 18

FIBERGLASS REMOVABLE BLANKET INSULATION, 1" MINIMUM THICKNESS, FIRWIN 1200 OR EQUAL SANDWICHED BETWEEN STAINLESS STEEL MESH AND GRAY SILICONE IMPREGNATED FIBERGLASS COVER. FABRICATED FOR INSTALLATION AROUND HANGERS.

EL. 264.50'

EL. 263.50'

2" DIA. STEEL SCH 80 BACK-UP PUMP EXHAUST WITH WALL THIMBLE

AIR EXHAUST LOUVER, LX-1

EL. 259.50'

4" FJ GATE VALVE

4" FJ CHECK VALVE

FINISH FLOOR EL. 255.50'

4" FJ EXPANSION JOINT (TYPICAL)

4" x 4" x 4" FJ TEE WITH BLIND FLANGE

4" FJ GATE VALVE

6" x 4" FJ REDUCER

4" DIA. PVC SCH 80 FLOOR DRAIN PIPE WITH P-TRAP AND 2" DIA. PVC SCH 80 VENT SLOPE @ 1/4" PER FOOT TO WET WELL

EL. 247.50'

6" DIMJ 90° ELL. WITH RETAINER GLANDS AND CONCRETE BUTTRESS

6" DIA. DIMJ EMERGENCY SUCTION PIPING

6" FJ 90° ELL.

6" DIA. DIFJ EMERGENCY SUCTION RISER SECURE TO WALL WITH STAINLESS STEEL OFF-SET PIPE CLAMPS (TYPICAL)

6" FJ FLARE INSTALL AT PUMP MANUFACTURERS RECOMMENDED ELEVATION (TYPICAL)

PLUMB PUMP AIR RELEASE TO FLOOR DRAIN

4" DIA. DIFJ EMERGENCY DISCHARGE PIPING

6" x 4" FJ ECCENTRIC REDUCER

EL. 265.83'

4" PVC SCH 80 WET WELL EXHAUST VENT AND EXHAUST FAN, EF-1

EL. 263.00'

4" PVC SCH 80 WET WELL AIR SUPPLY VENT AND SUPPLY FAN, SF-3

AIR SUPPLY FAN, SF-1 AIR INTAKE LOUVER, LN-1

EL. 256.83'

1" DIA. PE SDR 9 WATER SERVICE TO YARD HYDRANT

EL. 250.05'

EL. 248.00'

PRECAST 6'-0" I.D. MANHOLE SHALL CONFORM TO NEW CASTLE COUNTY STANDARDS SEE DETAIL, SHEET 8 SEE NOTE 1

4" DIA. DISCHARGE SECURE TO WALL WITH STAINLESS STEEL OFF-SET PIPE CLAMPS (TYPICAL)

BOTTOM EL. 242.38'

4" FJ 45° ELL. (TYPICAL)

SUBMERSIBLE PUMP (SEE SHEET 18)

SECTION Δ Δ

SCALE : 3/8" = 1'-0"
SEE SHEET 14

1
16

- NOTES:
1. PRECASTER SHALL PROVIDE WET WELL STRUCTURAL AND BUOYANCY CALCULATIONS. PROVIDE INCREASED MASS AND / OR BALLAST IF NEEDED TO OFFSET BUOYANCY FORCES. CONTACT ENGINEER FOR AVAILABLE SITE GEOTECHNICAL INFORMATION.
 2. ALL DUCTILE IRON PIPING SHALL BE CLASS 52 CEMENT LINED CONFORMING TO AWWA C150 AND C151
 3. ALL PIPING SHALL BE SECURED WITH STAINLESS STEEL HARDWARE.

NO.	REVISION	DESIGNED BY:		CHECKED BY:	
		DATE	SCH	DATE	SCH
1	NEW CASTLE COUNTY COMMENTS	1-9-21	DAC		SCH
2	NEW CASTLE COUNTY COMMENTS	4-2-21	DAC		SCH
3	SITE GRADING CHANGES	6-30-22	DAC		SCH
4	NCC COMMENTS AND REVISED DESIGN	7-28-23	DAC		SCH

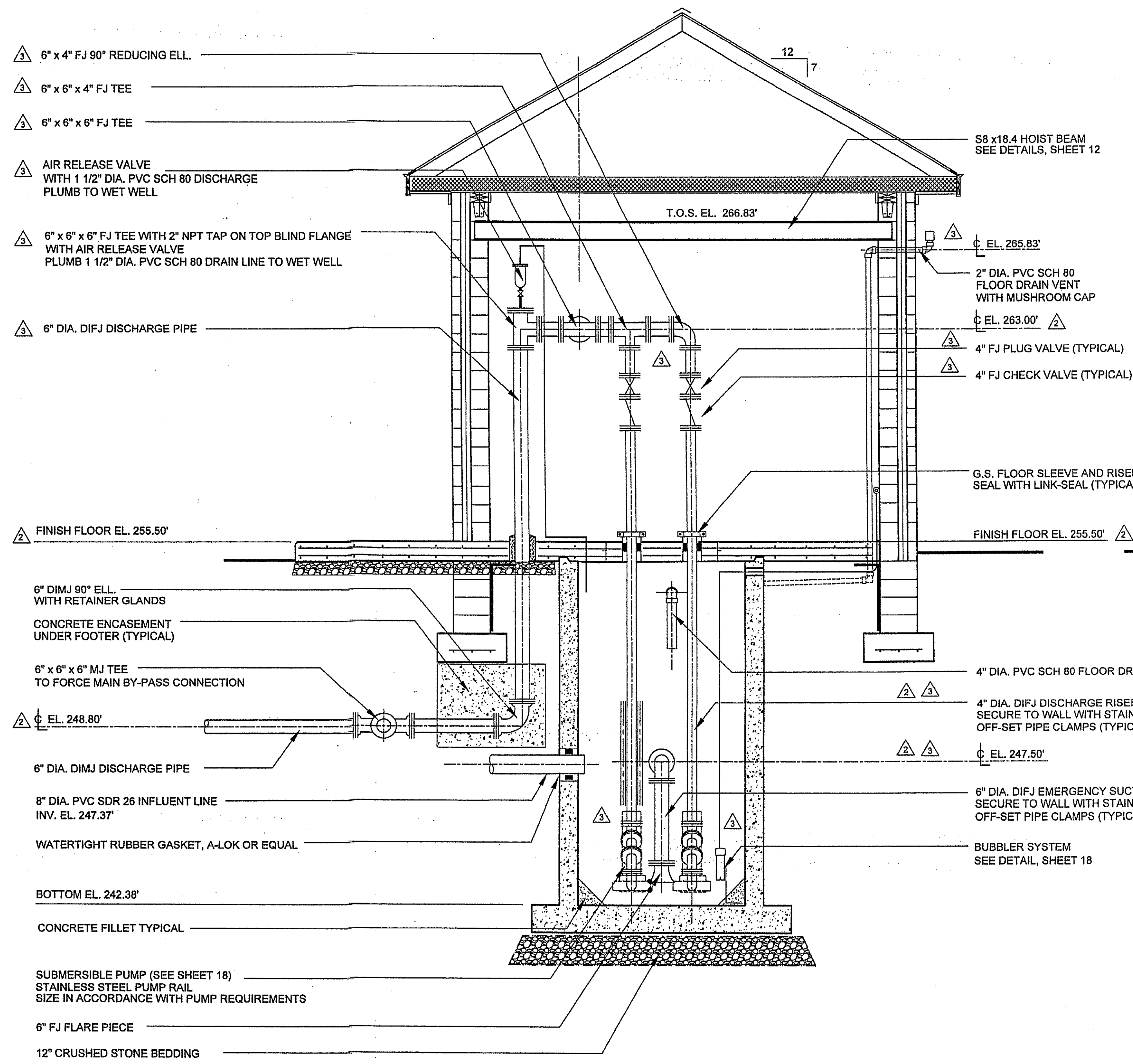
OWNER: TRESID GROUP LLC
1000 WILKINSON BLVD
WILMINGTON, DE 19716

MECHANICAL SECTIONS

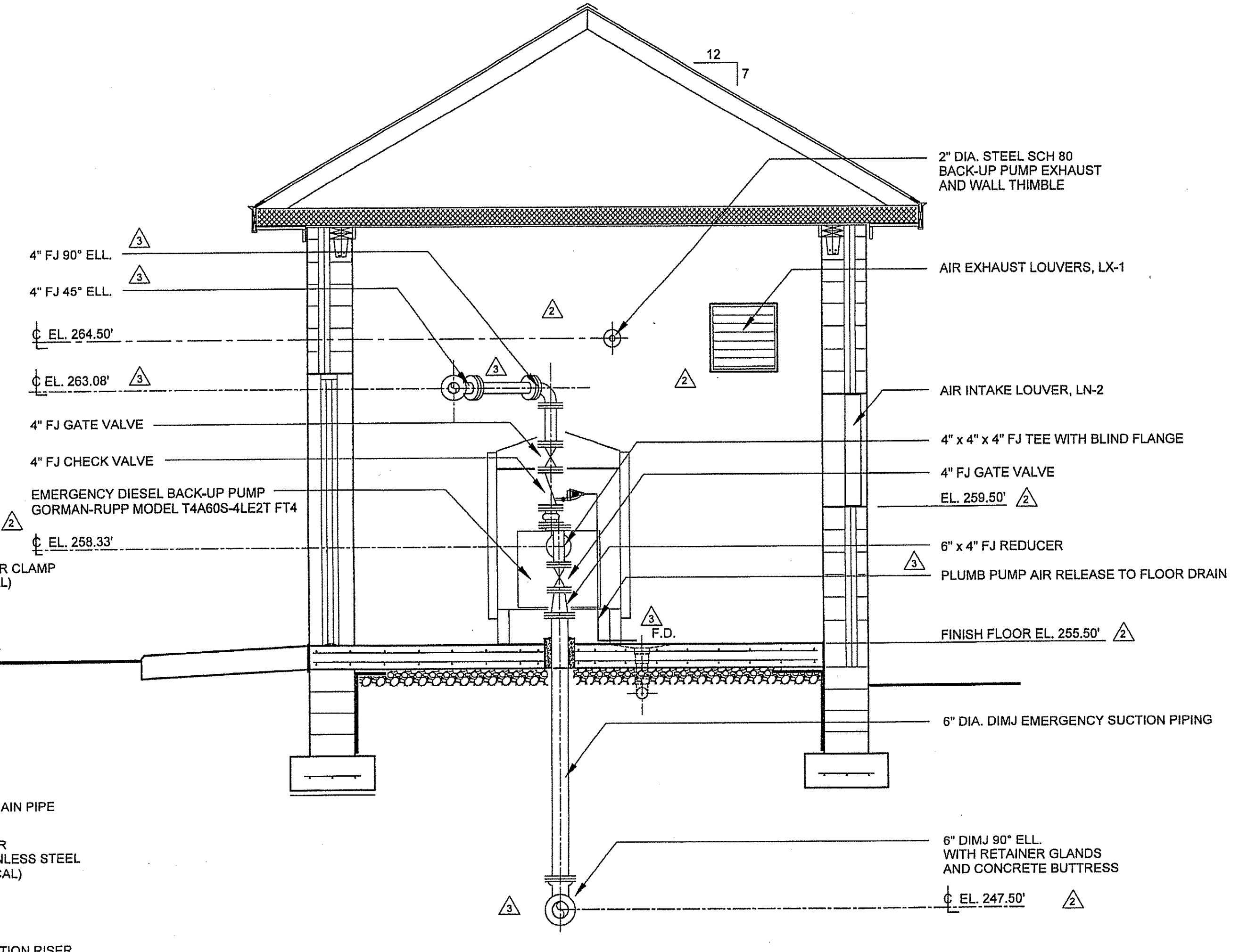
**QUARRY WALK
SEWAGE PUMPING STATION**
WILMINGTON-NEW CASTLE COUNTY-DELAWARE

DATE: 8-21-2019
SCALE: 3/8" = 1'-0"
PROJECT NO. 11746.BA
SHEET: 16 OF 21

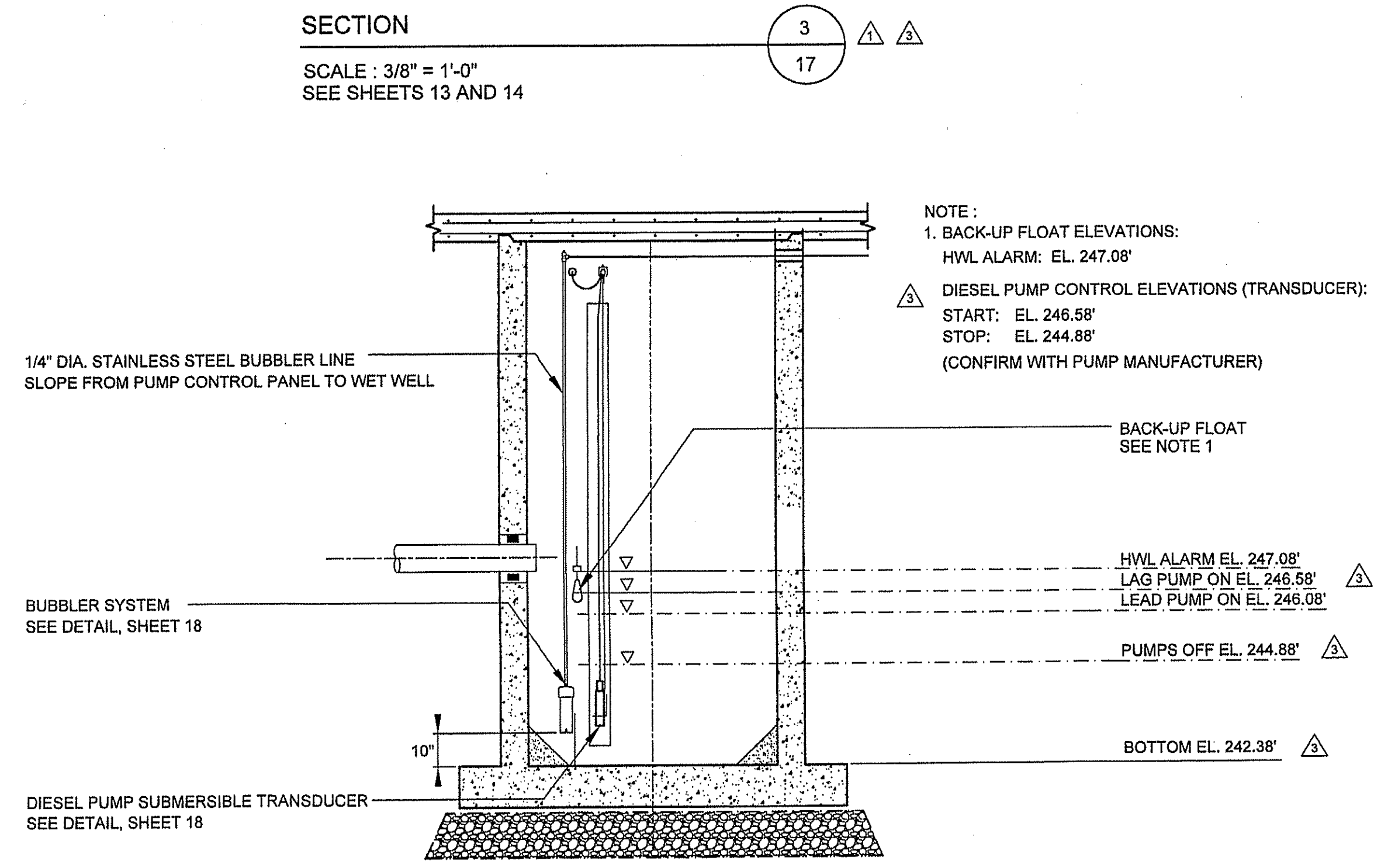




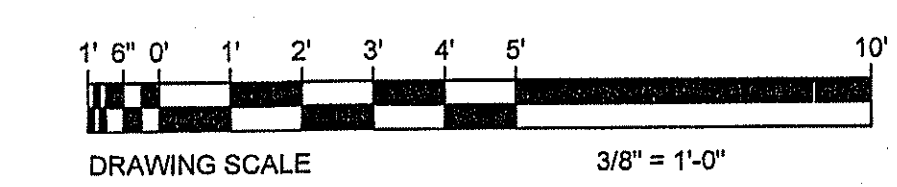
SECTION 2
SCALE: 3/8" = 1'-0"
SEE SHEETS 13 AND 14



SECTION 3
SCALE: 3/8" = 1'-0"
SEE SHEETS 13 AND 14



BUBBLER SYSTEM AND TRANSDUCER INSTALLATION
SCALE: 3/8" = 1'-0"



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WEB: HTTP://DUFFNET.COM
E-MAIL: DUFFIELD@DUFFNET.COM

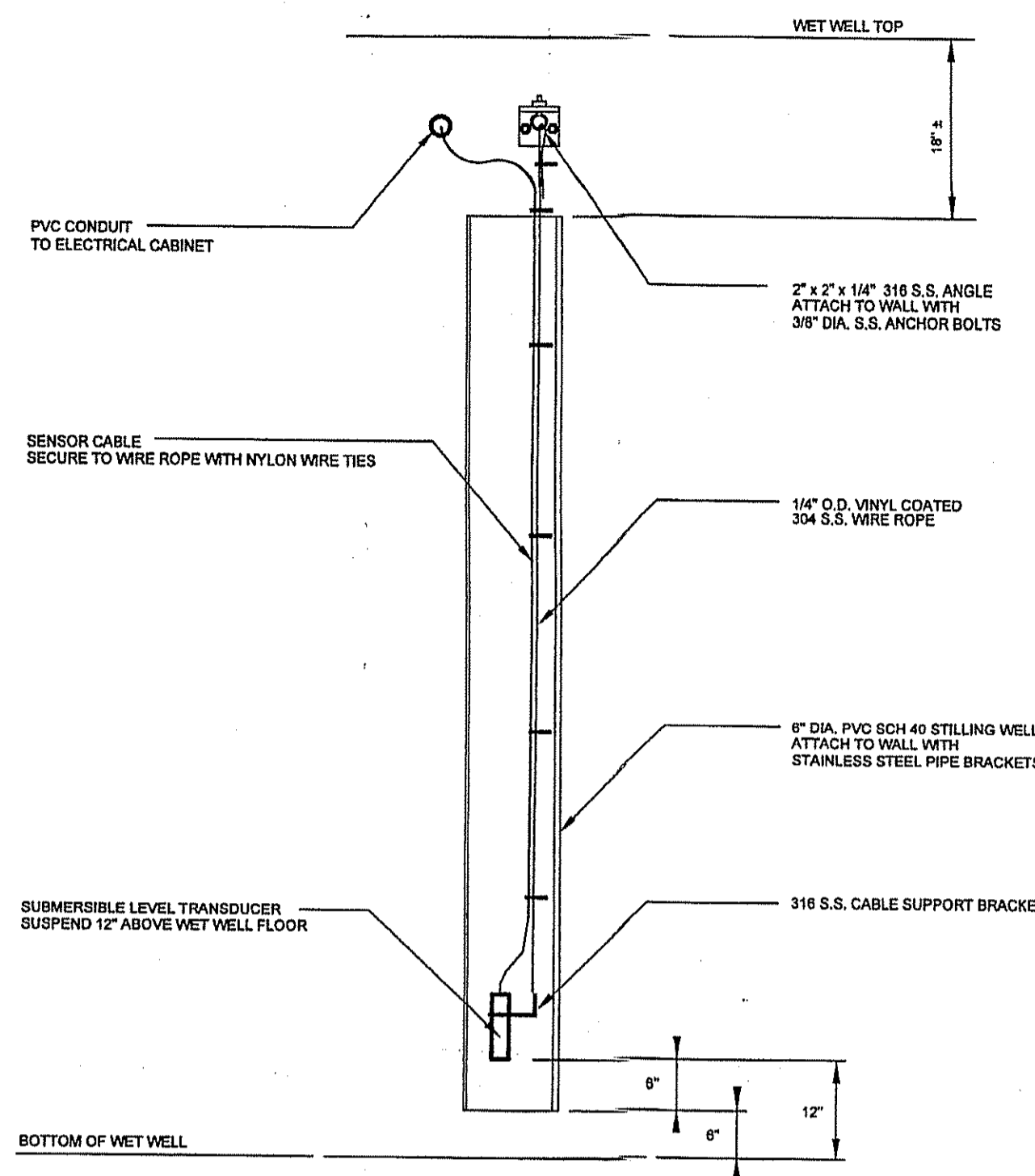
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DESIGNED BY:	DAC	DRAWN BY:	DAC
CHECK BY:	SCH	DATE:	7/26/23
DATE:	8-30-22	BY:	7/26/23

NO.	REVISION	DATE	BY	DESCRIPTION
1	NEW CASTLE COUNTY COMMENTS			
2	SITE GRADING CHANGES			
3	NCC COMMENTS AND REVISED DESIGN			

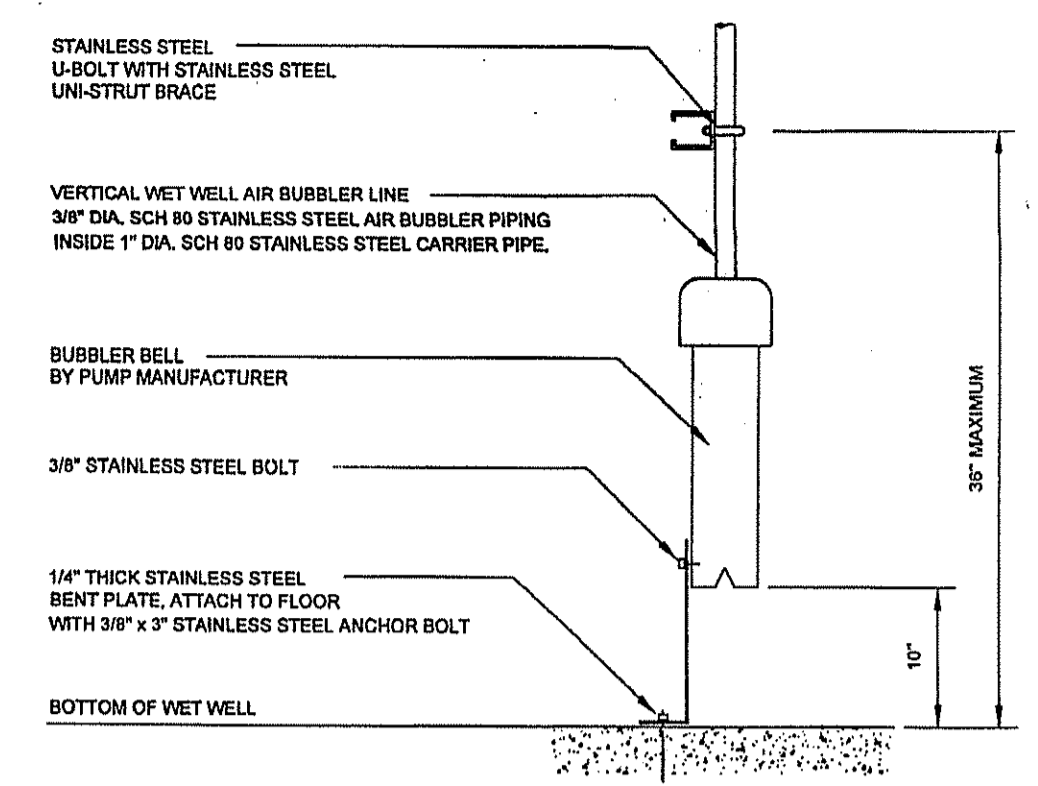
OWNER: TRESID GROUP LLC
YORKLAND, DE 19736

MECHANICAL SECTIONS
QUARRY WALK
SEWAGE PUMPING STATION
WILMINGTON-NEW CASTLE COUNTY-DELAWARE

DATE: 8-21-2019
SCALE: 3/8" = 1'-0"
PROJECT NO. 11746.BA
SHEET: 17 OF 21

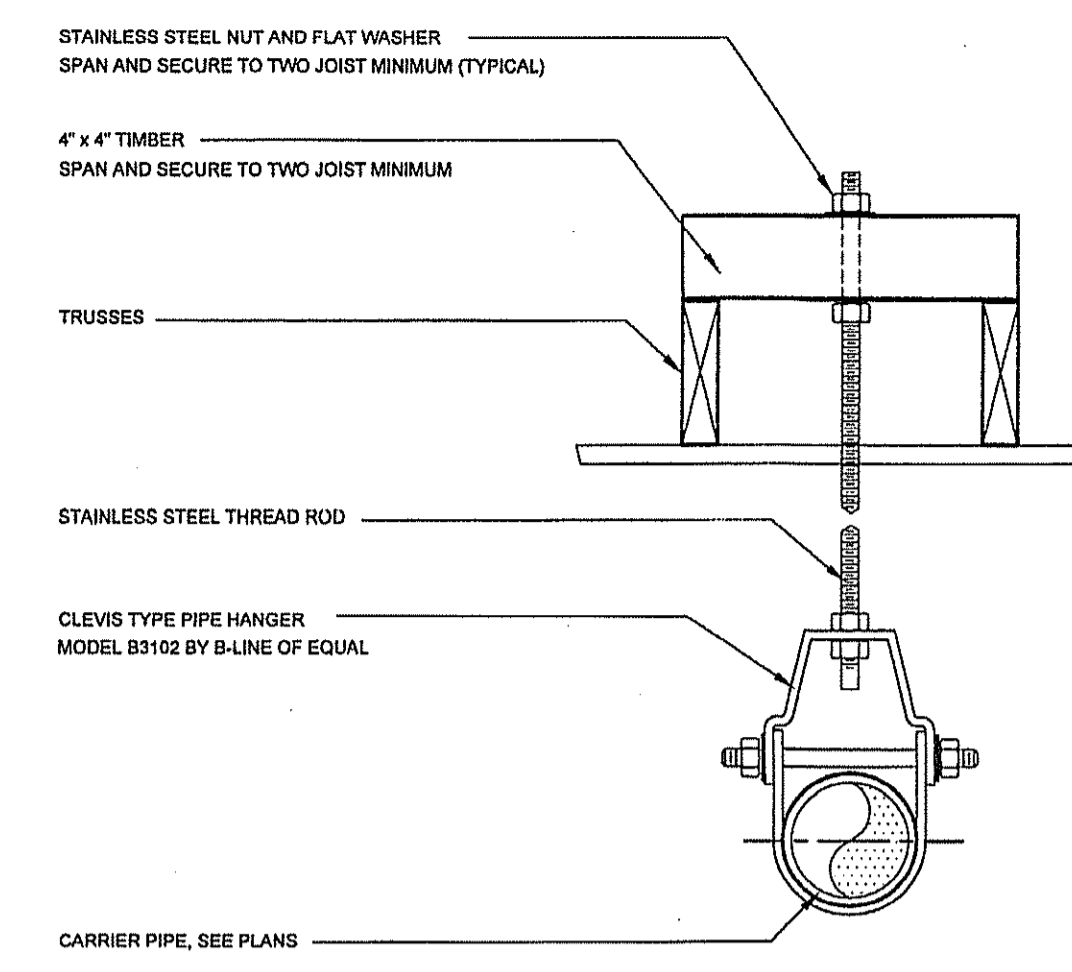


SUBMERSIBLE TRANSDUCER DETAIL
NO SCALE

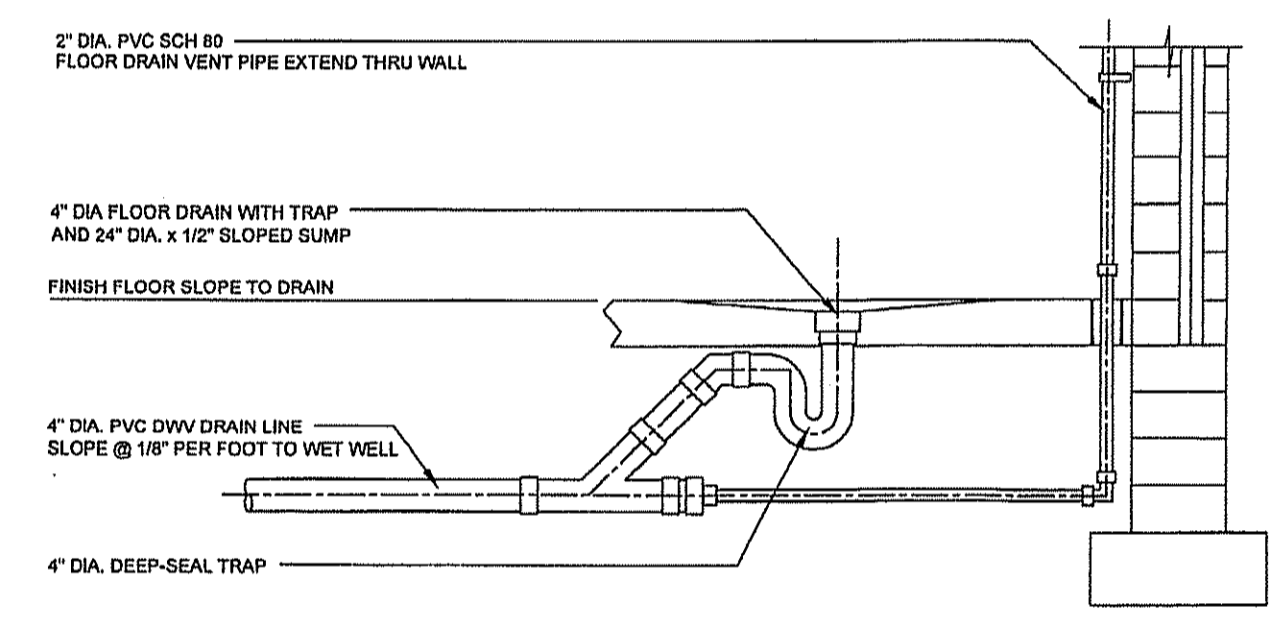


AIR BUBBLER BELL DETAIL
NO SCALE

- NOTES:
1. ALL WET WELL HARDWARE, BRACKETS AND SUPPORTS SHALL BE STAINLESS STEEL.
 2. AIR BUBBLER LINE SHALL BE AIR TIGHT.
 3. TOP OF CONCRETE FILLET IN WET WELL SHALL NOT EXTEND ABOVE "PUMPS OFF" ELEVATION.
 4. CAUTION: DO NOT INSTALL AIR BUBBLER PIPING WITH LOW POINTS WHERE MOISTURE MAY ACCUMULATE.
 5. BUBBLER TO BE INSTALLED AT LOCATION ACCESSIBLE FROM THE WET WELL HATCH FOR CLEANING AND MAINTENANCE.
 6. 1/4" DIA. AIR BUBBLER LINE SHALL BE RUN FROM THE CONTROL PANEL TO THE WET WELL. 3/8" DIA. AIR BUBBLER LINE SHALL BE RUN VERTICALLY IN THE WET WELL.

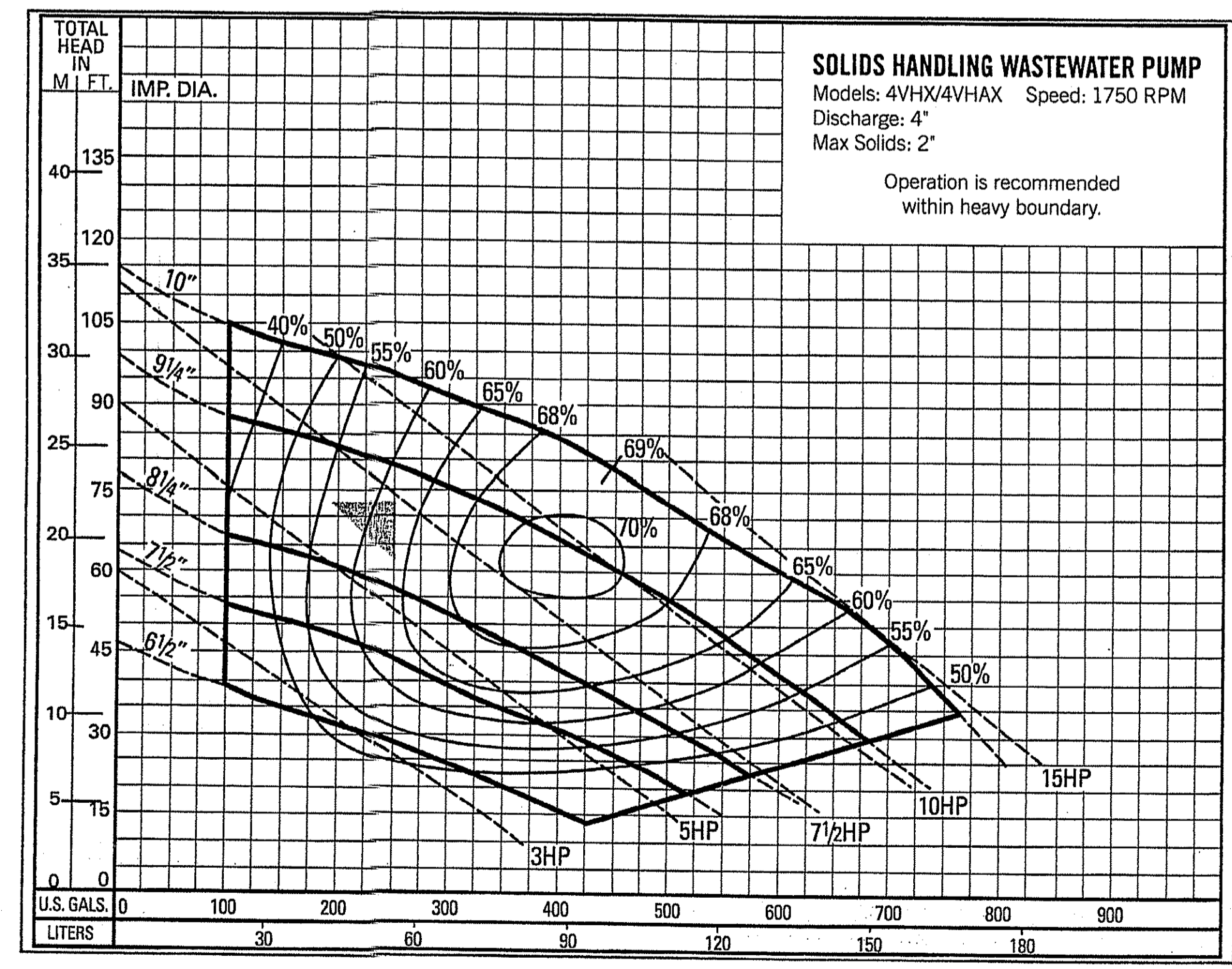


CEILING MOUNTED PIPE SUPPORT DETAIL
NO SCALE



FLOOR DRAIN DETAIL
NO SCALE

1750 RPM PERFORMANCE CURVE



FLOW DESIGN BASIS: 250 GPM, 73.4 FT TDH
10 HP, 1750 RPM, 229 MM DIA. IMPELLER
MODEL: 4VHA100M4-43
AS MANUFACTURED BY PENTAIR MEYERS

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WEB: HTTP://DUFFIELD.COM
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DESIGNED BY:	DAC	CHECKED BY:	SCH
DRAWN BY:	DAC	FILE NAME:	1111111111.dwg
DATE:	8-21-2019	DATE:	8-21-2019

NO.	REVISION
1	NEW CASTLE COUNTY COMMENTS
2	SITE GRADING CHANGES
3	CLIENT REQUESTED REVISIONS

OWNER: TRESID GROUP LLC
PO BOX 115
YORKLYN, DE 19756

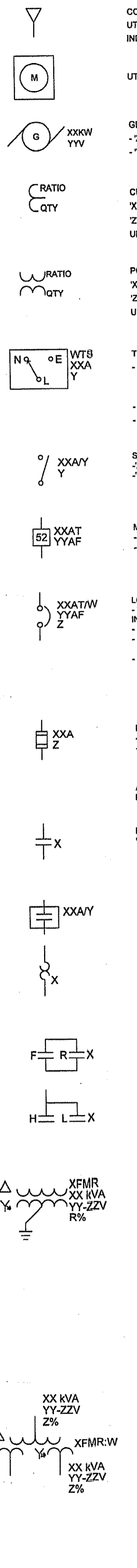
MECHANICAL DETAILS
QUARRY WALK
SEWAGE PUMPING STATION
WILMINGTON-NEW CASTLE COUNTY-DELAWARE

DATE: 8-21-2019
SCALE: AS SHOWN
PROJECT NO. 11746.BA
SHEET: 18 OF 21

ABBREVIATIONS:

A OR AMP AMPERES
 AF AMP FRAME
 AFF ABOVE FINISHED FLOOR
 AHU AIR HANDLING UNIT
 AIC AMPERE INTERRUPTING CAPACITY
 AT AMP TRIP
 ATS AUTOMATIC TRANSFER SWITCH
 AUX AUXILIARY
 AWG AMERICAN WIRE GAUGE
 C CONDUIT
 C/C CONDUIT
 CB CIRCUIT BREAKER
 CKT CIRCUIT
 CLF CURRENT LIMITING FUSE
 CNTL CONTROL
 CT CURRENT TRANSFORMER
 DIA DIAMETER
 DS OR DISC DISCONNECT SWITCH
 EM EMERGENCY
 ESTOP EMERGENCY STOP
 EXP EXPLOSION PROOF
 EGF EXHAUST FAN
 EG EQUIPMENT GROUND
 EGC EQUIPMENT GROUND CONDUCTOR
 F FUSE
 FL FLR FLOOR
 G OR GND GROUND
 GA GAUGE
 GALV GALVANIZED
 GEC GROUNDING ELECTRODE CONDUCTOR
 GEN GENERATOR
 GF GROUND FAULT
 GFCI GROUND FAULT CIRCUIT INTERRUPT
 GFI GROUND FAULT INTERRUPTING
 H-O-A HAND-OFF-AUTOMATIC
 HP HORSEPOWER
 IG ISOLATED GROUND
 IR INFRARED
 JB OR J JUNCTION BOX
 kVA KILOWATT-AMPS
 kW KILOWATTS
 kWh KILOWATT-HOUR
 L LENGTH
 LFCM LIQUIDTIGHT FLEXIBLE METAL CONDUIT
 LTG LIGHTING
 MCB OR MB MAIN CIRCUIT BREAKER
 MCC MOTOR CONTROL CENTER
 MLO MAIN LUGS ONLY
 MTD MOUNTED
 N NEUTRAL
 NC NORMALLY CLOSED
 NEC NATIONAL ELECTRICAL CODE
 NEMA NATIONAL ELECTRICAL MFRS ASSOCIATION
 NF NON-FUSIBLE
 NFPA NATIONAL FIRE PROTECTION ASSOCIATION
 NO NORMALLY OPEN
 O.C. ON CENTER
 P POLE
 PFC POWER FACTOR CAPACITOR
 PH, Ø PHASE
 PLS PROGRAMMABLE LOGIC CONTROLLER
 PANEL PANEL
 PR PAIR
 PVC POLYVINYLCHLORIDE CONDUIT
 PWR REMOVE
 R&R REMOVE AND RELOCATE
 R RELOCATE
 RE RELOCATED
 RECEPT RECEPTACLE
 RGS RIGID GALVANIZED STEEL
 RMS ROOT MEAN SQUARE
 SH SHIELDED
 SS STAINLESS STEEL
 SPD SURGE PROTECTION DEVICE
 SW SWITCH
 SWBD SWITCHBOARD
 TEL TELEPHONE
 TSP TWISTED SHIELDED PAIR
 TWMS TWISTED INDIVIDUAL SHIELD
 TWOS TWISTED OUTER SHIELD
 TYP TYPICAL
 UG UNDERGROUND
 UL UNDERWRITER'S LABORATORIES
 UV ULTRAVIOLET
 V VOLTS
 VA VOLT AMPS
 VIC VOLTS ALTERNATING CURRENT
 VDC VOLTS DIRECT CURRENT
 VFD VARIABLE FREQUENCY DRIVE
 VMS VOLTMETER SELECTOR SWITCH
 W WATT
 W/W WITH
 W/O WITHOUT
 WP WEATHER PROOF
 XFMR TRANSFORMER

ONE-LINE DIAGRAM:



CONNECTION TO ELECTRICAL UTILITY. VOLTAGE, PHASES AS INDICATED

UTILITY METER

GENERATOR
 -XX' DESIGNATES POWER RATING
 -YY' DESIGNATES VOLTAGE

CURRENT TRANSFORMER (CT).
 X:Y' INDICATES RATIO
 Z INDICATES QUANTITY (1 PER PHASE UNLESS OTHERWISE INDICATED)

POTENTIAL TRANSFORMER (PT).
 X:Y' INDICATES RATIO
 Z' INDICATES QUANTITY (1 PER PHASE UNLESS OTHERWISE INDICATED)

TRANSFER SWITCH
 -W' INDICATES
 A: AUTOMATIC
 M: MANUAL
 -XX' INDICATES RATING IN AMPS
 -Y' INDICATES NUMBER OF POLES

SWITCH
 -XX' INDICATES AMPERE RATING
 -Y' INDICATES NUMBER OF POLES

MEDIUM & HIGH VOLTAGE CIRCUIT BREAKER
 -XX' INDICATES TRIP RATING IN AMPS
 -YY' INDICATES FRAME RATING

LOW VOLTAGE MOLDED CASE CIRCUIT BREAKER.
 -XX' INDICATES TRIP RATING IN AMPS (IF TRIP INTEGRAL)
 -YY' INDICATES FRAME RATING, ID SPECIFIED
 -W' INDICATES NUMBER OF POLES (3 UNLESS OTHERWISE NOTED)
 -Z' DESIGNATES TYPE:
 BLANK: THERMAL MAGNETIC
 LS: ELECTRONIC TRIP
 MCP: MOTOR CIRCUIT PROTECTOR
 GFI: GROUND FAULT INTERRUPTING

FUSE
 -XX' INDICATES TRIP RATING IN AMPS
 -Z' INDICATES CLASSIFICATION (IF SPECIFIED)

ANGLED BRACKETS INDICATE DRAWOUT DEVICE

FULL VOLTAGE NON REVERSING CONTACTOR
 X' DESIGNATES NEMA SIZE OR:
 SC: BYPASS CONTACTOR
 OC: OUTPUT ISOLATION CONTACTOR
 IC: INPUT ISOLATION CONTACTOR

LIGHTING CONTACTOR
 -XX' DESIGNATES AMPERE RATING
 -Y' DESIGNATES NUMBER OF POLES

MOTOR OVERLOAD.
 RATED FOR DEVICE PROTECTING.
 CLASS 20 UNLESS OTHERWISE INDICATED.
 -X' DESIGNATES TYPE:
 T-THERMAL
 E-ELECTRONIC.

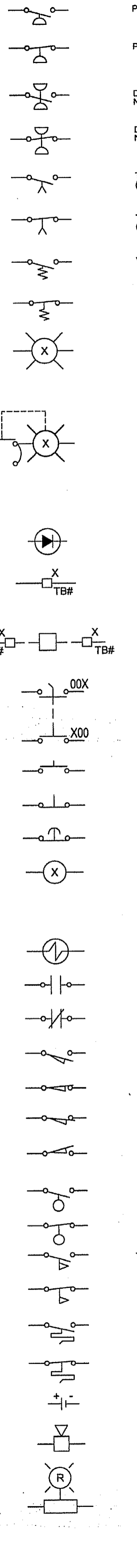
FULL VOLTAGE REVERSING CONTACTOR
 X' DESIGNATES NEMA SIZE.
 -F' INDICATES FORWARD CONTACTOR.
 -R' INDICATES REVERSE CONTACTOR.

TWO SPEED STARTER
 -X' DESIGNATES NEMA SIZE.
 -H' INDICATES HIGH SPEED CONTACTOR.
 -L' INDICATES LOW SPEED CONTACTOR.

TWO WINDING TRANSFORMER.
 PHASES AS DETERMINED BY OCPD
 -Z' INDICATES % IMPEDANCE ANSI STANDARD IF NOT SPECIFIED
 -WWW' INDICATES STRUCTURE DESIGNATION
 -XX' INDICATES POWER RATING
 -YY' INDICATES PRIMARY VOLTAGE
 -QQ' INDICATES SECONDARY VOLTAGE WINDINGS AS INDICATED
 -Δ INDICATES DELTA CONNECTION
 -Y' INDICATES WYE CONNECTION
 -W' INDICATES WYE CONNECTION WITH GROUNDED NEUTRAL

THREE WINDING TRANSFORMER
 -W' INDICATES STRUCTURE DESIGNATION
 -XX' INDICATES POWER RATING (BY WINDING)
 -YY' INDICATES VOLTAGE RATING (BY WINDING)
 -Z' INDICATES IMPEDANCE (BY WINDING)
 -Δ INDICATES DELTA CONNECTION
 -Y' INDICATES WYE CONNECTION WITH GROUNDED NEUTRAL

ONE-LINE DIAGRAM:



PRESSURE SWITCH - NORMALLY OPEN.

PRESSURE SWITCH - NORMALLY CLOSED.

DIFFERENTIAL PRESSURE SWITCH NORMALLY OPEN.

DIFFERENTIAL PRESSURE SWITCH NORMALLY CLOSED.

TIME DELAY SWITCH - TIMER ON DELAY (CLOSES AFTER TIMER EXPIRES).

TIMER DELAY SWITCH - TIMER OFF DELAY (OPENS AFTER TIMER EXPIRES).

VIBRATION SWITCH - NORMALLY OPEN

VIBRATION SWITCH - NORMALLY CLOSED

PANEL MOUNTED INDICATOR LIGHT
 X' INDICATES COLOR:
 A - AMBER
 G - GREEN
 R - RED
 W - WHITE
 B - BLUE

PANEL MOUNTED INDICATOR LIGHT
 "PUSH TO TEST" TYPE.
 X' INDICATES COLOR:
 A - AMBER
 G - GREEN
 R - RED
 W - WHITE
 B - BLUE

PHOTOCELL.

TERMINAL BLOCK.
 X' INDICATES TERMINAL NUMBER.
 T# INDICATES TERMINAL BLOCK NUMBER

EXTERNALLY MOUNTED DEVICE.
 DASHED LINE INDICATES WIRING EXTERNAL TO PANEL.

SELECTOR SWITCH.
 X' INDICATES SWITCH POSITION.
 TOTAL DIGITS PER LINE INDICATES NUMBER OF SWITCH POSITIONS (THREE SHOWN).

MOMENTARY PUSH BUTTON - NORMALLY OPEN

MOMENTARY PUSH BUTTON - NORMALLY CLOSED

EMERGENCY SHUTDOWN/STOP - NORMALLY CLOSED

COIL CONTACTS.
 VOLTAGE AS INDICATED ON SCHEMATICS
 X' DESIGNATES:
 C - CONTROL RELAY
 LC - LIGHTING CONTACTOR
 M - MOTOR CONTACTOR
 T - TIME DELAY RELAY

SOLENOID COIL.

NORMALLY OPEN CONTACT.

NORMALLY CLOSED CONTACT.

LIMIT SWITCH - NORMALLY OPEN.

LIMIT SWITCH - NORMALLY CLOSED.

LIMIT SWITCH - NORMALLY OPEN, HELD CLOSED.

LIMIT SWITCH - NORMALLY CLOSED, HELD OPEN.

LIQUID LEVEL (FLOAT) SWITCH - NORMALLY OPEN.

LIQUID LEVEL (FLOAT) SWITCH - NORMALLY CLOSED.

FLOW SWITCH - NORMALLY OPEN.

FLOW SWITCH - NORMALLY CLOSED.

TEMPERATURE SWITCH - NORMALLY OPEN.

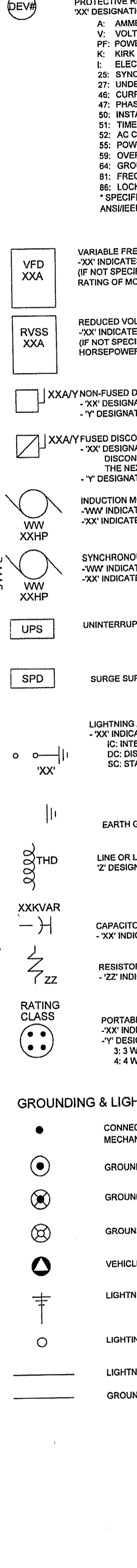
TEMPERATURE SWITCH - NORMALLY CLOSED.

BATTERY - VOLUME AND AMP HOURS AS INDICATED.

HORN ELEMENT.

EXTERNALLY MOUNTED ALARM LIGHT.

ONE-LINE DIAGRAM:



PROTECTIVE RELAY, METERING, OR INTERLOCKING DEVICE.
 XX' DESIGNATIONS:
 A: AMMETER
 V: VOLTMETER
 PF: POWER FACTOR
 K: KIRK KEY INTERLOCK
 I: ELECTRICAL INTERLOCK
 2S: SYNCHRONISM CHECK
 27: UNDER VOLTAGE
 4E: CURRENT UNBALANCE
 47: PHASE-SEQUENCE VOLTAGE
 50: INSTANTANEOUS OVERCURRENT
 51: TIME OVERCURRENT
 52: AC CIRCUIT BREAKER
 55: POWER FACTOR
 59: OVER VOLTAGE
 64: GROUND PROTECTIVE RELAY
 81: FREQUENCY
 86: LOCKING OUT RELAY
 *SPECIFIC MINIMUM FUNCTIONS TO BE LISTED BY ANSIVIEEE DEVICE NUMBERS

VARIABLE FREQUENCY DRIVE.
 -XX' INDICATES MINIMUM AMP RATING (IF NOT SPECIFIED, VFD TO MATCH HORSEPOWER RATING OF MOTOR SUPPLIED).

REDUCED VOLTAGE SOFT START.
 -XX' INDICATES MINIMUM AMP RATING (IF NOT SPECIFIED, RVSS TO MATCH HORSEPOWER RATING OF MOTOR SUPPLIED).

XXA/Y NON-FUSED DISCONNECT SWITCH
 -XX' DESIGNATES AMPERE RATING OF DISCONNECT.
 -Y' DESIGNATES NUMBER OF POLES

XXA/Y FUSED DISCONNECT SWITCH
 -XX' DESIGNATES AMPERE RATING OF FUSE.
 DISCONNECT AMPERE RATINGS TO BE EQUAL TO FUSE RATING OR THE NEXT LARGEST TRADE SIZE.
 -Y' DESIGNATES NUMBER OF POLES

INDUCTION MOTOR
 -WW' INDICATES EQUIPMENT DESIGNATION.
 -XX' INDICATES HORSEPOWER RATINGS.

SYNCHRONOUS MOTOR
 -WW' INDICATES EQUIPMENT DESIGNATION.
 -XX' INDICATES HORSEPOWER RATINGS.

UNINTERRUPTIBLE POWER SUPPLY.

SPD SURGE SUPPRESSION DEVICE.

LIGHTNING ARRESTORS
 -XX' INDICATES
 IC: INTERMEDIATE CLASS
 DC: DISTRIBUTION CLASS
 SC: STATION CLASS

EARTH GROUND

LINE OR LOAD REACTOR.
 Z' DESIGNATES % IMPEDANCE.

CAPACITOR
 -XX' INDICATES KVAR RATING

RESISTOR
 -ZZ' INDICATES IMPEDANCE IN OHMS

RATING CLASS

PORTABLE POWER CONNECTION
 -XX' INDICATES AMPERE RATING
 -Y' DESIGNATES TYPE:
 AC - 3 WIRE + GROUND
 4: 4 WIRE + GROUND

CONNECTION TO GROUND GRID MECHANICAL OR CADWELD CONNECTION

GROUND ROD.

GROUND TEST STATION.

GROUND ANODE.

VEHICLE GROUNDING STATION.

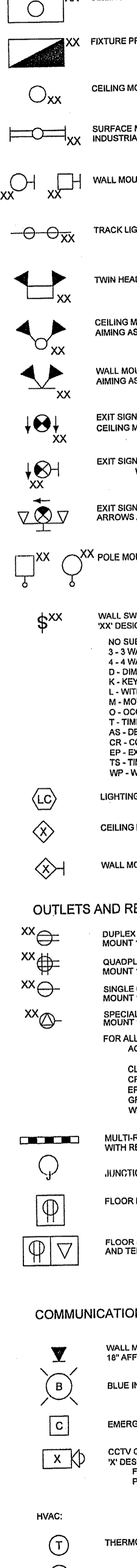
LIGHTNING PROTECTION SYSTEM DOWN CONDUCTOR.

LIGHTNING PROTECTION AIR TERMINAL.

LIGHTNING PROTECTION SYSTEM CONDUCTOR.

GROUNDING GRID OR COUNTERPOISE SYSTEM CONDUCTOR.

LIGHTING:



CEILING MOUNTED FIXTURE.

FIXTURE PROVIDING EMERGENCY ILLUMINATION.

CEILING MOUNTED DOWNLIGHTING FIXTURE.

SURFACE MOUNT OR SUSPENDED FIXTURE. INDUSTRIAL STRIP TYPE FIXTURE.

WALL MOUNTED FIXTURE.

TRACK LIGHTING

TWIN HEAD EMERGENCY BATTERY UNIT.

CEILING MOUNTED REMOTE BATTERY HEADS. AIMING AS INDICATED.

WALL MOUNTED REMOTE BATTERY HEADS. AIMING AS INDICATED.

EXIT SIGN
 CEILING MOUNTED, ARROWS AS INDICATED.

EXIT SIGN
 WALL MOUNTED, ARROWS AS INDICATED.

EXIT SIGN WITH EMERGENCY HEADS
 ARROWS AS INDICATED.

POLE MOUNTED LIGHT FIXTURE.

WALL SWITCH.
 XX' DESIGNATIONS:
 NO SUBSCRIPT DENOTES SINGLE POLE
 3 - 3 WAY SWITCH
 4 - 4 WAY SWITCH
 D - DIMMER
 K - KEY OPERATED
 L - WITH PILOT LIGHT
 M - MOTOR RATED
 O - OCCUPANCY MOTION SENSOR W/OVERRIDE
 T - TIMER
 AS - DENOTES OCCUPANCY OVERRIDE
 CR - CORROSION RESISTANT
 EP - EXPLOSION PROOF
 TS - TIME SWITCH
 WP - WEATHERPROOF

LIGHTING CONTROL POWER PACK

CEILING MOUNTED SENSOR.

WALL MOUNTED OCCUPANCY SENSOR.

DUPLEX RECEPTACLE
 MOUNT 18" AFF UNLESS OTHERWISE NOTED.

QUADPLEX RECEPTACLE
 MOUNT 18" AFF UNLESS OTHERWISE NOTED.

SINGLE OUTLET RECEPTACLE
 MOUNT 18" AFF UNLESS OTHERWISE NOTED.

SPECIAL PURPOSE RECEPTACLE
 MOUNT 18" AFF UNLESS OTHERWISE NOTED.

FOR ALL RECEPTACLES, XX' DESIGNATIONS:
 AC - INSTALL 6" ABOVE COUNTER / BACKSPLASH (GFI REQUIRED).
 CLS - CEILING MOUNT
 CR - CORROSION RESISTANT
 EP - EXPLOSION PROOF
 GF - GROUND FAULT
 WP - WEATHERPROOF

MULTI-RECEPTACLE ASSEMBLY WITH RECEPTACLES AS INDICATED.

JUNCTION BOX

FLOOR MOUNTED DUPLEX RECEPTACLE.

FLOOR MOUNTED BOX POWER AND TELCOM RECEPTACLES.

WALL MOUNTED TELEPHONE OUTLET 18" AFF UNLESS OTHERWISE NOTED

BLUE INDICATOR LIGHT FOR EMERGENCY CALL BOX.

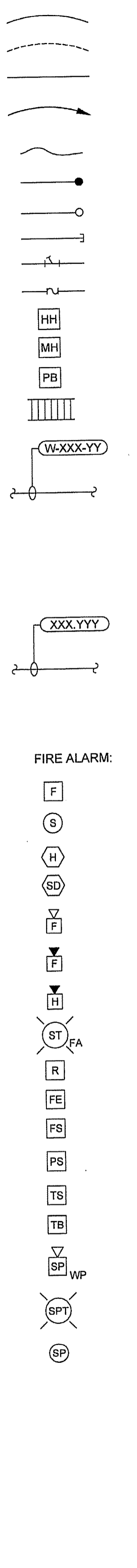
EMERGENCY CALL BOX.

CCTV CAMERA. MOUNTING AS INDICATED ON PLANS.
 X' DESIGNATES:
 F - FIXED TYPE
 PTZ - PAN TILT ZOOM

AMBIENT TEMPERATURE TRANSMITTER

UNIT HEATER

RACEWAYS:



OVERHEAD ELECTRICAL

CONDUIT RUN CONCEALED ABOVE CEILING OR IN WALLS

CONDUIT RUN BELOW GRADE OR IN SLAB

CONDUIT RUN EXPOSED PARALLEL OR PERPENDICULAR TO BUILDING LINES

HOMERUN TO PANELBOARD ANY CIRCUIT WITHOUT FURTHER DESIGNATION 2#12, 1#12 GRD. MINIMUM CONDUIT SIZE SHALL BE 3/4"

FLEXIBLE CONDUIT

CONDUIT TURNING DOWN

CONDUIT TURNING UP

CONDUIT CAPPED

EXPLOSIONPROOF CONDUIT SEAL

CONDUIT EXPANSION FITTING

HAND HOLE (DRAWN TO SCALE ON PLANS)

MAN HOLE (DRAWN TO SCALE ON PLANS)

PULL BOX (DRAWN TO SCALE ON PLANS)

CABLE TRAY (DRAWN TO SCALE ON PLANS)

CABLE TAG DESIGNATIONS:
 FOR W: H - POWER (0-6KVAC)
 M - POWER (601-499VAC)
 P - POWER (241-600VAC)
 L - POWER (51-240VAC)
 D - DC POWER
 C - CONTROL (TO A STARTER)
 I - INSTRUMENTATION (TO A PLC)
 E - EMERGENCY SHUT DOWN
 F - FIBER OPTIC COMMUNICATIONS
 O - OTHER COMMUNICATIONS

FOR XXXX: EQUIPMENT REFERENCE
 FOR YY: ALPHANUMERIC SUFFIX AS NEEDED

RACEWAY TAG DESIGNATIONS:
 FOR XXX: ELECTRICAL SHEET REFERENCE
 FOR YY: SEQUENTIAL REFERENCE

FIRE ALARM:
 F FIRE ALARM MANUAL PULL STATION
 S FIRE ALARM SMOKE DETECTOR
 H HEAT DETECTOR
 SD FIRE ALARM DUCT SMOKE DETECTOR
 FFA FIRE ALARM STROBE LIGHT WALL MOUNTED
 FFAW FIRE ALARM SPEAKER/STROBE LIGHT COMBINATION, WALL MOUNTED
 HORN UNIT ONLY
 FFAH FIRE ALARM STROBE CEILING MOUNTED
 R FIRE ALARM RELAY
 FE FIRE EXTINGUISHER.
 FS FIRE ALARM FLOW SWITCH
 PS LOW PRESSURE SWITCH
 TS FIRE ALARM TAMPER SWITCH
 TB FIRE ALARM TELEPHONE BASE
 SPT MASS NOTIFICATION SPEAKER/STROBE LIGHT COMBINATION (WEATHER PROOF) WALL MOUNTED
 SP MASS NOTIFICATION SPEAKER CEILING MOUNTED

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DESIGNED BY:	DIC	FILE NAME:	11/14/2019
DRAWN BY:	DAC	DRAWN BY:	DAC
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DATE:			
REVISION			
No.			

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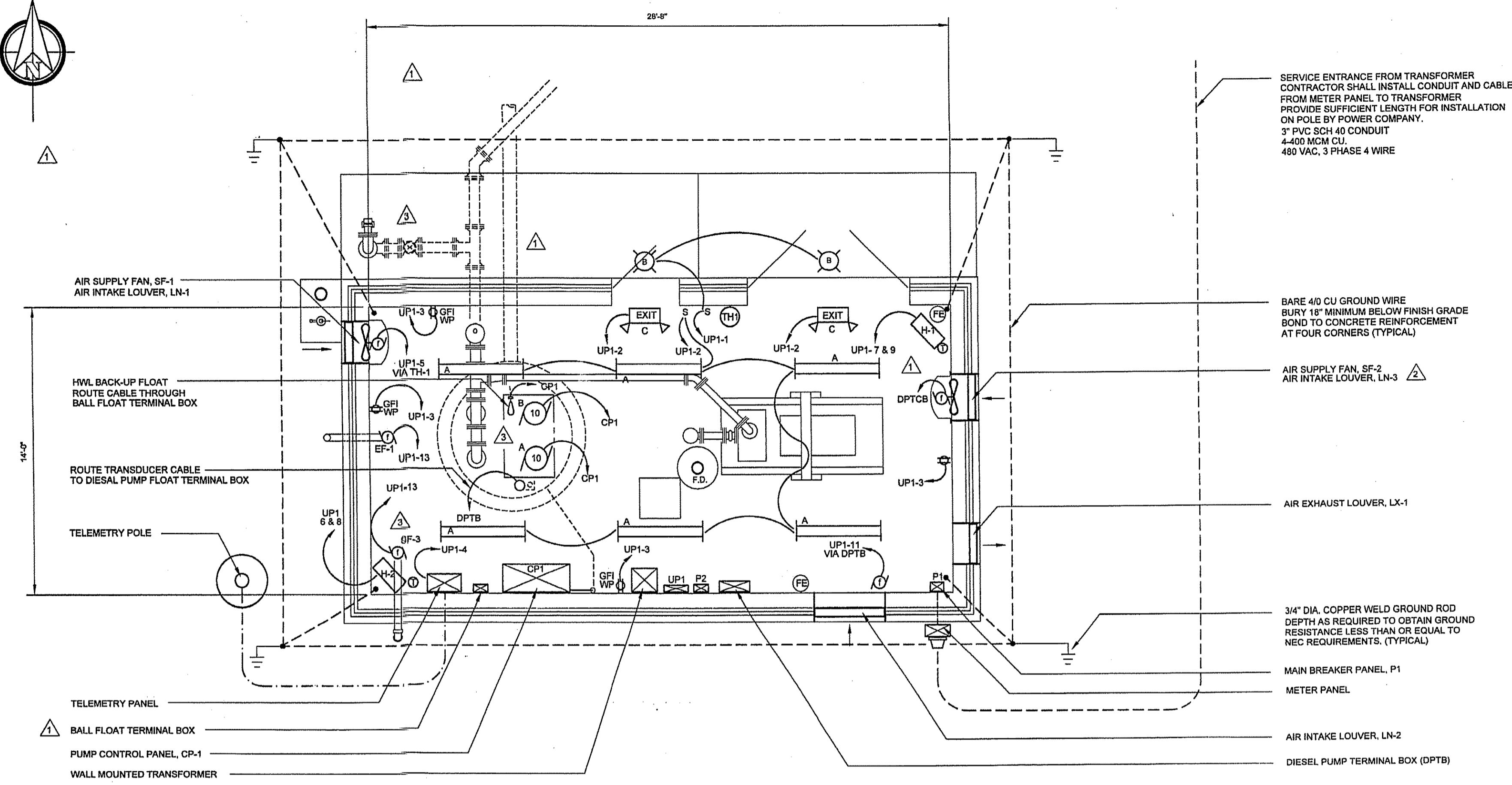
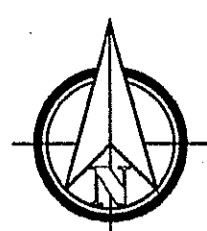
ELECTRICAL LEGEND

QUARRY WALK

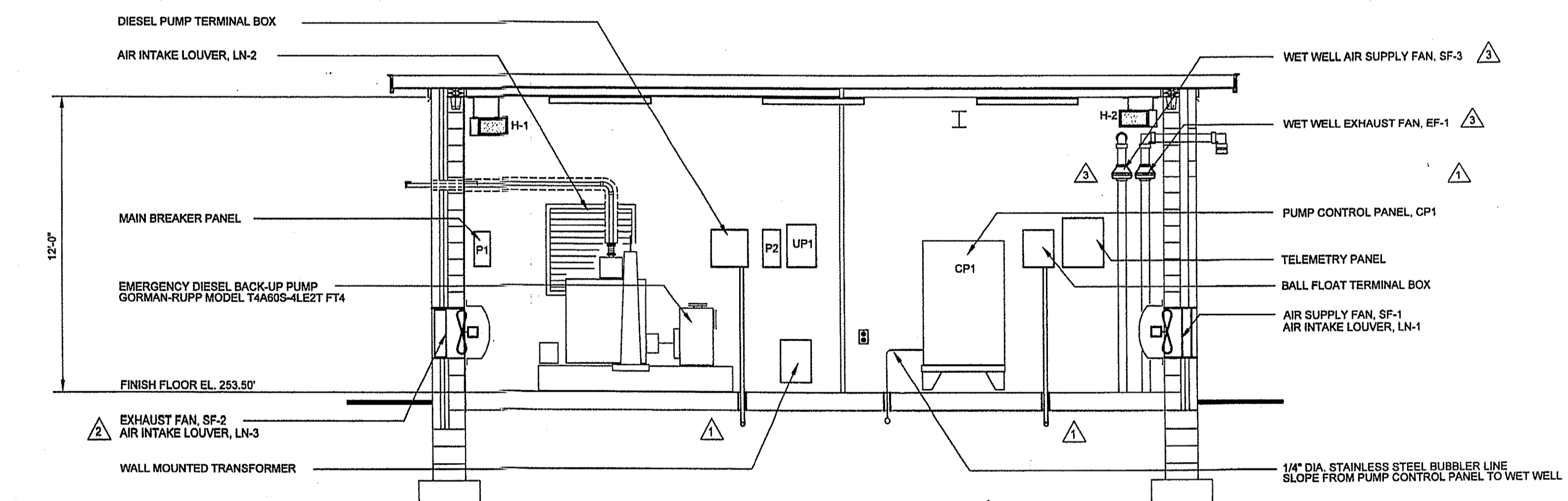
SEWAGE PUMPING STATION

WILMINGTON-NEW CASTLE COUNTY-DELAWARE

DATE: 8-21-2019
 SCALE: NO SCALE
 PROJECT NO. 11746.BA
 SHEET: 19 OF 21



SEWAGE PUMPING STATION - ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"



SOUTHERN INTERIOR WALL ELEVATION
SCALE: 1/4" = 1'-0"

SERVICE ENTRANCE FROM TRANSFORMER CONTRACTOR SHALL INSTALL CONDUIT AND CABLE FROM METER PANEL TO TRANSFORMER PROVIDE SUFFICIENT LENGTH FOR INSTALLATION ON POLE BY POWER COMPANY.
3" PVC SCH 40 CONDUIT
4-400 MCM CU
480 VAC, 3 PHASE 4 WIRE

BARE 4/0 CU GROUND WIRE BURY 18" MINIMUM BELOW FINISH GRADE BOND TO CONCRETE REINFORCEMENT AT FOUR CORNERS (TYPICAL)

AIR SUPPLY FAN, SF-2
AIR INTAKE LOUVER, LN-3

AIR EXHAUST LOUVER, LX-1

3/4" DIA. COPPER WELD GROUND ROD DEPTH AS REQUIRED TO OBTAIN GROUND RESISTANCE LESS THAN OR EQUAL TO NEC REQUIREMENTS. (TYPICAL)

MAIN BREAKER PANEL, P1
METER PANEL

AIR INTAKE LOUVER, LN-2
DIESEL PUMP TERMINAL BOX (DPTB)

LIGHTING SCHEDULE			
IDENT.	VOLTS	LAMP	DESCRIPTION
A	120	LED	CEILING MOUNTED, 4 FOOT, WET LOCATION FIXTURE WITH A MINIMUM 3500 LUMEN OUTPUT PER FIXTURE 4000 K CCT, AND INSTANT ON WITH FULL LIGHT OUTPUT, COLUMBIA LXEW-4-40M-FAW-EU OR EQUAL
B	120	12 LED's	VERTICAL MOUNT LED WALL PACK. 1750 LUMEN OUTPUT, 4000 CCT, PHOTOCELL OPERATED, BLACK OR DARK BRONZE HOUSING, POLYCARBONATE LENS. HUBBELL MODEL NRG 300 SERIES OR EQUAL
C	120	LED	EXIT LIGHT WITH MAINTENANCE-FREE NICKEL CADMIUM BATTERY. LITHONIA MODEL LOMSWGR 120277 ELN OR EQUAL

HVAC SCHEDULE:

- H-1 SPACE HEATER: 3.0 KW, 240 V, 1 PHASE, SUSPENDED UNIT HEATER WITH WALL MOUNT BRACKET, BUILT-IN THERMOSTAT AND SWITCH. MARLEY X SERIES MODEL NO. GUX300412
- H-2
- LN-1 INTAKE LOUVER: GREENHECK MODEL ECD-601, 24" x 24", WITH MOTOR ACTUATOR WITH 45 DEGREE WEATHERHOOD, BIRD SCREEN AND KYNAR 500 FINISH.
- LN-2 INTAKE LOUVER: GREENHECK MODEL ECD-601, 40" x 40", WITH MOTOR ACTUATOR WITH BIRD SCREEN AND KYNAR 500 FINISH.
- SF-1 BUILDING AIR SUPPLY FAN GREENHECK MODEL SS1-16-435-C8, 1037 CFM @ 0.20" WG WITH WALL COLLAR AND OSHA SIDE GUARD
- SF-2 SUPPLY FAN TWIN 12" DIA. TURBO FANS. GLASS FILLED NYLON CONSTRUCTION, 12 V, 130 WATTS (PER FAN) 1650 CFM @ 0.20" WG, MARADYNE MODEL MJS23K JETSTREME II PROVIDE 24 GAUGE SHEET-METAL FABRICATED PLENUM
- LX-1 EXHAUST LOUVER: GREENHECK MODEL ESD-635 24" x 24", WITH BD SERIES GRAVITY DAMPER BIRD SCREEN AND KYNAR 500 FINISH.
- LN-3 SUPPLY LOUVER: GREENHECK MODEL ESD-635, 24" x 24", WITH BD SERIES GRAVITY DAMPER 45 DEGREE WEATHERHOOD, BIRD SCREEN AND KYNAR 500 FINISH.
- EF-1 WET WELL EXHAUST FAN FANTECH MODEL FR-100
- SF-3 WET WELL AIR SUPPLY FAN FANTECH MODEL FR-100

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No. 1000
7/27/23

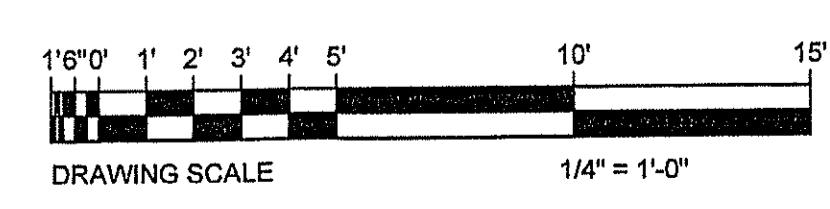
NO.	REVISION	DATE
1	NEW CASTLE COUNTY COMMENTS	8-21
2	NEW CASTLE COUNTY COMMENTS	8-21
3	REVISIONS AND REVISED DESIGN	7-26-23

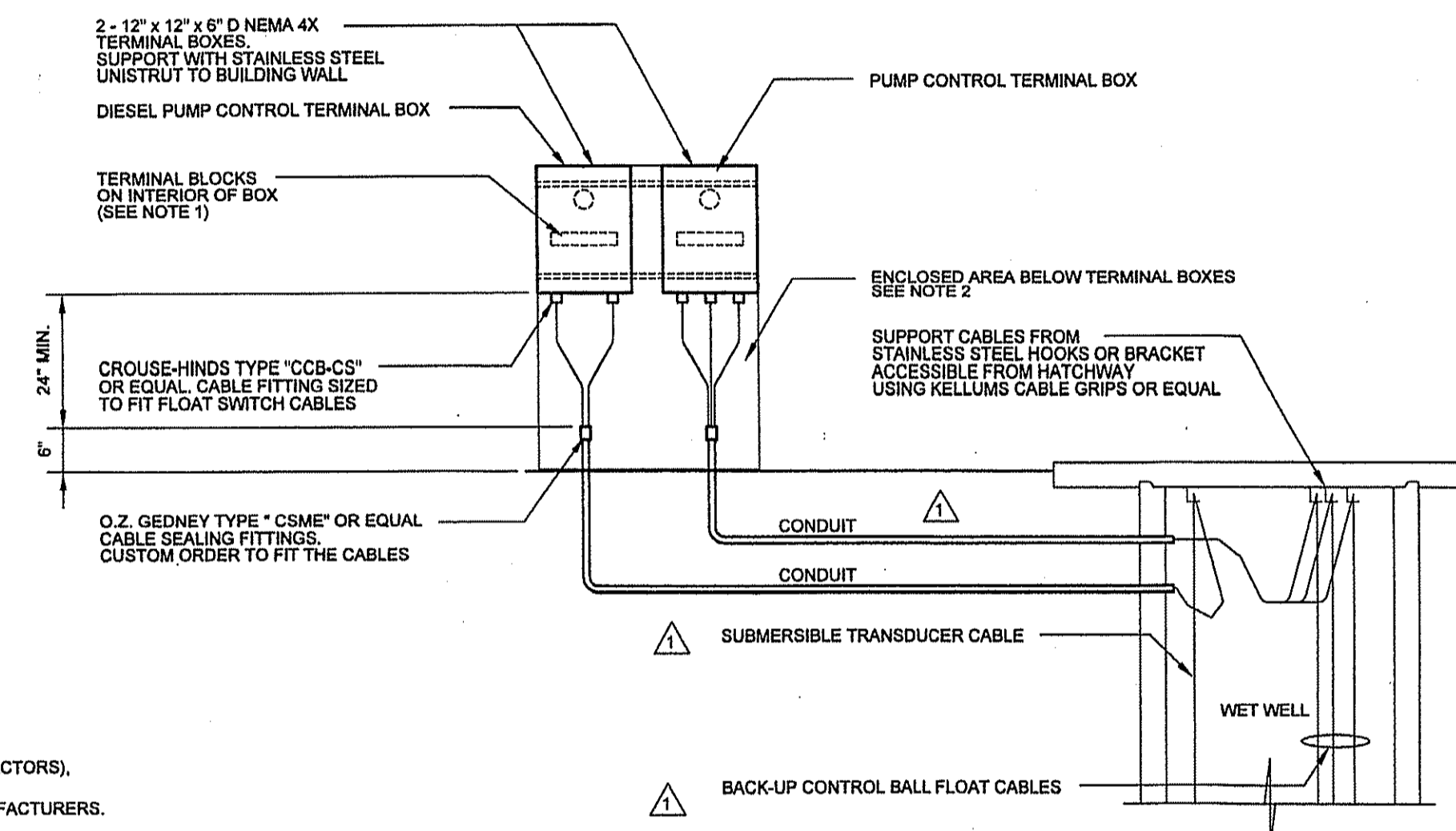
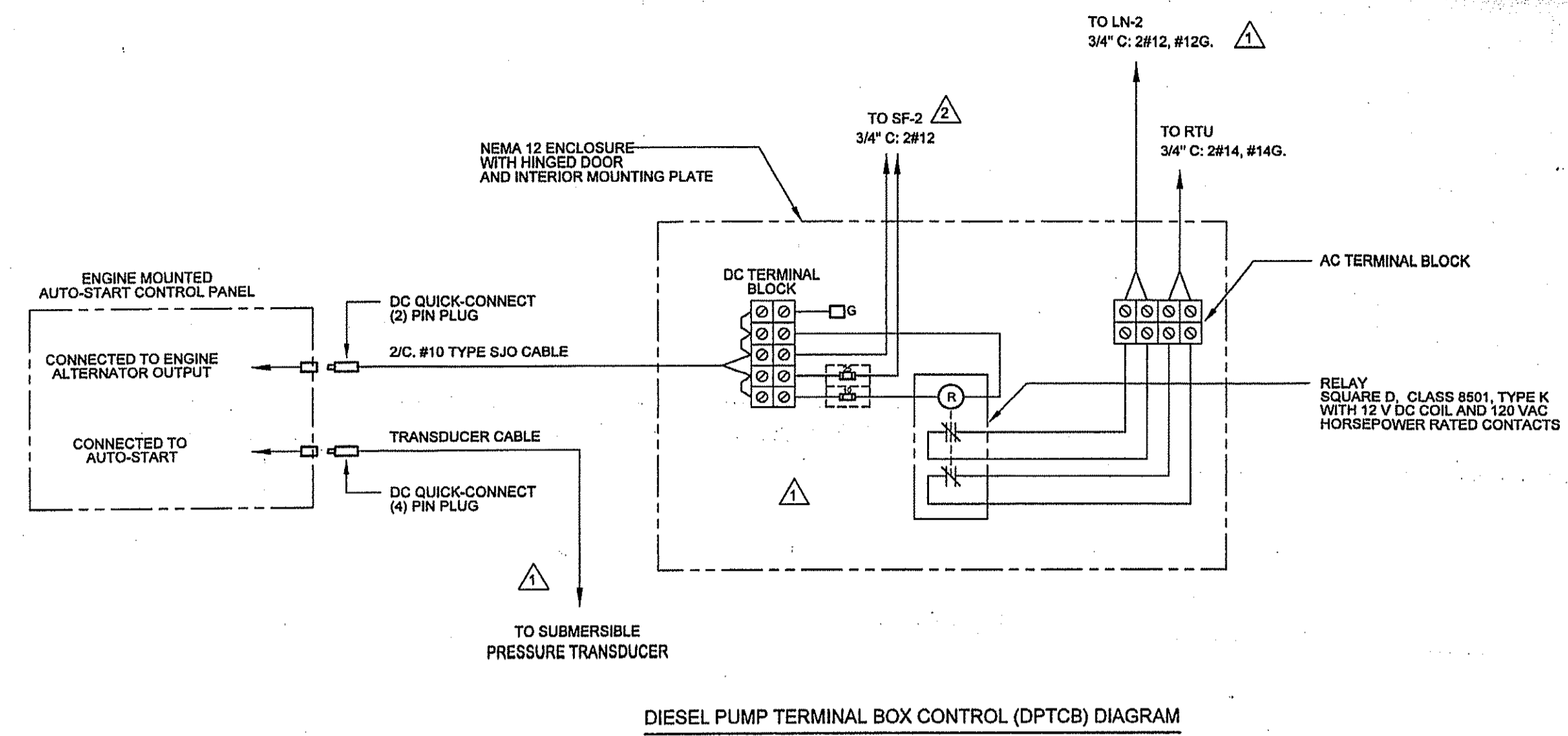
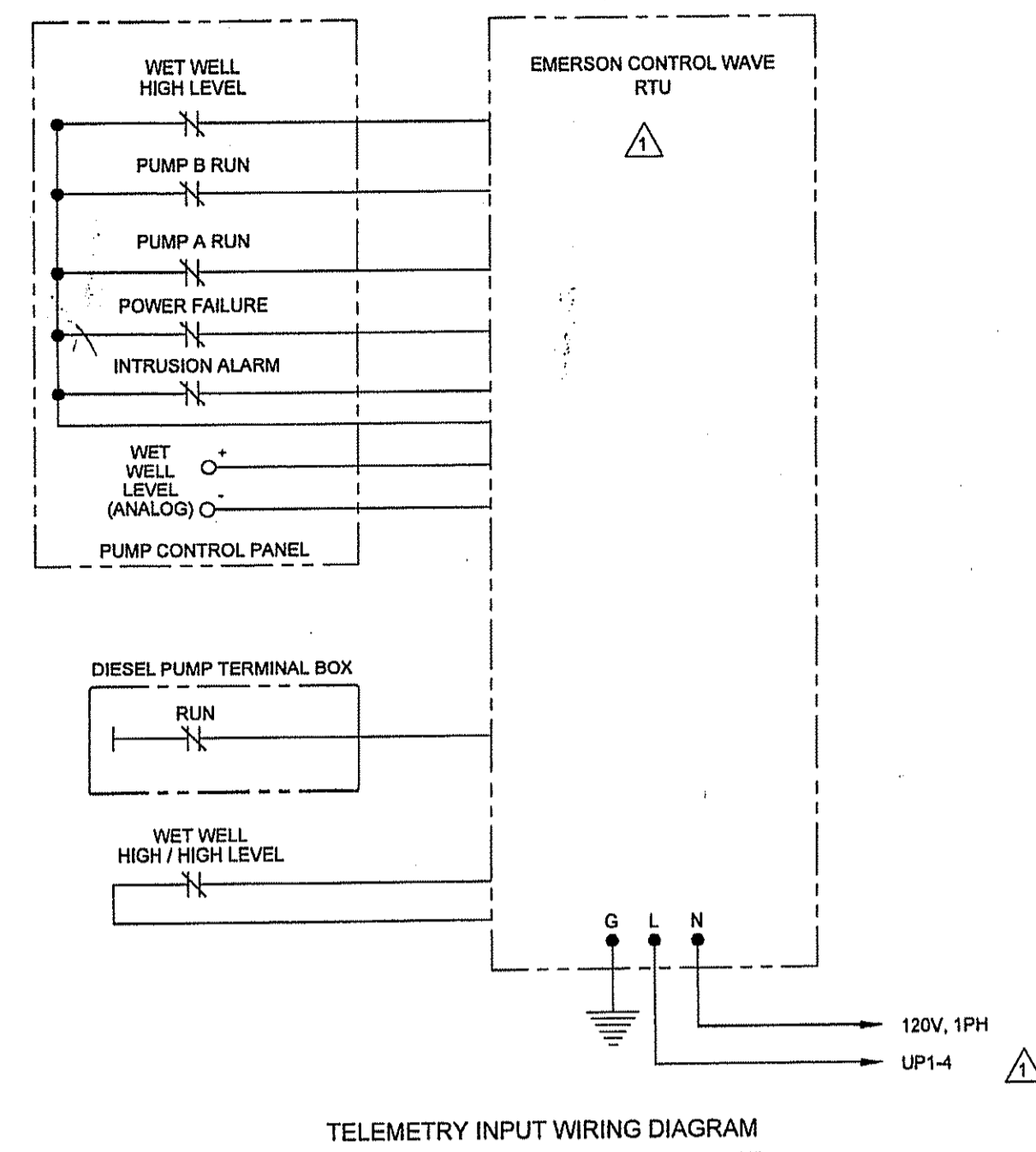
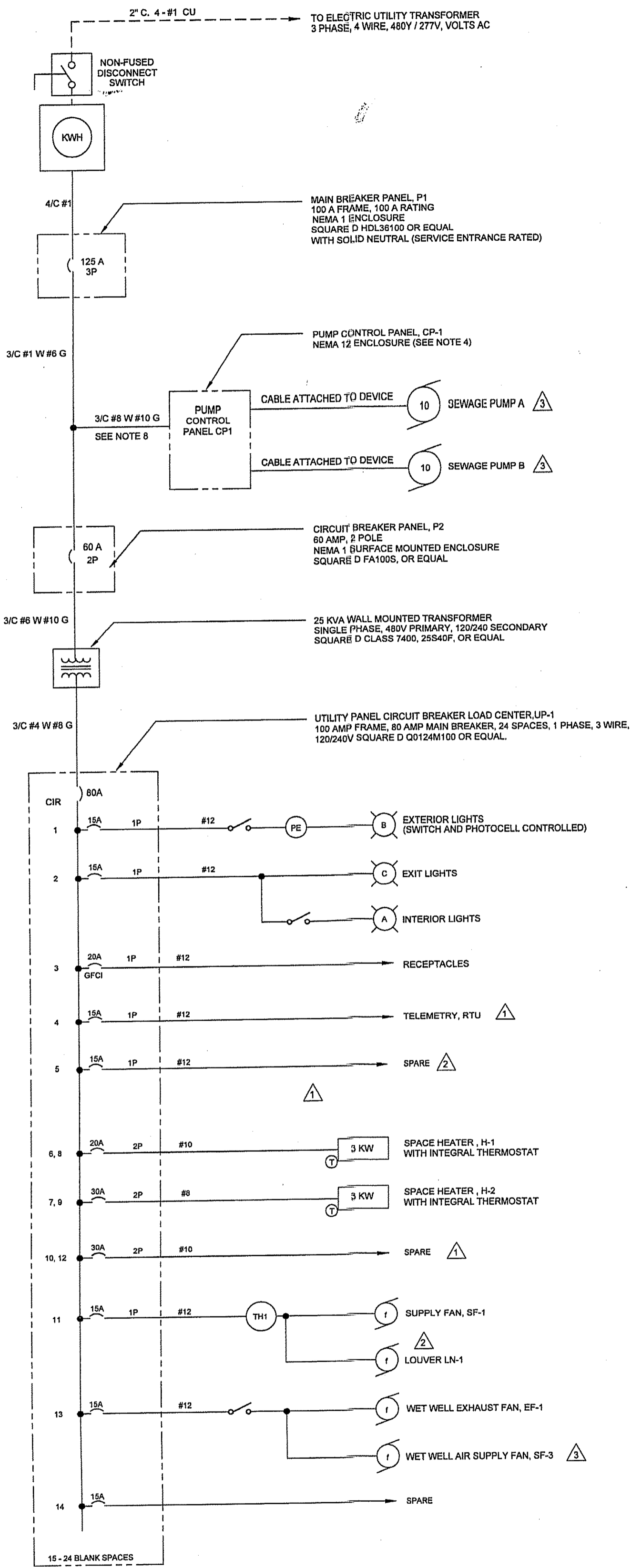
OWNER: TRESID GROUP LLC
PO BOX 115
YORKLYN, DE 19756

ELECTRICAL PLAN

QUARRY WALK
SEWAGE PUMPING STATION
WILMINGTON-NEW CASTLE COUNTY-DELAWARE

DATE: 8-21-2019
SCALE: 1/4" = 1'-0"
PROJECT NO. 11746.BA
SHEET: 20 OF 21





- NOTES:**
1. TERMINATE EQUIPMENT CONDUCTORS ON TERMINAL BLOCKS INSIDE TERMINAL BOX. PROVIDE CLASS 5080 TYPE 'C' TERMINAL BLOCK ASSEMBLIES FOR CONTROL DEVICE CABLES.
 2. AREA UNDER SPLICE BOX SHALL BE ENCLOSED WITH PERFORATED STAINLESS STEEL ASSEMBLY. THE STAINLESS STEEL SHALL BE TYPE 316 GAUGE (MINIMUM) WITH 632" HOLES ON 316" STAGGERED CENTERS FOR 63% OPEN AREA. ASSEMBLY SHALL BE FRAMED WITH STAINLESS STEEL SUPPORTS. FRONT SCREEN SHALL BE REMOVABLE FOR ACCESS TO CABLES. ALL EDGES SHALL HAVE SMOOTH FINISH.

ELECTRICAL SCOPE OF WORK:

ALL WORK MUST ADHERE TO THE CURRENT VERSION OF THE NEW CASTLE COUNTY PUMP STATION GUIDELINES. THIS SCOPE OF WORK IS A BRIEF SUMMARY OF THOSE GUIDELINES AND IN THE EVENT OF A CONFLICT, THE GUIDELINES MUST BE FOLLOWED.

GENERAL NOTES:

1. THE CONTRACTOR SHALL MAKE A SERVICE APPLICATION WITH DELMARVA POWER FOR 3 PHASE, 480Y / 277VAC SERVICE. THE CONTRACTOR SHALL PROVIDE TRANSFORMER PAD, METER PAN AND SECONDARY CONDUCTORS PER DELMARVA POWERS' REQUIREMENTS.
2. THE CONTRACTOR SHALL COORDINATE WORK WITH DELMARVA POWER - EXPECTED SCOPE IS AS FOLLOWS: DELMARVA POWER TO SUPPLY TRANSFORMER, ELECTRIC METER AND PRIMARY CONDUCTORS. DELMARVA POWER TO TERMINATE PRIMARY CONDUCTORS AT TRANSFORMER. THE CONTRACTOR SHALL MAKE SECONDARY TERMINATIONS.
3. ALL DISTRIBUTION EQUIPMENT AND CABLING SHALL BE TESTED ACCORDING TO THE ANSINETA 2017 STANDARDS PRIOR TO ENERGIZATION AND COMMISSIONING.
4. THE MAIN AND BACK-UP PUMP CONTROL PANELS SHALL INCLUDE REDUCED VOLTAGE SOLID STATE MOTOR STARTERS (WITH SHORTING AND ISOLATION CONTACTORS), CIRCUIT BREAKERS, PUMP CONTROLS (INCLUDING PUMP PROTECTION RELAYS), BUBBLER SYSTEM, SUBMERSIBLE LEVEL TRANSDUCER, FLOATS, CABLES, PHASE MONITOR, WET WELL SUPPLY AND EXHAUST FAN CONTROL CIRCUITRY AND ALL RELATED TERMINALS ALL PROVIDED OR REQUIRED BY THE PUMP MANUFACTURERS.
5. THE PUMP CONTROL PANELS SHALL BE SUCCESSFULLY FUNCTIONALLY TESTED ON BOTH UTILITY AND POWER AS PART OF THE COMMISSIONING ACTIVITIES/START-UP TESTS.
6. ALL CONDUCTORS SHALL BE COPPER UNLESS OTHERWISE NOTED.
7. THE CONTRACTOR TO ARRANGE FOR RADIO SURVEY THROUGH THE EMERSON CONTROL WAVE LOCAL REPRESENTATIVE (INTERFACE INC. 410-785-6795) EQUIPMENT TO BE REQUIRED BY NEW CASTLE COUNTY WILL BE DETERMINED BY THE RESULTS OF THAT SURVEY.
8. CONFIRM WIRE SIZING BASED ON CONTROL PANEL REQUIREMENTS.

BACK-UP PUMP OPERATION:

1. DIESEL PUMP CONTROL SHALL UTILIZE A SUBMERSIBLE TRANSDUCER.
2. WHEN POWER IS LOST LN-2 DAMPER SHOULD OPEN AUTOMATICALLY.
3. WHEN THE BACK-UP PUMP STARTS SF-2 SHOULD START AND BE POWERED BY A 12 V DC SUPPLY FROM THE ENGINE ALTERNATOR VIA THE DPTCB.
4. WHEN THE BACK-UP PUMP STARTS THE RTU SHOULD PROVIDE A NOTIFICATION TO THE NEW CASTLE COUNTY BASE STATION VIA THE DPTCB.

ELECTRICAL STUDIES, LABELING AND SINGLE LINE DIAGRAM:

1. THE CONTRACTOR SHALL FURNISH SHORT-CIRCUIT, PROTECTIVE DEVICE COORDINATION STUDIES AND AN ARC FLASH HAZARD ANALYSIS STUDY PER NFPA 70E - STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE, REFERENCE ARTICLE 130.3 AND ANNEX D.
2. THE SHORT-CIRCUIT AND PROTECTIVE DEVICE COORDINATION STUDIES SHALL BE SUBMITTED TO THE ENGINEER/COUNTY PRIOR TO RECEIVING FINAL APPROVAL OF THE DISTRIBUTION EQUIPMENT SHOP DRAWINGS AND/OR PRIOR TO RELEASE OF EQUIPMENT DRAWINGS FOR MANUFACTURING. IF FORMAL COMPLETION OF THE STUDIES MAY CAUSE DELAY IN EQUIPMENT MANUFACTURING, APPROVAL FROM THE ENGINEER/COUNTY MAY BE OBTAINED FOR PRELIMINARY SUBMITTAL OF SUFFICIENT STUDY DATA TO ENSURE THAT THE SELECTION OF DEVICE AND CHARACTERISTICS WILL BE SATISFACTORY.
3. CONTRACTOR SHALL OBTAIN ALL DATA AS REQUIRED FOR THE POWER SYSTEM STUDIES. THE CONTRACTOR SHALL EXPEDITE COLLECTION OF THE DATA TO ELIMINATE UNNECESSARY DELAYS AND ASSURE COMPLETION OF THE STUDIES AS REQUIRED FOR FINAL APPROVAL OF THE DISTRIBUTION EQUIPMENT SHOP DRAWINGS AND/OR PRIOR TO THE RELEASE OF THE EQUIPMENT FOR MANUFACTURING.
4. THE STUDIES SHALL BE PERFORMED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE.
5. ALL PANELS SHALL BE PROVIDED WITH A 3.5" X 5" THERMAL TRANSFER TYPE LABEL CONTAINING "WARNING, ARC FLASH HAZARD", EQUIPMENT IDENTIFICATION, ARC FLASH BOUNDARY, INCIDENT ENERGY, WORKING DISTANCE, HAZARD RISK CATEGORY (INDICATING APPROPRIATE LEVEL OF PPE), ENGINEERING REPORT IDENTIFIER AND DATE OF STUDY.
6. A SINGLE LINE DIAGRAM, USING THE SAME EQUIPMENT IDENTIFICATION AS THE LABELS, SHALL BE POSTED IN THE PUMPING STATION.

TRAINING:

1. THE EQUIPMENT VENDOR SHALL TRAIN PERSONNEL OF THE POTENTIAL ARC FLASH HAZARDS ASSOCIATED WITH WORKING ON ENERGIZED EQUIPMENT. MAINTENANCE PROCEDURES IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 70E, STANDARD FOR ELECTRICAL SAFETY REQUIREMENTS FOR EMPLOYEE WORKPLACES, SHALL BE PROVIDED IN THE EQUIPMENT MANUALS.

DESIGNED BY:	DAAC/SCH	DATE	REVISION
CHECKED BY:	PIC		
FILE NAME:			
DRAWN BY:	DAAC		
DATE			
NO.			
REVISION	NEW CASTLE COUNTY COMMENTS		
	NEW CASTLE COUNTY COMMENTS		
	NCCOMMENTS AND REVISED DESIGN		

NO.	REVISION
1	NEW CASTLE COUNTY COMMENTS
2	NEW CASTLE COUNTY COMMENTS
3	NCCOMMENTS AND REVISED DESIGN

OWNER: TRESID GROUP LLC
PO BOX 115
YORKLYN, DE 19736

ELECTRICAL DIAGRAMS

QUARRY WALK

SEWAGE PUMPING STATION
WILMINGTON-NEW CASTLE COUNTY-DELAWARE

DATE: 8-21-2019
SCALE: AS SHOWN
PROJECT NO. 11746.BA
SHEET: 21 OF 21