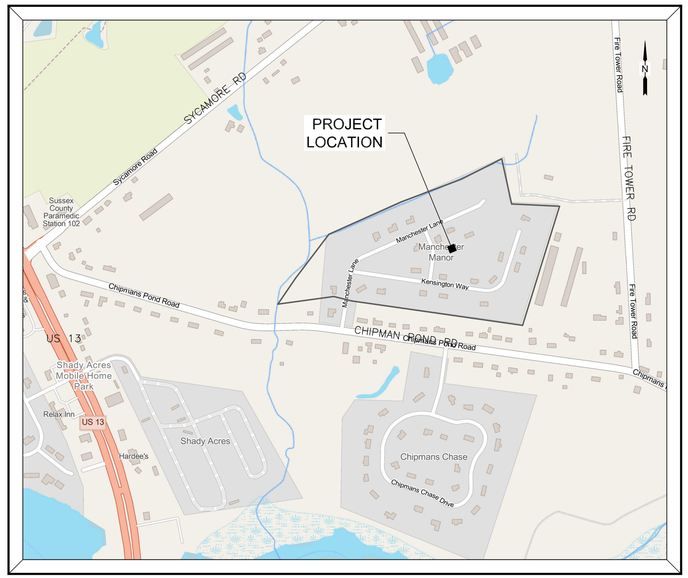
MANCHESTER MANOR

DRAINAGE IMPROVEMENTS

BROAD CREEK / CHESAPEAKE BAY WATERSHED

SUSSEX COUNTY, DELAWARE



PLAN INDEX MAP

SHEET INDEX

SHEET NO.	TITLE
C-000	COVER SHEET
C-100	PROJECT SITE PLAN OVERVIEW
C-101	SITE PLAN – W
C-102	SITE PLAN – NE
C-103	SITE PLAN – SE
C-200	MANCHESTER LANE PROFILES
C-201	KENSINGTON WAY PROFILES
C-202	KINGS MILL DR. & MISC PROFILES
C-203	PROPERTY LINE & LANDSCAPE BUFFER PROFILES
C-204	DITCHES 1, 2,, & 3 PROFILES
C-205	POND PROFILE & DETAILS
C-500	CONSTRUCTION DETAILS AND NOTES
C-501	CONSTRUCTION DETAILS AND NOTES
C-700	EROSION & SEDIMENT CONTROL PLAN OVERVIEW
C-701	EROSION & SEDIMENT CONTROL PLAN – N
C-702	EROSION & SEDIMENT CONTROL PLAN – NE
C-703	EROSION & SEDIMENT CONTROL PLAN – SE
C-704	EROSION & SEDIMENT CONTROL DETAILS & NOTES
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C-706	EROSION & SEDIMENT CONTROL DETAILS & NOTES
C-707	EROSION & SEDIMENT CONTROL DETAILS & NOTES

LEGEND

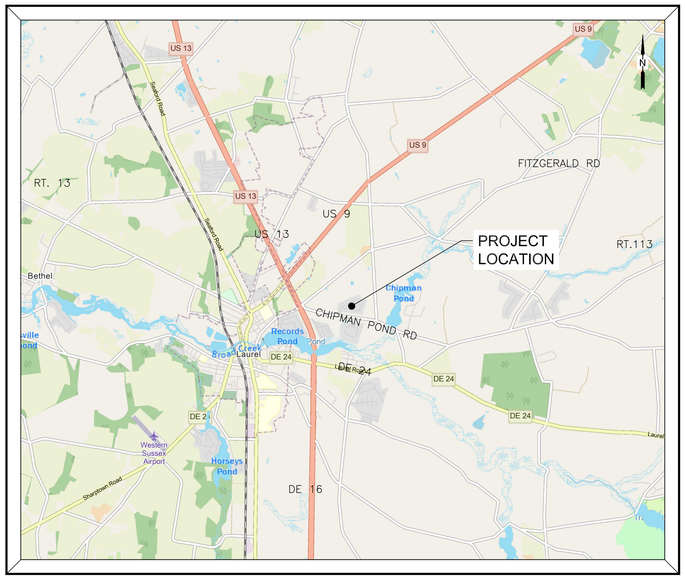
EXISTING	PROPOSED
BUILDING	BUILDING
BRIDGE	BRIDGE
BOTTOM WIDTH LEFT	BOTTOM WIDTH LEFT
BOTTOM WIDTH RIGHT	BOTTOM WIDTH RIGHT
CENTERLINE DITCH	CENTERLINE DITCH
CENTERLINE DITCH STATION MAJOR	CENTERLINE DITCH STATION MAJOR
CENTERLINE DITCH STATION MINOR	CENTERLINE DITCH STATION MINOR
CENTERLINE ROAD	CONTOUR MAJOR
CONTOUR MAJOR	CONTOUR MINOR
CONTOUR MINOR	CONCRETE
CONCRETE	EASEMENT
EASEMENT	EDGE OF PAVEMENT
EDGE OF PAVEMENT	EDGE OF GRAVEL
EDGE OF GRAVEL	FENCELINE
FENCELINE	GEOMORPHOLOGY FEATURE
GEOMORPHOLOGY FEATURE	GRADE PROFILE
HYDROLOGIC DRAINAGE AREA	HYDROLOGIC DRAINAGE AREA
HYDROLOGIC SOIL TYPE	HYDROLOGIC DRAINAGE AREA HATCH
HYDROLOGIC SOIL GROUP	HYDROLOGIC DRAINAGE AREA LANDUSE
HYDROLOGIC TIME OF CONCENTRATION	HYDROLOGIC TIME OF CONCENTRATION
MAILBOX	NORMAL WATER SURFACE ELEVATION
MARSHLINE	RIPRAP
ORDINARY HIGH WATER	SIDEWALK
PROPERTY LINE	SIGN
RAILROAD TRACKS	STORMWATER PIPE
RIPRAP	STORMWATER STRUCTURE
SHEETPILE	TAX DITCH RIGHT-OF-WAY
SIDEWALK	TAX DITCH SPECIAL RIGHT-OF-WAY
SIGN	TOP OF BANK LEFT
STORMWATER PIPE	TOP OF BANK RIGHT
STORMWATER STRUCTURE	TREE
TAX DITCH RIGHT-OF-WAY	TEXT
TAX DITCH SPECIAL RIGHT-OF-WAY	WATERSHED DRAINAGE AREA
TOP OF BANK RIGHT	WOODSLINE
TOP OF BANK LEFT	ESTIMATED CUT
TREE	ESTIMATED FILL
TEXT	COMPOST LOG
UTILITY: COMMUNICATION CABLE	LIMIT OF DISTURBANCE
UTILITY: OVERHEAD WIRE	TEMPORARY CONSTRUCTION - EASEMENT
UTILITY POLE	SILT FENCE
UTILITY: ELECTRIC	SUPER SILT FENCE
UTILITY: GAS	PLANTING AREA
UTILITY: SANITARY SEWER	SEEDING AREA
UTILITY: WATER	
WATERSHED DRAINAGE AREA	
WETLAND	
WOODSLINE	

MISCELLANEOUS

MATCHLINE

SOIL BORING

CROSS-SECTION



LOCATION MAP

PERMITTEE CERTIFICATION:

I, THE UNDERSIGNED, CERTIFY THAT ALL LAND CLEARING AND CONSTRUCTION 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 CONTROL DURING CONSTRUCTION. IN ADDITION, I GRANT THE DEPARTMENT OR DELEGATED INSPECTION AGENCY THE RIGHT TO CONDUCT ON-SITE INSPECTIONS, AND I UNDERSTAND MY RESPONSIBILITIES UNDER THE NPDES CONSTRUCTION GENERAL PERMIT.

NAME _____ TITLE _____

SIGNATURE _____ DATE _____

LICENSED PROFESSIONAL CERTIFICATION:

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARD UNDER MY SUPERVISION AND TO THE BEST OF MY KNOWLEDGE COMPLIES WITH THE APPLICABLE STATE AND LOCAL REGULATIONS AND ORDINANCES.

AMELIA REED, PE
NAME

DNREC – DIVISION ENGINEER IV
TITLE

SIGNATURE _____ DATE _____

File Location: G:\Equipment Section\Projects\MANCHESTER MANOR - NAVARRO, 21-229\dwg\MANCHESTER MANOR 2.dwg Layout:COVER SHEET User: james.elliott Plot time: 12-09-22 @ 2:31pm

REVISIONS

DATE	DESCRIPTION
5.12.22	re-design grading option
10.4.22	DNREC COMMENTS
11.8.22	DNREC COMMENTS
12.9.22	DNREC COMMENTS / OMISSIONS

SUSSEX CONSERVATION DISTRICT
23818 SHOWTY RD. GEORGETOWN, DE 19957
PHONE (302)856-2105 FAX (302)-856-0951

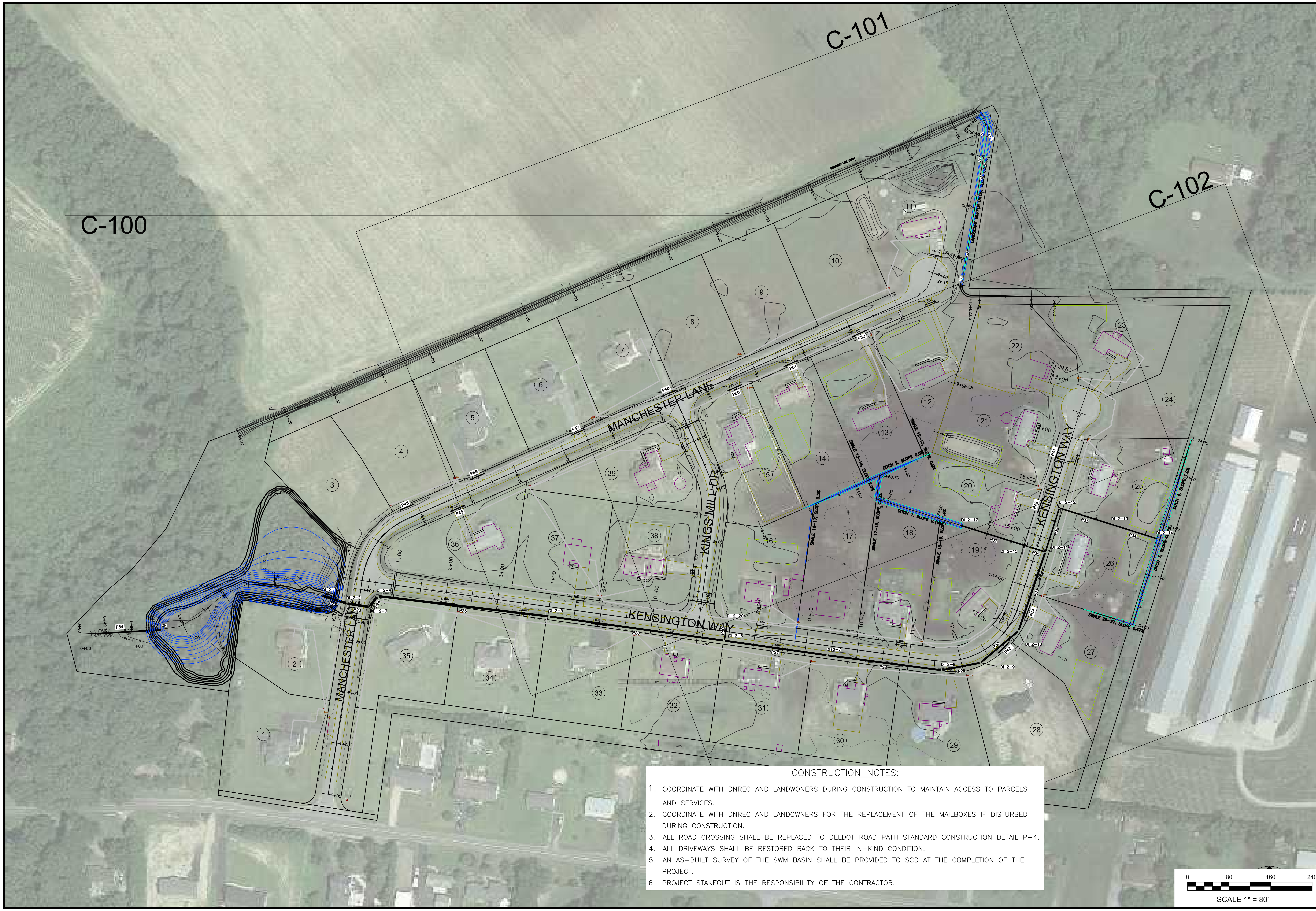
DNREC - Division of Watershed Stewardship
Drainage Program
Dover Office
285 Beiser Blvd., Suite 102 Phone:(302) 739-9921 Fax:(302) 739 - 6724
Dover DE, 19901
Georgetown Office
21309 Berlin Rd. Unit 6 Phone:(302) 855 - 1930
Georgetown DE, 19947 Fax:(302) 677 - 7059

MANCHESTER MANOR
DRAINAGE IMPROVEMENTS, # 21-229
BROAD CREEK / NANTICOKE WATERSHED
SUSSEX COUNTY, DELAWARE

COVERSHEET

Date: 2/04/2022
Designed: JE
Planned: JE / KW / JG / TB
Drawn: JE

Sheet No. C-000



CONSTRUCTION NOTES:

1. COORDINATE WITH DNREC AND LANDWONERS DURING CONSTRUCTION TO MAINTAIN ACCESS TO PARCELS AND SERVICES.
2. COORDINATE WITH DNREC AND LANDOWNERS FOR THE REPLACEMENT OF THE MAILBOXES IF DISTURBED DURING CONSTRUCTION.
3. ALL ROAD CROSSING SHALL BE REPLACED TO DELDOT ROAD PATH STANDARD CONSTRUCTION DETAIL P-4.
4. ALL DRIVEWAYS SHALL BE RESTORED BACK TO THEIR IN-KIND CONDITION.
5. AN AS-BUILT SURVEY OF THE SWM BASIN SHALL BE PROVIDED TO SCD AT THE COMPLETION OF THE PROJECT.
6. PROJECT STAKEOUT IS THE RESPONSIBILITY OF THE CONTRACTOR.

REVISIONS

DATE	DESCRIPTION
5.12.22	re-design gravity option
10.22	DNREC COMMENTS
11.8.22	DNREC COMMENTS
12.9.22	DNREC COMMENTS / OMISSIONS

SUSSEX CONSERVATION DISTRICT
23818 SHORTLY RD., GEORGETOWN, DE 19957
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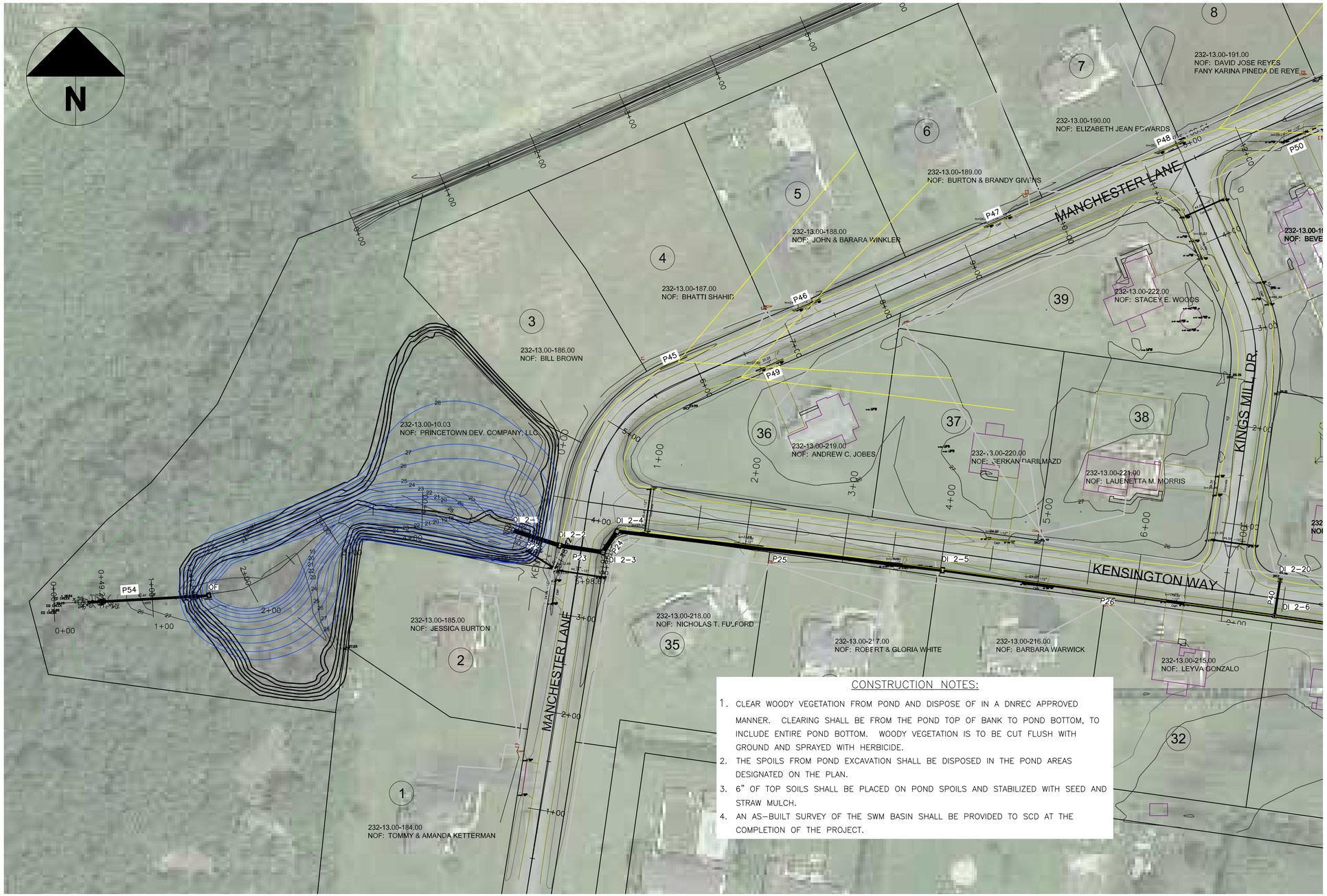
MANCHESTER MANOR

DRAINAGE IMPROVEMENTS, # 21-229
BROAD CREEK / NANTICOKE WATERSHED
SUSSEX COUNTY, DELAWARE

PROJECT OVERVIEW & NOTES

Date:	2/04/2022
Designed:	JE
Planned:	JE / KW / JG / TB
Drawn:	JE
Sheet No.	C-100



PR-SWALE -

SEPTIC DRAIN FIELD AREA

PLAN VIEW
SCALE: 1" = 50'
0 50 100 150

REVISIONS

DATE	DESCRIPTION
5.12.22	re-design gravity option
10.22	DNREC COMMENTS
11.8.22	DNREC COMMENTS
12.9.22	DNREC COMMENTS / OMISSIONS

SUSSEX CONSERVATION DISTRICT
23818 SHORTLY RD. GEORGETOWN, DE 19957
PHONE: (302)-856-2105 FAX: (302-856-0951

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MANCHESTER MANOR
DRAINAGE IMPROVEMENTS, # 21-229
BROAD CREEK / NANTICOKE WATERSHED
SUSSEX COUNTY, DELAWARE

SITE PLAN - W

Date: 2/04/2022
Designed: JE
Planned: JE / KW / JG / TB
Drawn: JE

Sheet No. C-101

File Location: G:\Equipment Section\Projects\MANCHESTER MANOR - NAVARRO, 21-229\dwg\MANCHESTER MANOR 2.dwg Layout:SITE PLAN W User: james.elliott Plot time: 12-09-22 @ 2:31pm

PR-SWALE -

SEPTIC DRAIN FIELD AREA

PLAN VIEW
SCALE: 1" = 50'
0 50 100 150

REVISIONS		
DATE	DESCRIPTION	
6.12.22	re-design, gravity option	
10.2.22	DNREC COMMENTS	
11.8.22	DNREC COMMENTS	
12.9.22	DNREC COMMENTS / OMISSIONS	

SUSSEX CONSERVATION DISTRICT
23618 SHORTLY RD., GEORGETOWN, DE 19957
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Dover DE, 19901

Georgetown Office
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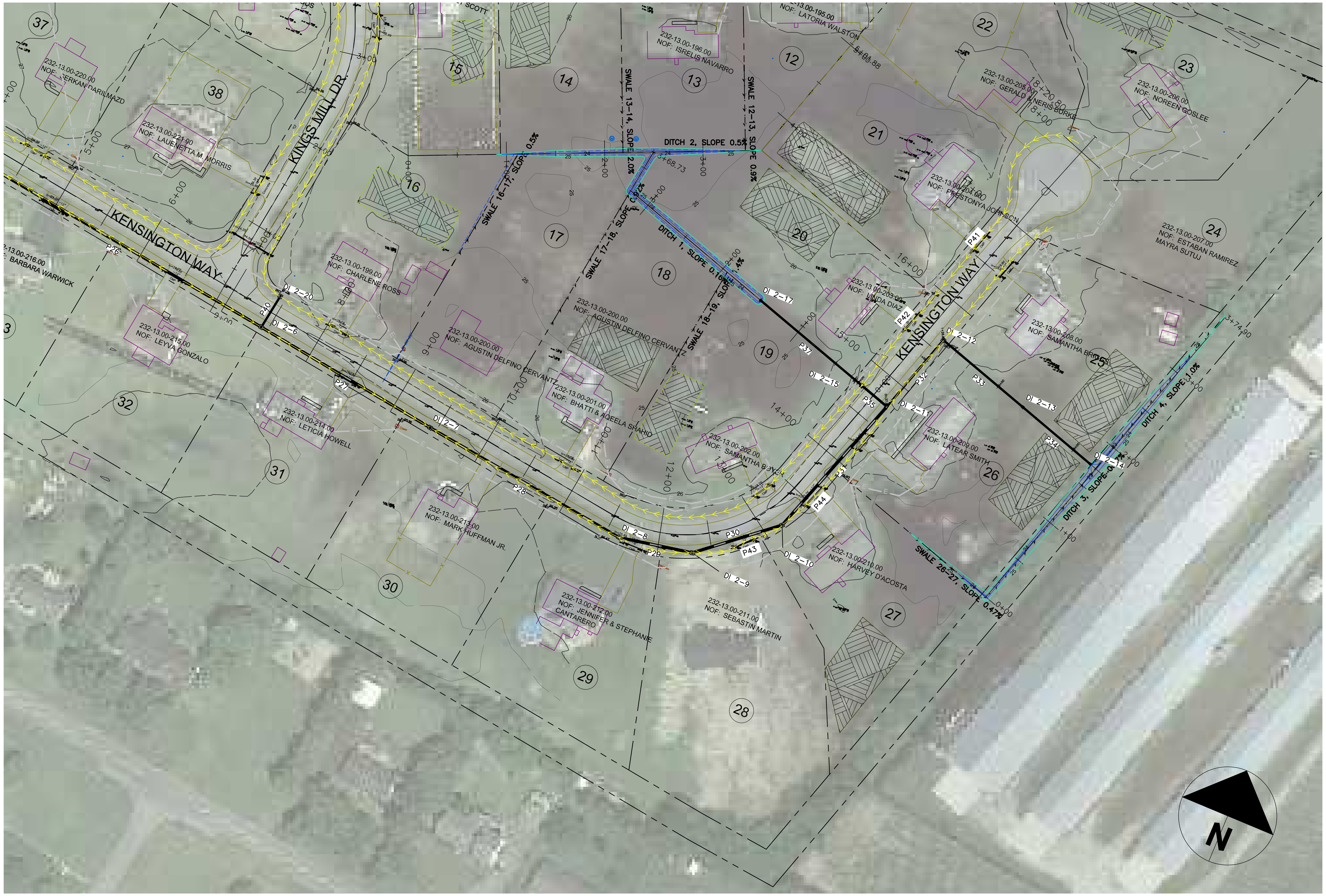
Georgetown DE, 19947 Fax:(302) 677 - 7059

MANCHESTER MANOR
DRAINAGE IMPROVEMENTS, # 21-229
BROAD CREEK / NANTICOKE WATERSHED
SUSSEX COUNTY, DELAWARE

SITE PLAN - NE

Date:	2/04/2022
Designed:	JE
Planned:	JE / KW / JG / TB
Drawn:	JE
Sheet No.	C-102

File Location: G:\Equipment Section\Projects\MANCHESTER MANOR - NAVARRO, 21-229\dwg\MANCHESTER MANOR 2.dwg Layout:SITE PLAN NE User: james.elliott Plot time: 12-09-22 @ 2:31pm



PR-SWALE

SEPTIC DRAIN FIELD AREA

PLAN VIEW
SCALE: 1" = 50'
0 50 100 150

REVISIONS	
DATE	DESCRIPTION
5.12.22	re-design gravity option
10.22	DNREC COMMENTS
11.8.22	DNREC COMMENTS
12.9.22	DNREC COMMENTS / OMISSIONS

SUSSEX CONSERVATION DISTRICT
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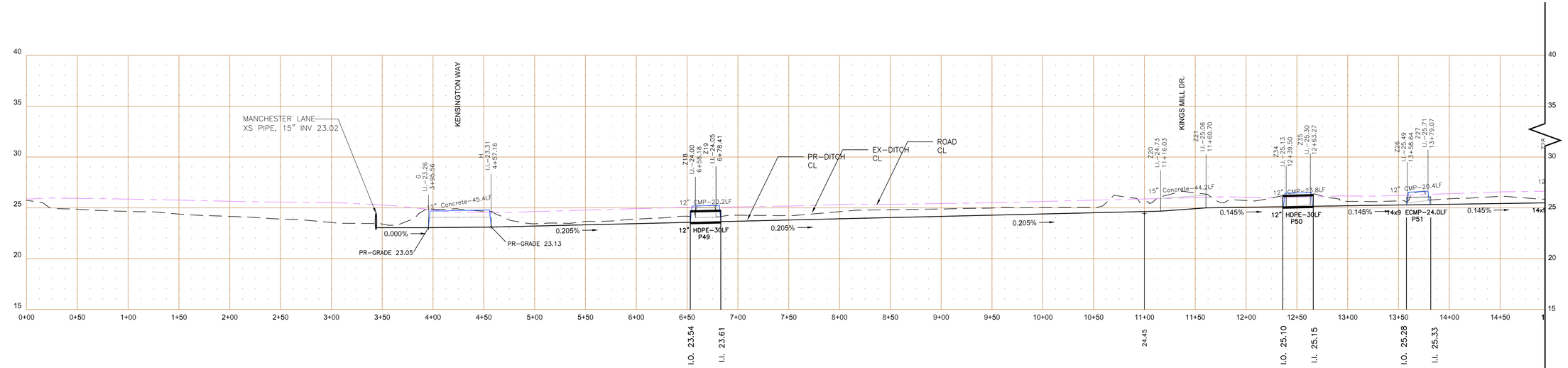
MANCHESTER MANOR
DRAINAGE IMPROVEMENTS, # 21-229
BROAD CREEK / NANTICOKE WATERSHED
SUSSEX COUNTY, DELAWARE

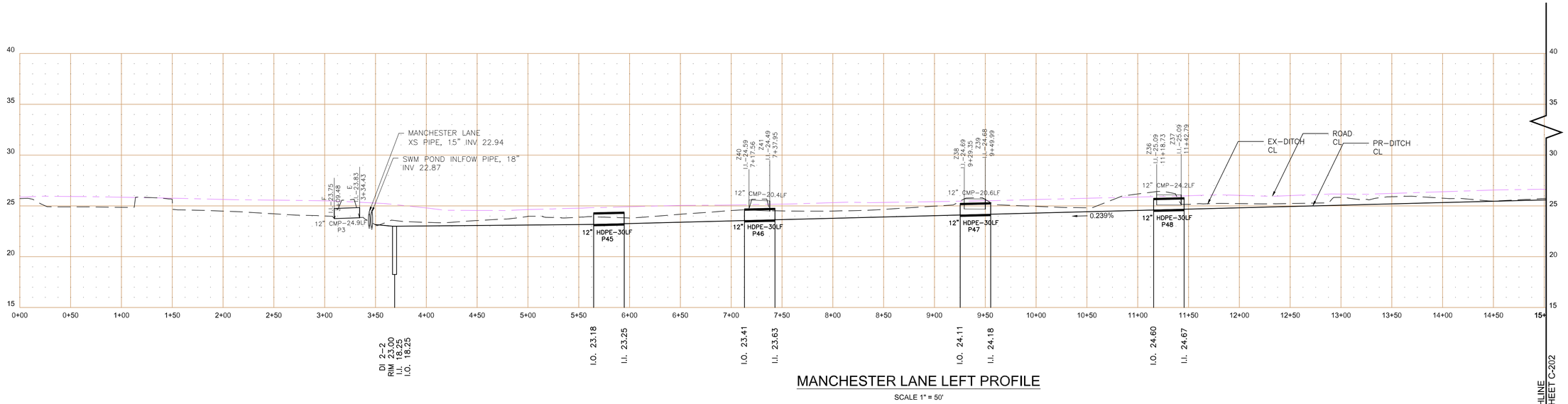
SITE PLAN - SE

Date:	2/04/2022
Designed:	JE
Planned:	JE / KW / JG / TB
Drawn:	JE
Sheet No.	C-103



MANCHESTER LANE RIGHT PROFILE

SCALE 1" = 50'



MANCHESTER LANE LEFT PROFILE

SCALE 1" = 50'

LEDGEND

DESIGN SLOPE

EXISTING SWALE GRADE

EXISTING ROAD CL

0' 25' 50' 100' 150'

SCALE: 1" = 50'

REVISIONS

DATE	DESCRIPTION
5.12.22	re-design, grade option
10.6.22	DNREC COMMENTS
11.8.22	DNREC COMMENTS
12.9.22	DNREC COMMENTS / OMISSIONS

SUSSEX CONSERVATION DISTRICT
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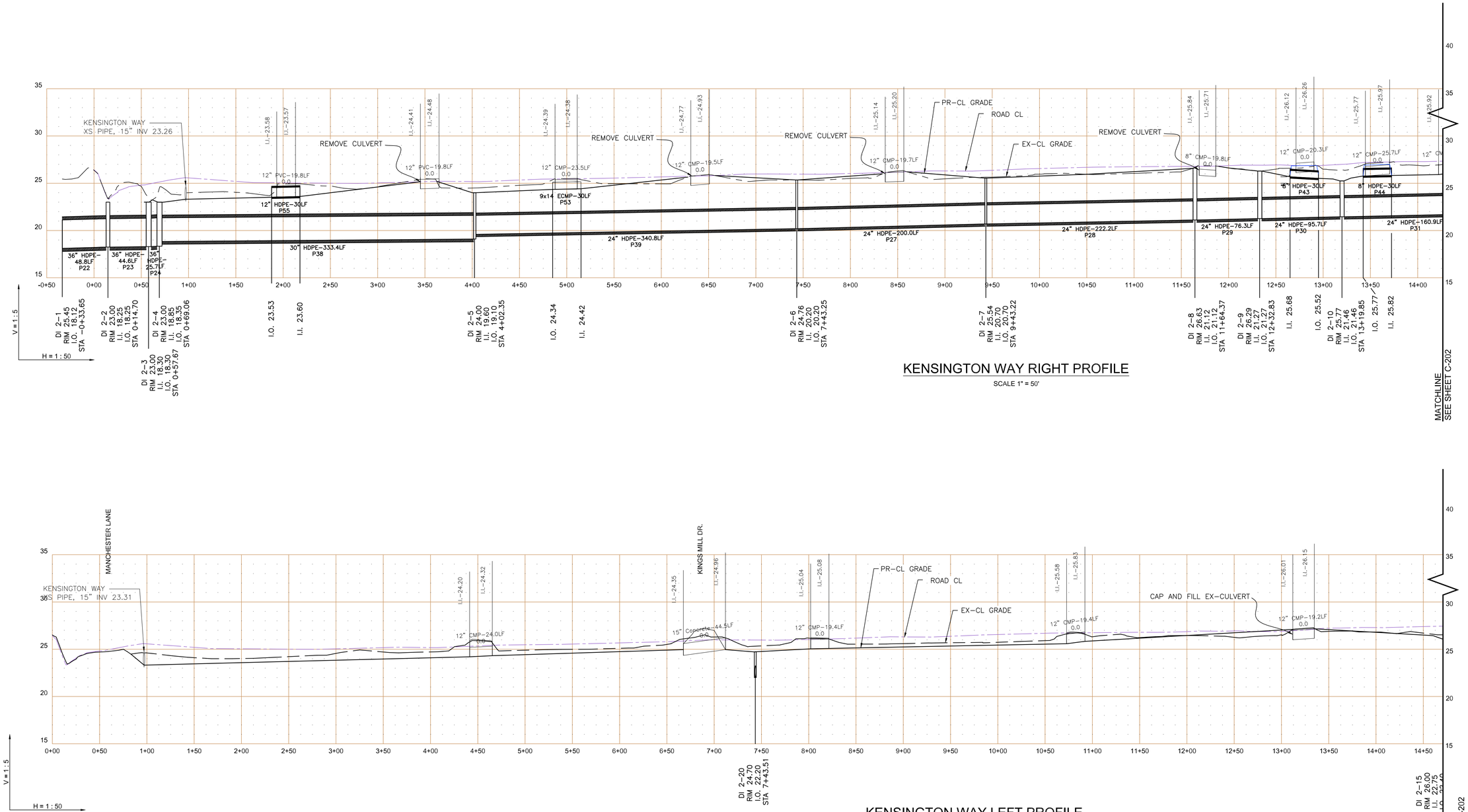
MANCHESTER MANOR
DRAINAGE IMPROVEMENTS # 21-229
BROAD CREEK / NANTICOKE WATERSHED
SUSSEX COUNTY, DELAWARE

ROAD PROFILES

Date: 2/04/2022
Designed: JE
Planned: JE / KW / JG / TB
Drawn: JE

Sheet No. C-200

File Location: G:\Equipment Section\Projects\MANCHESTER MANOR - NAVARRO, 21-229\dwg\MANCHESTER MANOR 2.dwg Layout:PROFILE 1 User: james.elliott Plot time: 12-09-22 @ 2:31pm



KENSINGTON WAY RIGHT PROFILE

SCALE 1" = 50'

KENSINGTON WAY LEFT PROFILE

SCALE 1" = 50'

LEDGEND

DESIGN SLOPE

EXISTING SWALE GRADE

EXISTING ROAD CL

0' 25' 50' 100' 150'

SCALE: 1" = 50'

REVISIONS

DATE	DESCRIPTION
5.12.22	re-design gravity option
10.22	DNREC COMMENTS
11.8.22	DNREC COMMENTS
12.9.22	DNREC COMMENTS / OMISSIONS

SUSSEX CONSERVATION DISTRICT
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MANCHESTER MANOR

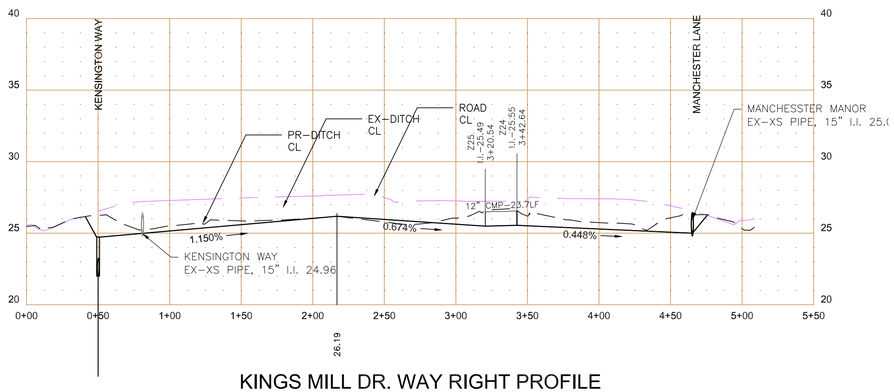
DRAINAGE IMPROVEMENTS, # 21-229
BROAD CREEK / NANTICOKE WATERSHED
SUSSEX COUNTY, DELAWARE

ROAD PROFILES

Date: 2/04/2022
Designed: JE
Planned: JE / KW / JG / TB
Drawn: JE

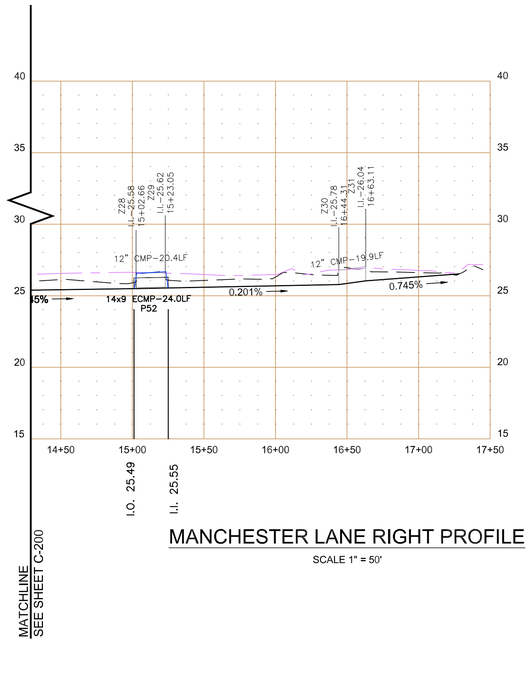
Sheet No. C-201

File Location: G:\Equipment Section\Projects\MANCHESTER MANOR - NAVARRO, 21-229\dwg\MANCHESTER MANOR 2.dwg Layout:Profile (2) User: james.allcott Plot time: 12-09-22 @ 2:31pm



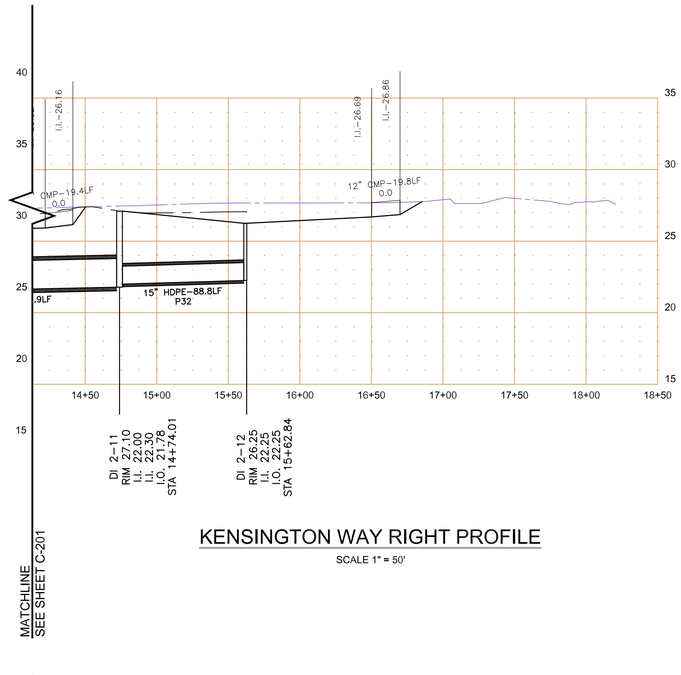
KINGS MILL DR. WAY RIGHT PROFILE

SCALE 1" = 50'



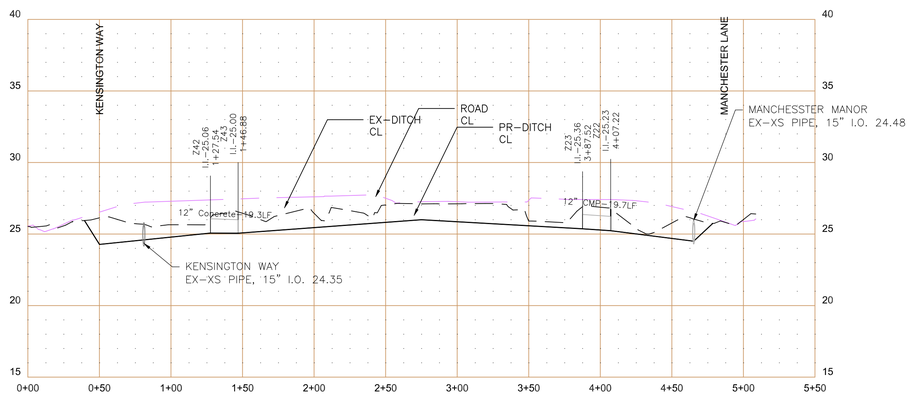
MANCHESTER LANE RIGHT PROFILE

SCALE 1" = 50'



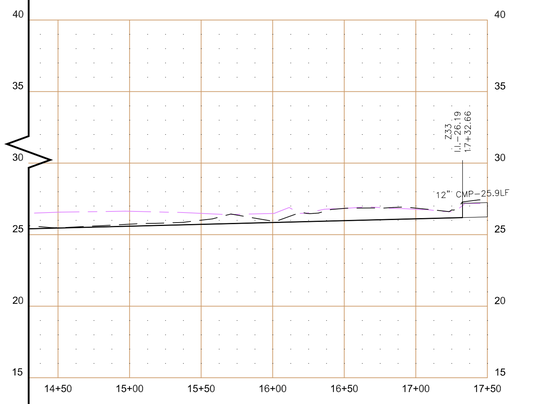
KENSINGTON WAY RIGHT PROFILE

SCALE 1" = 50'



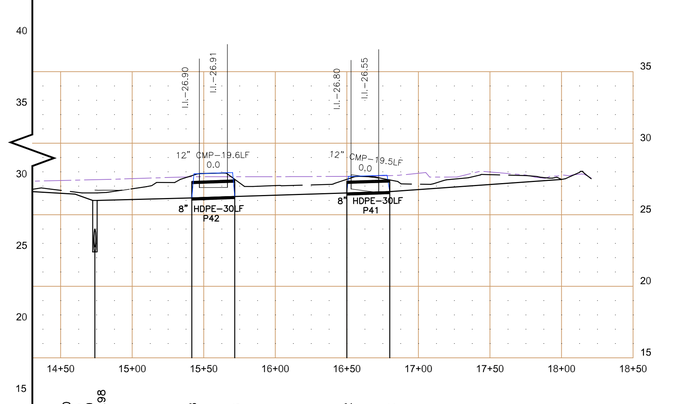
KINGS MILL DR. WAY LEFT PROFILE

SCALE 1" = 50'



MANCHESTER LANE LEFT PROFILE

SCALE 1" = 50'



KENSINGTON WAY LEFT PROFILE

SCALE 1" = 50'

LEDGEND

DESIGN SLOPE

EXISTING SWALE GRADE

EXISTING ROAD CL

SCALE: 1" = 50'

REVISIONS

DATE	DESCRIPTION
5.12.22	re–design gravity option
10.22	DNREC COMMENTS
11.8.22	DNREC COMMENTS
12.9.22	DNREC COMMENTS / OMISSIONS

SUSSEX CONSERVATION DISTRICT
23818 SHORTLY RD. GEORGETOWN, DE 19957
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DNREC - Division of Watershed Stewardship
Drainage Program

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Georgetown DE, 19947 Fax:(302) 677 - 7659

MANCHESTER MANOR

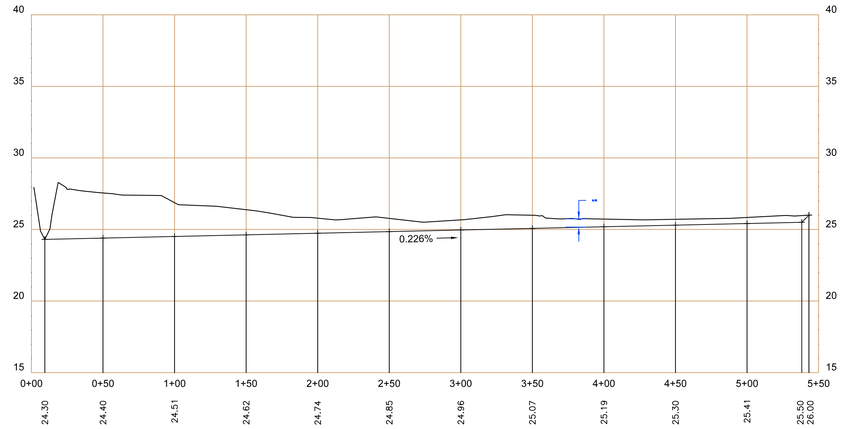
DRAINAGE IMPROVEMENTS, # 21-229
BROAD CREEK / NANTICOKE WATERSHED
SUSSEX COUNTY, DELAWARE

ROAD PROFILES

Date: 2/04/2022
Designed: JE
Planned: JE / KW / JG / TB
Drawn: JE

Sheet No. C-202

File Location: G:\Equipment Section\Projects\MANCHESTER MANOR - NAVARRO, 21-229\dwg\MANCHESTER MANOR 2.dwg Layout:PROFILE 3 User: jamos.elliott Plot time: 12-09-22 @ 2:31pm



LANDSCAPE BUFFER DITCH PROFILE

SCALE 1" = 50'

LEDGEND

DESIGN SLOPE

EXISTING ROAD SWALE GRADE

EXISTING ROAD CL

EXISTING GRADE

EXISTING LEFT TOB

EXISTING RIGHT TOB

0' 25' 50' 100' 150'

SCALE: 1" = 50'

REVISIONS

DATE	DESCRIPTION
5.12.22	re-design, groity option
10.22	DNREC COMMENTS
11.8.22	DNREC COMMENTS
12.9.22	DNREC COMMENTS / OMISSIONS

SUSSEX CONSERVATION DISTRICT
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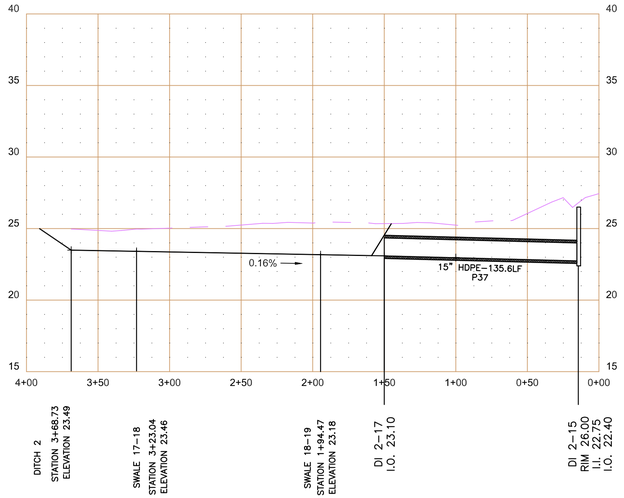
MANCHESTER MANOR
DRAINAGE IMPROVEMENTS, # 21-229
BROAD CREEK / NANTICOKE WATERSHED
SUSSEX COUNTY, DELAWARE

LANDSCAPE BUFFER PROFILE

Date: 2/04/2022
Designed: JE
Planned: JE / KW / JG / TB
Drawn: JE

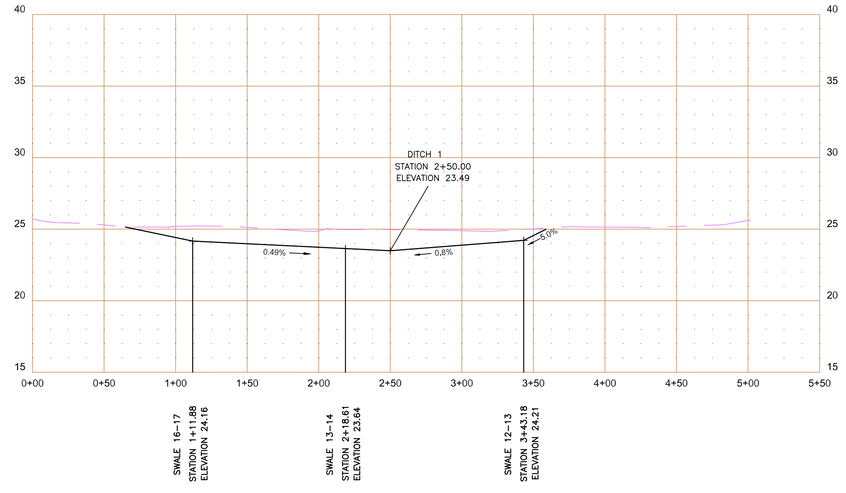
Sheet No. C-203

File Location: G:\Equipment Section\Projects\MANCHESTER MANOR - NAVARRO, 21-229\dwg\MANCHESTER MANOR 2.dwg Layout:PROFILE 4.1 User: james.elliott Plot time: 12-09-22 @ 2:42pm



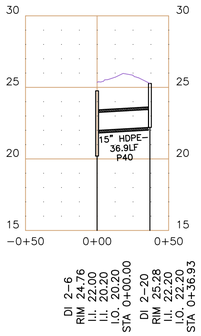
DITCH 1 PROFILE

SCALE 1" = 50'



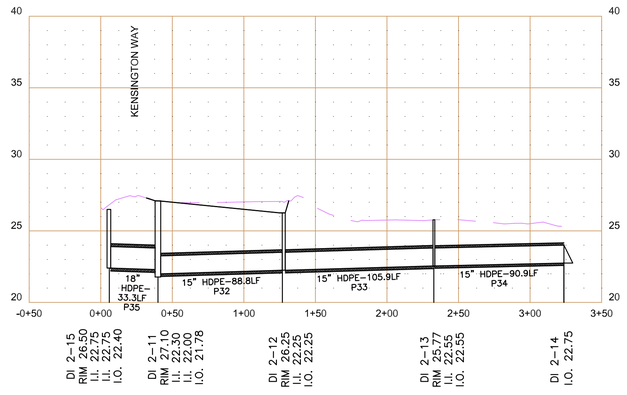
DITCH 2 PROFILE

SCALE 1" = 50'



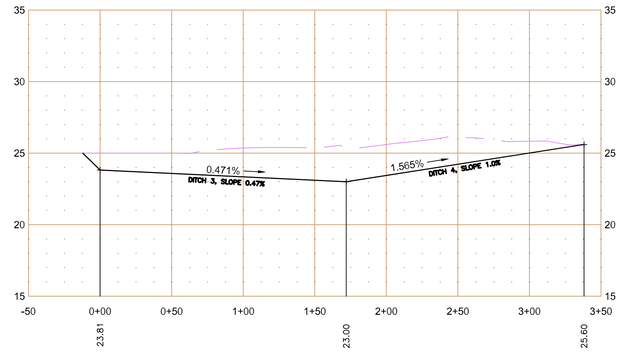
DI 2-6 TO DI 2-20 PROFILE

SCALE 1" = 50'



FES 2-14 TO DI 2-15 PROFILE

SCALE 1" = 50'



DITCH 3 - 4 PROFILE

SCALE 1" = 50'

LEDGEND

DESIGN SLOPE	
EXISTING ROAD SWALE GRADE	
EXISTING ROAD CL	
EXISTING GRADE	
EXISTING LEFT TOB	
EXISTING RIGHT TOB	

0' 25' 50' 100' 150'

SCALE: 1" = 50'

REVISIONS

DATE	DESCRIPTION
5.12.22	re-design, gravity option
10.22	DNREC COMMENTS
11.8.22	DNREC COMMENTS
12.9.22	DNREC COMMENTS / OMISSIONS

SUSSEX CONSERVATION DISTRICT
23818 SHORTLY RD. GEORGETOWN, DE. 19957
PHONE: (302)-856-2105 FAX: (302-856-0951

DNREC - Division of Watershed Stewardship
Drainage Program

Dover Office
258 Beiser Blvd., Suite 102 Phone:(302) 739-9921
Dover DE, 19901 Fax:(302) 739 - 6724

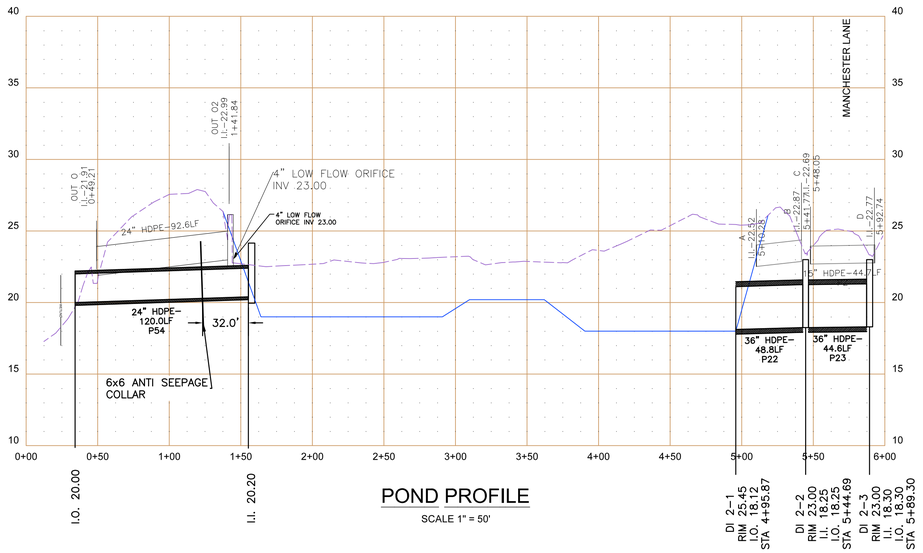
Georgetown Office
21309 Berlin Rd. Unit 6 Phone:(302) 855 - 1930
Georgetown DE, 19947 Fax:(302) 677 - 7069

MANCHESTER MANOR
DRAINAGE IMPROVEMENTS, # 21-229
BROAD CREEK / NANTICOKE WATERSHED
SUSSEX COUNTY, DELAWARE

DITCH 1, 2, & 3 PROFILES

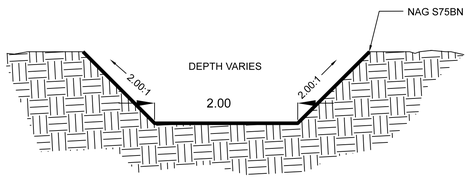
Date: 2/04/2022
Designed: JE
Planned: JE / KW / JG / TB
Drawn: JE

Sheet No. C-204



POND PROFILE

SCALE 1" = 50'

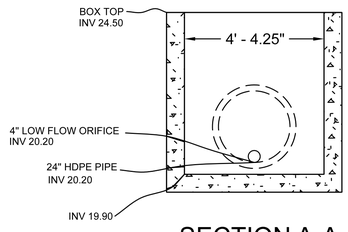


XS NOTES:

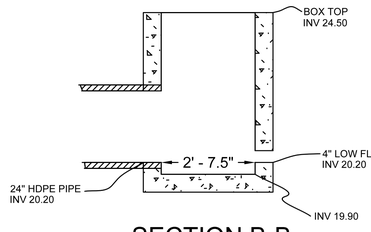
1. MAT DITCH SECTION WITH NAG S75BN OR APPROVED EQUIVALENT.
2. SEED DITCH SECTION WITH DE SEED MIX # 9 OR APPROVED EQUIVALENT.

POND LOW FLOW DITCH TYPICAL CROSSING SECTION

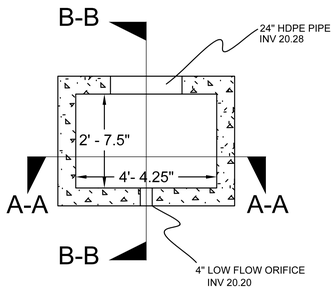
NTS



SECTION A-A



SECTION B-B



SWM POND OUTFALL - OF STRUCTURE DETAIL

NTS

1. MODIFIED PWBD-3 BASIN
2. AGRI-DRAIN BAR GUARD REQUIRED FOR LOW FLOW ORIFICE
3. TRASH RACK REQUIRED FOR STRUCTURE TOP

LEDGEND

- DESIGN SLOPE
- EXISTING ROAD SWALE GRADE
- EXISTING ROAD CL
- EXISTING GRADE
- EXISTING LEFT TOB
- EXISTING RIGHT TOB

0' 25' 50' 100' 150'

SCALE: 1" = 50'

REVISIONS

DATE	DESCRIPTION
5.12.22	re-design, groups option
10.6.22	DNREC COMMENTS
11.8.22	DNREC COMMENTS
12.9.22	DNREC COMMENTS / OMISSIONS

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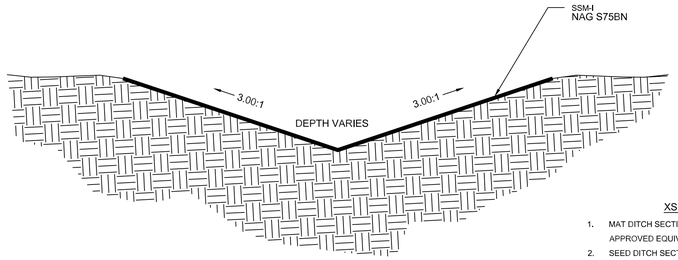
MANCHESTER MANOR
DRAINAGE IMPROVEMENTS, # 21-229
BROAD CREEK / NANTICOKE WATERSHED
SUSSEX COUNTY, DELAWARE

POND AND PIEE PROFILES

Date: 2/04/2022
Designed: JE
Planned: JE / KW / JG / TB
Drawn: JE

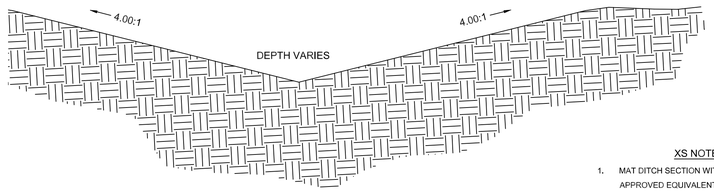
Sheet No. C-205



XS NOTES:

1. MAT DITCH SECTION WITH NAG S75BN OR APPROVED EQUIVALENT.
2. SEED DITCH SECTION WITH DE SEED MIX # 9 OR 14 OR APPROVED EQUIVALENT.

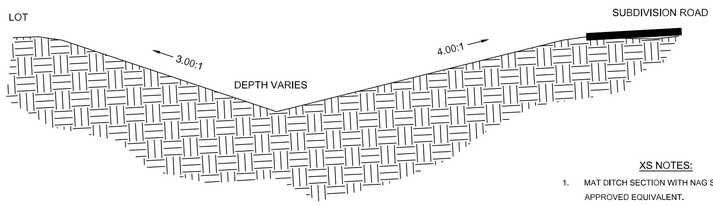
DITCH TYPICAL
CROSSING SECTION



XS NOTES:

1. MAT DITCH SECTION WITH NAG S75BN OR APPROVED EQUIVALENT.
2. SEED DITCH SECTION WITH DE SEED MIX # 9 OR APPROVED EQUIVALENT.

SWALE TYPICAL
CROSSING SECTION



XS NOTES:

1. MAT DITCH SECTION WITH NAG S75BN OR APPROVED EQUIVALENT.
2. SEED DITCH SECTION WITH DE SEED MIX # 9 OR APPROVED EQUIVALENT.

ROAD SIDE SWALE TYPICAL
CROSSING SECTION

STRUCTURE SCHEDULE

NAME	NORTHING	EASTING	RIM ELEV(FT)	BASE ELEV(FT)	INV-IN ELEV(FT) (1)	INV-IN ELEV(FT) (2)	INV-OUT ELEV(FT)	TYPE
DI 2-20	205687.09	618736.48	25.28	21.70	N/A	N/A	22.20	24" NYLOPLAST DRAIN BASIN
DI 2-17	205872.17	619188.02	N/A	N/A	N/A	N/A	23.10	FES WITH BAR GUARD
DI 2-15	205831.63	619317.44	26.50	21.90	22.75	22.65	22.40	PWBD-2
DI 2-14	205847.24	619563.80	N/A	N/A	N/A	N/A	22.75	FES WITH BAR GUARD
DI 2-13	205874.58	619477.13	25.77	21.55	22.55	N/A	22.55	24" NYLOPLAST DRAIN BASIN
DI 2-12	205906.31	619376.14	27.06	21.25	22.25	N/A	22.25	24" NYLOPLST DRAIN BASIN
DI 2-11	205821.65	619349.25	27.10	21.28	22.30	22.00	21.78	PWBD-2
DI 2-10	205669.29	619297.48	25.77	19.46	21.46	N/A	21.46	24" NYLOPLAST DRAIN BASIN
DI 2-9	205607.95	619224.01	26.29	20.27	21.27	N/A	21.27	24" NYLOPLAST DRAIN BASIN
DI 2-8	205593.59	619149.10	26.63	20.12	21.12	N/A	21.12	24" NYLOPLAST DRAIN BASIN
DI 2-7	205622.49	618928.79	25.54	19.70	20.70	N/A	20.70	24" NYLOPLAST DRAIN BASIN
DI 2-6	205650.61	618730.79	24.76	19.20	20.20	22.00	20.20	30" NYLOPLAST DRAIN BASIN
DI 2-5	205697.31	618393.16	24.00	18.60	19.60	N/A	19.10	PWBD-2
DI 2-4	205736.68	618062.09	23.00	17.75	18.85	N/A	18.35	PWBD-4
DI 2-3	205715.46	618047.61	23.00	17.80	18.30	N/A	18.30	PWBD-4
DI 2-2	205722.32	618003.54	23.00	17.75	18.25	N/A	18.25	PWBD-2
DI 2-1	205737.33	617957.08	N/A	N/A	N/A	N/A	18.12	Outfall

PIPE SCHEDULE

NAME	UP STRUCTURE	UP INVERT (FT)	DN STRUCTURE	DOWN INVERT (FT)	SIZE (IN)	LENGTH (FT)	SLOPE (%)	MATERIAL
P22	DI 2-2	18.25	DI 2-1	18.12	36.0	48.82	0.270	HDPE
P23	DI 2-3	18.30	DI 2-2	18.25	36.0	44.60	0.112	HDPE
P24	DI 2-4	18.35	DI 2-3	18.30	36.0	25.69	0.184	HDPE
P25	DI 2-5	19.10	DI 2-4	18.85	30.0	333.40	0.076	HDPE
P26	DI 2-6	20.20	DI 2-5	19.60	24.0	340.85	0.176	HDPE
P27	DI 2-7	20.70	DI 2-6	20.20	24.0	199.99	0.250	HDPE
P28	DI 2-8	21.12	DI 2-7	20.70	24.0	222.20	0.189	HDPE
P29	DI 2-9	21.27	DI 2-8	21.12	24.0	76.27	0.197	HDPE
P30	DI 2-10	21.46	DI 2-9	21.27	24.0	95.72	0.199	HDPE
P31	DI 2-11	21.78	DI 2-10	21.46	24.0	160.91	0.199	HDPE
P32	DI 2-12	22.25	DI 2-11	22.00	15.0	88.83	0.281	HDPE
P33	DI 2-13	22.55	DI 2-12	22.25	15.0	105.86	0.283	HDPE
P34	DI 2-14	22.75	DI 2-13	22.55	15.0	90.88	0.220	HDPE
P35	DI 2-15	22.40	DI 2-11	22.30	18.0	33.33	0.300	HDPE
P36	DI 2-16	22.75	DI 2-15	22.65	15.0	24.18	0.414	HDPE
P37	DI 2-17	23.10	DI 2-15	22.75	15.0	135.63	0.258	HDPE
P40	DI 2-20	22.20	DI 2-6	22.00	15.0	36.93	0.542	HDPE
P41	–	26.62	–	26.52	8.0	30.0	0.33	HDPE
P42	–	26.28	–	26.18	8.0	30.0	0.33	HDPE
P43	–	25.68	–	25.52	8.0	30.0	0.167	HDPE
P44	–	25.82	–	25.77	8.0	30.0	0.167	HDPE
P45	–	23.25	–	23.18	12.0	30.0	0.233	HDPE
P46	–	23.63	–	23.41	12.0	30.0	0.233	HDPE
P47	–	24.18	–	24.11	12.0	30.0	0.233	HDPE
P48	–	24.67	–	24.60	12.0	30.0	0.233	HDPE
P49	–	23.61	–	23.54	12.0	30.0	0.233	HDPE
P50	–	25.15	–	25.10	12.0	30.0	0.233	HDPE
P51	–	25.33	–	25.28	14x9	24.0	0.167	ECMP
P52	–	25.55	–	25.49	14x9	24.0	0.167	ECMP
P53	–	24.42	–	24.34	14x9	24.0	0.267	ECMP
P54	–	20.20	–	20.00	24	120.0	0.167	HDPE
P55	–	23.60	–	23.53	12	30.0	0.1433	HDPE

REVISIONS

DATE	DESCRIPTION
5.12.22	re-design gravity option
10.22	DNREC COMMENTS
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12.9.22	DNREC COMMENTS / OMISSIONS

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Dover DE, 19901

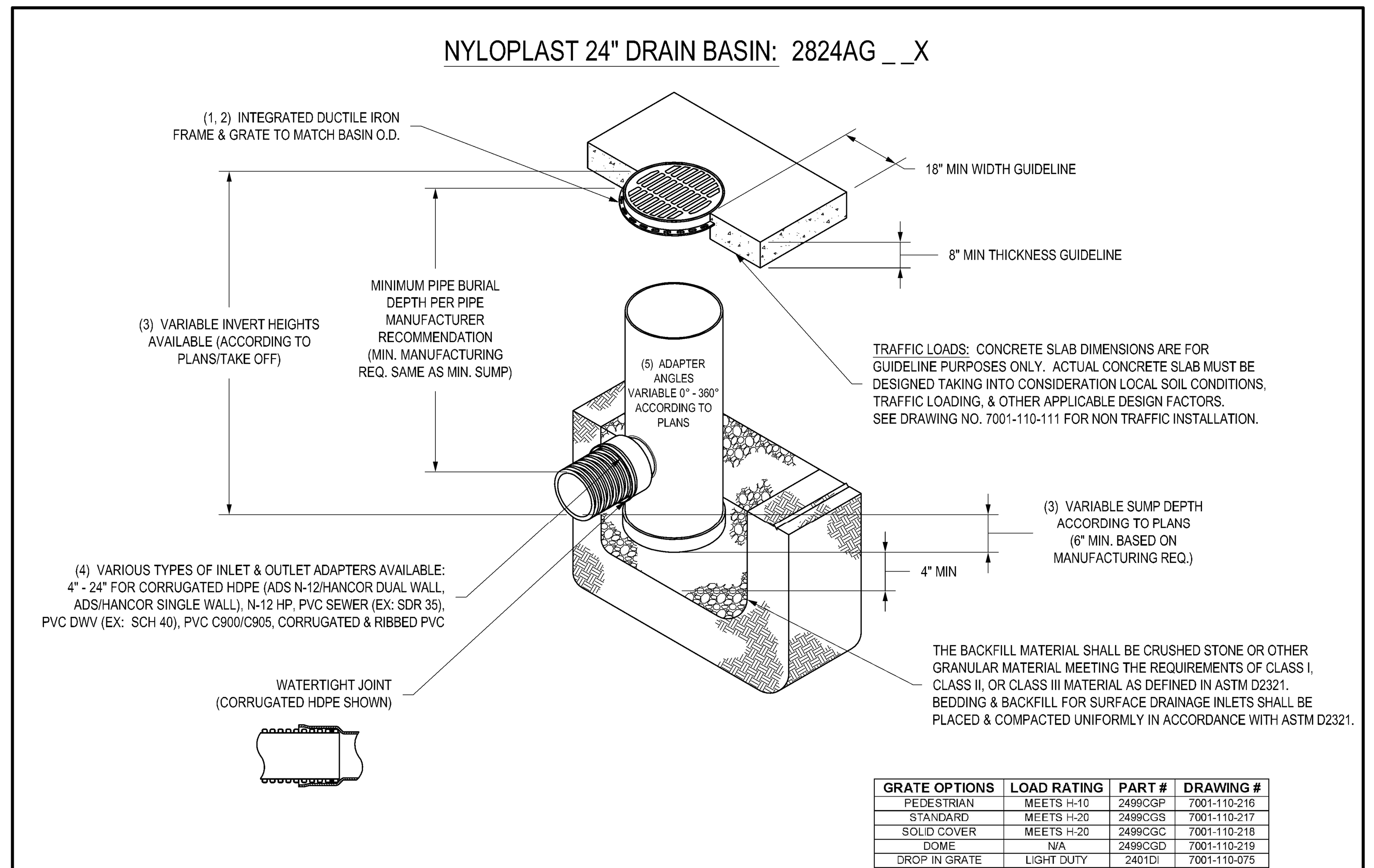
MANCHESTER MANOR
DRAINAGE IMPROVEMENTS, # 21-229
BROAD CREEK / NANTICOKE WATERSHED
SUSSEX COUNTY, DELAWARE

CONSTRUCTION DETAILS

Date: 2/04/2022
Designed: JE
Planned: JE / KW / JG / TB
Drawn: JE
Sheet No. C-500

File Location: G:\Equipment Section\Projects\MANCHESTER MANOR - NAVARRO, 21-229\dwg\MANCHESTER MANOR 2.dwg Layout:CONST Details User: james.elliott Plot time: 12-09-22 @ 2:31pm

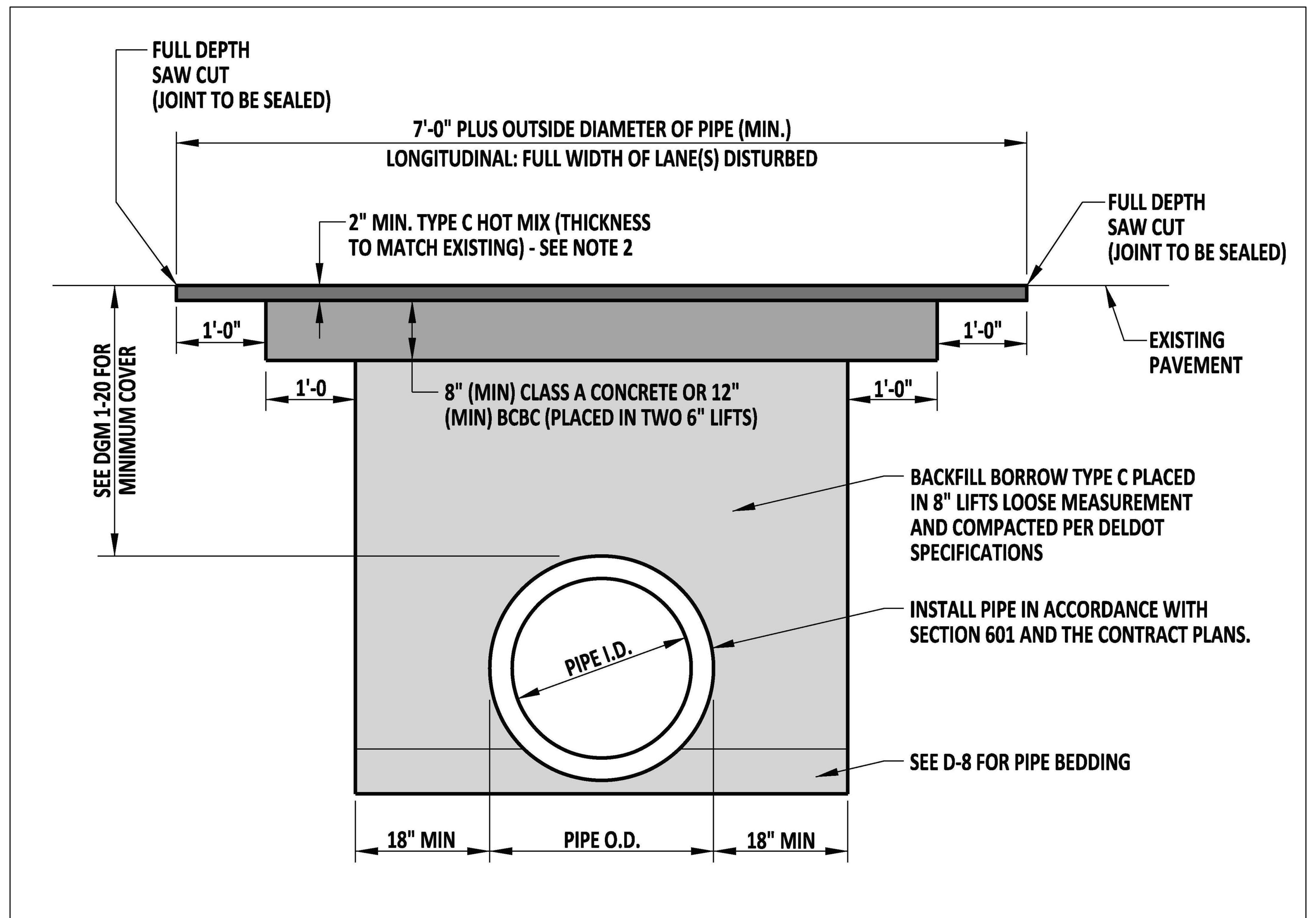
NYLOPLAST 24" DRAIN BASIN: 2824AG _ _X



GRATE OPTIONS	LOAD RATING	PART #	DRAWING #
PEDESTRIAN	MEETS H-10	2499CGP	7001-110-216
STANDARD	MEETS H-20	2499CGS	7001-110-217
SOLID COVER	MEETS H-20	2499CGC	7001-110-218
DOME	N/A	2499CGD	7001-110-219
DROP IN GRATE	LIGHT DUTY	2401DI	7001-110-075

1 - GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2 - FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
3 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001-110-065.
4 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP & PVC SEWER.
5 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.

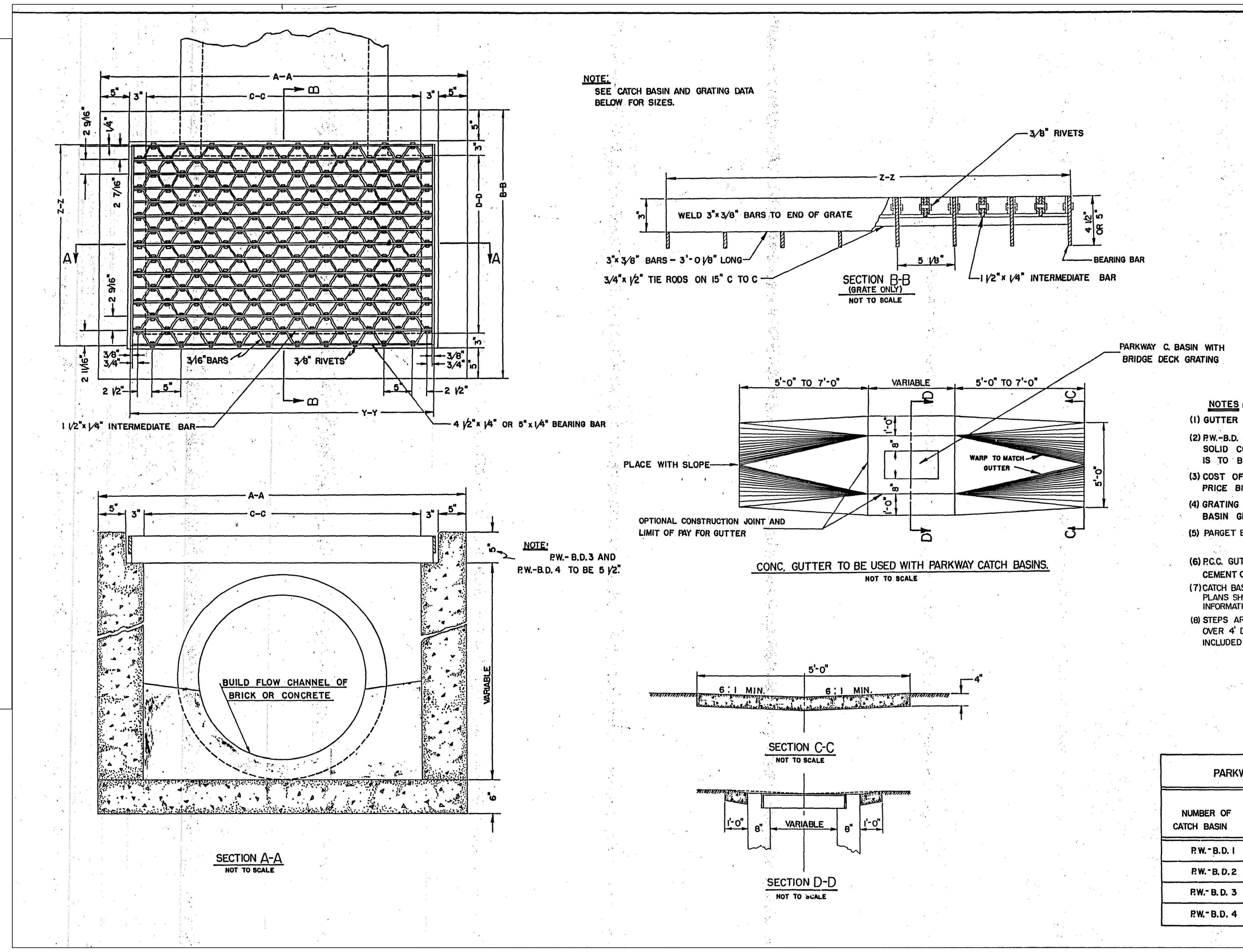
DRAWN BY EBC | DATE 04-03-06 | REVISED BY NMH | DATE 03-14-16 | DWG SIZE A | SCALE 1:40 | SHEET 1 OF 1
MATERIAL | PROJECT NO./NAME
Nyloplast — 3130 VERONA AVE, BUFORD, GA 30518, PHN (770) 932-2443, FAX (770) 932-2490, www.nyloplast-us.com
TITLE: 24 IN DRAIN BASIN QUICK SPEC INSTALLATION DETAIL
DWG NO. 7001-110-192 | REV E



PERMANENT CROSS-ROAD OR LONGITUDINAL PATCH DETAIL

NOTES:

1). PATCH WIDTHS ARE MEASURED ALONG THE ROADWAY CENTERLINE. CONSTRUCT PATCHES THE FULL WIDTH OF THE LANE OR LANES DISTURBED.
2). THIS IS A MINIMUM PATCH. IF THE EXISTING ROADWAY HAS A HEAVIER CROSS SECTION THAN SHOWN HERE, IT WILL BE REPLACED WITH THAT CROSS SECTION, OR AS DIRECTED BY THE ENGINEER.



STANDARD SHEET D-2-4
PARKWAY CATCH BASINS
DESIGN E.L.W. CHKD. J.T.B.

APPROVED — DIRECTOR OF OPERATIONS — 6-22-70 DATE
DEPUTY DIRECTOR-CHIEF ENGINEER — 6/22/70 DATE

PARKWAY CATCH BASINS
P.W.-B.D. 1
P.W.-B.D. 2
P.W.-B.D. 3
P.W.-B.D. 4

NOTES:

(1) GUTTER USED ONLY WHEN NOTED ON PLANS.
(2) P.W.-B.D. C. BASIN WALLS TO BE BRICK, CONCRETE, OR SOLID CONCRETE BLOCK, EXCEPT FOR UPPER 12" WHICH IS TO BE OF CEMENT CONCRETE MASONRY.
(3) COST OF CONCRETE MASONRY TO BE INCLUDED IN UNIT PRICE BID FOR STRUCTURE COMPLETE.
(4) GRATING INCLUDED IN UNIT PRICE BID FOR P.W.-B.D. CATCH BASIN GRATINGS TO BE GALVANIZED.
(5) PARGET BRICK OR BLOCK WITH 1/2" OF PORTLAND CEMENT MORTAR.
(6) P.C.C. GUTTER WILL BE PAID FOR UNDER SECTION 704, PORTLAND CEMENT CONCRETE GUTTER.
(7) CATCH BASINS MAY BE PRECAST. CONTRACTOR SHALL SUBMIT DETAILED PLANS SHOWING SECTIONS, JOINTS, REINFORCING AND OTHER PERTINENT INFORMATION FOR APPROVAL.
(8) STEPS ARE TO BE PLACED IN ALL CATCH BASINS & MANHOLE OVER 4' DEEP, SEE STANDARD SHEET D-1. COST OF STEPS TO BE INCLUDED IN COST OF CATCH BASIN OR MANHOLE.

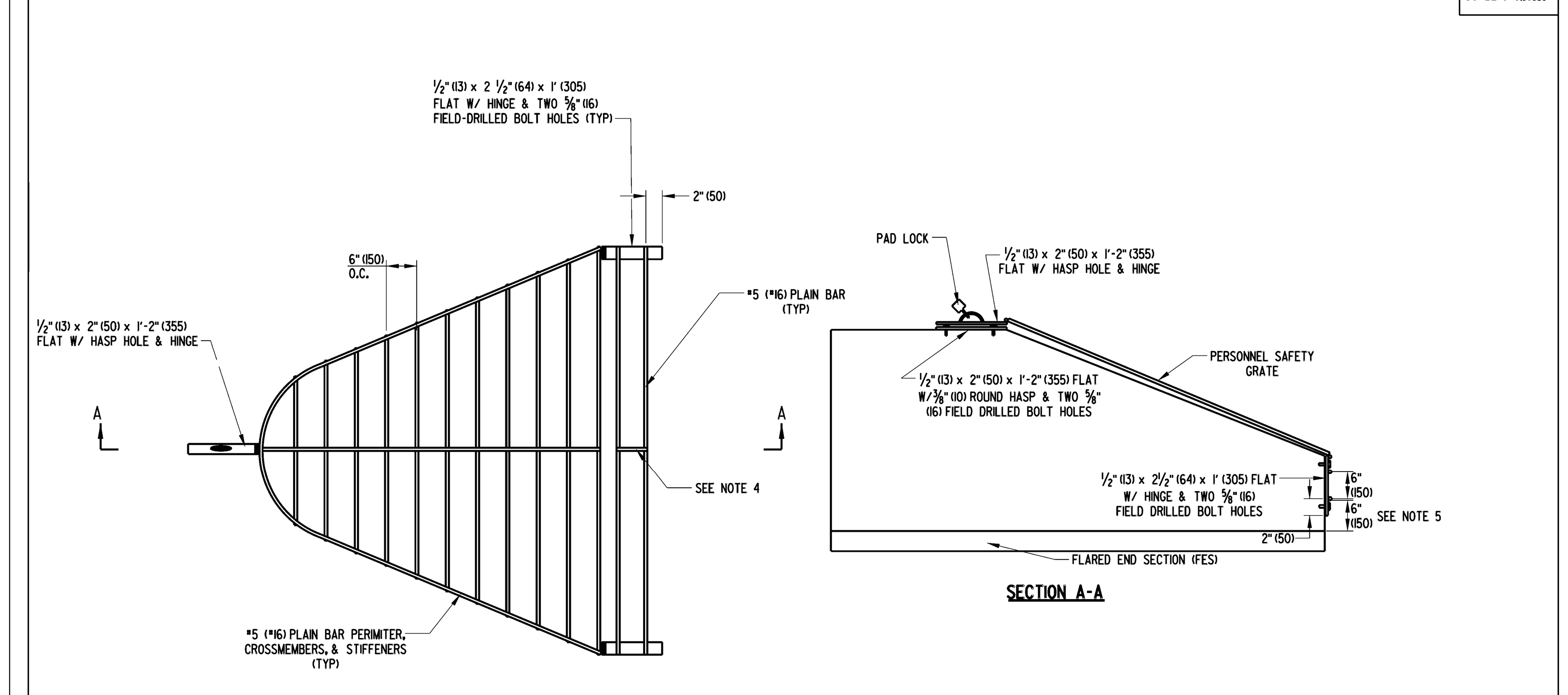
PARKWAY CATCH BASIN AND DRAIN GRATE DATA

NUMBER OF CATCH BASIN	LARGEST PIPE SIZE		CATCH BASIN DATA					GRATING DATA			
	A-A	B-B	WALL THICK.	A-A OUTSIDE	B-B OUTSIDE	C-C INSIDE	D-D INSIDE	BEARING BAR SIZES	Y-Y	Z-Z	GRATING AREA & WEIGHT
P.W.-B.D. 1	30"	15"	8"	4'-5 1/2"	3'-3 7/8"	3'-1 1/2"	1'-11 7/8"	4 1/2" x 1/4"	3'-6 1/4"	2'-4 7/16"	8.39□' 178 LBS.
P.W.-B.D. 2	36"	24"	8"	5'-3 1/4"	3'-11 1/2"	3'-11 1/4"	2'-7 1/2"	4 1/2" x 1/4"	4'-4 1/4"	3'-0 1/8"	13.11□' 273 LBS.
P.W.-B.D. 3	42"	24"	8"	5'-8 1/4"	3'-11 1/2"	4'-4 1/4"	2'-7 1/2"	5" x 1/4"	4'-9 1/4"	3'-0 1/8"	14.36□' 311 LBS.
P.W.-B.D. 4	48"	24"	8"	6'-1 1/4"	3'-11 1/2"	4'-9 1/4"	2'-7 1/2"	5" x 1/4"	5'-2 1/4"	3'-0 1/8"	15.62□' 336 LBS.

PIPE / STRUCTURE NOTES:

1. ALL PIPE UNLESS OTHERWISE NOTED SHALL BE ADS N-12 OR APPROVED EQUAL. ALL FITTINGS AND JOINTS SHALL BE WATERTIGHT, EXCEPT THE TWO NOTED AS SOILTIGHT. IN ADDITION, ALL JOINTS FOR PIPES DEEPER THAN 4' BELOW GRADE MUST BE MINIMUM 2' IN LENGTH AND WRAPPED IN GEOTEXTILE FABRIC MEETING DE-ESC GD-II REQUIREMENTS.
2. ALL CATCHBASINS UNLESS OTHERWISE NOTED SHALL BE PER DELDOT STD NO D-4 AND D-5, LATEST EDITION. THE GRATES SHALL BE TYPE 1 AND THE TOP UNITS TYPE A.
3. ALL MANHOLES UNLESS OTHERWISE NOTED SHALL BE PER DELDOT STD NO D-6, BOX MANHOLE WITH A SOLID RIM.
4. ALL FLARED ENDSECTIONS, UNLESS OTHERWISE NOTED, SHALL BE ADS OR APPROVED EQUAL AND MATCH THE PIPE SIZE.
5. COVERSLABS ARE NOT REQUIRED FOR ALL CATCHBASINS AND MANHOLES.
6. STEPS SHALL BE ADDED TO ALL CATCHBASINS AND MANHOLES ALONG A SOLID WALL.
7. ALL MANHOLE RIMS SHALL MATCH EXISTING GRADE. TOP ELEVATIONS LISTED MAY BE +/-.
8. PIPE BACKFILL SHALL BE CLASS C BEDDING PER DELDOT STD NO D-8 WITH MIN. 6" LOOSE SAND OR TYPE C BORROW.
9. ALL NYLOPLAST DRAIN BASINS SHALL BE INSTALLED PER NYLOPLAST H-20 LOADING INSTALLATION GUIDELINES.

SCALE : N.T.S.



PLAN VIEW

SECTION A-A

NOTES:

1). PERSONNEL SAFETY GRATES (PSG) SHALL ONLY BE INSTALLED ON THE INLETS OF STORM WATER PIPES 12" (300) OR LARGER IN DIAMETER THAT ARE NOT STRAIGHT FROM THE INLET TO THE OPEN OUTLET, REGARDLESS OF THE LENGTH.
2). THE GRATE SHALL BE MADE TO FIT THE OUTSIDE PERIMETER OF THE FLARED END SECTION (FES) ± 1/2" (13).
3). ALL BOLT HOLES ARE TO BE DRILLED IN THE FIELD.
4). A STIFFENER IS TO BE INSTALLED WHERE TWO OR MORE BARS ARE USED.
5). BOTTOM BAR SHALL BE 6" (150) ABOVE INVERT OF FES.
6). ALL HARDWARE ATTACHED TO CONCRETE SHALL BE ATTACHED USING APPROVED TAMPER PROOF ANCHORS.

DELAWARE DEPARTMENT OF TRANSPORTATION | SAFETY GRATES | STANDARD NO. D-3 (2007) | SHT. 2 OF 2
APPROVED — CHIEF ENGINEER — 10/24/07 DATE
RECOMMENDED — DESIGN ENGINEER — 10/23/07 DATE

DATE	DESCRIPTION
5.12.22	re-design gravity option
10.22	DNREC COMMENTS
11.8.22	DNREC COMMENTS
12.9.22	DNREC COMMENTS / OMISSIONS

REVISIONS

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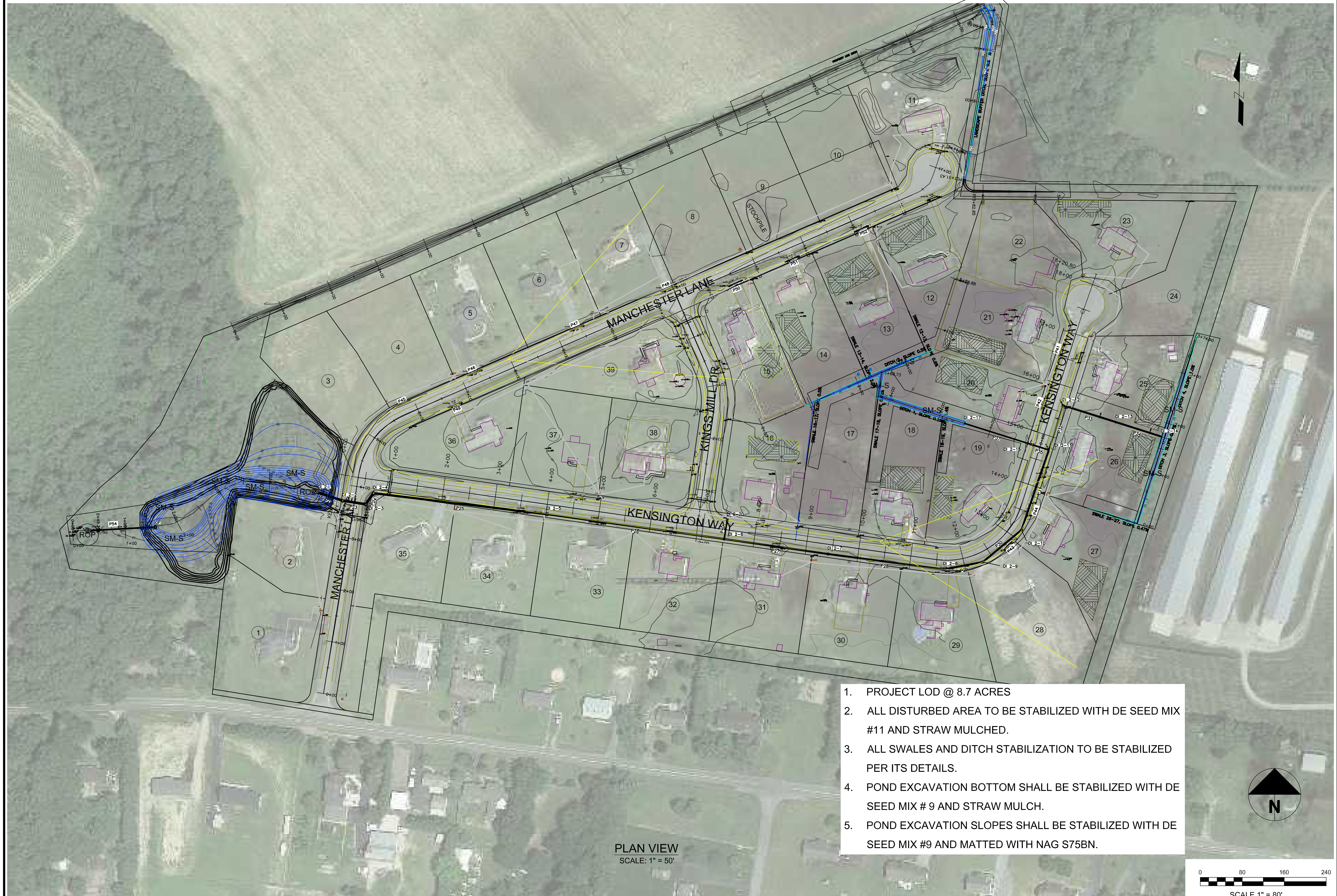
MANCHESTER MANOR
DRAINAGE IMPROVEMENTS, # 21-229
BROAD CREEK / NANTICOKE WATERSHED
SUSSEX COUNTY, DELAWARE

CONSTRUCTION / PUMP STATION DETAILS

Date: 2/04/2022
Designed: JE
Planned: JE / KW / JG / TB
Drawn: JE
Sheet No. C-501



PLAN VIEW

SCALE: 1" = 50'

1. PROJECT LOD @ 8.7 ACRES
2. ALL DISTURBED AREA TO BE STABILIZED WITH DE SEED MIX #11 AND STRAW MULCHED.
3. ALL SWALES AND DITCH STABILIZATION TO BE STABILIZED PER ITS DETAILS.
4. POND EXCAVATION BOTTOM SHALL BE STABILIZED WITH DE SEED MIX # 9 AND STRAW MULCH.
5. POND EXCAVATION SLOPES SHALL BE STABILIZED WITH DE SEED MIX #9 AND MATTED WITH NAG S75BN.

0 80 160 240

SCALE 1" = 80'

REVISIONS

DATE	DESCRIPTION
5.12.22	re-design gravity option
10.22	DNREC COMMENTS
11.8.22	DNREC COMMENTS
12.9.22	DNREC COMMENTS / OMISSIONS

Sussex conservation district
PREPARE. PROTECT. PRESERVE.

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Georgetown Office
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DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

MANCHESTER MANOR

DRAINAGE IMPROVEMENTS, # 21-229
BROAD CREEK / NANTICOKE WATERSHED
SUSSEX COUNTY, DELAWARE
EROSION & SEDIMENT CONTROL
OVERALL PLAN

Date: 2/04/2022
Designed: JE
Planned: JE / KW / JG / TB
Drawn: JE
Sheet No. C-700

File Location: G:\Equipment Section\Projects\MANCHESTER MANOR - NAVARRO, 21-229\dwg\MANCHESTER MANOR 2.dwg Layout:ESC-1 User: james.elliott Plot time: 12-09-22 @ 2:31pm

POND OUTFALL ROP - 9' L X 6' W X 18" T
INFLOW PIPE ROP - 13' L X 23' W X 18" T

PLAN VIEW
SCALE: 1" = 50'
0 50 100 150

REVISIONS

DATE	DESCRIPTION
5.12.22	re-design, gravity option
10.22	DNREC COMMENTS
11.8.22	DNREC COMMENTS
12.9.22	DNREC COMMENTS / OMISSIONS

SUSSEX CONSERVATION DISTRICT
23818 SHORTLY RD. GEORGETOWN, DE 19957
PHONE: (302)856-2105 FAX: (302)856-0951

DNREC - Division of Watershed Stewardship
Drainage Program

Dover Office:
285 Beiser Blvd., Suite 102 Phone:(302) 739-9921 Fax:(302) 739 - 6724
Dover DE, 19901

Georgetown Office
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Georgetown DE, 19947 Fax:(302) 677 - 7059

MANCHESTER MANOR

DRAINAGE IMPROVEMENTS, # 21-229
BROAD CREEK / NANTICOKE WATERSHED
SUSSEX COUNTY, DELAWARE

EROSION AND SEDIMENT CONTROL
PLAN - W

Date: 2/04/2022
Designed: JE
Planned: JE / KW / JG / TB
Drawn: JE

Sheet No. C-701

File Location: G:\Equipment Section\Projects\MANCHESTER MANOR - NAVARRO, 21-229\dwg\MANCHESTER MANOR 2.dwg Layout:ESC W User: james.elliott Plot time: 12-09-22 @ 2:31pm

PLAN VIEW
SCALE: 1" = 50'

0 50 100 150

REVISIONS

DATE	DESCRIPTION
5.12.22	re-design gravity option
10.22	DNREC COMMENTS
11.8.22	DNREC COMMENTS
12.9.22	DNREC COMMENTS / OMISSIONS

SUSSEX CONSERVATION DISTRICT
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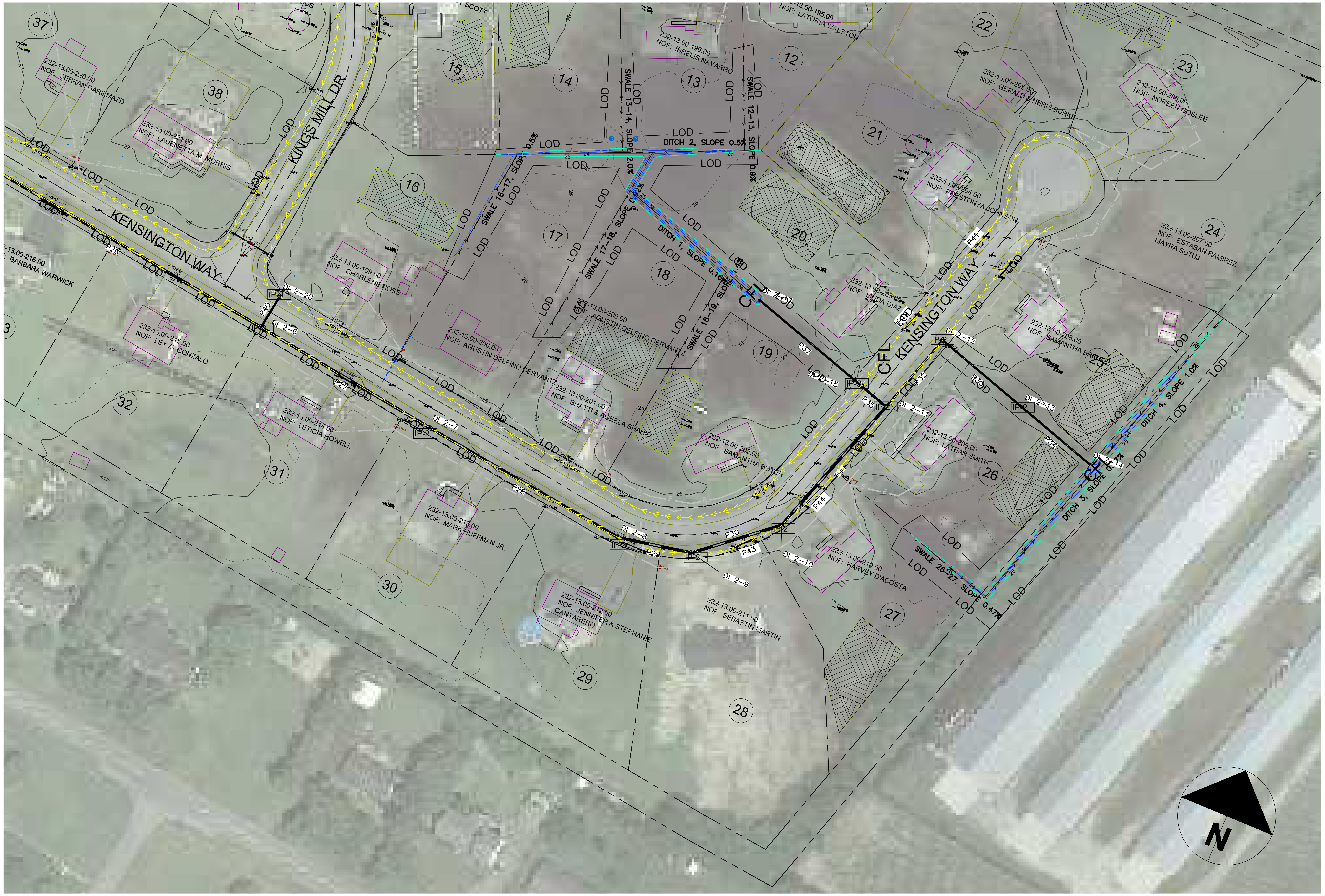
MANCHESTER MANOR
DRAINAGE IMPROVEMENTS, # 21-229
BROAD CREEK / NANTICOKE WATERSHED
SUSSEX COUNTY, DELAWARE

SITE PLAN - NE

Date:	2/04/2022
Designed:	JE
Planned:	JE / KW / JG / TB
Drawn:	JE
Sheet No.	C-702

File Location: G:\Equipment Section\Projects\MANCHESTER MANOR - NAVARRO, 21-229\dwg\MANCHESTER MANOR 2.dwg Layout:ESC-NE User: james.allkitt Plot time: 12-09-22 @ 2:31pm



PLAN VIEW

SCALE: 1" = 50'

0 50 100 150

REVISIONS	
DATE	DESCRIPTION
5.12.22	re-design gravity option
10.22	DNREC COMMENTS
11.8.22	DNREC COMMENTS
12.9.22	DNREC COMMENTS / OMISSIONS

SUSSEX CONSERVATION DISTRICT
23818 SHORTLY RD., GEORGETOWN, DE 19957
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MANCHESTER MANOR
DRAINAGE IMPROVEMENTS, # 21-229
BROAD CREEK / NANTICOKE WATERSHED
SUSSEX COUNTY, DELAWARE

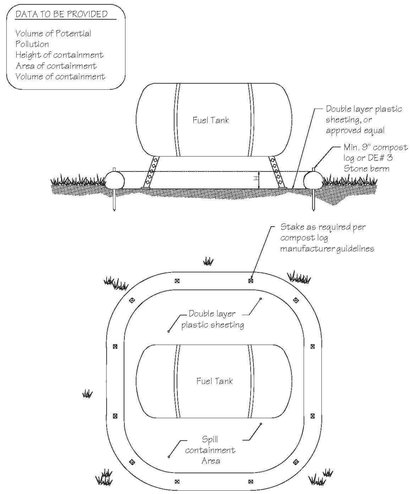
SITE PLAN - SE

Date:	2/04/2022
Designed:	JE
Planned:	JE / KW / JG / TB
Drawn:	JE
Sheet No.	C-703

File Location: G:\Equipment Section\Projects\MANCHESTER MANOR - NAVARRO, 21-229\dwg\MANCHESTER MANOR 2.dwg Layout:ESC-SE User: james.elliott Plot time: 12-09-22 @ 2:31pm

Standard Detail & Specifications

Construction Site Waste Mgt & Spill Control



Source:	Symbol:	Detail No.
Delaware ESC Handbook		**DE-ESC-3.6.1** Sheet 1 of 5 Effective FEB 2019

Standard Detail & Specifications

Construction Site Waste Mgt & Spill Control

Pollution Prevention – Spill Prevention

1. Fueling should only take place in signed designated areas, away from downstream drainage facilities and watercourses.
2. Fueling must be with nozzles equipped with automatic shut-off to control drips. Do not top off.
3. Protect the areas where equipment or vehicles are being repaired, maintained, fueled or parked from storm water run-on and runoff.
4. Use barriers such as berms to prevent storm water run-on and runoff, and to contain spills.
5. Place a "Fueling Area" sign next to each fueling area.
6. Store hazardous materials such as fuel, solvents, oil and chemicals in secondary containment.
7. Inspect vehicles and equipment for leaks on each day of use. Repair fluid and oil leaks immediately.
8. Absorbent spill clean-up materials and spill kits must be available in fueling areas and on fuel trucks.
9. If fueling is to take place at night, make sure the fueling area is sufficiently illuminated.
10. Properly dispose of used oil, fluids, lubricants and spill clean-up materials.

CLEAN UP SPILLS

1. If it is safe to do so, immediately contain and clean up any chemical and/or hazardous material spills.
2. Properly dispose of used oil, fluids, lubricants and spill clean-up materials.
3. Do not bury spills or wash them down with water.

LEAKS AND DRIPS

1. Use drip pans or absorbent pads at all times. Place under and around leaky equipment.
2. Do not allow oil, grease, fuel or chemicals to drip onto the ground.
3. Have spill kits and clean up material on-site.
4. Repair leaky equipment promptly or remove problem vehicles and equipment from the site. Clean up contaminated soil immediately.
5. Store contaminated waste in sealed containers constructed of suitable material. Label these containers properly.
6. Clean up all spills and leaks. Promptly dispose of waste and spent clean up materials.

Source:	Symbol:	Detail No.
Delaware ESC Handbook		**DE-ESC-3.6.1** Sheet 2 of 5 Effective FEB 2019

Standard Detail & Specifications

Construction Site Waste Mgt & Spill Control

Notes:

The Construction Site Pollution Prevention Plan should include 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. All materials shall be stored in a neat, orderly manner in their original labeled containers and covered.
c. Substances shall not be mixed.
d. When possible, all of a product shall be used up prior to disposal of the container.
e. Manufacturers' instructions for disposal shall be strictly adhered to.
f. The site foreman shall designate someone to inspect all BMPs daily.

3. Waste management practices

a. All waste materials shall be collected and stored in securely lidded dumpsters in a location that does not drain to a waterbody.
b. Waste materials shall be salvaged and/or recycled 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.

Source:	Symbol:	Detail No.
Adapted from USEPA Pub. 840-B-92-002		**DE-ESC-3.6.1** Sheet 3 of 5 Effective FEB 2019

Standard Detail & Specifications

Construction Site Waste Mgt & Spill Control

Notes (cont.)

d. Trash shall be disposed of in accordance with all applicable Delaware laws.
e. Trash cans shall be placed at all lunch spots and littering is strictly prohibited. Recycle bins shall be placed near the construction trailer.
f. If fertilizer bags can not be stored in a weather-proof location, they shall 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, vehicles shall be washed with high-pressure water spray without detergents in an area contained by an impervious berm.
c. Drip pans shall be used for all equipment maintenance.
d. Equipment shall be inspected for leaks on a daily basis.
e. Washout from concrete trucks shall be disposed of in a temporary pit for hardening and proper disposal.
f. Fuel nozzles shall be equipped with automatic shut-off valves.
g. All used products such as oil, antifreeze, solvents and tires shall be disposed of in accordance with manufacturers' recommendations and local, state and federal laws and regulations.

5. Spill prevention practices

a. Potential spill areas shall be identified and contained in covered areas with no connection to the storm drain system.
b. Warning signs shall be posted in hazardous material storage areas.
c. Preventive maintenance shall be performed on all tanks, valves, pumps, pipes and other equipment as necessary.
d. Low or non-toxic substances shall be prioritized for use.

Source:	Symbol:	Detail No.
Adapted from USEPA Pub. 840-B-92-002		**DE-ESC-3.6.1** Sheet 4 of 5 Effective FEB 2019

Standard Detail & Specifications

Construction Site Waste Mgt & Spill Control

Notes (cont.)

e. Contact information for reporting spills through the DNREC 24-Hour Toll Free Number shall be prominently posted.

6. Education

a. Best management practices for construction site pollution control shall be a part of regular progress meetings.
b. Information regarding waste management, equipment maintenance and spill prevention shall be prominently posted in the construction trailer.

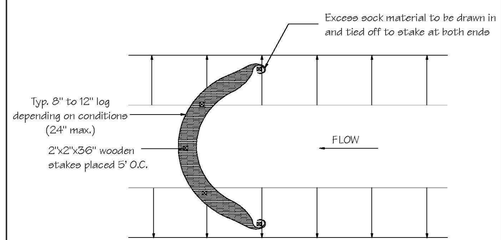
CONTACT INFORMATION

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

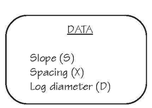
Source:	Symbol:	Detail No.
Adapted from USEPA Pub. 840-B-92-002		**DE-ESC-3.6.1** Sheet 5 of 5 Effective FEB 2019

Standard Detail & Specifications

Compost Log Check Dam



Plan



Source:	Symbol:	Detail No.
Adapted from FILTREXX Technologies	CCD	**DE-ESC-3.3.6.2** Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications

Compost Log Check Dam

Construction Notes:

1. Swales and channels shall be prepared in accordance with the construction specifications described in the **Standards and Specifications for Temporary Berm**, **Temporary Swale**, **Vegetated Channel**, or **Diversions**.
2. The check dam shall be constructed of compost filter log. The compost filter log shall be placed so that it extends across the full width of the channel.
3. The top of the check dam shall be constructed so that the center is approximately 6" lower than the outer edges, forming a weir that the water can flow across. The ends of the compost filter log shall wrap upslope to prevent end cutting.
4. The maximum height of the check dam at the center of the weir must not exceed two (2) feet.
5. Maximum spacing between dams should be the distance in the channel where the toe of the upstream dam is at the same elevation as the top of the downstream dam. (See **Standard & Specifications for Check Dams** for design chart.)

Source:	Symbol:	Detail No.
Adapted from FILTREXX Technologies	CCD	**DE-ESC-3.3.6.2** Sheet 2 of 2 Effective FEB 2019

EROSION AND SEDIMENT CONTROL RCD PROJECT NOTES:

1. THE LIMIT OF DISTURBANCE SHALL BE AS DESIGNATED ON THE PLANS. ESTIMATED LIMIT OF DISTURBANCE IS APPROXIMATELY 8.0 ACRES ACRES.
2. ACCESS TO THE LIMIT OF DISTURBANCE AREAS SHALL BE VIA, THE SUBDIVISION STREETS. ALL STOCKPILE AREAS SHALL BE SURROUNDED ON THE DOWNSTREAM SIDE BY 12" COMPOST LOGS OR SILT FENCE AND STABILIZED WITHIN 14 DAYS OF NON-USE.
3. TRACKING OF SEDIMENT OFFSITE SHALL NOT BE ALLOWED. SWEEP TRACKED SEDIMENT AT THE END OF EACH DAY. A STABILIZED CONSTRUCTION ENTRANCE SHALL BE UTILIZED MEETING THE REQUIREMENTS OF DE-ESC-3.4.7.
4. DEWATERING SHALL BE USED AS NEEDED USING A GEOTEXTILE DEWATERING BAG (DE-ESC-3.2.1.2). ALL REQUIRED DEWATERING PERMITS MUST BE OBTAINED PRIOR TO PUMPING.
5. THE CONTRACTOR SHALL AVOID WORKING OR TRAVERSING WITHIN THE DRIPLINE OF ALL TREES. SPECIAL CARE SHALL BE USED WHEN WORKING AROUND EXISTING TREES. TREE PROTECTION FENCING MAY BE REQUIRED IF CARE IS NOT TAKEN AT THE CONTRACTOR'S EXPENSE.
6. ALL MULCHING AND ANY ASSOCIATED NETTING MUST BE BIODEGRADABLE.
7. ALL DISTURBED AREAS MUST BE STABILIZED, EITHER PERMANENTLY OR TEMPORARILY, WITHIN 14 DAYS OF NON-USE OR PRIOR TO A RAIN EVENT (CROPLAND AREAS THAT WILL BE PLANTED WITH AN AGRICULTURAL CROP WITHIN 14 DAYS MAY BE STABILIZED WITH THE AGRICULTURAL CROP IN THAT TIMEFRAME). REFERENCE THE SEEDING AND MULCHING NOTES FOR ADDITIONAL INFORMATION.

REVISIONS

DATE	DESCRIPTION
5.12.22	re-design gravity option
10.22	DNREC COMMENTS
11.8.22	DNREC COMMENTS
12.9.22	DNREC COMMENTS / OMISSIONS

SUSSEX CONSERVATION DISTRICT
23818 SHORTLY RD., GEORGETOWN, DE 19957
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Drainage Program

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MANCHESTER MANOR
DRAINAGE IMPROVEMENTS, # 21-229
BROAD CREEK / NANTICOKE WATERSHED
SUSSEX COUNTY, DELAWARE

EROSION & SEDIMENT CONTROL DETAILS AND NOTES

Date: 2/04/2022
Designed: JE
Planned: JE / KW / JG / TB
Drawn: JE

Sheet No. C-704

Standard Detail & Specifications
Vegetative Stabilization

DELAWARE EROSION & SEDIMENT CONTROL HANDBOOK

TEMPORARY SEEDING BY RATES, DEPTHS AND DATES										
Mix #	Species[6]	Seeding Rate		Optimum Seeding Dates [1] O = Optimum Planting Period; A = Acceptable Planting Period						Planting Depth[3]
				Coastal Plain			Piedmont			All
	Certified Seed	lb/Ac[5]	lb/1000 sq.ft.	2/1-4/30	[2] 5/1-8/14	8/15-10/31	3/1-4/30	[2] 5/1-7/31	8/1-10/31	10/31-2/1	
1	Barley	125	4	O	A	O	O	A	O		1-2 inches 2-3" sandy soils
2	Oats	125	4	O	A	A	O	A	A		1-2 inches 2-3" sandy soils
3	Rye	125	4	O	A	O	O	A	O	A	1-2 inches 2-3" sandy soils
4	Perennial Ryegrass	125	4	O	A	O	O	A	O		0.5 inches 1-2" sandy soils
5	Annual Ryegrass	125	4	O	A	O	O	A	O	A	0.5 inches 1-2" sandy soils
6	Winter Wheat	125	4	O	A	O	O	A	O	A	1-2 inches 2-3" sandy soils
7	Foxtail Millet	30 PLS	0.7		O			O			0.5 inches 1-2" sandy soils
8	Pearl Millet	20 PLS	0.5		O			O			0.5 inches 1-2" sandy soils

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 3:1 or less.
4. Fifty pounds per acre of Annual Lespedeza may be added to 1/2 the seeding rate of any of the above species.
5. Use varieties currently recommended for Delaware. Contact a County Extension Office for information.
6. Warm season grasses such as Millet or Weeping Lovegrass may be used between 5/1 and 9/1 if desired. Seed at 3-5 lbs. per acre. Good on low fertility and acid areas. Seed after frost through summer at a depth of 0.5".

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

Source: Delaware ESC Handbook | Symbol: | Detail No. DE-ESC-3.4.3 Sheet 1 of 4 Effective FEB 2019

DELAWARE EROSION & SEDIMENT CONTROL HANDBOOK

Standard Detail & Specifications
Vegetative Stabilization

PERMANENT SEEDING AND SEEDING DATES										
Seeding Mixtures		Seeding Rate[1]		Optimum Seeding Dates [2] O = Optimum Planting Period A = Acceptable Planting Period							Remarks
Mix No.	Certified Seed[3]			Coastal Plain			Piedmont			All[4]	
	Well Drained Soils	lb/Ac	lb/1000 sq.ft.	2/1-4/30	5/1-8/14	8/15-10/31	3/1-4/30	5/1-7/31	8/1-10/31	10/31-2/1	
1	Tall Fescue Weeping Lovegrass	140 10	3.2 0.23	A	O	A	A	O	A	Add 100 lbs./ac Winter Rye	Good erosion control mix Tolerant of low fertility soils Lovegrass very difficult to mow; Germinates only in hot weather
2	Deertongue Sheep Fescue Common Lespedeza[5] Inoculated	30 30 15	0.69 0.69 0.35	A	O	A	A	O	A	Add 100 lbs./ac Winter Rye	Good erosion control mix Tolerant of low fertility soils Good wildlife cover and food
3	Tall Fescue (Turf-type) **or** Strong Creeping Red Fescue **or** Perennial Ryegrass **plus** Flatpea[5]	50 50 50 15	1.15 1.15 1.15 0.34	O	A	O	O	A	O	Add 100 lbs./ac. Winter Rye	Good erosion control mix Tall Fescue for droughty conditions. Creeping Red Fescue for heavy shade. Flatpea to suppress woody vegetation.
4	Strong Creeping Red Fescue Kentucky Bluegrass Perennial Ryegrass **or** Redtop **plus** White Clover[5]	100 70 15 5 3	2.3 1.61 0.35 0.11 0.07	O	A	O	O	A	O	Add 100 lbs./ac. Winter Rye	Suitable waterway mix. Canada Bluegrass more drought tolerant. Use Redtop for increased drought tolerance.
5	Switchgrass[6,7] **or** Coastal Panicgrass Big Bluestem Little Bluestem Indian Grass	10 10 5 5 5	0.23 0.23 0.11 0.11 0.1		O			O			Native warm-season mixture. Tolerant of low fertility soils. Drought tolerant. Poor shade tolerance. N fertilizer discouraged - weeds
6	Tall Fescue (turf-type) (Blend of 3 cultivars)	150	3.5	O	A	O	O	A	O		Managed filter strip for nutrient uptake.
7	Tall Fescue Ky. Bluegrass (Blend) Perennial Ryegrass	150 20 20	3.5 0.46 0.46	O	A	O	O	A	O		Three cultivars of Kentucky Bluegrass. Traffic tolerant.
8	Big Bluestem[7] Indian Grass[7] Little Bluestem[7] Creeping Red Fescue **plus one of:** Partridge Pea Bush Clover Wild Indigo Showy Tick-Trefoil	10 10 8 30 5 3 3 2	0.23 0.23 0.18 0.69 0.11 0.07 0.07 0.05	O	A		O	A			All species are native. Indian Grass and Bluestem have fluffy seeds. Plant with a specialized native seed drill. Creeping Red Fescue will provide erosion protection while the warm season grasses get established.

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

Source: Delaware ESC Handbook | Symbol: | Detail No. DE-ESC-3.4.3 Sheet 2 of 4 Effective FEB 2019

Standard Detail & Specifications
Vegetative Stabilization

DELAWARE EROSION & SEDIMENT CONTROL HANDBOOK

PERMANENT SEEDING AND SEEDING DATES (cont.)										
Seeding Mixtures		Seeding Rate[1]		Optimum Seeding Dates [2] O = Optimum Planting Period A = Acceptable Planting Period							Remarks
Mix No.	Certified Seed[3]			Coastal Plain			Piedmont			All[4]	
	Poorly Drained Soils	lb/Ac	lb/1000 sq.ft.	2/1-4/30	5/1-8/14	8/15-10/31	3/1-4/30	5/1-7/31	8/1-10/31	10/31-2/1	
9	Redtop Creeping Bentgrass Sheep Fescue Rough Bluegrass	75 35 30 45	1.72 0.8 0.69 1	O	A	O	O	A	O	Add 100 lbs./ac. Winter Rye	Quick stabilization of disturbed sites and waterways
10	Reed Canarygrass[6]	10	0.23	A		O	A		O		Good erosion control, wildlife cover and wetland revegetation.
	Residential Lawns										
11	Tall Fescue Perennial Ryegrass Kentucky Bluegrass Blend	100 25 30	2.3 0.57 0.69	O	A	O	O	A	O		High value, high maintenance, light traffic, irrigation necessary. Well drained soils, full sun.
12	Tall Fescue Perennial Ryegrass Sheep Fescue	100 25 25	2.3 0.57 0.57	O	A	O	O	A	O		Moderate value, low maintenance, traffic tolerant
13	Creeping Red Fescue Chewings Fescue Rough Bluegrass Kentucky Bluegrass	50 50 20 20	1.15 1.15 0.4 0.4	O	A	O	O	A	O		Shade tolerant, moderate traffic tolerance, moderate maintenance.
14	Creeping Red Fescue Rough Bluegrass **or** Chewings Fescue	50 90	1.15 2.1	O	A	O	O	A	O		Shade tolerant, moisture tolerant.
15	K-31 Tall Fescue	150	3.5	O	A	O	O	A	O		Monoculture, but performs well alone in lawns. Discouraged.

1. When hydroseeding is the chosen method of application, the total rate of seed should be increased by 25%.
2. Winter seeding requires 3 tons per acre of straw mulch. Planting dates listed above are average for Delaware. These dates may require adjustment to reflect local conditions.
3. All seed shall meet the minimum purity and minimum germination percentages recommended by the Delaware Department of Agriculture. The maximum % of weed seeds shall be in accordance with Section 1, Chapter 24, Title 3 of the Delaware Code.
4. Cool season species may be planted throughout summer if soil moisture is adequate or seeded area can be irrigated.
5. All leguminous seed must be inoculated.
6. Warm season grass mix and Reed Canary Grass cannot be mowed more than 4 times per year.
7. Warm season grasses require a soil temperature of at least 50 degrees in order to germinate, and will remain dormant until then.

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

Source: Delaware ESC Handbook | Symbol: | Detail No. DE-ESC-3.4.3 Sheet 3 of 4 Effective FEB 2019

DELAWARE EROSION & SEDIMENT CONTROL HANDBOOK

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. Seedbed Preparation

   It is important to prepare a good seedbed to insure 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. If a nutrient management plan is not required, apply dolomitic limestone at the rate of 1 to 2 tons per acre. Apply limestone uniformly and incorporate into the top 4 to 6 inches of soil.
   b. Fertilizer - Apply fertilizer based on the recommendations of a **soil test** in accordance with the approved nutrient management plan. If a nutrient management plan is not required, apply a formulation of 10-10-10 at the rate of 600 pounds per acre. Apply fertilizer uniformly and incorporate into the top 4 to 6 inches of soils.
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. Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.
   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.
   c. Seed that has been broadcast should be covered by raking or dragging and then lightly tamped into place using a roller or cultipacker. If hydroseeding is used and the seed and fertilizer is mixed, they will be mixed on site and the seeding shall be done immediately and without interruption.
5. Mulching

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

Source: Delaware ESC Handbook | Symbol: | Detail No. DE-ESC-3.4.3 Sheet 4 of 4 Effective FEB 2019

Standard Detail & Specifications
Mulching

DELAWARE EROSION & SEDIMENT CONTROL HANDBOOK

1. Materials and Amounts

a. *Straw* - Straw shall be unrotted small grain straw applied at the rate of 1-1/2 to 2 tons per acre, or 70 to 90 pounds (two bales) per 1,000 square feet. Mulch materials shall be relatively free of weeds and shall be free of noxious weeds such as; thistles, Johnsongrass, and quackgrass. Spread mulch uniformly by hand or mechanically. For uniform distribution of hand spread mulch, divide area into approximately 1,000 square feet sections and place 70-90 pounds (two bales) of mulch in each section.

b. *Wood chips* - Apply at the rate of approximately 6 tons per acre or 275 pounds per 1,000 square feet when available and when feasible. These are particularly well suited for utility and road rights-of-way. If wood chips are used, increase the application rate of nitrogen fertilizer by 20 pounds of N per acre (200 pounds of 10-10-10 or 66 pounds of 30-0-0 per acre).

c. *Hydraulically applied mulch* -The following conditions apply to hydraulically applied mulch:

i. Definitions:
   a. Wood fiber mulch shall consist of specially prepared wood that has been processed to a uniform state, is packaged for sale as a hydraulic mulch for use with hydraulic seeding equipment, and consists of a minimum of 70% virgin or recycled wood fiber combined with 30% paper fiber and additives.
   b. Blended fiber mulch shall consist of any hydraulic mulch that contains greater than 30% paper fiber. The paper component must consist of specially prepared paper that has been processed to a uniform fibrous state and is packaged for sale as a hydraulic mulch for use with hydraulic seeding equipment.
   c. A bonded fiber matrix (BFM) consists of long strand, specially prepared wood fibers that have been processed to a uniform state held together by a water resistant bonding agent. BFMs shall contain no paper (cellulose) mulch but may contain small percentages of synthetic fibers to enhance performance.
   d. Refer to **Figure 3.4.5a** for conditions and limitations of use for each of the above categories of hydraulic mulch.

ii. All components of the hydraulically applied mulches shall be pre-packaged by the manufacturer to assure material performance. Field mixing of the mulch components is acceptable, but must be done per manufacturers recommendations to ensure the proper results.

iii. Hydraulic mulches shall be applied with a viable seed and at manufacturer's recommended rates. Increased rates may be necessary based on site conditions.

iv. Hydraulically applied mulches and additives shall be mixed according to manufacturers recommendations.

iv. Materials within this category shall only be used when hydraulically applied mulch has been specified for use on the approved Sediment and Stormwater Plan, or supplemental approval from the plan approval agency has been obtained in writing for a specific area.

Source: Delaware ESC Handbook & Filtrexx™ International | Symbol: | Detail No. DE-ESC-3.4.5 Sheet 1 of 3 Effective FEB 2019

DELAWARE EROSION & SEDIMENT CONTROL HANDBOOK

Standard Detail & Specifications
Mulching

v. Application:
   a. Apply product to geotechnically stable slopes that have been designed and constructed to divert runoff away from the face of the slope.
   b. Do not apply to saturated soils, or if precipitation is anticipated within 24-48 hours.
   c. During the spring (March 1 to May 31) and fall (September 1 to November 30) seasons, hydraulic mulches may be applied in a one-step process where all components are mixed together in single-tank loads. It is recommended that the product be applied from opposing directions to achieve optimum soil coverage.
   d. During the summer (June 1 to August 31) and winter (December 1 to February 28) seasons, the following two-step process is required:
      Step One– Mix and apply seed and soil amendments with a small amount of mulch for visual metering.
      Step Two – Mix and apply mulch at manufacturers recommended rates over freshly seeded surfaces. Apply from opposing directions to achieve optimum soil coverage.
   e. Minimum curing temperature is 40° F (4° C). The best results and more rapid curing are achieved at temperatures exceeding 60° F (15° C). Curing times may be accelerated in high temperature, low humidity conditions on dry soils.

vi. Recommended application rates are for informational purposes only. Conformance with this standard and specification shall be performance-based and requires **100% soil coverage**. Any areas with bare soil showing shall be top dressed until full coverage is achieved.

d. *Compost blanket (CB)* - Loosely applied with a pneumatic blower so that a 1" compost blanket uniformly covers the **soil with 100% coverage**. This application can be used with seed to promote germination by applying the approved seed mix directly into the loosely blown compost. The compost blanket performs best on slopes less than 2:1 and requires no mulch anchoring.

2. Anchoring mulch - Mulch must be anchored immediately to minimize loss by wind or water. This may be done by one of the following methods, depending upon size of area, erosion hazard, and cost.

a. *Crimping* - A crimper is a tractor drawn implement designed to punch and anchor mulch into the top two (2) inches of soil. This practice affords maximum erosion control but is limited to flatter slopes where equipment can operate safely. On sloping land, crimping should be done on the contour whenever possible.

b. *Tracking* - Tracking is the process of cutting mulch (usually straw) into the soil using a bulldozer or other equipment that runs on cleated tracks. Tracking is used primarily on slopes 3:1 or steeper and should be done up and down the slope with cleat marks running across the slope.

c. *Liquid mulch binders* - Applications of liquid mulch binders should be heavier at edges, in valleys, and at crests of banks and other areas where the mulch will be moved by wind or water. All other areas should have a uniform application of binder. The use of synthetic binders is the preferred method of mulch binding and should be applied at the rates recommended by the manufacturer.

d. *Paper fiber* - The fiber binder shall be applied at a net dry weight of 750 lbs/ac. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons.

e. *Nettings* - Synthetic or organic nettings may be used to secure straw mulch. Install and secure according to the manufacturers recommendations.

Source: Delaware ESC Handbook & Filtrexx™ International | Symbol: | Detail No. DE-ESC-3.4.5 Sheet 2 of 3 Effective FEB 2019

Standard Detail & Specifications
Mulching

DELAWARE EROSION & SEDIMENT CONTROL HANDBOOK

MULCHING MATERIAL SELECTION GUIDE

Percent Slope	Type of Mulch / App. Rate*	Dec. 1 to Feb. 28(29)	March 1 to May 31	June 1 to Aug. 31	Sept. 1 to Nov. 30
Less than 2%	Blended Fiber @ 2000 lbs/ac. minimum	xxxxxxxxxxxxxxxx	OK (≤1 ac.)	xxxxxxxxxxxxxxxx	OK (≤1 ac.)
	Wood Fiber @ 2000 lbs/ac. min.	xxxxxxxxxxxxxxxx	OK	xxxxxxxxxxxxxxxx	OK
	BFM @ 3000 lbs/ac. min.	OK	OK	OK	OK
	Straw @ 2 Tons/ac. Min.	OK	OK	OK	OK
	Stabilization Matting**	OK	OK	OK	OK
	1" Compost Blanket (CB)	OK	OK	OK	OK
2% to 5.9%	Wood Fiber @ 2000 lbs/ac. min.	xxxxxxxxxxxxxxxx	OK	xxxxxxxxxxxxxxxx	OK
	BFM @ 3000-3500 lbs/ac. min	OK	OK	OK	OK
	Straw @ 2 Tons/ac. min.	OK	OK	OK	OK
	Stabilization Matting**	OK	OK	OK	OK
	1" Compost Blanket (CB)	OK	OK	OK	OK
6% to 10.9%	Wood Fiber @ 2000-2500 lbs/ac. min.	xxxxxxxxxxxxxxxx	OK	xxxxxxxxxxxxxxxx	OK
	BFM @ 3500-4000 lbs/ac. min.	OK	OK	OK	OK
	Straw @ 2 Tons/ac. min.	OK	OK	OK	OK
	Stabilization Matting**	OK	OK	OK	OK
	1" Compost Blanket (CB)	OK	OK	OK	OK
11% to 24.9%	Wood Fiber @ 2500-3000 lbs/ac. min.	xxxxxxxxxxxxxxxx	OK	xxxxxxxxxxxxxxxx	OK
	BFM @ 3500-4000 lbs/ac. min.	OK	OK	OK	OK
	Straw @ 2 Tons/ac. min.	OK	OK	OK	OK
	Stabilization Matting**	OK	OK	OK	OK
	1" Compost Blanket (CB)	OK	OK	OK	OK
25% to 33%	Wood Fiber @ 2500-3000 lbs/ac. min.	xxxxxxxxxxxxxxxx	OK	xxxxxxxxxxxxxxxx	OK
	BFM @ 4000 lbs/ac. min.	xxxxxxxxxxxxxxxx	OK	xxxxxxxxxxxxxxxx	OK
	Straw @ 2 Tons/ac. min.	OK	OK	OK	OK
	Stabilization Matting**	OK	OK	OK	OK
	1" Compost Blanket (CB)	OK	OK	OK	OK
33% and up	BFM @ 4000-4500 lbs/ac. min.	xxxxxxxxxxxxxxxx	OK	xxxxxxxxxxxxxxxx	OK
	Straw @ 2 Tons/ac. min.***	OK	OK	OK	OK
	Stabilization Matting**	OK	OK	OK	OK
	1" Compost Blanket (CB)	2:1 Max.	2:1 Max.	2:1 Max.	2:1 Max.

* Note: Manufacturers Recommended Rates for informational purposes only. Perfomance standard requires 100% soil coverage.
** Note: Stabilization Matting must be applied in accordance with Section 3.4.6 of the Delaware ESC Handbook.
***Note: Straw applied on slopes greater than 33% must be netted (this does not apply to topsoil stockpiles).
OK = Acceptable to use during this time period.
xxx = Not acceptable to use during this time period.
All application rates are minimums

Source: Delaware ESC Handbook & Filtrexx™ International | Symbol: | Detail No. DE-ESC-3.4.5 Sheet 3 of 3 Effective FEB 2019

SEEDING AND MULCHING NOTES:

DITCH AREAS:
DE. SEED MIX #9 OR 14

NON-DITCH DISTURBED AREAS:
DE SEED MIX #11

POND AREA:
ERNST SEED MIX - RETENTION BASIN FLOOR MIX - ERNMX-126

SEED MUST BE APPLIED PER MANUFACTURER'S RECOMMENDED RATE.

MULCHING:

IN ALL NON-AGRICULTURAL AREAS, MULCHING MEETING THE REQUIREMENTS OF DE-ESC-3.4.5 OR STABILIZATION MATTING MEETING THE REQUIREMENTS OF DE-ESC-3.4.6 MUST BE USED.

< STRAW MULCH SHALL BE USED IN DISTURBED AREA ON RESIDENTIAL LOTS.
<< DITCHES SHALL BE MATTED PER THE TYPICAL DITCH CROSS SECTION NOTES

TOPSOILING NOTES:

COORDINATE WITH DNREC AND LANDOWNER FOR DIRECTION ON STOCKPILED TOPSOIL DISPOSAL MEANS:

REVISIONS	
DATE	DESCRIPTION
5.12.22	re-design gravity option
10.22	DNREC COMMENTS
11.8.22	DNREC COMMENTS
12.9.22	DNREC COMMENTS / OMISSIONS

Sussex conservation district — PREPARE. PROTECT. PRESERVE.

SUSSEX CONSERVATION DISTRICT
23818 SHORTLY RD., GEORGETOWN, DE 19957
PHONE: (302)-856-2105 FAX: (302)-856-0951

DNREC - Division of Watershed Stewardship
Drainage Program

Dover Office
285 Beiser Blvd., Suite 102 Phone:(302) 739-9921
Dover DE, 19901 Fax:(302) 739 - 6724

Georgetown Office
21309 Berlin Rd. Unit 6 Phone:(302) 855 - 1930
Georgetown DE, 19947 Fax:(302) 677 - 7059

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

MANCHESTER MANOR
DRAINAGE IMPROVEMENTS, # 21-229
BROAD CREEK / NANTICOKE WATERSHED
SUSSEX COUNTY, DELAWARE

EROSION & SEDIMENT CONTROL DETAILS AND NOTES

Date: 2/04/2022
Designed: JE
Planned: JE / KW / JG / TB
Drawn: JE
Sheet No. C-705

CONSTRUCTION NOTES:

1. EXISTING UTILITIES ARE SHOWN IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION. COMPLETENESS OR CORRECTNESS THEREOF IS NOT GUARANTEED. IT SHALL BE THE CONTRACTORS' RESPONSIBILITY TO CONTACT THE UTILITY COMPANIES INVOLVED IN ORDER TO SECURE THE MOST ACCURATE INFORMATION AVAILABLE AS TO UTILITY LOCATION AND ELEVATION. NO CONSTRUCTION AROUND OR ADJACENT TO UTILITIES SHALL BEGIN WITHOUT NOTIFYING THEIR OWNERS AT LEAST 48 HOURS IN ADVANCE. THE CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE AND ANY DAMAGE DONE TO THEM DUE TO HIS NEGLIGENCE SHALL BE IMMEDIATELY AND COMPLETELY REPAIRED AT THE CONTRACTOR'S EXPENSE. TO LOCATE EXISTING UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL CONTACT MISS UTILITY OF DELMARVA AT 1-800-282-8555.

2. THE SITE SHALL BE GRADED TO THE FINAL ELEVATIONS SHOWN ON THE STORMWATER MANAGEMENT, GRADING, EROSION AND SEDIMENT CONTROL PLAN PREPARED BY SCD. THE CONTRACTOR SHALL PERFORM GRADING TO PROVIDE POSITIVE DRAINAGE AND PRECLUDE PONDING OF WATER.

3. THE CONTRACTOR WILL BE RESPONSIBLE FOR CLEARING AND GRADING AND GRUBBING THE SITE TO LIMITS SHOWN ON THE PLANS. THIS WILL INCLUDE THE REMOVAL AND DISPOSAL OF ANY EXISTING PAVEMENT, FENCES, BUILDING DEBRIS AND TRASH ON THE SITE. DISPOSAL WILL BE OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS; AND AT THE CONTRACTOR'S EXPENSE.

4. THE CONTRACTOR SHALL EXERCISE CARE AND CONSIDERATION IN CONSTRUCTION IN THE VICINITY OF ADJACENT PROPERTY OWNERS.

5. ALL DISTURBED R.O.W./PROPERTY CORNER MONUMENTS ARE TO BE VERIFIED BY A PROFESSIONAL ENGINEER OR A REGISTERED PROFESSIONAL LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE AND REPLACED/RESET IF NEEDED.

6. RIPRAP ROCK SHALL AS A MINIMUM: D50 STONE SIZE = 6", DEPTH = 18".

7. ALL REMAINING SPOILS AFTER BULK GRADING IS COMPLETED SHALL BE REMOVED OFF SITE IN AN APPROVED MANNER.

8. DUST CONTROL DURING DEMOLITION AND CONSTRUCTION – CONTRACTOR IS RESPONSIBLE FOR WETTING DUST GENERATING DEBRIS FROM TIME OF FIRST CONTACT UNTIL PLACING INTO APPROPRIATE WASTE OR HAULING CONTAINERS OR TRUCKS. DEBRIS SHALL NOT BE ALLOWED TO DRY BEFORE REMOVED FROM SITE. REFER TO DETAIL DE-ESC 3.4.8 SHEET CS8502 FOR ADDITIONAL INFORMATION. THIS PRACTICE SHALL ALSO BE FOLLOWED FOR ANY BARE SOIL LEFT EXPOSED PRIOR TO PROPER VEGETATION OCCURS.

9. ALL MATERIALS AND WORKMANSHIP WITHIN THE STATE OF DELAWARE RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH CURRENT STATE OF DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, SUPPLEMENTAL SPECIFICATIONS, STANDARD CONSTRUCTION DETAILS, SPECIAL PROVISIONS, PAS MANUAL AND DESIGN GUIDANCE MEMORANDUMS.

10. ALL NYLOPLAST BASINS AND INLINE DRAIN BASINS INSTALLED W/IN THE DelDOT RIGHT-A-WAY SHALL BE INSTALL PER THE NYLOPLAST H-20 TRAFFIC LOADING INSTALLATION DETAIL W/ CONC. COLLAR.

11. ALL DRIVEWAYS SHALL BE REPLACED AND OR REPAIRED IN KIND. COORDINATE WITH OWNER TO MAINTAIN ACCESS TO RESPECTIVE PROPERTIES.

12. ALL MAILBOXES SHALL BE REPLACED AND OR REPAIRED IN KIND. COORDINATE WITH OWNER TO MAINTAIN MAIL SERVICE DURING CONSTRUCTION.

13. PROJECT STAKED OUT IS THE RESPONSIBILITY OF THE CONTRACTOR.

14. ELEVATIONS ARE BASED ON NAVD 88, AND DE STATE PLANE COORDINATE SYSTEM NAD 83 HORIZONTAL DATUM.

15. UNLESS SPECIFICALLY STATED OR SHOWN HEREON TO THE CONTRARY, THIS SURVEY IS MADE SUBJECT TO AND DOES NOT LOCATE OR DELINEATE:

15.1. RIGHTS OR INTEREST OF THE UNITED STATES OF AMERICA OR STATE OF DELAWARE OVER LANDS NOW OR FORMERLY FLOWED BY TIDEWATER, BUT NO LONGER VISIBLE OR PHYSICALLY EVIDENT, OR LANDS CONTAINING ANY ANIMAL, MARINE OR BOTANICAL SPECIES REGULATED BY OR UNDER THE JURISDICTION OR ANY FEDERAL, STATE, OR LOCAL AGENCY.

15.2. BUILDING SETBACK LINES, ZONING REGULATIONS OR LINES ESTABLISHED BY ANY FEDERAL, STATE OR LOCAL AGENCY WHICH MAY AFFECT THE BUILDING OR DEVELOPMENT POTENTIAL OF THE SUBJECT PROPERTY.

15.3. ANY SUBSURFACE OR SUBTERRANEAN CONDITION, EASEMENTS OR RIGHTS, INCLUDING, BUT NOT LIMITED TO MINERAL OR MINING RIGHTS, OR THE LOCATION OF OR RIGHTS TO ANY SUBSURFACE STRUCTURES, CONTAINERS OR FACILITIES OR ANY OTHER NATURAL OR MAN-MADE SUBSURFACE CONDITION WHICH MAY OR MAY NOT AFFECT THE USE OR DEVELOPMENT POTENTIAL OF THE SUBJECT PROPERTY.

16. UTILITY NOTES:

16.1. THE LOCATION OF THE EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN HAVE BEEN TAKEN FROM EXISTING UTILITY RECORDS AVAILABLE AT THE TIME THESE PLANS WERE PREPARED AND FROM SURFACE OBSERVATION OF THE SITE. LOCATIONS OF UTILITIES AS SHOWN AND MAY OR MAY NOT BE COMPLETE. THE NATURE AND EXACT LOCATION OF EXISTING UTILITIES SHOULD BE VERIFIED PRIOR TO INITIATING ANY ACTIVITY THAT MAY AFFECT THEIR USE OR LOCATION.

16.2. COMPLETENESS OR ACCURACY OF LOCATION AND DEPTH OF UNDERGROUND UTILITIES AND STRUCTURES IS NOT GUARANTEED.

16.3. MISS UTILITY SHALL BE NOTIFIED THREE (3) DAYS PRIOR TO EXCAVATION.

16.4. THE CONTRACTORS SHALL TEST PIT TO VERIFY LOCATIONS AND DEPTHS OF ALL UNDERGROUND UTILITIES AND STRUCTURES BEFORE THE START OF WORK.

16.5. IF CONFLICTS ARE FOUND THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND DESIGN ENGINEER FOR INSTRUCTION BEFORE PROCEEDING WITH WORK.

17. STATE WETLAND FLAG SHOWN WAS PER DNREC DRAINAGE SECTION DELINEATION.

REFERENCE:

18. EXISTING CONDITIONS SURVEY PERFORMED BY RAUCH ENG..

19. THE PARCEL BOUNDARY LINES ARE FROM BEST AVAILABLE GIS DATA.

EROSION AND SEDIMENT CONTROL GENERAL NOTES:

1. THE DNREC SEDIMENT AND STORMWATER MANAGEMENT PROGRAM MUST BE NOTIFIED IN WRITING FIVE (5) DAYS PRIOR TO COMMENCING WITH CONSTRUCTION. FAILURE TO DO SO CONSTITUTES A VIOLATION OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLAN.
2. REVIEW AND OR APPROVAL OF THE SEDIMENT AND STORMWATER MANAGEMENT PLAN SHALL NOT RELIEVE THE CONTRACTOR FROM HIS OR HER RESPONSIBILITIES FOR COMPLIANCE WITH THE REQUIREMENTS OF THE SEDIMENT AND STORMWATER REGULATIONS, NOR SHALL IT RELIEVE THE CONTRACTOR FROM ERRORS OR OMISSIONS IN THE APPROVED PLAN.
3. IF THE APPROVED PLAN NEEDS TO BE MODIFIED, ADDITIONAL SEDIMENT AND STORMWATER CONTROL MEASURES MAY BE REQUIRED AS DEEMED NECESSARY BY DNREC.
4. FOLLOWING SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED FOR ALL PERIMETER SEDIMENT CONTROLS, SOIL STOCKPILES, AND ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE WITHIN 14 CALENDAR DAYS UNLESS MORE RESTRICTIVE FEDERAL REQUIREMENTS APPLY, OR IF A MORE RESTRICTIVE REQUIREMENT'S NOTED ON THE PLANS.
5. ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL COMPLY WITH THE DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.
6. AT ANY TIME A DEWATERING OPERATION IS USED, IT SHALL BE PREVIOUSLY APPROVED BY THE AGENCY CONSTRUCTION SITE REVIEWER FOR A NON-EROSIVE POINT OF DISCHARGE, AND A DEWATERING PERMIT SHALL BE APPROVED BY THE DNREC WELL PERMITTING BRANCH.
7. APPROVED PLANS REMAIN VALID FOR 3 YEARS FROM THE DATE OF APPROVAL.
8. THE NOTICE OF INTENT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER A NPDES GENERAL PERMIT FOR THIS PROJECT IS #_??????_. AT ANY TIME THE OWNERSHIP FOR THIS PROJECT CHANGES, A TRANSFER OF AUTHORIZATION OR A CO-PERMITTEE APPLICATION MUST BE SUBMITTED TO DNREC. THE PERMITTEE OF RECORD SHALL NOT BE RELIEVED OF THEIR RESPONSIBILITIES UNTIL A NOTICE OF TERMINATION HAS BEEN PROCESSED BY DNREC.
9. THE OWNER SHALL BE FAMILIAR WITH AND COMPLY WITH ALL ASPECTS OF THE NPDES CONSTRUCTION GENERAL PERMIT ASSOCIATED WITH THE PROJECT, INCLUDING, BUT NOT LIMITED TO, PERFORMING WEEKLY SITE INSPECTIONS DURING CONSTRUCTION AND AFTER RAIN EVENTS, AND MAINTAINING WRITTEN LOGS OF THESE INSPECTIONS.
10. BEFORE ANY EARTHWORK OR EXCAVATION TAKES PLACE, THE CONTRACTOR SHALL CALL MISS UTILITY AT 811 OR 1.800.282.8555 AT LEAST 48 HOURS PRIOR TO CONSTRUCTION, TO HAVE ALL EXISTING UTILITIES MARKED ONSITE.
11. THE CONTRACTOR SHALL AT ALL TIMES PROTECT AGAINST SEDIMENT OF DEBRIS LADEN RUNOFF OR WIND FROM LEAVING THE SITE. PERIMETER CONTROLS SHALL BE CHECKED DAILY AND ADJUSTED AND/OR REPAIRED TO FULLY CONTAIN AND CONTROL SEDIMENT FROM LEAVING THE SITE. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED HALF OF THE EFFECTIVE CAPACITY OF THE CONTROL. IN ADDITION, THE CONTRACTOR MAY NEED TO ADJUST OR ALTER MEASURES IN TIMES OF ADVERSE WEATHER CONDITIONS, OR AS DIRECTED BY THE AGENCY SITE REVIEWER.
12. BEST AVAILABLE TECHNOLOGY (BAT) SHALL BE EMPLOYED TO MANAGE TURBID DISCHARGES IN ACCORDANCE WITH REQUIREMENTS OF 7. DEL C. CH 60, REGULATIONS GOVERNING THE CONTROL OF WATER POLLUTION, SECTION 9.1.02, KNOWN AS SPECIAL CONDITIONS FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES AND DEPARTMENT POLICIES, PROCEDURES, AND GUIDANCE.
13. DOCUMENTATION OF SOIL TESTING AND MATERIALS USED FOR TEMPORARY OR PERMANENT STABILIZATION INCLUDING BUT NOT LIMITED TO SOIL TEST RESULTS, SEED TAGS, SOIL AMENDMENT TAGS, ETC, SHALL BE PROVIDED TO THE DEPARTMENT OR DELEGATED AGENCY TO VERIFY THAT THE PERMANENT OR TEMPORARY STABILIZATION HAS BEEN COMPLETED IN ACCORDANCE WITH THE APPROVED PLAN AND THE STANDARDS AND SPECIFICATIONS OF THE DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION. THE DEPARTMENT OF THE DELEGATED AGENCY SHALL HAVE THE DISCRETION TO REQUIRE ADDITIONAL SOIL TESTING AND REAPPLICATION OF PERMANENT OR TEMPORARY STABILIZATION IN ACCORDANCE WITH THE SPECIFICATION PROVIDED WITHIN THE DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.

GRADING NOTES:

1. BEDDING REQUIREMENTS SPECIFIED HEREIN ARE TO BE CONSIDERED AS MINIMUMS FOR RELATIVELY DRY, STABLE EARTH CONDITIONS. ADDITIONAL BEDDING SHALL BE REQUIRED FOR ROCK TRENCHES AND WET AREAS. CONTRACTOR SHALL HAVE THE RESPONSIBILITY TO PROVIDE SUCH ADDITIONAL BEDDING AS MAY BE REQUIRED TO PROPERLY CONSTRUCT THE WORK.

2. COMPACTION OF THE BACKFILL OF ALL TRENCHES SHALL BE COMPACTED TO THE DENSITY OF 95% OF THEORETICAL MAXIMUM DRY DENSITY (ASTM D698). BACKFILL MATERIAL SHALL BE FREE FROM ROOTS, STUMPS, OR OTHER FOREIGN DEBRIS AND SHALL BE PLACED IN LIFTS NOT TO EXCEED 8 INCHES IN COMPACTED FILL THICKNESS. CORRECTION OF ANY TRENCH SETTLEMENT WITHIN A YEAR FROM THE DATE OF APPROVAL WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. MATERIAL THAT CANNOT BE COMPACTED AS REQUIRED SHALL BE BROUGHT TO THE ATTENTION OF A GEO-TECHNICAL ENGINEER, OVER EXCAVATED, AND THEN REPLACED WITH SUITABLE FILL

3. THE CONTRACTOR WILL INSURE THAT POSITIVE AND ADEQUATE DRAINAGE IS MAINTAINED AT ALL TIMES WITHIN THE PROJECT LIMITS. THIS MAY INCLUDE, BUT NOT BE LIMITED TO, REPLACEMENT OR RECONSTRUCTION OF EXISTING DRAINAGE STRUCTURES THAT HAVE BEEN DAMAGED OR REMOVED OR REGRADING AS REQUIRED BY THE ENGINEER, EXCEPT FOR THOSE DRAINAGE ITEMS SHOWN AT SPECIFIC LOCATIONS AND HAVING SPECIFIC PAY ITEMS IN THE DETAILED ESTIMATE. NO SEPARATE PAYMENT WILL BE MADE FOR ANY COSTS INCURRED TO COMPLY WITH THIS REQUIREMENT.

4. THE CONTRACTOR SHALL PROVIDE ANY AND ALL EXCAVATION AND MATERIAL SAMPLES NECESSARY TO CONDUCT REQUIRED SOIL TESTS. ALL ARRANGEMENTS AND SCHEDULING FOR THE TESTING SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

5. SOILS TESTING AND ON-SITE INSPECTION SHALL BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER. THE SOILS ENGINEER SHALL PROVIDE COPIES OF TEST REPORTS TO THE CONTRACTOR, THE OWNER AND THE OWNER'S REPRESENTATIVE AND SHALL PROMPTLY NOTIFY THE OWNER, HIS REPRESENTATIVE AND THE CONTRACTOR, SHOULD WORK PERFORMED BY THE CONTRACTOR FAIL TO MEET BUILDING STANDARDS.

6. CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY BARRICADES AROUND THE WORK AREA AND SHALL PROVIDE PROTECTION AGAINST WATER DAMAGE AND SOIL EROSION.

7. VERTICAL ELEVATIONS ARE BASED ON NAVD 88.

8. ALL SLOPES MAXIMUM 3:1 UNLESS OTHERWISE NOTED.

9. HDPE PIPE SHALL COMPLY WITH AASHTO M252, M294, MP7, AND ASTM 3350. PIPE SHALL BE INSTALLED PER ASTM D2321 AND AS RECOMMENDED BY THE MANUFACTURER. ALL HDPE SHALL HAVE SOIL TIGHT CONNECTIONS.

10. ALL MATERIALS AND WORKMANSHIP WITHIN THE STATE OF DELAWARE RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH CURRENT STATE OF DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, SUPPLEMENTAL SPECIFICATIONS, STANDARD CONSTRUCTION DETAILS, SPECIAL PROVISIONS, PAS MANUAL AND DESIGN GUIDANCE MEMORANDUMS.

11. DRAINAGE INLETS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE LATEST STANDARDS OF DELDOT'S STANDARD CONSTRUCTION DETAILS UNLESS NOTED OTHERWISE ON THE PLANS.

12. ALL HDPE PIPE SHALL MEET OR EXCEED THAT AASHTO M-330 PIPE SPECIFICATION.

13. CONTRACTOR IS RESPONSIBLE FOR REMOVING AND DISPOSING OF EXCESS DIRT FROM THE SITE. THIS CAN BE COORDINATED WITH OWNER TO DETERMINE IF LONG TERM STORAGE ON SITE IS APPLICABLE.

14. CONTRACTOR IS RESPONSIBLE TO ENSURE POSITIVE DRAINAGE AND PREVENT PONDING FOR ALL PROPOSED IMPROVEMENTS ALONG WITH NOT NEGATIVE IMPACTING EXISTING CONDITIONS. CONTRACTOR MUST DISCUSS WITH THE DESIGN ENGINEER IF FIELD ISSUES ARISE, IF AT TIME OF STAKEOUT. IF NOT THE OWNS IT.

CONTROL SEQUENCE OF CONSTRUCTION:

1. NOTIFY THE DNREC DRAINAGE PROGRAM IN WRITING AT LEAST FIVE (5) DAYS PRIOR TO THE START OF CONSTRUCTION. FAILURE TO DO SO CONSTITUTES A VIOLATION OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLAN.
2. PRIOR TO ANY CLEARING, INSTALLATION OF SEDIMENT CONTROL MEASURES, OR GRADING, A PRE-CONSTRUCTION MEETING MUST BE CONDUCTED WITH THE CONSTRUCTION SITE REVIEWER. THE LANDOWNER, CONTRACTOR AND CERTIFIED CONSTRUCTION REVIEWER ARE REQUIRED TO BE IN ATTENDANCE AT THE PRE-CONSTRUCTION MEETING; THE DESIGNER IS RECOMMENDED TO ATTEND.
3. INSTALL THE STABILIZED CONSTRUCTION ENTRANCE(S) AS INDICATED ON THE PLAN, FOLLOWED BY THE PERIMETER CONTROLS (I.E., BERMS, SILT FENCE, COMPOST LOGS) AND INLET PROTECTION ON ANY EXISTING INLETS. MARK THE LIMITS OF SENSITIVE AREAS, SUCH AS PRESERVED TREES, INFILTRATION AREAS, AND OTHER SECTIONS THAT ARE NOT TO BE DISTURBED WITH A PHYSICAL BARRIER. ONLY CLEAR WOODS THAT ARE NEEDED TO INSTALL THE PERIMETER CONTROLS.
4. SCHEDULE A PERIMETER CONTROL REVIEW WITH THE DNREC CONSTRUCTION SITE REVIEWER.
5. ALL PERIMETER CONTROLS ARE TO BE REVIEWED BY THE DNREC CONSTRUCTION SITE REVIEWER AND APPROVED PRIOR TO PROCEEDING WITH FURTHER SITE DISTURBANCE OR CONSTRUCTION.
6. THE CONTRACTOR SHALL AT ALL TIMES PROTECT AGAINST SEDIMENT LADEN RUNOFF OR WIND FROM LEAVING THE SITE. PERIMETER CONTROLS SHOULD BE CHECKED DAILY AND ADJUSTED AND/OR REPAIRED TO FULLY CONTAIN AND CONTROL SEDIMENTATION ON THE SITE. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED HALF OF THE EFFECTIVE CAPACITY OF THE CONTROL. IN ADDITION, THE CONTRACTOR MAY NEED TO ADJUST, REPAIR OR ALTER MEASURES IN TIMES OF ADVERSE WEATHER CONDITIONS, OR AS DIRECTED BY THE DNREC CONSTRUCTION SITE REVIEWER.
7. CLEAR AND GRUB THE CONSTRUCTION AREA.
8. STOCKPILE TOPSOIL AND EXCAVATED SUBSOILS. STOCKPILES SHOULD BE SURROUNDED WITH A PERIMETER CONTROL, LOCATED ON LAND WITH SLIGHT TO NO SLOPE, AND STABILIZED ONCE INACTIVE. COORDINATE WITH LANDOWNER FOR LAY DOWN AND STOCKPILE AREA.
9. REMOVE AND REPLACE SWM POND OUTFALL PIPE AND STRUCTURE.
10. RECONSTRUCT SWM POND FOREBAY, STILLING BASIN, AND CONNECTING LOW FLOW CHANNEL PER THE PLAN. RIPRAP OUTFALL AND INFLOW PIPES ENDS. STABILIZE ALL DISTURBED AREAS.
11. CONSTRUCT THE STORM DRAIN PIPE SYSTEM WORKING IN A DOWNSTREAM TO UPSTREAM DIRECTION. INSTALL INLET PROTECTION ON ALL INLETS AFTER THEY HAVE BEEN SET.
12. CONSTRUCT STORMWATER CONVEYANCE SYSTEM THAT DISCHARGES TO THE PUMP STATION, STARTING AT THE LOWEST ELEVATION WITHIN THE NETWORK AND WORKING UPWARDS. INSTALL NECESSARY EROSION AND SEDIMENT CONTROL PROTECTION AS SHOWN ON PLAN.
    - 12.1) INSTALL ALL STORM DRAIN PIPE. PLACE IP1 AROUND NYLOPLAST BASINS AND PLACE CFL IN FRONT OF ALL INFLOW POINTS / FES(s).
    - 12.2) CONSTRUCT DITCHES AND SWALES THAT TIE INTO STORM DRAIN NETWORK TO THE DIMENSIONS SHOWN ON THE PLAN
    - 12.3) STABILIZE AND PROVIDE MATTING FOR ALL DITCHES PER THE TYPICAL CROSS SECTION SPECS.
    - 12.4) STABILIZE ALL SWALES PER THE TYPICAL CROSS SECTION SPECS.
    - 12.5) REGRADE ROAD SIDE SWALES TO THE ELEVATIONS SHOWN ON THE PLAN. REMOVE AND REPLACE DRIVEWAY CULVERTS PER THE APPROPRIATE PROFILES.
    - 12.6) STABILZE ALL SWALES PER THE TYPICAL CROSS SECTION SPECS.
    - 12.7) CONSTRUCT LANDSCAPE BUFFER DITCH, DITCH 3, AND DITCH 4.
    - 12.8) FINAL GRADE ALL DITCHES AND DISTURBED AREAS AND APPLY PERMANENT SEEDING AND STABILIZATION AS SOON AS FINAL GRADE IS ACHIEVED.
13. THE EROSION AND SEDIMENT CONTROL DEVICES SHOULD BE REMOVED ONLY AFTER WORK IN AN AREA HAS BEEN COMPLETED AND STABILIZED, WITH WRITTEN APPROVAL FROM THE DNREC CONSTRUCTION SITE REVIEWER. COORDINATE THE INSPECTION, AND AFTER THE WRITTEN APPROVAL, REMOVE THE REMAINING CONSTRUCTION SITE CONTROLS.
14. TERMINATE COVERAGE OF THE CONSTRUCTION GENERAL PERMIT, WHICH REQUIRES SUBMISSION AND ACCEPTANCE OF THE POST CONSTRUCTION VERIFICATION DOCUMENTS, INCLUDING FINAL STABILIZATION THROUGHOUT THE SITE, ALL ELEMENTS OF THE SEDIMENT AND STORMWATER MANAGEMENT PLAN IMPLEMENTED, ACCEPTANCE OF THE FINAL OPERATION AND MAINTENANCE PLAN, AND SUBMITTAL OF THE NOTICE OF TERMINATION.

REVISIONS

DATE	DESCRIPTION
5.12.22	re-design gravity option
10.22	DNREC COMMENTS
11.8.22	DNREC COMMENTS
12.9.22	DNREC COMMENTS / OMISSIONS

SUSSEX CONSERVATION DISTRICT
23818 SHORTLY RD., GEORGETOWN, DE 19947
PHONE: (302)-856-3165 FAX: (302)-856-0951

DNREC - Division of Watershed Stewardship
Drainage Program

Dover Office
285 Beiser Blvd., Suite 102 Phone:(302) 739-9921 Fax:(302) 739 -9724

Georgetown Office
21309 Berlin Rd, Unit 6 Phone:(302) 855 - 1930
Georgetown DE, 19947 Fax:(302) 677 - 7059

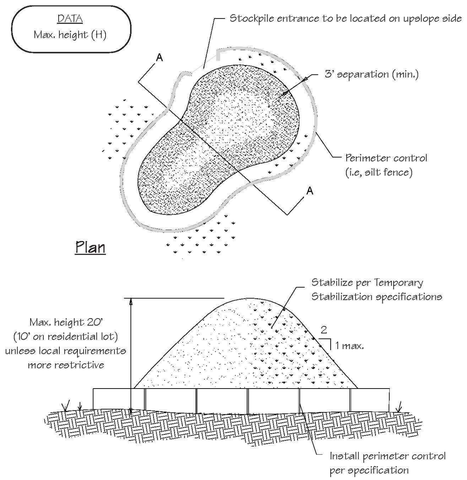
MANCHESTER MANOR
DRAINAGE IMPROVEMENTS, # 21-229
BROAD CREEK / NANTICOKE WATERSHED
SUSSEX COUNTY, DELAWARE

EROSION & SEDIMENT CONTROL
DETAILS AND NOTES

Date: 2/04/2022
Designed: JE
Planned: JE / KW / JG / TB
Drawn: JE

Sheet No. C-706

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 1 of 2 Effective FEB 2019

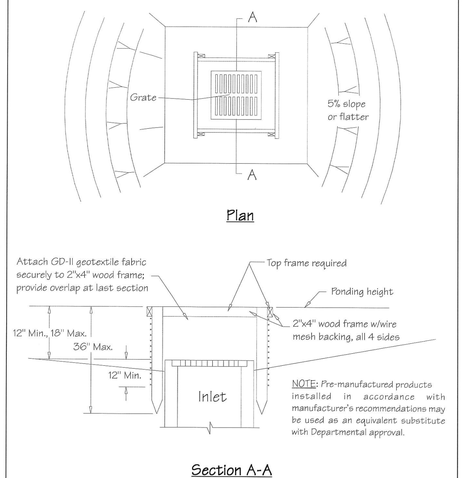
Standard Detail & Specifications
Soil Stockpile

Construction Notes:

1. Locate stockpiles so that they are 50 feet from any storm drain inlet, open channel, wetland or waterbody. Redirect any concentrated flow around the stockpile using an approved erosion and sediment control measure.
2. Secure the perimeter of the stockpile with an approved erosion and sediment control perimeter device.
3. If stockpile is to remain inactive for more than 14 calendar days, the stockpile must be vegetated. Follow the temporary vegetation specifications. The vegetation chosen shall last the duration of the stockpile; the stockpile shall be restabilized if the temporary vegetation dies or erosion results.

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 FEB 2019

Standard Detail & Specifications
Inlet Protection - Type 1



Source:	Symbol:	Detail No.
Adapted from Erosion Draw Manual J. McCullah & Assoc.	IP-1	**DE-ESC-3.1.5.1** Sheet 1 of 1

Effective February 2019

Standard Detail & Specifications
Inlet Protection - Type 1

Construction Notes:

1. Excavate completely around inlet to a depth of 18" below grate elevation.
2. Drive 2" x 4" post 1' into ground at four corners of inlet. Place nail strips between posts on ends of inlet. Assemble top portion of 2"x4" frame using overlap joint shown. Top of frame (weir) must be 6" below edge of roadway adjacent to inlet.
3. Stretch wire mesh tightly around frame and fasten securely. Ends must meet at post.
4. Stretch geotextile fabric tightly over wire mesh, the cloth must extend from top of frame to 18" below inlet grate elevation. Fasten securely to frame. Ends must meet at post, be overlapped and folded, then fastened down.
5. Backfill around inlet in compacted 6" layers until at least 12" of geotextile fabric is buried.
6. If the inlet is not in a low point, construct a compacted earth dike in the ditchline below it. The top of this dike is to be at least 6" higher than the top of frame (weir).
7. This structure must be inspected frequently and the filter fabric replaced when clogged.

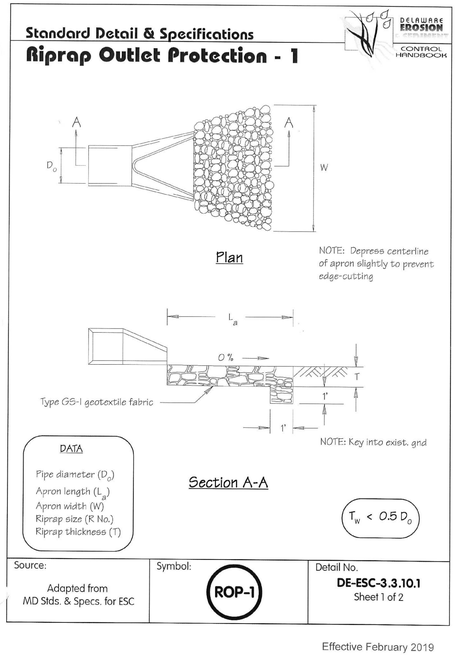
Materials:

1. Wooden frame is to be constructed of 2" x 4" construction grade lumber.
2. Wire mesh must be of sufficient strength to support filter fabric with water fully impounded against it.
3. Geotextile fabric: Type GD-II

Source:	Symbol:	Detail No.
Adapted. from Erosion Draw Manual J. McCullah & Assoc.	IP-1	**DE-ESC-3.1.5.1** Sheet 2 of 2

Effective February 2019

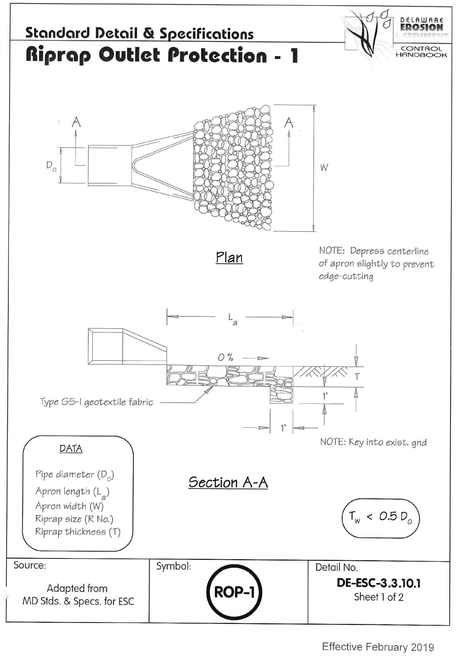
Standard Detail & Specifications
Riprap Outlet Protection - 1



Source:	Symbol:	Detail No.
Adapted from MD Stds. & Specs. for ESC	ROP-1	**DE-ESC-3.3.10.1** Sheet 1 of 2

Effective February 2019

Standard Detail & Specifications
Riprap Outlet Protection - 1



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