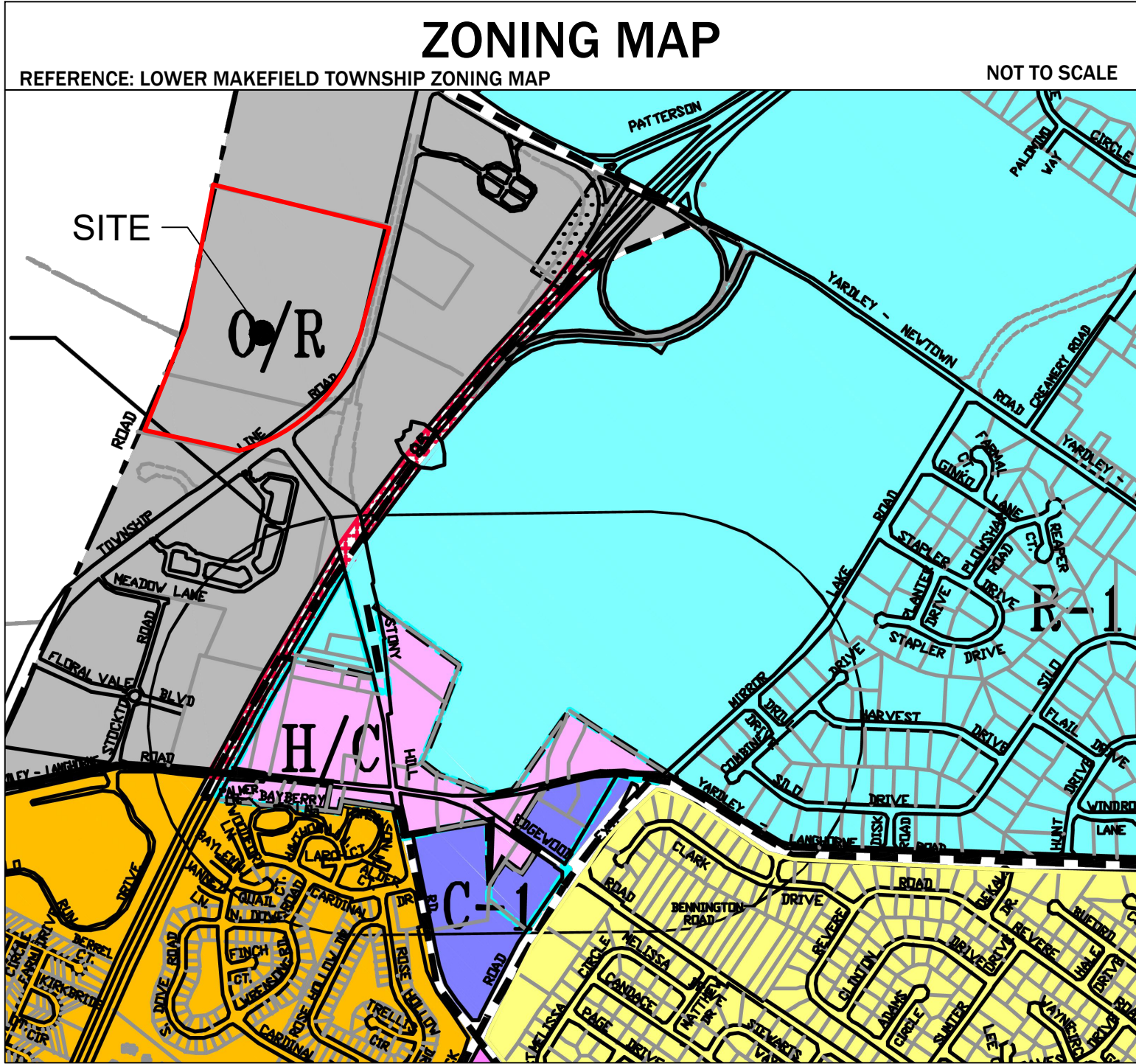
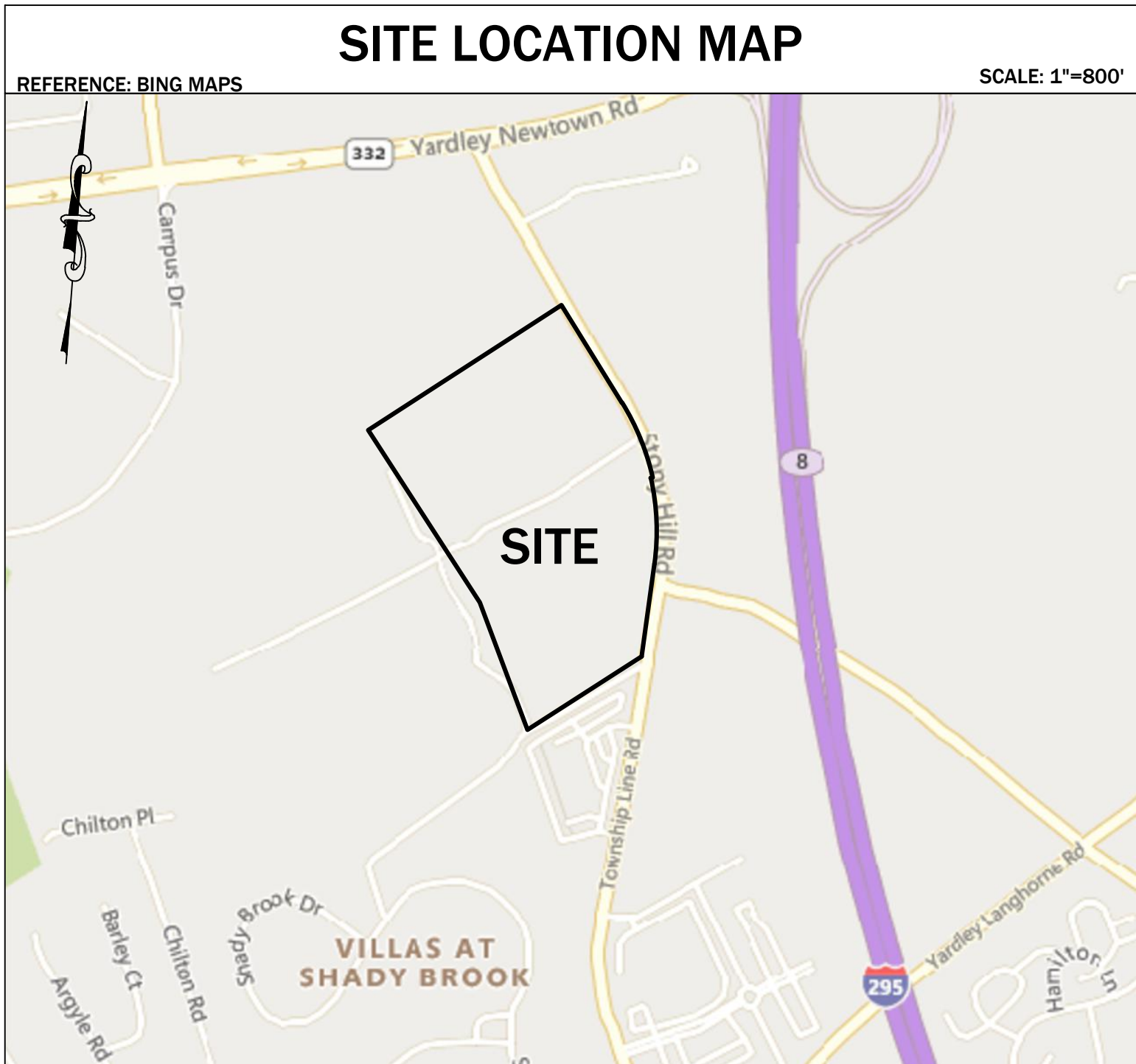


PRELIMINARY LAND DEVELOPMENT PLANS
FOR
FARM'S EDGE AT SHADY BROOK
ACCESS ROADWAY
TMP # 20-012-001
Lower Makefield Township, Bucks County, PA



DRAWING LIST			
SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE	LAST REVISED DATE
1	C0.0	COVER SHEET	9/11/2026
2	C0.1	EXISTING CONDITIONS PLAN	9/11/2026
3	C1.0	OVERALL RECORD SITE PLAN	9/11/2026
4	C1.1	DETAILED SITE PLAN	9/11/2026
5	C2.0	GRADING AND DRAINAGE PLAN	9/11/2026
6	C2.1	CONSTRUCTION DETAILS	9/11/2026
7	C2.2	CONSTRUCTION DETAILS	9/11/2026
8	C3.0	ROADWAY PROFILES	9/11/2026
9	C3.1	ROADWAY AND UTILITY PROFILES	9/11/2026
10	C4.0	EROSION AND SEDIMENT CONTROL PLAN	9/11/2026
11	C4.1	EROSION AND SEDIMENT CONTROL DETAILS	9/11/2026
12	C5.0	LANDSCAPING & LIGHTING PLAN	9/11/2026
13	C6.0	TRUCK TURN PLAN	9/11/2026



CONTACTS

LOWER MAKEFIELD TOWNSHIP
1100 EDGEWOOD ROAD
YARDLEY, PA 19067
PHONE: (267) 274-1100

TOWNSHIP MANAGER
DAVID W. KRATZER, JR.
1100 EDGEWOOD ROAD
YARDLEY, PA 19067
PHONE: (267) 274-1100

LOWER MAKEFIELD TOWNSHIP DIRECTOR
OF PLANNING AND ZONING
TOWNSHIP PLANNER
DAN MCLOONE, AICP
1100 EDGEWOOD STREET
YARDLEY, PA 19067
PHONE: (267) 274-1123

TOWNSHIP ENGINEER
HERBERT, ROWLAND & GRUBIC, INC.,
501 ALLENDALE ROAD, SUITE 203
KING OF PRUSSIA, PA 19406
PHONE: (484) 460-7050

TOWNSHIP SOLICITOR
DAVID J. TRUELOVE, ESQ.
HILL WALLACK LLP
777 TOWNSHIP LINE ROAD, SUITE 250
YARDLEY, PA 1906
PHONE: 215-579-7700

BUCKS COUNTY PLANNING COMMISSION
THE ALMSHOUSE NESHAMINY MANOR CENTER
1260 ALMSHOUSE ROAD
DOYLESTOWN, PA 18901
PHONE: 215-345-3400

BUCKS COUNTY CONSERVATION DISTRICT
1456 FERRY ROAD, SUITE 704
DOYLESTOWN, PA 18901
PHONE: 215-345-7577

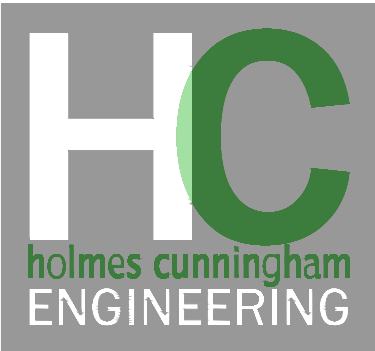
PREPARED FOR:

FOXLANE HOMES
500 OFFICE CENTER DRIVE
SUITE 200
FORT WASHINGTON, PA 19034

OWNER:

SHADY BROOK AT FLEMINGS INC
931 STONY HILL ROAD
YARDLEY, PA 19067

PREPARED BY:



HOLMES CUNNINGHAM LLC
409 EAST BUTLER AVENUE
UNIT 5
DOYLESTOWN, PA 18901
(215) 586-3330

REVISED:	9/11/2026
REVISED:	7/20/2026
REVISED:	6/12/2026
REVISED:	4/24/2026
DATE:	11/14/2025
PROJECT #	2000
DRAWING #	C0.0
SHEET	1 OF 13



- NOTES:
1. THE PROPERTY BEING BUCKS COUNTY TAX MAP PARCEL NUMBERS 20-012-001 CONTAINING 51.118 ACRES OF LAND MORE OR LESS.
 2. INFORMATION TAKEN FROM AN EXISTING FEATURES PLAN PREPARED BY CONTROL POINT ASSOCIATES, INC., DATED NOVEMBER 18, 2024.
 3. WETLANDS INFORMATION SHOWN IS TAKEN FROM A WETLAND DELINEATION PERFORMED BY VW CONSULTANTS IN OCTOBER 2025.
 4. SUBJECT PROPERTY IS ENTIRELY WITHIN FLOOD ZONE "X" - I.E., OUTSIDE THE 500 YEAR FLOOD PLAIN AS SHOWN ON THE F.E.M.A. FLOOD INSURANCE RATE MAP (F.I.R.M.) FOR BUCKS COUNTY, PANEL NO. 432 OF 532, COMMUNITY MAP NO. 42017C04324, BEARING AN EFFECTIVE DATE OF MARCH 16, 2015.
 5. LOCATIONS OF EXISTING UNDERGROUND UTILITIES/FACILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM RECORDS, FIELD MARKOUTS BY UTILITY COMPANIES AND/OR ABOVEGROUND OBSERVATION. NO EXCAVATIONS HAVE BEEN PERFORMED TO LOCATE EXISTING UNDERGROUND UTILITIES. ALL UTILITIES SHOWN HEREON SHOULD BE CONSIDERED APPROXIMATE IN LOCATION, DEPTH, AND SIZE. THE POTENTIAL EXISTS FOR OTHER UNDERGROUND UTILITIES TO BE ENCOUNTERED WHICH ARE NOT SHOWN ON THESE DRAWINGS, BOTH ACTIVE AND ABANDONED. ONLY THE VISIBLE LOCATIONS OF UNDERGROUND UTILITIES AND FACILITIES AT THE TIME OF FIELD SURVEY SHALL BE CONSIDERED TO BE TRUE AND ACCURATE. THE COMPLETENESS OR ACCURACY OF UNDERGROUND UTILITIES AND FEATURES IS NOT GUARANTEED BY CAVANAUGH'S SURVEYING SERVICES.
 6. ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO THE START OF WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF PL852, NO. 287, DEC. 10, 1974 AS LAST AMENDED ON MAR. 29, 2007, PENNSYLVANIA ACT 181.
 7. VERTICAL DATUM IS NAVD88 AND WAS ESTABLISHED BY GLOBAL POSITIONING SYSTEM (GPS) WITH OBSERVATIONS REFERENCED TO THE TOPCON TOPSURV GPS BASE STATION NETWORK.
 8. HORIZONTAL DATUM IS BASED ON 1983 STATE PLANE COORDINATE SYSTEM ESTABLISHED UTILIZING GLOBAL POSITIONING SYSTEM (GPS) WITH OBSERVATIONS REFERENCED TO THE TOPCON TOPSURV GPS BASE STATION NETWORK.
 9. METES AND BOUNDS AS SHOWN ARE BASED ON PA STATE PLANE COORDINATE SYSTEM.

LEGEND	
	PROPERTY LINE
	EXISTING CONTOUR
	MUNICIPAL BOUNDARY
	EX. BUILDING
	GRAVEL
	FENCE
	TREE
	WETLANDS
	POND
	STEEP SLOPES 8%-15%
	STEEP SLOPES 15%-25%
	STEEP SLOPES 25%+
	POND BUFFER
	WETLANDS BUFFER - 50FT
	WETLANDS BUFFER - 100FT
	EXISTING IMPERVIOUS TO BE REMOVED
	SOIL TYPE
	SOILS BOUNDARY

REVISIONS

Date	Description
4/24/2026	REVISED PER TOWNSHIP COMMENTS
6/12/2026	REVISED PER TOWNSHIP COMMENTS
7/20/2026	REVISED PER TOWNSHIP COMMENTS
9/11/2026	REVISED PER TOWNSHIP COMMENTS

CALL BEFORE YOU DIG !!!
BUTTS
CONSTRUCTION PHASE AND
30 WORKING DAYS NOTICE PER
-- STOP & CALL --
Pennsylvania One
Call System, Inc.
1-800-243-1776

UTILITY LOCATIONS AS SHOWN ON
THIS DRAWING ARE BASED ON THE
BEST AVAILABLE INFORMATION AND
IS THE RESPONSIBILITY OF THE
ENGINEER. THE ENGINEER DOES NOT
CONTACT UTILITY COMPANIES PRIOR
TO ANY EXCAVATION.

FARM'S EDGE AT SHADY BROOK
ACCESS ROADWAY

TMP # 20-012-001

LOWER MAKEFIELD TOWNSHIP, BUCKS COUNTY, PA

EXISTING CONDITIONS PLAN

REGISTERED
PROFESSIONAL
ENGINEER
ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2000_CO.1 EXISTING LM.DWG

HCE Job	2000
Date	11/14/2025
Scale	1"=100'
Designed	RC
Sheet	2 of 13

Drawing No.
C0.1

HOLES CUNNINGHAM LLC
409 E. Butler Ave., Unit 5
Doylestown, PA 18901
(215) 586-3330
www.hcengineering.net

ENGINEERING

2000

11/14/2025

1"=100'

RC

2 of 13

Drawing No.
C0.1



APPLICANT:
ELU DELUCA SB LM LLC
370 EAST MAPLE AVENUE
SUITE 101
LANGHORNE, PA 19047

OWNER:
SHADY BROOK AT FLEMINGS INC
931 STONY HILL ROAD
YARDLEY, PA 19067

LEGEND	
—	PROPERTY LINE
- - -	ACCESS EASEMENT
- - -	ROAD CENTERLINE
- - -	PROPOSED CURB
—	TOWNSHIP BOUNDARY
—	CONCRETE SIDEWALK

NATURAL RESOURCE LEGEND	
	WETLANDS
	POND
	STEEP SLOPES 8%-15%
	STEEP SLOPES 15%-25%
	STEEP SLOPES 25%+
	POND BUFFER
	WETLANDS BUFFER - 50FT
	WETLANDS BUFFER - 100FT
	SOIL TYPE
	SOILS BOUNDARY

ZONING DATA TABLE		
ZONING DISTRICT: O/R OFFICE RESEARCH		
ITEM	REQUIRED/ PERMITTED	PROPOSED
Use:		Agriculture
Tract Requirements:		
Min. Net Lot Area	25 Ac.	51.118 Ac.
Max. Impervious Coverage	65%	34.0%
Max. Roadway Accesses	1/300FT (7 Total)	2 Total

IMPERVIOUS COVERAGE CALCULATIONS		
Site Area Calculations		
Gross Site Area	2,226,699	51.118
ROW Area	0	0.000
Total Lot Area	2,226,699	51.118
Existing Impervious Area		
Existing Buildings	57,557	1.321
Existing Asphalt & Gravel Driveways, Walkways	779,919	17.904
Total Existing Impervious	837,476	19.226
Proposed Impervious Area		
Existing Buildings To Remain	57,557	1.321
Existing Asphalt & Gravel Driveways, Walkways To Remain	624,010	14.325
Proposed Roadway & Curb	67,175	1.542
Proposed Sidewalk	9,150	0.210
Total Proposed Impervious	757,892	17.399
Total Proposed Impervious Coverage		34.0%
Total Change In Impervious		-79,584

SOIL TYPES					
Sym	Name	Hydric (Y/N)	Depth to Bedrock (in.)	Depth to Water Table (in.)	HSG
CbA	Chalfont Silt Loam, 0 to 3 Percent Slopes	N	42-99	6-18	D
DuA	Duncannon Silt Loam, 0 to 3 Percent Slopes	N	60-99	> 80	B
DuB	Duncannon Silt Loam, 3 to 8 Percent Slopes	N	60-99	> 80	B
LgA	Lansdale Loam, 0 to 3 Percent Slopes	N	42-72	> 80	B
LgB	Lansdale Loam, 3 to 8 Percent Slopes	N	42-60	> 80	B
LkA	Lawrenceville Silt Loam, 0 to 3 Percent Slopes	N	48-99	18-36	C
LkB	Lawrenceville Silt Loam, 3 to 8 Percent Slopes	N	48-99	18-36	C
PnB	Penn-Lansdale Complex, 3 to 8 Percent Slopes	N	20-40	> 80	B

RESOURCE PROTECTION STANDARDS					
Resource	Min. Required Protection Ratio	Total Area of Land in Resource	Required Resource Protection Land	Actual Resource Protection Land	Actual Protection Ratio
Floodplains	100%	0.000	0.000	0.000	N/A
Floodplain Soils (Delaware River)	50%	0.000	0.000	0.000	N/A
Lakes and Ponds	100%	0.911	0.911	0.911	100%
Wetlands	100%	0.058	0.058	0.058	100%
Lake and Pond Shorelines	100%	1.423	1.423	1.423	100%
Wetland and Watercourse Buffers	100%	2.350	2.350	2.350	100%
Steep Slopes 8%-15%	50%	1.586	0.793	1.586	100%
Steep Slopes 15%-25%	70%	0.487	0.341	0.487	100%
Steep Slopes 25%+	100%	0.411	0.411	0.411	100%
Woodland Associations Zoned R-RP	85%	0.000	0.000	0.000	N/A
Woodland Associations Zoned R1	80%	0.000	0.000	0.000	N/A
Woodland Associations Zoned R2	75%	0.000	0.000	0.000	N/A
Woodland Associations All other Zones	70%	0.000	0.000	0.000	N/A

Site Capacity Calculations		
Gross Site Area Determined by Actual On-site Survey	Area (SF)	Area (AC)
Land Within Existing Roads and Utility Transmission Rights-Of-Way	2,226,699	51.118
Land Without Development Opportunities Due to Restrictions Such as Restrictive Covenants and Conservation Easements	0	0.000
Base Site Area	77,608	1.782
	2,149,091	49.336

Resource Protection Land				
Natural Resource	Protection Ratio	Acres of Land in Resources	Resource Protection Land (AC)	Proposed Resource Protection Land (AC)
Floodplain	1.00	0.00	0.00	0.00
Floodplain Soils (Delaware River)	0.50	0.00	0.00	0.00
Lakes and Ponds	1.00	0.89	0.89	0.89
Wetlands	1.00	0.13	0.13	0.13
Lakes and Pond Shoreline	1.00	1.16	1.16	1.16
Wetland and Watercourse Buffers	1.00	2.40	2.40	2.40
Steep Slopes 8-15%	0.50	1.26	0.63	0.63
Steep Slopes 15-25%	0.70	0.44	0.31	0.31
Steep Slopes 25%+	1.00	0.35	0.35	0.35
Woodland Associations Zoned R-RP	0.85	0.00	0.00	0.00
Woodland Associations Zoned R-1	0.80	0.00	0.00	0.00
Woodland Associations Zoned R-2	0.75	0.00	0.00	0.00
Woodland All Other Zoning Categories	0.70	0.00	0.00	0.00
Total Land within Resources			6.63	
Total Land within Required Resource Protection			5.87	
Total Proposed Resource Protection			5.87	

Net Buildable Site Area Calculations		
Base Site Area	49.34	Ac.
Subtract Required Resource Protection Land	5.87	Ac.
Net Buildable Site Area	43.47	Ac.

Maximum Building Coverage Calculations		
Net Buildable Site Area	43.47	Ac.
Multiply by Maximum Building Coverage Ratio	0.35	
Maximum Permitted Site Impervious Surface	15.21	Ac.

REGISTERED SURVEYOR CERTIFICATION
I, _____, A REGISTERED SURVEYOR OF THE COMMONWEALTH OF PENNSYLVANIA, DO HEREBY CERTIFY THAT THIS PLAN CORRECTLY REPRESENTS THE METES AND BOUNDS, AS SHOWN, AND THE LOTS, LAND, STREETS, HIGHWAYS, AND EASEMENTS AS PLOTTED BY ME FOR THE OWNERS OR AGENTS.

(SURVEYOR).
PENNSYLVANIA LICENSE NO. _____

PROFESSIONAL ENGINEER'S CERTIFICATION
I, ROBERT T. CUNNINGHAM, A REGISTERED PROFESSIONAL ENGINEER OF THE COMMONWEALTH OF PENNSYLVANIA, DO HEREBY CERTIFY THAT THIS PLAN MEETS THE REQUIREMENTS OF ALL ORDINANCES AFFECTING THIS SUBDIVISION AND LAND DEVELOPMENT, INCLUDING THE AMENDED ZONING ORDINANCE OF THE TOWNSHIP OF LOWER MAKEFIELD IN WHICH THIS SUBDIVISION OR LAND DEVELOPMENT IS LOCATED NOT WITHSTANDING THE ZONING VARIANCES AND OTHER WAIVERS GRANTED BY LOWER MAKEFIELD TOWNSHIP.

ROBERT T. CUNNINGHAM, P.E.
PENNSYLVANIA LICENSE NO. PE076424

OWNER'S CERTIFICATION
_____, HAVE LAID OUT UPON OUR LAND SITUATED IN LOWER MAKEFIELD TOWNSHIP, COUNTY OF BUCKS, COMMONWEALTH OF PENNSYLVANIA, A LAND DEVELOPMENT ACCORDING TO THE ACCOMPANYING PLAN WHICH IS INTENDED TO BE FORTHWITH RECORDED, AND TO THE BEST OF MY KNOWLEDGE, THE PLANS ARE IN CONFORMITY WITH ENGINEERING, ZONING AND OTHER APPLICABLE TOWNSHIP ORDINANCES AND REGULATIONS.

WITNESS MY HAND AND SEAL THIS _____ DAY OF _____, 2026.

(OWNER)

ACKNOWLEDGEMENT
ON THIS, THE _____ DAY OF _____, 20____, BEFORE ME, A NOTARY PUBLIC, THE UNDERSIGNED OFFICER, PERSONALLY APPEARED _____ AND THAT HE AS SUCH OFFICER, BEING AUTHORIZED TO DO SO, SIGNED THE WITHIN PLAN OF LAND DEVELOPMENT DESIRING THAT THE PLAN BE RECORDED ACCORDING TO LAW.

IN WITNESS WHEREOF, I HEREUNTO SET MY HAND AND OFFICIAL SEAL.

NOTARY PUBLIC

MY COMMISSION EXPIRES THE _____ DAY OF _____, 20____.

APPROVAL OF THE LOWER MAKEFIELD TOWNSHIP PLANNING COMMISSION
THIS SUBDIVISION AND LAND DEVELOPMENT PLAN WAS REVIEWED BY THE LOWER MAKEFIELD TOWNSHIP PLANNING COMMISSION ON THIS _____ DAY OF _____, 20____.

(CHAIRMAN) _____
(SECRETARY) _____

APPROVAL OF THE BOARD OF SUPERVISORS OF LOWER MAKEFIELD TOWNSHIP
THIS SUBDIVISION AND LAND DEVELOPMENT PLAN WAS APPROVED BY RESOLUTION OF THE BOARD OF TOWNSHIP SUPERVISORS OF LOWER MAKEFIELD TOWNSHIP THIS _____ DAY OF _____, 20____.

(CHAIRMAN) _____ (SUPERVISOR) _____
(SUPERVISOR) _____ (SUPERVISOR) _____
(SUPERVISOR) _____

REVIEWED BY THE TOWNSHIP ENGINEER, LOWER MAKEFIELD TOWNSHIP
THIS SUBDIVISION AND LAND DEVELOPMENT PLAN WAS REVIEWED BY THE APPOINTED LOWER MAKEFIELD TOWNSHIP ENGINEER _____ P.E. ON THIS _____ DAY OF _____, 20____.

(TOWNSHIP ENGINEER) _____ P.E.

CERTIFICATION OF REVIEW BY THE BUCKS COUNTY PLANNING COMMISSION
BCPC # _____

THIS SUBDIVISION AND LAND DEVELOPMENT PLAN WAS REVIEWED BY THE BUCKS COUNTY PLANNING COMMISSION IN ACCORDANCE WITH THE PENNSYLVANIA MUNICIPALITIES PLANNING CODE, ACT 247, AS AMENDED. CERTIFIED THIS DATE _____, 2026.

CERTIFICATION FOR RECORDING
THIS SUBDIVISION AND LAND DEVELOPMENT PLAN WAS RECORDED IN THE OFFICE OF RECORDER OF DEEDS FOR BUCKS COUNTY, AT DOYLESTOWN, PENNSYLVANIA, THIS _____ DAY OF _____, 20____.

BY:
RECORDER OF DEEDS

NOTES:
1. THE BOUNDARY AND TOPOGRAPHIC INFORMATION IS TAKEN FROM AN EXISTING FEATURES PLAN PREPARED BY CONTROL POINT ASSOCIATES, INC., DATED NOVEMBER 18, 2024.
2. WETLANDS INFORMATION SHOWN IS TAKEN FROM A WETLAND DELINEATION PERFORMED BY VVW CONSULTANTS IN OCTOBER 2025.
3. LOCATIONS OF EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM EXISTING RECORDS AND/OR ABOVE GROUND OBSERVATION AT THE SITE. COMPLETENESS OR ACCURACY OF LOCATION CAN NOT BE GUARANTEED.
4. ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES/FACILITIES PRIOR TO THE START OF WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF P.L. 862, NO. 287 DECEMBER 10, 1974 AS LAST AMENDED ON OCTOBER 9, 2008, PENNSYLVANIA ACT 121.
5. THE SITE IS ZONED O/R - OFFICE RESEARCH DISTRICT.
6. ELEVATION INFORMATION IS BASED ON THE NATIONAL AMERICAN VERTICAL DATUM OF 1988 (NAVVD88) AND HORIZONTAL DATUM ID BASED ON 1983 STATE COORDINATE SYSTEM.
7. REFERENCE IS MADE TO PENNSYLVANIA ONE CALL SYSTEM, IN ACCORDANCE WITH PA ACT 287 OF 1974 AS AMENDED BY PA ACT 187 OF 2008, (800-242-1776).
8. FLOOD ZONE INFORMATION: SUBJECT PARCEL AREA IS LOCATED OUTSIDE ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 500-YEAR FLOODPLAIN) OF THE FLOOD INSURANCE RATE MAP, PANEL NO. 432 OF 532, COMMUNITY MAP NO. 42017C0432J WHICH BEARS AN EFFECTIVE DATE OF MARCH 16, 2015.
9. ALL STORMWATER AND DRAINAGE FACILITIES ARE A PERMANENT PART OF THE DEVELOPMENT AND SHALL NOT BE REMOVED, ALTERED, OR MODIFIED WITHOUT PRIOR APPROVAL FROM LOWER MAKEFIELD TOWNSHIP.
10. THE STORMWATER MANAGEMENT AND CONVEYANCE FACILITIES SHOWN ARE TO BE OWNED AND MAINTAINED BY THE PROPERTY OWNER. A BLANKET EASEMENT IS PROVIDED FOR THE TOWNSHIP TO ACCESS AND INSPECT THE STORMWATER FACILITIES. THE PROPERTY OWNER WILL ENTER INTO A STORMWATER MAINTENANCE AGREEMENT WITH THE TOWNSHIP FOR PERPETUAL MAINTENANCE AND OTHER RESPONSIBILITIES.
11. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH LOWER MAKEFIELD TOWNSHIP CONSTRUCTION STANDARDS.
12. ALL WORK TO BE CONDUCTED WITHIN PENNDOT RIGHT-OF-WAY SHALL BE COMPLETED IN ACCORDANCE WITH THE APPROVED HIGHWAY OCCUPANCY PERMIT AND PLANS, PERMIT # _____

STATEMENT OF PURPOSE:
THE PURPOSE OF THIS PLAN IS TO PROVIDE A DEDICATED DRIVEWAY TO THE PROPERTY LOCATED WITHIN MIDDLETOWN TOWNSHIP (TWP # 22-031-024). THE DRIVEWAY CONNECTION TO TOWNSHIP LINE ROAD WILL BE PROVIDED VIA AN ACCESS EASEMENT TO THAT MIDDLETOWN PROPERTY. THE STORMWATER RUNOFF FROM THE PROPOSED WORK WILL BE CAPTURED AND TREATED WITHIN MIDDLETOWN TOWNSHIP.

REVISIONS

Date	Description
4/24/2026	REVISED PER TOWNSHIP COMMENTS
6/12/2026	REVISED PER TOWNSHIP COMMENTS
7/20/2026	REVISED PER TOWNSHIP COMMENTS
9/11/2026	REVISED PER TOWNSHIP COMMENTS

CALL BEFORE YOU DIG: 1-800-486-6347
TOWNSHIP OF LOWER MAKEFIELD
CONSTRUCTION PHASE AND STAGE
10 WORKDAYS
-- STOP & CALL --
PENNSYLVANIA ONE CALL SYSTEM, INC.
Call System, Inc.
1-800-242-1776
ON OR AFTER THE DATE OF THE CONSTRUCTION PERMIT, THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT UTILITY COMPANIES PRIOR TO ANY EXCAVATION.

FARM'S EDGE AT SHADY BROOK ACCESS ROADWAY
TWP # 20-012-001

LOWER MAKEFIELD TOWNSHIP, BUCKS COUNTY, PA

OVERALL RECORD SITE PLAN

REGISTERED PROFESSIONAL ENGINEER
ROBERT T. CUNNINGHAM
PA PE076424

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2000.C1.0 RECORD LM.DWG

HCE Job
2000

Date
11/14/2025

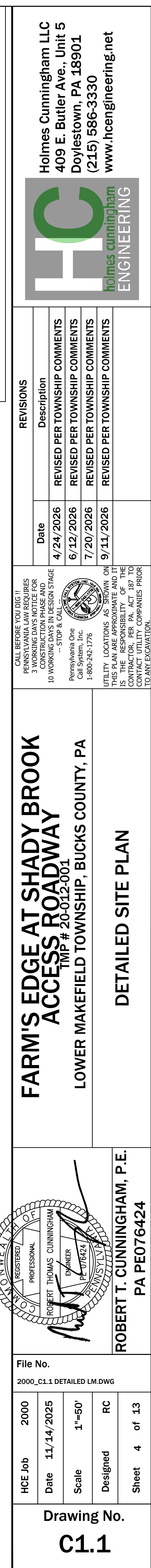
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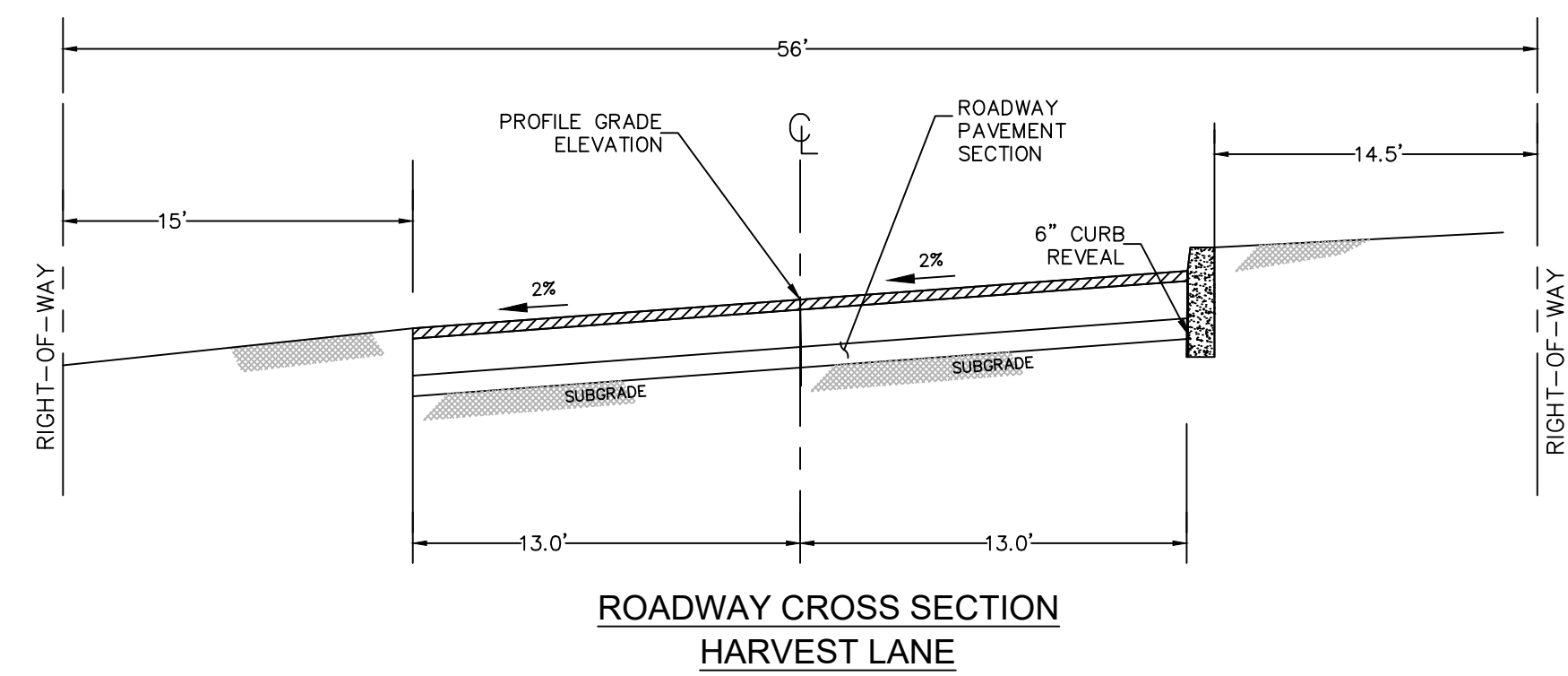
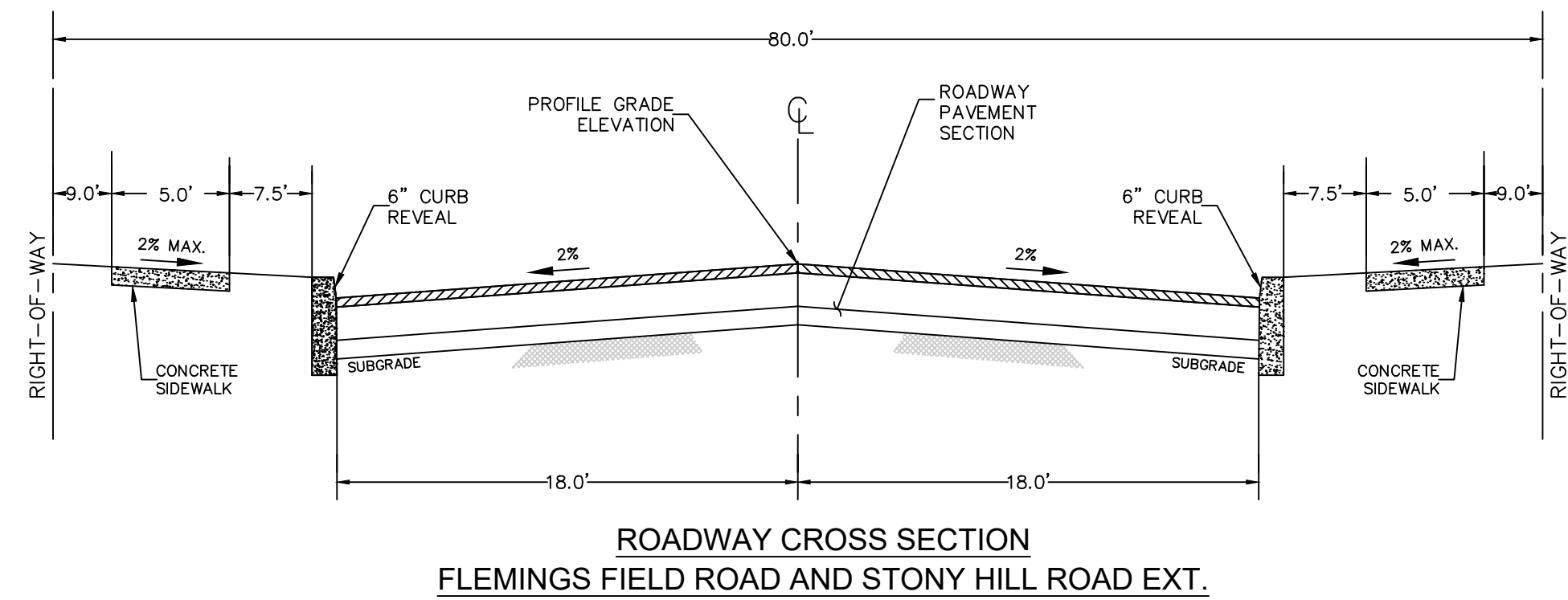
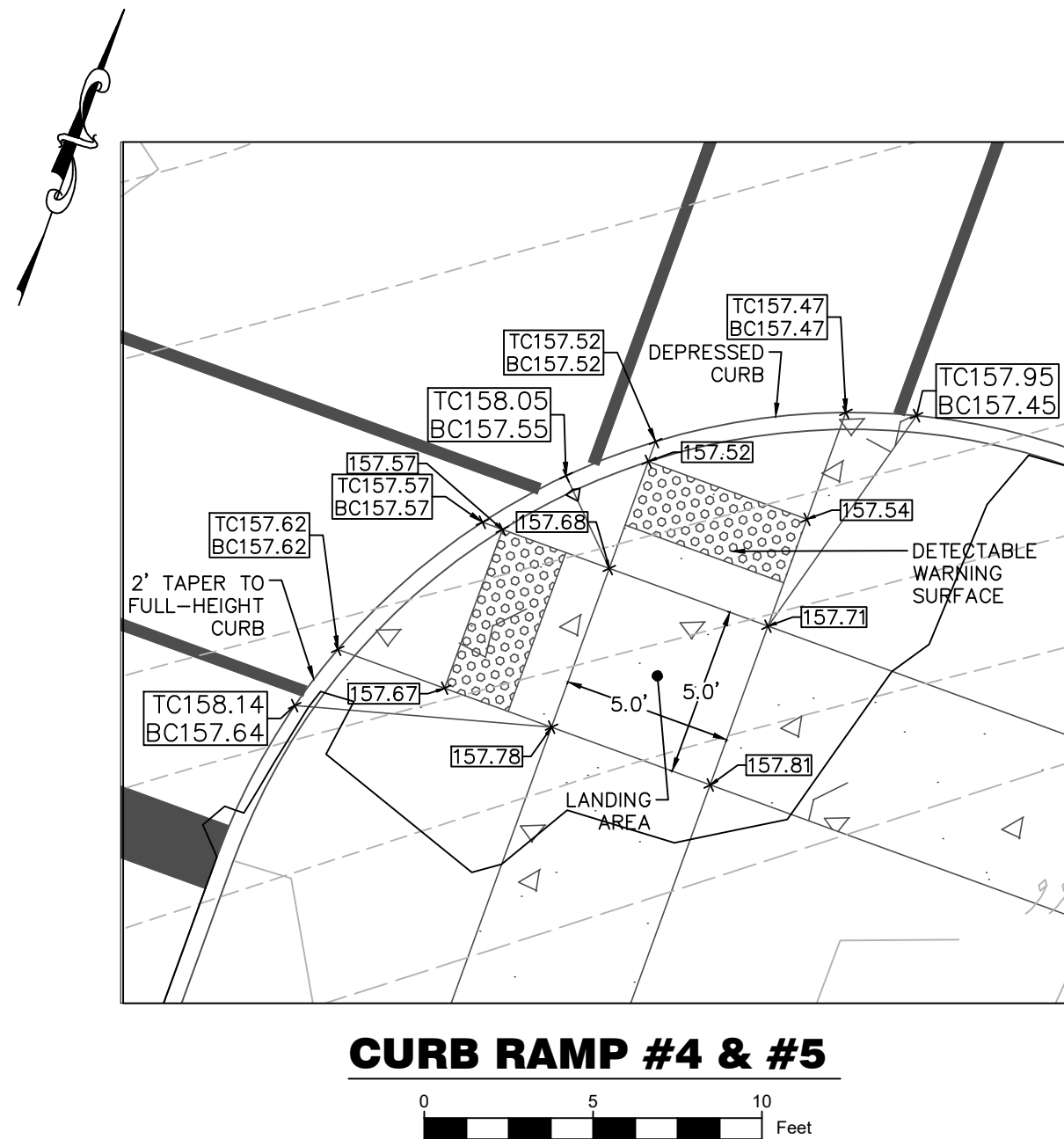
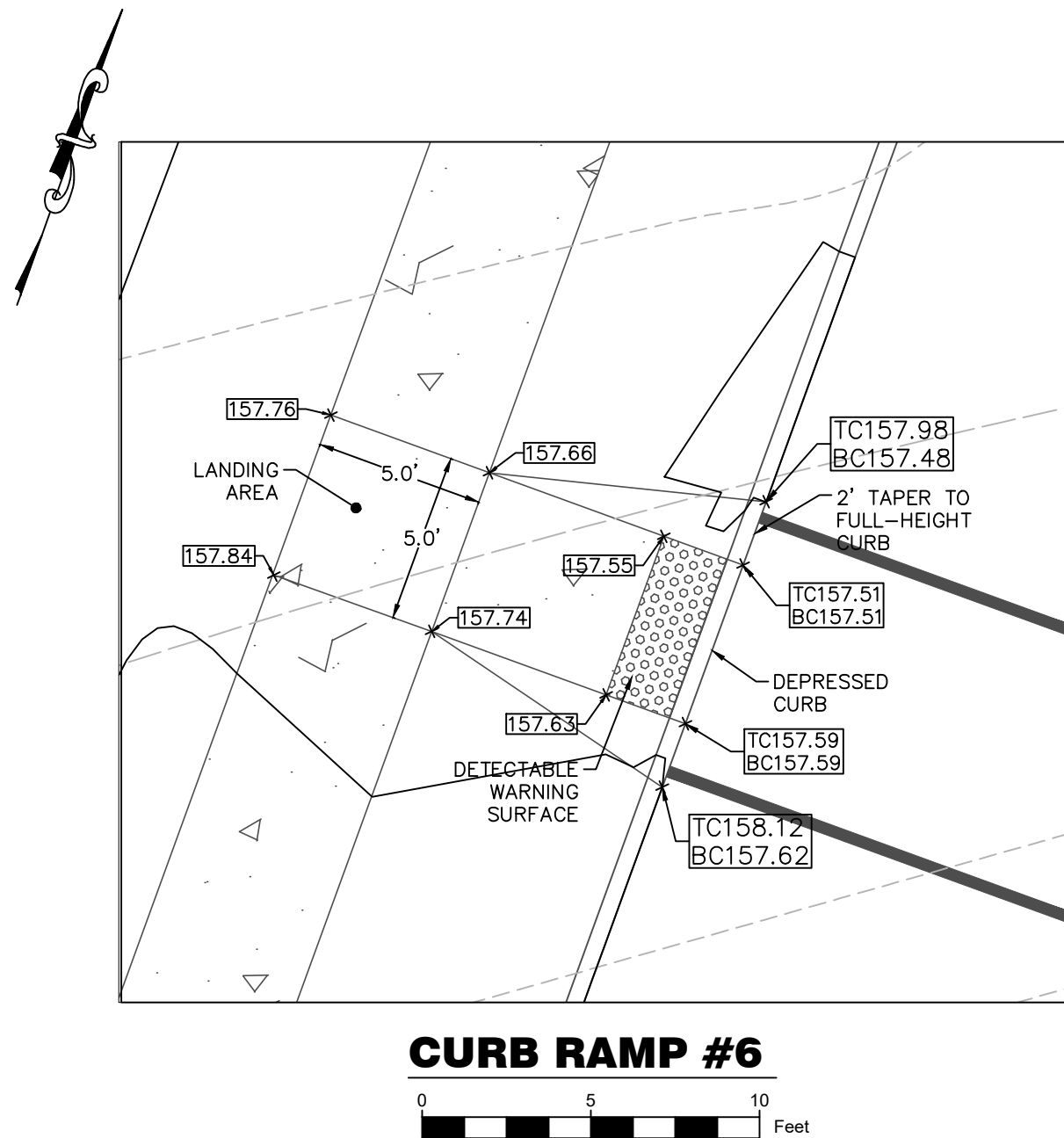
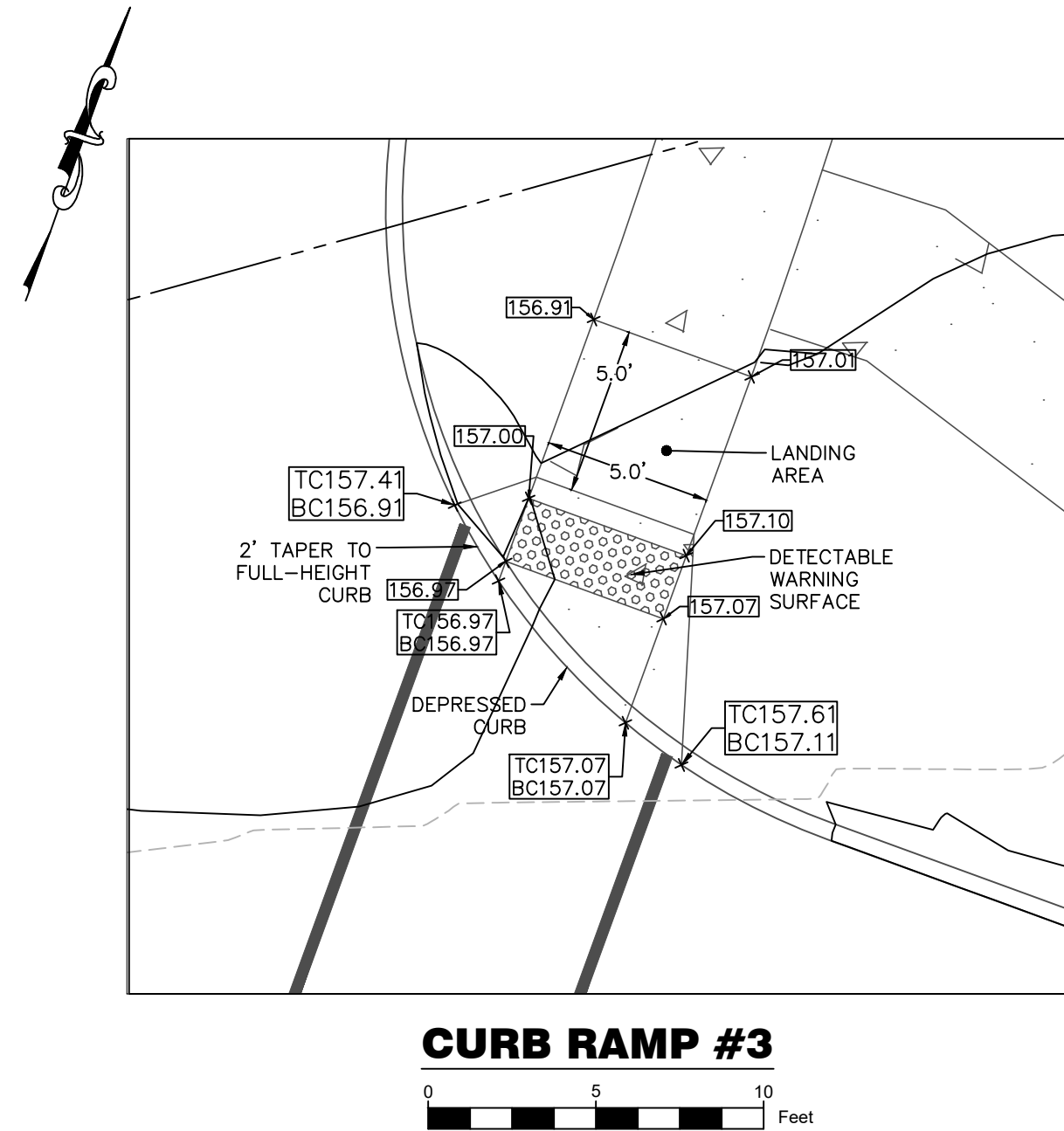
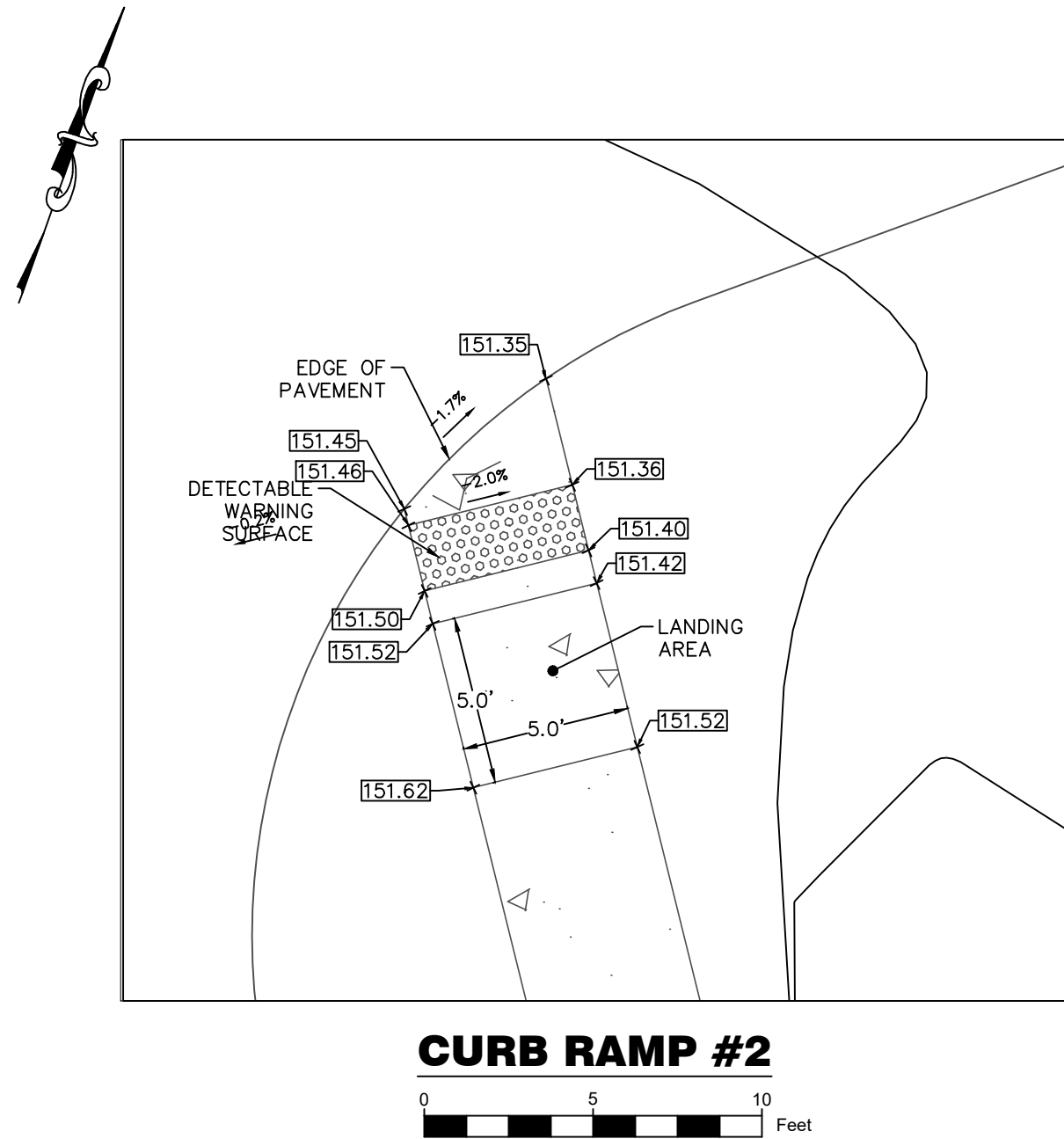
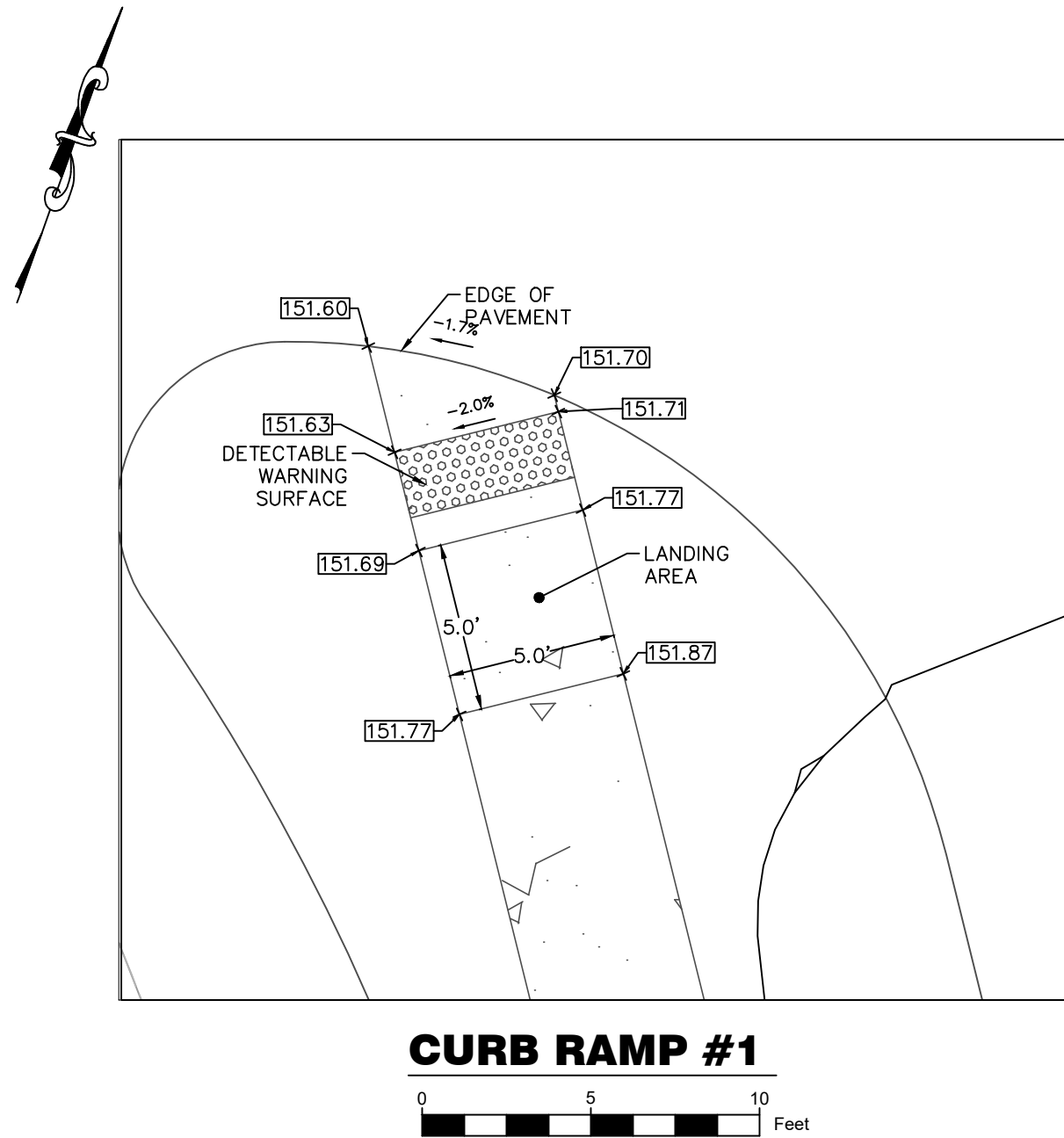
Designed
RC

Sheet
3 of 13

Drawing No.
C1.0

Holmes Cunningham LLC
409 E. Butler Ave., Unit 5
Doylestown, PA 18901
(215) 586-3330
www.hcengineering.net





Holmes Cunningham LLC
409 E. Butler Ave., Unit 5
Doylestown, PA 18901
(215) 586-3330
www.hcengineering.net

HC

holmes cunningham
ENGINEERING

REVISIONS	
Date	Description
4/24/2026	REVISED PER TOWNSHIP COMMENTS
6/12/2026	REVISED PER TOWNSHIP COMMENTS
7/20/2026	REVISED PER TOWNSHIP COMMENTS
9/11/2026	REVISED PER TOWNSHIP COMMENTS

CALL BEFORE YOU DIG !!
THIS DRAWING IS FOR THE PROPOSED CONSTRUCTION PHASE AND NOT FOR THE EXISTING CONDITIONS. ANY UTILITIES SHOWN ARE BASED ON THE BEST AVAILABLE INFORMATION. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO ANY EXCAVATION.

10 WORKSHEET STAGE
PENNSYLVANIA ONE
Call System, Inc.
1-800-242-1776

ON OR AFTER THE DATE OF THE LAST REVISION, THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO ANY EXCAVATION.

**FARM'S EDGE AT SHADY BROOK
ACCESS ROADWAY**
THIP # 20-012-001
LOWER MAKEFIELD TOWNSHIP, BUCKS COUNTY, PA

CONSTRUCTION DETAILS

PA 00000000

REGISTERED PROFESSIONAL ENGINEER

ROBERT THOMAS CUNNINGHAM

PA 00000000

PA 00000000

REGISTERED PROFESSIONAL ENGINEER

ROBERT THOMAS CUNNINGHAM

PA 00000000

PA 00000000

REGISTERED PROFESSIONAL ENGINEER

ROBERT THOMAS CUNNINGHAM

PA 00000000

File No.
2000_C2.0 GRADING LM.DWG

HCE Job
2000

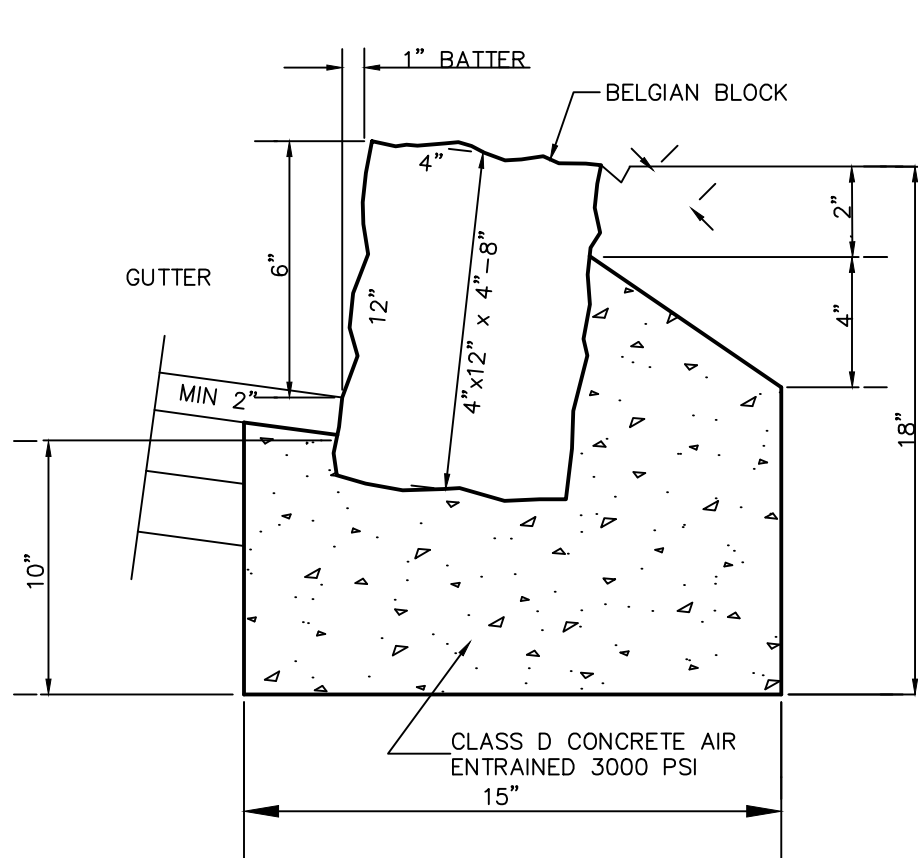
Date
11/14/2025

Scale
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Designed
RC

Sheet
6 of 13

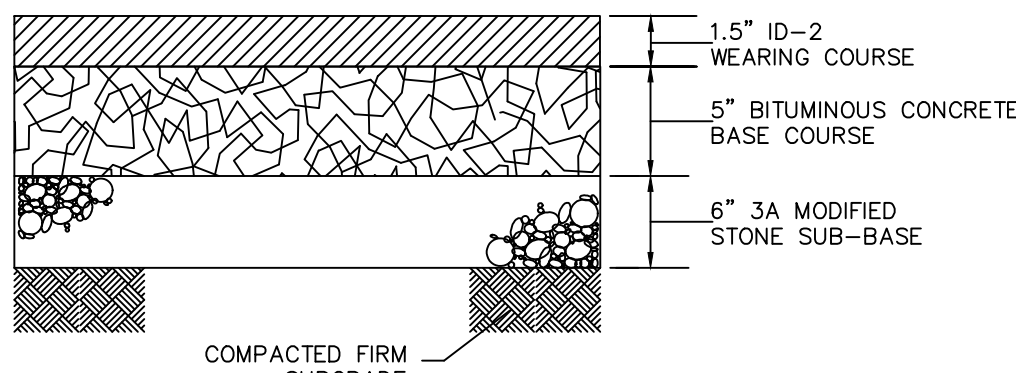
Drawing No.
C2.1



NOTES:

- ON TRANSITIONS FROM AND TO PROPOSED CURB, USE ONE LARGE BLOCK SLOPED AND CUT TO FIT.
- CURB IMMEDIATELY ADJACENT TO INLET CASTING MUST HAVE PREFORMED EXPANSION MATERIAL.
- CONCRETE JOINTS USE MORTAR WITH COMPOSITION - 3 SAND:1 CEMENT, JOINTS TO BE 1/2" WIDE.
- 6" BELGIAN BLOCK CURB TO BE USED FOR ALL ON-SITE RESIDENTIAL ROADS.

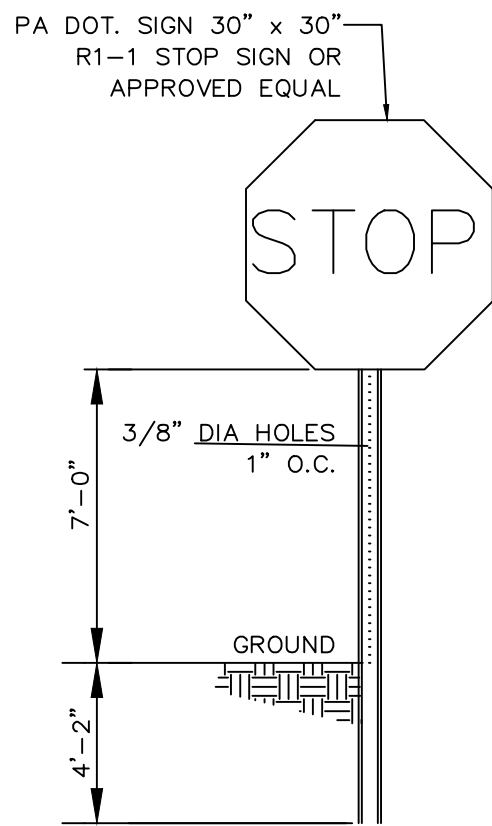
BELGIAN BLOCK CURB



NOTES:

- ALL COURSES SHALL CONFORM TO PADOT 408 REQUIREMENTS.
- PAVEMENT SECTION TO BE USED FOR ALL ON-SITE PAVING.
- STRUCTURAL FABRIC MAY BE REQUIRED IN LOCATIONS DEEMED NECESSARY BY THE TOWNSHIP ENGINEER.

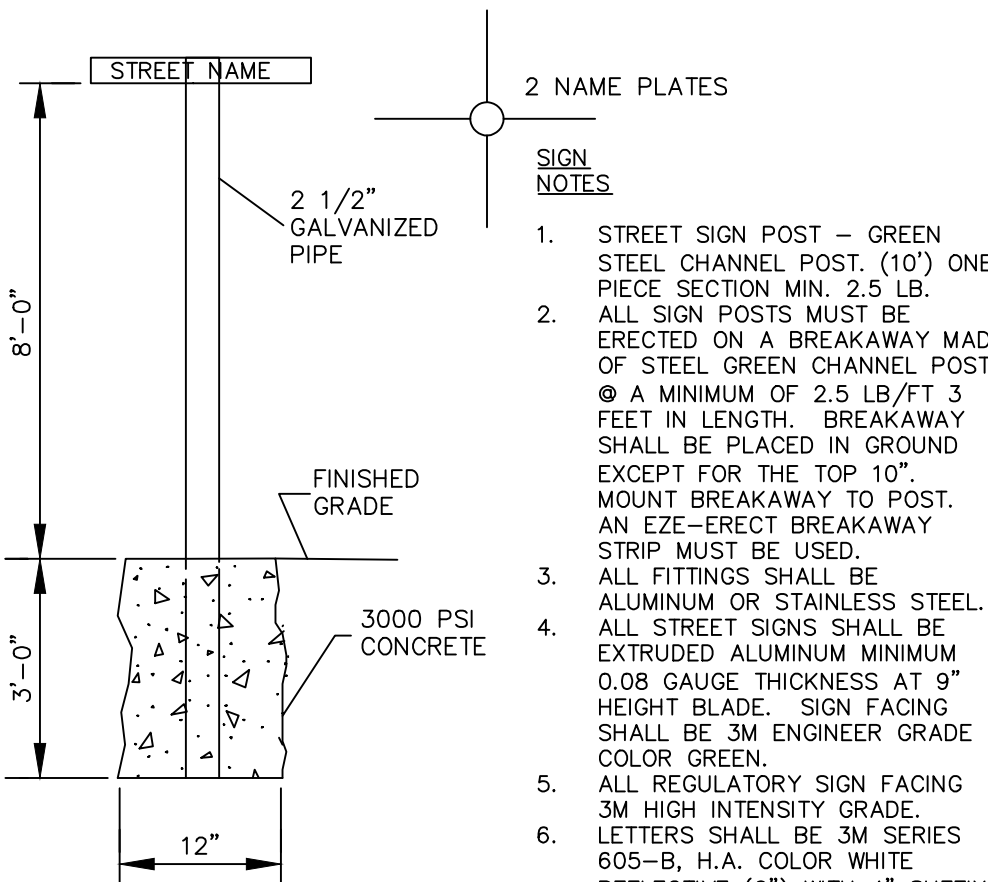
ROAD PAVEMENT SECTION



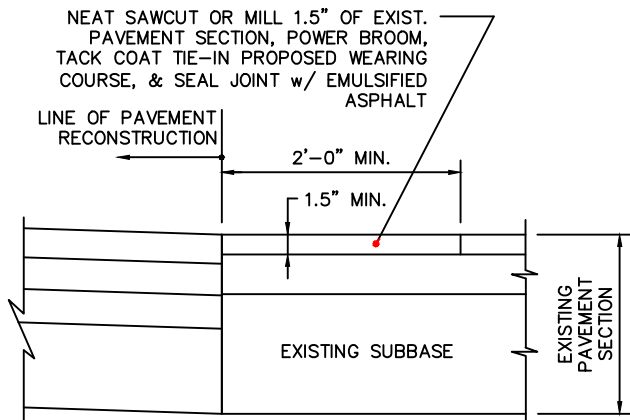
NOTES:

- ALL POSTS SHALL BE OF ADEQUATE LENGTH TO MEET THE REQUIREMENTS FOR ERECTION AS STATED IN THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".
- ALL POSTS SHALL BE EMBEDDED 4'-2" MINIMUM BELOW GRADE.
- ALL STEEL POSTS AND BRACKETS SHALL BE CUT, BENT, AND HOLES PUNCHED AND DRILLED BEFORE GALVANIZING. GALVANIZING SHALL BE IN CONFORMANCE WITH CURRENT A.S.T.M. SPECIFICATION A123-78 (OR LATEST REVISED).
- POSTS MAY BE STEEL, ALUMINUM, OR TWO-PIECE U-POST.
- SIGN PANEL SIZES SHALL DETERMINE POST TYPE AND NUMBERS AS SHOWN ON THIS DETAIL AND DIRECTIONAL SIGN SHEET.
- BOLTS SHALL NOT PROTRUDE MORE THAN 3/4" BEYOND THE NUT WHEN TIGHT BUT SHALL ENGAGE ALL THREADS IN THE NUT.
- ALL TRAFFIC AND PEDESTRIAN SIGNAGE SHALL BE MOUNTED ON A BREAKAWAY POST.
- ALL TRAFFIC AND PEDESTRIAN SIGNAGE AND LOCATION SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND ALL CURRENT AMENDMENTS.

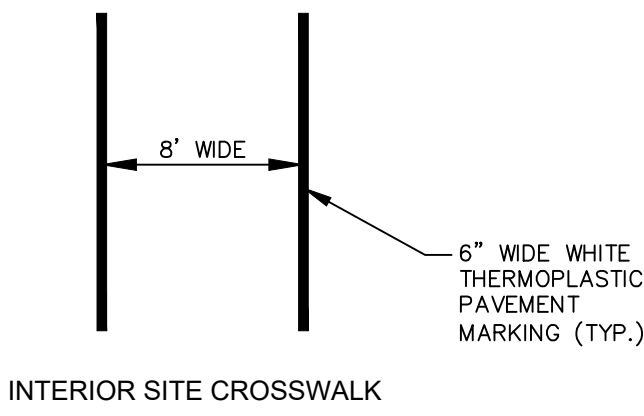
STOP SIGN



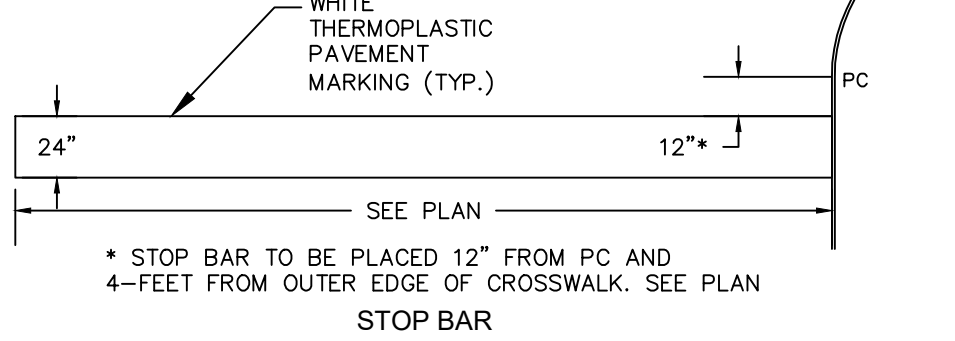
STREET SIGN



PAVEMENT TIE-IN



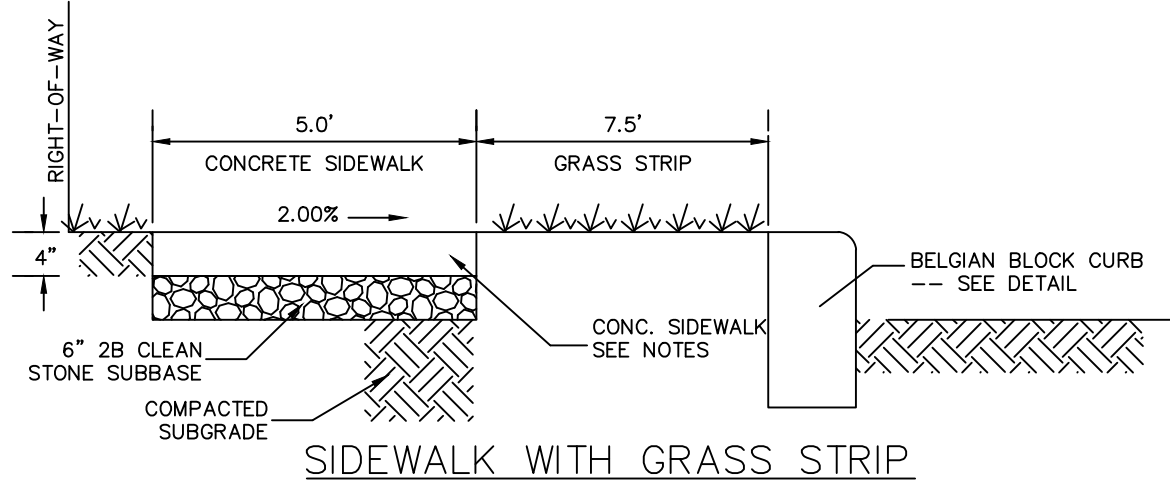
INTERIOR SITE CROSSWALK



NOTES:

- CONTRACTOR TO INSTALL CROSSWALKS PER THE MANUAL ON UNIFORM TRAFFIC CONTROL STANDARDS (MUTCD), CURRENT EDITION WITH LATEST REVISIONS.
- ALL THERMOPLASTIC AND EPOXY RESIN PAVEMENT MARKINGS TO BE INSTALLED PER THE BOROUGH SPECIFICATIONS AND DESIGN STANDARDS.

CROSSWALK AND STOP BAR DETAIL

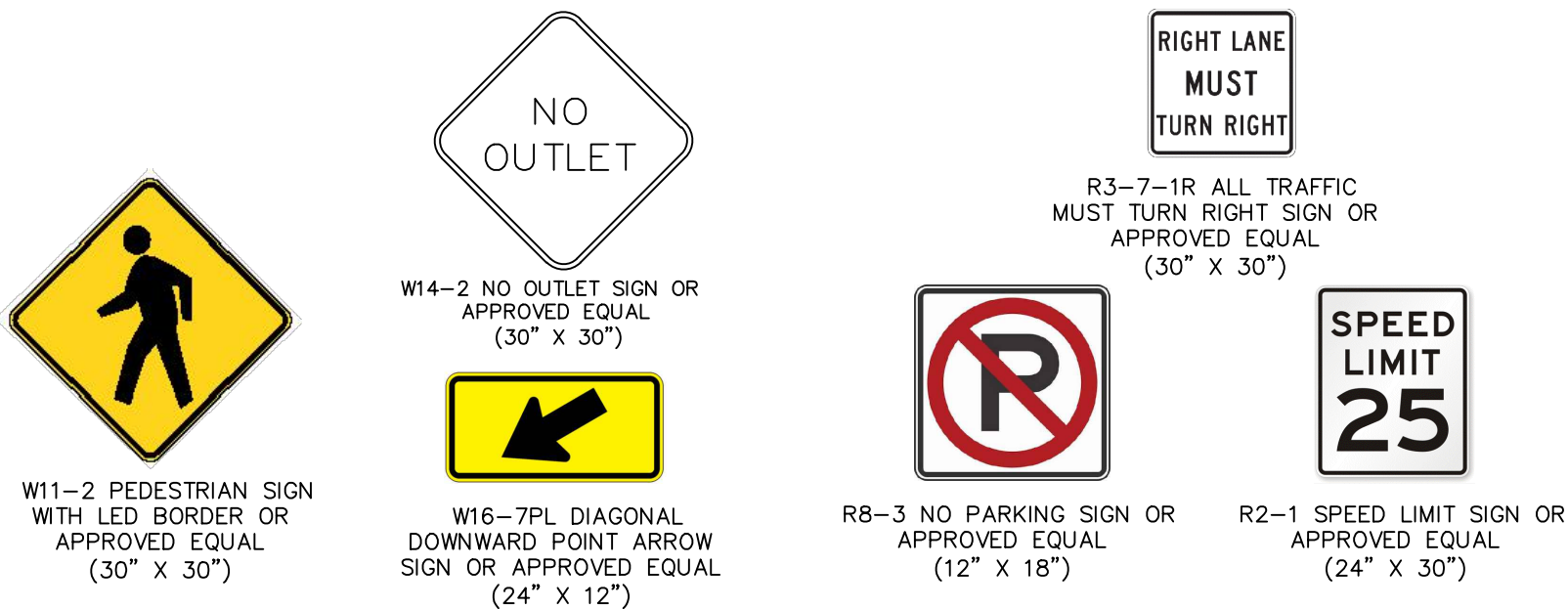


SIDEWALK WITH GRASS STRIP

NOTES:

- SIDEWALK IS TO BE PROVIDED, PLACED, CURED AND FINISHED TO PENNDOT SPECIFICATIONS PUB. 408 (CURRENT EDITION), SECTIONS 704 AND 1001. TYPE A CONCRETE (3,300 PSI, TWENTY-EIGHT-DAY STRENGTH) SHALL BE USED.
- CONTRACTION JOINTS: SPACED AT EQUAL INTERVALS BETWEEN EXPANSION JOINTS, NOT TO EXCEED 5 FEET FOR SIDEWALKS TO BE FORMED BY DIVISION PLATES OR CUTTING GROOVE INTO CONCRETE SURFACE NOT LESS THAN 1/3 ENTIRE DEPTH OF SLAB.
- SIDEWALK THICKNESS 6 INCHES AT RESIDENTIAL DRIVEWAYS. FINISHED WITH WOOD FLOAT, ROUGHEN FINISH FOR SLOPES IN EXCESS OF 4%. THE CONCRETE SIDEWALK SHALL BE PLACED UPON A SIX-INCH-THICK COMPACTED STONE BASE, CONSISTING OF TYPE 2A STONE.
- DRAINAGE SLOPE TO BE MAINTAINED AT 2% TOWARDS CURB.
- EXPANSION JOINTS TO BE ONE-HALF-INCH PRECLUDED, BITUMINOUS, EXPANSION JOINT MATERIAL AT THIRTY-FOOT INTERVALS; NEXT TO BUILDINGS, POLES, STRUCTURES AND CURBS; AROUND INTERSECTIONS OF TWO WALKS; DRIVEWAY APRON JOINT TO WALL, CURB OR SIDEWALK; AND AT ENDS OF ALL WALKS AND CURBS INCLUDING RADIUS CURBS.
- MINIMUM NO. 9, SIX BY SIX MESH TO BE USED IN CONCRETE DRIVEWAY CONSTRUCTION.
- CONTRACTION JOINTS ARE TO BE PLACED EVERY 5' AND EXPANSION JOINTS TO ARE TO BE PLACED EVERY 20'.
- SIDEWALK BEDDING SHALL BE 4" OF 2B CLEAN STONE.
- CLASS A AIR ENTRAINED CONCRETE MIX IS TO BE USED FOR SIDEWALK CONSTRUCTION.

SIDEWALK



NOTES:

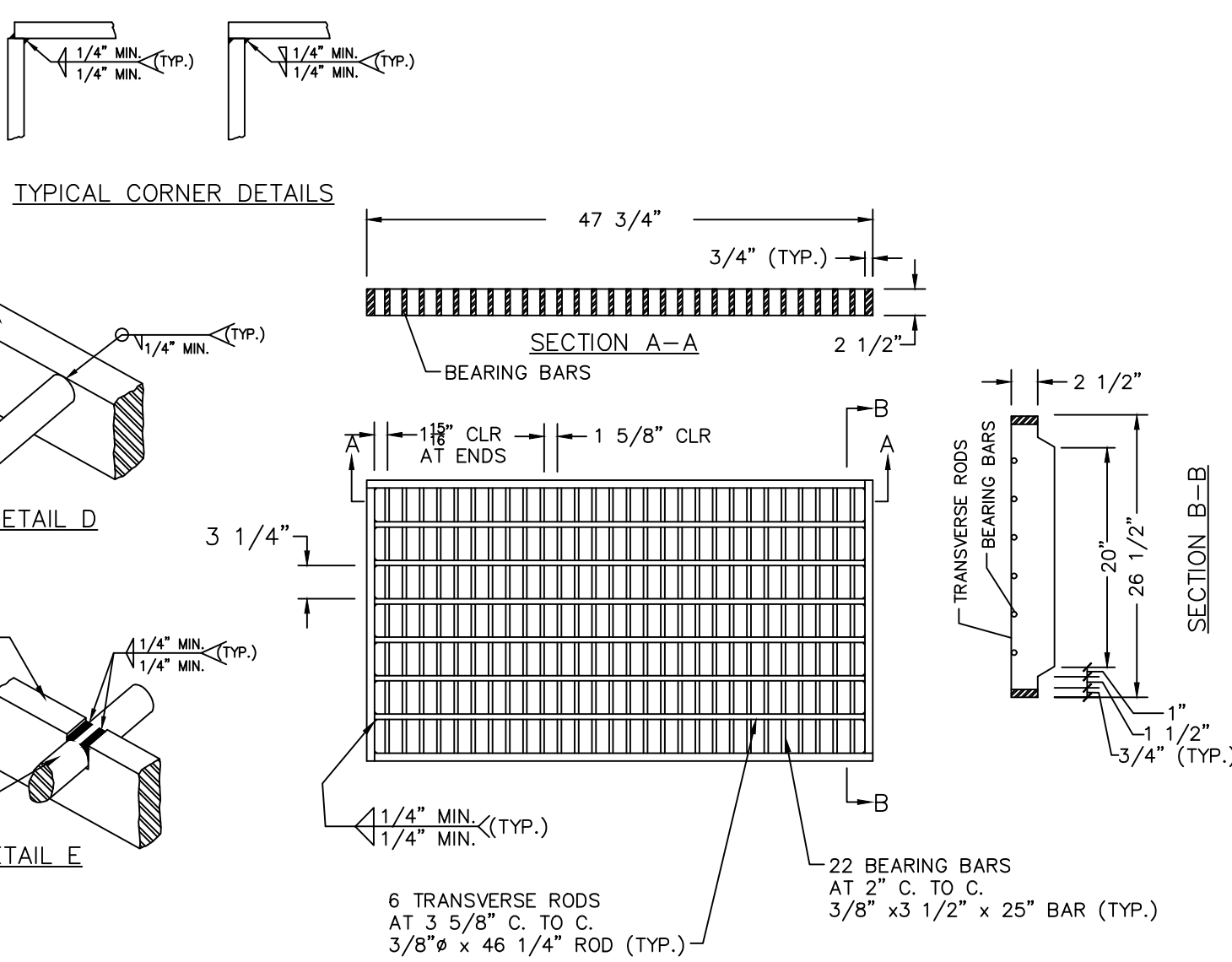
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- ALL POSTS SHALL BE EMBEDDED 3'-0" MINIMUM BELOW GRADE.
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PEDESTRIAN CROSSING SIGN DETAIL

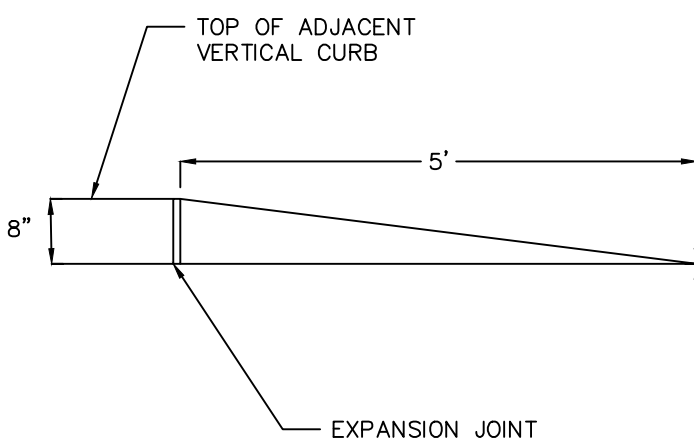
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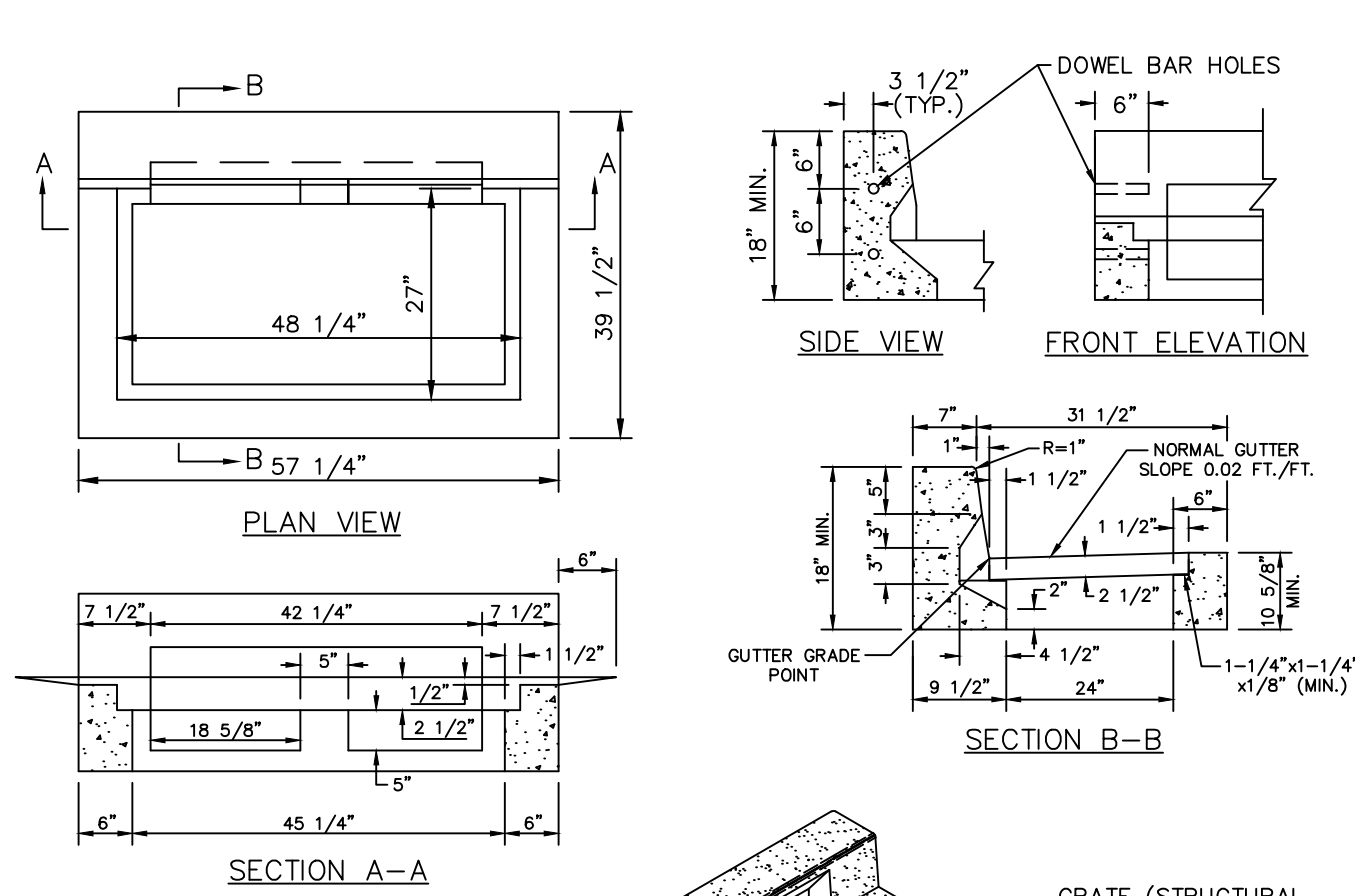
SIGNS DETAIL



STRUCTURAL STEEL BICYCLE SAFE INLET GRATE DETAIL

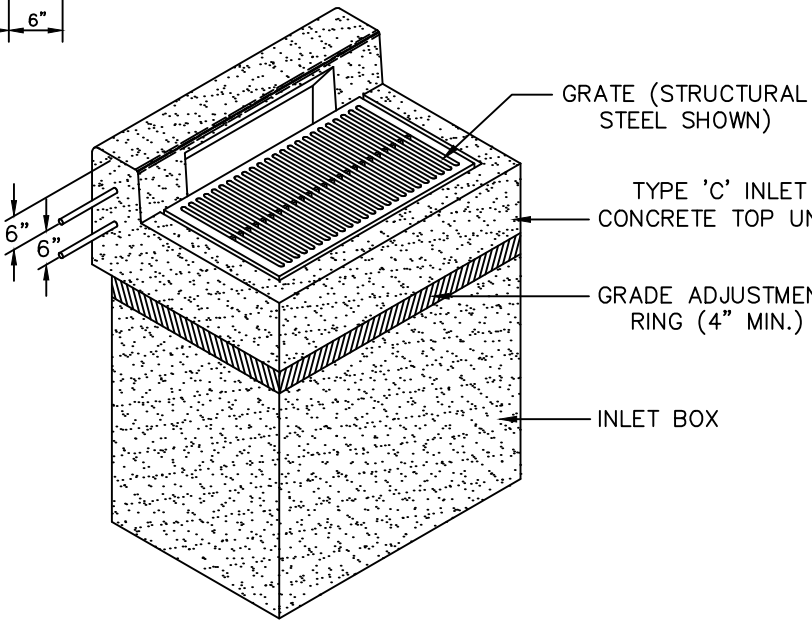


CURB TAPER DETAIL

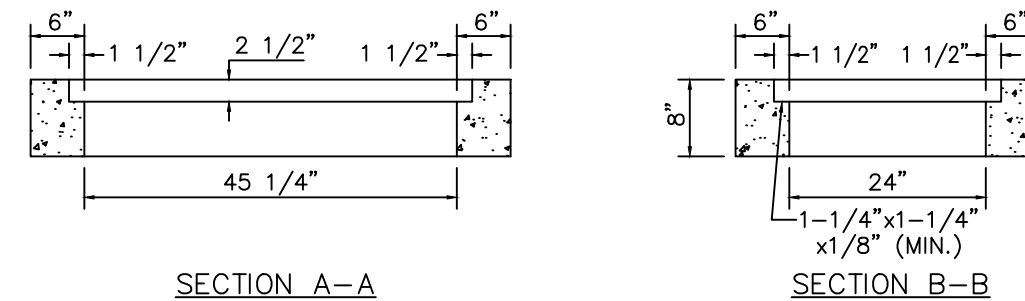


NOTE:

REFER TO "COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION, BUREAU OF HIGHWAY DESIGN, STANDARDS FOR ROADWAY CONSTRUCTION", PAGE RC-34, SHEETS 1 and 2 of 9, LATEST ISSUE, FOR NOTES AND SPECIFICATIONS REGARDING PRECAST INLET CONSTRUCTION.

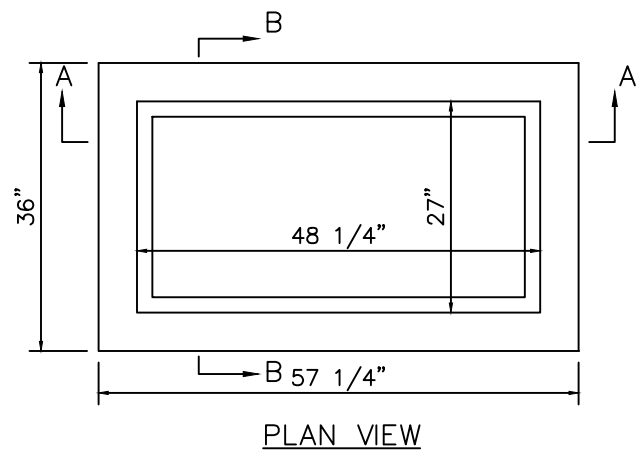


TYPE C INLET DETAIL

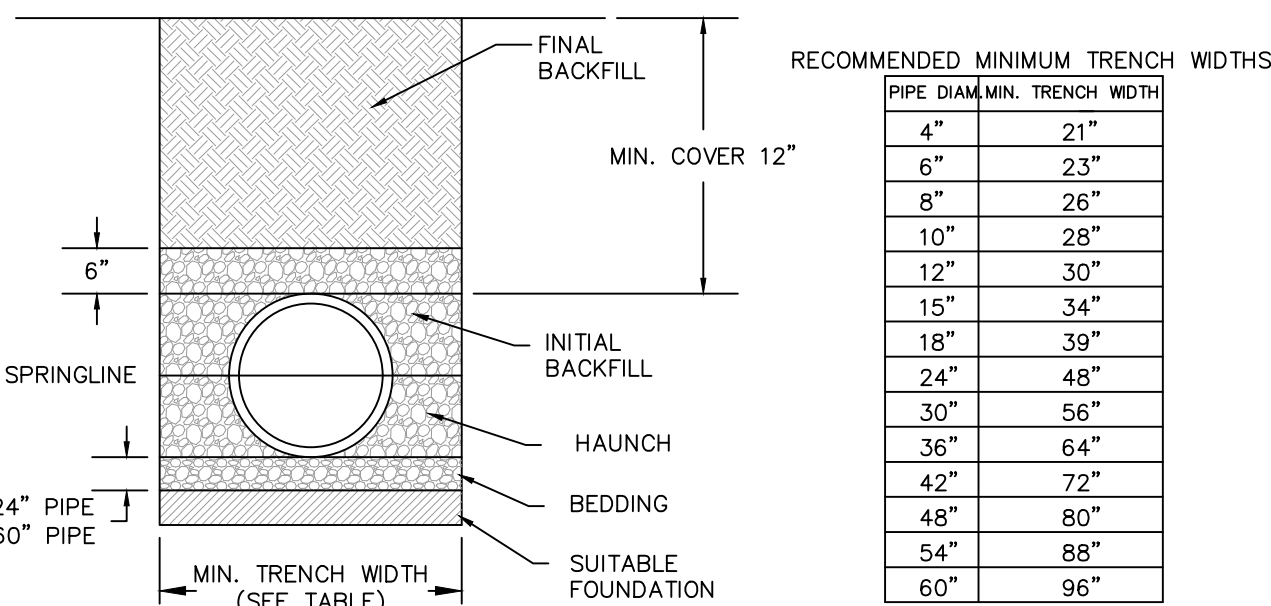


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REFER TO "COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION, BUREAU OF HIGHWAY DESIGN, STANDARDS FOR ROADWAY CONSTRUCTION", PAGE RC-34, SHEETS 1 and 2 of 9, LATEST ISSUE, FOR NOTES AND SPECIFICATIONS REGARDING PRECAST INLET CONSTRUCTION.



TYPE M INLET DETAIL

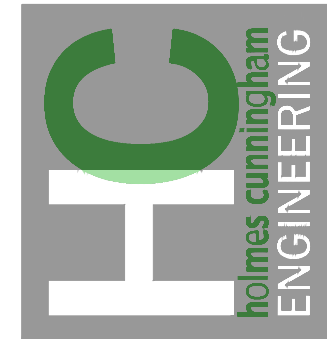


NOTES:

- ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST ADDITION.
- MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
- FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
- BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-900mm).
- INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
- MINIMUM COVER: MINIMUM COVER, H. IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54"-60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

HDPE PIPE DETAIL

Holmes Cunningham LLC
409 E. Butler Ave., Unit 5
Doylestown, PA 18901
(215) 586-3330
www.hcengineering.net

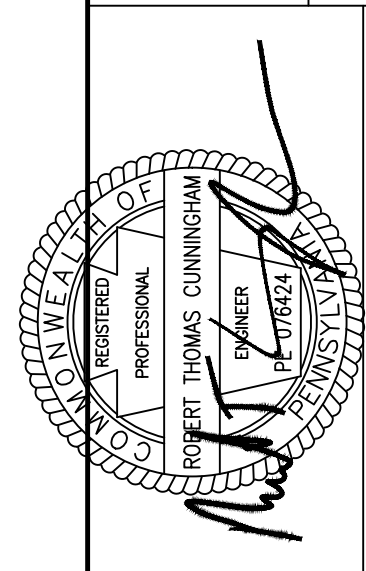


REVISIONS	Description	Date
1	REVISED PER TOWNSHIP COMMENTS	4/24/2026
2	REVISED PER TOWNSHIP COMMENTS	6/12/2026
3	REVISED PER TOWNSHIP COMMENTS	7/20/2026
4	REVISED PER TOWNSHIP COMMENTS	9/11/2026

CALL BEFORE YOU DIG II
TOWNSHIP OF LOWER MAKEFIELD
CONSTRUCTION PHASE AND
CONSTRUCTION NOTES PER
10 WORKSHEET - STOP & CALL
Pennsylvania One
Call System, Inc.
1-800-242-1776
UTILITY LOCATIONS AS SHOWN
ON THIS SHEET ARE THE PROPERTY
OF THE TOWNSHIP OF LOWER
MAKEFIELD. THE RESPONSIBILITY
OF THE CONTRACTOR TO VERIFY
CONTACT UTILITY COMPANIES PRIOR
TO ANY EXCAVATION.

FARM'S EDGE AT SHADY BROOK
ACCESS ROADWAY
TWP # 20-012-001
LOWER MAKEFIELD TOWNSHIP, BUCKS COUNTY, PA

CONSTRUCTION DETAILS



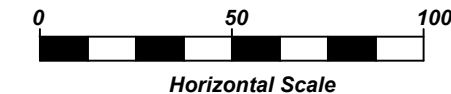
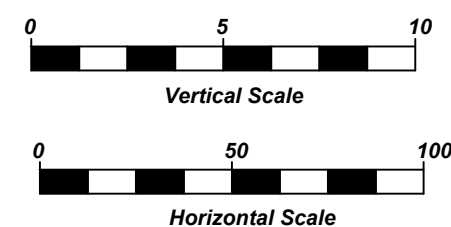
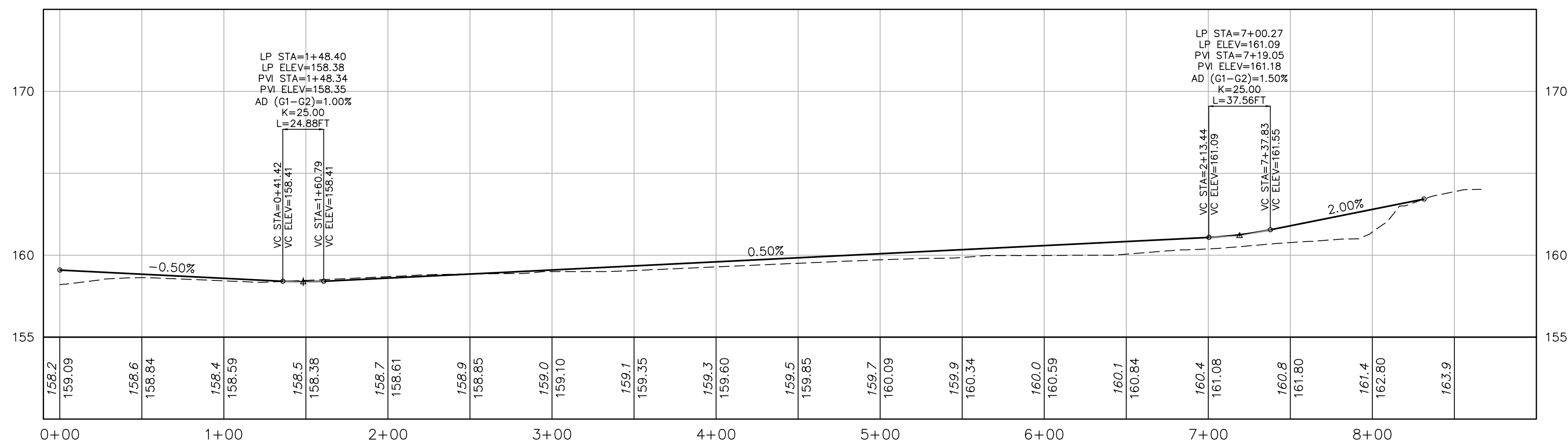
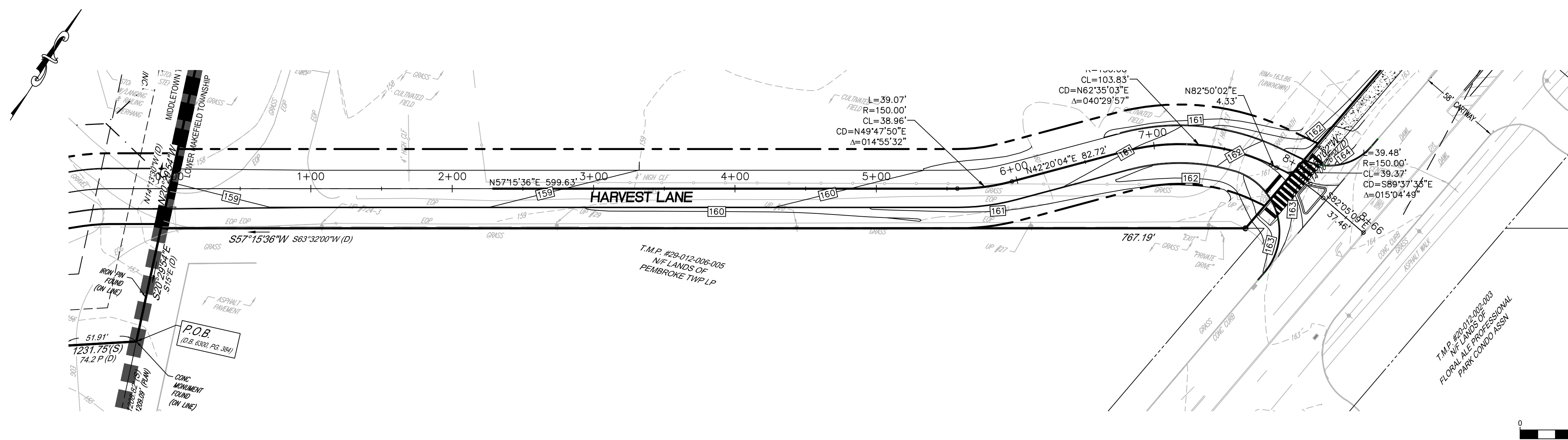
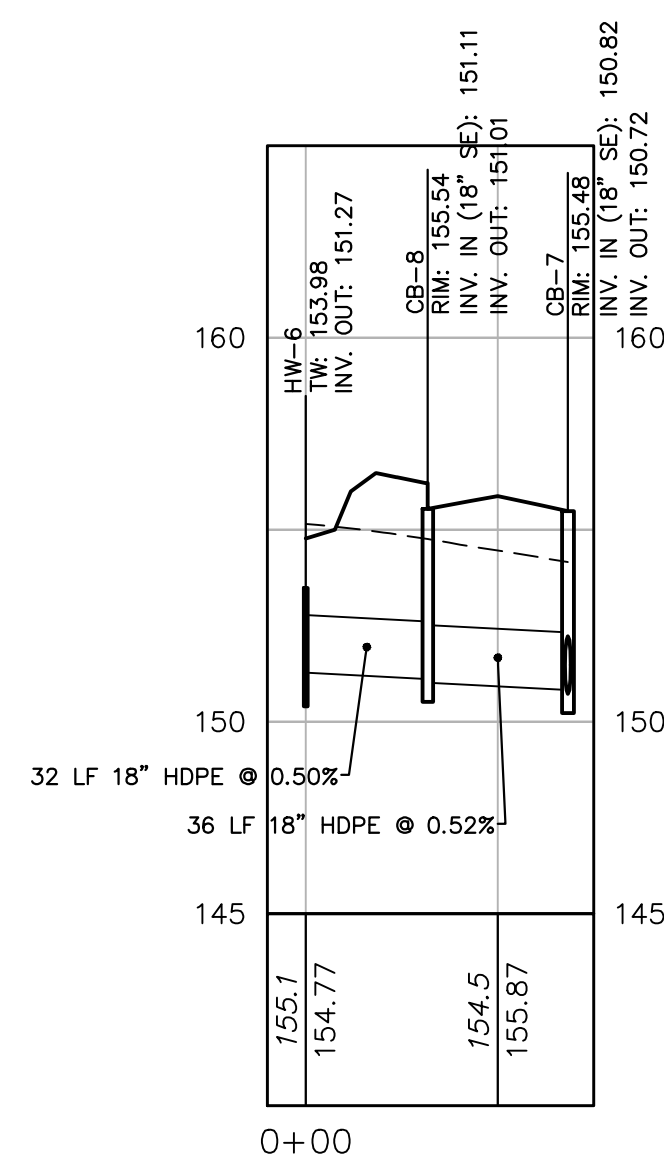
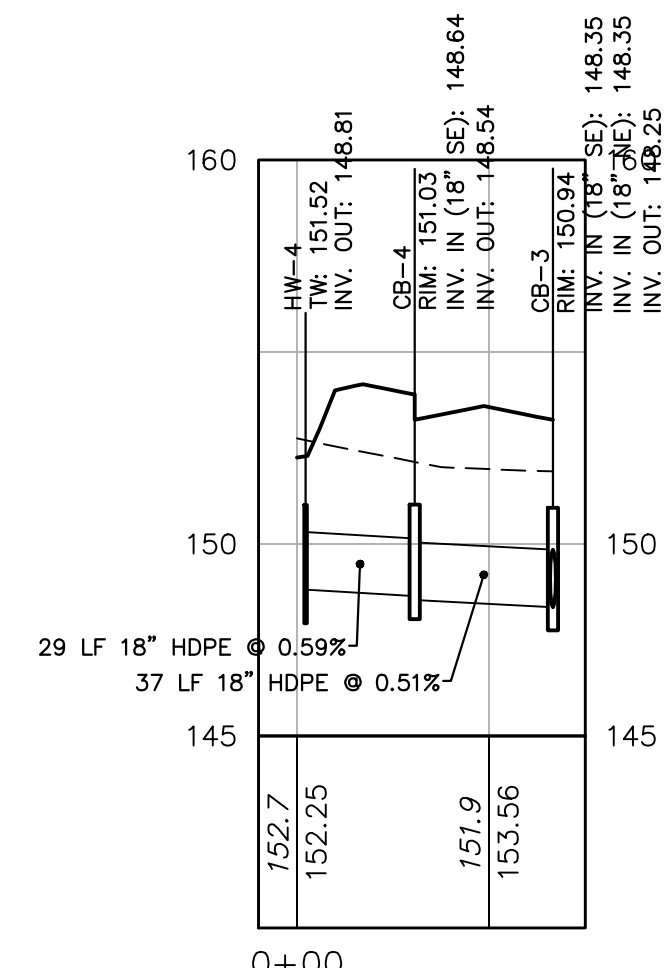
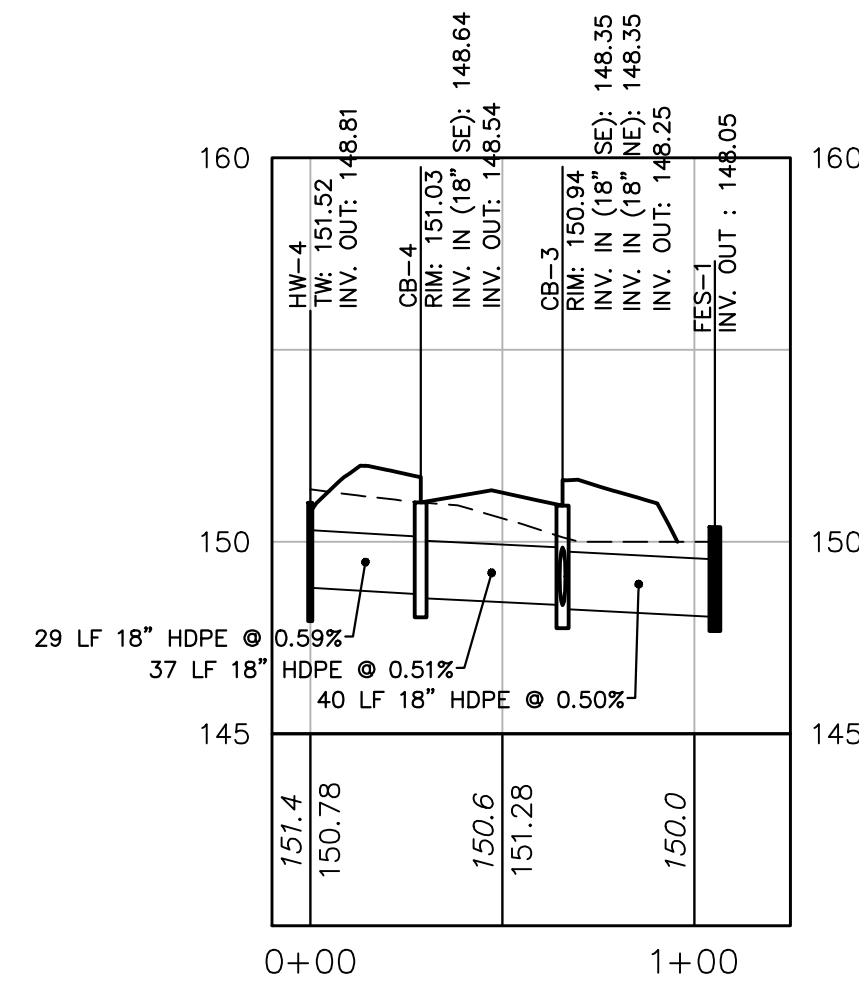
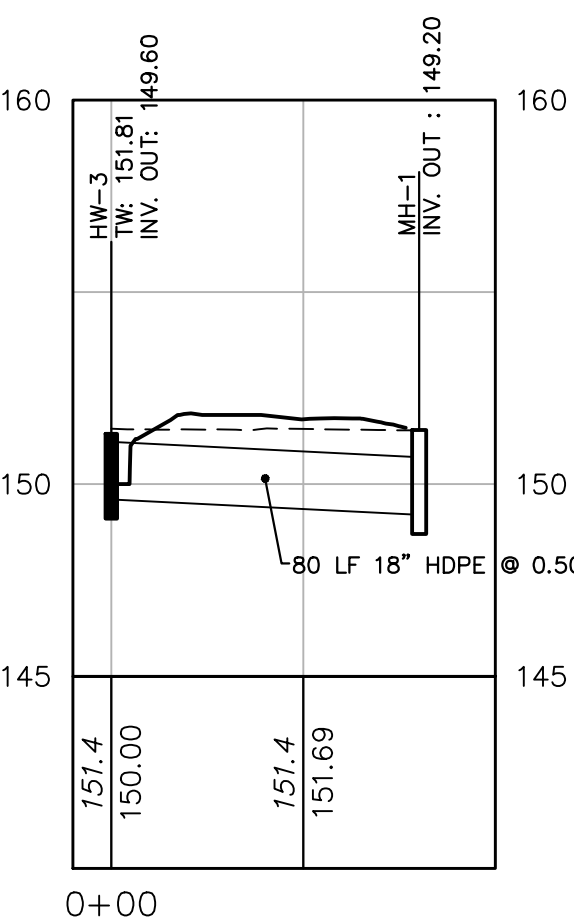
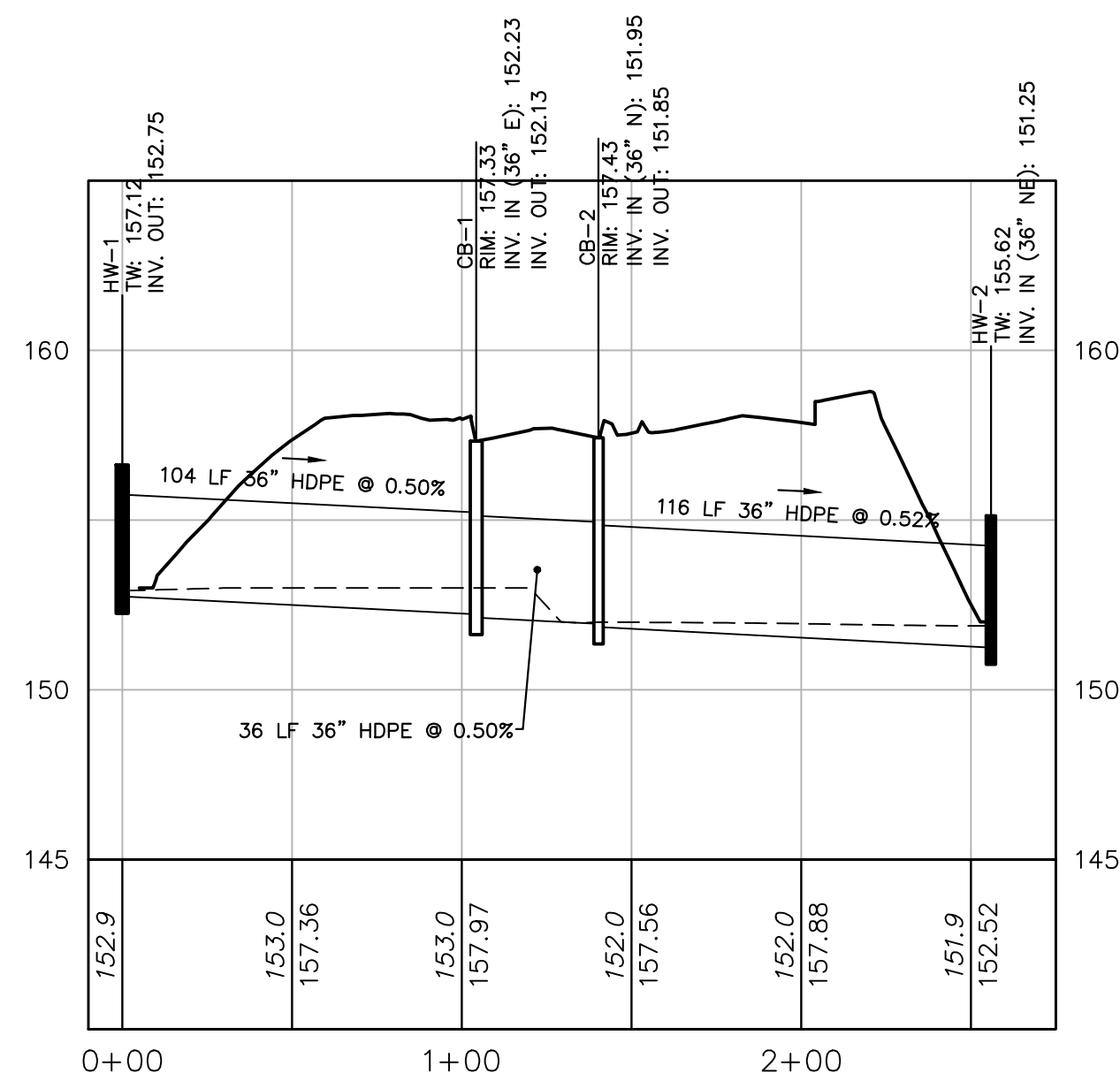
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2000_C2.0 GRADING LMDWG

HCE Job	Date	Scale	Designed	Sheet
2000	11/14/2025	N.T.S.	RC	7 of 13

Drawing No.

C2.2



STANDARD = PROPOSED PROFILE ELEVATION
ITALICIZED = EXISTING PROFILE ELEVATION

ITALICIZED = EXISTING PROFILE ELEVATION

REVISIONS	
Date	Description
4/24/2026	REVISED PER TOWNSHIP COMMENTS
6/12/2026	REVISED PER TOWNSHIP COMMENTS
7/20/2026	REVISED PER TOWNSHIP COMMENTS
9/11/2026	REVISED PER TOWNSHIP COMMENTS

CALL BEFORE YOU DIG !!

PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION PHASE AND
10 WORKING DAYS IN DESIGN STAGE

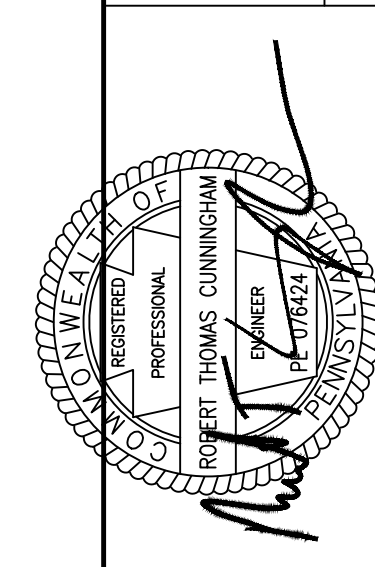
-- STOP & CALL --

Pennsylvania One
Call System, Inc.
1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON

**FARM'S EDGE AT SHADY BROOK
ACCESS ROADWAY**
TMP # 20-012-001
LOWER MAKEFIELD TOWNSHIP, BUCKS COUNTY, PA

ROADWAY AND UTILITY PROFILES



File No.

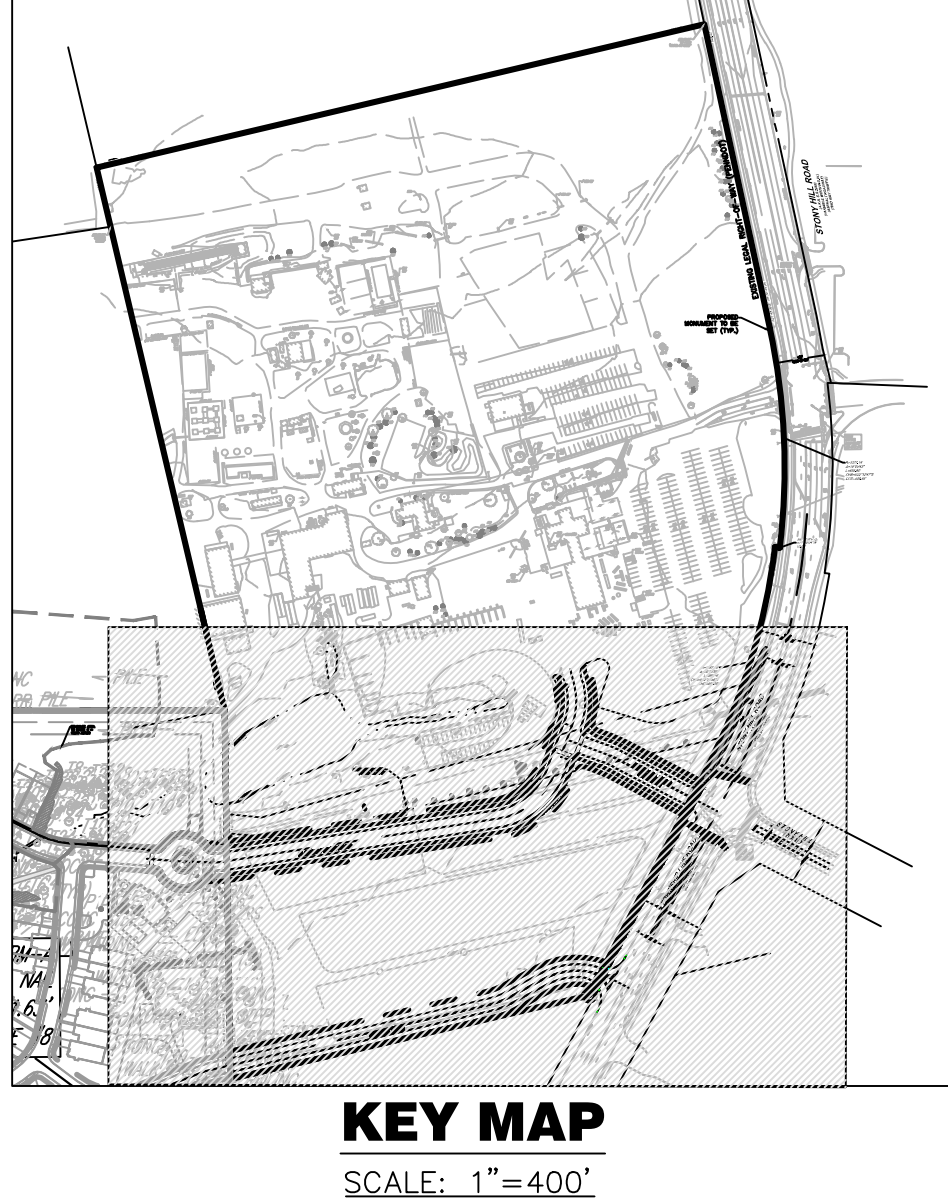
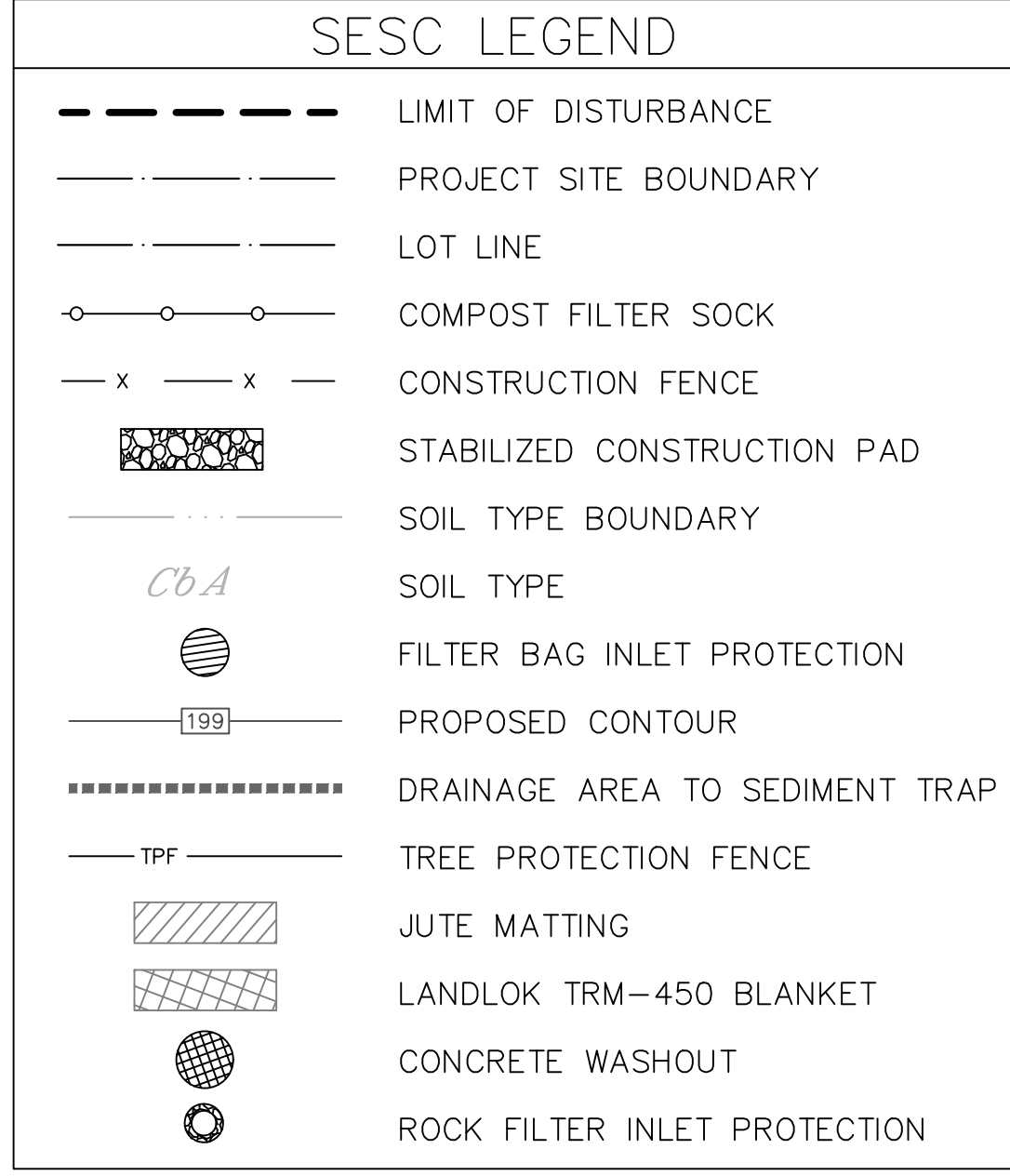
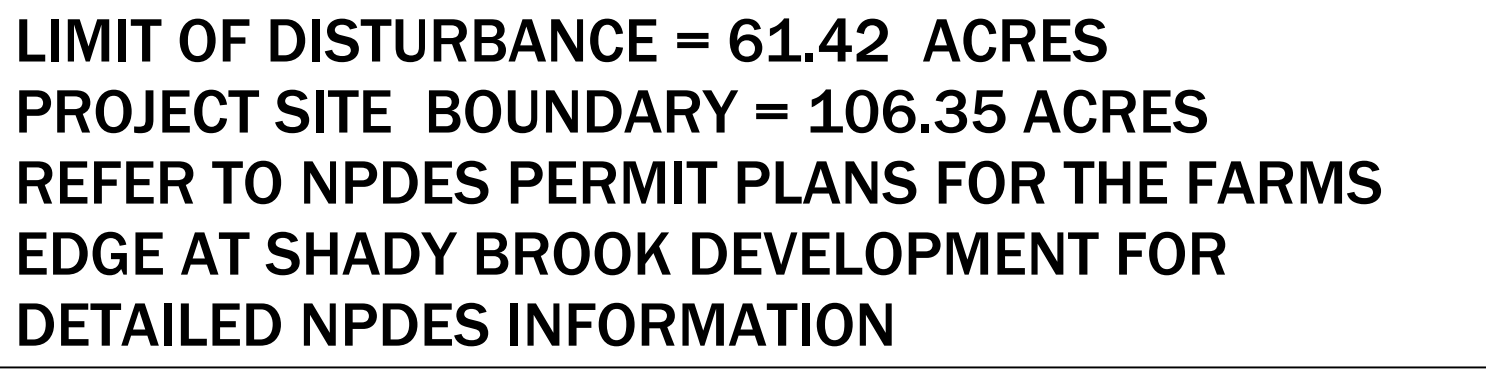
2000_C3.0 PROFILES LM.DW

HCE Job	2000
Date	11/14/2025
Scale	AS SHOWN
Designed	RC

Drawing N

C3.1

Holmes Cunningham LLC
409 E. Butler Ave., Unit 5
Doylestown, PA 18901
(215) 586-3330
www.hcengineering.net



**FARM'S EDGE AT SHADY BROOK
ACCESS ROADWAY**
TWP # 20-012.001

LOWER MAKEFIELD TOWNSHIP, BUCKS COUNTY, PA

EROSION AND SEDIMENT CONTROL PLAN



ROBERT T. CUNNINGHAM, P.E.
PA PE076424

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No. 2000.C4.0 ES LM.DWG

HCE Job 2000

Date 11/14/2025

Scale 1"=50'

Designed RC

Sheet 10 of 13

Drawing No. C4.0

EROSION / SEDIMENT CONTROL PLAN STANDARD NOTES:

STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET; STOCKPILE SLOPES MUST NOT EXCEED 2L:1V.

THE OPERATOR/RESPONSIBLE PERSON (O/RP) ON SITE SHALL ASSURE THAT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED.

IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE O/RP SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES (BMPs) TO ELIMINATE THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.

THE O/RP SHALL ASSURE THAT AN EROSION AND SEDIMENT CONTROL PLAN HAS BEEN PREPARED, APPROVED BY THE BUCKS COUNTY CONSERVATION DISTRICT AND IS BEING IMPLEMENTED AND MAINTAINED FOR ALL SOIL AND/OR ROCK SPOIL AND BORROW AREAS REGARDLESS OF THEIR LOCATIONS.

ALL PUMPING OF SEDIMENT-LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BMP SUCH AS A PUMPED WATER FILTER BAG DISCHARGING OVER UNDISTURBED AREAS.

A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN MUST BE AVAILABLE ON THE PROJECT SITE AT ALL TIMES.

EROSION AND SEDIMENT BMPs MUST BE CONSTRUCTED, STABILIZED AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS WITHIN THE TRIBUTARY AREAS OF THOSE BMPs.

AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMP CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING THE REMOVAL OF THE BMPs MUST BE STABILIZED IMMEDIATELY.

AT LEAST SEVEN (7) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITY, THE O/RP SHALL INVITE ALL CONTRACTORS INVOLVED IN THAT ACTIVITY, THE LANDOWNER, ALL APPROPRIATE MUNICIPAL OFFICIALS, THE EROSION AND SEDIMENT CONTROL PLAN DESIGNER AND THE BUCKS COUNTY CONSERVATION DISTRICT TO A PRE-CONSTRUCTION MEETING. ALSO, AT LEAST THREE DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITY, CONTRACTORS INVOLVED IN THAT ACTIVITY SHALL NOTIFY THE PENNSYLVANIA ONE-CALL SYSTEM INC. AT 1-800-242-1776 TO DETERMINE ANY UNDERGROUND UTILITIES LOCATIONS.

IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITY CEASES, THE O/RP SHALL STABILIZE ANY AREAS DISTURBED BY THE ACTIVITY. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT SPECIFIED RATES. DISTURBED AREAS THAT ARE NOT AT FINISHED GRADE AND WHICH WILL BE RE-DISTURBED WITHIN ONE YEAR MUST BE STABILIZED IN ACCORDANCE WITH TEMPORARY VEGETATIVE STABILIZATION SPECIFICATIONS.

DISTURBED AREAS THAT ARE AT FINISHED GRADE AND WHICH WILL NOT BE RE-DISTURBED WITHIN ONE YEAR MUST BE STABILIZED IN ACCORDANCE WITH PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS.

AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% (PERCENT) VEGETATIVE OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.

UPON THE INSTALLATION OF TEMPORARY SEDIMENT BASIN RISER(S), A QUALIFIED SITE REPRESENTATIVE SHALL CONDUCT AN IMMEDIATE INSPECTION OF THE RISER(S), WHEREUPON THE BUCKS COUNTY CONSERVATION DISTRICT SHALL BE NOTIFIED IN WRITING THAT THE RISER IS SEALED (WATER-TIGHT).

AT STREAM CROSSINGS, A 50-FOOT BUFFER SHALL BE MAINTAINED. ON BUFFERS, CLEARINGS, SOD DISTURBANCES AND EXCAVATIONS, EQUIPMENT SHALL BE STATIONED, BURNING, CLEARING, GRUBBING, AND OTHER ACTIVITIES SHALL BE DISCONTINUED. DISCHARGING RAINWATER FROM TRENCHES, WELDING PIPE SECTIONS, REFUELING AND MAINTAINING EQUIPMENT SHOULD BE AVOIDED WITHIN BUFFER ZONES.

UNTIL A SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPs MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION CONTROL BMPs AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING: REPAIR, REPLACEMENT, RE-GRADING, RE-SEEDING, RE-MULCHING AND RE-NETTING MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENT CONTROL BMPs FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPs, OR MODIFICATIONS OF THOSE INSTALLED, WILL BE REQUIRED.

SEDIMENT REMOVED FROM BMPs SHALL BE DISPOSED OF ON-SITE IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED OR PLACED IN SOIL STOCKPILES AND STABILIZED.

ALL BUILDING MATERIAL AND WASTES MUST BE REMOVED FROM THE SITE AND RECYCLED IN ACCORDANCE WITH DEP'S SOLID WASTE REGULATIONS (25 PA CODE 260.1 ET SEQ., 271.1 ET SEQ., AND 287.1 ET SEQ.), AND/OR ANY ADDITIONAL LOCAL, STATE OR FEDERAL REGULATIONS. NO BUILDING MATERIALS (USED OR UNUSED) OR WASTE MATERIALS SHALL BE BURNED, BURIED, DUMPED OR DISCHARGED AT THE SITE.

LIMITING EXPOSED EXTENT AND DURATION OF DISTURBED AREAS

THE INITIAL PHASE OF THE PROPOSED PROJECT CONSISTS OF ESTABLISHING THE SOIL EROSION CONTROL MEASURES IN A SEQUENCE APPROPRIATE TOWARD LIMITING SOIL EROSION. THE EXTENT OF DISTURBED LAND HAS BEEN LIMITED TO INCLUDE ONLY THOSE AREAS REQUIRED FOR THE DEVELOPMENT OF THE SUBJECT SITE. ALL SEDIMENT AND EROSION CONTROL PRACTICES ARE TO BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCE OR IN THEIR PROPER SEQUENCE AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED. UPON COMPLETION OR TEMPORARY CESSATION OF THE EARTH DISTURBANCE ACTIVITY, OR ANY STAGE THEREOF, THE PROJECT SITE SHALL BE IMMEDIATELY STABILIZED. THE SEQUENCE OF CONSTRUCTION ACTIVITIES IS OUTLINED IN THE SEQUENCE OF CONSTRUCTION CONTAINED HEREIN AND ON THE DRAWINGS.

PROTECTION OF EXISTING DRAINAGE FEATURES AND VEGETATION

THE PROJECT PROPOSES TO MINIMIZE DISTURBANCE TO THE EXISTING VEGETATION AT THE SITE BY ONLY PROPOSING DISTURBANCE IN THE AREA WHERE NEEDED. THE SITE VEGETATION PROPOSED FOR DISTURBANCE IS MAINLY SCORER VEGETATION AND VINES WHICH ARE CURRENTLY DETRIMENTAL TO THE LARGE TREES ON THE SOUTHERN PROPERTY LINE.

MINIMIZE SOIL COMPACTION

THE PROJECT DESIGN LIMITS THE BULKY MASS EARTHWORK TO BE PERFORMED AS MUCH AS POSSIBLE. ADDITIONALLY, SOIL COMPACTION WILL NOT BE REQUIRED OTHER THAN IN PROPOSED IMPERVIOUS AREAS.

FEATURES AND MEASURES TO MINIMIZE STORMWATER RUNOFF

TEMPORARY STABILIZATION: UPON COMPLETION OR TEMPORARY CESSATION OF THE EARTH DISTURBANCE ACTIVITY, OR ANY STAGE THEREOF, THE PROJECT SITE SHALL BE IMMEDIATELY STABILIZED. THE DISTURBED AREAS WILL ALSO BE MULCHED WITH UNROTTED STRAW OR SALT HAY. TEMPORARY STABILIZATION MEASURES ARE SPECIFIED ON SOIL EROSION AND SEDIMENT POLLUTION CONTROL DETAIL PLANS.

PERMANENT STABILIZATION: ALL SLOPES AND DISTURBED AREAS SHALL BE STABILIZED WITH PERMANENT SEEDING AND LANDSCAPING AS SOON AS POSSIBLE AFTER THE FINAL EARTHMOVING AND CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED. AREAS THAT ARE PROPOSED TO HAVE SPECIFIC LINING SHALL BE STABILIZED WITH THE SPECIFIED LINING AS SOON AS THE EARTHMOVING AND CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED. TEMPORARY SOIL EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL A UNIFORM EROSION RESISTANT PERENNIAL VEGETATIVE COVER OF THE DISTURBED AREA IS ESTABLISHED. PERMANENT STABILIZATION MEASURES ARE SPECIFIED ON THE EROSION AND SEDIMENT POLLUTION CONTROL DETAIL PLANS.

SOLIDS SEPARATION: PRIOR TO ANY SITE DISTURBANCE OR CONSTRUCTION ACTIVITIES, A GRAVEL BUFFER WILL BE INSTALLED AT THE EXISTING DRIVEWAYS TO SERVE AS A CONSTRUCTION ENTRANCE. IN ADDITION, FILTER FABRIC FENCING WILL BE INSTALLED AROUND THE PROJECT AREA, DOWNGRADIENT FROM ANY DISTURBANCE, TO PREVENT SEDIMENT FROM LEAVING THE SITE. FILTER FABRIC SILT FENCING WILL BE CONSTRUCTED AND WILL REMAIN OPERATIONAL UNTIL PERMANENT CONTROL MEASURES ARE IN PLACE.

UTILITY TRENCHING GUIDELINES:

- CONSTRUCTION REQUIREMENTS –
 - LIMIT ADVANCE CLEARING AND GRUBBING OPERATIONS TO A DISTANCE EQUAL TO TWO TIMES THE LENGTH OF PIPE INSTALLATION THAT CAN BE COMPLETED IN ONE DAY.
 - WORK CREWS AND EQUIPMENT FOR TRENCHING, PLACEMENT OF PIPE, PLUS CONSTRUCTION AND BACKFILLING WILL BE SELF CONTAINED AND SEPARATE FROM CLEARING AND GRUBBING AND SITE RESTORATION AND STABILIZATION OPERATIONS.
 - LIMIT DAILY TRENCH EXCAVATION TO THE LENGTH OF PIPE PLACEMENT, PLUG INSTALLATION AND BACKFILLING THAT CAN BE COMPLETED THE SAME DAY.
 - WATER WHICH ACCUMULATES IN THE OPEN TRENCH WILL BE COMPLETELY REMOVED BY PUMPING AS REQUIRED, TO A FACILITY FOR REMOVAL OF SEDIMENTS IN ACCORDANCE WITH PA DEP GUIDELINES.
 - ON THE DAY FOLLOWING PIPE PLACEMENT AND TRENCH BACKFILLING, THE DISTURBED AREA WILL BE GRADED TO FINAL CONTOURS AND APPROPRIATE TEMPORARY EROSION AND SEDIMENT POLLUTION CONTROL MEASURES/FACILITIES WILL BE INSTALLED. SEEDING AND MULCHING OF ALL DISTURBED AREAS WILL BE DONE AT THE END OF EACH WEEK.
- EXCEPTIONS – IN CERTAIN CASES TRENCHES CANNOT BE BACKFILLED UNTIL THE PIPE IS HYDROSTATICALLY TESTED, OR ANCHORS AND OTHER PERMANENT FEATURES ARE INSTALLED. IN THESE CASES, ALL OF THE REQUIREMENTS LISTED UNDER ITEM 1 WILL REMAIN IN EFFECT WITH THE FOLLOWING EXCEPTIONS:
 - DAILY BACKFILLING OF THE TRENCH MAY BE DELAYED FOR SIX DAYS. ALL PRESSURE TESTING AND THE COMPLETE BACKFILLING OF THE OPEN TRENCH MUST BE COMPLETED BY THE SEVENTH WORKING DAY.
 - IF DAILY BACKFILLING IS DELAYED, THE DISTURBED AREA WILL BE GRADED TO FINAL CONTOURS, APPROPRIATE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES/FACILITIES WILL BE INSTALLED, AND THE AREAS SEEDED AND MULCHED WITHIN THE NEXT TWO CALENDAR DAYS.

CLEAN FILL NOTE:

IF THE SITE WILL NEED TO HAVE FILL IMPORTED FROM AN OFF SITE LOCATION, THE RESPONSIBILITY FOR PERFORMING ENVIRONMENTAL DUE DILIGENCE AND THE DETERMINATION OF CLEAN FILL WILL RESIDE WITH THE OPERATOR.

CLEAN FILL IS DEFINED AS: UNCONTAMINATED, NON-WATER SOLUBLE, NON-DECOMPOSABLE, INERT, SOLID MATERIAL. THE TERM INCLUDES SOIL, ROCK, STONE, DREDGED MATERIAL, USED ASPHALT, AND BRICK, BLOCK OR CONCRETE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES THAT IS SEPARATE FROM OTHER WASTE AND IS RECOGNIZABLE AS SUCH. THE TERM DOES NOT INCLUDE MATERIALS PLACED IN OR ON THE WATERS OF THE COMMONWEALTH UNLESS OTHERWISE AUTHORIZED. (THE TERM "USED ASPHALT" DOES NOT INCLUDE MILLED ASPHALT OR ASPHALT THAT HAS BEEN PROCESSED FOR RE-USE.)

ENVIRONMENTAL DUE DILIGENCE: INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSMITTAL, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS. ANALYTICAL TESTING IS NOT A REQUIRED PART OF DUE DILIGENCE UNLESS VISUAL INSPECTION AND/OR REVIEW OF THE PAST LAND USE OF THE PROPERTY INDICATES THAT THE FILL MAY HAVE BEEN SUBJECTED TO A SPILL OR RELEASE OF REGULATED SUBSTANCE. IF THE FILL MAY HAVE BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE, IT MUST BE TESTED TO DETERMINE IF IT QUALIFIES AS CLEAN FILL. TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL".

SEEDING NOTES:

TEMPORARY SEEDING :

- TEMPORARY SEEDING SHALL BE DONE IN AREAS WHERE NO ACTIVITY WORK WILL BE PERFORMED. ANY DISTURBED AREA ON WHICH ACTIVITY HAS CEASED MUST BE SEEDED AND MULCHED IMMEDIATELY.
- DURING NON-GERMINATING PERIODS, ONLY MULCH MUST BE APPLIED AT THE RECOMMENDED RATES. AREAS MULCHED DURING THE NON-GERMINATING PERIODS, MUST BE LIME, FERTILIZED, SEEDED, AND MULCHED IMMEDIATELY FOLLOWING THE END OF THE NON-GERMINATING PERIODS.
- DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN ONE (1) YEAR MAY BE SEEDED AND MULCHED WITH A QUICK GROWING TEMPORARY SEED MIXTURE.
- DISTURBED AREAS WHICH ARE AT EITHER FINISHED GRADE OR WILL NOT BE DISTURBED AGAIN WITHIN ONE (1) YEAR MUST BE SEEDED WITH A PERMANENT SEED MIXTURE AND MULCHED.
- TEMPORARY SEEDING STEPS:
 - APPLY AGRICULTURAL LIMESTONE AT A RATE OF ONE (1) TON PER ACRE. (5 POUNDS PER, 1000 SQUARE FEET)
 - APPLY FERTILIZER AT THE RATE OF 50-50-50 PER ACRE.
 - WORK THE LIMESTONE AND FERTILIZER INTO THE SOIL.
 - UTILIZING THE FOLLOWING SEEDING TYPES, RATES AND TIME SCHEDULE :

TEMPORARY SEEDING			
SEASON	RATE	TYPE	
MARCH 1 TO JUNE 15	1 LB./1000 SF	ANNUAL RYEGRASS	
MAY 15 TO SEPT 15	1 LB./1000 SF	SUDAN GRASS	
SEPT 15 TO OCT 15	168 LB./AC	WINTER RYE	
E.	APPLY HAY OR STRAW MULCH (IN ACCORDANCE WITH SECTION NO. 4) AT A RATE OF THREE (3) TONS PER ACRE.		
ALL SEED SHALL BE LABELED, DATED AND QUALITY CONSISTENT WITH SECTION NO. 2			

PERMANENT SEEDING:

- DISTURBED AREAS WHICH ARE EITHER AT FINISHED GRADE OR WILL NOT BE DISTURBED AGAIN WITHIN ONE (1) YEAR MUST BE SEEDED WITH A PERMANENT SEED MIXTURE AND MULCHED.
- SEEDING SHALL BE DONE DURING PERIODS FROM APRIL 15TH TO OCTOBER 31, UNLESS OTHERWISE DIRECTED. IF SEEDING IS DONE AFTER OCTOBER 1ST, DORMANT SEED MUST BE USED AND DISTURBED AREAS MUST BE MULCHED.
- DISTURBED FINAL GRADED AREAS AND DRAINAGE SWALES WILL BE PERMANENTLY SEEDDED AS FOLLOWS:
 - MINIMUM OF 4" OF TOPSOIL SHALL BE SPREAD OVER ALL AREAS TO BE SEEDDED. TOPSOIL SHALL BE FREE OF STONES, STICKS, WASTE MATERIAL AND SIMILAR DEBRIS. FROZEN GROUND SHALL NOT BE SPREAD AS TOPSOIL AND TOPSOIL SHALL NOT BE SPREAD OVER FROZEN GROUND.
 - A SOIL ANALYSIS IS RECOMMENDED, HOWEVER, IN LIEU OF AN ANALYSIS APPLY AGRICULTURAL LIMESTONE AND FERTILIZER AT RATES RECOMMENDED BELOW (OR AS SUGGESTED BY THE SOIL TEST RESULTS (ONE (1) TEST PER 25 ACRES)).
 - THE LIMESTONE AND FERTILIZER SHALL BE WORKED INTO THE SOIL TO DEPTHS OF 3 TO 4 INCHES. D. GRASS SHALL NOT BE PLANTED AFTER HEAVY RAIN OR WATERING.
 - ALL SEED USED SHALL BE LABELED IN ACCORDANCE WITH THE U.S. DEPARTMENT OF AGRICULTURE RULES AND REGULATIONS UNDER THE FEDERAL SEED ACT IN EFFECT AT THE TIME OF PURCHASE. INERT MATTER SHALL NOT EXCEED 15% AND BLUE TAG CERTIFIED SEED SHALL BE SUPPLIED WHEREVER POSSIBLE.
 - SMOOTH AND FIRM SEED BED WITH CULTIPACKER OR SIMILAR EQUIPMENT PRIOR TO SEEDING. APPLY SEED UNIFORMLY BY BROADCASTING, DRIVING OR HYDRO SEEDING. COVER SEEDS WITH 1/2" OF SOIL WITH SUITABLE EQUIPMENT.
 - APPLY HAY OR STRAW MULCH (IN ACCORDANCE WITH SECTION NO. 4) AT A RATE OF THREE (3) TONS PER ACRE.

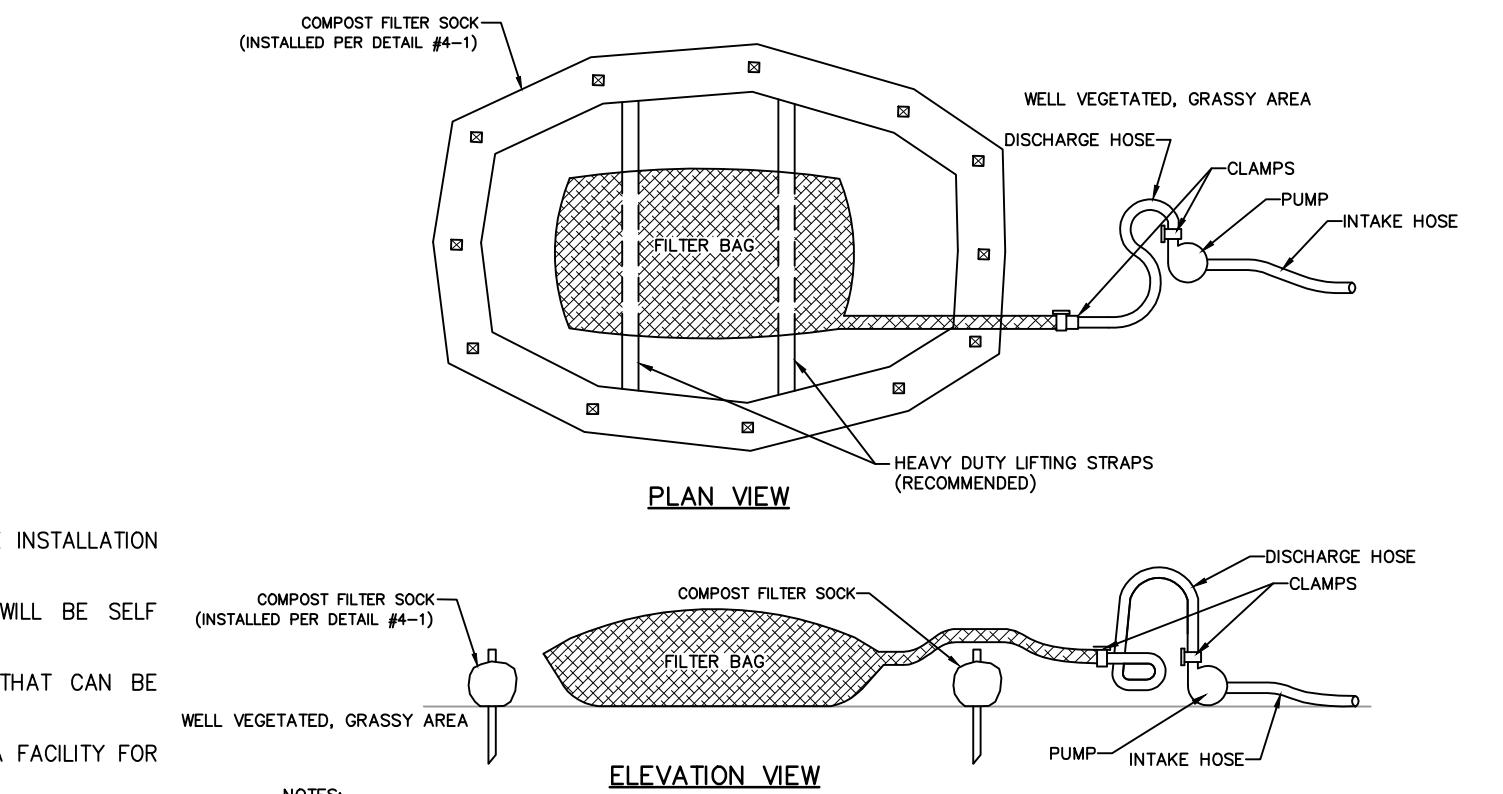
PERMANENT SEEDING FOR NORMAL MOVED LAWN AREAS:			
SEASON	RATE	TYPE	
MARCH 1 TO JUNE 1 & AUG 15 TO OCT 1	2 LBS./1000 SF KY31 TALL FESCUE		
		AND RED TOP 12%	
OCT 1 TO MARCH 1 & JUNE 1 TO OCT 1	2 LBS./1000 SF RED TOP*		

((*) USE DORMANT SEED, UNIFORMLY APPLIED, WORKING INTO A DEPTH OF 1/4 INCH. THE USE OF MULCH IS REQUIRED. THE USE OF NETTING OR EROSION CONTROL MATS MAY BE REQUIRED.))

PERMANENT SEEDING FOR SPECIAL AREAS (SWALES, POND EMBANKMENTS, LEVEES, DIVERSION CHANNELS, ETC):			
SEASON	RATE	TYPE	
MARCH 1 TO JUNE 1 & AUG 15 TO OCT 1	2 LBS./1000 SF	KY31 TALL FESCUE 80%	AND RYEGRASS 20%

NOTE : SEEDING PERIODS AND SPECIFICATIONS MAY VARY DUE TO SITE CONDITIONS AND VARIANCES FROM THE TIME THIS REPORT IS WRITTEN AND APPROVED. IT MAY BE NECESSARY TO ADAPT SEED SPECIFICATION, VARIETIES, AND QUALITIES. FOR SPECIAL CONDITIONS CONSULT "GUIDELINE FOR RECLAMATION OF SEVERELY DISTURBED AREAS", PENNSYLVANIA STATE UNIVERSITY.

- FERTILIZER : A SOIL ANALYSIS IS RECOMMENDED BUT IN LIEU OF AN ANALYSIS APPLY AGRICULTURAL LIMESTONE AT A RATE OF FOUR (4) TONS/ACRE AND 10-20-20 FERTILIZER AT A RATE OF 50 LBS. PER 1000 SF. THESE MATERIALS WILL BE UNIFORMLY APPLIED AND WORKED INTO THE TOPSOIL TO A DEPTH OF 3 TO 4 INCHES. IMMEDIATELY BEFORE SEEDING, A 1 0-1 0-1 0-10 FERTILIZER WILL BE WORKED INTO THE SURFACE AT A RATE OF 10 LBS. PER 1000 SF.
- HYDRO SEEDING: LIME AND SEED SHALL BE AS SPECIFIED ABOVE, AND FERTILIZER SHALL BE APPLIED AT A RATE OF 40-80. CROWN VETCH SHALL BE INOCULATED AT FOUR TIMES THE MANUFACTURER'S RATE. SHOULD FERTILIZER BE APPLIED WITH THE INOCULANT, THE MIXTURE SHALL NOT REMAIN IN A SLURRY FOR MORE THAN ONE HOUR. WOOD CELLULOSE FIBER, APPLIED AT A RATE OF 35 LBS PER 1000 SF, MAY BE APPLIED AS PART OF THE SLURRY IN LIEU OF MULCHING. SYNTHETIC MULCH BINDER, SUCH AS CURASOL, DCA-70, TERRE-TACK OR AN APPROVED EQUAL SHALL BE USED PER THE MANUFACTURER'S INSTRUCTIONS TO ANCHOR THE MULCH.
- MULCHING: MULCHING SHALL BE APPLIED AS FOLLOWS:
 - STRAW – SHALL BE ALL DRIED AND FREE FROM UNDESIRABLE SEEDS AND COURSE MATERIAL. APPLY AT A RATE OF 115 TO 150 LBS. PER 1000 SF OR 3 TONS PER ACRE. MULCHED AREAS SHALL BE CHECKED PERIODICALLY AND IMMEDIATELY AFTER STORMS AND WIND. DAMAGED OR MISSING MULCH SHALL BE REPLACED. A TACKIFIER APPLIED AFTER STRAW IS RECOMMENDED. TACKIFIER MAY BE ASPHALT OR POLYMER SPRAY. APPLY AT A RATE RECOMMENDED BY THE MANUFACTURER WITH SUITABLE EQUIPMENT. IN LIEU OF MANUFACTURERS RECOMMENDATIONS APPLY AT A RATE OF .04 TO .06 GALLONS PER SQUARE YARD.
 - NETTING / EROSION CONTROL BLANKETS – THE USE AND INSTALLATION OF EROSION CONTROL BLANKETS OR NETTING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION AND SHALL BE SELECTED FOR THE PROPER APPLICATION AND CONDITIONS.



PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4832	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70% RETAINED
MOIS & RETAINED	ASTM D-4701	80% RETAINED

A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON SLOPES GREATER THAN 5% FOR SLOPES EXCEEDING 5% CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SOIL STEEPNESS.

BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYER AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5% FOR SLOPES EXCEEDING 5% CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SOIL STEEPNESS.

THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.

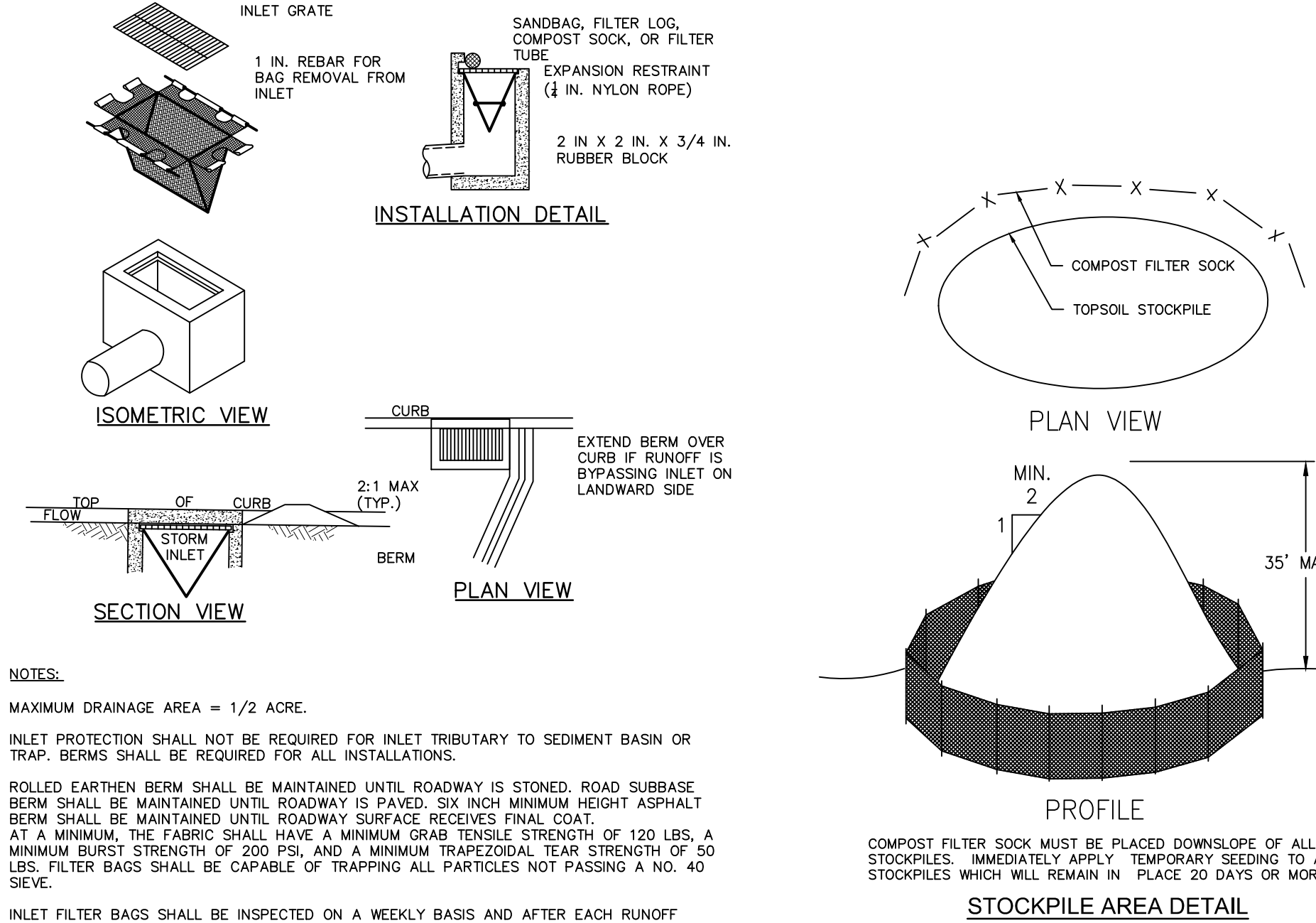
THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE PROTECTED BY A SCREEN.

IF FILTER BAGS SHALL BE INSPECTED DAILY, IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

STANDARD CONSTRUCTION DETAIL #3-16
PUMPED WATER FILTER BAG
WITH COMPOST FILTER SOCK

SEQUENCE OF CONSTRUCTION

- NOTES:
- SITE DEVELOPMENT OPERATIONS SHOULD BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING GENERAL SEQUENCE OF OPERATIONS. THE CONTRACTOR MAY DEViate FROM THE STAGING OF PERMANENT SITE IMPROVEMENT CONSTRUCTION ITEMS, WITH APPROVAL OF THE CONSERVATION DISTRICT INSPECTOR. DEVIATION FROM THE RELATIVE ORDER OF EROSION AND SEDIMENT CONTROL MEASURES SHOULD NOT OCCUR WITHOUT APPROVAL OF THE CONSERVATION DISTRICT INSPECTOR AND SITE ENGINEER.
- CONTACT THE BUCKS COUNTY CONSERVATION DISTRICT (610-489-4506) AT LEAST THREE (3) WORKING DAYS PRIOR TO SITE DISTURBANCE.
 - CONTACT LOWER MAKEFIELD TOWNSHIP AND THE LOWER MAKEFIELD ENGINEER AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO SITE DISTURBANCE.
 - EACH STAGE OF THE SEQUENCE OF CONSTRUCTION MUST BE COMPLETED PRIOR TO INITIATION OF THE NEXT STAGE OF THE SEQUENCE OF CONSTRUCTION. CONSTRUCTION MAY OVERLAP INTO A SUBSEQUENT PHASE AS LONG AS ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED IN THE PREVIOUS PHASE.
 - INSTALL CONSTRUCTION ENTRANCE AND COMPOST FILTER SOCK WHERE SHOWN ON THE PLAN.
 - DEMOLISH AND REMOVE EXISTING STRUCTURES AND DRIVEWAYS AS INDICATED ON THE PLAN. DEMOLITION SHALL BE COMPLETED IN ITS ENTIRETY BEFORE PROCEEDING TO TOPSOIL REMOVAL.
 - STRIP TOPSOIL AND STOCKPILE WHERE SHOWN ON PLAN. ALL STRIPPED TOPSOIL STOCKPILES SHALL HAVE TEMPORARY SEEDING INSTALLED.
 - ROUGH GRADE SITE. INSTALL TEMPORARY EROSION CONTROL BLANKETS. REFER TO TEMPORARY SEEDING REQUIREMENTS.
 - BEGIN CONSTRUCTION OF UTILITY AND STREET CONSTRUCTION. PRIOR TO VERTICAL CONSTRUCTION, SUBGRADE IS TO BE SET, INCLUDING BUT NOT LIMITED TO FOUNDATION WORK, STABLE SUBGRADE/SUBBASE, SUBSURFACE UTILITY WORK, AND DRIVEWAY SUBGRADE.
 - INSTALL STORM SEWER SYSTEM STARTING AT THE DOWNSTREAM ENDS AND WORKING UPSTREAM. ALL TRENCHES SHALL BE BACKFILLED AT THE END OF EACH DAY. INSTALL INLET PROTECTION AS EACH INLET IS INSTALLED.
 - COMPLETE FINAL GRADING AND INSTALL WEARING COURSE WITHIN DRIVEWAYS AREAS. AFTER COMPLETION OF PAVING INSTALLATION, AFTER FINAL GRADING IS COMPLETED, APPLY PERMANENT SEEDING MIXTURE AND INSTALL ALL REQUIRED PLANTINGS AND FENCING PRIOR TO THE ISSUANCE OF ANY USE AND OCCUPANCY PERMITS.
 - UPON COMPLETE STABILIZATION OF SITE, REMOVE EROSION CONTROL DEVICES, THE SITE SHALL BE CONSIDERED STABILIZED WHEN THE PERMANENT VEGETATION HAS PROVIDED A 70% GROUND COVER.
 - UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENTATION CONTROLS MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENTATION CONTROLS AFTER EACH STORM EVENT OR ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN-OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING, MUST BE PERFORMED IMMEDIATELY.
 - UPON COMPLETION OF ALL WORK, THE NOTICE OF TERMINATION (N.O.T.) FORM SHALL BE FILED WITH THE BUCKS COUNTY CONSERVATION DISTRICT.



INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.

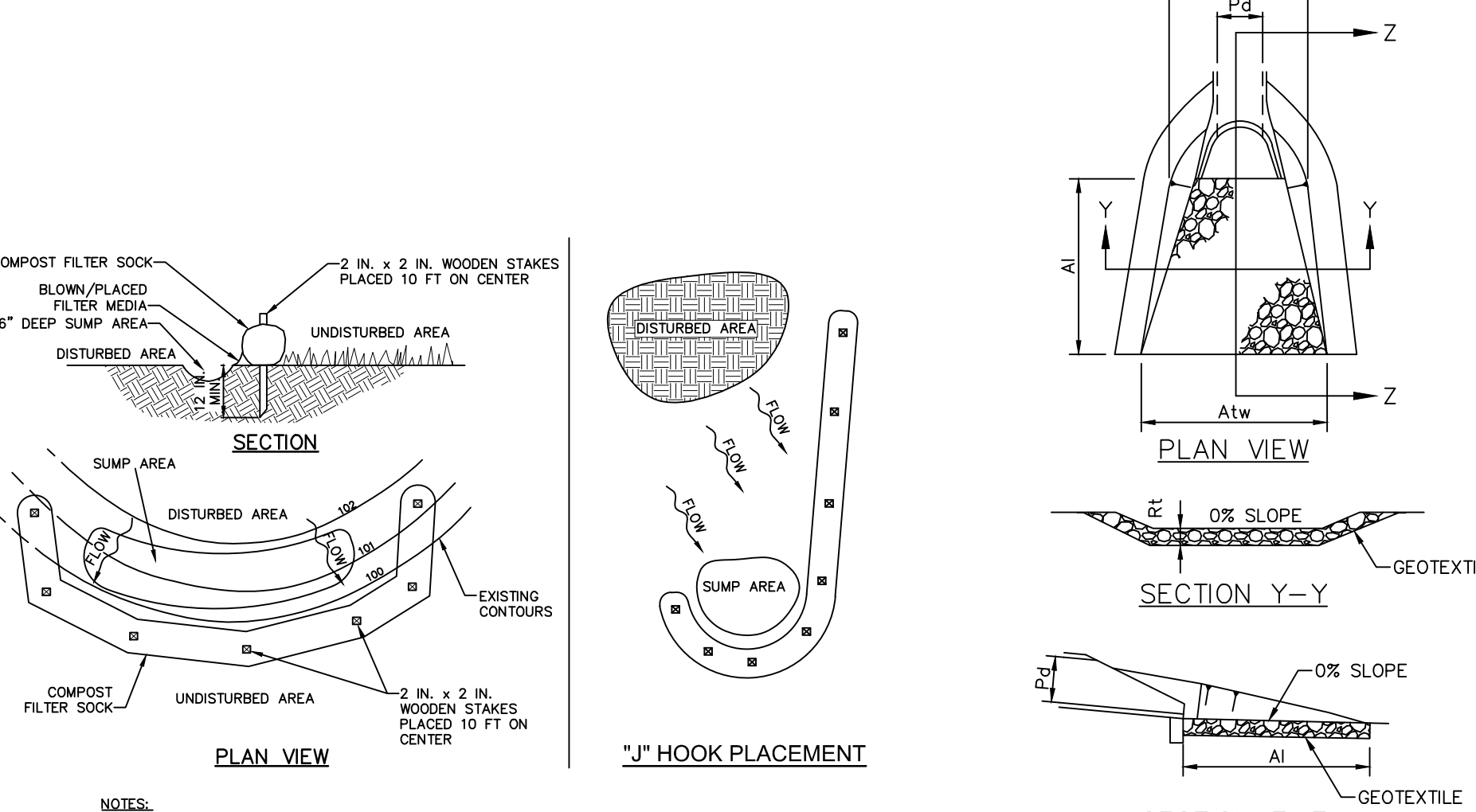
ROLLED EARTHEN BERM SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. SIX INCH MINIMUM HEIGHT ASPHALT BERM SHALL BE MAINTAINED UNTIL ROADWAY SURFACE RECEIVES FINAL COAT.

AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS. A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A # 40 SIEVE.

INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED 50 AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE OF ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.

DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

STANDARD CONSTRUCTION DETAIL #4-15
FILTER BAG INLET PROTECTION - TYPE C INLET



OUTLET NO.	PIPE DIA (IN)	RIPRAP SIZE (IN)	THICK. R1 (IN)	LENGTH A1 (FT)	APRON INITIAL WIDTH A1w (FT)	TERMINAL WIDTH A1w (FT)
RR-1	36	R-4	18	20	9	29
RR-2	18	R-4	9	10	4.5	14.5

TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

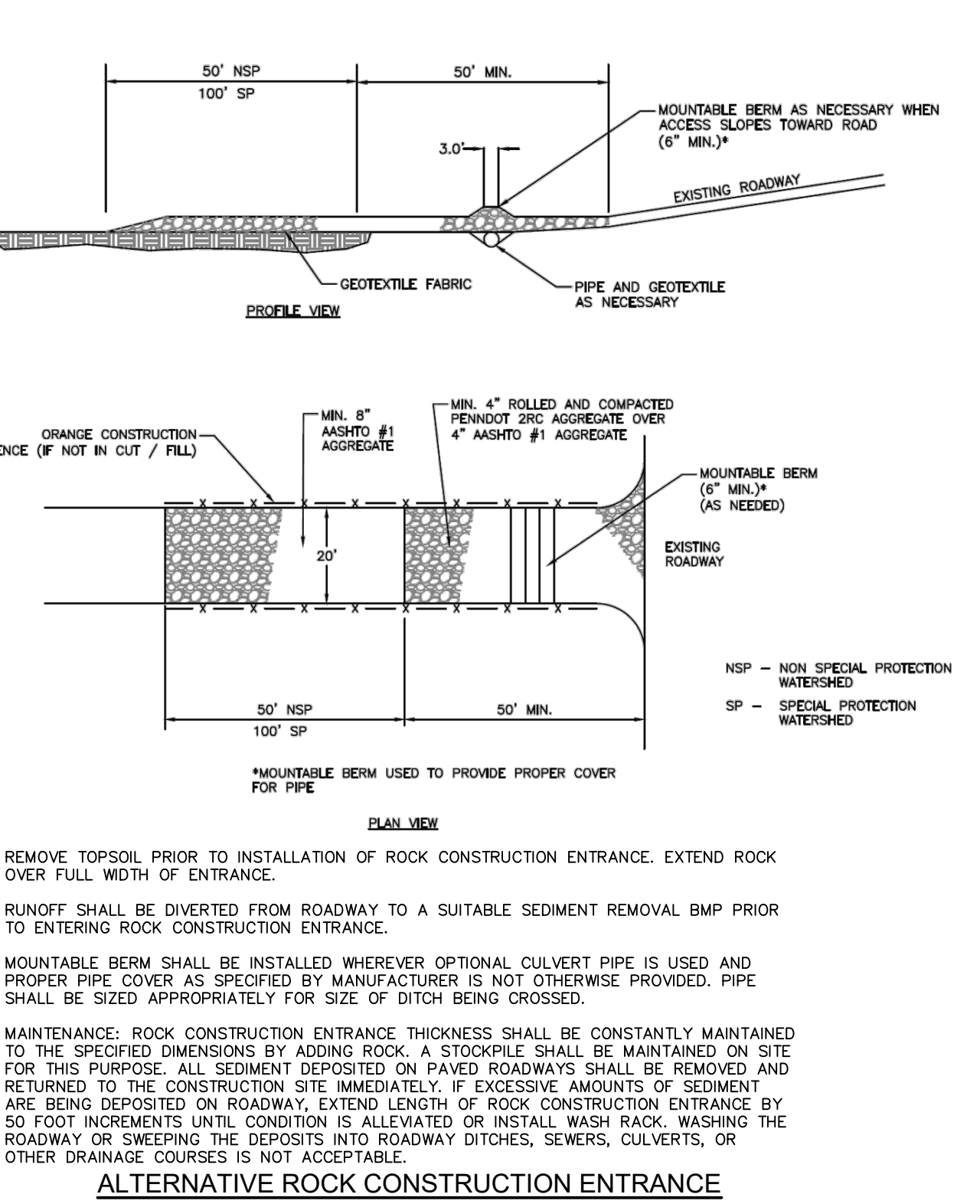
COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD.

STANDARD CONSTRUCTION DETAIL #4-1
COMPOST FILTER SOCK
NOT TO SCALE

STANDARD CONSTRUCTION DETAIL #9-1
RIPRAP APRON AT PIPE OUTLET
WITH FLARED END SECTION OR ENDWALL



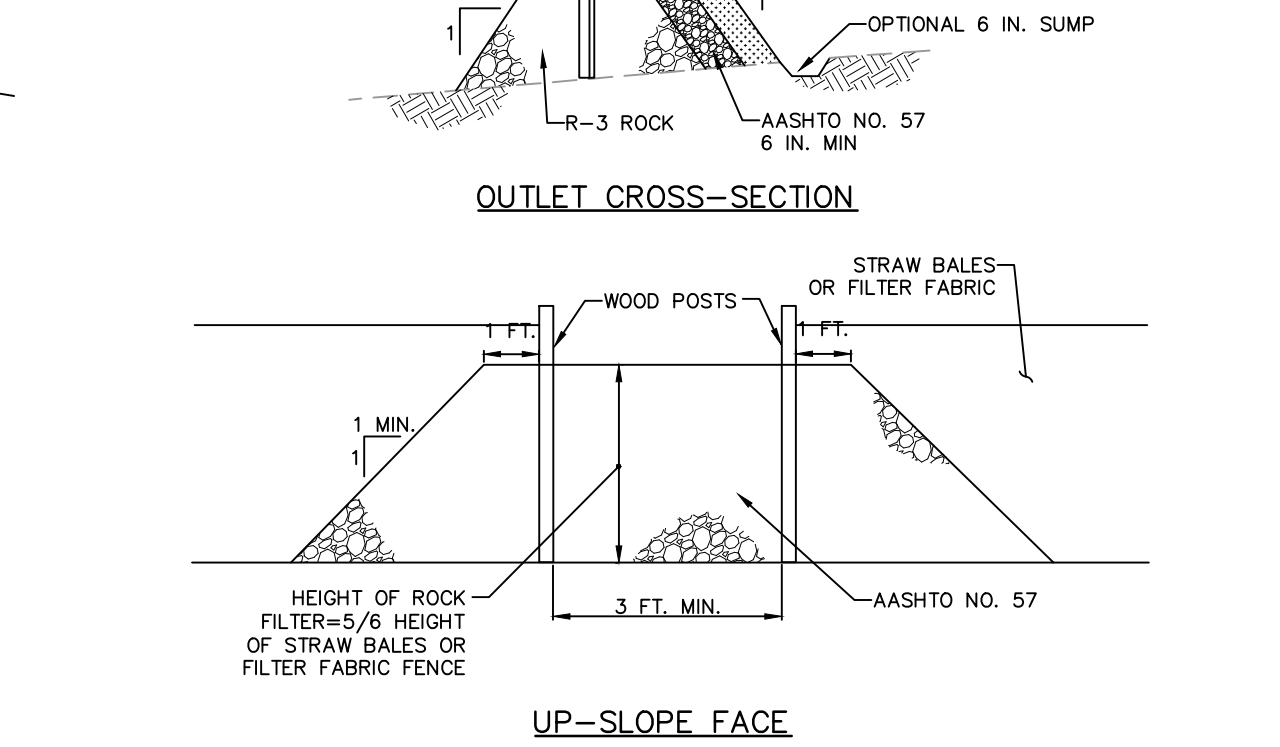
REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.

RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.

MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTENDING ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

ALTERNATIVE ROCK CONSTRUCTION ENTRANCE



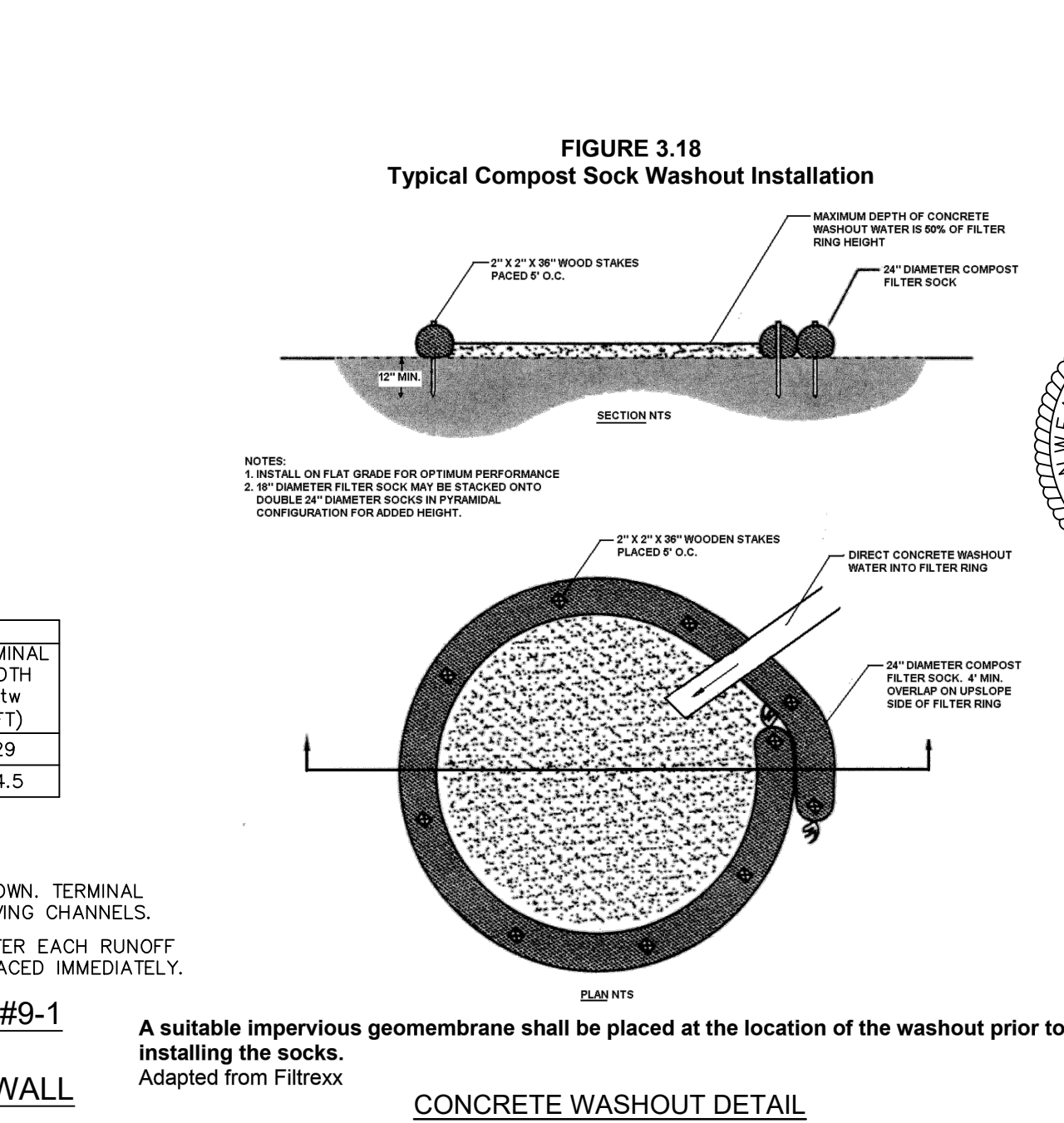
UP-SLOPE FACE

NOTES:

A ROCK FILTER OUTLET SHALL BE INSTALLED WHERE FAILURE OF A SILT FENCE OR STRAW BALE BARRIER HAS OCCURRED DUE TO CONCENTRATED FLOW. ANCHORED COMPOST LAYER SHALL BE USED ON UPSLOPE FACE IN HQ AND EV WATERSHEDS.

SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE HEIGHT OF THE OUTLET.

STANDARD CONSTRUCTION DETAIL #4-6
ROCK FILTER OUTLET



STANDARD CONSTRUCTION DETAIL #9-1
RIPRAP APRON AT PIPE OUTLET
WITH FLARED END SECTION OR ENDWALL

STANDARD CONSTRUCTION DETAIL #3-16
PUMPED WATER FILTER BAG
WITH COMPOST FILTER SOCK

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Doylstown, PA 18901
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ENGINEERING

REVISIONS	Description	Date	Revised Per Township Comments	Revised Per Township Comments	Revised Per Township Comments	Revised Per Township Comments
1	REVISED PER TOWNSHIP COMMENTS	4/24/2026				
2	REVISED PER TOWNSHIP COMMENTS	6/12/2026				
3	REVISED PER TOWNSHIP COMMENTS	7/20/2026				
4	REVISED PER TOWNSHIP COMMENTS	9/11/2026				

FARM'S EDGE AT SHADY BROOK
ACCESS ROADWAY
THP # 20-012-001
LOWER MAKEFIELD TOWNSHIP, BUCKS COUNTY, PA

EROSION AND SEDIMENT CONTROL DETAILS

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.	2000_C4_05 LIM.DWG
HCE Job	2000
Date	11/14/2025
Scale	N.T.S.
Designed	RC
Sheet	11 of 13

Drawing No.
C4.1

GENERAL LANDSCAPE PLANTING NOTES:

PLANTING MATERIALS

- NAMES OF PLANTS AS DESCRIBED ON THIS PLAN CONFORM TO THOSE GIVEN IN "STANDARDIZED PLANT NAMES", 1942 EDITION PREPARED BY THE AMERICAN JOINT COMMITTEE ON HORTICULTURAL NOMENCLATURE. NAMES OF PLANT VARIETIES NOT INCLUDED THEREIN CONFORM TO NAMES GENERALLY ACCEPTED IN NURSERY TRADE.
- STANDARDS FOR TYPE, SPREAD, HEIGHT, ROOT BALL AND QUALITY OF NEW PLANT MATERIAL SHALL BE IN ACCORDANCE WITH GUIDELINES AS SET FORTH IN THE "AMERICAN STANDARD FOR NURSERY STOCK", PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSEYMEN. PLANT MATERIAL SHALL HAVE NORMAL BARK OF GROWTH AND BE HEALTHY, VIGOROUS, AND FREE FROM DISEASES AND INSECT INFESTATION.
- NEW PLANT MATERIAL SHALL BE NURSERY GROWN UNLESS SPECIFIED OTHERWISE. ALL PLANTS SHALL BE SET PLUMB AND SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS THE PLANTS' ORIGINAL GRADE BEFORE DIGGING. PLANT MATERIAL OF THE SAME SPECIES AND SPECIFIED AS THE SAME SIZE SHOULD BE SIMILAR IN SHAPE, COLOR AND HABIT. THE LANDSCAPE ARCHITECT HAS THE RIGHT TO REJECT PLANT MATERIAL THAT DOES NOT CONFORM TO THE TYPICAL OR SPECIFIED HABIT OF THAT SPECIES.
- THE CONTRACTOR SHALL NOT MAKE SUBSTITUTIONS. IF THE SPECIFIED LANDSCAPE MATERIAL IS NOT OBTAINABLE, THE CONTRACTOR SHALL SUBMIT PROOF OF NON-AVAILABILITY TO THE TOWNSHIP ENGINEER, LANDSCAPE ARCHITECT AND OWNER TOGETHER WITH A WRITTEN PROPOSAL FOR USE OF AN EQUIVALENT MATERIAL.
- THE LANDSCAPE ARCHITECT MAY REVIEW PLANT MATERIALS AT THE SITE, BEFORE PLANTING, FOR COMPLIANCE WITH REQUIREMENTS FOR GENUS, SPECIES, VARIETY, SIZE, AND QUALITY. THE LANDSCAPE ARCHITECT RETAINS THE RIGHT TO REVIEW PLANT MATERIALS FOR SIZE AND CONDITION OF BALLS AND ROOT SYSTEM, INSECTS, INJURIES, AND LATENT DEFECTS, AND TO REJECT UNSATISFACTORY OR DEFECTIVE MATERIAL AT ANY TIME DURING PROGRESS OF WORK. THE CONTRACTOR SHALL REMOVE REJECTED PLANT MATERIALS IMMEDIATELY FROM PROJECT SITE AS DIRECTED BY THE LANDSCAPE ARCHITECT OR OWNER.

PLANTING SOILS

- REFUSE SURFACE SOILS STOCKPILED ON SITE, VERIFYING COMPLIANCE WITH PLANTING SOIL AND TOPSOIL CRITERIA IN THIS SPECIFICATION THROUGH TESTING. CLEAN SURFACE SOIL OF ALL ROOTS, PLANTS, SOD, AND GRAVEL OVER 1" IN DIAMETER AND DELETERIOUS MATERIALS. IF ON-SITE SOILS ARE TO BE USED FOR PROPOSED PLANTING, THE CONTRACTOR SHALL DEMONSTRATE, THROUGH SOIL TESTING, THAT ON-SITE SOILS MEET THE SAME CRITERIA AS INDICATED IN NOTES PLANS AND SPECIFICATIONS.
- SUPPLEMENT WITH IMPORTED OR MANUFACTURED TOPSOIL FROM OFF SITE SOURCES WHEN TOPSOIL AND PLANTING SOIL ARE INSUFFICIENT. OBTAIN SOIL DISPLACED FROM NATURALLY WELL-DRAINED SITES WHERE TOPSOIL OCCURS AT LEAST 4" DEEP. DO NOT OBTAIN FROM AGRICULTURAL LAND, BOGS, MARSHES OR CONTAMINATED SITES.
- IF DEPTH OF PLANTING SOILS AND TOPSOIL IS NOT INDICATED IN PLANS OR DETAILS, A MINIMUM 18" DEPTH SHALL BE PROVIDED FOR ALL TREES AND LARGE SHRUBS. MINIMUM 12" DEPTH SHALL BE PROVIDED FOR GROUNDCOVERS, HERBACEOUS AND MEADOW OR ORNAMENTAL GRASS AREAS AND A MINIMUM 6" LAYER SHALL BE INSTALLED IN ALL LAWN AREAS. TOPSOIL AND PLANTING SOIL DEPTH INDICATED ON PLANS AND PLANTING DETAILS AND NARRATIVE SPECIFICATIONS SHALL GOVERN DEPTH WHEN PROVIDED.
- WHERE PLANTING AREAS ARE PROPOSED FOR FORMER PAVED OR GRAVEL AREAS, BEDS SHALL BE EXCAVATED TO A MINIMUM 30" DEPTH AND, AT A MINIMUM, BE BACKFILLED WITH BOTTOM LAYER OF SANDY LOAM (ORGANIC CONTENT LESS THAN 2%) OVER WHICH TOPSOIL AND PLANTING SOILS WILL BE PLACED AT DEPTHS INDICATED IN PLANS, DETAILS AND NOTES.
- IF THE QUANTITY OF SOILS FROM THE SITE IS NOT ADEQUATE TO FILL PLANTING AREAS TO THE DEPTH INDICATED IN THE PLANS AND DETAILS, CONTRACTOR SHALL FURNISH PLANTING SOILS THAT ARE FREE OF BROKEN GLASS, PAINT CHIPS, PLASTIC, DELETERIOUS MATERIALS, ROOTS, WEEDS, BOULDERS, COBBLES AND GRAVEL OVER 1" IN DIAMETER AND COMPLY WITH THE FOLLOWING CRITERIA:
 - SOILS SHALL MEET ALL APPLICABLE SOIL REMEDIATION STANDARDS
 - ORGANIC CONTENT: 2-5% IN NATIVE SOILS; UP TO 10% IN AMENDED SOILS
 - SOLUBLE SALTS: LESS THAN 0.5 MM HOS/CM
 - SOIL PH: 4.5-7% TO BE AMENDED PER SOIL TEST RESULTS
 - PHYSICAL (SIEVE) ANALYSIS/ SOIL TEXTURE:
 - SAND: 40-60% SILT: 25-60% CLAY: 5-20%
 - NOT MORE THAN 1% OF MATERIAL SHALL BE RETAINED BY A #4 SIEVE.
- ALL PLANTING SOILS SHALL BE SUBMITTED FOR TESTING TO THE STATE COOPERATIVE EXTENSION SERVICE, PRIOR TO DELIVERY TO THE SITE. CONTRACTOR SHALL FURNISH SOIL SAMPLES AND SOIL TEST RESULTS TO LANDSCAPE ARCHITECT OR OWNER AT A RATE OF ONE SAMPLE PER 500 CUBIC YARDS TO ENSURE CONSISTENCY ACROSS THE TOTAL VOLUME OF PLANTING SOIL REQUIRED. TEST RESULTS SHALL EVALUATE FOR ALL CRITERIA LISTED IN THIS SPECIFICATION. IF TESTING AGENCY DETERMINES THAT THE SOILS ARE DEFICIENT IN ANY MANNER AND MAY BE CORRECTED BY ADDING AMENDMENTS, THE CONTRACTOR SHALL FOLLOW STATED RECOMMENDATIONS FOR SOIL IMPROVEMENT AND FURNISH SUBMITTALS FOR ALL AMENDMENTS PRIOR TO DELIVERY OF SOIL TO THE PROJECT SITE.
- IF SOIL ORGANIC CONTENT IS INADEQUATE, SOIL SHALL BE AMENDED WITH COMPOST OR ACCEPTABLE, WEED FREE, ORGANIC MATTER. ORGANIC AMENDMENT SHALL BE WELL COMPOSTED, PH RANGE OF 6-8, MOISTURE CONTENT 35-55% BY WEIGHT 100% PASSING THROUGH 1" SIEVE; SOLUBLE SALT CONTENT LESS THAN 0.5 MM HOS/CM; MEETING ALL APPLICABLE ENVIRONMENTAL CRITERIA FOR CLEAN FILL; FREE OF BROKEN GLASS, PAINT CHIPS, PLASTIC, DELETERIOUS MATERIALS, ROOTS, WEEDS, BOULDERS, COBBLES AND GRAVEL OVER 1" IN DIAMETER
- SCARIFY AND/OR TILL ALL COMPACTED SUBSOILS PRIOR TO ADDING PLANTING SOIL OR TOPSOIL. PLANTING SOILS AND TOPSOIL SHALL BE PLACED IN 12-18" LIFTS THAT ARE LOOSELY COMPACTED. NO SOILS SHALL BE PLACED IN A FROZEN OR MUDDY CONDITION.

DELIVERY, STORAGE, AND HANDLING

- PACKAGED MATERIALS: PACKAGED MATERIALS SHALL BE DELIVERED IN CONTAINERS SHOWING WEIGHT, ANALYSIS, AND NAME OF MANUFACTURER. MATERIALS SHALL BE PROTECTED FROM DETRIORATION DURING DELIVERY, AND WHILE STORED AT SITE.
- TREES AND SHRUBS: THE CONTRACTOR SHALL PROVIDE TREES AND SHRUBS DUG FOR THE GROWING SEASON FOR WHICH THEY WILL BE PLANTED. DO NOT PRUNE PRIOR TO DELIVERY UNLESS OTHERWISE DIRECTED BY THE LANDSCAPE ARCHITECT. DO NOT BEND OR BIND-TIE TREES OR SHRUBS IN SUCH A MANNER AS TO DAMAGE BARK, BREAK BRANCHES, OR DESTROY NATURAL SHAPE. PROVIDE PROTECTIVE COVERING DURING TRANSIT. DO NOT DROP OR BREAK BALLED STOCK DURING DELIVERY OR HANDLING.
- ALL PLANTS SHALL BE BALLED AND BURLAPPED OR CONTAINER GROWN AS SPECIFIED. NO CONTAINER GROWN STOCK WILL BE ACCEPTED IF IT IS ROOT BOUND. ALL ROOT BALL WRAPPING AND BINDING MATERIAL MADE OF SYNTHETIC OR PLASTICS SHALL BE REMOVED FROM THE TOP OF THE BALL AT THE TIME OF PLANTING. IF THE PLANT IS SHIPPED WITH A WIRE BASKET AROUND THE ROOT BALL, THE WIRE BASKET SHALL BE CUT AND FOLDED DOWN 8" INTO THE PLANTING HOLE, WITH CONTAINER-GROWN STOCK. THE CONTAINER SHALL BE REMOVED AND THE ROOT BALL SHALL BE CUT THROUGH THE SURFACE IN TWO LOCATIONS.
- THE CONTRACTOR SHALL HAVE TREES AND SHRUBS DELIVERED TO SITE AFTER PREPARATIONS FOR PLANTING HAVE BEEN COMPLETED AND PLANT IMMEDIATELY. IF PLANTING IS DELAYED MORE THAN 6 HOURS AFTER DELIVERY, THE CONTRACTOR SHALL SET TREES AND SHRUBS IN SHADE, PROTECT FROM WEATHER AND MECHANICAL DAMAGE AND KEEP ROOTS MOIST BY COVERING WITH MULCH, BURLAP OR OTHER ACCEPTABLE MEANS OF RETAINING MOISTURE.
- INSTALLATION
- THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UNDERGROUND UTILITY AND SEWER LINES PRIOR TO THE START OF EXCAVATION ACTIVITIES. NOTIFY THE PROJECT ENGINEER AND OWNER IMMEDIATELY OF ANY CONFLICTS WITH PROPOSED PLANTING LOCATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE.
- THE CONTRACTOR TO STAKE OUT PLANTING LOCATIONS, FOR REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT AND/OR OWNER BEFORE PLANTING WORK BEGINS. THE LANDSCAPE ARCHITECT AND/OR OWNER SHALL DIRECT THE CONTRACTOR IN THE FINAL PLACEMENT OF ALL PLANT MATERIAL AND LOCATION OF PLANTING BEDS TO ENSURE COMPLIANCE WITH DESIGN INTENT UNLESS OTHERWISE INSTRUCTED.
- NO PLANT SHALL BE PUT INTO THE GROUND BEFORE FINISHED GRADING HAS BEEN COMPLETED AND APPROVED BY THE PROJECT LANDSCAPE ARCHITECT OR PROJECT ENGINEER.
- ALL LANDSCAPED AREAS TO BE CLEARED OF ROCKS, STUMPS, TRASH AND OTHER UNSIGHTLY DEBRIS. ALL FINE GRADED AREAS SHOULD BE HAND RAKED SMOOTH ELIMINATING ANY CLUMPS AND UNEVEN SURFACES PRIOR TO PLANTING OR MULCHING.
- ALL PLANT MATERIAL SHALL BE INSTALLED AS PER DETAILS, NOTES AND CONTRACT SPECIFICATIONS. THE LANDSCAPE ARCHITECT MAY REVIEW INSTALLATION AND MAINTENANCE PROCEDURES.
- THE CONTRACTOR SHALL KEEP AREA CLEAN DURING DELIVERY AND INSTALLATION OF PLANT MATERIALS. REMOVE AND DISPOSE OF OFF-SITE ANY ACCUMULATED DEBRIS OR UNUSED MATERIALS. REPAIR DAMAGE TO ADJACENT AREAS CAUSED BY LANDSCAPE INSTALLATION OPERATIONS.
- AFTER PLANT IS PLACED IN TREE PIT LOCATION, ALL TWINE HOLDING ROOT BALL TOGETHER SHOULD BE COMPLETELY REMOVED AND THE BURLAP SHOULD BE PULLED DOWN SO 1/3 OF THE ROOT BALL IS EXPOSED. SYNTHETIC BURLAP SHOULD BE COMPLETELY REMOVED AFTER INSTALLATION.
- MULCH SHOULD NOT BE PILED UP AROUND THE TRUNK OF ANY PLANT MATERIAL. NO MULCH OR TOPSOIL SHOULD BE TOUCHING THE BASE OF THE TRUNK ABOVE THE ROOT COLLAR.
- ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24-HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL THEN BE WATERED WEEKLY OR AS REQUIRED BY SITE AND WEATHER CONDITIONS TO MAINTAIN VIGOROUS AND HEALTHY PLANT GROWTH.
- AFTER COMPLETION OF A PROJECT, ALL EXPOSED GROUND SURFACES THAT ARE NOT PAVED WITHIN THE CONTRACT LIMIT LINE, AND THAT ARE NOT COVERED BY LANDSCAPE PLANTING OR SEEDING AS SPECIFIED, SHALL BE COVERED BY A SHREDED HARDWOOD BARK OR APPROVED EQUAL MULCH THAT WILL PREVENT SOIL EROSION AND THE EMANATION OF DUST.

GUARANTEE

- NEW PLANT MATERIAL SHALL BE GUARANTEED TO BE ALIVE AND IN VIGOROUS GROWING CONDITION FOR A PERIOD OF 18 MONTHS FOLLOWING ACCEPTANCE BY THE OWNER. PLANT MATERIAL FOUND TO BE UNHEALTHY, DYING OR DEAD DURING THIS PERIOD, SHALL BE REMOVED AND REPLACED IN KIND BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.
- ANY TREE OR SHRUB WHICH DIES OR IS DEEMED, IN THE OPINION OF THE TOWNSHIP ENGINEER, NOT TO HAVE SURVIVED OR GROWN IN A MANNER UNCHARACTERISTIC OF ITS TYPE SHALL BE REPLACED. SUBSTITUTIONS FOR CERTAIN SPECIES OF PLANTS MAY BE MADE ONLY WHEN APPROVED BY THE TOWNSHIP ENGINEER.

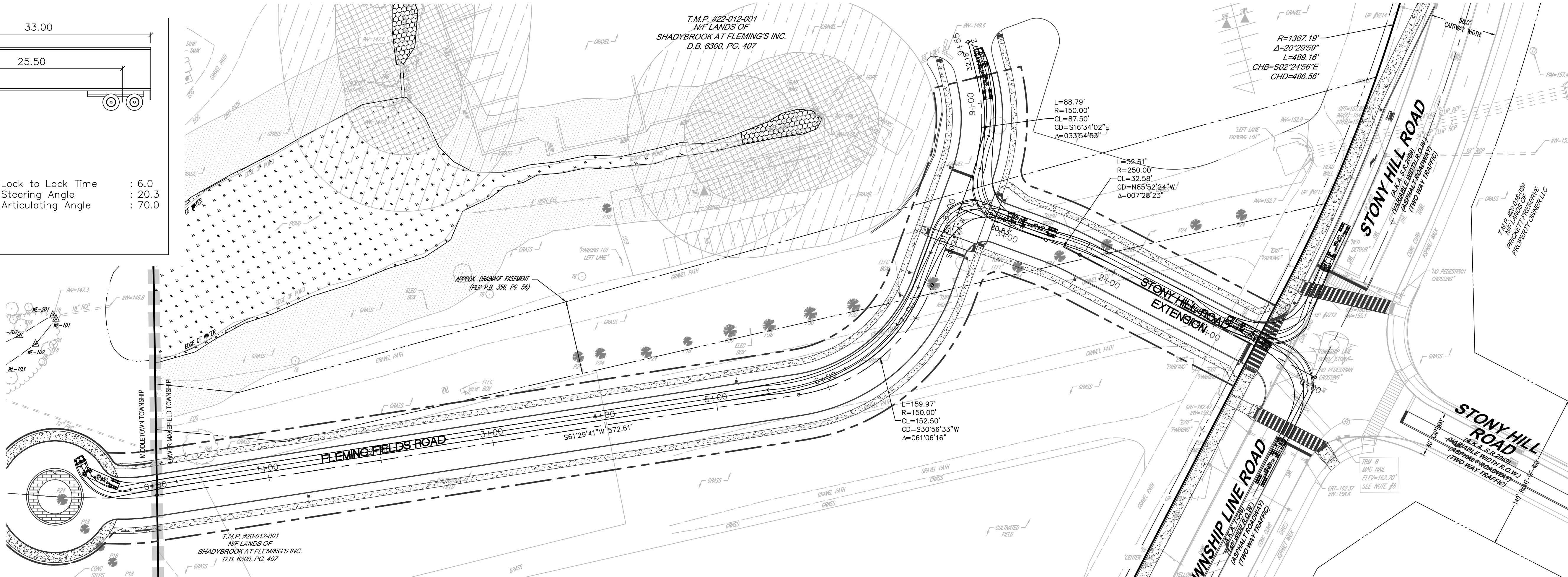
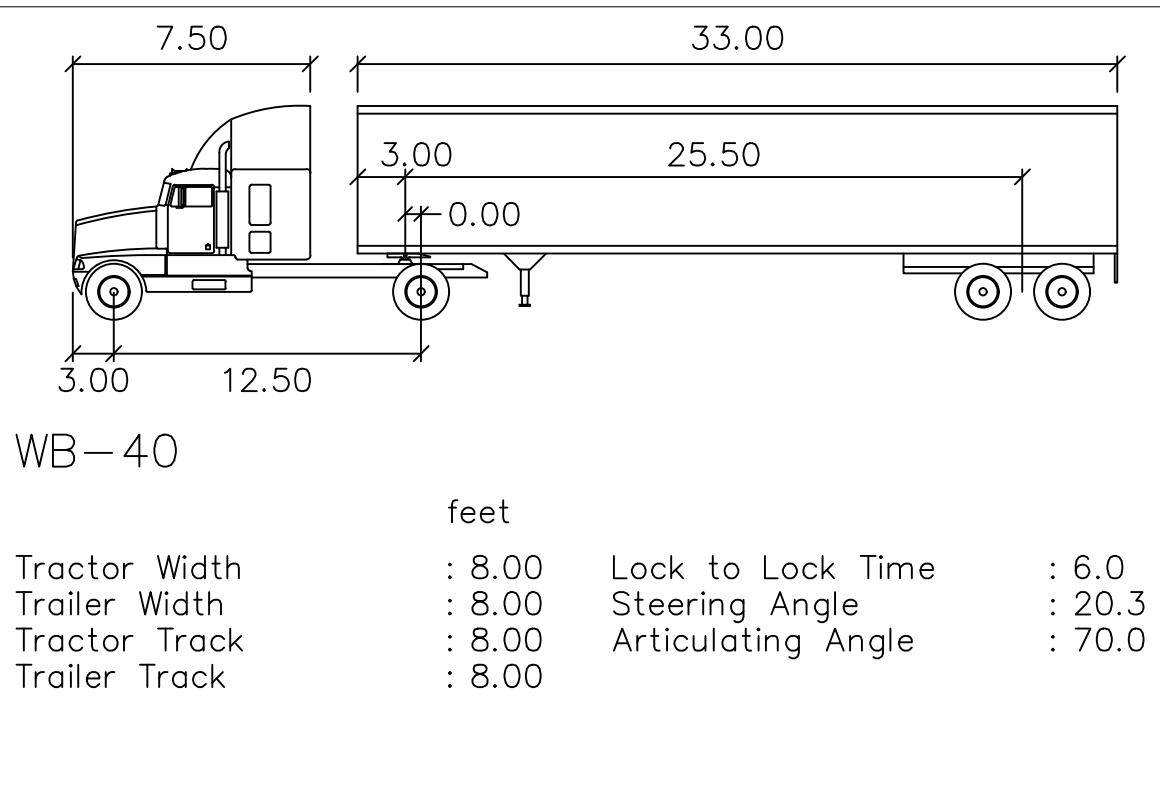
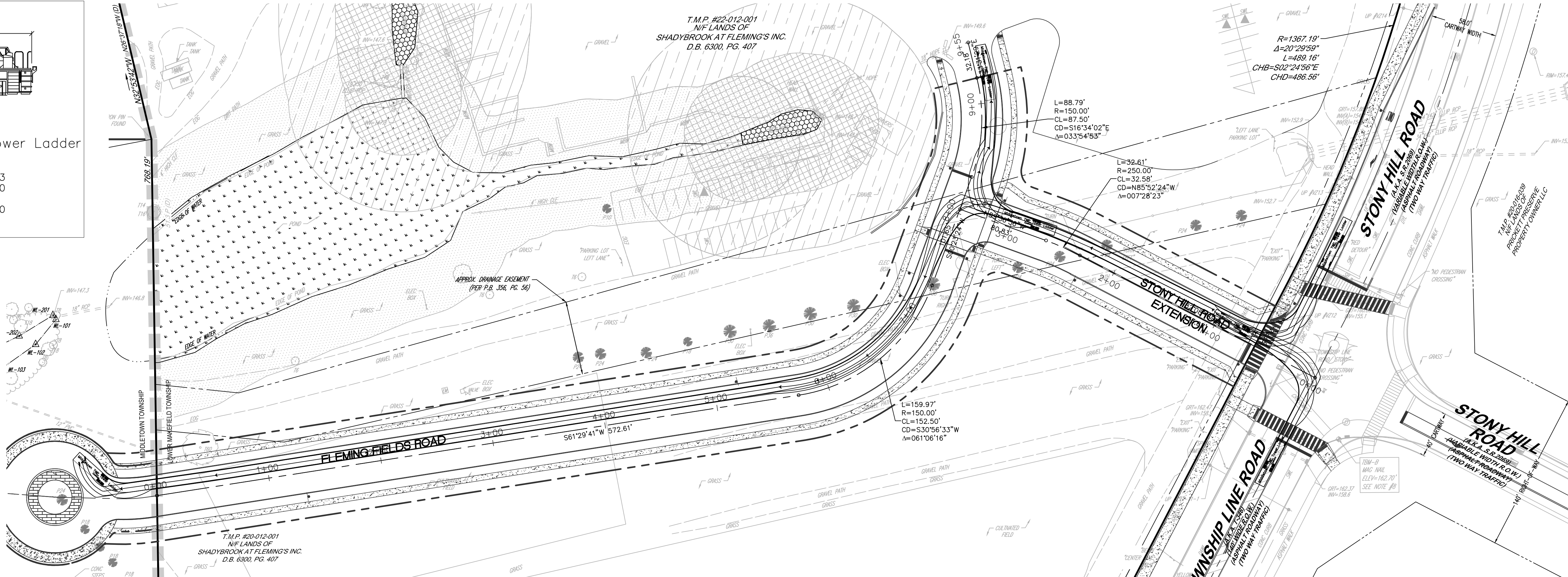
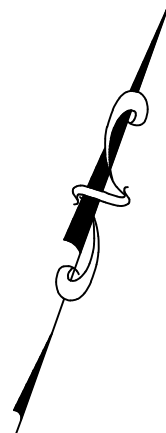
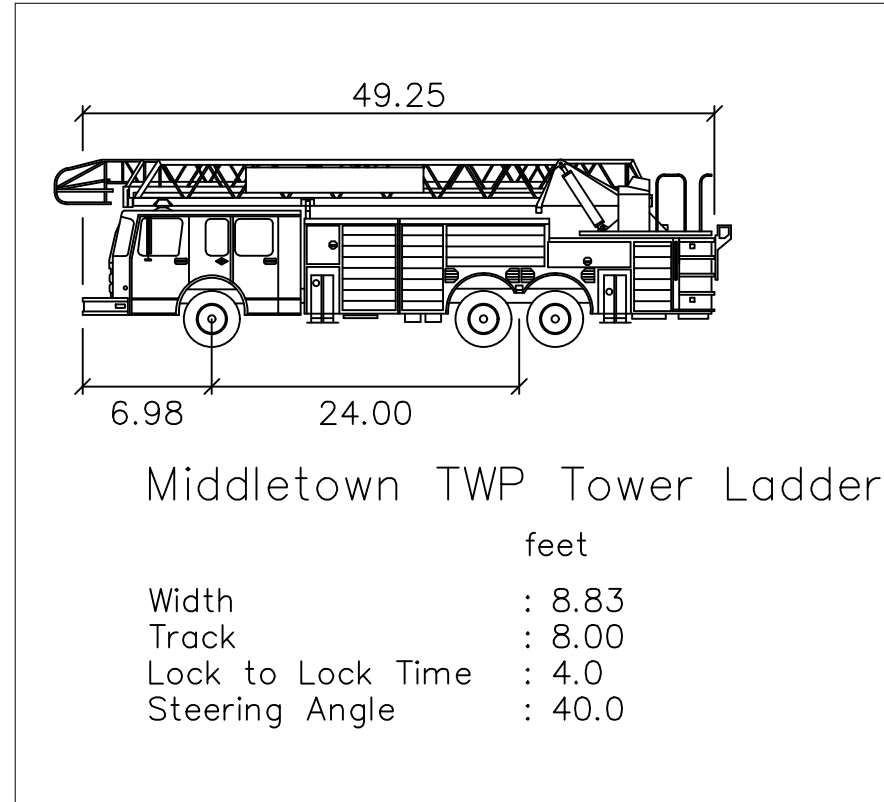
American Revolution LED Series 247CL

ORDERING INFORMATION

Example: 247CL P154 M154T 30K R3 BK SK PR3

Series	Performance Package	Voltage	Color Temperature (CCT)
247CL Americas Revolution LED	Package	Input Watts	Lumen (Footcandle)
	P101	20	3,500
	P102	30	5,250
	P103	40	7,000
	P104	49	8,750
	P105	58	10,500
	P106	67	12,250
	P107	76	14,000
	P108	85	15,750
	P109	94	17,500

M154T	120-277V	27K, 3000K
M154T	277-480V	40K, 4000K
M154T	480V	50K, 5000K
M154T	480V	60K, 6000K
M154T	480V	70K, 7000K
M154T	480V	80K, 8000K
M154T	480V	90K, 9000K
M154T	480V	100K, 10000K
M154T	480V	110K, 11000K
M154T	480V	120K, 12000K
M154T	480V	130K, 13000K
M154T	480V	140K, 14000K
M154T	480V	150K, 15000K
M154T	480V	160K, 16000K
M154T	480V	170K, 17000K
M154T	480V	180K, 18000K
M154T	480V	190K, 19000K
M154T	480V	200K, 20000K
M154T	480V	210K, 21000K
M154T	480V	220K, 22000K
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M154T	480V	250K, 25000K
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M154T	480V	290K, 29000K
M154T	480V	300K, 30000K
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M154T	480V	2380K, 238000K
M154T	480V	2390K, 239000K
M154T	480V	2400K, 240000K
M154T	480V	2410K, 241000K
M154T	480V	2420K, 242000K
M154T	480V	2430K, 243000K
M154T	480V	2440K, 244000K
M154T	480V	2450K, 245000K
M154T	480V	2460K, 246000K
M154T	480V	2470K, 247000K
M154T	480V	2480K, 248000K
M154T	480V	2490K, 249000K
M154T	480V	2500K, 250000K
M154T	480V	2510K, 251000K
M154T	480V	2520K, 252000K
M154T	480V	2530K, 253000K
M154T	480V	2540K, 254000K
M154T	480V	2550K, 255000K
M154T	480V	2560K, 256000K
M154T	480V	2570K, 257000K
M154T	480V	2580K, 258000K
M154T	480V	2590K, 259000K
M154T	480V	2600K, 260000K
M154T	480V	2610K, 261000K
M154T	480V	2620K, 262000K
M154T	480V	2630K, 263000K
M154T	480V	2640K, 264000K
M154T	480V	2650K, 265000K
M154T	480V	2660K, 266000K
M154T	480V	2670K, 267000K
M154T	480V	2680K, 268000K
M154T	480V	2690K, 269000K
M154T	480V	2700K, 270000K
M154T	480V	2710K, 271000K
M154T	480V	2720K, 272000K
M154T	480V	2730K, 273000K
M154T	480V	2740K, 274000K
M154T	480V	2750K, 275000K
M154T	480V	2760K, 276000K
M154T	480V	2770K, 277000K
M154T	480V	2780K, 278000K
M154T	480V	2790K, 279000K
M154T	480V	2800K, 280000K
M154T	480V	2810K, 281000K
M154T	480V	2820K, 282000K
M154T	480V	2830K, 283000K
M154T	480V	2840K, 284000K
M154T	480V	2850K, 285000K
M154T	480V	2860K, 286000K
M154T	480V	2870K, 287000K
M154T	480V	2880K, 288000K
M154T	480V	2890K, 289000K
M154T	480V	2900K, 290000K
M154T	480V	2910K, 291000K
M154T	480V	2920K, 292000K
M154T	480V	2930K, 293000K
M154T	480V	2940K, 294000K
M154T	480V	2950K, 295000K
M154T	480V	2960K, 296000K
M154T	480V	2970K, 297000K
M154T	480V	2980K, 298000K
M154T	480V	2990K, 299000K
M154T		



Holmes Cunningham LLC
409 E. Butler Ave., Unit 5
Doylstown, PA 18901
(215) 586-3330
www.hcengineering.net

REVISIONS	Description	Date
1	REVISED PER TOWNSHIP COMMENTS	4/24/2026
2	REVISED PER TOWNSHIP COMMENTS	6/12/2026
3	REVISED PER TOWNSHIP COMMENTS	7/20/2026
4	REVISED PER TOWNSHIP COMMENTS	9/11/2026

FARM'S EDGE AT SHADY BROOK
ACCESS ROADWAY
TWP # 20-012-001
LOWER MAKEFIELD TOWNSHIP, BUCKS COUNTY, PA

TRUCK TURN PLAN

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.	2000_C6.0 TRUCK TURN LM.DWG
HCE Job	2000
Date	11/14/2025
Scale	1"=50'
Designed	RC
Sheet	13 of 13

Drawing No.
C6.0