FINAL ROAD CONSTRUCTION PLANS

WELLINGTON FARMS

PHASE 1 SECTION 3

THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.

THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.

GENERAL NOTES

1. SUBJECT PROPERTY IS ZONED R-20-MXD-3 AND R-SC-MXD-3 PER THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN.
2. THIS PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
3. THE PROJECT BOUNDARY IS BASED ON RECORDED PLAT #20136-37.
4. THE EXISTING TOPOGRAPHY IS BASED ON AERIAL SURVEY FLOWN BY POTOMAC AERIAL SURVEYS, INC. IN OCTOBER, 2019 AND SUPPLEMENTED WITH FIELD SURVEY PERFORMED BY BENCHMARK ENGINEERING IN NOVEMBER, 2019.
5. THE WETLANDS, STREAMS, THEIR BUFFERS, AND SPECIMEN TREES WERE IDENTIFIED AND FLAGGED BY WETLANDS STUDIES AND SOLUTIONS, INC. IN FEBRUARY, 2018 AND WERE FIELD LOCATED BY BENCHMARK ENGINEERING, INC IN FEBRUARY, 2018. THE US ARMY CORPS OF ENGINEERING ISSUED AN APPROVED JURISDICTIONAL DETERMINATION OF THE WETLAND AREAS ON THIS SITE, DATED NOVEMBER 30, 2018.
6. THERE ARE NO WETLANDS, STREAMS, THEIR REQUIRED BUFFERS, 100-YEAR FLOODPLAIN OR 25% OR GREATER STEEP SLOPES WITH MORE THAN 20,000 SF OF CONTIGUOUS AREA LOCATED WITHIN THE LIMITS OF PHASE 1 SECTION 3.
7. THIS SITE IS WITHIN THE METROPOLITAN DISTRICT PER THE HOWARD COUNTY PLAN FOR WATER AND SEWER, DATED NOVEMBER, 2015.
8. WATER AND SEWER IS PUBLIC. WATER AND SEWER SERVICE TO THESE LOTS SHALL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.122.B OF THE HOWARD COUNTY CODE.
9. TO THE BEST OF OUR KNOWLEDGE, INFORMATION, AND BELIEF, THERE ARE NO CEMETERIES OR HISTORIC STRUCTURES LOCATED ON THIS SITE.
10. THE REQUIRED PRE-SUBMISSION COMMUNITY MEETING WAS HELD ON APRIL 12, 2018. A SECOND MEETING WAS HELD ON JUNE 20, 2018 AND A THIRD WAS HELD ON NOVEMBER 13, 2018.
11. THE FOREST STAND DELINEATION AND REPORT AND THE WETLANDS DELINEATION PLAN AND REPORT WERE PREPARED BY WETLANDS STUDIES AND SOLUTIONS, INC. IN JUNE, 2018 AND APPROVED UNDER S-18-003.
12. THE FOREST CONSERVATION PLAN WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. IN AUGUST, 2021 AND IS PART OF THIS PLAN SET. THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION MANUAL FOR THIS PROJECT WILL BE MET THROUGH THE RETENTION OF 0.0 ACRES OF ONSITE FOREST AND 1.6 ACRES OF ONSITE PLANTING. FINANCIAL SURETY IN THE AMOUNT OF $47,916.00 FOR THE 2.2 ACRES OF PLANTING SHALL BE POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT.
13. A NOISE STUDY IS NOT REQUIRED. THIS PROJECT IS NOT WITHIN THE LIMITS IDENTIFIED IN SECTION 5.2.F.2. OF THE DESIGN MANUAL FOR A NOISE STUDY.
14. THE TRAFFIC IMPACT STUDY WAS PREPARED BY THE TRAFFIC GROUP, INC. ON JUNE 29, 2018 AND REVISED ON NOVEMBER 28, 2018 AND FEBRUARY 6, 2019. IT WAS APPROVED WITH THE APPROVAL OF S-18-003.
15. THE GEOTECHNICAL REPORT WAS PREPARED BY HILLIS-CARNES ENGINEERING ASSOCIATES IN DECEMBER, 2019.
16. STORMWATER MANAGEMENT HAS BEEN PROVIDED VIA ENVIRONMENTAL SITE DESIGN TO THE MAXIMUM EXTENT PRACTICAL (ESD TO THE MEP) AND COMPLIES WITH THE "MARYLAND DEPARTMENT OF THE ENVIRONMENT STORMWATER MANAGEMENT ACT OF 2007" AND THE "HOWARD COUNTY DESIGN MANUAL VOLUME I, CHAPTER 5". THE REPORT WAS PREPARED BY BENCHMARK ENGINEERING IN AUGUST, 2021.
17. PROPOSED DEVELOPMENT WITHIN THE R-20 ZONE UTILIZES THE OPTIONAL LOT SIZE METHOD SINCE THERE ARE WETLANDS, STREAMS, AND FLOODPLAIN LOCATED ON THAT PARCEL WHICH WILL BE WITHIN AN OPEN SPACE LOT PROPOSED TO BE DEDICATED TO THE HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS (SECTION 16.121.a.2. OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS). THE OPTIONAL LOT SIZE SELECTED WAS 12,000 sf WHICH REQUIRES 40% OPEN SPACE AND APPROVED BY DPZ UNDER S-18-003.
18. APPLICABLE DPZ FILE REFERENCES: F-08-148, ECP-18-042, S-18-003, WP-20-039, WP-20-099, WP-20-117, P-20-006, F-21-025, F-21-044, #24-5135-D, #24-5136-D, #24-5137-D, #24-5138-D
19. THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS AN ALTERNATIVE COMPLIANCE OR DESIGN MANUAL WAIVER HAS BEEN APPROVED AND NOTED IN THESE GENERAL NOTES.
20. GORMAN ROAD IS DESIGNATED AS A SCENIC ROAD EAST OF LEISHEAR ROAD. A 100-FOOT SCENIC ROAD BUFFER FROM THE GORMAN ROAD RIGHT-OF-WAY HAS BEEN ESTABLISHED PER SECTION 16.125(c)(2) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
21. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURES AND POLES SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (DECEMBER, 2017), SECTION 5.5.A. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
22. ON THE APPROACH SIDE OF A STOP SIGN, NO STREET TREE CAN BE PLANTED WITHIN 30' OF A STOP SIGN.
23. TRAFFIC CONTROL DEVICES:
    A) THE R1-1 "STOP" SIGN AND STREET NAME SIGN (SNS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPETED.

    B) THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.

    C) ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MdMUTCD).

    D) ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED "QUICK PUNCH", SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
24. THE MARYLAND DEPARTMENT OF NATURAL RESOURCES WILDLIFE AND HERITAGE SERVICE HAS DETERMINED THAT THERE ARE NO OFFICIAL STATE OR FEDERAL RECORDS FOR LISTED PLANT OR ANIMAL SPECIES FOR THE SUBJECT SITE, PER DNR LETTER DATED APRIL 19, 2018.
25. WP-20-039, AN ALTERNATIVE COMPLIANCE TO SECTION 16.1205(a)(3) TO ALLOW FOR THE REMOVAL OF 6 SPECIMEN TREES WAS APPROVED ON MAY 1, 2020 SUBJECT TO THE FOLLOWING CONDITIONS:
    a. THE TREES SHALL BE REPLACED AT A MITIGATION RATE OF 2:1 PER SECTION 16.1216(d) OF THE COUNTY CODE. 12 NATIVE TREES WITH A DBH OF AT LEAST 3 INCHES MUST BE PLANTED AS MITIGATION.
    b. THE 12 TREES MUST BE DEPICTED ON THE FOREST CONSERVATION AND LANDSCAPE PLAN AND SHALL BE BONDED AS PART OF THE LANDSCAPE SURETY. FINAL SUBDIVISION PLAN APPROVAL AND A GRADING PERMIT MUST BE OBTAINED PRIOR TO REMOVAL OF THE SPECIMEN TREES.
    c. ONLY SPECIMEN TREES 49, 51, 56, 57, 90, AND 91 ARE TO BE REMOVED.
    d. DEPARTMENT OF RECREATION AND PARKS MUST PROVIDE DEVELOPER WRITTEN PERMISSION TO REMOVE SPECIMEN TREES 90 AND 91 WITHIN 30 DAYS OF WP-20-039 APPROVAL AND A COPY SUBMITTED TO DPZ. THAT LETTER WAS OBTAINED AND SUBMITTED TO DPZ ON MAY 18, 2020.
    e. COMPLIANCE WITH ANY CONDITION IMPOSED BY THE OFFICE OF COMMUNITY SUSTAINABILITY AND DEPARTMENT OF RECREATION AND PARKS.
    f. INCLUDE WP-20-039 DECISION AS A GENERAL NOTE ON ALL FUTURE PLANS.

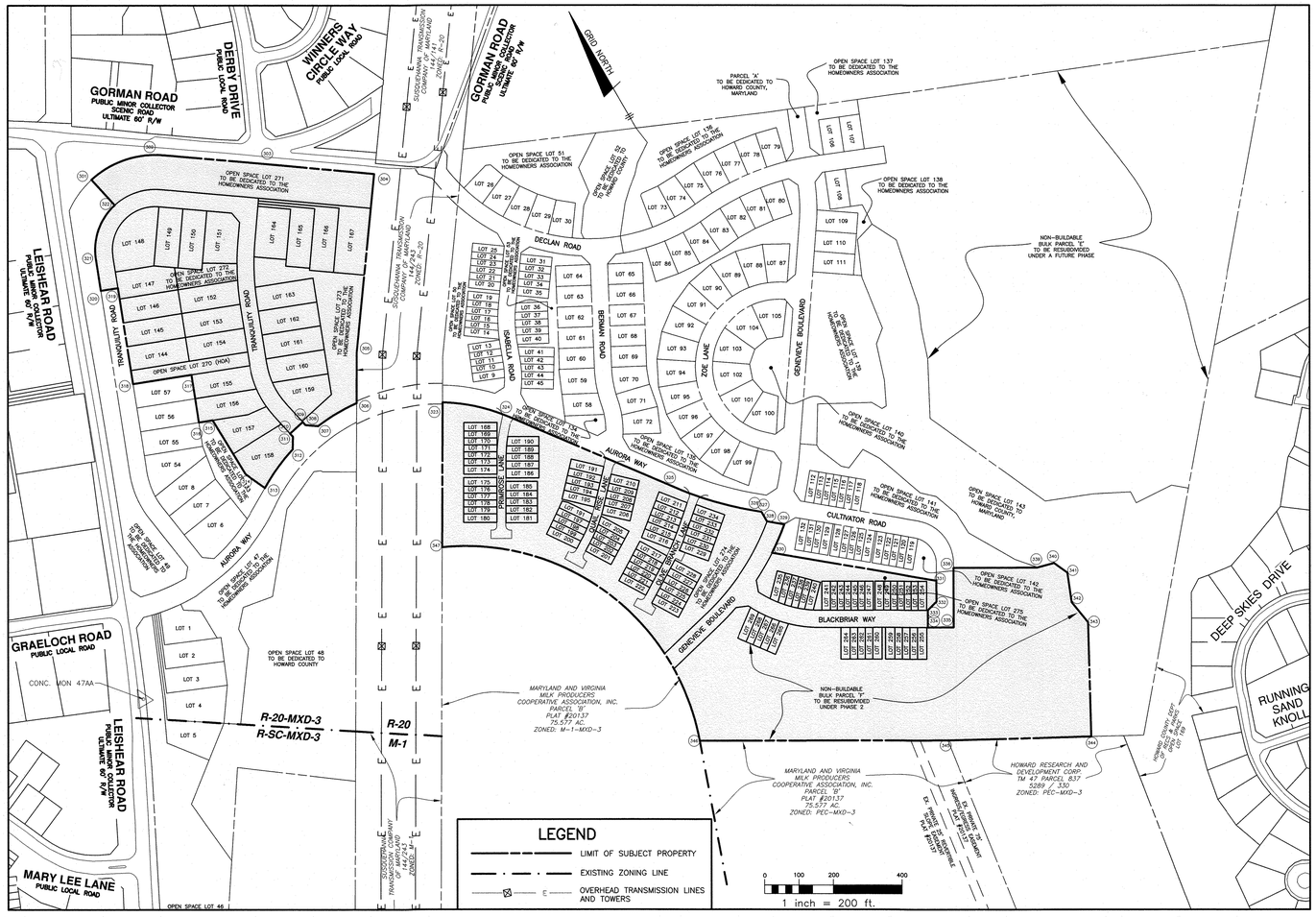
    THERE ARE NO SPECIMEN TREES TO BE REMOVED WITHIN THE LIMITS OF PHASE 1 SECTION 3,
26. SECTION 110.0.d.1.e OF THE ZONING REGULATIONS LIMITS THE LENGTH OF SINGLE-FAMILY ATTACHED UNITS TO 120 FEET BUT IT ALSO GRANTS THE DIRECTOR OF DPZ THE AUTHORITY TO APPROVE A GREATER LENGTH UP TO A MAXIMUM OF 200 FEET BASED ON DETERMINATION THAT THE DESIGN OF THE BUILDING WILL MITIGATE THE VISUAL IMPACT OF THE INCREASED LENGTH. A REQUEST TO ALLOW FOR A GREATER BUILDING LENGTH FOR SEVERAL ROWS OF SINGLE-FAMILY ATTACHED UNITS WAS APPROVED BY THE DIRECTOR OF THE DEPARTMENT OF PLANNING AND ZONING ON MAY 19, 2020.
27. A DESIGN MANUAL WAIVER TO SECTIONS 2.3.A.1.a (MINIMUM CURVE RADIUS) OF DESIGN MANUAL VOLUME II WAS APPROVED ON FEBRUARY 13, 2020 FOR CURVES C106, C107, AND C109 (IDENTIFIED AS C1, C2, AND C4 ON THIS F-PLAN). THIS DESIGN MANUAL WAIVER ALSO INCLUDED SECTION 2.3.A.1.c (MINIMUM CURVE LENGTH) FOR CURVE C107 (IDENTIFIED AS C2 ON THIS F-PLAN).

    AS A CONDITION OF APPROVAL, "NO PARKING" RESTRICTIONS SHALL BE POSTED ALONG TRANQUILITY STATIONS 14+78.79 TO 15+87.33. ADDITIONALLY, THE COUNTY RESERVES THE RIGHT TO POST "NO PARKING" RESTRICTIONS IF ON-STREET PARKING IMPEDES FUTURE TRAFFIC OPERATION IN THE FOLLOWING LOCATIONS:

    DIRECTLY ADJACENT TO LOT 17 (SHOWN AS LOTS 148 ON THIS F-PLAN) ON TRANQUILITY ROAD (BOTH SIDES OF STREET)

    DIRECTLY ADJACENT TO LOTS 27-28 (SHOWN AS LOTS 159-160 ON THIS F-PLAN) ON TRANQUILITY ROAD (BOTH SIDES OF STREET).
28. DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:

    a) WIDTH - 12' (16' SERVING MORE THAN ONE RESIDENCE).
    b) SURFACE - 6" OF COMPACT CRUSHER RUN BASE WITH TAR AND CHIP COATING (1-1/2" MIN.)
    c) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM 45' TURNING RADIUS.
    d) STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING).
    e) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOODPLAIN WITH NO MORE THAN 1-FOOT DEPTH OVER DRIVEWAY.
    f) STRUCTURE CLEARANCES - MINIMUM 12 FEET.
    g) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.
29. PARKING SPACES AND THE 8' MACADAM PATHWAYS ALONG THE PUBLIC ROADS SHALL BE MAINTAINED BY THE HOMEOWNERS ASSOCIATION.
30. FINANCIAL SURETY IN THE AMOUNT OF $60,300.00 FOR THE REQUIRED 163 STREET TREES, 31 PERIMETER TREES, AND 7 SHADE TREES AS PART OF WP-20-039 SHALL BE POSTED AS PART OF THE DPW DEVELOPER AGREEMENT.
31. FOR FLAG AND PIPE STEM LOTS, REFUSE COLLECTION, SNOW REMOVAL, AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPE STEM AND ROAD RIGHT OF WAY LINE AND NOT ONTO THE FLAG OR PIPE STEM LOT DRIVEWAY.

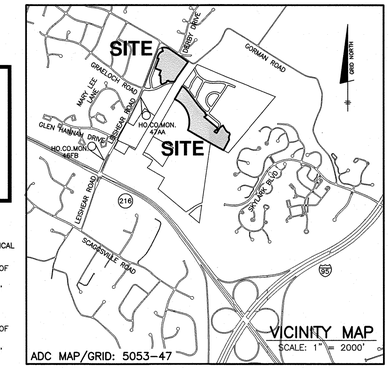


BENCHMARKS

NAD '83 HORIZONTAL - NAVD88 VERTICAL

HO. CO. #46FB
STAMPED BRASS DISK SET ON TOP OF A 3ft DEEP COLUMN OF CONCRETE.
N 537149.785' E 1347468.998'
ELEVATION: 317.217'

HO. CO. #47AA
STAMPED BRASS DISK SET ON TOP OF A 3ft DEEP COLUMN OF CONCRETE.
N 538961.645' E 1348439.009'
ELEVATION: 362.621'



SHEET INDEX

SHEET	TITLE
1-2	COVER SHEET
3-6	ROAD PLAN AND PROFILES
7-8	STORM DRAIN DRAINAGE AREA MAP
9-10	STORM DRAIN PROFILES AND DETAILS
11-12	STORMWATER MANAGEMENT DRAINAGE AREA MAP
13-17	STORMWATER MANAGEMENT DETAILS
18-20	LANDSCAPE PLAN
21-23	FOREST CONSERVATION PLAN
24-28	GRADING, SEDIMENT, AND EROSION CONTROL PLANS
29-31	SOIL BORING LOGS

Open Space Chart

Zoning	R-20	R-SC	TOTAL
Gross Area (total project)	29.76 acres	91.71 acres	121.47 acres
Area of Open Space Required *	11.90 acres	22.93 acres	34.83 acres
Open Space Provided			
Phase 1 Section 1 (F-21-025)	8.70 acres	7.99 acres	16.69 acres
Non-Credited	0.02 acres	0.42 acres	0.44 acres
Credited	8.68 acres	7.57 acres	16.25 acres
Phase 1 Section 2 (F-21-044)	0.48 acres	16.93 acres	17.41 acres
Non-Credited	0.00 acres	0.86 acres	0.86 acres
Credited	0.48 acres	16.07 acres	16.55 acres
Phase 1 Section 3 (F-22-001)	3.67 acres	5.22 acres	8.89 acres
Non-Credited	0.03 acres	1.01 acres	1.04 acres
Credited	3.64 acres	4.21 acres	7.85 acres
Total credited Open Space to date	12.80 acres	27.85 acres	40.65 acres
Remaining to meet obligation **	NA	NA	NA

* Open Space Required based on 40% of gross for R-20 (Section 16.121.a.2)
25% of gross for R-SC (Section 16.121.a.2)

** Total project obligation has been met

MODERATE INCOME HOUSING UNIT (MIHU) APPLICATION EXEMPTIONS TRACKING

Phase/Section	P1S1	P1S2	P1S3	P2	TOTAL
Total Number of Lots/Units Proposed	45	79	126	144	394
Total Number of MIHU's Required	5	8	13	14	40
Number of MIHU's Provided Onsite (Exempt from APFO allocations)	8	0	22	10	40
Number of APFO Allocations Required (Remaining Lots/Units)	40	71	113	130	354
MIHU Fee-in-Lieu (Indicate Lot/Unit numbers)	NA	NA	NA	NA	NA

NOTE:
SEE SHEET 2 FOR MORE DETAILED STORMWATER MANAGEMENT SUMMARY TABLE, RECREATIONAL OPEN SPACE CALCS, MINIMUM LOT SIZE CHART, PARKING CHART, ROAD CHART, AND BOUNDARY COORDINATE CHART.

Stormwater Management Practice Chart / Summary Table

Total Project Pe:	1.7	Total Project ESDv:	231,361	Total Project REv:	28,452

Below summary numbers for Phase 1 Section 2 only

MDE Designation	Practice Description	Quantity of Each Practice	ESDv (cf) Required based on individual DA	ESDv (cf) Provided	REv (cf) Provided	Ownership
M-2	Submerge Gravel Wetland	1	3,918	4,167	0	Private
M-5	Dry Well	123	9,943	10,519	10,519	Private
M-6	Micro Bio-Retention	10	17,065	17,635	4,266	Private
N-2	Disconnection of Non-Rooftop	1	894	894	0	Private

Total from P1S3	**31,821**	**33,215**	**14,786**
Total from P1S2 (F-21-044)	**66,722**	**73,410**	**8,849**
Total from P1S1 (F-21-025)	**45,302**	**49,178**	**7,890**
Total provided to date:	**143,845**	**155,803**	**31,525**

Notes:
1. Total Project Pe, ESDv, and REv numbers are based on the Total Project Area (all phases) minus environmental areas. See report for detailed explanation.
2. Remaining total project ESDv requirement shall be provided in the future SWM practices in future phases. After final phase, Phase 2, the total project ESDv shall be met after all site practices are accounted for.
3. Remaining total project REv requirement shall be provided in the future SWM practices in future phases. After final phase, Phase 2, the total project REv shall be accounted for.

(All areas are in acres)

	Phase 1 Section 1			Phase 1 Section 2			Phase 1 Section 3			Total
Zoning	R-20	R-SC	TOTAL	R-20	R-SC	TOTAL	R-20	R-SC	TOTAL	
Gross Area	29.76	91.71	121.47	14.77	78.99	93.76	12.57	20.81	33.38	121.47 acres
100-yr Floodplain	0.07	0.82	0.89	0.00	0.82	0.82	0	0	0.00	0.89 acres
Steep Slopes 25% or greater (outside floodplain)	0.20	0.82	1.02	0.00	0.82	0.82	0	0	0.00	1.02 acres
Net Area	29.49	90.07	119.56	14.77	77.35	92.12	12.57	20.81	33.38	119.56 acres
Number of Units Proposed (SFD)	7	6	13	4	54	58	24	0	24	95
Number of Units Proposed (SFA)	0	32	32	0	21	21	0	102	102	155
Number of lots/units proposed (Total)	7	38	45	4	75	79	24	102	126	250
Area of Open Space Provided	8.70	7.99	16.69	0.48	16.93	17.41	3.67	5.22	8.89	42.99 acres
Area of Buildable Lots (SFD)	2.22	1.03	3.25	1.14	8.63	9.77	7.39	0.00	7.39	20.41 acres
Area of Buildable Lots (SFA)	0.00	1.57	1.57	0.00	1.06	1.06	0.00	4.84	4.84	7.47 acres
Area of Parcels	0.00	0.00	0.00	0.00	0.18	0.18	0.00	0.00	0.00	0.18 acres
Area of Bulk Parcels	14.77	78.99	93.76	12.57	46.84	59.41	0.00	9.52	9.52	*35.55 acres
Area of Proposed Public Road Right-of-way	4.07	2.13	6.20	0.58	5.35	5.93	1.51	1.23	2.74	14.87 acres

* THIS TOTAL AREA IS BASED ONE CURRENT BULK PARCELS AFTER RECORDATION OF PHASE 1 SECTION 3 (F-22-001). THIS CONSISTS OF NON-BUILDABLE BULK PARCEL 'E' (26.03 ACRES) AND NON-BUILDABLE BULK PARCEL 'F' (9.52 ACRES).

R-SC Density Chart

Gross Area	91.71 ac
100-yr floodplain	0.82 ac
Steep slopes (outside floodplain)	0.82 ac
Net Area	90.07 ac
Density Allowed (4 units per net acre)	360
Density Proposed F-21-025	38
Density Proposed F-21-044	75
Density Proposed F-22-001	102
Density Remaining	145

Phasing Chart

Phase	No. of Units	Allocation Year	F-Plan Filing Milestone
1	250	2021	August 10, 2021
2	144	2022	Within 1-year of initial submittal of Phase 1 F-plans

32. WP-20-099, AN ALTERNATIVE COMPLIANCE TO SECTION 16.120.C.4 TO ALLOW FOR THE TOWNHOUSE LOTS ALONG THE PRIVATE ROADS LOCATED MORE THAN 200 FEET FROM THE PUBLIC RIGHT-OF-WAY TO NOT HAVE PUBLIC ROAD FRONTAGE WAS APPROVED ON JUNE 24, 2020 SUBJECT TO THE FOLLOWING CONDITIONS:
    a. THE APPROVAL SHALL APPLY ONLY TO THE SEVEN PRIVATE ROADS LISTED IN THE REQUEST.
    b. THE SEVEN PRIVATE ROADS MUST MEET THE DESIGN STANDARDS FOR PBLIC ROADS AS REQUIRED BY DPW's DESIGN MANUAL.
    c. INCLUDE THIS NOTE ON THE PRELIMINARY PLAN, FINAL PLAN, AND SITE DEVELOPMENT PLAN(S).

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/10/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION — FOR: CE 2/1/22 — DATE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22390, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER A. MILLER — No. 22390 — PROFESSIONAL ENGINEER — 1-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

TAX MAP: 46 - GRID: 6 - PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 - HOWARD COUNTY, MARYLAND

COVER SHEET

DESIGN: DBT	DRAFT: DBT	DATE: DECEMBER 27, 2021	BEI PROJECT NO. 2879
		SCALE: AS SHOWN	SHEET 1 OF 31

F-22-001

I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7009 P1S3.dwg, 12/27/2021 8:39:25 AM

ROAD CHART

Road	Station	Classification	Right-of-Way width	Pavement width	Design Speed (mph)	Pvmt Type
Blackbriar Way	0+00 to 6+18.80	Public Access Street	50'	26'	30	P-2
Genevieve Boulevard	10+38.95 to end	Public Minor Collector	50'	28'	35	P-3
Primrose Lane	0+00 to end	Private ROAD	NA	26'	25	P-2
Quail Rise Lane	0+00 to end	Private ROAD	NA	26'	25	P-2
Olive Branch Lane	0+00 to end	Private ROAD	NA	26'	25	P-2
Tranquility Road	0+00 to end (except as noted below)	Public Access Street	50'	24'	30	P-2
	2+36.12 to 3+57.51	Public Access Street	50'	28'	30	P-2
	9+94.42 to 12+66.43	Public Access Street	50'	28'	30	P-2
	14+78.79 to 15+57.33	Public Access Street	50'	30'	30	P-2
	19+21.44 to end	Public Access Street	50'	28'	30	P-2

STREET LIGHT CHART

ROAD	STATION	OFFSET	TYPE
TRANQUILITY ROAD	9+70	LEFT	LED-100
	11+30	LEFT	LED-100
	12+66	LEFT	LED-100
	14+79	LEFT	LED-100
	15+57	LEFT	LED-100
	17+00	LEFT	LED-100
	18+88	LEFT	LED-100
	20+28	RIGHT	LED-100
GENEVIEVE BLVD	11+20	LEFT	**LED-150**
	13+82	LEFT	**LED-150**
	15+39	LEFT	**LED-150**
BLACKBRIAR WAY	0+33	RIGHT	**LED-150**
	2+31	RIGHT	LED-100
	4+36	RIGHT	LED-100
	6+00	LEFT	**LED-150**

✸ LED-150
POLE: 14'
TYPE: BLACK FIBERGLASS
FIXTURE: POT-TOP PREMIERE COLONIAL
LAMP TYPE: LED-150

☼ LED-100
POLE: 14'
TYPE: BLACK FIBERGLASS
FIXTURE: POST-TOP PREMIERE
LAMP TYPE: LED-100

BOUNDARY COORDINATES

POINT #	NORTHING	EASTING
301	540341.4468	1349063.1687
302	540298.2985	1349279.7261
303	540124.7597	1349528.1262
304	539944.0425	1349784.4961
305	539519.7822	1349480.1639
306	539394.3971	1349407.1407
307	539392.5233	1349276.3524
308	539413.2089	1349246.2927
309	539425.1635	1349243.6785
310	539414.4821	1349194.8327
311	539402.5275	1349197.4469
312	539371.1832	1349178.7648
313	539320.9503	1349063.7080
314	539378.0896	1349023.5931
315	539560.8274	1349018.8679
316	539575.3236	1348981.1860
317	539705.9883	1349031.4526
318	539767.7445	1348870.9217
319	540030.9405	1348972.1732
320	540048.8929	1348925.5072
321	540135.6977	1348958.9010
322	540243.7805	1349084.6462
323	539270.0255	1349624.0151
324	539138.2588	1349769.1721
325	538718.6223	1350085.4782
326	538544.7504	1350251.9275
327	538530.6089	1350269.0786
328	538498.5398	1350269.2966
329	538466.1181	1350308.5287
330	538412.3744	1350236.4205
331	538104.0191	1350610.3985
332	538051.3450	1350580.1700
333	538042.1053	1350546.0434
334	537998.7390	1350521.1564
335	537961.4085	1350586.2059
336	538111.3490	1350672.2534
339	537990.0101	1350883.6903
340	537976.6871	1350932.4398
341	537932.9544	1350952.1599
342	537852.6378	1350920.1378
343	537778.2597	1350932.3533
344	537486.6018	1350774.1816
345	537685.5866	1350407.2673
346	538045.3178	1349780.4243
347	538906.9498	1349412.5629

LEGEND OF SYMBOLS

- EXISTING CONTOURS
- EXISTING CL STREAM
- EXISTING STEEP SLOPES 25% OR GREATER
- EXISTING LIMIT OF 100YR FLOODPLAIN
- EXISTING TREELINE
- EXISTING SPECIMEN TREE
- E — E — EXISTING OVERHEAD TRANSMISSION LINES AND TOWERS
- OHL — EXISTING OVERHEAD POWER LINE
- PROJECT BOUNDARY
- ZONING LINE
- PROPOSED CONC. SIDEWALK
- 18" HDPEP — PROPOSED STORM DRAIN
- 8" SEWER — PROPOSED SEWER
- XX' BRL — INDICATES BUILDING RESTRICTION LINE
- PROPOSED MICRO-BIO
- PROPOSED DRY WELL
- FOREST CONSERVATION EASEMENT
- STREET LIGHTS
- B-XX — SOIL BORING LOCATION
- END SECTION WITH RIP-RAP AND RIP-RAP WITH GABIONS

STORMWATER MANAGEMENT SUMMARY TABLE

Practice		DA (sf)	Imp Area (sf)	% Imp	Rv	Pe required	ESDv (cf) Required	ESDv (cf) Provided	ESDv (cf) 75% ponding Req.	ESDv (cf) ponding Prov.	Pe Provided	Maintenance
M-2 SGW	#7	93,093	25,561	27%	0.30	1.7	3,918	4,167	2,939	3,125	1.8	PRIVATE
M-6 MB	#18	16,749	10,367	62%	0.61	1.7	1,440	1,454	1,080	1,094	1.7	JOINT
M-6 MB	#19	19,126	9,627	50%	0.50	1.7	1,363	1,423	1,022	1,083	1.8	JOINT
M-6 MB	#20	17,935	8,671	48%	0.49	1.7	1,233	1,391	924	1,083	2.0	JOINT
M-6 MB	#21	16,913	10,164	60%	0.59	1.7	1,416	1,415	1,062	1,062	1.7	JOINT
M-6 MB	#22	19,354	15,779	82%	0.78	1.7	2,149	2,150	1,612	1,613	1.7	PRIVATE
M-6 MB	#23	16,903	13,363	79%	0.76	1.7	1,824	1,838	1,368	1,382	1.7	PRIVATE
M-6 MB	#24	16,091	13,586	84%	0.81	1.7	1,846	1,872	1,385	1,410	1.7	PRIVATE
M-6 MB	#25	15,736	12,192	77%	0.75	1.7	1,666	1,894	1,249	1,478	2.0	PRIVATE
M-6 MB	#26	19,339	16,694	86%	0.83	1.7	2,265	2,296	1,699	1,730	1.7	PRIVATE
M-6 MB	#27	17,359	13,652	79%	0.76	1.7	1,864	1,902	1,398	1,437	1.7	PRIVATE
M-2 DW	total	73,912	73,912	100%	0.95	1.7	9,943	10,519			0.0	PRIVATE
TOTALS →		249,417	198,007				27,008	28,154	12,799	13,369		

Notes:
1. The Pe required column is based on total site Pe calculation. The Rv is based on individual drainage area percent impervious
2. See Dry Well Summary Table for computations for each drywell.

Recreational Open Space Chart

Zone	Subdivision Section	Requirement	Unit Count	Required (sf)
R-20	16.121.a.4.vi	200 sf per unit	35	7,000
R-SC	16.121.a.4.vi (SFD)	300 sf per unit	144	43,200
R-SC	16.121.a.4.vi (SFA)	400 sf per unit	215	86,000
		Total Required:		136,200

*unit counts based on entire project

Credit	Size (sf)	Credit (sf)
Clubhouse	3,120	122,928
Pool and Deck	6,283	247,550
Playground	NA	2,000
	Total Provided:	372,478

Minimum Lot Size Chart

Lot	Zoned	Total Lot Area (sf)	Flagstem Area (sf)	Min Lot Area (sf)
165	R-20	12,906	765	12,141
166	R-20	14,426	1,325	13,101
167	R-20	19,658	1,885	17,773

Min Lot Size R-20 zoned lots = 12,000 sf (See General Note 18)

Parking Chart

Phase	Item	Unit	Zoning Section	Requirement	spaces req.	spaces prov.	
P1S1	SFD Units	13 units	133.D.2.a	2.5 spaces per unit	33	52	1
F-21-025	SFA Units	32 units	133.D.2.a	2.5 spaces per unit	80	64	2
P1S2	SFD Units	58 units	133.D.2.a	2.5 spaces per unit	145	232	1
F-21-044	SFA Units	21 units	133.D.2.a	2.5 spaces per unit	53	42	2
P1S3	SFD Units	24 units	133.D.2.a	2.5 spaces per unit	60	96	1
F-22-001	SFA Units	102 units	133.D.2.a	2.5 spaces per unit	255	204	2
						75	3
				Total:	626	765	

1. Spaces provided include 2 spaces per garage, 2 spaces per driveway.
2. Spaces provided include 1 space per garage and 1 space per driveway.
3. Off-street parking spaces along Aurora Way, Cultivator Road, Blackbriar Way, and Olive Branch Lane

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/10/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE Fort CE 2/1/22

NO.	DATE	REVISION
1	1/24/2023	REVISE PRIMROSE, QUAIL RISE, AND OLIVE BRANCH LANES TO BE CLASSIFIED A "PRIVATE ROAD"

BENCHMARK
ENGINEERS LAND SURVEYORS PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6544
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22390, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER A. KALLAS — No. 22390 — PROFESSIONAL ENGINEER

1-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

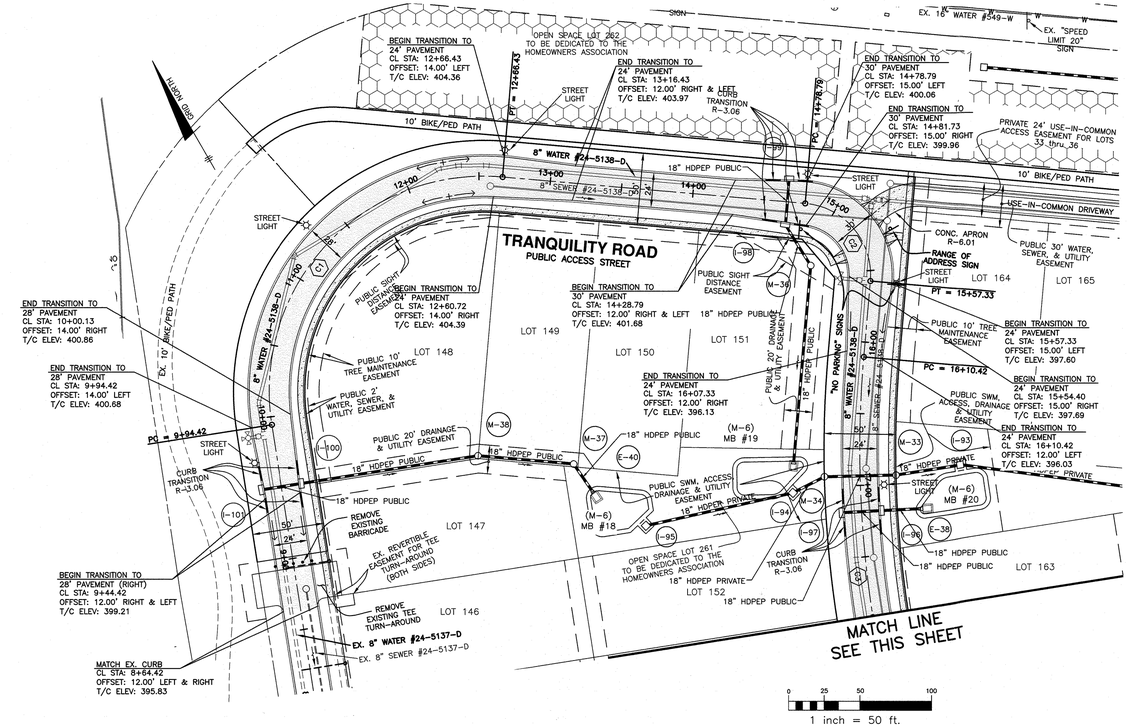
Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 170 thru 175;;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

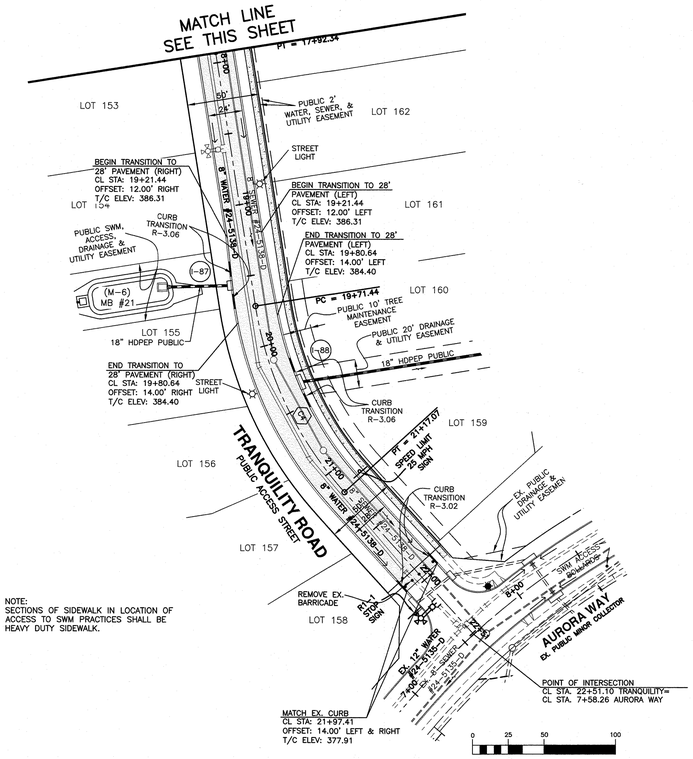
TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

COVER SHEET B

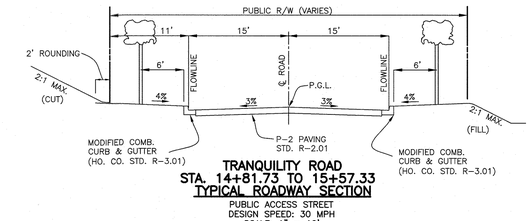
DESIGN: DBT | DRAFT: DBT | DATE: DECEMBER 27, 2021 | SCALE: AS SHOWN | BEI PROJECT NO. 2879 | SHEET 2 OF 31

F-22-001

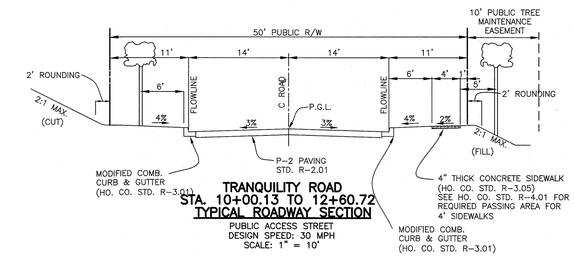




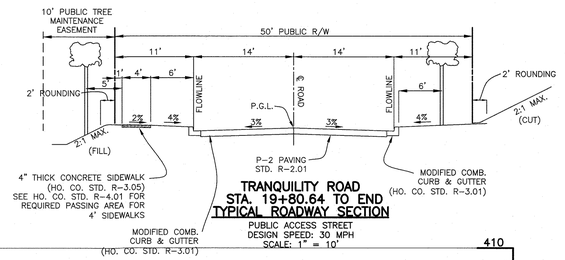
NOTE:
SECTIONS OF SIDEWALK IN LOCATION OF ACCESS TO SWM PRACTICES SHALL BE HEAVY DUTY SIDEWALK.



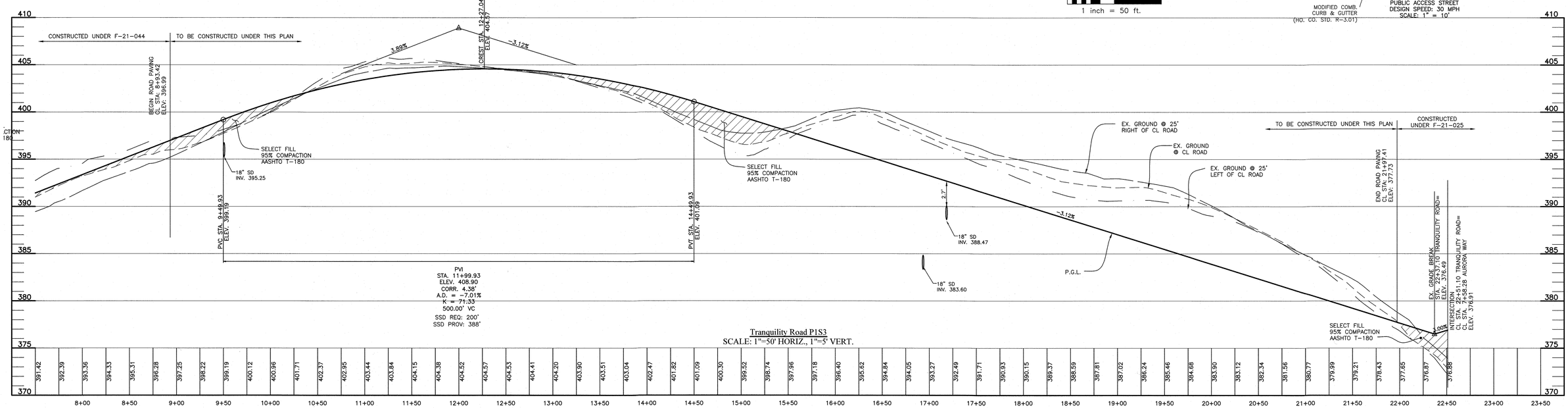
TRANQUILITY ROAD
STA. 14+81.73 TO 15+57.33
TYPICAL ROADWAY SECTION
PUBLIC ACCESS STREET
DESIGN SPEED: 30 MPH
SCALE: 1" = 10'



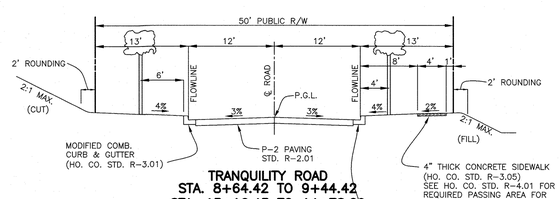
TRANQUILITY ROAD
STA. 10+00.13 TO 12+60.72
TYPICAL ROADWAY SECTION
PUBLIC ACCESS STREET
DESIGN SPEED: 30 MPH
SCALE: 1" = 10'



TRANQUILITY ROAD
STA. 19+80.64 TO END
TYPICAL ROADWAY SECTION
PUBLIC ACCESS STREET
DESIGN SPEED: 30 MPH
SCALE: 1" = 10'



Tranquility Road P1S3
SCALE: 1"=50' HORIZ., 1"=5' VERT.



TRANQUILITY ROAD
STA. 8+64.42 TO 9+44.42
STA. 13+16.43 TO 14+78.29
TYPICAL ROADWAY SECTION
PUBLIC ACCESS STREET
DESIGN SPEED: 30 MPH
SCALE: 1" = 10'

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/10/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION — FOR: CE — DATE 2/1/22

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22390, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER A. MILLER — No. 22390 — PROFESSIONAL ENGINEER
1-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcel 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

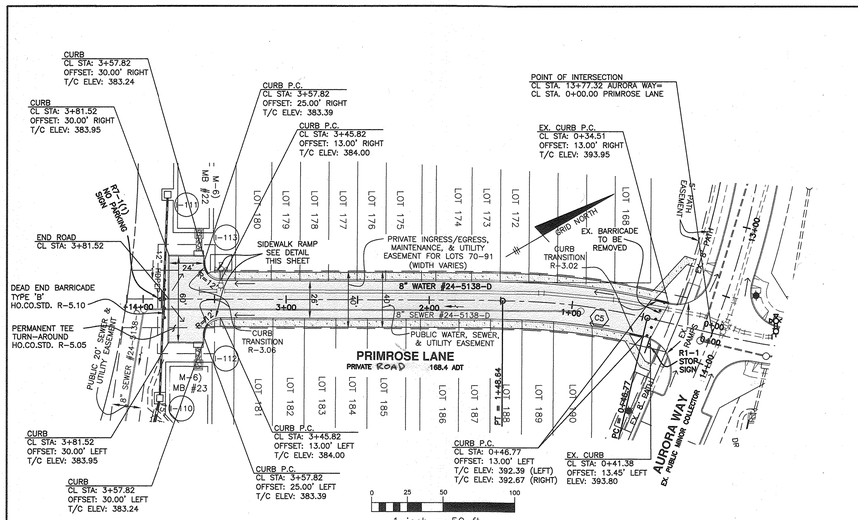
TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

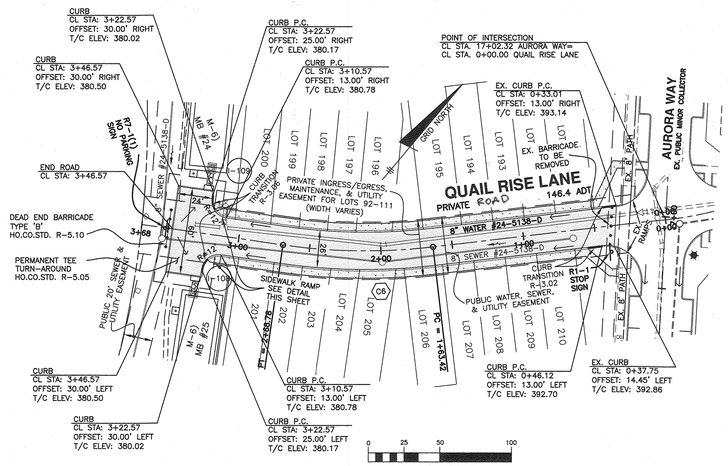
ROAD PLAN
TRANQUILITY ROAD

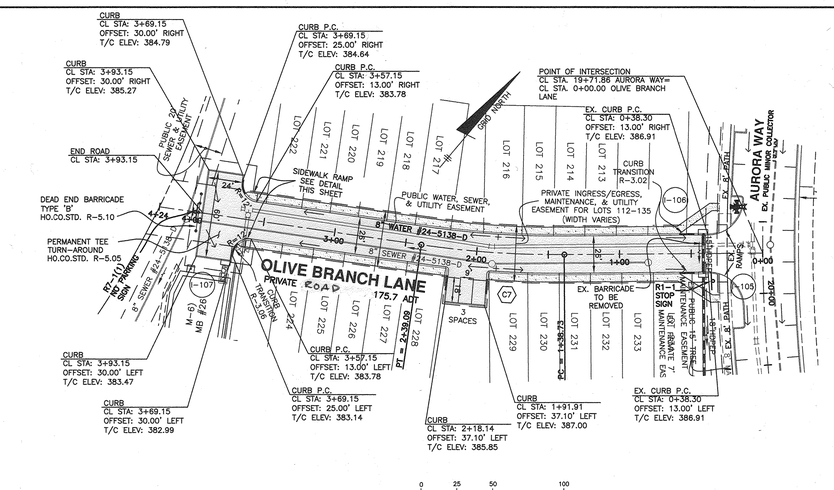
DESIGN: DBT	DRAFT: DBT	DATE: DECEMBER 27, 2021	BEI PROJECT NO. 2879
		SCALE: AS SHOWN	SHEET 3 OF 31

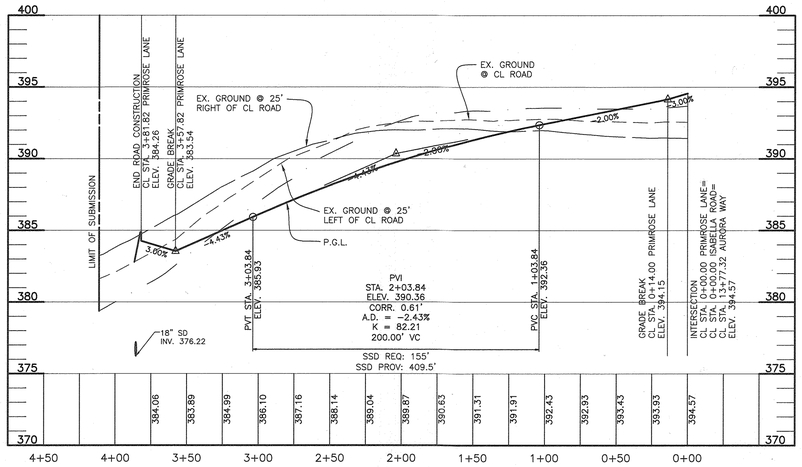
F-22-001

I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7017 P1S3.dwg, 12/26/2021 12:45:14 PM

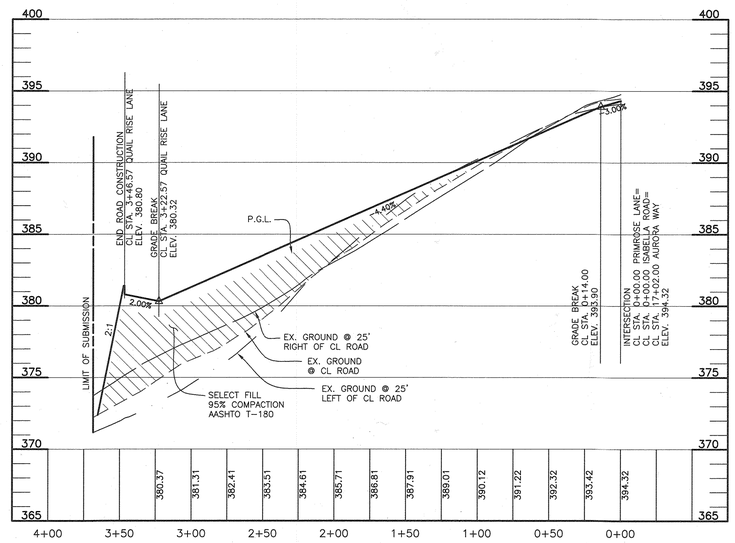




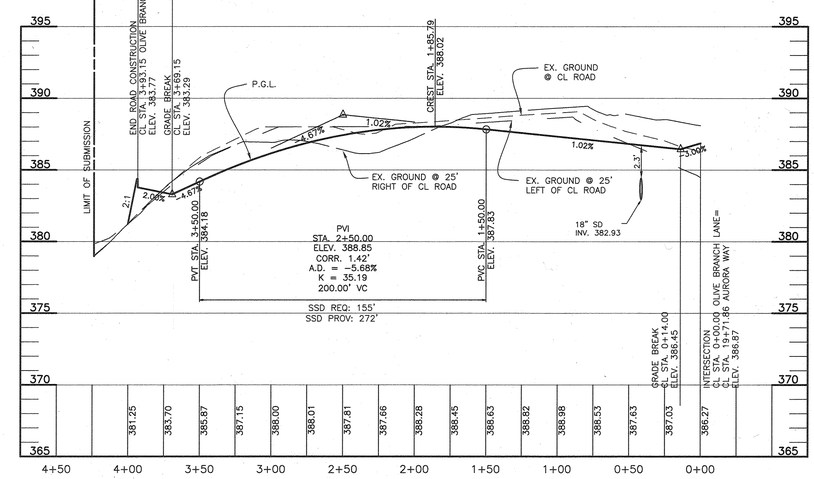




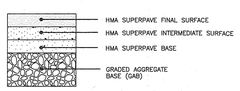
Primrose Lane
Scale: 1"=50' Horiz., 1"=5' Vert.



Quail Rise Lane
Scale: 1"=50' Horiz., 1"=5' Vert.



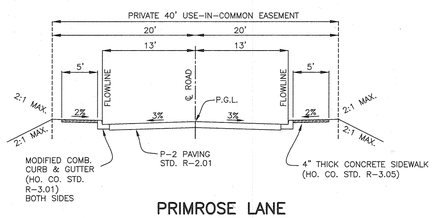
Olive Branch Lane
Scale: 1"=50' Horiz., 1"=5' Vert.



SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 TO <5	5 TO <7	≥7	3 TO <5	5 TO <7	≥7
		PAVEMENT MATERIAL (INCHES)	MIN HMA WITH GAB			HMA WITH CONSTANT GAB		
P-2	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SAC: RESIDENTIAL	SUPERPAVE ASPHALT MIX FINAL SURFACE 9.5 MM PG 64-22S, LEVEL 1 (LOW ESAL)	1.5	1.5	1.5	1.5	1.5	1.5
		SUPERPAVE ASPHALT MIX INTERMEDIATE SURFACE 9.5 MM PG 64-22S, LEVEL 1 (LOW ESAL)	1.5	1.5	1.5	1.5	1.5	1.5
		SUPERPAVE ASPHALT MIX BASE 19.0 MM PG 64-22S, LEVEL 1 (LOW ESAL)	2.0	2.0	2.0	3.5	2.0	2.0
		GRADED AGGREGATE BASE (GAB)	8.0	4.0	3.0	4.0	4.0	4.0

P-2 PAVING DETAIL

NOTE: GEOTECHNICAL ENGINEER SHALL VERIFY THE ON-SITE CBR TO DETERMINE PAVEMENT DEPTH REQUIRED.



PRIMROSE LANE
QUAIL RISE LANE
OLIVE BRANCH LANE
TYPICAL ROADWAY SECTION

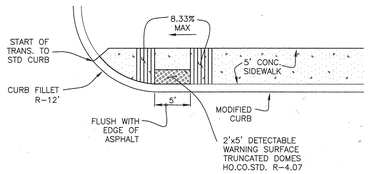
DESIGN SPEED: 25 MPH
SCALE: 1" = 10'
PRIVATE ROAD

1 inch = 10 ft.

CENTER LINE CURVE DATA

CURVE	ALIGNMENT	STATION	RADIUS	ARC	DELTA	TANGENT	CHORD DIRECTION	CHORD LENGTH
C1	Tranquility Road P1S3	9+94.42 TO 12+66.43	150.00'	272.00'	103°53'51"	191.64'	N72° 59' 26"E	236.24'
*C2	Tranquility Road P1S3	14+78.79 TO 15+57.33	50.00'	78.54'	90°00'00"	50.00'	S10° 03' 39"E	70.71'
*C3	Tranquility Road P1S3	16+10.42 TO 17+92.34	750.00'	*181.92'	13°53'51"	91.41'	S27° 59' 26"W	181.47'
C4	Tranquility Road P1S3	19+71.44 TO 21+17.07	250.00'	145.63'	33°22'36"	74.95'	S04° 21' 12"W	143.58'
*C5	Primrose Lane	0+46.77 TO 1+48.64	450.00'	101.87'	12°58'13"	51.15'	S36° 42' 05"W	101.65'
C8	Genevieve Blvd	8+32.82 TO 13+82.18	750.00'	549.36'	41°58'05"	287.66'	S55° 17' 32"W	537.16'
C6	Quail Rise Lane	1+63.42 TO 2+68.78	400.00'	105.35'	15°05'27"	52.98'	S50° 43' 54"W	105.05'
C7	Olive Branch Lane	1+38.73 TO 2+39.09	655.00'	100.36'	8°46'44"	50.28'	S53° 53' 15"W	100.26'
C9	Blackbrier Way	0+19.79 TO 2+53.56	350.00'	233.77'	38°16'07"	121.43'	S41° 00' 54"E	229.45'

*DESIGN MANUAL WAIVER APPROVED. SEE GENERAL NOTE 27 ON SHEET 1.



SIDEWALK RAMP DETAIL AT PRIVATE ROAD TEE TURN-AROUND

SCALE: 1" = 10'

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/1/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION — For: CE — DATE 2/1/22

NO.	DATE	REVISION
1	1/24/2023	REVISE PRIMROSE, QUAIL RISE, AND OLIVE BRANCH LANES TO BE CLASSIFIED AS "PRIVATE ROAD"

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22308, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER A. WALSER — No. 22308 — PROFESSIONAL ENGINEER

1-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

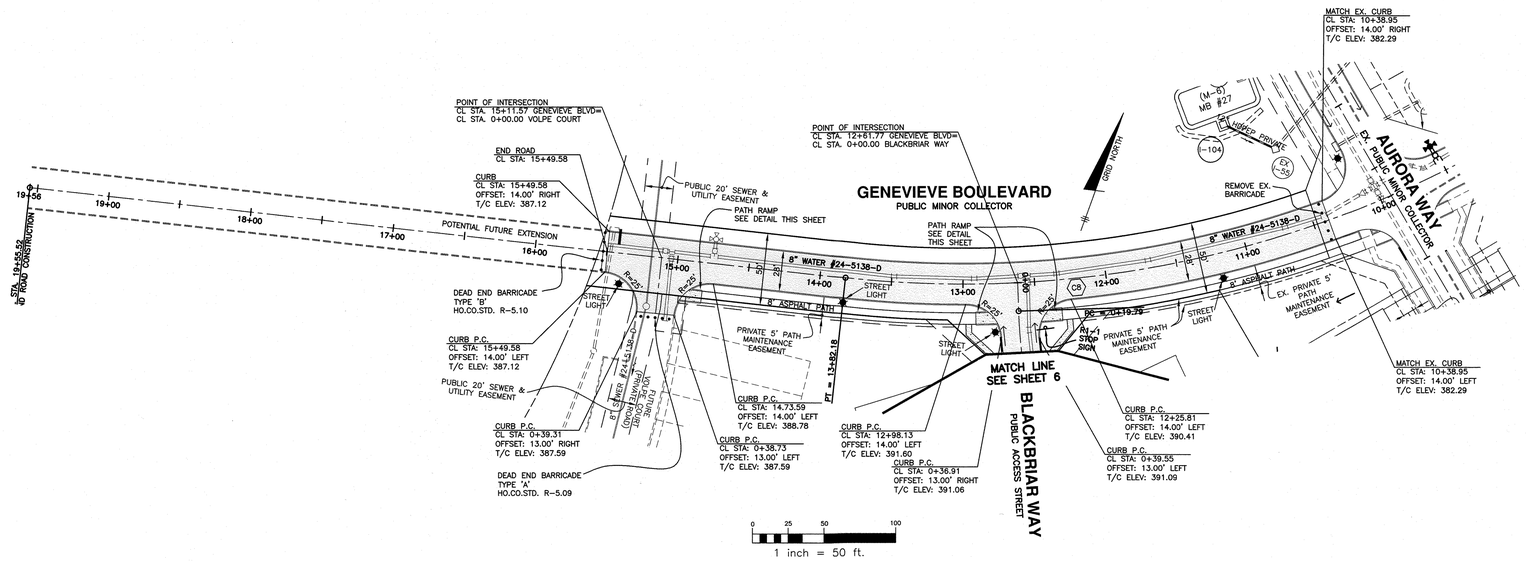
TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20–MXD–3 / R-SC–MXD–3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

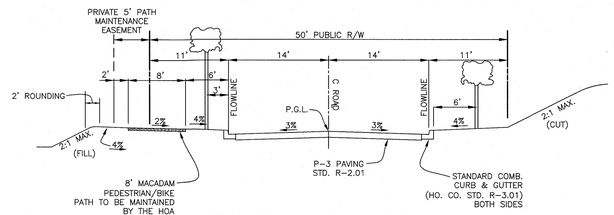
ROAD PLAN
PRIMROSE, QUAIL RISE, AND OLIVE BRANCH LANES

DESIGN: DBT	DRAFT: DBT	DATE: DECEMBER 27, 2021	BEI PROJECT NO. 2879
		SCALE: AS SHOWN	SHEET 4 OF 31

F-22-001

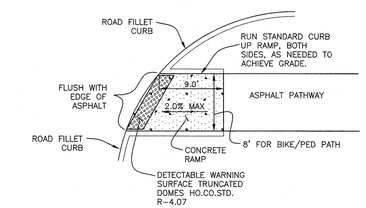
I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7017 P1S3.dwg, 12/26/2021 12:46:22 PM





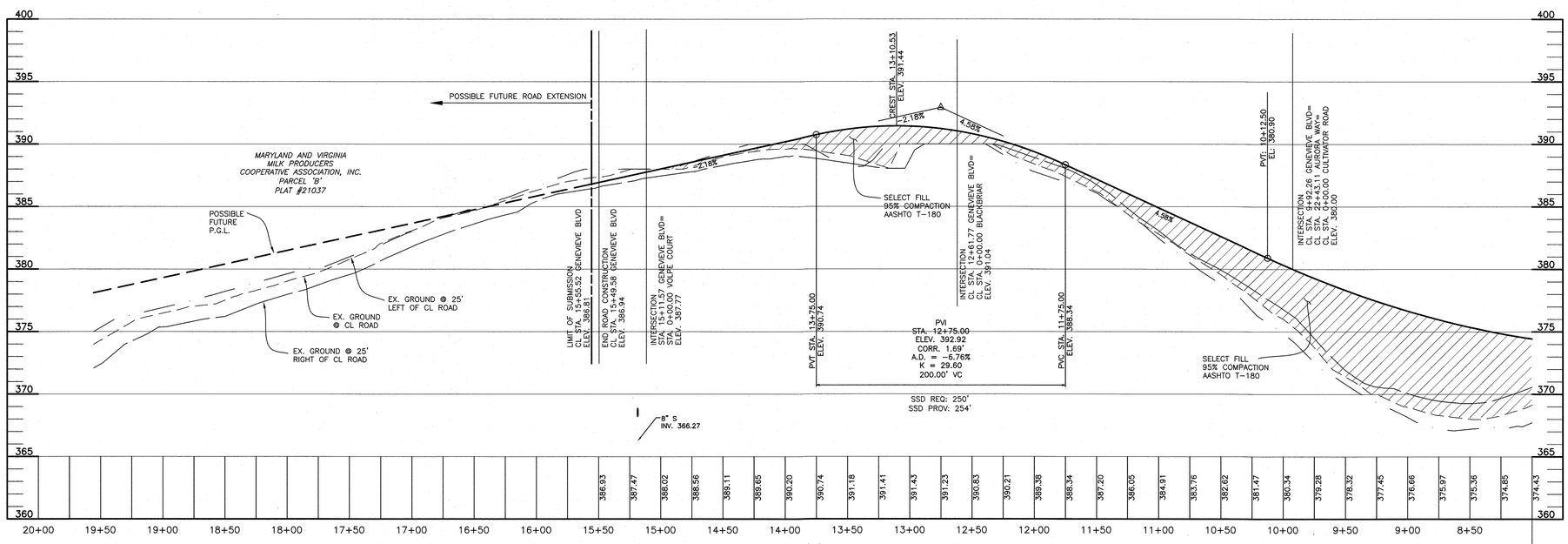
GENEVIEVE BOULEVARD TYPICAL ROADWAY SECTION

PUBLIC MINOR COLLECTOR
DESIGN SPEED: 35 MPH
SCALE: 1" = 10'

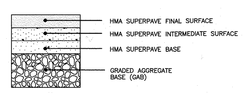


TYPICAL ASPHALT PATH SIDEWALK RAMP DETAIL

SCALE: 1" = 10'



Genevieve Blvd
Scale: 1"=50' Horiz., 1"=5' Vert.



SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 TO <5	5 TO <7	≥7	3 TO <5	5 TO <7	≥7
		PAVEMENT MATERIAL (INCHES)	MIN HMA WITH GAB			MIN HMA WITH CONSTANT GAB		
P-3	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SAC: RESIDENTIAL MINOR COLLECTORS: RESIDENTIAL	SUPERPAVE ASPHALT MIX FINAL SURFACE 9.5 MM PG 64-22S, LEVEL 1 (LOW ESAL)	1.5	1.5	1.5	1.5	1.5	1.5
		SUPERPAVE ASPHALT MIX INTERMEDIATE SURFACE 9.5 MM PG 64-22S, LEVEL 1 (LOW ESAL)	1.0	1.0	1.0	1.0	1.0	1.0
		SUPERPAVE ASPHALT MIX BASE 19.0 MM PG 64-22S, LEVEL 1 (LOW ESAL)	3.0	3.0	3.0	4.5	3.0	2.0
		GRADED AGGREGATE BASE (GAB)	10.0	6.0	3.0	6.0	6.0	6.0

P-3 PAVING DETAIL

NOTE: GEOTECHNICAL ENGINEER SHALL VERIY THE ON-SITE CBR TO DETERMINE PAVEMENT DEPTH REQUIRED.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2.1.22

CHIEF, DEVELOPMENT ENGINEERING DIVISION — FOR: CB 2/1/22 — DATE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22390, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER A. MILLER — No. 22390 — PROFESSIONAL ENGINEER
1-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

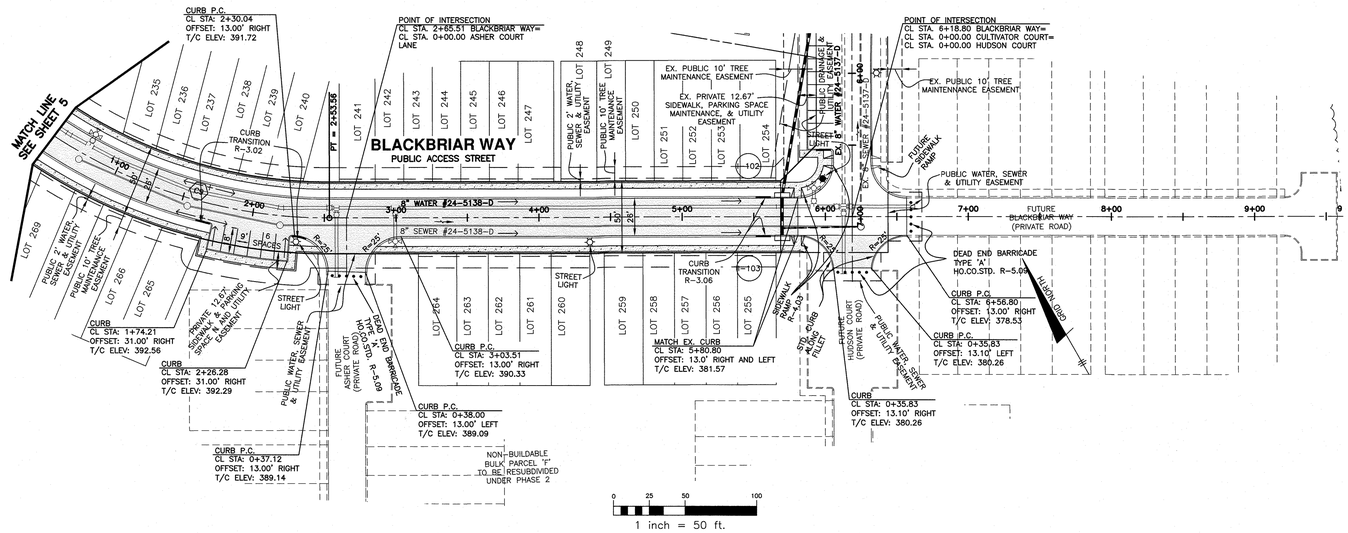
TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

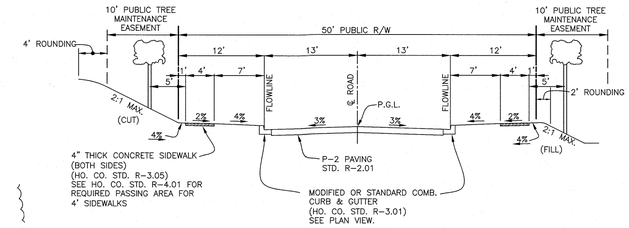
ROAD PLAN
GENEVIEVE BOULEVARD

DESIGN: DBT	DRAFT: DBT	DATE: DECEMBER 27, 2021	BEI PROJECT NO. 2879
		SCALE: AS SHOWN	SHEET 5 OF 31

F-22-001

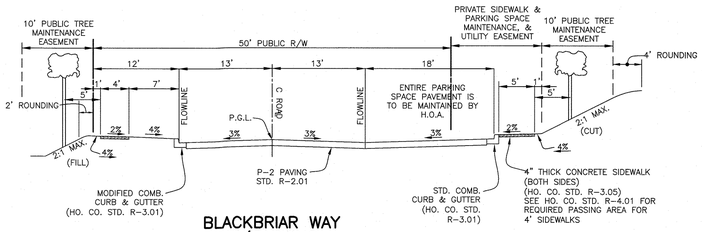
I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7017 P1S3.dwg, 12/26/2021 12:47:01 PM





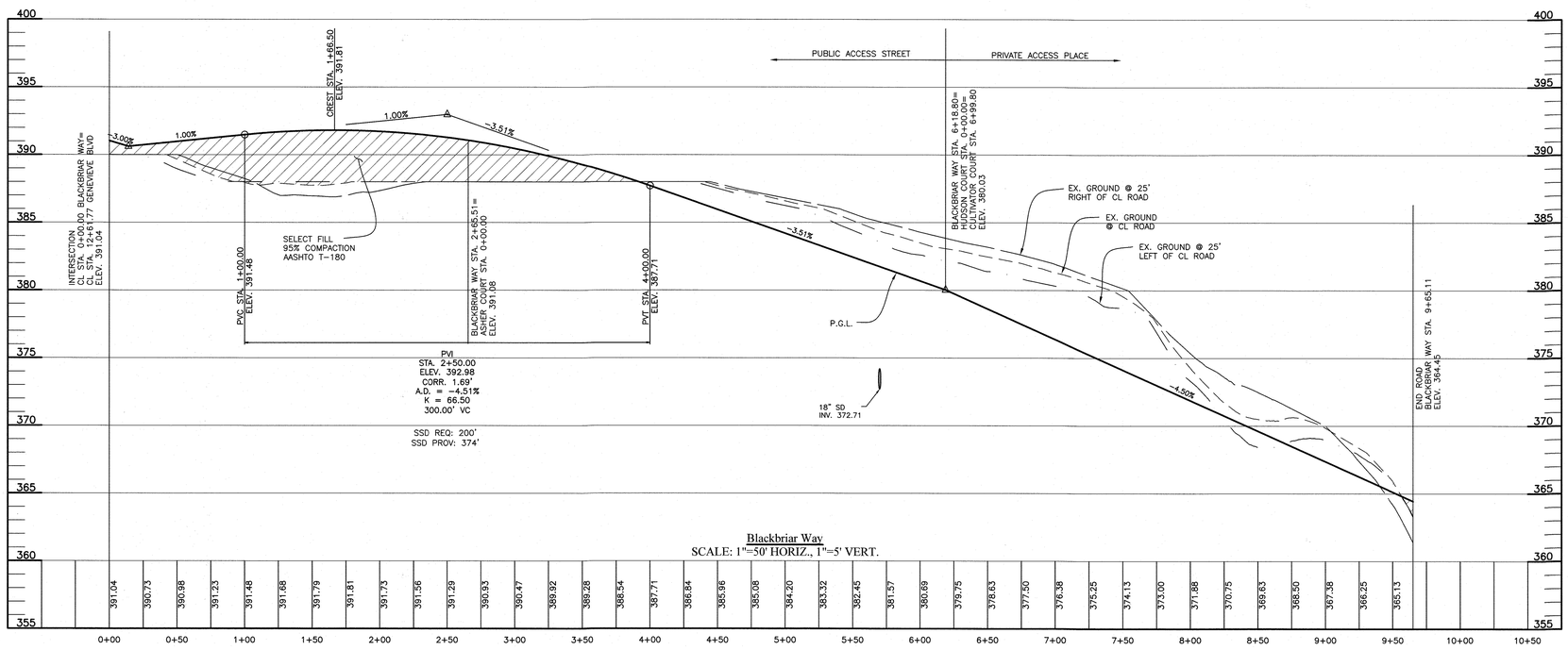
BLACKBRIAR WAY
TYPICAL ROADWAY SECTION

PUBLIC ACCESS STREET
DESIGN SPEED: 30 MPH
SCALE: 1" = 10'



BLACKBRIAR WAY
W/PARKING
TYPICAL ROADWAY SECTION

PUBLIC ACCESS STREET
DESIGN SPEED: 30 MPH
SCALE: 1" = 10'



Blackbriar Way
SCALE: 1"=50' HORIZ., 1"=5' VERT.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/1/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION — FOR: CR 2/1/22 — DATE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22390, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER A. WILLIAMS — No. 22390 — PROFESSIONAL ENGINEER — 1-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

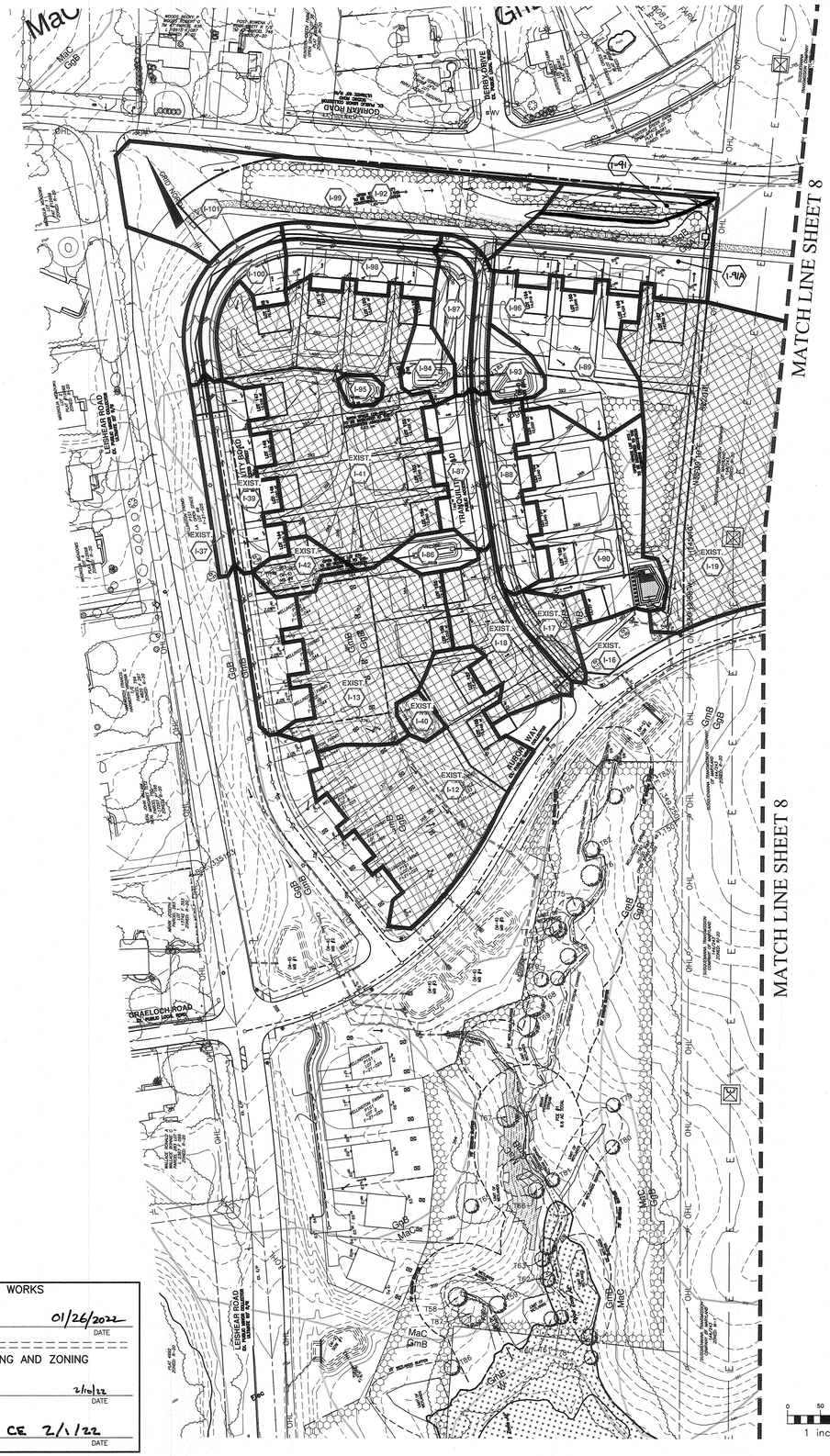
TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

ROAD PLAN
BLACKBRIAR WAY

DESIGN: DBT	DRAFT: DBT	DATE: DECEMBER 27, 2021	BEI PROJECT NO. 2879
		SCALE: AS SHOWN	SHEET 6 OF 31

F-22-001

I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7017 P1S3.dwg, 12/26/2021 12:47:26 PM



NOTE:
SEE SHEET 24 FOR DETAIL OF SWALE ALONG GORMAN ROAD.

AREA AND 'C' FACTOR TABULATION

Phase	Inlet	Zoning (Z)	Area (ac) (A)	'C' factor < 25yr	'C' factor 25yr and >	% Impervious (I)
P1S3	I-86	R-20-MXD-3	0.49	0.41		45
P1S3	I-87	R-20-MXD-3	0.35	0.51		62
P1S3	I-88	R-20-MXD-3	0.48	0.50		61
P1S3	I-89	R-20-MXD-3	0.85	0.29		38
P1S3	I-90	R-20-MXD-3	2.46	0.32		38
P1S3	I-91	R-20-MXD-3	0.30	0.16		0
P1S3	I-92	R-20-MXD-3	1.67	0.16		0
P1S3	I-93	R-20-MXD-3	0.55	0.56		60
P1S3	I-94	R-20-MXD-3	0.69	0.48		52
P1S3	I-95	R-20-MXD-3	0.41	0.74		87
P1S3	I-96	R-20-MXD-3	0.16	0.86		100
P1S3	I-97	R-20-MXD-3	0.23	0.63		75
P1S3	I-98	R-20-MXD-3	0.37	0.50		60
P1S3	I-99	R-20-MXD-3	0.14	0.86		100
P1S3	I-100	R-20-MXD-3	0.24	0.65		77
P1S3	I-101	R-20-MXD-3	0.17	0.86		100
P1S3	I-102	R-SC-MXD-3	0.63	0.51		78
P1S3	I-103	R-SC-MXD-3	0.40	0.54		80
P1S3	I-104	R-SC-MXD-3	0.50	0.39		61
P1S3	I-105	R-SC-MXD-3	0.17	0.45		74
P1S3	I-106	R-SC-MXD-3	0.24	0.44		74
P1S3	I-107	R-SC-MXD-3	0.44	0.54		80
P1S3	I-108	R-SC-MXD-3	0.36	0.48		76
P1S3	I-109	R-SC-MXD-3	0.38	0.51		78
P1S3	I-110	R-SC-MXD-3	0.51	0.41		63
P1S3	I-111	R-SC-MXD-3	0.59	0.42		59
P1S3	I-112	R-SC-MXD-3	0.43	0.46		75
P1S3	I-113	R-SC-MXD-3	0.45	0.50		78
P1S3	I-91A	R-SC-MXD-3	0.73	0.17		19

LEGEND

DRAINAGE AREA DIVISION

DRAINAGE AREAS TO EXISTING INLETS INSTALLED UNDER F-21-025 OR F-21-044

SOILS DELINEATION

MaC SOILS TYPE

SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND

SYMBOL	HYDRIC	HYDROLOGIC GROUP	NAME	k-VALUE	ERODIBLE
CeB		B	CHILLUM LOAM, 2 TO 5 PERCENT SLOPES	0.37	NO
GgA		B	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	0.20	NO
GgB		B	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	0.20	NO
GmB*	YES	C	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	0.37	YES
GmC		C	GLENVILLE SILT LOAM, 8 TO 15 PERCENT SLOPES	0.37	NO
GnB*	YES	C	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37/0.32	NO
MaC		B	MANOR LOAM, 8 TO 15 PERCENT SLOPES	0.24	YES
MaD		B	MANOR LOAM, 15 TO 25 PERCENT SLOPES	0.24	YES
RsB		C	RUSSETT FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES	0.24	NO
RuB		C	RUSSETT AND BELTSVILLE SOIL, 2 TO 5 PERCENT SLOPES	0.24/0.37	NO
RuC		C	RUSSETT AND BELTSVILLE SOIL, 5 TO 10 PERCENT SLOPES	0.24/0.37	NO
SaC		B	SASSAFRAS LOAM, 5 TO 10 PERCENT SLOPE	0.24	NO
SrD		B	SASSAFRAS AND CROOM SOIL, 10 TO 15 PERCENT SLOPES	0.37/0.28	YES
W			WATER	0.00	

HSCD Newsletter dated April, 2013 defines erodible soils as those soils with a slope greater than 15 percent or those soils with a soil erodibility factor K greater than 0.35 and with a slope greater than 5%.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/10/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION KSA — DATE FOR: CE 2/1/22

NO.	DATE	REVISION
1	7.7.2023	ADD I-91A. ADJUST GRADES AND DE[illegible]OE.

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 23390, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER A. MALONEY — No. 23390 — PROFESSIONAL ENGINEER

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

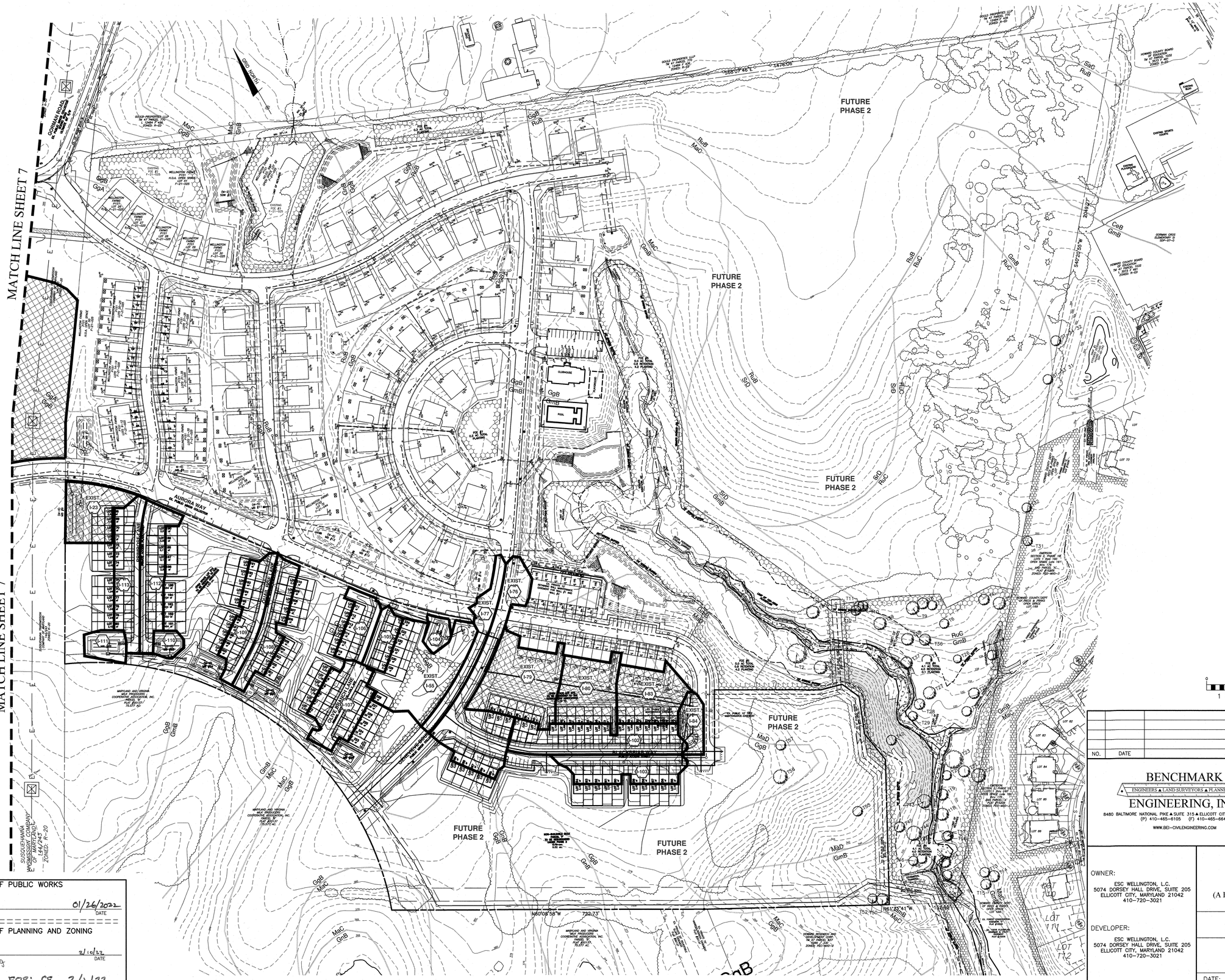
Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 170 thru 175;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

STORM DRAIN DRAINAGE AREA MAP

DESIGN: DBT | DRAFT: DBT | DATE: DECEMBER 27, 2021 | SCALE: AS SHOWN | BEI PROJECT NO. 2879 | SHEET 7 OF 31

F-22-001



LEGEND

- DRAINAGE AREA DIVISION
- DRAINAGE AREAS TO EXISTING INLETS INSTALLED UNDER F-21-025 OR F-21-044
- SOILS DELINEATION
- **MaC** SOILS TYPE

0 50 100 200

1 inch = 100 ft.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/10/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION FOR: CE — DATE 2/1/22

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22390, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER J. WILLIAMS — 22390 — PROFESSIONAL ENGINEER — 6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 170 thru 175;;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

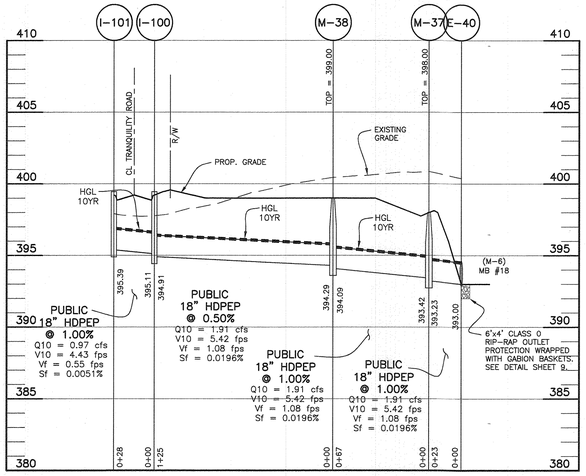
TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

STORM DRAIN DRAINAGE AREA MAP

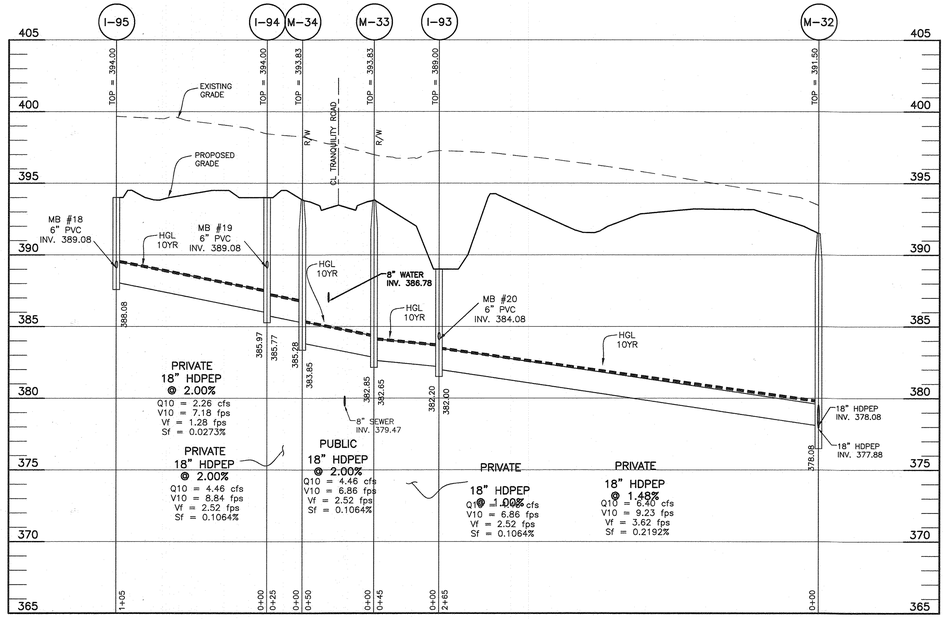
DESIGN: DBT	DRAFT: DBT	DATE: DECEMBER 27, 2021	BEI PROJECT NO. 2879
		SCALE: AS SHOWN	SHEET 8 OF 31

F-22-001

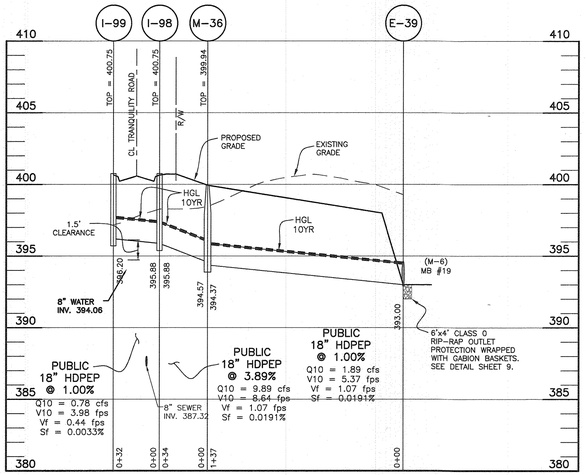
I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7029 P1S3.dwg, 12/26/2021 1:05:42 PM



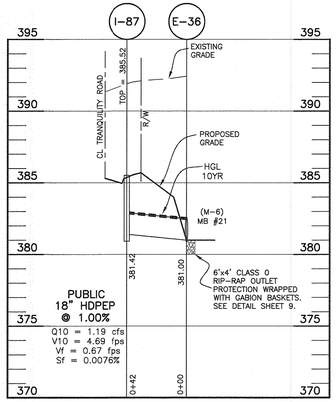
SD: E-40 to I-101



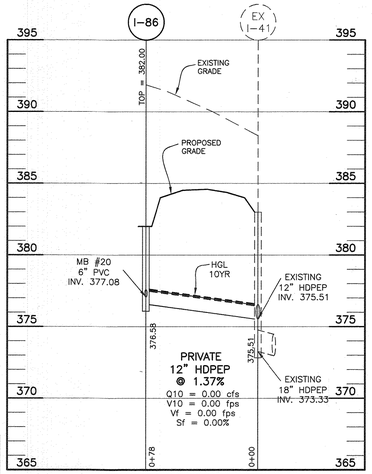
SD: M-32 to I-95



SD: E-39 to I-99



SD: E-36 to I-87



SD: I-41 to I-86

1 inch = 50 ft. HORIZ.

1 inch = 5 ft. VERT.

STRUCTURE TABLE

NUMBER	TYPE	STD. DETAIL	LOCATION	INVERT IN	INVERT OUT	TOP ELEV.	OWNER
E-36	18" HDPE END SECTION	SEE ADS DETAIL	539674.82 1349169.74	381.00(18")		N/A	PUBLIC
E-37	18" HDPE END SECTION	SEE ADS DETAIL	539505.26 1349388.74	376.00(18")		N/A	PUBLIC
E-38	18" HDPE END SECTION	SEE ADS DETAIL	539850.10 1349344.65	388.00(18")		389.64	PUBLIC
E-39	18" HDPE END SECTION	SEE ADS DETAIL	539922.70 1349285.62	393.00(18")		394.64	PUBLIC
E-40	18" HDPE END SECTION	SEE ADS DETAIL	539975.29 1349152.97	393.00(18")		394.64	PUBLIC
E-41	18" HDPE END SECTION	SEE ADS DETAIL	538559.84 1350196.93	382.00(18")		383.64	PRIVATE
E-42	18" HDPE END SECTION	SEE ADS DETAIL	538783.81 1349651.09	375.23(18")		376.88	PRIVATE
I-19	EX. UNDER F-21-025	D-4.24	539411.18 1349389.58	369.29(18")		376.50	----
I-41	EX. UNDER F-21-044	D-4.24	539724.55 1349038.59	375.51(12")		383.00	----
I-55	EX. UNDER F-21-044	D-4.24	538518.25 1350239.57	375.80(12")		380.00	----
I-84	EX. UNDER F-21-044	D-4.02	538129.72 1350622.07	365.46(18")		371.92	----
I-86	S	D-4.24	539696.55 1349111.69		376.58(12")	382.00	PRIVATE
I-87	A-5	D-4.02	539654.94 1349206.45		381.42(18")	385.52	PUBLIC
I-88	A-10	D-4.02	539571.96 1349215.58		379.39(18")	383.03	PUBLIC
I-89	S	D-4.24	539709.02 1349446.73		384.00(18")	388.50	PRIVATE
I-90	S	D-4.24	539456.28 1349383.96	375.17 (6")	374.17(18")	378.00	PRIVATE
I-91	D 4 SIDES OPEN	D-4.10	540014.10 1349650.39	382.74(18")	382.54(18")	390.83	PRIVATE
I-92	D 4 SIDES OPEN	D-4.10	540093.62 1349537.58		385.50(18")	390.83	PRIVATE
I-93	S	D-4.24	539862.16 1349384.80	382.20(18")	382.00(18")	389.00	PRIVATE
I-94	S	D-4.24	539903.74 1349273.88	385.97(18")	385.77(18")	394.00	PRIVATE
I-95	S	D-4.24	539935.29 1349173.43		388.08(18")	394.00	PRIVATE
I-96	A-5	D-4.02	539862.20 1349321.28	388.33(18")	388.13(18")	392.94	PUBLIC
I-97	A-5	D-4.02	539874.63 1349296.56		388.88(18")	392.94	PUBLIC
I-98	A-5	D-4.02	540068.31 1349362.67	395.88(18")	395.88(18")	400.75	PUBLIC
I-99	A-5	D-4.02	540094.71 1349381.11		396.20(18")	400.75	PUBLIC
I-100	A-5	D-4.02	540080.90 1348979.69	395.11(18")	394.91(18")	399.45	PUBLIC
I-101	A-5	D-4.02	540091.01 1348953.38		395.39(18")	399.45	PUBLIC
I-102	A-10	D-4.02	538032.71 1350541.99	372.41(18")	372.21(18")	381.96	PUBLIC
I-103	A-10	D-4.02	538006.98 1350527.23		373.00(18")	381.96	PUBLIC
I-104	S	D-4.24	538521.82 1350199.54		377.58(12")	383.00	PRIVATE
I-105	A-5	D-4.02	538647.80 1350121.59	382.78(18")	382.58(18")	386.94	PRIVATE
I-106	A-5	D-4.02	538670.36 1350102.32		383.08(18")	386.94	PRIVATE
I-107	A-5 FLOW-THRU	D-4.02	538439.71 1349860.40			0.00	PRIVATE
I-108	A-5 FLOW-THRU	D-4.02	538657.70 1349754.70			380.02	PRIVATE
I-109	A-5 FLOW-THRU	D-4.02	538711.85 1349721.22			380.02	PRIVATE
I-110	S	D-4.24	538802.61 1349630.82	375.87(12")	375.37(18")	381.00	PRIVATE
I-111	S	D-4.24	538878.10 1349510.61		376.58(12")	382.00	PRIVATE
I-112	A-5 FLOW-THRU	D-4.02	538844.44 1349612.04			383.24	PRIVATE
I-113	A-5 FLOW-THRU	D-4.02	538876.48 1349557.02			383.24	PRIVATE
M-31	48" MH	G-5.12	539427.18 1349398.97	371.46(18") 373.52(18")	371.26(18")	378.50	PRIVATE
M-32	48" MH	G-5.12	539700.60 1349595.10	378.08(18") 378.08(18")	377.88(18")	391.50	PRIVATE
M-33	48" MH	G-5.12	539878.55 1349342.44	382.85(18")	382.65(18")	393.83	PUBLIC
M-34	48" MH	G-5.12	539902.48 1349298.54	385.28(18")	383.85(18")	393.83	PUBLIC
M-35	48" MH	G-5.12	539934.70 1349763.03	381.16(18")	380.96(18")	394.00	PRIVATE
M-36	48" MH	G-5.12	540034.79 1349363.93	394.57(18")	394.37(18")	399.94	PRIVATE
M-37	48" MH	G-5.12	539997.74 1349151.20	393.42(18")	393.23(18")	398.00	PRIVATE
M-38	48" MH	G-5.12	540036.15 1349096.21	394.29(18")	394.09(18")	399.00	PRIVATE
M-39	48" MH	G-5.12	539512.09 1349370.97	376.39(18") 376.39(18")	376.19(18")	381.00	PUBLIC
I-91A	D 4 SIDES OPEN	D-4.10	539894.20 1349738.61	380.40	380.20	394.20	PRIVATE

STORM DRAIN PIPE SCHEDULE

SIZE	TYPE	LINEAR FEET	MAINTENANCE
12"	HDPEP	291	PRIVATE
18"	HDPEP	1815	PRIVATE
18"	HDPEP	934	PUBLIC

All HDPE pipes shall have smooth interior. No interior corrugations.

ADS, Inc. Drainage Handbook *Specifications ♦ 1-36*

ADS FLARED END SECTION SPECIFICATION

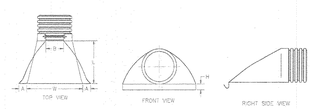
Scope
This specification describes 12- through 36-inch (300 to 900mm) ADS Flared End Sections for use in culvert and drainage outlet applications.

Requirements
The ADS Flared End Section shall be high density polyethylene meeting ASTM D3350 minimum cell classification 213200C; contact manufacturer for additional cell classification information. When provided, the metal threaded fastening rod shall be stainless steel.

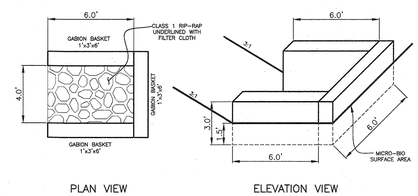
Installation
Installation shall be in accordance with ADS installation instructions and with those issued by state or local authorities. Contact your local ADS representative or visit www.ads-pipe.com for the latest installation instructions.

	PIPE DIAMETER, in (mm)					
Diameter in (mm)	12 (300)	15 (375)	18 (450)	24 (600)	30 (750)	36 (900)
A in (mm)	6.5 (165)	6.5 (165)	7.5 (193)	7.5 (191)	7.5 (191)	7.5 (191)
B (max) in (mm)	10.5 (264)	10.0 (254)	15.3 (381)	18.0 (473)	23.0 (559)	26.0 (833)
C in (mm)	6.5 (165)	6.5 (165)	6.5 (165)	6.5 (165)	8.6 (218)	8.6 (218)
I in (mm)	25.0 (635)	25.0 (635)	32.0 (813)	36.0 (914)	58.0 (1473)	58.0 (1473)
W in (mm)	29.0 (737)	29.0 (737)	35.0 (889)	45.0 (1143)	63.0 (1600)	63.0 (1600)

Product detail may differ slightly from actual product appearance



© ADS, Inc., January 2019



PLAN VIEW ELEVATION VIEW

GABION BASKETS TO BE BURIED 18 INCHES. THEY SHOULD EXTEND 18 INCHES ABOVE THE MICRO-BIO SURFACE.

RIP-RAP WITH GABION BASKETS INFLOW DETAIL

SCALE: 1" = 5'

CONSTRUCTION SPECIFICATIONS

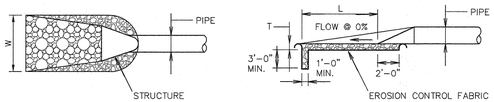
1. THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.

2. THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.

3. GEOTEXTILE CLASS C28 OR BETTER SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE PREPARED BY PLACING ANOTHER PIECE OF GEOTEXTILE FABRIC OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE FABRIC. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE FABRIC SHALL BE A MINIMUM OF ONE FOOT.

4. STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR HE RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. RIP-RAP SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE FABRIC. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.

5. THE STONE SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GROUND. IF THE STONE IS PLACED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL AND SCOUR ADJACENT TO THE STONE WILL OCCUR.



PLAN SECTION

STRUCTURE	Q_2 fps	V_2 fps	d_2 (ft)	Q_{10} fps	V_{10} fps	d_{10} (ft)	d50	LENGTH(L)	WIDTH(W)	THICK.(T)	SHA CLASS
E-36	N/A CONFINED OUTLET							6'	4'	19"	0
E-37	N/A CONFINED OUTLET							6'	4'	19"	0
E-38	N/A CONFINED OUTLET							6'	4'	19"	0
E-39	N/A CONFINED OUTLET							6'	4'	19"	0
E-40	N/A CONFINED OUTLET							6'	4'	19"	0
E-41	N/A CONFINED OUTLET							6'	4'	19"	0
E-42	2.84	4.72	0.55	3.28	4.85	0.61	9.5"	8'	9.5'	19"	I

OUTLET PROTECTION DETAIL

NOT TO SCALE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/10/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE FOR: CE 2/1/22

NO.	DATE	REVISION
2	7.7.2023	ADD I-91A TO STRUCTURE SCHEDULE
1	4/20/2023	CORRECT TOP OF I-102 AND I-103 TO BE 381.96

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22290, Expiration Date: 6-30-2023.

STATE OF MARYLAND CHRISTOPHER A. KILBOURNE No. 22290 PROFESSIONAL ENGINEER — 7-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

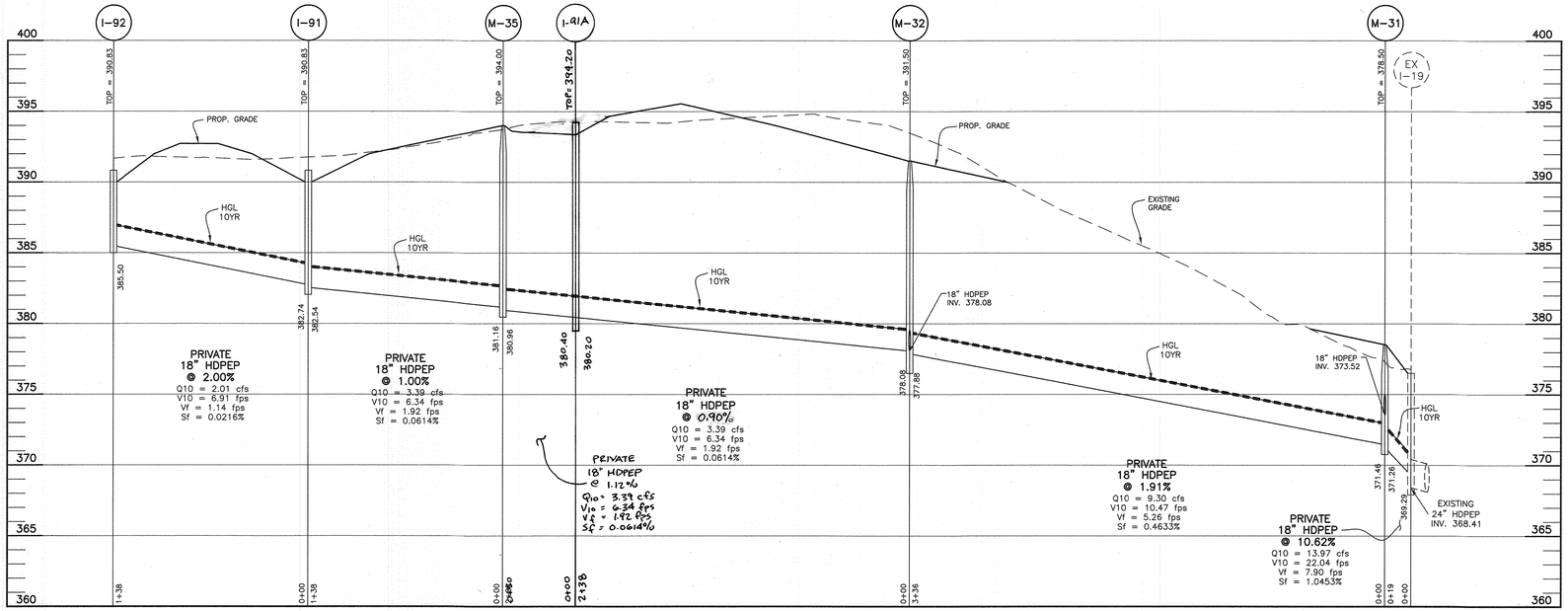
TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

STORM DRAIN PROFILES AND DETAILS

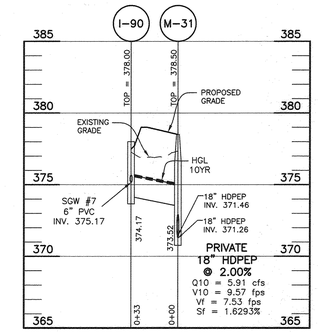
DATE: DECEMBER 27, 2021 | BEI PROJECT NO. 2879

DESIGN: DBT | DRAFT: DBT | SCALE: AS SHOWN | SHEET 9 OF 31

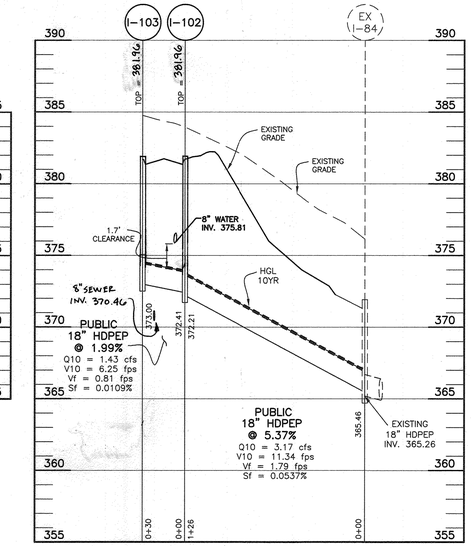
F-22-001



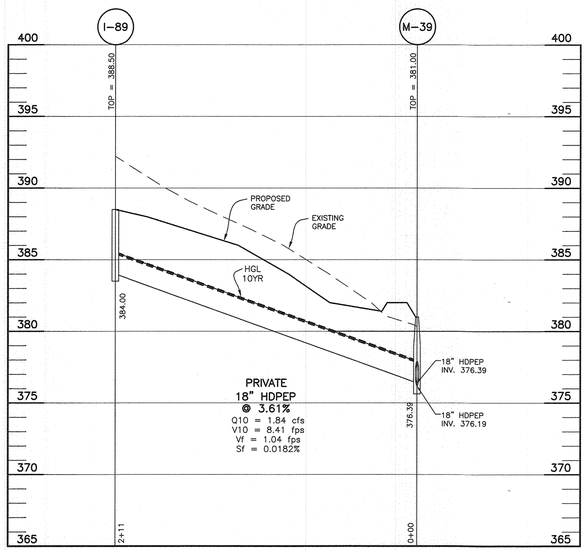
SD: EX I-19 to I-92



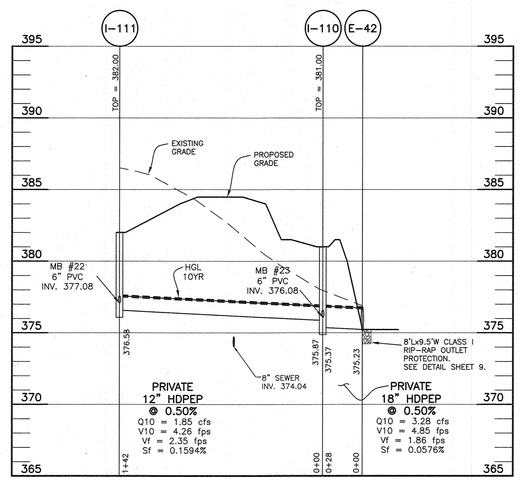
SD: M-31 to I-90



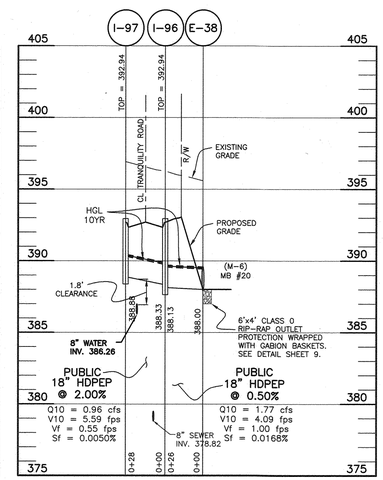
SD: EX I-84 to I-103



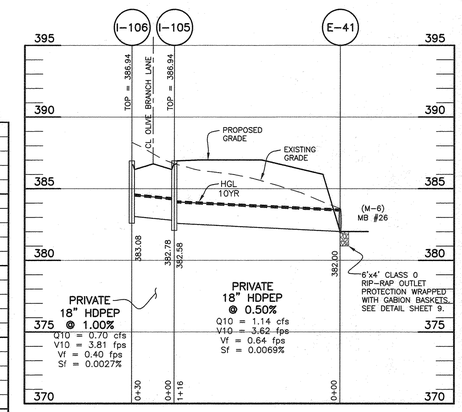
SD: M-39 to I-89



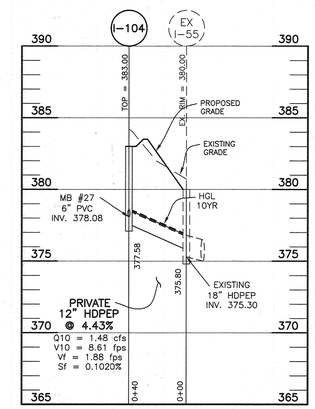
SD: E-42 to I-111



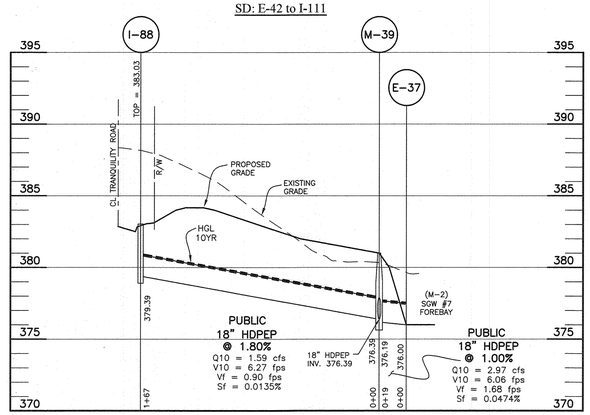
SD: E-38 to I97



SD: E-41 to I-106



SD: ex I-55 to I-104



SD: E-37 to I-88

1 inch = 50 ft. HORIZ.

1 inch = 5 ft. VERT.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/10/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION — FOR: CE 2/1/22 — DATE

NO.	DATE	REVISION
2	7.7.2023	ADD I-91A TO PROFILE
1	4/20/2023	CORRECT TOP OF I-102 AND I-103 TO BE 381.96

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 23390, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER A. MAKAR — No. 23390 — PROFESSIONAL ENGINEER

1-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

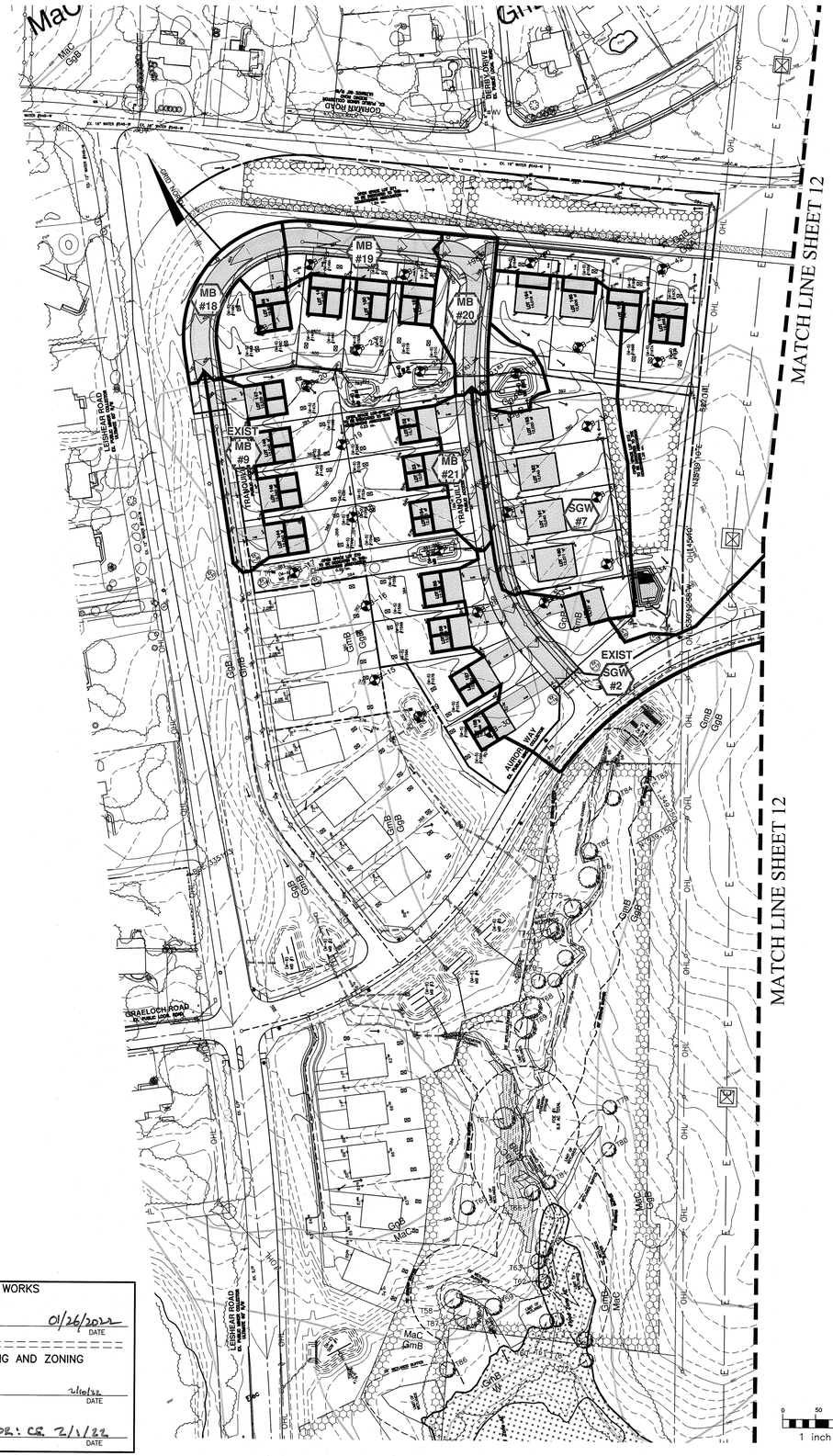
TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

STORM DRAIN PROFILES AND DETAILS

DESIGN: DBT | DRAFT: DBT | DATE: DECEMBER 27, 2021 | BEI PROJECT NO. 2879 | SCALE: AS SHOWN | SHEET 10 OF 31

F-22-001

t:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7000 P1S3.dwg, 12/26/2021 1:10:59 PM



LEGEND

- DRAINAGE AREA DIVISION
- PROPOSED IMPERVIOUS SURFACES
- SOILS DELINEATION
- **MaC** SOILS TYPE

NOTE:
SEE COVER SHEETS FOR STORMWATER MANAGEMENT SUMMARY TABLES

SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND

SYMBOL	HYDRIC	HYDROLOGIC GROUP	NAME	k-VALUE	ERODIBLE
CeB		B	CHILLUM LOAM, 2 TO 5 PERCENT SLOPES	0.37	NO
GgA		B	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	0.20	NO
GgB		B	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	0.20	NO
GmB*	YES	C	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	0.37	YES
GmC		C	GLENVILLE SILT LOAM, 8 TO 15 PERCENT SLOPES	0.37	NO
GnB*	YES	C	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37/0.32	NO
MaC		B	MANOR LOAM, 8 TO 15 PERCENT SLOPES	0.24	YES
MaD		B	MANOR LOAM, 15 TO 25 PERCENT SLOPES	0.24	YES
RsB		C	RUSSETT FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES	0.24	NO
RuB		C	RUSSETT AND BELTSVILLE SOIL, 2 TO 5 PERCENT SLOPES	0.24/0.37	NO
RuC		C	RUSSETT AND BELTSVILLE SOIL, 5 TO 10 PERCENT SLOPES	0.24/0.37	NO
SaC		B	SASSAFRAS LOAM, 5 TO 10 PERCENT SLOPE	0.24	NO
SrD		B	SASSAFRAS AND CROOM SOIL, 10 TO 15 PERCENT SLOPES	0.37/0.28	YES
W			WATER	0.00	

HSCD Newsletter dated April, 2013 defines erodible soils as those soils with a slope greater than 15 percent or those soils with a soil erodibility factor K greater than 0.35 and with a slope greater than 5%.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/10/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION — FOR: CE 2/1/22 — DATE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22390, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER A. WILGAR — No. 22390 — PROFESSIONAL ENGINEER — 1-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 170 thru 175;;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

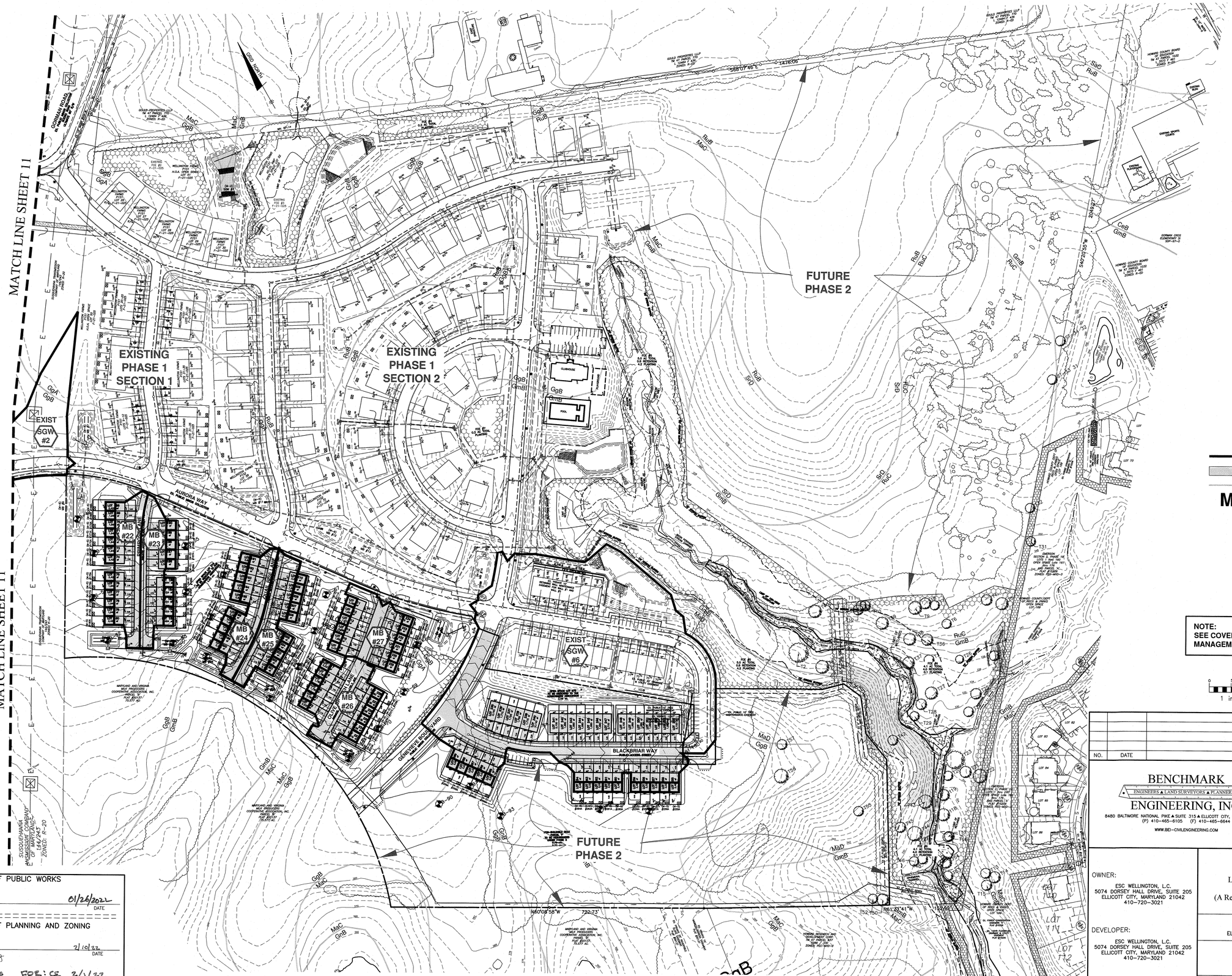
TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

STORMWATER MANAGEMENT DRAINAGE AREA MAP

DESIGN: DBT | DRAFT: DBT | DATE: DECEMBER 27, 2021 | SCALE: AS SHOWN | BEI PROJECT NO. 2879 | SHEET 11 OF 31

F-22-001

I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7029 P1S3.dwg, 12/26/2021 1:06:34 PM



LEGEND

- DRAINAGE AREA DIVISION
- PROPOSED IMPERVIOUS SURFACES
- SOILS DELINEATION
- **MaC** SOILS TYPE

NOTE:
SEE COVER SHEETS FOR STORMWATER MANAGEMENT SUMMARY TABLES

0 50 100 200
1 inch = 100 ft.

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22390, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER A. MALONEY — No. 22390 — PROFESSIONAL ENGINEER
1-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 170 thru 175;;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

STORMWATER MANAGEMENT DRAINAGE AREA MAP

DESIGN: DBT	DRAFT: DBT	DATE: DECEMBER 27, 2021	BEI PROJECT NO. 2879
		SCALE: AS SHOWN	SHEET 12 OF 31

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MJC — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/15/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE FOR: CE 2/1/22

F-22-001

I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7029 P1S3.dwg, 12/26/2021 1:08:58 PM

MATERIALS & SPECIFICATIONS FOR DRY WELLS

MATERIAL	SPECIFICATION	SIZE	NOTES:
GEOTEXTILE (CLASS "C")		N/A	PE TYPE 1 NONWOVEN
GRAVEL	AASHTO M 43	1 1/2" TO 2 1/2"	
UNDERDRAIN PIPING	F758, TYPE PS28 OR AASHTO M-278	4" TO 6" RIGID SCH.40 PVC, SDR35 OR HDPE	3/8" PERF. @ 6" O/C, 4 HOLES PER ROW; MINIMUM OF 2" OF GRAVEL OVER PIPES.
SAND	AASHTO M-6 OR ASTM-C-33	.02" TO .04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE (AASHTO) #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NT ROCK DUST CAN BE USED FOR SAND.

(M-5) DRY WELL COMPUTATIONS

Pe: 1.7 inches

LOT 144

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	144A	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78
DW	144B	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78

LOT 145

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	145A	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78
DW	145B	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78

LOT 146

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	146A	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78
DW	146B	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78

LOT 147

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	147A	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78
DW	147B	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78

LOT 148

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	148A	1000	1000	100%	0.950	135	5.0	0.40	6	12	144	1.82
DW	148B	1000	1000	100%	0.950	135	5.0	0.40	6	12	144	1.82
DW	148C	1000	1000	100%	0.950	135	5.0	0.40	6	12	144	1.82

LOT 149

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	149A	1000	1000	100%	0.950	135	5.0	0.40	6	12	144	1.82
DW	149B	1000	1000	100%	0.950	135	5.0	0.40	6	12	144	1.82
DW	149C	1000	1000	100%	0.950	135	5.0	0.40	6	12	144	1.82

LOT 150

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	150A	1000	1000	100%	0.950	135	5.0	0.40	6	12	144	1.82
DW	150B	1000	1000	100%	0.950	135	5.0	0.40	6	12	144	1.82
DW	150C	1000	1000	100%	0.950	135	5.0	0.40	6	12	144	1.82

LOT 151

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	151A	1000	1000	100%	0.950	135	5.0	0.40	6	12	144	1.82
DW	151B	1000	1000	100%	0.950	135	5.0	0.40	6	12	144	1.82
DW	151C	1000	1000	100%	0.950	135	5.0	0.40	6	12	144	1.82

LOT 152

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	152A	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78
DW	152B	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78

LOT 153

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	153A	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78
DW	153B	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78

LOT 154

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	154A	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78
DW	154B	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78

LOT 155

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	155A	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78
DW	155B	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78

LOT 156

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	156A	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78
DW	156B	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78

LOT 157

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	157A	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78
DW	157B	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78

LOT 158

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	158A	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78
DW	158B	750	750	100%	0.950	101	4.0	0.40	6	11	105.6	1.78

LOT 164

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	164A	1000	1000	100%	0.950	135	5.0	0.40	6	12	144	1.82

LOT 165

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	165A	1000	1000	100%	0.950	135	5.0	0.40	6	12	144	1.82

LOT 166

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	166A	1000	1000	100%	0.950	135	5.0	0.40	6	12	144	1.82
DW	166B	1000	1000	100%	0.950	135	5.0	0.40	6	12	144	1.82

LOT 167

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	167A	1000	1000	100%	0.950	135	5.0	0.40	6	12	144	1.82
DW	167B	1000	1000	100%	0.950	135	5.0	0.40	6	12	144	1.82
DW	167C	1000	1000	100%	0.950	135	5.0	0.40	6	12	144	1.82

LOTS 168-174

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	168A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	169A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	170A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	171A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	172A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	173A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	174A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84

LOTS 175-180

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	175A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	176A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	177A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	178A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	179A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	180A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84

LOTS 181-185

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	181A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	182A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	183A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	184A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	185A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77

LOTS 186-190

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	186A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	187A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	188A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	189A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	190A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77

LOTS 191-195

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	191A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	192A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	193A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	194A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	195A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77

LOTS 196-200

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	196A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	197A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	198A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	199A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	200A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84

LOTS 201-205

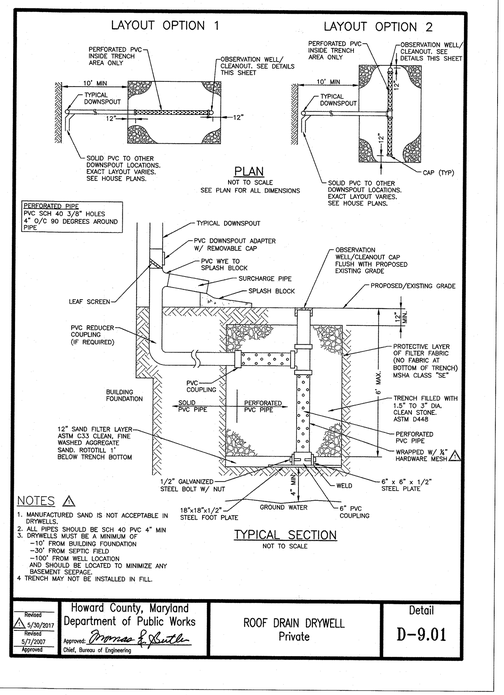
Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	201A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	202A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	203A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	204A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	205A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84

LOTS 206-210

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	206A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	207A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	208A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	209A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	210A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77

LOTS 211-216

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	211A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	212A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	213A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	214A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	215A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	216A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77



NOTES

1. MANUFACTURED SAND IS NOT ACCEPTABLE IN DRYWELLS.
2. ALL PIPES SHOULD BE SCH 40 PVC 4" MIN
3. DRYWELLS MUST BE A MINIMUM OF
   - 10' FROM BUILDING FOUNDATION
   - 30' FROM SEPTIC FIELD
   - 100' FROM WELL LOCATION

   AND SHOULD BE LOCATED TO MINIMIZE ANY BASEMENT SEEPAGE.
4. TRENCH MAY NOT BE INSTALLED IN FILL.

Revised 5/30/2017 Revised 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: Thomas E. Butler Chief, Bureau of Engineering	ROOF DRAIN DRYWELL Private	Detail D-9.01

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED (M-5) DRY WELLS

1. The monitoring wells and structures shall be inspected on a quarterly basis and after every large storm event.

2. Water levels and sediment build up in the monitoring wells shall be recorded over a period of several days to insure trench drainage.

3. A log book shall be maintained to determine the rate at which the facility drains.

4. When the facility becomes clogged so that it does not drain down within the 72 hour time period, corrective action shall be taken.

5. The maintenance log book shall be available to Howard County for inspection to insure compliance with operation and maintenance criteria.

6. Once the performance characteristics of the infiltration facility have been verified, the monitoring schedule can be reduced to an annual basis unless the performance data indicates that a more frequent schedule is required.

LOTS 217-222

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	217A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	218A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	219A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	220A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	221A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84
DW	222A	440	440	100%	0.950	59	4.0	0.40	5	8	64	1.84

LOTS 223-228

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	223A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	224A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	225A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	226A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	227A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	228A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77

LOTS 229-234

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	229A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	230A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	231A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	232A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	233A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	234A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77

LOTS 255-259

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	255A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	256A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	257A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	258A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	259A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77

LOTS 260-264

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	260A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	261A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	262A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	263A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	264A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77

LOTS 265-269

Designation		Drainage Area	Impervious Area	I (%)	Rv	ESDv Req (cf)	Depth	Porosity	Width	Length	ESDv Prov (cf)	Pe Treated
DW	265A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	266A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	267A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	268A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77
DW	269A	484	484	100%	0.950	65	4.0	0.40	5	8.5	68	1.77

NOTE:

DRY WELLS TO BE INSTALLED DURING HOUSE CONSTRUCTION AT THE SITE DEVELOPMENT PLAN STAGE. GROUND ELEVATION, TOP OF STORAGE ELEVATION, BOTTOM ELEVATION, ETC. SHALL BE PROVIDED ON THE FUTURE SITE DEVELOPMENT PLAN.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/1/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE FOR: CB 2/1/22

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22398, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER A. MIDDAUGH — No. 22398 — PROFESSIONAL ENGINEER — 1-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

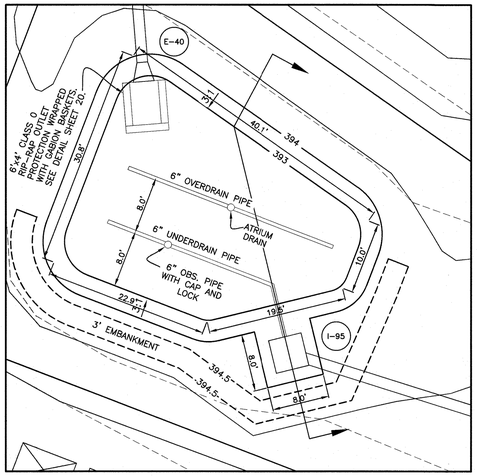
TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

STORMWATER MANAGEMENT DETAILS

DESIGN: DBT	DRAFT: DBT	DATE: DECEMBER 27, 2021	BEI PROJECT NO. 2879
		SCALE: AS SHOWN	SHEET 13 OF 31

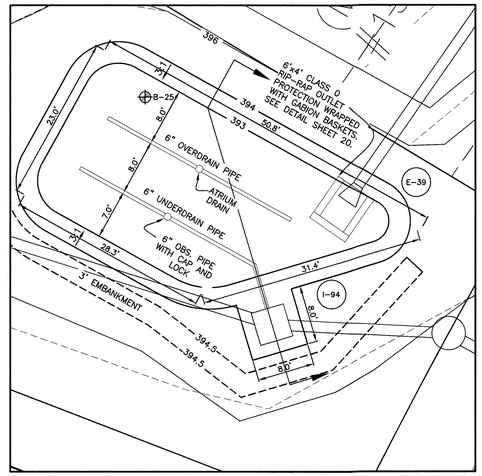
F-22-001

I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7000 P1S3.dwg, 12/26/2021 1:11:40 PM



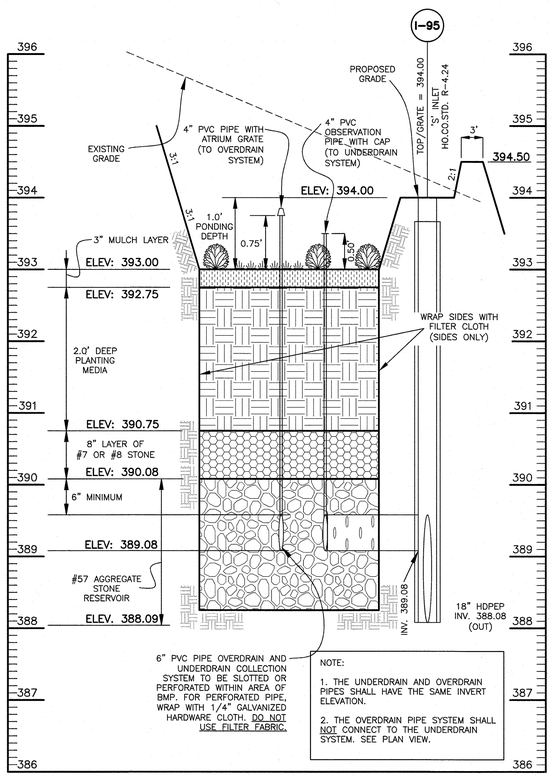
MICRO BIO-RETENTION #18

0 5 10 20
1 inch = 10 ft.



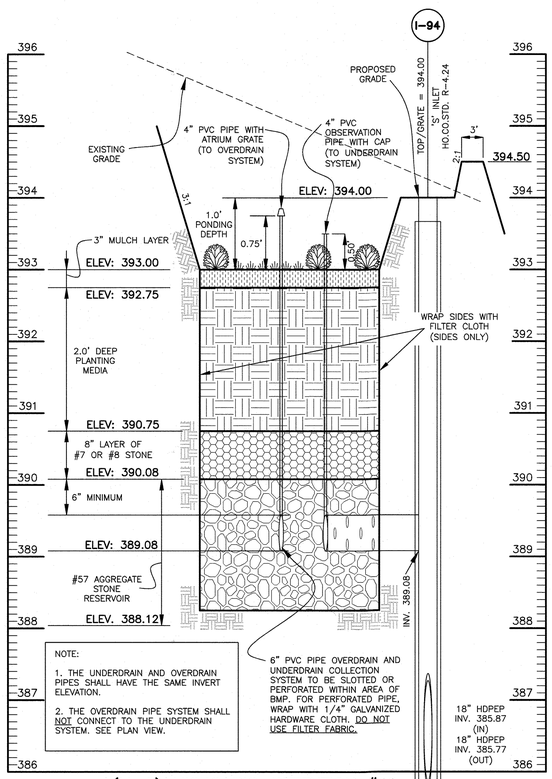
MICRO BIO-RETENTION #19

0 5 10 20
1 inch = 10 ft.



(M-6) MICRO BIO-RETENTION #18

SCALE: 1"=10'HORIZ., 1"=1' VERT.



(M-6) MICRO BIO-RETENTION #19

SCALE: 1"=10'HORIZ., 1"=1' VERT.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/10/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION KFR — DATE FOR: CE 2/1/22

CONSTRUCTION SPECIFICATIONS

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Table B.4.1 Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltration-

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil [2' to 4' deep]	loamy sand (60 - 65%) & compost (35 – 40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with ¼-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; f'_c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) *not using previously approved State or local standards* requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (**AASHTO**) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

OPERATION AND MAINTENANCE SCHEDULE FOR PRVATELY OWNED AND JOINTLY MAINTAINED MICRO-BIORETENTION (M-6)

Routine Maintenance (By HOA):

1. Facility shall be inspected annually and after major storms. Inspections shall be performed during wet weather to determine if the facility is functioning properly.

2. Top and side slopes of the embankment shall be mowed a minimum of two (2) times per year, once in June and once in September. Other side slopes and maintenance access shall be mowed as needed.

3. Under drains, feeders, plantings, observation well, pipe outfall, or other items shall be inspected annually and after major storms.

4. Debris/litter and sediment shall be removed during regular mowing operations and as needed.

5. Keep annual maintenance logs/records for County inspection.

Non-Routine Maintenance (By County):

1. County shall be responsible for the drain pipes and outfall structures adjacent to a public road. The components shall be inspected during routine maintenance operations.

OPERATION AND MAINTENANCE SCHEDULE FOR PRVATELY OWNED AND PRIVATELY MAINTAINED MICRO-BIORETENTION (M-6)

Routine Maintenance (By HOA):

1. Facility shall be inspected annually and after major storms. Inspections shall be performed during wet weather to determine if the facility is functioning properly.

2. Top and side slopes of the embankment shall be mowed a minimum of two (2) times per year, once in June and once in September. Other side slopes and maintenance access shall be mowed as needed.

3. Under drains, feeders, plantings, observation well, pipe outfall, or other items shall be inspected annually and after major storms.

4. Debris/litter and sediment shall be removed during regular mowing operations and as needed.

5. Keep annual maintenance logs/records for County inspection.

Non-Routine Maintenance (By HOA):

1. HOA shall be responsible for the drain pipes and outfall structures. The components shall be inspected during routine maintenance operations.

(M-6) Micro Bio-Retention Landscaping Chart

PLANT NAME	COMMON NAME	Surface Area (sf) → TYPE	SIZE	MB #18 905 QUANTITY	MB #19 885 QUANTITY	MB #20 885 QUANTITY	MB #21 847 QUANTITY	MB #22 847 QUANTITY	MB #23 1338 QUANTITY
Cornus Amomum	Silky Dogwood	deciduous shrub	18-24" ht. #3 CAN	9	9	9	8	8	13
Echinacea Purpurea	Purple Coneflower	perennial	2 gal. container	57	55	55	53	53	84
Juncus Effusus	Common Rush	perennial	1 qt.	170	166	166	159	159	251

(M-6) Micro Bio-Retention Landscaping Chart

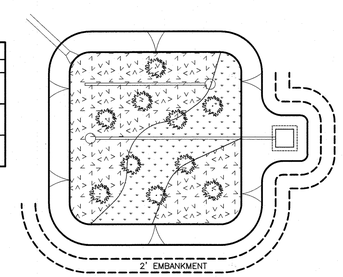
PLANT NAME	COMMON NAME	Surface Area (sf) → TYPE	SIZE	MB #24 1155 QUANTITY	MB #25 1172 QUANTITY	MB #26 1229 QUANTITY	MB #27 1482 QUANTITY	MB #28 1196 QUANTITY	
Cornus Amomum	Silky Dogwood	deciduous shrub	18-24" ht. #3 CAN	12	12	12	15	12	
Echinacea Purpurea	Purple Coneflower	perennial	2 gal. container	72	73	77	93	75	
Juncus Effusus	Common Rush	perennial	1 qt.	217	220	230	278	224	

Common Rush to be planted every 4' OCEW and make up 75% of surface area
Purple Coneflower to be planted every 4' OCEW and make up 25% of surface area
Silky Dogwood to be planted randomly throughout surface area.

PLANTING LEGEND

SYMBOL	NAME
	SILKY DOGWOOD
	PURPLE CONEFLOWER
	COMMON RUSH

NOTE:
THIS DETAIL IS A SCHEMATIC DETAIL. ACTUAL LOCATION OF ALL PLANTINGS TO BE DETERMINED BY THE CONTRACTOR DURING INSTALLTION.



SCHEMATIC PLANTING DETAIL FOR (M-6) MICRO BIO-RETETNION PRACTICES

NOT TO SCALE

B.4.C Specifications for Micro-Bioretention, Rain Gardens, Landscape Infiltration & Infiltration Berms

1. Material Specifications:

The allowable materials to be used in these practices are detailed in Table B.4.1.

2. Filtering Media or Planting Soil:

The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the micro-bioretention practice that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, or other noxious weeds as specified under COMAR 15.08.01.05. The planting soil shall be tested and shall meet the following criteria:

Soil Component - Loamy Sand or Sandy Loam (USDA Soil Textural Classification)
Organic Content - Minimum 10% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy and(60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%).
Clay Content - Media shall have a clay content of less than 5%.
pH Range - Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pH.

There shall be at least one soil test per project. Each test shall consist of both the standard soil test for pH, and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the topsoil was excavated.

3. Compaction:

It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoes to remove original soil. If practices are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure.

Compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to refracture the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

Rototill 2 to 3 inches of sand into the base of the bioretention facility before backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base.

When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade.

When backfilling the bioretention facility, place soil in lifts 12" to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

4. Plant Material:

Recommended plant material for micro-bioretention practices can be found in Appendix A, Section A.2.3.

5. Plant Installation:

Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3". Shredded or chipped hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bioretention area during a storm event and are not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance.

Rootstock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted so 1/8th of the ball is above final grade surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation.

Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball.

Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications.

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers defeats, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

6. Underdrains:

Underdrains should meet the following criteria:

- Pipe- Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTMF 758, Type PS 28, or AASHTO-M-278) in a gravel layer. The preferred material is slotted, 4" rigid pipe (e.g., PVC or HDPE).
- Perforations - If perforated pipe is used, perforations should be ⅜" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with a ¼" (No. 4 or 4x4) galvanized hardware cloth.
- Gravel - The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and below the underdrain
- The main collector pipe shall be at a minimum 0.5% slope.
- A rigid, non-perforated observation well must be provided (one per every 1,0000 square feet) to provide a clean-out port and monitor performance of the filter.
- A 4" layer of pea gravel (¼" to ⅜" stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain. This layer may be considered part of the filter bed when bed thickness exceeds 24".

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

7. Miscellaneous:

These practices may not be constructed until all contributing drainage area has been stabilized

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22961, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER A. MILLIGAN — No. 22961 — PROFESSIONAL ENGINEER

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

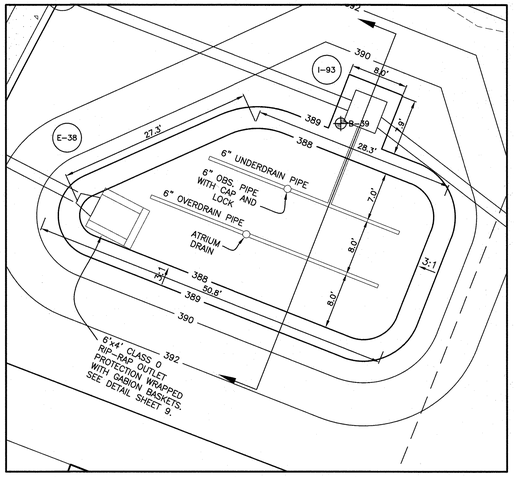
TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

STORMWATER MANAGEMENT DETAILS

DESIGN: DBT	DRAFT: DBT	DATE: DECEMBER 27, 2021	BEI PROJECT NO. 2879
		SCALE: AS SHOWN	SHEET 14 OF 31

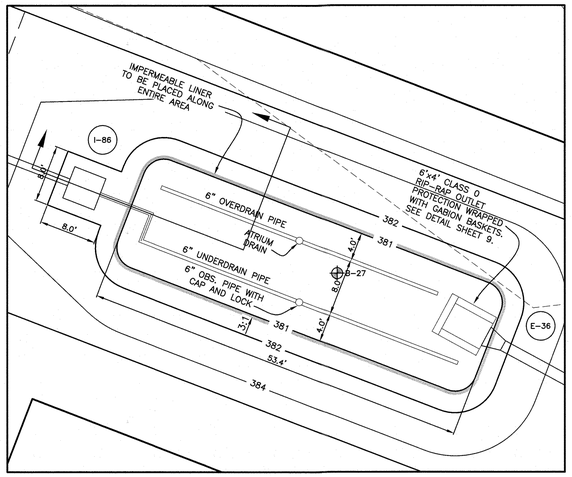
F-22-001

I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7000 P1S3.dwg, 12/26/2021 1:15:56 PM



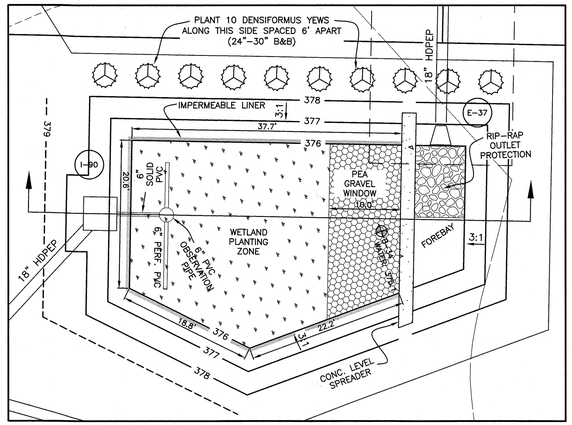
MICRO BIO-RETENTION #20

0 5 10 20
1 inch = 10 ft.



MICRO BIO-RETENTION #21

0 5 10 20
1 inch = 10 ft.



SUBMERGED GRAVEL WETLANDS #7

0 5 10 20
1 inch = 10 ft.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND JOINTLY MAINTAINED (M-2) SUBMERGED GRAVEL WETLANDS

Routine Maintenance (By HOA):

1. During the first year of operation the owner shall inspect the facility after every heavy storm and replace vegetation as needed.

2. The owner shall remove sediment accumulated in the pretreatment areas as needed.

3. Signs of uneven flow within the wetlands may mean that the gravel or underdrain is clogged. The gravel or underdrain shall be removed, cleaned, and replaced, as needed.

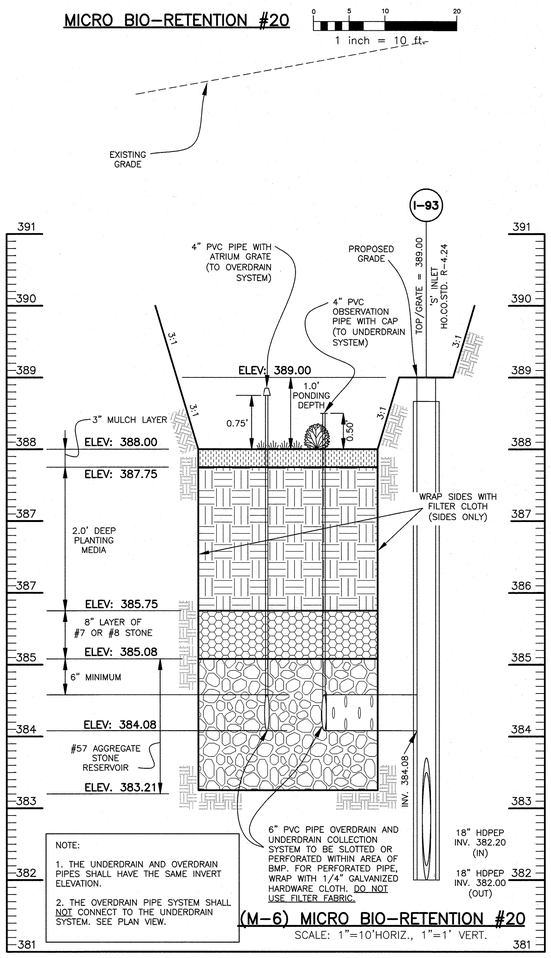
4. The owner shall ensure a dense stand of wetland vegetation is maintained through the life of the facility and replace vegetation as needed.

5. The owner shall ensure the inlets and outlets to each gravel wetland cell are free from debris.

6. The owner shall repair erosion at inflow points and ensure flow splitters are functional to prevent storm water from bypassing the facility.

Non-Routine Maintenance (By County):

1. County shall be responsible for the drain pipes and outfall structures adjacent to a public road. The components shall be inspected during routine maintenance operations.



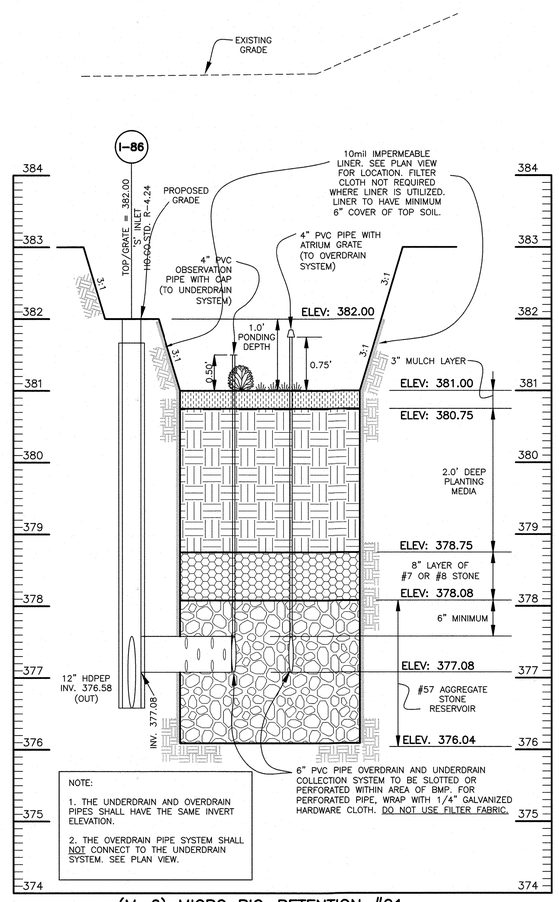
NOTE:

1. THE UNDERDRAIN AND OVERDRAIN PIPES SHALL HAVE THE SAME INVERT ELEVATION.

2. THE OVERDRAIN PIPE SYSTEM SHALL NOT CONNECT TO THE UNDERDRAIN SYSTEM. SEE PLAN VIEW.

(M-6) MICRO BIO-RETENTION #20

SCALE: 1"=10'HORIZ., 1"=1' VERT.



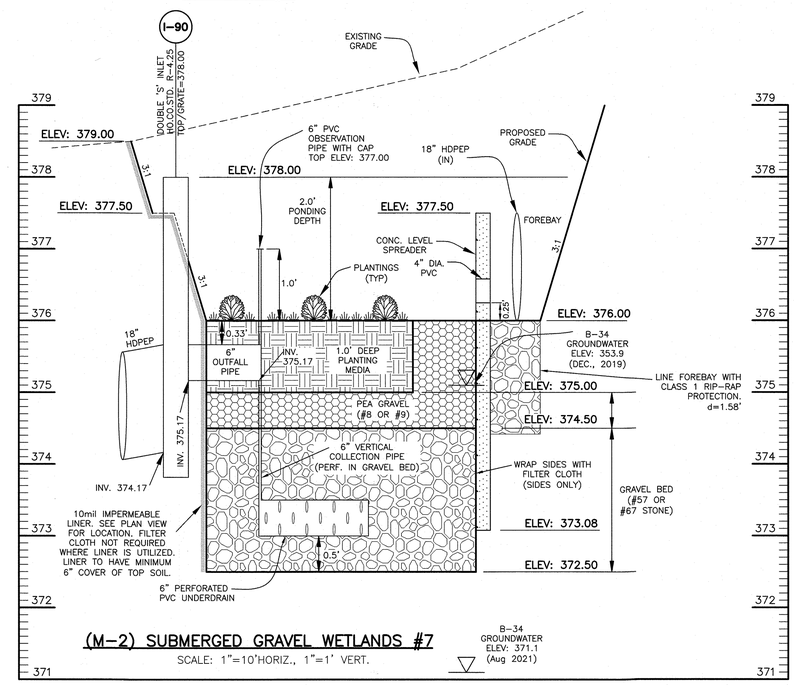
NOTE:

1. THE UNDERDRAIN AND OVERDRAIN PIPES SHALL HAVE THE SAME INVERT ELEVATION.

2. THE OVERDRAIN PIPE SYSTEM SHALL NOT CONNECT TO THE UNDERDRAIN SYSTEM. SEE PLAN VIEW.

(M-6) MICRO BIO-RETENTION #21

SCALE: 1"=10'HORIZ., 1"=1' VERT.



(M-2) SUBMERGED GRAVEL WETLANDS #7

SCALE: 1"=10'HORIZ., 1"=1' VERT.

(M-2) Submerged Gravel Wetlands Landscaping Chart				
		Surface Area (sf) →		SGW #7 929
PLANT NAME	COMMON NAME	TYPE	SIZE	QUANTITY
Ranunculus Subrigidus	Pond Buttercup	perennial	1 qt.	22
Phlox Maculata	Meadow Phlox	perennial	1 qt.	15
Lobelia Cardinalis	Cardinal Flower	perennial	1 qt.	25
Salix Sericea	Silky Willow	tree	18-24" ht. #3 CAN	5
Viburnum Nudum	Viburnum, Possum-Haw	shrub	18-24" ht.	9

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/10/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE For: CE 2/1/22

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22390, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER A. MILLER — No. 22390 — PROFESSIONAL ENGINEER
7-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

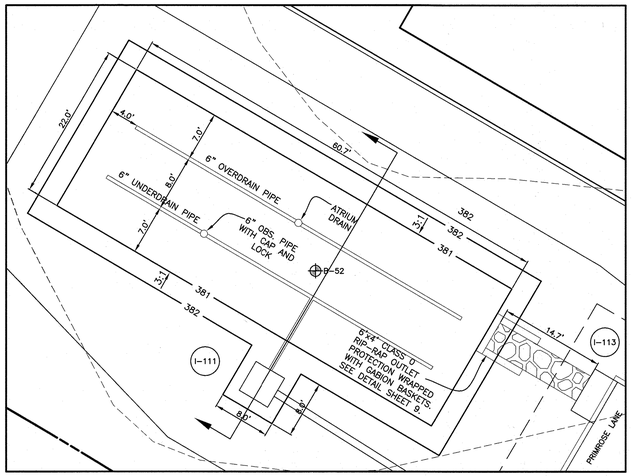
TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

STORMWATER MANAGEMENT DETAILS

DESIGN: DBT	DRAFT: DBT	SCALE: AS SHOWN	DATE: DECEMBER 27, 2021	BEI PROJECT NO. 2879	SHEET 15 OF 31

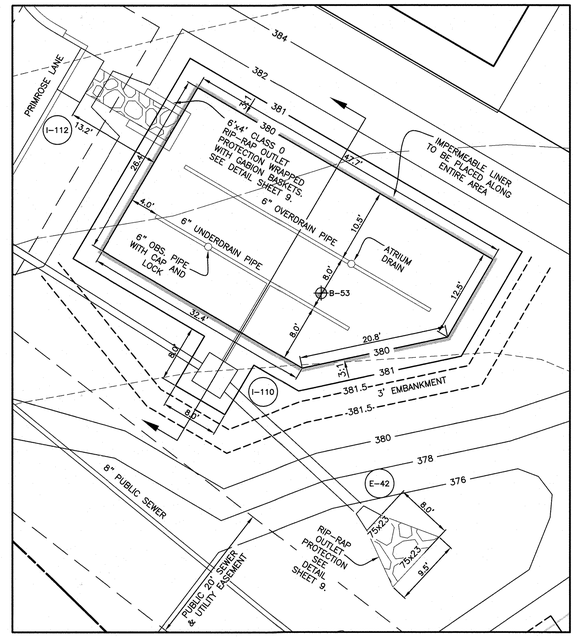
F-22-001

I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7000 P1S3.dwg, 12/26/2021 1:22:20 PM



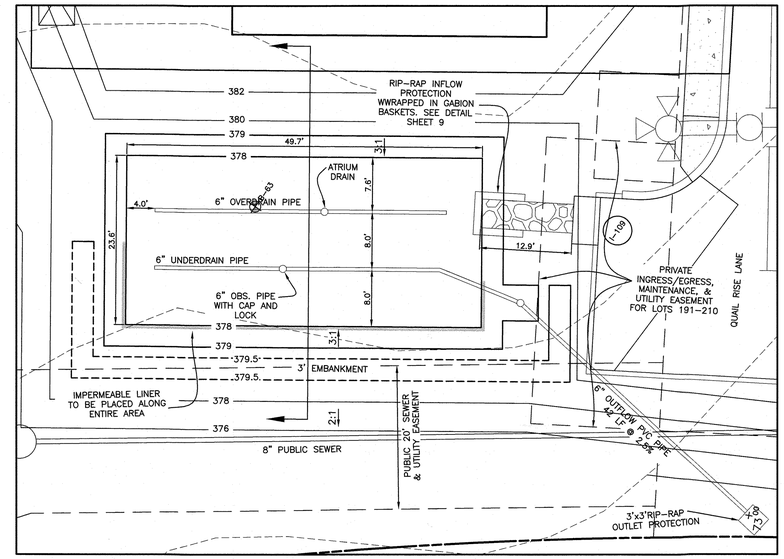
MICRO BIO-RETENTION #22

1 inch = 10 ft.



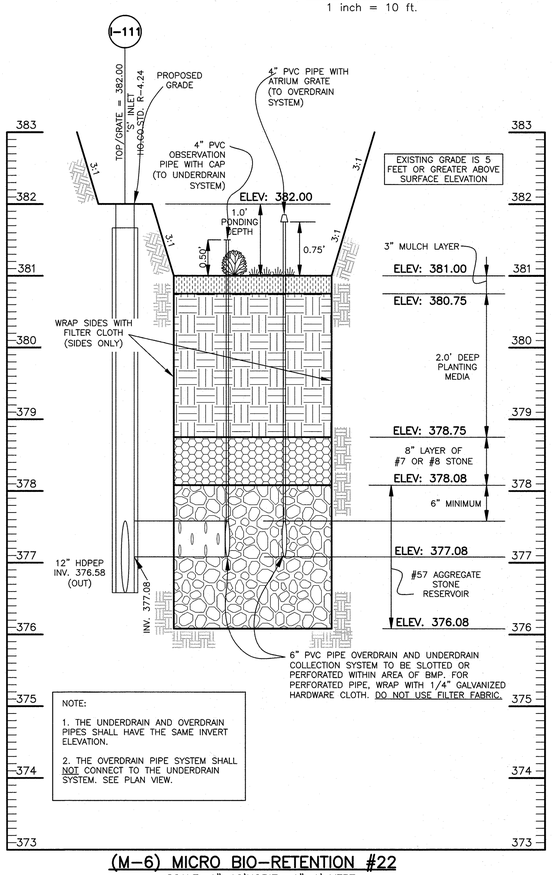
MICRO BIO-RETENTION #23

1 inch = 10 ft.



MICRO BIO-RETENTION #24

1 inch = 10 ft.



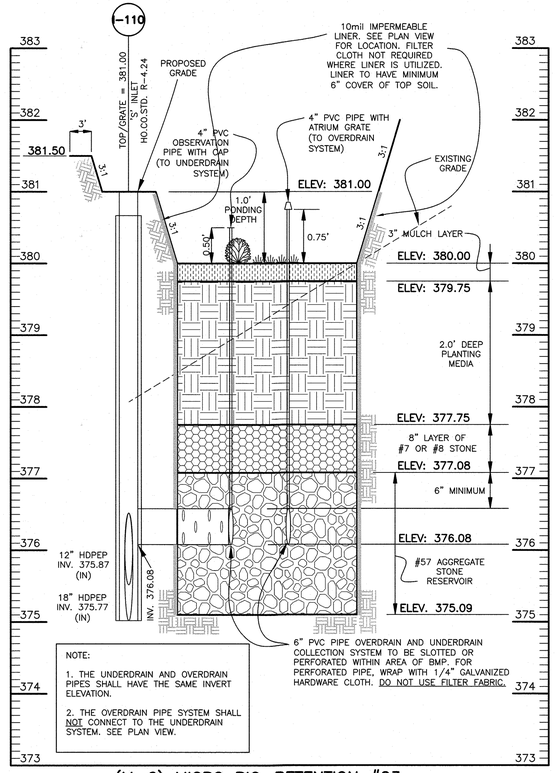
NOTE:

1. THE UNDERDRAIN AND OVERDRAIN PIPES SHALL HAVE THE SAME INVERT ELEVATION.

2. THE OVERDRAIN PIPE SYSTEM SHALL NOT CONNECT TO THE UNDERDRAIN SYSTEM. SEE PLAN VIEW.

(M-6) MICRO BIO-RETENTION #22

SCALE: 1"=10'HORIZ., 1"=1' VERT.



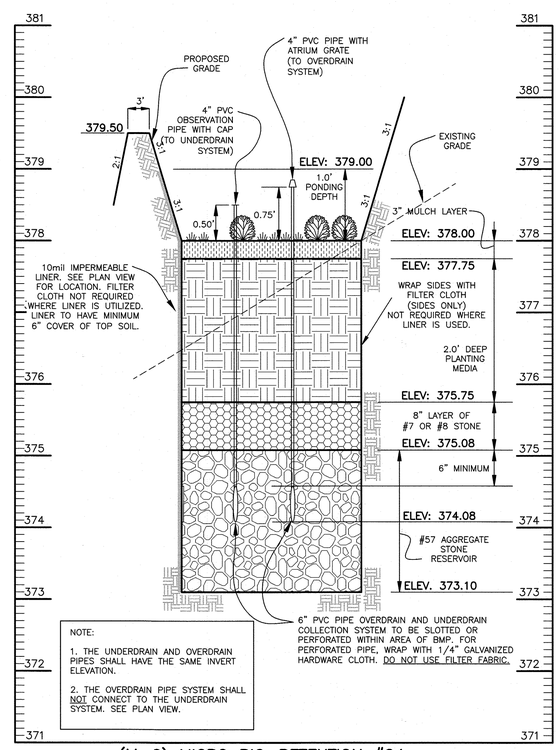
NOTE:

1. THE UNDERDRAIN AND OVERDRAIN PIPES SHALL HAVE THE SAME INVERT ELEVATION.

2. THE OVERDRAIN PIPE SYSTEM SHALL NOT CONNECT TO THE UNDERDRAIN SYSTEM. SEE PLAN VIEW.

(M-6) MICRO BIO-RETENTION #23

SCALE: 1"=10'HORIZ., 1"=1' VERT.



NOTE:

1. THE UNDERDRAIN AND OVERDRAIN PIPES SHALL HAVE THE SAME INVERT ELEVATION.

2. THE OVERDRAIN PIPE SYSTEM SHALL NOT CONNECT TO THE UNDERDRAIN SYSTEM. SEE PLAN VIEW.

(M-6) MICRO BIO-RETENTION #24

SCALE: 1"=10'HORIZ., 1"=1' VERT.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/1/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE FOR: CG 2/1/22

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22290, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER GAMBLE — No. 22290 — PROFESSIONAL ENGINEER

1-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D'
previously recorded under F-21-044)

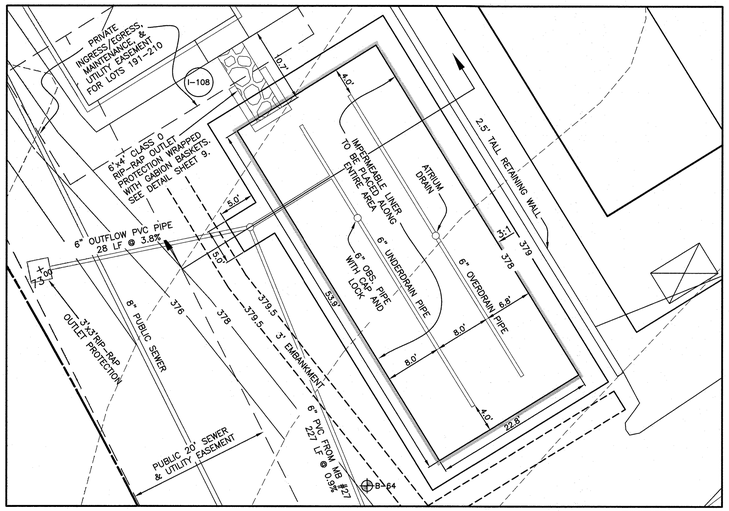
TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

STORMWATER MANAGEMENT DETAILS

DESIGN: DBT	DRAFT: DBT	DATE: DECEMBER 27, 2021	BEI PROJECT NO. 2879
		SCALE: AS SHOWN	SHEET 16 OF 31

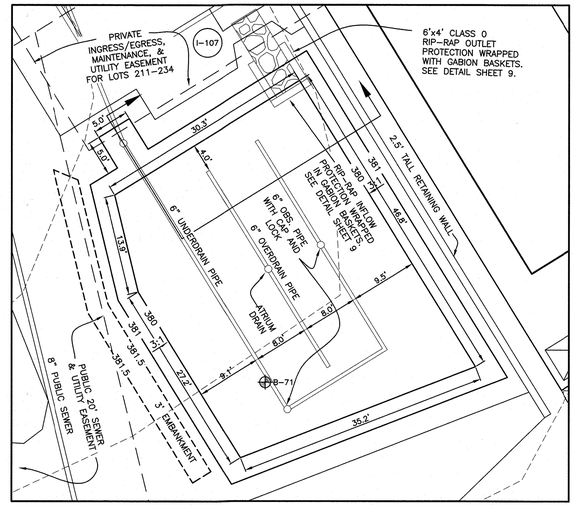
F-22-001

I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7000 P1S3.dwg, 12/26/2021 1:42:09 PM



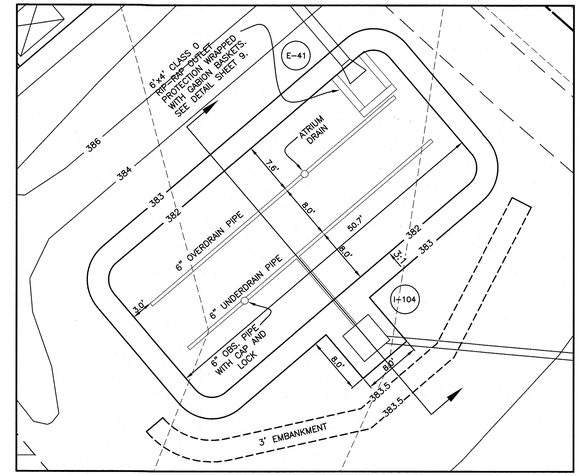
MICRO BIO-RETENTION #25

1 inch = 10 ft.



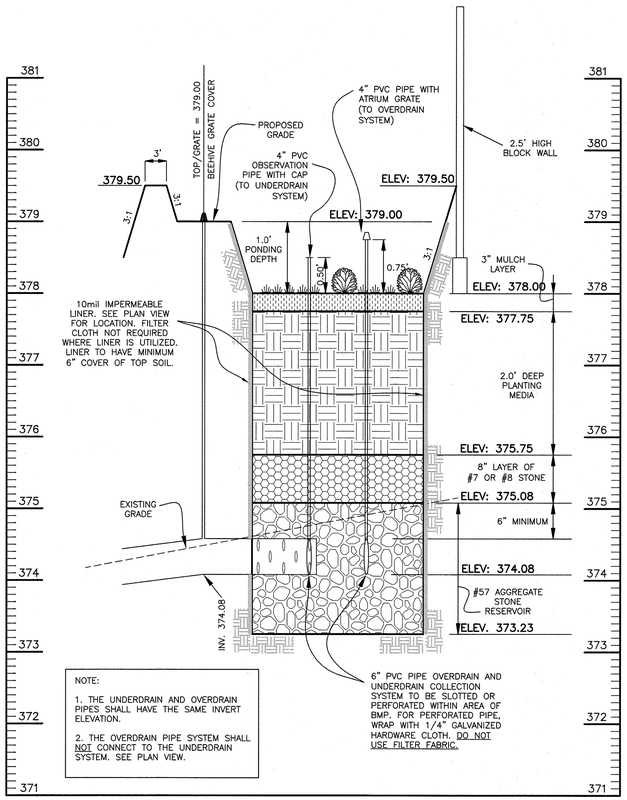
MICRO BIO-RETENTION #26

1 inch = 10 ft.



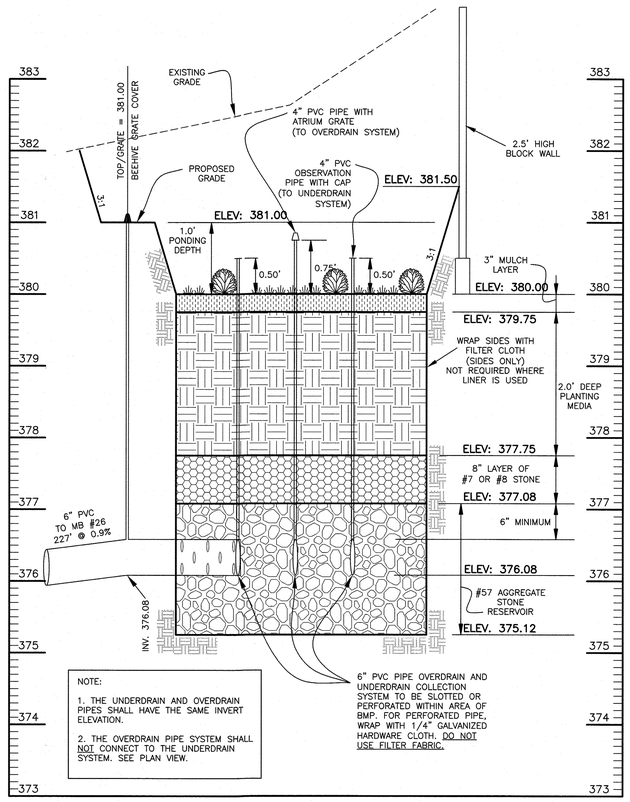
MICRO BIO-RETENTION #27

1 inch = 10 ft.



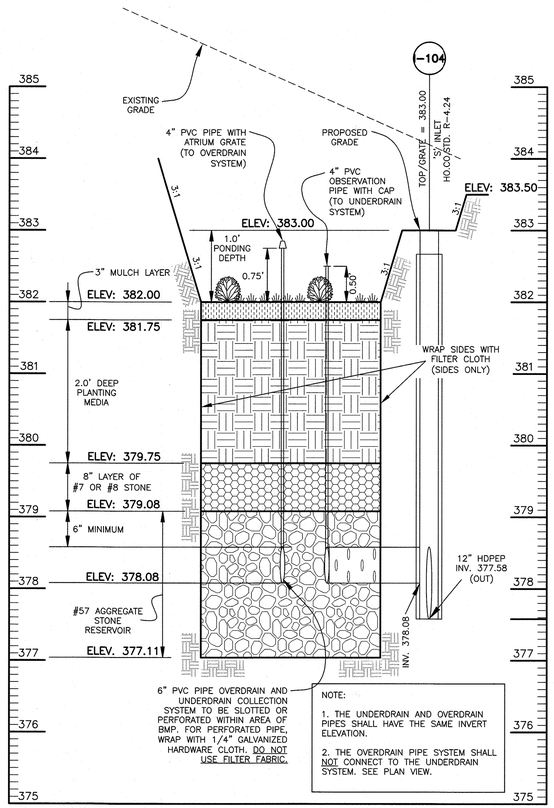
(M-6) MICRO BIO-RETENTION #25

SCALE: 1"=10'HORIZ., 1"=1' VERT.



(M-6) MICRO BIO-RETENTION #26

SCALE: 1"=10'HORIZ., 1"=1' VERT.



(M-6) MICRO BIO-RETENTION #27

SCALE: 1"=10'HORIZ., 1"=1' VERT.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT DJ — DATE 2/10/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION KDA — DATE 2/1/22 FOR CE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22290, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER A. MIRICK — No. 22290 — PROFESSIONAL ENGINEER — 1-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3

Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

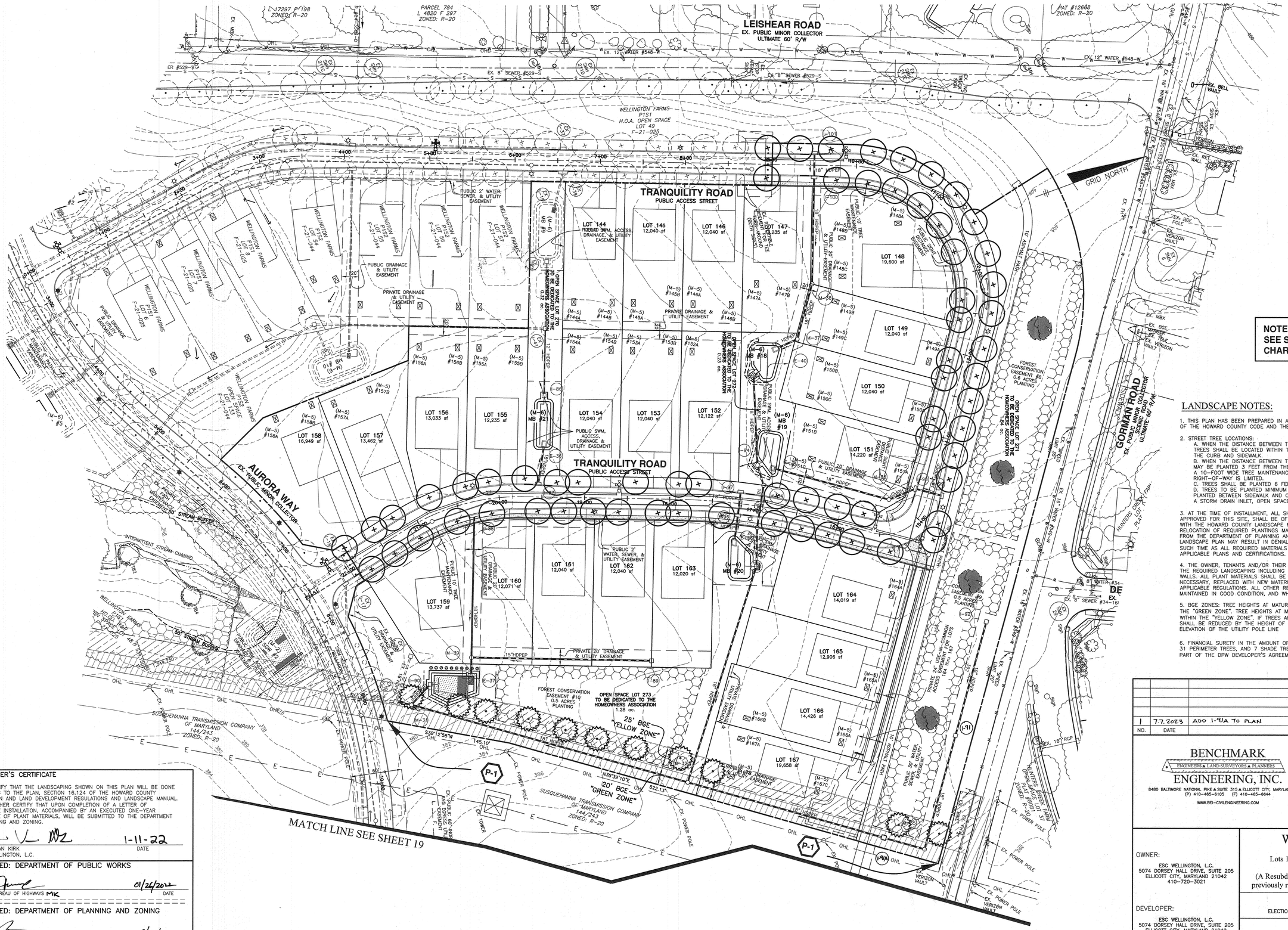
TAX MAP: 46 - GRID: 6 - PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 - HOWARD COUNTY, MARYLAND

STORMWATER MANAGEMENT DETAILS

DESIGN: DBT	DRAFT: DBT	DATE: DECEMBER 27, 2021	BEI PROJECT NO. 2879
		SCALE: AS SHOWN	SHEET 17 OF 31

F-22-001

I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7000 P1S3.dwg, 12/26/2021 1:40:35 PM



NOTE:
SEE SHEET 19 FOR LANDSCAPE CHARTS AND DETAILS

LANDSCAPE NOTES:

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL.

2. STREET TREE LOCATIONS:
   A. WHEN THE DISTANCE BETWEEN THE CURB AND SIDEWALK IS 6 FEET OR GREATER, THE TREES SHALL BE LOCATED WITHIN THE RIGHT-OF-WAY AND SHALL BE CENTERED BETWEEN THE CURB AND SIDEWALK.
   B. WHEN THE DISTANCE BETWEEN THE CURB AND SIDEWALK IS LESS THAN 6 FEET, TREES MAY BE PLANTED 3 FEET FROM THE SIDEWALK IN THE DIRECTION AWAY FROM THE ROAD. A 10-FOOT WIDE TREE MAINTENANCE EASEMENT SHALL BE REQUIRED IF THE RIGHT-OF-WAY IS LIMITED.
   C. TREES SHALL BE PLANTED 6 FEET BEHIND CURB WHEN THERE ARE NO SIDEWALKS.
   D. TREES TO BE PLANTED MINIMUM 30 FEET FROM SIGNS AND INTERSECTIONS WHEN PLANTED BETWEEN SIDEWALK AND CURB. TREES MAY NOT BE PLANTED WITHIN 5 FEET OF A STORM DRAIN INLET, OPEN SPACE ACCESS STRIP, OR 10 FEET OF A DRIVEWAY.

3. AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATIONS.

4. THE OWNER, TENANTS AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.

5. BGE ZONES: TREE HEIGHTS AT MATURITY SHALL BE LIMITED TO 25 FEET MAXIMUM WITHIN THE "GREEN ZONE". TREE HEIGHTS AT MATURITY SHALL BE LIMITED TO 40 FEET MAXIMUM WITHIN THE "YELLOW ZONE". IF TREES ARE TO BE PLANTED ON BERMS THE TREE HEIGHTS SHALL BE REDUCED BY THE HEIGHT OF THE BERM AS MEASURED ABOVE THE MEAN GROUND ELEVATION OF THE UTILITY POLE LINE

6. FINANCIAL SURETY IN THE AMOUNT OF $60,300.00 FOR THE REQUIRED 163 STREET TREES, 31 PERIMETER TREES, AND 7 SHADE TREES AS PART OF WP-20-039 SHALL BE POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT.

DEVELOPER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION OF A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

JASON VAN KIRK — DATE 1-11-22
ESC WELLINGTON, L.C.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/10/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION ASM — DATE FOR: CE 2/1/22

NO.	DATE	REVISION
1	7.7.2023	ADD I-91A TO PLAN

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22390, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER A. WILKINSON — No. 22390 — PROFESSIONAL ENGINEER

7-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044 as Plat No. _____-_____)

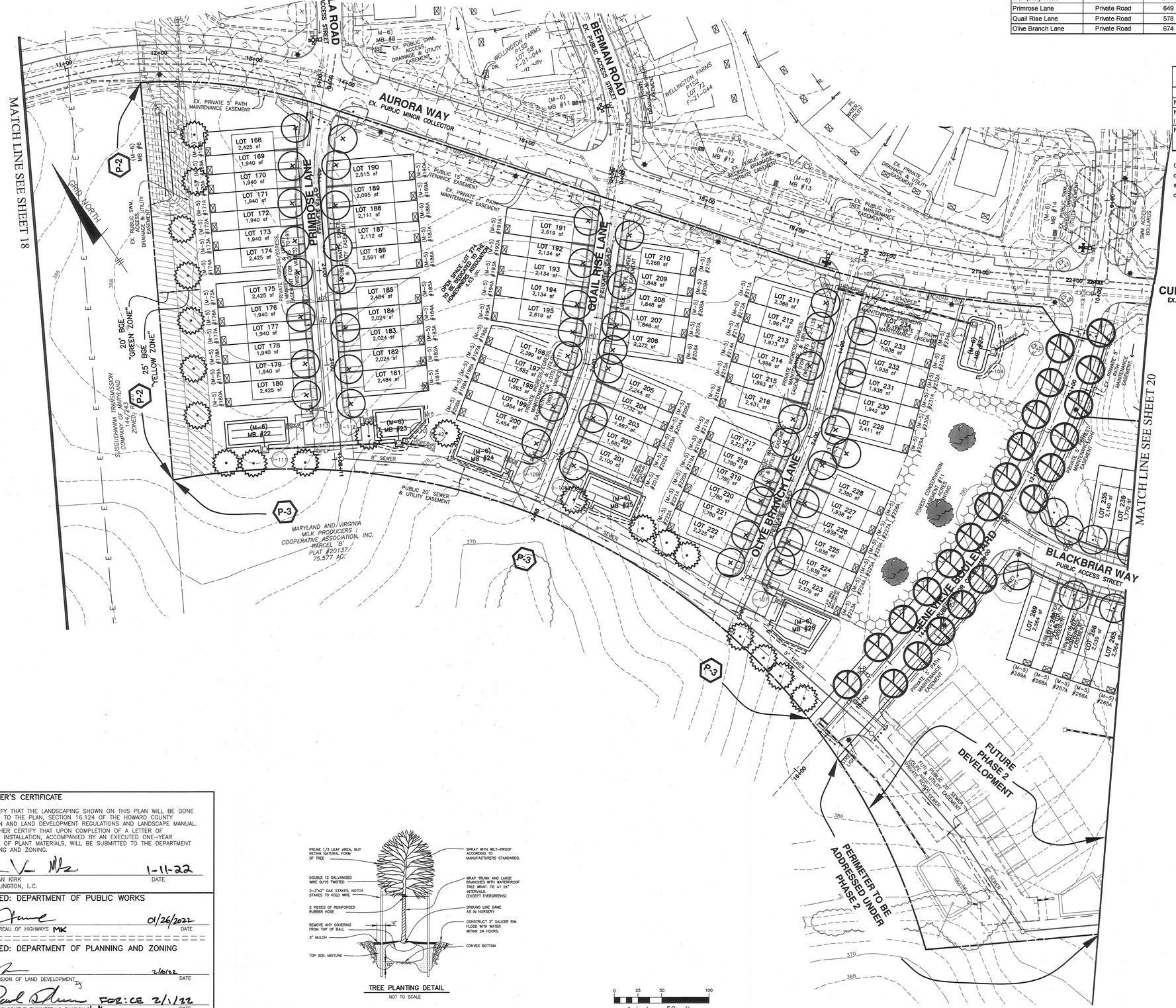
TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

LANDSCAPE PLAN

DESIGN: DBT	DRAFT: DBT	DATE: OCTOBER 21, 2021	BEI PROJECT NO. 2879
		SCALE: AS SHOWN	SHEET 18 OF 31

F-22-001

I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7022 P1S3.dwg, 12/28/2021 2:09:18 PM



Street Tree Schedule					
Road Name	*Ownership*	*LF of ROW*	*Tree Size*	*Requirement*	*Trees Required*
Blackbriar Way	Public Road	1113	Large	1 per 40 LF	28
Genevieve Boulevard	Public Road	927	Large	1 per 40 LF	23
Tranquility Road	Public Road	2604	Large	1 per 40 LF	65
Primrose Lane	Private Road	649	Large	1 per 40 LF	16
Quail Rise Lane	Private Road	578	Large	1 per 40 LF	14
Olive Branch Lane	Private Road	674	Large	1 per 40 LF	17
				Total	163

Schedule A
Perimeter Landscape Edge

Category	*P-1*	*P-2*	*P-3*	*Totals*
Landscape Type	A	A	A	
Linear Feet of Road Frontage or Perimeter	667	420	754	
Credit for Existing Vegetation (Yes, No, Linear Feet) (Describe below if needed)	0	0	0	
Credit for Wall, Fence, or Berm (Yes, No, Linear Feet) (Describe below if needed)	0	0	0	
Linear Feet of Planting	667	420	754	
Number of Plants Required				
Shade Trees	11	7	13	31
Evergreen Trees	0	0	0	0
Other Trees (2:1 substitute)				
Shrubs	0	0	0	0
Number of Plant Provided				
Shade Trees	11	7	13	31
Evergreen Trees	0	0	0	0
Other Trees (2:1 substitute)	0	0	0	0
Shrubs	0	0	0	0

Notes:
1. Remaining tract boundary perimeters not included in the above chart shall be included as part of future phases.
2. Perimeter trees for sideyards to roadway for Lots 148, 151, 158, 159, 164, 168, 190, 191, 210, 211, 234, 235, 254, and 269 shall be provided under future Site Development Plan

Schedule C
Residential Development Internal Landscaping

Category	*SFA*	*APT*
Number of Dwelling Unit	102	0
Number of Trees Required (1:DU SFA; 1:3 DU Apts)	102	0
Number of Trees Provided Shade Trees Other Trees (2:1 substitution)	deferred	0

Chart is shown for informational purposes. The actual planting obligation of these trees shall be deferred until the SDP stage so the plantings do not interfere with house and drywell construction.

LANDSCAPE PLANTING LIST

SYMBOL	QUANTITY	NAME	REMARKS	DESCRIPTION
	28	TILIA CORDATA 'GREENSPIRE' (Greenspire Littleleaf Linden)	2.5" – 3"cal.	STREET TREES TO BE PROVIDED BY THE DEVELOPER
	112	ACER RUBRUM 'RED SUBSET' (Red Sunset Red Maple)	2.5" – 3"cal.	
	23	GINKGO BILOBA 'AUTUMN GOLD' (Autumn Gold Ginkgo) *male only	2.5" – 3"cal.	
	31	CLADRASTIS KENTUKEA LUTEA (Yellowwood)	2.5" – 3"cal.	SHADE TREES ALONG PERIMETER EDGES TO BE PROVIDED BY THE DEVELOPER .
	7	QUERCUS ALBA White Oak or QUERCUS VELUTINA Black Oak	3"cal. or greater	SPECIMEN TREE MITIGATION PLANTING FOR THE REMOVAL OF 6 SPECIMEN TREES PER WP-20-039 APPROVAL. A TOTAL OF 7 SHALL BE PLANTED UNDER THIS PLAN.
				EXISTING STREET TREES PLANTED UNDER F-21-025

NO.	DATE	REVISION
1	1/24/2023	REVISE PRIMROSE, QUAIL RISE, AND OLIVE BRANCH LANES TO BE CLASSIFIED AS "PRIVATE ROAD"

DEVELOPER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION OF A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

JASON VAN KIRK — 1-11-22
ESC WELLINGTON, L.C. — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — 01/26/2022
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 2/1/22
DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — FOR: CE 2/1/22
DATE

TREE PLANTING DETAIL
NOT TO SCALE

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22390, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER R. WALSH — No. 22390 — PROFESSIONAL ENGINEER — 1-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

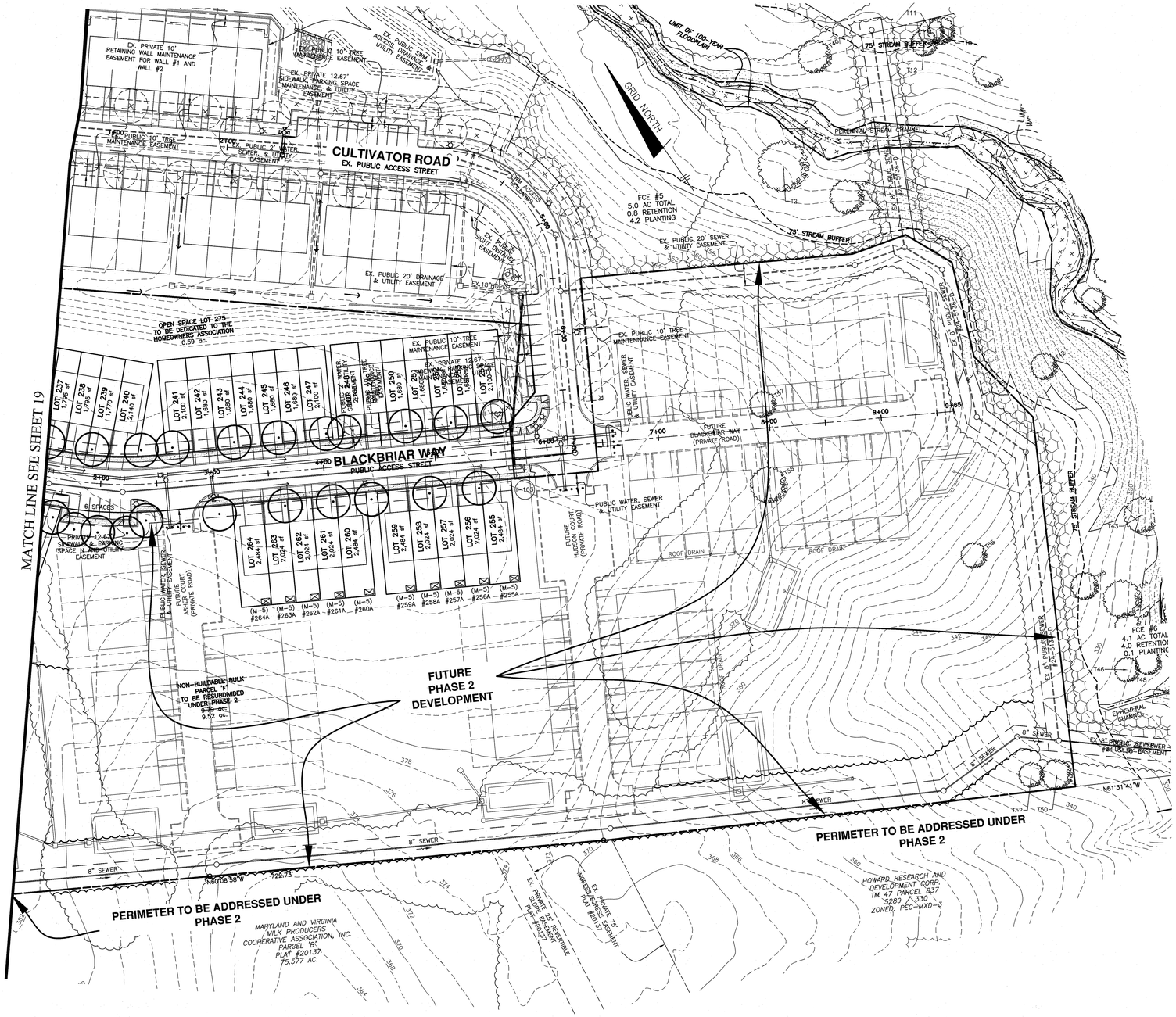
Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

LANDSCAPE PLAN

DESIGN: DBT	DRAFT: DBT	DATE: DECEMBER 27, 2021	BEI PROJECT NO. 2879
		SCALE: AS SHOWN	SHEET 19 OF 31

F-22-001



1 inch = 50 ft.

DEVELOPER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION OF A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

JASON VAN KIRK — DATE 1-11-22
ESC WELLINGTON, L.C.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/10/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION HSM — DATE For: CE 2/1/22

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22390, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER A. MIGLIORE — No. 22390 — PROFESSIONAL ENGINEER — 1-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

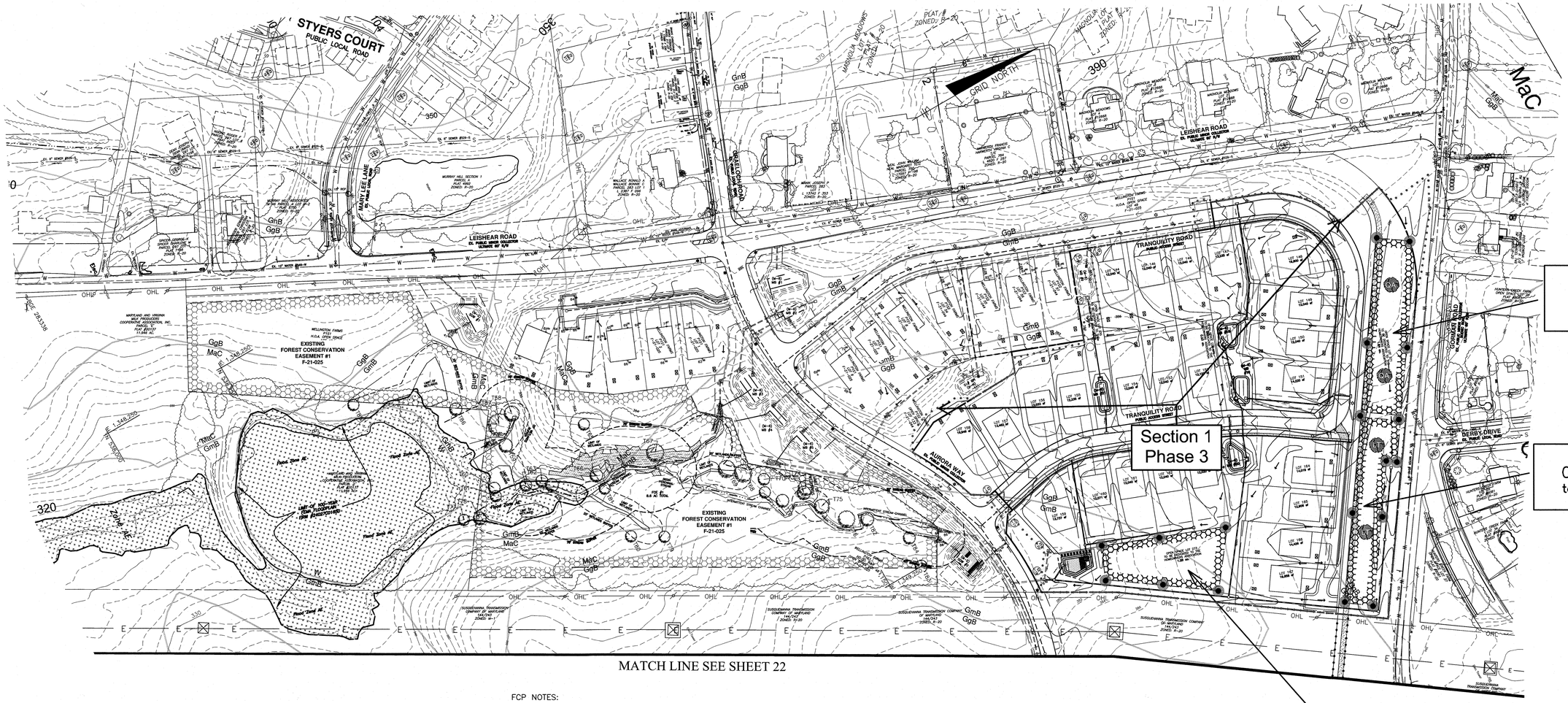
TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

LANDSCAPE PLAN

DESIGN: DBT	DRAFT: DBT	DATE: DECEMBER 27, 2021	BEI PROJECT NO. 2879
		SCALE: AS SHOWN	SHEET 20 OF 31

F-22-001

I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7022 P1S3.dwg, 12/26/2021 2:11:31 PM



FOREST CONSERVATION WORKSHEET FOR PHASE 1 SECTION 3

Net Tract Area

A.	Total (Gross) Tract Area	A =	33.65
B.	Area within 100-year Floodplain	B =	0.00
C.	Other Deductions (Identify: NBBP to be resubdivided in futun)	C =	9.79
D.	Net Tract Area	D =	23.86

Land Use Category

Insert the number "1" under the appropriate land use (limit to only one ent

Resid. Rural LD	Resid. Rural MD	Resid. Suburban	Inst./ Linear	Retail/Ind./Mixed Use/ Office	PUD
0	0	1	0	0	0

E.	Afforestation Threshold	(Net Tract Area x 15%)	E =	3.60
F.	Reforestation Threshold	(Net Tract Area x 20%)	F =	4.80

Existing Forest Cover

G.	Existing Forest Cover within the Net Tract Area	G =	0.00
H.	Area of Forest above Afforestation Threshold	H =	0.00
I.	Area of Forest above Reforestation Threshold	I =	0.00

Break Even Point

J.	Break Even Point	J =	0.00
K.	Forest Clearing Permitted without Mitigation	K =	0.00

Proposed Forest Clearing

L.	Total Area of Forest to be Cleared	L =	0.00
M.	Total Area of Forest to be Retained	M =	0.00

Planting Requirements Inside Watershed

N.	Reforestation for Clearing above the Reforestation Threshold	N =	0.00
P	Reforestation for Clearing below the Reforestation Threshold	P =	0.00
Q.	Credit for Retention above the Reforestation Threshold	Q =	0.00
R.	Total Reforestation Required	R =	0.00
S.	Total Afforestation Required	S =	3.60
T	Total Reforestation and Afforestation Requirement	T=	3.60
U	75% of Total Obligation (Retention + Planting)	U=	2.70
V	Planting Required Onsite to meet 75% Obligation	V=	2.70

Planting Requirements Outside Watershed

W.	Total Planting within Development Site Watershed	W=	1.60
X	Total Afforestation Required	X=	2.00
Y.	Remaining Planting within Watershed for Reforestation Credit	Y=	0.00
Z.	Reforestation for Clearing above the Reforestation Threshold	Z=	0.00
AA.	Reforestation for Clearing below the Reforestation Threshold	AA=	0.00
BB.	Credit for Retention above the Reforestation Threshold	BB=	0.00
CC.	Total Reforestation Required	CC=	0.00
DD.	Total Afforestation and Reforestation Requirement	DD=	2.00

Legend

- Development Section Boundary/ Limit of Disturbance
- Limit of FCE
- Specimen tree to be removed
- Specimen tree mitigation planting
- Permanent Protective Signage
- Temporary Protective Fencing

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/10/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION KSA — DATE FOR: CE 2/1/22

FCP NOTES:

1. Any Forest Conservation Easement (FCE) area shown hereon is subject to protective covenants which may be found in the Land Records of Howard County which restrict the disturbance and use of these areas.

2. Forested areas retained outside of the FCE shall not be considered part of the FCE and shall not be subject to protective land covenants

3. Limits of disturbance shall be restricted to areas outside the limit of temporary fencing of the FCE boundary, whichever is greater.

4. There shall be no clearing, grading, construction, or disturbance of vegetation in the Forest Conservation Easement, except as permitted by Howard County DPZ

5. No stockpiles, parking areas, equipment cleaning areas, etc. shall occur within areas designated as Forest Conservation Easements.

6. Temporary fencing shall be used to protect forest resources during construction. Fencing shall be installed along limits of disturbance occurring within 50 feet of the proposed FCE limits. Permanent signage will be posted at 50–100 foot intervals along all FCE limits.

7. The forest conservation requirements per section 16.1200 of the Howard County Code and Forest Conservation Manual for this project (Phase 1 Section 3, F–22–001) will be met through the retention of 0.0 acres of onsite forest and 1.6 acres of onsite planting. Financial surety in the amount of $47,916.00 for the 2.2 acres of planting shall be posted as part of the DPW Developer's Agreement,

8. WP–20–039, an alternative compliance to Section 16.1205(a)(3) to allow for the removal of six specimen trees was approved on May 1, 2020. There are no specimen trees to be removed under this phase, F–22–001. However, mitigation for these specimen trees is being provided by the planting of 7 3–inch caliper trees under this plan. 5 3–inch caliper trees were previously provided under F–21–025 bringing the total to 12 trees which fulfills the requirement.

the 7 trees are identified with the symbol:

9. Woody invasive species occurring within the proposed planting areas shall be removed prior to planting. This includes, but is not limited to Bradford Pear, multiflora rose, autumn/Russian olive, Oriental bittersweet, tree–of–heaven, and Japanese honeysuckle. These trees, shrubs and vines shall be cut/bush–hogged and all stumps should be treated with an appropriate herbicide treatment. Regrowth of any of the invasive species should be controlled with herbicide and/or mowing on a monthly schedule, in the growing season, during the maintenance and monitoring period.

10. Native trees that are 1' and taller that are present within the planting areas may be counted toward the overall planting density and planting success are required for the release of the planting security.

11. Per Section 16.1205A Subtitle 12 of the County Code the following natural resources must be left undisturbed during land development: trees and other vegetation identified on the lists of rare, threatened and endangered species of the US Fish and Wildlife Service of MD DNR; trees that are part of a historic site or associated with a historic structure and state champion trees, trees 75% of the diameter of state champion trees and trees 30" in diameter or larger. None of these resources, with the exception of the identified trees 30" in diameter or lager, defined as specimen trees, are known to occur on the site.

12. This project will provide larger stock (two rows of one inch caliper trees) planted along the edge of the Forest Conservation Easement in lieu of the 35 foot setback from the rear and side lot lines per section 16.1209(b)(4) of the County Code.

13. The Forest Conservation Plan calculations have been based on existing conditions information provided in the approved Milk Producers Property – Supplemental Forest Stand Delineation as prepare by Wetland Studies and Solutions, October 25, 2019.

Forest Conservation Planting Phasing Chart							
Phase 1 Section 1 (F-21-025)		Phase 1 Section 2 (F-21-044)		Phase 1 Section 3 (F-22-001)		Total	
Required	Provided	Required	Provided	Required	Provided	Required	Provided
2.8 acres	4.3 acres	0.4 acres	4.8 acres	3.6 acres	2.2 acres	6.8 acres	11.3 acres

0 50 100 200

1 inch = 100 ft.

NO.	DATE	REVISION

Plan Reviewed and Approved for Submission for County Review by:

Myra Brostus
ISA Certified Arborist #MA5411A
MD DNR Forest Qualified Professional
Myra.brostus@gmail.com

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS
P.O. BOX 500 GLEN ARM, MARYLAND 21057
Telephone (410) 665-7840
www.ecosciencepro fessionalsinc.com

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410–720–3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410–720–3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R–20–MXD–3 / R–SC–MXD–3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

FOREST CONSERVATION PLAN

DATE: DECEMBER 27, 2021 | BEI PROJECT NO. 2879

DESIGN: . | DRAFT: . | SCALE: AS SHOWN | SHEET 21 OF 31

F-22-001

I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7035 P1S3.dwg, 1/3/2022 3:22:53 PM

MATCH LINE SEE SHEET 21

GRID NORTH

EXISTING FOREST CONSERVATION EASEMENT #2 F-21-025

EXISTING FOREST CONSERVATION EASEMENT #3 F-21-025

EXISTING FOREST CONSERVATION EASEMENT #4 F-21-044

EXISTING FOREST CONSERVATION EASEMENT #5 F-21-044

EXISTING FOREST CONSERVATION EASEMENT #6 F-21-044

EXISTING FOREST CONSERVATION EASEMENT #7 F-21-044

NON-BUILDABLE BULK PARCEL 'E' TO BE RESUBDIVIDED UNDER A PHASE 2

NON-BUILDABLE BULK PARCEL 'F' TO BE RESUBDIVIDED UNDER A PHASE 2

Section 1 Phase 3

FCE #11
0.6 ACRES
to be planted

CORMAN ROAD

AURORA WAY

PRIMROSE LANE

QUAIL RISE LANE

OLIVE BRANCH LANE

GENEVIEVE BOULEVARD

BLACKBRIAR WAY

SEA VALLEY WAY

CLUBHOUSE

POOL

CORMAN CROSSING ELEMENTARY SCHOOL

MATCH LINE SEE SHEET 21

Legend

- Development Section Boundary/ Limit of Disturbance
- Limit of FCE
- Specimen tree to be removed
- Specimen tree mitigation planting
- Permanent Protective Signage
- Temporary Protective Fencing

0 50 100 200
1 inch = 100 ft.

Plan Reviewed and Approved for Submission for County Review by:

Myra Bresius
ISA Certified Arborist #MA5411A
MD DNR QA Qualified Professional
Myra.bresius@gmail.com

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS
P.O. BOX 5066 GLEN ARM, MARYLAND 21057
Telephone (410) 482-7040
www.ecosciencepros@ecosciencepros.com

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/10/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE FOR: CE 2/1/22

NO.	DATE	REVISION
1	1/24/2023	REVISE PRIMROSE, QUAIL RISE, AND OLIVE BRANCH LANES TO BE CLASSIFIED AS "PRIVATE ROAD"

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

FOREST CONSERVATION PLAN

DATE: DECEMBER 27, 2021 | BEI PROJECT NO. 2879

DESIGN: . | DRAFT: . | SCALE: AS SHOWN | SHEET 22 OF 31

F-22-001

I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7035 P1S3.dwg, 1/3/2022 3:23:25 PM

TABLE 2: SPECIMEN TREE TABLE

No.	Common Name	Scientific Name	DBH (inches)	Condition Rating	Comments	
1	Yellow poplar	*Liriodendron tulipifera*	32	Fair	Broken branches, narrow crown	
2	White oak	*Quercus alba*	61	Good	Double leader	
3	Yellow poplar	*Liriodendron tulipifera*	31	Fair	Narrow crown, vine cover (*Toxicodendron radicans*)	
4	Southern red oak	*Quercus falcata*	34	Poor	Broken leader, small dead wood	
5	Yellow poplar	*Liriodendron tulipifera*	39	Good	Broken branches, small dead wood	
6	Yellow poplar	*Liriodendron tulipifera*	38	Good	Large dead wood	
7	Yellow poplar	*Liriodendron tulipifera*	30	Good	Small dead wood, broken branches	
8	Yellow poplar	*Liriodendron tulipifera*	35	Poor	Heavy vine cover (*Toxicodendron radicans*), root cavity, poor form, 1-sided crown, small deadwood, broken branches, hollow trunk	
9	Yellow poplar	*Liriodendron tulipifera*	41	Poor	Included bark, large root cavity	
10	Yellow poplar	*Liriodendron tulipifera*	33	Good		
11	Yellow poplar	*Liriodendron tulipifera*	31	Fair	Broken leader, 1-sided crown, poor form	
12	Yellow poplar	*Liriodendron tulipifera*	32	Good		
13	Northern red oak	*Quercus rubra*	33	Fair	Narrow crown, broken branches	
14	Yellow poplar	*Liriodendron tulipifera*	36	Good	Vine cover (*Toxicodendron radicans*)	
15	Yellow poplar	*Liriodendron tulipifera*	33	Good		
16	Yellow poplar	*Liriodendron tulipifera*	31	Fair	Vine cover (*Toxicodendron radicans*), 1-sided crown, large dead wood	
17	Yellow poplar	*Liriodendron tulipifera*	31	Good	Vine cover (*Toxicodendron radicans*), small dead wood	
18	Yellow poplar	*Liriodendron tulipifera*	39	Good	Small dead wood	
19	Yellow poplar	*Liriodendron tulipifera*	36	Good	1-sided crown	
20	White oak	*Quercus alba*	30	Fair	Large dead wood, 1-sided crown	
21	Yellow poplar	*Liriodendron tulipifera*	36	Good	Large dead wood	
22	Yellow poplar	*Liriodendron tulipifera*	44	Fair	Large dead wood, cavity at base	
23	Yellow poplar	*Liriodendron tulipifera*	56	Good		
24	Yellow poplar	*Liriodendron tulipifera*	31	Good		
25	Yellow poplar	*Liriodendron tulipifera*	34	Good	Large dead wood	
26	Yellow poplar	*Liriodendron tulipifera*	35	Poor	Large dead wood, dead leader	
27	Yellow poplar	*Liriodendron tulipifera*	39	Poor	Lean, large dead wood, small dead wood, 1-sided crown	
28	White oak	*Quercus alba*	34	Good	Large dead wood	
29	Yellow poplar	*Liriodendron tulipifera*	30	Good		
30	Yellow poplar	*Liriodendron tulipifera*	58	Poor	Dead leader, large dead wood	
31	Northern red oak	*Quercus rubra*	30	Poor	Crown mostly dead, vine cover (*Toxicodendron radicans*)	
32	Northern red oak	*Quercus rubra*	30	Fair	Heavy vine cover (*Toxicodendron radicans*), large dead wood	
33	Mockernut hickory	*Carya tomentosa*	31	Poor	Small dead wood, double leader, included bark	
34	Yellow poplar	*Liriodendron tulipifera*	34	Good	Large dead wood, heavy vine cover (*Toxicodendron radicans*)	
35	Northern red oak	*Quercus rubra*	35	Fair	Heavy vine cover (*T. radicans, S. rotundifolia, H. helix*)	
36	Yellow poplar	*Liriodendron tulipifera*	30	Good	Small dead wood	
37	Yellow poplar	*Liriodendron tulipifera*	32	Good		
38	Yellow poplar	*Liriodendron tulipifera*	31	Good	Small dead wood	
39	Yellow poplar	*Liriodendron tulipifera*	31	Good	1-sided crown, large dead wood	
40	Yellow poplar	*Liriodendron tulipifera*	32	Good	Large dead wood	
41	Yellow poplar	*Liriodendron tulipifera*	34	Good	Small dead wood	
42	Yellow poplar	*Liriodendron tulipifera*	32	Good		
43	Yellow poplar	*Liriodendron tulipifera*	41	Good		
44	Yellow poplar	*Liriodendron tulipifera*	46	Good		
45	Yellow poplar	*Liriodendron tulipifera*	33	Good	Minor vine cover (*Toxicodendron radicans*)	
46	Yellow poplar	*Liriodendron tulipifera*	30	Poor	Cavity at base, butt rot	
47	Yellow poplar	*Liriodendron tulipifera*	33	Good		
48	Yellow poplar	*Liriodendron tulipifera*	31	Fair	Vine cover (*Toxicodendron radicans*), narrow crown, storm damaged	
49	Northern red oak	*Quercus rubra*	32	Fair	Small cavity at base, minor storm damage, narrow crown	REMOVED
50	Yellow poplar	*Liriodendron tulipifera*	37	Good		
51	Yellow poplar	*Liriodendron tulipifera*	32	Good		REMOVED
52	Yellow poplar	*Liriodendron tulipifera*	30	Good		
53	Yellow poplar	*Liriodendron tulipifera*	32	Fair	Dual leader, included bark, vine cover (*Toxicodendron radicans*)	
54	Yellow poplar	*Liriodendron tulipifera*	36	Good		
55	Yellow poplar	*Liriodendron tulipifera*	31	Good		
56	White oak	*Quercus alba*	44	Good		TO BE REMOVED
57	White oak	*Quercus alba*	32	Good	Minor vine cover (*Toxicodendron radicans*)	TO BE REMOVED
58	Yellow poplar	*Liriodendron tulipifera*	40	Very Poor	Lightning and storm damage, crown dieback	
59	Yellow poplar	*Liriodendron tulipifera*	36	Very Poor	Lightning strike, very large cavity at base, butt rot	
60	White oak	*Quercus alba*	31	Fair	Some beaver damage at base, included barbed wire fence in trunk	
61	White oak	*Quercus alba*	30	Very Poor	Cavity at base, dead crown, trunk rot	
62	Yellow poplar	*Liriodendron tulipifera*	32	Good		
63	Yellow poplar	*Liriodendron tulipifera*	32	Good		
64	Yellow poplar	*Liriodendron tulipifera*	35	Fair	Included bark, large dead wood	
65	Yellow poplar	*Liriodendron tulipifera*	30	Poor	Very heavy vine cover (*T. radicans, Vitis sp., R. multiflora*), large dead wood	
66	Red maple	*Acer rubrum*	34	Fair	Double leader, included bark, large dead wood	
67	Yellow poplar	*Liriodendron tulipifera*	46	Good	Small dead wood	
68	Red maple	*Acer rubrum*	46	Poor	Large dead wood, butt rot, large cavity at base, leaning	
69	Yellow poplar	*Liriodendron tulipifera*	45	Good		
70	Yellow poplar	*Liriodendron tulipifera*	31	Very Poor	Leaning, large cavity down trunk (10'), Large dead wood	
71	Red maple	*Acer rubrum*	30	Very Poor	Double leader, included bark, very large trunk cavity, butt rot	
72	Yellow poplar	*Liriodendron tulipifera*	34	Good	Included bark, double leader at 20'	
73	Yellow poplar	*Liriodendron tulipifera*	36	Fair	Large dead wood, included bark	
74	Yellow poplar	*Liriodendron tulipifera*	40	Very Poor	Butt rot, vine cover (*S. rotundifolia, C. orbiculatus*), double leader, included bark	
75	Yellow poplar	*Liriodendron tulipifera*	38	Fair	Double leader, included bark	
76	Yellow poplar	*Liriodendron tulipifera*	44	Fair	Double leader, included bark	
77	Yellow poplar	*Liriodendron tulipifera*	30	Fair	Beaver damage at base, small dead wood	
78	Yellow poplar	*Liriodendron tulipifera*	34	Fair	Large dead wood, heavy vine cover (*Toxicodendron radicans*),	
79	White oak	*Quercus alba*	30	Fair	Double leader, included bark, small dead wood	
80	Yellow poplar	*Liriodendron tulipifera*	30	Good	Large dead wood	
81	Red maple	*Acer rubrum*	30	Good		
82	Yellow poplar	*Liriodendron tulipifera*	35	Fair	Double leader, included bark	
83	Yellow poplar	*Liriodendron tulipifera*	33	Fair	Large dead wood, vine cover (*T. radicans, Vitis sp.*)	
84	Red maple	*Acer rubrum*	32	Fair	Double leader, included bark, small dead wood	
85	Yellow poplar	*Liriodendron tulipifera*	45	Poor	Double leader, included bark, small dead wood	
86	Yellow poplar	*Liriodendron tulipifera*	36	Fair	Double leader, included bark	
87	Yellow poplar	*Liriodendron tulipifera*	58	Good		
88	Yellow poplar	*Liriodendron tulipifera*	34	Fair	Heavy vine cover, girdled roots, trunk decay (woodpecker holes), large dead wood	
89	Yellow poplar	*Liriodendron tulipifera*	39	Good	Large dead wood, small dead wood	
90	Yellow poplar	*Liriodendron tulipifera*	37	Poor	Narrow crown, large lean, large dead wood	REMOVED
91	Northern red oak	*Quercus rubra*	37	Good	Girdled roots, heavy vine cover - poison ivy (Toxicodendron radicans) and oriental bittersweet (*Celastrus orbiculatus*)	REMOVED

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/10/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION KW — DATE 2/1/22 (For: CE)

Soils Table

Map Unit Symbol	Map Unit Name	% Hydric Components	Drainage Class	K-Factor* (Whole soil)
CerB	Chillum loam, 2 to 5 % slopes	0	Well drained	0.24
GgA	Glenelg loam, 0 to 3 % slopes	0	Well drained	0.24
GgB	Glenelg loam, 3 to 8 % slopes	0	Well drained	0.24
GmB	Glenville silt loam, 3 to 8 % slopes	10	Moderately well drained	0.37
GnB	Glenville-Baile silt loams, 0 to 8 % slopes	35	Moderately well drained	0.43
MuC	Manor loam, 8 to 15 % slopes	0	Well drained	0.28
MuD	Manor loam, 15 to 25 % slopes	0	Well drained	0.28
RuB	Russett and Beltsville soils, 2 to 5 % slopes	0	Moderately well drained	0.28
RuC	Russett and Beltsville soils, 5 to 10 % slopes	0	Moderately well drained	0.28
SaC	Sassafras loam 5 to 10 % slopes	0	Well drained	0.28
SrD	Sassafras and Croom soils, 10 to 15 % slopes	0	Well drained	0.32

Source: https://websoilsurvey.sc.egov.usda.gov (January 2018)

*Soils are considered highly erodible if the K-factor exceeds 0.35

FOREST STAND ANALYSIS TABLE

Applicant: Maryland and Virginia Milk Producers Bonsen Tract *Project Name:* Milk Producers Property *Submission No.:*

KEY	A. TYPE OF COMMUNITY	B. AREA (Gross acres)	C. SOIL INFORMATION 1. Soil Types	2. Typical forest cover for soil type	3. Woodland Suitability Index	4. Habitat value for soil type	D. EXISTING VEGETATION (Dominant Species & Approx. %)	E. STAND CHARACTERISTICS 1. Site (Dominant)	2. Age	3. General Condition	F. FOREST AREA IN SENSITIVE ENVIRONMENTS (acres)	
F1	Yellow poplar & White oak	14.6	GnB, FrC, GmB, MuD, MuC, GgB	(This information is not available with the updated soil survey)	(This information is not available with the updated soil survey)	(This information is not available with the updated soil survey)	Canopy: Yellow poplar (65%) White oak (15%) Red maple (10%) Northern red oak (10%) Understory/Shrubs: American hornbeam (7%) Eastern redcedar (7%) Wild raisin (7%) Japanese barberry (5%) Spicebush (3%) Multiflora rose (7%) Herbaceous: Japanese honeysuckle (7%) Japanese stiltgrass (30%) Bristolred greenbrier (20%) Smallwood sedge (2%)	30-35" 24-28" 12-16" 18-22"	100 - 120 years	Good, numerous herbaceous invasive species, some invasive shrub cover	Steep Slopes (25%+): Wetlands: Wetland Buffers: 100-year Floodplain: Stream Buffers:	1.28 0.26 0.00 0.29 7.88
F2	Red maple	0.74	GnB, BsA	(This information is not available with the updated soil survey)	(This information is not available with the updated soil survey)	(This information is not available with the updated soil survey)	Canopy: Red maple (75%) Pin oak (20%) Black cherry (2%) Black Willow (2%) Understory/Shrubs: Pin oak (2%) Wild raisin (10%) Bristolred greenbrier (20%) Herbaceous: Japanese stiltgrass (2%) Wild onion (2%) Grape vine (20%)	8-14" 6-12" 12-18" 8-10"	40-60 years	Fair, large amount of vine cover of orange, some invasive species, young forest	Steep Slopes (25%+): Wetlands: Wetland Buffers: 100-year Floodplain: Stream Buffers:	0.00 0.29 0.21 0.00 0.10

PLANTING SCHEDULE

FCP Planting Area # 8 - 0.4 acres
Planting units required: 280
Planting units proposed: 280

Qty	Species	Size	Spacing	Total Units
2	Quercus alba - White oak	3" caliper	*as shown	
10	Cercis canadensis - Red bud	1" caliper	15' o.c.	
5	Cornus florida - Flowering dogwood	1" caliper	15' o.c.	
15	Liriodendron tulipifera - Tulip poplar	1" caliper	15' o.c.	
25	Prunus serotina - Black cherry	1" caliper	15' o.c.	
15	Quercus alba - White oak	1" caliper	15' o.c.	
10	Sassafras albidum - Sassafras	1" caliper	15' o.c.	
80	Total plantings (3.5 planting units per tree)	FCA unit credit		280
Total Unit Credit				280

FCP Planting Area # 9 - 0.3 acres
Planting units required: 210
Planting units proposed: 210

Qty	Species	Size	Spacing	Total Units
2	Liriodendron tulipifera - Tulip poplar	3" caliper	*as shown	
5	Cercis canadensis - Red bud	1" caliper	15' o.c.	
5	Cornus florida - Flowering dogwood	1" caliper	15' o.c.	
10	Liriodendron tulipifera - Tulip poplar	1" caliper	15' o.c.	
20	Prunus serotina - Black cherry	1" caliper	15' o.c.	
10	Quercus alba - White oak	1" caliper	15' o.c.	
10	Sassafras albidum - Sassafras	1" caliper	15' o.c.	
60	Total plantings (3.5 planting units per tree)	FCA unit credit		210
Total Unit Credit				210

FCP Planting Area # 10 - 0.5 acres
Planting units required: 350
Planting units proposed: 350

Qty	Species	Size	Spacing	Total Units
15	Cercis canadensis - Red bud	1" caliper	15' o.c.	
10	Cornus florida - Flowering dogwood	1" caliper	15' o.c.	
15	Liriodendron tulipifera - Tulip poplar	1" caliper	15' o.c.	
25	Prunus serotina - Black cherry	1" caliper	15' o.c.	
20	Quercus alba - White oak	1" caliper	15' o.c.	
15	Sassafras albidum - Sassafras	1" caliper	15' o.c.	
100	Total plantings (3.5 planting units per tree)	FCA unit credit		350
Total Unit Credit				350

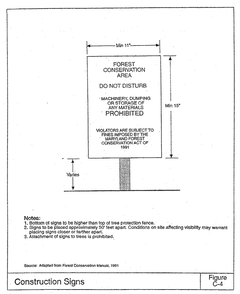
FCP Planting Area # 11 - 0.6 acres
Planting units required: 420
Planting units proposed: 420

Qty	Species	Size	Spacing	Total Units
2	Liriodendron tulipifera - Tulip poplar	3" caliper	*as shown	
1	Quercus alba - White oak	3" caliper	*as shown	
15	Cercis canadensis - Red bud	1" caliper	15' o.c.	
15	Cornus florida - Flowering dogwood	1" caliper	15' o.c.	
20	Liriodendron tulipifera - Tulip poplar	1" caliper	15' o.c.	
25	Prunus serotina - Black cherry	1" caliper	15' o.c.	
25	Quercus alba - White oak	1" caliper	15' o.c.	
20	Sassafras albidum - Sassafras	1" caliper	15' o.c.	
120	Total plantings (3.5 planting units per tree)	FCA unit credit		420
Total Unit Credit				420

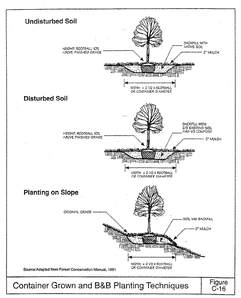
* Specimen tree mitigation plantings are not counted toward standard reforestation requirement.

Planting Notes:

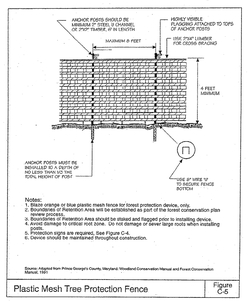
- Planting density based on 700 planting units per acre. 2" caliper trees = 7 planting units, 1" caliper trees = 3.5 planting units, whips with shelter = 2 planting units.
- * - These species should not be planted within the wetland limits.
- Planting shall be made in a curvilinear fashion along contour. The planting should avoid a grid appearance but should be spaced to facilitate maintenance
- Existing native trees 1' and taller may be counted toward final plant density obligation for the purpose calculating planting success and security release.
- Invasive Species Control Note - Woody invasive species occurring within the proposed planting areas shall be removed prior to planting. This includes, bit is not limited to Bradford pear, multiflora rose, autumn/Russian olive, Oriental bittersweet, tree-of-Heaven, and Japanese honeysuckle. These trees, shrubs and vines shall be cut/bush-hogged and all stumps should be treated with an appropriate herbicide treatment. Regrowth of the any woody invasive species should be controlled with herbicide and/or mowing on a monthly schedule, in the growing season, during the maintenance and monitoring period.



Construction Signs — Figure C-4



Container Grown and B&B Planting Techniques — Figure C-16



Plastic Mesh Tree Protection Fence — Figure C-5

REFORESTATION PLAN

A. Planting Plan and Methods

Plant species selection was based on our knowledge regarding plant communities in Maryland's Piedmont Plateau and information provided in the soil survey on typical vegetation for the soil type on the planting site. Species selection was also based on our knowledge of plant availability in the nursery industry.

Reforestation will be accomplished through a mixed planting of whips and branched transplants. Container grown stock is recommended but bareroot stock may be used to help control afforestation costs. If bareroot stock is used the root systems of all plants will be dipped in an anti-desiccant gel prior to planting to improve moisture retention in the root systems.

Prior to planting the proposed Forest Conservation Easements all multiflora rose in the planting area shall be removed. Removal of the rose may be performed with mowing and herbicide treatments. Physical removal of all top growth following by a periodic herbicide treatment of stump sprouts is recommended. Native tree and shrub species occurring within the rose thickets should be retained wherever possible. Herbicides treatments shall occur on 2 month intervals during the first growing season and once each in the spring and fall for subsequent years. Herbicide used shall be made specifically to address woody plant material and shall be applied as per manufacturers specifications. Care should be taken not to spray planted trees or naturally occurring native tree/shrub seedlings. It is recommended that initiation of rose removal begin at least six months prior to planting.

B. Planting and Soil Specifications

Plant material will be installed in accordance with the Planting Detail and Planting Specifications shown on the Forest Conservation Plan.

Amendments to existing soil will be in accordance with the Planting Specifications shown on the Forest Conservation Plan. Soil disturbance will be limited to individual planting locations.

C. Maintenance of Plantings

For information regarding maintenance of the reforestation plantings, see Post Construction Management Plans.

D. Guarantee Requirements

A 90 percent survival rate of the reforestation plantings will be required after one growing season. All plant material below the 90 percent survival threshold will be replaced at the beginning of the second growing season. At the end of the third growing season, a 75 percent survival rate will be required. All plant material below the 75 percent survival threshold will be replaced by the beginning of the next growing season.

E. Security for Reforestation

Section 16-1209 of the Howard County Forest Conservation Act requires that a developer shall post a security (bond, letter of credit, etc.) with the County to insure that all work is done in accordance with the FCP.

CONSTRUCTION PERIOD PROTECTION PROGRAM

A. Forest Protection Techniques

1. Soil Protection Area (Critical Root Zone)

The soil protection area, or critical root zone, of a tree is that portion of the soil column where most of a its roots may be found. The majority of roots responsible for water and nutrient uptake are located just below the soil surface. Temporary fencing shall be placed around the critical root zone of the forest in areas where the forest limits occur within 25 feet of the limit of disturbance.

2. Fencing and Signage

Existing forest limits occurring within 25 feet of the limits of disturbance shall be protected using temporary protective fencing. Permanent signage shall be placed around the afforestation area prior to plant installation, as shown on the plan.

B. Pre-Construction Meeting

Upon staking of limits of disturbance a pre-construction meeting will be held between the developer, contractor and appropriate County inspector. The purpose of the meeting will be to verify that all sediment control is in order, and to notify the contractor of possible penalties for non-compliance with the FCP.

C. Storage Facilities/Equipment Cleaning

All equipment storage, parking, sanitary facilities, material stockpiling, etc. associated with construction of the project will be restricted to those areas outside of the proposed Forest Conservation Easement. Cleaning of equipment will be limited to area within the LOD of the proposed homesites. Wastewater resulting from equipment cleaning will be controlled to prevent runoff into environmentally sensitive areas.

D. Sequence of Construction

The following timetable represents the proposed timetable for development. The items outlined in the Forest Conservation Plan will be enacted within two (2) years of subdivision approval.

Below find a proposed sequence of construction.

1. Install all signage and sediment control devices.
2. Hold pre-construction meeting between developer, contractor and County inspector.
3. Build access roads, install well and septic systems, and construct houses. Stabilize all disturbed areas accordingly.
4. Begin multiflora rose removal. Install permanent protective signage for Easements and initiate plantings in accordance with Forest Conservation Plan. Plantings will be completed within two (2) years of subdivision approval.
5. Remove sediment control.
6. Hold post-construction meeting with County inspectors to assure compliance with FCP. Submit Certification of Installation.
7. Monitor and maintain plantings for 3 years.

E. Construction Monitoring

Eco-Science Professionals, or another qualified professional designated by the developer, will monitor construction of the project to ensure that all activities are in compliance with the Forest Conservation Plan.

F. Post-Construction Meeting

Upon completion of construction, Eco-Science Professionals, or another qualified professional designated by the developer, will notify the County that construction has been completed and arrange for a post-construction meeting to review the project site. The meeting will allow the County inspector to verify that plantings have been installed.

POST-CONSTRUCTION MANAGEMENT PLAN

Howard County requires 3 year post-construction management plan be prepared as part of the forest conservation plan. The plan goes into effect upon acceptance of the construction certification of completion by the County. Eco-Science Professionals, or another qualified professional designated by the developer, will be responsible for implementation of the post-construction management plan.

The following items will be incorporated into the plan:

A. Fencing and Signage

Permanent signage indicating the limits of the retention/reforestation area shall be maintained.

B. General Site Inspections/Maintenance of Plantings

Site inspections will be performed a minimum of three times during the growing season. The purpose of the inspections will be to assess the health of the afforestation plantings. Appropriate measures will be taken to rectify any problems which may arise.

In addition, maintenance of the plantings will involve the following steps:

1. Watering - All plant material shall be watered twice a month during the 1st growing season, more or less frequently depending on weather conditions. During the second growing season, once a month during May-September, if needed.
2. Removal of invasive exotics and noxious weeds. Old field successional species will be retained.
3. Identification of serious plant pests and diseases, treatment with appropriate agent.
4. Pruning of dead branches.
5. After inspections, replacement of plants, if required, in accordance with the Guarantee Requirements shown on the FCP.

C. Education

The developer will provide appropriate materials to property owners informing them of the location and purpose of the afforestation area. Materials may include site plans and information explaining the intent of the forest conservation law.

D. Final Inspection

At the end of the year post-construction management period, Eco-Science Professionals, or another qualified professional, will submit to the administrator of the Howard County Forest Conservation Program certification that all retention/afforestation requirements have been met. Upon acceptance of this certification, the County will release the developer from all future obligations and release the developer's bond.

FCE Boundary Planting Note

In locations were the FCE is closer than 35 feet to the buildable lot lines, larger planting stock ((2 rows of 1 inch caliper trees shall be planted) to define the planting area boundary and discourage encroachment. Tree spacing in these rows should be reduced to 10 feet between plants and rows.

Plan Reviewed and Approved for Submission for County Review by:

Myra Brooks
ISA Certified Arborist #MA5411A
MD DNR PCA Qualified Professional
Myra.brooks@gmail.com

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS
P.O. BOX 5004 GLEN ARM, MARYLAND 21057
Telephone (410) 665-7040
www.ecoscienceprofessionals.com

NO.	DATE	REVISION

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS
Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044 as Plat No. _____-_____)

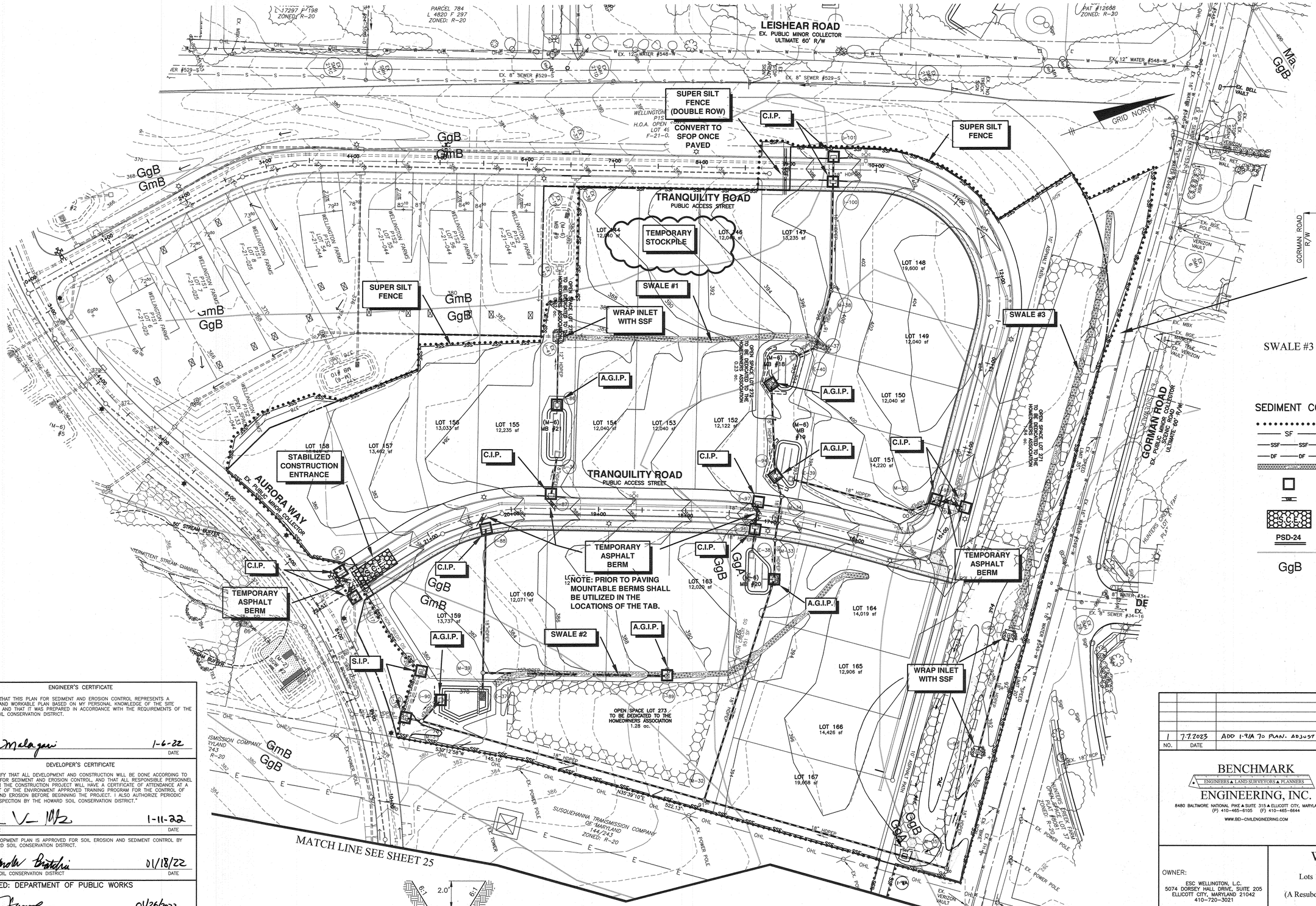
TAX MAP: 46 - GRID: 6 - PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 - HOWARD COUNTY, MARYLAND

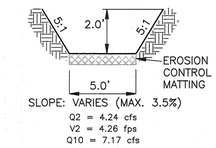
FOREST CONSERVATION PLAN

DESIGN: .	DRAFT: .	DATE: AUGUST 9, 2021	BEI PROJECT NO. 2879
		SCALE: AS SHOWN	SHEET 23 OF 31

F-22-001

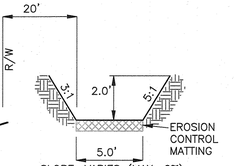
1/9/2020 Milk Producers/dwg/Preliminary Plans/5215.dwg, 12/10/2018 9:27:54 PM





SLOPE: VARIES (MAX. 3.5%)
Q2 = 4.24 cfs
V2 = 4.26 fps
Q10 = 7.17 cfs
V10 = 5.05 fps

SWALE #1
NOT TO SCALE

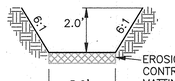


SLOPE: VARIES (MAX. 6%)
Q2 = 4.04 cfs
V2 = 4.68 fps
Q10 = 6.81 cfs
V10 = 6.02 fps

SWALE #3 ALONG GORMAN ROAD DETAIL
NOT TO SCALE

SEDIMENT CONTROL LEGEND

••••••••••	LIMIT OF DISTURBANCE
—— SF ——	SILT FENCE
—SSF— —SSF—	SUPER SILT FENCE
—DF— —DF—	DIVERSION FENCE
	PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION
	INLET PROTECTION
TAB	TEMPORARY ASPHALT BERM
SCE	STABILIZED CONSTRUCTION ENT.
PSD-24	PIPE SLOPE DRAIN
	SOILS LINE
GgB	SOILS TYPE



SLOPE: (MAX. 6.3%)
Q2 = 4.67 cfs
V2 = 5.28 fps
Q10 = 7.75 cfs
V10 = 6.25 fps

SWALE #2
NOT TO SCALE

0 25 50 100
1 inch = 50 ft.

THIS PLAN IS FOR SEDIMENT AND EROSION CONTROL ONLY.

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

ENGINEER — DATE: 1-6-22

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

DEVELOPER — DATE: 1-11-22

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE: 01/18/22

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE: 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 2/10/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION KSK — DATE: FOR: CE 2/1/22

NO.	DATE	REVISION
1	7.7.2023	ADD I-9/A TO PLAN. ADJUST GRADES.

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22390, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER A. HALLER — No. 22390 — PROFESSIONAL ENGINEER — 7-6-23

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

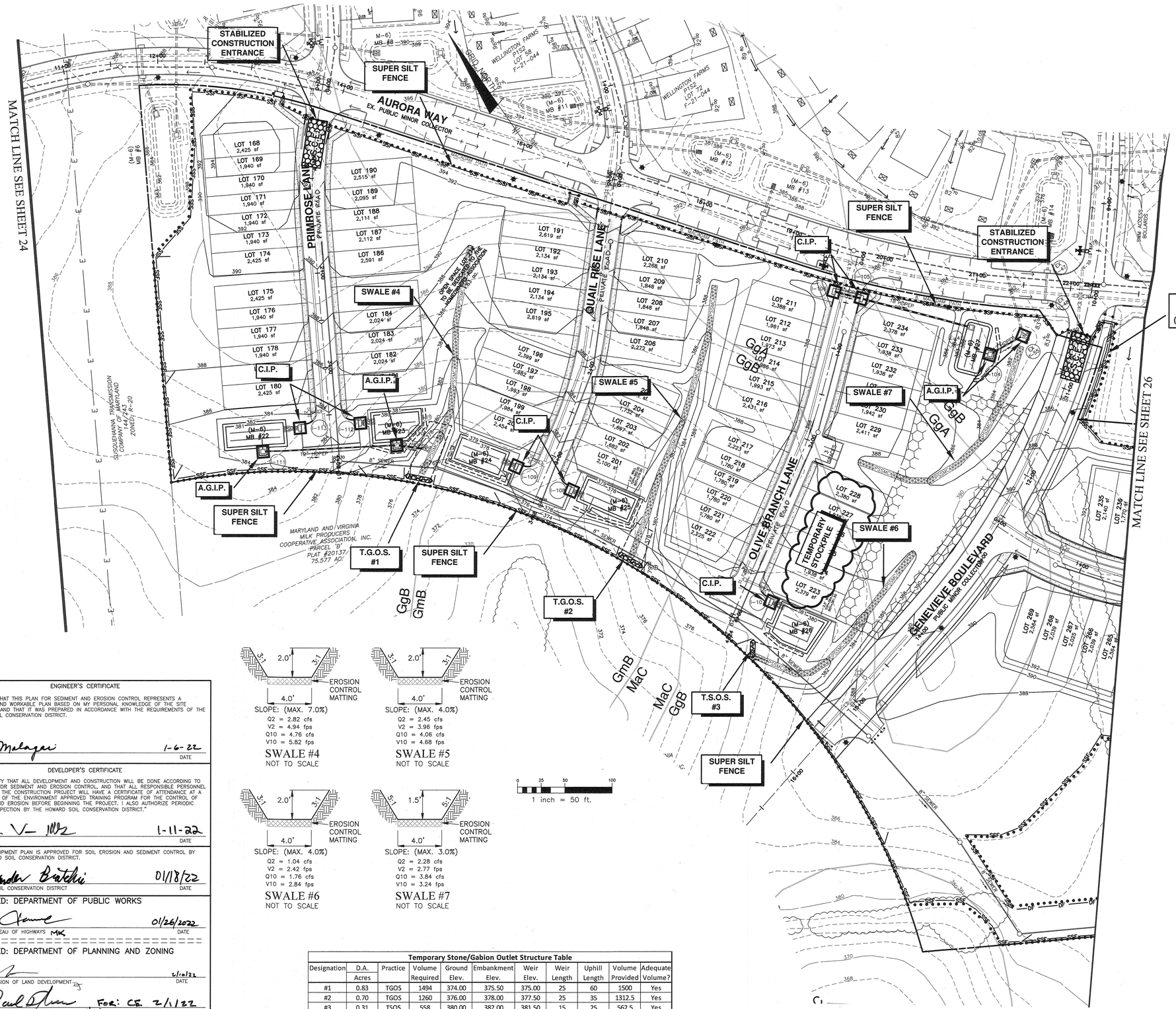
TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20–MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

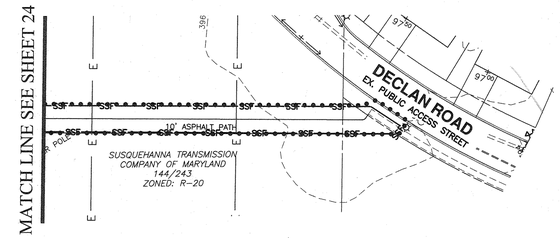
GRADING, SEDIMENT AND EROSION CONTROL PLAN

DESIGN: DBT	DRAFT: DBT	DATE: DECEMBER 27, 2021	BEI PROJECT NO. 2879
		SCALE: AS SHOWN	SHEET 24 OF 31

F-22-001

I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7023 P1S3.dwg, 12/27/2021 9:24:40 AM





SEDIMENT CONTROL LEGEND

• • • • • • • • • • • •	LIMIT OF DISTURBANCE
—— SF ——	SILT FENCE
—— SSF —— SSF ——	SUPER SILT FENCE
—— DF —— DF ——	DIVERSION FENCE
	PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION
	INLET PROTECTION
	TEMPORARY ASPHALT BERM
S.C.E.	STABILIZED CONSTRUCTION ENT.
PSD-24	PIPE SLOPE DRAIN
	SOILS LINE
GgB	SOILS TYPE

THIS PLAN IS FOR SEDIMENT AND EROSION CONTROL ONLY.

0 25 50 100
1 inch = 50 ft.

Temporary Stone/Gabion Outlet Structure Table

Designation	D.A. Acres	Practice	Volume Required	Ground Elev.	Embankment Elev.	Weir Elev.	Weir Length	Uphill Length	Volume Provided	Adequate Volume?
#1	0.83	TGOS	1494	374.00	375.50	375.00	25	60	1500	Yes
#2	0.70	TGOS	1260	376.00	378.00	377.50	25	35	1312.5	Yes
#3	0.31	TSOS	558	380.00	382.00	381.50	15	25	562.5	Yes

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

ENGINEER — DATE: 1-6-22

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

DEVELOPER — DATE: 1-11-22

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE: 01/18/22

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE: 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 2/1/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION — FOR: CE — DATE: 2/1/22

NO.	DATE	REVISION
1	1/24/2023	REVISE PRIMROSE, QUAIL RISE, AND OLIVE BRANCH LANES TO BE CLASSIFIED AS "PRIVATE ROAD"

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22390, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER A. MALONEY — No. 22390 — PROFESSIONAL ENGINEER — 1-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

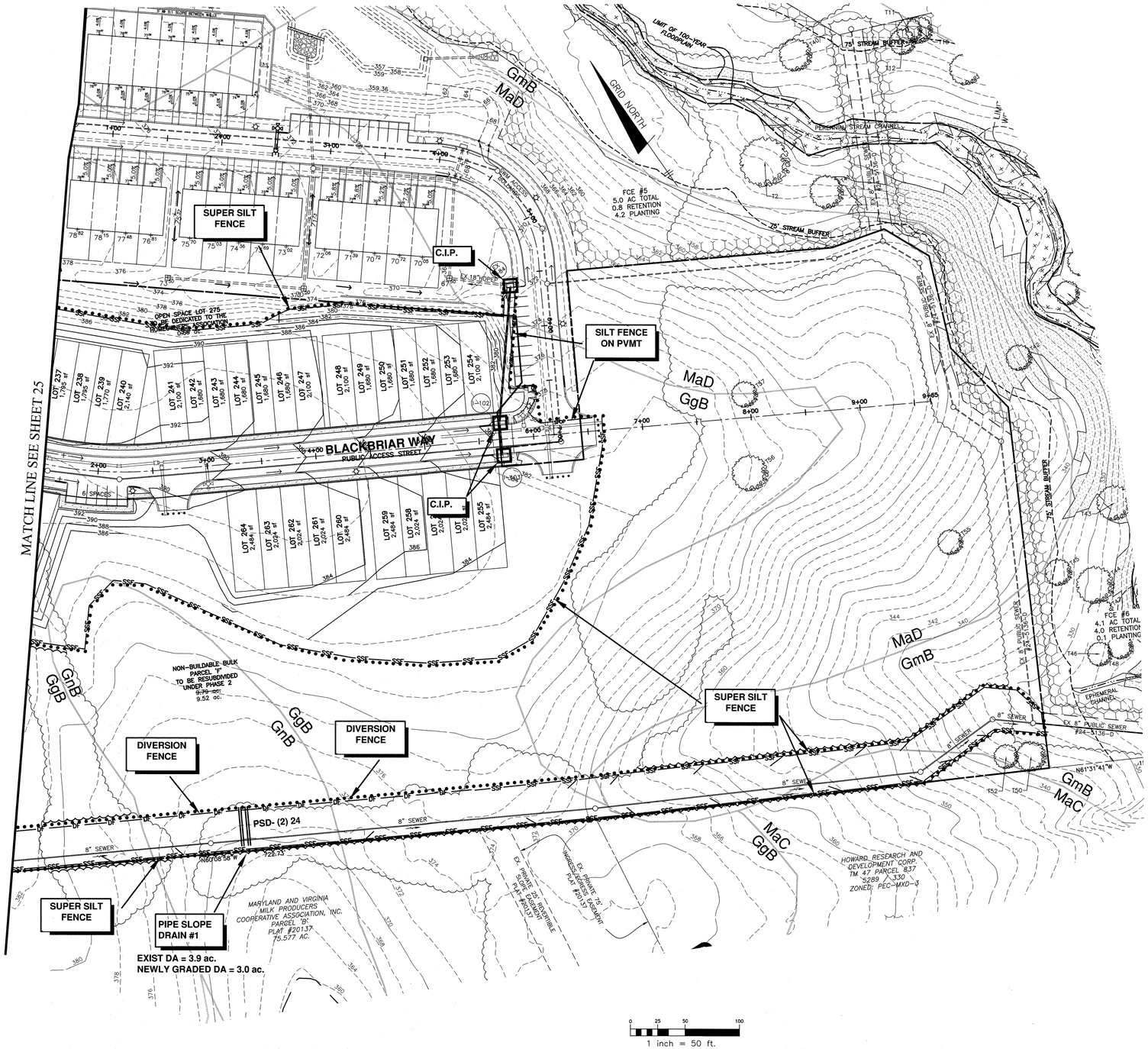
TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

GRADING, SEDIMENT AND EROSION CONTROL PLAN

DESIGN: DBT	DRAFT: DBT	DATE: DECEMBER 27, 2021	BEI PROJECT NO. 2879
		SCALE: AS SHOWN	SHEET 25 OF 31

F-22-001

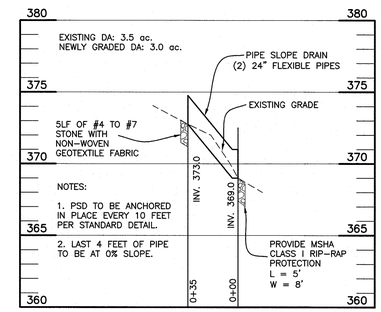
I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7023 P1S3.dwg, 12/27/2021 9:23:52 AM



0 25 50 100
1 inch = 50 ft.

SEDIMENT CONTROL LEGEND

• • • • • • • • • • • •	LIMIT OF DISTURBANCE
—— SF ——	SILT FENCE
—SSF——SSF—	SUPER SILT FENCE
—DF——DF—	DIVERSION FENCE
	PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION
	INLET PROTECTION
	TEMPORARY ASPHALT BERM
	STABILIZED CONSTRUCTION ENT.
PSD-24	PIPE SLOPE DRAIN
	SOILS LINE
GgB	SOILS TYPE



PIPE SLOPE DRAIN
SCALE: 1"=50' HORIZ., 1"=5' VERT.

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

ENGINEER — DATE 1-6-22

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

DEVELOPER — DATE 1-11-22

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 01/18/22

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/1/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION FOR: CE — DATE 2/1/22

THIS PLAN IS FOR SEDIMENT AND EROSION CONTROL ONLY.

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22390, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER A. VIRGILIO — No. 22390 — PROFESSIONAL ENGINEER — 1-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

GRADING, SEDIMENT AND EROSION CONTROL PLAN

DESIGN: DBT	DRAFT: DBT	DATE: DECEMBER 27, 2021	BEI PROJECT NO. 2879
		SCALE: AS SHOWN	SHEET 26 OF 31

F-22-001

I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7023 P1S3.dwg, 12/27/2021 9:21:19 AM

B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

Definition

Using vegetation as cover to protect exposed soil from erosion.

Purpose

To promote the establishment of vegetation on exposed soil.

Conditions Where Practice Applies

On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental
stabilization; soil preparation, soil amendments and topsoiling; seeding and mulching; temporary stabilization;
and permanent stabilization.

Effects on Water Quality and Quantity

Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby
reducing sediment loads and runoff to downstream areas.
Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of
runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Over time, vegetation will
increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.
Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present
within the root zone.
Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and vegetative establishment.

Adequate Vegetative Establishment

Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the
planting season.
1. Adequate vegetative stabilization requires 95 percent groundcover.
2. If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.
3. If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified.
4. Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

B-4-1 STANDARDS AND SPECIFICATIONS FOR INCREMENTAL STABILIZATION

Definition

Establishment of vegetative cover on cut and fill slopes.

Purpose

To provide timely vegetative cover on cut and fill slopes as work progresses.

Conditions Where Practice Applies

Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles.

Criteria

A. Incremental Stabilization - Cut Slopes
   1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses.
   2. Construction sequence example (Refer to Figure B.1):
      a. Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation.
      b. Perform Phase 1 excavation, prepare seedbed, and stabilize.
      c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary.
      d. Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization

B. Incremental Stabilization - Fill Slopes
   1. Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all slopes as the work progresses.
   2. Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed in the plans.
   3. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
   4. Construction sequence example (Refer to Figure B.2):
      a. Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. Construct silt fence on low side of fill unless other methods shown on the plans address this area.
      b. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
      c. Place Phase 1 fill, prepare seedbed, and stabilize.
      d. Place Phase 2 fill, prepare seedbed, and stabilize.
      e. Place final phase fill, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.
Figure B.

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition

The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

Criteria

A. Soil Preparation
   1. Temporary Stabilization
      a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must be rolled or dragged smooth but left in the roughenet condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
      b. Apply fertilizer and lime as prescribed on the plans.
      c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
   2. Permanent Stabilization
      a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
         i. Soil pH between 6.0 and 7.0.
         ii. Soluble salts less than 500 parts per million (ppm).
         iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
         iv. Soil contains 1.5 percent minimum organic matter by weight.
         v. Soil contains sufficient pore space to permit adequate root penetration.
      b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
      c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.
      d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
      e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling
   1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
   2. Topsoil salvaged from existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
   3. Topsoiling is limited to areas having 2:1 or flatter slopes where:
      a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
      b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
      c. The original soil to be vegetated contains material toxic to plant growth.
      d. The soil is so acidic that treatment with limestone is not feasible.
   4. Areas having slopes steeper than 2:1 require special consideration and design.
   5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
      a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter.
      b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
      c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
   6. Topsoil Application
      a. Erosion and sediment control practices must be maintained when applying topsoil.
      b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
      c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)
   1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
   2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
   3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
   4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
   5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

Definition

The application of seed and mulch to establish vegetative cover.

Purpose

To protect disturbed soils from erosion during and at the end of construction.

Conditions Where Practice Applies

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

Criteria

A. Seeding
   1. Specifications
      a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
      b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
      c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.
      d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.
   2. Application
      a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
         i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
         ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.
      b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
         i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
         ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
      c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
         i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P2O5 (phosphorous), 200 pounds per acre; K2O (potassium), 200 pounds per acre.
         ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied in hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
         iii. Mix seed and fertilizer on site and seed immediately and without interruption.
         iv. When hydroseeding do not incorporate seed into the soil.

B. Mulching
   1. Mulch Materials (in order of preference)
      a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where one species of grass is desired.
      b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
         i. WCFM is to be dyed green or contain a green dye in the package that will provide an approximate color to facilitate visual inspection of the uniformly spread slurry.
         ii. WCFM, including dye, must contain no germination or growth inhibiting factors.
         iii. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedings.
         iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.
         v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

Definition

To stabilize disturbed soils with temporary vegetation.

Purpose

To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for a period of 6 months or more.

Criteria

A. Seed Mixtures
   1. General Use
      a Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
      b Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guild, Section 342 - Critical Area Planting.
      c For sites having disturbed areas over 5 acres, use and show the rates recommended by the soil testing agency.
      d For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.
   2. Turfgrass Mixtures
      a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
      b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
      i. Kentucky Bluegrass: Full sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky Bluegrass Cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
      ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky Bluegrass Cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
      iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium maintenance in full sun to medium shade. Recommended mixture includes: Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
      iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 ½ to 3 pounds per 1000 square feet.
      Notes: Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland" Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line.
      c. Ideal Times of Seeding for Turf Grass Mixtures
      Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)
      Central MD March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)
      Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)
      d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 ½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
      e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (¼ to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is not especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.
   B. Sod: to provide quick cover on disturbed areas (2:1 grade or flatter).
   1. General Specifications
      a. Class of turfgrass must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
      b. Sod must be machine cut at a uniform soil thickness of ¾ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
      c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
      d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
      e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.
   2. Sod Installation
      a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
      b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
      c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.
      d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.
   3. Sod Maintenance
      a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
      b. After the first week, sod watering is required as necessary to maintain adequate moisture content.
      c. Do not mow until the sod is firmly rooted. No more than 1/3 of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

Definition

To stabilize disturbed soils with permanent vegetation.

Purpose

To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for a period of 6 months or more. For longer duration of time, permanent stabilization practices are required.

Criteria

- Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.
- For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
- When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

Definition

A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

Purpose

To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

Conditions Where Practice Applies

Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

Criteria

1. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.
3. Runoff from the stockpile area must drain to a suitable sediment control practice.
4. Access the stockpile area from the upgrade side.
5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.
7. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.
8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

Maintenance

The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land Grading.

H-5 STANDARDS AND SPECIFICATIONS FOR DUST CONTROL

Definition

Controlling the suspension of dust particles from construction activities.

Purpose

To prevent blowing and movement of dust from exposed soil surfaces to reduce on and off-site damage including health and traffic hazards.

Conditions Where Practice Applies

Areas subject to dust blowing and movement where on and off-site damage is likely without treatment.

Specifications

1. Mulches: See Section B-4-2 Soil Preparation, Topsoiling, and Soil Amendments, Section B-4-3 Seeding and Mulching, and Section B-4-4 Temporary Stabilization. Mulch must be anchored to prevent blowing.
2. Vegetative Cover: See Section B-4-4 Temporary Stabilization.
3. Tillage: Till to roughen surface and bring clods to the surface. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, spring-toothed harrows, and similar plows are examples of equipment that may produce the desired effect.
4. Irrigation: Sprinkle site with water until the surface is moist. Repeat as needed. The site must not be irrigated to the point that runoff occurs.
5. Barriers: Solid board fences, silt fences, snow fences, burlap fences, straw bales, and similar material can be used to control air currents and soil blowing.
6. Chemical Treatment: Use of chemical treatment requires approval by the appropriate plan review authority.

HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES

1. A pre-construction meeting must occur with the Howard County Department of Public Works, Construction Inspection Division (CID), 410-313-1855 after the future LOD and protected areas are marked clearly in the field. A minimum of 48 hours notice to CID must be given at the following stages:
   a. Prior to the start of earth disturbance,
   b. Upon completion of the installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading,
   c. Prior to the start of another phase of construction or opening of another grading unit,
   d. Prior to the removal or modification of sediment control practices.

2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.

3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization is required within three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1); and seven (7) calendar days as to all other disturbed areas on the project site except for those areas under active grading.

4. All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for topsoil (Sec. B-4-2), permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only be applied during the fall and spring seeding dates if the ground is frozen. Incremental stabilization (Sec. B-4-1) specifications shall be enforced in areas with >15' of cut and/or fill. Stockpiles (Sec. B-4-8) in excess of 20 feet must be benched with stable outlet. All concentrated flow, steep slope, and highly erodible areas shall receive soil stabilization matting (Sec. B-4-6).

5. All sediment control structures are to remain in place, and are to be maintained in operative condition until permission for their removal has been obtained from the CID.

6. Site Analysis:

Total Area of Site:	33.7	Acres
Area Disturbed:	26.9**	Acres
Area to be roofed or paved:	5.2	Acres
Area to be vegetatively stabilized:	21.7	Acres
Total cut:	19,934 *	Cu Yds
Total fill:	19,934 *	Cu Yds
Off-site waste/borrow area location:	SITE WITH AN ACTIVE GRADING PERMIT	

*CUT/FILL NUMBERS ARE ROUGH ESTIMATE FOR SEDIMENT CONTROL PURPOSES ONLY. CONTRACTOR TO VERIFY.

7. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.

8. Additional sediment control must be provided, if deemed necessary by the CID. The site and all controls shall be inspected by the contractor weekly, and the next day after each rain event. A written report by the contractor, made available upon request, is part of every inspection and should include:
- Inspection date
- Inspection type (routine, pre-storm event, during rain event)
- Name and title of inspector
- Weather information (current conditions as well as time and an estimate of last recorded precipitation
- Brief description of project's status (e.g. percent complete) and/or current activities
- Evidence of sediment discharges
- Identification of plan deficiencies
- Identification of sediment controls that require maintenance
- Identification of missing or improperly installed sediment controls
- Compliance status regarding the sequence of construction and stabilization requirements
- Photographs
- Monitoring/sampling
- Maintenance and/or corrective action performed
- Other inspection items as required by the General Permit for Stormwater Associated with Construction Activities (NPDES, MDE).

9. Trenches for the construction of utilities is limited to three pipe lengths or that which can and shall be back filled and stabilized by the end of each work day, whichever is shorter.

10. Any major changes or revisions to the plan or sequence of construction must be reviewed and approved by the HSCD prior to proceeding with construction. Minor revisions may be allowed by the CID per the list of HSCD-approved field changes.

**11. Disturbance shall not occur outside the L.O.D. A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage of 20 ac. per grading unit) at a time. Work may proceed to a subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has been stabilized and approved by the CID. Unless otherwise specified and approved by the HSCD, no more than 20 acres cumulatively may be disturbed at a given time.

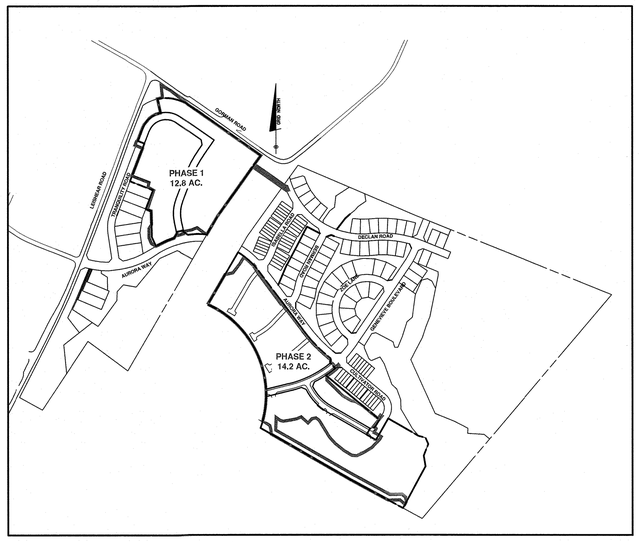
12. Wash water from any equipment, vehicles, wheels, pavement, and other sources must be treated in a sediment basin or other approved washout structure.

13. Topsoil shall be stockpiled and preserved on-site for redistribution onto final grade.

14. All silt fence and super silt fence shall be placed on-the-contour, and be imbricated at 25' minimum intervals, with lower ends curled uphill by 2' in elevation.

15. Stream channels must not be disturbed during the following restricted time periods (inclusive):
- Use I and IP March 1 - June 15
- Use III and IIIP October 1 - April 30
- Use IV March 1 - May 31

16. A copy of this plan, the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and associated permits shall be on-site and available when the site is active.



LOD PHASING EXHIBIT

SEQUENCE OF CONSTRUCTION

NOTIFY SEDIMENT CONTROL DIVISION 48 HOURS PRIOR TO START OF WORK

House construction is not allowed under this plan.

In order to maintain maximum disturbed area of 20 acres, the front portion of the site (12.7 acres shown on sheet 24) shall be constructed first. Once this area is stabilized, the back portion (14.2 acres shown on sheets 25-26) can begin.

1. Obtain grading permit. Notify C.I.D. at 410-313-1880 at least 24 hours before starting any work. (1 day)

2. Hold on-site pre-construction meeting. (day 2)

3. Upon approval from the Howard County Sediment Control Inspector, clear and grub as necessary in order to install perimeter controls and install those controls (i.e. fencing, TGOS, etc.) (day 3-10)

4. Upon approval from the Howard County Sediment Control Inspector, proceed to install sewer, bring road beds to subgrade, install storm drains and water mains. After installation of I-91 and I-92, ensure the swale/berm to those inlets is constructed immediately thereafter. Utilize inlet protect as indicated in the plans. (day 11-71)

5. Mass grade lot areas and construct micro bio-retention facilities. Cover surface media with filter fabric. Do not install mulch or plantings at this time. (day 72-93)

6. Pour curb and gutter. (day 94-100)

7. Base pave all roads. (day 101-107)

8. Construct sidewalks and paths. Once the relative drainage area to each micro bio-retention is stabilized, the filter fabric can be removed and mulch and plantings can be installed. (day 108-115)

9. Upon approval from the Howard County Sediment Control Inspector, remove sediment control devices. Stabilize any remaining disturbed areas in accordance with the permanent seedbed notes. (day 116-120)

13. Install street trees and forest conservation plantings.

Note: A maximum acreage of 20 acres to be disturbed at any one time. Additional disturbance not to occur until at least 50% of the current disturbed area has been stabilized and approved by CID.

Note: Following initial soil disturbance or any re-disturbances, permanent or temporary stabilization shall be completed within:
   A. 3 calendar days for all perimeter sediment control structures, dikes, swales and all slopes greater than 3:1.
   B. 7 calendar days for all other disturbed areas.
During grading and after each rainfall, contractor will inspect and provide necessary maintenance to the sediment control measures of this plan.

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

ENGINEER — DATE 1-6-22

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

DEVELOPER — DATE 1-11-22

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 01/18/22

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/1/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/1/22 FOR: CE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22390, Expiration Date: 6-30-2023.

STATE OF MARYLAND — CHRISTOPHER A. MILLER — No. 22390 — PROFESSIONAL ENGINEER — 1-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

TAX MAP: 46 - GRID: 6 - PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 - HOWARD COUNTY, MARYLAND

GRADING, SEDIMENT AND EROSION CONTROL PLAN

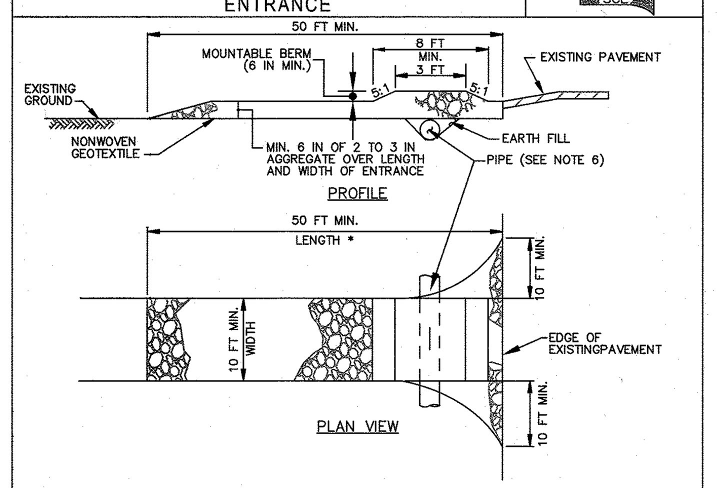
DESIGN: DBT	DRAFT: DBT	DATE: DECEMBER 27, 2021	BEI PROJECT NO. 2879
		SCALE: AS SHOWN	SHEET 27 OF 31

F-22-001

I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7023 P1S3.dwg, 12/27/2021 9:25:36 AM

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

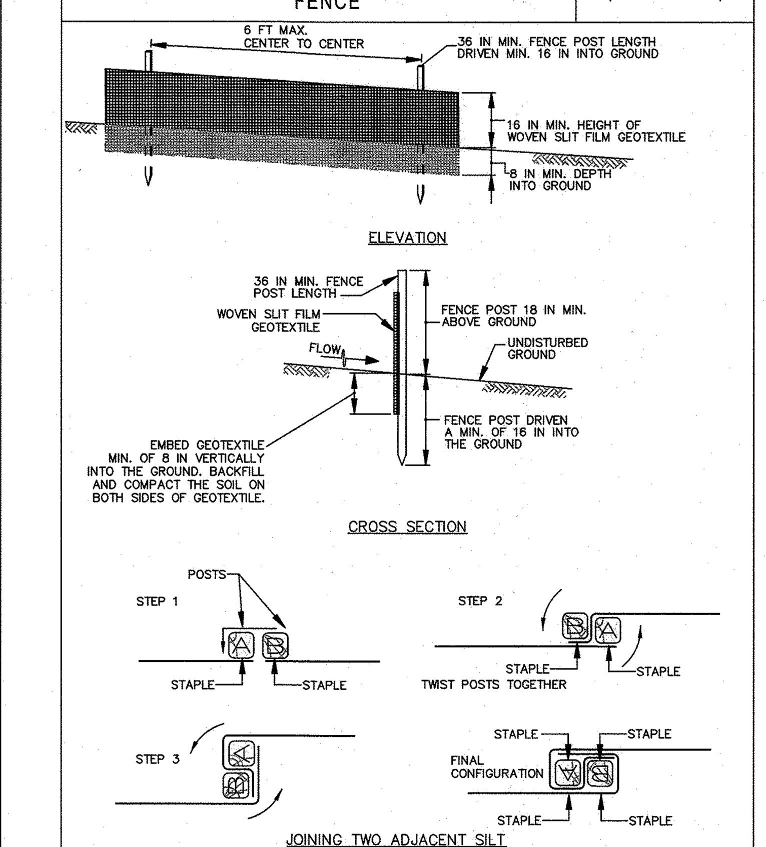
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: —SF—



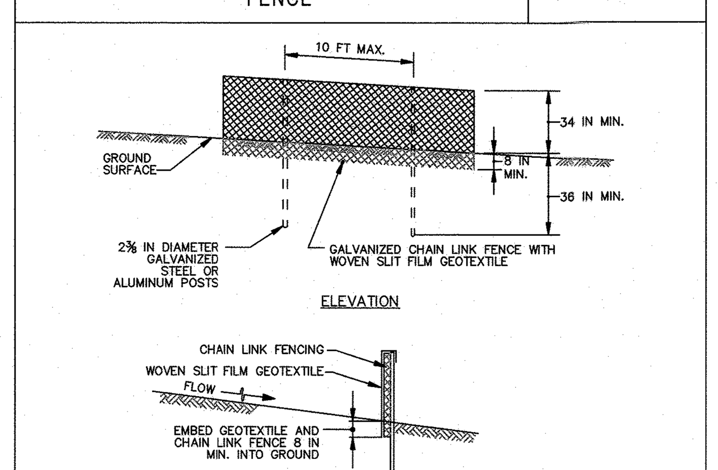
1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: —SSF—



CONSTRUCTION SPECIFICATIONS

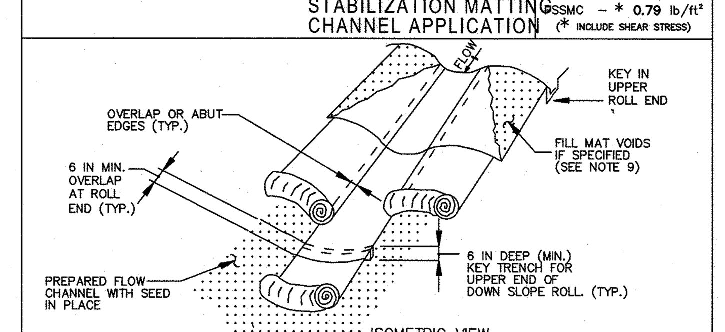
1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION

STANDARD SYMBOL: SSMC – * 0.79 lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
7. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

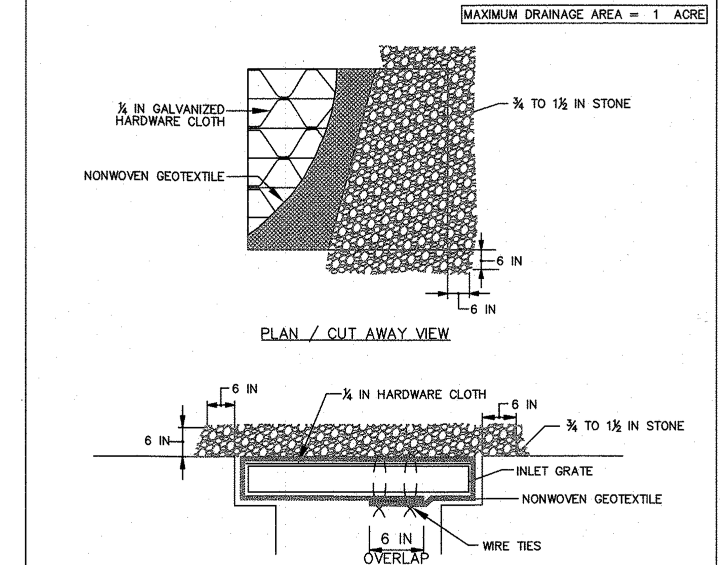
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-2 AT-GRADE INLET PROTECTION

STANDARD SYMBOL: AGIP

MAXIMUM DRAINAGE AREA = 1 ACRE



CONSTRUCTION SPECIFICATIONS

1. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
2. LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE.
3. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE.
4. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

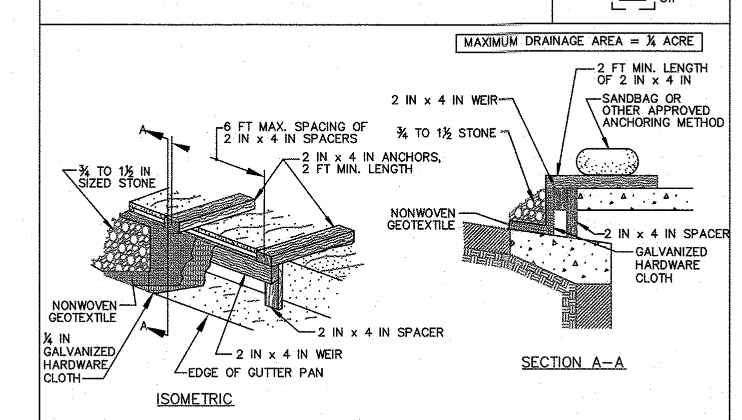
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-3 CURB INLET PROTECTION

STANDARD SYMBOL: CIP

MAXIMUM DRAINAGE AREA = ¼ ACRE



CONSTRUCTION SPECIFICATIONS

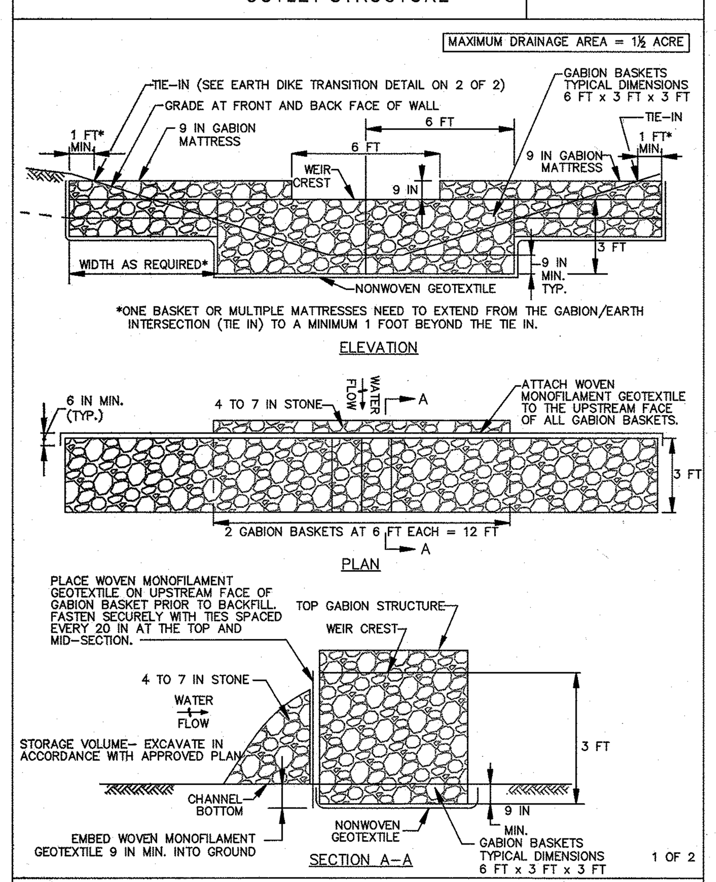
1. USE NOMINAL 2 INCH x 4 INCH LUMBER
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
3. NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).
4. ATTACH A CONTINUOUS PIECE OF ¼ INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2x4 WEIR, EXTENDING IT 2 FEET BEYOND THROAT ON EACH SIDE.
5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2x4 WEIR.
6. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2x4 ANCHORS (MINIMUM 2 FEET LENGTH). EXTEND THE ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
7. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
8. FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND FACE OF CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE.
9. AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
10. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-8 TEMPORARY GABION OUTLET STRUCTURE

MAXIMUM DRAINAGE AREA = 1½ ACRE

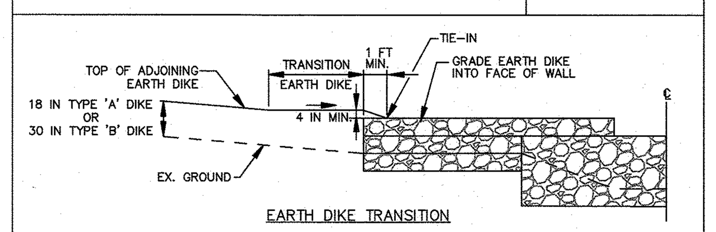


1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-8 TEMPORARY GABION OUTLET STRUCTURE



NOTES:

1. PROVIDE TRANSITION LENGTH AND HEIGHT AS SPECIFIED ON PLAN. HEIGHT OF TRANSITION EARTH DIKE MUST EXCEED 4 INCH MINIMUM FREEBOARD ABOVE TOP OF GABION AND EXTEND AT THIS ELEVATION UNTIL IT INTERCEPTS THE TOP OF ADJOINING EARTH DIKE.
2. PROVIDE POSITIVE DRAINAGE ALONG EARTH DIKE TO GABION OUTLET STRUCTURE.
3. COMPACT FILL.
4. SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED ON PLAN. BANK PROJECTIONS OR IRREGULARITIES ARE NOT ALLOWED.

CONSTRUCTION SPECIFICATIONS

1. PROVIDE STORAGE VOLUME AS SPECIFIED ON APPROVED PLANS.
2. USE BASKETS MADE OF 11 GAUGE WIRE OR HEAVIER.
3. USE NONWOVEN AND WOVEN MONOFILAMENT GEOTEXTILES AS SPECIFIED IN SECTION H-1 MATERIALS.
4. INSTALL GABIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
5. EMBED THE GABION OUTLET STRUCTURE INTO THE SOIL A MINIMUM OF 9 INCHES. PROVIDE NONWOVEN GEOTEXTILE UNDER ALL GABIONS.
6. FILL GABION BASKETS WITH CLEAN 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR WIRE MESH.
7. MAKE THE WEIR CREST OF THE GABION OUTLET STRUCTURE 9 INCHES LOWER THAN THE TOP OF THE ADJACENT GABIONS.
8. PROVIDE A MINIMUM WEIR CREST OF 6 FEET.
9. ATTACH WOVEN MONOFILAMENT GEOTEXTILE TO THE UPSTREAM FACE OF GABION BASKETS AND COVER WITH 4 TO 7 INCH STONE.
10. REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO WITHIN 12 INCHES OF THE WEIR CREST. REPLACE GEOTEXTILE AND STONE FACING WHEN STRUCTURE CEASES TO FUNCTION. MAINTAIN LINE, GRADE, AND CROSS SECTION.
11. UPON REMOVAL OF GABION OUTLET STRUCTURE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

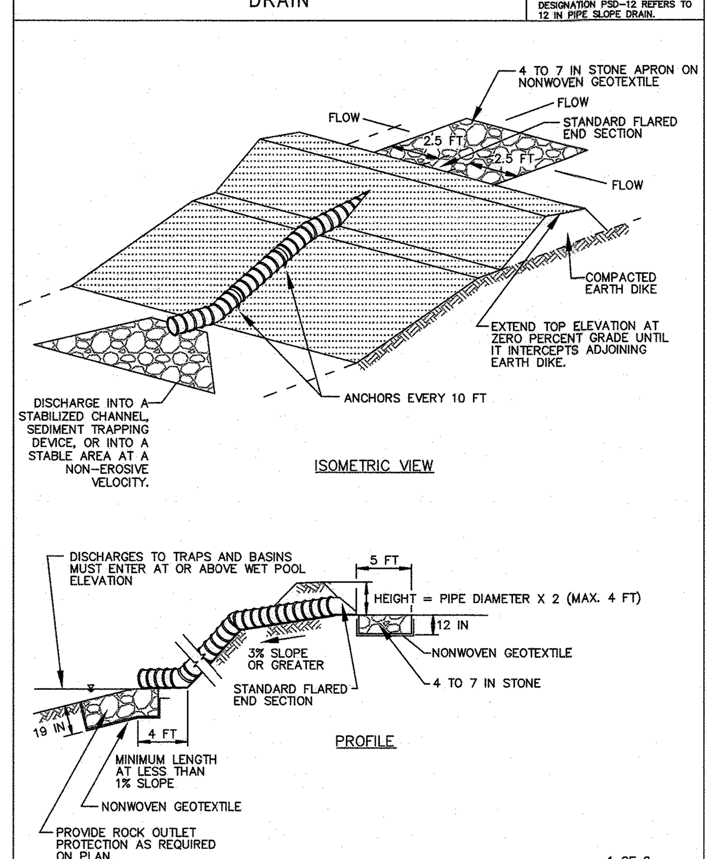
2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-1 PIPE SLOPE DRAIN

STANDARD SYMBOL: PSD – 12 (DESIGNATION PSD-12 REFERS TO 12 IN PIPE SLOPE DRAIN.)



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-1 PIPE SLOPE DRAIN

STANDARD SYMBOL: PSD – 12 (DESIGNATION PSD-12 REFERS TO 12 IN PIPE SLOPE DRAIN.)

CONSTRUCTION SPECIFICATIONS

1. THE HEIGHT OF THE EARTH DIKE MUST BE AT LEAST 2 TIMES THE PIPE DIAMETER MEASURED FROM THE INVERT OF THE PIPE. EXTEND THE TOP ELEVATION OF DIKE AT ZERO PERCENT GRADE UNTIL IT INTERCEPTS THE TOP OF THE ADJOINING EARTH DIKE.
2. FLEXIBLE PIPE IS PREFERRED. HOWEVER, CORRUGATED METAL PIPE OR EQUIVALENT PVC PIPE CAN BE USED. ALL CONNECTIONS MUST BE WATERTIGHT.
3. ATTACH A FLARED END SECTION TO THE INLET END OF PIPE WITH A WATERTIGHT CONNECTION. AT THE INLET OF THE PIPE SLOPE DRAIN, INSTALL 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PLACED 12 INCHES IN DEPTH ON NONWOVEN GEOTEXTILE AND EXTEND OUT 5 FEET FROM THE INLET IN ALL DIRECTIONS.
4. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL RIPRAP.
5. SECURELY ANCHOR THE PIPE SLOPE DRAIN (PSD) TO THE SLOPE. SPACE THE ANCHORS EVERY 10 FEET.
6. HAND TAMP THE SOIL AROUND AND UNDER THE PIPE AND END SECTION IN 4 INCH LIFTS TO THE TOP OF THE EARTH DIKE.
7. UPON COMPLETING INSTALLATION OF THE PSD, STABILIZE ASSOCIATED DISTURBANCES WITH SEED, MULCH, AND TACK.
8. INSTALL OUTLET PROTECTION AS SPECIFIED ON APPROVED PLAN.
9. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION. MAINTAIN WATER TIGHT CONNECTIONS AND POSITIVE DRAINAGE. REMOVE ACCUMULATED SEDIMENT AND DEBRIS.

2 OF 2

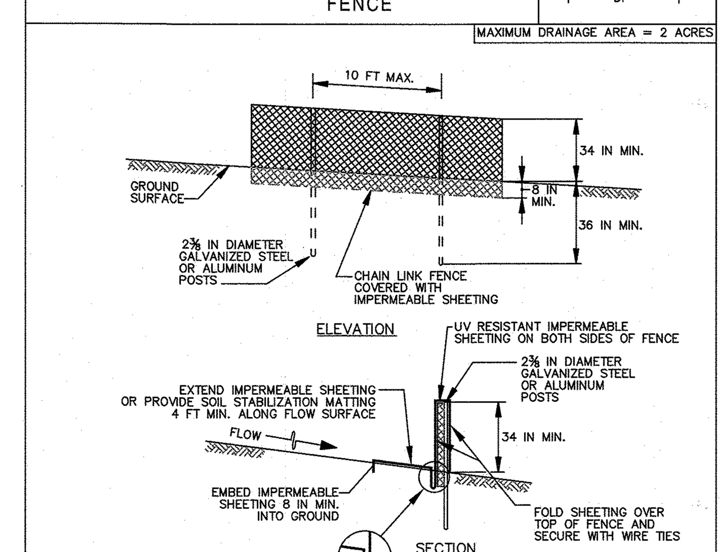
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-9 DIVERSION FENCE

STANDARD SYMBOL: — DF —

MAXIMUM DRAINAGE AREA = 2 ACRES



CONSTRUCTION SPECIFICATIONS

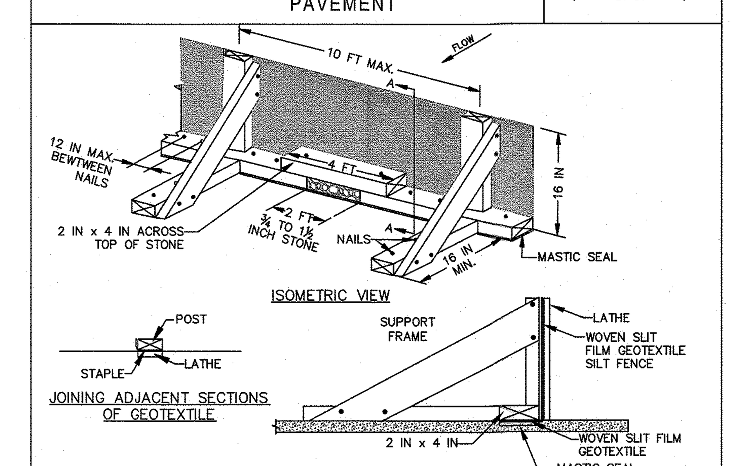
1. USE 42 INCH HIGH, 9 GAUGE OR THICKER CHAIN LINK FENCING (2⅜ INCH MAXIMUM OPENING).
2. USE 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
3. FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES.
4. SECURE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT TOP, MID SECTION, AND BELOW GROUND SURFACE.
5. EXTEND SHEETING A MINIMUM OF 4 FEET ALONG FLOW SURFACE AND EMBED END A MINIMUM OF 8 INCHES INTO GROUND. SOIL STABILIZATION MATTING MAY BE USED IN LIEU OF IMPERMEABLE SHEETING ALONG FLOW SURFACE.
6. WHEN TWO SECTIONS OF SHEETING ADJOIN EACH OTHER, OVERLAP BY 6 INCHES AND FOLD WITH SEAM FACING DOWNGRADE.
7. KEEP FLOW SURFACE ALONG DIVERSION FENCE AND POINT OF DISCHARGE FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE. REPLACE IMPERMEABLE SHEETING IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-2 SILT FENCE ON PAVEMENT

STANDARD SYMBOL: —SFOP—



CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH X 4 INCH LUMBER.
2. USE WOVEN SLIT FILM GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
3. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
4. SPACE UPRIGHT SUPPORTS NO MORE THAN 10 FEET APART.
5. PROVIDE A TWO FOOT OPENING BETWEEN EVERY SET OF SUPPORTS AND PLACE STONE IN THE OPENING OVER GEOTEXTILE.
6. KEEP SILT FENCE TAUT AND SECURELY STAPLE TO THE UPSLOPE SIDE OF UPRIGHT SUPPORTS. EXTEND GEOTEXTILE UNDER 2x4.
7. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, FOLD, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL. ATTACH LATHE.
8. PROVIDE A MASTIC SEAL BETWEEN PAVEMENT, GEOTEXTILE, AND 2x4 TO PREVENT SEDIMENT-LADEN WATER FROM ESCAPING BENEATH SILT FENCE INSTALLATION.
9. SECURE BOARDS TO PAVEMENT WITH 40D 5 INCH MINIMUM LENGTH NAILS.
10. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. MAINTAIN WATER TIGHT SEAL ALONG BOTTOM. REPLACE STONE IF DISPLACED.

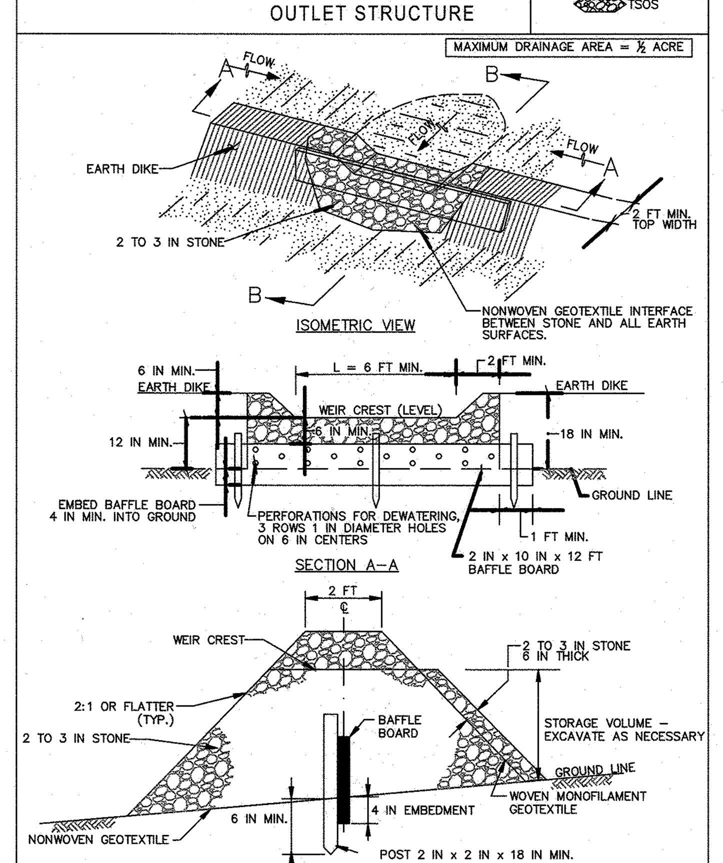
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-7 TEMPORARY STONE OUTLET STRUCTURE

STANDARD SYMBOL: TSOS

MAXIMUM DRAINAGE AREA = ½ ACRE



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-7 TEMPORARY STONE OUTLET STRUCTURE

STANDARD SYMBOL: TSOS

CONSTRUCTION SPECIFICATIONS

1. PROVIDE STORAGE VOLUME AS SPECIFIED ON APPROVED PLANS.
2. USE NONWOVEN GEOTEXTILE ON INTERFACE BETWEEN GROUND AND STONE.
3. PERFORATE BAFFLE BOARD WITH 3 ROWS OF 1 INCH DIAMETER HOLES 6 INCHES ON CENTER, EMBED A MINIMUM OF 4 INCHES INTO GROUND, AND EXTEND BAFFEL BOARD MINIMUM OF 12 INCHES INTO EARTH DIKE.
4. USE CLEAN 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE. PLACE WOVEN MONOFILAMENT GEOTEXTILE ON UPSTREAM FACE AND COVER WITH A MINIMUM OF 6 INCHES OF ADDITIONAL STONE.
5. USE NONWOVEN AND WOVEN MONOFILAMENT GEOTEXTILES AS SPECIFIED IN SECTION H-1 MATERIALS.
6. SET WEIR CREST OF STONE 6 INCHES LOWER THAN THE TOP OF EARTH DIKE. USE MINIMUM LENGTH OF 6 FEET FOR WEIR CREST.
7. REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO WITHIN 6 INCHES OF WEIR CREST. REPLACE GEOTEXTILE AND STONE FACING WHEN STRUCTURE CEASES TO DRAIN. MAINTAIN LINE, GRADE, AND CROSS SECTION.
8. UPON REMOVAL OF STONE OUTLET STRUCTURE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

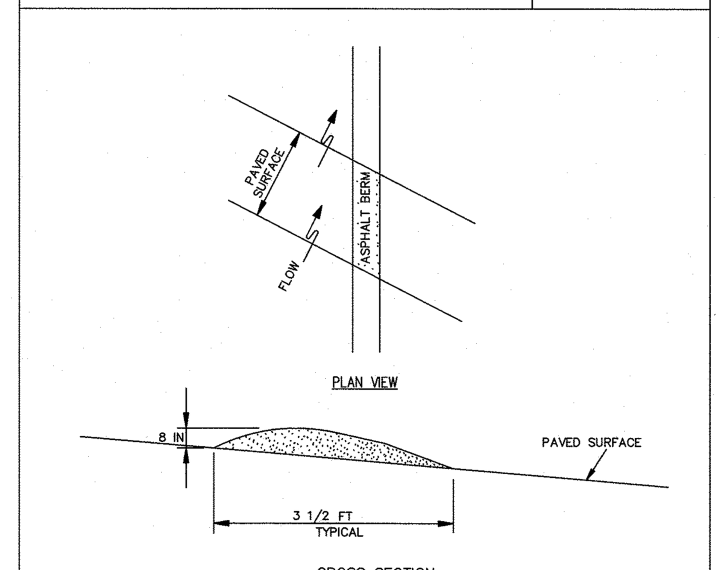
2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-5 TEMPORARY ASPHALT BERM

STANDARD SYMBOL: TAB



CONSTRUCTION SPECIFICATIONS

1. CONSTRUCT BERM ON AN UNINTERRUPTED, CONTINUOUS GRADE.
2. INSTALL BERM TO CONFORM TO CROSS SECTION DIMENSIONS OF A UNIFORM HEIGHT OF 8 INCHES MINIMUM AND APPROXIMATE WIDTH OF 3½ FEET.
3. PROVIDE OUTLET PROTECTION AS REQUIRED ON PLAN.
4. COMPACT ASPHALT BERM.
5. REPAIR DAMAGED ASPHALT. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE.
6. UPON REMOVAL OF ASPHALT BERM, RETURN TO ORIGINAL CONDITIONS OR AS SPECIFIED ON APPROVED PLAN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Permanent Seeding Summary

Hardiness Zone (from Figure B.3): 6b
Seed Misture (from Table B.3): Tall Fescue/Kentucky Bluegrass

No.	Species	Application Rate (lb/ac.)	Seeding Dates	Seeding Depths	Fertilizer Rate (10-20-20) N	P2O5	K2O	Lime Rate
9	Fescue, Tall	60	Mar 1 to May 15; Aug 1 to Oct 15	1/4 - 1/2 in	45 pounds per acre (1.0 lb/ 100 sf)	90 lb/ac (2 lb/ 1000 sf)	90 lb/ac 2 lb/ 1000 sf)	2 tons/ac (90lb/ 1000 sf)
	Bluegrass, Kentucky	40	Mar 1 to May 15; Aug 1 to Oct 15	1/4 - 1/2 in				
				1/4 - 1/2 in				

Table B.1: Temporary Seeding for Site Stabilization

Plant Species	Seeding Rate 1/ lb/ac	lb/1000 ft2	Seeding Depth 2/ (inches)	Recommended Seeding Dates by Plant Hardiness Zone 3/ 5b and 6a	6b	7a and 7b
Cool-Season Grasses						
Annual Ryegrass (Lolium perenne ssp. Multiflorum	40	1.0	0.5		Mar 1 to May 15; Aug 1 to Oct 31	
Barley (Hordeum vulgare)	96	2.2	1.0		Mar 1 to May 15; Aug 1 to Oct 31	
Oats (Avena sativa)	72	1.7	1.0		Mar 1 to May 15; Aug 1 to Oct 31	
Wheat (Triticum aestivum)	120	2.8	1.0		Mar 1 to May 15; Aug 1 to Oct 31	
Cereal Rye (Secale cereale)	112	2.8	1.0		Mar 1 to May 15; Aug 1 to Nov 15	
Warm-Season Grasses						
Foxtail Millet (Setaria italica)	30	0.7	0.5		May 16 to Jul 31	
Pearl Millet (Pennisetum glaucum	20	0.5	0.5		May 16 to Jul 31	

Notes:

1/ Seeding rates for the warm season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.

Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur very late fall beyond the seeding dates for other temporary seedings. Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.

Oats are the recommended nurse crop for warm-season grasses.

2/ For sandy soils, plant seeds at twice the depth listed above.

3/ The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

CLMalagari 1-6-22

ENGINEER DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

[signature] 1-11-22

DEVELOPER DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Alexander Bratchie 01/18/22

HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 01/26/2022

CHIEF, BUREAU OF HIGHWAYS MK DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] 2/10/22

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[signature] FOR: CE. 2/1/22

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

THIS PLAN IS FOR SEDIMENT AND EROSION CONTROL ONLY.

NO.	DATE	REVISION

BENCHMARK ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22390, Expiration Date: 6-30-2023.

STATE OF MARYLAND CHRISTOPHER A. MALAGARI 22390 PROFESSIONAL ENGINEER 1-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS

Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

GRADING, SEDIMENT AND EROSION CONTROL PLAN

DATE: DECEMBER 27, 2021	BEI PROJECT NO. 2879
DESIGN: DBT / DRAFT: DBT / SCALE: AS SHOWN	SHEET 28 OF 31

F-22-001

I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7023 P1S3.dwg, 12/27/2021 9:26:28 AM

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Wellington Farms — Location: Laurel, MD — Job #: 19665A
SAMPLER: Hammer Wt. 140 lbs. — Hammer Drop 30 in. — Pipe Size (O.D.) 2.0 in. — Hole Diameter 3.25 in. — Rock Core Diameter N/A — Boring Method HSA — Foreman C. Leatherman

Boring No.	Date Started	Date Completed	Ground Water at Completion	Ground Water after 24 hrs.	Cave In Depth at Completion (ft)	Cave In Depth after 24 hrs. (ft)
B-15	11/14/19	11/15/19	Dry	Dry	8.5	8.0
B-16	11/14/19	11/15/19	Dry	Dry	8.0	8.0
B-17	11/14/19	11/15/19	Dry	Dry	7.0	6.5
B-18	11/14/19	11/15/19	Dry	Dry	9.5	9.5
B-19	11/14/19	11/15/19	Dry	Dry	11.0	11.0
B-20	11/14/19	11/15/19	Dry	Dry	13.0	12.5
B-21	11/14/19	11/15/19	Dry	Dry	6.0	6.0
B-22	11/14/19	11/15/19	Dry	Dry	6.5	6.5
B-23	11/19/19	11/19/19	Dry	Dry	7.0	7.0
B-24	11/14/19	11/15/19	Dry	Dry	5.8	5.5
B-25	11/18/19	11/19/19	Dry	Dry	11.0	10.5
B-26	11/18/19	11/19/19	Dry	Dry	11.0	11.5
B-27	11/15/19	11/18/19	Dry	Dry	12.5	12.0
B-28	11/15/19	11/18/19	Dry	Dry	11.0	10.0
B-29	11/15/19	11/18/19	Dry	Dry	13.0	12.0
B-30	11/15/19	11/18/19	Dry	Dry	7.0	7.0
B-33	11/15/19	11/18/19	Dry	Dry	11.5	11.0

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

B-15
Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Dark brown, moist, very soft, CLAY, trace sand, with roots. (CL)	5" of Topsoil	1	14		2-2-2	4
Orange brown, moist, medium dense, silty SAND, trace clay. (SM)		2	18		5-8-10	18
	Groundwater was not encountered while drilling	3	15		6-8-9	17
Dark green to gray to tan, moist, dense, silty SAND. (SM; Saprolite)		4	10		8-14-21	35
		5	15		7-12-18	30
Bottom of boring at 12.5'	Boring was backfilled after 24 hours					

B-16
Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown, moist, loose, clayey SAND, some gravel. (SC)	5" of Topsoil	1	10		2-2-5	7
Dark brown to brown, moist, dense to very dense, micaceous, silty SAND, some gravel. (SM)		2	15		8-18-22	40
Dark green to tan	Groundwater was not encountered while drilling	3	18		11-16-23	39
		4	12		6-38-50/3"	50+
Brown, moist, very stiff, micaceous, sandy SILT, some gravel. (ML)		5	18		9-7-11	18
Bottom of boring at 13.0'	Boring was backfilled after 24 hours					

B-17
Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Dark brown, moist, soft, CLAY, trace sand. (CL)	5" of Topsoil	1	13		1-2-2	4
Brown, moist, medium dense, silty SAND, some gravel. (SM)		2	15		3-6-8	14
	Groundwater was not encountered while drilling	3	14		5-7-14	21
with mica		4	18		5-8-8	16
Bottom of boring at 9.5'	Boring was backfilled after 24 hours					

B-18
Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown, moist, very soft to medium stiff, CLAY, trace sand. (CL; Fill)	1" of Topsoil	1	13		2-1-2	3
some gravel, with roots		2	18		2-3-6	9
Brown, moist, medium dense, clayey SAND. (SC)	Groundwater was not encountered while drilling	3	18		5-6-8	14
Orange brown, moist, medium dense, micaceous, silty SAND. (SM)		4	14	17.8	5-6-7	13
		5	18		6-10-11	21
Bottom of boring at 15.0'	Boring was backfilled after 24 hours					

B-19
Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown, moist, soft, CLAY, trace sand. (CL)	5" of Topsoil	1	15		2-2-3	5
Brown, moist, medium dense to dense, silty SAND, some gravel. (SM) with roots at 2.5' with mica		2	8		6-6-7	13
	Groundwater was not encountered while drilling	3	18		4-7-10	17
		4	12		5-5-6	11
Dark gray to light gray		5	18		14-16-17	33
		6	6		11-18-18	36
Bottom of boring at 16.5'	Boring was backfilled after 24 hours					

B-20
Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown, moist, very soft, CLAY, trace, sand. (CL)	6" of Topsoil	1	13		2-2-2	4
Brown, moist, very stiff, CLAY, some sand. (CL)		2	18		6-8-10	18
	Groundwater was not encountered while drilling	3	18		4-8-9	17
Red to tan, moist, medium dense to dense, silty SAND, with mica. (SM)		4	18		9-14-15	29
		5	13		12-16-16	32
Dark green		6	15		8-11-16	27
Dark green to gray, moist, dense, silty SAND, trace gravel, with mica. (SM; Saprolite)		7	15		9-16-30	46
Bottom of boring at 25.5'	Boring was backfilled after 24 hours					

B-21
Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown to red, moist, very soft to stiff, CLAY, trace sand. (CL)	5" of Topsoil	1	15		1-2-2	4
trace gravel		2	16		10-11-14	25
Red, moist, medium dense, micaceous, silty SAND. (SM)	Groundwater was not encountered while drilling	3	14		4-6-8	14
		4	18		4-6-6	12
		5	15		5-7-6	13
Bottom of boring at 12.0'	Boring was backfilled after 24 hours					

B-22
Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown, moist, soft, CLAY, trace sand. (CL)	4" of Topsoil	1	15		1-2-3	5
Brown, moist, medium dense, micaceous, silty SAND. (SM)		2	15		3-4-9	13
	Groundwater was not encountered while drilling	3	15	12.3	4-8-9	17
Dark green to gray and brown, moist, medium dense, silty SAND. (SM; Saprolite)		4	18		6-8-10	18
Bottom of boring at 9.8'	Boring was backfilled after 24 hours					

B-23
Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown, moist, very soft, CLAY, trace sand. (CL)	5" of Topsoil	1	13		2-2-2	4
Orange brown, moist, medium dense clayey SAND, trace gravel. (SC)		2	18		3-6-10	16
	Groundwater was not encountered while drilling	3	10		6-8-10	18
Brown to light and dark gray, moist, loose to medium dense, silty SAND, some gravel. (SM)		4	16		3-4-4	8
		5	15		5-7-7	14
Bottom of boring at 12.0'	Boring was backfilled after 24 hours					

B-24
Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Dark brown, moist, very soft, CLAY, trace sand. (CL)	5" of Topsoil	1	11		2-2-2	4
Brown, moist, medium dense to dense, silty SAND, some gravel, with mica. (SM)		2	14		6-9-12	21
	Groundwater was not encountered while drilling	3	15		9-16-20	36
Dark green		4	18		9-12-19	31
Bottom of boring at 8.5'	Boring was backfilled after 24 hours					

B-25
Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown, moist, very soft, CLAY, trace sand. (CL)	4" of Topsoil	1	10		2-2-2	4
Brown, moist, very stiff, CLAY, some sand. (CL)		2	16		4-6-9	15
	Groundwater was not encountered while drilling	3	16		3-6-10	16
Brown, moist, medium dense, silty SAND, with mica. (SM)		4	15		6-8-11	19
		5	15		7-8-9	17
Bottom of boring at 15.7'	Boring was backfilled after 24 hours					

B-26
Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown, moist, soft, CLAY, trace sand. (CL)	4" of Topsoil	1	15		2-2-3	5
Brown, moist, stiff, CLAY, some gravel, trace sand. (CL)		2	16		5-6-7	13
Brown, moist, medium dense, silty SAND. (SM)	Groundwater was not encountered while drilling	3	16		5-7-7	14
		4	13		7-9-18	27
Gray to brown, with mica		5	15		7-9-12	21
Bottom of boring at 16.0'	Boring was backfilled after 24 hours					

B-27
Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown, moist, very soft, CLAY, trace sand. (CL)	4" of Topsoil	1	12		2-2-2	4
Brown, moist, medium dense, clayey SAND, with mica. (SC)		2	10		4-7-9	16
Brown, moist, medium dense, silty SAND, with mica. (SM)	Groundwater was not encountered while drilling	3	18		7-8-9	17
		4	18		4-6-6	12
Dark green to brown		5	18		2-4-8	12
		6	12		6-8-10	18
Bottom of boring at 18.3'	Boring was backfilled after 24 hours					

B-28
Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown, moist, very soft, CLAY, trace sand. (CL)	4" of Topsoil	1	11		2-2-2	4
Brown, moist, stiff, CLAY, trace sand. (CL)		2	14		7-7-8	15
Brown, moist, very stiff, micaceous, sandy SILT. (ML)	Groundwater was not encountered while drilling	3	18		8-9-9	18
Dark green to gray to brown, moist, medium dense, micaceous, silty SAND. (SM)		4	13		6-8-9	17
Brown-tan		5	18		8-12-14	26
Bottom of boring at 14.5'	Boring was backfilled after 24 hours					

B-29
Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown, moist, very soft, CLAY, trace sand. (CL)	5" of Topsoil	1	11		2-2-2	4
Brown, moist, stiff, CLAY, some sand. (CL)		2	13		3-6-8	14
	Groundwater was not encountered while drilling	3	18		7-7-9	16
Brown, moist, loose, micaceous, silty SAND. (SM)		4	18		4-4-6	10
Dark green to gray and brown, moist, medium dense to dense, micaceous, silty SAND. (SM; Saprolite)		5	12	6.6	9-14-18	32
trace gravel		6	16		8-14-14	28
Bottom of boring at 17.5'	Boring was backfilled after 24 hours					

B-30
Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown, moist, very soft to medium stiff, CLAY, trace sand. (CL)	4" of Topsoil	1	13		2-2-2	4
		2	10		3-3-4	7
Brown, moist, medium stiff, micaceous, sandy SILT. (ML)	Groundwater was not encountered while drilling	3	14		3-5-5	10
Dark green to brown to gray, moist, medium dense, silty SAND. (SM)		4	14		7-8-13	21
Dark green to brown, moist, very dense, silty SAND, with mica. (SM; Disintegrated Rock)		5	5		50/5"	50+
Bottom of boring at 12.0'	Boring was backfilled after 24 hours					

B-33
Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown, moist, very soft, CLAY, trace sand. (CL)	4" of Topsoil	1	13		2-1-3	4
some gravel		2	15		4-5-5	10
Brown, moist, loose, clayey SAND. (SC)	Groundwater was not encountered while drilling	3	18		3-4-6	10
Dark green to gray and brown, moist, loose to medium dense, micaceous, silty SAND. (SM)		4	11		5-5-5	10
		5	15		5-6-8	14
Bottom of boring at 14.5'	Boring was backfilled after 24 hours					

APPROVED: DEPARTMENT OF PUBLIC WORKS
[signature] 01/26/2022
CHIEF, BUREAU OF HIGHWAYS MK — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[signature] 2/1/22
CHIEF, DIVISION OF LAND DEVELOPMENT DS — DATE
[signature] FOR: CE 2/1/22
CHIEF, DEVELOPMENT ENGINEERING DIVISION HBK — DATE

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22390, Expiration Date: 6-30-2023.
[Seal: STATE OF MARYLAND — CHRISTOPHER A. MALAGARI — 22390 — PROFESSIONAL ENGINEER] [signature] 1-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS
Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

SOIL BORING LOGS

DATE: DECEMBER 27, 2021 — BEI PROJECT NO. 2879
DESIGN: DBT — DRAFT: DBT — SCALE: AS SHOWN — SHEET 29 OF 31

F-22-001

I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7033 P1S3.dwg, 12/27/2021 8:59:15 AM

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Boring No. B-34
Project Name: Wellington Farms — Location: Laurel, MD — Job #: 19665A
SAMPLER: Datum: — Hammer Wt. 140 lbs. — Hole Diameter 3.25 in. — Foreman: J. Russel
Surf. Elev.: — Hammer Drop 30 in. — Rock Core Diameter N/A — Inspector:
Date Started 12/4/19 — Pipe Size (O.D.) 2.0 in. — Boring Method HSA — Date Completed 12/4/19

Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Dark brown, moist, soft, CLAY, trace sand. (CL)	6" of Topsoil	1	18		1-2-2	4
Brown to gray, moist, medium stiff to stiff, micaceous, sandy SILT, some gravel. (ML)		2	16		2-4-6	10
Dark brown to tan	Groundwater was not encountered while drilling	3	18		6-7-8	15
Brown to green, moist, medium dense, micaceous, silty SAND. (SM)		4	18		10-10-11	21
Bottom of boring at 10.5'	Boring was backfilled after 24 hours					

Ground Water: At Completion Dry ft.; After 24 Hrs. 4.0 ft. — Cave In Depth: At Completion 8.5 ft.; After 24 Hrs. 6.0 ft.

Boring No. B-35
Project Name: Wellington Farms — Location: Laurel, MD — Job #: 19665A
SAMPLER: Hammer Wt. 140 lbs. — Hole Diameter 3.25 in. — Foreman: C. Leatherman
Hammer Drop 30 in. — Rock Core Diameter N/A
Date Started 11/15/19 — Pipe Size (O.D.) 2.0 in. — Boring Method HSA — Date Completed 11/18/19

Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Dark brown, moist, very soft, CLAY, trace sand, with roots. (CL)	4"	1	14		2-1-2	3
Brown, moist, medium dense, clayey SAND, some gravel, with mica. (SC)		2	12		2-2-10	12
Brown to gray and dark brown, moist, loose to medium dense, micaceous, silty SAND. (SM)	Groundwater was not encountered while drilling	3	18		5-5-5	10
		4	15		5-7-8	15
		5	17		8-8-10	18
Bottom of boring at 11.0	Boring was backfilled after 24 hours					

Ground Water: At Completion Dry ft.; After 24 Hrs. Dry ft. — Cave In Depth: 8.0 ft.; 8.0 ft.

Boring No. B-36
Project Name: Wellington Farms — Location: Laurel, MD — Job #: 19665A
SAMPLER: Hammer Wt. 140 lbs. — Hole Diameter 3.25 in. — Foreman: C. Leatherman
Hammer Drop 30 in. — Rock Core Diameter N/A
Date Started 11/15/19 — Pipe Size (O.D.) 2.0 in. — Boring Method HSA — Date Completed 11/18/19

Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Dark brown, moist, very soft, CLAY, trace sand, with roots. (CL)	4" of Topsoil	1	14		2-2-2	4
Orange brown, moist, loose, clayey SAND, trace gravel. (SC)		2	15		3-4-6	10
Brown to dark green and brown, moist, medium dense, micaceous, silty SAND. (SM)	Groundwater was not encountered while drilling	3	18		5-8-9	17
		4	10		7-9-12	21
Dark green to brown, moist, very dense, micaceous, silty SAND, trace clay. (SM; Disintegrated Rock)		5	18		16-27-37	64
Bottom of boring at 11.0	Boring was backfilled after 24 hours					

Ground Water: Dry ft.; Dry ft. — Cave In Depth: 8.0 ft.; 8.0 ft.

Boring No. B-37
Project Name: Wellington Farms — Location: Laurel, MD — Job #: 19665A
SAMPLER: Hammer Wt. 140 lbs. — Hole Diameter 3.25 in. — Foreman: C. Leatherman
Hammer Drop 30 in. — Rock Core Diameter N/A
Date Started 11/22/19 — Pipe Size (O.D.) 2.0 in. — Boring Method HSA — Date Completed 11/23/19

Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown, moist, soft, CLAY, some gravel, trace sand, with roots. (CL)	5" of Topsoil	1	10		2-2-3	5
Brown to dark green and tan, moist, loose to medium dense, micaceous, silty SAND. (SM)		2	15		3-4-5	9
	Groundwater was not encountered while drilling	3	12		4-7-8	15
		4	16		5-5-7	12
		5	18		5-5-7	12
Bottom of boring at 13.0	Boring was backfilled after 24 hours					

Ground Water: Dry ft.; Dry ft. — Cave In Depth: 9.0 ft.; 9.0 ft.

Boring No. B-38
Project Name: Wellington Farms — Location: Laurel, MD — Job #: 19665A
SAMPLER: Hammer Wt. 140 lbs. — Hole Diameter 3.25 in. — Foreman: C. Leatherman
Hammer Drop 30 in. — Rock Core Diameter N/A
Date Started 11/22/19 — Pipe Size (O.D.) 2.0 in. — Boring Method HSA — Date Completed 11/23/19

Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Dark brown, moist, very soft, CLAY, trace sand. (CL)	4" of Topsoil	1	10		1-2-2	4
Brown, moist, stiff, sandy CLAY. (CL)		2	10		4-7-8	15
Brown, moist, medium dense, clayey SAND, some gravel. (SC)	Groundwater was not encountered while drilling	3	7		9-11-14	25
Dark green to brown, moist, very dense, micaceous, silty SAND. (SM; Saprolite)		4	18		16-27-29	56
		5	18		16-26-33	59
Bottom of boring at 15.5'	Boring was backfilled after 24 hours					

Ground Water: Dry ft.; Dry ft. — Cave In Depth: 10.0 ft.; 10.0 ft.

Boring No. B-39
Project Name: Wellington Farms — Location: Laurel, MD — Job #: 19665A
SAMPLER: Hammer Wt. 140 lbs. — Hole Diameter 3.25 in. — Foreman: C. Leatherman
Hammer Drop 30 in. — Rock Core Diameter N/A
Date Started 11/18/19 — Pipe Size (O.D.) 2.0 in. — Boring Method HSA — Date Completed 11/19/19

Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Dark brown, moist, medium stiff, CLAY, trace sand. (SM)	4" of Topsoil	1	13		2-2-5	7
Orange brown, moist, medium dense, micaceous, silty SAND, trace to some gravel. (SM)		2	18		5-11-14	25
	Groundwater was not encountered while drilling	3	15		9-13-15	28
Brown to yellowish brown, moist, dense, micaceous, silty SAND. (SM; Saprolite)		4	15		5-7-28	35
Tan to light gray, moist, very dense, silty SAND, trace to some gravel. (SM; Disintegrated Rock)		5	5		50/5"	50+
		6	8		39-50/3"	50+
Bottom of boring at 16.3	Boring was backfilled after 24 hours					

Ground Water: Dry ft.; Dry ft. — Cave In Depth: 10.0 ft.; 9.0 ft.

Boring No. B-40
Project Name: Wellington Farms — Location: Laurel, MD — Job #: 19665A
SAMPLER: Hammer Wt. 140 lbs. — Hole Diameter 3.25 in. — Foreman: C. Leatherman
Hammer Drop 30 in. — Rock Core Diameter N/A
Date Started 11/14/19 — Pipe Size (O.D.) 2.0 in. — Boring Method HSA — Date Completed 11/15/19

Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown, moist, soft, CLAY, trace sand, with roots. (CL)	5" of Topsoil	1	10		1-2-3	5
Brown, moist, medium dense, micaceous, silty SAND, some gravel. (SM)		2	15		7-10-14	24
Red brown	Groundwater was not encountered while drilling	3	15		5-7-5	12
Dark green to gray and tan, moist, very dense, micaceous, silty SAND, some gravel. (SM; Disintegrated Rock)	Boring was backfilled after 24 hours	4	7		40-50/4"	50+
Bottom of boring at 9.3'						

Ground Water: Dry ft.; Dry ft. — Cave In Depth: 5.5 ft.; 5.5 ft.

Boring No. B-41
Project Name: Wellington Farms — Location: Laurel, MD — Job #: 19665A
SAMPLER: Hammer Wt. 140 lbs. — Hole Diameter 3.25 in. — Foreman: C. Leatherman
Hammer Drop 30 in. — Rock Core Diameter N/A
Date Started 11/18/19 — Pipe Size (O.D.) 2.0 in. — Boring Method HSA — Date Completed 11/19/19

Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Dark brown to brown, moist, very soft to very stiff, CLAY, trace sand. (CL)	4" of Topsoil	1	10		2-2-2	4
		2	13		3-3-4	7
	Groundwater was not encountered while drilling	3	15		3-8-9	17
Brown, moist, medium dense to dense, micaceous, silty SAND. (SM)		4	15		5-10-13	23
		5	15		7-14-35	49
Bottom of boring at 15.0'	Boring was backfilled after 24 hours					

Ground Water: Dry ft.; Dry ft. — Cave In Depth: 9.0 ft.; 9.0 ft.

Boring No. B-42
Project Name: Wellington Farms — Location: Laurel, MD — Job #: 19665A
SAMPLER: Hammer Wt. 140 lbs. — Hole Diameter 3.25 in. — Foreman: C. Leatherman
Hammer Drop 30 in. — Rock Core Diameter N/A
Date Started 11/18/19 — Pipe Size (O.D.) 2.0 in. — Boring Method HSA — Date Completed 11/19/19

Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown, moist, very soft to medium stiff, CLAY, trace sand. (CL)	4" of Topsoil	1	12		2-2-2	4
		2	10		4-4-5	9
Orange brown, most, medium dense, micaceous, clayey SAND, some gravel. (SC)	Groundwater was not encountered while drilling	3	7		4-5-6	11
Orange brown to greenish brown, moist, medium dense, micaceous, silty SAND. (SM; Saprolite)	Boring was backfilled after 24 hours	4	15		4-6-9	15
Bottom of boring at 10.5'						

Ground Water: Dry ft.; Dry ft. — Cave In Depth: 7.0 ft.; 7.0 ft.

Boring No. B-43
Project Name: Wellington Farms — Location: Laurel, MD — Job #: 19665A
SAMPLER: Hammer Wt. 140 lbs. — Hole Diameter 3.25 in. — Foreman: C. Leatherman
Hammer Drop 30 in. — Rock Core Diameter N/A
Date Started 11/18/19 — Pipe Size (O.D.) 2.0 in. — Boring Method HSA — Date Completed 11/19/19

Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown, moist, very soft, CLAY, trace sand. (CL)	4" of Topsoil	1	13		2-2-2	4
Brown, moist, medium dense, clayey SAND, some gravel. (SC)		2	13		5-9-12	21
Brown, moist, medium dense, micaceous, silty SAND. (SM)	Groundwater was not encountered while drilling	3	13		6-6-7	13
		4	10		8-13-15	28
Brown to tan, moist, medium dense, silty SAND, some gravel. (SM; Saprolite)		5	18		5-6-7	13
Bottom of boring at 14.0'	Boring was backfilled after 24 hours					

Ground Water: Dry ft.; Dry ft. — Cave In Depth: 10.5 ft.; 10.5 ft.

Boring No. B-49
Project Name: Wellington Farms — Location: Laurel, MD — Job #: 19665A
SAMPLER: Hammer Wt. 140 lbs. — Hole Diameter 3.25 in. — Foreman: C. Leatherman
Hammer Drop 30 in. — Rock Core Diameter N/A
Date Started 11/19/19 — Pipe Size (O.D.) 2.0 in. — Boring Method HSA — Date Completed 11/20/19

Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown, moist, very soft to medium stiff, CLAY, trace sand. (CL)	4" of Topsoil	1	15		2-2-2	4
	Groundwater was not encountered while drilling	2	13		3-3-4	7
Orange brown, moist, medium stiff, clayey SILT, some sand. (ML)		3	18		3-4-4	8
Dark green to gray to brown, moist, dense, silty SAND. (SM; Saprolite)		4	15		10-12-19	31
		5	12		12-16-20	36
Bottom of boring at 13.0	Boring was backfilled after 24 hours					

Ground Water: Dry ft.; Dry ft. — Cave In Depth: 8.0 ft.; 8.0 ft.

Boring No. B-50
Project Name: Wellington Farms — Location: Laurel, MD — Job #: 19665A
SAMPLER: Hammer Wt. 140 lbs. — Hole Diameter 3.25 in. — Foreman: C. Leatherman
Hammer Drop 30 in. — Rock Core Diameter N/A
Date Started 11/19/19 — Pipe Size (O.D.) 2.0 in. — Boring Method HSA — Date Completed 11/20/19

Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Dark brown to brown, moist, very soft to medium stiff, CLAY, trace sand. (CL)	4" of Topsoil	1	10		1-2-2	4
	Groundwater was not encountered while drilling	2	12		2-2-4	6
Brown, moist, loose, clayey SAND. (SC)		3	12		3-3-4	7
Red brown to brown moist, medium dense, silty SAND. (SM)	Boring was backfilled after 24 hours	4	16		4-5-7	12
Bottom of boring at 10.0						

Ground Water: Dry ft.; Dry ft. — Cave In Depth: 7.0 ft.; 7.0 ft.

Boring No. B-51
Project Name: Wellington Farms — Location: Laurel, MD — Job #: 19665A
SAMPLER: Hammer Wt. 140 lbs. — Hole Diameter 3.25 in. — Foreman: C. Leatherman
Hammer Drop 30 in. — Rock Core Diameter N/A
Date Started 11/19/19 — Pipe Size (O.D.) 2.0 in. — Boring Method HSA — Date Completed 11/20/19

Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown, moist, very soft to very stiff, CLAY, trace sand. (CL)	5" of Topsoil	1	10		1-2-2	4
	Groundwater was not encountered while drilling	2	18		3-4-5	9
		3	15		3-7-10	17
Brown to orange brown, moist, medium dense, micaceous, silty SAND. (SM)		4	15	11.5	5-7-8	15
trace clay		5	14		7-7-8	15
Bottom of boring at 13.5	Boring was backfilled after 24 hours					

Ground Water: Dry ft.; Dry ft. — Cave In Depth: 11.5 ft.; 10.0 ft.

Boring No. B-52
Project Name: Wellington Farms — Location: Laurel, MD — Job #: 19665A
SAMPLER: Hammer Wt. 140 lbs. — Hole Diameter 3.25 in. — Foreman: C. Leatherman
Hammer Drop 30 in. — Rock Core Diameter N/A
Date Started 11/19/19 — Pipe Size (O.D.) 2.0 in. — Boring Method HSA — Date Completed 11/20/19

Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown, moist, medium stiff, CLAY, trace sand. (CL)	5" of Topsoil	1	13		2-3-4	7
Orange brown to dark green and brown, moist, loose to dense, micaceous, silty SAND, trace gravel. (SM)	Groundwater was not encountered while drilling	2	12		3-4-5	9
		3	15		4-4-5	9
		4	15		8-11-13	24
		5	15		8-14-16	30
		6	15		12-16-25	41
Bottom of boring at 18.0	Boring was backfilled after 24 hours					

Ground Water: Dry ft.; Dry ft. — Cave In Depth: 14.0 ft.; 14.0 ft.

Boring No. B-53
Project Name: Wellington Farms — Location: Laurel, MD — Job #: 19665A
SAMPLER: Hammer Wt. 140 lbs. — Hole Diameter 3.25 in. — Foreman: C. Leatherman
Hammer Drop 30 in. — Rock Core Diameter N/A
Date Started 11/20/19 — Pipe Size (O.D.) 2.0 in. — Boring Method HSA — Date Completed 11/21/19

Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Dark brown, moist, very soft, CLAY, some gravel, trace sand, with roots. (CL)	5" of Topsoil	1	11		2-2-2	4
Brown, moist, loose, clayey SAND. (SC)	Groundwater was not encountered while drilling	2	15		2-2-3	5
Brown to yellowish brown, moist, medium dense, micaceous, silty SAND. (SM)		3	18		5-6-7	13
		4	10		7-9-9	18
Bottom of boring at 8.0	Boring was backfilled after 24 hours					

Ground Water: Dry ft.; Dry ft. — Cave In Depth: 3.0 ft.; 3.0 ft.

Boring No. B-54
Project Name: Wellington Farms — Location: Laurel, MD — Job #: 19665A
SAMPLER: Hammer Wt. 140 lbs. — Hole Diameter 3.25 in. — Foreman: C. Leatherman
Hammer Drop 30 in. — Rock Core Diameter N/A
Date Started 11/20/19 — Pipe Size (O.D.) 2.0 in. — Boring Method HSA — Date Completed 11/21/19

Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Dark brown, moist, very soft, CLAY, trace sand. (CL)	4" of Topsoil	1	10		2-2-2	4
Brown, moist, loose, clayey SAND, with mica and gravel. (SC)	Groundwater was not encountered while drilling	2	15		2-2-4	6
Brown to dark green, moist, medium dense, micaceous, silty SAND. (SM)		3	18		4-6-8	14
		4	16		10-11-18	29
Bottom of boring at 9.0	Boring was backfilled after 24 hours					

Ground Water: At Completion Dry ft. — Cave In Depth: 6.0 ft.

Boring No. B-55
Project Name: Wellington Farms — Location: Laurel, MD — Job #: 19665A
SAMPLER: Hammer Wt. 140 lbs. — Hole Diameter 3.25 in. — Foreman: C. Leatherman
Hammer Drop 30 in. — Rock Core Diameter N/A
Date Started 11/18/19 — Pipe Size (O.D.) 2.0 in. — Boring Method HSA — Date Completed 11/19/19

Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
Brown, moist, soft, CLAY, some gravel, trace sand. (CL)	4" of Topsoil	1	10		2-2-3	5
Brown to red brown, moist, medium stiff, sandy SILT. (ML)	Groundwater was not encountered while drilling	2	15		3-3-4	7
		3	15		3-3-5	8
Orange brown, moist, medium dense to dense, silty SAND. (SM)		4	15		4-4-7	11
		5	18		9-15-22	37
Bottom of boring at 15.1	Boring was backfilled after 24 hours					

Ground Water: Dry ft.; Dry ft. — Cave In Depth: 10.0 ft.; 9.0 ft.

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS MK — DATE 01/26/2022

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/1/22
FOR: CE 2/1/22
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22390, Expiration Date: 6-30-2023.
State of Maryland — Christopher A. Malagari — 22390 — Professional Engineer — 1-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS
Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

SOIL BORING LOGS

DATE: DECEMBER 27, 2021 — BEI PROJECT NO. 2879
DESIGN: DBT — DRAFT: DBT — SCALE: AS SHOWN — SHEET 30 OF 31

F-22-001

I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7033 P1S3.dwg, 12/27/2021 8:58:19 AM

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Wellington Farms — Boring No. B-61
Location: Laurel, MD — Job # 19665A

SAMPLER
Datum ____ Hammer Wt. 140 lbs. Hole Diameter 3.25 in. Foreman C. Leatherman
Surf. Elev. ____ ft Hammer Drop 30 in. Rock Core Diameter N/A Inspector ____
Date Started 11/20/19 Pipe Size (O.D.) 2.0 in. Boring Method HSA Date Completed 11/21/19

Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
I	Dark brown, moist, very soft, CLAY, trace sand, with roots. (CL)	4" of Topsoil	1	11		2-2-2	4
D	Brown, moist, loose to dense, micaceous, silty SAND. (SM)	Groundwater was not encountered while drilling	2	18		3-4-5	9
D			3	15		5-8-11	19
D	some gravel		4	18		14-16-19	35
D			5	18		10-13-21	34
	Bottom of boring at 12.5	Boring was backfilled after 24 hours					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 7.0 ft.; AFTER 24 HRS. Dry ft. 7.0 ft.; AFTER ____ HRS. ____ ft. ____ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Wellington Farms — Boring No. B-62
Location: Laurel, MD — Job # 19665A

SAMPLER
Datum ____ Hammer Wt. 140 lbs. Hole Diameter 3.25 in. Foreman C. Leatherman
Surf. Elev. ____ ft Hammer Drop 30 in. Rock Core Diameter N/A Inspector ____
Date Started 11/20/19 Pipe Size (O.D.) 2.0 in. Boring Method HSA Date Completed 11/21/19

Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
I	Dark brown, moist, very soft, CLAY, trace sand. (CL)	5" of Topsoil	1	12		2-1-2	3
D	Brown to tan, moist, loose, micaceous, silty SAND, trace gravel. (SM)	Groundwater was not encountered while drilling	2	16		2-3-4	7
D	Brown to dark green and gray, moist, medium dense, micaceous, silty SAND. (SM; Saprolite)		3	16		3-6-7	13
D			4	18		7-10-13	23
D			5	15		8-11-13	24
	Bottom of boring at 11.0	Boring was backfilled after 24 hours					

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 11.0 ft.; AFTER 24 HRS. Dry ft. 10.0 ft.; AFTER ____ HRS. ____ ft. ____ ft.
SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Wellington Farms — Boring No. B-63
Location: Laurel, MD — Job # 19665A

SAMPLER
Datum ____ Hammer Wt. 140 lbs. Hole Diameter 3.25 in. Foreman C. Leatherman
Surf. Elev. ____ ft Hammer Drop 30 in. Rock Core Diameter N/A Inspector ____
Date Started 11/20/19 Pipe Size (O.D.) 2.0 in. Boring Method HSA Date Completed 11/21/19

Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
I	Brown, moist, soft, CLAY, trace sand, with roots. (CL)	5" of Topsoil	1	12		2-1-2	3
I	Brown, moist, loose to medium dense, micaceous, silty SAND, some gravel. (SM)	Groundwater was not encountered while drilling	2	16		2-3-5	8
D			3	15		3-6-7	13
D	Dark gray and brown, moist, medium dense, micaceous, sandy SILT. (ML)		4	15		12-12-17	29
	Bottom of boring at 10.5	Boring was backfilled after 24 hours					

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 8.0 ft.; AFTER 24 HRS. Dry ft. 8.0 ft.; AFTER ____ HRS. ____ ft. ____ ft.
SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Wellington Farms — Boring No. B-64
Location: Laurel, MD — Job # 19665A

SAMPLER
Datum ____ Hammer Wt. 140 lbs. Hole Diameter 3.25 in. Foreman J. Russel
Surf. Elev. ____ ft Hammer Drop 30 in. Rock Core Diameter N/A Inspector ____
Date Started 11/21/19 Pipe Size (O.D.) 2.0 in. Boring Method HSA Date Completed 11/21/19

Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
D	Brown to dark brown, moist, soft, CLAY, trace sand. (CL)	6" Plowed Ground	1	13		1-2-2	4
D	Orange brown, moist, stiff, sandy SILT. (ML)	Groundwater was not encountered while drilling	2	18		6-6-8	14
D	some gravel		3	18		5-7-6	13
D	Dark gray to gray, moist, very dense, silty SAND. (SM)		4	18		12-20-31	51
	Bottom of boring at 11.0'	Boring was backfilled after 24 hours					

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 7.9 ft.; AFTER 24 HRS. Dry ft. 7.9 ft.; AFTER ____ HRS. ____ ft. ____ ft.
SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Wellington Farms — Boring No. B-65
Location: Laurel, MD — Job # 19665A

SAMPLER
Datum ____ Hammer Wt. 140 lbs. Hole Diameter 3.25 in. Foreman J. Russel
Surf. Elev. ____ ft Hammer Drop 30 in. Rock Core Diameter N/A Inspector ____
Date Started 11/21/19 Pipe Size (O.D.) 2.0 in. Boring Method HSA Date Completed 11/21/19

Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
D	Dark brown, moist, medium stiff, CLAY, trace sand. (CL)	6" Plowed Ground	1	18		2-3-3	6
D	Brown, moist, loose, silty SAND, trace gravel. (SM)	Groundwater was not encountered while drilling	2	18		6-3-4	7
	Bottom of boring at 4.5'	Boring was backfilled after 24 hours					

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 2.9 ft.; AFTER 24 HRS. Dry ft. 2.7 ft.; AFTER ____ HRS. ____ ft. ____ ft.
SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Wellington Farms — Boring No. B-66
Location: Laurel, MD — Job # 19665A

SAMPLER
Datum ____ Hammer Wt. 140 lbs. Hole Diameter 3.25 in. Foreman J. Russel
Surf. Elev. ____ ft Hammer Drop 30 in. Rock Core Diameter N/A Inspector ____
Date Started 11/21/19 Pipe Size (O.D.) 2.0 in. Boring Method HSA Date Completed 11/21/19

Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
D	Brown, moist, medium stiff, CLAY, some gravel, trace sand. (CL)	6" Plowed Ground	1	18		2-4-4	8
D	Tan to brown, moist, medium dense, silty SAND. (SM)	Groundwater was not encountered while drilling	2	18		4-6-6	12
D	Tan to brown, moist, stiff, micaceous, sandy SILT. (ML)		3	18		3-4-6	10
D	Orange brown to tan, moist, loose, micaceous, silty SAND. (SM)		4	13		2-3-3	6
	Bottom of boring at 8.5'	Boring was backfilled after 24 hours					

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 7.8 ft.; AFTER 24 HRS. Dry ft. 7.8 ft.; AFTER ____ HRS. ____ ft. ____ ft.
SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Wellington Farms — Boring No. B-67
Location: Laurel, MD — Job # 19665A

SAMPLER
Datum ____ Hammer Wt. 140 lbs. Hole Diameter 3.25 in. Foreman J. Russel
Surf. Elev. ____ ft Hammer Drop 30 in. Rock Core Diameter N/A Inspector ____
Date Started 11/20/19 Pipe Size (O.D.) 2.0 in. Boring Method HSA Date Completed 11/20/19

Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
D	Brown, moist, medium stiff, CLAY, trace sand and gravel. (CL)	6" Plowed Ground	1	14		2-4-3	7
D	Brown to light gray, moist, loose to medium dense, clayey SAND, trace gravel. (SC)		2	18		4-4-6	10
D	some gravel	Groundwater was not encountered while drilling	3	12		3-5-6	11
D	Yellowish brown to gray, moist, medium dense, micaceous, silty SAND. (SM)		4	15	14.4	4-4-7	11
D	trace gravel		5	12		4-7-10	17
	Bottom of boring at 14.0'	Boring was backfilled after 24 hours					

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 10.3 ft.; AFTER 24 HRS. Dry ft. 10.3 ft.; AFTER ____ HRS. ____ ft. ____ ft.
SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Wellington Farms — Boring No. B-68
Location: Laurel, MD — Job # 19665A

SAMPLER
Datum ____ Hammer Wt. 140 lbs. Hole Diameter 3.25 in. Foreman J. Russel
Surf. Elev. ____ ft Hammer Drop 30 in. Rock Core Diameter N/A Inspector ____
Date Started 11/20/19 Pipe Size (O.D.) 2.0 in. Boring Method HSA Date Completed 11/20/19

Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
D	Brown to dark brown, moist, medium stiff, CLAY, some sand and gravel, with roots. (CL)	6" Plowed Ground	1	10		1-2-3	5
D	Yellowish brown, moist, medium stiff, micaceous, sandy SILT. (ML)		2	16		2-3-3	6
D		Groundwater was not encountered while drilling	3	15		3-3-4	7
D	Brown to dark brown, moist, medium dense, silty SAND. (SM)		4	15		6-11-17	28
	Bottom of boring at 11.0'	Boring was backfilled after 24 hours					

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 7.6 ft.; AFTER 24 HRS. Dry ft. 7.5 ft.; AFTER ____ HRS. ____ ft. ____ ft.
SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Wellington Farms — Boring No. B-69
Location: Laurel, MD — Job # 19665A

SAMPLER
Datum ____ Hammer Wt. 140 lbs. Hole Diameter 3.25 in. Foreman J. Russel
Surf. Elev. ____ ft Hammer Drop 30 in. Rock Core Diameter N/A Inspector ____
Date Started 12/3/19 Pipe Size (O.D.) 2.0 in. Boring Method HSA Date Completed 12/3/19

Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
D	Light brown, moist, loose, clayey SAND. (SC)	6" Plowed Ground	1	10		2-3-4	7
D	Tan to light brown, moist, loose to medium dense, micaceous, silty SAND, trace gravel. (SM)		2	18		5-4-5	9
D		Groundwater was not encountered while drilling	3	16		5-4-5	9
D			4	18		4-6-5	11
D	Brown to gray to and dark brown, moist, medium stiff micaceous, sandy SILT. (ML)		5	12		6-6-4	10
	Bottom of boring at 15.5'	Boring was backfilled after 24 hours					

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 13.0 ft.; AFTER 24 HRS. Dry ft. 12.5 ft.; AFTER ____ HRS. ____ ft. ____ ft.
SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Wellington Farms — Boring No. B-70
Location: Laurel, MD — Job # 19665A

SAMPLER
Datum ____ Hammer Wt. 140 lbs. Hole Diameter 3.25 in. Foreman J. Russel
Surf. Elev. ____ ft Hammer Drop 30 in. Rock Core Diameter N/A Inspector ____
Date Started 12/4/19 Pipe Size (O.D.) 2.0 in. Boring Method HSA Date Completed 12/4/19

Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
D	Dark brown, moist, medium stiff, CLAY, some gravel, trace sand. (CL)	6" Plowed Ground	1	13		3-3-3	6
D	Yellowish brown to brown, moist, medium stiff to stiff, micaceous, sandy SILT, some gravel. (ML)		2	16		2-4-5	9
D		No groundwater encountered while drilling	3	14		3-4-5	9
D			4	16		4-4-5	9
D			5	18		5-6-10	16
	Bottom of boring at 14.5'	Boring was backfilled after 24 hours					

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 12.5 ft.; AFTER 24 HRS. Dry ft. 12.3 ft.; AFTER ____ HRS. ____ ft. ____ ft.
SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Wellington Farms — Boring No. B-71
Location: Laurel, MD — Job # 19665A

SAMPLER
Datum ____ Hammer Wt. 140 lbs. Hole Diameter 3.25 in. Foreman J. Russel
Surf. Elev. ____ ft Hammer Drop 30 in. Rock Core Diameter N/A Inspector ____
Date Started 12/4/19 Pipe Size (O.D.) 2.0 in. Boring Method HSA Date Completed 12/4/19

Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
D	Dark brown, moist, soft, CLAY, trace sand, with roots. (CL)	6" Plowed Ground	1	6		2-2-3	5
D	Brown to dark brown, moist, loose to dense, micaceous, silty SAND. (SM)		2	12		2-4-4	8
D		No groundwater encountered while drilling	3	16		4-4-5	9
D			4	12		6-12-14	26
D			5	12		8-20-25	45
	Bottom of boring at 14'	Boring was backfilled after 24 hours					

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 11.0 ft.; AFTER 24 HRS. Dry ft. 11.0 ft.; AFTER ____ HRS. ____ ft. ____ ft.
SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Wellington Farms — Boring No. B-90
Location: Laurel, MD — Job # 19665A

SAMPLER
Datum ____ Hammer Wt. 140 lbs. Hole Diameter 3.25 in. Foreman J. Russel
Surf. Elev. ____ ft Hammer Drop 30 in. Rock Core Diameter N/A Inspector ____
Date Started 11/21/19 Pipe Size (O.D.) 2.0 in. Boring Method HSA Date Completed 11/21/19

Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
D	Brown to dark brown, moist, loose, clayey SAND. (SC)	6" Plowed Ground	1	18		2-2-3	5
D	Orange brown to tan, moist, medium stiff, micaceous, sandy SILT. (ML)		2	18		2-3-4	7
D	Red brown	Groundwater was not encountered while drilling	3	18		3-2-4	6
D			4	18		3-3-4	7
D			5	18		5-6-0	6
	Bottom of boring at 13.0'	Boring was backfilled after 24 hours					

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 9.9 ft.; AFTER 24 HRS. Dry ft. 9.8 ft.; AFTER ____ HRS. ____ ft. ____ ft.
SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Wellington Farms — Boring No. B-91
Location: Laurel, MD — Job # 19665A

SAMPLER
Datum ____ Hammer Wt. 140 lbs. Hole Diameter 3.25 in. Foreman J. Russel
Surf. Elev. ____ ft Hammer Drop 30 in. Rock Core Diameter N/A Inspector ____
Date Started 11/21/19 Pipe Size (O.D.) 2.0 in. Boring Method HSA Date Completed 11/21/19

Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
D	Brown to dark brown, moist, soft, CLAY, trace sand, with roots. (CL)	6" Plowed Ground	1	18		1-2-2	4
D	Orange brown, moist, medium stiff, micaceous, sandy CLAY. (CL)		2	18		3-4-6	10
D	some silt	Groundwater was not encountered while drilling	3	18	20.4	3-3-3	6
D	Tan to green, moist, stiff, sandy SILT. (ML)		4	18		3-5-7	12
	Bottom of boring at 10.0'	Boring was backfilled after 24 hours					

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 6.9 ft.; AFTER 24 HRS. Dry ft. 6.9 ft.; AFTER ____ HRS. ____ ft. ____ ft.
SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Wellington Farms — Boring No. B-93
Location: Laurel, MD — Job # 19665A

SAMPLER
Datum ____ Hammer Wt. 140 lbs. Hole Diameter 3.25 in. Foreman J. Russel
Surf. Elev. ____ ft Hammer Drop 30 in. Rock Core Diameter N/A Inspector ____
Date Started 11/26/19 Pipe Size (O.D.) 2.0 in. Boring Method HSA Date Completed 11/26/19

Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
D	Dark brown to brown and gray, moist, soft to stiff, CLAY, trace sand. (CL)	6" Plowed Ground	1	6		1-1-3	4
D			2	18		6-7-9	16
D	Yellowish brown, moist, medium dense, silty SAND, some gravel. (SM)	Groundwater was not encountered while drilling	3	14		6-7-9	16
D			4	10		5-6-10	16
D	Brown to tan, moist, medium dense, silty SAND. (SM; Saprolite)		5	12		6-6-7	13
	Bottom of boring at 12.5'	Boring was backfilled after 24 hours					

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 8.5 ft.; AFTER 24 HRS. Dry ft. 8.5 ft.; AFTER ____ HRS. ____ ft. ____ ft.
SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Wellington Farms — Boring No. B-99
Location: Laurel, MD — Job # 19665A

SAMPLER
Datum ____ Hammer Wt. 140 lbs. Hole Diameter 3.25 in. Foreman J. Russel
Surf. Elev. ____ ft Hammer Drop 30 in. Rock Core Diameter N/A Inspector ____
Date Started 11/26/19 Pipe Size (O.D.) 2.0 in. Boring Method HSA Date Completed 11/26/19

Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
D	Brown, moist, stiff, lean CLAY, trace gravel, with roots. (CL; FILL)	6" Plowed Ground	1	8		4-6-6	12
D	Orange-brown, moist, medium stiff to stiff, micaceous CLAY, trace silt, with sand. (CL; FILL)		2	14		4-4-5	9
D		Groundwater was not encountered while drilling	3	10		4-6-8	14
D	Brown/white with black streaks, moist, stiff, micaceous lean CLAY, trace silt, with gravel, with roots. (CL; FILL)		4	10		6-6-8	14
D	Orange-brown, moist, stiff, micaceous SILT with sand. (ML; Saprolite)		5	10		6-7-7	14
	Bottom of boring at 15.5'	Boring was backfilled after 24 hours					

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 12.5 ft.; AFTER 24 HRS. Dry ft. 12.5 ft.; AFTER ____ HRS. ____ ft. ____ ft.
SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Wellington Farms — Boring No. B-100
Location: Laurel, MD — Job # 19665A

SAMPLER
Datum ____ Hammer Wt. 140 lbs. Hole Diameter 3.25 in. Foreman J. Russel
Surf. Elev. ____ ft Hammer Drop 30 in. Rock Core Diameter N/A Inspector ____
Date Started 11/26/19 Pipe Size (O.D.) 2.0 in. Boring Method HSA Date Completed 11/26/19

Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Sample No.	Rec. (in)	NM (%)	SPT Blows	N
D	Brown, moist, soft to very stiff, lean clay with to some gravel, with to no roots. (CL; FILL)	6" Plowed Ground	1	10		1-2-3	5
D			2	12		8-13-11	24
D	Light brown to light brown/gray, moist, very stiff, micaceous SILT, trace to no gravel. (ML; FILL)	Groundwater was not encountered while drilling	3	12		6-9-11	20
D			4	14		8-9-11	20
D	Brown, moist, very stiff, lean CLAY, with roots/organics. (CL; FILL)		5	18		7-9-12	21
	Bottom of boring at 16.0'	Boring was backfilled after 24 hours					

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 12.0 ft.; AFTER 24 HRS. Dry ft. 12.0 ft.; AFTER ____ HRS. ____ ft. ____ ft.
SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

APPROVED: DEPARTMENT OF PUBLIC WORKS
[signature] 01/26/2022
CHIEF, BUREAU OF HIGHWAYS MK — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[signature] 2/1/22
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE
[signature] FOR: CE 2/1/22
CHIEF, DEVELOPMENT ENGINEERING DIVISION HSA — DATE

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22390, Expiration Date: 6-30-2023.
STATE OF MARYLAND — CHRISTOPHER A. MALAGARI — 22390 — PROFESSIONAL ENGINEER [signature] 1-6-22

OWNER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

DEVELOPER:
ESC WELLINGTON, L.C.
5074 DORSEY HALL DRIVE, SUITE 205
ELLICOTT CITY, MARYLAND 21042
410-720-3021

WELLINGTON FARMS
Phase 1 Section 3
Lots 144 thru 269; Open Space Lots 270 thru 275;
Non-Buildable Bulk Parcels 'F'
(A Resubdivision of Non-Buildable Bulk Parcels 'C' and 'D' previously recorded under F-21-044)

TAX MAP: 46 – GRID: 6 – PARCEL: 163
ZONED: R-20-MXD-3 / R-SC-MXD-3
ELECTION DISTRICT NO. 6 – HOWARD COUNTY, MARYLAND

SOIL BORING LOGS

DATE: DECEMBER 27, 2021 — BEI PROJECT NO. 2879
DESIGN: DBT — DRAFT: DBT — SCALE: AS SHOWN — SHEET 31 OF 31

F-22-001

I:\2879 Milk Producers\dwg\Finals\Phase 1 Section 3\7033 P1S3.dwg, 12/27/2021 8:58:35 AM