

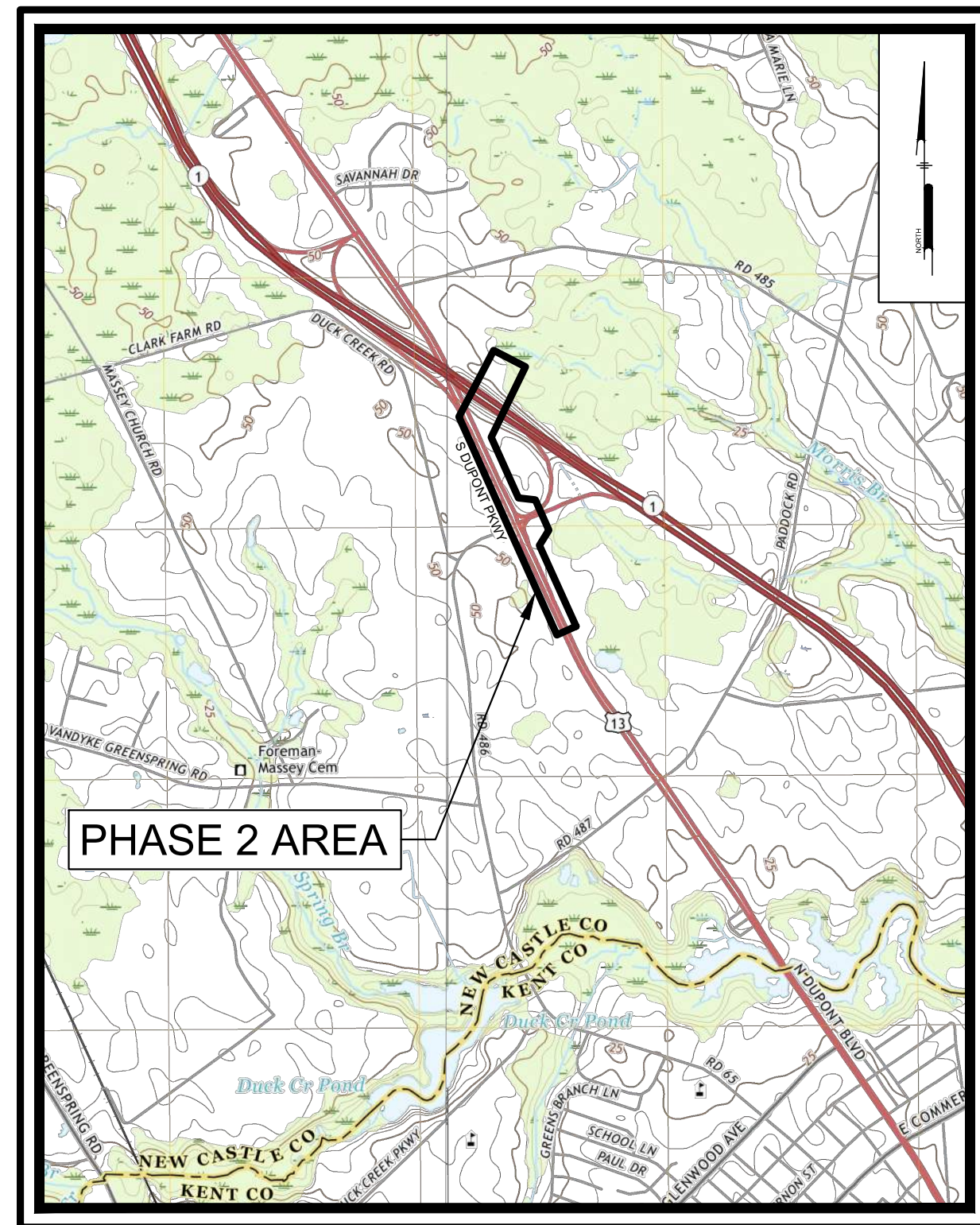
NORTH DUCK CREEK UTILITY EXTENSION PHASE 2 - WATER, SANITARY, ELECTRIC TO OMB PARCEL CONSTRUCTION PLANS

**NEW CASTLE COUNTY, DELAWARE
JUNE 15, 2023
REVISED JUNE 25, 2024**

PREPARED FOR:
TOWN OF SMYRNA
27 SOUTH MARKET STREET
SMYRNA, DE 19977
(302) 653-9231

SHEET INDEX		
SHT	DWG	TITLE
1	G0001	Cover Sheet
2	G0002	Overall Plan and Key Sheet
3	G003	Construction Notes and Legend
4	C1701	Utility Plan
5	C1702	Utility Plan
6	C1703	Utility Plan
7	C1704	Utility Plan
8	C1705	Utility Plan
9	C1706	Utility Plan
10	E1702	Electric Plan
11	E1703	Electric Plan
12	C6001	Construction Details
13	E6001	Electric Details
14	E6002	Electric Details
15	C8001	Erosion and Sediment Control Notes
16	C8501	Erosion and Sediment Control Details
17	C8502	Erosion and Sediment Control Details

NOTE:
SHEETS C1704, C1705, AND C1706 ARE INFORMATIONAL PLANS TO SHOW PROPOSED FUTURE-PHASE IMPROVEMENTS, AND ARE SHOWN FOR REFERENCE AND EASEMENT ACQUISITION ONLY. FUTURE IMPROVEMENTS ARE NOT APPLICABLE TO CURRENT AGENCY PLAN AND PERMITTING REVIEW AND ARE NOT PART OF THE CONTRACT FOR CONSTRUCTION.



USGS LOCATION MAP
Scale: 1" = 2000'

PREPARED BY:
PENNONI ASSOCIATES INC.



Christiana Executive Campus
121 Continental Drive, Suite 207
Newark, DE 19713-4310
T 302.655.4451
F 302.654.2895

SITE DATA:

FACILITY OWNER: TOWN OF SMYRNA
27 S. MARKET STREET PLAZA
SMYRNA, DE 19977
302-653-9231

PROJECT HUNDRED: BLACKBIRD HUNDRED

PROJECT WATERSHED: SMYRNA RIVER WATERSHED

SITE ADDRESS (POINT OF EXTENSION CONNECTION TO EXISTING UTILITIES): 5500 DUPONT PARKWAY
SMYRNA, DE 19977

TAX MAP (POINT OF CONNECTION): 28-002.00-033

LIMIT OF DISTURBANCE: 0.9 AC

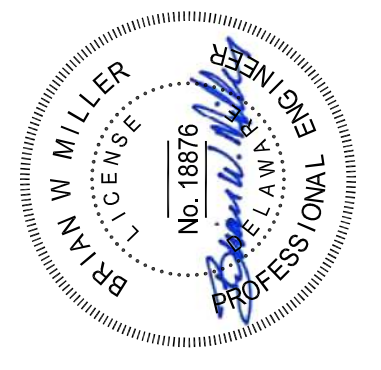
EXISTING IMPERVIOUS AREA: 0.0 AC

PROPOSED IMPERVIOUS AREA: 0.0 AC
(NONE PROPOSED)

ENGINEER CERTIFICATION	
I, BRIAN MILLER, HEREBY CERTIFY THAT I AM A REGISTERED ENGINEER IN THE STATE OF DELAWARE. THAT THIS PLAN HAS BEEN PREPARED UNDER MY SUPERVISION AND TO THE BEST OF MY KNOWLEDGE COMPLIES WITH THE APPLICABLE STATE AND LOCAL REGULATIONS AND ORDINANCES.	
BRIAN MILLER, PE PENNONI ASSOCIATES INC. LICENSE NUMBER 18876	DATE
OWNER CERTIFICATION	
I, THE UNDERSIGNED, CERTIFY THAT ALL LAND CLEARING, CONSTRUCTION, AND DEVELOPMENT SHALL BE DONE PURSUANT TO THE APPROVED PLAN AND THAT RESPONSIBLE PERSONNEL (I.E., BLUE CARD HOLDER) INVOLVED IN THE LAND DISTURBANCE WILL HAVE A CERTIFICATION OF TRAINING PRIOR TO INITIATION OF THE PROJECT. AT A DNREC SPONSORED OR APPROVED TRAINING COURSE FOR THE CONTROL OF EROSION AND SEDIMENT DURING CONSTRUCTION. IN ADDITION, I GRANT THE KENT CONSERVATION DISTRICT THE RIGHT TO CONDUCT ON-SITE REVIEWS, AND I UNDERSTAND MY RESPONSIBILITIES UNDER THE NPDES CONSTRUCTION GENERAL PERMIT, AS REFERENCED ON THIS COVER SHEET.	
TOWN OF SMYRNA 27 S. MARKET STREET PLAZA, SMYRNA, DE 19977	DATE

KENT CONSERVATION DISTRICT	
PROJECT	SMYRN21004
DATE	2023-06-08
DRAWING SCALE	
DRAWN BY	EDJ
APPROVED BY	BWM

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK



NORTH DUCK CREEK UTILITY EXTENSION
PHASE 2
SMYRNA, DELAWARE
COVER SHEET
TOWN OF SMYRNA
27 SOUTH MARKET STREET
SMYRNA, DE 19977

NO.	DATE	REVISIONS	BY
2	6/25/2024	PER BELDOT COORDINATION	EDJ
1	7/21/2023	PER KENT CONSERVATION DISTRICT COMMENTS	EDJ

ALL DOCUMENTS PREPARED BY PENNONI ASSOCIATES ARE INSTRUMENTS OF SERVICE IN RESPECT OF THE PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON THE EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY PENNONI ASSOCIATES FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNERS SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO PENNONI ASSOCIATE. AND OWNER SHALL PROMPTLY AND HOLD HARMLESS PENNONI ASSOCIATES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING THEREFROM.

PROJECT	SMYRN21004
DATE	2023-06-08
DRAWING SCALE	
DRAWN BY	EDJ
APPROVED BY	BWM

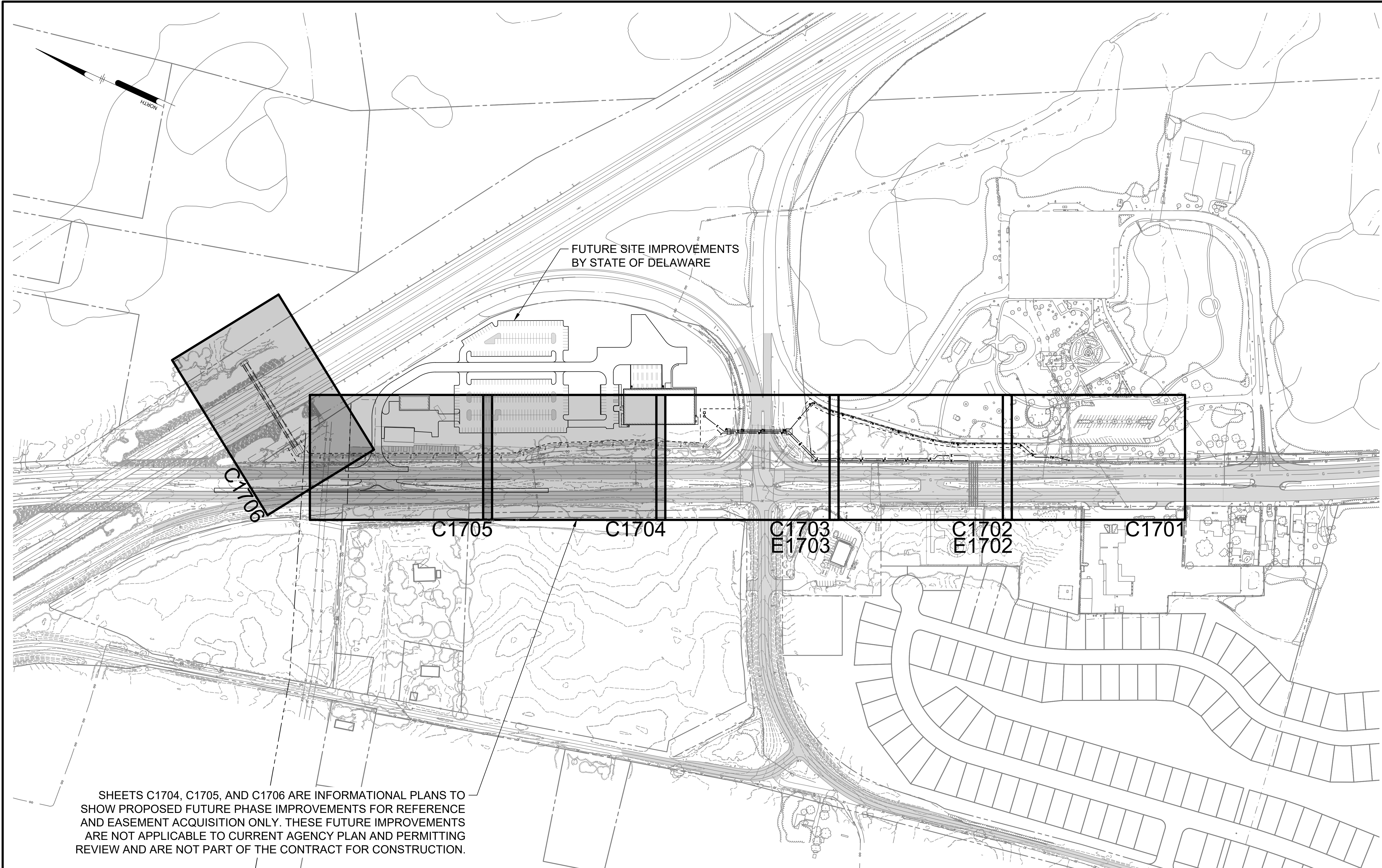
G0001

SHEET 1 OF 17

PLOT FILE: 06/20/24 7:17 PM BY: EdJ:amw PROJECT STATUS: PHASE 2 - WATER, SANITARY, ELECTRIC TO OMB PARCEL PLOTTED BY: EdJ:amw PLOTTED BY: EdJ:amw

CALL BEFORE YOU DIG
Call Miss Utility of Delmarva
800-282-8555
Ticket Number(s): 220390459
220390483

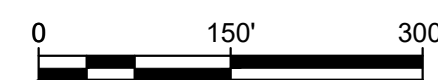
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 PROJECT STATUS: PHASE 2 - WATER, SANITARY, ELECTRIC TO OUR PARCEL



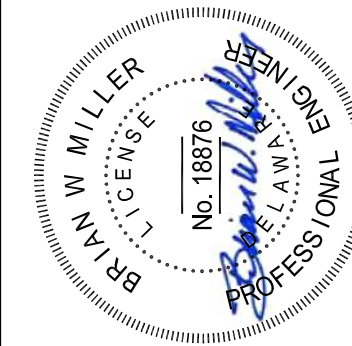
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OVERALL PLAN VIEW

SCALE: 1" = 150'



ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK



NORTH DUCK CREEK UTILITY EXTENSION
 PHASE 2
 SMYRNA, DELAWARE

OVERALL PLAN AND KEY SHEET

TOWN OF SMYRNA
 27 SOUTH MARKET STREET
 SMYRNA, DE 19977

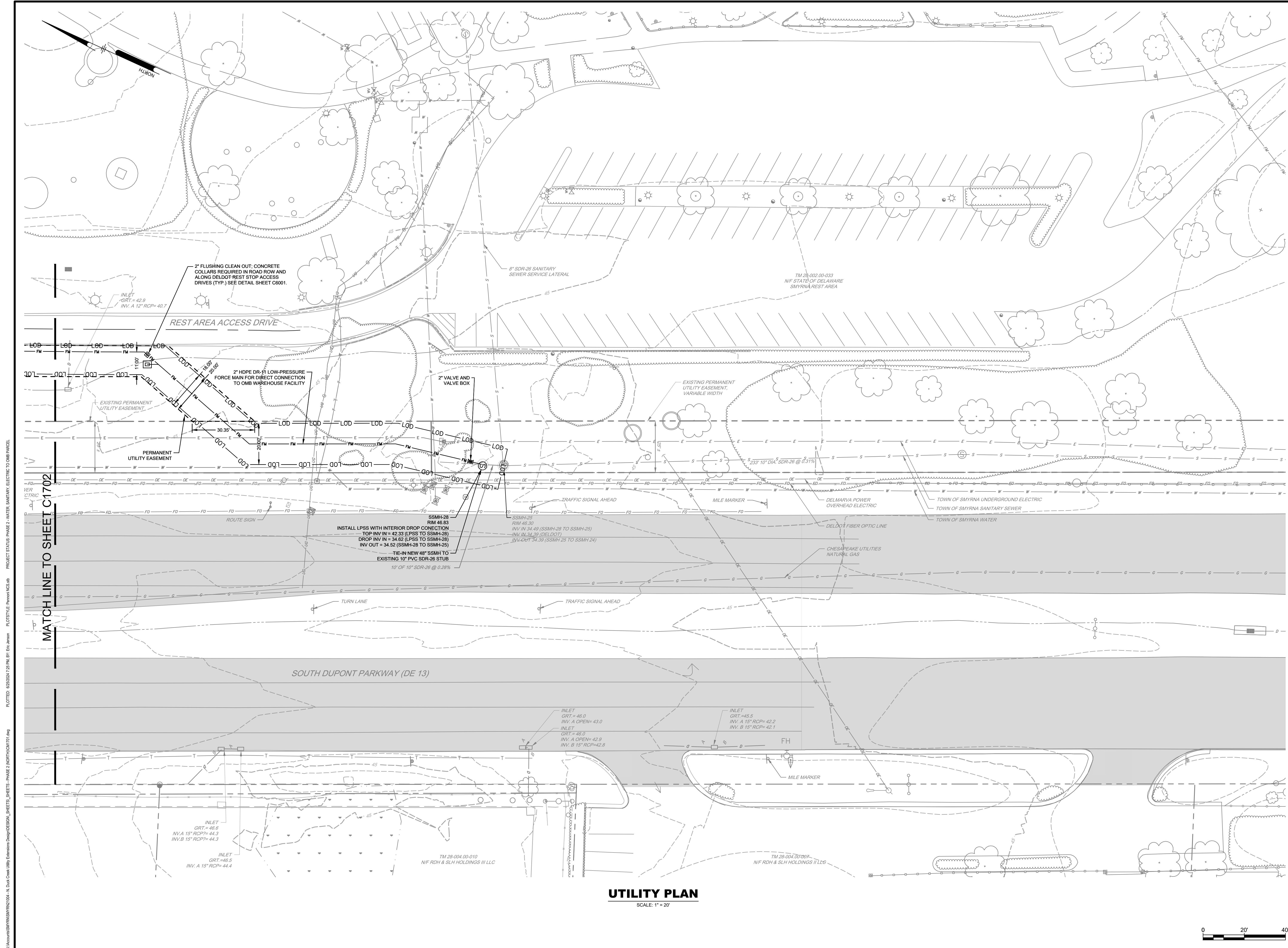
NO.	DATE	REVISIONS	BY
2	6/20/2024	PER BELDOT COORDINATION	EDJ
1	7/21/2023	PER KENT CONSERVATION DISTRICT COMMENTS	EDJ

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PROJECT	SMYRN21004
DATE	2023-06-08
DRAWING SCALE	1"=150'
DRAWN BY	EDJ
APPROVED BY	BWM

G0002

PENNONI ASSOCIATES INC.
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 Newark, DE 19713-4310
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UTILITY PLAN
SCALE: 1" = 20'

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NORTH DUCK CREEK UTILITY EXTENSION
 PHASE 2
 SMYRNA, DELAWARE
UTILITY PLAN
 TOWN OF SMYRNA
 27 SOUTH MARKET STREET
 SMYRNA, DE 19977

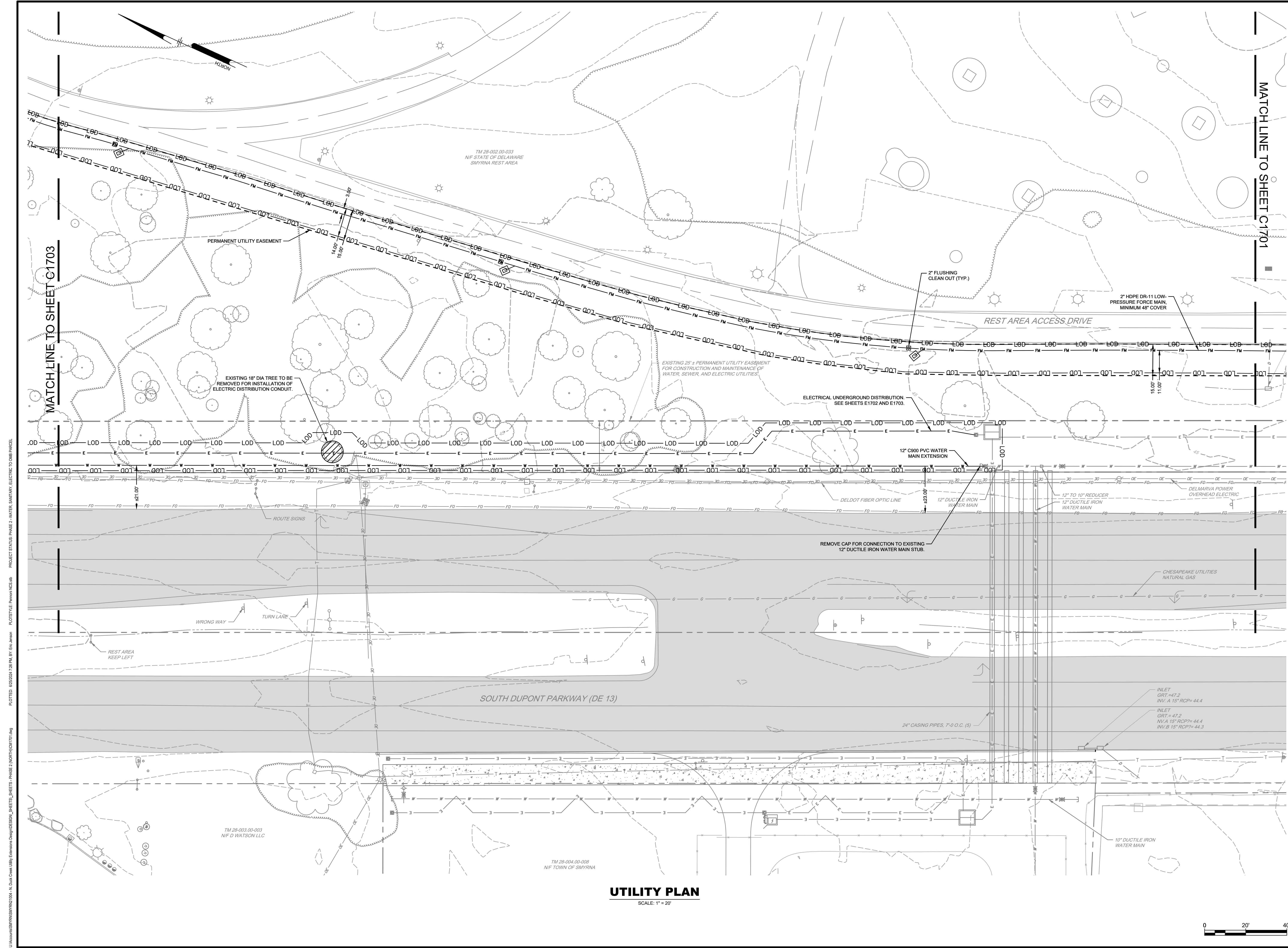
NO.	DATE	REVISIONS	BY
2	6/26/2024	PER DELDOT COORDINATION	EDJ
1	7/2/2023	PER KENT CONSERVATION DISTRICT COMMENTS	EDJ

PROJECT: **SMYRN21004**
 DATE: 2023-06-08
 DRAWING SCALE: 1"=20'
 DRAWN BY: EDJ
 APPROVED BY: BWM

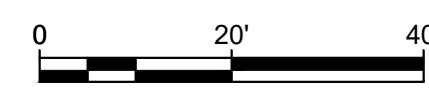
C1701
 SHEET 4 OF 17

PLOTTED: 6/26/2024 2:28 PM BY: EdJ/Janis PLOTTED: 6/26/2024 2:28 PM BY: EdJ/Janis PROJECT STATUS: PHASE 2 - WATER, SANITARY, ELECTRIC TO OMB PARCEL

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UTILITY PLAN
SCALE: 1" = 20'



PLOTTED: 06/20/24 7:28 PM BY: EdJ/Janis
 PROJECT STATUS: PHASE 2 - WATER, SANITARY, ELECTRIC TO OMB PARCEL
 PLOTTED: 06/20/24 7:28 PM BY: EdJ/Janis
 PROJECT STATUS: PHASE 2 - WATER, SANITARY, ELECTRIC TO OMB PARCEL
 PLOTTED: 06/20/24 7:28 PM BY: EdJ/Janis
 PROJECT STATUS: PHASE 2 - WATER, SANITARY, ELECTRIC TO OMB PARCEL

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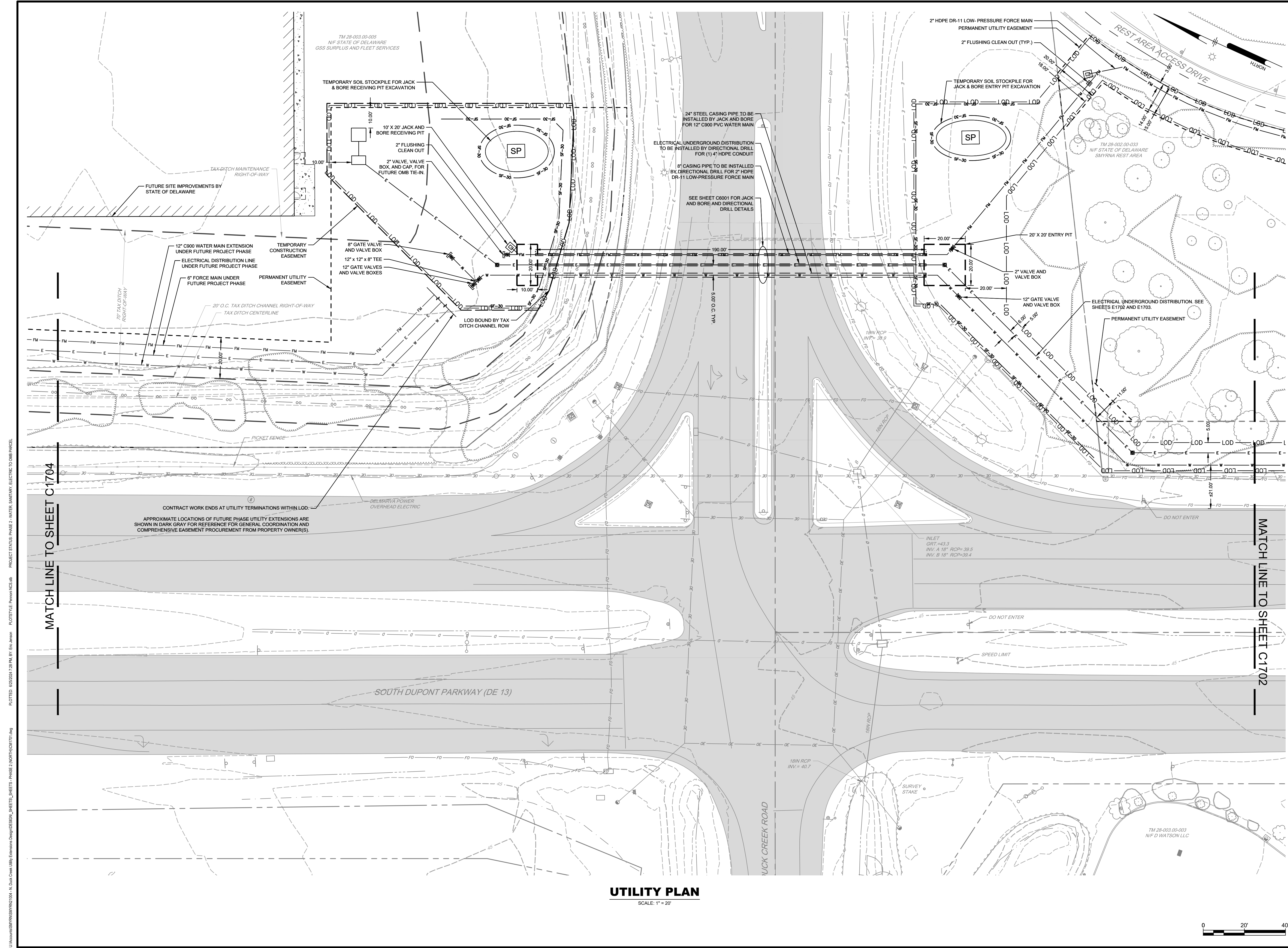
NORTH DUCK CREEK UTILITY EXTENSION
 PHASE 2
 SMYRNA, DELAWARE
UTILITY PLAN
 TOWN OF SMYRNA
 27 SOUTH MARKET STREET
 SMYRNA, DE 19977

NO.	DATE	REVISIONS	BY
2	6/20/2024	PER DELDOT COORDINATION	EDJ
1	7/21/2023	PER KENT CONSERVATION DISTRICT COMMENTS	EDJ

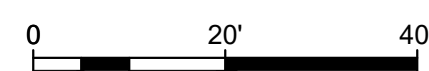
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PROJECT: **SMYRN21004**
 DATE: 2023-06-08
 DRAWING SCALE: 1"=20'
 DRAWN BY: EDJ
 APPROVED BY: BWM

C1702
 SHEET 5 OF 17



UTILITY PLAN
SCALE: 1" = 20'



PLOTTED: 06/20/24 2:28 PM BY: EdJ/Janis PROJECT STATUS: PHASE 2 - WATER, SANITARY, ELECTRIC TO OMB PARCEL
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NORTH DUCK CREEK UTILITY EXTENSION
 PHASE 2
 SMYRNA, DELAWARE
 UTILITY PLAN

TOWN OF SMYRNA
 27 SOUTH MARKET STREET
 SMYRNA, DE 19977

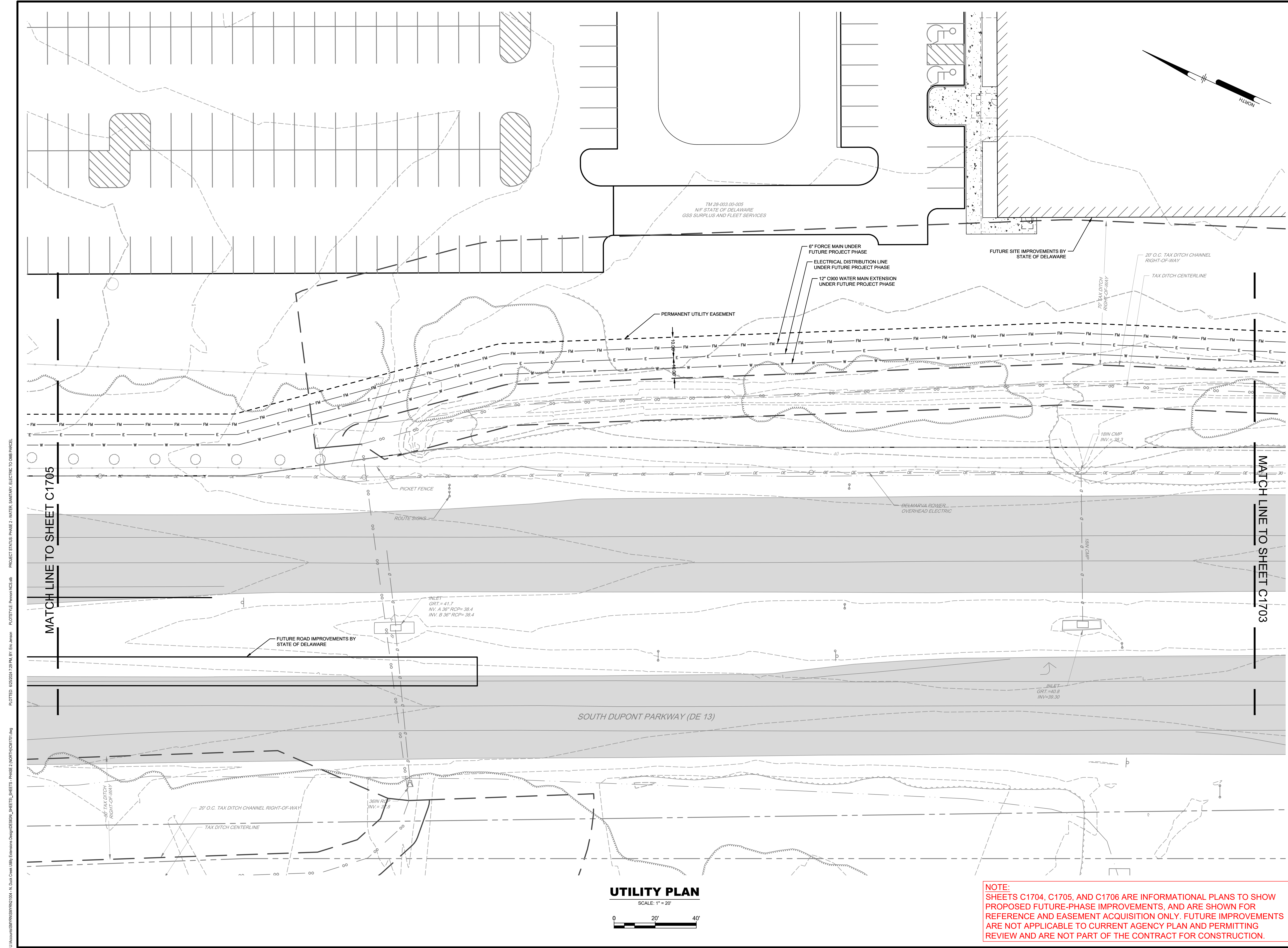
NO.	DATE	REVISIONS	BY
2	6/20/24	PER BELDOT COORDINATION	EDJ
1	7/2/2023	PER KENT CONSERVATION DISTRICT COMMENTS	EDJ

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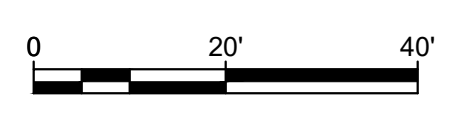
PROJECT	SMYRN21004
DATE	2023-06-08
DRAWING SCALE	1"=20'
DRAWN BY	EDJ
APPROVED BY	BWM

C1703

SHEET 6 OF 17



UTILITY PLAN
SCALE: 1" = 20'



NOTE:
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PENNONI ASSOCIATES INC.
 Christina Executive Campus
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NORTH DUCK CREEK UTILITY EXTENSION
 PHASE 2
 SMYRNA, DELAWARE
UTILITY PLAN
 TOWN OF SMYRNA
 27 SOUTH MARKET STREET
 SMYRNA, DE 19977

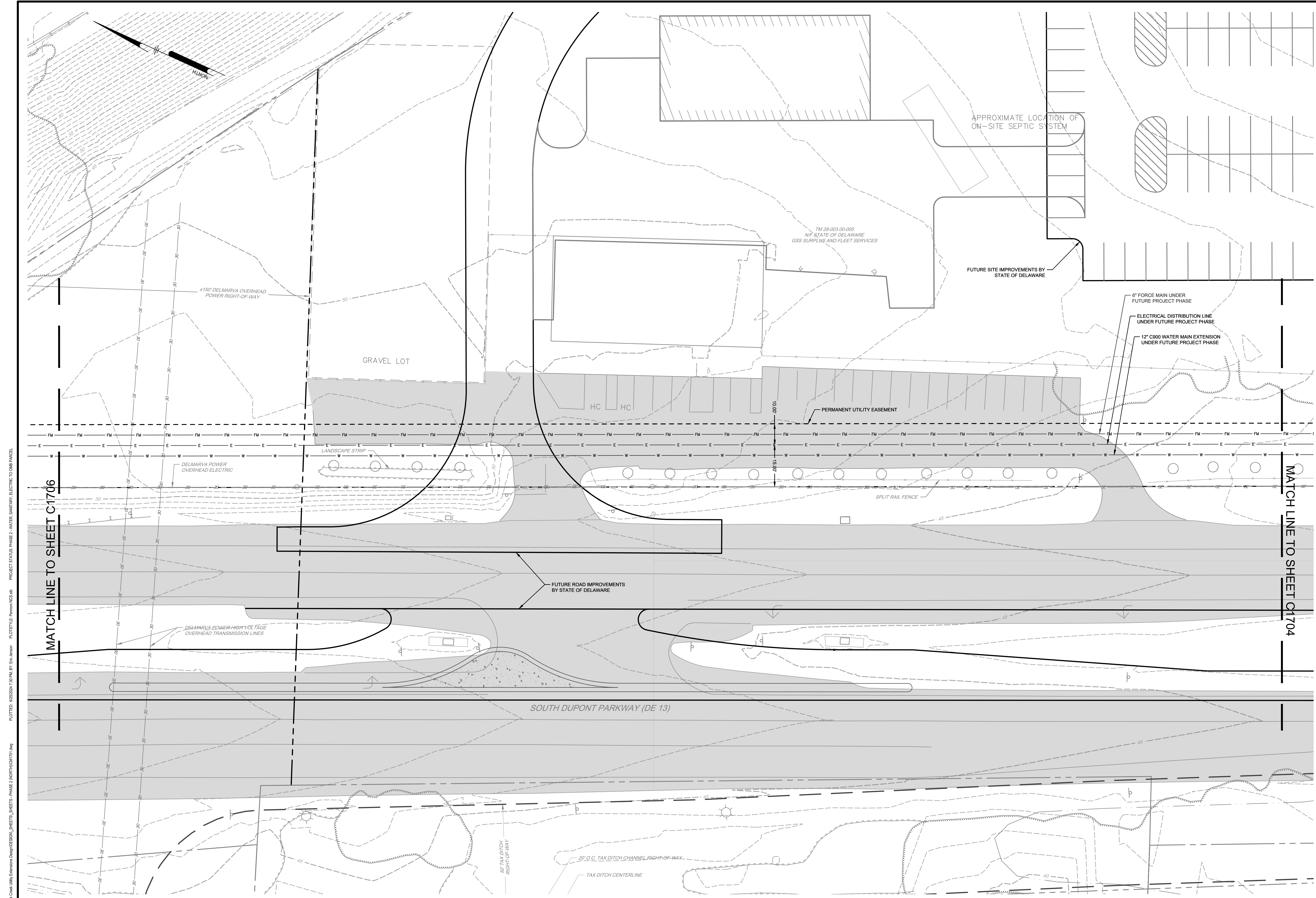
NO.	DATE	REVISIONS	BY
2	8/25/2024	PER BELDOT COORDINATION	EDJ
1	7/21/2023	PER KENT CONSERVATION DISTRICT COMMENTS	EDJ

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PROJECT: **SMYRN21004**
 DATE: 2023-06-08
 DRAWING SCALE: 1"=20'
 DRAWN BY: EDJ
 APPROVED BY: BWM

C1704
 SHEET 7 OF 17

PLOTTED: 06/20/24 2:59 PM BY: EdJ/Janis PLOTTED: 06/20/24 2:59 PM BY: EdJ/Janis PROJECT STATUS: PHASE 2 - WATER, SANITARY, ELECTRIC TO OMB PARCEL
 U:\smyrna\SMYRN21004-11_Duck_Creek_Utility_Extensions_Design\DESIGN_SHEETS_SHEETS_C1704\NORTH\UTILITY.dwg



UTILITY PLAN
SCALE: 1" = 20'



NOTE:
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 PLOTTED: 6/20/2024 7:59 PM BY: EdJ
 PLOTTED: 6/20/2024 7:59 PM BY: EdJ
 PROJECT STATUS: PHASE 2 - WATER, SANITARY, ELECTRIC TO OMBR PARCEL

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PENNONI ASSOCIATES INC.
 Christina Executive Campus
 121 Continental Drive, Suite 207
 Newark, DE 19713-4310
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NORTH DUCK CREEK UTILITY EXTENSION
 PHASE 2
 SMYRNA, DELAWARE
UTILITY PLAN
 TOWN OF SMYRNA
 27 SOUTH MARKET STREET
 SMYRNA, DE 19977

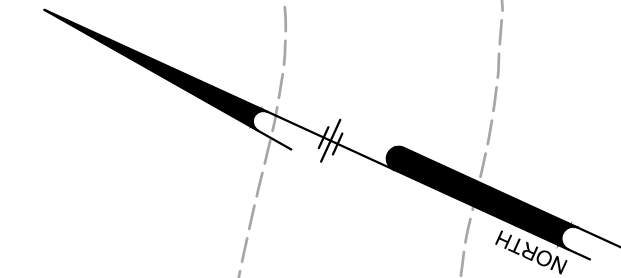
DATE	NO.	REVISIONS	BY
6/20/2024	2	PER BELDOT COORDINATION	EDJ
7/21/2023	1	PER KENT CONSERVATION DISTRICT COMMENTS	EDJ

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PROJECT: **SMYRN21004**
 DATE: 2023-06-08
 DRAWING SCALE: 1"=20'
 DRAWN BY: EDJ
 APPROVED BY: BWM

C1705
 SHEET 8 OF 17

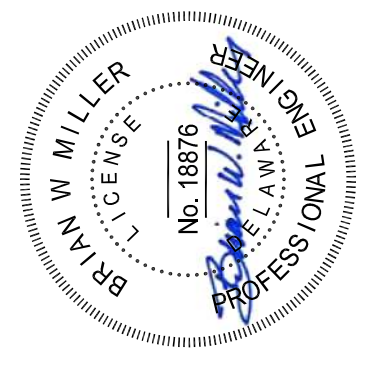
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UTILITY PLAN
 SCALE: 1" = 20'

NOTE:
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NORTH DUCK CREEK UTILITY EXTENSION
 PHASE 2
 SMYRNA, DELAWARE

UTILITY PLAN

TOWN OF SMYRNA
 27 SOUTH MARKET STREET
 SMYRNA, DE 19877

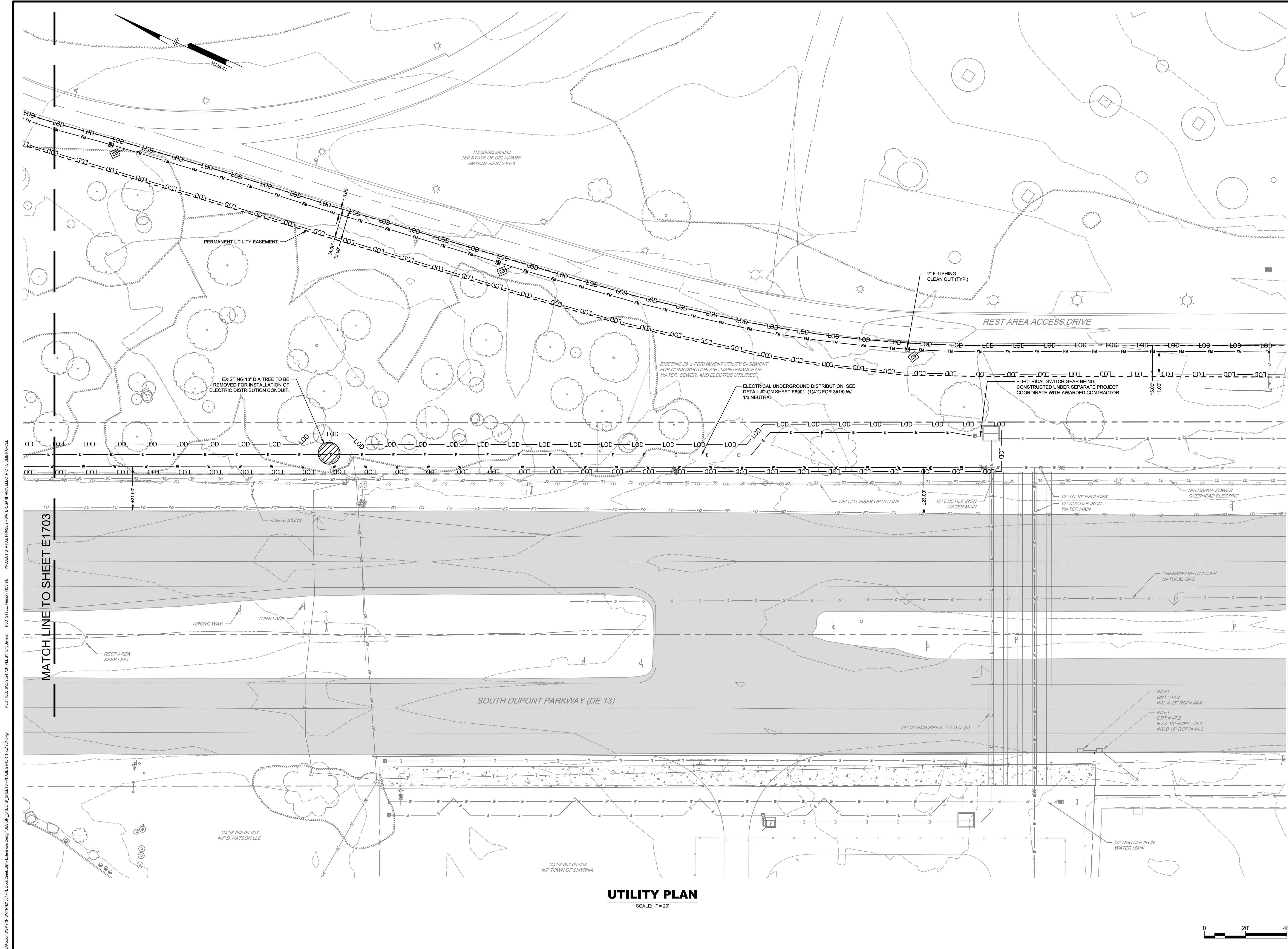
DATE	NO.	REVISIONS	BY
6/26/2024	2	PER BELDOT COORDINATION	EDJ
7/21/2023	1	PER KENT CONSERVATION DISTRICT COMMENTS	EDJ

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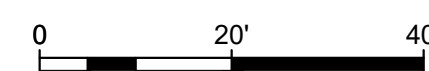
PROJECT	SMYRN21004
DATE	2023-06-08
DRAWING SCALE	1"=20'
DRAWN BY	EDJ
APPROVED BY	BWM

C1706
 SHEET 9 OF 17

PENNONI ASSOCIATES INC.
 Christina Executive Campus
 121 Continental Drive, Suite 207
 Newark, DE 19713-4310
 T 302.655.4451 F 302.654.2885



UTILITY PLAN
SCALE: 1" = 20'



U:\Projects\SMYRNA\SMYRNA21004-11_Duck Creek Utility Extension Design\DESIGN_SHEETS_SHEETS_2\NORTH\E1702.dwg
 PLOTTED: 06/20/2024 7:24 PM BY: EdJ/kmb
 PLOTTED: 06/20/2024 7:24 PM BY: EdJ/kmb
 PROJECT: SMYRNA21004-11_Duck Creek Utility Extension Design - WATER SANITARY, ELECTRIC TO OMB PARCEL



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NORTH DUCK CREEK UTILITY EXTENSION
 PHASE 2
 SMYRNA, DELAWARE

ELECTRIC PLAN

TOWN OF SMYRNA
 27 SOUTH MARKET STREET
 SMYRNA, DE 19977

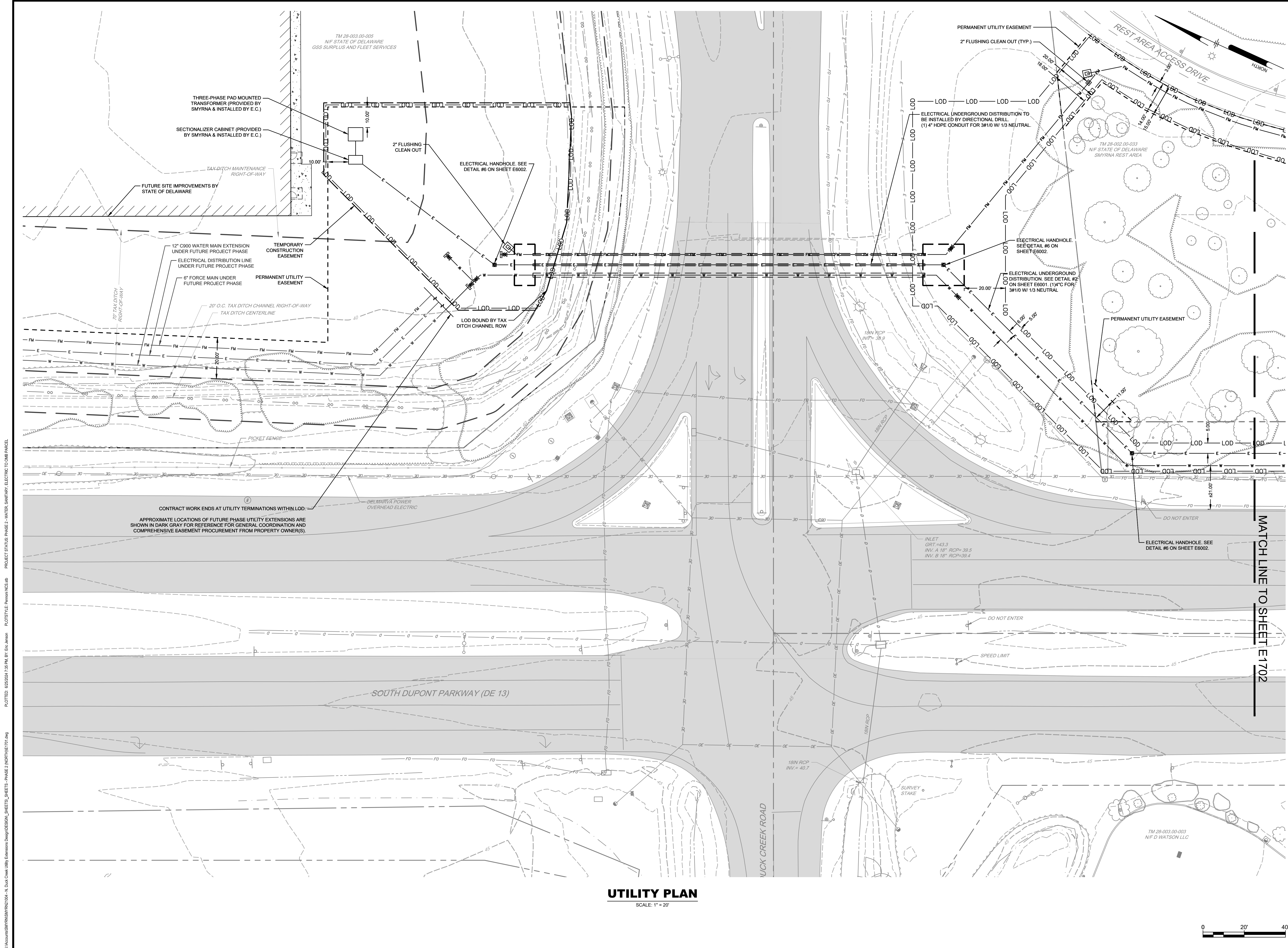
NO.	DATE	REVISIONS	BY
2	6/20/2024	PER DELDOT COORDINATION	EDJ
1	7/21/2023	PER KENT CONSERVATION DISTRICT COMMENTS	EDJ

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PROJECT	SMYRN21004
DATE	2024-01-29
DRAWING SCALE	1"=20'
DRAWN BY	EDJ/KMB
APPROVED BY	BWM

E1702

SHEET 10 OF 17



UTILITY PLAN
SCALE: 1" = 20'

NORTH DUCK CREEK UTILITY EXTENSION

PHASE 2
SMYRNA, DELAWARE
ELECTRIC PLAN

TOWN OF SMYRNA
27 SOUTH MARKET STREET
SMYRNA, DE 19977

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

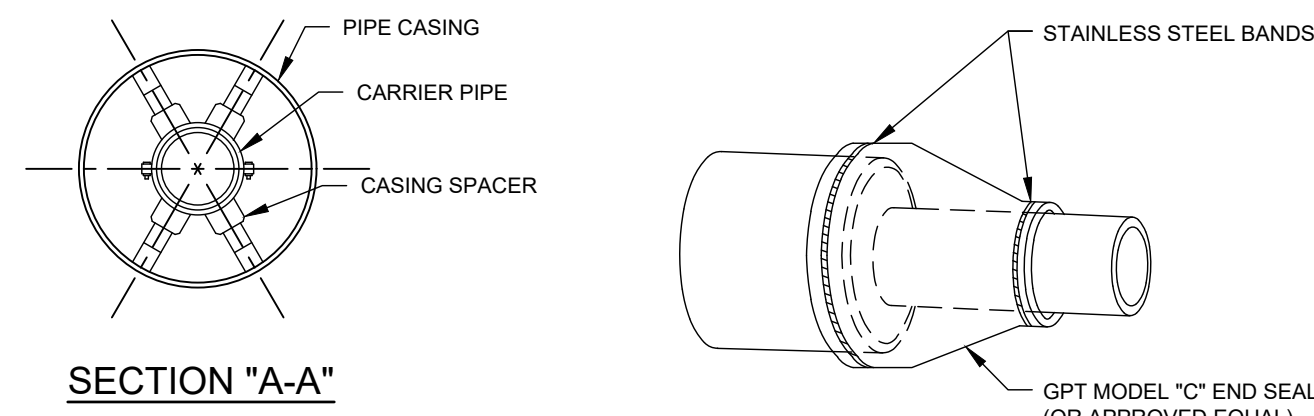
NO.	DATE	REVISIONS	BY
2	6/25/2024	PER BELDOT COORDINATION	EDJ
1	7/21/2023	PER KENT CONSERVATION DISTRICT COMMENTS	EDJ

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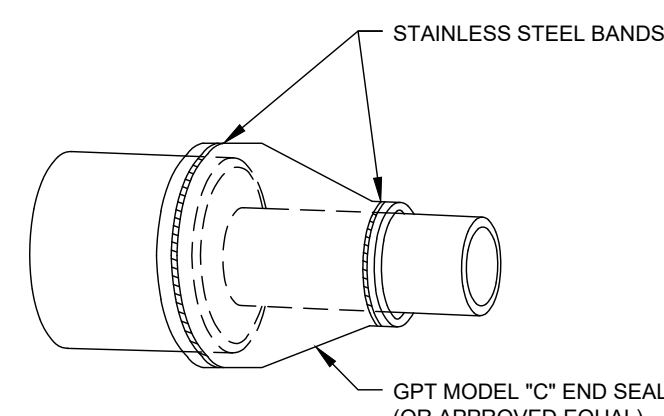
PROJECT: SMYRN21004
DATE: 2024-01-29
DRAWING SCALE: 1"=20'
DRAWN BY: EDJ/KMB
APPROVED BY: BWM

PENNONI ASSOCIATES INC.
Christiana Executive Campus
121 Continental Drive, Suite 207
Newark, DE 19713-4310
T 302.655.4451 F 302.654.2895

U:\AEC\GIS\PROJECTS\SMYRN21004-11_DuckCreekUtilityExtension\Design\DESIGN_SHEETS_SAPETS_PHASE2\NORTH\E1703.dwg
 PLOTTED: 05/20/24 2:58 PM BY: EdJ/kmb
 PLOTTED: 05/20/24 2:58 PM BY: EdJ/kmb
 PROJECT STATUS: PHASE 2 - WATER SANITARY, ELECTRIC TO OMBR PARCEL

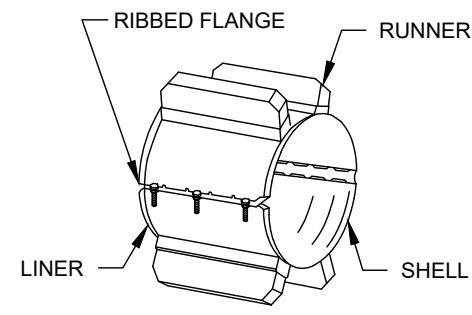


SECTION "A-A"



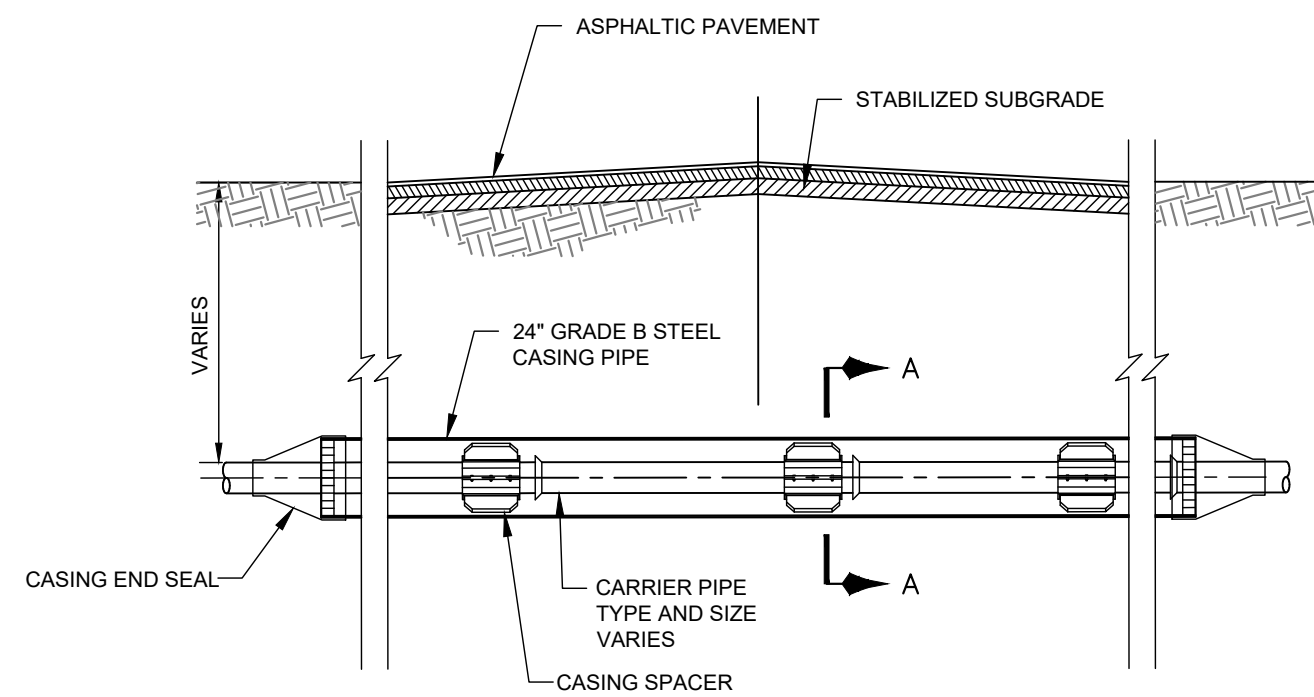
NOTE:
PROVIDE END SEALS AT EACH END OF CASING PIPE TO CAP ANNULAR SPACE BETWEEN THE CARRIER PIPE AND CASING PIPE.

CASING END SEAL



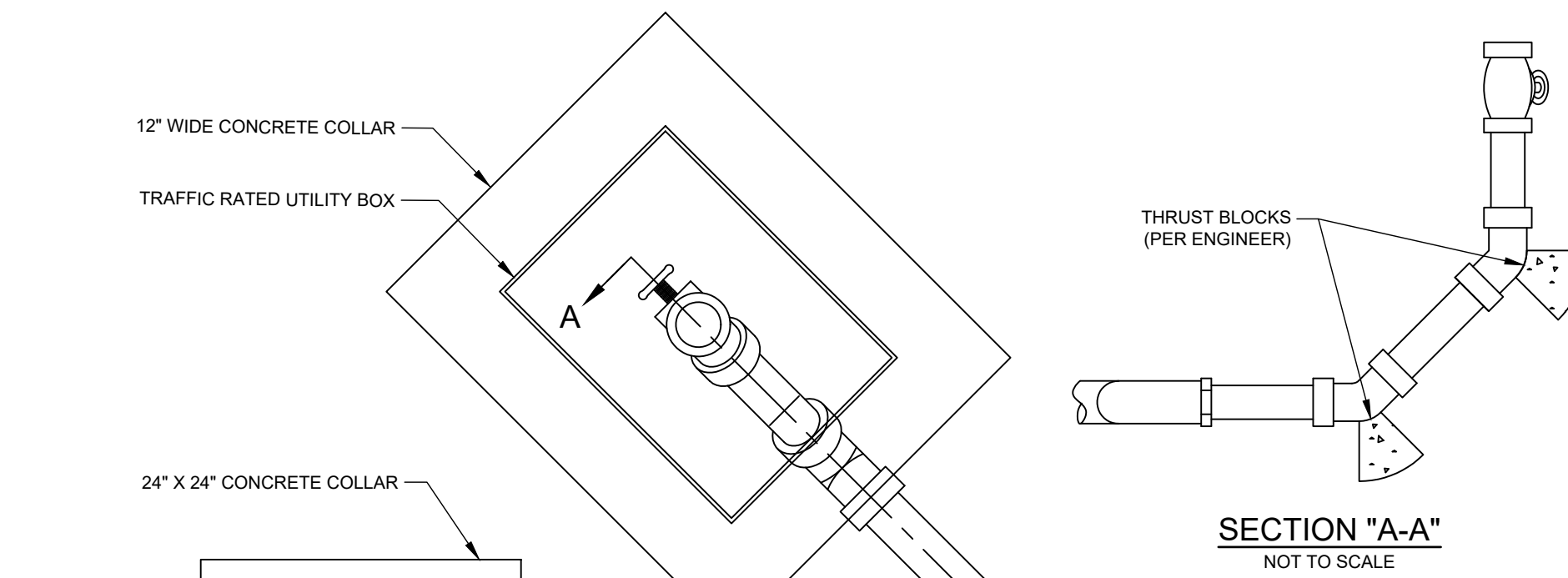
SPACER

STANDARD NUMBER OF RUNNERS REQUIRED
UP TO 14" CARRIER PIPE - 4 REQUIRED
OVER 14" THROUGH 36" CARRIER PIPE - 6 REQUIRED
OVER 36" THROUGH 48" CARRIER PIPE - 7 REQUIRED

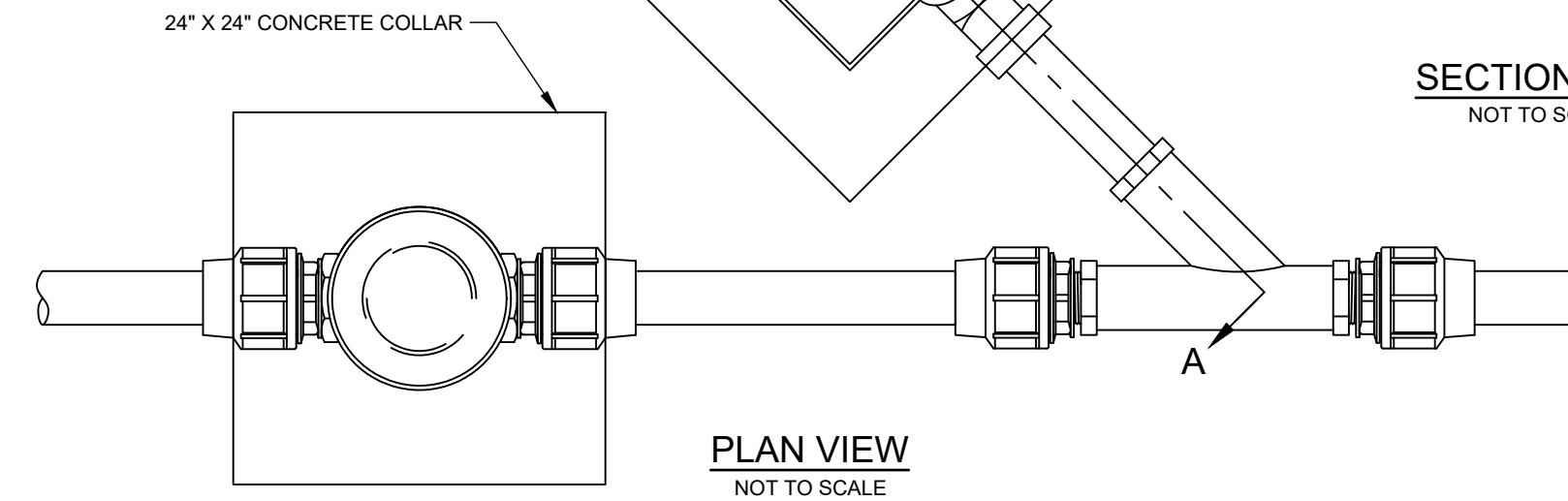


JACK AND BORE DETAIL
NOT TO SCALE

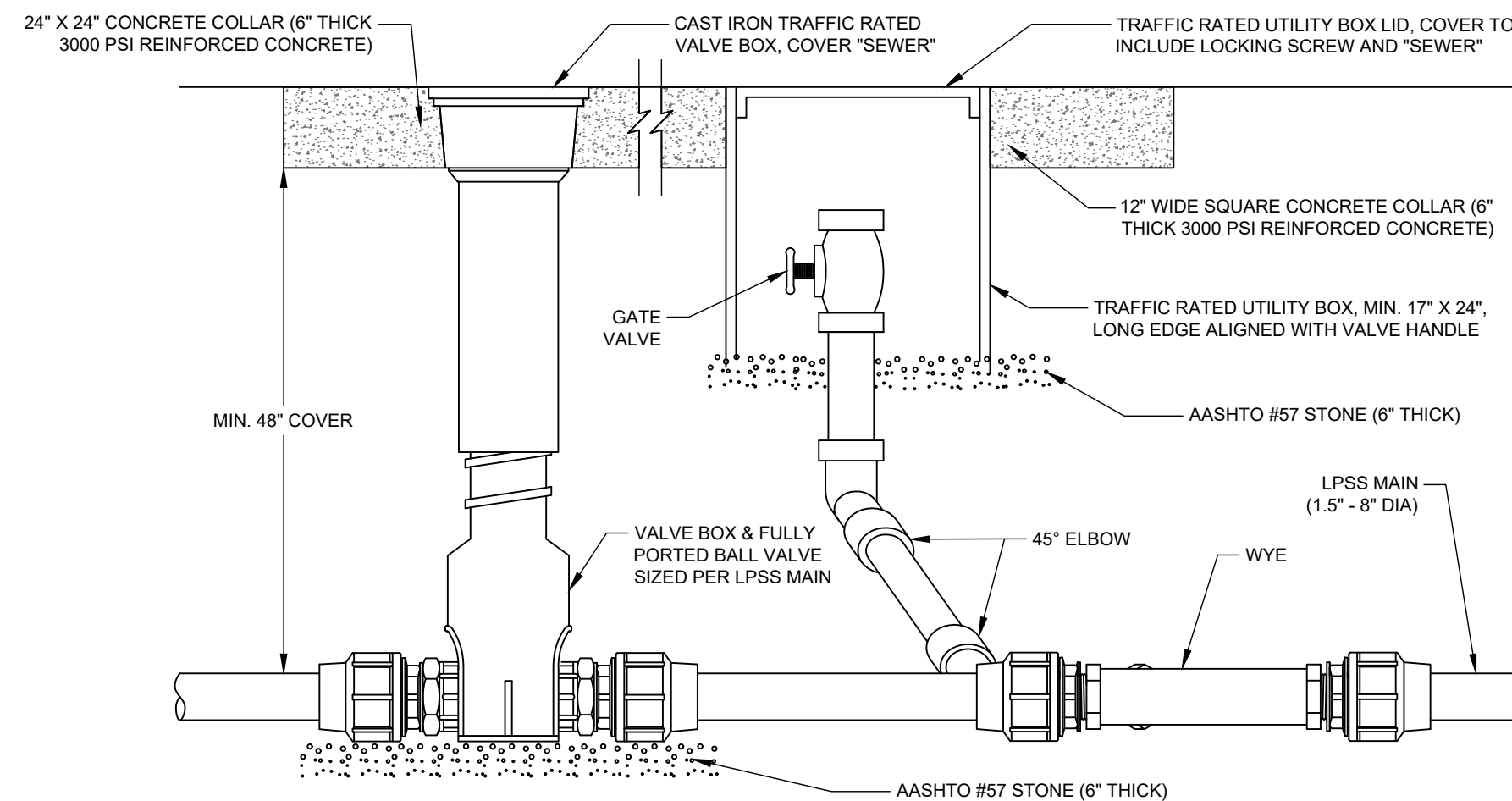
- NOTES**
- SEE TECHNICAL SPECIFICATIONS FOR CARRIER PIPE AND CASING PIPE REQUIREMENTS.
 - GENERAL - ONE SPACER SHALL BE PLACED NOT MORE THAN TWO FEET FROM EACH END OF CASING. SUBSEQUENT SPACERS SHALL BE PLACED AT 6' TO 10' INTERVALS WITHIN THE CASING IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - CARRIER PIPE - ONE SPACER SHALL BE PLACED ON THE SPIGOT END OF EACH SEGMENT AT THE LINE MARKING THE LIMIT OF INSERTION INTO THE BELL. WHEN THE JOINT IS COMPLETE, THE SPACER SHALL BE IN CONTACT WITH THE BELL OF THE JOINT SO THAT THE SPACER PUSHES THE JOINT AND RELIEVES COMPRESSION WITHIN THE JOINT. SUBSEQUENT SPACERS SHALL BE PLACED AT 6' TO 10' INTERVALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - CARRIER PIPE SHALL BE CENTERED WITHIN CASING BY USE OF STAINLESS STEEL CASING SPACERS.



SECTION "A-A"
NOT TO SCALE



PLAN VIEW
NOT TO SCALE

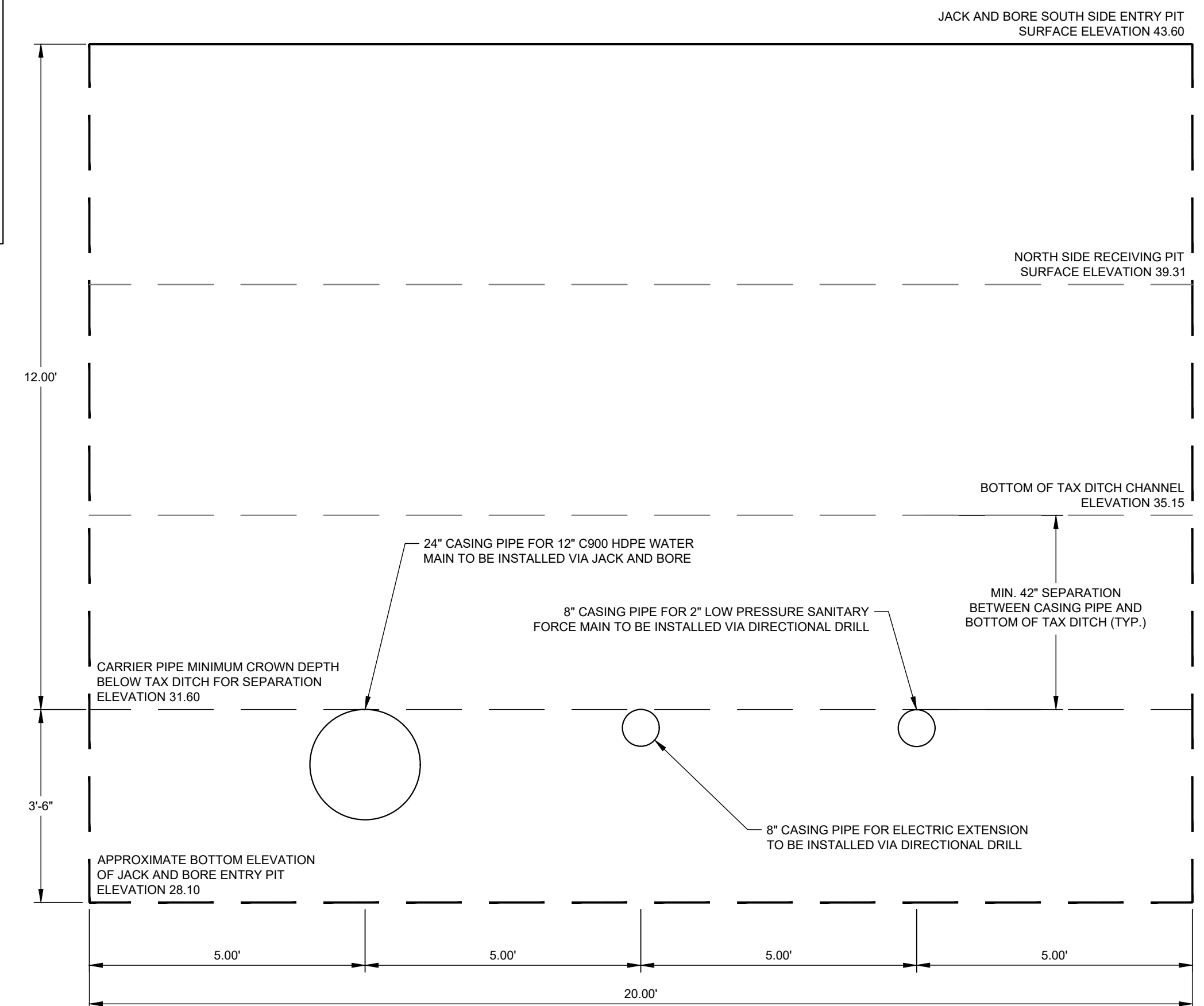


- NOTES:**
- INSTALL CLEANOUT AT BEGINNING OF EVERY BRANCH OR AT BENDS.
 - PLACE WARNING TAPE 12" BELOW GRADE ALONG ENTIRE LENGTH OF FORCE MAIN.
 - CONCRETE COLLARS ARE REQUIRED WITHIN ROAD RIGHTS-OF-WAY AND ALONG DELDOT REST STOP PROPERTY INTERNAL ACCESS DRIVES.

TYPICAL FLUSHING CONNECTION ON LPSS
NOT TO SCALE

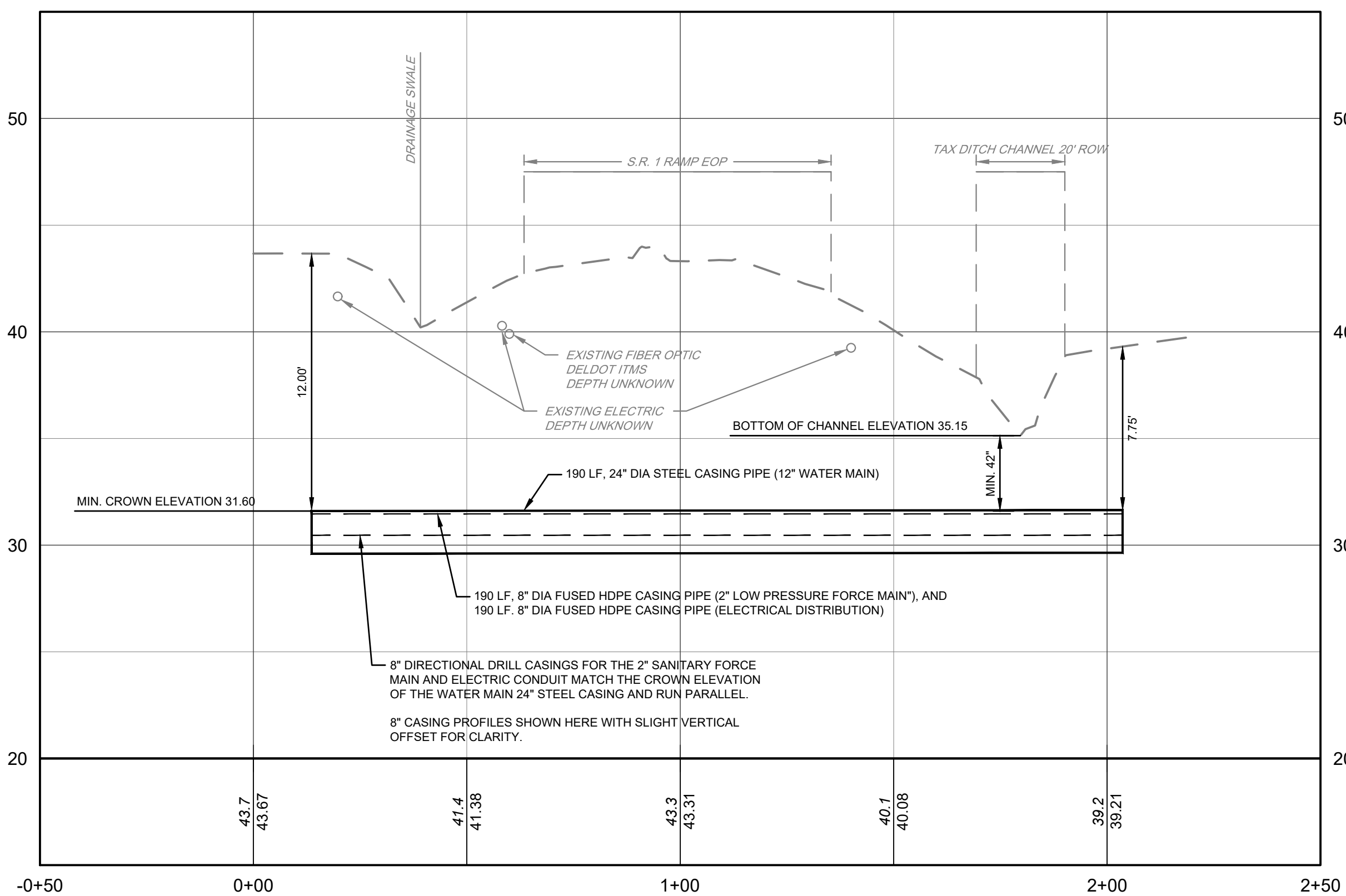
CONSTRUCTION DETAILS FOR WATER AND SANITARY SEWER WORK SHALL BE IN ACCORDANCE WITH THE TOWN OF SMYRNA STANDARD SPECIFICATIONS AND DETAILS.

CASING PIPE SIZE SCHEDULE			
CASING PIPE MATERIAL	SIZE (IN)	LENGTH (FT)	CARRIER PIPE DESCRIPTION
0.375" WALL, GRADE-50 STEEL	24	190	12" FUSED HDPE C900 WATER MAIN
0.375" WALL, GRADE-50 STEEL	8	190	(1) 4" FUSED HDPE SDR-11 ELECTRIC DISTRIBUTION CONDUIT
0.375" WALL, GRADE-50 STEEL	8	190	2" FUSED HDPE SDR-11 LOW PRESSURE FORCE MAIN



JACK AND BORE AND DIRECTIONAL DRILL PIT SECTION VIEW
SOUTH SIDE ENTRY PIT
STATE ROUTE 1 RAMP CROSSING
NOT TO SCALE

- NOTES**
- CARRIER PIPES MAY REQUIRE 90 DEGREE OR DOUBLE 45 DEGREE TURN-UPS AT EACH SIDE OF JACK AND BORE CASING PIPES TO CONNECT TO UTILITY MAIN INSTALLATION DEPTHS.



UTILITY CASING PIPES PROFILE - S.R. 1 RAMP CROSSING
HORIZONTAL SCALE: 1" = 25'
VERTICAL SCALE: 1" = 5'

Pennoni
PENNONI ASSOCIATES, INC.
1900 Market Street, Suite 300
Philadelphia, PA 19103
T 215.222.3000 F 215.222.3588



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NORTH DUCK CREEK UTILITY EXTENSION
PHASE 2
SMYRNA, DELAWARE

CONSTRUCTION DETAILS

TOWN OF SMYRNA
27 SOUTH MARKET STREET
SMYRNA, DE 19977

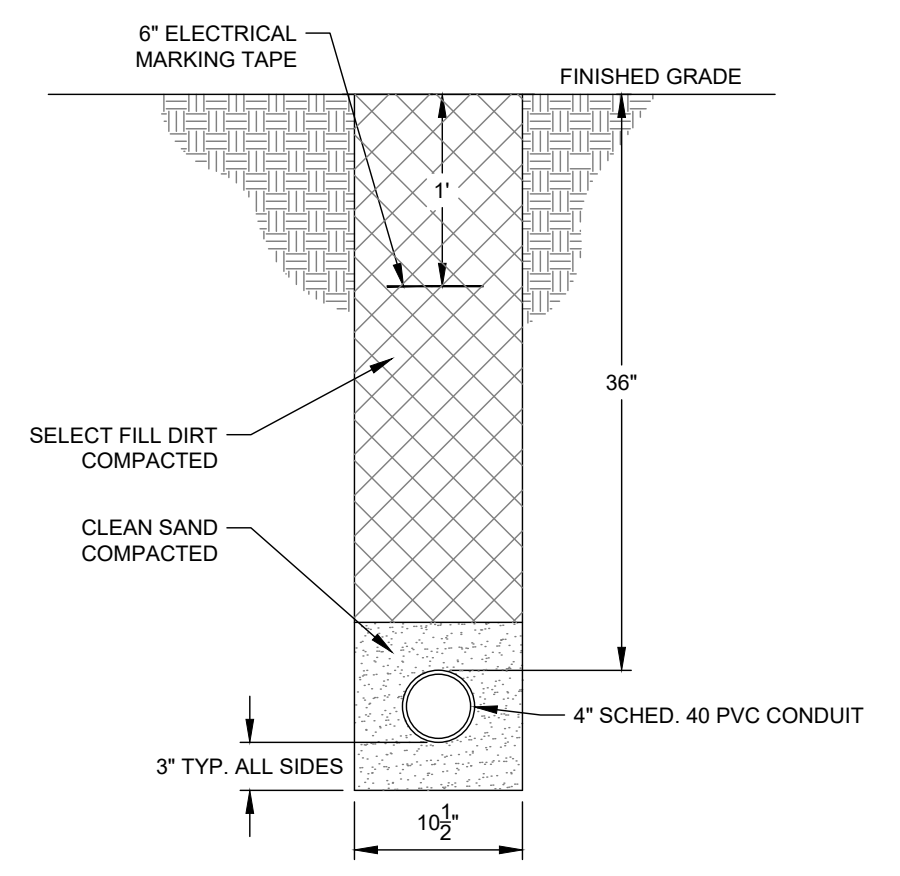
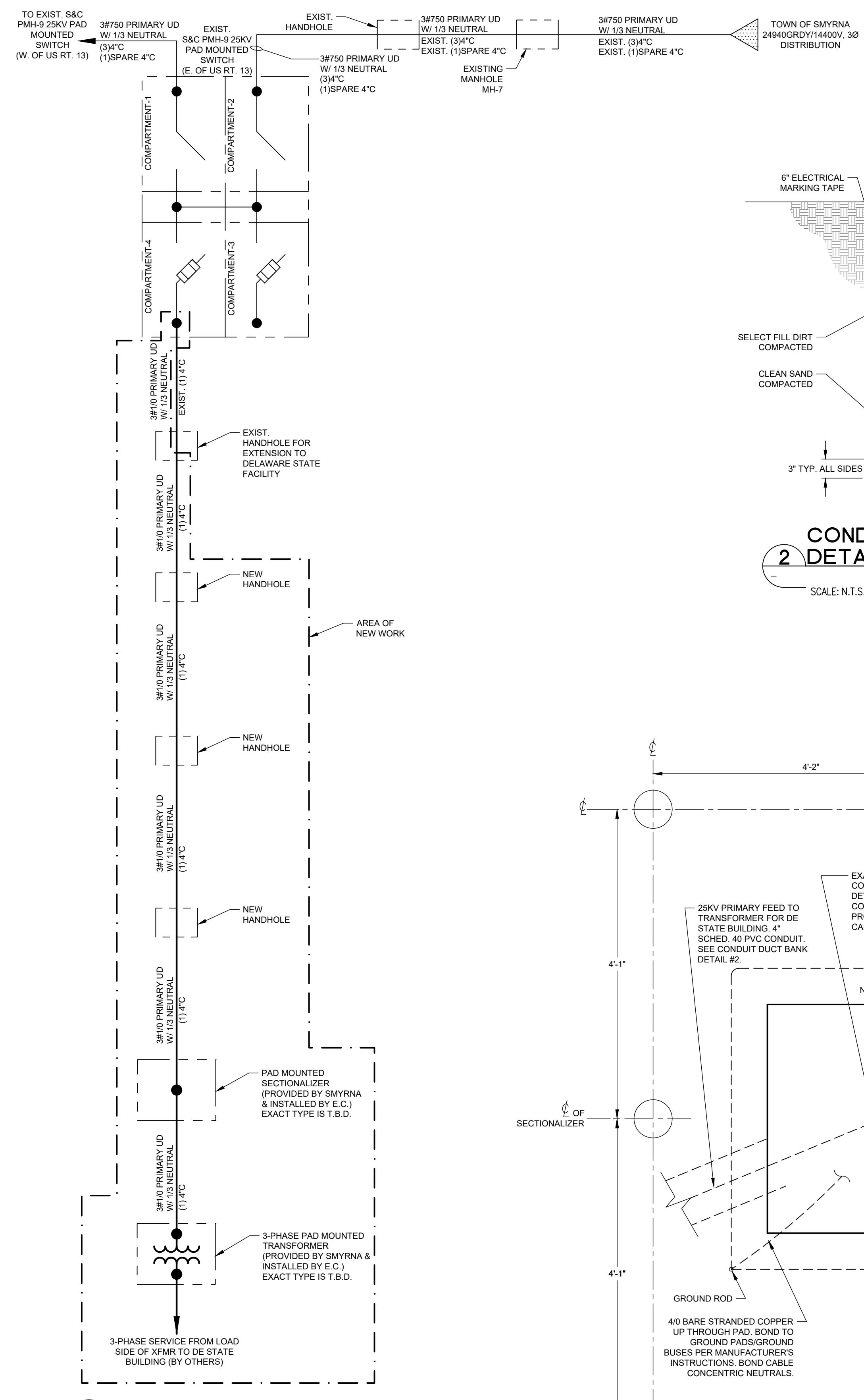
NO.	DATE	REVISIONS	BY
2	6/26/2024	PER DELDOT COORDINATION	EDJ
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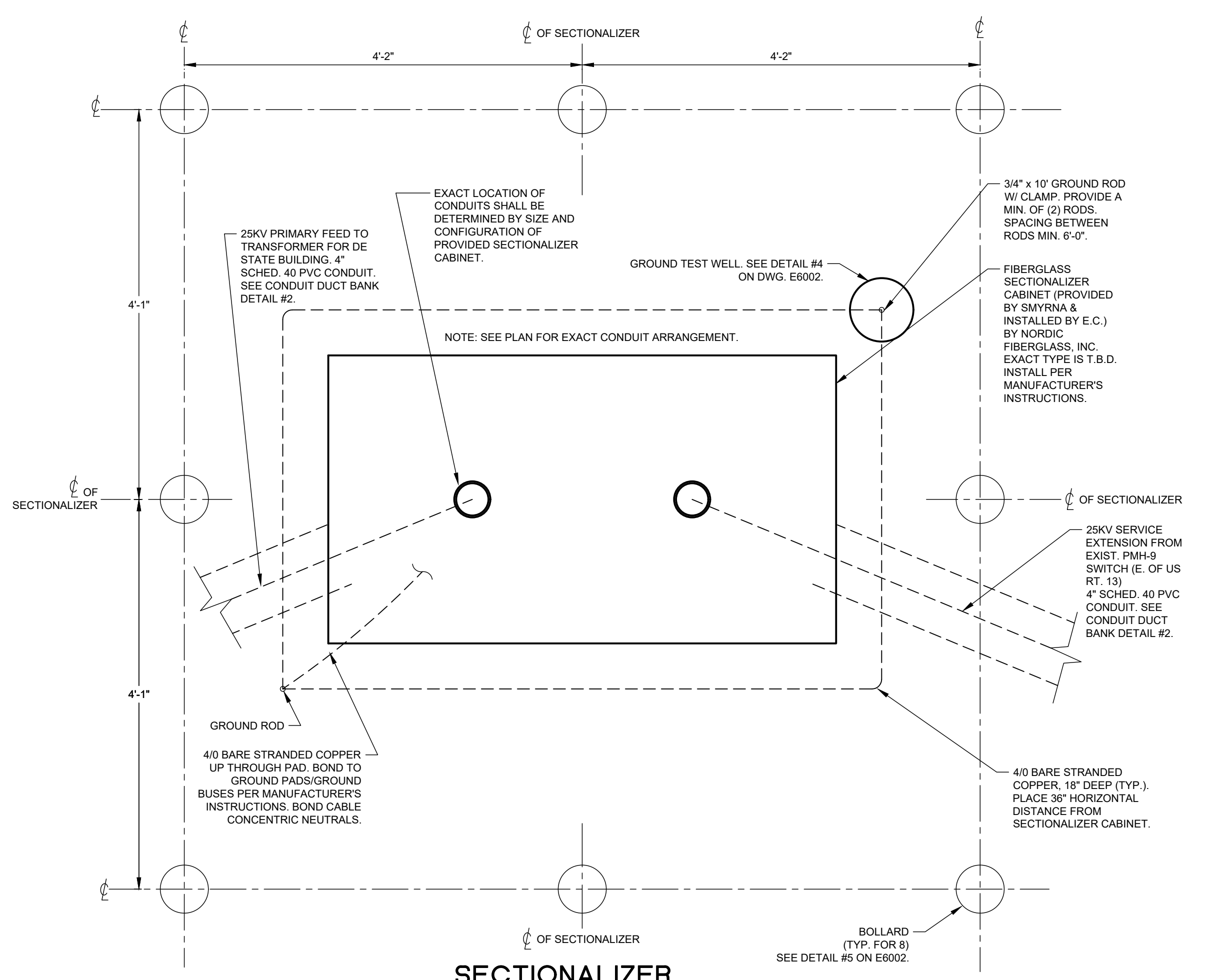
PROJECT: SMYRN21004
DATE: 2023-06-08
DRAWING SCALE: ---
DRAWN BY: EDJ
APPROVED BY: BWM

C6001

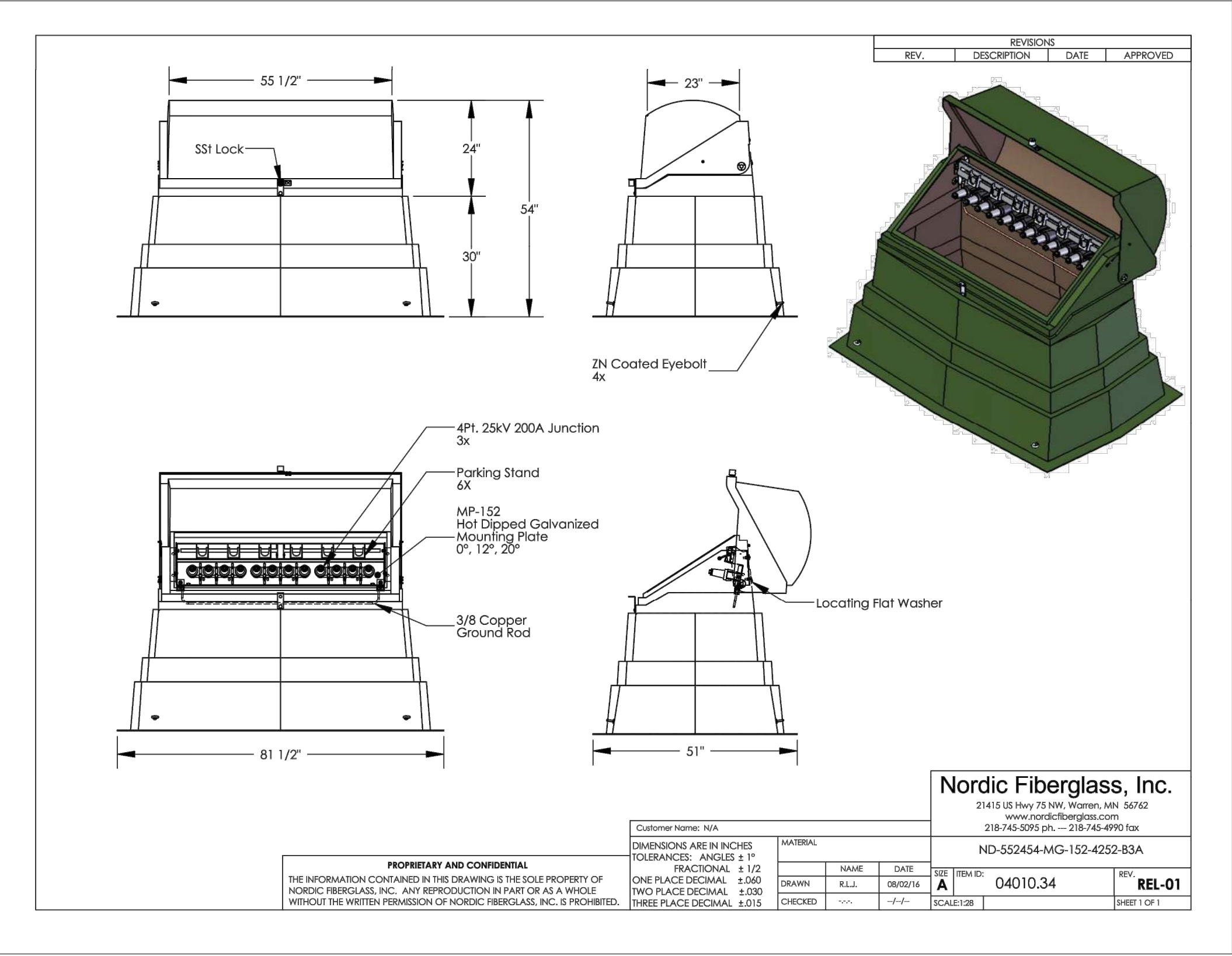
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 PLOTTED: 03/20/24 2:57 PM BY: Ede-James
 PLOTT STYLE: Pennoni MCS.dlx
 PROJECT STATUS: PHASE 2 - WATER, SANITARY, ELECTRIC TO OMB PARCEL



2 CONDUIT DUCTBANK
DETAIL
SCALE: N.T.S.



4 SECTIONALIZER
DETAIL - PLAN VIEW
SCALE: N.T.S.



NOTE:
THIS VENDOR DRAWING OF TYPICALLY USED NORDIC FIBERGLASS, INC. SECTIONALIZER IS PROVIDED FOR REFERENCE ONLY. E.C. SHALL REFER TO DRAWINGS FURNISHED WITH PROVIDED SECTIONALIZER IF DIFFERENT MODEL IS PROVIDED.

NORDIC FIBERGLASS SECTIONALIZER
5 (FOR REFERENCE ONLY)

SCALE: N.T.S.

Nordic Cabinet Installation Instructions

Single & Three Phase Sectionalizing Cabinet Installation Instructions:

- Measure the bottom width and depth of the cabinet's flanges.
- Measure 10" down from the top of the locking system, mark that spot.
- Then measure from that spot to the bottom of the cabinet, that's the maximum burial depth.
- Dig a hole approximately 6" deeper than the maximum burial depth and 12" wider than the bottom flange dimensions of the cabinet.
- Add 6" of gravel to the bottom of the hole, machine tamp and level it.
- Close the cabinet lid and tighten the penta-head bolt(s).
- Hook-up lifting slings to the cabinet's 4 eyebolts.
- Lower the cabinet into the hole.
- Using a level, ensure that the cabinet is level. If not level, add or remove gravel, re-tamp and level again.
- Backfill with loose dirt, no chunks of dirt or rocks, no machine tamping.
- Finish grade approximately 6" below locking system.
- Unscrew the penta-head bolts and open the lid.



Nordic Fiberglass, Inc.
P.O. Box 27 Warren, MN 56762 Tel: 218-745-5095 Fax: 218-745-4990 www.nordicfiberglass.com

NORDIC FIBERGLASS SECTIONALIZER
6 INSTALLATION INSTRUCTIONS

SCALE: N.T.S.

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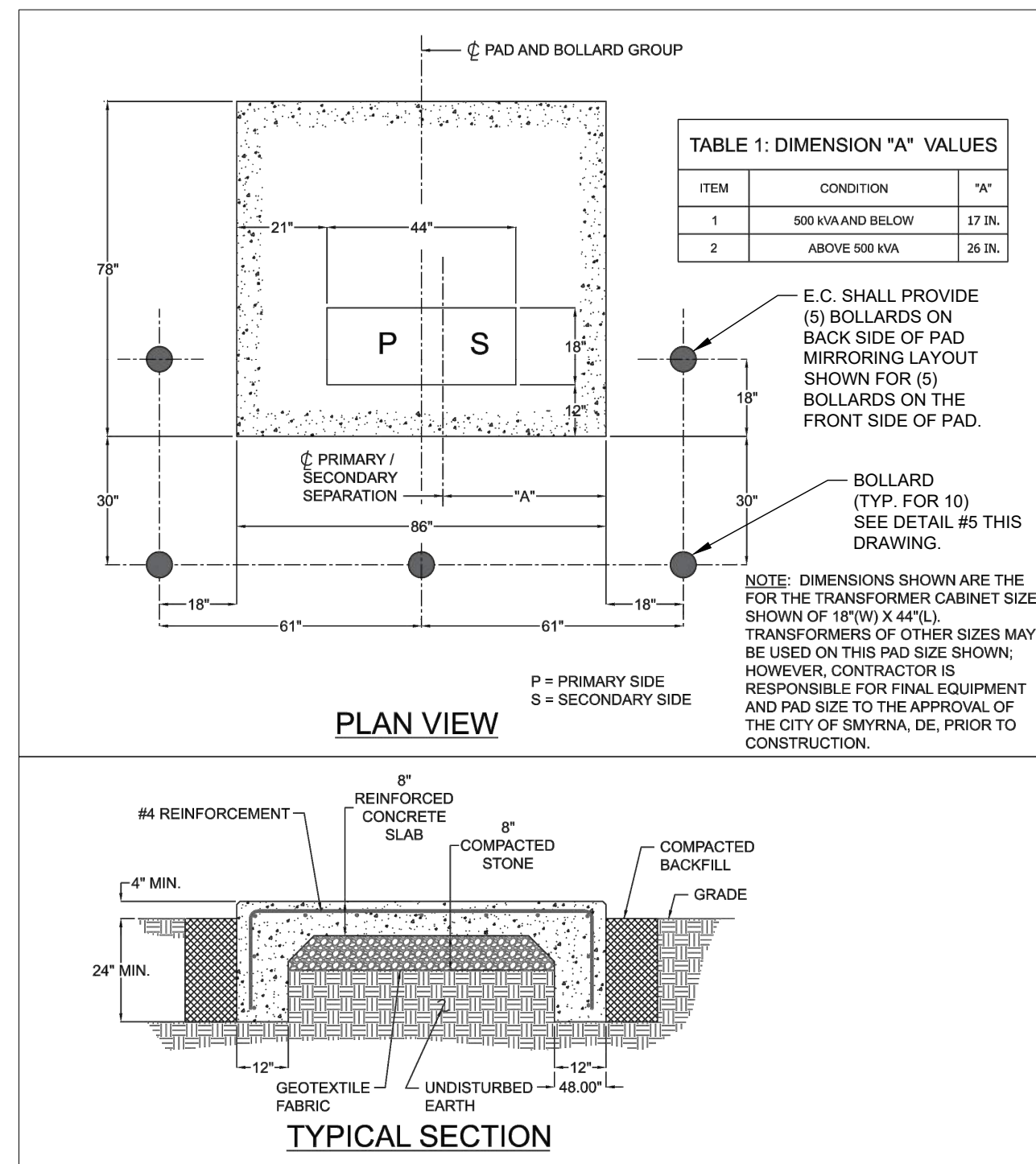
NORTH DUCK CREEK UTILITY EXTENSION
PHASE 2
SMYRNA, DELAWARE

ELECTRIC DETAILS

TOWN OF SMYRNA
27 SOUTH MARKET STREET
SMYRNA, DE 19977

NO.	DATE	REVISIONS	BY
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LIQUID INSULATED TRANSFORMER:

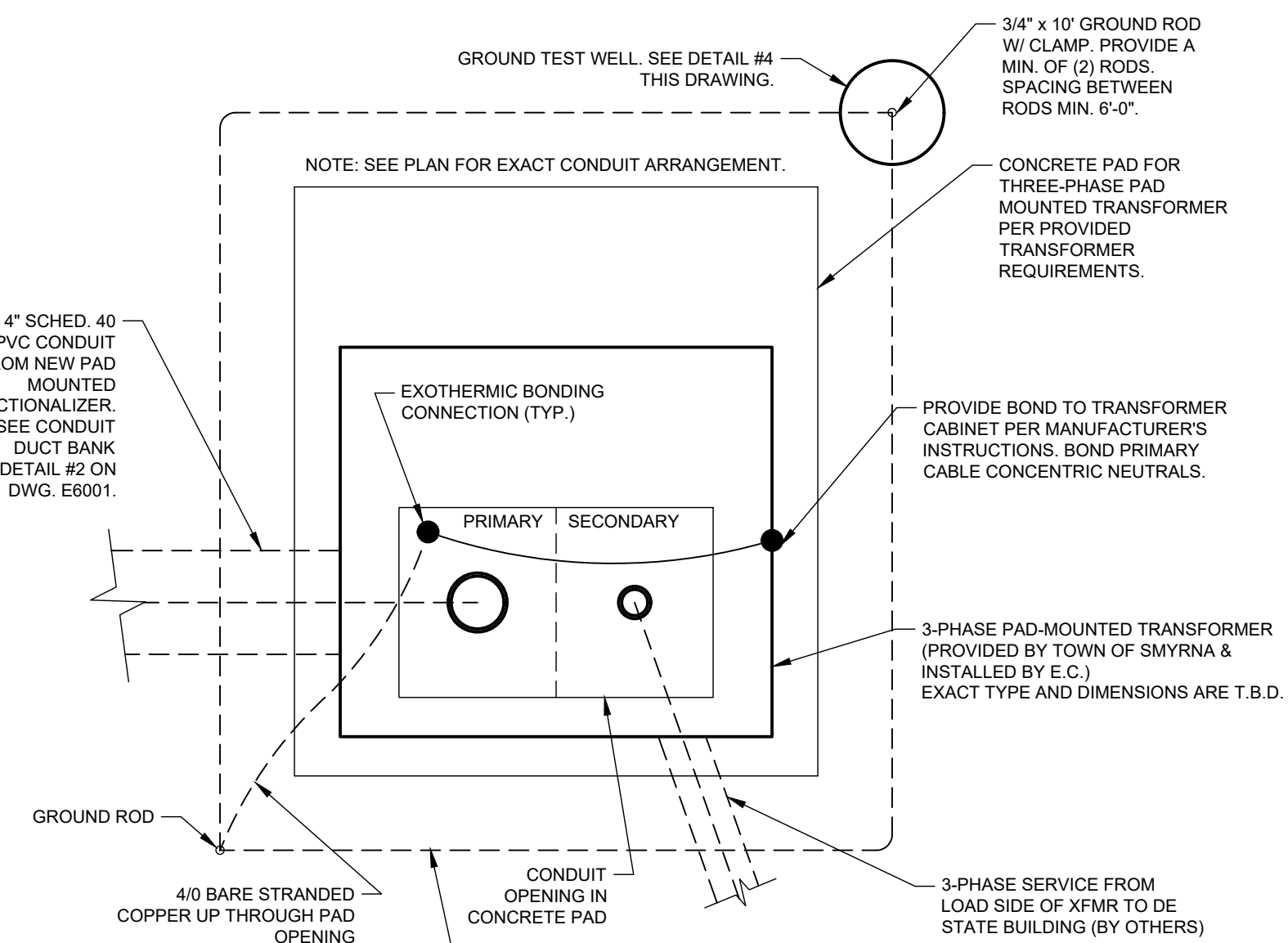
TABLE 2: MINIMUM HORIZONTAL DISTANCE FROM CONTAINMENT TO EXPOSED BUILDING WALL

FLUID OR TRANSFORMER TYPE	FLUID VOLUME (GAL.)	DIMENSION "X"		COMMENT
		NON-COMBUSTIBLE WALL	COMBUSTIBLE WALL	
FH APPROVED TRANSFORMER OR EQUIVALENT	PER APPROVAL LISTING	3 FT.	3 FT.	TRANSFORMER MUST BE LOCATED 5' FOOT MIN. FROM DOORS, FIRE ESCAPES AND WINDOWS. SEE SHEET 3 FOR BOLLARD LAYOUT.
FH APPROVED LIQUID IN NON-APPROVED TRANSFORMER	< 10,000	5 FT.	25 FT.	
MINERAL OIL OR OTHER NON-APPROVED LIQUID	< 500	5 FT.	25 FT.	
MINERAL OIL OR OTHER NON-APPROVED LIQUID	< 5,000	15 FT.	50 FT.	

LIQUID INSULATED TRANSFORMER:

TABLE 3: SEPARATION AND EXTENT OF 2 HOUR FIRE BARRIER

FLUID OR TRANSFORMER TYPE	FLUID VOLUME (GAL.)	DIMENSION "X"		COMMENT
		NON-COMBUSTIBLE WALL	COMBUSTIBLE WALL	
FH APPROVED TRANSFORMER OR EQUIVALENT	< 10,000	Y	5 FT. 25 FT.	TRANSFORMER MUST BE LOCATED 5' FOOT MIN. FROM DOORS, FIRE ESCAPES AND WINDOWS. SEE SHEET 2 FOR BOLLARD LAYOUT.
MINERAL OIL OR OTHER NON-APPROVED LIQUID	< 500	X	5 FT. 25 FT.	
MINERAL OIL OR OTHER NON-APPROVED LIQUID	< 5,000	X	15 FT. 50 FT.	



GENERAL NOTES:

- NO WORK IS TO BEGIN UNTIL GRADING OF THE PROPERTY IS WITHIN 8 INCHES OF FINAL GRADE AND THE PROPER EASEMENTS ARE SECURED.
- INSPECTION BY THE TOWN OF SMYRNA ELECTRIC DEPARTMENT, (302-653-3493) SHALL BE REQUIRED PRIOR TO PLACEMENT OF CONCRETE FOR THE TRANSFORMER FOUNDATION PAD.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR:
 - PLACEMENT OF THE PRIMARY CONDUIT, METERING CONDUIT AND GROUNDING REQUIREMENTS.
 - THE FORMING AND PLACEMENT OF THE PAD.
 - THE PLACEMENT OF SECONDARY CONDUIT.
 - THE PLACEMENT OF PROTECTIVE BOLLARDS.
 - THE VERIFICATION OF NO EXISTING UNDERGROUND UTILITIES OR FACILITIES.
- TRANSFORMER FOUNDATION PAD SHALL:
 - BE PLACED ON WELL COMPACTED AND NON-ORGANIC MATERIAL.
 - HAVE A MINIMUM CONCRETE COMPRESSIVE STRENGTH OF 3,000 PSI, AT 28 DAYS.
 - HAVE CONCRETE AIR ENTRAINMENT, RANGING BETWEEN 3% AND 6% AIR BY VOLUME, AND A SLUMP TO NOT EXCEED 4 INCHES.
 - HAVE DOCUMENTATION, PROVIDED BY THE CONTRACTOR TO THE TOWN OF SMYRNA CERTIFYING THE CONCRETE COMPRESSIVE STRENGTH, AIR ENTRAINMENT, AND SLUMP.
 - BE PLACED WITHIN A TOLERANCE OF 1/8 INCH FROM LEVEL AND NOT ALLOW PONDING.
 - HAVE A 3/4 INCH CHAMFER ON ALL EXPOSED EDGES.
- PAD SHALL CONTAIN #4 REBAR, GRADE 60, PLACED AT 12 INCHES ON CENTERS IN BOTH DIRECTIONS. REINFORCEMENT SHALL HAVE THE FOLLOWING CLEARANCES:
 - 2 INCHES FROM TOP FACE OF SLAB
 - 2 INCHES FROM FACE OF EXPOSED FACE OF SLAB
 - 3 INCHES FROM ALL FACES BELOW GRADE, EXPOSED TO EARTH.
- SECONDARY CONDUIT(S) SHALL BE SIZED IN ACCORDANCE WITH NEC FOR THE INTENDED CONDUCTORS AND SHALL EXTEND 2 INCHES ABOVE THE SURFACE OF THE PAD. SECONDARY SIDE OF THE PAD SHALL BE THE RIGHT SIDE OF THE OPENING, FACING THE FRONT (DOOR SIDE) OF THE ENCLOSURE.
- BOLLARDS SHALL BE:
 - A MINIMUM OF 6 INCH DIAMETER, FILLED WITH CONCRETE.
 - EMBEDDED IN CONCRETE FOUNDATION, 12 INCH DIAMETER.
 - A MINIMUM OF 36 INCHES BELOW FINISHED GRADE.
 - A MINIMUM HEIGHT OF 48 INCHES ABOVE FINISHED GRADE.

REFERENCE DOCUMENTS:
THE FOLLOWING DOCUMENTS AND NOTES ARE USED AS REFERENCE IN THE PREPARATION OF THIS STANDARD.
1. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
1.1. NFPA 70 - NATIONAL ELECTRIC CODE 2020

SECTION 450.22 DRY-TYPE TRANSFORMERS INSTALLED OUTDOORS:
DRY-TYPE TRANSFORMERS INSTALLED OUTDOORS SHALL HAVE A WEATHERPROOF ENCLOSURE. TRANSFORMERS EXCEEDING 112.5 KVA SHALL NOT BE LOCATED WITHIN 30 INCH (2 1/2 IN) OF COMBUSTIBLE MATERIALS OF BUILDINGS UNLESS THE TRANSFORMER HAS CLASS 155 INSULATION SYSTEMS OR HIGHER AND IS COMPLETELY ENCLOSED EXCEPT FOR VENTILATING OPENINGS.

SECTION 450.23 - LESS-FLAMMABLE LIQUID-INSULATED TRANSFORMERS:
TRANSFORMERS INSULATED WITH LISTED LESS-FLAMMABLE LIQUIDS THAT HAVE A FIRE POINT OF NOT LESS THAN 300°C SHALL BE PERMITTED TO BE INSTALLED IN ACCORDANCE WITH (1) OR (2).

SECTION 450.23(B) OUTDOOR INSTALLATIONS:
LESS-FLAMMABLE LIQUID-FILLED TRANSFORMERS SHALL BE PERMITTED TO BE INSTALLED OUTDOORS, ATTACHED TO, ADJACENT TO, OR ON THE ROOF OF BUILDINGS, IF INSTALLED IN ACCORDANCE WITH (1) OR (2).

(1) FOR TYPE I AND TYPE II BUILDINGS, THE INSTALLATION SHALL COMPLY WITH ALL RESTRICTIONS PROVIDED FOR IN THE LISTING OF THE LIQUID.
INFORMATIONAL NOTE: INSTALLATIONS ADJACENT TO COMBUSTIBLE MATERIAL, FIRE ESCAPES, OR DOOR AND WINDOW OPENINGS MAY REQUIRE ADDITIONAL SAFEGUARDS SUCH AS THOSE LISTED IN 450.27.

(2) IN ACCORDANCE WITH 450.27:

INFORMATIONAL NOTE NO. 1: AS USED IN THIS SECTION, TYPE I AND TYPE II BUILDINGS REFERS TO TYPE I AND TYPE II BUILDING CONSTRUCTION AS DEFINED IN NFPA 220-2016. STANDARD ON TYPES OF BUILDING CONSTRUCTION. COMBUSTIBLE MATERIALS REFERS TO THOSE MATERIALS NOT CLASSIFIED AS NON-COMBUSTIBLE OR LIMITED-COMBUSTIBLE AS DEFINED IN NFPA 220-2016.

INFORMATIONAL NOTE NO. 2: SEE DEFINITION OF LISTED IN ARTICLE 100.

450.27 OIL-INSULATED TRANSFORMERS INSTALLED OUTDOORS:
COMBUSTIBLE MATERIAL, COMBUSTIBLE BUILDINGS, AND PARTS OF BUILDINGS, FIRE ESCAPES, AND DOOR AND WINDOW OPENINGS SHALL BE SAFEGUARDED FROM FIRES ORIGINATING IN OIL-INSULATED TRANSFORMERS INSTALLED ON ROOFS, ATTACHED TO OR ADJACENT TO A BUILDING OR COMBUSTIBLE MATERIAL.

IN CASES WHERE THE TRANSFORMER INSTALLATION PRESENTS A FIRE HAZARD, ONE OR MORE OF THE FOLLOWING SAFEGUARDS SHALL BE APPLIED ACCORDING TO THE DEGREE OF HAZARD INVOLVED:

- SPACE SEPARATIONS
- FIRE-RESISTANT BARRIERS
- AUTOMATIC FIRE SUPPRESSION SYSTEMS
- ENCLOSURES THAT CONFINE THE OIL OF A RUPTURED TRANSFORMER TANK

OIL ENCLOSURES SHALL BE PERMITTED TO CONSIST OF FIRE-RESISTANT DIBS, CURBED AREAS OR BASINS, OR TRENCHES FILLED WITH COARSE, CRUSHED STONE. OIL ENCLOSURES SHALL BE PROVIDED WITH TRAPPED DRAINS WHERE THE EXPOSURE AND THE QUANTITY OF OIL INVOLVED ARE SUCH THAT REMOVAL OF OIL IS IMPORTANT.

2. 2020 NEC REQUIREMENT GUIDELINES REFERENCE DATA T0860101N, EFFECTIVE OCTOBER 2021; 2020 NEC REQUIREMENT GUIDELINES FOR THE INSTALLATION OF LISTED LESS-FLAMMABLE LIQUID-FILLED TRANSFORMERS.

LIQUID INSULATED TRANSFORMER:

TABLE 4: SEPARATION AND EXTENT OF 3 HOUR FIRE BARRIER AND NON-COMBUSTIBLE ROOF AREA

FLUID OR TRANSFORMER TYPE	FLUID VOLUME (GAL.)	FLUID VOLUME (GAL.)	BUILDING HEIGHT (FT)	"W" (FT)	"X" (FT)	COMMENT

LIQUID INSULATED TRANSFORMER:

TABLE 5: MINIMUM DISTANCE BETWEEN ADJACENT TRANSFORMERS

FLUID OR TRANSFORMER TYPE	FLUID VOLUME (GAL.)	DISTANCE (FT)	COMMENT
FH APPROVED TRANSFORMER OR EQUIVALENT	N/A	3 FT.	DISTANCE IS MEASURED FROM CLOSEST INSIDE EDGES OF SPILL CONTAINMENT BARRIERS.
FH APPROVED LIQUID IN NON-APPROVED TRANSFORMER	< 10,000	5 FT.	
MINERAL OIL OR OTHER NON-APPROVED LIQUID	< 500	5 FT.	
MINERAL OIL OR OTHER NON-APPROVED LIQUID	< 5,000	25 FT.	

LIQUID INSULATED TRANSFORMER 2 LOCATION REQUIREMENTS

SCALE: NONE

(1) 4" HDPE CONDUIT ROUTED FROM DIRECTIONAL DRILLED INSTALLATION UNDER ROADWAY TO HANDHOLES ON BOTH ENDS SHALL ENTER BOTTOM OF HAND HOLES.

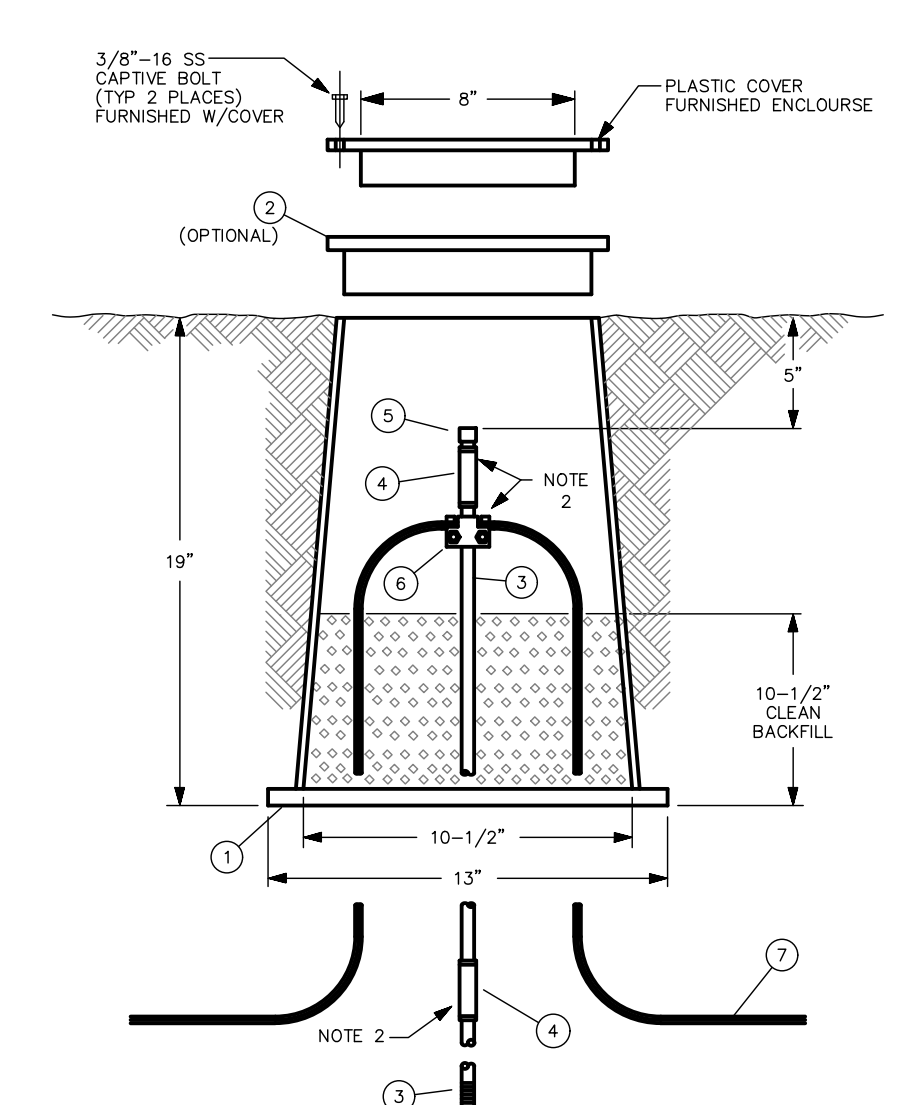
UNDERGROUND 25KV PRIMARY DISTRIBUTION DUCT BANK - SEE PLAN SHEETS & APPLICABLE DUCT BANK DETAILS FOR CONFIGURATION & ARRANGEMENT OF DUCT BANKS.

30" Wx48" Lx48" D ELECTRICAL POWER HANDHOLE W/ (3) PIECE BOLTED COVER W/ "ELECTRIC" LOGO, TIER 22 RATED. BOX SHALL BE QUAZITE CAT #PG3048D448 OR AN APPROVED EQUIVALENT. COVER SHALL BE PG3048H0017 OR AN APPROVED EQUIVALENT. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS W/ TOP LEVEL TO FINISHED GRADE.

6" OF GRAVEL OR CRUSHED ROCK FOR DRAINAGE

PAD MTD. TRANSFORMER 3 GROUNDING DETAIL

SCALE: N.T.S.



GROUND TEST WELL - BILL OF FIELD MATERIAL

ITEM	QUANTITY	UM	DESCRIPTION
1	1	EA	PENCELL GROUNDWELL ENCLOSURE W/PLASTIC COVER IDENTIFIED AS "ELEC GROUND TEST WELL", # PE-10QDH.
2	1	EA	PENCELL CONCRETE RING #PE10-4
3	AS REQ'D	EA	GROUND ROD 3/4" X 10 CU CLAD SECTIONAL
4	AS REQ'D	EA	GROUND ROD 3/4" CU-CLAD COUPLING
5	1	EA	GROUND ROD 3/4" DRIVING STUD
6	1	EA	GROUND ROD CLAMP 2/0-250MCM TO 3/4" ROD
	AS REQ'D	FT	GROUND CONDUCTOR PER PROJECT SPECS.

NOTES:
1 DEPTH OF GROUND ROD SHALL BE AS REQUIRED TO MEET PROJECT GROUND RESISTANCE SPECIFICATIONS.
2 CLEAN SURFACES AND APPLY COPPER/STEEL JOINT COMPOUND.

GROUND TEST WELL 4 WELL DETAIL

SCALE: N.T.S.

COVERED CONCRETE BOLLARD 5 BOLLARD DETAIL

SCALE: N.T.S.

PAD MTD. TRANSFORMER 1 DETAIL & NOTES

SCALE: N.T.S.

6 HANDHOLE DETAIL

SCALE: N.T.S.



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NORTH DUCK CREEK UTILITY EXTENSION
PHASE 2
SMYRNA, DELAWARE
ELECTRIC DETAILS

TOWN OF SMYRNA
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SMYRNA, DE 19977

DATE	NO.	REVISIONS
7/2/2023	1	PER KENT CONSERVATION DISTRICT COMMENTS
8/26/2024	2	PER BELDOT COORDINATION

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PROJECT SMYRN21004
DATE 2024-01-29
DRAWING SCALE ---
DRAWN BY KMB
APPROVED BY BWM

Standard Detail & Specifications

Dust Control

- Temporary Methods:
1. Mulches - See DE-ESC-3.4.5, Standard Detail and Specifications for Mulching.
2. Vegetative cover - See DE-ESC-3.4.3, Std. Detail and Specifications for Vegetative Stabilization.
3. Adhesives - Use on mineral soils only (not effective on muck soils). Keep traffic off these areas. The following table may be used for general guidance.

Table with columns: Type of Emulsion, Water Dilution, Type of Nozzle, Apply Gall./Ac.
Rows: Latex emulsion, Resin-in-water emulsion, Acrylic emulsion (non-traffic), Acrylic emulsion (traffic)

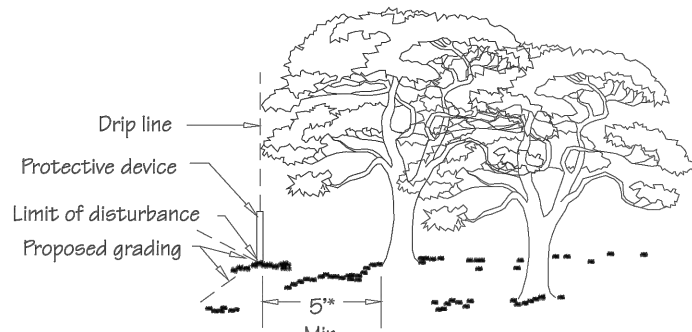
- 4. Tillage - For emergency temporary treatment, scarify the soil surface to prevent or reduce the amount of blowing dust until a more appropriate solution can be implemented.
5. Sprinkling - Sprinkle site with water until the surface is moist. Repeat as needed.
6. Calcium Chloride - Apply as flakes or granular material with a spreader at a rate that will keep the soil surface moist. Re-apply as necessary.
7. Barriers - Place barriers such as solid board fences, snow fences, hay bales, etc. at right angles to the prevailing air currents at intervals of approx. 10X their height.

- Permanent Methods:
1. Vegetative cover - See DE-ESC-3.4.3, Std. Detail and Specifications for Vegetative Stabilization.
2. Stone - Apply layer of crushed stone or coarse gravel to protect soil surface.

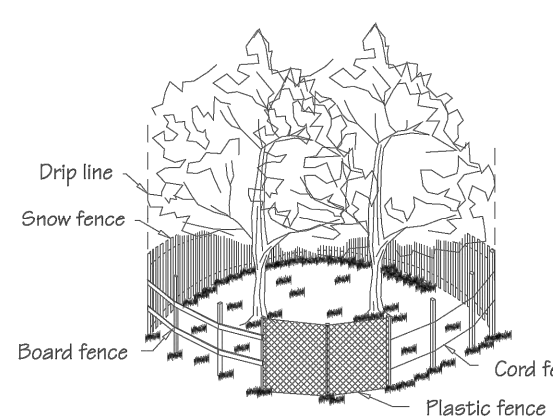
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Source: Adapted from VA ESC Handbook
Symbol: [Symbol]
Detail No.: DE-ESC-3.4.8 Sheet 1 of 3 Effective July 2023

Standard Detail & Specifications

Sensitive Area Protection



Location of Sensitive Area Protection



Methods of Sensitive Area Protection

Table with columns: Source, Symbol, Detail No.
Source: Adapted from VA ESC Handbook
Symbol: [Symbol]
Detail No.: DE-ESC-3.7.2 Sheet 1 of 3 Effective July 2023

Standard Detail & Specifications

Sensitive Area Protection

Construction Notes:

Fencing shall be installed at the extents of all sensitive areas. For trees, the fencing shall be installed outside the dripline (mature canopy) and at no time within 5 feet of the trunk. Personnel must be instructed to honor protective devices. The devices described are suggested only, and are not intended to exclude the use of other devices which will protect the trees to be retained.

Materials:

- 1. Snow Fence - Standard 40-inch high snow fence shall be placed at the limits of clearing or construction on standard steel posts set 6 feet apart.
2. Board Fence - Board fencing consisting of 4-inch square posts set securely in the ground and protruding at least 4 feet above the ground shall be placed at the limits of clearing with a minimum of two horizontal boards between posts.
3. Plastic Fencing - 40-inch high 'International orange' plastic (polyethylene) web fencing secured to conventional metal 'T' or 'U' posts driven to a minimum depth of 18 inches on 6-foot minimum centers shall be installed at the limits of clearing.

Table with columns: Source, Symbol, Detail No.
Source: Adapted from VA ESC Handbook
Symbol: [Symbol]
Detail No.: DE-ESC-3.7.2 Sheet 2 of 3 Effective July 2023

Standard Detail & Specifications

Sensitive Area Protection

- 4. Cord Fence - Posts with a minimum size of 2 inches square or 2 inches in diameter set securely in the ground and protruding at least 4 feet above the ground shall be placed at the limits of clearing with two rows of cord 1/4-inch or thicker at least 2 feet apart running between posts with strips of colored surveyor's flagging tied securely to the string at intervals no greater than 3 feet.
5. Earth Berms - Temporary earth berms shall be constructed according to specifications for a Temporary Earth Dike with the base of the berm on the sensitive area side located along the limits of clearing. Earth berms may not be used for this purpose if their presence will conflict with drainage patterns.
6. Trunk Armoring (Tree Protection Only) - As a last resort, a tree trunk can be armored with burlap wrapping and 2-inch studs wired vertically no more than 2 inches apart to a height of 5 feet encircling the trunk. If this alternative is used, the root zone within the drip line will still require protection. Nothing should ever be nailed to a tree.

Maintenance:

Fencing and armoring devices shall be in place before any excavation or grading is begun, shall be kept in good repair for the duration of construction activities, and shall be the last items removed during the final cleanup after the completion of the project.

Table with columns: Source, Symbol, Detail No.
Source: Adapted from VA ESC Handbook
Symbol: [Symbol]
Detail No.: DE-ESC-3.7.2 Sheet 3 of 3 Effective July 2023

Standard Detail & Specifications

Concrete Washout

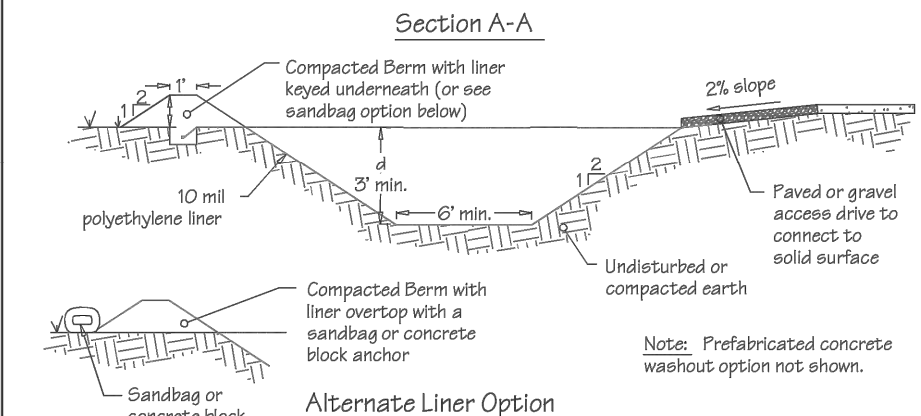
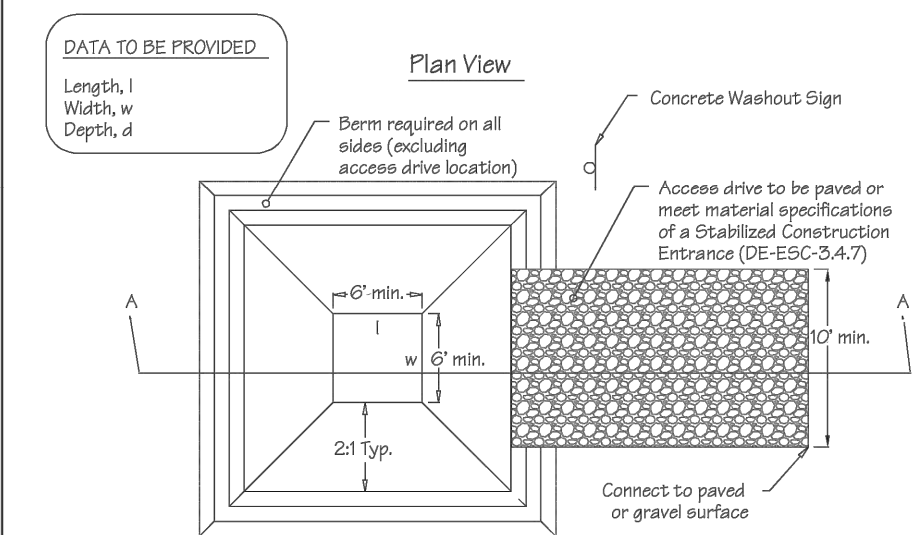


Table with columns: Source, Symbol, Detail No.
Source: Adapted from Colorado Urban Storm Drainage Criteria Manual, Vol 3
Symbol: [Symbol]
Detail No.: DE-ESC-3.6.2 Sheet 1 of 2 Effective July 2023

Standard Detail & Specifications

Vegetative Stabilization

Table: TEMPORARY SEEDING BY RATES, DEPTHS AND DATES. Columns: Mix #, Species, Seeding Rate, Optimum Seeding Dates, Planting Depth.

- 1. Winter seeding requires 3 tons per acre of straw mulch for proper stabilization.
2. May be planted throughout summer if soil moisture is adequate or seeded area can be irrigated.
3. Applicable on slopes 1:3 or less.
4. Use varieties commonly recommended for Delaware. Contact a County Extension Office for information.
5. Warm season grasses such as Millet may be used between 5/1 and 9/1 if desired. Seed at 3-6 lbs. per acre. Good on low fertility and acid areas. Seed after frost through summer at a depth of 0.2".

NOTE: Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.

Table with columns: Source, Symbol, Detail No.
Source: Delaware ESC Handbook
Symbol: [Symbol]
Detail No.: DE-ESC-3.4.3 Sheet 1 of 4 Effective July 2023

Standard Detail & Specifications

Vegetative Stabilization

Table: PERMANENT SEEDING AND SEEDING DATES. Columns: Seeding Mixtures, Seeding Rate, Optimum Seeding Dates, Remarks.

NOTE: Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.

Table with columns: Source, Symbol, Detail No.
Source: Delaware ESC Handbook
Symbol: [Symbol]
Detail No.: DE-ESC-3.4.3 Sheet 2 of 4 Effective July 2023

Standard Detail & Specifications

Vegetative Stabilization

Table: PERMANENT SEEDING AND SEEDING DATES (cont.). Columns: Seeding Mixtures, Seeding Rate, Optimum Seeding Dates, Remarks.

NOTE: Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.

Table with columns: Source, Symbol, Detail No.
Source: Delaware ESC Handbook
Symbol: [Symbol]
Detail No.: DE-ESC-3.4.3 Sheet 3 of 4 Effective July 2023

Standard Detail & Specifications

Vegetative Stabilization

Construction Notes:

- 1. Site Preparation
a. Prior to seeding, install needed erosion and sediment control practices such as diversions, grade stabilization structures, berms, dikes, grassed waterways, and sediment basins.
b. Final grading and shaping is not necessary for temporary seedings.
2. Seeded Preparation

It is important to prepare a good seedbed to ensure the success of establishing vegetation. The seedbed should be well prepared, loose, uniform, and free of large clods, rocks, and other objectionable material. The soil surface should not be compacted or crusted.

- 3. Soil Amendments
a. Lime - Apply liming materials based on the recommendations of a soil test in accordance with the approved nutrient management plan.
b. Fertilizer - Apply fertilizer based on the recommendations of a soil test in accordance with the approved nutrient management plan.

- 4. Seeding
a. For temporary stabilization, select a mixture from Sheet 1. For a permanent stabilization, select a mixture from Sheet 2 or Sheet 3 depending on the conditions.
b. Apply seed uniformly with a broadcast seeder, drill, cultipacker seeder or hydroseeder. All seed will be applied at the recommended rate and planting depth.

- 5. Mulching
All mulching shall be done in accordance with detail DE-ESC-3.4.5.

Table with columns: Source, Symbol, Detail No.
Source: Delaware ESC Handbook
Symbol: [Symbol]
Detail No.: DE-ESC-3.4.3 Sheet 4 of 4 Effective July 2023

Standard Detail & Specifications

Concrete Washout

Construction Notes:

- 1. Locate washout area a minimum of 50 feet from open channels, stormdrain inlets, wetlands or waterbodies.
2. Locate washout area so that it is accessible to concrete equipment (service with a minimum 10 foot wide gravel accessway), but so it is not in a highly active construction area causing accidental damage.
3. Minimum dimensions for prefabricated units are 4 feet by 4 feet by 1 foot deep with a minimum 4mil polyethylene plastic liner.
4. The liner must be free of tears or holes and placed over smooth surfaces to prevent puncturing.
5. Provide a sign designating the washout area, and for large construction sites, provide signs throughout directing traffic to the location.
6. Allow washed out concrete mixture to harden through evaporation of the wastewater.
7. Apply a new liner before resuming the station for additional washouts after maintenance has occurred.

Table with columns: Source, Symbol, Detail No.
Source: Adapted from Colorado Urban Storm Drainage Criteria Manual, Vol 3
Symbol: [Symbol]
Detail No.: DE-ESC-3.6.2 Sheet 2 of 2 Effective July 2023

Standard Detail & Specifications

Construction Site Pollution Prevention

Delaware NPDES Discharge Permit
General Permit for Discharge of Stormwater from Construction Activities
(Project Name)
(NOI Permit Number)
(Agency Plan Approval ID)
(Contact Name & Number for Additional Site Information)
(Contact Name & Number to Obtain Copy of Approved Plan)
If you observe indicators of stormwater pollutants in the discharge or in the receiving waterbody, call the DNREC Spill Notification 24 HR Hotline at 1-800-662-8802

- Example Construction General Permits (CGP) Signage
NOTES:
1. Minimum sign size 2' x 2'
2. Minimum text size 1"
3. Sign must be posted at a safe, publicly accessible location close to construction site
4. Sign must be visible from the public road nearest the active construction site
5. Signs posted within a 200'OT or other public road right-of-way (ROW) must be in accordance with all local and/or State requirements in regards to safety, location, orientation, etc.

Table with columns: Source, Symbol, Detail No.
Source: Delaware ESC Handbook
Symbol: [Symbol]
Detail No.: DE-ESC-3.6.1 Sheet 1 of 4 Effective July 2023

Standard Detail & Specifications

Construction Site Pollution Prevention

- Notes:
The Construction Site Pollution Prevention Plan includes the following elements:
1. Material Inventory
Document the storage and use of the following materials:
a. Concrete
b. Detergents
c. Paints (enamel and latex)
d. Cleaning solvents
e. Pesticides
f. Wood scraps
g. Fertilizers
h. Petroleum based products
2. Good housekeeping practices
a. Store only enough product required to do the job.
b. Store all materials in a neat, orderly manner in their original labeled containers and covered.
c. Do not mix different substances.
d. When possible, use all of a product prior to disposal of the container.
e. Manufacturers' instructions for disposal should be strictly adhered to.
f. Designate someone to inspect all BMPs daily.
3. Waste management practices
a. Collect and store all waste materials in securely lidded dumpsters in a location that does not drain to a waterbody.
b. Salvage and/or recycle waste materials whenever possible.
c. The dumpsters shall be emptied a minimum of twice per week, or more if necessary. The licensed trash hauler is responsible for cleaning out dumpsters.

Table with columns: Source, Symbol, Detail No.
Source: Adapted from USEPA Pub. 840-B-92-002
Symbol: [Symbol]
Detail No.: DE-ESC-3.6.1 Sheet 2 of 4 Effective July 2023

Standard Detail & Specifications

Construction Site Pollution Prevention

- Notes (cont.)
d. Dispose of all trash in accordance with all applicable Delaware laws.
e. Littering is strictly prohibited. Trash cans should be placed at all lunch spots and recycle bins should be placed near the construction trailer.
f. If fertilizer bags can not be stored in a weather-proof location, they should be kept on a pallet and covered with plastic sheeting which is overlapped and anchored.
4. Equipment maintenance practices
a. If possible, equipment should be taken to off-site commercial facilities for washing and maintenance.
b. If performed on-site, wash vehicles with high-pressure water spray without detergents in an area contained by an impervious berm.
c. Use drip pans for all equipment maintenance.
d. Inspect equipment for leaks on a daily basis.
e. Direct washout from concrete trucks into a temporary pit for hardening and proper disposal.
f. Equip fuel nozzles with automatic shut-off valves.
g. Dispose of all used products such as oil, antifreeze, solvents and tires in accordance with manufacturers' recommendations and local, state and federal laws and regulations.
5. Spill prevention practices
a. Identify potential spill areas and contain them in covered areas with no connection to the storm drain system.
b. Post warning signs in hazardous material storage areas.
c. Perform preventive maintenance on all tanks, valves, pumps, pipes and other equipment as necessary.
d. Prioritize low or non-toxic substances for use.

Table with columns: Source, Symbol, Detail No.
Source: Adapted from USEPA Pub. 840-B-92-002
Symbol: [Symbol]
Detail No.: DE-ESC-3.6.1 Sheet 3 of 4 Effective July 2023

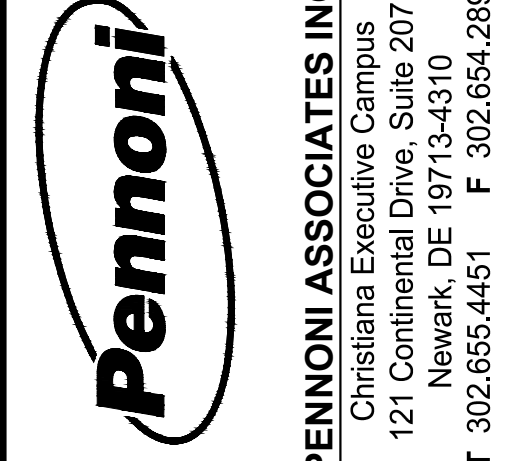
Standard Detail & Specifications

Construction Site Pollution Prevention

- Notes (cont.)
e. Prominently post contact information for reporting spills through the DNREC 24-Hour Toll Free Number.
6. Education
a. Include Best Management Practices (BMPs) for construction site pollution control as part of regular progress meetings.
b. Information regarding waste management, equipment maintenance and spill prevention should be prominently posted in the construction trailer.

CONTACT INFORMATION
DNREC 24-Hour Toll Free Number 800-662-8802
DNREC Solid & Hazardous Waste Management Section 302-739-9403

Table with columns: Source, Symbol, Detail No.
Source: Adapted from USEPA Pub. 840-B-92-002
Symbol: [Symbol]
Detail No.: DE-ESC-3.6.1 Sheet 4 of 4 Effective July 2023



PENNONI ASSOCIATES INC.
Christiana Executive Campus
121 Continental Drive, Suite 207
Newark, DE 19713-4310
T 302.655.4451 F 302.654.2895

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK
Professional Engineer Seal: TRAVIS W. MILLER, No. 08875, PENN. REG. PROFESSIONAL ENGINEER

NORTH DUCK CREEK UTILITY EXTENSION
PHASE 2
SMYRNA, DELAWARE
EROSION AND SEDIMENT CONTROL DETAILS
TOWN OF SMYRNA
27 SOUTH MARKET STREET
SMYRNA, DE 19977

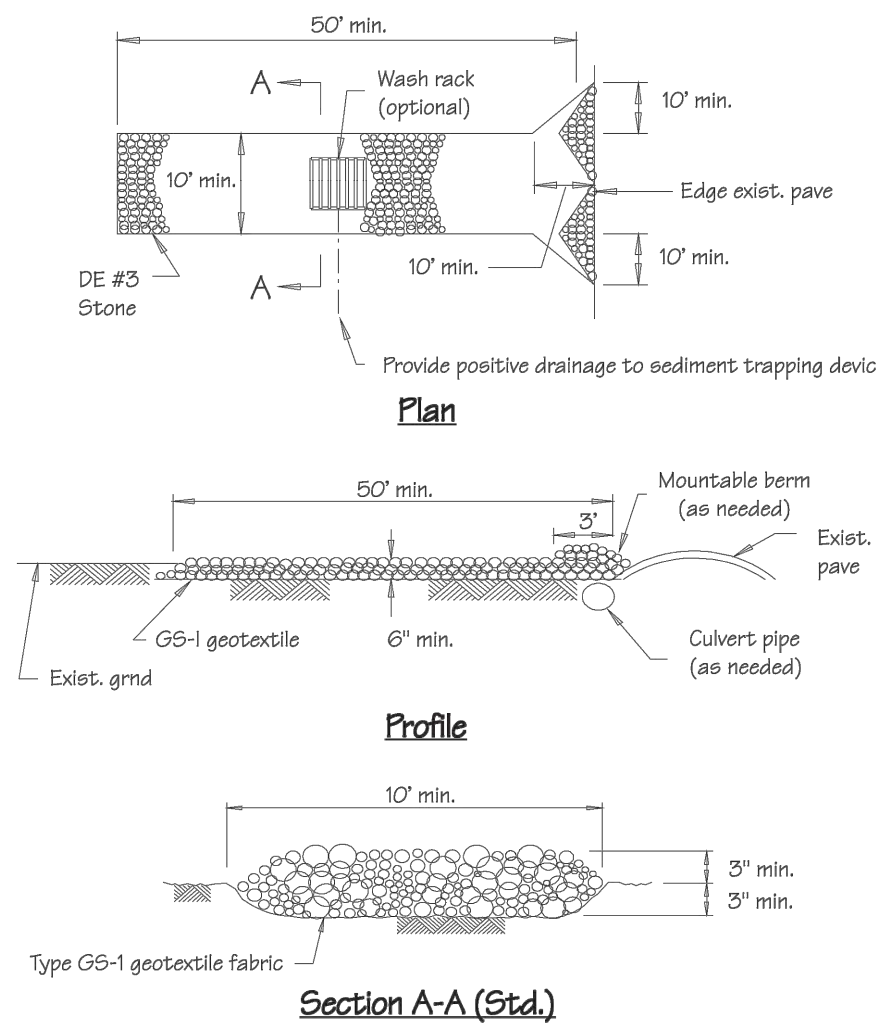
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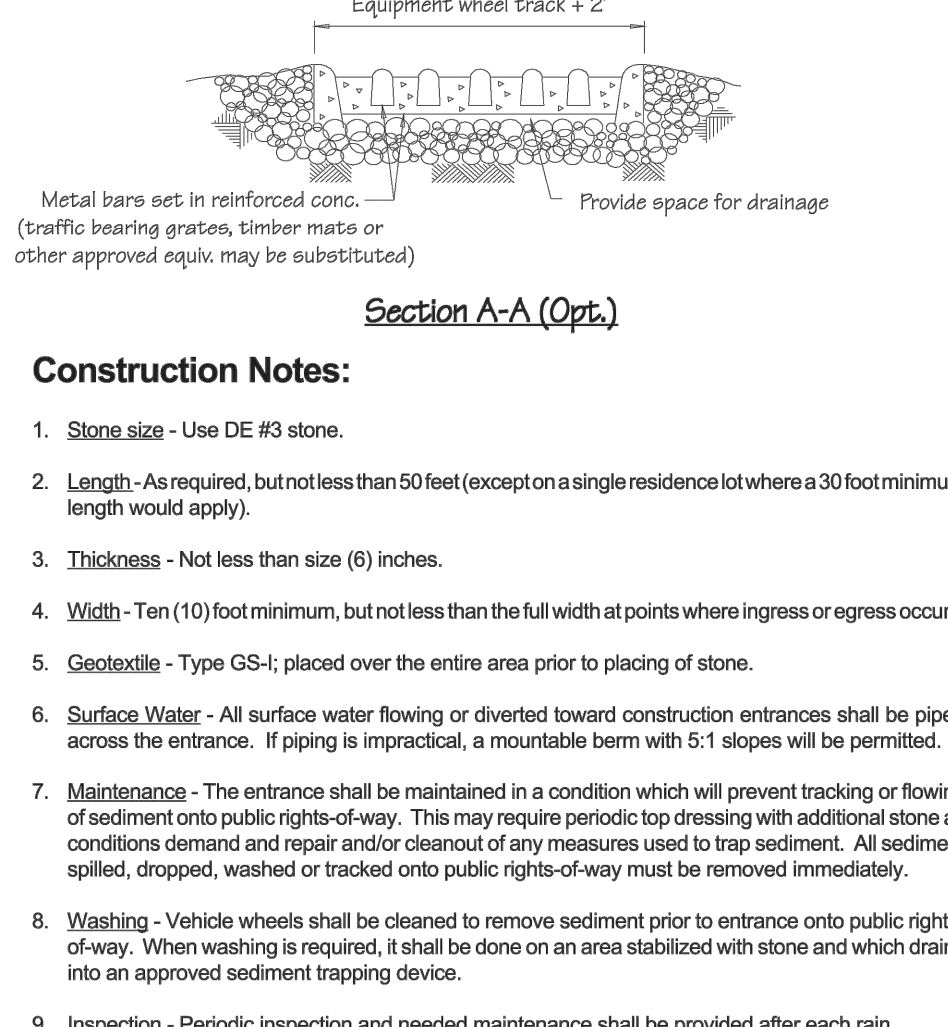
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Standard Detail & Specifications
Stabilized Construction Entrance



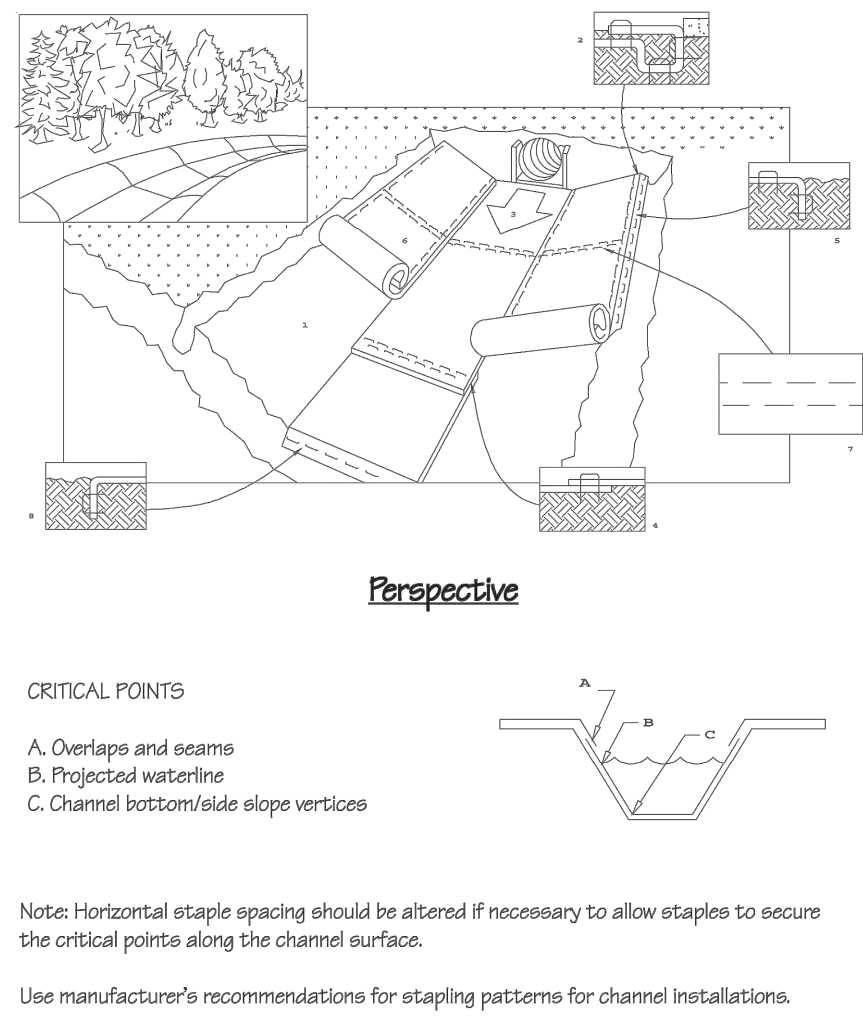
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Standard Detail & Specifications
Stabilized Construction Entrance



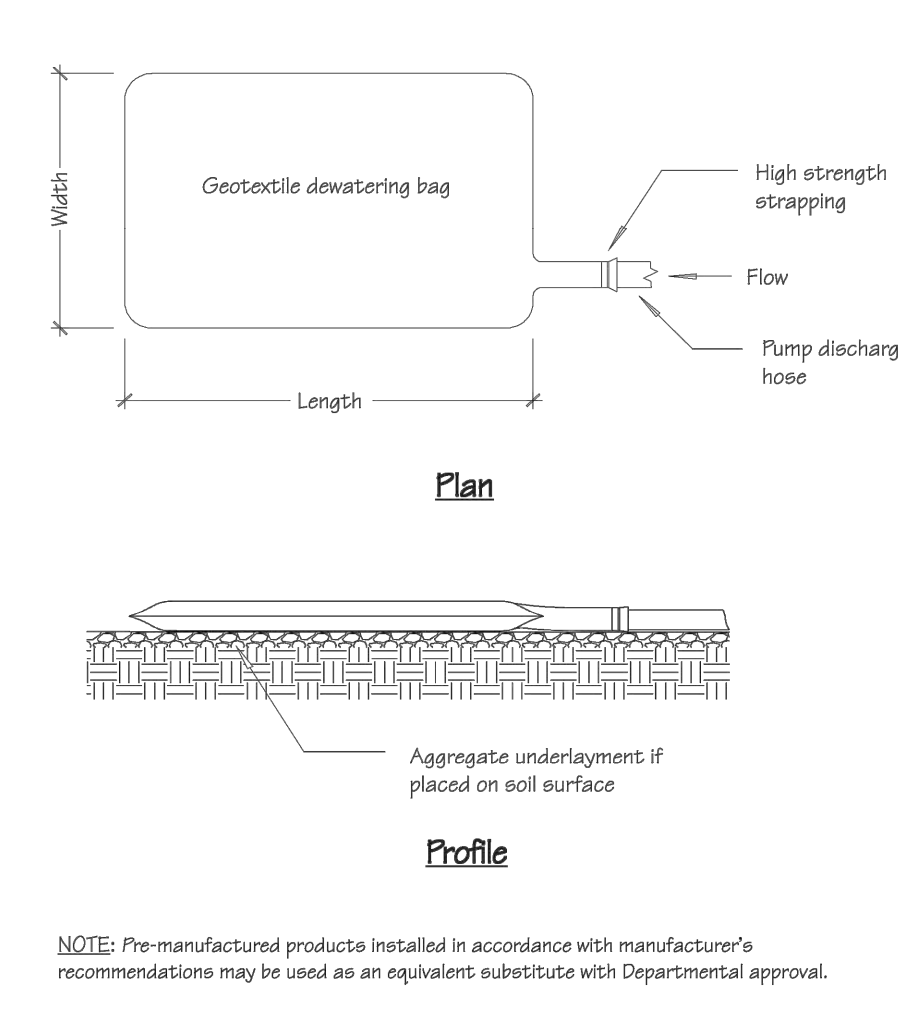
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Standard Detail & Specifications
Stabilization Matting - Channel



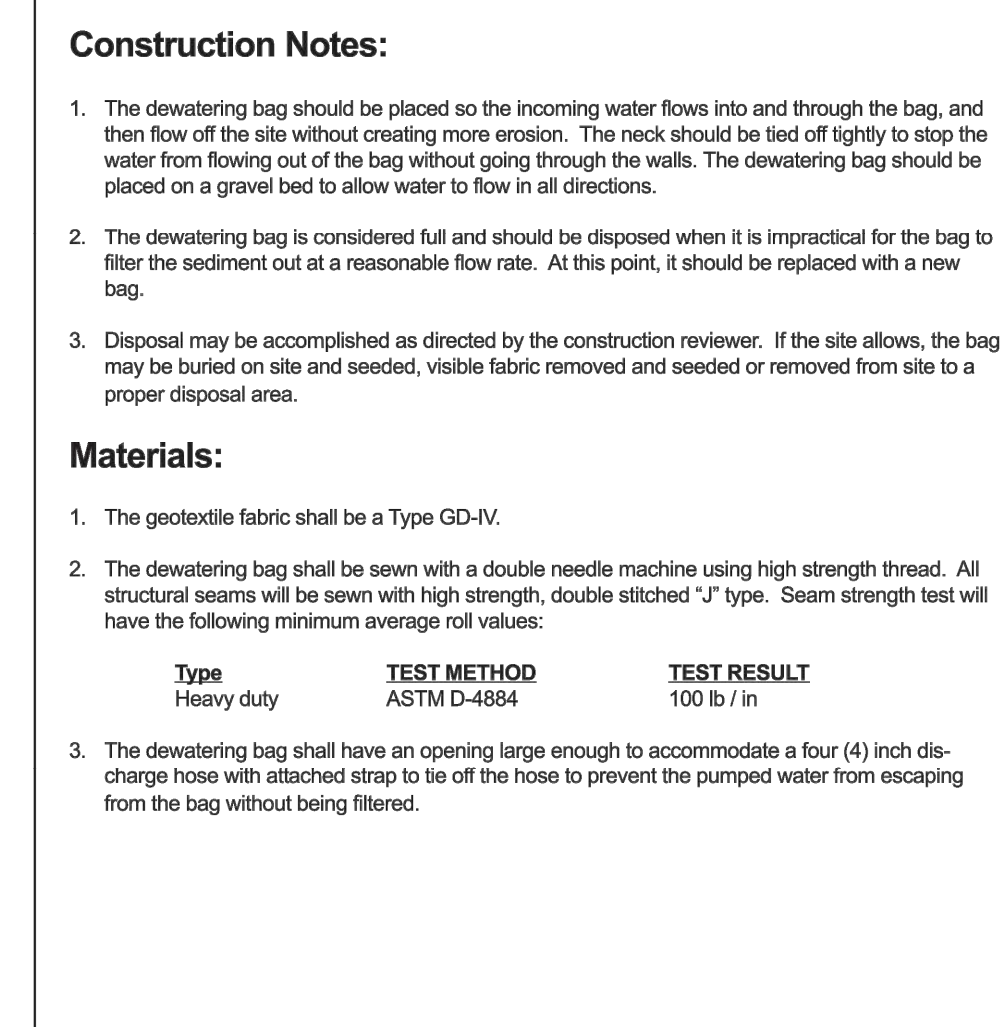
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Standard Detail & Specifications
Geotextile Dewatering Bag



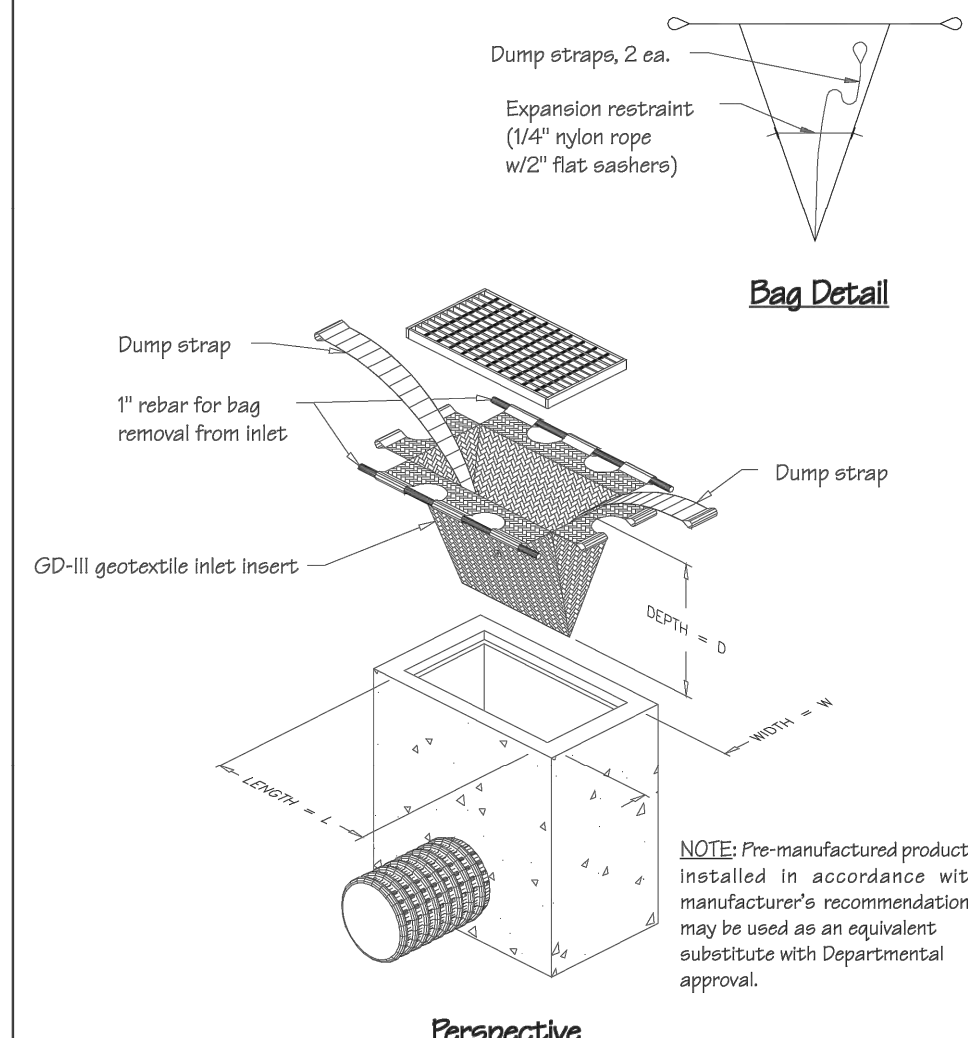
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Standard Detail & Specifications
Geotextile Dewatering Bag



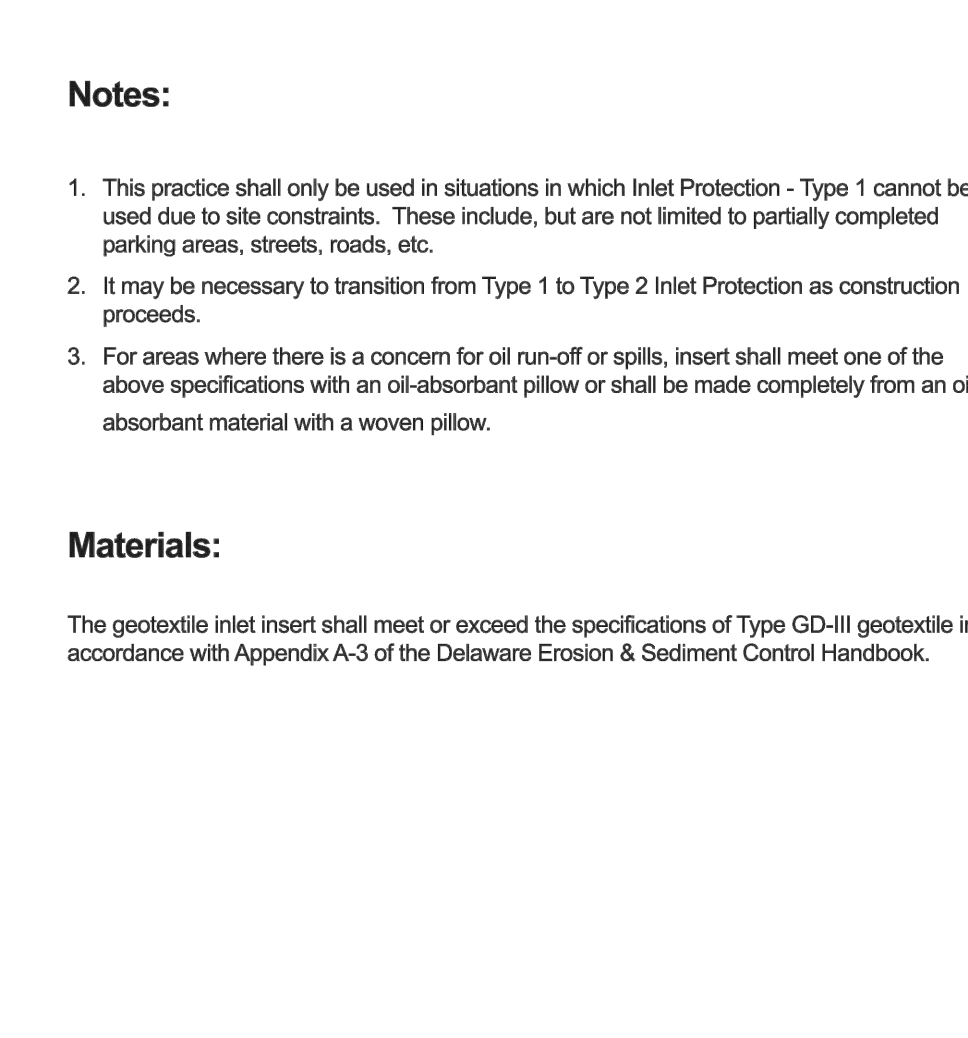
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Standard Detail & Specifications
Inlet Protection - Type 2



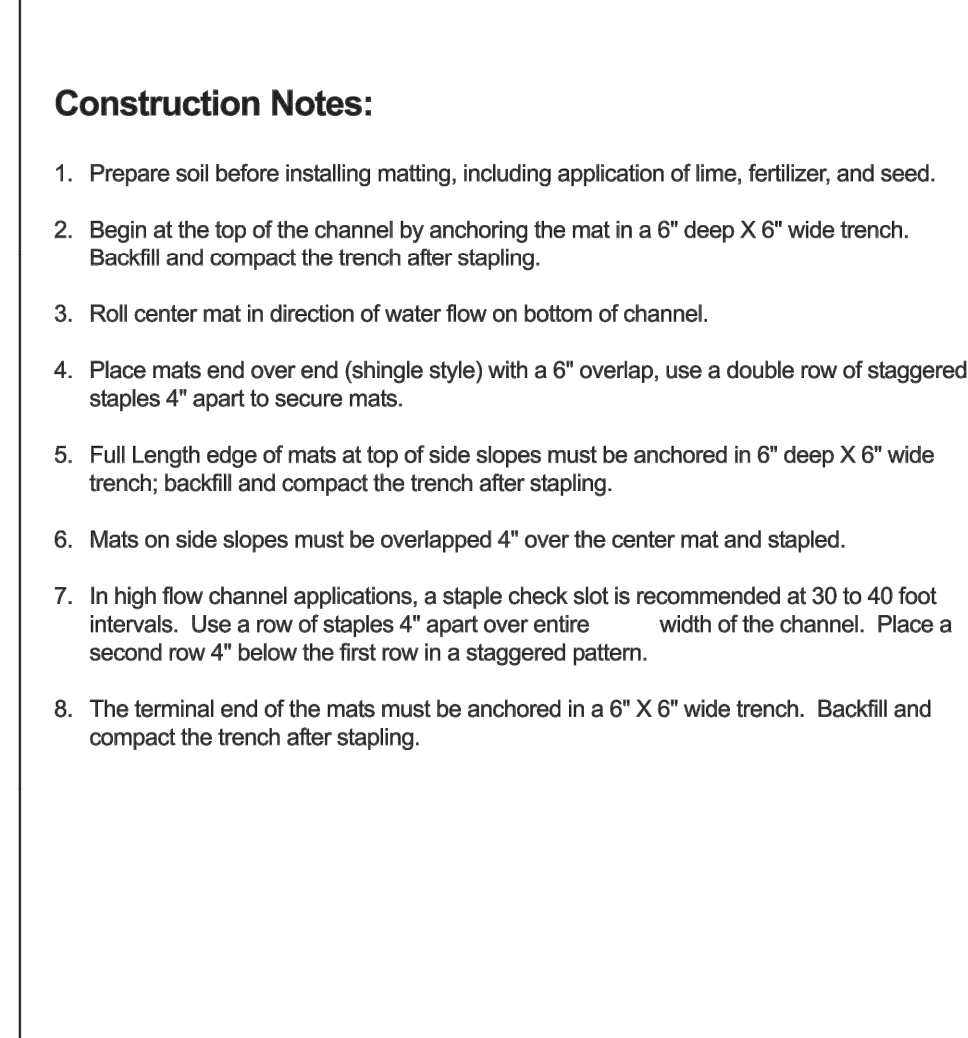
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Standard Detail & Specifications
Inlet Protection - Type 2



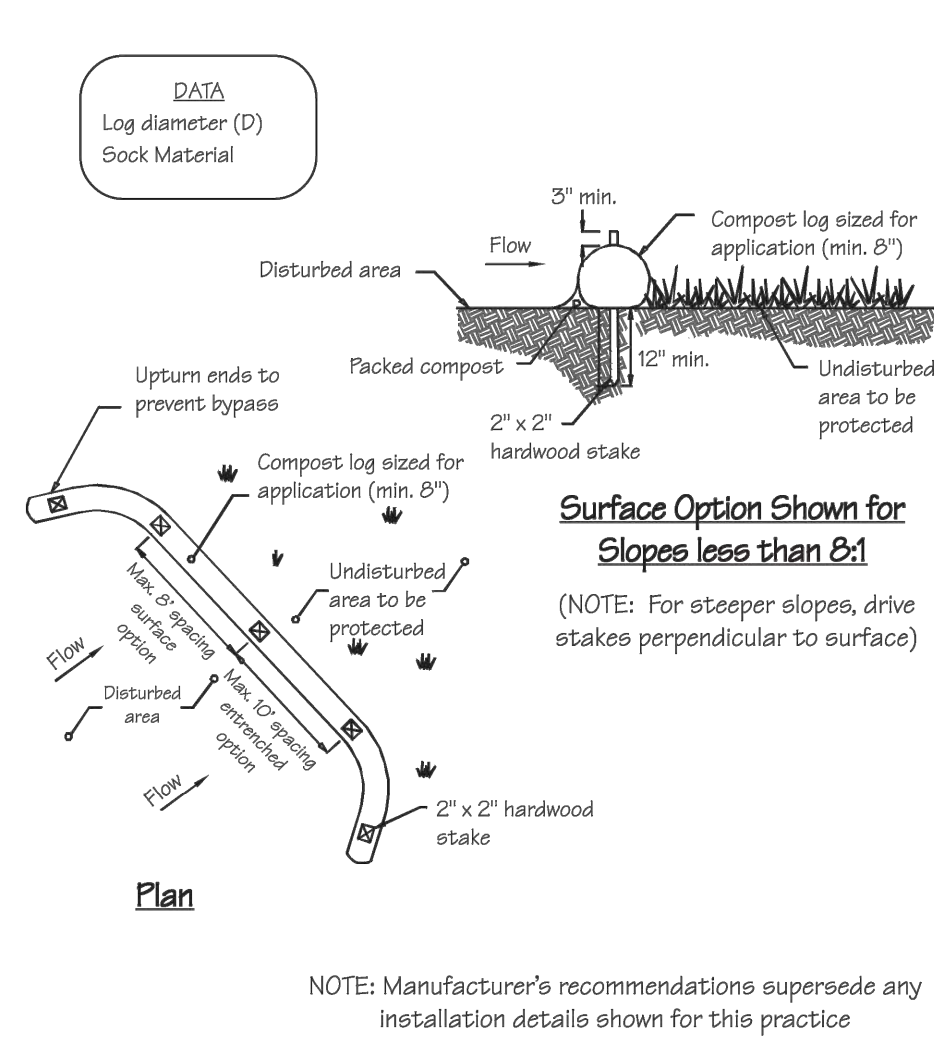
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Standard Detail & Specifications
Stabilization Matting - Channel



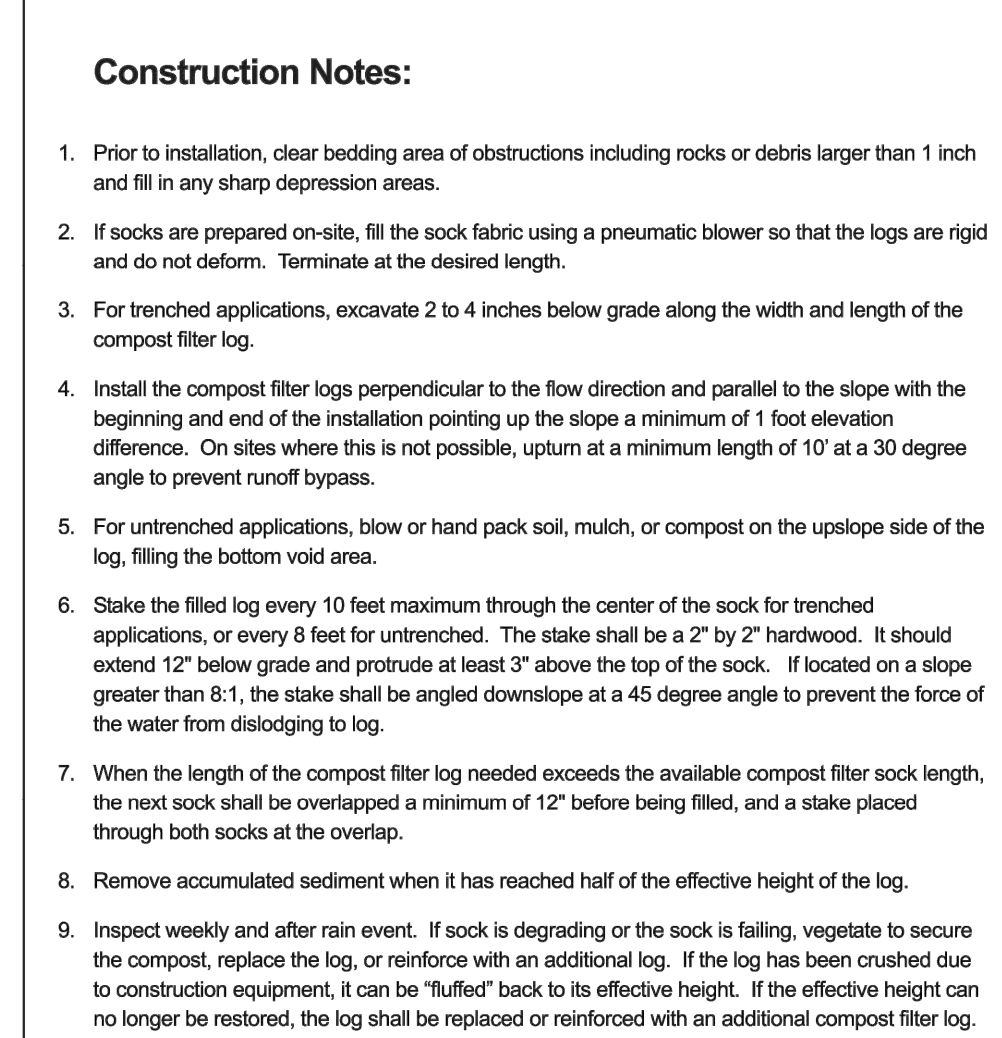
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Standard Detail & Specifications
Compost Filter Log



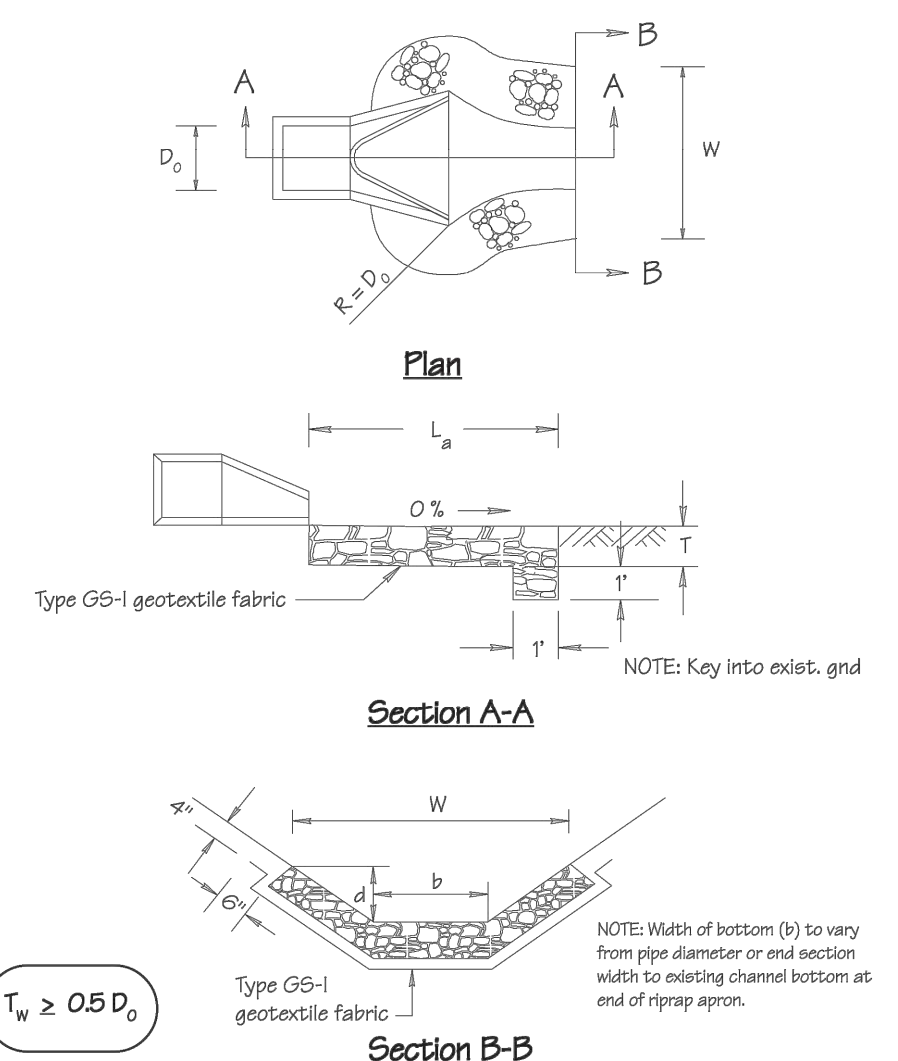
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Adapted from MD Stds & Specs for ESC & Filtrex™ International	CFL	DE-ESC-3.1.7 Sheet 1 of 2 Effective July 2023

Standard Detail & Specifications
Compost Filter Log



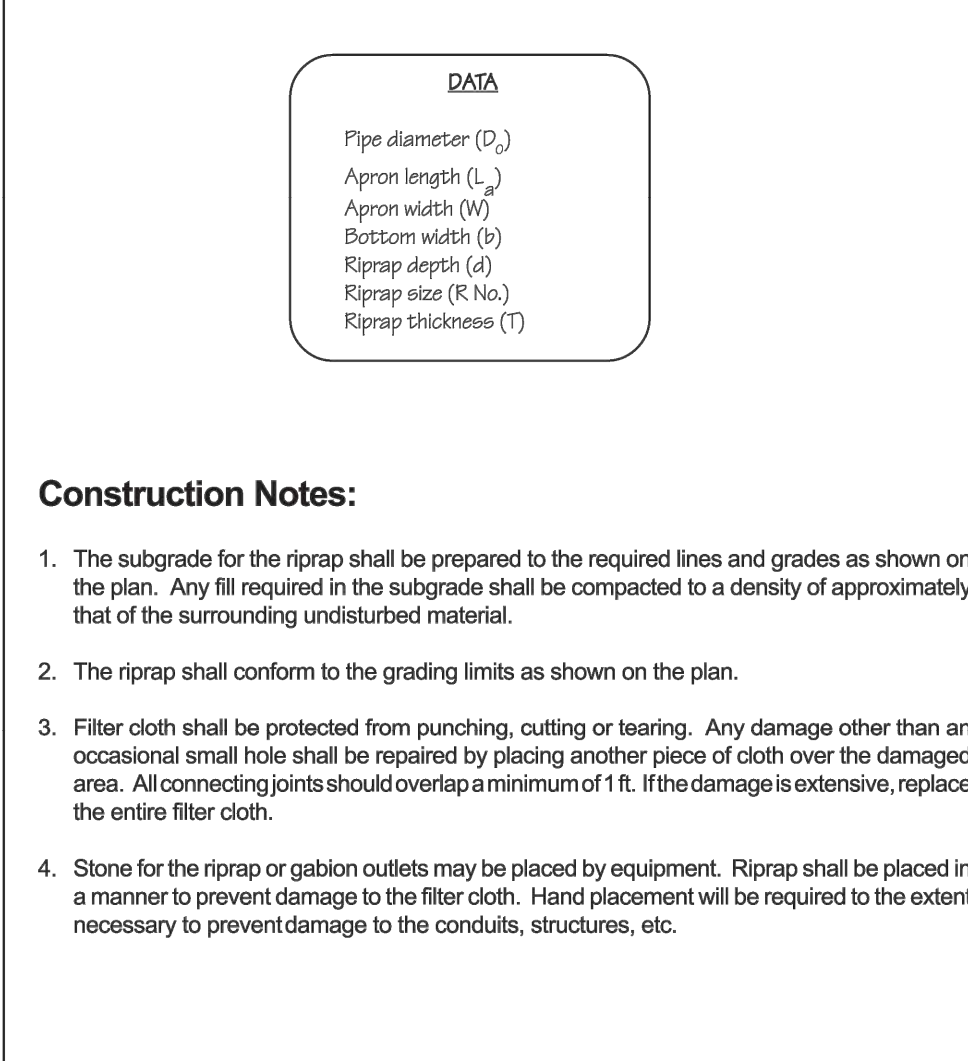
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Standard Detail & Specifications
Riprap Outlet Protection - 2



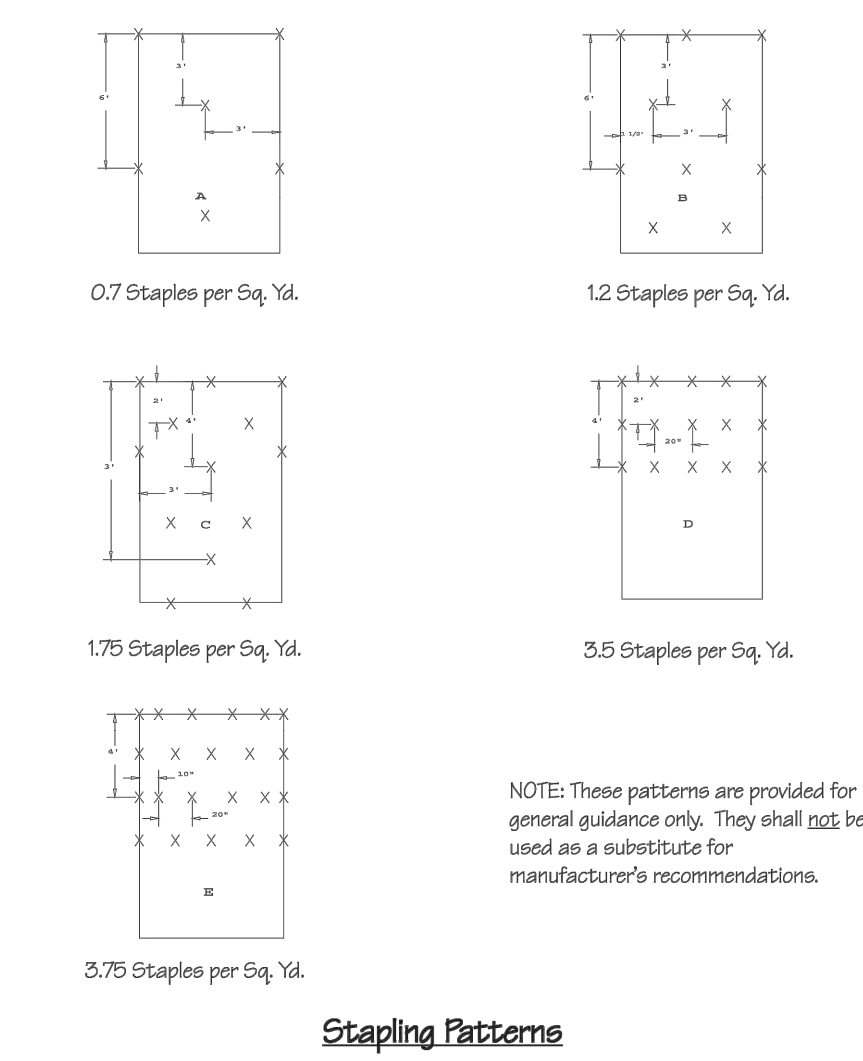
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Standard Detail & Specifications
Riprap Outlet Protection - 2



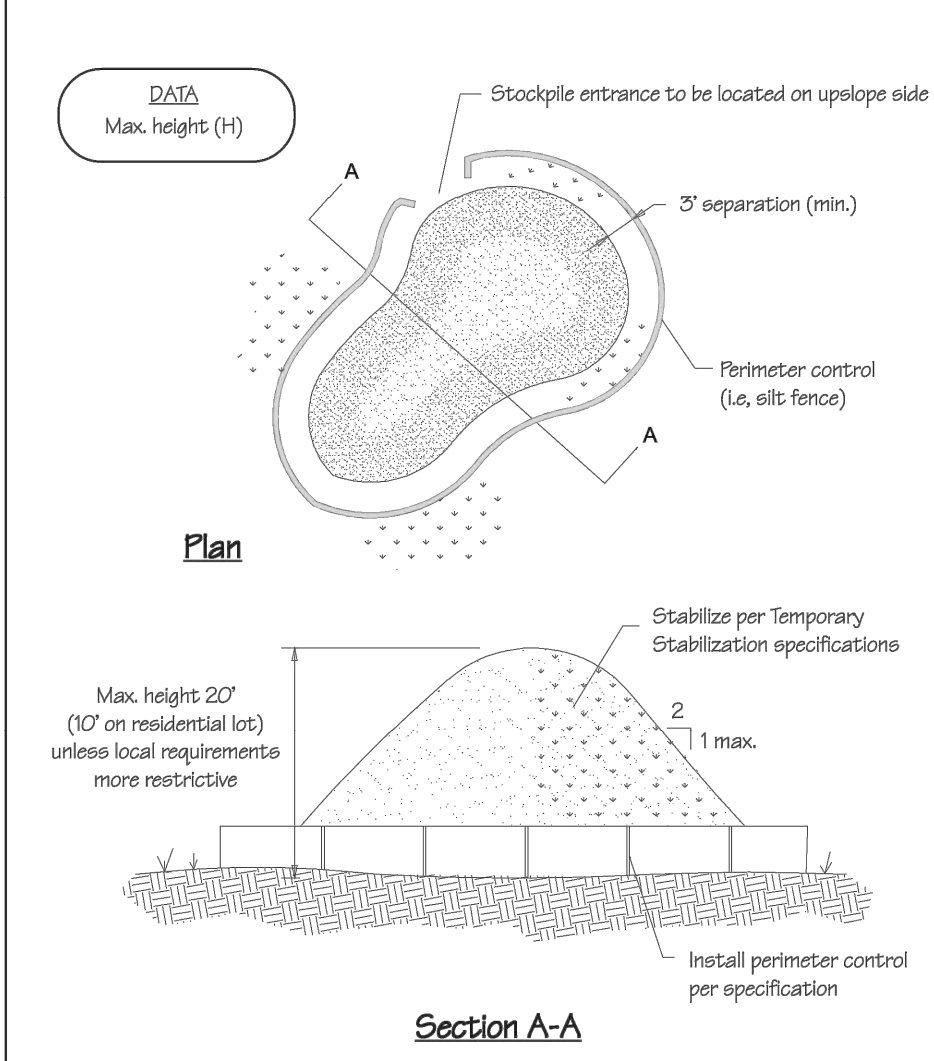
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Standard Detail & Specifications
Stabilization Matting - Channel



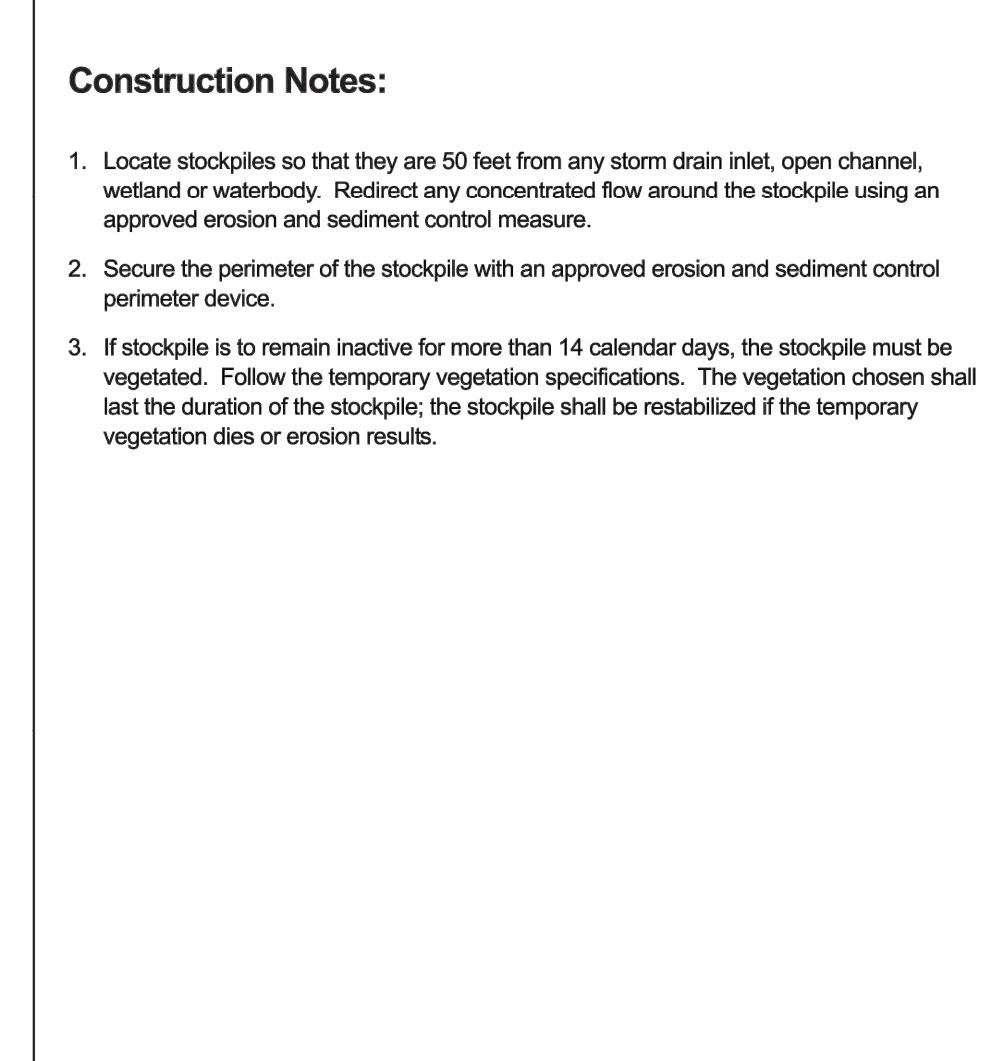
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Standard Detail & Specifications
Soil Stockpile

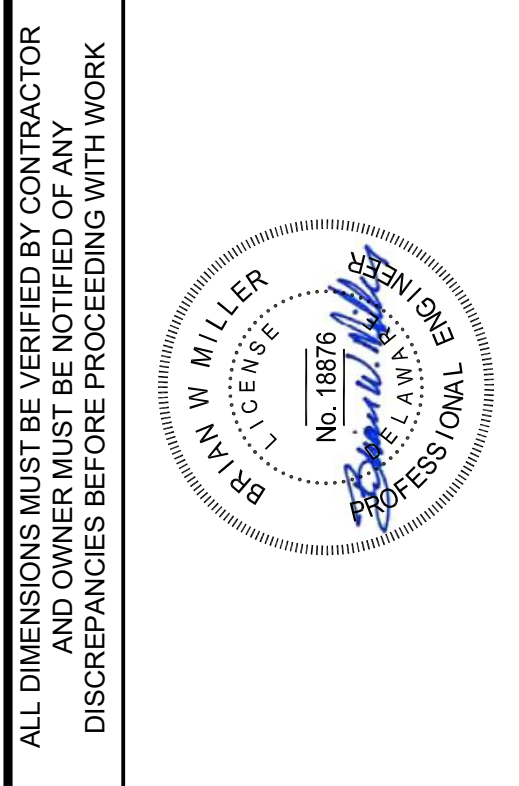


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Adapted from Colorado Urban Storm Drainage Criteria Manual, Vol 3	SP	DE-ESC-3.7.3 Sheet 1 of 2 Effective July 2023

Standard Detail & Specifications
Soil Stockpile



Source:	Symbol:	Detail No.
Adapted from Colorado Urban Storm Drainage Criteria Manual, Vol 3	SP	DE-ESC-3.7.3 Sheet 2 of 2 Effective July 2023



NORTH DUCK CREEK UTILITY EXTENSION
PHASE 2
SMYRNA, DELAWARE

EROSION AND SEDIMENT CONTROL DETAILS

TOWN OF SMYRNA
27 SOUTH MARKET STREET
SMYRNA, DE 19977

EDJ	EDJ	BY
PER BELDOT COORDINATION	PER KENT CONSERVATION DISTRICT COMMENTS	REVISIONS
8/25/2024	7/21/2023	NO.
		DATE

PROJECT	SMYRN21004
DATE	2023-07-11
DRAWING SCALE	---
DRAWN BY	EDJ
APPROVED BY	BWM

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C8502

SHEET 17 OF 17

U:\Automation\SMYRN\PH2\1004-11_Duck Creek Utility Extension Design\DESIGN_SHEETS_C8502.dwg PLOTTED: 8/26/2024 7:59 PM By: EdJaman PROJECT STATUS: PHASE 2 - WATER, SANITARY, ELECTRIC TO DAB PARCEL. PLOTTED BY: PENNONI ASSOCIATES