PRELIMINARY LAND DEVELOPMENT AND MAJOR SUBDIVISION PLANS

FOR

BOLD FOX FARM

TMP# 67-00-00442-004

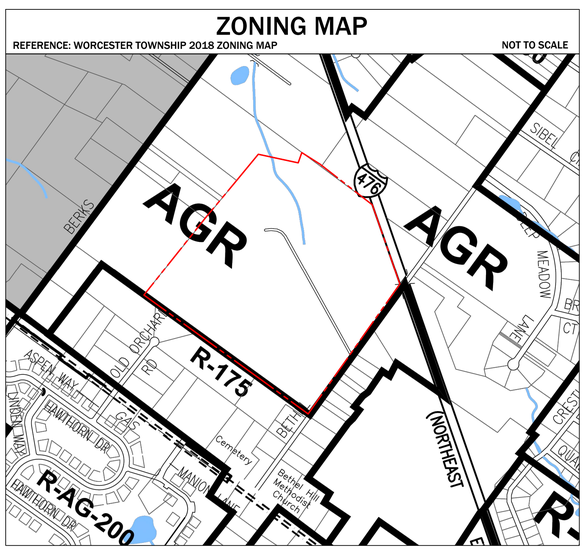
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

SITE LOCATION MAP

REFERENCE: U.S.G.S. LANDSDALE QUADRANGLE — 0 800 1600 Feet — 1" = 800'

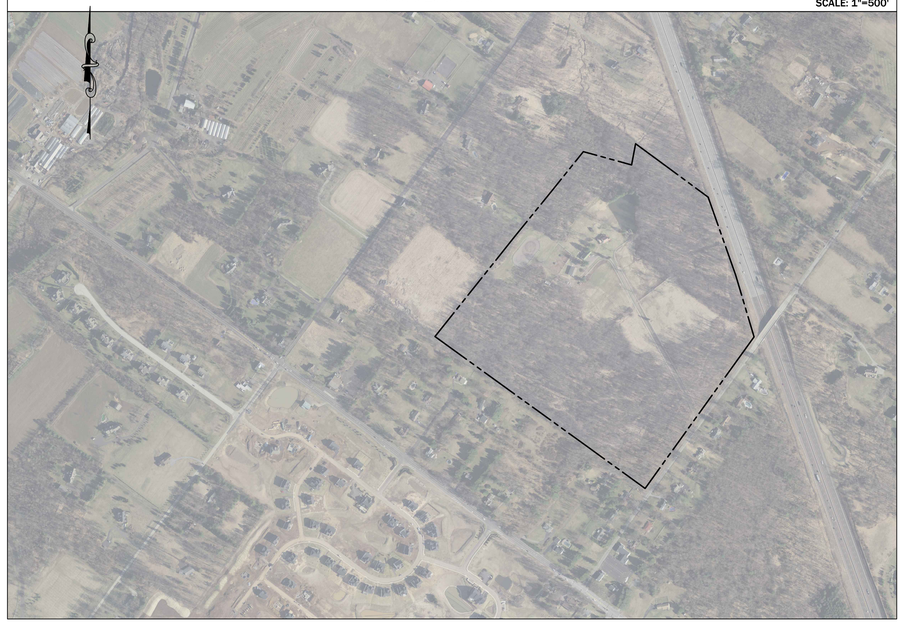
ZONING MAP

REFERENCE: WORCESTER TOWNSHIP 2018 ZONING MAP — NOT TO SCALE



AREA MAP

SCALE: 1"=500'



DRAWING LIST

SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE	LAST REVISED DATE
1	C0.0	COVER SHEET	4/9/2026
2	C0.1	EXISTING CONDITIONS	4/9/2026
3	C0.2	AERIAL MAP	4/9/2026
4	C1.0	RECORD SUBDIVISION PLAN	4/9/2026
5	C1.1	RECORD SITE PLAN	4/9/2026
6	C1.2	DETAILED SITE PLAN	4/9/2026
7	C1.3	CONSTRUCTION DETAILS	4/9/2026
8	C2.0	OVERALL GRADING PLAN	4/9/2026
9	C2.1	DETAILED GRADING PLAN	4/9/2026
10	C2.2	DETAILED GRADING PLAN	4/9/2026
11	C3.0	OVERALL DRAINAGE PLAN	4/9/2026
12	C3.1	DETAILED DRAINAGE PLAN	4/9/2026
13	C3.2	DETAILED DRAINAGE PLAN	4/9/2026
14	C4.0	OVERALL UTILITY PLAN	4/9/2026
15	C4.1	DETAILED UTILITY PLAN	4/9/2026
16	C4.2	UTILITY EXTENSION PLAN	4/9/2026
17	C4.3	UTILITY DETAILS	4/9/2026
118	C4.4	UTILITY DETAILS	4/9/2026
19	C5.0	ROAD PROFILES	4/9/2026
20	C5.1	ROAD PROFILES	4/9/2026
21	C5.2	UTILITY PROFILES	4/9/2026
22	C5.3	UTILITY PROFILES	4/9/2026
23	C6.0	EROSION AND SEDIMENT CONTROL PLAN	4/9/2026
24	C6.1	DETAILED EROSION AND SEDIMENT CONTROL PLAN	4/9/2026
25	C6.2	DETAILED EROSION AND SEDIMENT CONTROL PLAN	4/9/2026
26	C6.3	EROSION AND SEDIMENT CONTROL DETAILS	4/9/2026
27	C6.4	EROSION AND SEDIMENT CONTROL DETAILS	4/9/2026
28	C6.5	EROSION AND SEDIMENT CONTROL DETAILS	4/9/2026
29	C6.6	POST CONSTRUCTION STORMWATER MANAGEMENT PLAN	4/9/2026
30	C6.7	DETAILED POST CONSTRUCTION STORMWATER MANAGEMENT PLAN	4/9/2026
31	C6.8	DETAILED POST CONSTRUCTION STORMWATER MANAGEMENT PLAN	4/9/2026
32	C6.9	POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS	4/9/2026
33	C6.10	POST CONSTRUCTION STORMWATER MANAGEMENT CONSTRUCTION DETAILS	4/9/2026
34	C7.0	OVERALL LANDSCAPE AND LIGHTING PLAN	4/9/2026
35	C7.1	DETAILED LANDSCAPE AND LIGHTING PLAN	4/9/2026
36	C7.2	DETAILED LANDSCAPE AND LIGHTING PLAN	4/9/2026
37	C7.3	LANDSCAPE AND LIGHTING DETAILS	4/9/2026
38	C8.0	TRUCK TURN PLAN	4/9/2026

APPLICANT/EQUITABLE OWNER:

HALLMARK BUILDING GROUP INC
865 EASTON ROAD, SUITE 320
WARRINGTON, PA 18976
(215)491-7900

PREPARED BY:

HOLMES CUNNINGHAM LLC
409 E. BUTLER AVE
UNIT 5
DOYLESTOWN, PA 18901
(215) 586-3330

CONTACTS

WORCESTER TOWNSHIP
1721 SOUTH VALLEY FORGE ROAD
P.O. BOX 767
WORCESTER, PA 19490
PHONE: (610) 584-1410

TOWNSHIP ENGINEER
CKS ENGINEER
4259 W SWAMP RD
SUITE 410
DOYLESTOWN, PENNSYLVANIA 18902
215-340-0600

MONTGOMERY COUNTY PLANNING COMMISSION
425 SWEDE STREET, #201
NORRISTOWN, PA 19401
610-278-3722

MONTGOMERY COUNTY CONSERVATION DISTRICT
143 LEVEL ROAD,
COLLEGEVILLE, PA 19426
610-489-4506

NORTH PENN WATER AUTHORITY
300 FOURTY FOOT ROAD
LANSDALE, PA 19446
PHONE: (215) 855-3617

WORCESTER TOWNSHIP SEWER AUTHORITY
1721 VALLEY FORGE ROAD
POST OFFICE BOX 767
WORCESTER, PA 19490
(610) 584-1410

DATE:	4/9/2026
PROJECT #	2064
DRAWING #	C0.0
SHEET	1 OF 38

LEGEND	
	PROPERTY LINE
	RIGHT OF WAY LINE
	ADJOINING PROPERTY LINE
208	EXISTING CONTOUR
WET	WETLAND
	POND
	WOODLANDS
TrB	SOIL TYPE
	SOIL LINE
	EX. BUILDING
	DRIVEWAY
	ELECTRIC FENCE
	ELECTRIC/WIRE FENCE
	POST AND RAIL FENCE
	TREE

NOTES:

1. THE BOUNDARY AND TOPOGRAPHIC INFORMATION IS TAKEN FROM AN EXISTING FEATURES PLAN PREPARED BY CARROLL ENGINEERING CORPORATION, DATED JULY 10, 2025.
2. 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.
3. 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. 852, NO. 287 DECEMBER 10, 1974 AS LAST AMENDED ON OCTOBER 9, 2008, PENNSYLVANIA ACT 121.
4. THIS SITE IS CURRENTLY ZONED AGR – AGRICULTURAL DISTRICT IN THE TOWNSHIP OF WORCESTER.
5. ELEVATION INFORMATION IS BASED ON THE NATIONAL AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AND HORIZONTAL DATUM ID BASED ON 1983 STATE COORDINATE SYSTEM.
6. 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).
7. 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. 254 & 262 OF 451, COMMUNITY MAP NO. 42091C0254G & 42091C0262G WHICH BEARS AM EFFECTIVE DATE OF MARCH 2, 2016.

SOIL TYPES

Sym	Name	Hydric (Y/N)	Depth to Bedrock (in.)	Depth to Water Table (in.)	HSG
AbB	Abbottstown Silt Loam, 3 to 8 Percent Slopes	N	40-60	6-18	D
Bo	Bowmansville-Knauers Silt Loams	Y	72-99	0-18	C/D
CrA	Croton Silt Loam, Occasionally Ponded, 0 to 3 Percent Slopes	Y	40-60	0-6	D
ReA	Readington silt loam, 0 to 3 percent slopes	N	40-70	18-36	C
ReB	Readington silt loam, 3 to 8 percent slopes	N	40-60	18-36	C
ReC	Readington silt loam, 8 to 15 percent slopes	N	40-70	18-36	C
RwA	Rowland Silt Loam, 0 to 3 Percent Slopes	N	60-99	18-36	C
UryB	Urban Land Readington Complex, 0 to 8 Percent Slopes	N	40-70	18-36	C

SOIL LIMITATIONS AND RESOLUTION:
THE SOILS FOUND WITHIN THE PROJECT LIMITS HAVE LIMITATIONS DUE TO SHALLOW DEPTH TO GROUNDWATER AND POSSIBLE SHALLOW DEPTH TO BEDROCK. IN ORDER TO RESOLVE THIS ISSUE, ANY STANDING WATER SHOULD BE PUMPED THROUGH A SEDIMENT FILTER BAG DURING CONSTRUCTION, AND THE CONTRACTOR SHALL ENSURE THAT THE DWELLINGS ARE PROPERLY WATERPROOFED TO AVOID GROUNDWATER ISSUES POST–CONSTRUCTION. FOR AREAS WHERE SHALLOW BEDROCK IS A LIMITATION, CONTRACTOR SHALL DETERMINE WHETHER ROCK IS RIPPABLE. IF ROCK IS NOT RIPPABLE, BLASTING WILL BE REQUIRED. ALL BLASTING SHALL MEET LOCAL, COUNTY, STATE AND FEDERAL REGULATIONS.

0 100 200 Feet

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

holmes cunningham ENGINEERING

REVISIONS

Date	Description

CALL BEFORE YOU DIG!!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION ACTIVITIES
10 WORKING DAYS IN DESIGN STAGE
– STOP & CALL –
Pennsylvania One Call System, Inc.
1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT ALL UTILITY COMPANIES PRIOR TO ANY EXCAVATION.

BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

EXISTING CONDITIONS PLAN

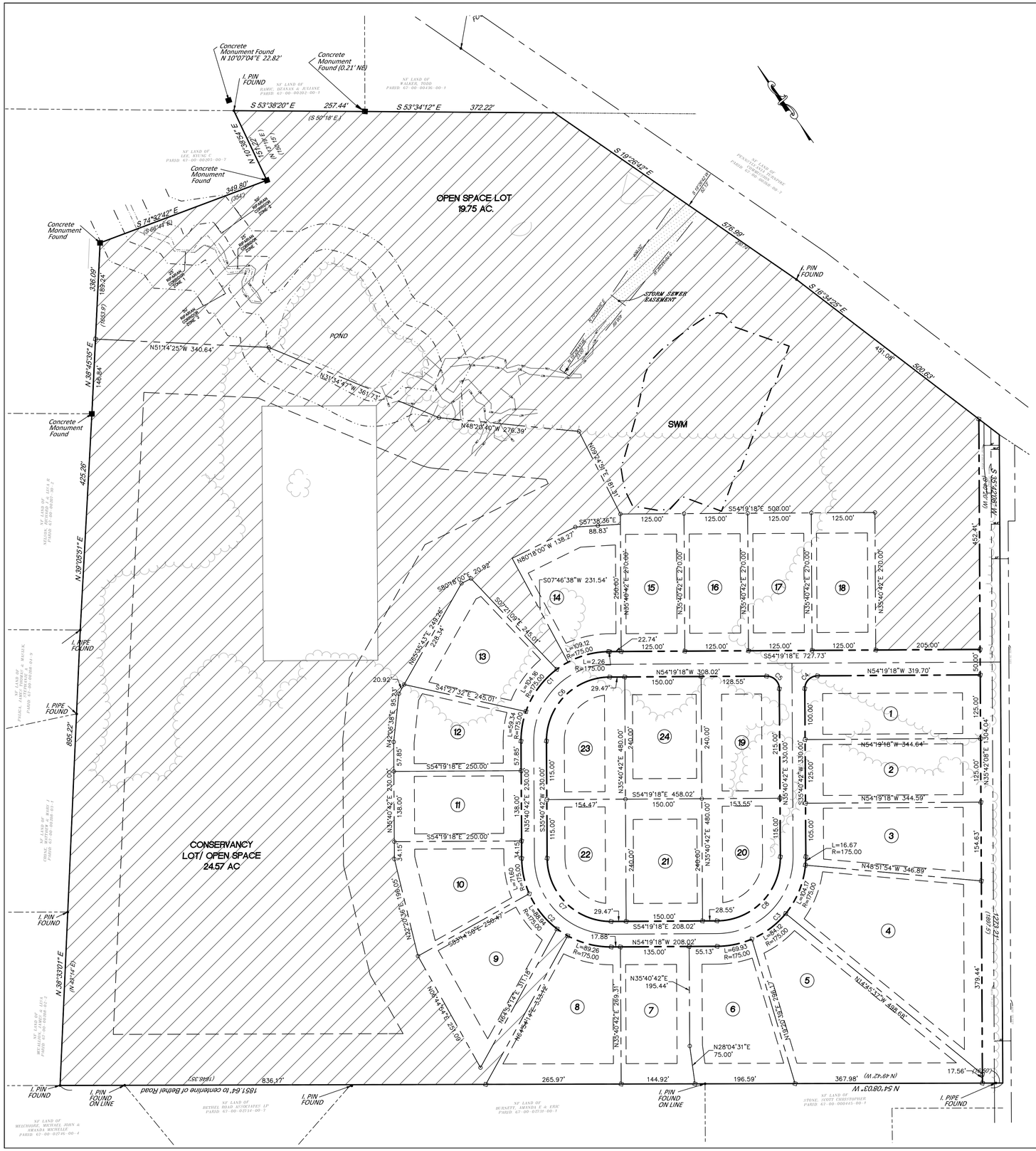
ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C0.1 Ex.dwg

HCE Job	2064	Scale	1"=100'	Designed	RC
Date	4/9/2026			Sheet	2 of 38

Drawing No.
C0.1

N 38°33'01" E
(N 43°14' E)
895.22'
N 39°05'51" E
425.26'
N 38°45'35" E
336.09'
(1853.9')
S 12°34'42" E
(S 6°44' E)
N 10°38'54" E
151.22'
(N 15°19' E)
(150.15')
S 53°38'30" E
(S 55°19' E)
285.44'
S 53°34'17" E
322.22'
S 29°26'49" E
S 16°52'51" E
S 36°42'08" W
(S 49°20' W)
(1892.5')
N 43°36'45" W
(N 22°49' W)
(55.98')
POND
PERC
FOUND
IRON PIN FOUND
CONCRETE MONUMENT FOUND
LPW FOUND ON LINE
PERC FOUND
IRON PIN FOUND
CONCRETE MONUMENT FOUND
LPW FOUND
LPW FOUND ON LINE
LPW FOUND ON LINE
PERC FOUND
IRON PIN FOUND
CONCRETE MONUMENT FOUND
LPW FOUND



PLAN NOTES:

1. BOUNDARY AND TOPOGRAPHIC INFORMATION TAKEN FROM A PLAN TITLED "MAP OF BOUNDARY AND TOPOGRAPHIC SURVEY" PREPARED BY CARROLL ENGINEERING CORPORATION DATED 07-10-2025
2. PROPOSED BUILDING FOOTPRINT SHOWN IS APPROXIMATE AND WILL BE REFINED AS PART OF THE BUILDING PERMIT PROCESS.
3. ALL UTILITIES ARE TO BE PLACED AND INSTALLED UNDERGROUND.
4. REFERENCE IS MADE TO PENNSYLVANIA ONE CALL SYSTEM, ASSIGNED SERIAL NUMBERS AND IN ACCORDANCE WITH PA ACT 287 OF 1974 AS AMENDED BY PA ACT 187 OF 2008. (800-242-1776)
5. SUBJECT PROPERTY IS LOCATED WITHIN AGR RESIDENTIAL ZONING DISTRICT.
6. FLOOD ZONE INFORMATION: SUBJECT PARCEL AREA IS LOCATED IN ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 500-YEAR FLOODPLAIN) OF THE FLOOD INSURANCE RATE MAP, COMMUNITY MAP NO. 42091C0254G & 42091C0262G WHICH BEARS AN EFFECTIVE DATE OF MARCH 2, 2016.
7. THE PROPOSED DEVELOPMENT IS TO BE SERVED BY PUBLIC WATER AND BY PUBLIC SEWER.
8. THE STORMWATER FACILTIES ARE TO BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION. A BLANKET EASEMENT WILL BE GRANTED TO WORCESTER TOWNSHIP TO PROVIDE THE RIGHT, BUT NOT THE OBLIGATION, TO ACCESS/MAINTAIN THE PROPOSED STORMWATER BMPS IN THE EVENT THE PROPERTY OWNER(S) DO NOT PROPERLY MAINTAIN THEM.
9. ON ANY LOT, NO WALL, FENCE, OBJECT OR STRUCTURE OF ANY KIND SHALL BE ERECTED, ALTERED, OR MAINTAINED AND NO HEDGE, FREE, SHRUB, OR OTHER GROWTH SHALL BE PLANTED OR MAINTAINED WHICH MAY CAUSE DANGER TO TRAFFIC ON A ROAD BY OBSCURING THE VIEW. DRIVEWAYS SHALL BE LOCATED SO AS TO PROVIDE A CLEAR SIGHT TRIANGLE, MEASURED FROM THE INTERSECTING STREET CENTER LINE AND THE DRIVEWAY CENTERLINE, OF NOT LESS THAN 30 FEET.
10. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE EXISTING LOCATION AND/OR ELEVATION OF FEATURES AS SHOWN ON THESE PLANS IS BASED ON A SURVEY PREPARED BY CARROLL ENGINEERING CORPORATION. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
11. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE WORCESTER TOWNSHIP STANDARDS AND TO PENNDOT PUBLICATION 408 LATEST EDITION AND THAT WHERE A DISCREPANCY OCCURS BETWEEN THE 2 STANDARDS, THE STRICTER STANDARD SHALL APPLY.
12. UNDER PENNSYLVANIA LAW, THE CONTRACTOR IS REQUIRED TO NOTIFY THE PENNSYLVANIA ONE-CALL SYSTEM AT 1-800-242-1776 PRIOR TO THE START OF HIS WORK, SO THAT ALL THE VARIOUS UNDERGROUND UTILITY OPERATORS WILL BE ABLE TO LOCATE THEIR OWN UTILITIES.
13. NO PERSON SHALL MODIFY, REMOVE, FILL, LANDSCAPE, OR ALTER ANY STORMWATER MANAGEMENT BEST MANAGEMENT PRACTICES (BMPS), FACILITIES, AREAS, OR STRUCTURES UNLESS IT IS PART OF AN APPROVED MAINTENANCE PROGRAM AND WRITTEN APPROVAL OF THE TOWNSHIP HAS BEEN OBTAINED.

Lot Area (SF)	
Lot	Lot Area (SF)
1	42,950
2	43,077
3	47,614
4	89,454
5	76,103
6	45,028
7	36,755
8	52,112
9	43,738
10	40,716
11	34,500
12	36,079
13	41,523
14	40,272
15	33,750
16	33,750
17	33,750
18	33,750
19	36,717
20	33,498
21	36,000
22	33,719
23	33,719
24	36,000
Conservancy Lot	1,075,365

Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	274.89'	175.00'	090°00'00"	N80°40'42"E	247.49'
C2	274.89'	175.00'	090°00'00"	N09°19'18"W	247.49'
C3	274.89'	175.00'	090°00'00"	S80°40'42"W	247.49'
C4	39.27'	25.00'	090°00'00"	S80°40'42"W	35.36'
C5	39.27'	25.00'	090°00'00"	N09°19'18"W	35.36'
C6	196.35'	125.00'	090°00'00"	S80°40'42"W	176.78'
C7	196.35'	125.00'	090°00'00"	S09°19'18"E	176.78'
C8	196.35'	125.00'	090°00'00"	N80°40'42"E	176.78'

LEGEND

TRACT BOUNDARY
R.O.W. LINE
SUBDIVISION LINE
BUILDING SETBACK
STORMWATER FACILITY
PROPOSED MONUMENT
PROPOSED IRON PIN
PROPOSED UTILITY EASEMENT
PROPOSED OPEN SPACE

APPLICANT & OWNER:
BETHEL ROAD ASSOCIATES LP
PO BOX 169

0 100 200 Feet

CORPORATE CERTIFICATION:

ON THE _____ DAY OF _____ BEFORE ME, THE SUBSCRIBER, A NOTARY PUBLIC OF THE COMMONWEALTH OF PENNSYLVANIA, RESIDING IN _____, PERSONALLY APPEARED _____, WHO ACKNOWLEDGED HIMSELF TO BE THE _____ OF _____, A PARTNERSHIP, AND THAT AS SUCH BEING AUTHORIZED TO DO SO, HE EXECUTED THE FOREGOING PLAN BY SIGNING THE NAME OF SAID PARTNERSHIP BY HIMSELF AS THAT SAID PARTNERSHIP IS THE OWNER OF THE LAND SHOWN HEREON. ALL NECESSARY APPROVALS OF THIS PLAN HAVE BEEN OBTAINED AND IS ENDORSED THEREON AND SAID PARTNERSHIP DESIRES THAT THIS PLAN BE DULY RECORDED.

_____ _____
(NOTARY PUBLIC) (MY COMMISSION EXPIRES)

I, _____, ACKNOWLEDGE MYSELF TO BE THE _____ OF _____, A PARTNERSHIP, AND THAT AS SUCH BEING AUTHORIZED TO DO SO, HEREBY CERTIFY THAT THE PARTNERSHIP IS THE SOLE REGISTERED OWNER OF THE LAND HEREIN SUBDIVIDED AND THAT THERE ARE NO SUITS PENDING AFFECTING THE TITLE OF THE SAME AND THAT I DO HEREBY ADOPT THIS PLAN AND DESIRE THE SAME TO BE RECORDED. I DO FURTHER SAVE THE TOWNSHIP HARMLESS AND INDEMNIFY THE TOWNSHIP OF WORCESTER AGAINST ANY LIABILITY OR LOSS RESULTING FROM THE SUBDIVISION OR DEVELOPMENT OF THIS PLAT FOR WHATEVER REASON PRESENT OR FUTURE.

_____ _____
(PARTNERSHIP OFFICIAL) (PARTNERSHIP OFFICE)

SURVEYOR CERTIFICATION:

I HEREBY CERTIFY THAT THE PLAN SHOWN AND DESCRIBED HEREON, AS WELL AS ALL OTHER DRAWINGS WHICH ARE A PART OF THIS PLAN SET, ARE TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE WORCESTER TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE AND WERE PREPARED BY ME OR UNDER MY DIRECTION, FOR WHICH I ACCEPT FULL RESPONSIBILITY, AND REPRESENT A FIELD SURVEY PERFORMED BY ME OR UNDER MY DIRECTION. THE EXISTING PERIMETER MONUMENTS SHOWN HEREON HAVE BEEN LOCATED AS PART OF THE SURVEY AND ALL OTHER PROPOSED PERIMETER MONUMENTS SHALL BE SET.

_____ _____
DATE STEPHEN MURPHY PLS,
CARROLL ENGINEERING CORPORATION

TOWNSHIP SUPERVISOR CERTIFICATION:

THIS PLAN HAS BEEN APPROVED BY WORCESTER TOWNSHIP BOARD OF SUPERVISORS THIS _____ DAY OF _____, _____.

_____ _____
(CHAIRPERSON) (ATTESTED: TOWNSHIP SECRETARY)

WETLANDS CERTIFICATION:

I DO HEREBY CERTIFY THAT THERE ARE NO WETLANDS PRESENT ON THE SITE. THIS PLAN IS IN ACCORDANCE WITH THE FINDINGS OF MY FIELD INVESTIGATION BASED UPON THE CORPS OF ENGINEER GUIDELINES.

_____ _____
(DATE) (SIGNATURE)

COUNTY RECORDING NOTE:

RECORDED IN THE OFFICE OF THE RECORDER OF DEEDS IN NORRISTOWN, PENNSYLVANIA, IN PLAN BOOK _____ PAGE _____, ON THE _____ DAY OF _____, _____

(MCPC STAMP & SEAL)

DESIGN ENGINEER'S CERTIFICATION:

I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE PROPOSED GRADING ACTIVITIES SHALL NOT SIGNIFICANTLY INCREASE STORMWATER RUNOFF TO AND/OR OTHERWISE IMPACT DOWNSTREAM PROPERTIES EXCEPT AS MAY BE PART OF AN APPROVED STORMWATER RUNOFF COLLECTION AND MANAGEMENT PLAN.

_____ _____
DATE ROBERT CUNNINGHAM, P.E.
HOLMES CUNNINGHAM ENGINEERING

I, ROBERT CUNNINGHAM, P.E., ON THIS DATE _____, HEREBY CERTIFY THAT THIS DRAINAGE PLAN MEETS ALL REQUIREMENTS OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION'S (DEP'S) REGULATIONS.

_____ _____
DATE ROBERT CUNNINGHAM, P.E.
HOLMES CUNNINGHAM ENGINEERING

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

REVISIONS		
	Description	Date

CALL BEFORE YOU DIG !!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR THE LOCATION OF UTILITIES OR 10 WORKING DAYS IN DESIGN STAGE -- STOP & CALL
Pennsylvania One Call System, Inc. 1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT ALL UTILITIES COMPANIES PRIOR TO ANY EXCAVATION.

BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

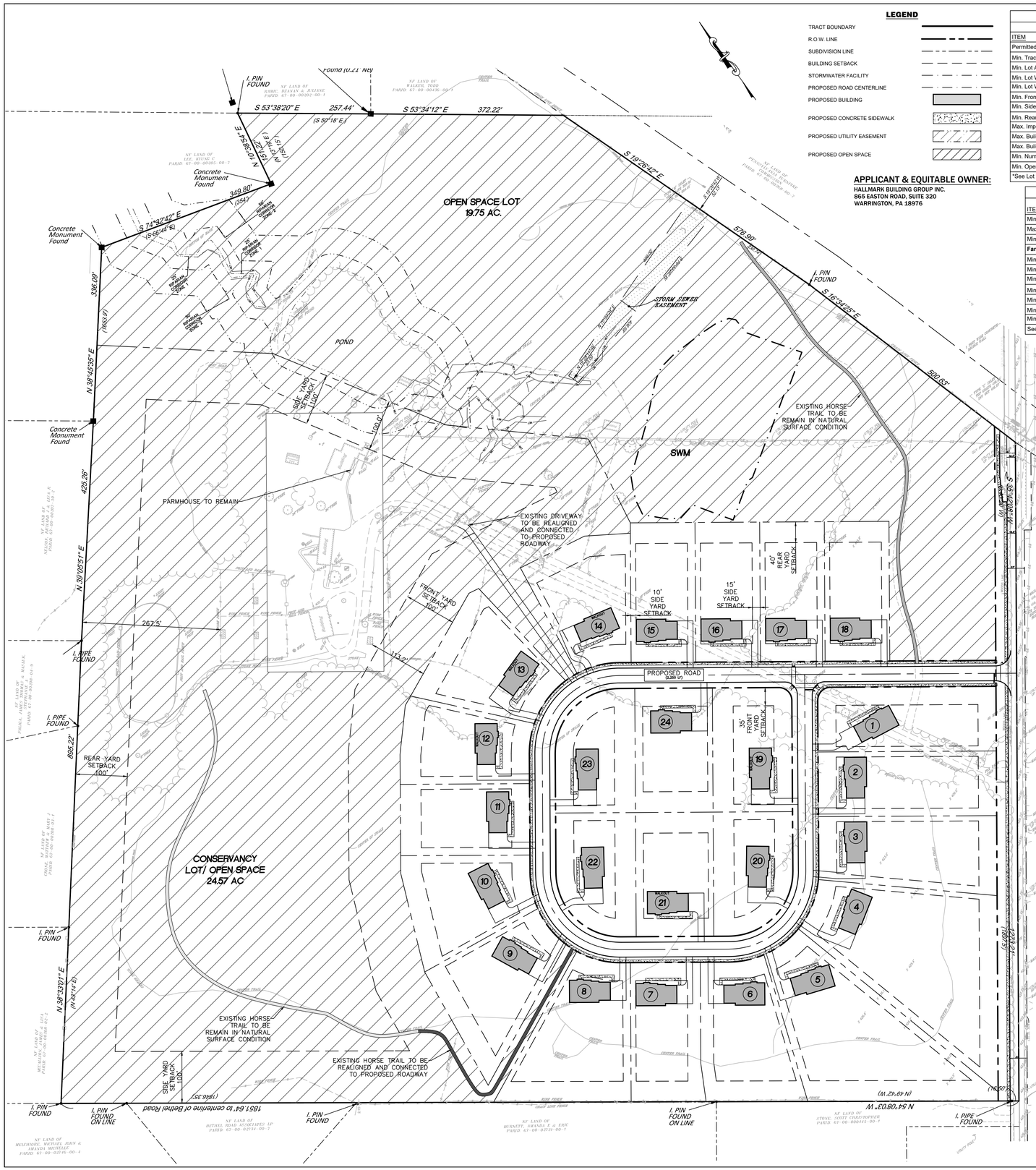
RECORD SUBDIVISION PLAN

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C1.0 Site.dwg

HCE Job	2064	Date	4/9/2026	Scale	1"=100'	Designed	RC	Sheet	4 of 38

Drawing No.
C1.0



LEGEND

- TRACT BOUNDARY
- R.O.W. LINE
- SUBDIVISION LINE
- BUILDING SETBACK
- STORMWATER FACILITY
- PROPOSED ROAD CENTERLINE
- PROPOSED BUILDING
- PROPOSED CONCRETE SIDEWALK
- PROPOSED UTILITY EASEMENT
- PROPOSED OPEN SPACE

APPLICANT & EQUITABLE OWNER:
HALLMARK BUILDING GROUP INC.
865 EASTON ROAD, SUITE 320
WARRINGTON, PA 18976

ZONING TABLE
AGR - Agricultural District

ITEM	REQUIRED/ PERMITTED	PROPOSED
Permitted Uses	Single Family - Conservation Subdivisions	
Min. Tract Size	10 Acres	70.9 Acres
Min. Lot Area	18,000 SF	30,000 SF
Min. Lot Width at Street Line	40 FT	40 FT
Min. Lot Width at Building Setback Line	80 FT	125 FT
Min. Front Yard Setback	35 FT	35 FT
Min. Side Yard Setback Each/Aggregate	10 FT/ 25 FT	10 FT/ 25 FT
Min. Rear Yard Setback	40 FT	40 FT
Max. Impervious Coverage	18%-25%*	< 25%
Max. Building Coverage	10%	<10%
Max. Building Height	35 FT	< 35 FT
Min. Number of Off-Street Parking Spaces	2 per DU	2 per DU
Min. Open Space	50%	61.6%

*See Lot Area Table for impervious coverage ratio by lot

CONSERVANCY LOT TABLE

ITEM	REQUIRED/ PERMITTED	PROPOSED	SECTION
Min. Conservancy Lot Area	10 Acres	24.57 Acres	150-110.5.D(1)
Max. Percentage of Open Space	60%	58.9%	150-110.5.D(2)
Min. Area Surrounding Farm Complex	1 Ac.	2.58 Acres	150-110.5.D(3)
Farm Lot Requirements			
Min. Lot Area	60,000 SF	112,560 SF	150-110.6
Min. Lot Width At Street Line	150 FT	25 FT*	150-110.6
Min. Lot Width At Building Line	300 FT	1,505 FT	150-110.6
Min. Front Yard Setback	100 FT	113.2 FT	150-110.6
Min. Side Yard Setback	100 FT	100.0 FT	150-110.6
Min. Rear Yard Setback	100 FT	267.5 FT	150-110.6
Min. Flag Lot Access Width*	25 FT	25 FT	150-179

See Impervious Coverage Table for impervious coverage ratio by lot

PLAN NOTES:
1. BOUNDARY AND TOPOGRAPHIC INFORMATION TAKEN FROM A PLAN TITLED "MAP OF BOUNDARY AND TOPOGRAPHIC SURVEY" PREPARED BY CARROLL ENGINEERING CORPORATION DATED 07-10-2025.
2. PROPOSED BUILDING FOOTPRINT SHOWN IS APPROXIMATE AND WILL BE REFINED AS PART OF THE BUILDING PERMIT PROCESS.
3. ALL UTILITIES ARE TO BE PLACED AND INSTALLED UNDERGROUND.
4. REFERENCE IS MADE TO PENNSYLVANIA ONE CALL SYSTEM, ASSIGNED SERIAL NUMBERS AND IN ACCORDANCE WITH PA ACT 287 OF 1974 AS AMENDED BY PA ACT 187 OF 2008. (800-242-1776)
5. SUBJECT PROPERTY IS LOCATED WITHIN AGR RESIDENTIAL ZONING DISTRICT.
6. FLOOD ZONE INFORMATION: SUBJECT PARCEL AREA IS LOCATED IN ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 500-YEAR FLOODPLAIN) OF THE FLOOD INSURANCE RATE MAP, COMMUNITY MAP NO. 42091C0254G & 42091C0262G WHICH BEARS AN EFFECTIVE DATE OF MARCH 2, 2016.
7. THE PROPOSED DEVELOPMENT IS TO BE SERVED BY PUBLIC WATER AND BY PUBLIC SEWER.
8. THE STORMWATER FACILITIES ARE TO BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION. A BLANKET EASEMENT WILL BE GRANTED TO WORCESTER TOWNSHIP TO PROVIDE THE RIGHT, BUT NOT THE OBLIGATION, TO ACCESS/MAINTAIN THE PROPOSED STORMWATER BMPS IN THE EVENT THE PROPERTY OWNER(S) DO NOT PROPERLY MAINTAIN THEM.
9. ON ANY LOT, NO WALL, FENCE, OBJECT OR STRUCTURE OF ANY KIND SHALL BE ERECTED, ALTERED, OR MAINTAINED AND NO HEDGE, FREE, SHRUB, OR OTHER GROWTH SHALL BE PLANTED OR MAINTAINED WHICH MAY CAUSE DANGER TO TRAFFIC ON A ROAD BY OBSCURING THE VIEW. DRIVEWAYS SHALL BE LOCATED SO AS TO PROVIDE A CLEAR SIGHT TRIANGLE, MEASURED FROM THE INTERSECTING STREET CENTER LINE AND THE DRIVEWAY CENTERLINE, OF NOT LESS THAN 30 FEET.
10. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE EXISTING LOCATION AND/OR ELEVATION OF FEATURES AS SHOWN ON THESE PLANS IS BASED ON A SURVEY PREPARED BY CARROLL ENGINEERING CORPORATION. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
11. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE WORCESTER TOWNSHIP STANDARDS AND TO PENNDOT PUBLICATION 408 LATEST EDITION AND THAT WHERE A DISCREPANCY OCCURS BETWEEN THE 2 STANDARDS, THE STRICTER STANDARD SHALL APPLY.
12. UNDER PENNSYLVANIA LAW, THE CONTRACTOR IS REQUIRED TO NOTIFY THE PENNSYLVANIA ONE-CALL SYSTEM AT 1-800-242-1776 PRIOR TO THE START OF HIS WORK, SO THAT ALL THE VARIOUS UNDERGROUND UTILITY OPERATORS WILL BE ABLE TO LOCATE THEIR OWN UTILITIES.
13. NO PERSON SHALL MODIFY, REMOVE, FILL, LANDSCAPE, OR ALTER ANY STORMWATER MANAGEMENT BEST MANAGEMENT PRACTICES (BMPS), FACILITIES, AREAS, OR STRUCTURES UNLESS IT IS PART OF AN APPROVED MAINTENANCE PROGRAM AND WRITTEN APPROVAL OF THE TOWNSHIP HAS BEEN OBTAINED.

Conservation Subdivision Calculations

Calculation Of Constrained Lands

Constraint	Ratio	Total Land (AC)	Total Constrained Land (AC)
Floodplains	100%	0.00	0.00
Wetlands	100%	0.54	0.54
Land Continuously Covered With Water	100%	0.94	0.94
Riparian Buffer Zone 1	100%	0.98	0.98
Legal Right-of-Way - Streets	100%	0.52	0.52
Right-of-Way - Utilities	100%	0.33	0.33
Steep Slopes 25%+	100%	0.01	0.01
Steep Slopes 15-25%	50%	0.48	0.24
Totals		3.80	3.57

Calculation of Adjusted Tract Area (ATA)

Gross Tract Area	71.473	Acres
Subtract Constrained Lands	3.565	Acres
Adjusted Tract Area (ATA)	**67.908**	Acres

Calculation of Open Space

Adjusted Tract Area	67.908	Acres
Minimum Required Open Space Ratio	50%	
ATA * Min. Required Open Space Ratio	33.954	Acres
Plus Total Constrained Lands	3.565	Acres
Total Requried Open Space	**37.519**	Acres

Proposed Open Space

	SF	Acres
Total Tract Open Space		
Total Proposed Open Space Area	1,823,032	41.85
Proposed Open Space Ratio	61.6%	
Conservancy Lot Open Space		
Total Conservancy Lot Area	1,075,365	24.69
Total Open Space On Conservancy Lot Area	962,805	22.10
Open Space Occupied by Conservancy Lot	58.9%	

Impervious Coverage Table

Lot	Lot Area (SF)	Max. Permitted Impervious Cover Ratio	Max. Permitted Impervious (SF)	Proposed Impervious Coverage (SF)	Proposed Impervious Cover Ratio	Max. Permitted Building Area (SF)	Proposed Building Area (SF)
1	42,950	24%	10,308	5,362	12.5%	4,295	3,340
2	43,077	24%	10,338	5,482	12.7%	4,308	3,340
3	47,614	24%	11,427	5,485	11.5%	4,761	3,340
4	89,454	18%	16,102	5,654	6.3%	8,945	3,340
5	76,103	20%	15,221	5,548	7.3%	7,610	3,340
6	45,028	24%	10,807	5,362	11.9%	4,503	3,340
7	36,755	25%	9,189	5,362	14.6%	3,676	3,340
8	52,112	23%	11,986	5,284	10.1%	5,211	3,340
9	43,738	24%	10,497	5,453	12.5%	4,374	3,340
10	40,716	24%	9,772	5,452	13.4%	4,072	3,340
11	34,500	25%	8,625	5,359	15.5%	3,450	3,340
12	36,079	25%	9,020	5,633	15.6%	3,608	3,340
13	41,523	24%	9,966	5,604	13.5%	4,152	3,340
14	40,272	24%	9,665	5,511	13.7%	4,027	3,340
15	33,750	25%	8,438	5,362	15.9%	3,375	3,340
16	33,750	25%	8,438	5,362	15.9%	3,375	3,340
17	33,750	25%	8,438	5,362	15.9%	3,375	3,340
18	33,750	25%	8,438	5,362	15.9%	3,375	3,340
19	36,717	25%	9,179	5,356	14.6%	3,672	3,340
20	33,498	25%	8,375	5,249	15.7%	3,350	3,340
21	36,000	25%	9,000	5,407	15.0%	3,600	3,340
22	33,719	25%	8,430	5,279	15.7%	3,372	3,340
23	33,719	25%	8,430	5,359	15.9%	3,372	3,340
24	36,000	25%	9,000	5,382	15.0%	3,600	3,340
Conservancy Lot	1,075,365	-	39,500	31,750	-	-	8,084

CORPORATE CERTIFICATION:

ON THE _____ DAY OF _____ BEFORE ME, THE SUBSCRIBER, A NOTARY PUBLIC OF THE COMMONWEALTH OF PENNSYLVANIA, RESIDING IN _____ PERSONALLY APPEARED _____, WHO ACKNOWLEDGED HIMSELF TO BE THE _____ OF _____, A PARTNERSHIP, AND THAT AS SUCH BEING AUTHORIZED TO DO SO, HE EXECUTED THE FOREGOING PLAN BY SIGNING THE NAME OF SAID PARTNERSHIP BY HIMSELF AS THAT SAID PARTNERSHIP IS THE OWNER OF THE LAND SHOWN HEREON. ALL NECESSARY APPROVALS OF THIS PLAN HAVE BEEN OBTAINED AND IS ENDORSED THEREON AND SAID PARTNERSHIP DESIRES THAT THIS PLAN BE DULY RECORDED.

_____ _____
(NOTARY PUBLIC) (MY COMMISSION EXPIRES)

I, _____, ACKNOWLEDGE MYSELF TO BE THE _____ OF _____, A PARTNERSHIP, AND THAT AS SUCH BEING AUTHORIZED TO DO SO, HEREBY CERTIFY THAT THE PARTNERSHIP IS THE SOLE REGISTERED OWNER OF THE LAND HEREIN SUBDIVIDED AND THAT THERE ARE NO SUITS PENDING AFFECTING THE TITLE OF THE SAME AND THAT I DO HEREBY ADOPT THIS PLAN AND DESIRE THE SAME TO BE RECORDED. I DO FURTHER SAVE THE TOWNSHIP HARMLESS AND INDEMNIFY THE TOWNSHIP OF WORCESTER AGAINST ANY LIABILITY OR LOSS RESULTING FROM THE SUBDIVISION OR DEVELOPMENT OF THIS PLAT FOR WHATEVER REASON PRESENT OR FUTURE.

_____ _____
(PARTNERSHIP OFFICIAL) (PARTNERSHIP OFFICE)

SURVEYOR CERTIFICATION:

I HEREBY CERTIFY THAT THE PLAN SHOWN AND DESCRIBED HEREON, AS WELL AS ALL OTHER DRAWINGS WHICH ARE A PART OF THIS PLAN SET, ARE TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE WORCESTER TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE AND WERE PREPARED BY ME OR UNDER MY DIRECTION, FOR WHICH I ACCEPT FULL RESPONSIBILITY, AND REPRESENT A FIELD SURVEY PERFORMED BY ME OR UNDER MY DIRECTION. THE EXISTING PERIMETER MONUMENTS SHOWN HEREON HAVE BEEN LOCATED AS PART OF THE SURVEY AND ALL OTHER PROPOSED PERIMETER MONUMENTS SHALL BE SET.

_____ _____
DATE STEPHEN MURPHY PLS,
CARROLL ENGINEERING CORPORATION

TOWNSHIP SUPERVISOR CERTIFICATION:

THIS PLAN HAS BEEN APPROVED BY WORCESTER TOWNSHIP BOARD OF SUPERVISORS THIS _____ DAY OF _____, _____.

_____ _____
(CHAIRPERSON) (ATTESTED: TOWNSHIP SECRETARY)

WETLANDS CERTIFICATION:

I DO HEREBY CERTIFY THAT THERE ARE NO WETLANDS PRESENT ON THE SITE. THIS PLAN IS IN ACCORDANCE WITH THE FINDINGS OF MY FIELD INVESTIGATION BASED UPON THE CORPS OF ENGINEER GUIDELINES.

_____ _____
(DATE) (SIGNATURE)

COUNTY RECORDING NOTE:

RECORDED IN THE OFFICE OF THE RECORDER OF DEEDS IN NORRISTOWN, PENNSYLVANIA, IN PLAN BOOK _____ PAGE _____, ON THE _____ DAY OF _____, _____.

(MCPC STAMP & SEAL)

DESIGN ENGINEER'S CERTIFICATION:

I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE PROPOSED GRADING ACTIVITIES SHALL NOT SIGNIFICANTLY INCREASE STORMWATER RUNOFF TO AND/OR OTHERWISE IMPACT DOWNSTREAM PROPERTIES EXCEPT AS MAY BE PART OF AN APPROVED STORMWATER RUNOFF COLLECTION AND MANAGEMENT PLAN.

_____ _____
DATE ROBERT CUNNINGHAM, P.E.
HOLMES CUNNINGHAM ENGINEERING

I, ROBERT CUNNINGHAM, P.E., ON THIS DATE _____, HEREBY CERTIFY THAT THIS DRAINAGE PLAN MEETS ALL REQUIREMENTS OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION'S (DEP'S) REGULATIONS.

_____ _____
DATE ROBERT CUNNINGHAM, P.E.
HOLMES CUNNINGHAM ENGINEERING

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

REVISIONS

Description	Date

CALL BEFORE YOU DIG !!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR EXCAVATION OR DEMOLITION 10 WORKING DAYS IN DESIGN STAGE — STOP & CALL
Pennsylvania One Call Systems, Inc. 1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT ALL UTILITIES FOR EXACT LOCATIONS PRIOR TO ANY EXCAVATION.

BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

RECORD SITE PLAN

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C1.0 Site.dwg

HCE Job	2064	Scale	1"=100'	Designed	RC
Date	4/9/2026				
				Sheet	5 of 38

Drawing No.
C1.1

KEY MAP
SCALE: 1:800

LEGEND

- TRACT BOUNDARY
- R.O.W. LINE
- SUBDIVISION LINE
- BUILDING SETBACK
- STORMWATER FACILITY
- PROPOSED ROAD CENTERLINE
- PROPOSED BUILDING
- PROPOSED CONCRETE SIDEWALK
- PROPOSED UTILITY EASEMENT
- PROPOSED OPEN SPACE

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

holmes cunningham ENGINEERING

REVISIONS

Description	Date

CALL BEFORE YOU DIG!!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION AREAS AND
10 WORKING DAYS IN DESIGN STAGE
– STOP &
Pennsylvania One Call System, Inc.
1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE UTILITY COMPANY'S AND CONTRACTOR'S PER PA. ACT 187 TO CONTACT ALL UTILITY COMPANIES PRIOR TO ANY EXCAVATION.

BOLD FOX FARM

TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

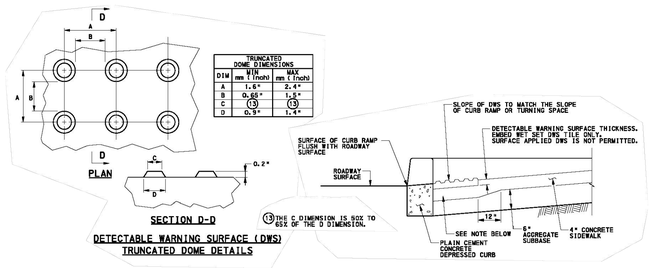
DETAILED SITE PLAN

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

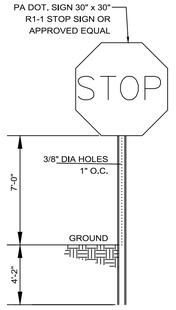
File No.
2064_C1.0 Site.dwg

HCE Job	2064	Scale	1"=50'	Designed	RC
Date	4/9/2026			Sheet	6 of 38

Drawing No.
C1.2



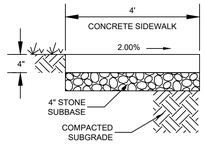
DETECTABLE WARNING SURFACE DETAIL



NOTES

1. 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".
2. ALL POSTS SHALL BE EMBEDDED 4'-2" MINIMUM BELOW GRADE.
3. 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).
4. ALL POSTS SHALL BE TWO-PIECE U-POST.
5. SIGN PANEL SIZES SHALL DETERMINE POST TYPE AND NUMBERS AS SHOWN ON THIS DETAIL AND DIRECTIONAL SIGN SHEET.
6. BOLTS SHALL NOT PROTRUDE MORE THAN 3/4" BEYOND THE NUT WHEN TIGHT BUT SHALL ENGAGE ALL THREADS IN THE NUT.
7. ALL TRAFFIC AND PEDESTRIAN SIGNAGE SHALL BE MOUNTED ON A BREAKAWAY POST.
8. ALL TRAFFIC AND PEDESTRIAN SIGNAGE AND LOCATION SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND ALL CURRENT AMENDMENTS.

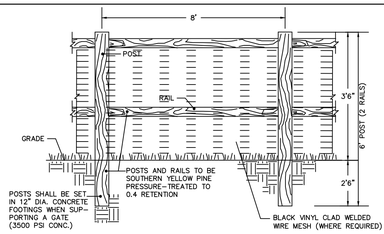
STOP SIGN



NOTES:

1. SIDEWALK IS TO BE PROVIDED, PLACED, CURED AND FINISHED TO PENNDOT SPECIFICATIONS PUB. 408(CURRENT EDITION), SECTIONS 704 AND 1001. CLASS AA CONCRETE (4,000 PSI, TWENTY-EIGHT-DAY STRENGTH) SHALL BE USED.
2. 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.
3. 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.
4. DRAINAGE SLOPE TO BE MAINTAINED AT 2.0% TOWARDS CURB.
5. EXPANSION JOINTS TO BE ONE-HALF-INCH PRECLUDED, BITUMINOUS, EXPANSION JOINT MATERIAL AT TWENTY-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.
6. MINIMUM NO. 9, SIX BY SIX MESH TO BE USED IN CONCRETE DRIVEWAY CONSTRUCTION.
7. CONTRACTION JOINTS ARE TO BE PLACED EVERY 5'
8. A 4" THICK ¾" CLEAN (PENNDOT 2B) STONE BASE IS REQUIRED AS BEDDING FOR CONCRETE SIDEWALKS AND APRONS.
9. CLASS AA CONCRETE (4,000 PSI) IS TO BE USED FOR SIDEWALK AND APRON CONSTRUCTION
10. A 5'X5' PASSING AREA SHALL BE PROVIDED EVERY 200'. THE PASSING AREA SHALL HAVE THE SAME 2% MAX. CROSS SLOPE. DRIVEWAYS MAY BE USED FOR PASSING AREAS.

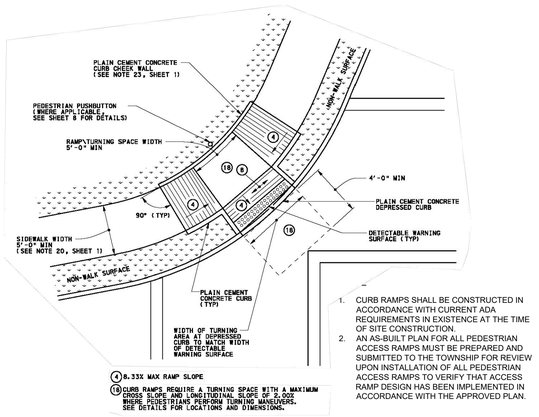
SIDEWALK



** POSTS AND RAILS TO BE SOUTHERN YELLOW PINE WOOD OR SUITABLE EQUIVALENT MATERIAL.
** POSTS AND RAILS TO BE PRESSURE TREATED TO 0.4 RETENTION

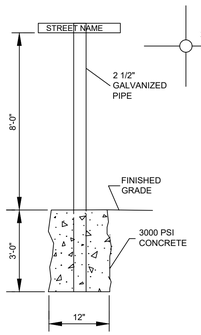
HEIGHT	3'6"	HEIGHT OF POST OUT OF GROUND
DEPTH	2'6"	DEPTH SET INTO GROUND
LENGTH	8'	POST SPACING, CENTER TO CENTER
RAILS	3-1/4" sq x 16'	2 EACH, 0.11 WALL THICKNESS
SPACE	7-11/16"	BETWEEN RAILS
STEEL REINFORCEMENT	NO	
POST SIZE	5" SQUARE	0.16 WALL THICKNESS

POST AND RAIL FENCE



CURB RAMP DETAIL

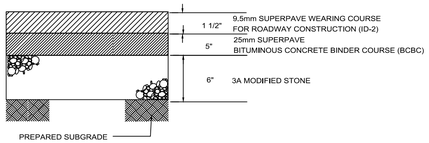
1. CURB RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CURRENT ADA REQUIREMENTS IN EXISTENCE AT THE TIME OF SITE CONSTRUCTION.
2. AN AS-BUILT PLAN FOR ALL PEDESTRIAN ACCESS RAMPS MUST BE PREPARED AND SUBMITTED TO THE TOWNSHIP FOR REVIEW UPON INSTALLATION OF ALL PEDESTRIAN ACCESS RAMPS TO VERIFY THAT ACCESS RAMP DESIGN HAS BEEN IMPLEMENTED IN ACCORDANCE WITH THE APPROVED PLAN.



SIGN NOTES

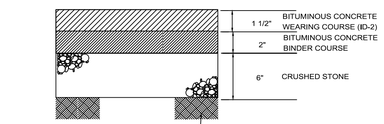
1. STREET SIGN POST - GREEN STEEL CHANNEL POST. (10') ONE PIECE SECTION MIN. 2.5 LB.
2. ALL SIGN POSTS MUST BE ERECTED ON A BREAKAWAY MADE OF STEEL GREEN CHANNEL POST @ A MINIMUM OF 2.5 LB/FT 3 FEET IN LENGTH. BREAKAWAY SHALL BE PLACED IN GROUND EXCEPT FOR THE TOP 10". MOUNT BREAKAWAY TO POST. AN EZE-ERECT BREAKAWAY STRIP MUST BE USED.
3. ALL FITTINGS SHALL BE ALUMINUM OR STAINLESS STEEL.
4. ALL STREET SIGNS SHALL BE EXTRUDED ALUMINUM MINIMUM 0.08 GAUGE THICKNESS AT 9" HEIGHT BLADE. SIGN FACING SHALL BE 3M ENGINEER GRADE COLOR GREEN.
5. ALL REGULATORY SIGN FACING 3M HIGH INTENSITY GRADE.
6. LETTERS SHALL BE 3M SERIES 605-B, H.A. COLOR WHITE REFLECTIVE (6") WITH 4" SUFFIX.

STREET SIGN



NOTES:
1) ALL DRIVEWAYS MUST HAVE A 1.5" CURB REVEAL.
2) CURB DEPRESSIONS SHALL BE 4' WIDER THAN THE DRIVEWAY.
3) INFORMATION RELATING TO THE PROPOSED USE OF RECYCLED MATERIALS, INCLUDING GRADATIONS AND LOCATIONS OF USE, SHALL BE SUBMITTED TO THE TOWNSHIP ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
4) ALL COMPONENTS OF THE PAVEMENT STRUCTURE SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS, FORM 408.
5) SUBGRADE SHALL BE COMPACTED AND CROWNED WITH THE REQUIRED STREET CROWN AND SHALL BE PREPARED TO PENNDOT SPECIFICATIONS, FORM 408.
6) STRUCTURAL FABRIC WILL BE REQUIRED IN LOCATIONS DEEMED NECESSARY BY THE TOWNSHIP ENGINEER.
7) U DRAINS WILL BE REQUIRED IN LOCATIONS DEEMED NECESSARY BY THE TOWNSHIP ENGINEER.

ROADWAY PAVEMENT SECTION

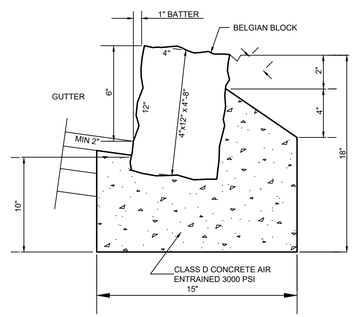


NOTES:
1) ALL DRIVEWAYS MUST HAVE A 1.5" CURB REVEAL.
2) CURB DEPRESSIONS SHALL BE 4' WIDER THAN THE DRIVEWAY.

DRIVEWAY PAVEMENT SECTION

NOTES
1. 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" WITH LATEST REVISIONS.
2. ALL POSTS SHALL BE EMBEDDED 3'-0" MINIMUM BELOW GRADE.
3. 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).
4. ALL POSTS SHALL BE TWO-PIECE U-POST.
5. SIGN PANEL SIZES SHALL DETERMINE POST TYPE AND NUMBERS AS SHOWN ON THIS DETAIL AND DIRECTIONAL SIGN SHEET.
6. BOLTS SHALL NOT PROTRUDE MORE THAN 3/4" BEYOND THE NUT WHEN TIGHT BUT SHALL ENGAGE ALL THREADS IN THE NUT.
7. ALL TRAFFIC AND PEDESTRIAN SIGNAGE AND LOCATION SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION WITH LATEST REVISIONS.

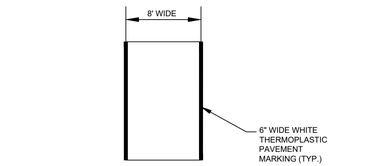
SIGNS DETAIL



NOTES:

1. ON TRANSITIONS FROM AND TO PROPOSED CURB, USE ONE LARGE BLOCK SLOPED AND CUT TO FIT.
2. CURB IMMEDIATELY ADJACENT TO INLET CASTING MUST HAVE PREFORMED EXPANSION MATERIAL.
3. CONCRETE JOINTS USE MORTAR WITH COMPOSITION - 3 SAND:1 CEMENT, JOINTS TO BE 1/2" WIDE.
4. 6" BELGIAN BLOCK CURB TO BE USED FOR ALL ON-SITE RESIDENTIAL ROADS.

BELGIAN BLOCK CURB



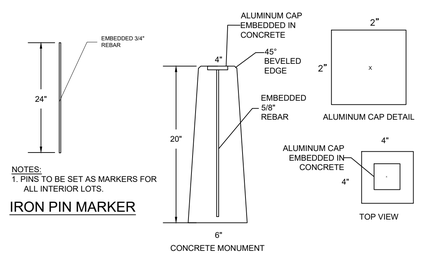
* STOP BAR TO BE PLACED 12" FROM PC AND 4-FEET FROM OUTER EDGE OF CROSSWALK. SEE PLAN

STOP BAR

NOTES:

1. CONTRACTOR TO INSTALL CROSSWALKS PER THE MANUAL ON UNIFORM TRAFFIC CONTROL STANDARDS (MUTCD), CURRENT EDITION WITH LATEST REVISIONS.
2. ALL THERMOPLASTIC AND EPOXY RESIN PAVEMENT MARKINGS TO BE INSTALLED PER THE HILLTOWN TOWNSHIP SPECIFICATIONS AND DESIGN STANDARDS.
3. CROSSWALK WILL BE CONSTRUCTED USING STAMPED ASPHALT.
4. CROSSWALK COLORS/PATTERNS/DIMENSIONS ARE SUBJECT TO REVIEW AND APPROVAL OF HILLTOWN TOWNSHIP PRIOR TO INSTALLATION.

PAVEMENT MARKINGS



NOTES:
1. PINS TO BE SET AS MARKERS FOR ALL INTERIOR LOTS.

IRON PIN MARKER

NOTES:
1. MONUMENTS TO BE SET FOR OUTBOUND PROPERTY LINE, ULTIMATE RIGHT-OF-WAYS, OPEN SPACE AND ONE SIDE OF EASEMENTS.
2. PK NAILS SHALL BE USED IN PLACE OF MONUMENTS IN PAVED AREAS.

CONCRETE MONUMENT

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

holmes cunningham ENGINEERING

REVISIONS

Date	Description

CALL BEFORE YOU DIG!!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR EXCAVATION/DEMOLITION 10 WORKING DAYS IN DESIGN STAGE – STOP & CALL
Pennsylvania One Call System, Inc.
1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT UTILITIES PRIOR TO ANY EXCAVATION

BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

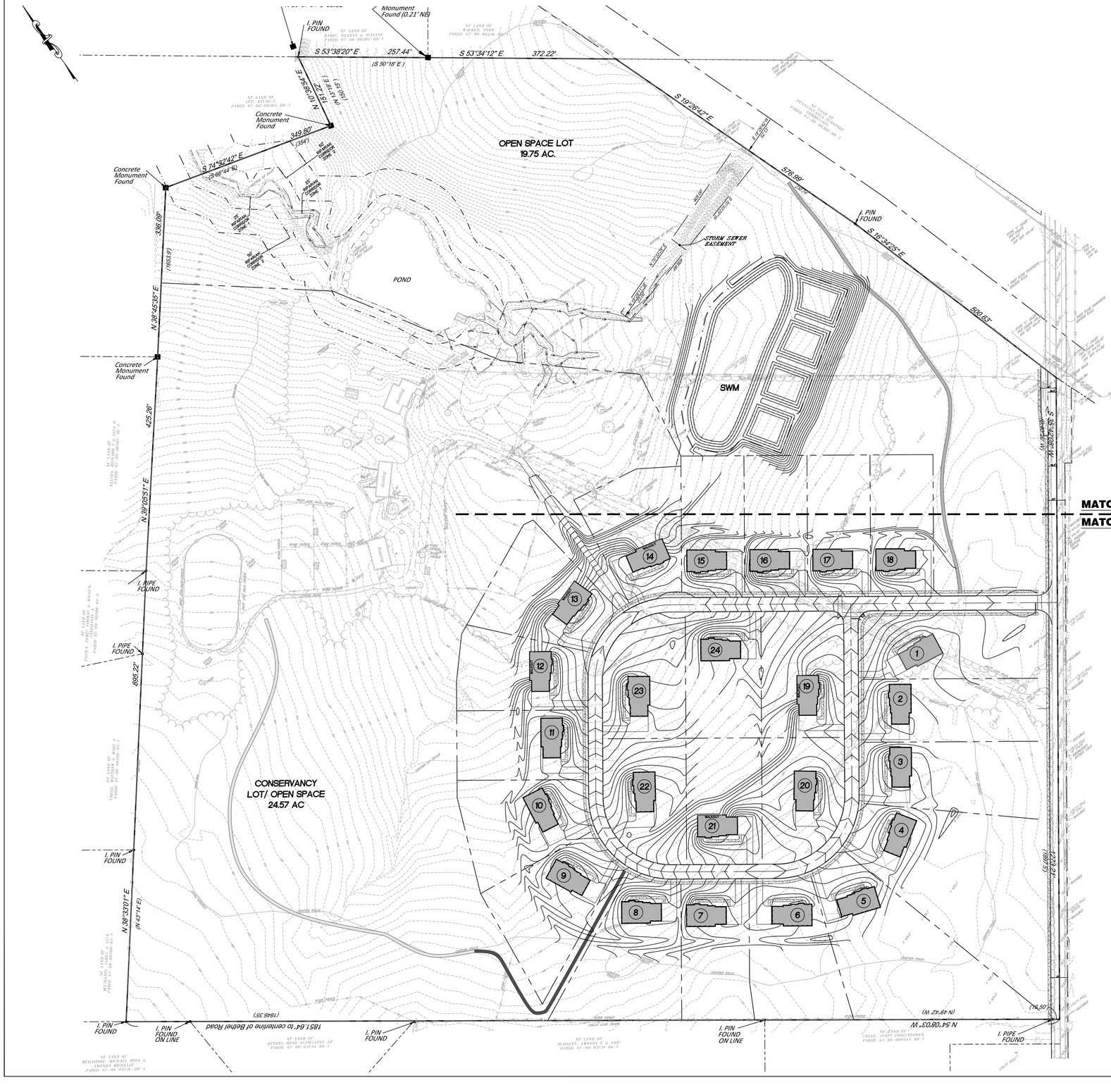
CONSTRUCTION DETAILS

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C1.0 Site.dwg

HCE Job	2064			
Date	4/9/2026	Scale	N.T.S.	Designed RC
				Sheet 7 of 38

Drawing No.
C1.2



MATCHLINE - (SEE SHEET C2.2)

MATCHLINE - (SEE SHEET C2.1)

GRADING NOTES

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS IN A MANNER WHICH WILL NOT NEGATIVELY AFFECT ANY EXISTING USERS OF THESE UTILITIES.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH PENNDOT PUBLICATION 408 AND THE WORCESTER TOWNSHIP SPECIFICATIONS AND DESIGN STANDARDS.
3. COMPACTION CRITERIA FOR FILL PLACEMENT IN THE FOLLOWING AREAS SHALL MEET OR EXCEED THE FOLLOWING MINIMUM PERCENTAGE OF THE MAXIMUM MODIFIED PROCTOR DRY DENSITY AS DETERMINED BY ASTM D-1557 USED ON REPRESENTATIVE SOIL SAMPLES, UNLESS MORE STRINGENT CRITERIA IS GIVEN ELSEWHERE;

FILL AREA	% OF MAX. DENSITY
BUILDING FOOTPRINT	95%
PAVEMENT AND ROADWAYS	95%
SIDEWALKS	95%
LANDSCAPE AREAS	93%
TRENCH BACKFILL	SAME AS SURROUNDING AREA

4. PROTECTED SUBGRADE FROM EXCESSIVE WHEEL LOADING DURING CONSTRUCTION INCLUDING CONCRETE TRUCKS AND DUMP TRUCKS.
5. REMOVE AREAS OF FINISHED SUBGRADE FOUND TO HAVE INSUFFICIENT COMPACTION DENSITY TO DEPTH NECESSARY AND REPLACE IN A MANNER THAT WILL COMPLY WITH THE COMPACTION REQUIREMENTS BY USE OF MATERIAL EQUAL TO OR BETTER THAN BEST SUBGRADE MATERIAL ONSITE. SURFACE OF SUBGRADE AFTER COMPACTION SHALL BE HARD, UNIFORM, SMOOTH, STABLE AND TRUE TO GRADE AND CROSS SECTION.
6. ALL STRIPPED TOPSOIL SHOULD BE REUSED ON SITE TO THE GREATEST EXTENT POSSIBLE. HOWEVER, PRIOR TO REMOVAL OF TOPSOIL FROM THE SITE PERMISSION SHOULD BE OBTAINED FROM THE TOWNSHIP.
7. THE MAXIMUM SLOPE IS FOUR HORIZONTAL TO ONE VERTICAL (4H:1V). THE MINIMUM PERMITTED SLOPE IN LAWN AREAS IS 2% (50H:1V).
8. THE MAXIMUM DRIVEWAY SLOPE WITHIN 20 FEET OF THE RIGHT OF WAY LINE IS FOUR PERCENT (4%). THE MAXIMUM DRIVEWAY SLOPE FOR THE REMAINDER OF THE DRIVEWAY IS EIGHT PERCENT (8%). THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THESE REQUIREMENTS.
9. THE SIDEWALK SHALL HAVE A CONTINUOUS GRADE ACROSS THE DRIVEWAYS AND NOT BE SLOPED TO ACCOMMODATE DRIVEWAYS. THE SIDEWALK SHALL HAVE A MAXIMUM CROSS SLOPE OF 2%.

GRADING LEGEND

EXISTING CONTOUR	185
EXISTING SPOT ELEVATION	185.2 x
EXISTING TOP/BOTTOM CURB	x TC 154.75 BC 154.25
PROPOSED CONTOUR	185
PROPOSED SPOT ELEVATION	185.2 x
PROPOSED TOP/BOTTOM CURB	x TC 154.75 BC 154.25

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

holmes cunningham ENGINEERING

REVISIONS

Date	Description

CALL BEFORE YOU DIG!!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
PREPARATION OF DESIGN
10 WORKING DAYS IN DESIGN STAGE
— STOP & CALL —
Pennsylvania One Call System, Inc.
1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT ALL UTILITY COMPANIES PRIOR TO ANY EXCAVATION.

BOLD FOX FARM

TMP# 67-00-00442-004

WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

OVERALL GRADING PLAN

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C2.0 Grading.dwg

HCE Job	2064			
Date	4/9/2026	Scale	1"=100'	Designed	RC	Sheet	8 of 38

Drawing No.
C2.0

MATCHLINE - (SEE SHEET C2.2)

KEY MAP
SCALE: 1:800

GRADING LEGEND

EXISTING CONTOUR	185
EXISTING SPOT ELEVATION	185.2 x
EXISTING TOP/BOTTOM CURB	x TC 154.75 BC 154.25
PROPOSED CONTOUR	185
PROPOSED SPOT ELEVATION	185.2 x
PROPOSED TOP/BOTTOM CURB	x TC 154.75 BC 154.25

F.F. 432.55
G.F. 430.52
T.W. 431.22
B.F. 422.55
1

F.F. 426.44
G.F. 424.41
T.W. 425.11
B.F. 416.44
2

F.F. 429.30
G.F. 427.27
T.W. 427.97
B.F. 419.30
3

F.F. 431.14
G.F. 429.11
T.W. 429.81
B.F. 421.14
4

F.F. 433.23
G.F. 431.20
T.W. 431.90
B.F. 423.23
5

F.F. 434.20
G.F. 432.17
T.W. 432.87
B.F. 424.20
6

F.F. 433.38
G.F. 431.35
T.W. 432.05
B.F. 423.38
7

F.F. 429.86
G.F. 427.83
T.W. 428.53
B.F. 419.86
8

F.F. 426.04
G.F. 424.01
T.W. 424.71
B.F. 416.04
9

F.F. 420.95
G.F. 418.92
T.W. 419.62
B.F. 410.95
10

F.F. 416.92
G.F. 414.89
T.W. 415.59
B.F. 406.92
11

F.F. 414.12
G.F. 412.09
T.W. 412.79
B.F. 404.12
12

400.33
F.F. 411.00
G.F. 408.97
T.W. 409.67
B.F. 401.00
13

F.F. 410.68
G.F. 408.65
T.W. 409.35
B.F. 400.68
14

F.F. 412.10
G.F. 410.07
T.W. 410.77
B.F. 402.10
15

F.F. 416.97
G.F. 414.94
T.W. 415.64
B.F. 406.97
16

F.F. 420.09
G.F. 418.06
T.W. 418.76
B.F. 410.09
17

F.F. 423.63
G.F. 421.60
T.W. 422.30
B.F. 413.63
18

F.F. 426.00
G.F. 423.97
T.W. 424.67
B.F. 416.00
19

F.F. 430.12
G.F. 428.09
T.W. 428.79
B.F. 420.12
20

F.F. 433.69
G.F. 431.66
T.W. 432.36
B.F. 423.69
21

F.F. 422.04
G.F. 420.01
T.W. 420.71
B.F. 412.04
22

F.F. 415.06
G.F. 413.03
T.W. 413.73
B.F. 405.06
23

F.F. 415.45
G.F. 413.42
T.W. 414.12
B.F. 405.45
24

1273.21' (788.57')

(16.50')

N 34°06'03" W (N 49°42' W)

0 50 100 Feet

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

holmes cunningham ENGINEERING

REVISIONS

Date	Description

CALL BEFORE YOU DIG !!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
DESIGN ACTIVITIES AND
10 WORKING DAYS IN DESIGN STAGE
– STOP & CALL –
Pennsylvania One
Call System, Inc.
1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT ALL UTILITY COMPANIES PRIOR TO ANY EXCAVATION.

BOLD FOX FARM

TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

DETAILED GRADING PLAN

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

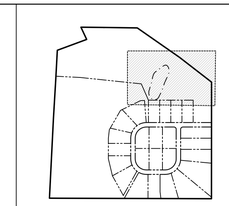
File No.
2064_C2.0 Grading.dwg

HCE Job	2064		
Date	4/9/2026		
Scale	1"=50'	Designed	RC
Sheet	9 of 38		

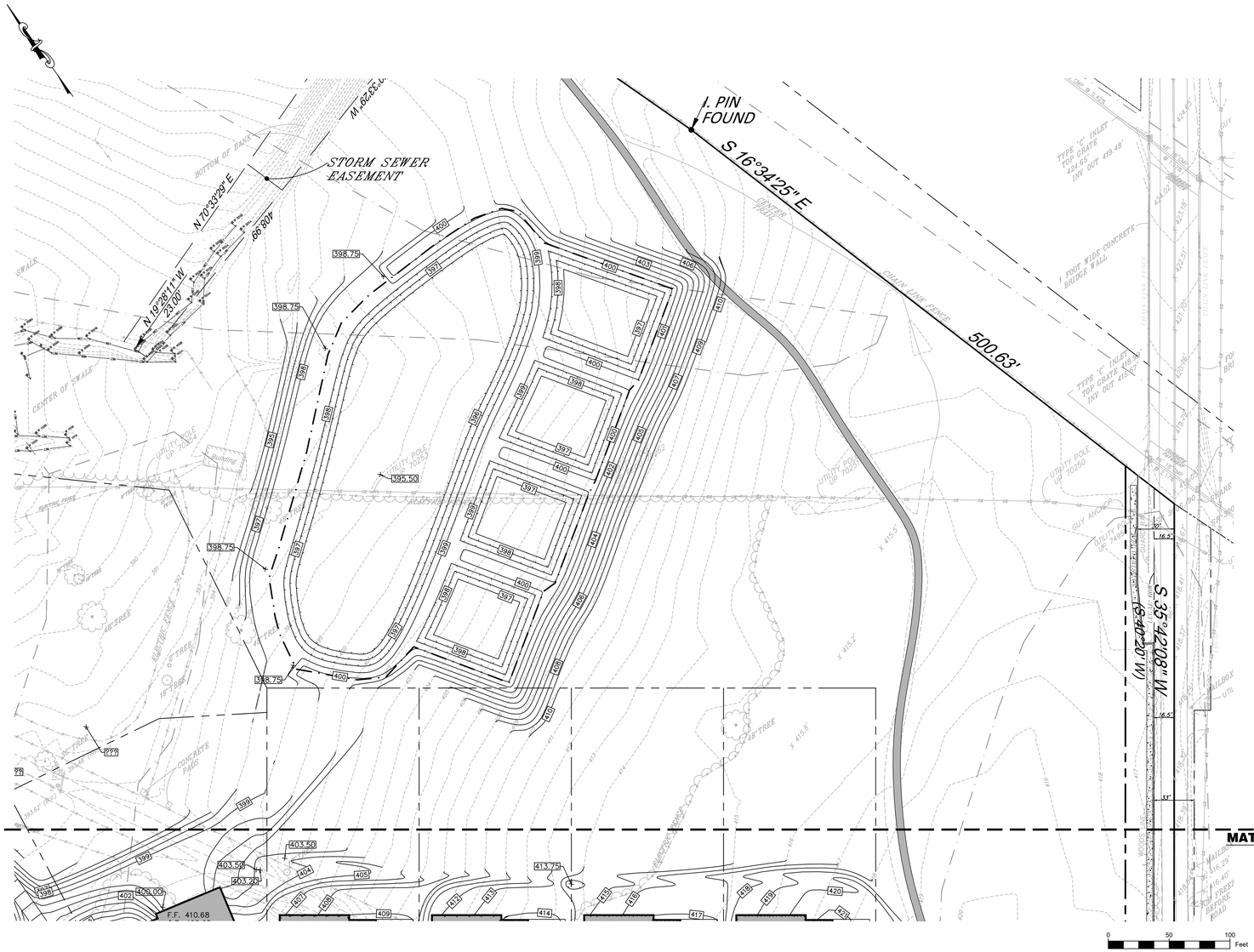
Drawing No.
C2.1

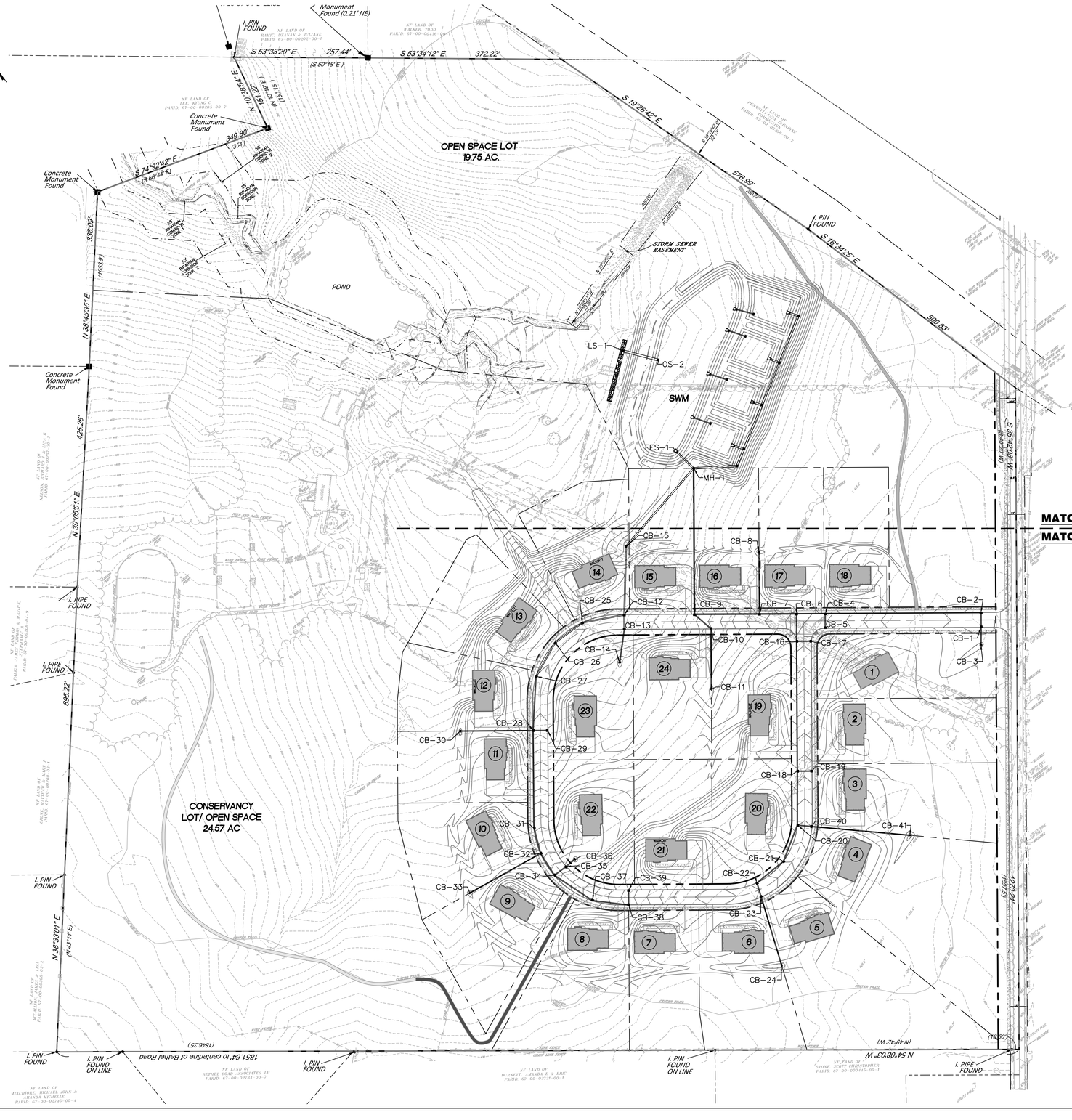
GRADING LEGEND

EXISTING CONTOUR	185
EXISTING SPOT ELEVATION	185.2 x
EXISTING TOP/BOTTOM CURB	x TC 154.75 BC 154.25
PROPOSED CONTOUR	185
PROPOSED SPOT ELEVATION	185.2x
PROPOSED TOP/BOTTOM CURB	x TC 154.75 BC 154.25



KEY MAP
SCALE: 1:800





DRAINAGE NOTES

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE EXISTING LOCATION AND/OR ELEVATION OF FEATURES AS SHOWN ON THESE PLANS IS BASED ON A SURVEY PREPARED BY CARROLL ENGINEERING CORPORATION. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH PENNDOT PUBLICATION 408 AND THE WORCESTER TOWNSHIP SPECIFICATIONS AND DESIGN STANDARDS.
3. ALL STORM SEWERS AND STRUCTURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH WORCESTER TOWNSHIP STANDARDS.
4. THE CONTRACTOR SHALL REVIEW THE STORM DRAINAGE CONNECTIONS TO INLETS, MANHOLES, ETC. AND PROVIDE THE APPROPRIATE BOX SIZE, MANHOLE SIZE, ETC. AS NECESSARY TO ACCOMMODATE THE PROPOSED INLET AND OUTLET PIPES.
5. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR REVIEW AND APPROVAL BY THE OWNER FOR BASIN PIPES, CONNECTIONS, OUTLET STRUCTURES, CATCH BASINS, MANHOLES AND OTHER STORM STRUCTURES.
6. DOWNSPOUTS AND SUMP PUMPS SHALL NOT DISCHARGE STORMWATER DIRECTLY ONTO A SIDEWALK OR STREET.
7. ALL STORMWATER AND DRAINAGE FACILITIES ARE A PERMANENT PART OF THE DEVELOPMENT AND SHALL NOT BE REMOVED, ALTERED, OR MODIFIED WITHOUT PRIOR APPROVAL FROM WORCESTER TOWNSHIP.
8. WORCESTER TOWNSHIP SHALL HAVE THE RIGHT TO ENTER PRIVATE PROPERTY TO INSPECT AND REPAIR, IF NECESSARY, ANY STORMWATER MANAGEMENT OR DRAINAGE FACILITY.
9. THE STORMWATER MANAGEMENT BASINS WILL BE OWNED AND MAINTAINED BY THE HOMEOWNER'S ASSOCIATION.

DRAINAGE LEGEND

EXISTING STORM PIPE	
EXISTING INLET	Ex.Inlet
EXISTING MANHOLE	D
PROPOSED STORM PIPE	
PROPOSED YARD INLET	CB-X GR: 185.56 INV: 180.00
PROPOSED CURB INLET	CB-X GR: 185.56 INV: 180.00
PROPOSED MANHOLE	MH-X RIM 185.56 INV: 180.00

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

CALL BEFORE YOU DIG !!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
DESIGN INFORMATION AND
10 WORKING DAYS IN DESIGN STAGE
– STOP & CALL –
Pennsylvania One
Call System, Inc.
1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT ALL UTILITY COMPANIES PRIOR TO ANY EXCAVATION.

BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

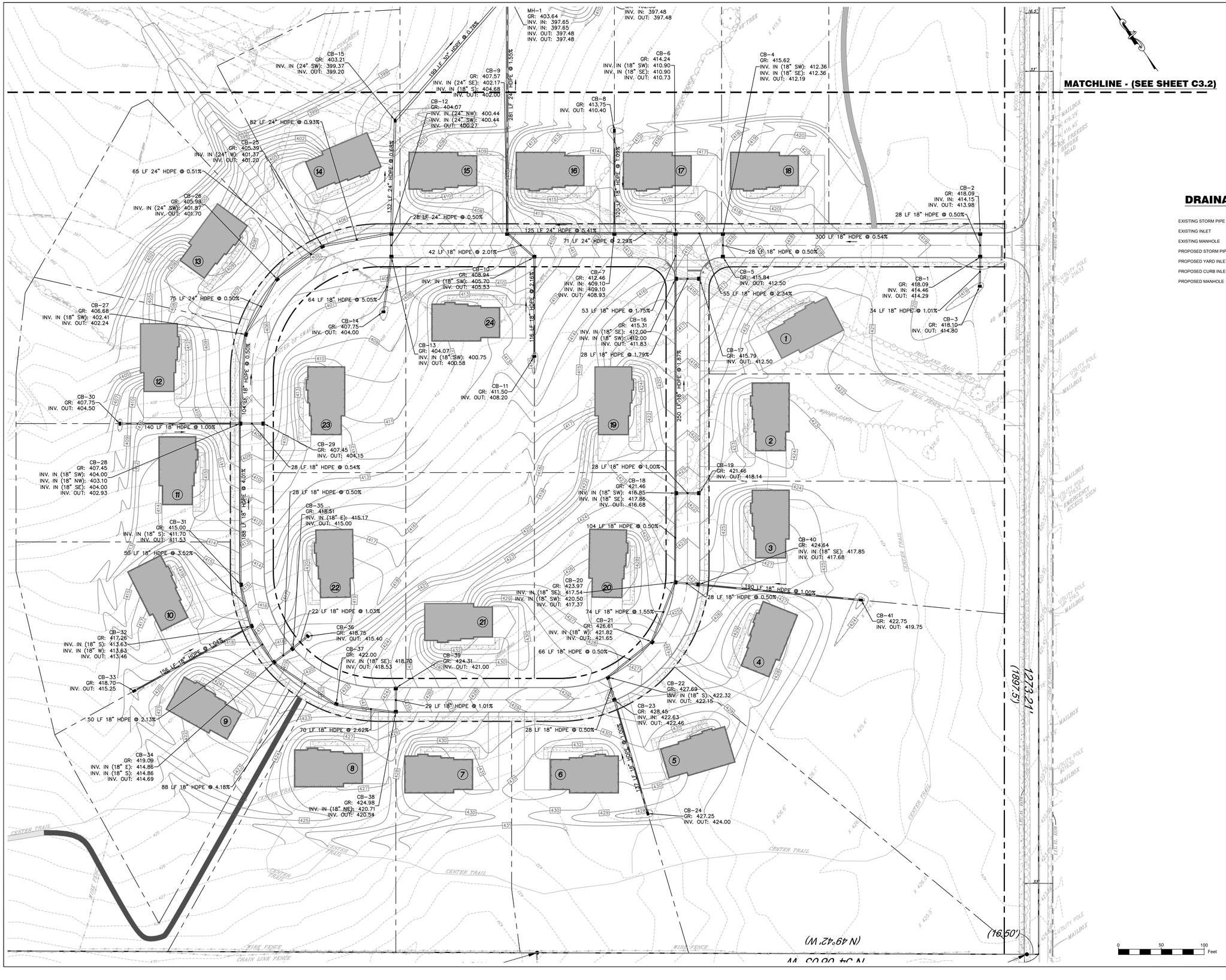
OVERALL DRAINAGE PLAN

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C3.0 Drainage.dwg

HCE Job	2064	Date	4/9/2026	Scale	1"=100'
Designed	RC	Sheet	11	of	38

Drawing No.
C3.0



KEY MAP
SCALE: 1:800

DRAINAGE LEGEND

- EXISTING STORM PIPE
- EXISTING INLET — Ex.Inlet
- EXISTING MANHOLE — D
- PROPOSED STORM PIPE
- PROPOSED YARD INLET — CB-X GR: 185.56 INV 180.00
- PROPOSED CURB INLET — CB-X GR: 185.56 INV 180.00
- PROPOSED MANHOLE — MH-X RIM 185.56 INV 180.00

0 50 100 Feet

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

REVISIONS

Date	Description

CALL BEFORE YOU DIG !!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
ACTUAL EXCAVATION/DEMOLITION
10 WORKING DAYS IN DESIGN STAGE
— STOP & CALL —
Pennsylvania One Call System, Inc.
1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT ALL UTILITIES PRIOR TO ANY EXCAVATION.

BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

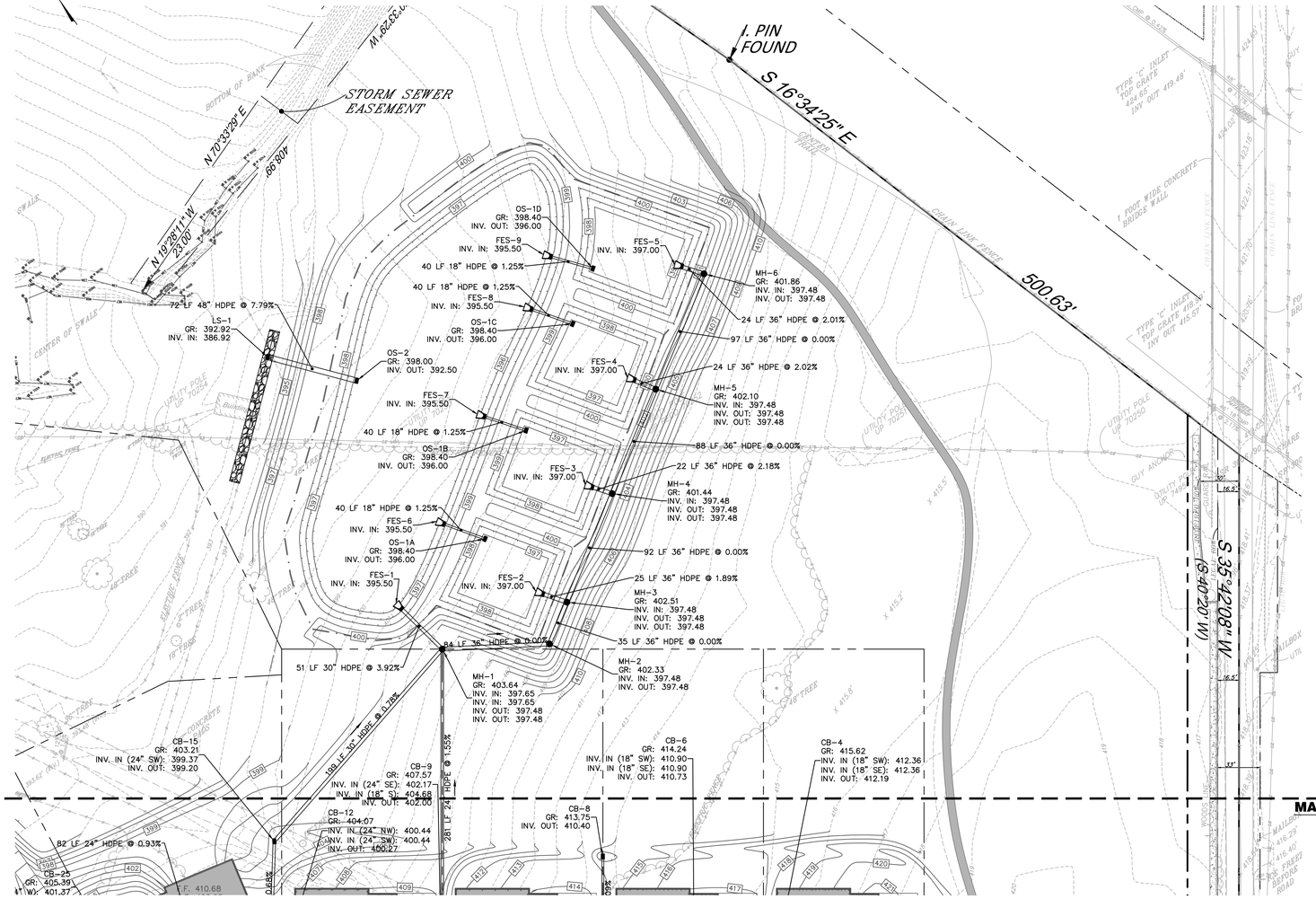
DETAILED DRAINAGE PLAN

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C3.0 Drainage.dwg

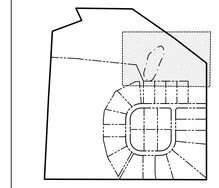
HCE Job	2064	Scale	1"=50'	Sheet	12 of 38
Date	4/9/2026	Designed	RC		

Drawing No.
C3.1

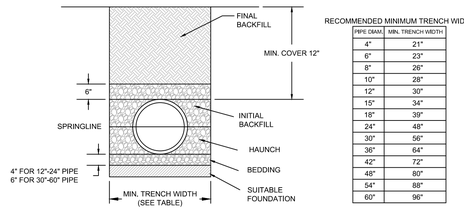


DRAINAGE LEGEND

- EXISTING STORM PIPE
- EXISTING INLET — Ex.Inlet
- EXISTING MANHOLE
- PROPOSED STORM PIPE
- PROPOSED YARD INLET — CB-X GR: 185.56 INV: 180.00
- PROPOSED CURB INLET — CB-X GR: 185.56 INV: 180.00
- PROPOSED MANHOLE — MH-X RIM 185.56 INV 180.00



KEY MAP
SCALE: 1:800



RECOMMENDED MINIMUM TRENCH WIDTHS

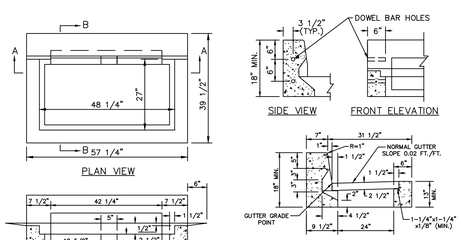
PIPE DIAM.	MIN. TRENCH WIDTH
4"	21"
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
60"	96"

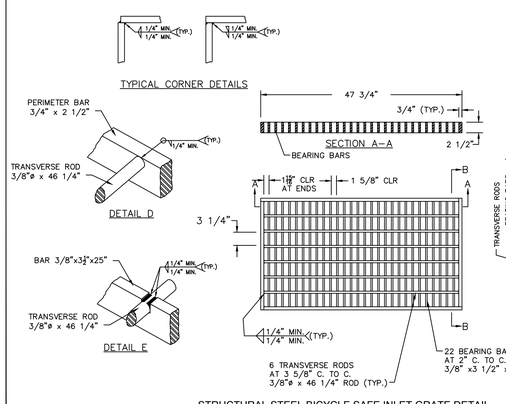
NOTES:

1. 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
2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
3. 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.
4. 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).
5. 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.
6. 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.

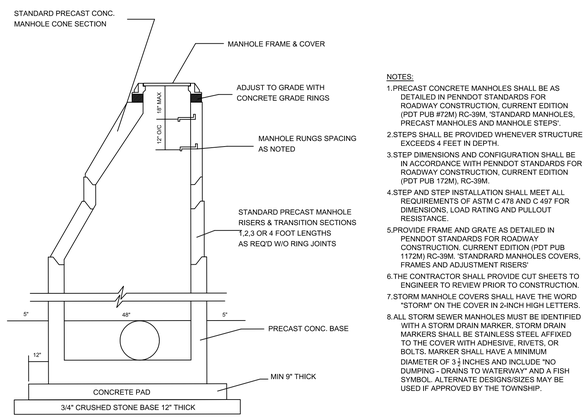
HDPE PIPE BEDDING DETAIL

*OR PER MANUFACTURER'S SPECIFICATIONS





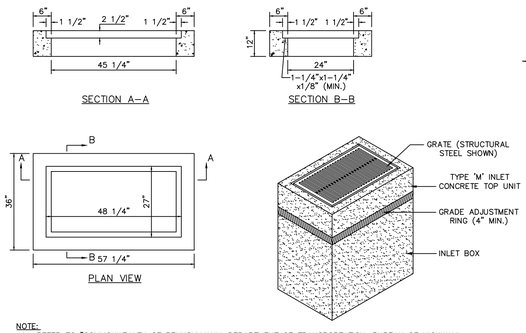
STRUCTURAL STEEL BICYCLE SAFE INLET GRATE DETAIL



NOTES:

1. PRECAST CONCRETE MANHOLES SHALL BE AS DETAILED IN PENNDOT STANDARDS FOR ROADWAY CONSTRUCTION, CURRENT EDITION (PDT PUB #72M) RC-39M, 'STANDARD MANHOLES, PRECAST MANHOLES AND MANHOLE STEPS'.
2. STEPS SHALL BE PROVIDED WHENEVER STRUCTURE EXCEEDS 4 FEET IN DEPTH.
3. STEP DIMENSIONS AND CONFIGURATION SHALL BE IN ACCORDANCE WITH PENNDOT STANDARDS FOR ROADWAY CONSTRUCTION, CURRENT EDITION (PDT PUB 72M), RC-39M.
4. STEP AND STEP INSTALLATION SHALL MEET ALL REQUIREMENTS OF ASTM C 478 AND C 497 FOR DIMENSIONS, LOAD RATING AND PULLOUT RESISTANCE.
5. PROVIDE FRAME AND GRATE AS DETAILED IN PENNDOT STANDARDS FOR ROADWAY CONSTRUCTION. CURRENT EDITION (PDT PUB 117M) RC-39M, 'STANDRARD MANHOLES COVERS, FRAMES AND ADJUSTMENT RISERS'
6. THE CONTRACTOR SHALL PROVIDE CUT SHEETS TO ENGINEER TO REVIEW PRIOR TO CONSTRUCTION.
7. STORM MANHOLE COVERS SHALL HAVE THE WORD "STORM" ON THE COVER IN 2-INCH HIGH LETTERS.
8. ALL STORM SEWER MANHOLES MUST BE IDENTIFIED WITH A STORM DRAIN MARKER, STORM DRAIN MARKERS SHALL BE STAINLESS STEEL AFFIXED TO THE COVER WITH ADHESIVE, RIVETS, OR BOLTS. MARKER SHALL HAVE A MINIMUM DIAMETER OF 3 ½ INCHES AND INCLUDE "NO DUMPING - DRAINS TO WATERWAY" AND A FISH SYMBOL. ALTERNATE DESIGNS/SIZES MAY BE USED IF APPROVED BY THE TOWNSHIP.

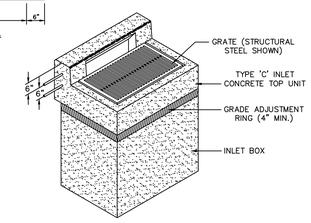
PRECAST CONCRETE STORM MANHOLE



NOTE:

1. REFER TO "COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION, BUREAU OF HIGHWAY DESIGN, STANDARDS FOR ROADWAY CONSTRUCTION", PAGE RC-45M, SHEETS 2 of 20, LATEST ISSUE, FOR NOTES AND SPECIFICATIONS REGARDING PRECAST INLET CONSTRUCTION.
2. ALL STORM SEWER INLETS MUST BE IDENTIFIED WITH A STORM DRAIN MARKER. STORM DRAIN MARKERS SHALL BE STAINLESS STEEL AFFIXED TO THE INLET HOOD WITH ADHESIVE, RIVETS, OR BOLTS. (MARKER MAY BE BOLTED TO THE GRATE IN OFF ROAD LOCATIONS). MARKER SHALL HAVE A MINIMUM DIAMETER OF 3 ½ INCHES AND INCLUDE "NO DUMPING – DRAINS TO WATERWAY" AND A FISH SYMBOL. ALTERNATE DESIGNS/SIZES MAY BE USED IF APPROVED BY THE TOWNSHIP.

TYPE M INLET DETAIL



NOTE:

1. REFER TO "COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION, BUREAU OF HIGHWAY DESIGN, STANDARDS FOR ROADWAY CONSTRUCTION", PAGE RC-45M, SHEETS 2 of 20, LATEST ISSUE, FOR NOTES AND SPECIFICATIONS REGARDING PRECAST INLET CONSTRUCTION.
2. ALL STORM SEWER INLETS MUST BE IDENTIFIED WITH A STORM DRAIN MARKER. STORM DRAIN MARKERS SHALL BE STAINLESS STEEL AFFIXED TO THE INLET HOOD WITH ADHESIVE, RIVETS, OR BOLTS. (MARKER MAY BE BOLTED TO THE GRATE IN OFF ROAD LOCATIONS). MARKER SHALL HAVE A MINIMUM DIAMETER OF 3 ½ INCHES AND INCLUDE "NO DUMPING – DRAINS TO WATERWAY" AND A FISH SYMBOL. ALTERNATE DESIGNS/SIZES MAY BE USED IF APPROVED BY THE TOWNSHIP.

TYPE C INLET DETAIL

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

HC holmes cunningham ENGINEERING

REVISIONS

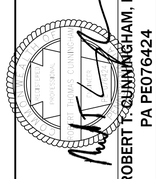
Description	Date

CALL BEFORE YOU DIG !!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR DESIGN AND 10 WORKING DAYS IN DESIGN STAGE – STOP & CALL
Pennsylvania One Call Systems, Inc. 1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT ALL UTILITIES FOR EXACT LOCATIONS PRIOR TO ANY EXCAVATION.

BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

DETAILED DRAINAGE PLAN

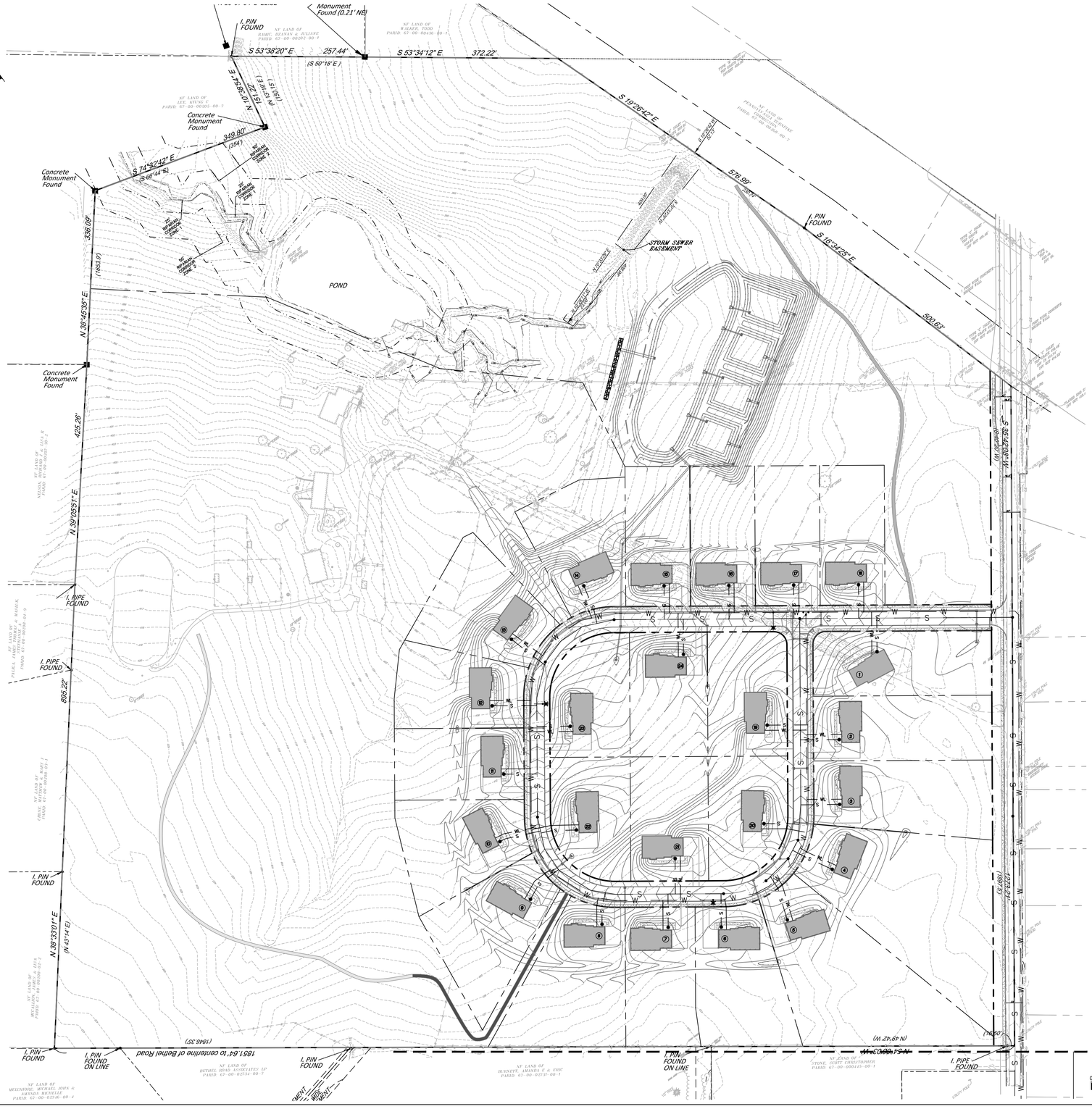


ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C3.0 Drainage.dwg

HCE Job	2064			
Date	4/9/2026	Scale	1"=50'	Designed RC
				Sheet 13 of 38

Drawing No.
C3.2



UTILITY NOTES

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS IN A MANNER WHICH WILL NOT NEGATIVELY AFFECT ANY EXISTING USERS OF THESE UTILITIES.
2. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR ACTUAL LOCATIONS OF ALL UTILITY ENTRANCES TO INCLUDE SANITARY SEWER LATERALS, DOMESTIC AND FIRE PROTECTION WATER SERVICE, ELECTRICAL, TELEPHONE AND GAS SERVICE. CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES IN SUCH A MANNER AS TO AVOID CONFLICTS AND ASSURE PROPER DEPTHS ARE ACHIEVED AS WELL AS COORDINATING WITH THE REGULATORY AGENCY AS TO LOCATION AND SCHEDULING OF CONNECTIONS TO THEIR FACILITIES.
3. THE PROPOSED DEVELOPMENT WILL INCLUDE THE CONNECTION OF 24 SINGLE-FAMILY DETACHED DWELLINGS TO THE PROPOSED WATER AND SEWER MAINS LOCATED ON-SITE.
4. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING THE EXISTING UTILITY SERVICE (WATER, SEWER, GAS AND ELECTRIC) TO THE PROPERTY AND ENSURE THAT THEY ARE PROPERLY DISCONNECTED FROM THE EXISTING UTILITIES AND RECONNECTED TO THE NEW SERVICES PROVIDED.
5. THE LOCATION OF THE EXISTING GAS MAINS ARE APPROXIMATE. THE CONTRACTOR SHOULD CONSULT LOCAL UTILITY COMPANIES FOR ADDITIONAL INFORMATION.
6. THE LOCATION OF EXISTING ELECTRIC LINES ARE APPROXIMATE. THE CONTRACTOR SHOULD CONSULT LOCAL UTILITY COMPANIES FOR ADDITIONAL INFORMATION.
7. ALL GAS WORK AND OTHER ASSOCIATED APPURTENANCES WILL BE IN CONFORMANCE WITH APPLICABLE LOCAL COUNTY, STATE AND FEDERAL GUIDELINES AND REQUIREMENTS.
8. ALL ELECTRICAL WORK, TRANSFORMER PADS, AND ASSOCIATED APPURTENANCES WILL BE IN CONFORMANCE WITH APPLICABLE LOCAL, COUNTY, STATE AND FEDERAL GUIDELINES AND REQUIREMENTS. MIN. DEPTH OF COVER OVER ELECTRIC, GAS, AND CABLE SHALL BE 2 FT.
9. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS, UTILITY LOCATIONS, CATHODIC PROTECTION AND INVERTS PRIOR TO CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ANY DISRUPTIONS TO EXISTING UTILITIES SERVICES. ANY CONDITIONS FOUND TO DIFFER FROM THOSE SHOWN BY THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
10. THE CONTRACTOR SHALL COORDINATE THE WATER WORK WITH NORTH PENN WATER AUTHORITY.
11. THE CONTRACTOR SHALL COORDINATE THE SANITARY SEWER WORK WITH WORCESTER TOWNSHIP MUNICIPAL AUTHORITY.
12. A MINIMUM TEN (10) FOOT HORIZONTAL AND EIGHTEEN (18) INCHES VERTICAL CLEARANCE MUST BE MAINTAINED BETWEEN WATER MAIN AND STORM SEWER.
13. EIGHTEEN (18) INCHES VERTICAL CLEARANCE SHOULD BE PROVIDED AT ALL UTILITY CROSSINGS. WHERE THIS CLEARANCE CANNOT BE MAINTAINED, THE WATER MAIN MUST BE ENCASED IN CONCRETE 10 FEET EACH SIDE OF THE CROSSING. IN CASES WHERE THE UTILITY IS A SANITARY OR STORM SEWER MAIN OR A LATERAL AND THE CLEARANCE CANNOT BE MAINTAINED, THEN THE SEWER AND/OR STORM SHALL ALSO BE ENCASED IN CONCRETE.
14. ALL SANITARY SEWER FACILITIES SHOULD BE CONSTRUCTED IN ACCORDANCE WITH THE WORCESTER TOWNSHIP MUNICIPAL AUTHORITY SPECIFICATIONS.
15. NO PLANTINGS OR STRUCTURES SHALL BE LOCATED WITHIN SANITARY SEWER EASEMENTS OR WITHIN 10 FEET OF THE SEWER OR LATERALS.
16. A MINIMUM COVER OF FOUR FEET SHOULD BE MAINTAINED.
17. ALL NEW FIRE HYDRANTS SHALL BE PAINTED IN ACCORDANCE WITH THE NPWA REQUIREMENTS AND SHALL BE PROVIDED WITH APPROVED SNOW MARKERS.
18. WATER MAINS AND FIRE HYDRANTS SHALL BE INSTALLED AND OPERATIONAL PRIOR TO THE START OF CONSTRUCTION ON ANY BUILDING.

UTILITY LEGEND

EXISTING SANITARY SEWER MAIN	8" Ex.San
EXISTING SANITARY SEWER MANHOLE	Ex.San MH
EXISTING WATER MAIN AND VALVE	W
EXISTING FIRE HYDRANT	
PROPOSED SANITARY SEWER MAIN	S
PROPOSED SANITARY SEWER CLEANOUT.	
PROPOSED WATER MAIN	W
PROPOSED WATER VALVE	
PROPOSED FIRE HYDRANT	
PROPOSED SANITARY SERVICE LATERAL	FM FM
PROPOSED WATER SERVICE LATERAL	WL WL

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

CALL BEFORE YOU DIG!!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR EXCAVATION OR DEMOLITION 10 WORKING DAYS IN DESIGN STAGE — STOP & CALL
Pennsylvania One Call System, Inc.
1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT ALL UTILITIES COMPANIES PRIOR TO ANY EXCAVATION.

BOLD FOX FARM

TMP# 67-00-00442-004

WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

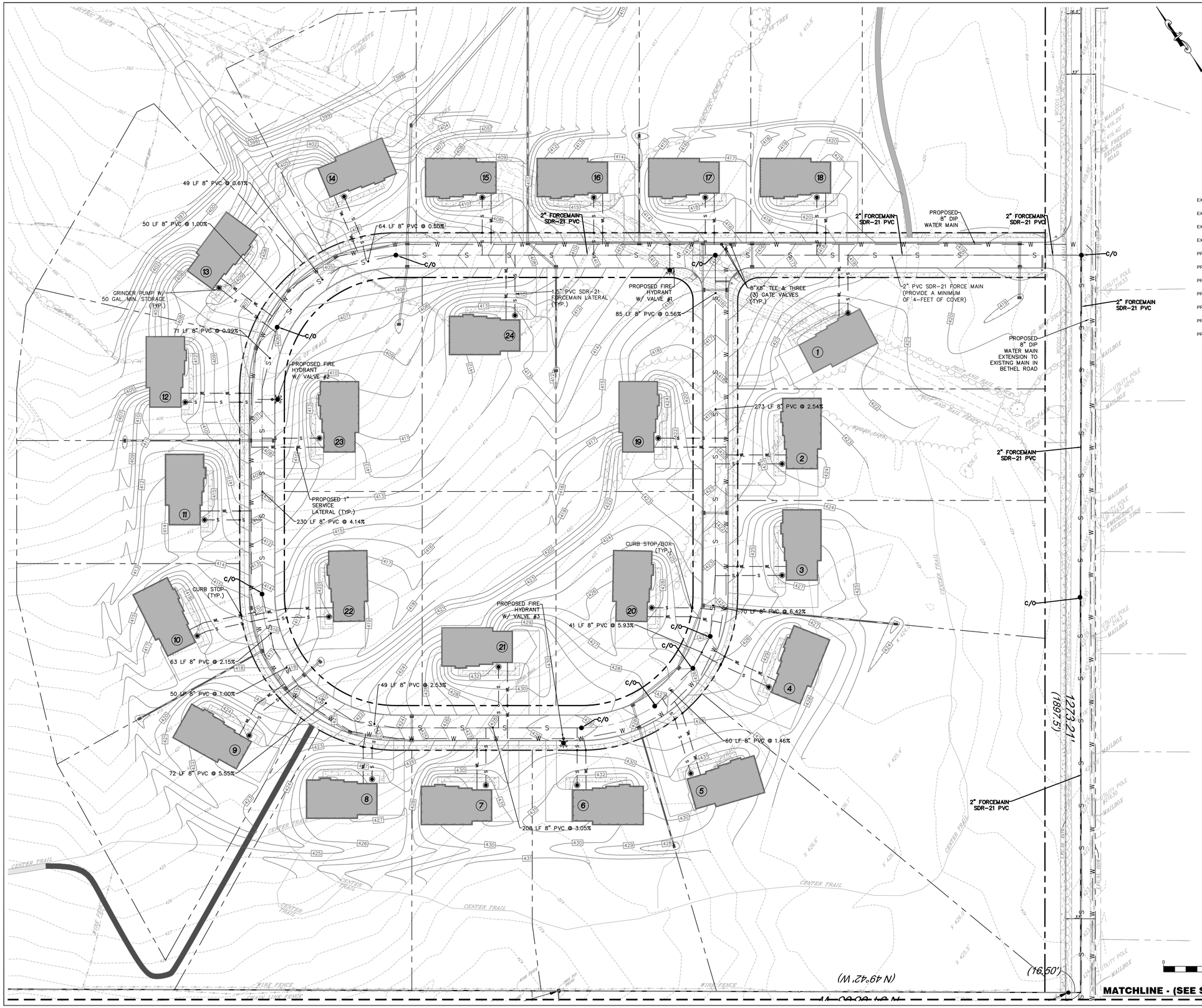
OVERALL UTILITY PLAN

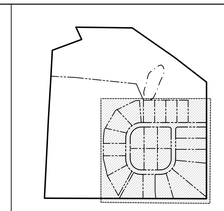
ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C4.0 Utility.dwg

HCE Job	2064	Date	4/9/2026	Scale	1"=100'
Designed	RC	Sheet	14	of	38

Drawing No.
C4.0





KEY MAP
SCALE: 1:800

UTILITY LEGEND

EXISTING SANITARY SEWER MAIN	8"
EXISTING SANITARY SEWER MANHOLE	Ex.San. MH
EXISTING WATER MAIN AND VALVE	8" W
EXISTING FIRE HYDRANT	
PROPOSED SANITARY SEWER MAIN	S
PROPOSED SANITARY SEWER CLEANOUT.	
PROPOSED WATER MAIN	W
PROPOSED WATER VALVE	
PROPOSED FIRE HYDRANT	
PROPOSED SANITARY SERVICE LATERAL	FM FM
PROPOSED WATER SERVICE LATERAL	WL WL

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

HC holmes cunningham ENGINEERING

REVISIONS		
	Description	Date

CALL BEFORE YOU DIG!!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION ACTIVITIES
10 WORKING DAYS IN DESIGN STAGE
– STOP & CALL –
Pennsylvania One Call System, Inc.
1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT ALL UTILITIES FOR COMPLETE LOCATIONS PRIOR TO ANY EXCAVATION.

BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

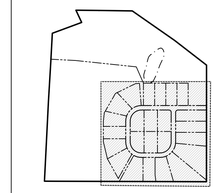
DETAILED UTILITY PLAN

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C4.0 Utility.dwg

HCE Job	2064	Scale	1"=50'	Sheet	15 of 38
Date	4/9/2026	Designed	RC		

Drawing No.
C4.1



KEY MAP
SCALE: 1:800

UTILITY LEGEND

EXISTING SANITARY SEWER MAIN	S
EXISTING SANITARY SEWER MANHOLE	Ex San MH (S)
EXISTING WATER MAIN AND VALVE	W
EXISTING FIRE HYDRANT	
PROPOSED SANITARY SEWER MAIN	S
PROPOSED SANITARY SEWER CLEANOUT.	
PROPOSED WATER MAIN	W
PROPOSED WATER VALVE	
PROPOSED FIRE HYDRANT	
PROPOSED SANITARY SERVICE LATERAL	FM
PROPOSED WATER SERVICE LATERAL	WL

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

holmes cunningham ENGINEERING

REVISIONS

Date	Description

CALL BEFORE YOU DIG !!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION/EXCAVATION
10 WORKING DAYS IN DESIGN STAGE
— STOP & CALL —
Pennsylvania One
Call System, Inc.
1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT UTILITY COMPANIES PRIOR TO ANY EXCAVATION.

BOLD FOX FARM

TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

UTILITY EXTENSION PLAN

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C4.0 Utility.dwg

HCE Job	2064		
Date	4/9/2026		
Scale	1"=50'	Designed	RC
		Sheet	16 of 38

Drawing No.
C4.2

GENERAL NOTES

WATER MAIN PREPARATION

SURVEYORS ARE REQUIRED TO PLACE 5' OFFSET STAKES FROM FACE OF CURB OR EDGE OF ROADWAY AT 50' INTERVALS SHOWING THE FACE OF CURB AND TOP OF CURB GRADE.

WATER MAIN INSTALLATION

INSTALLATION MAY COMMENCE WHEN DEVELOPERS ESCROWS SIGNED AGREEMENTS AND BOARD APPROVALS ARE IN PLACE. 72 HOUR NOTICE MUST PROVIDED BEFORE PIPE MAY BE INSTALLED.

WHEN WATER MAIN IS BEING INSTALLED IN AN AREA WHERE THE GRADE IS ABOVE THE ROAD SURFACE, THE WATER MAIN MUST BE INSTALLED WITH FOUR FEET OF COVER FROM THE TOP OF THE ROAD SURFACE.

WATER MAIN INSTALLED UNDER A CREEK BED, A GAS MAIN OR IN CORROSIVE SOIL WILL REQUIRE EACH SECTION OF WATER MAIN TO BE ENCASED WITH POLYETHYLENE FILM. THE POLYETHYLENE FILM SHOULD BE FITTED WITH MINIMUM SPACE BETWEEN THE FILM AND THE PIPE. OVERLAPS AND ENDS SHOULD BE SECURED WITH ADHESIVE TAPE OR PLASTIC TIE STRAPS.

PIPE STOCKPILED FOR MORE THAN 24 HOURS ON THE JOB SITE WILL HAVE THE BELLS AND SPIGOTS WRAPPED WITH A POLYETHYLENE FILM AND/OR TARP TO PREVENT CONTAMINATION, UNLESS FIELD CONDITIONS DICTATE IMMEDIATE WRAPPING.

DUCTILE IRON PIPE AND FITTINGS

1. DUCTILE IRON PIPE SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI A21.51 (AWWA C151) AMERICAN STANDARD FOR DUCTILE IRON PIPE.

2. PIPE SHALL BE CLASS 52 THICKNESS IN ACCORDANCE WITH ANSI A21.51 (AWWA C151).

3. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE CEMENT LINED AND COATED OUTSIDE WITH A BITUMINOUS SEAL COAT IN ACCORDANCE WITH ANSI A21.4 (AWWA C104) OR EPOXY COATED.

4. THE FITTINGS SHALL BE SHORT BODY MECHANICAL JOINT FITTINGS AND SHALL CONFORM TO AWWA 153SSB EXCEPT WHERE DETAILED OTHERWISE ON THE DRAWINGS. ALL MECHANICAL JOINT FITTINGS SHALL BE SECURED WITH MEGA LUGS.

5. REQUIRED FIELD LOCK USAGE WILL BE DETERMINED BY FIELD INSPECTOR. FIELD LOCKS WILL BE MADE AVAILABLE BY NPWA.

VALVES AND VALVE BOXES

VALVES CONNECTED TO LIVE WATER MAINS MAY ONLY BE OPERATED BY NPWA PERSONNEL. CONTRACTORS AND DEVELOPERS MAY NOT OPERATE ANY CHARGED WATER MAIN OPEN TO THE SYSTEM.

1. ALL GATE VALVES REQUIRED FOR 4" THRU 16" DIAMETER MAIN SHALL BE EITHER OR APPROVED EQUAL:
   - MUELLER #H-615 AND T-2360-160 GATE VALVE MANUFACTURED BY MUELLER CO., DECATUR, ILLINOIS.
   - U.S. PIPE T-9 AND METRO SEAL 250 MANUFACTURED BY U.S. PIPE AND FOUNDRY CO., BIRMINGHAM, AL.
   - KENNEDY KENSEAL II RESILIENT WEDGE VALVE MANUFACTURED BY KENNEDY VALVE, ELMIRA, NY.
   - AMERICAN FLOW CONTROL SERIES 2500 RESILIENT WEDGE VALVE MANUFACTURED BY AFC, LATHAM, NY.

2. BUTTERFLY VALVES WILL BE USED FOR ALL 18" OR LARGER INSTALLATIONS.

3. ALL BUTTERFLY VALVES SHALL BE MUELLER LINE SEAL III BUTTERFLY VALVE NO. B-3211-20, MANUFACTURED BY HENRY PRATT CO. WITH ELASTOMETRIC SEAT IN THE BODY OF THE VALVE.

4. VALVES SHALL BE MOUNTED VERTICALLY, EXCEPT IF OTHER WISE NOTED ON THE DRAWINGS AND SHALL HAVE MECHANICAL JOINT ENDS.

5. ALL VALVES SHALL OPEN BY TURNING COUNTERCLOCKWISE AND SHALL HAVE A STANDARD 2" OPERATING NUT.

6. ALL BURIED VALVES SHALL BE FURNISHED WITH A CAST IRON VALVE BOX. ALL VALVE BOXES SHALL BE EITHER:
   - BUFFALO TYPE-TWO (2) PIECE SCREW TYPE 5-1/4" SHAFT.
   - TYLER SERIES 6850, MANUFACTURED BY TYLER PIPE COMPANY.

7. VALVE BOXES SHALL BE TWO-PIECE, SCREW-TYPE INSTALLED OVER THE BONNET AND OPERATING NUT. VALVE BOXES SHALL BE OF SUFFICIENT LENGTH TO REACH THE SURFACE OF THE GROUND BUT NOT EXTEND ABOVE THE GROUND SURFACE. VALVE NUT EXTENSIONS SHALL BE INSTALLED AS NECESSARY TO INSURE THE VALVE CAN BE TURNED FROM GROUND LEVEL WITH A 6' LONG VALVE NUT KEY WRENCH.

8. DEVELOPERS AND THEIR CONTRACTORS SHALL BE RESPONSIBLE FOR PROPER INSTALLATION AND MAINTANCE OF VALVE BOXES. VALVE BOXES SHALL BE IN A VERTICAL OPERABLE CONDITION. ALL BROKEN, BURIED OR FILLED VALVE BOXES WILL BE DUG OUT AND REPAIRED AT THEIR EXPENSE.

FIRE HYDRANTS

1. ALL FIRE HYDRANTS SHALL BE EITHER:
   - MUELLER CENTURION 5-1/4-INCH FIRE HYDRANT AWWA TYPE FIRE HYDRANT MANUFACTURED BY MUELLER CO., DECATUR, ILLINOIS.
   - KENNEDY K-81D, 5 1/4-INCH FIRE HYDRANT AWWA TYPE FIRE HYDRANT MANUFACTURED BY KENNEDY VALVE, ELMIRA, NEW YORK.

2. ALL FIRE HYDRANTS SHALL HAVE:
   - 6-INCH MECHANICAL JOINT INLET CONNECTION
   - ONE (1) 4-1/2-INCH STEAMER NOZZLE
   - TWO (2) 2-1/2 -INCH HOSE NOZZLE
   OPEN LEFT HYDRANT OPERATING & NOZZLE CAP NUTS; FIRE HYDRANT STEAMER & HOSE THREADS TO BE NATIONAL STANDARD OR NORTH PENN THREADS AS NOTED ON DRAWING.

3. NON METERED WATER FROM FIRE HYDRANTS MAY NOT BE USED FOR ANY PURPOSE BY THE DEVELOPER OR CONTRACTOR. METERS MAY BE OBTAINED BY CONTACTING NPWA'S CUSTOMER SERVICE DEPARTMENT BETWEEN APRIL 1ST & NOVEMBER 1ST. UNAUTHORIZED USE OF WATER FROM FIRE HYDRANTS IS SUBJECT TO CRIMINAL CHARGES.

CHLORINE DOSAGES

65% TABLETS

Diameter of pipe in inches	2	3	4	6	8	10	12	16
No. of 65% Cal(Ca) Tablets/pipe	1	1	1	1	2	3	4	6

1. TABLETS WILL BE ATTACHED WITH AN FDA APPROVED FOOD GRADE ADHESIVE (POLY GRIP) IN EACH PIECE OF PIPE INSTALLED.
2. CALCIUM HYPO CHLORITE CONFORMING TO NSI/AWWA B300 IS AVAILABLE IN 5-g TABLETS, AND CONTAINS APPROX. 65 PERCENT AVAILABLE CHLORINE BY WEIGHT.

TRAFFIC CONTROL

1. TRAFFIC CONTROL ON ALL STATE, TOWNSHIP AND BOROUGH ROADWAYS WILL BE IN ACCORDANCE WITH PENN DOT SPECIFICATIONS; PUBLICATION 203, FIG. 10A & 10B.

ROADWAY AND RIGHT OF WAY

1. ROADWAY RIGHT OF WAY RESTORATION WILL BE IN ACCORDANCE WITH PENN DOT SPECIFICATIONS ON STATE ROADWAYS, TOWNSHIP AND BOROUGH SPECIFICATION ON LOCAL MUNICIPALLY MAINTAINED ROADWAYS.

TAPS

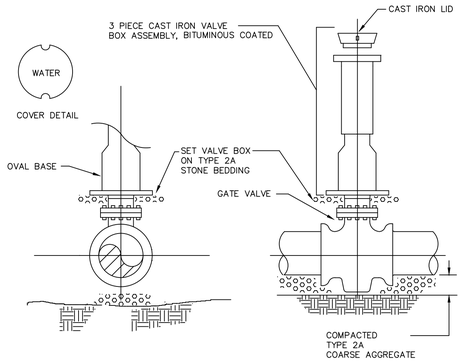
1. ALL SERVICE TRENCHES ARE REQUIRED TO HAVE 2A MODIFIED STONE BACKFILL.
2. ALL TAPS ARE INSTALLED BY EITHER NPWA OR CONTRACTOR.
3. SERVICES WILL BE INSTALLED AT THE LOCATION DETERMINED BY DEVELOPER.
4. SERVICE TAPS WILL BE INSTALLED ONLY WHEN THE FOLLOWING REQUIREMENTS ARE MET:
   - NPWA WILL FILL THE WATER MAIN WAIT 48 HOURS THEN FLUSH THE MAINS.
   - A PRESSURE TEST WITH A MINIMUM PRESSURE OF 150 PSI FOR FOUR (4) HOURS WITHOUT LEAKS, CONDUCTED BY THE CONTRACTOR AND WITNESSED BY N.P.W.A.
   - A BACTERIA TEST IS TAKEN AFTER THE LINES ARE FLUSHED WITH RESIDUAL CHLORINE OF 1.0 PPM OR LESS, CONDUCTED BY NPWA.
5. CURB BOXES WILL BE MAINTAINED IN A VERTICAL OPERABLE CONDITION. IT IS THE DEVELOPER RESPONSIBILITY TO REPAIR, REPLACE AND RESTORE ALL DAMAGED, DESTROYED OR BURIED CURB BOXES.
6. ALL BRASS CORPORATIONS & CURB STOPS SHALL BE A COMPRESSION TYPE MEETING THE STANDARD MUELLER #B-25008 & MUELLER #B25209 WITH PRESSURE RATING OF 300 PSI.
7. CURB BOXES WILL BE TELESCOPING TYPE WITH PENTAGON PLUG IN CENTER OF I.D. RISER PIPE WILL BE 1" DIAMETER TO ACCOMODATE THE STAINLESS STEEL CURB ROD.
8. SERVICE LINE WILL BE TYPE "K" COPPER.

ABANDONED MAIN

1. ANY OBSOLETE VALVE BOXES AND HYDRANTS WILL BE IDENTIFIED AND REMOVED UNDER THE DIRECTION OF A NPWA INSPECTOR.
2. ABANDONED VALVE BOXES ARE TO HAVE THE UPPER PORTION REMOVED 1' BELOW THE GRADE. THE VALVE BOX WILL BE FILLED USING 2-A MODIFIED STONE WHEN WORKING IN PAVING OR SUITABLE FILL WHEN WORKING OUTSIDE THE PAVED AREA. THE WORK AREA WILL BE RESTORED TO THE SURROUNDING CONDITIONS.
3. ABANDONED NON-BREAKAWAY HYDRANTS ARE TO BE CUT 1' BELOW THE GROUND SURFACE. ABANDONED BREAKAWAY HYDRANTS ARE TO BE EXTRACTED FROM THE MECHANICAL JOINT OF THE CONNECTING PIPE. THE HYDRANT EXTENSION WILL BE FILLED USING 2-A MODIFIED STONE WHEN WORKING IN PAVING OR SUITABLE FILL WHEN WORKING OUTSIDE THE PAVED AREA. BREAKAWAY HYDRANTS WILL BE SAVED AND RETURNED TO INVENTORY.
4. ONCE REMOVAL IS COMPLETE THE WORK AREA WILL BE RESTORED TO THE PRE-EXISTING CONDITIONS TO THE SATISFACTION OF NPWA.

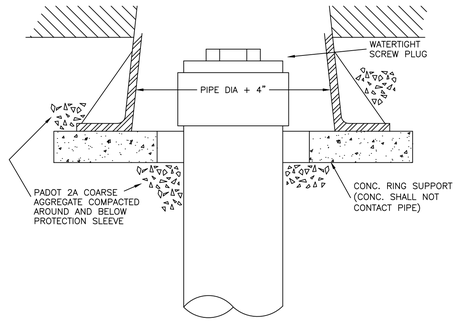
FIELD NOTES & FIELD DIMENSIONS

1. NORTH PENN WATER AUTHORITY REQUIRES THEIR CONTRACTORS TO SUPPLY THE AUTHORITY WITH DAILY FIELD NOTES AND AN AS-BUILT DRAWING. NPWA'S CONSTRUCTION INSPECTOR WILL SUPPLY DAILY FIELD NOTE SHEETS.



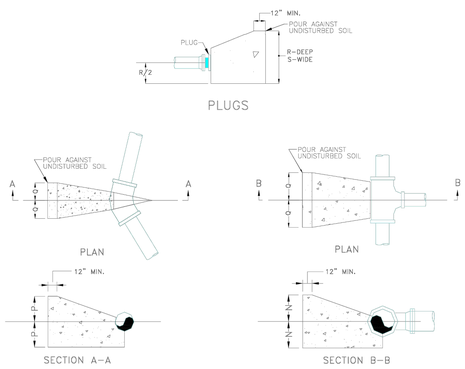
NOTE: ANY PROPOSED VALVES THAT, WHEN INSTALLED, WILL HAVE THE OPERATING NUT AT A DEPTH OF FIVE (5) FEET OR GREATER, WILL NEED TO HAVE A VALVE EXTENSION INSTALLED ON THE VALVE.

STANDARD GATE VALVE AND VALVE BOX



NOTES:

1. FRAME AND COVER SHALL BE NEENAH FOUNDRY COMPANY MODEL R-1976 OR APPROVED EQUAL



HORIZONTAL & VERTICAL UPWARD BENDS

TEE

THRUST BLOCKS FOR TEES, HORZ. & VERTICAL BENDS AND PLUGS

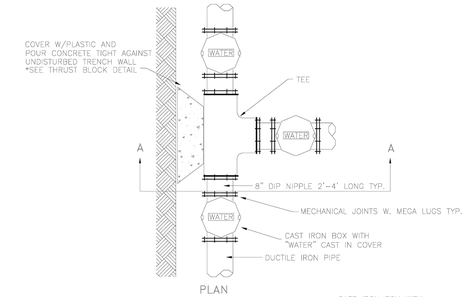
DISCRIPTION	DIMENSION	6"ø	8"ø	10"ø	12"ø	16"ø
TEES	N	0'-10"	1'-2"	1'-5"	1'-5"	2'-1"
	O	0'-10"	1'-2"	1'-5"	1'-5"	2'-1"
	P	1'-0"	1'-4"	1'-8"	1'-11"	2'-1"
90° BENDS	O	1'-0"	1'-4"	1'-8"	1'-11"	2'-1"
	P	0'-8"	1'-0"	1'-3"	1'-5"	1'-6"
45° BENDS	Q	0'-5"	0'-7"	0'-9"	0'-11"	1'-0"
22 1/2° BENDS	Q	0'-3"	0'-4"	0'-5"	0'-6"	0'-8"
11 1/4° BENDS	Q	0'-2"	0'-2"	0'-3"	0'-3"	0'-4"
PLUGS	R	1'-8"	2'-4"	2'-10"	3'-4"	4'-1"
	S	1'-8"	2'-4"	2'-10"	3'-4"	4'-1"

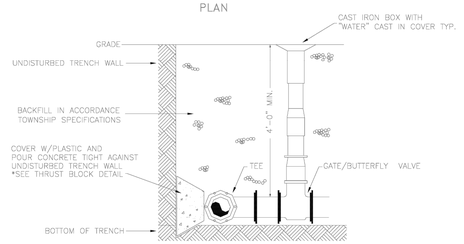
HORZ. & VERT. (UPWARD)

THRUST BLOCKS DESIGNED FOR 200 LBS. PER SQ. IN. TEST PRESSURE AND 2000 LBS. PER SQ. FT. SOIL PRESSURE

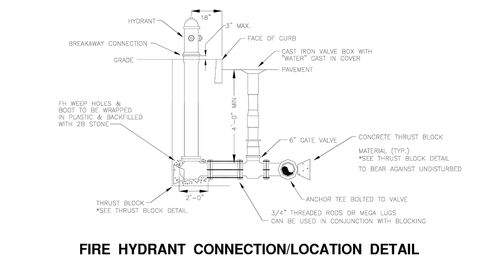
WRAP ALL FITTINGS IN PLASTIC BEFORE POURING CONCRETE.

THRUST BLOCK DETAIL

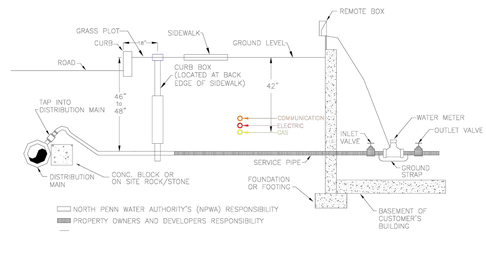




TYPICAL INTERSECTION INSTALLATION

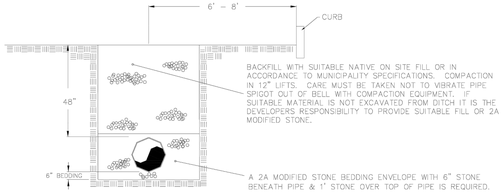


FIRE HYDRANT CONNECTION/LOCATION DETAIL

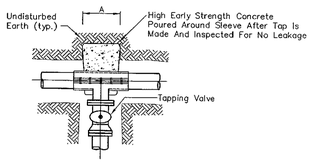


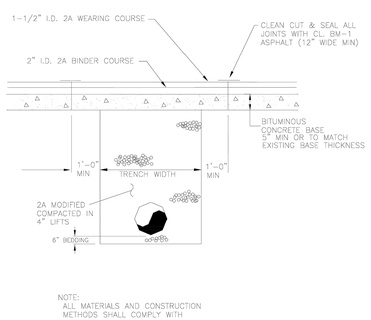
*SEE NPWA DETAILED SPECIFICATIONS FOR METER INSTALLATION

DOMESTIC SERVICE CONNECTION/LOCATION DETAIL



TYPICAL SUBDIVISION ROADWAY





NOTE:
ALL MATERIALS AND CONSTRUCTION METHODS SHALL COMPLY WITH PENNDOT SPECIFICATIONS, FORM 408, 1976

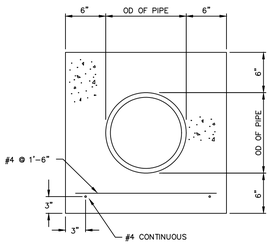
STATE HIGHWAY PERMANENT RESTORATION

TEST PRESSURE	PIPE DIAMETER	REACTION BACKING DIMENSIONS A	B
150 PSI	16	5'-6"	3'-4"
	12	4'-2"	2'-6"
	8	3'-0"	1'-8"
	6	2'-2"	1'-3"
200 PSI	16	7'-3"	3'-4"
	12	5'-7"	2'-6"
	8	4'-0"	1'-8"
	6	3'-1"	1'-3"
250 PSI	16	9'-3"	3'-4"
	12	6'-4"	2'-6"
	8	5'-0"	1'-8"
	6	3'-10"	1'-3"

NOTES

1. Provide Plastic Covering To Protect Pipe Joints From Concrete.
2. All Concrete Shall Be Penndot Class A.
3. Use 150 Psi Test Pressure Unless Directed Otherwise By Rtwa.
4. Provide Mega-lug Retainer Gland At All Joints.
5. All Fittings Shall Be Class 350 Compact Ductile Iron With Mechanical Joints.

TAPPING SLEEVE AND VALVE DETAIL

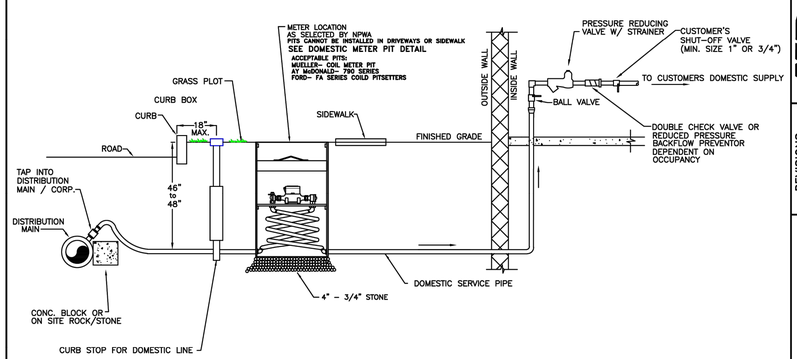


NOTE: PROVIDE REINFORCEMENT AT UTILITY CROSSINGS WHEN THE VERTICAL DISTANCE BETWEEN PIPE CROSSING IS 18" OR LESS OR AS DIRECTED BY THE AUTHORITY ENGINEER. ENCASEMENT SHALL BE EXTENDED FOR A DISTANCE OF 10' (20' TOTAL) FROM BOTH SIDES OF THE CENTERLINE OF THE PIPE.

CONCRETE ENCASEMENT DETAIL

NOTES:

1.) Materials for Service Line shall be purchased by the Developer.
2.) All materials must be approved by NPWA through submissions of cut sheets of required materials.
3.) NPWA shall furnish & install the meter and ancillary reading device.
4.) The use of Lead-Free Solder, flux and other plumbing materials is required by federal law.
5.) Any service line may use PE 165PSI after the meter pit.
6.) Blackflow prevention devices are required on all NPWA water service lines. Therefore, a thermal expansion tank must be installed on the supply side of the hot water system, as directed by the "Uniform Plumbing Code" (UPC).
7.) WATER METER WILL NOT BE SET IF PIPING DOES NOT CONFORM TO SPECIFICATIONS.



OUTSIDE METER PIT
DOMESTIC SERVICE CONNECTION DETAIL
Applicable to 3/4" & 1" Services

NORTH PENN WATER AUTHORITY
300 Forty Foot Road
P.O. Box 1659
Lansdale, PA 19446
Phone # (215) 855-3617

REVISIONS
1. 4000 ADDITIONAL PITS, MISC. 7-6-16 KBS

TYPICAL DOMESTIC SERVICE CONNECTION (OUTSIDE PIT) METER CONFIGURATION
SCALE: NO SCALE | DRAWN BY: SSHIFF | DATE: 6-20-16 | CHECKED | APPROVED
USE APPROVED DRAWINGS ONLY FOR CONSTRUCTION PURPOSES
USE DIMENSIONS ONLY!

SIZE A | PLAN SHEET NUMBER 1 of 1
DRAWING No. 04-0233 K3

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

REVISIONS

Description	Date

CALL BEFORE YOU DIG!!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR EXCAVATION OR DEMOLITION 10 WORKING DAYS IN DESIGN STAGE — STOP & CALL
Pennsylvania One Call System, Inc.
1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT UTILITY COMPANIES PRIOR TO ANY EXCAVATION.

BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

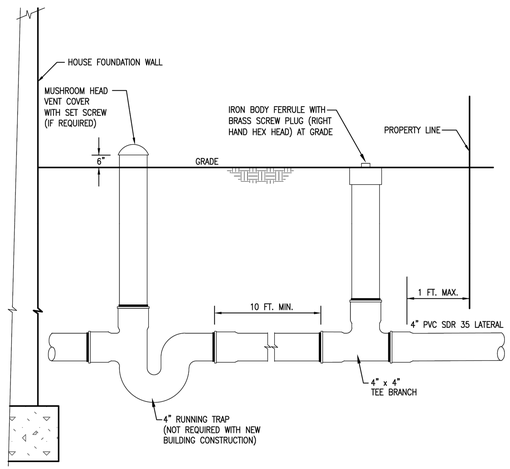
UTILITY DETAILS

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C4.0 Utility.dwg

HCE Job	2064	Scale	N.T.S.	Designed	RC	Sheet	17 of 38
Date	4/9/2026						

Drawing No.
C4.3



TYPICAL SERVICE CONNECTION AT BUILDING FOR PVC LATERAL

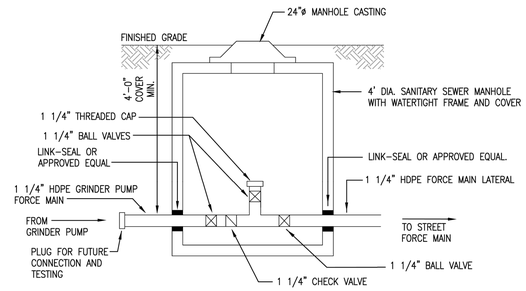
N.T.S.

NOTE:

1. LOCATE CLEANOUTS AND VENTS IN UNPAVED AREAS.

WORCESTER TOWNSHIP
REF. NO. 7200-51

REV. 10/2024 DETAIL SS1



NOTES:

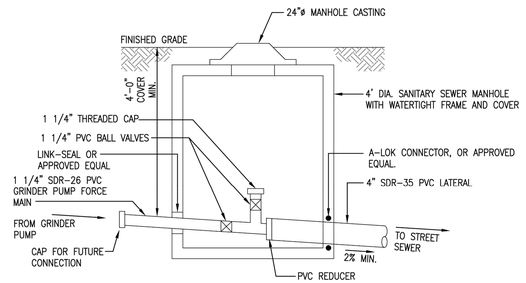
1. LOCATE IN UNPAVED AREA WITHIN PUBLIC RIGHT-OF-WAY.
2. PIPING INSIDE CONNECTION PIT SHALL BE HDPE OR SCHEDULE 80 PVC.
3. PIPE SIZE TO BE DETERMINED BY WORCESTER TOWNSHIP BASED ON FLOW.

LPSS CONNECTION PIT RESIDENTIAL GRINDER PUMP

N.T.S.

WORCESTER TOWNSHIP
REF. NO. 7200-51

REV. 10/2024 DETAIL SS2



NOTES:

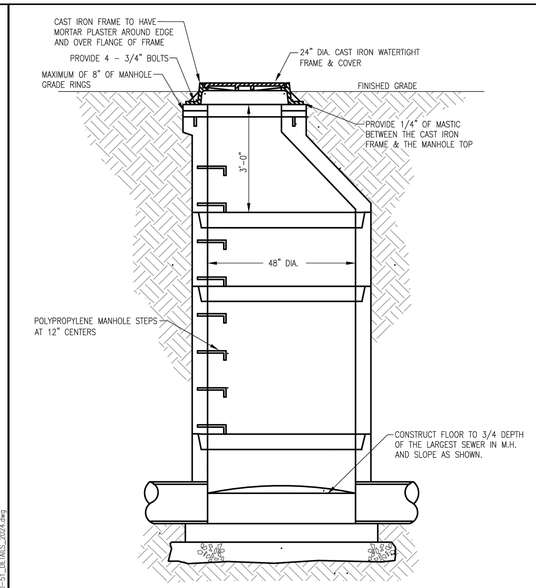
1. LOCATE IN UNPAVED AREA WITHIN PUBLIC RIGHT-OF-WAY.
2. PIPING INSIDE CONNECTION PIT SHALL BE HDPE OR SCHEDULE 80 PVC.
3. PIPE SIZE TO BE DETERMINED BY WORCESTER TOWNSHIP BASED ON FLOW.

CONNECTION PIT RESIDENTIAL FORCE MAIN TO GRAVITY LATERAL CONNECTION

N.T.S.

WORCESTER TOWNSHIP
REF. NO. 7200-51

REV. 10/2024 DETAIL SS3



SANITARY SEWER SAMPLING MANHOLE DETAIL

N.T.S.

NOTES:

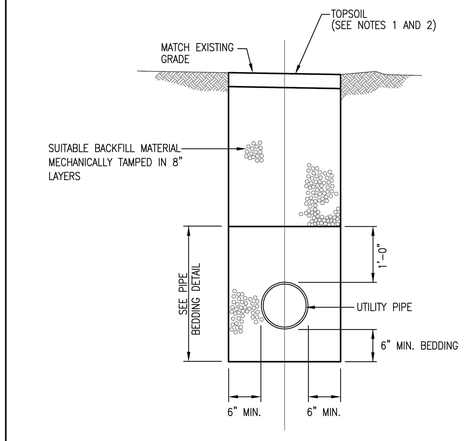
1.) MANHOLE CONSTRUCTION SHALL COMPLY WITH THE REQUIREMENTS OF THE WORCESTER TOWNSHIP ORDINANCES.

2.) FINAL LOCATION OF SAMPLING MANHOLE TO BE DETERMINED IN FIELD BY WORCESTER TOWNSHIP.

3.) WHERE MANHOLE DEPTH FROM FINISHED GRADE TO INVERT IS LESS THAN 5 FT., A FLAT REINFORCED CONCRETE TOP WITH ECCENTRIC OPENING SHALL BE USED.

WORCESTER TOWNSHIP
REF. NO. 7200-51

REV. 10/2024 DETAIL SS4



NOTES:

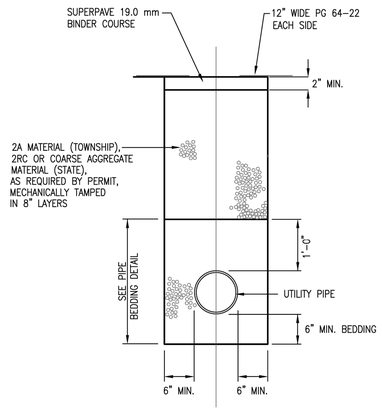
1. THE TOP 6" OF ALL TRENCHES IN NON-WETLAND AREAS SHALL BE BACKFILLED WITH TOPSOIL AND RESTORED IN ACCORDANCE WITH TOWNSHIP ORDINANCES.
2. THE TOP 18" OF ALL TRENCHES IN WETLANDS SHALL BE BACKFILLED WITH PREVIOUSLY STRIPPED TOPSOIL AND RESTORED IN ACCORDANCE WITH TOWNSHIP ORDINANCES.

TRENCH RESTORATION FOR EASEMENTS

N.T.S.

WORCESTER TOWNSHIP
REF. NO. 7200-51

REV. 10/2024 DETAIL TR1



NOTES:

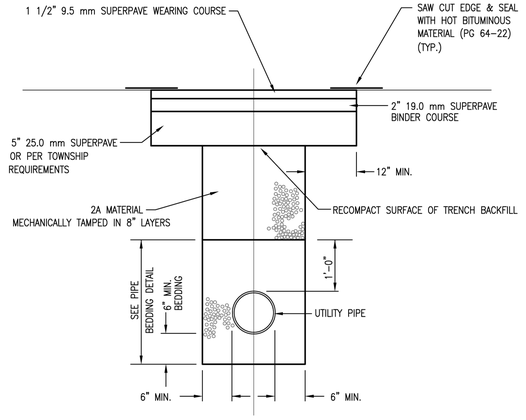
1. SPECIAL CONDITIONS OF OCCUPANCY OR ROAD OPENING PERMIT MAY SUPERSEDE DETAIL.
2. CONTRACTOR TO MAINTAIN TEMPORARY PAVING.

TEMPORARY PAVEMENT AND TRENCH RESTORATION FOR TOWNSHIP ROADS AND STATE HIGHWAYS

N.T.S.

WORCESTER TOWNSHIP
REF. NO. 7200-51

REV. 10/2024 DETAIL TR2



NOTES:

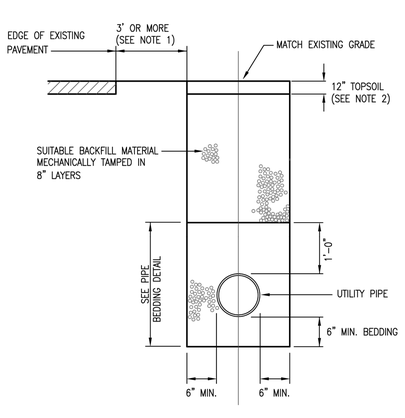
1. SPECIAL CONDITIONS OF ROAD OPENING PERMIT MAY SUPERSEDE THIS DETAIL.
2. RETAINED SUITABLE MATERIAL MAY BE USED AS BACKFILL FOR TRENCHES IN TOWNSHIP ROAD R.O.W. WHEN MORE THAN 3 FT. FROM EXISTING SHOULDER OR PAVED CARTWAY. RETAINED SUITABLE MATERIAL MAY BE USED AS BACKFILL FOR NEW ROADWAY CONSTRUCTION. COMPACTION REQUIREMENTS STILL APPLY.

PERMANENT PAVEMENT TRENCH RESTORATION FOR TOWNSHIP ROADS

N.T.S.

WORCESTER TOWNSHIP
REF. NO. 7200-51

REV. 10/2024 DETAIL TR3



NOTES:

1. TRENCH OPENINGS LESS THAN 3' FROM THE EDGE OF AN EXISTING PAVED SURFACE SHALL BE BACKFILLED WITH 2A COARSE AGGREGATE MECHANICALLY TAMPED IN 8" LAYERS.
2. SURFACE RESTORATION SHALL BE IN ACCORDANCE WITH TOWNSHIP ORDINANCES.

TRENCH RESTORATION FOR UNPAVED AREAS WITHIN TOWNSHIP ROAD RIGHT-OF-WAY

N.T.S.

WORCESTER TOWNSHIP
REF. NO. 7200-51

REV. 10/2024 DETAIL TR4

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

HC holmes cunningham ENGINEERING

REVISIONS		
	Description	Date

CALL BEFORE YOU DIG!!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION/EXCAVATION 10 WORKING DAYS IN DESIGN STAGE – STOP & CALL
Pennsylvania One Call System, Inc. 1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT ALL UTILITY COMPANIES PRIOR TO ANY EXCAVATION.

BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

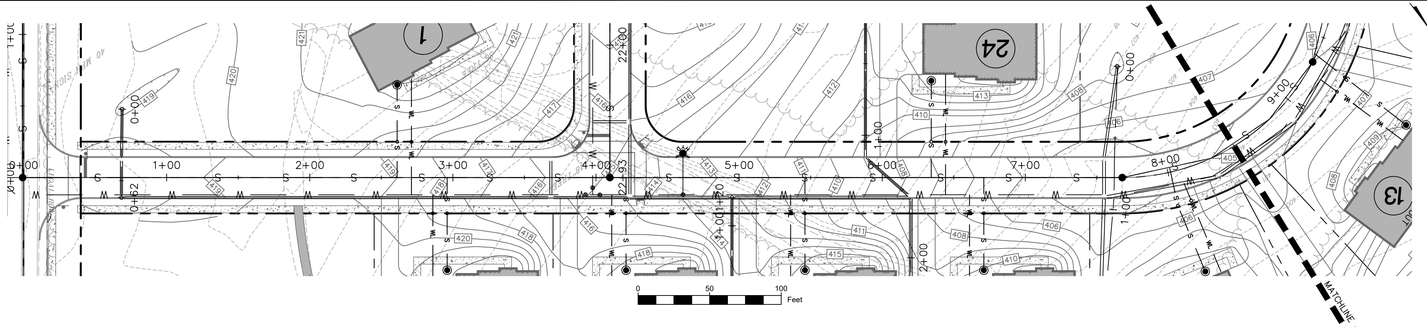
UTILITY DETAILS

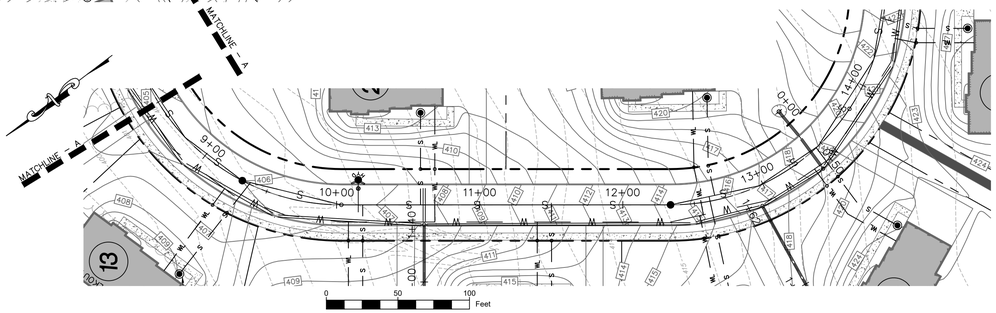
ROBERT T. CUNNINGHAM, P.E.
PA PE076424

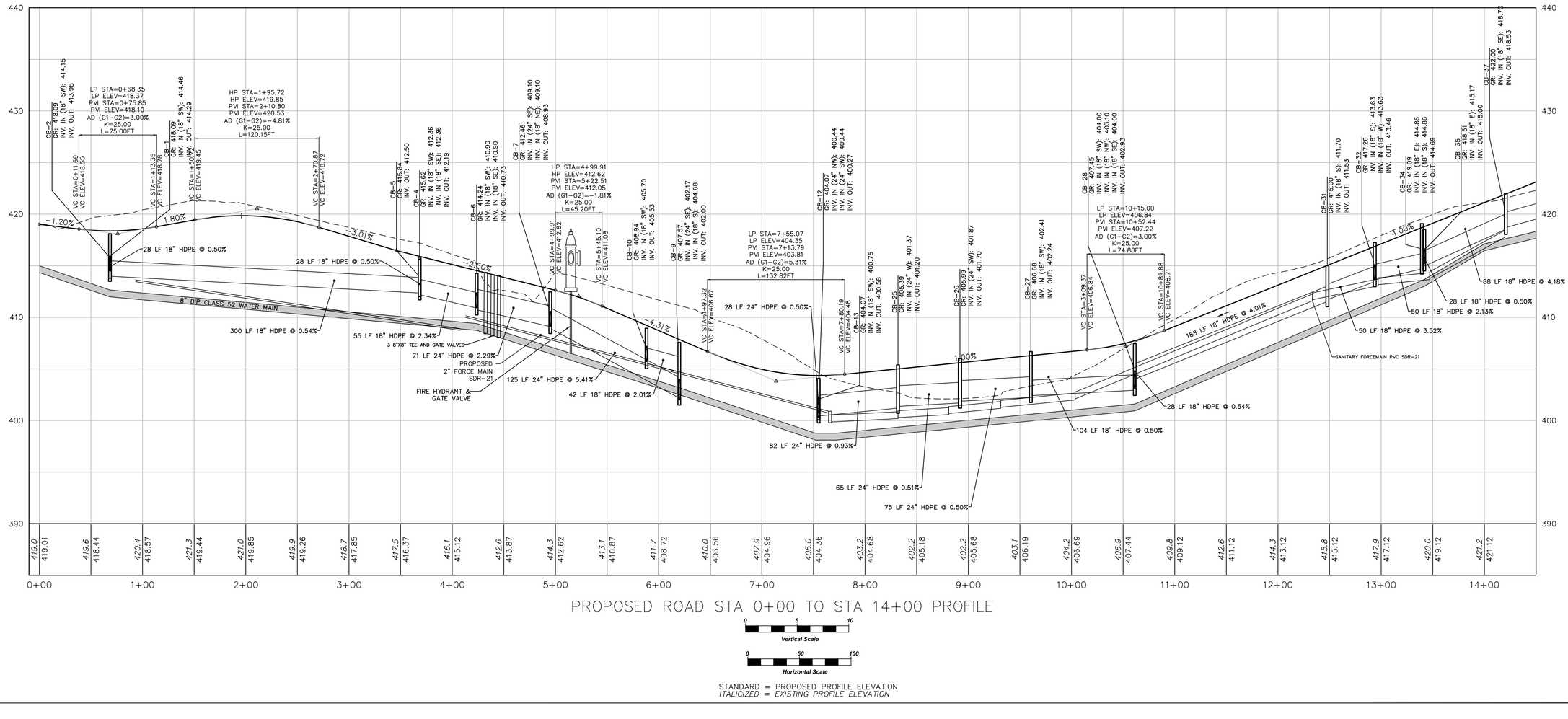
File No.
2064_C4.0 Utility.dwg

HCE Job	2064	Scale	N.T.S.	Designed	RC	Sheet	18 of 38
Date	4/9/2026						

Drawing No.
C4.4







PROPOSED ROAD STA 0+00 TO STA 14+00 PROFILE

0 5 10
Vertical Scale

0 50 100
Horizontal Scale

STANDARD = PROPOSED PROFILE ELEVATION
ITALICIZED = EXISTING PROFILE ELEVATION

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

CALL BEFORE YOU DIG!!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION PLANNING &
10 WORKING DAYS IN DESIGN STAGE
– STOP & CALL –
Pennsylvania One Call System, Inc.
1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT UTILITIES COMPANIES PRIOR TO ANY EXCAVATION.

BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

ROAD PROFILES

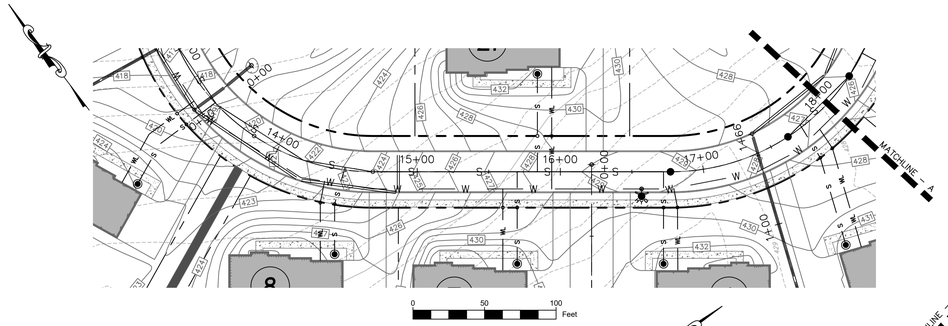
ROBERT T. CUNNINGHAM, P.E.
PA PE076424

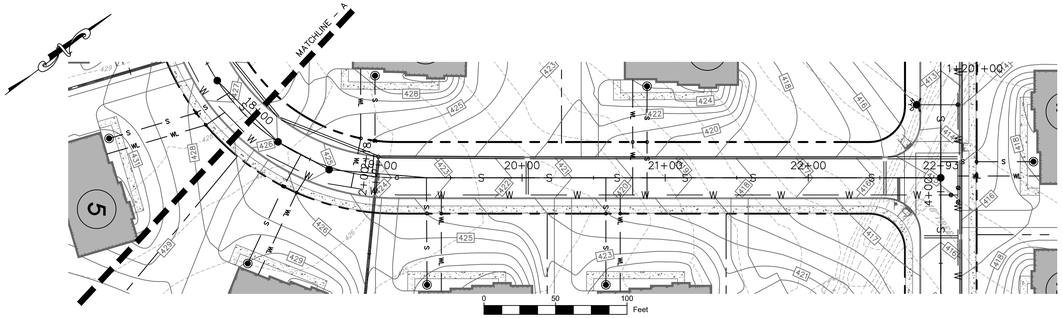
File No.
2064_C5.0 Profiles.dwg

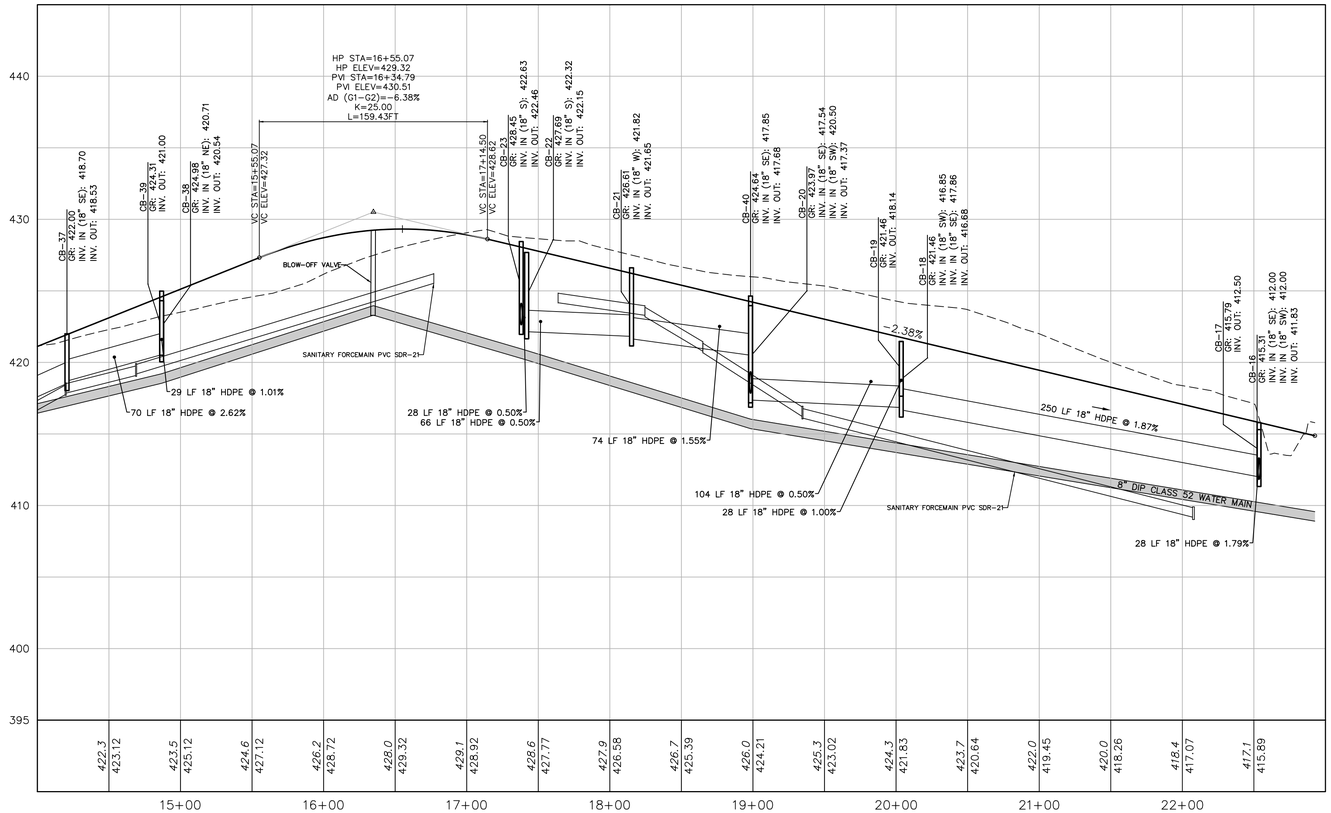
HCE Job	2064	Scale	AS SHOWN	Designed	RC
Date	4/9/2026				

Sheet 19 of 38

Drawing No.
C5.0







PROPOSED ROAD STA 14+00 TO STA 23+00 PROFILE

0 5 10
Vertical Scale

0 50 100
Horizontal Scale

STANDARD = PROPOSED PROFILE ELEVATION
ITALICIZED = EXISTING PROFILE ELEVATION

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

CALL BEFORE YOU DIG!!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION/EXCAVATION
10 WORKING DAYS IN DESIGN STAGE
– STOP & CALL –
Pennsylvania One Call System, Inc.
1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT UTILITY COMPANIES PRIOR TO ANY EXCAVATION.

BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

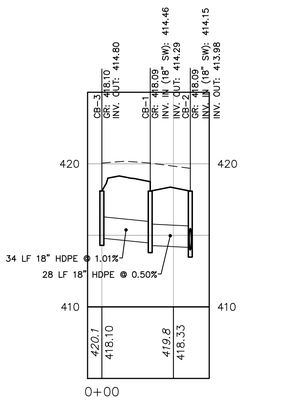
ROAD PROFILES

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

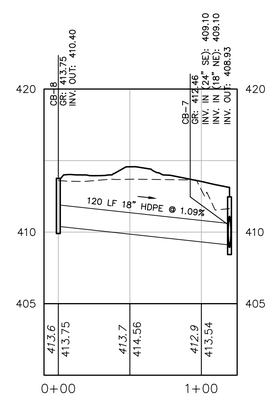
File No.
2064_C5.0 Profiles.dwg

HCE Job	2064		
Date	4/9/2026		
Scale	AS SHOWN		
Designed	RC		
Sheet	20	of	38

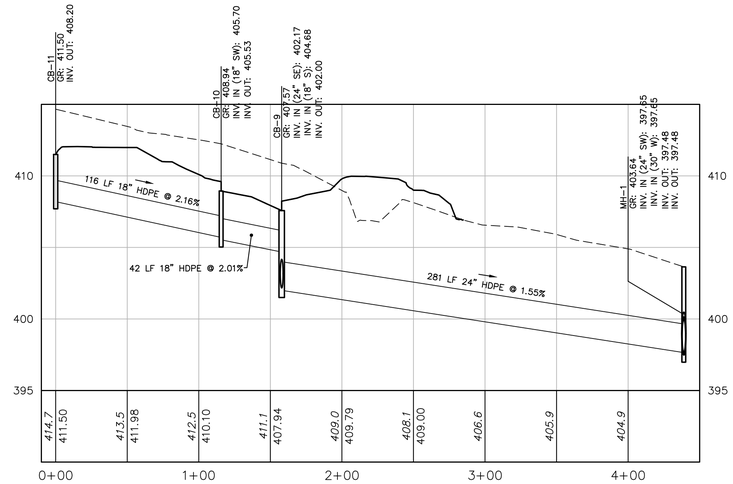
Drawing No.
C5.0



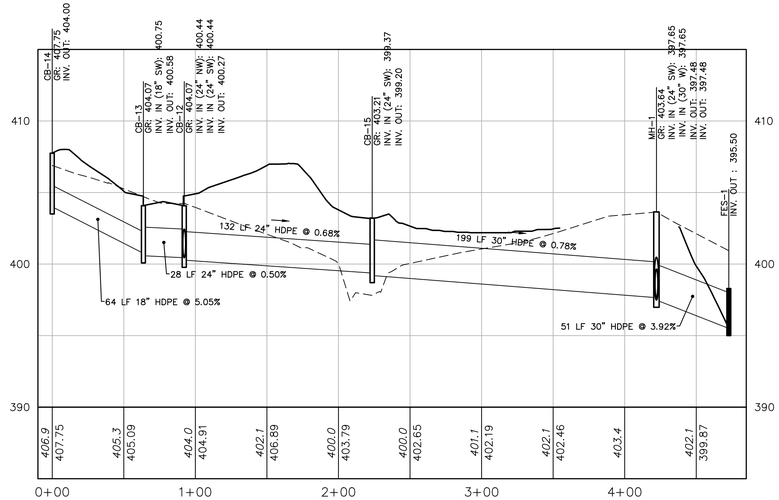
CB–3 TO CB–2 PROFILE



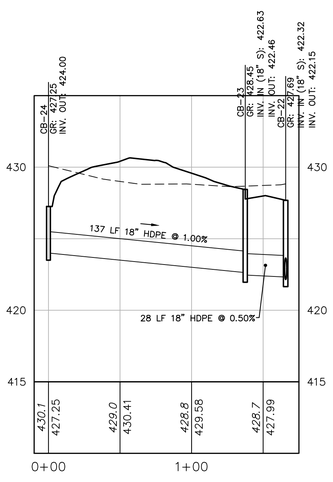
CB–8 TO CB–7 PROFILE



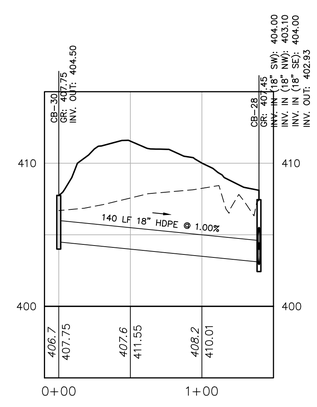
CB–11 TO MH–1 PROFILE



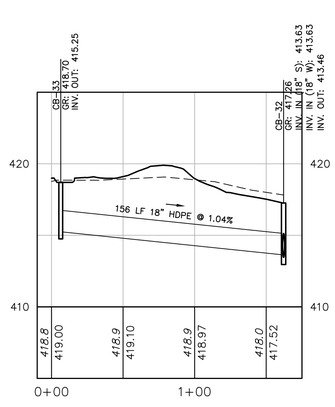
CB–14 TO FES–1 PROFILE



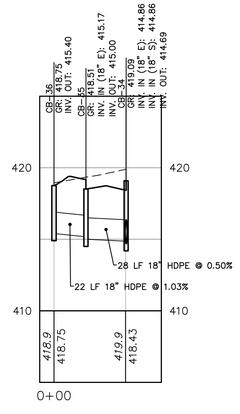
CB–24 TO CB–22 PROFILE



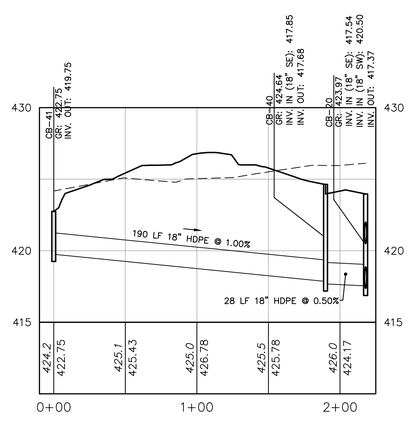
CB–30 TO CB–28 PROFILE



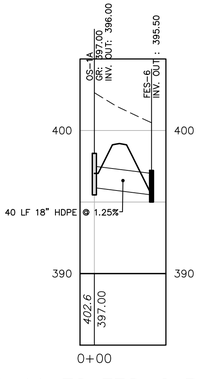
CB–33 TO CB–32 PROFILE



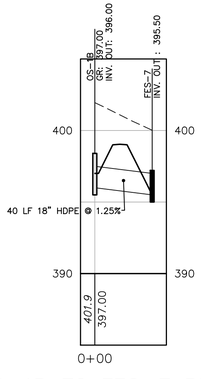
CB–36 TO CB–34 PROFILE



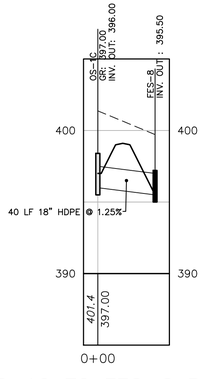
CB–41 TO CB–20 PROFILE



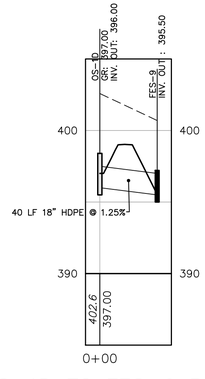
OS–1A TO FES–6 PROFILE



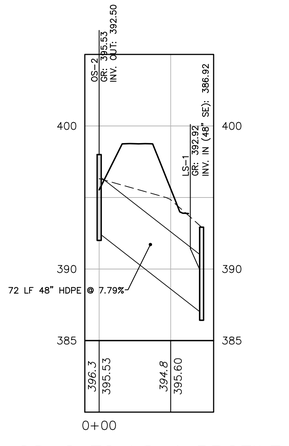
OS–1B TO FES–7 PROFILE



OS–1C TO FES–8 PROFILE



OS–1D TO FES–9 PROFILE



OS–2 TO LS–1 PROFILE

STANDARD = PROPOSED PROFILE ELEVATION
ITALICIZED = EXISTING PROFILE ELEVATION

0 5 10
Vertical Scale

0 50 100
Horizontal Scale

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

holmes cunningham ENGINEERING

REVISIONS		
	Description	Date

CALL BEFORE YOU DIG!!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
10 WORKING DAYS IN DESIGN STAGE
– STOP & CALL –
Pennsylvania One Call System, Inc.
1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT ALL UTILITIES COMPANIES PRIOR TO ANY EXCAVATION.

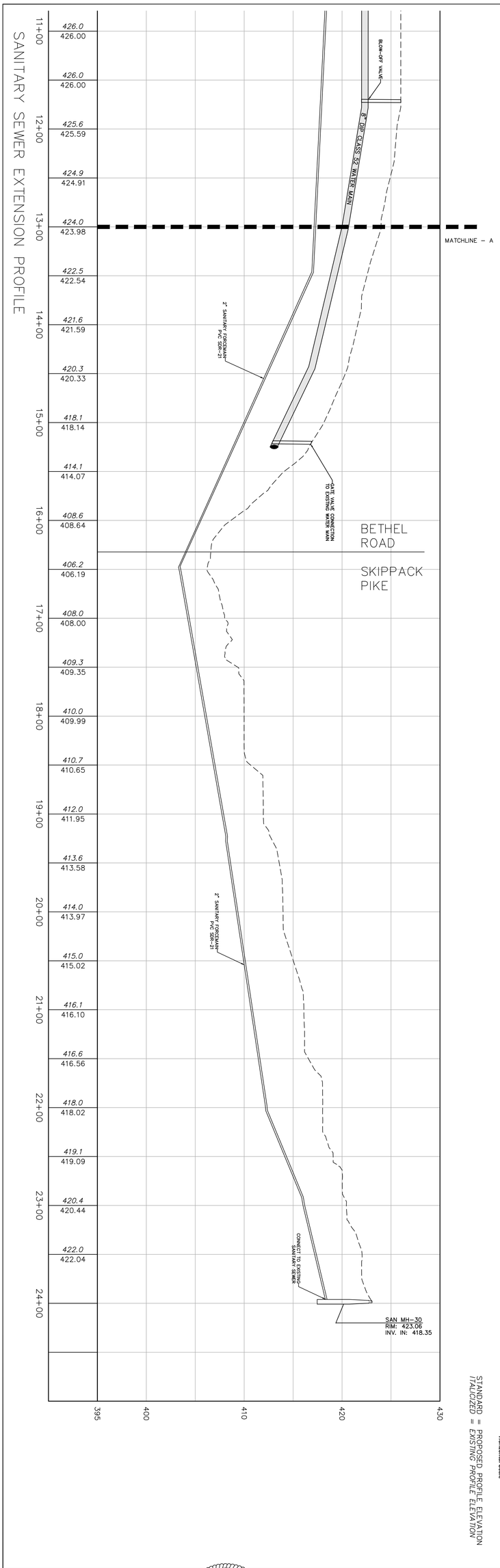
BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

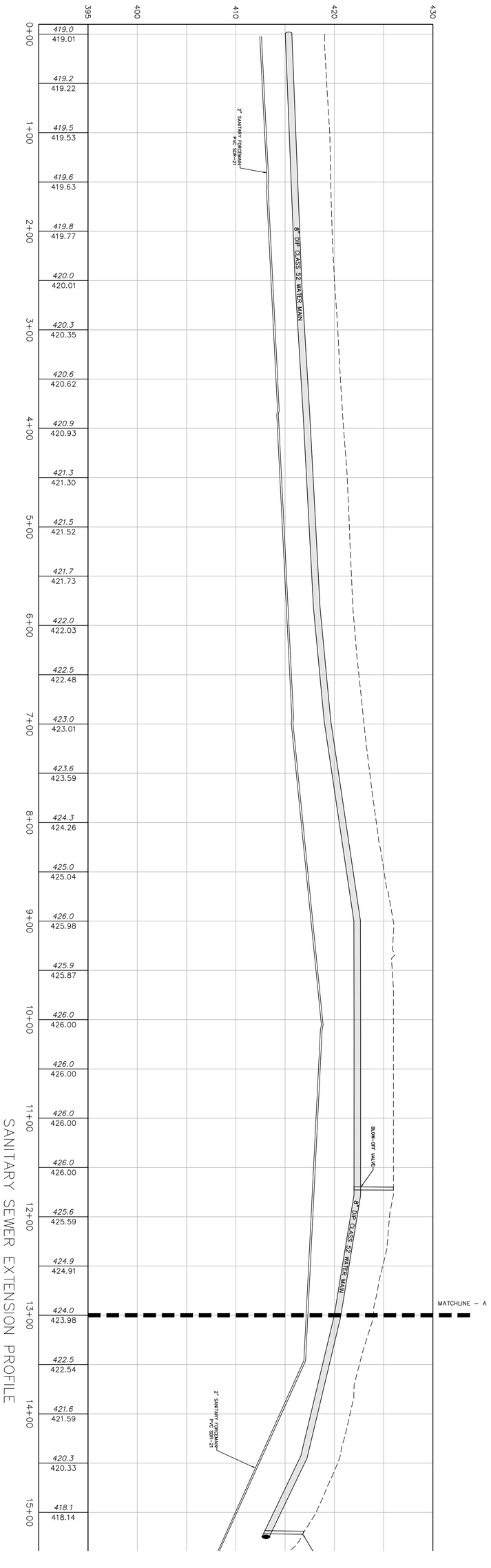
UTILITY PROFILES

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.			
2064_C5.0 Profiles.dwg			
HCE Job	2064	Designed	RC
Date	4/9/2026	Sheet	21 of 38
Scale	AS SHOWN		

Drawing No.
C5.2





Drawing No. C5.3	HCE Job 2064	File No. 2064_C5.0 Profiles.dwg	
	Date 4/9/2026		
	Scale AS SHOWN		
	Designed RC		
	Sheet 22 of 38		

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

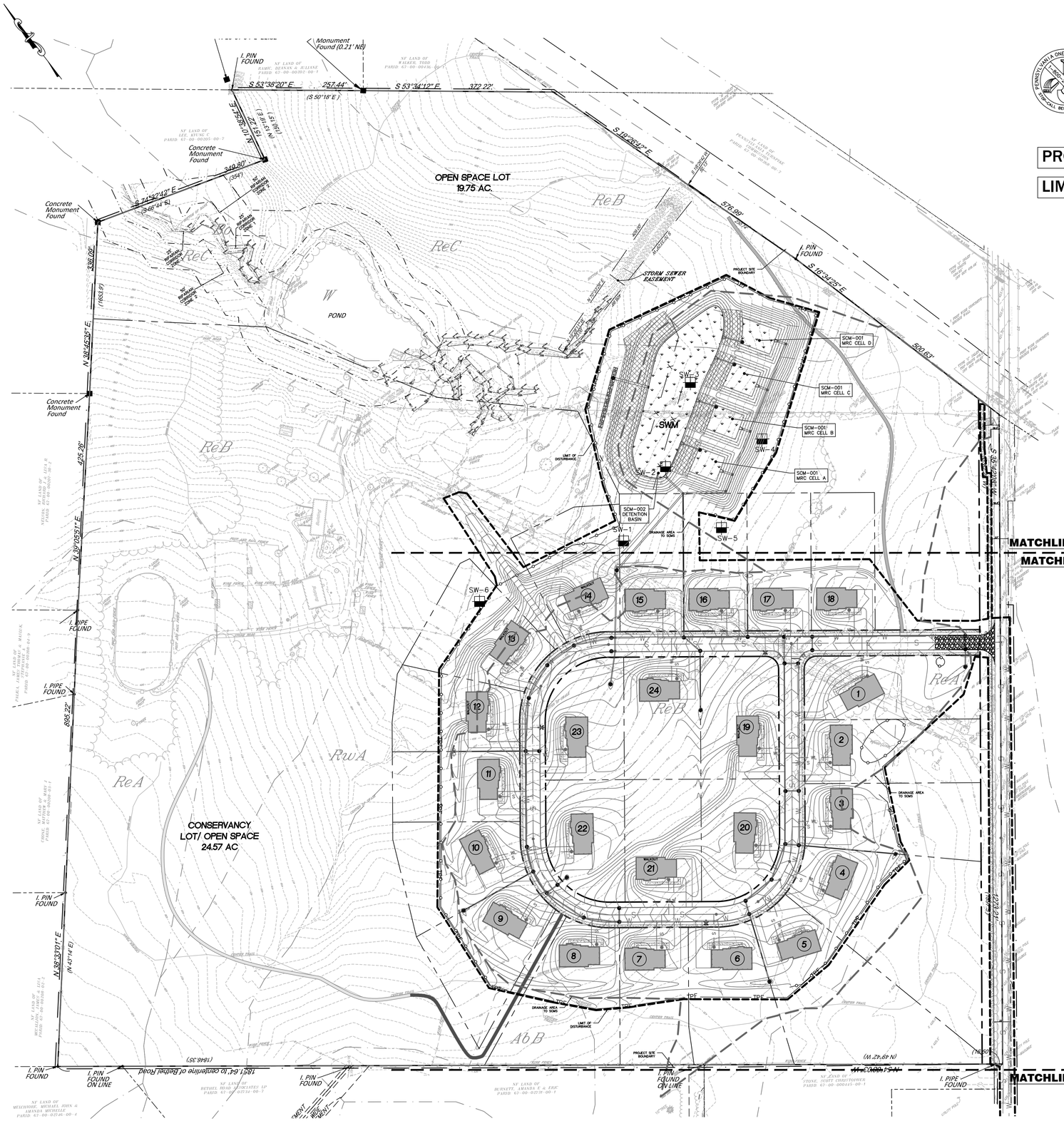
BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

UTILITY PROFILES

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 THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT UTILITY COMPANIES PRIOR TO ANY EXCAVATION.

REVISIONS	
Date	Description

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



ACT 187 AS AMENDED

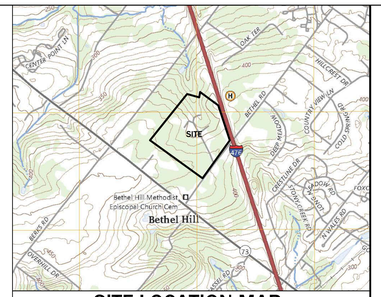
UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT THE UTILITY COMPANIES FOR MORE ACCURATE LOCATION PRIOR TO ANY EXCAVATION.

TO OBTAIN ADDITIONAL UTILITY INFORMATION OR TO ARRANGE FOR FIELD LOCATION OF EXISTING UTILITIES BEFORE EXCAVATION, CALL THE PENNSYLVANIA ONE CALL SYSTEM AT 1-800-242-1776. THE UTILITY COMPANIES SHOWN MAY OR MAY NOT HAVE UTILITY LINES IN THE AREA.

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

PROJECT BOUNDARY = 72.80 ACRES

LIMIT OF DISTURBANCE = 23.50 ACRES



SITE LOCATION MAP

REFERENCE: LANSDALE U.S.G.S. QUADRANGLE MAP SCALE: 1"=2,000'

CRITICAL STAGES OF PLAN IMPLEMENTATION
THE INSTALLATION AND/OR CONVERSION OR EROSION CONTROL FACILITIES TO STORMWATER FACILITIES, INCLUDING INFILTRATION BERMS AND INFILTRATION BASINS WITH MRC, SHALL BE OVERSEEN BY A LICENSED PROFESSIONAL ENGINEER OR THEIR DESIGNEE.

APPLICANT:
HALLMARK BUILDING GROUP INC.
865 EASTON ROAD, SUITE 320
WARRINGTON, PA 18976

GENERAL NOTES

1. EXISTING BOUNDARY AND TOPOGRAPHIC INFORMATION IS TAKEN FROM PLAN TITLE "BOUNDARY AND TOPOGRAPHIC PLAN" PREPARED BY CARROLL ENGINEERING CORPORATION DATED 7/10/2025.
2. SITE GRADING SHALL NOT PROCEED UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
3. UNDER PENNSYLVANIA LAW, THE CONTRACTOR IS REQUIRED TO NOTIFY THE PENNSYLVANIA ONE-CALL SYSTEM AT 1-800-242-1776 PRIOR TO THE START OF HIS WORK, SO THAT ALL THE VARIOUS UNDERGROUND UTILITY OPERATORS WILL BE ABLE TO LOCATE THEIR OWN UTILITIES.
4. THERE ARE NO HQ OR EV WATERSHEDS LOCATED WITHIN THE PROJECT AREA.
5. THERE ARE NO INFILTRATION BMPS LOCATED OUTSIDE PROPOSED GRADING AREAS.
6. THE EXISTING SITE IS NOT UNDERLAIN BY ANY NATURALLY OCCURRING GEOLOGIC FORMATIONS OR SOIL CONDITIONS WHICH COULD CAUSE POLLUTION DURING EARTH DISTURBANCE. THEREFORE, NO LOCATIONS ARE IDENTIFIED ON THIS PLAN AND NO DETAILS ARE PROVIDED FOR DISPOSAL OF SUCH MATERIAL.
7. NO PERSON SHALL MODIFY, REMOVE, FILL, LANDSCAPE, OR ALTER ANY STORMWATER MANAGEMENT (SWM) BEST MANAGEMENT PRACTICES (BMPs), FACILITIES, AREAS, OR STRUCTURES UNLESS IT IS PART OF AN APPROVED MAINTENANCE PROGRAM AND WRITTEN APPROVAL OF THE TOWNSHIP HAS BEEN OBTAINED.
8. NO PERSON SHALL PLACE ANY STRUCTURE, FILL, LANDSCAPING, OR VEGETATION INTO A STORMWATER FACILITY OR BMP OR WITHIN A DRAINAGE EASEMENT WHICH WOULD LIMIT OR ALTER THE FUNCTIONING OF THE STORMWATER FACILITY OR BMP WITHOUT THE WRITTEN APPROVAL OF THE TOWNSHIP.

SESC LEGEND

- LIMIT OF DISTURBANCE
- PROJECT SITE BOUNDARY
- LOT LINE
- COMPOST FILTER SOCK
- CONSTRUCTION FENCE
- TREE PROTECTION FENCE
- STABILIZED CONSTRUCTION PAD
- SOIL TYPE BOUNDARY
- SOIL TYPE (CbA)
- FILTER BAG INLET PROTECTION
- PROPOSED CONTOUR (122)
- BAFFLE
- DRAINAGE AREA TO SEDIMENT TRAP
- TREE PROTECTION FENCE
- TEMPORARY DIVERSION BERM
- JUTE MATTING
- LANDLOK TRM-450 BLANKET

LIMITATIONS OF PENNSYLVANIA SOILS PERTAINING TO EARTHMOVING PROJECTS

SOIL NAME	CUTBANKS CAVE	CORROSIVE TO CONCRETE/STEEL	DROUGHTY	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE/ SEASONAL HIGH WATER TABLE	HYDRIC/ HYDRIC INCLUSIONS	LOW STRENGTH / LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK - SWELL	POTENTIAL SINKHOLE	PONDING	WETNESS
Abbottstown	X	C/S		X		X	X	X	X	X	X	X				X
Bowmansville	X	C/S			X	X	X	X	X	X	X	X				X
Croton	X	C/S		X		X	X	X	X	X	X	X			X	X
Readington	X	C/S		X		X	X	X	X	X	X	X				X
Rowland	X	C/S		X	X	X	X	X	X	X	X	X				X

SOIL RESOLUTIONS:
CUTBANKS CAVE: PROVIDE SHORING DURING EXCAVATION
CORROSIVE TO STEEL/CONCRETE: PROVIDE CATHODIC PROTECTION FOR CONCRETE AND STEEL
DROUGHTY: PROVIDE WATER TRUCK DURING PERIODS OF DROUGHT AND DRY SOIL CONDITIONS
EASILY ERODIBLE: PROVIDE AN EROSION CONTROL BLANKET ON STEEP SLOPES AND MAINTAIN EXISTING VEGATIVE COVER IN NON-DISTURBED AREAS
DEPTH TO SATURATED ZONE/SEASONAL HIGH WATER TABLE: PROVIDE PUMPED WATER FILTER BAGS WHERE A SATURATED ZONE OR SHWT IS ENCOUNTERED
HYDRIC/HYDRIC INCLUSIONS: STRIP EXISTING TOPSOIL TO INDICATING DEPTH, IMPORT SUITABLE FILL FOR CONSTRUCTION, AND PROVIDE ADEQUATE SITE GRADING
LOW STRENGTH/LANDSLIDE PRONE: IMPORT SUITABLE FILL FOR TOPSOIL STOCKPILE AND PROVIDE SHORING DURING EXCAVATION
SLOW PERCOLATION: REPLACE SOIL WITH SUITABLE FILL FOR BETTER PERCOLATION RESULTS
PIPING: PROVIDE CATHODIC PROTECTION FOR PIPES
POOR SOURCE OF TOPSOIL: IMPORT SUITABLE FILL FOR TOPSOIL
FROST ACTION: PROVIDE CAPILLARY FLOW PATH BREAKS IN SOILS
SHRINK-SWELL: COMPACT TO REQUIRED DRY DENSITY OR REMOVE AND REPLACE WITH SUITABLE MATERIAL
PONDING: PUMP STANDING WATER THROUGH FILTER BAG DURING CONSTRUCTION, DESIGN SITE FOR POSITIVE DRAINAGE
POTENTIAL SINKHOLE: LIMIT EXPOSURE TO PONDED WATER/REPAIR SINKHOLES AS NOTED/CONSULT GEOTECHNICAL ENGINEER
WETNESS: MINIMIZE SOIL COMPACTION FOR INCREASED INFILTRATION OF WATER INTO THE SOIL AND PROVIDE ADEQUATE SITE GRADING

SOIL TYPES

Sym	Name	Hydric (Y/N)	Depth to Bedrock (in.)	Depth to Water Table (in.)	HSG
AbB	Abbottstown Silt Loam, 3 to 8 Percent Slopes	N	40-60	6-18	D
Bo	Bowmansville-Knauers Silt Loams	Y	72-99	0-18	C/D
CrA	Croton Silt Loam, Occasionally Ponded, 0 to 3 Percent Slopes	Y	40-60	0-6	D
ReA	Readington silt loam, 0 to 3 percent slopes	N	40-70	18-36	C
ReB	Readington silt loam, 3 to 8 percent slopes	N	40-60	18-36	C
ReC	Readington silt loam, 8 to 15 percent slopes	N	40-70	18-36	C
RwA	Rowland Silt Loam, 0 to 3 Percent Slopes	N	60-99	18-36	C
UryB	Urban Land Readington Complex, 0 to 8 Percent Slopes	N	40-70	18-36	C

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

REVISIONS		
	Date	Description

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 THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT THE UTILITY COMPANIES FOR MORE ACCURATE LOCATION PRIOR TO ANY EXCAVATION.

BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

EROSION AND SEDIMENT CONTROL PLAN

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C6.0 ES.dwg

HCE Job	2064	Date	4/9/2026	Scale	1"=100'
Designed	RC	Sheet	23 of 38		

Drawing No.
C6.0

SCM-002 DETENTION BASIN

SW-1

SW-5

SW-6

MH-1
GR: 403.64
INV. IN: 397.65
INV. IN: 397.65
INV. OUT: 397.48
INV. OUT: 397.48

CB-15
GR: 403.20
INV. IN (24" SW): 399.37
INV. OUT: 399.20

CB-6
GR: 414.24
INV. IN (18" SW): 410.90
INV. IN (18" SE): 410.90
INV. OUT: 410.73

CB-4
GR: 415.62
INV. IN (18" SW): 412.36
INV. IN (18" SE): 412.36
INV. OUT: 412.19

DRAINAGE AREA TO SCMS

CB-9
GR: 407.57
INV. IN (24" SE): 402.17
INV. IN (18" S): 404.68
INV. OUT: 402.00

CB-12
GR: 404.07
INV. IN (24" NW): 400.44
INV. IN (24" SW): 400.44
INV. OUT: 400.27

CB-8
GR: 412.40
INV. OUT: 410.40

MATCHLINE 'A' - (SEE SHEET C6.2)

CB-25
GR: 405.39
INV. IN (24" W): 401.37
INV. OUT: 401.20

CB-28
GR: 405.91
INV. IN (24" W): 401.97
INV. OUT: 401.70

ROCK CONSTRUCTION ENTRANCE (TYP.)

CB-2
GR: 418.09
INV. IN: 414.15
INV. OUT: 413.98

CB-27
GR: 416.68
INV. IN (18" SW): 412.41
INV. OUT: 412.24

CB-14
GR: 407.75
INV. OUT: 404.00

CB-11
GR: 411.50
INV. OUT: 408.20

CB-31
GR: 415.00
INV. IN (18" S): 411.70
INV. OUT: 411.53

CB-35
GR: 415.51
INV. IN (18" E): 415.17
INV. OUT: 415.00

CB-18
GR: 421.46
INV. IN (18" SW): 416.85
INV. IN (18" SE): 417.86
INV. OUT: 416.68

CB-19
GR: 421.46
INV. OUT: 418.14

CB-40
GR: 424.64
INV. IN (18" SE): 417.83
INV. OUT: 417.68

CB-20
GR: 423.97
INV. IN (18" SE): 417.54
INV. IN (18" SW): 420.50
INV. OUT: 417.37

CB-21
GR: 426.61
INV. IN (18" W): 421.82
INV. OUT: 421.65

CB-41
GR: 422.75
INV. OUT: 419.75

CB-36
GR: 418.78
INV. OUT: 415.40

CB-37
GR: 422.00
INV. IN (18" SE): 418.
INV. OUT: 418.53

CB-39
GR: 424.31
INV. OUT: 421.00

CB-22
GR: 427.69
INV. IN (18" S): 422.32
INV. OUT: 422.18

CB-23
GR: 428.45
INV. IN: 422.63
INV. OUT: 422.46

CB-32
GR: 417.26
INV. IN (18" S): 413.53
INV. IN (18" W): 413.43
INV. OUT: 413.46

CB-33
GR: 418.70
INV. OUT: 415.25

CB-34
GR: 418.09
INV. IN (18" E): 414.66
INV. IN (18" S): 414.56
INV. OUT: 414.49

CB-38
GR: 424.98
INV. IN (18" SE): 420.71
INV. OUT: 420.54

CB-24
GR: 428.
INV. IN: 424.00

CB-10
GR: 408.94
INV. IN (18" SW): 405.70
INV. OUT: 405.55

CB-7
GR: 412.46
INV. IN: 409.10
INV. IN: 409.10
INV. OUT: 408.93

INLET PROTECTION FILTER (TYP.)

CB-16
GR: 415.31
INV. IN (18" SE): 412.00
INV. IN (18" SW): 412.00
INV. OUT: 411.83

CB-13
GR: 404.07
INV. IN (18" W): 400.75
INV. OUT: 400.58

CB-5
GR: 415.84
INV. OUT: 412.50

CB-17
GR: 415.79
INV. OUT: 412.50

CB-1
GR: 418.09
INV. IN: 414.46
INV. OUT: 414.29

CONCRETE WASHOUT

CB-3
GR: 418.10
INV. OUT: 414.80

CB-29
GR: 407.45
INV. OUT: 404.15

CB-28
GR: 417.45
INV. IN (18" SW): 413.00
INV. IN (18" NW): 413.10
INV. IN (18" SE): 413.00
INV. OUT: 412.93

STOCKPILE WITH 18" COMPOST FILTER SOCK (TYP.)

DRAINAGE AREA TO SCMS

32"ø COMPOST FILTER SOCK #2

12"ø COMPOST FILTER SOCK #3

DRAINAGE AREA TO SCMS

LIMIT OF DISTURBANCE

TREE PROTECTION FENCE (TYP.)

PROJECT SITE BOUNDARY

MATCHLINE 'B' - (SEE SHEET C6.2)

(N 49°42' W)

(16.50')

1273.21' (S80°17'39"E)

0 50 100 Feet

KEY MAP
SCALE: 1:800

DRAINAGE LEGEND

- EXISTING STORM PIPE
- EXISTING INLET — Ex.Inlet
- EXISTING MANHOLE
- PROPOSED STORM PIPE
- PROPOSED YARD INLET
- PROPOSED CURB INLET

SESC LEGEND

- LIMIT OF DISTURBANCE
- PROJECT SITE BOUNDARY
- LOT LINE
- COMPOST FILTER SOCK
- CONSTRUCTION FENCE
- TREE PROTECTION FENCE
- STABILIZED CONSTRUCTION PAD
- SOIL TYPE BOUNDARY
- SOIL TYPE — CbA
- FILTER BAG INLET PROTECTION
- PROPOSED CONTOUR — 199
- BAFFLE
- DRAINAGE AREA TO SEDIMENT TRAP
- TREE PROTECTION FENCE
- TEMPORARY DIVERSION BERM
- JUTE MATTING
- LANDLOK TRM-450 BLANKET

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

holmes cunningham ENGINEERING

REVISIONS

Description	Date

CALL BEFORE YOU DIG!!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR LOCATIONS AND MARKING, OR 10 WORKING DAYS IN DESIGN STAGE — STOP & CALL!
Pennsylvania One Call System, Inc.
1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT ALL UTILITY COMPANIES PRIOR TO ANY EXCAVATION.

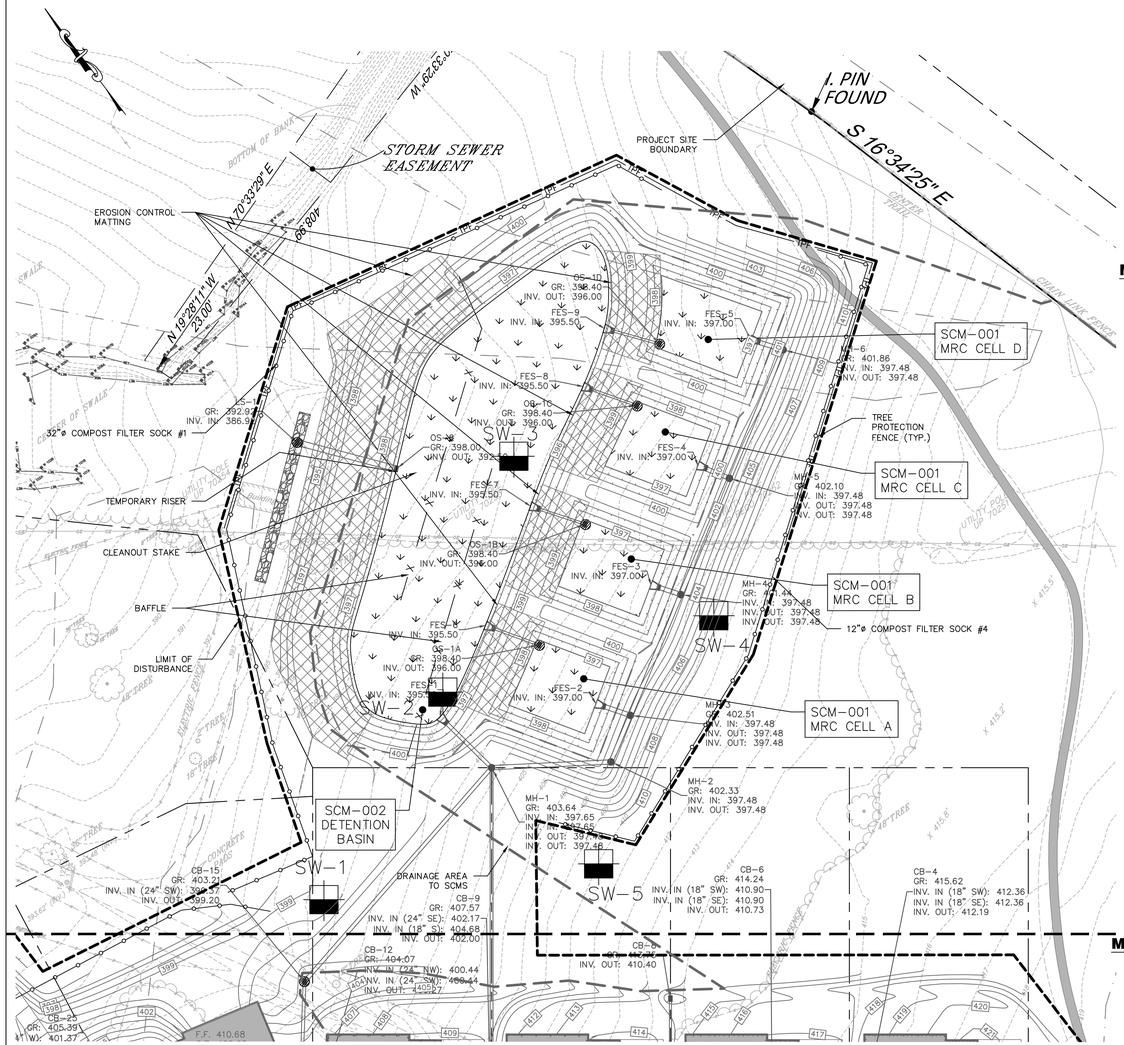
BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA
DETAILED EROSION AND SEDIMENT CONTROL PLAN

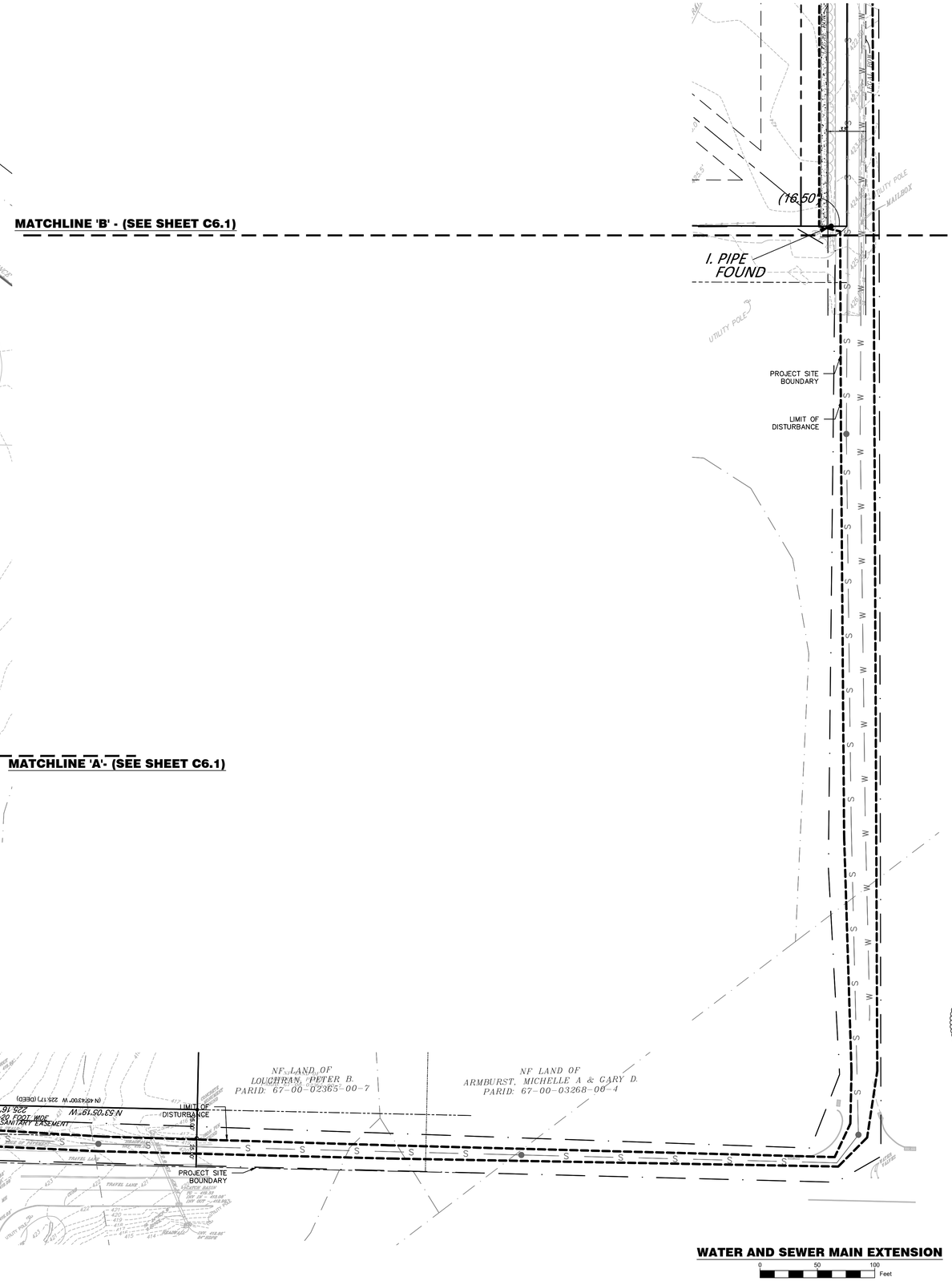
ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C6.0 ES.dwg

HCE Job	2064	Scale	1"=50'	Sheet	24 of 38
Date	4/9/2026	Designed	RC		

Drawing No.
C6.1





DRAINAGE LEGEND

EXISTING STORM PIPE
EXISTING INLET — Ex.Inlet
EXISTING MANHOLE
PROPOSED STORM PIPE
PROPOSED YARD INLET
PROPOSED CURB INLET

SESC LEGEND

- LIMIT OF DISTURBANCE
- PROJECT SITE BOUNDARY
- LOT LINE
- COMPOST FILTER SOCK
- CONSTRUCTION FENCE
- TREE PROTECTION FENCE
- STABILIZED CONSTRUCTION PAD
- SOIL TYPE BOUNDARY
- SOIL TYPE (CbA)
- FILTER BAG INLET PROTECTION
- PROPOSED CONTOUR (100)
- BAFFLE
- DRAINAGE AREA TO SEDIMENT TRAP
- TREE PROTECTION FENCE
- TEMPORARY DIVERSION BERM
- JUTE MATTING
- LANDLOK TRM-450 BLANKET

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

REVISIONS

Description	Date

CALL BEFORE YOU DIG!!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION AND 10 WORKING DAYS IN DESIGN STAGE – STOP & CALL
Pennsylvania One Call System, Inc. 1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT UTILITY COMPANIES PRIOR TO ANY EXCAVATION.

BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

DETAILED EROSION AND SEDIMENT CONTROL PLAN

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C6.0 ES.dwg

HCE Job	2064	Scale	1"=50'	Sheet	25 of 38
Date	4/9/2026	Designed	RC		

Drawing No.
C6.2

SEQUENCE OF CONSTRUCTION

NOTES:

- AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES (INCLUDING CLEARING AND GRUBBING), THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL OR THEIR DESIGNEE, AND A REPRESENTATIVE FROM THE MONTGOMERY COUNTY CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.
- UPON INSTALLATION OR STABILIZATION OF ALL PERIMETER SEDIMENT CONTROL BMPS AND AT LEAST 3 DAYS PRIOR TO PROCEEDING WITH THE BULK EARTH DISTURBANCE ACTIVITIES, THE PERMITTEE OR CO-PERMITTEE SHALL PROVIDE NOTIFICATION TO THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT.
- AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
- ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED BY THE MONTGOMERY COUNTY CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION. EACH STEP OF THE SEQUENCE SHALL BE COMPLETED BEFORE PROCEEDING TO THE NEXT STEP, EXCEPT WHERE NOTED.
- CESSATION OF EARTHMOVING AND/OR OTHER CONSTRUCTION ACTIVITY FOR FOUR (4) DAYS OR LONGER REQUIRES TEMPORARY STABILIZATION OF THE SITE. DISTURBED AREAS SHALL BE SEEDED AND MULCHED IN ACCORDANCE WITH THE TEMPORARY SEEDING 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.

SEQUENCE OF CONSTRUCTION

1. CONTACT THE MONTGOMERY COUNTY CONSERVATION DISTRICT (610-489-4506), WORCESTER TOWNSHIP, AND WORCESTER TWP. ENGINEER AT LEAST THREE (3) WORKING DAYS PRIOR TO SITE DISTURBANCE.
2. 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.
3. FLAG LIMITS OF DISTURBANCE (LOD) USING SURVEY STAKES, POSTS & ROPE, AND/OR ORANGE CONSTRUCTION FENCING. LOD AREAS ADJACENT TO TREE CANOPIES TO REMAIN SHALL BE BOUNDED BY TREE PROTECTION FENCING.
4. INSTALL CONSTRUCTION ENTRANCE AT SITE ACCESS, CONSTRUCTION STAGING AREA, STOCKPILE AREA, CONCRETE WASHOUT AREA, AND ALL COMPOST FILTER SOCK WHERE SHOWN ON THE PLAN. PROPOSED BMP AREAS SHALL BE PROTECTED BY CONSTRUCTION FENCING, TO PROTECT THEM FROM CONSTRUCTION TRAFFIC UNTIL ALL BMPS ARE CONSTRUCTED AND OPERATIONAL.
5. PRIOR TO DISTURBANCE WITHIN EACH TRIBUTARY AREA, INSTALL SEDIMENT BASIN (BASIN CONSTRUCTION IS REQUIRED TO BE INSPECTED BY THE LICENSED PROFESSIONAL. THE CONTRACTOR SHALL COORDINATE INSPECTIONS WITH THE INSPECTING LICENSED PROFESSIONAL; IN THE EVENT BEDROCK OR GROUNDWATER IS ENCOUNTERED, ALL EARTHWORK WILL NEED TO BE STOPPED, THE SITE WILL NEED TO BE STABILIZED, AND A REVISED PCSM PLAN WHICH ADDRESSES THE SITE CONSTRAINTS WILL NEED TO BE PREPARED, REVIEWED AND FOUND TO BE ACCEPTABLE BEFORE CONSTRUCTION MAY CONTINUE.) THE PERMANENT OUTFALL FROM EACH SEDIMENT BASIN AND RIPRAP SHALL BE INSTALLED WITH THE CONSTRUCTION OF THE SEDIMENT BASIN. THE TEMPORARY RISERS SHALL BE INSTALLED WITH THE CONSTRUCTION OF THE SEDIMENT BMP. ANY DIVERSION CHANNELS AND BERMS SHALL BE INSTALLED WHEN THE SEDIMENT BASIN IS INSTALLED. THE SEDIMENT BASIN IS EXPECTED TO PRODUCE ADDITIONAL MATERIAL AS PART OF ITS CONSTRUCTION; EXCESS MATERIAL SHALL BE STOCKPILED. TEMPORARY GRADING ASSOCIATED WITH THE SEDIMENT BASIN SHALL REMAIN IN PLACE UNTIL SITE STORMWATER CONVEYANCES ARE COMPLETE AND CAPABLE OF DIRECTING RUNOFF INTO THE SEDIMENT BASIN.
6. ENSURE ALL DISTURBED AREA IS TRIBUTARY TO A SEDIMENT FACILITY AND/OR PERIMETER CONTROL SUCH AS COMPOST FILTER SOCK PRIOR TO COMMENCEMENT OF CLEARING AND/OR EARTH DISTRUBANCE.
7. CLEAR WOODLANDS IN AREAS SHOWN AND STRIP TOPSOIL WITHIN PHASE LIMITS AND STOCKPILE WHERE SHOWN ON PLAN. ALL STRIPPED TOPSOIL STOCKPILES SHALL HAVE TEMPORARY SEEDING INSTALLED. WOODLAND AREAS PROPOSED TO REMAIN SHALL ONLY BE SUBJECT TO REMOVAL OF BRUSH AND INVASIVES.
8. ROUGH GRADE ROADWAYS. INSTALL TEMPORARY EROSION CONTROL BLANKETS IN AREAS OF STEEP SLOPE. BUILDING PADS MAY BE ROUGH GRADED AFTER COMPLETION OF ROADWAY ROUGH GRADING. REFER TO TEMPORARY SEEDING REQUIREMENTS AND INSTALL TEMPORARY SEEDING IMMEDIATELY UPON COMPLETING GRADING WORK WITHIN ANY AREA.
9. INSTALL WATER, SANITARY SEWER, AND STORM SEWER SYSTEM STARTING AT THE DOWNSTREAM ENDS AND WORKING UPSTREAM. ALL TRENCHES SHALL BE BACKFILLED AT THE END OF EACH DAY. MAKE OFFSITE UTILITY CONNECTIONS AND INSTALL OFFSITE WATER AND SANITARY SEWER. GRADE AREAS AROUND STORM SEWER INLETS TO MAINTAIN POSITIVE DRAINAGE AT ALL TIMES. STORM SEWER INLET TOPS SHALL BE RAISED TO ALLOW RUNOFF TO ENTER DURING CONSTRUCTION.
10. INSTALL CURB, SUBBASE AND BASE COURSE FOR THE ROAD AND DRIVEWAYS WITHIN PHASE LIMITS. TEMPORARY DIVERSION BERMS MAY BE REMOVED ONLY UPON COMPLETION AND SATISFACTORY OPERATION OF ALL STORM SEWERS TRIBUTARY TO SEDIMENT BASINS, AND ONLY UPON COMPLETION OF ROADWAY CURBING SUCH THAT STORMWATER RUNOFF REACHES EACH SEDIMENT BASIN BY WAY OF ITS PROPOSED CONDITION PATHWAY.
11. AFTER A STABLE BASE IS ACHIEVED, CONSTRUCT BUILDINGS. NO VERTICAL CONSTRUCTION MAY OCCUR UNTIL A STABLE BASE IS ESTABLISHED.
12. COMPLETE FINAL GRADING, APPLY PERMANENT SEEDING MIXTURE AND INSTALL ALL REQUIRED PLANTINGS. NO MORE THAN 15,000 SQUARE FEET OF DISTURBED AREA SHALL REACH FINAL GRADE BEFORE INITIATING FINAL SEEDING AND MULCHING OPERATIONS. REFER TO PCSM AND LANDSCAPE DRAWINGS FOR SPECIFIC DETAILS.
13. FLUSH ALL AFFECTED STORM DRAINAGE PIPES OF ACCUMULATED SILT.
14. UPON COMPLETE STABILIZATION (DEFINED AS A UNIFORM VEGETATIVE COVER OF AT LEAST 70%), REMOVE EROSION CONTROL DEVICES, REMOVE TEMPORARY ORIFICE PLATES AND INSTALL PERMANENT STORMWATER BMPS. UPON COMPLETION AND STABILIZATION OF THOSE FACILITIES, CONVERT THE SEDIMENT BASINS TO STORMWATER FACILITIES PER THE BMP SEQUENCE OF CONSTRUCTION ON THE PCSM PLAN. THIS ACTIVITY IS REQUIRED TO BE INSPECTED BY THE LICENSED PROFESSIONAL. THE CONTRACTOR SHALL COORDINATE INSPECTIONS WITH THE INSPECTING LICENSED PROFESSIONAL; THE SITE SHALL BE CONSIDERED STABILIZED WHEN THE PERMANENT VEGETATION HAS PROVIDED A 70% GROUNDCOVER. THE CRITERIA FOR THE REMOVAL OF CONTROLS IS A UNIFORM 70% VEGETATIVE COVER CAPABLE OF RESISTING EROSION, NOT 7 OUT OF 10 ACRES OR 7 OUT OF 10 UNITS.
15. 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.
16. UPON PERMANENT STABILIZATION OF EARTH DISTURBANCE ACTIVITY AND COMPLETED INSTALLATION OF BMP FACILITIES IN ACCORDANCE WITH THE APPROVED PLAN, THE APPLICANT SHALL SUBMIT A NOTICE OF TERMINATION (NOT) TO THE MONTGOMERY COUNTY CONSERVATION DISTRICT.

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 SCRUB VEGETATION AND VINES WHICH ARE CURRENTLY DETRIMENTAL TO THE LARGE TREES ON THE SOUTHERN PROPERTY LINE.

MINIMIZE SOIL COMPACTION

THE PROJECT DESIGN LIMITS THE BULK/ 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.

BMP MAINTENANCE

THE CONTRACTOR WILL BE RESPONSIBLE FOR THE PROPER CONSTRUCTION STABILIZATION, AND MAINTENANCE OF ALL TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AND RELATED ITEMS INCLUDED WITHIN THIS PLAN. THE CONTRACTOR WILL ALSO BE RESPONSIBLE FOR THE PROPER CONSTRUCTION AND STABILIZATION OF PERMANENT CONTROL MEASURES AND RELATED ITEMS INCLUDED WITHIN THIS PLAN.

DURING CONSTRUCTION THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING INSPECTIONS OF THE BMPS AFTER EACH RUNOFF EVENT AS WELL AS ON A WEEKLY BASIS. THE CONTRACTOR SHALL KEEP A WRITTEN LOG OF ALL INPECTIONS AND MAINTENANCE PERFORMED ON THE BMPS

THE OWNER WILL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL PERMANENT CONTROL MEASURES.

SOIL SEDIMENT REMOVED FROM ANY TEMPORARY CONTROL MEASURE DURING REGULAR MAINTENANCE WILL BE INCORPORATED BACK INTO THE EARTHWORK AS FILL ON THE SITE. SOIL SEDIMENT MATERIAL SHALL BE DISTRIBUTED ON-SITE WITHOUT CHANGING DRAINAGE PATTERNS DURING A SPECIFIC CONSTRUCTION STAGE.

COMPOST FILTER SOCKS WILL BE INSPECTED ONCE A WEEK OR AFTER EVERY STORM EVENT, WHICHEVER COMES FIRST. ANY NECESSARY REPAIRS WILL BE MADE IMMEDIATELY. ACCUMULATED SEDIMENTS WILL BE REMOVED AS REQUIRED TO KEEP THE SOCK FUNCTIONAL. DEPOSITS WILL BE REMOVED WHERE ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE SOCK. UNDERCUTTING OR EROSION OF THE TOE ANCHOR OF THE SILT FENCE WILL BE REPLACED IMMEDIATELY WITH ROCK FILTER OUTLETS. ANY MANUFACTURER'S RECOMMENDATIONS WILL BE ADHERED TO FOR REPLACING SILT FENCE DUE TO WEATHERING.

SEDIMENT BASINS WILL BE INSPECTED ONCE A WEEK OR AFTER EVERY STORM EVENT, WHICHEVER COMES FIRST. WHICHEVER COMES FIRST. ANY NECESSARY REPAIRS WILL BE MADE IMMEDIATELY. ACCUMULATED SEDIMENTS WILL BE REMOVED AS REQUIRED TO KEEP THE SOCK FUNCTIONAL. DEPOSITS WILL BE REMOVED WHERE ACCUMULATIONS REACH THE SURVEY RIBBON ON THE CLEANOUT STAKE MARKER.

THE CONSTRUCTION ENTRANCE WILL BE INSPECTED AT THE END OF EACH WORK DAY. THE THICKNESS WILL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSION BY ADDING ROCK. A STOCKPILE OF ROCK MATERIAL WILL BE MAINTAINED ON THE SITE FOR THIS PURPOSE.

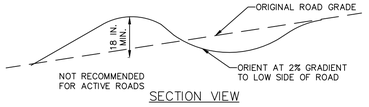
AT THE END OF EACH CONSTRUCTION DAY, ANY SEDIMENT DEPOSITED ON PUBLIC ROADWAYS, WILL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE. WASHING OF THE ROADWAY WITH WATER WILL NOT BE PERMITTED.

RECYCLING/ DISPOSAL OF MATERIALS

THE CONSTRUCTION WASTES ANTICIPATED INCLUDE DEMOLITION MATERIALS FROM THE BUILDING AND SITE DEMOLITION AND EXCESS BUILDING MATERIAL SUCH AS CONCRETE, WOOD, ETC.

ANTICIPATED POST-CONSTRUCTION WASTES INCLUDE LEAF & BRANCH REFUSE FROM PLANTINGS AND HOUSEHOLD WASTE. ALL WASTE SHALL BE COLLECTED FOR PICKUP AND DISPOSAL BY A WASTE COLLECTION COMPANY REGISTERED WITH THE TOWNSHIP.

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.



SECTION VIEW

NOTES:

WATERBARS SHALL DISCHARGE TO A STABLE AREA.

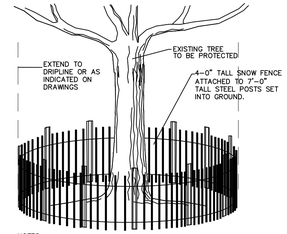
WATERBARS SHALL BE INSPECTED WEEKLY (DAILY ON ACTIVE ROADS) AND AFTER EACH RUNOFF EVENT. DAMAGED OR ERODED WATERBARS SHALL BE RESTORED TO ORIGINAL DIMENSIONS WITHIN 24 HOURS OF INSPECTION.

MAINTENANCE OF WATERBARS SHALL BE PROVIDED UNTIL ROADWAY, SKIDTRAIL, OR RIGHT-OF-WAY HAS ACHIEVED PERMANENT STABILIZATION.

WATERBARS ON RETIRED ROADWAYS, SKIDTRAILS, AND RIGHT-OF-WAYS SHALL BE LEFT IN PLACE AFTER PERMANENT STABILIZATION HAS BEEN ACHIEVED. SEE PA DEP EROSION CONTROL MANUAL TABLE 3.1 FOR WATERBAR SPACING.

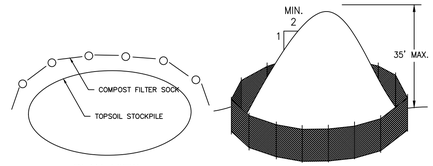
STANDARD CONSTRUCTION DETAIL #3-5
WATERBAR

NOT TO SCALE



NOTES:
1) FENCE TO BE INSTALLED BEFORE WORK BEGINS. FENCE MUST REMAIN AND BE MAINTAINED THROUGH DURATION OF CONSTRUCTION.
2) ORANGE CONSTRUCTION FENCE MAY BE SUBSTITUTED FOR SNOW FENCE.

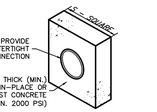
TREE PROTECTION FENCING DETAIL



PLAN VIEW PROFILE

COMPOST FILTER SOCK MUST BE PLACED DOWNSLOPE OF ALL STOCKPILES. IMMEDIATELY APPLY TEMPORARY SEEDING TO ALL STOCKPILES WHICH WILL REMAIN IN PLACE 20 DAYS OR MORE.

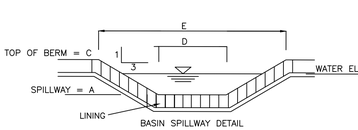
STOCKPILE AREA DETAIL



BASIN OR TRAP NO.	PIPE SIZE (IN)	S (IN)	NO. OF COLLARS	RISER TO FIRST COLLAR (FT)	COLLAR SPACING (FT)
001/CELLS	18	4	3	7.72	7.72
002	48	90	4	16.35	16.35

NOTES:
1. ALL COLLARS SHALL BE INSTALLED SO AS TO BE WATERTIGHT.
2. COLLAR SIZE AND SPACING SHALL BE AS INDICATED WITHIN TABLE.

STANDARD CONSTRUCTION DETAIL #7-16
CONCRETE ANTI-SEEP COLLAR FOR PERMANENT BASINS OR TRAPS



BASIN SPILLWAY DETAIL

BASIN	A	B	C	D	E	VELOCITY	LINING
	(FT)	(FT)	(FT)	(FT)	(FT)	(FPS)	TYPE
001/CELLS	399.00	399.27	400.00	45.00	45.00	1.51	TRM-450
002	398.75	399.00	400.00	350.00	362.50	1.37	TRM-450

NOTE:
1. BASIN OUTLET PIPES SHALL BE CONTRUCTED WITH WATER TIGHT JOINTS.
2. BASIN BERM TO BE PLACED IN 8 INCH LIFTS AND COMPACTED TO 95% OF MODIFIED DRY DENSITY AS ESTABLISHED BY ASTMD-1557 PRIOR TO PROCEEDING TO THE NEXT LIFT.
3. SPILLWAY LINING TO BE PLACED FROM 3' INSIDE BASIN TO TOE OF SLOPE OUTSIDE OF BASIN.

BASIN SPILLWAY DETAIL

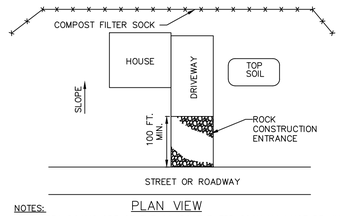
CONSTRUCTION SEQUENCE FOR PCSM BMPS

SITE SPECIFIC CONSTRUCTION SEQUENCE

1. REFER TO SHEET C6.10 FOR SITE-SPECIFIC CONSTRUCTION SEQUENCE.
2. ONCE ALL UPSTREAM MEASURES FOR THE BMP HAVE BEEN STABILIZED, THE INDIVIDUAL BMP MAY BE CONSTRUCTED PER THE SEQUENCES IDENTIFIED BELOW.

SEQUENCE OF CONSTRUCTION FOR CONVERSION OF SEDIMENT TRAP TO RAIN GARDEN MRC (MANAGED RELEASE CONCEPT)/ DETENTION BASIN

1. IF ANY UNFAVORABLE CONDITIONS ARE ENCOUNTERED DURING THE INSTALLATION OF THE BASINS (I.E. GROUNDWATER AND/OR BEDROCK PINNACLES OF CARBONATE BEDROCK, ETC.), THE OWNER/ENGINEER SHOULD BE NOTIFIED IMMEDIATELY SINCE THE PROPOSED BASINS MAY NEED TO BE RELOCATED TO A MORE SUITABLE LOCATION ON THE PROPERTY.
2. INSTALL TEMPORARY SEDIMENT CONTROL BMPS AS SHOWN ON THE PLANS.
3. EXISTING SUB-GRADE IN BIOINFILTRATION AREAS SHALL NOT BE COMPACTED OR SUBJECTED TO EXCESSIVE CONSRUCTION EQUIPMENT TRAFFIC.
4. INITIAL EXCAVATION CAN BE PERFORMED DURING ROUGH SITE GRADING BUT SHALL NOT BE CARRIED TO WITHIN ONE FEET OF THE FINAL BOTTOM ELEVATION. FINAL EXCAVATION SHOULD NOT TAKE PLACE UNTIL ALL DISTURBED AREAS IN THE DRAINAGE AREA HAVE BEEN STABILIZED. BASIN BED AREAS MAY BE USED AS TEMPORARY SEDIMENT FACILITIES PROVIDED THAT THE PROPOSED ELEVATION OF THE BMP SOIL IN THE BED IS 12 INCHES LOWER THAN THE BOTTOM ELEVATION OF THE SEDIMENT TRAP. IF SEDIMENT FACILITIES ARE LOCATED WITHIN 12 INCHES OF BMP ELEVATION, CONTRACTOR SHALL EXCAVATE MATERIAL TO A DEPTH 36 INCHES BELOW FINAL GRADE AND REPLACE WILL 12 INCHES OF CLEAN, LIGHTLY COMPACTED SOIL PRIOR TO PLACING PLANTING SOIL.
5. SEDIMENT SHALL BE FLUSHED FROM THE STORMWATER CONVEYANCE SYSTEM BEFORE CONVERSION MAY COMMENCE. THE SEDIMENT FACILITY MAY BE DEWATERED BY WAITING UNTIL THE WATER SURFACE IN THE FACILITY IS
6. UPON STABILIZATION OF THE TRIBUTARY AREA, WHERE 70% VEGETATION COVERAGE IS ACHIEVED, CONVERSION MAY COMMENCE. WHERE ACCUMULATION OF FINE MATERIALS AND/OR SURFACE PONDING IN THE GRADED BOTTOM HAS OCCURED, THIS MATERIAL SHALL BE REMOVED WITH LIGHT EQUIPMENT AND THE UNDERLYING SOILS SCARIFIED TO A MINIMUM DEPTH OF 6 INCHES WITH A YORK RAKE OR EQUIVALENT BY LIGHT TRACTOR.
7. SEDIMENT FACILITY STRUCTURES INCLUDING BAFFLES, CLEANOUT STAKES, AND OTHER NON-PERMANENT APPURTENANCES SHALL BE REMOVED FROM THE FACILITY. THE PERMANENT ORIFICE/WEIR(S) SHALL REMAIN PROTECTED UNTIL COMPLETION OF FACILITY CONVERSION.
8. BRING SUBGRADE OF BIOINFILTRATION AREA TO LINE, GRADE AND ELEVATIONS INDICATED. FILL AND LIGHTLY REGRADE ANY AREAS DAMAGED BY EROSION, PONDING OR TRAFFIC.
9. UPON COMPLETION OF THE SUBGRADE WORK, THE ENGINEER SHALL BE NOTIFIED AND SHALL INSPECT AT THE ENGINEER'S DISCRETION BEFORE PROCEEDING WITH INSTALLATION.
10. BMP SOIL SHALL BE PLACED IMMEDIATELY AFTER APPROVAL OF SUBGRADE. ANY ACCUMULATION OF DEBRIS OR SEDIMENT THAT TAKES PLACE AFTER APPROVAL OF SUBGRADE SHALL BE REMOVED PRIOR TO INSTALLATION OF PLANTING SOIL AT NO EXTRA COST TO THE OWNER.
11. INSTALL BMP SOIL IN 12 INCH MAXIMUM LIFTS AND DO NOT COMPACT. KEEP EQUIPMENT MOVING TO A MINIMUM. DO NOT OVER COMPACT. INSTALL PLANTING SOIL TO GRADES SHOWN ON PLANS.
12. PLANT TREES AND SHRUBS ACCORDING TO BASIN DETAILS AND NOTES.
13. AFTER INSTALLATION OF ERNST SEED MIX, STABILIZE THE BOTTOM OF THE BASINS WITH BIODEGRADABLE REVEGETATIVE MATTING TO ENSURE SEED MIX DOES NOT WASH AWAY PRIOR TO STABILIZATION.
14. PROTECT BASINS FROM SEDIMENT AT ALL TIMES. COMPOST FILTER SOCKS AND/OR OTHER APPROPRIATE MEASURES SHALL BE USED AT THE TOE OF THE SLOPES THAT ARE ADJACENT TO THE RAIN GARDENS TO PREVENT SEDIMENT FROM WASHING INTO THESE AREAS DURING SITE DEVELOPMENT.
15. WHEN SITE IS FULLY VEGETATED AND THE SOIL MANTLE IS STABILIZED THE PLAN DESIGNER SHALL BE NOTIFIED AND SHALL INSPECT THE BASIN DRAINAGE AREA AT THE ENGINEER'S DISCRETION BEFORE THE AREA IS BROUGHT ONLINE. THE SEDIMENT BASIN RISER AND REMAINING CONTROL DEVICES SHALL BE REMOVED, AND THE PERMANTNE ORIFICES/WEIRS SHALL BE OPENED FOR OPERATION.
16. CONTINUOUS MOISTURE FOR 4-6 WEEKS MUST BE INSURED TO ALLOW PROPER GERMINATION, IF RAIN DOES NOT OCCUR CONTRACTOR SHALL PROVIDE SUPPLEMENTAL IRRIGATION TO NEWLY SEEDED AREAS PER INSTRUCTIONS INCLUDED IN SEEDING SPECIFICATION.



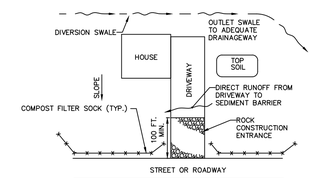
STREET OR ROADWAY

PLAN VIEW

NOTES:
THE AREA DOWNSLOPE OF THE COMPOST FILTER SOCK MAY NOT BE UNDER DEVELOPMENT OR OTHERWISE DISTURBED.

STANDARD CONSTRUCTION DETAIL #10-2
TYPICAL ON-LOT BMPs FOR LOT BELOW ROADWAY

NOT TO SCALE

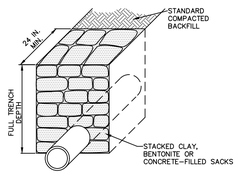


STREET OR ROADWAY

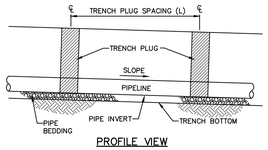
PLAN VIEW

NOTES:
THE UPSLOPE DIVERSION CHANNEL SHOULD BE INSTALLED WHEREVER THE LOT EXTENDS MORE THAN 150 FEET ABOVE THE ROADWAY OR WHERE RUNOFF FROM AREAS ABOVE THE LOT IS NOT OTHERWISE DIVERTED AWAY FROM THE LOT OR INTO A PROPOSED STORM SEWER INLET. THE CHANNEL SHOULD BE PROPERLY SIZED AND PROVIDED WITH A SUITABLE PROTECTIVE LINING. THE DESIGNER AND/OR CONTRACTOR MUST EXERCISE CAUTION TO PROTECT ALL DOWNSTREAM PROPERTY OWNERS WHEN SELECTING A DISCHARGE POINT FOR THIS CHANNEL.

STANDARD CONSTRUCTION DETAIL #10-1
TYPICAL ON-LOT BMPs FOR LOT ABOVE ROADWAY



SECTION VIEW



PROFILE VIEW

PA DEP EROSION CONTROL MANUAL TABLE 13.1
MAXIMUM SPACING AND MATERIALS FOR TRENCH PLUGS

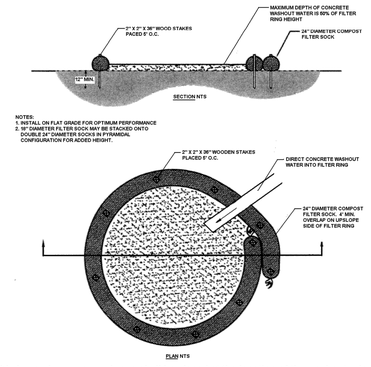
TRENCH SLOPE (%)	SPACING L (FT)	PLUG MATERIAL
< 5	1000	* CLAY, BENTONITE, OR CONCRETE FILLED SACKS
5 – 15	500	* CLAY, BENTONITE, OR CONCRETE FILLED SACKS
15 – 25	300	* CLAY, BENTONITE, OR CONCRETE FILLED SACKS
25 – 35	200	* CLAY, BENTONITE, OR CONCRETE FILLED SACKS
35 – 100	100	* CLAY, BENTONITE, OR CONCRETE FILLED SACKS
> 100	50	CEMENT BAGS (WETTED) OR MORTARED STONE

* TOPSOIL MAY NOT BE USED TO FILL SACKS

NOTES:
IMPERVIOUS TRENCH PLUGS ARE REQUIRED FOR ALL STREAM, RIVER, WETLAND, OR OTHER WATER BODY CROSSINGS.

STANDARD CONSTRUCTION DETAIL #13-4
TRENCH PLUG INSTALLATION

FIGURE 3.18
Typical Compost Sock Washout Installation

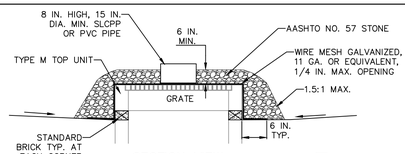


A suitable impervious geomembrane shall be placed at the location of the washout prior to installing the socks.
Adapted from Filtrexx

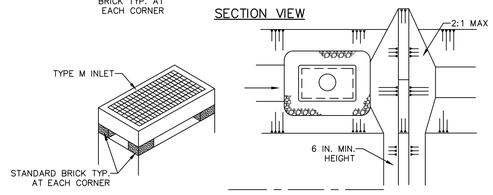
CONCRETE WASHOUT DETAIL

EROSION / SEDIMENT CONTROL PLAN STANDARD NOTES

1. ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED E&S PLAN. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.
2. AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.
3. AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
4. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION.
5. AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL.
6. CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPS SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS E&S PLAN.
7. AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS. THESE AREAS MUST BE CLEARLY MARKED AND FENCED OFF BEFORE CLEARING AND GRUBBING OPERATIONS BEGIN.
8. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN MAPS(S) IN THE AMOUNT NECESSARY TO COMPLETE THE FINISH GRADING OF ALL EXPOSED AREAS THAT ARE TO BE STABILIZED BY VEGETATION. EACH STOCKPILE SHALL BE PROTECTED IN THE MANNER SHOWN ON THE PLAN DRAWINGS. STOCKPILE HEIGHTS SHALL NOT EXCEED 35 FEET. STOCKPILE SLOPES SHALL BE 2H:1V OR FLATTER.
9. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE LOCAL CONSERVATION DISTRICT AND/OR THE REGIONAL OFFICE OF THE DEPARTMENT.
10. ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET 271.1, AND 287.1 ET. SEQ. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.
11. ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED.
12. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ON SITE IS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL MATERIAL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE BUT QUALIFIED AS CLEAN FILL DUE TO ANALYTICAL TESTING.
13. ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER UNDISTURBED VEGETATED AREAS.
14. VEHICLES AND EQUIPMENT MAY NEITHER ENTER DIRECTLY NOR EXIT DIRECTLY FROM THE SITE EXCEPT THROUGH A ROCK CONSTRUCTION ENTRANCE AS DESIGNATED ON THE PLAN.
15. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS SHALL BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND REFITTING MUST BE PERFORMED IMMEDIATELY. IF THE E&S BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
16. A LOG SHOWING DATES THAT E&S BMPS WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.
17. SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEPT INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
18. ALL SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS.
19. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES - 5 TO 12 INCHES ON COMPACTED SOILS --PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL.
20. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
21. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
22. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
23. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.
24. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
25. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
26. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED. SEEDED AREAS WITHIN 50 FEET OF A SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN.
27. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OR SUBAREA OF THE PROJECT, THE OPERATOR SHALL STABILIZE ALL DISTURBED AREAS. DURING NON-GERMINATING MONTHS, MULCH OR PROTECTIVE BLANKETING SHALL BE APPLIED AS DESCRIBED IN THE PLAN. AREAS NOT AT FINISHED GRADE, WHICH WILL BE REACTIVATED WITHIN 1 YEAR, MAY BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY STABILIZATION SPECIFICATIONS. THOSE AREAS WHICH WILL NOT BE REACTIVATED WITHIN 1 YEAR SHALL BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION SPECIFICATIONS.
28. PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION. CUT AND FILL SLOPES SHALL BE CAPABLE OF RESISTING FAILURE DUE TO SLUMPING, SLIDING, OR OTHER MOVEMENTS.
29. E&S BMPS SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.
30. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF THE E&S BMPS.
31. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER MANAGEMENT BMPS. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE BMPS SHALL BE STABILIZED IMMEDIATELY. IN ORDER TO ENSURE RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVAL/CONVERSIONS ARE TO BE DONE ONLY DURING THE GERMINATING SEASON.
32. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT TO SCHEDULE A FINAL INSPECTION.
33. FAILURE TO CORRECTLY INSTALL E&S BMPS, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE, OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF E&S BMPS MAY RESULT IN ADMINISTRATIVE, CIVIL, AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY THE DEPARTMENT AS DEFINED IN SECTION 602 OF THE PENNSYLVANIA CLEAN STREAMS LAW. THE CLEAN STREAMS LAW PROVIDES FOR UP TO $10,000 PER DAY IN CIVIL PENALTIES, UP TO $10,000 IN SUMMARY CRIMINAL PENALTIES, AND UP TO $25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.
34. CONCRETE WASH WATER SHALL BE HANDLED IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS. IN NO CASE SHALL IT BE ALLOWED TO ENTER ANY SURFACE WATERS OR GROUNDWATER SYSTEMS.
35. ALL CHANNELS SHALL BE KEPT FREE OF OBSTRUCTIONS INCLUDING BUT NOT LIMITED TO FILL, ROCKS, LEAVES, WOODY DEBRIS, ACCUMULATED SEDIMENT, EXCESS VEGETATION, AND CONSTRUCTION MATERIAL/WASTES.
36. SEDIMENT BASINS AND/OR TRAPS SHALL BE KEPT FREE OF ALL CONSTRUCTION WASTE, WASH WATER, AND OTHER DEBRIS HAVING POTENTIAL TO CLOG THE BASIN/TRAP OUTLET STRUCTURES AND/OR POLLUTE THE SURFACE WATERS.
37. SEDIMENT BASINS SHALL BE PROTECTED FROM UNAUTHORIZED ACTS BY THIRD PARTIES.
38. ANY DAMAGE THAT OCCURS IN WHOLE OR IN PART AS A RESULT OF BASIN OR TRAP DISCHARGE SHALL BE IMMEDIATELY REPAIRED BY THE PERMITTEE IN A PERMANENT MANNER SATISFACTORY TO THE MUNICIPALITY, LOCAL CONSERVATION DISTRICT, AND THE OWNER OF THE DAMAGED PROPERTY.
39. UPON REQUEST, THE APPLICANT OR HIS CONTRACTOR SHALL PROVIDE AN AS-BUILT (RECORD DRAWING) FOR ANY SEDIMENT BASIN OR TRAP TO THE MUNICIPAL INSPECTOR, LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.
40. EROSION CONTROL BLANKETING SHALL BE INSTALLED ON ALL SLOPES 3H:1V OR STEEPER WITHIN 50 FEET OF A SURFACE WATER AND ON ALL OTHER DISTURBED AREAS SPECIFIED ON THE PLAN MAPS AND/OR DETAIL SHEETS.
41. FILL MATERIAL FOR EMBANKMENTS SHALL BE FREE OF ROOTS, OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIALS.



SECTION VIEW



ISOMETRIC VIEW PLAN VIEW

NOTES:

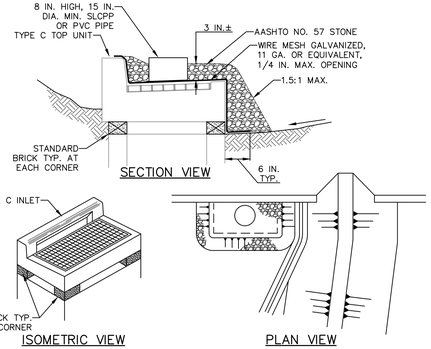
INLET PROTECTION SHALL NOT BE REQUIRED FOR INLETS TRIBUTARY TO SEDIMENT BASINS OR SEDIMENT TRAPS. ALTERNATE TYPE C INLET PROTECTION CAN BE USED ON ONE ACRE MAXIMUM DRAINAGE AREA WITH 15 IN. OVERFLOW PIPE AND 4 IN. HEAD.

BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS NOT LOCATED AT LOW POINTS. EARTHEN BERMS SHALL BE STABILIZED WITH VEGETATION AND MAINTAINED UNTIL ROADWAY IS STONED OR TRIBUTARY AREA IS PERMANENTLY VEGETATED. ROAD SUBBASE BERMS SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED.

INLETS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE HEIGHT OF THE STONE. DAMAGED INSTALLATIONS SHALL BE REPAIRED OR REPLACED WITHIN 24 HOURS OF INSPECTION.

FOR SYSTEMS DISCHARGING TO HQ OR EV SURFACE WATER, A 6 INCH THICK COMPOST LAYER SHALL BE SECURELY ANCHORED ON OUTSIDE AND OVER TOP OF STONE. COMPOST SHALL MEET THE STANDARDS IN TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

STANDARD CONSTRUCTION DETAIL #4-23
ALTERNATE TYPE M INLET PROTECTION - NOT AT GRADE



SECTION VIEW ISOMETRIC VIEW PLAN VIEW

NOTES:

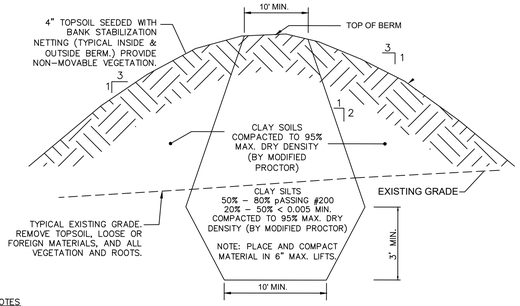
INLET PROTECTION SHALL NOT BE REQUIRED FOR INLETS TRIBUTARY TO SEDIMENT BASINS OR SEDIMENT TRAPS. ALTERNATE TYPE C INLET PROTECTION CAN BE USED ON ONE ACRE MAXIMUM DRAINAGE AREA WITH 15 IN. OVERFLOW PIPE AND 4 IN. HEAD.

BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS NOT LOCATED AT LOW POINTS. EARTHEN BERMS SHALL BE STABILIZED WITH VEGETATION AND MAINTAINED UNTIL ROADWAY IS STONED OR TRIBUTARY AREA IS PERMANENTLY VEGETATED. ROAD SUBBASE BERMS SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED.

INLETS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE HEIGHT OF THE STONE. DAMAGED INSTALLATIONS SHALL BE REPAIRED OR REPLACED WITHIN 24 HOURS OF INSPECTION.

FOR SYSTEMS DISCHARGING TO HQ OR EV SURFACE WATER, A 6 INCH THICK COMPOST LAYER SHALL BE SECURELY ANCHORED ON OUTSIDE AND OVER TOP OF STONE. COMPOST SHALL MEET THE STANDARDS IN TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

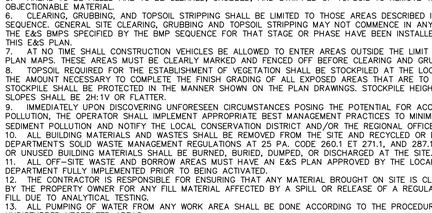
STANDARD CONSTRUCTION DETAIL #4-22
ALTERNATE TYPE C INLET PROTECTION - NOT AT GRADE



STANDARD BASIN BERM CONSTRUCTION NOTES

1. SITE PREPARATION - AREAS UNDER THE EMBANKMENT AND ANY STRUCTURES SHALL BE CLEARED, GRUBBED AND THE TOPSOIL STRIPPED TO REMOVE TREES. VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL. IN ORDER TO FACILITATE CLEAN-OUT AND RESTORATION, THE POOL AREA WILL BE CLEARED OF ALL BRUSH AND EXCESS TREES.
2. CUT OFF TRENCH - A CUT-OFF TRENCH WILL BE EXCAVATED ALONG THE BERM CENTERLINE BENEATH EARTH FILL EMBANKMENTS. THE MINIMUM DEPTH SHALL BE 3 FEET. THE CUT-OFF TRENCH SHALL EXTEND TO THE RISER CREST ELEVATION. THE MINIMUM BOTTOM WIDTH SHALL BE 8 FEET BUT WIDE ENOUGH TO PERMIT OPERATION OF COMPACTION EQUIPMENT. THE SIDE SLOPES SHALL BE NO STEEPER THEN 1:1. COMPACTION REQUIREMENTS SHALL BE THE SOME AS THOSE FOR EMBANKMENTS. THE TRENCH SHALL BE KEPT FREE OF STANDING WATER DURING THE BACKFILLING OPERATIONS.
3. EMBANKMENT - THE FILL MATERIAL SHALL BE TAKEN FROM SELECTED BORROW AREAS. IT SHALL BE FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES ROCKS OR OTHER OBJECTIONABLE MOTERIAL. AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. THE FILL MATERIAL SHOULD CONTAIN SUFFICIENT MOISTURE SO THAT IT CAN BE FORMED BY HAND INTO A BALL WITHOUT CRUMBLING. IF WATER CAN BE SQUEEZED OUT OF THE- BALL, IT IS TOO WET FOR PROPER COMPACTION. FILL MATERIAL MUST BE PLACED IN 6 TO 8 INCH LAYERS AND SHALL BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. COMPACTION MUST BE OBTAINED BY MECHANICAL SHEEP FOOT ROLLERS. THE EMBANKMENT SHALL BE CONSTRUCTED TO AN ELEVATION OF 5% HIGHER THAN THE DESIGN HEIGHT TO ALLOW FOR SETTLEMENT.

BASIN BERM DETAIL



SECTION Z-Z PLAN VIEW SECTION Y-Y

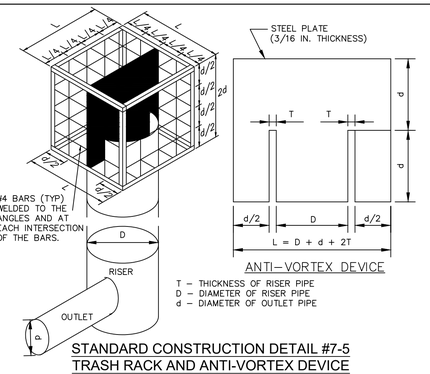
OUTLET NO.	PIPE DIA Pd (IN)	RIPRAP SIZE R-__	RIPRAP THICK. Rt (IN)	APRON LENGTH Ai (FT)	APRON INITIAL WIDTH Aiw (FT)	APRON TERMINAL WIDTH Atw (FT)
FES-1	30	5	27	24	7.5	17.5
FES-2, 3, 4, 5	36	3	9	14	9	15
FES-6, 7, 8, 9	18	4	18	18	4.5	12

NOTES:

ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.

ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.

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

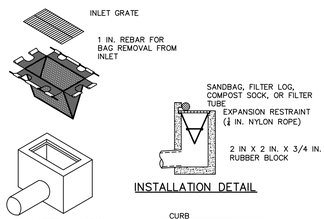


ANTI-VORTEX DEVICE

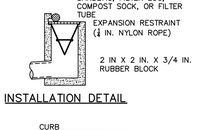
T - THICKNESS OF RISER PIPE
D - DIAMETER OF RISER PIPE
d - DIAMETER OF OUTLET PIPE

STANDARD CONSTRUCTION DETAIL #7-5
TRASH RACK AND ANTI-VORTEX DEVICE

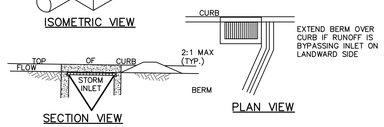
NOT TO SCALE



ISOMETRIC VIEW



INSTALLATION DETAIL



SECTION VIEW PLAN VIEW

NOTES:

MAXIMUM DRAINAGE AREA = 1/2 ACRE.

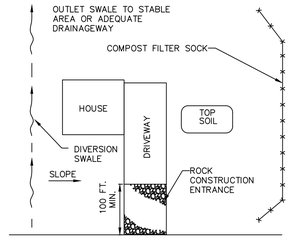
INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.

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 NO. 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 SO 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



PLAN VIEW

NOTES:

THE AREA DOWNSLOPE OF THE COMPOST FILTER SOCK MAY NOT BE UNDER DEVELOPMENT OR OTHERWISE DISTURBED.

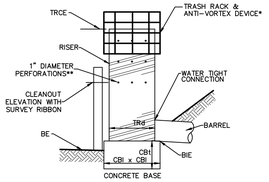
THE UPSLOPE DIVERSION CHANNEL SHOULD BE INSTALLED WHEREVER RUNOFF FROM AREAS ABOVE THE LOT ARE NOT OTHERWISE DIVERTED AWAY FROM THE LOT. THE CHANNEL SHOULD BE PROPERLY SIZED AND PROVIDED WITH A SUITABLE PROTECTIVE LINING. THE DESIGNER AND/OR CONTRACTOR MUST EXERCISE CAUTION TO PROTECT ALL DOWNSTREAM PROPERTY OWNERS WHEN SELECTING A DISCHARGE POINT FOR THIS CHANNEL.

IN AREAS WHERE SLOPE IS AT AN OBLIQUE ANGLE TO THE ROADWAY, BMPS SHALL BE ADJUSTED ACCORDINGLY.

DIVERSION CHANNEL MAY OUTLET TO ROADSIDE DITCH OR STORM SEWER SYSTEM, BUT NOT ONTO STREET OR ROADWAY.

STANDARD CONSTRUCTION DETAIL #10-3
TYPICAL ON-LOT BMPs FOR LOT ALONG ASCENDING OR DESCENDING ROADWAY

NOT TO SCALE



* SEE STANDARD CONSTRUCTION DETAIL #7-5, TRASH RACK AND ANTI-VORTEX DEVICE
** LOWEST ROW OF HOLES AT SEDIMENT CLEAN-OUT ELEVATION

BASIN NO.	RISER DIA TRd (IN)	RISER CREST ELEV TRCE (FT)	RISER MAT'L	PERFORATIONS LOWEST ROW OF HOLES ELEV (FT)	PERFORATIONS NO. HOLES ROWS**	PERFORATIONS NO. HOLES PER ROW	PERFORATIONS VERT. SPACING OF ROWS (FT)	CONCRETE BASE LENGTH AND WIDTH CBI (IN)	CONCRETE BASE THICKNESS CBI (IN)	BARREL INLET ELEV BIE (FT)

NOTES:

A MINIMUM OF 2-#8 REBAR SHALL BE PLACED AT RIGHT ANGLES AND PROJECTING THROUGH SIDES OF RISER TO ANCHOR IT TO CONCRETE BASE. REBAR SHALL PROJECT A MINIMUM OF 1/4 RISER DIAMETER BEYOND OUTSIDE OF RISER.

CONCRETE BASE SHALL BE POURED IN SUCH A MANNER SO AS TO INSURE THAT CONCRETE FILLS BOTTOM OF RISER TO INVERT OF THE LOWEST PERMANENT INVERT PIPE TO PREVENT RISER FROM BREAKING AWAY FROM THE BASE. MINIMUM BASE WIDTH EQUALS 2 TIMES RISER DIAMETER.

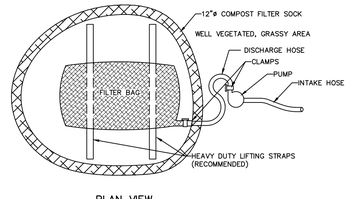
EMBEDDED SECTION OF ALUMINUM OR ALUMINIZED PIPE SHALL BE PAINTED WITH ZINC CHROMATE OR EQUIVALENT.

CLOGGED OR DAMAGED SPILLWAYS SHALL BE REPAIRED IMMEDIATELY. TRASH AND OTHER DEBRIS SHALL BE REMOVED FROM THE BASIN AND RISER.

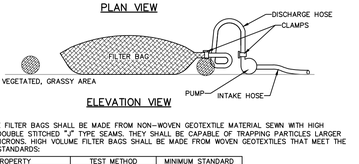
SEDIMENT SHALL BE REMOVED FROM THE BASIN WHEN SEDIMENT HAS ACCUMULATED TO THE PROPOSED SURVEY RIBBON ELEVATION ON THE CLEANOUT STAKE. SEDIMENT MUST BE DISPOSED OF IN ACCORDANCE WITH REQUIREMENTS ON THE E&S PLAN.

ALL PERMANENT ORIFICES OF THE PROPOSED OUTLET STRUCTURE SHALL BE BLOCKED AND SEALED WITH MARINE-GRADE PLYWOOD AND EPOXY OR GROUTED. TEMPORARY OUTLET HOLES SHALL BE DRILLED PRIOR TO INSTALLATION OF THE SEDIMENT BASIN, AND SHALL BE PERMANENTLY SEALED WITH GROUT OR EPOXY UPON CONVERSION OF THE BASIN TO A PERMANENT STORMWATER FACILITY. RISER CREST ELEVATION MAY BE ACHIEVED BY ADDING ENCLOSED A MARINE-GRADE PLYWOOD BOX AROUND THE OUTLET STRUCTURE, OR A CONCRETE RISER MAY BE ADDED TO THE TOP OF THE BOX.

STANDARD CONSTRUCTION DETAIL #7-7
SEDIMENT BASIN RISER AND CLEANOUT



PLAN VIEW



ELEVATION VIEW

NOTES:

LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RET

SEEDING NOTES:

TEMPORARY SEEDING :

1. 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.
2. DURING NON-GERMINATING PERIODS, ONLY MULCH MUST BE APPLIED AT THE RECOMMENDED RATES. AREAS MULCHED DURING THE NON-GERMINATING PERIODS, MUST BE LIMED, FERTILIZED, SEEDED, AND MULCHED IMMEDIATELY FOLLOWING THE END OF THE NON-GERMINATING PERIODS.
3. 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.
4. 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.
5. TEMPORARY SEEDING STEPS:
   A. APPLY AGRICULTURAL LIMESTONE AT A RATE OF ONE (1) TON PER ACRE. (5 POUNDS PER, 1000 SQUARE FEET)
   B. APPLY FERTILIZER AT THE RATE OF 50-50-50 PER ACRE.
   C. WORK THE LIMESTONE AND FERTILIZER INTO THE SOIL.
   D. 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 (75% PLS)
MAY 15 TO SEPT 15	1 LB./1000 SF	SUDAN GRASS (70% PLS)
SEPT 15 TO OCT 15	168 LB./AC	WINTER RYE (70% PLS)

   E. APPLY HAY OR STRAW MULCH (IN ACCORDANCE WITH SECTION NO. 4) AT A RATE OF THREE (3) TONS PER ACRE.
6. ALL SEED SHALL BE LABELED, DATED AND QUALITY CONSISTENT WITH SECTION NO. 2
7. % PLS – PURE LIVE SEED – IS THE MINIMUM REQUIREMENT FOR THE INSTALLED SEED MIXTURE. PLS IS DETERMINED AS THE PRODUCT OF THE % PURITY OF THE SEED AND THE % LIVE SEED.

PERMANENT SEEDING:

6. 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.
7. SEEDING SHALL BE DONE DURING PERIODS FROM APRIL 15TH TO OCTOBER PT, UNLESS OTHERWISE DIRECTED. IF SEEDING IS DONE AFTER OCTOBER 1ST, DORMANT SEED MUST BE USED AND DISTURBED AREAS MUST BE MULCHED.
8. DISTURBED FINAL GRADED AREAS AND DRAINAGE SWALES WILL BE PERMANENTLY SEEDED AS FOLLOWS:
   A. MINIMUM OF 4" OF TOPSOIL SHALL BE SPREAD OVER ALL AREAS TO BE SEEDED. 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.
   B. 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)).
   C. 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.
   D. 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.
   E. SMOOTH AND FIRM SEED BED WITH CULTIPACKER OR SIMILAR EQUIPMENT PRIOR TO SEEDING. APPLY SEED UNIFORMLY BY BROADCASTING, DRILLING OR HYDRO SEEDING. COVER SEEDS WITH 1/2" OF SOIL WITH SUITABLE EQUIPMENT.
   F. APPLY HAY OR STRAW MULCH (IN ACCORDANCE WITH SECTION NO. 4) AT A RATE OF THREE (3) TONS PER ACRE.

PERMANENT SEEDING FOR NORMAL MOWED 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% (75% PLS)
OCT 1 TO MARCH 1 & JUNE 1 TO AUG 1	– 2 LBS./1000 SF	– RED TOP* (75% PLS)

((*) 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 15 TO OCT 1	– 2 LBS./1000 SF	– KY31 TALL FESCUE 80% AND RYEGRASS 20% (75% PLS)

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.

4. 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 FERTILIZED 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- 10 FERTILIZER WILL BE WORKED INTO THE SURFACE AT A RATE OF 10 LBS. PER 1000 SF.
5. MULCHING: MULCHING SHALL BE APPLIED AS FOLLOWS:
   A. 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.
   B. 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.
6. % PLS – PURE LIVE SEED – IS THE MINIMUM REQUIREMENT FOR THE INSTALLED SEED MIXTURE. PLS IS DETERMINED AS THE PRODUCT OF THE % PURITY OF THE SEED AND THE % LIVE SEED.

UTILITY TRENCHING GUIDELINES:

1. CONSTRUCTION REQUIREMENTS –
   A. 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.
   B. WORK CREWS AND EQUIPMENT FOR TRENCHING, PLACEMENT OF PIPE, PLUG CONSTRUCTION AND BACKFILLING WILL BE SELF CONTAINED AND SEPARATE FROM CLEARING AND GRUBBING AND SITE RESTORATION AND STABILIZATION OPERATIONS.
   C. LIMIT DAILY TRENCH EXCAVATION TO THE LENGTH OF PIPE PLACEMENT, PLUG INSTALLATION AND BACKFILLING THAT CAN BE COMPLETED THE SAME DAY.
   D. 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 PADEP GUIDELINES
   E. 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.
2. 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:
   A. 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.
   B. 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.)

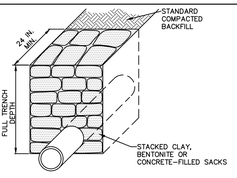
ENVIRONMENTAL DUE DILIGENCE: INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREENS, ANALYTICAL TESTING, ENVIRONMENTAL 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".

PROTECTION OF TOPSOIL.

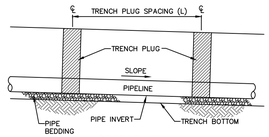
EACH LOT SHALL HAVE AT LEAST SIX INCHES OF TOPSOIL COVER, AFTER SETTLEMENT, OVER ALL OF THE SITE'S EXPOSED EARTH SURFACES. MORE THAN SIX INCHES MAY BE REQUIRED IF THE TOWNSHIP DETERMINES THAT A GREATER AMOUNT IS NEEDED FOR THE LONG-TERM VIABILITY OF CERTAIN PLANTINGS.

TOPSOIL MOVED AND STOCKPILED BY GRADING OPERATIONS SHALL BE REDISTRIBUTED AND STABILIZED FOLLOWING THE COMPLETION OF A PROJECT OR PROJECT PHASE. ALL EXPOSED EARTH SURFACES SHALL BE STABILIZED BY SEEDING OR SODDING WITHIN 60 DAYS.

ALL DISTURBED TOPSOIL ON SITE IS TO BE REDISTRIBUTED ON SITE IN AREAS NOT COVERED BY IMPERVIOUS SURFACES. NO REMOVAL OF TOPSOIL FROM A SITE IS ALLOWED UNLESS APPROVED BY THE MUNICIPALITY.



SECTION VIEW



PROFILE VIEW

PA DEP EROSION CONTROL MANUAL TABLE 13.1
MAXIMUM SPACING AND MATERIALS FOR TRENCH PLUGS

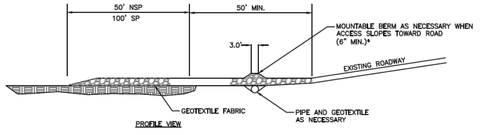
TRENCH SLOPE (%)	SPACING L (FT)	PLUG MATERIAL
< 5	1000	* CLAY, BENTONITE, OR CONCRETE FILLED SACKS
5 – 15	500	* CLAY, BENTONITE, OR CONCRETE FILLED SACKS
15 – 25	300	* CLAY, BENTONITE, OR CONCRETE FILLED SACKS
25 – 35	200	* CLAY, BENTONITE, OR CONCRETE FILLED SACKS
35 – 100	100	* CLAY, BENTONITE, OR CONCRETE FILLED SACKS
> 100	50	CEMENT BAGS (WETTED) OR MORTARED STONE

* TOPSOIL MAY NOT BE USED TO FILL SACKS

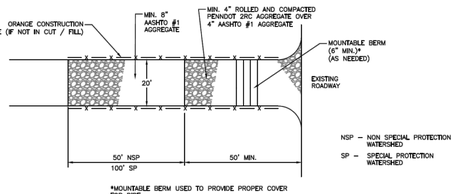
NOTES:

IMPERVIOUS TRENCH PLUGS ARE REQUIRED FOR ALL STREAM, RIVER, WETLAND, OR OTHER WATER BODY CROSSINGS.

STANDARD CONSTRUCTION DETAIL #13-4
TRENCH PLUG INSTALLATION



PROFILE VIEW



PLAN VIEW

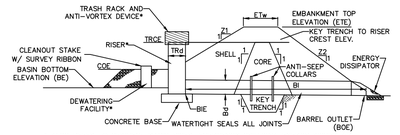
REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.

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, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED 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



* ALSO REFER TO SEDIMENT BASIN RISER, EMERGENCY SPILLWAY, ENERGY DISSIPATER, TRASH RACK AND ANTI-VORTEX DEVICE, AND SEDIMENT STORAGE DEWATERING FACILITY DETAILS.

RISER							BARREL			
BASIN/ TRAP NO.	Z1 (FT)	Z2 (FT)	DIA TRd (IN)	CREST ELEV TRCE (FT)	MAT'L	DIA Bd (IN)	INLET ELEV BIE (FT)	MAT'L	LENGTH (FT)	OUTLET ELEV BOE (FT)

EMBANKMENT				CLEANOUT ELEV COE (FT)	BOTTOM ELEV BE (FT)
TOP ELEV ETE (FT)	TOP WIDTH ETw (FT)	KEY TRENCH DEPTH (FT)	KEY TRENCH WIDTH (FT)		

NOTES:

SEDIMENT BASINS, INCLUDING ALL APPURTENANT WORKS, SHALL BE CONSTRUCTED TO THE DETAIL AND DIMENSIONS SHOWN ON THE E&S PLAN DRAWINGS.

AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO A DEPTH OF TWO FEET PRIOR TO ANY PLACEMENT AND COMPACTION OF EARTHEN FILL. FILL MATERIAL FOR THE EMBANKMENTS SHALL BE FREE OF ROOTS, OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIALS. THE EMBANKMENT SHALL BE COMPACTED IN LAYERED LIFTS OF NOT MORE THAN 6 TO 9 IN. THE MAXIMUM ROCK SIZE SHALL BE NO GREATER THAN 2/3 THE LIFT THICKNESS. UPON COMPLETION, THE EMBANKMENT SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED ACCORDING TO THE SPECIFICATIONS OF THE E&S PLAN DRAWINGS. TREES SHALL NOT BE PLANTED ON THE EMBANKMENT.

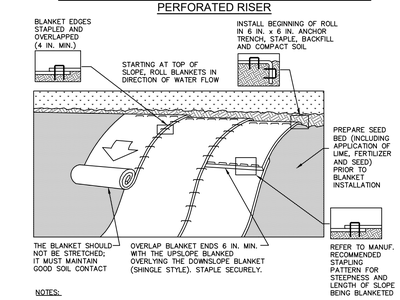
ACCESS SHALL BE PROVIDED FOR SEDIMENT REMOVAL AND OTHER REQUIRED MAINTENANCE ACTIVITIES.

A CLEAN OUT STAKE SHALL BE PLACED NEAR THE CENTER OF EACH BASIN. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED THE CLEAN OUT ELEVATION ON THE STAKE AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS. DISPOSE OF MATERIALS REMOVED FROM THE BASIN IN THE MANNER DESCRIBED IN THE E&S PLAN.

INSPECT ALL SEDIMENT BASINS ON AT LEAST A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. CHECK BASIN EMBANKMENTS, SPILLWAYS, AND OUTLETS FOR EROSION, PIPING AND SETTLEMENT. NECESSARY REPAIRS SHALL BE MADE IMMEDIATELY. DISPLACED RIPRAP WITHIN THE OUTLET ENERGY DISSIPATER SHALL BE REPLACED IMMEDIATELY. ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISTURBED AREAS SHALL BE STABILIZED INSIDE THE BASIN BEFORE CONVERSION TO A STORMWATER MANAGEMENT FACILITY. THE DEVICE SHOWN IN STANDARD CONSTRUCTION DETAIL #7-16 MAY BE USED TO DEWATER SATURATED SEDIMENT PRIOR TO ITS REMOVAL. ROCK FILTERS SHALL BE ADDED AS NECESSARY.

ALL BASIN EMBANKMENTS SHOULD BE COMPACTED BY SHEEPSFOOT OR PAD ROLLER. THE LOOSE LIFT THICKNESS SHOULD BE 9 INCHES OR LESS, DEPENDING ON ROLLER SIZE, AND THE MAXIMUM PARTICLE SIZE IS 6 INCHES OR LESS. FIVE PASSES OF THE COMPACTION EQUIPMENT OVER THE ENTIRE SURFACE OF EACH LIFT IS REQUIRED. EMBANKMENT COMPACTION TO VISIBLE NON-MOVEMENT IS ALSO REQUIRED.

STANDARD CONSTRUCTION DETAIL #7-6
SEDIMENT BASIN EMBANKMENT AND SPILLWAY DETAILS
PERFORATED RISER



NOTES:

SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN DRAWINGS PRIOR TO INSTALLING THE BLANKET.

PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE.

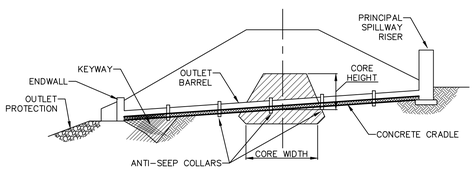
SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.

BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.

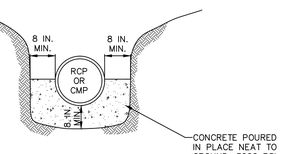
THE BLANKET SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

STANDARD CONSTRUCTION DETAIL #11-1
EROSION CONTROL BLANKET INSTALLATION



EMBANKMENT ALONG PRINCIPAL SPILLWAY

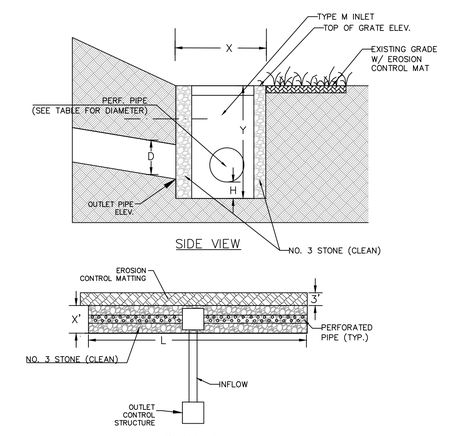


CROSS-SECTION AT OUTLET BARREL

NOTES:

A CONCRETE CRADLE MAY BE USED IN CONJUNCTION WITH ANTI-SEEP COLLARS AND/OR FILTER DIAPHRAGM.
ANTI-SEEP COLLAR NUMBER, SIZE AND SPACING SHALL BE AS SHOWN ELSEWHERE IN PLAN.

STANDARD CONSTRUCTION DETAIL #7-17
CONCRETE CRADLE FOR BASIN OR TRAP OUTLET BARREL



SIDE VIEW

PLAN VIEW

SWF OUTFALL	L	D	OUTFALL PIPE ELEV.	TOP OF GRATE ELEV.	PERF. PIPE DIAMETER	H	Y	X
#	FT	IN	--	--	IN	FT	FT	FT
002	120	48	386.92	392.92	48	0.5	6.5	4

LEVEL SPEADER

CONSTRUCTION SEQUENCE FOR LEVEL SPREADER:

1. INSTALL AND MAINTAIN PROPER EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION AS PER THE PENNSYLVANIA EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL (MARCH 2000, OR LATEST EDITION).
2. EXCAVATE LEVEL SPREADER BOTTOM TO A UNIFORM, LEVEL SUBGRADE FREE FROM ROCKS AND DEBRIS. EXCAVATION EQUIPMENT SHOULD BE PLACED OUTSIDE THE LIMITS OF THE LEVEL SPREADER.
3. COMPLETELY WRAP LEVEL SPREADER WITH NONWOVEN GEOTEXTILE. (IF SEDIMENT AND/OR DEBRIS HAVE ACCUMULATED IN LEVEL SPREADER BOTTOM, REMOVE PRIOR TO GEOTEXTILE PLACEMENT.) GEOTEXTILE ROLLS SHOULD OVERLAP BY A MINIMUM OF 24 INCHES WITHIN THE TRENCH. FOLD BACK AND/OR CUT EXCESS GEOTEXTILE DURING STONE PLACEMENT.
4. INSTALL CONTINUOUSLY PERFORATED PIPE, OBSERVATION WELLS/INLETS, AND ALL OTHER LEVEL SPREADER STRUCTURES. CONNECT INCOMING PIPES TO STRUCTURES AS INDICATED ON PLANS.
5. PLACE UNIFORMLY GRADED, CLEAN-WASHED AGGREGATE IN 6-INCH LIFTS, LIGHTLY COMPACTING BETWEEN LIFTS.
6. INSTALL EROSION CONTROL BLANKET DOWNSTREAM OF LEVEL SPREADER AND SECURE AS PER MANUFACTURER'S RECOMMENDATIONS.
7. DO NOT REMOVE EROSION AND SEDIMENT CONTROL MEASURES UNTIL SITE IS FULLY STABILIZED.

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

REVISIONS

Description	Date

CALL BEFORE YOU DIG!!!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR EXCAVATION AND DEMOLITION 10 WORKING DAYS IN DESIGN STAGE – STOP & CALL
Pennsylvania One Call System, Inc. 1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT UTILITY COMPANIES PRIOR TO ANY EXCAVATION.

BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

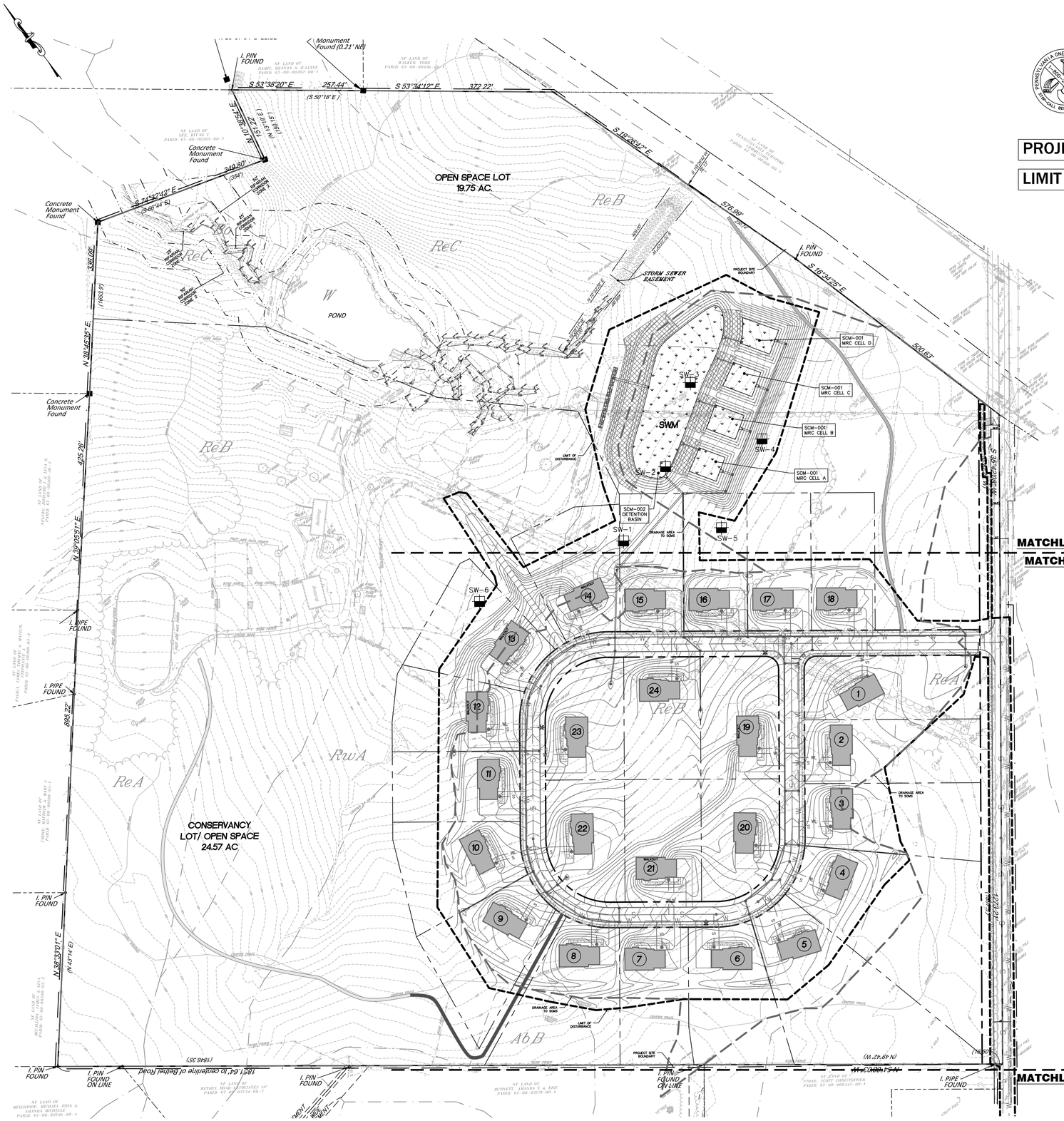
EROSION & SEDIMENT CONTROL DETAILS

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C6.3 ES DET.dwg

HCE Job	2064	Scale	N.T.S.	Designed	RC	Sheet	28 of 38
Date	4/9/2026						

Drawing No.
C6.5



ACT 187 AS AMENDED

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT THE UTILITY COMPANIES FOR MORE ACCURATE LOCATION PRIOR TO ANY EXCAVATION.

TO OBTAIN ADDITIONAL UTILITY INFORMATION OR TO ARRANGE FOR FIELD LOCATION OF EXISTING UTILITIES BEFORE EXCAVATION, CALL THE PENNSYLVANIA ONE CALL SYSTEM AT 1-800-242-1776. THE UTILITY COMPANIES SHOWN MAY OR MAY NOT HAVE UTILITY LINES IN THE AREA.

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

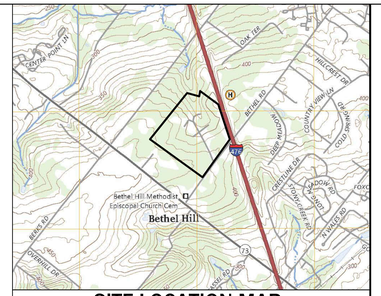
PROJECT BOUNDARY = 72.80 ACRES

LIMIT OF DISTURBANCE = 23.50 ACRES

CRITICAL STAGES OF PLAN IMPLEMENTATION
THE INSTALLATION AND/OR CONVERSION OR EROSION CONTROL FACILITIES TO STORMWATER FACILITIES, INCLUDING INFILTRATION BERMS AND INFILTRATION BASINS WITH MRC, SHALL BE OVERSEEN BY A LICENSED PROFESSIONAL ENGINEER OR THEIR DESIGNEE.

GENERAL NOTES

1. EXISTING BOUNDARY AND TOPOGRAPHIC INFORMATION IS TAKEN FROM PLAN TITLE "BOUNDARY AND TOPOGRAPHIC PLAN" PREPARED BY CARROLL ENGINEERING CORPORATION DATED 7/10/2025.
2. SITE GRADING SHALL NOT PROCEED UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
3. UNDER PENNSYLVANIA LAW, THE CONTRACTOR IS REQUIRED TO NOTIFY THE PENNSYLVANIA ONE-CALL SYSTEM AT 1-800-242-1776 PRIOR TO THE START OF HIS WORK, SO THAT ALL THE VARIOUS UNDERGROUND UTILITY OPERATORS WILL BE ABLE TO LOCATE THEIR OWN UTILITIES.
4. THERE ARE NO HQ OR EV WATERSHEDS LOCATED WITHIN THE PROJECT AREA.
5. THERE ARE NO INFILTRATION BMPS LOCATED OUTSIDE PROPOSED GRADING AREAS.
6. THE EXISTING SITE IS NOT UNDERLAIN BY ANY NATURALLY OCCURRING GEOLOGIC FORMATIONS OR SOIL CONDITIONS WHICH COULD CAUSE POLLUTION DURING EARTH DISTURBANCE. THEREFORE, NO LOCATIONS ARE IDENTIFIED ON THIS PLAN AND NO DETAILS ARE PROVIDED FOR DISPOSAL OF SUCH MATERIAL.
7. NO PERSON SHALL MODIFY, REMOVE, FILL, LANDSCAPE, OR ALTER ANY STORMWATER MANAGEMENT (SWM) BEST MANAGEMENT PRACTICES (BMPs), FACILITIES, AREAS, OR STRUCTURES UNLESS IT IS PART OF AN APPROVED MAINTENANCE PROGRAM AND WRITTEN APPROVAL OF THE TOWNSHIP HAS BEEN OBTAINED.
8. NO PERSON SHALL PLACE ANY STRUCTURE, FILL, LANDSCAPING, OR VEGETATION INTO A STORMWATER FACILITY OR BMP OR WITHIN A DRAINAGE EASEMENT WHICH WOULD LIMIT OR ALTER THE FUNCTIONING OF THE STORMWATER FACILITY OR BMP WITHOUT THE WRITTEN APPROVAL OF THE TOWNSHIP.



SITE LOCATION MAP

REFERENCE: LANSDALE U.S.G.S. QUADRANGLE MAP SCALE: 1"=2,000'

APPLICANT:
HALLMARK BUILDING GROUP INC.
865 EASTON ROAD, SUITE 320
WARRINGTON, PA 18976

PCSM LEGEND

- LIMIT OF DISTURBANCE
- PROJECT SITE BOUNDARY
- SOIL TYPE BOUNDARY
- SOIL TYPE
- PROPOSED CONTOUR
- DRAINAGE AREA TO PSCM BMP
- LANDLOK TRM-450 BLANKET
- BMP SOIL MIX / ERNMX-180 RAIN GARDEN SEED MIX
- SW-1 SOIL/INFILTRATION TEST LOCATION

LIMITATIONS OF PENNSYLVANIA SOILS PERTAINING TO EARTHMOVING PROJECTS

SOIL NAME	CUTBANKS CAVE	CORROSIVE TO CONCRETE\STEEL	DROUGHTY	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE\ SEASONAL HIGH WATER TABLE	HYDRIC\ HYDRIC INCLUSIONS	LOW STRENGTH / LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK - SWELL	POTENTIAL SINKHOLE	PONDING	WETNESS
Abbottstown	X	C/S		X		X	X	X	X	X	X	X				X
Bowmansville	X	C/S			X	X	X	X	X	X	X	X				X
Croton	X	C/S		X		X	X	X	X	X	X	X			X	X
Readington	X	C/S		X		X	X	X	X	X	X	X				X
Rowland	X	C/S		X	X	X	X	X	X	X	X	X				X

SOIL RESOLUTIONS:
CUTBANKS CAVE: PROVIDE SHORING DURING EXCAVATION
CORROSIVE TO STEEL/CONCRETE: PROVIDE CATHODIC PROTECTION FOR CONCRETE AND STEEL
DROUGHTY: PROVIDE WATER TRUCK DURING PERIODS OF DROUGHT AND DRY SOIL CONDITIONS
EASILY ERODIBLE: PROVIDE AN EROSION CONTROL BLANKET ON STEEP SLOPES AND MAINTAIN EXISTING VEGATIVE COVER IN NON-DISTURBED AREAS
DEPTH TO SATURATED ZONE/SEASONAL HIGH WATER TABLE: PROVIDE PUMPED WATER FILTER BAGS WHERE A SATURATED ZONE OR SHWT IS ENCOUNTERED
HYDRIC/HYDRIC INCLUSIONS: STRIP EXISTING TOPSOIL TO INDICATING DEPTH, IMPORT SUITABLE FILL FOR CONSTRUCTION, AND PROVIDE ADEQUATE SITE GRADING
LOW STRENGTH/LANDSLIDE PRONE: IMPORT SUITABLE FILL FOR TOPSOIL STOCKPILE AND PROVIDE SHORING DURING EXCAVATION
SLOW PERCOLATION: REPLACE SOIL WITH SUITABLE FILL FOR BETTER PERCOLATION RESULTS
PIPING: PROVIDE CATHODIC PROTECTION FOR PIPES
POOR SOURCE OF TOPSOIL: IMPORT SUITABLE FILL FOR TOPSOIL
FROST ACTION: PROVIDE CAPILLARY FLOW PATH BREAKS IN SOILS
SHRINK-SWELL: COMPACT TO REQUIRED DRY DENSITY OR REMOVE AND REPLACE WITH SUITABLE MATERIAL
PONDING: PUMP STANDING WATER THROUGH FILTER BAG DURING CONSTRUCTION, DESIGN SITE FOR POSITIVE DRAINAGE
POTENTIAL SINKHOLE: LIMIT EXPOSURE TO PONDED WATER/REPAIR SINKHOLES AS NOTED/CONSULT GEOTECHNICAL ENGINEER
WETNESS: MINIMIZE SOIL COMPACTION FOR INCREASED INFILTRATION OF WATER INTO THE SOIL AND PROVIDE ADEQUATE SITE GRADING

SOIL TYPES

Sym	Name	Hydric (Y/N)	Depth to Bedrock (in.)	Depth to Water Table (in.)	HSG
AbB	Abbottstown Silt Loam, 3 to 8 Percent Slopes	N	40-60	6-18	D
Bo	Bowmansville-Knauers Silt Loams	Y	72-99	0-18	C/D
CrA	Croton Silt Loam, Occasionally Ponded, 0 to 3 Percent Slopes	Y	40-60	0-6	D
ReA	Readington silt loam, 0 to 3 percent slopes	N	40-70	18-36	C
ReB	Readington silt loam, 3 to 8 percent slopes	N	40-60	18-36	C
ReC	Readington silt loam, 8 to 15 percent slopes	N	40-70	18-36	C
RwA	Rowland Silt Loam, 0 to 3 Percent Slopes	N	60-99	18-36	C
UryB	Urban Land Readington Complex, 0 to 8 Percent Slopes	N	40-70	18-36	C

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

REVISIONS		
	Date	Description

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 THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT THE UTILITY COMPANIES FOR MORE ACCURATE LOCATION PRIOR TO ANY EXCAVATION.

BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

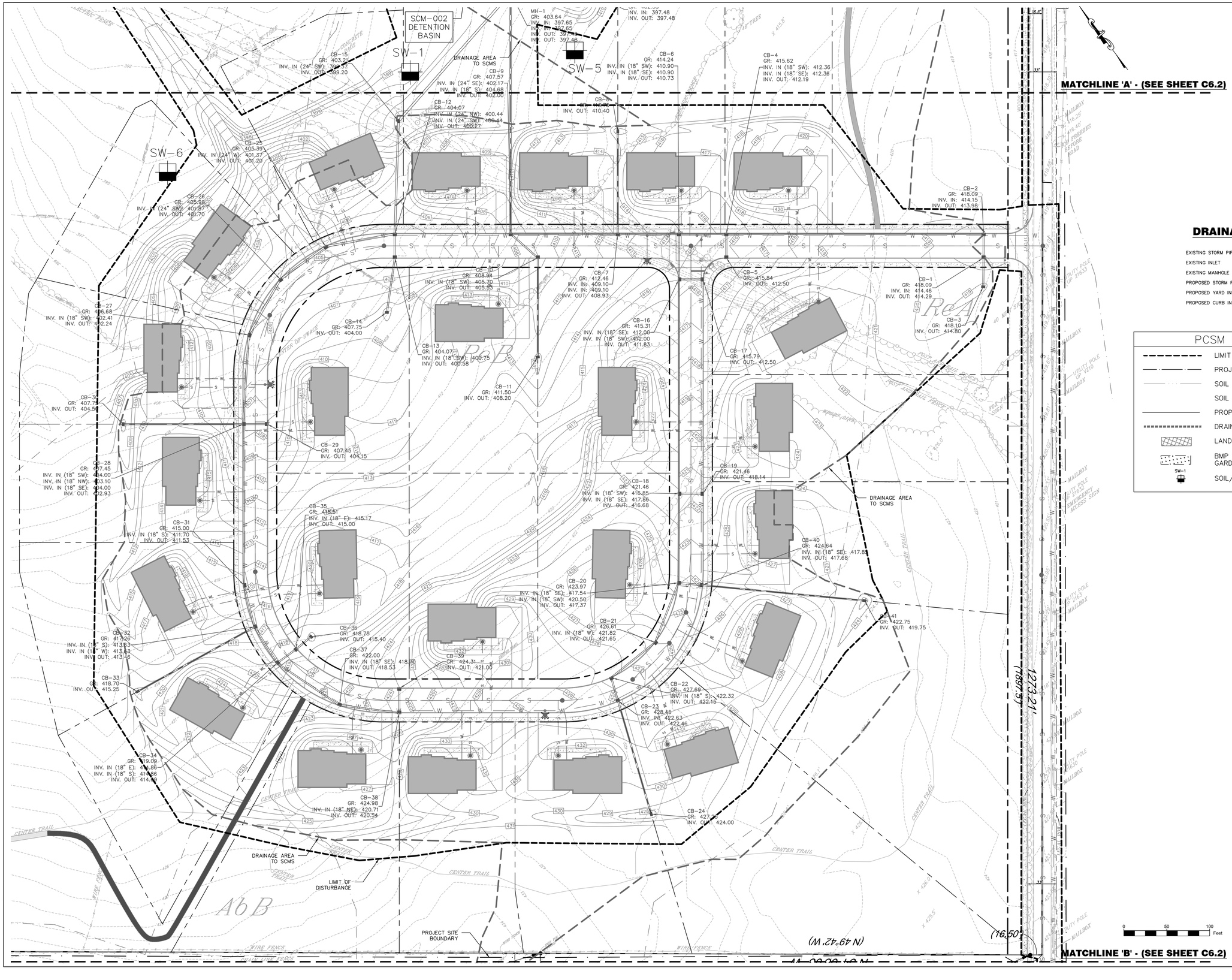
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

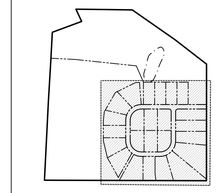
ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C6.6 PCSM.dwg

HCE Job	2064	Date	4/9/2026	Scale	1"=100'
Designed	RC	Sheet	29	of	38

Drawing No.
C6.6





KEY MAP
SCALE: 1:800

DRAINAGE LEGEND

- EXISTING STORM PIPE
- EXISTING INLET — Ex.Inlet
- EXISTING MANHOLE
- PROPOSED STORM PIPE
- PROPOSED YARD INLET
- PROPOSED CURB INLET

PCSM LEGEND

- LIMIT OF DISTURBANCE
- PROJECT SITE BOUNDARY
- SOIL TYPE BOUNDARY
- SOIL TYPE
- PROPOSED CONTOUR
- DRAINAGE AREA TO PSCM BMP
- LANDLOK TRM-450 BLANKET
- BMP SOIL MIX / ERNMX-180 RAIN GARDEN SEED MIX
- SW-1 SOIL/INFILTRATION TEST LOCATION

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

holmes cunningham ENGINEERING

REVISIONS		
	Description	Date

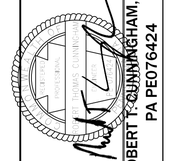
CALL BEFORE YOU DIG !!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
EXCAVATION AND DEMOLITION
10 WORKING DAYS IN DESIGN STAGE
— STOP & CALL —
Pennsylvania One Call System, Inc.
1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONFIRM ALL UTILITIES EXPOSED PRIOR TO ANY EXCAVATION.

BOLD FOX FARM

TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

DETAILED POST CONSTRUCTION STORMWATER MANAGEMENT PLAN



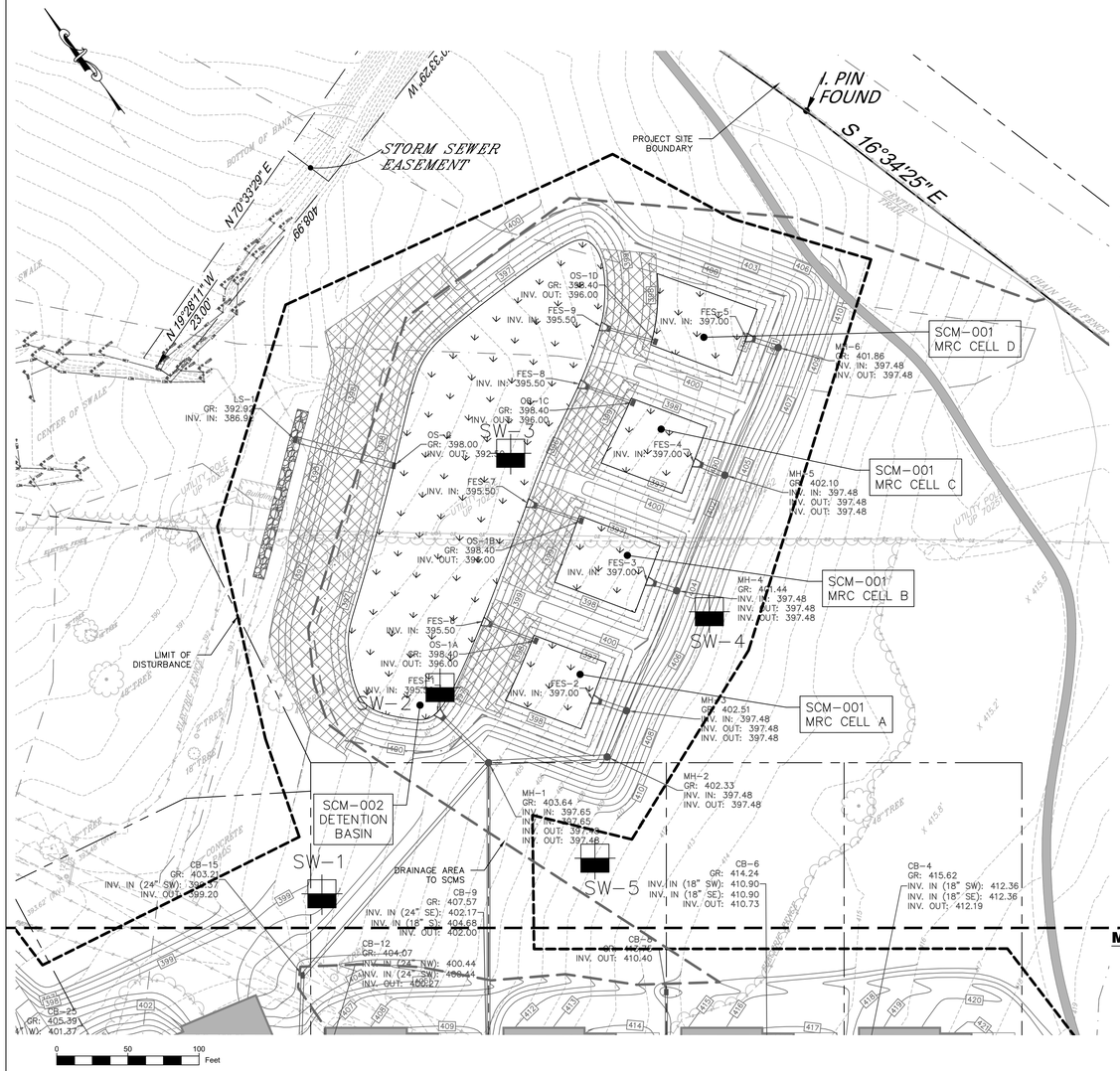
ROBERT T. CUNNINGHAM, P.E.
PA PE076424

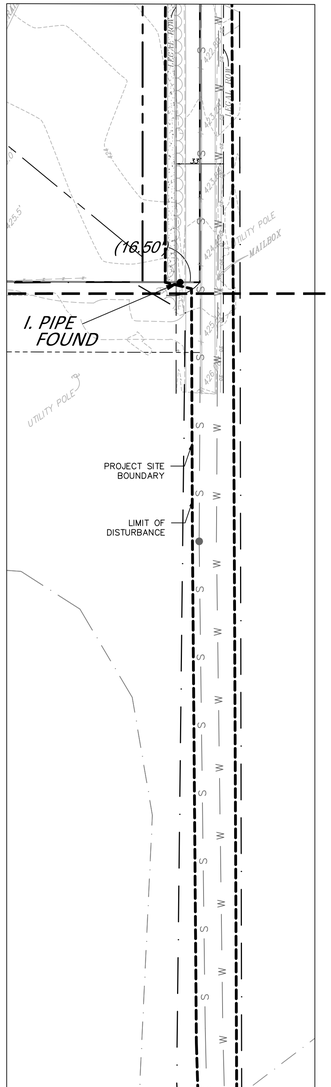
File No.
2064_C6.6 PCSM.dwg

HCE Job	2064	Scale	1"=50'	Designed	RC
Date	4/9/2026				

Sheet 30 of 38

Drawing No.
C6.7



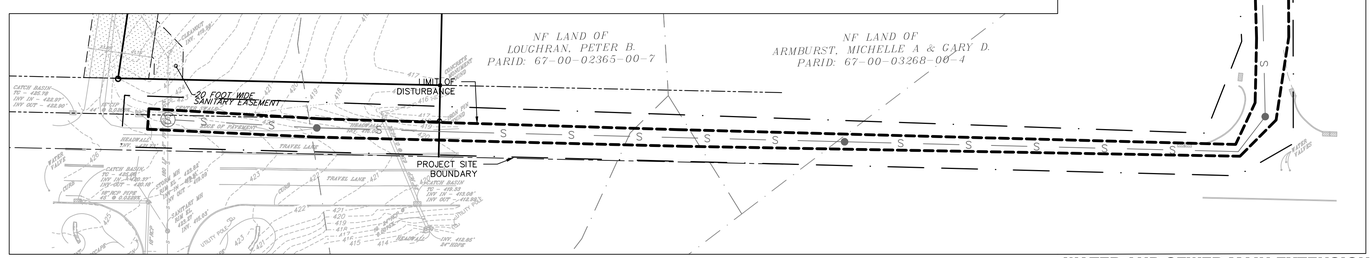


DRAINAGE LEGEND

EXISTING STORM PIPE
EXISTING INLET — Ex.Inlet
EXISTING MANHOLE
PROPOSED STORM PIPE
PROPOSED YARD INLET
PROPOSED CURB INLET

PCSM LEGEND

- LIMIT OF DISTURBANCE
- PROJECT SITE BOUNDARY
- SOIL TYPE BOUNDARY
- SOIL TYPE
- PROPOSED CONTOUR
- DRAINAGE AREA TO PSCM BMP
- LANDLOK TRM-450 BLANKET
- BMP SOIL MIX / ERNMX-180 RAIN GARDEN SEED MIX
- SW-1 SOIL/INFILTRATION TEST LOCATION



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

REVISIONS

Date	Description

CALL BEFORE YOU DIG!!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION AREAS AND
10 WORKING DAYS IN DESIGN STAGE
— STOP & CALL —
Pennsylvania One Call System, Inc.
1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT ALL UTILITIES COMPANIES PRIOR TO ANY EXCAVATION.

BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

DETAILED POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C6.6 PCSM.dwg

HCE Job	2064	Scale	1"=50'	Sheet	31 of 38
Date	4/9/2026	Designed	RC		

Drawing No.
C6.8

SEEDING NOTES:

TEMPORARY SEEDING :

1. 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.
2. DURING NON-GERMINATING PERIODS, ONLY MULCH MUST BE APPLIED AT THE RECOMMENDED RATES. AREAS MULCHED DURING THE NON-GERMINATING PERIODS, MUST BE LIMED, FERTILIZED, SEEDED, AND MULCHED IMMEDIATELY FOLLOWING THE END OF THE NON-GERMINATING PERIODS.
3. 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.
4. 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.
5. TEMPORARY SEEDING STEPS:
   A. APPLY AGRICULTURAL LIMESTONE AT A RATE OF ONE (1) TON PER ACRE. (5 POUNDS PER, 1000 SQUARE FEET)
   B. APPLY FERTILIZER AT THE RATE OF 50-50-50 PER ACRE.
   C. WORK THE LIMESTONE AND FERTILIZER INTO THE SOIL.
   D. 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.
6. ALL SEED SHALL BE LABELED, DATED AND QUALITY CONSISTENT WITH SECTION NO. 2

PERMANENT SEEDING:

1. 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.
2. SEEDING SHALL BE DONE DURING PERIODS FROM APRIL 15TH TO OCTOBER PT, UNLESS OTHERWISE DIRECTED. IF SEEDING IS DONE AFTER OCTOBER 1", DORMANT SEED MUST BE USED AND DISTURBED AREAS MUST BE MULCHED.
3. DISTURBED FINAL GRADED AREAS AND DRAINAGE SWALES WILL BE PERMANENTLY SEEDED AS FOLLOWS:
   A. MINIMUM OF 4" OF TOPSOIL SHALL BE SPREAD OVER ALL AREAS TO BE SEEDED. 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.
   B. 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)).
   C. 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.
   D. 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.
   E. SMOOTH AND FIRM SEED BED WITH CULTIPACKER OR SIMILAR EQUIPMENT PRIOR TO SEEDING. APPLY SEED UNIFORMLY BY BROADCASTING, DRILLING OR HYDRO SEEDING. COVER SEEDS WITH '/2" OF SOIL WITH SUITABLE EQUIPMENT.
   F. APPLY HAY OR STRAW MULCH (IN ACCORDANCE WITH SECTION NO. 4) AT A RATE OF THREE (3) TONS PER ACRE.

PERMANENT SEEDING FOR NORMAL MOWED LAWN AREAS:

SEASON	RATE	TYPE
MARCH 1 TO JUNE 1 & AUG 15 TO OCT 1 AND RED TOP 12%	2 LBS./1000 SF	KY31 TALL FESCUE
OCT 1 TO MARCH 1 & JUNE 1 TO AUG 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 AND RYEGRASS 20%	2 LBS./1000 SF	KY31 TALL FESCUE 80%

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.

4. 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 FERTILIZED 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- TO FERTILIZER WILL BE WORKED INTO THE SURFACE AT A RATE OF 10 LBS. PER 1000 SF.
5. HYDRO SEEDING: LIME AND SEED SHALL BE AS SPECIFIED ABOVE, AND FERTILIZER SHALL BE APPLIED AT A RATE OF 40-80. GRASS SEED 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.
6. MULCHING: MULCHING SHALL BE APPLIED AS FOLLOWS:
   A. 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.
   B. 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.

CONSTRUCTION SEQUENCE FOR PCSM BMPS

SITE SPECIFIC CONSTRUCTION SEQUENCE

1. REFER TO SHEET C6.13 FOR SITE-SPECIFIC CONSTRUCTION SEQUENCE.
2. ONCE ALL UPSTREAM MEASURES FOR THE BMP HAVE BEEN STABILIZED, THE INDIVIDUAL BMP MAY BE CONSTRUCTED PER THE SEQUENCES IDENTIFIED BELOW.

SEQUENCE OF CONSTRUCTION FOR CONVERSION OF SEDIMENT TRAP TO VEGETATED INFILTRATION BASIN (MANAGED RELEASE CONCEPT)/ DETENTION BASIN

1. IF ANY UNFAVORABLE CONDITIONS ARE ENCOUNTERED DURING THE INSTALLATION OF THE BASINS (I.E. GROUNDWATER AND/OR BEDROCK PINNACLES OF CARBONATE BEDROCK, ETC.), THE OWNER/ENGINEER SHOULD BE NOTIFIED IMMEDIATELY SINCE THE PROPOSED BASINS MAY NEED TO BE RELOCATED TO A MORE SUITABLE LOCATION ON THE PROPERTY.
2. INSTALL TEMPORARY SEDIMENT CONTROL BMPS AS SHOWN ON THE PLANS.
3. EXISTING SUB-GRADE IN BIOINFILTRATION AREAS SHALL NOT BE COMPACTED OR SUBJECTED TO EXCESSIVE CONSRUCTION EQUIPMENT TRAFFIC.
4. INITIAL EXCAVATION CAN BE PERFORMED DURING ROUGH SITE GRADING BUT SHALL NOT BE CARRIED TO WITHIN ONE FEET OF THE FINAL BOTTOM ELEVATION. FINAL EXCAVATION SHOULD NOT TAKE PLACE UNTIL ALL DISTURBED AREAS IN THE DRAINAGE AREA HAVE BEEN STABILIZED. BASIN BED AREAS MAY BE USED AS TEMPORARY SEDIMENT FACILITIES PROVIDED THAT THE PROPOSED ELEVATION OF THE BMP SOIL IN THE BED IS 12 INCHES LOWER THAN THE BOTTOM ELEVATION OF THE SEDIMENT TRAP. IF SEDIMENT FACILITIES ARE LOCATED WITHIN 12 INCHES OF BMP ELEVATION, CONTRACTOR SHALL EXCAVATE MATERIAL TO A DEPTH 36 INCHES BELOW FINAL GRADE AND REPLACE WILL 12 INCHES OF CLEAN, LIGHTLY COMPACTED SOIL PRIOR TO PLACING PLANTING SOIL.
5. SEDIMENT SHALL BE FLUSHED FROM THE STORMWATER CONVEYANCE SYSTEM BEFORE CONVERSION MAY COMMENCE. THE SEDIMENT FACILITY MAY BE DEWATERED BY WAITING UNTIL THE WATER SURFACE IN THE FACILITY IS
6. UPON STABILIZATION OF THE TRIBUTARY AREA, WHERE 70% VEGETATION COVERAGE IS ACHIEVED, CONVERSION MAY COMMENCE. WHERE ACCUMULATION OF FINE MATERIALS AND/OR SURFACE PONDING IN THE GRADED BOTTOM HAS OCCURED, THIS MATERIAL SHALL BE REMOVED WITH LIGHT EQUIPMENT AND THE UNDERLYING SOILS SCARIFIED TO A MINIMUM DEPTH OF 6 INCHES WITH A YORK RAKE OR EQUIVALENT BY LIGHT TRACTOR.
7. SEDIMENT FACILITY STRUCTURES INCLUDING BAFFLES, CLEANOUT STAKES, AND OTHER NON-PERMANENT APPURTENANCES SHALL BE REMOVED FROM THE FACILITY. THE PERMANENT ORIFICE/WEIR(S) SHALL REMAIN PROTECTED UNTIL COMPLETION OF FACILITY CONVERSION.
8. BRING SUBGRADE OF BIOINFILTRATION AREA TO LINE, GRADE AND ELEVATIONS INDICATED. FILL AND LIGHTLY REGRADE ANY AREAS DAMAGED BY EROSION, PONDING OR TRAFFIC.
9. UPON COMPLETION OF THE SUBGRADE WORK, THE ENGINEER SHALL BE NOTIFIED AND SHALL INSPECT AT THE ENGINEER'S DISCRETION BEFORE PROCEEDING WITH INSTALLATION.
10. BMP SOIL SHALL BE PLACED IMMEDIATELY AFTER APPROVAL OF SUBGRADE. ANY ACCUMULATION OF DEBRIS OR SEDIMENT THAT TAKES PLACE AFTER APPROVAL OF SUBGRADE SHALL BE REMOVED PRIOR TO INSTALLATION OF PLANTING SOIL AT NO EXTRA COST TO THE OWNER.
11. INSTALL BMP SOIL IN 12 INCH MAXIMUM LIFTS AND DO NOT COMPACT. KEEP EQUIPMENT MOVING TO A MINIMUM. DO NOT OVER COMPACT. INSTALL PLANTING SOIL TO GRADES SHOWN ON PLANS.
12. PLANT TREES AND SHRUBS ACCORDING TO BASIN DETAILS AND NOTES.
13. AFTER INSTALLATION OF ERNST SEED MIX, STABILIZE THE BOTTOM OF THE BASINS WITH BIODEGRADABLE REVEGETATIVE MATTING TO ENSURE SEED MIX DOES NOT WASH AWAY PRIOR TO STABILIZATION.
14. PROTECT BASINS FROM SEDIMENT AT ALL TIMES. COMPOST FILTER SOCKS AND/OR OTHER APPROPRIATE MEASURES SHALL BE USED AT THE TOE OF THE SLOPES THAT ARE ADJACENT TO THE RAIN GARDENS TO PREVENT SEDIMENT FROM WASHING INTO THESE AREAS DURING SITE DEVELOPMENT.
15. WHEN SITE IS FULLY VEGETATED AND THE SOIL MANTLE IS STABILIZED THE PLAN DESIGNER SHALL BE NOTIFIED AND SHALL INSPECT THE BASIN DRAINAGE AREA AT THE ENGINEER'S DISCRETION BEFORE THE AREA IS BROUGHT ONLINE. THE SEDIMENT BASIN RISER AND REMAINING CONTROL DEVICES SHALL BE REMOVED, AND THE PERMANTNE ORIFICES/WEIRS SHALL BE OPENED FOR OPERATION.
16. CONTINUOUS MOISTURE FOR 4-6 WEEKS MUST BE INSURED TO ALLOW PROPER GERMINATION, IF RAIN DOES NOT OCCUR CONTRACTOR SHALL PROVIDE SUPPLEMENTAL IRRIGATION TO NEWLY SEEDED AREAS PER INSTRUCTIONS INCLUDED IN SEEDING SPECIFICATION.

BASIN MAINTENANCE SCHEDULE

BASINS ARE DESIGNED TO BECOME NATURALIZED OVER TIME AND WILL REQUIRE LESS MAINTENANCE AS TIME GOES ON.

MOWING - ESTABLISH AND MAINTAIN A NO-MOW ZONE THAT ENCOMPASSES THE BASIN FLOOR AND SIDE SLOPES. MOW THE NO-MOW ZONE 1X/YEAR TO A MINIMUM HEIGHT OF 6". (ANNUALLY IN LATE APRIL/ EARLY MAY).

INSPECTIONS - INSPECT BASIN AND NO-MOW ZONES FOR INVASIVE SPECIES SUCH AS PURPLE LOOSESTRIFE, PHRAGMITES, HONEYSUCKLE, ETC. (ANNUALLY IN JULY). IF INVASIVE SPECIES ARE FOUND REMOVE PER RECOMMENDED STANDARDS FOR SPECIFIC SPECIES FOLLOWING GUIDELINES BY PA DCNR (DEPT OF CONSERVATION & NATURAL RESOURCES).

CLEANING - REMOVE TRASH AND DEBRIS (JANUARY & APRIL) OR AS NEEDED.

BMP MAINTENANCE PLAN
NOTE: AN ANNUAL REPORT SHALL BE PREPARED AND RETAINED BY THE RESPONSIBLE PARTY STATING THE FOLLOWING MAINTENANCE HAS BEEN PERFORMED.

THE HOMEOWNERS ASSOCIATION IS RESPONSIBLE FOR MAINTENANCE OF THE STORMWATER CONVEYANCE SYSTEM, AND ALL OTHER PROPOSED BMP'S.

STORMWATER CONVEYANCE SYSTEM

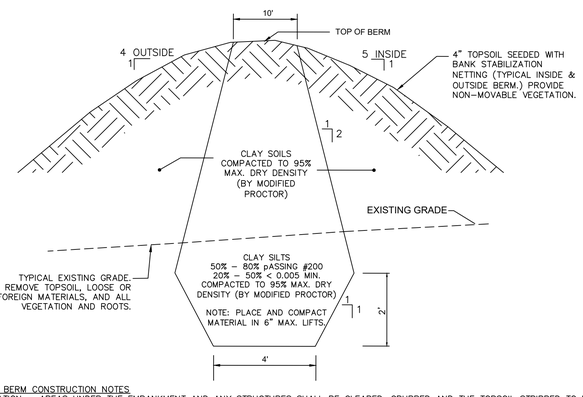
- CATCH BASINS, MANHOLES AND PIPES TO BE INSPECTED FOR CLOGGING AND EXCESSIVE DEBRIS AND SEDIMENT ACCUMULATION AT LEAST ANNUALLY AS WELL AS AFTER EVERY STORM EXCEEDING 1-INCH OF RAINFALL.
- ALL STRUCTURAL COMPONENTS MUST BE INSPECTED FOR CRACKING, SUBSIDENCE, BREACHING, WEARING, AND DETERIORATION AT LEAST ANNUALLY.

VEGETATED STORMWATER FACILITY/BASIN/RAIN GARDEN (MANAGED RELEASE CONCEPT):

- UPGRADIENT CATCH BASINS AND INLETS SHOULD BE INSPECTED AND CLEANED ANNUALLY, OR MORE OFTEN IF HISTORICAL MAINTENANCE RECORDS SUGGEST A MORE FREQUENT CLEANING.
- THE VEGETATION (FOR THE MRC BMP AND CONTRIBUTING DRAINAGE AREA) SHOULD BE MAINTAINED IN GOOD CONDITION, AND ANY BARE SPOTS REVEGETATED.
- CARE SHOULD BE TAKEN TO AVOID EXCESSIVE COMPACTION BY MOWERS. MOW ONLY AS APPROPRIATE FOR VEGETATIVE SPECIES.
- INSPECT AT LEAST TWO TIMES PER YEAR AFTER RUNOFF EVENTS GREATER THAN 0.8 INCH AND MAKE SURE THAT RUNOFF DRAINS DOWN WITHIN THE DESIGN PARAMETERS (THE LICENSED PROFESSIONAL ENGINEER SHOULD CLEARLY IDENTIFY WHAT THESE PARAMETERS ARE).
- AT LEAST TWO TIMES PER YEAR, OR MORE IF HISTORICAL MAINTENANCE INDICATE IT IS NECESSARY, INSPECT FOR ACCUMULATION OF SEDIMENT, DAMAGE TO OUTLET CONTROL STRUCTURES, EROSION, SIGNS OF WATER CONTAMINATION/SPILLS, AND INSTABILITY. LEAF LITTER NEEDS TO BE REMOVED ANNUALLY.
- AS NEEDED, REMOVE ACCUMULATED SEDIMENT AS REQUIRED TO MAINTAIN INFILTRATION THROUGH THE MRCS SOIL MEDIA AND TO MAINTAIN WATER QUALITY FUNCTIONALITY. RESTORE ORIGINAL CROSS SECTION. PROPERLY DISPOSE OF SEDIMENT.
- ALL MRC BMP COMPONENTS SHOULD BE MAINTAINED AS INDICATED IN THE STORMWATER BMP MANUAL.

TREE PLANTINGS

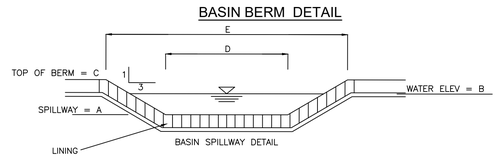
- TREES SHALL BE PLANTED IN ACCORDANCE WITH SPECIFICATIONS PREPARED BY THE PROJECT LANDSCAPE ARCHITECT.
- NEW PLANT MATERIAL SHALL BE GUARANTEED TO BE ALIVE AND IN VIGOROUS GROWING CONDITION FOR A PERIOD OF FIVE YEARS FOLLOWING CONSTRUCTION.THE HOMEOWNER'S ASSOCIATION SHALL ENSURE THAT ESCROW FUNDS ARE AVAILABLE FOR REPLACEMENT DURING THIS TIME PERIOD. TREES SHALL BE MAINTAINED AND PROTECTED FOR THE PROJECT LIFE (50 YEARS).
- TREES SHALL BE INSPECTED ANNUALLY AND PRUNED AS NEEDED TO ENSURE HEALTHY CONDITIONS.
- IF IT IS DETERMINED THAT THE TREE IS IN POOR HEALTH, A CERTIFIED ARBORIST SHALL BE CONSULTED IMMEDIATELY TO DETERMINE THE PROPER COURSE OF ACTION.



STANDARD BASIN BERM CONSTRUCTION NOTES

1. SITE PREPARATION - AREAS UNDER THE EMBANKMENT AND ANY STRUCTURES SHALL BE CLEARED, GRUBBED AND THE TOPSOIL STRIPPED TO REMOVE TREES. VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL. IN ORDER TO FACILITATE CLEAN-OUT AND RESTORATION, THE POOL AREA WLL BE CLEARED OF ALL BRUSH AND EXCESS TREES.
2. CUT OFF TRENCH - A CUT-OFF TRENCH WILL BE EXCAVATED ALONG THE BERM CENTERLINE BENEATH EARTH FILL EMBANKMENTS. THE MINIMUM DEPTH SHALL BE 2 FEET. THE CUT-OFF TRENCH SHALL EXTEND TO THE RISER CREST ELEVATION. THE MINIMUM BOTTOM WIDTH SHALL BE 4 FEET BUT WIDE ENOUGH TO PERMIT OPERATION OF COMPACTION EQUIPMENT. THE SIDE SLOPES SHALL BE NO STEEPER THEN 1:1. COMPACTION REQUIREMENTS SHALL BE THE SOME AS THOSE FOR EMBANKMENTS. THE TRENCH SHALL BE KEPT FREE OF STANDING WATER DURING THE BACKFILLING OPERATIONS.
3. EMBANKMENT - THE FILL MATERIAL SHALL BE TAKEN FROM SELECTED BORROW AREAS. IT SHALL BE FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES ROCKS OR OTHER OBJECTIONABLE MOTERIAL. AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. THE FILL MATERIAL SHOULD CONTAIN SUFFICIENT MOISTURE SO THAT IT CAN BE FORMED BY HAND INTO A BALL WITHOUT CRUMBLING. IF WATER CAN BE SQUEEZED OUT OF THE- BALL, IT IS TOO WET FOR PROPER COMPACTION. FILL MATERIAL MUST BE PLACED IN 6 TO 8 INCH LAYERS AND SHALL BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. COMPACTION MUST BE OBTAINED BY MECHANICAL SHEEP FOOT ROLLERS. THE EMBANKMENT SHALL BE CONSTRUCTED TO AN ELEVATION OF 5% HIGHER THAN THE DESIGN HEIGHT TO ALLOW FOR SETTLEMENT.

BASIN BERM DETAIL



BASIN	A	B	C	D	E	VELOCITY	LINING
	(FT)	(FT)	(FT)	(FT)	(FT)	(FPS)	TYPE
001/CELLS	399.00	399.27	400.00	45.00	45.00	1.51	TRM-450
002	398.75	399.00	400.00	350.00	362.50	1.37	TRM-450

NOTE:
1. BASIN OUTLET PIPES SHALL BE CONTRUCTED WITH WATER TIGHT JOINTS.
2. BASIN BERM TO BE PLACED IN 8 INCH LIFTS AND COMPACTED TO 95% OF MODIFIED DRY DENSITY AS ESTABLISHED BY ASTMD-1557 PRIOR TO PROCEEDING TO THE NEXT LIFT.
3. SPILLWAY LINING TO BE PLACED FROM 3' INSIDE BASIN TO TOE OF SLOPE OUTSIDE OF BASIN.

BASIN SPILLWAY DETAIL

MINIMIZE IMPERVIOUS AREAS
THE PROJECT HAS LIMITED IMPERVIOUS AREAS PROPOSED TO THE MAXIMUM EXTENT POSSIBLE. THE SITE PLAN HAS CLUSTERED THE DEVELOPMENT TO REDUCE THE EXTENT OF PROPOSED ROADWAYS AND THE DRIVEWAYS ARE THE MINIMUM ACCEPTABLE LENGTH.

PROTECTION OF EXISTING DRAINAGE FEATURES AND VEGETATION
THE LIMIT OF DISTURBANCE IS MINIMIZED TO REDUCE THE DISTURBANCE TO THE EXISTING FEATURES. THE EXISTING VEGETATION AROUND THE PERIMETER OF THE SITE IS TO REMAIN TO THE MAXIMUM EXTENT POSSIBLE. THERE IS NO PROPOSED DISTURBANCE TO DRAINAGE FEATURES.

MINIMIZE SOIL COMPACTION

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

MINIMIZE LAND CLEARING
THE PROJECT HAS LIMITED THE SOIL DISTURBANCE AREA TO THE MAXIMUM EXTENT POSSIBLE AND LAND CLEARING IS LIMITED TO THE AREAS SHOWN ON THE PLAN.

RE-VEGETATE DISTURBED AREAS
ALL DISTURBED AREAS WILL BE PERMANENTLY SEEDED OR LANDSCAPED. ADDITIONALLY, NEW TREES WILL BE PLANTED THROUGH THE SITE TO REDUCE THE THERMAL IMPACTS OF IMPERVIOUS SURFACES AND REDUCE RUNOFF VOLUME THROUGH TRANSPIRATION.

PROTECTION/UTILIZATION OF EXISTING DRAINAGE FEATURES AND VEGETATION
THE LIMIT OF DISTURBANCE IS MINIMIZED TO REDUCE THE DISTURBANCE TO THE EXISTING FEATURES. THERE ARE NO NOTABLE DRAINAGE FEATURES ON-SITE. THE EXISTING VEGETATION AROUND THE PERIMETER OF THE SITE IS TO REMAIN TO THE MAXIMUM EXTENT POSSIBLE.

MINIMIZE SOIL COMPACTION
THE PROJECT HAS LIMITED THE SOIL DISTURBANCE AREA. ADDITIONALLY, THE SOIL WILL BE MINIMALLY COMPACTED IN NON-STRUCTURAL AREAS. THIS WILL HELP REDUCE RUNOFF FROM THESE AREAS AND INCREASE THE INFILTRATION CAPACITY OF THE SOIL.

RECYCLING/ DISPOSAL OF MATERIALS
THE CONSTRUCTION WASTES ANTICIPATED INCLUDE DEMOLITION MATERIALS FROM THE BUILDING AND SITE DEMOLITION AND EXCESS BUILDING MATERIAL SUCH AS CONCRETE, WOOD, ETC.

ANTICIPATED POST-CONSTRUCTION WASTES INCLUDE LEAF & BRANCH REFUSE FROM PLANTINGS AND HOUSEHOLD WASTE. ALL WASTE SHALL BE COLLECTED FOR PICKUP AND DISPOSAL BY A WASTE COLLECTION COMPANY REGISTERED WITH THE TOWNSHIP.

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.

SEQUENCE OF CONSTRUCTION

NOTES:

- AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES (INCLUDING CLEARING AND GRUBBING), THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL OR THEIR DESIGNEE, AND A REPRESENTATIVE FROM THE MONTGOMERY COUNTY CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.
- UPON INSTALLATION OR STABILIZATION OF ALL PERIMETER SEDIMENT CONTROL BMPS AND AT LEAST 3 DAYS PRIOR TO PROCEEDING WITH THE BULK EARTH DISTURBANCE ACTIVITIES, THE PERMITTEE OR CO-PERMITTEE SHALL PROVIDE NOTIFICATION TO THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT.
- AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
- ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED BY THE MONTGOMERY COUNTY CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION. EACH STEP OF THE SEQUENCE SHALL BE COMPLETED BEFORE PROCEEDING TO THE NEXT STEP, EXCEPT WHERE NOTED.
- CESSATION OF EARTHMOVING AND/OR OTHER CONSTRUCTION ACTIVITY FOR FOUR (4) DAYS OR LONGER REQUIRES TEMPORARY STABILIZATION OF THE SITE. DISTURBED AREAS SHALL BE SEEDED AND MULCHED IN ACCORDANCE WITH THE TEMPORARY SEEDING 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.

SEQUENCE OF CONSTRUCTION

1. CONTACT THE MONTGOMERY COUNTY CONSERVATION DISTRICT (610-489-4506), WORCESTER TOWNSHIP, AND WORCESTER TWP. ENGINEER AT LEAST THREE (3) WORKING DAYS PRIOR TO SITE DISTURBANCE.
2. 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.
3. FLAG LIMITS OF DISTURBANCE (LOD) USING SURVEY STAKES, POSTS & ROPE, AND/OR ORANGE CONSTRUCTION FENCING. LOD AREAS ADJACENT TO TREE CANOPIES TO REMAIN SHALL BE BOUNDED BY TREE PROTECTION FENCING.
4. INSTALL CONSTRUCTION ENTRANCE AT SITE ACCESS, CONSTRUCTION STAGING AREA, STOCKPILE AREA, CONCRETE WASHOUT AREA, AND ALL COMPOST FILTER SOCK WHERE SHOWN ON THE PLAN. PROPOSED BMP AREAS SHALL BE PROTECTED BY CONSTRUCTION FENCING, TO PROTECT THEM FROM CONSTRUCTION TRAFFIC UNTIL ALL BMPS ARE CONSTRUCTED AND OPERATIONAL.
5. PRIOR TO DISTURBANCE WITHIN EACH TRIBUTARY AREA, INSTALL SEDIMENT BASIN (BASIN CONSTRUCTION IS REQUIRED TO BE INSPECTED BY THE LICENSED PROFESSIONAL. THE CONTRACTOR SHALL COORDINATE INSPECTIONS WITH THE INSPECTING LICENSED PROFESSIONAL; IN THE EVENT BEDROCK OR GROUNDWATER IS ENCOUNTERED, ALL EARTHWORK WILL NEED TO BE STOPPED, THE SITE WILL NEED TO BE STABILIZED, AND A REVISED PCSM PLAN WHICH ADDRESSES THE SITE CONSTRAINTS WILL NEED TO BE PREPARED, REVIEWED AND FOUND TO BE ACCEPTABLE BEFORE CONSTRUCTION MAY CONTINUE.) THE PERMANENT OUTFALL FROM EACH SEDIMENT BASIN AND RIPRAP SHALL BE INSTALLED WITH THE CONSTRUCTION OF THE SEDIMENT BASIN. THE TEMPORARY RISERS SHALL BE INSTALLED WITH THE CONSTRUCTION OF THE SEDIMENT BMP. ANY DIVERSION CHANNELS AND BERMS SHALL BE INSTALLED WHEN THE SEDIMENT BASIN IS INSTALLED. THE SEDIMENT BASIN IS EXPECTED TO PRODUCE ADDITIONAL MATERIAL AS PART OF ITS CONSTRUCTION; EXCESS MATERIAL SHALL BE STOCKPILED. TEMPORARY GRADING ASSOCIATED WITH THE SEDIMENT BASIN SHALL REMAIN IN PLACE UNTIL SITE STORMWATER CONVEYANCES ARE COMPLETE AND CAPABLE OF DIRECTING RUNOFF INTO THE SEDIMENT BASIN.
6. ENSURE ALL DISTURBED AREA IS TRIBUTARY TO A SEDIMENT FACILITY AND/OR PERIMETER CONTROL SUCH AS COMPOST FILTER SOCK PRIOR TO COMMENCEMENT OF CLEARING AND/OR EARTH DISTRUBANCE.
7. CLEAR WOODLANDS IN AREAS SHOWN AND STRIP TOPSOIL WITHIN PHASE LIMITS AND STOCKPILE WHERE SHOWN ON PLAN. ALL STRIPPED TOPSOIL STOCKPILES SHALL HAVE TEMPORARY SEEDING INSTALLED. WOODLAND AREAS PROPOSED TO REMAIN SHALL ONLY BE SUBJECT TO REMOVAL OF BRUSH AND INVASIVES.
8. ROUGH GRADE ROADWAYS. INSTALL TEMPORARY EROSION CONTROL BLANKETS IN AREAS OF STEEP SLOPE. BUILDING PADS MAY BE ROUGH GRADED AFTER COMPLETION OF ROADWAY ROUGH GRADING. REFER TO TEMPORARY SEEDING REQUIREMENTS AND INSTALL TEMPORARY SEEDING IMMEDIATELY UPON COMPLETING

BASIN & RAIN GARDEN SIDE SLOPE SEEDING

BASIN FLOOR
SEED IN ERNST SEED MIX (ERNMX-180); RAIN GARDEN AREA MIX
SEEDING RATE IS 20 LBS. PER ACRE WITH 30 LBS. PER ACRE GRAIN RYE (COVER CROP)

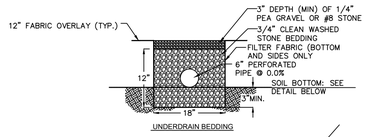
ERNMX-180 RAIN GARDEN AREA MIX

26% River Oats, PA/VA Ecotype blend (Chasmanthium latifolium (Uniola latifolia), PA/VA Ecotype blend)
17% Virginia Wildrye, PA Ecotype (Elymus virginicus, PA Ecotype)
15% Fowl Bluegrass (Poa palustris)
10% Fox Sedge, PA Ecotype (Carex vulpinoidea, PA Ecotype)
6% Purple Coneflower (Echinacea purpurea)
4% Blackeyed Susan, Coastal Plain NC Ecotype (Rudbeckia hirta, Coastal Plain NC Ecotype)
3% Zigzag Aster, PA Ecotype (Aster prenanthoides (Symphyotrichum p.), PA Ecotype)
3% Blue False Indigo, Southern WV Ecotype (Baptisia australis, Southern WV Ecotype)
3% Ohio Spiderwort, PA Ecotype (Tradescantia ohiensis, PA Ecotype)
2% Lanceleaf Coreopsis, Coastal Plain NC Ecotype (Coreopsis lanceolata, Coastal Plain NC Ecotype)
2% Wild Bergamot, PA Ecotype (Monarda fistulosa, PA Ecotype)
2% Wild Senna, VA & WV Ecotype (Senna hebecarpa (Cassia h.), VA & WV Ecotype)
2% Autumn Bentgrass, PA Ecotype (Agrostis perennans, PA Ecotype)
2% Marsh (Dense) Blazing Star (Spiked Gayfeather), PA Ecotype (Liatris spicata, PA Ecotype)
1% Early Goldenrod, PA Ecotype (Solidago juncea, PA Ecotype)
1% Oxeye Sunflower, PA Ecotype (Heliopsis helianthoides, PA Ecotype)
1% Swamp Milkweed, PA Ecotype (Asclepias incarnata, PA Ecotype)

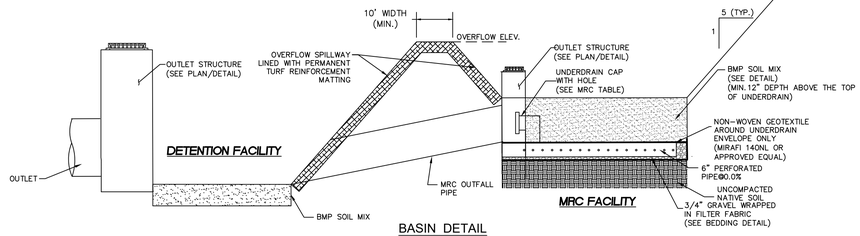
BASIN & RAIN GARDEN SIDE SLOPES
SEED IN ERNST SEED MIX (ERNMX-181): NATIVE STEEP SLOPE MIX W/ ANNUAL RYEGRASS
SEEDING RATE IS 60 LBS. PER ACRE

ERNMX-181 NATIVE STEEP SLOPE MIX W/ ANNUAL RYEGRASS

20% Annual Ryegrass (Lolium multiflorum (L. perenne var. italicum))
18% Virginia Wildrye, PA Ecotype (Elymus virginicus, PA Ecotype)
15% Purpletop (Tridens flavus)
12% Creeping Red Fescue (Festuca rubra)
12% Indiangrass, 'Prairie View'-IN Ecotype (Sorghastrum nutans, 'Prairie View'-IN Ecotype)
5% Big Bluestem, 'Southlow'-MI Ecotype (Andropogon gerardii, 'Southlow'-MI Ecotype)
4% Autumn Bentgrass, Albany Pine Bush-NY Ecotype (Agrostis perennans, Albany Pine Bush-NY Ecotype)
4% Ticklegrass (Rough Bentgrass), PA Ecotype (Agrostis scabra, PA Ecotype)
2% Partridge Pea, PA Ecotype (Chamaecrista fasciculata (Cassia f.), PA Ecotype)
2% Purple Coneflower (Echinacea purpurea)
2% Blackeyed Susan (Rudbeckia hirta)
1% Marsh (Dense) Blazing Star (Spiked Gayfeather), PA Ecotype (Liatris spicata, PA Ecotype)
1% Oxeye Sunflower, PA Ecotype (Heliopsis helianthoides, PA Ecotype)
1% Lanceleaf Coreopsis, Coastal Plain NC Ecotype (Coreopsis lanceolata, Coastal Plain NC Ecotype)
1% Wild Bergamot (Monarda fistulosa)



UNDERDRAIN BEDDING



BASIN DETAIL

MRC FACILITY ELEVATIONS

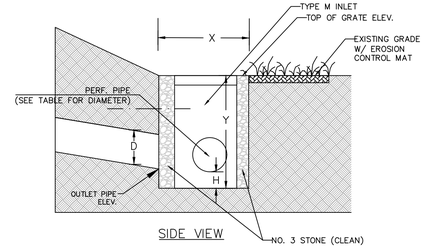
FACILITY #	NATIVE SOIL ELEV.	BMP SURFACE ELEV.	SPILLWAY ELEV.	SPILLWAY WIDTH (FT)	DOWNSTREAM FACILITY	UNDERDRAIN OUTLET ELEV.	UNDERDRAIN HOLE DIA. (IN)	TOP OF OUTER BERM ELEV
SCM 001A	395.00	397.00	399.00	45	SCM-002	396.00	1.0	400.00
SCM 001B	395.00	397.00	399.00	45	SCM-002	396.00	1.0	400.00
SCM 001C	395.00	397.00	399.00	45	SCM-002	396.00	1.0	400.00
SCM 001D	395.00	397.00	399.00	45	SCM-002	396.00	1.0	400.00

DETENTION FACILITY ELEVATIONS

FACILITY #	NATIVE SOIL ELEV.	BMP SURFACE ELEV.	TOP OF OUTER BERM ELEV
SCM 002	395.50	395.50	400.00

*PERFORATED PIPE NOTES:

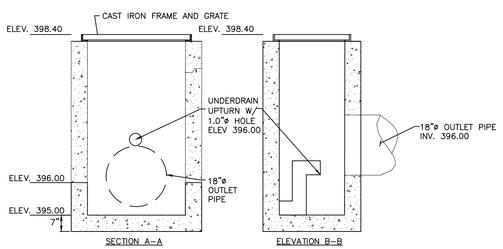
-PROPOSED PERFORATED UNDERDRAIN SHALL CONFORM WITH SPECIFICATIONS SET FORTH IN PENNDOT PUBLICATION 408 SECTION 610.

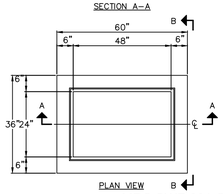


SWF OUTFALL	L	D	OUTFALL PIPE ELEV.	TOP OF GRATE ELEV.	PERF. PIPE DIAMETER	H	Y	X
#	FT	IN	--	--	IN	FT	FT	FT
002	120	48	386.92	392.92	48	0.5	6.5	4

LEVEL SPEADER

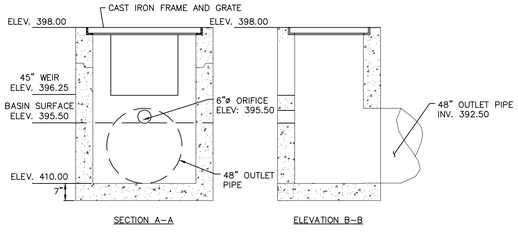
CONSTRUCTION SEQUENCE FOR LEVEL SPREADER:
1. INSTALL AND MAINTAIN PROPER EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION AS PER THE PENNSYLVANIA EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL (MARCH 2000, OR LATEST EDITION).
2. EXCAVATE LEVEL SPREADER BOTTOM TO A UNIFORM, LEVEL SUBGRADE FREE FROM ROCKS AND DEBRIS. EXCAVATION EQUIPMENT SHOULD BE PLACED OUTSIDE THE LIMITS OF THE LEVEL SPREADER.
3. COMPLETELY WRAP LEVEL SPREADER WITH NONWOVEN GEOTEXTILE, (IF SEDIMENT AND/OR DEBRIS HAVE ACCUMULATED IN LEVEL SPREADER BOTTOM, REMOVE PRIOR TO GEOTEXTILE PLACEMENT.) GEOTEXTILE ROLLS SHOULD OVERLAP BY A MINIMUM OF 24 INCHES WITHIN THE TRENCH. FOLD BACK AND/OR CUT EXCESS GEOTEXTILE DURING STONE PLACEMENT.
4. INSTALL CONTINUOUSLY PERFORATED PIPE, OBSERVATION WELLS/INLETS, AND ALL OTHER LEVEL SPREADER STRUCTURES. CONNECT INCOMING PIPES TO STRUCTURES AS INDICATED ON PLANS.
5. PLACE UNIFORMLY GRADED, CLEAN-WASHED AGGREGATE IN 6-INCH LIFTS, LIGHTLY COMPACTING BETWEEN LIFTS.
6. INSTALL EROSION CONTROL BLANKET DOWNSTREAM OF LEVEL SPREADER AND SECURE AS PER MANUFACTURER'S RECOMMENDATIONS.
7. DO NOT REMOVE EROSION AND SEDIMENT CONTROL MEASURES UNTIL SITE IS FULLY STABILIZED.

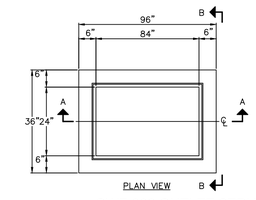




NOTES:
1. OUTLET STRUCTURES SHALL BE AS DETAILED IN PENNDOT STANDARDS FOR ROADWAY CONSTRUCTION, CURRENT EDITION (PDT PUB #72M) RC-34M, "INLETS, CONCRETE TOP UNITS CAST-IN-PLACE AND PRECAST".
2. STEPS SHALL BE PROVIDED WHENEVER STRUCTURE EXCEEDS 4 FEET IN DEPTH.
3. THE CONTRACTOR SHALL PROVIDE CUT SHEETS TO ENGINEER TO REVIEW PRIOR TO CONSTRUCTION.

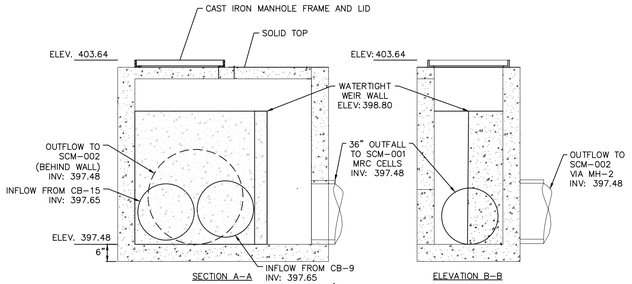
MRC SWF-001 OUTLET STRUCTURE DETAIL
(OS-1A, OS-1B, OS-1C, OS-1D)

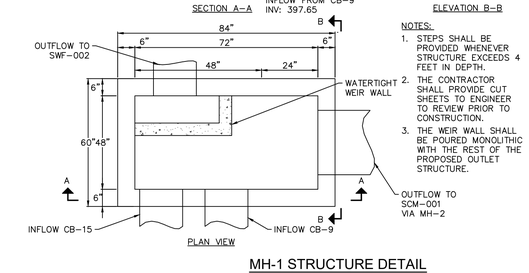




NOTES:
1. OUTLET STRUCTURES SHALL BE AS DETAILED IN PENNDOT STANDARDS FOR ROADWAY CONSTRUCTION, CURRENT EDITION (PDT PUB #72M) RC-34M, "INLETS, CONCRETE TOP UNITS CAST-IN-PLACE AND PRECAST".
2. STEPS SHALL BE PROVIDED WHENEVER STRUCTURE EXCEEDS 4 FEET IN DEPTH.
3. THE CONTRACTOR SHALL PROVIDE CUT SHEETS TO ENGINEER TO REVIEW PRIOR TO CONSTRUCTION.

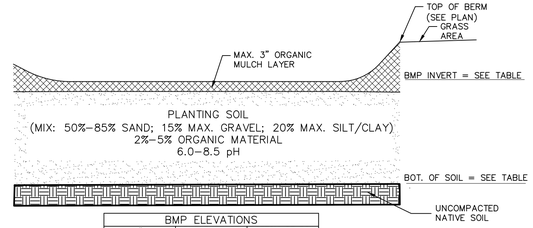
SWF-002 OUTLET STRUCTURE DETAIL





NOTES:
1. STEPS SHALL BE PROVIDED WHENEVER STRUCTURE EXCEEDS 4 FEET IN DEPTH.
2. THE CONTRACTOR SHALL PROVIDE CUT SHEETS TO ENGINEER TO REVIEW PRIOR TO CONSTRUCTION.
3. THE WEIR WALL SHALL BE POURED MONOLITHIC WITH THE REST OF THE PROPOSED OUTLET STRUCTURE.

MH-1 STRUCTURE DETAIL



BMP ELEVATIONS

#	BMP SURFACE	BOTTOM OF SOIL
SWF-001A	397.00	395.00
SWF-001B	397.00	395.00
SWF-001C	397.00	395.00
SWF-001D	397.00	395.00

NOTE: PLANTING SOIL PROVIDED FOR STORMWATER FACILITIES SHALL HAVE A MINIMUM INFILTRATION RATE OF 2 INCHES PER HOUR (IN/HR) TO FACILITATE PROPER FACILITY DRAINAGE/DEWATERING.

MRC STORMWATER FACILITY PLANTING SOIL ELEVATION DETAIL

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

REVISIONS

Description	Date

CALL BEFORE YOU DIG!!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR DESIGN, AND AN ADDITIONAL 10 WORKING DAYS IN DESIGN STAGE -- STOP & CALL!
Pennsylvania One Call System, Inc. 1-800-242-1776
UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT ALL UTILITIES PRIOR TO ANY EXCAVATION.

BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

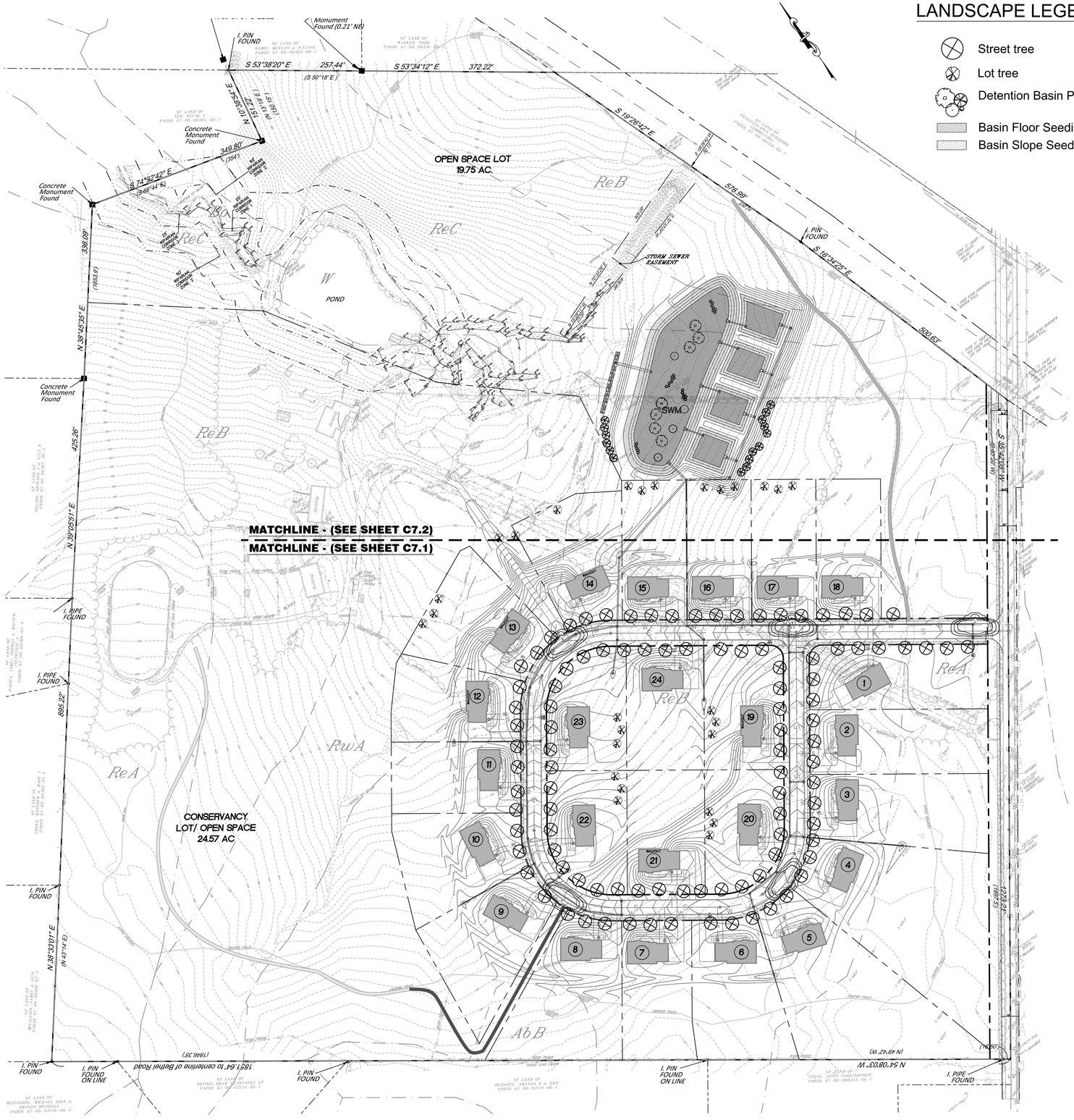
PCSM CONSTRUCTION DETAILS

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C6.9 PCSM DET.dwg

HCE Job	2064	Scale	N.T.S.	Designed	RC	Sheet	33	of	38
Date	4/9/2026								

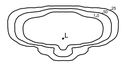
Drawing No.
C6.10

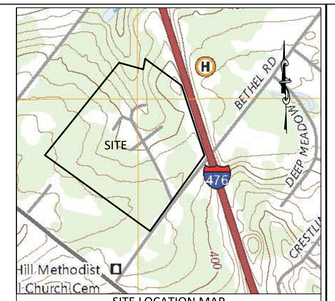


LANDSCAPE LEGEND

- Street tree
- Lot tree
- Detention Basin Planting
- Basin Floor Seeding
- Basin Slope Seeding

LIGHTING TEMPLATE





SITE LOCATION MAP

REF: U.S.G.S LANSDALE QUADRANGLE SCALE: 1"=1,000'

LANDSCAPE REQUIREMENTS CHART - WORCESTER TOWNSHIP

Ordinance Item	Requirement	Plan Proposed
S.W.M. 129-18.H.(24)(c)[1] Retention/ detention basins	The perimeter of the retention/ detention basin shall be landscaped with a mixture of deciduous trees, evergreens and shrubs arranged in an informal matter. Minimum plant material shall include 3 evergreen trees, 2 deciduous trees and 5 shrubs per 100 linear feet of basin perimeter measured at the 100-yr. water surface elevation. Detention Basin: 1165' - 655' (existing vegetation) = 510' (510/100) x 3 = 16 Evergreen trees (510/100) x 2 = 11 Deciduous trees (510/100) x 5 = 26 Shrubs	16 Evergreen trees 7 Shade trees 4 Ornamental trees 26 Shrubs
S.O. 130-28.F.7.(b) Tree replacement	Less than 25% of the existing trees with a trunk diameter of 6" DBH or greater are proposed to be removed.	N/A
S.O. 130-28.G.(4) Street trees	Street trees shall be planted for any subdivision or land development where suitable street trees do not exist along existing streets when they abut or lie within the subdivision or land development. Street trees shall be planted 25 feet on center on each side of the street. Bethel Rd: 1304' - 1304' (existing vegetation)/ 25 = 0 Street trees Proposed Rd. (along right-of-way): 4,383 - 150' (existing vegetation)/ 25 = 170 Street trees	N/A 100 Shade trees [W1] [W2]
S.O. 130-28.G.(5)(b) Softening buffer	Softening buffer is required along the side and rear property lines of all developments, where existing vegetation is not sufficient. The softening buffer shall include a mix of evergreen and deciduous trees in a naturalistic arrangement. One evergreen for each 35 linear feet,; one ornamental or shade tree for each 50 linear feet; and one shrub for each 10 linear feet of property line. Satisfied by existing vegetation to remain.	N/A
S.O. 130-28.G.(7)(f) Basin perimeter plantings	There shall be a minimum of one shade tree for each 50 linear feet of basin perimeter. Up to 50% of the shade trees may be substituted with an option of 2 flowering trees, one evergreen tree or 10 shrubs for every shade tree. Detention Basin: 954' - 565' (existing vegetation)/ 50 = 8 Shade trees	satisfied by S.W.M. requirement above
S.O. 130-28.G.(9)(a) Individual lot landscaping	Each single-family detached dwelling shall have one deciduous or evergreen tree. 24 lots - 15 (lots that contain existing trees to remain) = 9 lots x 3 = 27 deciduous or evergreen trees	27 evergreen trees
	Total Landscape Proposed	**107 Shade Trees** **4 Ornamental Trees** **43 Evergreen Trees** **26 Shrubs**

[W1] Waiver requested to allow less than the required street trees.
[W2] Waiver requested to allow streets trees to be native varieties that conform with the size requirements of Saldo 130-28.H.(5) in lieu of the size requirements outlined in 130-28.H.(1).

PLANT SCHEDULE

Plan Symbol	Quantity	Botanical Name	Common Name	Min. Planting Caliper	Min. Planting Spread	Min. Planting Height	Remarks	Comments
Shade Trees								
AR	9	*Acer rubrum 'Red Sunset'*	'Red Sunset' Red Maple	1.5" cal.	-	10-12'	B&B	Full, straight leader
CO	19	*Celtis occidentalis*	Common Hackberry	1.5" cal.	-	10-12'	B&B	Full, straight leader
GT	15	*Gleditsia triacanthos var. inermis 'Skyline'*	'Skyline' Thornless Honeylocust	1.5" cal.	-	10-12'	B&B	Full, straight leader
LS	12	*Liquidambar styraciflua*	Sweetgum	1.5" cal.	-	10-12'	B&B	Full, straight leader
QA	8	*Quercus alba*	White Oak	1.5" cal.	-	10-12'	B&B	Full, straight leader
QB	14	*Quercus bicolor*	Swamp White Oak	1.5" cal.	-	10-12'	B&B	Full, straight leader
QM	9	*Quercus macrocarpa*	Bur Oak	1.5" cal.	-	10-12'	B&B	Full, straight leader
TD	7	*Taxodium distichum*	Bald Cypress	2.5" cal.	-	12-14'	B&B	Full, straight leader
UA	14	*Ulmus americana 'Valley Forge'*	'Valley Forge' American Elm	1.5" cal.	-	10-12'	B&B	Full, straight leader
Evergreen Trees								
IO	7	*Ilex opaca*	American Holly	-	-	8'	B&B	Symmetrical, branched to ground
JV	11	*Juniperus virginicus*	Eastern Red Cedar	-	-	5'	B&B	Symmetrical, branched to ground
PG	6	*Picea glauca*	White Spruce	-	-	8'	B&B	Symmetrical, branched to ground
PO	14	*Picea omorika*	Serbian Spruce	-	-	8'	B&B	Symmetrical, branched to ground
PS	5	*Pinus strobus*	Eastern White Pine	-	-	5'	B&B	Symmetrical, branched to ground
Ornamental Trees								
BN	4	*Betula nigra*	River Birch	-	-	8'	B&B	Multi-stem, min. 3 stems
Shrubs**								
AA	14	*Aronia arbutifolia*	Red Chokeberry	-	-	36"	CONT	Heavy, full specimen
IV	12	*Ilex verticillata*	Winterberry	-	-	36"	CONT	Heavy, full specimen

** Plant in continuous mulch bed (2-3" depth) until fully established.

LUMINAIRE SCHEDULE - AMERICAN ELECTRIC LIGHTING - American Revolution LED - Full Cutoff

Symbol	Label	Qty	Catalog Number	Description	File	Lumens per Lamp	LLF	Watts	Mounting Ht.
■	L	5	247CL P104 XXXXX 30K R3	247CL American Revolution Deluxe LED Full Cutoff, P104 Performance Package, 3000K CCT, R3 Distribution	247CL P104 XXXXX 30K R3.ies	Absolute	1	49	12'

0 100 200 Feet

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

HC holmes cunningham ENGINEERING

REVISIONS		
	Description	Date

CALL BEFORE YOU DIG!!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR EXCAVATION/ DESIGN AND 10 WORKING DAYS IN DESIGN STAGE — STOP & CALL
Pennsylvania One Call System, Inc.
1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT UTILITIES AND HAVE LINES STAKED PRIOR TO ANY EXCAVATION.

BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

OVERALL LANDSCAPE AND LIGHTING PLAN

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C7.0 Landscape.dwg

HCE Job	2064	Scale	1"=100'	Designed	RC
Date	4/9/2026				
				Sheet	34 of 38

Drawing No.
C7.0

MATCHLINE - (SEE SHEET C7.2)

KEY MAP
SCALE: 1:800

LANDSCAPE LEGEND

- Street tree
- Lot tree
- Detention Basin Planting
- Basin Floor Seeding
- Basin Slope Seeding

LIGHTING TEMPLATE

0 50 100 Feet

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

REVISIONS

Description	Date

CALL BEFORE YOU DIG!!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION ACTIVITIES
10 WORKING DAYS IN DESIGN STAGE
— STOP & CALL —
Pennsylvania One Call System, Inc.
1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT UTILITIES PRIOR TO ANY EXCAVATION.

BOLD FOX FARM
TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

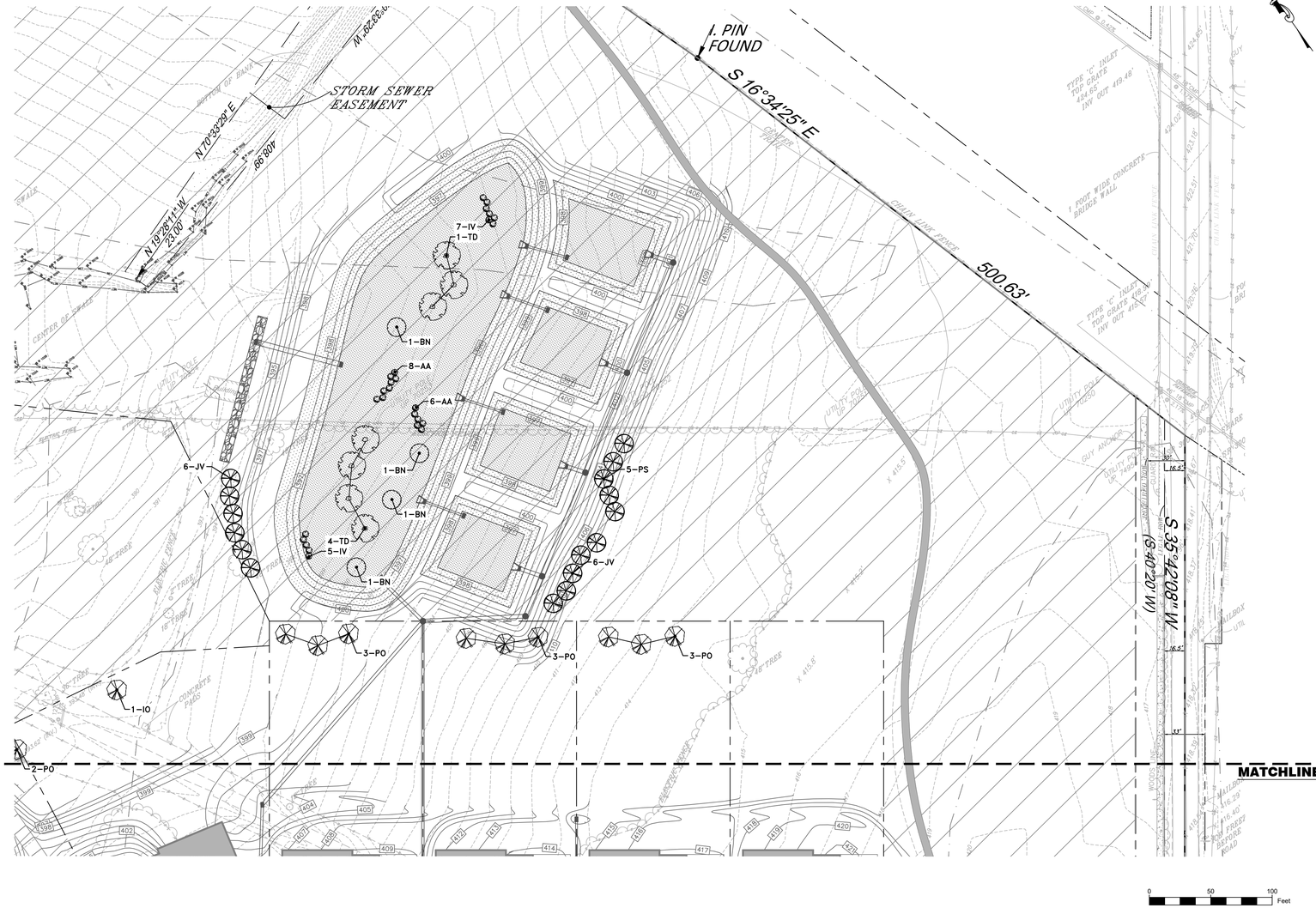
DETAILED LANDSCAPE AND LIGHTING PLAN

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C7.0 Landscape.dwg

HCE Job	2064		
Date	4/9/2026		
Scale	1"=50'	Designed	RC
Sheet	35 of 38		

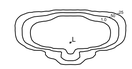
Drawing No.
C7.1

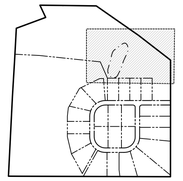


LANDSCAPE LEGEND

- Street tree
- Lot tree
- Detention Basin Planting
- Basin Floor Seeding
- Basin Slope Seeding

LIGHTING TEMPLATE





KEY MAP
SCALE: 1:800

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

holmes cunningham ENGINEERING

REVISIONS

Date	Description

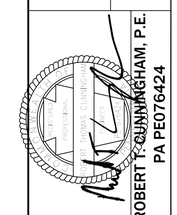
CALL BEFORE YOU DIG!!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION ACTIVITIES
10 WORKING DAYS IN DESIGN STAGE
– STOP & CALL –
Pennsylvania One
Call System, Inc.
1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT ALL UTILITIES COMPANIES PRIOR TO ANY EXCAVATION.

BOLD FOX FARM

TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

DETAILED LANDSCAPE AND LIGHTING PLAN



ROBERT T. CUNNINGHAM, P.E.
PA PE076424

File No.
2064_C7.0 Landscape.dwg

HCE Job	2064			
Date	4/9/2026	Scale	1"=50'	Designed	RC	Sheet	36 of 38

Drawing No.
C7.2

GENERAL LANDSCAPE PLANTING NOTES:

PLANTING MATERIALS

1. 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.

2. 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 NURSERYMEN. PLANT MATERIAL SHALL HAVE NORMAL HABIT OF GROWTH AND BE HEALTHY, VIGOROUS, AND FREE FROM DISEASES AND INSECT INFESTATION.

3. 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 PLANT'S 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.

4. THE CONTRACTOR SHALL NOT MAKE SUBSTITUTIONS. IF THE SPECIFIED LANDSCAPE MATERIAL IS NOT OBTAINABLE, THE CONTRACTOR SHALL SUBMIT PROOF OF NON-AVAILABILITY TO THE LANDSCAPE ARCHITECT AND OWNER TOGETHER WITH A WRITTEN PROPOSAL FOR USE OF AN EQUIVALENT MATERIAL.

5. 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 FURTHER 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

1. REUSE 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

2. SUPPLEMENT WITH IMPORTED OR MANUFACTURED TOPSOIL FROM OFF SITE SOURCES WHEN TOPSOIL AND PLANTING SOIL QUANTITIES 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.

3. 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.

4. 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.

5. 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.

6. ALL PLANTING SOILS SHALL BE SUBMITTED FOR TESTING TO THE STATE COOPERATIVE EXTENSION SERVICE, OR APPROVED EQUAL, 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. THE LATEST 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.

7. 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

8. 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

1. PACKAGED MATERIALS: PACKAGED MATERIALS SHALL BE DELIVERED IN CONTAINERS SHOWING WEIGHT, ANALYSIS, AND NAME OF MANUFACTURER. MATERIALS SHALL BE PROTECTED FROM DETERIORATION DURING DELIVERY, AND WHILE STORED AT SITE.

2. 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.

3. 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 SYNTHETICS 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.

4. 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

1. 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.

2. 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 MATERIALS, AND LOCATION OF PLANTING BEDS TO ENSURE COMPLIANCE WITH DESIGN INTENT UNLESS OTHERWISE INSTRUCTED.

3. THE LOCATIONS OF SIGNAGE AND TREES SHALL BE COORDINATED TO ENSURE THAT TREES DO NOT BLOCK THE VIEW OF SIGNAGE FROM THE STREET.

4. NO PLANT SHALL BE PUT INTO THE GROUND BEFORE FINISHED GRADING HAS BEEN COMPLETED AND APPROVED BY THE PROJECT LANDSCAPE ARCHITECT OR PROJECT ENGINEER.

5. 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.

6. ALL PLANT MATERIAL SHALL BE INSTALLED AS PER DETAILS, NOTES AND CONTRACT SPECIFICATIONS. THE LANDSCAPE ARCHITECT MAY REVIEW INSTALLATION AND MAINTENANCE PROCEDURES.

7. 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.

8. 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.

9. 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.

10. 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.

11. 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 SHREDDED HARDWOOD BARK OR APPROVED EQUAL MULCH THAT WILL PREVENT SOIL EROSION AND THE EMANATION OF DUST.

12. ALL STREET TREES SHALL BE INSTALLED WITH A CUT-OFF TO PROTECT THE ADJACENT SIDEWALK.

GUARANTEE

1. 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.

2. ANY PLANT MATERIAL WHICH DOES NOT SURVIVE, EXHIBITS POOR GROWTH HABITS, IS DISEASED, IS MISSING, OR IS DAMAGED BY DEER OR NATURAL CAUSES WITHIN EIGHTEEN (18) MONTHS FROM THE DATE OF ACCEPTANCE BY THE TOWNSHIP, OR EIGHTEEN (18) MONTHS FOLLOWING INSTALLATION OF REPLACEMENT LANDSCAPE MATERIAL, WHICHEVER IS LATER, SHALL BE REPLACED BY THE DEVELOPER.

3. FINANCIAL SECURITY SHALL BE POSTED WITH THE TOWNSHIP IN AN AMOUNT EQUAL TO THE ESTIMATED COST OF THE TREES AND PLANTINGS, TO BE RELEASED EIGHTEEN (18) MONTHS FROM TOWNSHIP ACCEPTANCE OF THE INSTALLATION OR INSTALLATION OF REPLACEMENT TREES PURSUANT TO SECTION 140-37.A.2. ABOVE.

4. PRIOR TO ACCEPTANCE OF STREET TREE INSTALLATION/REPLACEMENT AND PRIOR TO ACCEPTANCE OF THE EIGHTEEN (18) MONTH MAINTENANCE PERIOD, ALL STREET TREES MUST BE PRUNED TO PROVIDE A CLEAR ZONE OF SEVEN (7) FEET ABOVE THE SIDEWALK (IF EXISTING) AND CURB. TREE BRANCHES SHALL BE PRUNED IN ACCORDANCE WITH THE STANDARDS OF THE TREE CARE INDUSTRY ASSOCIATION (FORMERLY THE NATIONAL ARBORIST ASSOCIATION).

5. ALL PLANT MATERIAL SHALL BE PROTECTED FROM DEER DAMAGE. ANY MATERIAL DAMAGED BY DEER PRIOR TO TOWNSHIP ACCEPTANCE AND/OR COMPLETION OF A MAINTENANCE PERIOD MUST BE REPLACED BY THE DEVELOPER.

BMP SEEDING

BASIN FLOORS AND RAIN GARDENS
SEED IN ERNST SEED MIX (ERNMX–180); RAIN GARDEN AREA MIX
SEEDING RATE IS 20 LBS. PER ACRE WITH 30 LBS. PER ACRE GRAIN RYE (COVER CROP)
BASIN FLOOR & RAIN GARDEN AREAS = 44,512 SF
(44512/43560) X 20 = 20.5 LBS. ERNMX–180
(44512/43560) X 30 = 30.7 LBS. GRAIN RYE

ERNMX–180 RAIN GARDEN AREA MIX

26% River Oats, PA/VA Ecotype blend (Chasmanthium latifolium (Uniola latifolia), PA/VA Ecotype blend)
17% Virginia Wildrye, PA Ecotype (Elymus virginicus, PA Ecotype)
15% Fowl Bluegrass (Poa palustris)
10% Fox Sedge, PA Ecotype (Carex vulpinoidea, PA Ecotype)
6% Purple Coneflower (Echinacea purpurea)
4% Blackeyed Susan, Coastal Plain NC Ecotype (Rudbeckia hirta, Coastal Plain NC Ecotype)
3% Zigzag Aster, PA Ecotype (Aster prenanthoides (Symphyotrichum p.), PA Ecotype)
3% Blue False Indigo, Southern WV Ecotype (Baptisia australis, Southern WV Ecotype)
3% Ohio Spiderwort, PA Ecotype (Tradescantia ohiensis, PA Ecotype)
2% Lanceleaf Coreopsis, Coastal Plain NC Ecotype (Coreopsis lanceolata, Coastal Plain NC Ecotype)
2% Wild Bergamot, PA Ecotype (Monarda fistulosa, PA Ecotype)
2% Wild Senna, VA & WV Ecotype (Senna hebecarpa (Cassia h.), VA & WV Ecotype)
2% Autumn Bentgrass, PA Ecotype (Agrostis perennans, PA Ecotype)
2% Marsh (Dense) Blazing Star (Spiked Gayfeather), PA Ecotype (Liatris spicata, PA Ecotype)
1% Early Goldenrod, PA Ecotype (Solidago juncea, PA Ecotype)
1% Oxeye Sunflower, PA Ecotype (Heliopsis helianthoides, PA Ecotype)
1% Swamp Milkweed, PA Ecotype (Asclepias incarnata, PA Ecotype)

BASIN SIDE SLOPES
SEED IN ERNST SEED MIX (ERNMX–181): NATIVE STEEP SLOPE MIX W/ ANNUAL RYEGRASS
SEEDING RATE IS 60 LBS. PER ACRE
SIDE SLOPE AREAS = 28,264 SF
(28264/43560) X 60 = 39.0 LBS. ERNMX–181

ERNMX–181 NATIVE STEEP SLOPE MIX W/ ANNUAL RYEGRASS

20% Annual Ryegrass (Lolium multiflorum (L. perenne var. italicum))
18% Virginia Wildrye, PA Ecotype (Elymus virginicus, PA Ecotype)
15% Purpletop (Tridens flavus)
12% Creeping Red Fescue (Festuca rubra)
12% Indiangrass, 'Prairie View'–IN Ecotype (Sorghastrum nutans, 'Prairie View'–IN Ecotype)
5% Big Bluestem, 'Southlow'–MI Ecotype (Andropogon gerardii, 'Southlow'–MI Ecotype)
4% Autumn Bentgrass, Albany Pine Bush–NY Ecotype (Agrostis perennans, Albany Pine Bush–NY Ecotype)
4% Ticklegrass (Rough Bentgrass), PA Ecotype (Agrostis scabra, PA Ecotype)
2% Partridge Pea, PA Ecotype (Chamaecrista fasciculata (Cassia f.), PA Ecotype)
2% Purple Coneflower (Echinacea purpurea)
2% Blackeyed Susan (Rudbeckia hirta)
1% Marsh (Dense) Blazing Star (Spiked Gayfeather), PA Ecotype (Liatris spicata, PA Ecotype)
1% Oxeye Sunflower, PA Ecotype (Heliopsis helianthoides, PA Ecotype)
1% Lanceleaf Coreopsis, Coastal Plain NC Ecotype (Coreopsis lanceolata, Coastal Plain NC Ecotype)
1% Wild Bergamot (Monarda fistulosa)

BASIN LANDSCAPE MAINTENANCE

THIS BASIN IS DESIGNED TO BECOME NATURALIZED OVER TIME AND WILL REQUIRE LESS MAINTENANCE AS TIME GOES ON.

MOWING – ESTABLISH AND MAINTAIN A NO–MOW ZONE THAT ENCOMPASSES THE BASIN FLOOR AND SIDE SLOPES. MOW THE NO–MOW ZONE 1X/YEAR TO A MINIMUM HEIGHT OF 6". (ANNUALLY IN LATE APRIL/ EARLY MAY). RAKE MOWN MATERIAL AND COMPOST OR DISPOSE OF OFF SITE.

INSPECTIONS – INSPECT BASIN AND NO–MOW ZONES FOR INVASIVE SPECIES SUCH AS PURPLE LOOSESTRIFE, PHRAGMITES, HONEYSUCKLE, ETC. (ANNUALLY IN JULY). IF INVASIVE SPECIES ARE FOUND REMOVE PER RECOMMENDED STANDARDS FOR SPECIFIC SPECIES FOLLOWING GUIDELINES BY PA DCNR (DEPT OF CONSERVATION & NATURAL RESOURCES).

CLEANING – REMOVE TRASH AND DEBRIS (JANUARY & APRIL)

LAWN SEED NOTES:

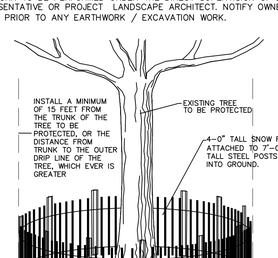
1. PRIOR TO SEEDING, AREA IS TO BE TOPSOILED, FINE GRADED, AND RAKED OF ALL DEBRIS LARGER THAN 2" DIAMETER.
2. THE FOLLOWING SEED MIX SHALL BE SOWN AT THE RATES AS DEPICTED:

RED FESCUE	1 1/2 LBS./1,000 SF
PERENNIAL RYEGRASS	1 LBS./1,000 SF
KENTUCKY BLUEGRASS	1 1/2 LBS./1,000 SF
SPREADING FESCUE	1 LBS./1,000 SF

3. SEED MIX SHALL BE MULCHED WITH UNROTTED SMALL GRAIN STRAW AT A RATE OF 2 TONS/AC OR 90 LBS/1,000 SF
4. SEEDING DATES FOR THIS MIXTURE SHALL BE AS FOLLOWS:
SPRING: APRIL 1 – MAY 31
FALL: AUGUST 16 – OCTOBER 31
5. GERMINATION RATES WILL VARY AS TO TIME OF YEAR FOR SOWING. CONTRACTOR TO IRRIGATE SEEDED AREA UNTIL AN ACCEPTABLE STAND OF COVER IS ESTABLISHED BY OWNER.

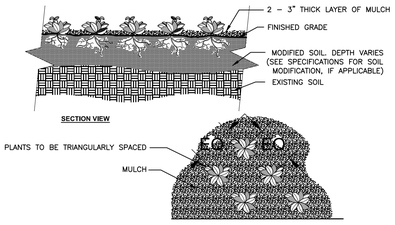
TREE PROTECTION NOTES:

1. ALL EXISTING SHADE TREES WITHIN THE LIMITS OF TREE PROTECTION FENCING AND AS DIRECTED BY THE LANDSCAPE ARCHITECT SHALL BE PROTECTED THROUGHOUT THE DURATION OF WORK.
2. DEMOLITION AND GRADING WORK ADJACENT TO PROTECTED TREES SHALL BE PERFORMED BY A QUALIFIED PERSON WITH A MINIMUM OF FIVE (5) YEARS EXPERIENCE IN WORKING WITH EXCAVATION EQUIPMENT. CONTRACTOR TO PROTECT ROOT MASS AGAINST DAMAGE DURING EXCAVATION. ANY TREE ROOTS THAT ARE DISTURBED, BROKEN OR CUT SHALL BE PRUNED BACK WITH CLEAN SHARP TOOLS.
3. TO MINIMIZE DISTURBANCE OF VEGETATION TO REMAIN, ALL TREE STUMPS TO BE REMOVED WITHIN 10' OF TREE PROTECTION FENCE SHALL BE REMILLED USING A STUMP GRINDER.
4. ALL EXPOSED TREE ROOTS SHALL BE THOROUGHLY IRRIGATED ON A DAILY BASIS UNTIL BACKFILLING CAN OCCUR AS DIRECTED BY THE PROJECT LANDSCAPE ARCHITECT.
5. ALL WORK TO BE PERFORMED UNDER THE DIRECT SUPERVISION OF EITHER THE OWNER'S REPRESENTATIVE OR PROJECT LANDSCAPE ARCHITECT. NOTIFY OWNER A MINIMUM OF 48 HOURS PRIOR TO ANY EARTHWORK / EXCAVATION WORK.



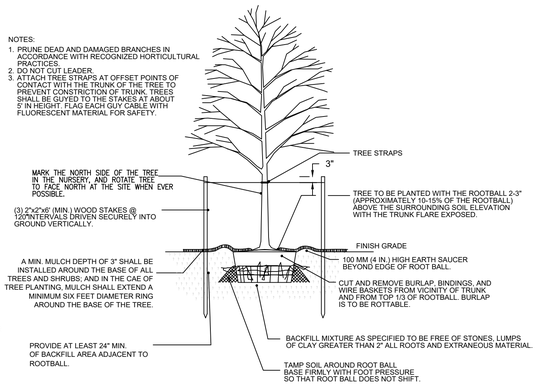
NOTES:
1) FENCE TO BE INSTALLED PRIOR TO ANY EARTHMOVING ACTIVITY. FENCE MUST REMAIN AND BE MAINTAINED THROUGH DURATION OF CONSTRUCTION.
2) ORANGE CONSTRUCTION FENCE MAY BE SUBSTITUTED FOR SNOW FENCE.

TREE PROTECTION FENCING DETAIL



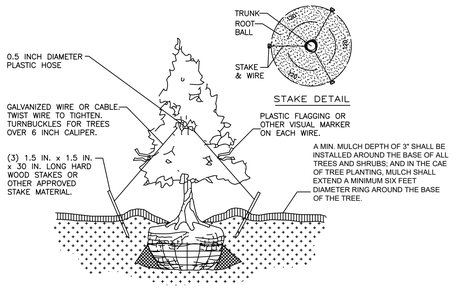
NOTES:
1– SEE PLANTING LEGEND FOR GROUNDCOVER/PERENNIAL SPECIES, SIZE, AND SPACING DIMENSION.
2– SMALL ROOTS (¼" OR LESS) THAT GROW AROUND, UP, OR DOWN THE ROOT BALL PERIPHERY ARE CONSIDERED A NORMAL CONDITION IN CONTAINER PRODUCTION AND ARE ACCEPTABLE HOWEVER THEY SHOULD BE ELIMINATED AT THE TIME OF PLANTING. ROOTS ON THE PERIPERHY CAN BE REMOVED AT THE TIME OF PLANTING. (SEE ROOT BALL SHAVING CONTAINER DETAIL).
3– SETTLE SOIL AROUND ROOT BALL OF EACH GROUNDCOVER PRIOR TO MULCHING.
4– PRIOR TO PLANTING THE GROUND SHALL BE TREATED WITH A PRE–EMERGENT HERBICIDE. REPLENISH MULCH AND MONITOR WEEDS ANNUALLY, SPOT TREAT AS NECESSARY.

GROUNDCOVER/ PERENNIAL PLANTING



NOTES:
1. PRUNE DEAD AND DAMAGED BRANCHES IN ACCORDANCE WITH RECOGNIZED HORTICULTURAL PRACTICES.
2. DO NOT CUT LEADER.
3. ATTACH TREE STRAPS AT OFFSET POINTS OF CONTACT WITH THE TRUNK OF THE TREE TO PREVENT CONSTRICTION OF TRUNK. TREES SHALL BE GUYED TO THE STAKES AT ABOUT 5' IN HEIGHT. FLAG EACH GUY CABLE WITH FLUORESCENT MATERIAL FOR SAFETY.

ORNAMENTAL AND SHADE TREE PLANTING/ STAKING DETAIL



1. ALL STAKES SHALL BE DRIVEN OUTSIDE THE EDGE OF THE ROOT BALL.
2. ASSURE THAT THE BEARING SURFACE OF THE PROTECTIVE COVERING OF THE WIRE OR CABLE AGAINST THE TREE TRUNK IS A MINIMUM 0.5 INCH.
3. REMOVE ALL STAKING AS SOON AS THE TREE HAS GROWN SUFFICIENT ROOTS TO OVER–COME THE PROBLEM THAT REQUIRED THE TREE TO BE STAKED. STAKES SHALL BE REMOVED NO LATER THAN THE END OF THE FIRST GROWING SEASON.
4. TREES NORMALLY DO NOT NEED TO BE STAKED AND STAKING CAN BE HARMFUL TO THE TREE. STAKING SHOULD BE DONE ONLY WITH THE APPROVAL OF THE LANDSCAPE ARCH–ITECT IF IT IS EXPECTED THAT THE TREE WILL NOT BE ABLE TO SUPPORT ITSELF.
5. WIRE OR CABLE SIZES SHALL BE AS FOLLOWS:
TREES UP TO 2.5 INCH CALIPER – 14 GAUGE
TREES 2.5 INCH TO 3 INCH CALIPER – 12 GAUGE
6. TIGHTEN WIRE OR CABLE ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT. PLASTIC HOSE SHALL BE LONG ENOUGH TO ACCOMMODATE 1.5 INCH CALIPER OF TRUNK MOVEMENT.
7. TUCK ANY LOOSE ENDS OF THE WIRE OR CABLE INTO THE WIRE WRAP SO THAT NO SHARP WIRE ENDS ARE EXPOSED.

EVERGREEN TREE STAKING DETAIL

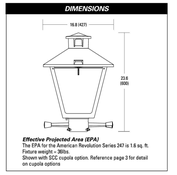
American Revolution Full Cutoff LED
Series 247CL

PRODUCT OVERVIEW

Applications:

Roadways
Streetscapes
Walkways
Pathways
Parks

DIMENSIONS



Effective Projected Area (EPA)
The EPA for the American Revolution Series 247 is 1.8 sq. ft.
Fixture weight – 38lbs.
Shown with ECC cupola option. Reference page 3 for detail on cupola options

STANDARDS

Rated from -40°C up to 40°C ambient
CSA Certified to U.S. and Canadian standards
Complies with all applicable ANSI C136 standards
Government Procurement
BAA – Buy America(n) Act: Product with the BAA option qualifies as a domestic end product under the Buy American Act as implemented in the FAR and DFARS. Product with the BAA option also qualifies as manufactured in the United States under DOT Buy America regulations.
BABA – Build America Buy America: Product with the BAA option also qualifies as produced in the United States under the definitions of the Build America, Buy America Act.
Please refer to www.acuitybrands.com/resources/buy-american for additional information.
Note: Specifications subject to change without notice.
American Revolution Series 247CL LED

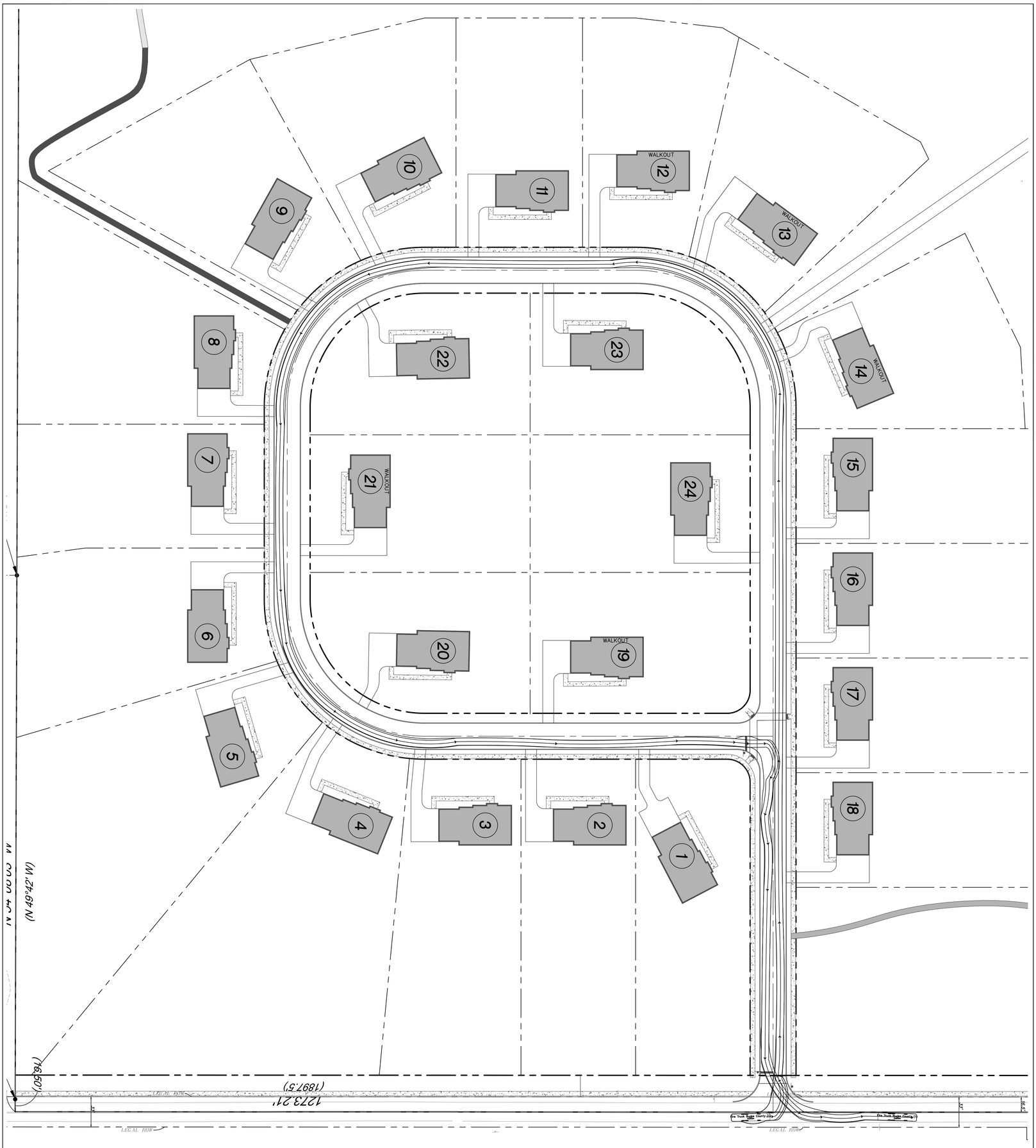
Features:

OPTICAL
Producing between 2,200-9,900 lumens, the 247CL family replaces up to 250W HID luminaires with optimal performance and visual comfort in a variety of applications.
Zero uplight to minimize light pollution and protect the night skies.
Silicone optics provide superior optical efficiency, thermal performance, and reduction in dirt accumulation, all of which can lead to long term lumen degradation and a shift in optical distribution.
IP66 proven workhorse LED light engine in 15 different output packages.
Available in color temperature choices of 2700K, 3000K and 4000K, all at a 70 CRI minimum
Silicon optics provide crisp, well defined lighting distributions in four (4) distinct light distribution options; Type II, Type III, Type IV, and Type V

ELECTRICAL
LED light engines are rated >100,000 hours at 25°C, L70. Electronic driver has an expected life of 100,000 hours at a 25°C ambient.
Saves an expected of 40–60% over comparable HID luminaires.
Two different surge protection options provide a minimum of ANSI C136.2 10kV/5kA (standard) or 20kV/10kA protection.
Luminaire available with either a 0–10v dimmable driver or DALI D4i driver. Luminaire is continuous and step dimming capable via AD option or other installed controls.
XVOLT task driver option for protection against dropped neutrals and other power quality issues.

MECHANICAL
Die–cast aluminum housing, engineered for sturdy lifelong performance complete with die–cast aluminum hood featuring a hinged latch (TL) option and captive thumb screws for fast, easy electrical and optical chamber access.
Standard paint finish is smooth semi–gloss.
Housing is tenon pole–mounted and designed for use with a 3" tall by 2–3/8" to 3" diameter tenon, and secured by three set screws
Luminaire is rated for 3g vibration per ANSI C136.31(excluding TL option).

CONTROLS
The Acuity designed ANSI 7 pin receptacle is available, which supports traditional locking style photocontrols such as the Extreme long–life solid–state locking style photocontrol – PCLL (20 year rated life).
Optional onboard Adjustable Output module allows the light output and input wattage to be modified to meet site specific requirements, and also can allow a single fixture to be flexibly applied in many different applications.
The SC Connect option is a factory embedded low voltage dusk to dawn photocontrol that increases longevity vs. line voltage controls and also eliminates the need to separately inventory controls.
The Local Connect option provides a simple means to collect luminaire attribute data, asset location information and execute point–to–point on/off/dim commands via secure Bluetooth link using smartphone platforms.
Cell Connect is an embedded network photocontrol with cellular communication. It provides digital switching, precise dimming, and revenue



Drawing No.	C8.0
HCE Job	2064
Date	4/9/2026
Scale	1"=50'
Designed	RC
Sheet	38 of 38
File No.	2064_C8.0 Truck Turn.dwg

ROBERT T. CUNNINGHAM, P.E.
PA PE076424

BOLD FOX FARM

TMP# 67-00-00442-004
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

TRUCK TURN

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 THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT UTILITY COMPANIES PRIOR TO ANY EXCAVATION.

REVISIONS	
Date	Description

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