

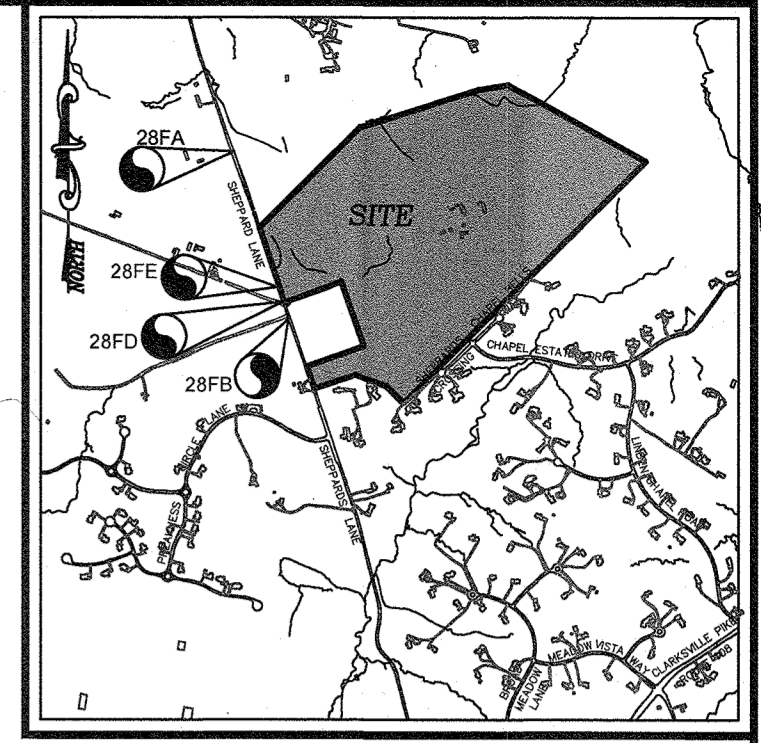
SITE DEVELOPMENT PLAN CUNNINGHAM PROPERTY - FOOD HUB 4979 SHEPPARD LANE L.15767/F.426

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, PLUS USHA STANDARDS AND SPECIFICATIONS WHERE APPLICABLE AND UNLESS OTHERWISE SPECIFIED.
2. 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 START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
4. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
5. ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
6. THE EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON A TOPOGRAPHIC SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED MAY, 2015, AND FROM HOWARD COUNTY GIS.
7. THE COORDINATES AND ELEVATIONS SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY CONTROL STATIONS 28-FA & 28-FB WERE USED FOR THIS PROJECT.
8. WATER FOR THIS PROJECT IS TO BE BY PRIVATE WELL.
9. SEWER FOR THIS PROJECT IS TO BE BY PRIVATE SEPTIC SYSTEM.
10. STORMWATER MANAGEMENT FOR THE PROJECT IS PROVIDED BY THE USE OF NON-STRUCTURAL AND MICRO-SCALE PRACTICES IN ACCORDANCE WITH ENVIRONMENTAL SITE DESIGN CRITERIA. MICRO-SCALE PRACTICES INCLUDE MICRO-BIOTRETENTION (M-6) FACILITIES, AND A BIO-SWALE (M-8). THESE FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED.
11. EXISTING UTILITIES BASED ON A FIELD RUN TOPOGRAPHIC SURVEY AND AS-BUILT DRAWINGS. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE.
12. THERE ARE NO "FLOODPLAIN" AREAS LOCATED WITHIN THE DEVELOPMENT AREA AS PER FEMA DFIRM MAPS. REFERENCE ENVIRONMENTAL FINDINGS LETTER, DATED NOVEMBER 9, 2015, FROM MR. JOHN CANOLES AND ECO-SCIENCE PROFESSIONALS. THERE ARE 0 S.F. (0.00 AC.) AREA OF WETLANDS PRESENT WITHIN THE DEVELOPMENT AREA PER ECO-SCIENCE PROFESSIONALS, INC. C/O MR. JOHN CANOLES, NOVEMBER 9, 2015.
13. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP, DATED JULY 26, 2017.
14. THE PROJECT BOUNDARY IS BASED ON A BOUNDARY SURVEY PREPARED BY SHANABERGER & LAINE, DATED AUG. 13, 2010.
15. THE SUBJECT PROPERTY IS ZONED RC-DEO-RURAL CONSERVATION IN ACCORDANCE WITH THE ZONING REGULATIONS EFFECTIVE ON OCT. 06, 2013, AND IS SUBJECT TO SUBDIVISION AND LAND DEVELOPMENT REGULATIONS EFFECTIVE OCT. 07, 2007 PER COUNCIL BILL 47-2007. ANY DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION OR BUILDING/GRADING PERMIT APPLICATIONS.
16. THERE ARE 0 S.F. (0.00 AC.) $\geq 25\%$ STEEP SLOPES, AND 0 S.F. (0.00 AC.) 15% - 24.99% STEEP SLOPES OVER 20,000 SF CONTIGUOUS LOCATED WITHIN THE DEVELOPMENT AREA.
17. FOREST CONSERVATION WILL NOT BE REQUIRED FOR THIS PROJECT, BECAUSE THE FOLLOWING CONDITIONS HAVE BEEN MET:
 - A.) THE PROPERTY IS UNDER A RECORDED AGRICULTURAL EASEMENT AND THE NEW FOOD HUB USE IS A COMMERCIAL ENTERPRISE ASSOCIATED WITH THE AGRICULTURAL USE.
 - B.) A SOIL AND WATER CONSERVATION PLAN HAS BEEN APPROVED BY HSCD.
 - C.) THE BUSINESS AND PROPERTY SHALL BE TAXED AS AN AGRICULTURAL USE.
18. IN ACCORDANCE WITH SECTION 16.121(A)(2) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, THERE IS NO OPEN SPACE REQUIREMENTS FOR THIS RC-DEO (AGRICULTURAL PRESERVATION) PROJECT.
19. CERTIFIED TEST PITS HAVE BEEN LOCATED WITHIN THE LIMITS OF THE DEVELOPMENT AREA FOR THIS PROJECT. MICRO-BIOTRETENTION LOCATIONS. OPEN TEST PITS WERE OBSERVED BY ROBERT H. VOGEL ENGINEERING ON FEB. 16, 2017 AND INFORMATION REGARDING THE FINDINGS IS LOCATED IN THE SWM REPORT.
20. A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
21. A FOREST STUDY AND DELINEATION PLAN, ENVIRONMENTAL STUDIES AND REPORT HAVE BEEN PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. MR. JOHN CANOLES, NOVEMBER 2015. MR. CANOLES NOTED A SMALL AREA OF FOREST ENROACHMENT IN THE NORTHWEST CORNER OF THE DEVELOPMENT AREA, BUT NO SPECIMEN TREES OR ANY OTHER REGULATED ENVIRONMENTAL FEATURES WERE FOUND WITHIN THE LIMITS OF THE DEVELOPMENT AREA FOR THIS PROJECT.
22. SHEPPARD LANE IS CLASSIFIED AS A MINOR COLLECTOR. SITE ACCESS SHALL BE VIA A PRIVATE COMMERCIAL DRIVEWAY. TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS, CEMETERIES, OR HISTORIC STRUCTURES LOCATED WITHIN THE DEVELOPMENT AREA.
23. THERE ARE NO EXISTING DWELLINGS OR STRUCTURES WITHIN THE DEVELOPMENT AREA.
24. THE PROPOSED BUILDING SHALL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM.
25. DEVELOPMENT OF THIS PROPERTY SHALL FOLLOW THE GUIDELINE CRITERIA ENUMERATED UNDER SECTION 16.125 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS FOR THE PROTECTION OF SCENIC ROADS.
26. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAMS OR THEIR REQUIRED BUFFERS, OR FLOODPLAIN.
27. LANDSCAPING FOR THIS PROJECT SITE IS PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF \$17,100.00 FOR THE REQUIRED 34 SHADE TREES (\$10,200) AND 46 EVERGREENS (\$6,900) AND SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT.
28. CONTRACTOR TO PROVIDE BLAZE ORANGE FENCING AROUND SEWAGE DISPOSAL AREA. THERE SHALL BE NO CONSTRUCTION TRAFFIC OR ACTIVITY IN THIS AREA.
29. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
30. ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
31. THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM OWNERSHIP, WIDTH, AND LOT AREA AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT.
32. EXISTING WELLS, SEPTIC SYSTEMS, AND SEWAGE DISPOSAL AREAS WITHIN 100' OF THE PROPERTY AND THOSE WELLS WITHIN 200' DOWN GRADIENT OF EXISTING OR PROPOSED SEPTIC SYSTEMS OR SEWAGE DISPOSAL AREAS HAVE BEEN SHOWN.
33. ALL WELLS SHALL BE DRILLED PRIOR TO BUILDING PERMIT APPROVAL. IT IS THE DEVELOPER'S RESPONSIBILITY TO SCHEDULE THE WELL DRILLING PRIOR TO BUILDING PERMIT SUBMITTAL. IT WILL NOT BE CONSIDERED "GOVERNMENT DELAY" IF THE WELL DRILLING HOLDS UP HEALTH DEPARTMENT BUILDING PERMIT APPROVAL.
34. DEED REFERENCES: LIBER 15767 FOLIO 426
35. SOIL TYPES SHOWN HEREON ARE FROM THE USDA WEB SOIL SURVEY.
36. ADJUSTMENT TO THE SEPTIC EASEMENT AREA MAY NOT BE PERMITTED WITHOUT ADDITIONAL TESTING.
37. A FOOD HUB, INCLUDING ON-SITE CARRY-OUT FOOD SALES IS A PERMITTED USE UNDER AGRICULTURAL PRESERVATION ACCORDING TO SECTION 106.1.C.1.1. A MEETING WITH SRC AGENCIES WAS HELD ON 10/18/17 AND NO COMMENTS WERE MADE REGARDING THIS USE. ON-SITE CONSUMPTION OF FOOD IS PROHIBITED.
38. THE SUBJECT PROPERTY IS LOCATED IN THE GROWTH TIER IV DESIGNATION AREA PER HOWARD COUNTY 2030 AND SB-236. THE SUSTAINABLE GROWTH AND AGRICULTURAL PRESERVATION ACT OF 2012.
39. HOWARD COUNTY SUBDIVISION AND LAND REGULATIONS SECTION 16.125.(b)(3)(i)-(v), PROTECTION OF SCENIC ROADS, IS MET BY A TYPE 'C' LANDSCAPE EDGE TO BUFFER VIEWS OF THE PROPOSED PARKING AND BUILDING. THE PROPOSED PARKING LOTS ARE ORIENTED PERPENDICULAR TO SHEPPARD LANE AND GRASS PAVERS ARE USED FOR A PORTION OF THE PARKING TO REDUCE VISUAL IMPACT.
40. HEALTH DEPARTMENT APPROVAL OF THIS SITE DEVELOPMENT PLAN (SDP) DOES NOT ENSURE APPROVAL OF BUILDING PERMIT APPLICATIONS ASSOCIATED WITH THIS PLAN. PLANS FOR THE CARRY-OUT FOOD CONCESSION TO BE CONSTRUCTED WITHIN THE LIMITS DESCRIBED BY THIS SDP WILL REQUIRE REVIEW AND APPROVAL BY THE HEALTH DEPARTMENT, AND/OR MAY REQUIRE REVIEW AND APPROVAL BY THE STATE DEPARTMENT OF HEALTH AND MENTAL HYGIENE, FOOD PROTECTION PROGRAM. (410-767-8400).
41. THE IRRIGATION WATER LINE THAT IS NEAR TO AND WITHIN THE LOWER REACHES OF THE SDA FOR THE FOOD HUB MUST BE REMOVED PRIOR TO BUILDING PERMIT APPROVAL FOR THE FOOD HUB. REMOVAL OF THE WATER LINE MUST BE CONFIRMED BY AN ENVIRONMENTAL HEALTH SPECIALIST.

BENCHMARKS

HOWARD COUNTY BENCHMARK 28FA	N 572,456.88	E 1,328,957.64	ELEV.: 348.21'
HOWARD COUNTY MONUMENT			
HOWARD COUNTY BENCHMARK 28FB	N 570,710.84	E 1,329,524.63	ELEV.: 385.45'
HOWARD COUNTY MONUMENT			
HOWARD COUNTY BENCHMARK 28FD	N 570,895.88	E 1,329,461.33	ELEV.: 381.91'
HOWARD COUNTY MONUMENT			
HOWARD COUNTY BENCHMARK 28FE	N 571,047.81	E 1,329,404.44	ELEV.: 380.85'
HOWARD COUNTY MONUMENT			



VICINITY MAP
SCALE: 1"=2000'
ADC MAP COORDINATES: 4934-A3

LEGEND

- EXISTING CONTOUR
- EXISTING CONTOUR
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LIMIT OF EXISTING WETLANDS
- PROPOSED 100 YEAR DFIRM FLOODPLAIN
- EX. 50' BGE EASEMENT
- SOILS BOUNDARY
- EXISTING TREELINE
- PROPOSED TREELINE
- EX. PRIVATE (SDA) SEWAGE DISPOSAL AREA
- PROPOSED PRIVATE (SDA) SEWAGE DISPOSAL AREA
- EXISTING PRIVATE WELL
- PROPOSED PRIVATE WELL
- LIMIT OF DISTURBANCE / LIMIT OF DEVELOPMENT AREA

SITE DATA

TAX MAP 29, BLOCK 13, PARCEL 25 5TH ELECTION DISTRICT
PRESENT ZONING: RC-DEO-RURAL CONSERVATION (PROPERTY IS WITHIN HOWARD COUNTY AGRICULTURAL EASEMENT)

TOTAL AREA OF PROPERTY: 162.07 AC.
DPZ REFERENCES: HO-10-03E, ECP-16-30, ECP-17-050, ECP-18-029, GP-17-038, SDP-18-004
DEED/PLAT REFERENCES: L.9771/F.214, L.15767/F.426, L.12661/F.466
DEVELOPMENT AREA (AREA MANAGED BY ESVD, THIS PLAN ONLY): 224,810 S.F./5.16 AC.
*DATA BELOW REFERS ONLY TO THAT WHICH IS WITHIN THE DEVELOPMENT AREA FOR THIS PLAN.

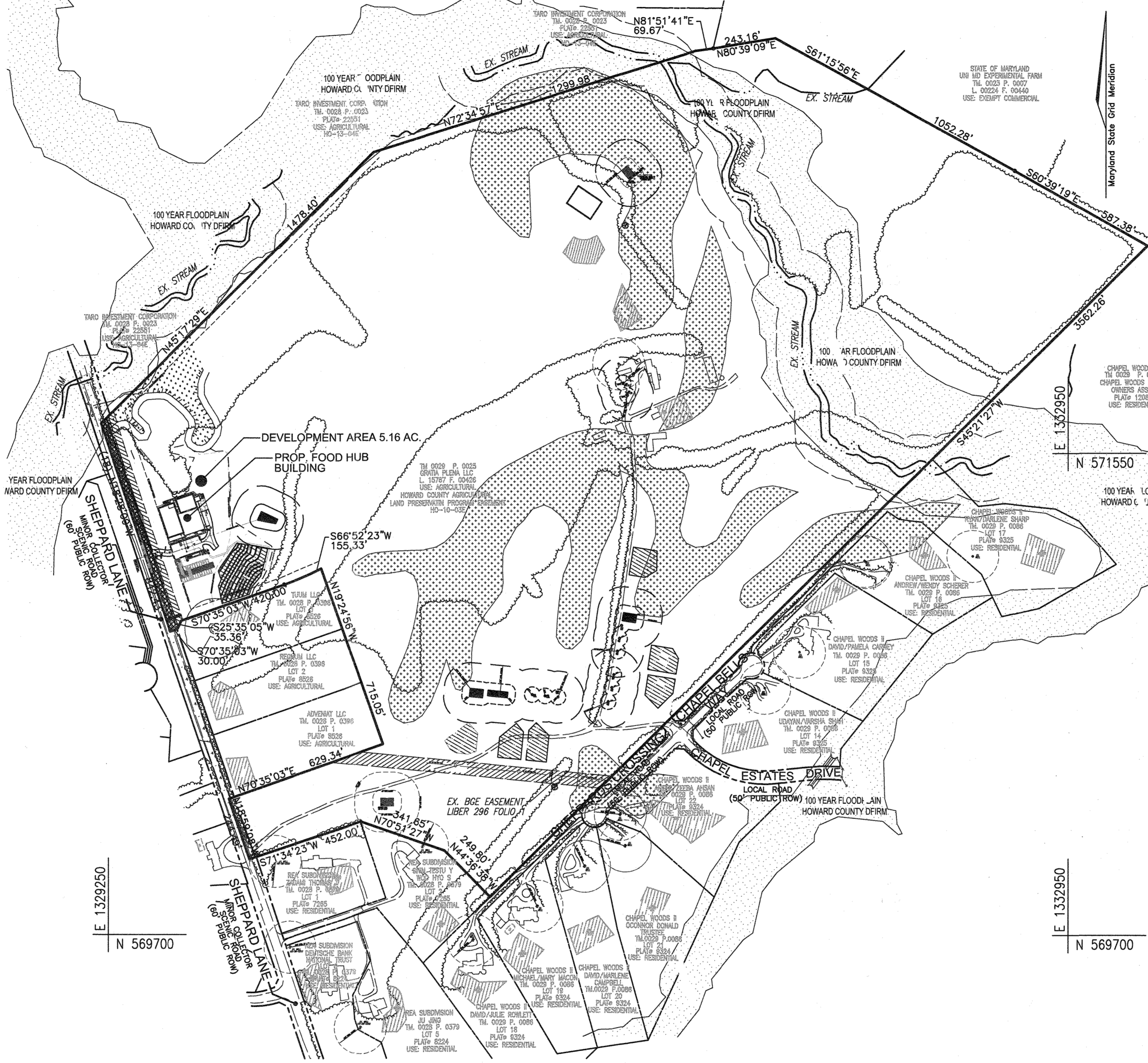
USE OF PROPOSED STRUCTURES (THIS PLAN): AGRICULTURAL/FOOD CONCESSION
TOTAL BUILDING COVERAGE WITHIN THE DEVELOPMENT AREA: 20,575 SF (0.47 AC. OR 9.15%)
PAVED AREA WITHIN THE DEVELOPMENT AREA: 18,629 SF (0.43 AC. OR 8.33%)
AREA OF LANDSCAPE ISLAND: 1513 SF (0.347 AC. OR 6.7% OF GROSS AREA)
LIMIT OF DISTURBED AREA (THIS PLAN): 224,810 SF / 5.16 AC
WETLANDS ON SITE: 0.00 AC.
STREAMS AND THEIR BUFFERS ON SITE: 0.00 AC.
AREA OF 100 YEAR FLOODPLAIN: 0.00 AC.
AREA OF EXISTING FOREST ON SITE: 0.14 AC.
AREA OF STEEP SLOPES (15% OR GREATER): 0.00 AC.
AREA OF ERODIBLE SOILS: 3.21 AC.
IMPERVIOUS AREA : 39,204 S.F. / 0.90 AC.
GREEN AREA: 185,606 S.F. / 4.26 AC.

BUILDING USES:
FOOD HUB BUILDING: 7,750 S.F.
PAVILION (OPEN TO PUBLIC): 7,263 S.F.
WAREHOUSE (FARM OPERATION): 3,250 S.F.

PARKING TABULATION CHART

PARKING SPACES REQUIRED:	
RETAIL/FOOD CONCESSION: 5.0 SPACES / 1,000 S.F. = (5 x (7,750/1000)) = 39 SPACES	
WAREHOUSE: 0.75 SPACES / 1,000 S.F. = (0.75 x (3,250/1000)) = 3 SPACES	
TOTAL PARKING SPACES REQUIRED:	42 SPACES
NUMBER OF HARD SURFACE PARKING SPACES PROVIDED:	23 SPACES
NUMBER OF GRASS PARKING SPACES PROVIDED:	23 SPACES
TOTAL SPACES PROVIDED:	46 SPACES

OWNER/DEVELOPER:
GRATIA PLENA, LLC
11140 HOMEWOOD ROAD
ELLCOTT CITY, MD 21042
PHONE: 443-677-4612



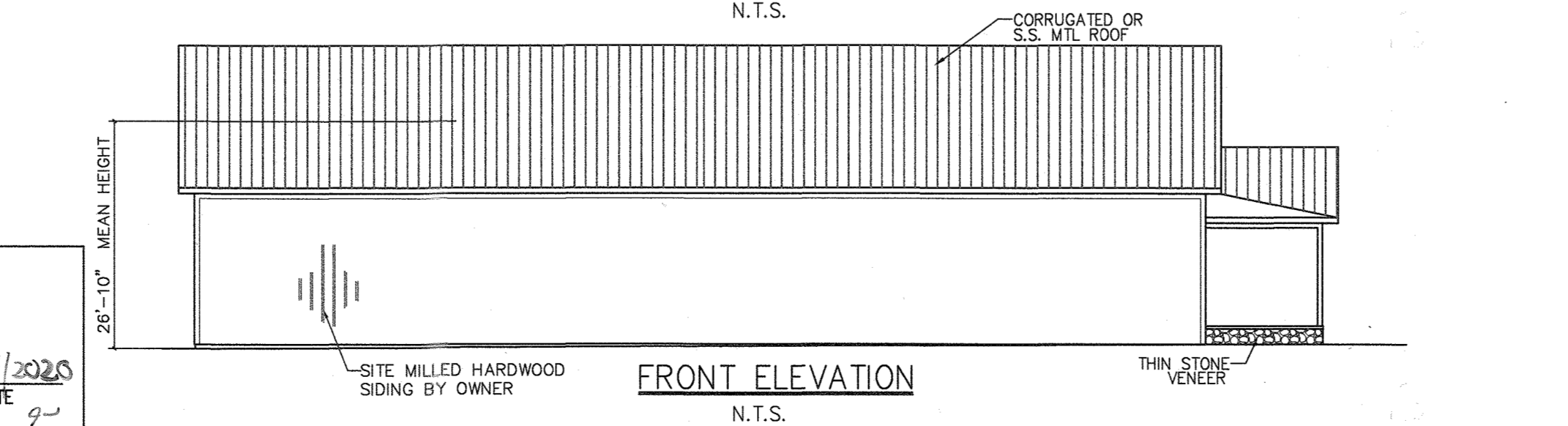
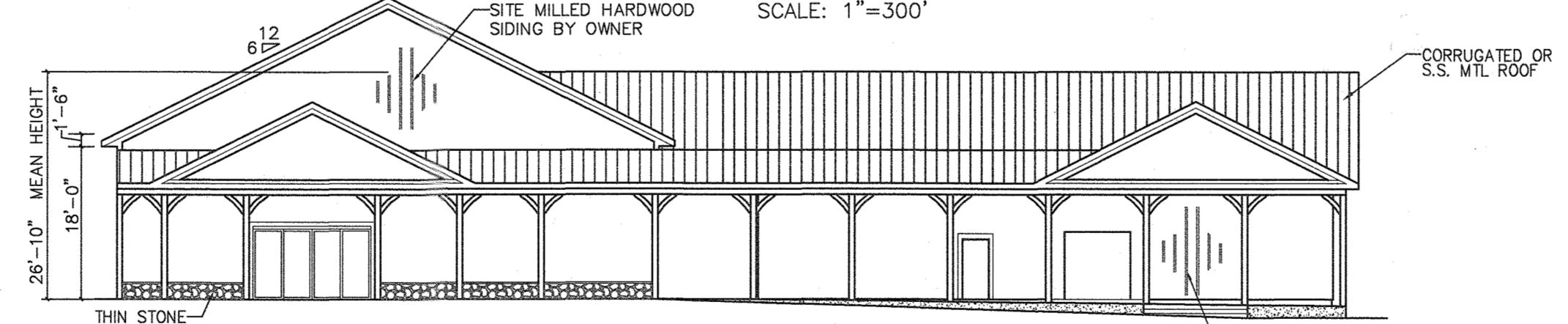
LOCATION MAP

SCALE: 1"=300'

STORMWATER MANAGEMENT INFORMATION CHART

LOT/PARCEL #	FACILITY NAME & NUMBER	PRACTICE TYPE (QUANTITY)	PUBLIC	PRIVATE	MAINTENANCE RESPONSIBILITY
Parcel 25	MBR #1	M-6 MICRO-BIOTRETENTION		X	Owner
Parcel 25	MBR #2	M-6 MICRO-BIOTRETENTION		X	Owner
Parcel 25	BIO-SWALE #1	M-8 BIO-SWALE		X	Owner

ADDRESS (ALL FACILITIES) 4979 SHEPPARD LANE, ELLICOTT CITY, MD 21042



SHEET INDEX

DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 10
SITE LAYOUT AND LANDSCAPING PLAN	2 OF 10
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BAT / SEPTIC INSTALLATION PLAN PROFILES AND DETAILS	5 OF 10
LANDSCAPING DETAILS	6 OF 10
GRADING, EROSION AND SEDIMENT CONTROL PLAN	7 OF 10
SEDIMENT AND EROSION CONTROL DETAILS	8 OF 10
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STORMWATER MANAGEMENT DRAINAGE AREA MAP, NOTES AND DETAILS	10 OF 10

ADDRESS CHART

BUILDING NO.	STREET ADDRESS
1	4979 SHEPPARD LANE

PERMIT INFORMATION CHART

SUBDIVISION NAME	SECTION/AREA	PARCEL NUMBER
N/A	N/A	25

DEED REF.	BLOCK NO.	ZONE	TAX/ZONE	ELECT. DIST.	CENSUS TR. #
L 15767/F 426	24	RC-DEO	29	5TH	605104

WATER CODE: N/A SEWER CODE: N/A

SITE DEVELOPMENT PLAN COVER SHEET

CUNNINGHAM PROPERTY - FOOD HUB

4979 SHEPPARD LANE
L.15767/F.426

TAX MAP: 29 GRID: 13 PARCEL: 25 5TH ELECTION DISTRICT
DPZ REFERENCE: HO-10-03E/ECP-16-30
ZONED: RC-DEO-RURAL CONSERVATION HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING

TIMMONS GROUP

3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

DESIGN BY: GAH
DRAWN BY: GAH
CHECKED BY: RHV
DATE: NOVEMBER, 2019
SCALE: AS SHOWN
W.O. NO.: 14-62

PROFESSIONAL CERTIFICATE
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. 16193 EXPIRATION DATE: 06-27-2020

1 SHEET OF 10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

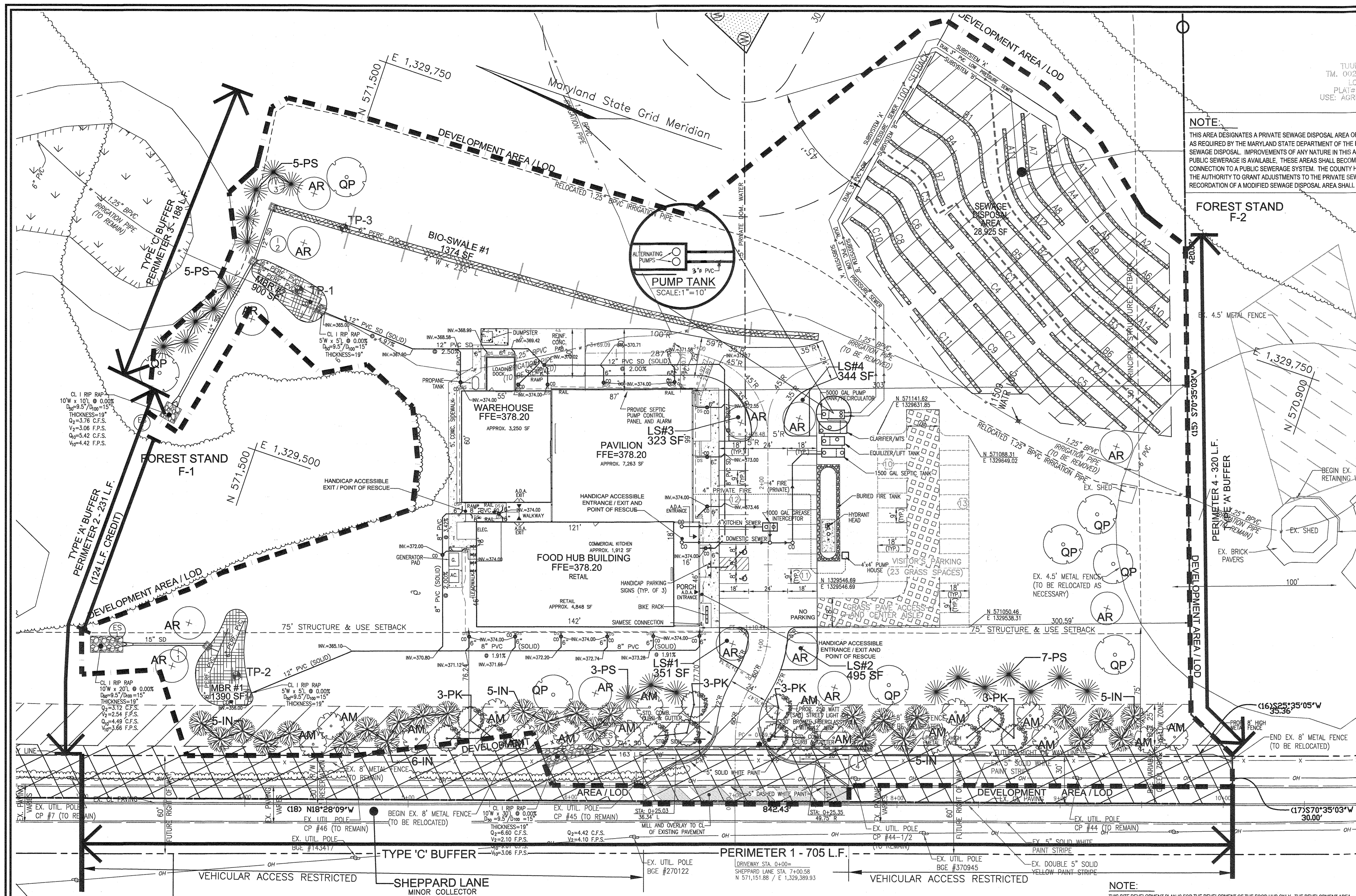
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 12/20/19

CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 2/27/2020

DIRECTOR
DATE: 2-27-2020

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

ROBERT H. VOGEL, PE
COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT
DATE: 2/24/2020



LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING CURB AND GUTTER
- PROPOSED EDGE OF PAVING
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LIMIT OF EXISTING WETLANDS
- PROPOSED 100 YEAR DIRM FLOODPLAIN
- EX. 25' BGE YELLOW ZONE
- EX. 20' BGE GREEN ZONE
- SOILS BOUNDARY
- EXISTING TREELINE
- PROPOSED TREELINE
- PROPOSED CONCRETE/SIDEWALK
- PROPOSED REINFORCED CONCRETE SERVICE PAD
- PROPOSED PRIVATE SEPTIC BASINMENT
- PROPOSED TREES
- PROPOSED PRIVATE WELL
- 4" PRIVATE PRESSURE SEWER
- PROPOSED 6" PRIVATE WATER
- PROPOSED STORM DRAIN/INLET UNDERDRAIN/ CLEANOUT
- MICRO-BIORETENTION (M-6)
- BIO-SWALE (M-8)
- STREET LIGHT

NOTE:
THIS AREA DESIGNATES A PRIVATE SEWAGE DISPOSAL AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWERAGE IS AVAILABLE. THESE AREAS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE DISPOSAL AREA. RECORDED OF A MODIFIED SEWAGE DISPOSAL AREA SHALL NOT BE NECESSARY.

LANDSCAPE SCHEDULE

SYMBOL	KEY	QUAN.	BOTANICAL NAME	SIZE	REMARKS
QP	8	QUERCUS PHellos	WILLOW OAK	2.5"-3" CAL.	B & B
AR	13	ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	2.5"-3" CAL.	B & B
AM	16	ACER GINNALA	AMUR MAPLE	2.5"-3" CAL.	B & B
PS	20	PINUS STROBUS	EASTERN WHITE PINE	6'-8" HT.	B & B
PK	12	PRUNUS SERRULATA 'KWANZAN'	KWANZAN CHERRY	1.5"-2" CAL.	B & B
IN	26	ILEX 'NELLIE R. STEVENS'	NELLIE R. STEVENS HOLLY	5'-6" HT.	B & B

**SCHEDULE B
PARKING LOT INTERNAL LANDSCAPING**

NUMBER OF PARKING SPACES	46
NUMBER OF TREES REQUIRED	3
NUMBER OF TREES PROVIDED	4
SHADE TREES	4
OTHER TREES (2:1 SUBSTITUTION)	-

OWNER/DEVELOPER:
I GRATIA PLENA, LLC
11140 HOMECOM ROAD
ELLICOTT CITY, MD 21042
PHONE: 443-677-4612

NO.	REVISION	DATE

**SITE DEVELOPMENT PLAN
LAYOUT AND LANDSCAPE PLAN
CUNNINGHAM PROPERTY -FOOD HUB
4979 SHEPPARD LANE
L.15767/F.426**

TAX MAP: 29 GRID: 13 PARCEL: 25
5TH ELECTION DISTRICT

DPZ ZONING: HO-10-03E/ECP-16-030
RECORDED: RC-DEO-RURAL CONSERVATION
HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
TIMMONS GROUP

3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410-461.7666 F: 410-461.8961 www.timmons.com

DESIGN BY: GAH
DRAWN BY: GAH
CHECKED BY: RHY
DATE: NOVEMBER, 2019
SCALE: AS SHOWN
W.O. NO.: 14-62

PROFESSIONAL CERTIFICATE
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. 16143 EXPIRATION DATE: 06-27-2020

ROBERT H. VOGEL, PE No.16193

GENERAL NOTES:

- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. THE REQUIRED PARKING AND PERIMETER LANDSCAPING WILL BE BONDED FOR THIS SUBMISSION.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING WILL BE PAID AS PART OF THE DEVELOPER'S AGREEMENT FOR THIS SITE DEVELOPMENT PLAN IN THE AMOUNT OF \$17,100 FOR THE REQUIRED 34 SHADE TREES (810,200) AND 46 EVERGREEN TREES (86,900). THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION OF THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WALKWAY PERMITS, OR BUILDING AND GRADING PERMITS.
- THERE ARE NO BURIAL GROUNDS, CEMETERIES, OR HISTORIC STRUCTURES LOCATED ON THIS PROPERTY.
- NO LANDSCAPING TO BE INSTALLED WITHIN ANY PUBLIC EASEMENT FOR WATER, SEWER, OR STORMDRAIN.
- ANY EXISTING STREET TREES DAMAGED OR DESTROYED DURING CONSTRUCTION WILL BE REPAIRED BY THE CONTRACTOR.
- LANDSCAPING IS NOT PERMITTED WITHIN 7.5' ON EACH SIDE OF THE FIRE DEPARTMENT CONNECTION, PROVIDE A CLEAR, UNOBSTRUCTED ACCESS PATH TO THE FIRE DEPARTMENT CONNECTION, NFPA-1 131.4.
- DESIGN MANUAL SECTION 16.125 (B)(3)-(4), PROTECTION OF SCENIC ROADS, IS MET BY A TYPE 'C' LANDSCAPE EDGE TO BUFFER VIEWS OF THE PROPOSED PARKING AND BUILDING. THE PROPOSED PARKING LOTS ARE ORIENTED PERPENDICULAR TO SHEPPARD LANE AND GRASS PAVERS ARE USED FOR A PORTION OF THE PARKING TO REDUCE VISUAL IMPACT.

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: *[Signature]* 2/27/2020

APPROVED: *[Signature]* 2/27/2020

APPROVED: *[Signature]* 2/27/2020

LANDSCAPE SCHEDULE NOTE:

- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HRD PLANTING SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
- FINAL LOCATION OF PLANT MATERIAL, MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
- CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.

NOTE:
THIS SITE DEVELOPMENT PLAN IS FOR THE DEVELOPMENT OF THE FOOD HUB ONLY. THE DEVELOPMENT AREA FOR THIS PLAN IS ALSO REFERRED TO AS THE LIMIT OF DISTURBANCE AND REPRESENTS A 5.16 AC. PORTION OF THE ENTIRE 162.07 AC. GRATA PLENA, LLC. PARCEL. DEVELOPMENT FOR OTHER PORTIONS OF THIS PROPERTY ARE NOT INCLUDED IN THIS PLAN. FOR ENTIRE LIMITS OF PROPERTY BOUNDARY SEE COVER SHEET, 1 OF 10.

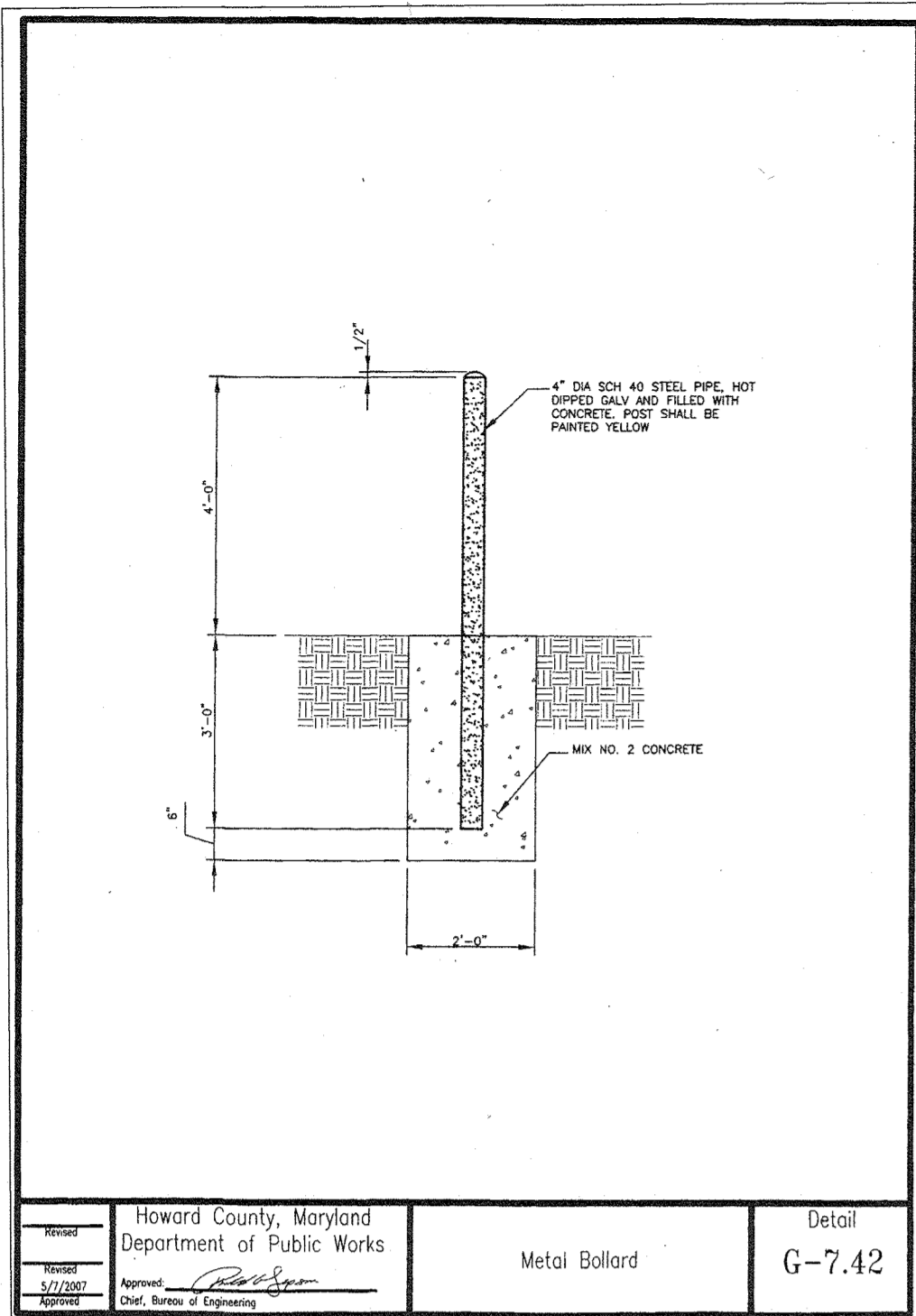
**SCHEDULE 'A'
PERIMETER LANDSCAPE EDGE**

CATEGORY	ADJACENT TO PERIMETER AND ROADWAYS				TOTAL
	1	2	3	4	
PERIMETER/FRONTAGE DESIGNATION	C	A	C	A	
LANDSCAPE TYPE	705 LF	231 LF	189 LF	320 LF	
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER					
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	No	Yes	No	No	
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	No	No	No	No	
NUMBER OF PLANTS REQUIRED	1:40 18	1:60 2	1:40 5	1:60 6	31
SHADE TREES	1:20 36	1:20 10	-	-	46
EVERGREEN TREES	-	-	-	-	-
NUMBER OF PLANTS PROVIDED	4	2	5	6	17
SHADE TREES	36	-	10	-	46
EX SHADE TREES	-	-	-	-	28
OTHER TREES (2:1 SUBSTITUTION)	28	-	-	-	28
SHRUBS (10:1 SUBSTITUTION)	-	-	-	-	-
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	-	-	-	-	-

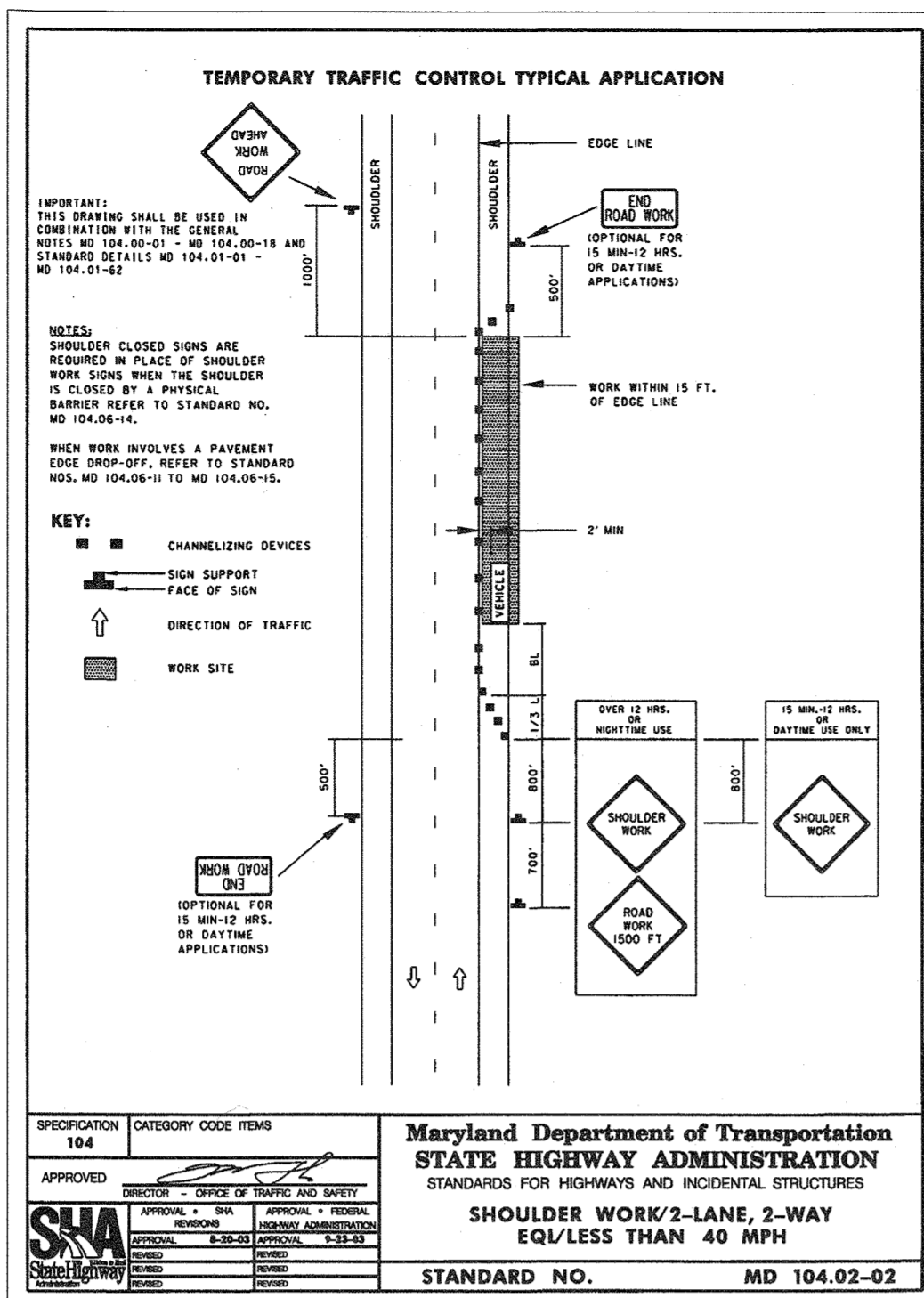
* LINEAR FOOT OF PERIMETER AFTER CREDIT REDUCTION
** DUE TO SCENIC ROAD BUFFER REQUIREMENTS A TYPE 'C' BUFFER IS BEING USED.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

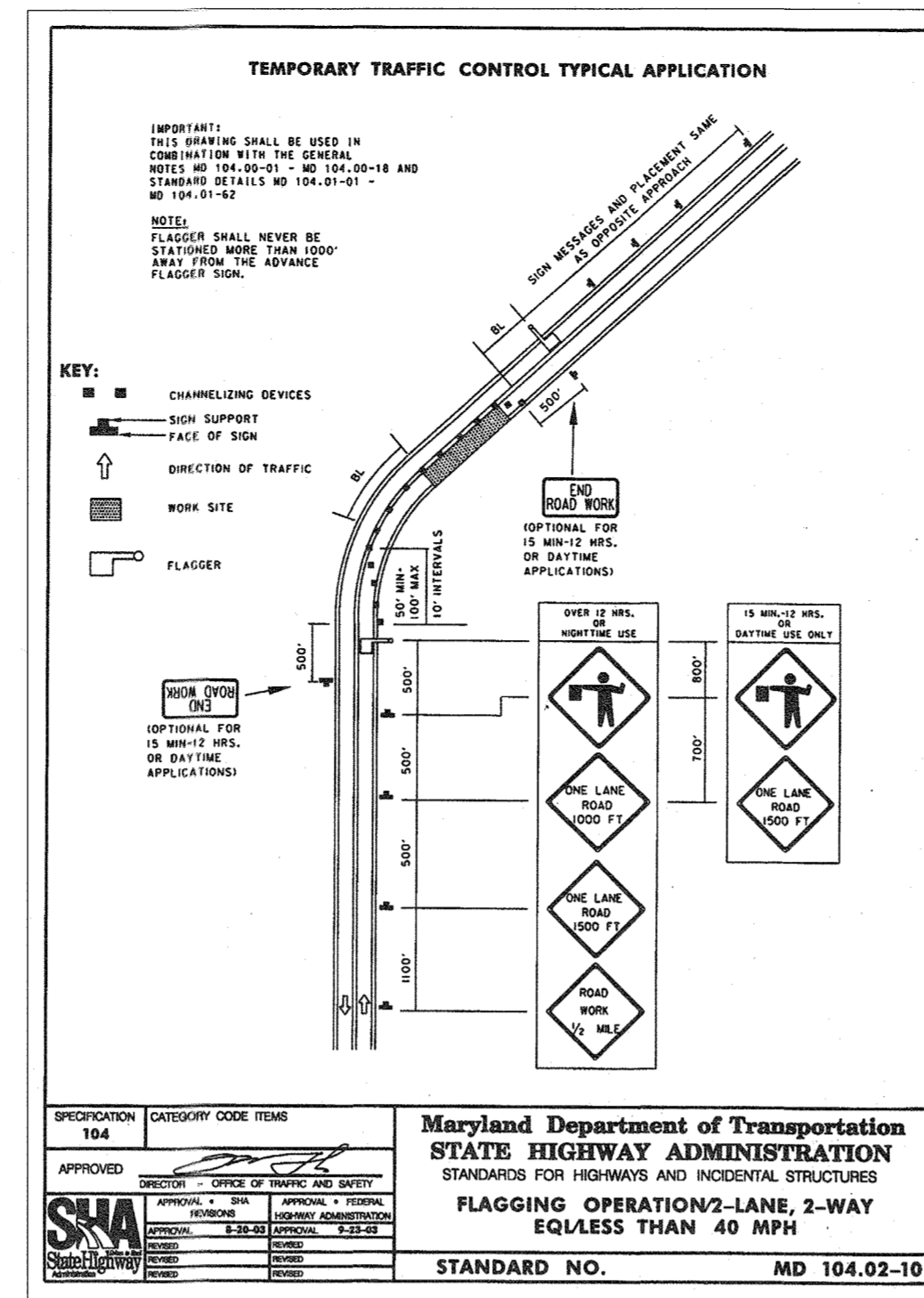
CHIEF, DEVELOPMENT ENGINEERING DIVISION *[Signature]* 12/22/19
CHIEF, DIVISION OF LAND DEVELOPMENT *[Signature]* 2/27/2020
DIRECTOR *[Signature]* 2-27-2020



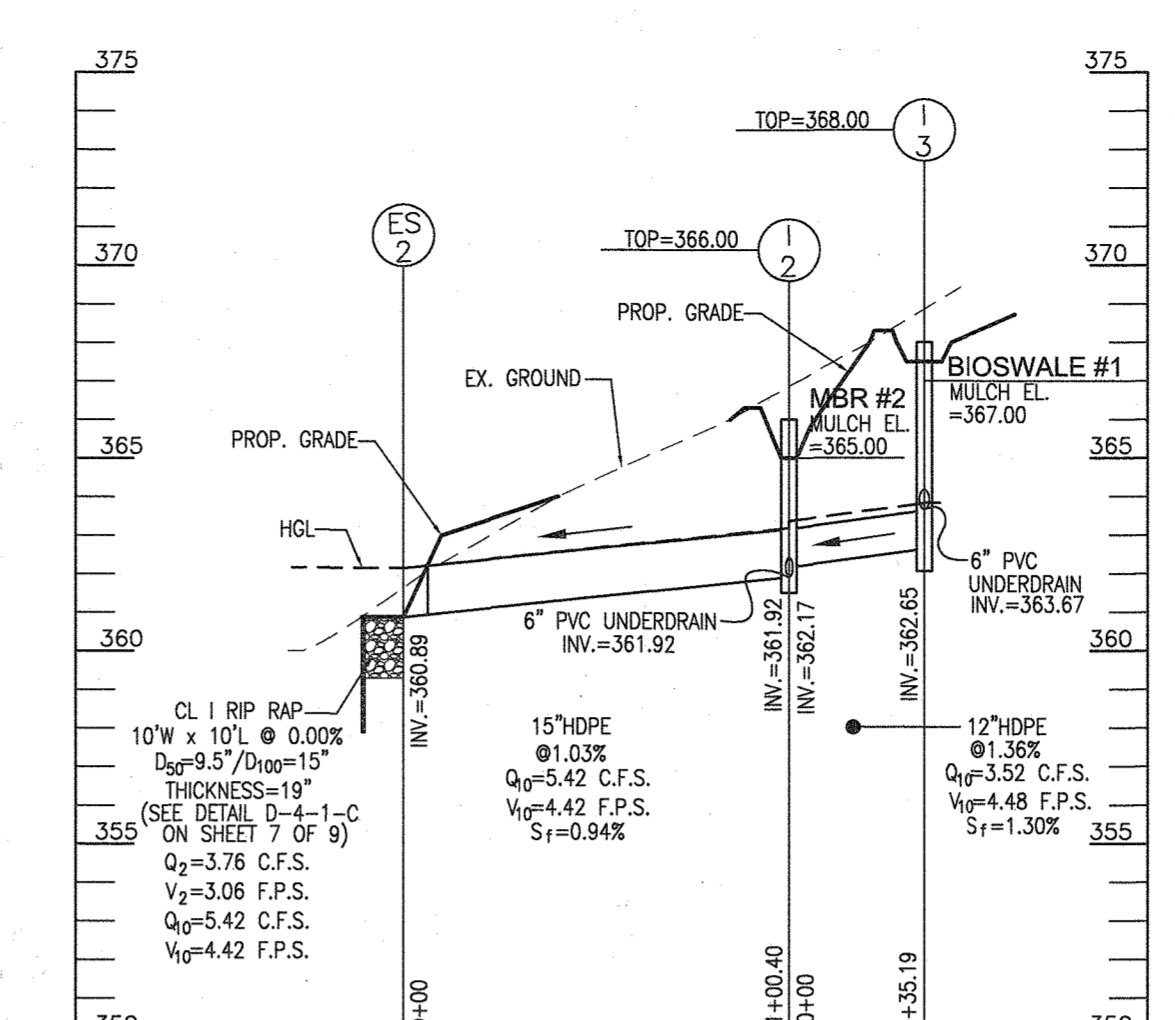
Howard County, Maryland
Department of Public Works
Metal Bollard
Detail
G-7.42



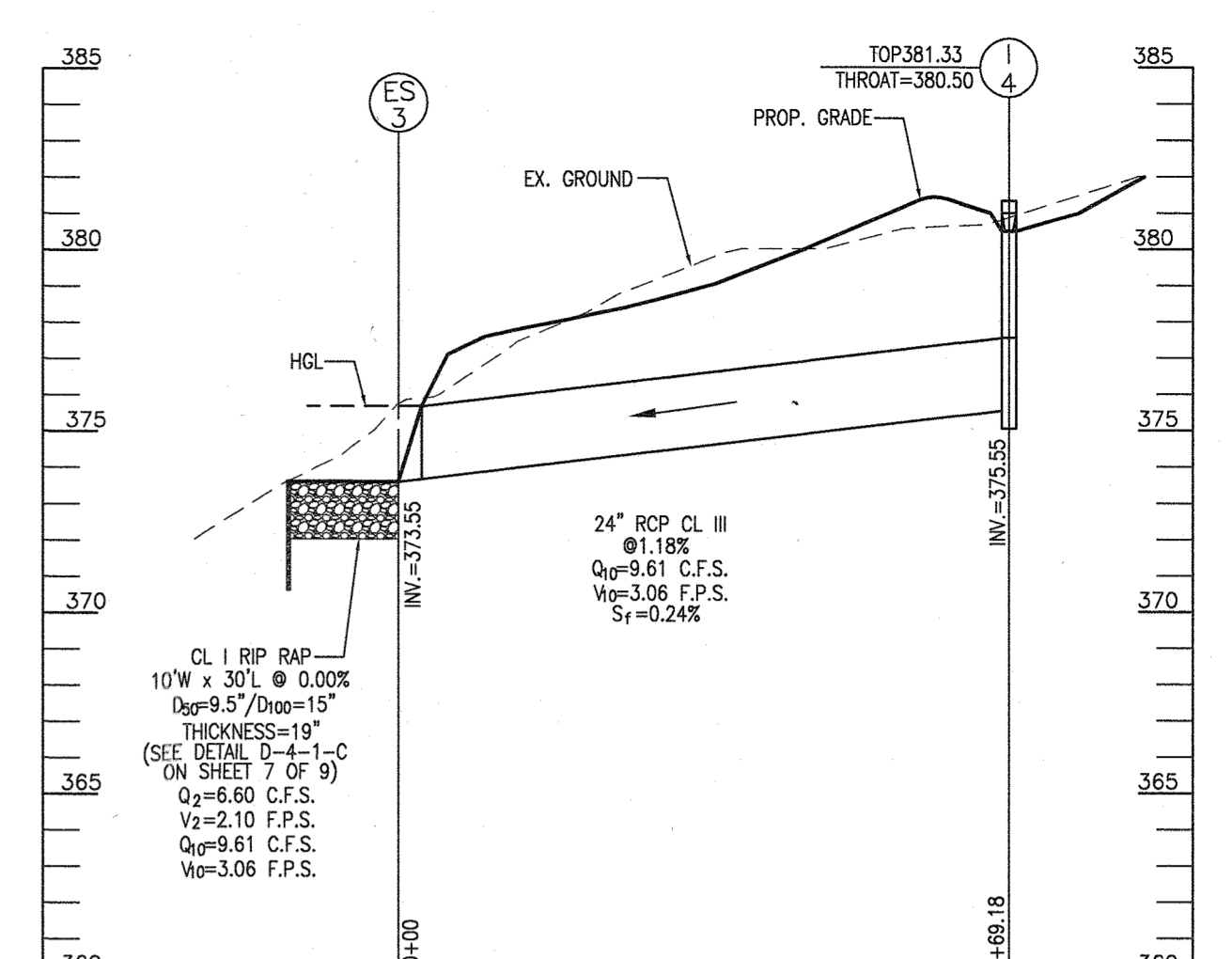
Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
SHOULDER WORK/2-LANE, 2-WAY
EQL/LESS THAN 40 MPH
STANDARD NO. MD 104.02-02



Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
FLAGGING OPERATION/2-LANE, 2-WAY
EQL/LESS THAN 40 MPH
STANDARD NO. MD 104.02-10



STORM DRAIN PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

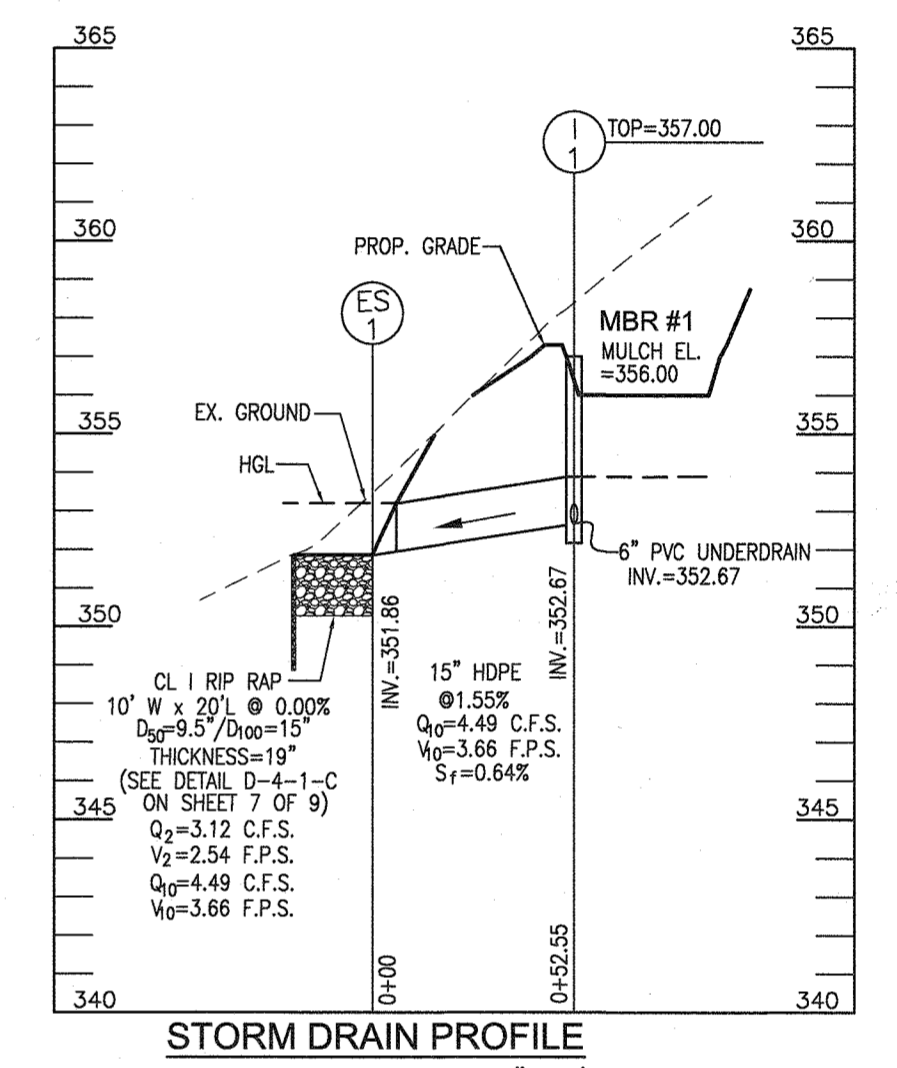


STORM DRAIN PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

SIZE	TYPE	LENGTH
12"	HDPE	35 LF
15"	HDPE	154 LF
24"	RCP CL III	163 LF
6"	PVC (SOLID)	307 LF
6"	PVC (PERFORATED)	613 LF
8"	PVC (SOLID)	372 LF
12"	PVC (SOLID)	359 LF

NO.	TYPE	LOCATION	TOP ELEV.	INV. IN	INV. OUT	COMMENTS
I-1	TYPE 'S' INLET	N 571489.05 E 1329377.15	357.00	352.67	352.67	HO. CO. STD D-4.22
I-2	TYPE 'S' INLET	N 571537.81 E 1329608.73	366.00	362.17	361.92	HO. CO. STD D-4.22
I-3	TYPE 'S' INLET	N 571537.01 E 1329643.91	368.00	363.67	362.65	HO. CO. STD D-4.22
I-4	TYPE 'D' PRECAST INLET	N 571083.64 E 1329441.36	381.33	-	375.55	HO. CO. STD D-4.10
ES-1	15" HDPE END SECTION	N 571538.64 E 1329361.59	-	351.86	-	ADS "NYLOPLAST" OR EQUAL
ES-2	15" HDPE END SECTION	N 571555.49 E 1329509.91	-	360.89	-	ADS "NYLOPLAST" OR EQUAL
ES-3	24" HDPE END SECTION	N 571243.75 E 1329386.70	-	373.55	-	ADS "NYLOPLAST" OR EQUAL

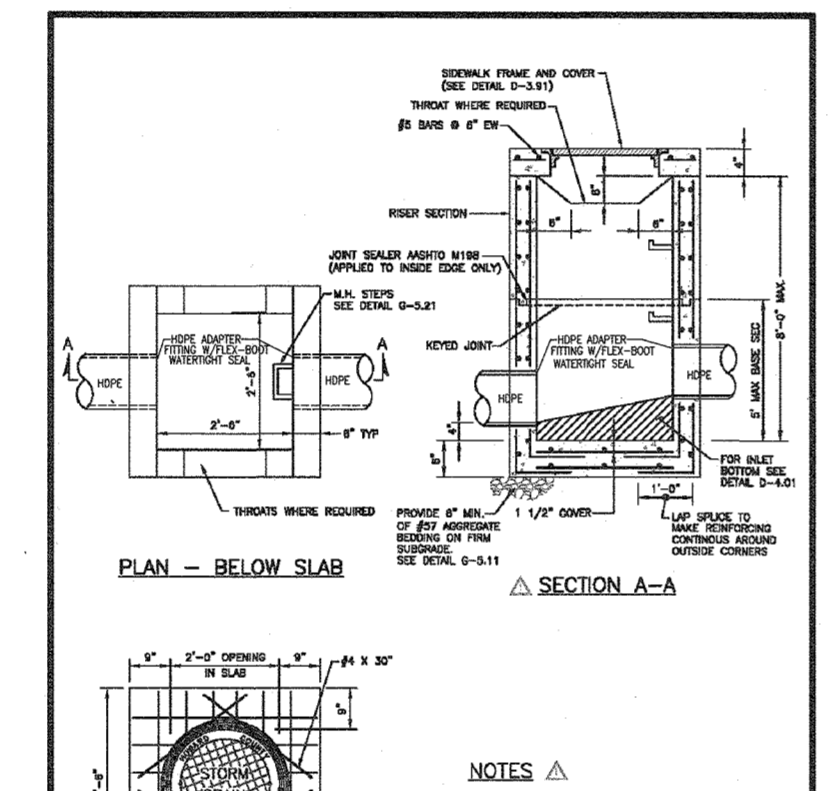
- NOTES:
- TOP ELEVATIONS/LOCATION ARE AT CENTER OF GRATE FOR "S" INLETS AND AT CENTER TOP OF SLAB FOR "D" INLETS. LOCATION AND INVERT FOR END SECTIONS IS AT END (AT RIP-RAP). TOP ELEVATIONS DO NOT APPLY.
 - ALL TOP SLABS AND GRATES SHALL BE SET LEVEL.
 - SEE ARCHITECTURAL PLANS FOR ROOF DRAIN DETAILS.
 - THERE ARE A TOTAL OF 15 CLEANOUTS FOR BIO-RETENTION AND ROOF DRAINS.



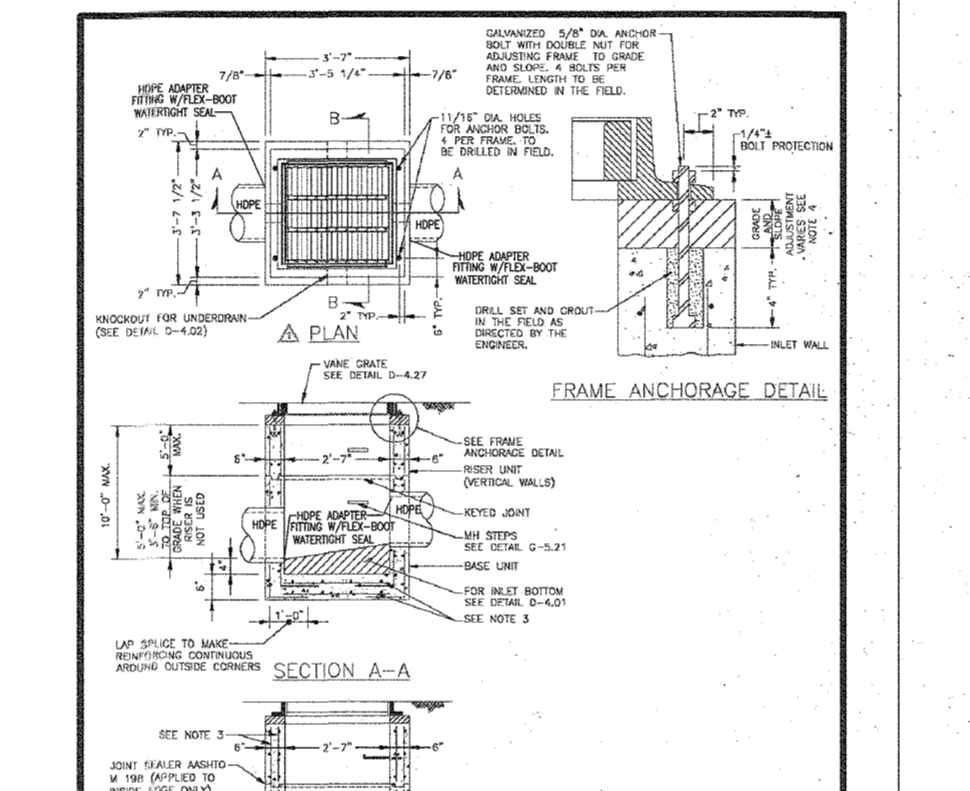
STORM DRAIN PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 TO 4.5	4.5 TO 7	7 TO 10	10 TO 15	15 TO 20	20 TO 30	30 TO 45	45 TO 75	75 TO 100
P-1	RESIDENTIAL AND NON-RESIDENTIAL PAVING DRIVE	18.0 MA PG 64-224, LEVEL 1 (SEAL)	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
P-2	RESIDENTIAL AND NON-RESIDENTIAL PAVING DRIVE	18.0 MA PG 64-224, LEVEL 1 (SEAL)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
P-3	RESIDENTIAL AND NON-RESIDENTIAL PAVING DRIVE	18.0 MA PG 64-224, LEVEL 1 (SEAL)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
P-4	RESIDENTIAL AND NON-RESIDENTIAL PAVING DRIVE	18.0 MA PG 64-224, LEVEL 1 (SEAL)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0

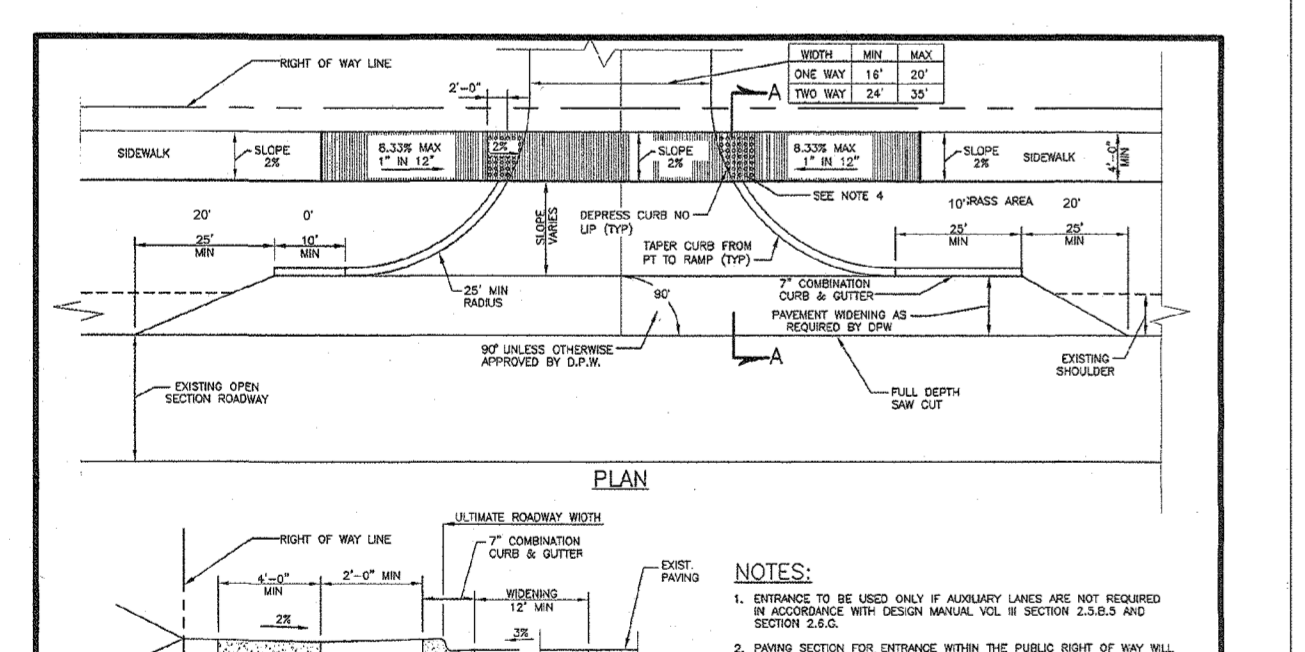
Howard County, Maryland
Department of Public Works
Paving Sections
P-1 to P-4
Detail
R-2.01



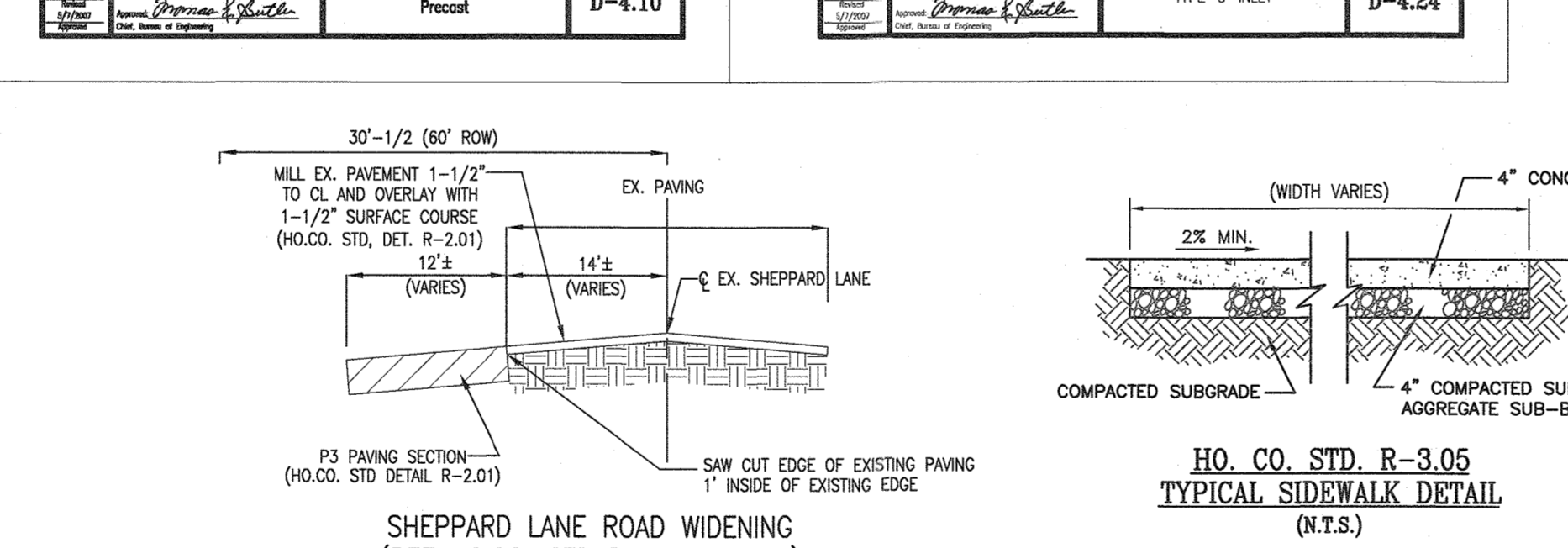
Howard County, Maryland
Department of Public Works
Type 'D' Precast
Detail
D-4.10



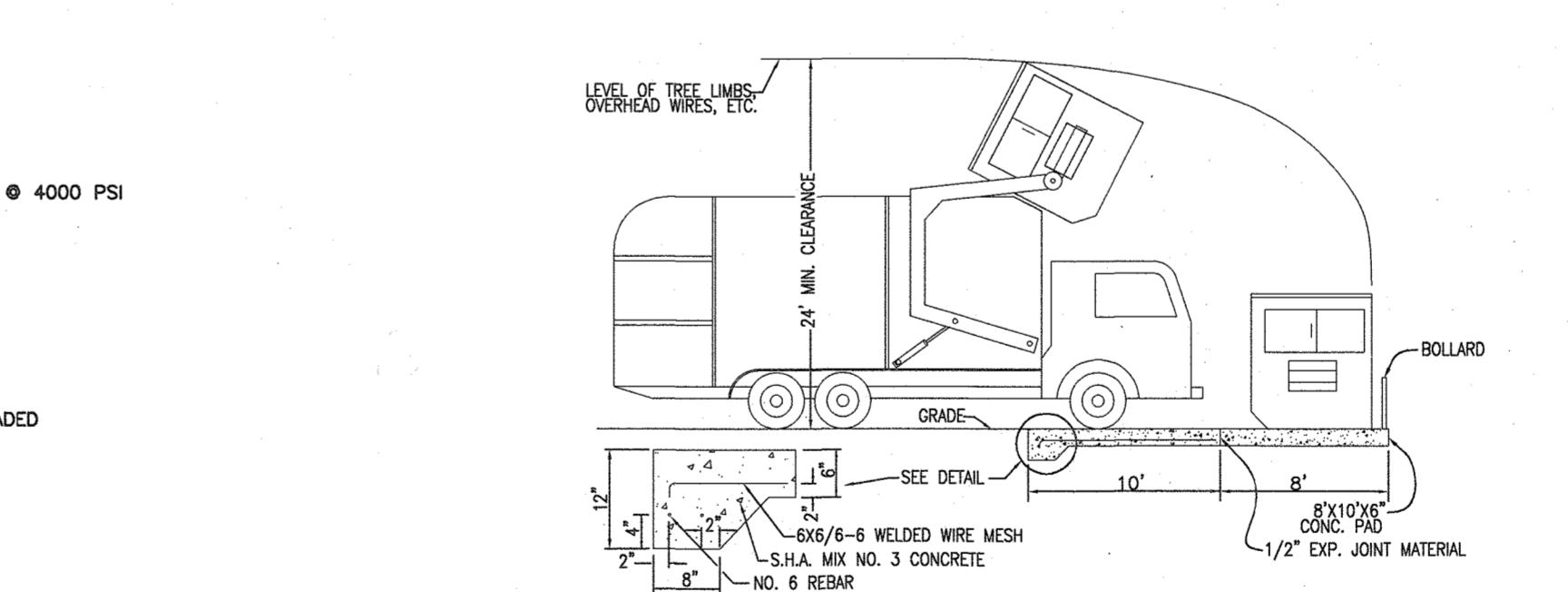
Howard County, Maryland
Department of Public Works
Type 'S' Inlet
Detail
D-4.24



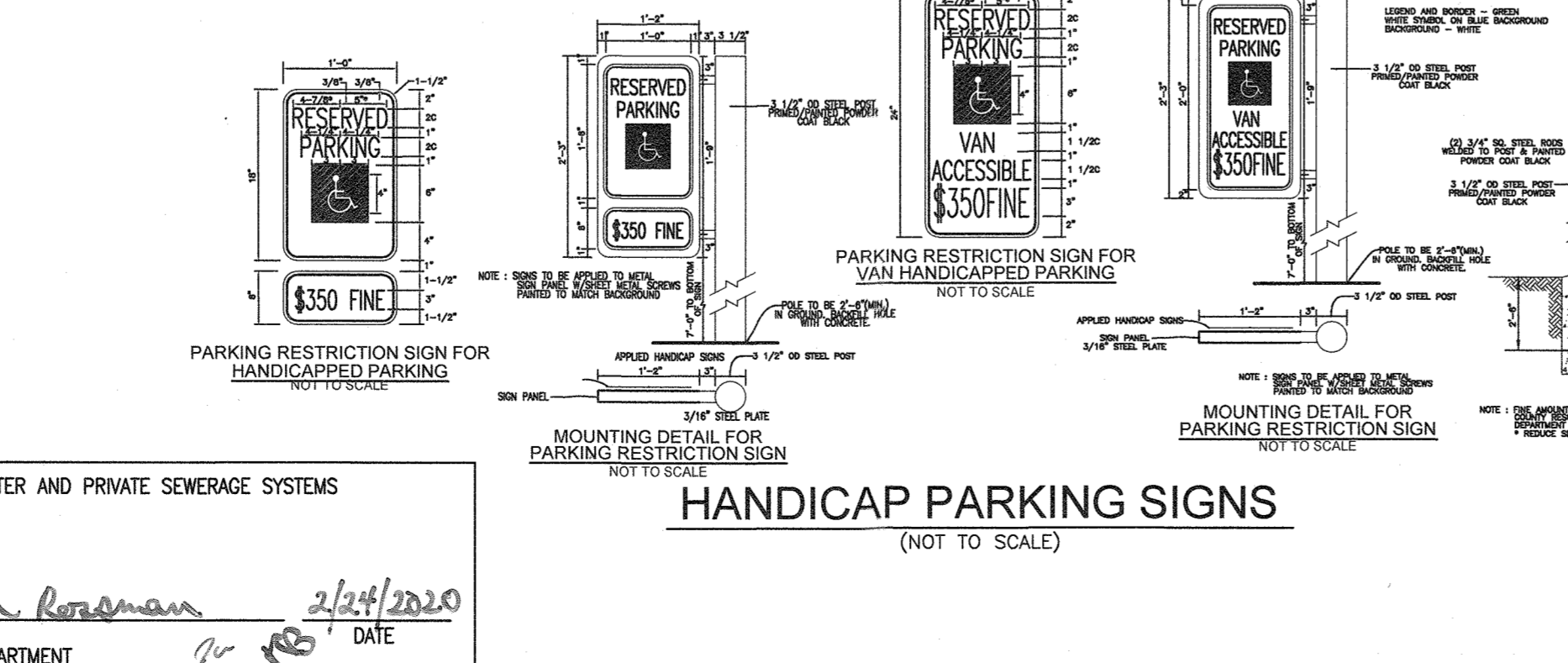
Howard County, Maryland
Department of Public Works
Commercial-Industrial-Apartment Entrance on Open Section Roadway
R-6.10 (MODIFIED)
Detail



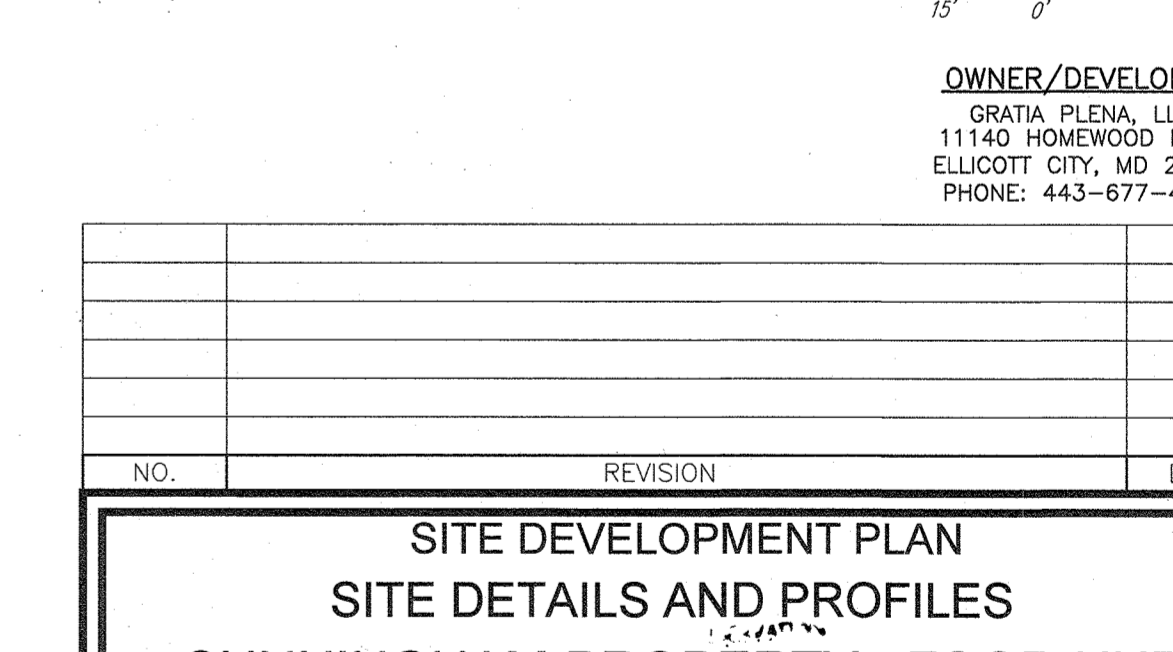
HO. CO. STD. R-3.05
TYPICAL SIDEWALK DETAIL (N.T.S.)



SOLID WASTE SERVICE PAD
HOWARD COUNTY STD. R 8.03
NOT TO SCALE



HANDICAP PARKING SIGNS
(NOT TO SCALE)



PRECAST CONCRETE WHEEL STOP DETAILS
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 12/22/19
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 2/27/2020
DIRECTOR
DATE: 2/27/2020

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS
COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT
DATE: 2/24/2020

SITE DEVELOPMENT PLAN
SITE DETAILS AND PROFILES
CUNNINGHAM PROPERTY - FOOD HUB
4979 SHEPPARD LANE
L15767/F.426

TAX MAP: 29 GRID: 13 PARCEL: 25
5TH ELECTION DISTRICT

DPZ REFERENCE: HO-10-03E/EC-16-030
ZONED: RC-DEO-RURAL CONSERVATION
HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410-461-7666 F: 410-461-8961 www.timmons.com

PROFESSIONAL CERTIFICATE
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. 16143 EXPIRATION DATE: 09-27-2020

DESIGN BY: GAH
DRAWN BY: GAH
CHECKED BY: RHV
DATE: NOVEMBER, 2019
SCALE: AS SHOWN
W.O. NO.: 14-82

3 SHEET OF 10

WASTEWATER DISCHARGE TABULATION

- FOOD HUB SEPTIC DISCHARGE
 FOOD HUB: 7750 SF @ (0.4 GAL/SF) = 3,101 GPD
 WAREHOUSE: (3250 SF) @ (0.03 GAL/SF) = 98 GPD
 TOTAL DESIGN FLOW = 3,199 GPD *(SEE NOTE)

- OTHER SEPTIC DISCHARGE ON SAME PROPERTY
 BEDS AND BREAKFAST: 750 GPD
 TENANT HOUSE: 1,050 GPD
 TOTAL OF ALL USES ON PROPERTY = 4,999 GPD *(SEE NOTE)

*NOTE: AT SUCH TIME AS THE TOTAL SEPTIC DISCHARGE EXCEEDS 5000 GPD FOR THE PARCEL (TM 29, P. 25) AN MDE GROUNDWATER DISCHARGE PERMIT IS REQUIRED.
 TRENCH LOADING RATE = 1.2 GPD/SF (INITIAL)
 TRENCH DESIGN - INITIAL AND FIRST REPLACEMENT
 3199 GPD/1.2 APPLICATION RATE = 2666 SF
 3.5' DEPTH, 2' WIDTH, SIDEWALL REDUCTION = 0.40
 (2666)(0.40)/2=533
 INITIAL SYSTEM REQUIRED: 533 LF / 536 LF PROVIDED
 FIRST REPLACEMENT SYSTEM REQUIRED: 533 LF / 535 LF PROVIDED
 SECOND REPLACEMENT SYSTEM

3199 GPD/0.80 APPLICATION RATE = 3999 SF
 3' DEPTH, 2' WIDTH, SIDEWALL REDUCTION = 0.44
 (3999)(0.44)/2=880 LF
 SECOND REPLACEMENT SYSTEM REQUIRED: 880 LF / 880 LF PROVIDED

- BAT HOOT SYSTEMS
 : TRASH SEPTIC TANK
 : EO LIFT TANK
 : CLARIFIERS
 : PUMP TANK
 REDUCE TO MIN. 300 mg/l BOD & TSS USE HOOT SYSTEM
 THE INITIAL SYSTEM IS MADE UP OF 2 SUBSYSTEMS TO MAINTAIN UNIFORM DISTRIBUTION.
 -SUBSYSTEM 'A' UTILIZES 232 LF OF TRENCHES AND A CENTER MANIFOLD SYSTEM
 -SUBSYSTEM 'B' UTILIZES 304 LF OF TRENCHES AND A CENTER MANIFOLD SYSTEM
 TOTAL TRENCH LENGTH PROVIDED: 536 LF OF TRENCH
 2" LATERALS W/ 5/16" HOLES: SPACING PER TABLE 'D' (THIS SHEET)

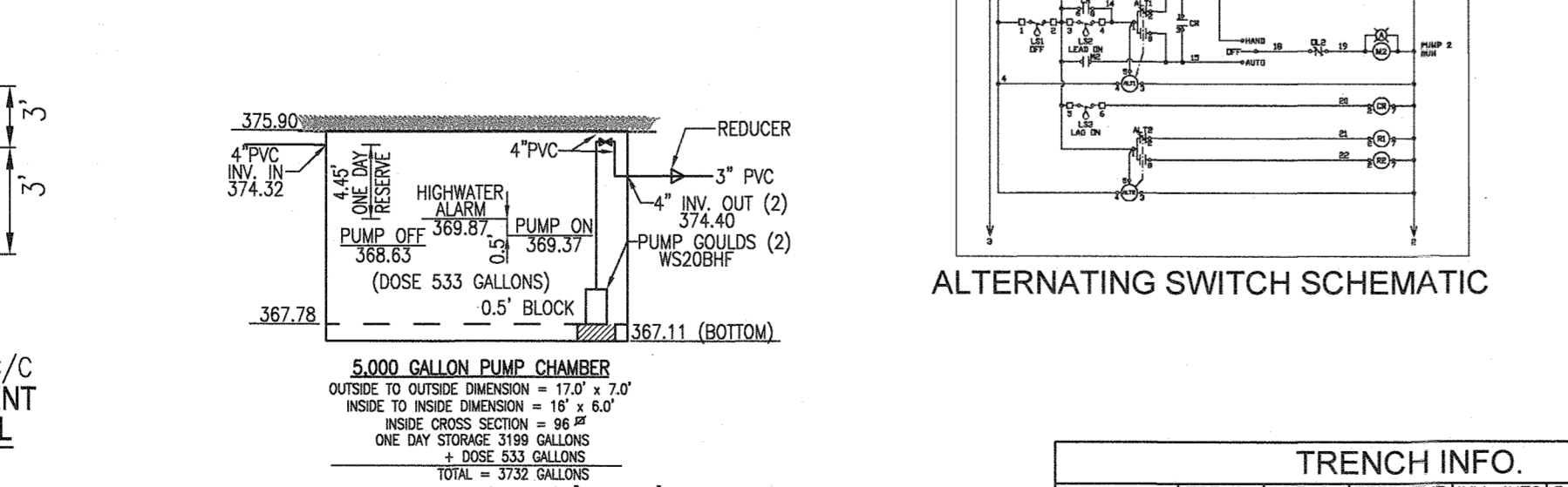
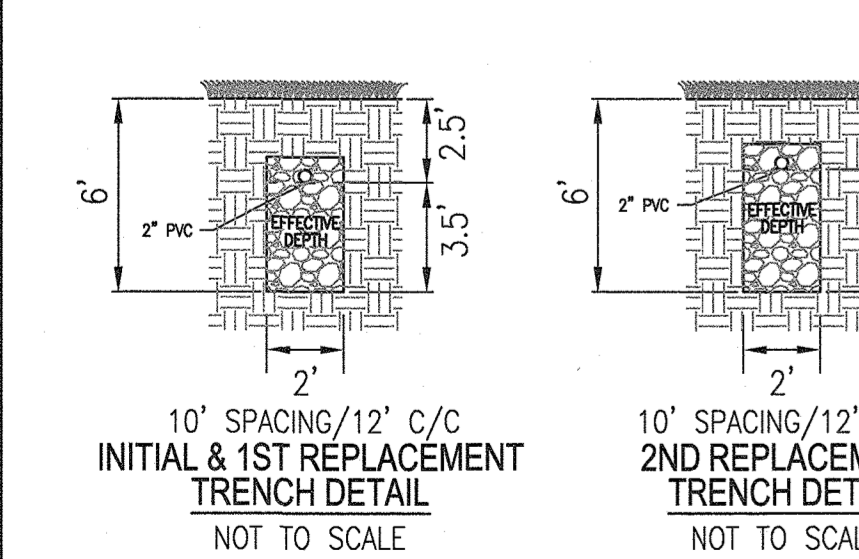
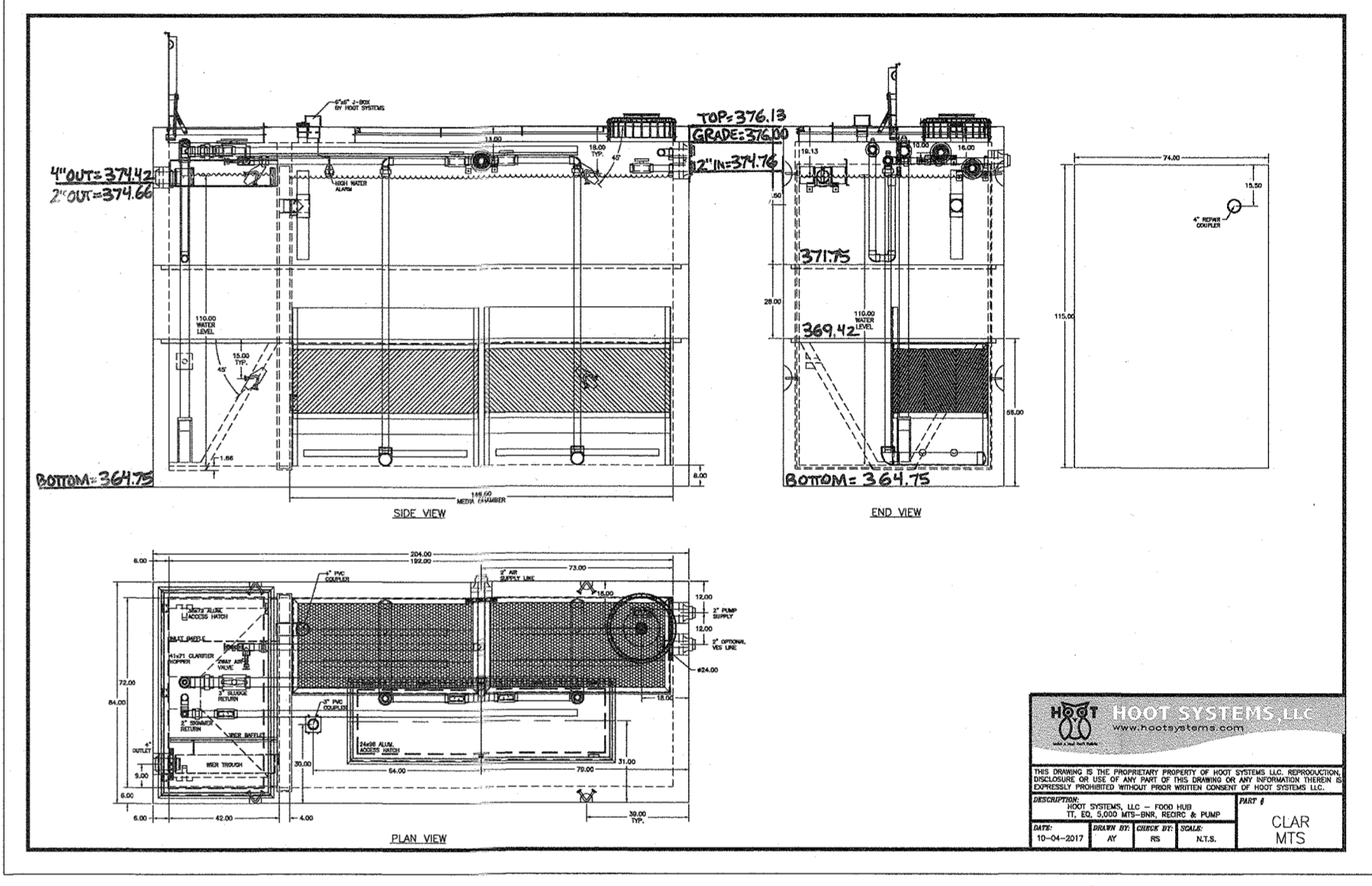
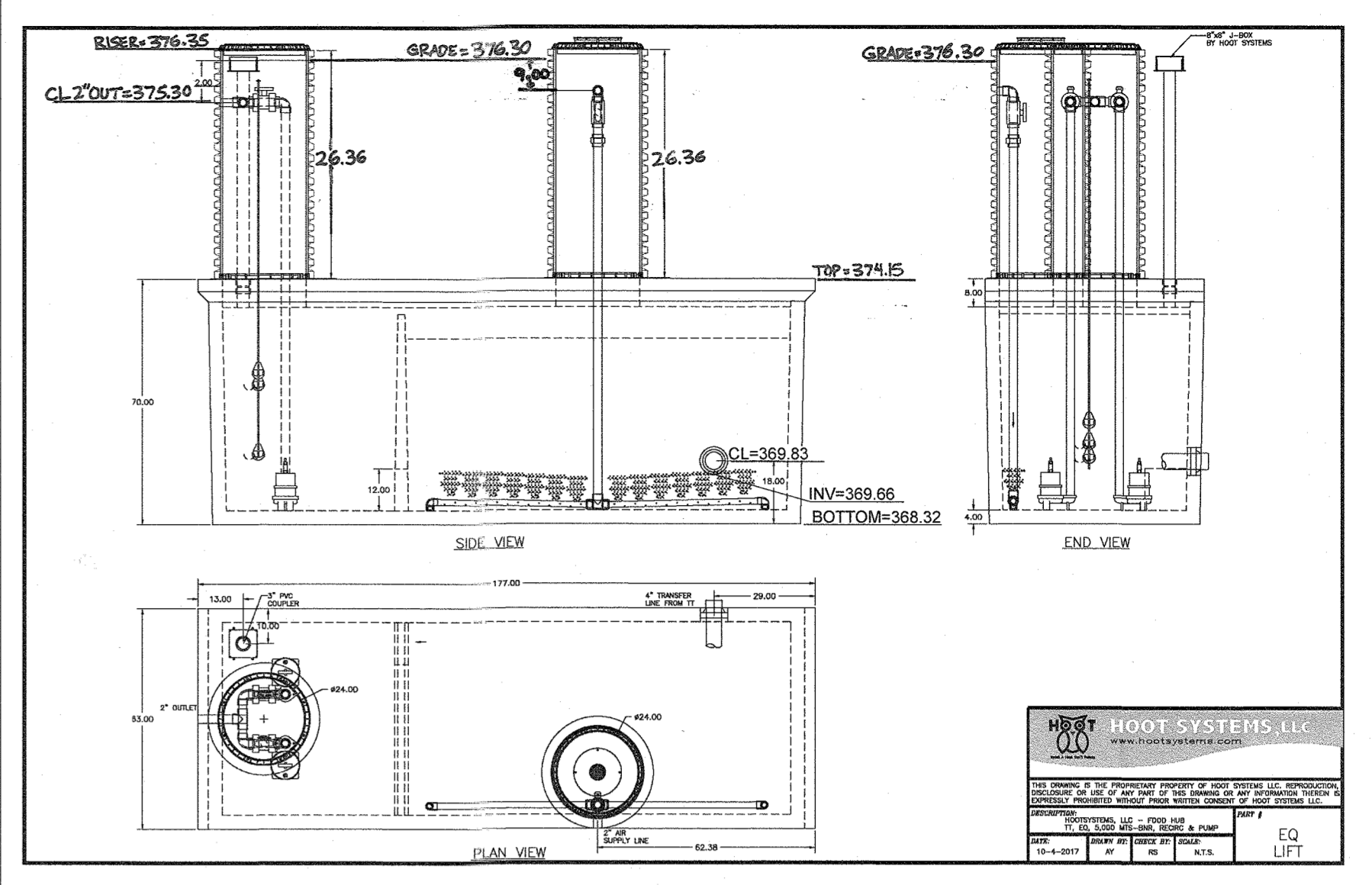
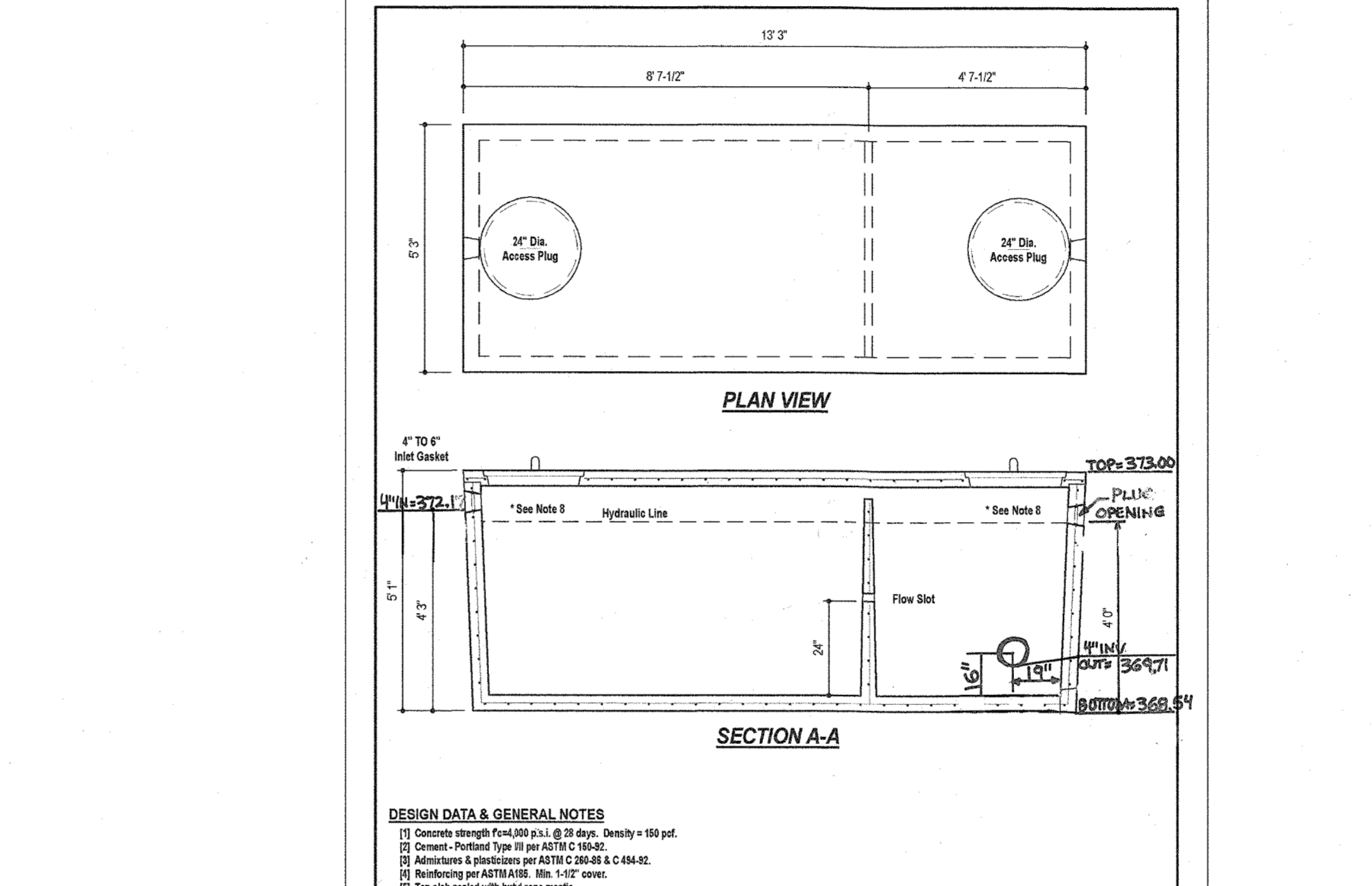
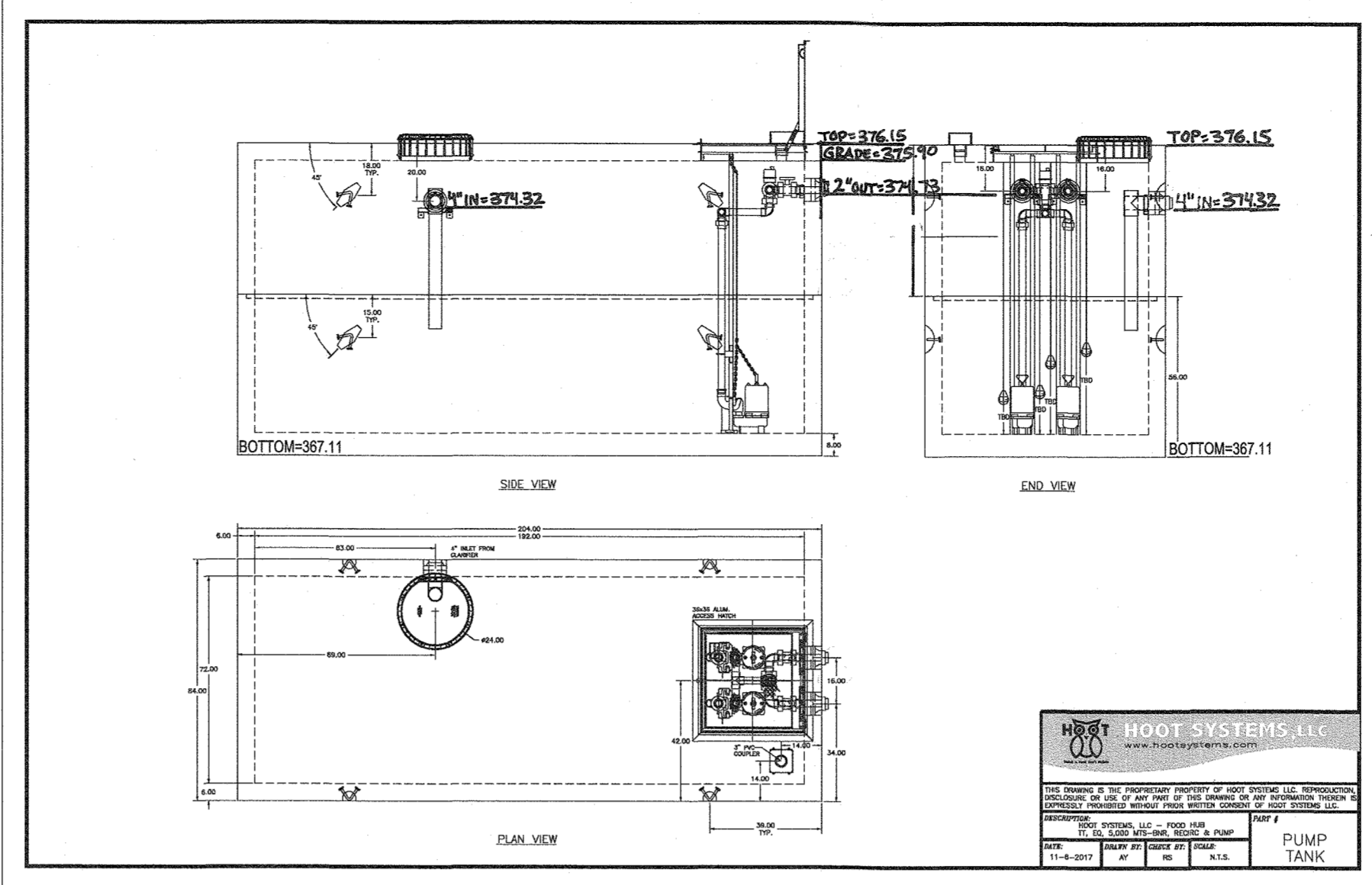
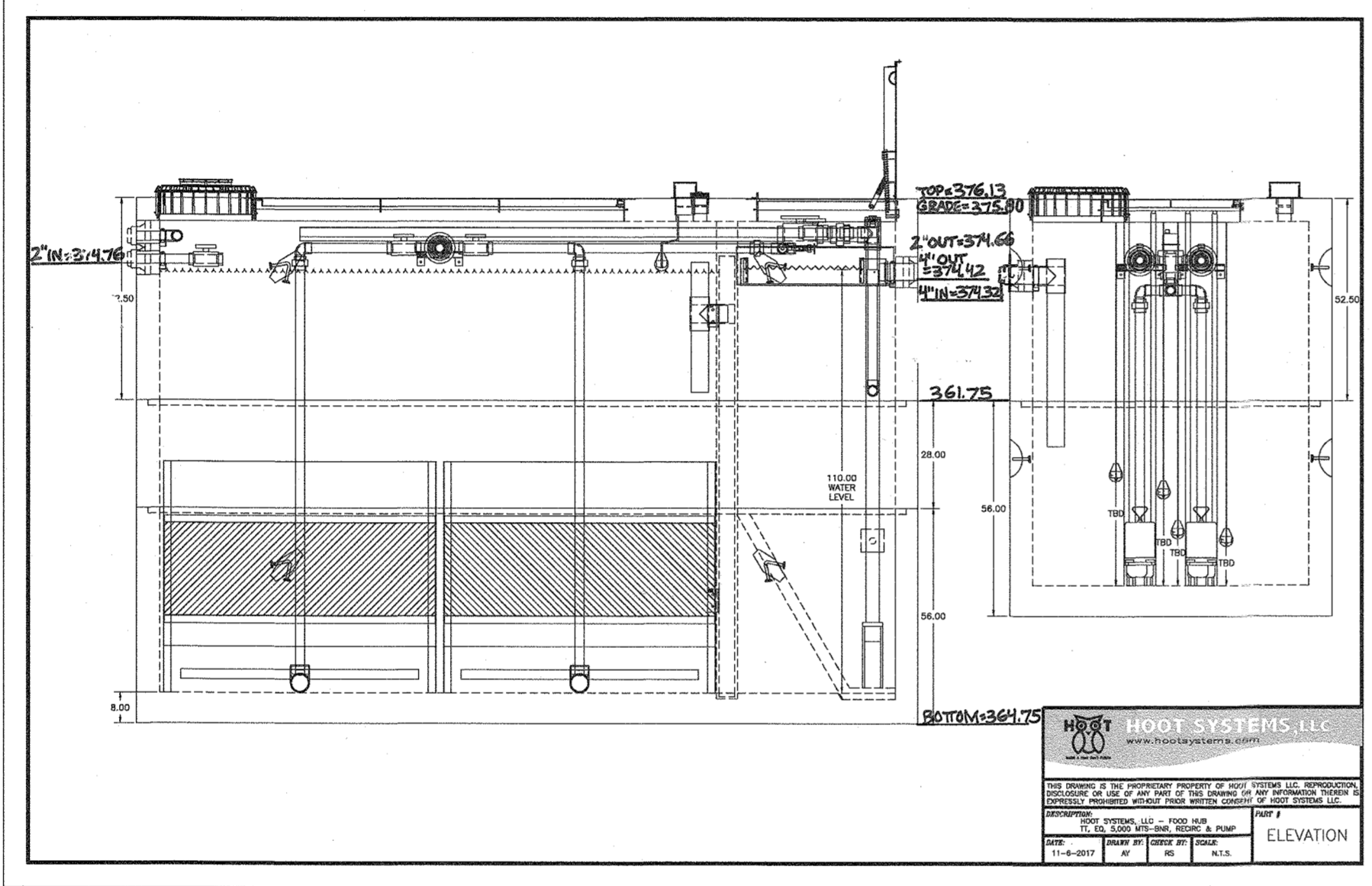
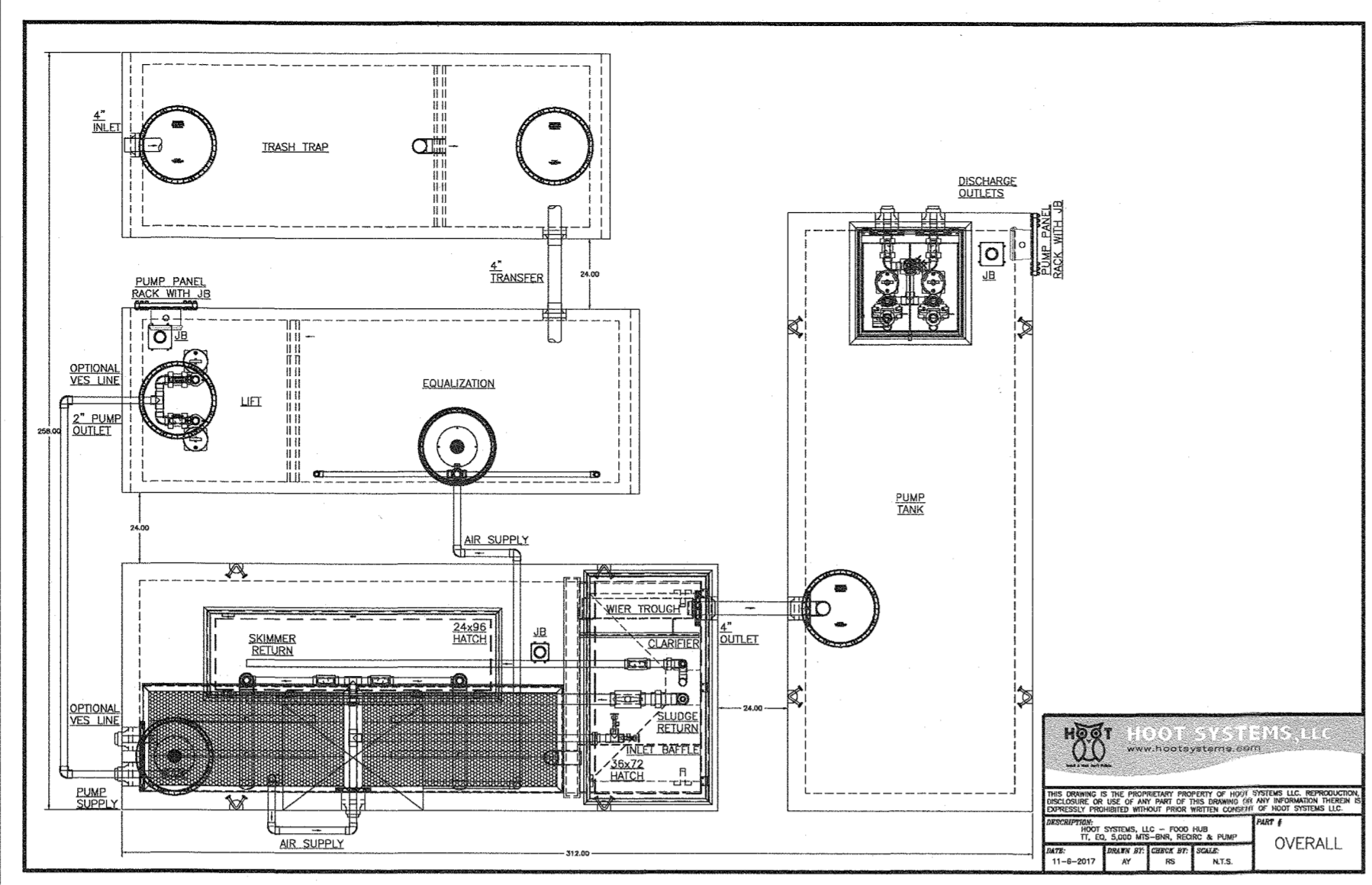
INITIAL SYSTEM
 SUBSYSTEM A : 80.5 GPM > 171.3 GPM
 SUBSYSTEM B : 90.8 GPM > 171.3 GPM

- MINIMUM DOSE (SYSTEM 'A')
 5 x LATERAL VOLUME + MANIFOLD VOLUME + FORCE MAIN
 2" LATERAL VOLUME=230 LF x 17.4/100=5=200 GALLONS
 3" FORCE MAIN VOLUME=(405 LF x 40.9/100)=166 GALLONS
 3" MANIFOLD VOLUME=(12 LF x 40.9/100)=5 GALLONS
 MINIMUM DOSE = 371 GALLONS
 1/6 DESIGN FLOW=533 GALLONS (USED)

- MINIMUM DOSE (SYSTEM 'B')
 5 x LATERAL VOLUME + MANIFOLD VOLUME + FORCE MAIN
 2" LATERAL VOLUME=300 LF x 17.4/100=5=261 GALLONS
 3" FORCE MAIN VOLUME=(415 LF x 40.9/100)=170 GALLONS
 3" MANIFOLD VOLUME=(12 LF x 40.9/100)=5 GALLONS
 MINIMUM DOSE = 436 GALLONS
 1/6 DESIGN FLOW=533 GALLONS (USED)

- CALCULATE TDH
 1. FRICTION LOSS FOR 3" PVC @ 80.5 GPM = 1.38/100 FT.
 CALCULATE LOSS THROUGH FORCE MAIN + MANIFOLD
 (1.38/100)(417) = 5.75'
 2. FITTINGS
 DISCONNECT 1 x 3.0 = 3.0
 45° 10 x 6.0 = 60.0
 GATE VALVES 1 x 2.0 = 2.0
 90° (PUMP CHAMBER) 4 x 10 = 40.0
 105 LF @ 1.38/100 LF = 1.45'
 ASSUME 1.5' FRICTION LOSS IN LATERALS (REF. MDE GUIDELINES)
 TOTAL FRICTION LOSS = 5.75' + 1.45' = 7.20'
 STATIC HEAD: 405.15-369.18 = 35.97'
 TOTAL HEAD: STATIC + FRICTION +DISTAL END
 7.20 + 1.5' + 35.97' + 2.0 = 46.67'

1. FRICTION LOSS FOR 3" PVC @ 90.8 GPM = 1.73/100 FT.
 CALCULATE LOSS THROUGH FORCE MAIN + MANIFOLD
 (1.73/100)(427) = 7.39'
 2. FITTINGS
 DISCONNECT 1 x 3.0 = 3.0
 45° 10 x 6.0 = 60.0
 GATE VALVES 1 x 2.0 = 2.0
 90° (PUMP CHAMBER) 4 x 10 = 40.0
 105 LF @ 1.73/100 LF = 1.82'
 ASSUME 1.5' FRICTION LOSS IN LATERALS (REF. MDE GUIDELINES)
 TOTAL FRICTION LOSS = 7.39' + 1.82' = 9.21'
 STATIC HEAD: 404-369.18 = 34.82'
 TOTAL HEAD: STATIC + FRICTION +DISTAL END
 9.21 + 1.5' + 34.82' + 2.0 = 47.53'



DESIGN DATA & GENERAL NOTES

1) Concrete strength 4000 psi, 6" min. depth, 4" min. width
 2) Concrete cover type III per ASTM C1902
 3) Reinforcing steel per ASTM A618, Min. 1/2" cover
 4) All pipe shall conform to the following:
 5) 1/2" wall, 1/2" min. thickness
 6) 1/2" wall, 1/2" min. thickness
 7) 1/2" wall, 1/2" min. thickness
 8) 1/2" wall, 1/2" min. thickness
 9) 1/2" wall, 1/2" min. thickness
 10) 1/2" wall, 1/2" min. thickness

434 West Road
 Elkridge, Maryland 21025
 Tel: 410.786.6564
 Fax: 410.786.5438

Mayer Bros., Inc.
 www.mayerbros.com

1,500 GALLON TANK (Non-Traffic) 2-Compartment
 Stock Item
 No Scale
 Aug. 11, 2009

WEIGHT = 16,750 lbs.

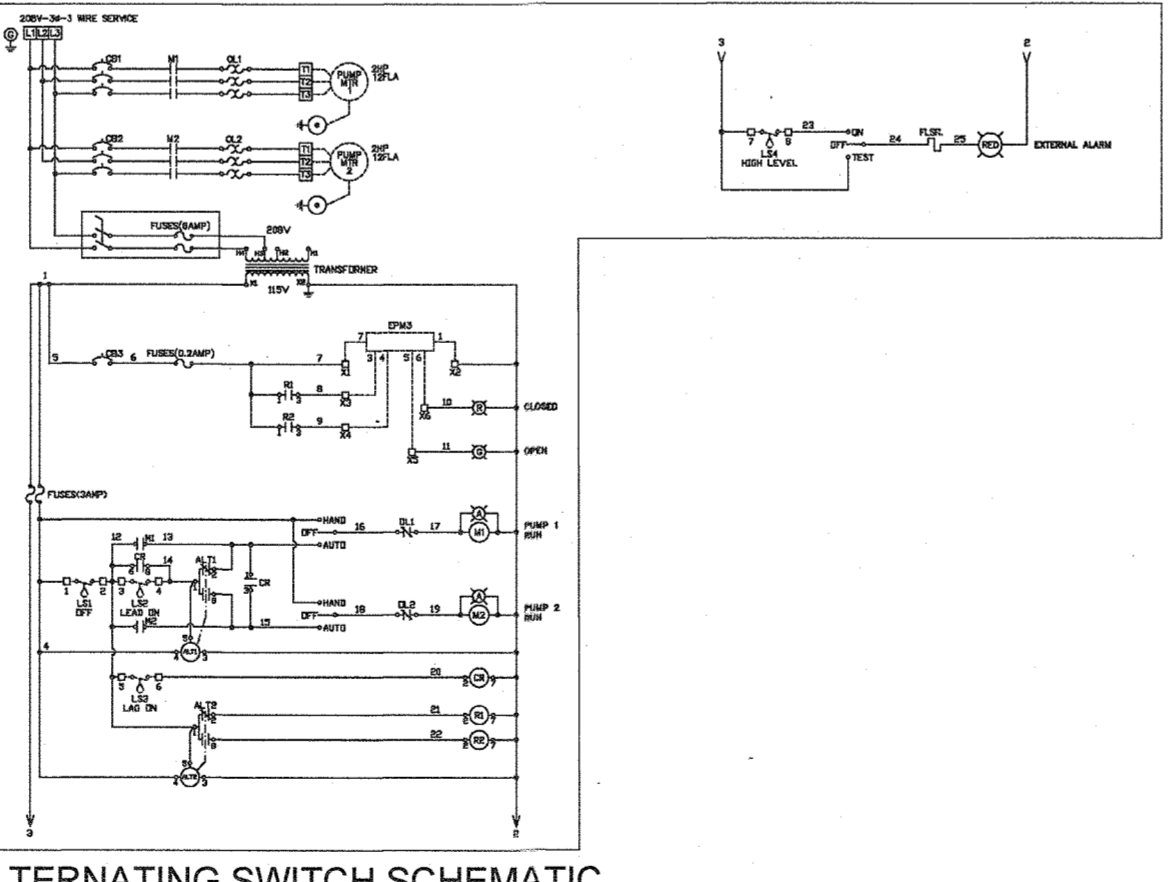


TABLE 'D' - LATERAL INFO.

TRENCH	SUBSYSTEM	RELATIVE ELEVATION (FT.)	TRENCH LENGTH (FT.)	LATERAL LENGTH (FT.)	ASSUMED TRENCH DEPTH (FT.)	ORIFICE DIAMETER (IN.)	ORIFICE FLOW RATE (GPM)	ORIFICE SPACING (FT.)	NUMBER OF ORIFICES	TRENCH FLOW RATE (GPM)	TRENCH FLOW RATE (GPM/LF)
A1	A	405.15	50'	2'	3.5'	5/16	1.63	4.5	*11	17.9	0.38
A2	A	405.15	50'	2'	3.5'	5/16	1.63	4.5	*11	17.9	0.38
A3/A4	A	403.38	33'	2'	3.5'	5/16	2.23	6.5	*10	22.3	0.36
A5/A6	A	403.38	33'	2'	3.5'	5/16	2.23	6.5	*10	22.3	0.36
A7/A8	B	404.00	38'	2'	3.5'	5/16	1.63	5.42	*14	22.8	0.31
A9/A10	B	404.00	38'	2'	3.5'	5/16	1.63	5.42	*14	22.8	0.31
A11/A12	B	402.15	38'	2'	3.5'	5/16	2.26	7.60	*10	22.6	0.31
A13/A14	B	402.15	38'	2'	3.5'	5/16	2.26	7.60	*10	22.6	0.31
TOTAL TRENCH FLOW RATE (GPM)											171.2
** NUMBER OF ORIFICES IS FOR ENTIRE LENGTH OF CENTER-FED TRENCH FROM MANIFOLD TEE											2.72

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 12/23/19

CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 2/23/2020

DIRECTOR
 DATE: 2/27/2020

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

DATE: 2/24/2020

DATE: 2/24/2020

GENERAL NOTES:

- ANY CHANGE TO THE LOCATIONS OR DEPTHS TO ANY COMPONENTS MUST BE APPROVED BY THE ENGINEER AND THE HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REVISED SITE PLAN MAY BE REQUIRED.
- THE MAXIMUM DEPTH OF THE BAT PER THE MANUFACTURER'S SPECIFICATION IS 3 FEET.
- THE BAT SYSTEM SHALL BE MAINTAINED AND OPERATED FOR THE LIFE OF THE SYSTEM.
- THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
- WITHIN ONE MONTH OF INSTALLATION, A PERSON INSTALLING THE BAT SYSTEM SHALL REPORT TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) IN A MANNER ACCEPTABLE TO MDE, THE ADDRESS AND DATE OF COMPLETION OF THE BAT INSTALLATION AND THE TYPE OF BAT INSTALLED.
- ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
- AN AGREEMENT AND EASEMENT MUST BE COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN LAND RECORDS OF HOWARD COUNTY.
- START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.
- IN THE SEPTIC SYSTEM TO BE INSTALLED, EACH PUMP HAS A DESIGNATED FORCE MAIN THAT DISCHARGES TO A DEFINED SUBSYSTEM.
- CHECK VALVES MAY ONLY BE INSTALLED ON THE FORCE MAINS INSIDE THE PUMP TANK BETWEEN THE PUMP AND A WEBB HOLE. THE FORCE MAINS SHALL BE DESIGNED TO DRAIN THROUGH THE WEBB HOLE.
- A WATERIGHT TEST WILL BE REQUIRED ON THE TANKS IN THE FIELD.

PERFORMANCE RATINGS (gpm per foot)

Orifice	10'	15'	20'	25'	30'	35'	40'
1/2"	1.5	1.5	1.5	1.5	1.5	1.5	1.5
3/8"	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1/4"	1.5	1.5	1.5	1.5	1.5	1.5	1.5
3/16"	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1/8"	1.5	1.5	1.5	1.5	1.5	1.5	1.5
3/32"	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1/32"	1.5	1.5	1.5	1.5	1.5	1.5	1.5

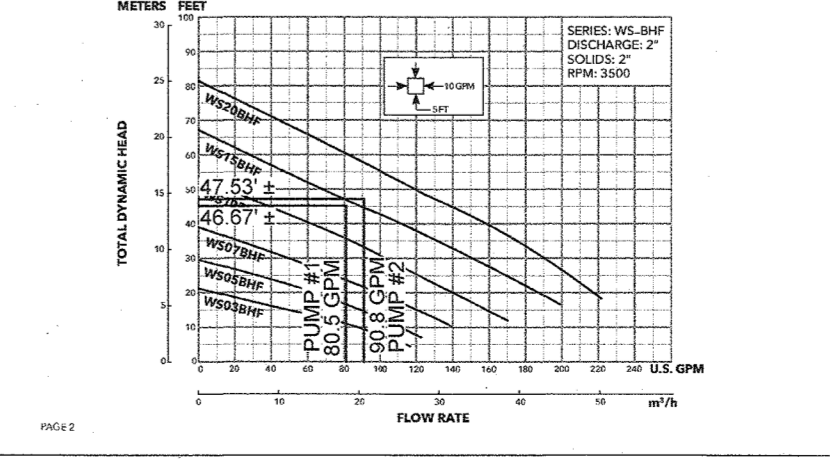
Wastewater
Goolds Water Technology

APPLICATIONS
 Specifically designed for the following uses:
 • Homes
 • Schools
 • Commercial applications
 • Anywhere water or drainage must be disposed of quickly, quietly and efficiently.

Single phase (60 Hz)
 • Collector start motors for maximum starting torque
 • Soft start cover with automatic reset
 • 5/30W or 5/40W motor with 1/2" NPT ball bearing power shafts
 • 3/4" NPT motor with NEMA frame pump mounting flange
 • 1/2" NPT and 1/4" NPT motor with ball bearing power shafts

Three phase (60 Hz)
 • Class F motor production must be provided in necessary ordered start unit
 • 5/30W cover with 1/2" NPT ball bearing
 • 5/40W cover with 1/2" NPT ball bearing
 • 3/4" NPT motor with NEMA frame pump mounting flange
 • 1/2" NPT and 1/4" NPT motor with ball bearing power shafts
 • 1/2" NPT and 1/4" NPT motor with ball bearing power shafts
 • Motor Cover Design Assures positive sealing against contaminants and oil leakage.

AGENCY LISTINGS
 • 1/2" NPT and 1/4" NPT motor with ball bearing power shafts
 • 1/2" NPT and 1/4" NPT motor with ball bearing power shafts
 • 1/2" NPT and 1/4" NPT motor with ball bearing power shafts



OWNER/DEVELOPER:
 GRATIA PLENA, LLC
 11140 HOMEWOOD ROAD
 ELLICOTT CITY, MD 21042
 PHONE: 443-677-4612

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN
BAT / SEPTIC INSTALLATION NOTES AND DETAILS
CUNNINGHAM PROPERTY - FOOD HUB
 4979 SHEPPARD LANE
 L15677/F.426

TAX MAP: 29 GRID:13 PARCEL:25
 5TH ELECTION DISTRICT

DPZ REFERENCE: HO-10-03E/EC-16-030
 ZONED: RD-DCO-RURAL CONSERVATION
 HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
TIMMONS GROUP
 3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
 P: 410.461.7666 F: 410.461.8961 www.timmons.com

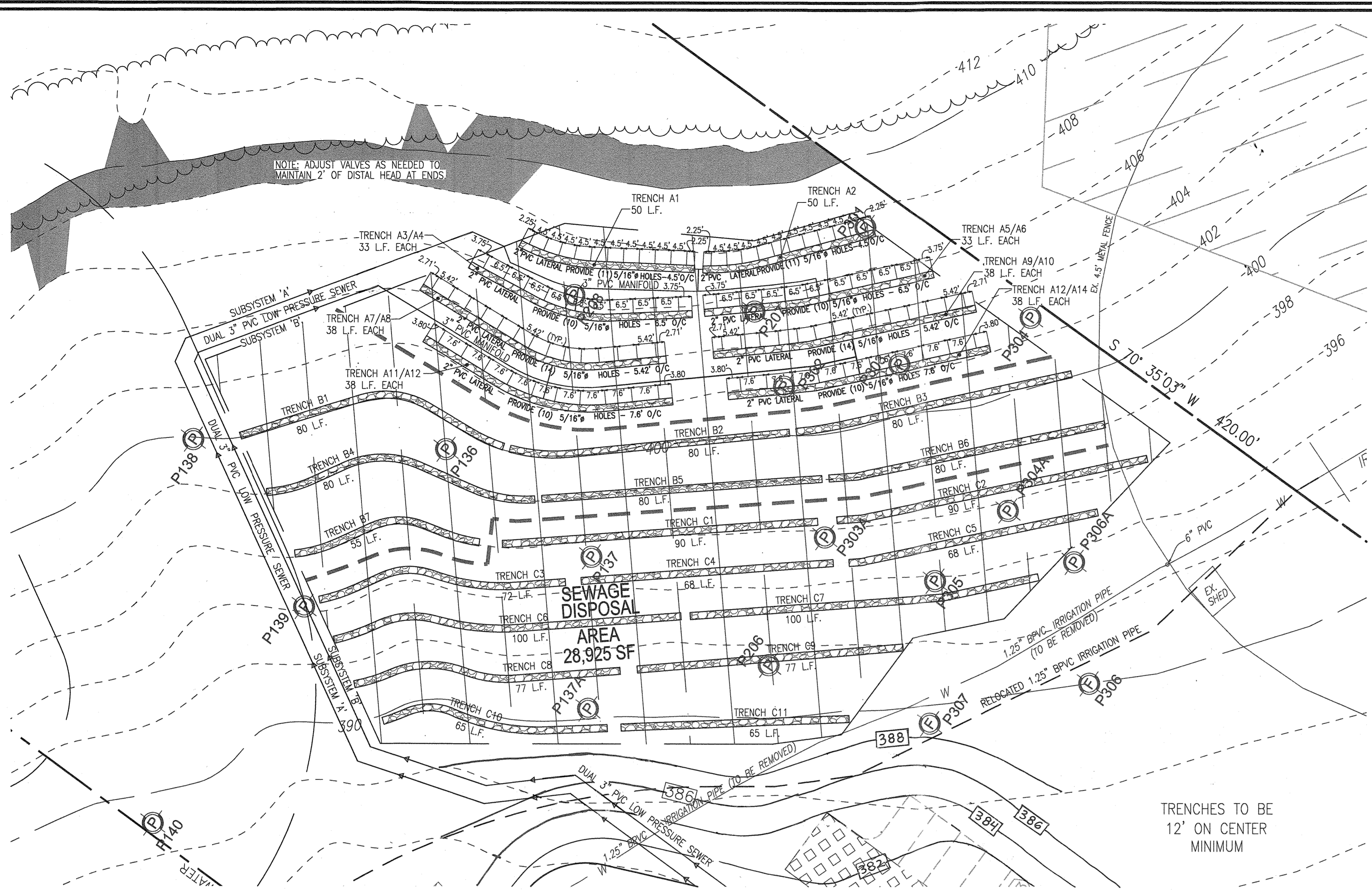
PROFESSIONAL CERTIFICATE

DESIGN BY: GAH
 DRAWN BY: GAH
 CHECKED BY: RHV
 DATE: NOVEMBER, 2019
 SCALE: AS SHOWN
 W.O. NO.: 14-62

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. 16193, EXPIRATION DATE 09-27-2020

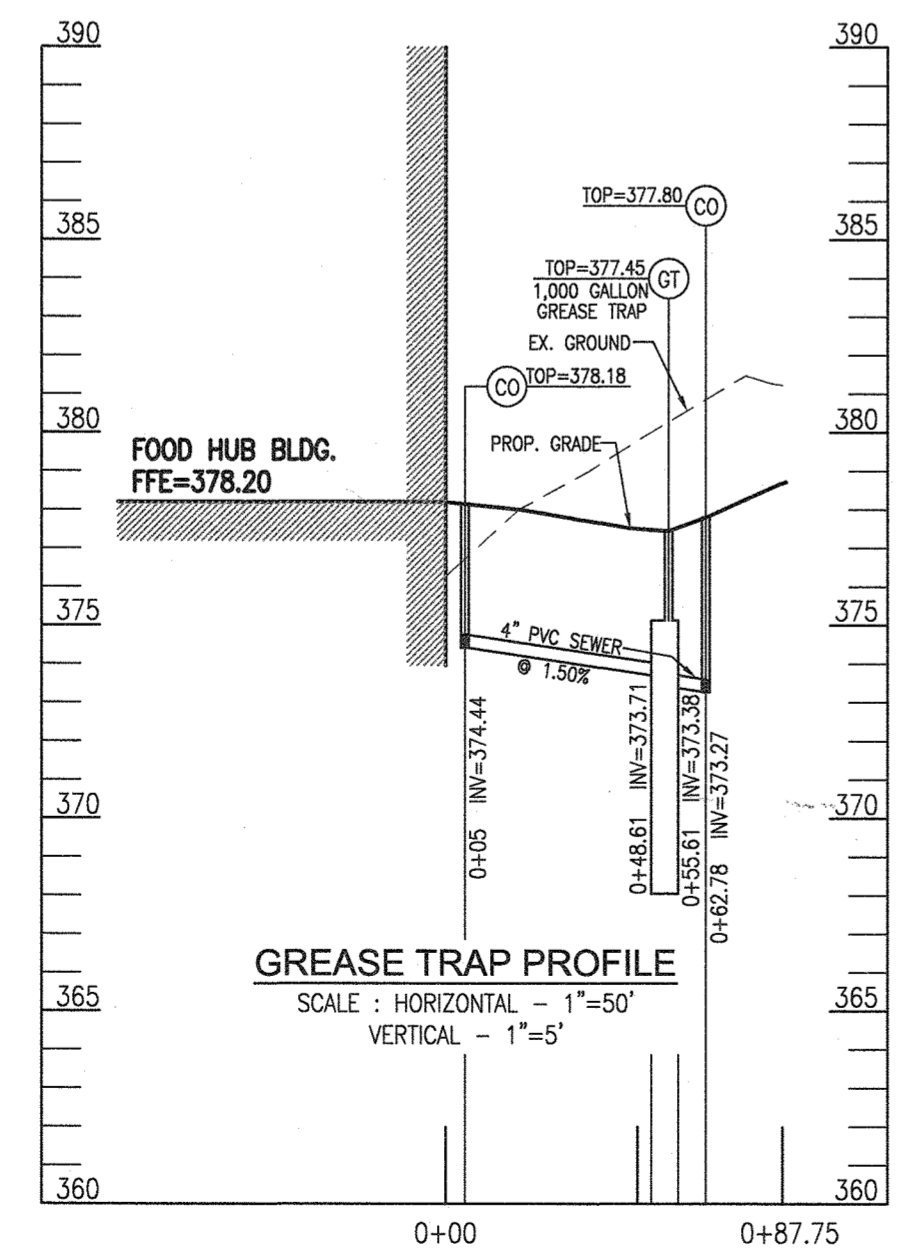
ROBERT H. VOGEL, PE No.16193

4 SHEET OF 10

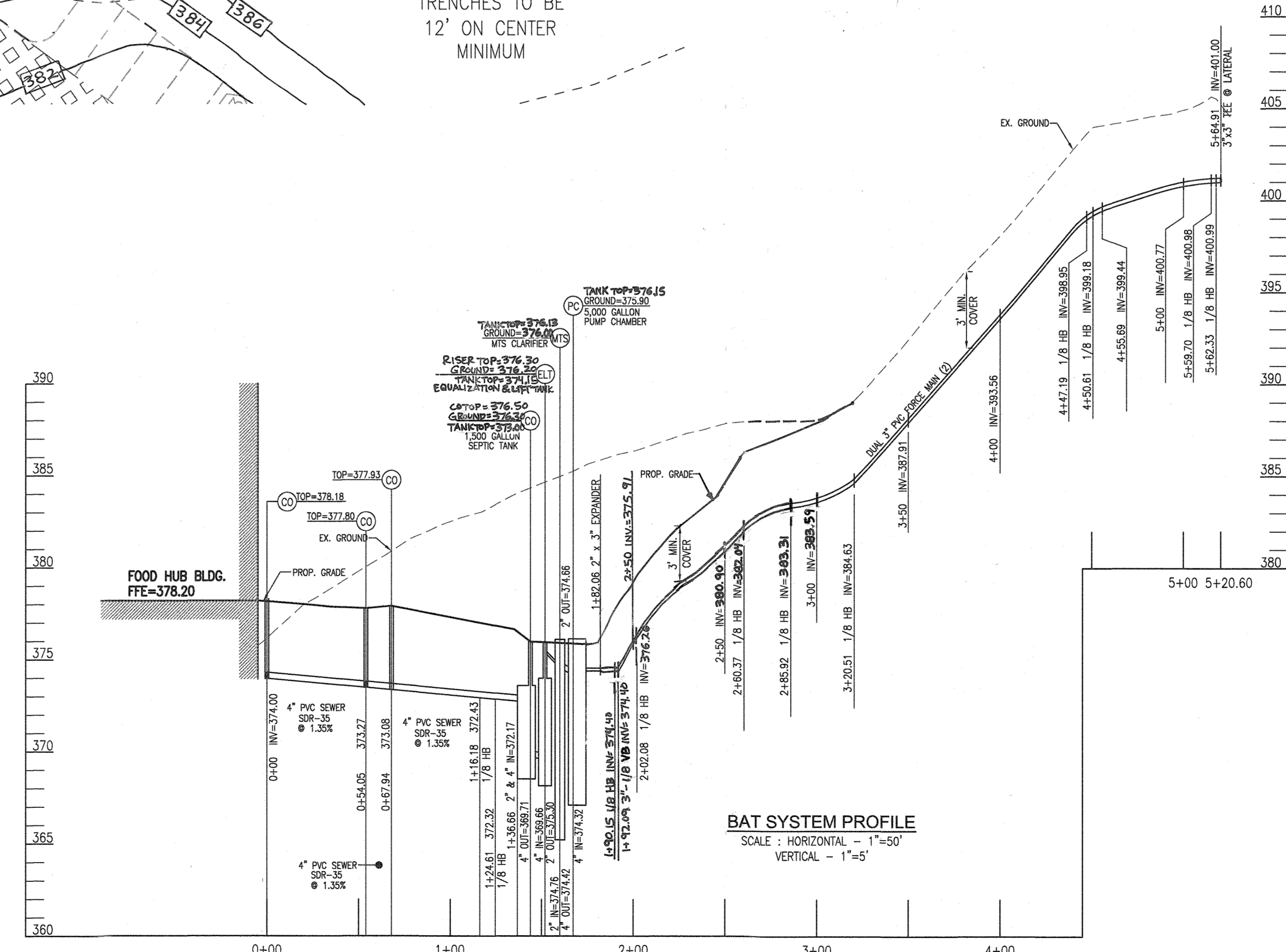


TRENCH-LATERAL DETAIL-PLAN VIEW
SCALE: 1"=20'

TRENCHES TO BE
12' ON CENTER
MINIMUM



GREASE TRAP PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'



BAT SYSTEM PROFILE
SCALE: HORIZONTAL - 1"=50'
VERTICAL - 1"=5'

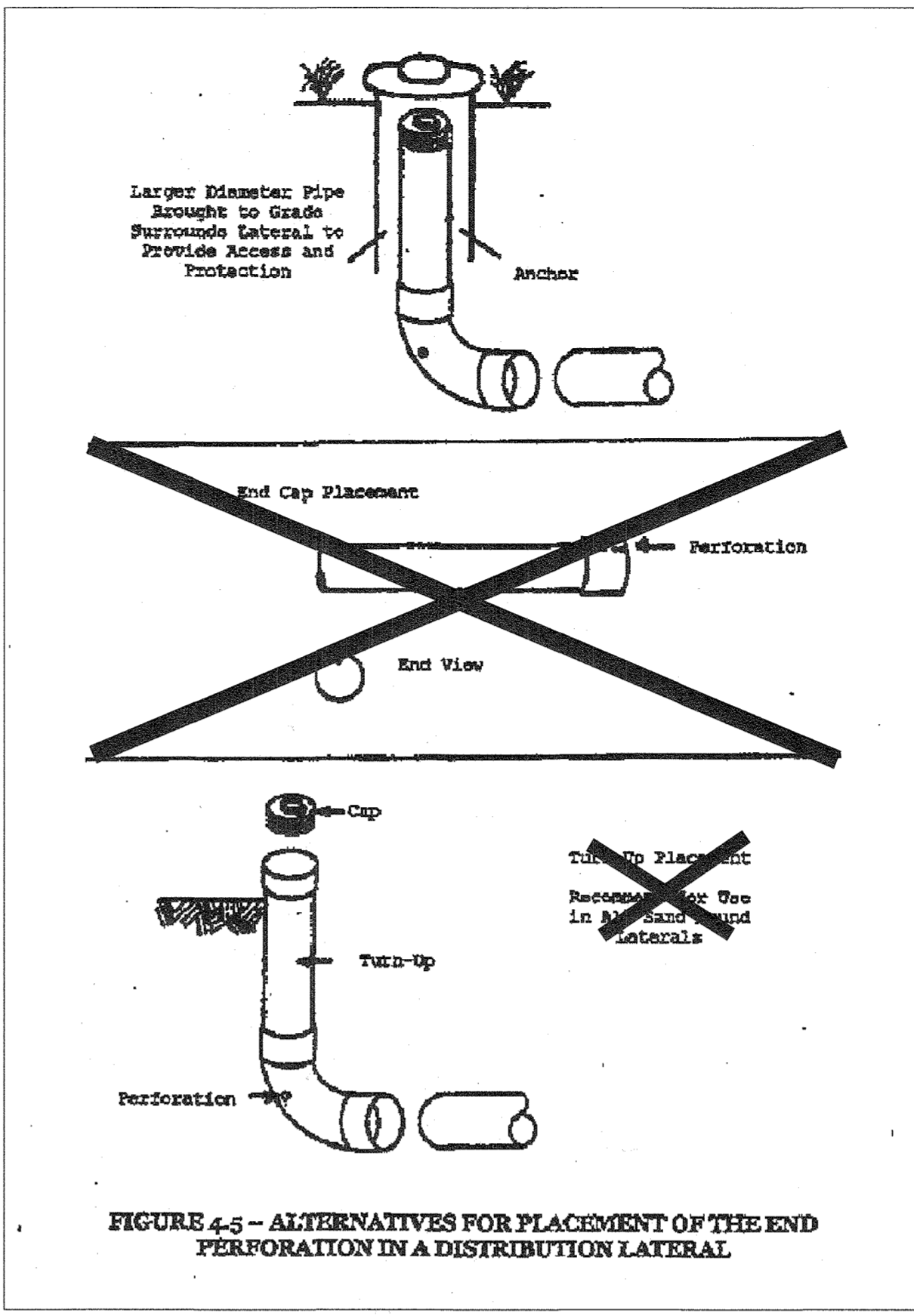
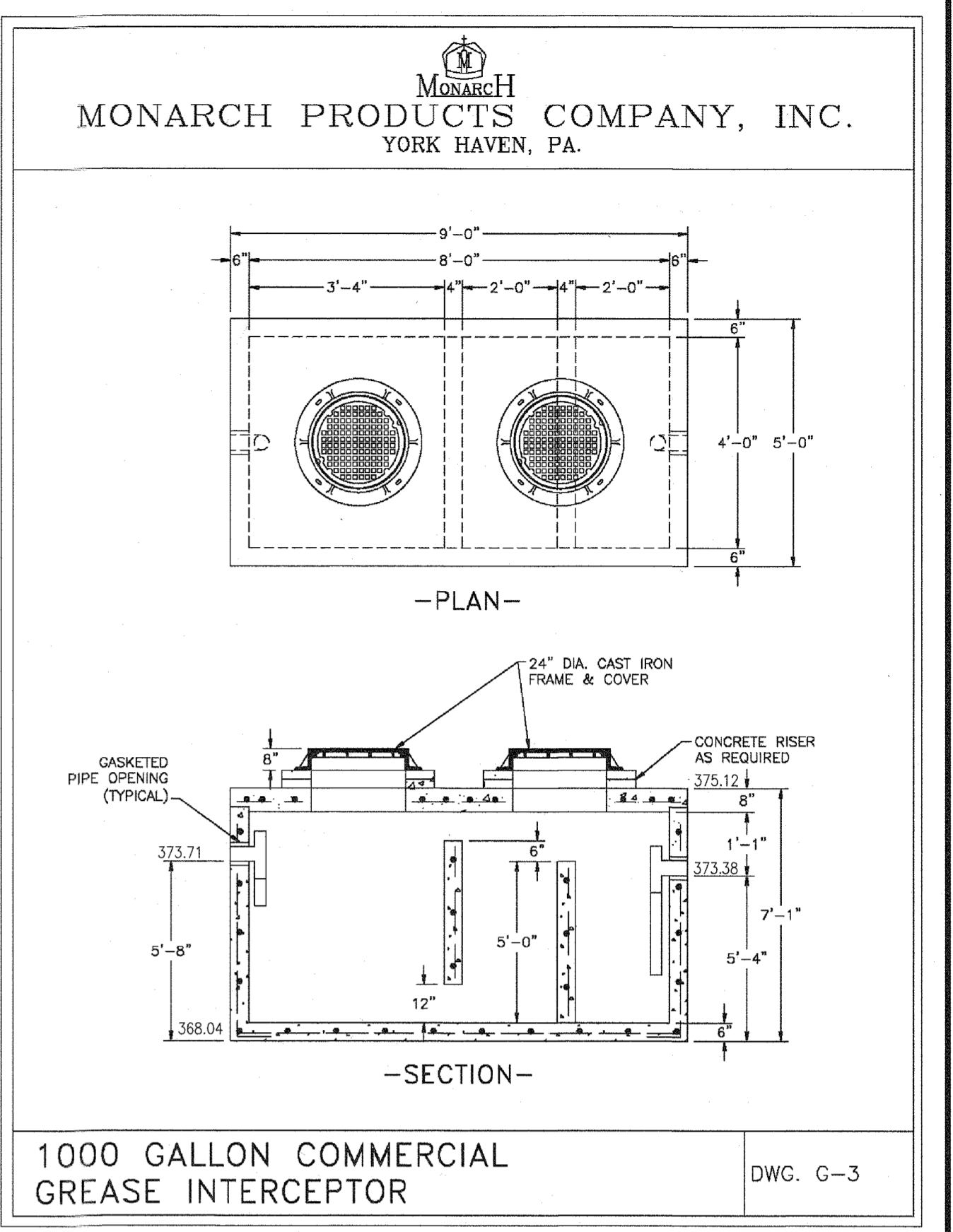
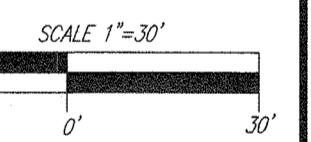


FIGURE 4-5 - ALTERNATIVES FOR PLACEMENT OF THE END PERFORATION IN A DISTRIBUTION LATERAL



1000 GALLON COMMERCIAL
GREASE INTERCEPTOR



OWNER/DEVELOPER:
GRATIA PLENA, LLC
11140 HOMESWOOD ROAD
ELLCOTT CITY, MD 21042
PHONE: 443-677-4612

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN
BAT SEPTIC INSTALLATION PLAN
PROFILES AND DETAILS
CUNNINGHAM PROPERTY - FOOD HUB
4979 SHEPPARD LANE
L.15767/F.426

TAX MAP:29 GRID:13 PARCEL:25 DPZ REFERENCE: HO-10-03E/ECP-16-030
5TH ELECTION DISTRICT ZONED: RC-DEO-RURAL CONSERVATION HOWARD COUNTY, MARYLAND

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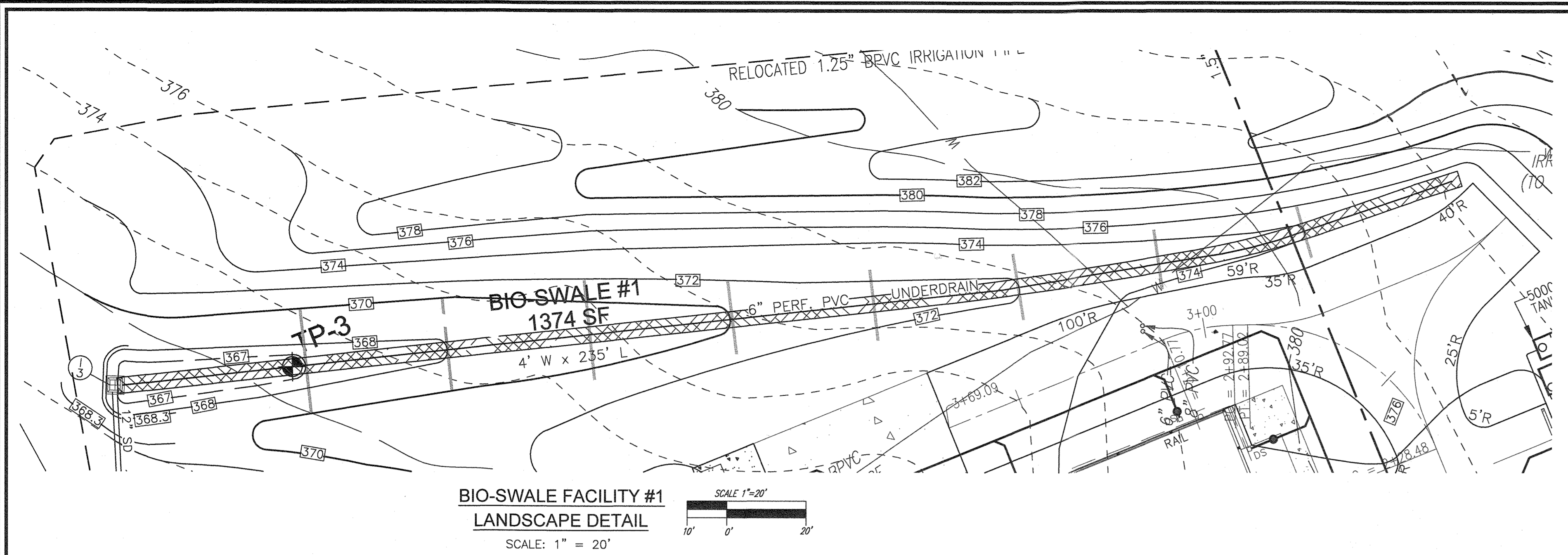
DESIGN BY: GAH
DRAWN BY: GAH
CHECKED BY: RHV
DATE: NOVEMBER, 2019
SCALE: AS SHOWN
W.O. NO.: 14-82

ROBERT H. VOGEL, PE No.16183

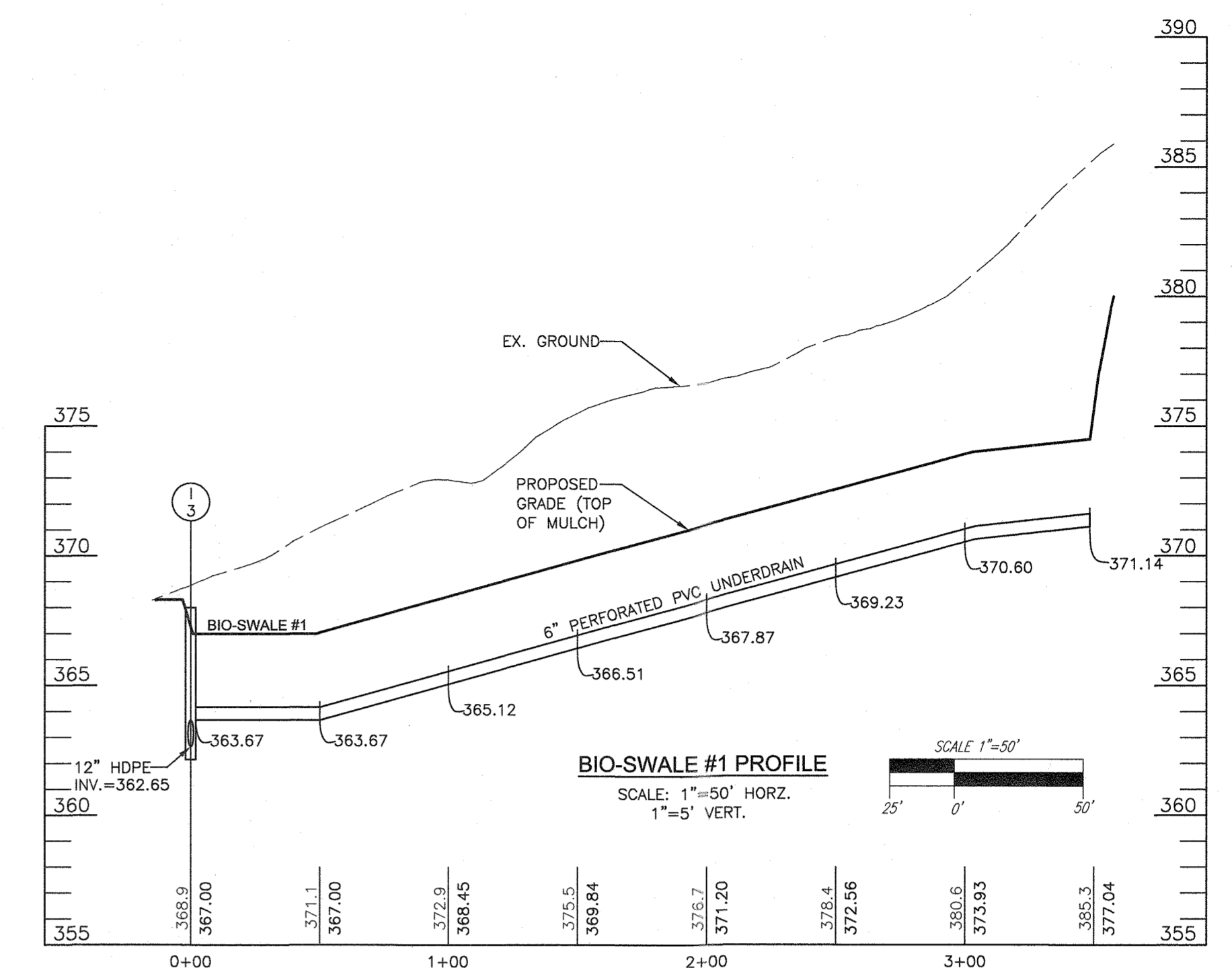
K:\Projects\14-029\Drawings\SDP_FOOD_HUB\SDP_SEPTIC_PLAN_PDF.dwg, 11/02/2019 5:30:23 PM

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
12/23/19
CHIEF, DEVELOPMENT ENGINEERING DIVISION
2/27/2020
CHIEF, DIVISION OF LAND DEVELOPMENT
2-27-2020
DIRECTOR

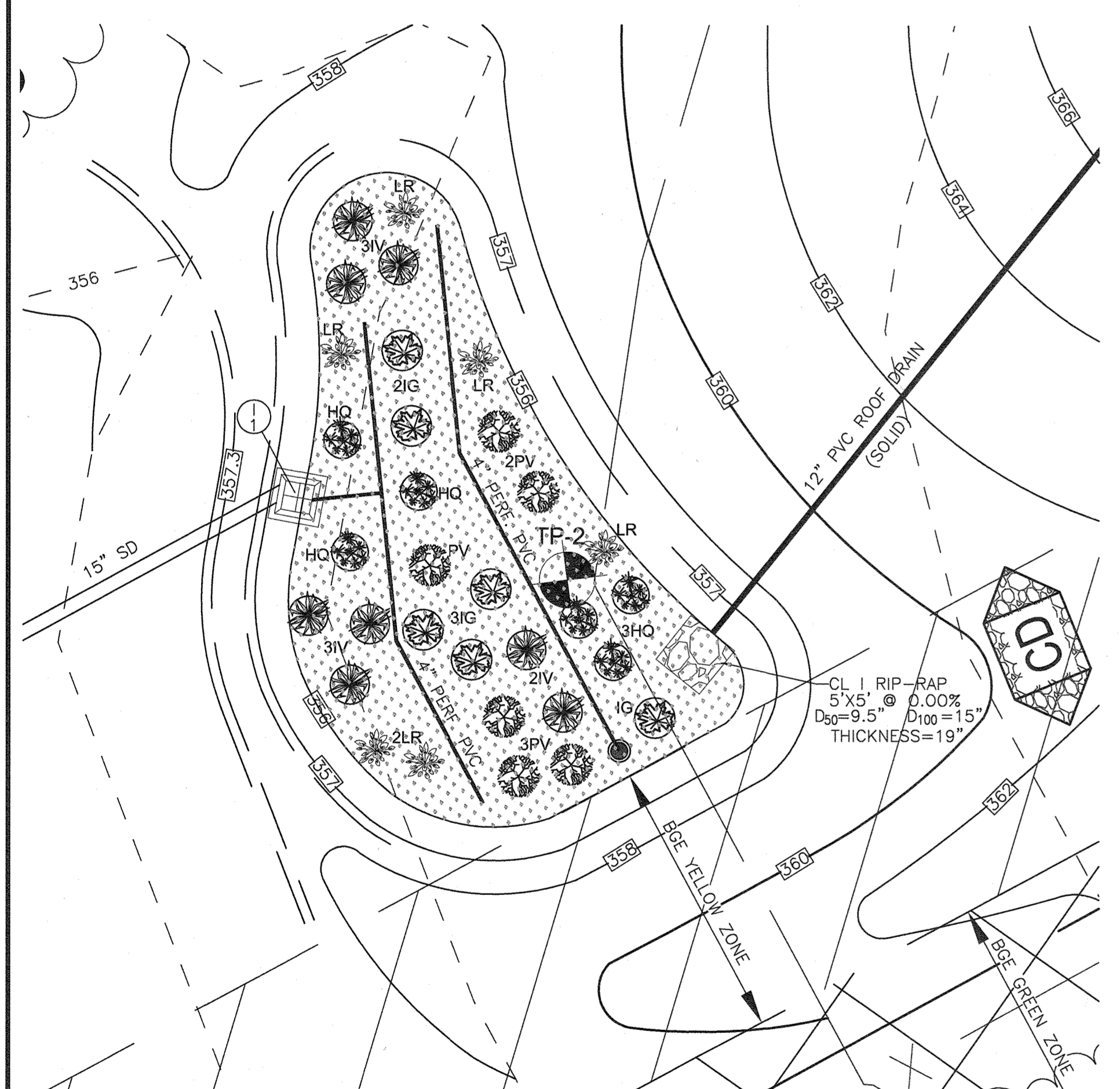
APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS
B. Nilon for Maura Roseman
COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT
2/28/2020



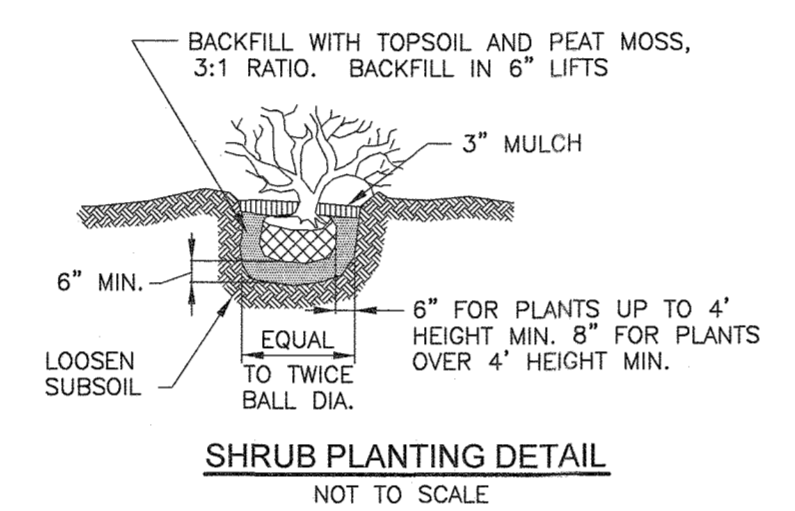
**BIO-SWALE FACILITY #1
LANDSCAPE DETAIL**
SCALE: 1" = 20'



BIO-SWALE #1 PROFILE
SCALE: 1"=50' HORZ.
1"=5' VERT.



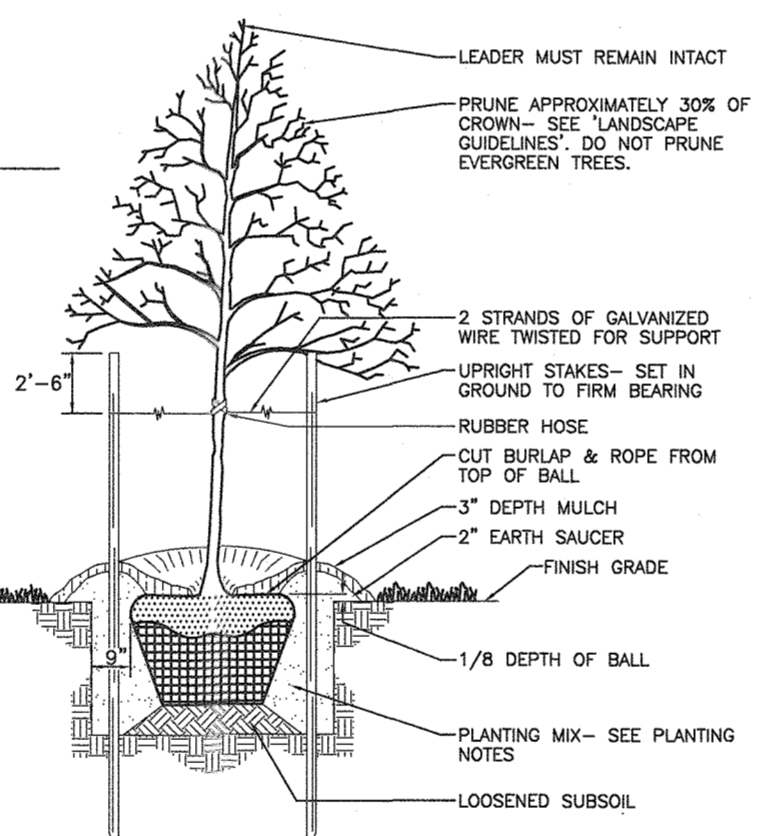
**MICRO-BIORETENTION FACILITY #1
LANDSCAPE DETAIL**
SCALE: 1" = 10'



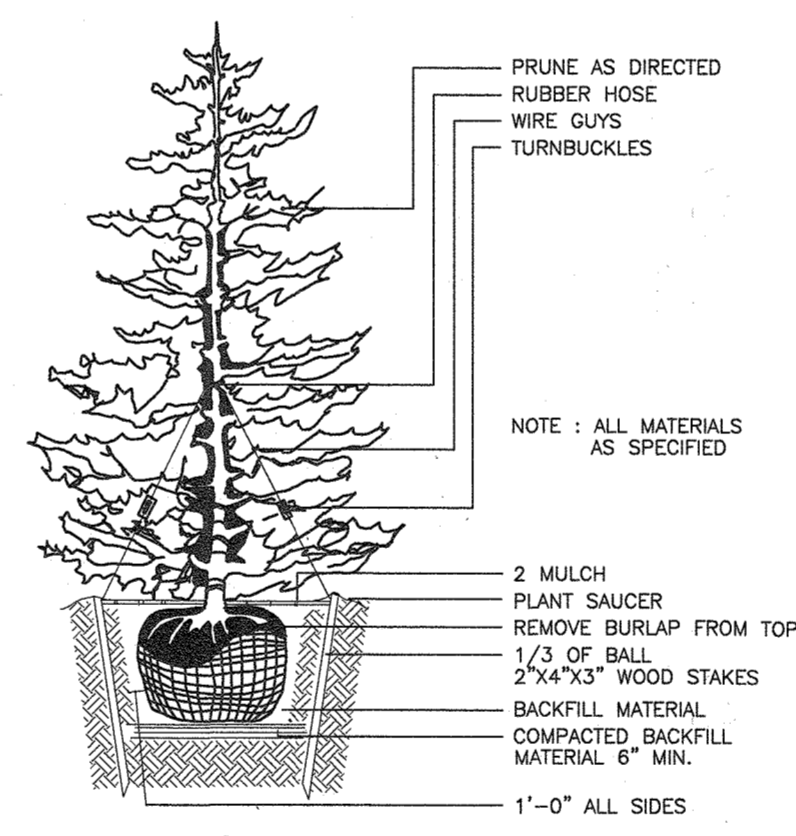
SHRUB PLANTING DETAIL
NOT TO SCALE

NOTES

- SEE "LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREA" FOR ALL MATERIALS, PRODUCT, AND PROCEDURE SPECIFICATIONS.
- SEE "LANDSCAPE GUIDELINES" FOR SUPPORTING TREES LARGER THAN 2-1/2" CALIPER.
- PLACE UPRIGHT STAKES PARALLEL TO WALES & BUILDINGS.
- KEEP MULCH 1" FROM TRUNK.
- SEE ARCHITECTURAL PLANS FOR ADDITIONAL PLANTINGS WHICH EXCEED HOWARD COUNTY MINIMUM REQUIREMENTS.
- TREES ARE NOT TO BE PLANTED OVER PRIVATE SEWAGE EASEMENT.



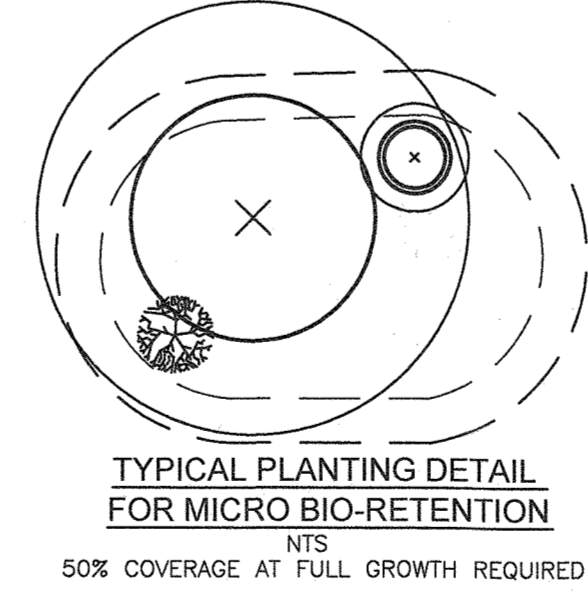
TREE PLANTING AND STAKING
DECIDUOUS TREES UP TO 2-1/2" CALIPER
NOT TO SCALE



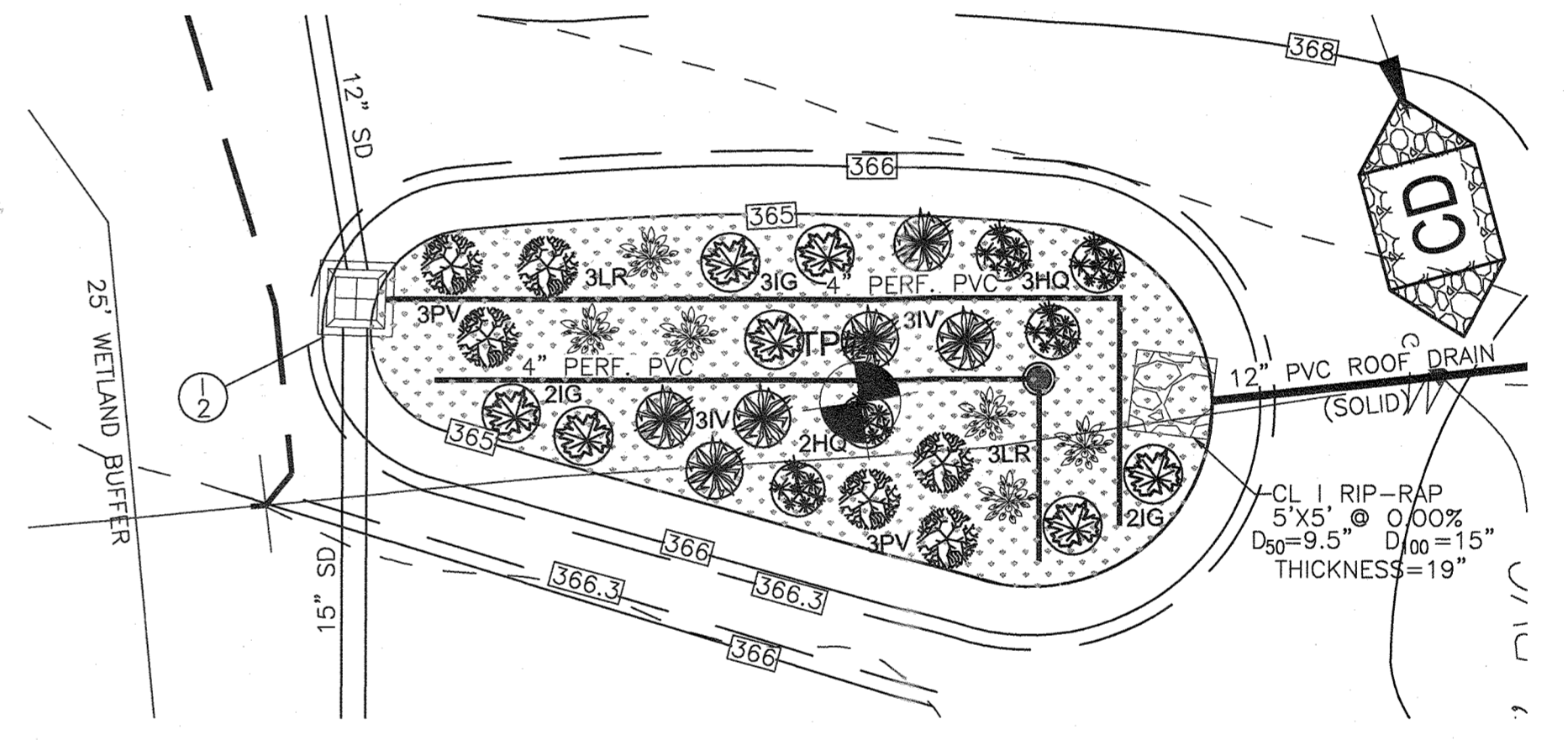
TYPICAL EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE

"MICRO-BIORETENTION" PLANTING SCHEDULE NOTES:

- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HOWARD COUNTY PLANTING SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
- FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
- CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
- SEE THIS SHEET FOR TYPICAL PLANTING SPECIFICATIONS AND DETAILS. MICROBIORRETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (0.229 STEMS PER SQUARE FOOT). ABOVE PLANTING RATIOS ARE TO BE APPLIED TO THE AREAS PROVIDED IN THE ESDV SUMMARY.



TYPICAL PLANTING DETAIL FOR MICRO-BIORETENTION
50% COVERAGE AT FULL GROWTH REQUIRED



**MICRO-BIORETENTION FACILITY #2
LANDSCAPE DETAIL**
SCALE: 1" = 10'

MBR FACILITY	SURFACE AREA	REQUIRED PLANTINGS	PLANTINGS PROVIDED
MBR #1	1150 SF	26	2 WINTERBERRY 5 ARROWWOOD VIBERNUM 5 NEW ENGLAND ASTER 2 CARDINAL FLOWER 2 MOUNTAIN LAUREL
MBR #2	1390 SF	32	2 WINTERBERRY 5 ARROWWOOD VIBERNUM 5 NEW ENGLAND ASTER 2 CARDINAL FLOWER 2 MOUNTAIN LAUREL
BIO-SWALE #1	1374 SF	32	2 WINTERBERRY 5 ARROWWOOD VIBERNUM 5 NEW ENGLAND ASTER 2 CARDINAL FLOWER 2 MOUNTAIN LAUREL

BIORRETENTION PLANTING SCHEDULE				
KEY	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
IG	13	ILEX VERTICILLATA "WINTERBERRY"	1 GALLON	18" O.C.
IV	14	VIBURNUM DENTATUM ARROWWOOD VIBURNUM	1 GALLON	18" O.C.
HQ	11	ASTER NOVAE-ANGLIAE NEW ENGLAND ASTER	1 GALLON	30" O.C.
LR	12	LOBELIA CARDINALIS CARDINAL FLOWER	4" HT	SPECIM QUALITY STRAIGHT LEADER
PV	11	KALMIA LATIFOLIA MOUNTAIN LAUREL	4" HT	SPECIM QUALITY STRAIGHT LEADER

PERENNIALS/GROUND COVER PLANTING SCHEDULE				
LEGEND	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
[Pattern]	79	RUDBECKIA HIRTA BLACK EYED SUSAN	4" POT	12"-15" O.C. FOR SIDES AND BOTTOM OF MBR. MIX ALL VARIETIES IN A NATURALIZED RANDOM PATTERN THROUGHOUT.
[Pattern]	79	PHLOX STOLONIFERA CREEPING PHLOX	1 QT.	PLANT IN GROUPS OF NO LESS THAN 9 PLANTS PER CLUMP

STORMWATER MANAGEMENT TEST PIT DATA								
BORING NO.	NORTHING	EASTING	SURFACE ELEV.	BORING DEPTH		AT COMPLETION		
				PROPOSED	DRILLED	WATER (ft)	CAVE-IN (ft)	ROCK (ft)
1	N 571,506	E 1,329,601	367.23	4'x8'x11'	8'	8	8'	-
2	N 571,466	E 1,329,366	359.80	4'x16'x9'	9'	7.5	-	9'
3	N 571,492	E 1,329,646	370.83	4'x10'x14'	14'	-	-	-

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 12/23/19
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 2/27/2020
 DIRECTOR DATE 2-27-2020

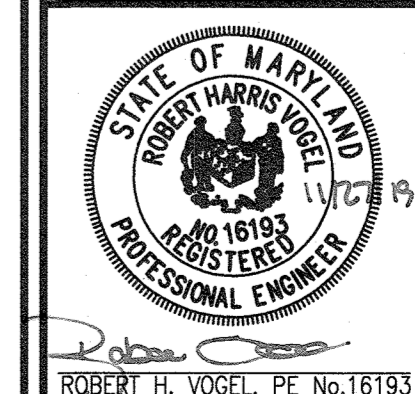
OWNER/DEVELOPER:
GRATIA PLENA, LLC,
11140 HOMEWOOD ROAD
ELLICOTT CITY, MD 21042
PHONE: 443-677-4612

NO.	REVISION	DATE

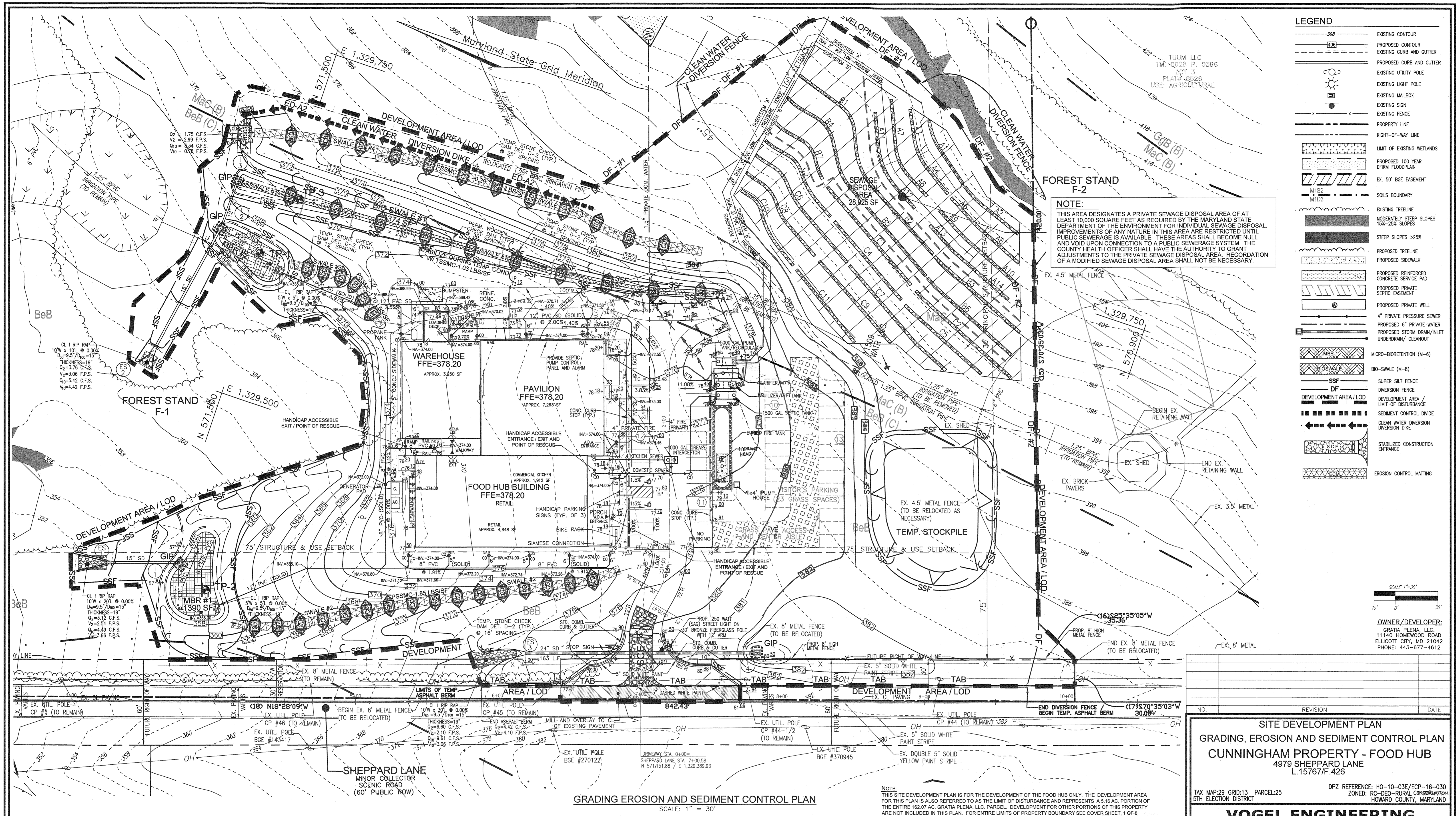
**SITE DEVELOPMENT PLAN
DETAILS AND SCHEDULES
FOR MICRO-BIORETENTION AND LANDSCAPING
CUNNINGHAM PROPERTY - FOOD HUB**
4979 SHEPPARD LANE
L 15767/F 426

TAX MAP: 29 GRID: 13 PARCEL: 25 5TH ELECTION DISTRICT
 DPZ REFERENCE: HO-10-03E/ECP-16-030
 ZONED: RC-DEO-RURAL CONSERVATION HOWARD COUNTY, MARYLAND

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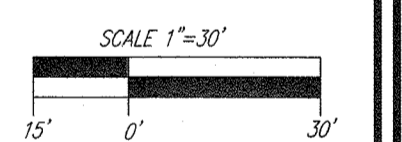
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 DESIGN BY: GAH
 DRAWN BY: GAH
 CHECKED BY: RHY
 DATE: NOVEMBER, 2019
 SCALE: AS SHOWN
 W.O. NO.: 14-62
 6 SHEET OF 10



LEGEND

	EXISTING CONTOUR
	PROPOSED CONTOUR
	EXISTING CURB AND GUTTER
	PROPOSED CURB AND GUTTER
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING MAILBOX
	EXISTING SIGN
	EXISTING FENCE
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	LIMIT OF EXISTING WETLANDS
	PROPOSED 100 YEAR OFRM FLOODPLAIN
	EX. 50' BOE EASEMENT
	SOILS BOUNDARY
	EXISTING TREE LINE
	MODERATELY STEEP SLOPES 15%-25%
	STEEP SLOPES >25%
	PROPOSED TREE LINE
	PROPOSED SIDEWALK
	PROPOSED REINFORCED CONCRETE SERVICE PAD
	PROPOSED PRIVATE SEPTIC EASEMENT
	PROPOSED PRIVATE WELL
	4\"/>
	PROPOSED 6\"/>
	PROPOSED STORM DRAIN/INLET
	UNDERDRAIN/ CLEANOUT
	MICRO-BORETENTION (M-6)
	BIO-SWALE (M-8)
	SUPER SILT FENCE
	DIVERSION FENCE
	DEVELOPMENT AREA / LIMIT OF DISTURBANCE
	SEDIMENT CONTROL DIVIDE
	CLEAN WATER DIVERSION DIVERSION DIKE
	STABILIZED CONSTRUCTION ENTRANCE
	EROSION CONTROL MATTING

NOTE:
 THIS AREA DESIGNATES A PRIVATE SEWAGE DISPOSAL AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWERAGE IS AVAILABLE. THESE AREAS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE DISPOSAL AREA. REORDENATION OF A MODIFIED SEWAGE DISPOSAL AREA SHALL NOT BE NECESSARY.



OWNER/DEVELOPER:
 GRATIA PLENA, LLC
 11140 HOMEWOOD ROAD
 ELLICOTT CITY, MD 21042
 PHONE: 443-677-4612

GRADING EROSION AND SEDIMENT CONTROL PLAN
 SCALE: 1" = 30'

NOTE:
 THIS SITE DEVELOPMENT PLAN IS FOR THE DEVELOPMENT OF THE FOOD HUB ONLY. THE DEVELOPMENT AREA FOR THIS PLAN IS ALSO REFERRED TO AS THE LIMIT OF DISTURBANCE AND REPRESENTS A 5.16 AC. PORTION OF THE ENTIRE 182.07 AC. GRATIA PLENA, LLC. PARCEL. DEVELOPMENT FOR OTHER PORTIONS OF THIS PROPERTY ARE NOT INCLUDED IN THIS PLAN. FOR ENTIRE LIMITS OF PROPERTY BOUNDARY SEE COVER SHEET, 1 OF 8.

NOTE:
 EITHER PERMANENT OR TEMPORARY STABILIZATION IS TO BE APPLIED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR REGARDLESS OF DAYS/DATES IN THE STANDARD SEDIMENT CONTROL NOTES AND/OR SEEDING SPECIFICATIONS

MAPPED SOILS TYPES - CLARKSVILLE NW / NE MAP #16 / 17

SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	HYDRIC	HYDRIC INCLUSIONS	PRIME FARMLAND	<15% SLOPE W/ EROSION POTENTIAL
BeB	BENEVOLO SILT LOAM, 3 TO 8 PERCENT SLOPES	C	.43	NO	NO	YES	YES
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	.28	NO	NO	*YES	NO
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	.28	NO	NO	*YES	NO

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY *FARMLAND OF STATEWIDE IMPORTANCE

NOTE:
 HIGHLY ERODIBLE SOILS ARE 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 PERCENT

NOTE:
 - SILT FENCE IS TO BE REPLACED WITH SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
 - SILT FENCE SHALL BE CURLED UPHILL NO MORE THAN 35 FEET APART
 - DOUBLE ROWS OF SUPER SILT FENCE SHALL BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION *[Signature]* 12/23/19
 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT *[Signature]* 1/28/2020
 DATE

DIRECTOR *[Signature]* 2-27-2020
 DATE

BY THE DEVELOPER:

"I 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] SIGNATURE OF DEVELOPER
 11-25-19 DATE

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT 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."

[Signature] SIGNATURE OF ENGINEER
 11/27/19 DATE

SITE DEVELOPMENT PLAN
GRADING, EROSION AND SEDIMENT CONTROL PLAN
CUNNINGHAM PROPERTY - FOOD HUB
 4979 SHEPPARD LANE
 L.15767/F.426

TAX MAP: 29 GRID: 13 PARCEL: 25 DPZ REFERENCE: HO-10-03E/EC-16-030
 5TH ELECTION DISTRICT ZONED: RC-DEO-RURAL CONSERVATION HOWARD COUNTY, MARYLAND

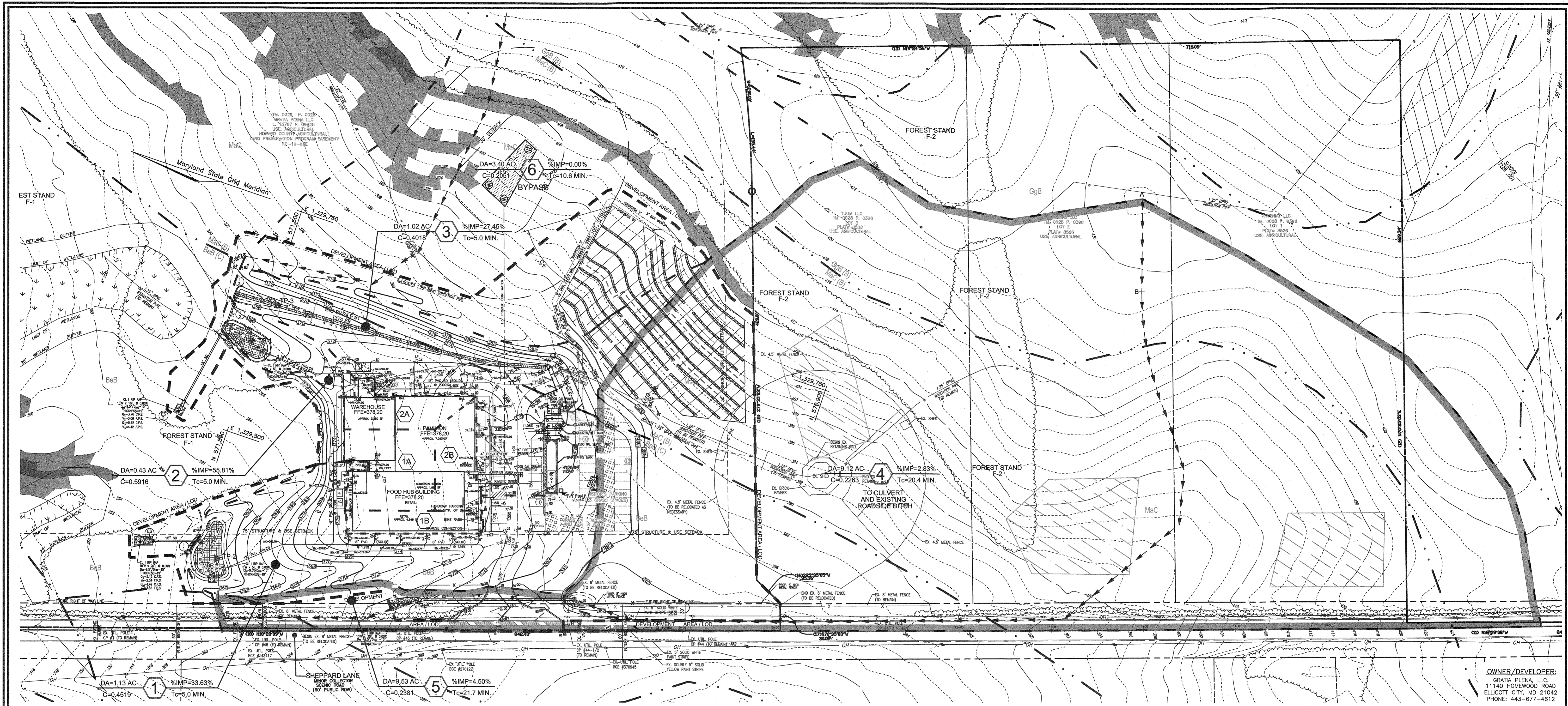
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 +
TIMMONS GROUP
 3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
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PROFESSIONAL CERTIFICATE

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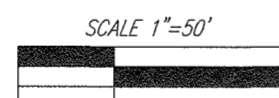
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ROBERT H. VOGEL, PE No.16183

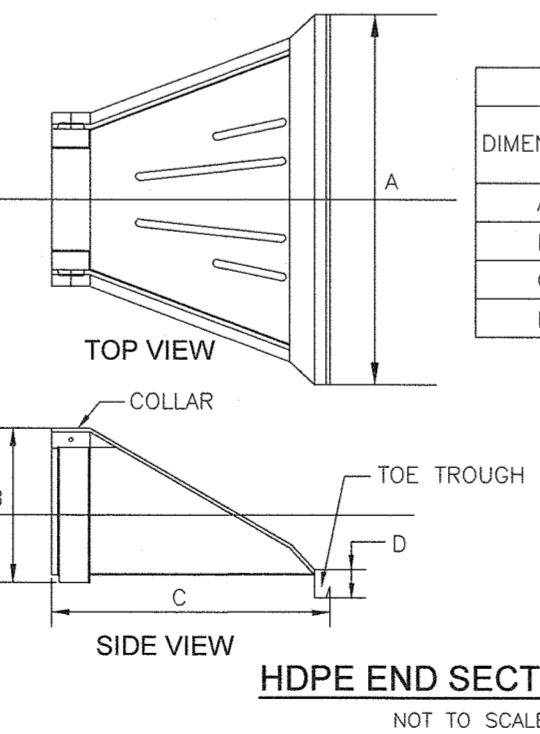


OWNER/DEVELOPER:
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11140 HOMEWOOD ROAD
ELLICOTT CITY, MD 21042
PHONE: 443-677-4612

ESDv DRAINAGE AREA MAP
SCALE: 1" = 50'



AREA NO.	AREA (AC.)	C FACTOR	IMPERVIOUS %	REMARKS
1	1.19	0.4454	32.60	To I-1 (Includes 1A & 1B)
1A	0.19	0.8700	100.00	
1B	0.08	0.8700	100.00	
2	0.38	0.3700	60.47	To I-2 (Includes 2A & 2B)
2A	0.11	0.8700	100.00	
2B	0.11	0.8700	100.00	
3	1.04	0.3980	44.94	To I-3
4	9.12	0.2263	2.83	To I-4 (Culvert)
5	9.53	0.2381	4.50	To Ditch (Includes Area 4)
6	3.40	0.2051	0.00	Bypass



HDPE END SECTION CONSTRUCTION SEQUENCE

- PREPARE BEDDING**
Bedding material around the end section may be the same as the material around the pipe. Place a few inches of bedding material in the trench or ditch where the end section will be placed. Compact and contour this material to generally match the end section; excavate an area in the bedding where the toe trough will seat so that the end section will align to the proper grade in the finished installation.
- PLACE END SECTION ON PIPE**
Open the end section collar and seat it over the last two pipe corrugations. Once the end section is positioned, check to make sure that the invert of the end section matches the invert of the pipe and that the end section is aligned to proper grade.
- SECURE THE END SECTION**
Slip the stainless steel rod through the pre-drilled holes at the top of the collar. The rod should be between the grooves of the two corrugations at the end of the pipe. Place a washer on either end of the rod; place a nut on either end of the rod and hand tighten with a wrench until the collar is tight around the pipe. Do not over-tighten.
- SECURE TOE TROUGH**
To prevent washouts from high velocity flow, it is recommended that the toe trough be secured with concrete. Pour concrete in the trough up to the level of the trench or ditch bottom and along the entire length of the trough.
- FINISH BACKFILL**
Shovel backfill around the end section in 6-9 inch layers equally on both sides, knitting it in to eliminate voids. Tamp with a small-faced compactor or other equipment suitable for small areas. Continue placing, knitting, and compacting backfill material in layers to the top of the end section to seat it well into the backfill.

DIMENSION	PIPE DIAMETER (INCHES)					
	10/12	15	18	24	30	36
A	42	41	49	59 1/2	88	88
B	14 1/2	19	22	28	36	43
C	33	34	43	48	63 1/2	66 1/2
D	6	6	6	6	6	6

MAPPED SOILS TYPES - CLARKSVILLE NW / NE MAP #16 / 17						
SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	HYDRIC	HYDRIC INCLUSIONS	PRIME FARMLAND
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	.32	NO	NO	YES
BeB	BENEVOLO SILT LOAM, 3 TO 8 PERCENT SLOPES	C	.43	NO	NO	YES
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	.28	NO	NO	*YES
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	.28	NO	NO	*YES

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY
NOTE: HIGHLY ERODIBLE SOILS ARE 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 PERCENT

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- PROPOSED UTILITY POLE
- EXISTING MAILBOX
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LIMIT OF EXISTING WETLANDS
- PROPOSED 100 YEAR DIRM FLOODPLAIN
- EX. 50' BGE EASEMENT
- SOILS BOUNDARY
- EXISTING TREELINE
- PROPOSED TREELINE
- PROPOSED SIDEWALK
- CLEANOUT
- BAT TANK
- PUMP CHAMBER
- 4" GRAVITY SEWER
- PROPOSED CONCRETE LOADING DOCK
- PROPOSED PRIVATE SEPTIC EASEMENT
- PROPOSED PRIVATE WELL
- 4" PRIVATE PRESSURE SEWER
- PROPOSED 6" PRIVATE WATER UNDERDRAIN/ CLEANOUT
- DEVELOPMENT AREA / LOD
- DEVELOPMENT AREA / LIMIT OF DISTURBANCE
- ESDv DRAINAGE DIVIDE
- ESDv DRAINAGE AREA/FACILITY NUMBER
- MICRO-BIORETENTION (M-6)
- BIO-SWALE (M-8)
- MODERATELY STEEP SLOPES 15%-25% SLOPES
- STEEP SLOPES >25%
- DRAINAGE DIVIDE
- DRAINAGE DIVIDE TO DITCH
- TC PATH

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN
STORM DRAIN DRAINAGE AREA MAP
CUNNINGHAM PROPERTY - FOOD HUB
4979 SHEPPARD LANE
L. 15767/F.426

TAX MAP:29 GRID:13 PARCEL:25
5TH ELECTION DISTRICT

DPZ REFERENCE: HC-10-03E/ECP-16-030
ZONED: RC-DEO-RURAL CONSERVATION

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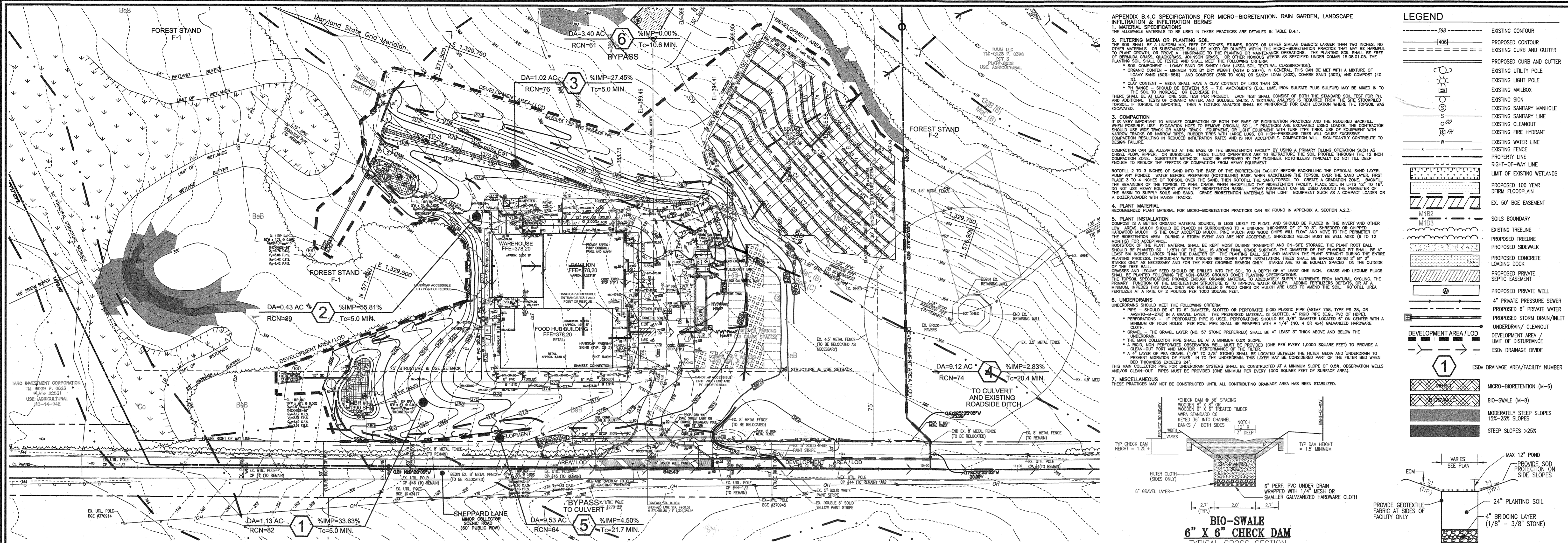
DESIGN BY: GAH
DRAWN BY: GAH
CHECKED BY: RHW
DATE: NOVEMBER, 2019
SCALE: AS SHOWN
W.O. NO.: 14-62

PROFESSIONAL CERTIFICATE
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. 16193 EXPIRES DATE: 09-30-2027

ROBERT H. VOGEL, PE No.16193

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
CHIEF, DIVISION OF LAND DEVELOPMENT
DIRECTOR

12/23/19
2/27/2020
2-27-2020



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	Note
Planting soil (2" to 4" deep)	see Appendix A, Table A.4	
Planting soil (4" to 6" deep)	loamy sand (60-65%) & compost (35-40%)	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)	
Mulch	wood chips (30%); straw (30%); compost (40%)	aged 6 months, minimum no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM D-448	
Curtain drain	ornamental stone: washed cobble	stone: 2" to 5"
Cast-in-place concrete	ASHTO M-43	see Note 1
Underdrain piping	1/2" PE, 3/4" PE or ASHTO M-278	
Poured in place concrete (if required)	MSHA Min No. 3, f _c = 3500 psi @ 28 days, normal weight, air-entrained, reinforcing to meet ASTM-615-60	
Sand	ASHTO M-6 or ASTM-C-33	0.075" to 0.425"

MICRO-BIORETENTION DATA CHART

Facility #	Ponding Depth (ft)	Elevation	Top of Mulch	Bottom of Mulch	Depth of Plant Mix (ft)	Bottom of Plant Mix (ft)	Bottom of Stone (ft)	Invert of Underdrain	Additional Depth Stone (ft)	Bottom of Rev (ft)	Surface Area (sq ft)	Approx. Dimensions (ft)
MBR-1	1.00	357.00	358.00	355.75	2.00	353.75	353.42	352.42	352.67	351.50	900	52' x 19'
MBR-2	1.00	366.00	366.00	364.75	1.75	363.00	362.67	361.67	361.82	360.84	900	52' x 19'
BIO-SWALE DATA CHART												
BS-1	1.00	368.00	367.00	366.75	2.00	364.75	364.42	363.42	363.67	0.83	1380	345' x 4'

* Top of Mulch Elevation given at lowest point in swale

CUNNINGHAM PROPERTY FOOD HUB - ESDv COMPUTATIONS

DA	% IMPERV	Rv	DA	DA	MINIMUM VOLUME	MAXIMUM VOLUME	1.00" VOLUME	VOLUME PROVIDED*	IMPERV (SF)	IMPERV (AC)	GREEN AREA	Rev REQUIRED	Rev PROVIDED	CF	SF	REMARKS			
1	32.60	0.3434	51640	1.19	1478	3843	1567	1853	1037	0.39	0.80	463	463	1853	1853	MICROSCALE MICRO-BIO RETENTION			
2	60.45	0.5940	16288	0.37	796	2071	864	1200	725	0.22	0.15	300	300	1200	1200	MICROSCALE MICRO-BIO RETENTION			
3	26.75	0.2908	45267	1.04	1097	2852	1163	1840	1109	0.28	0.76	460	460	1840	1840	MICROSCALE MICRO-BIO SWALE (4.0X 345)			
													1840	1840	SF BIO SWALE @ 1.0 PONDING				
													460	460	Rev Recharge	0.83		0.4	
													460	460	Rev Recharge	0.83		0.4	

PROJECT: CUNNINGHAM FOOD HUB IMPERVIOUS: 18.92 PERCENT 12/14/2017

DEVELOPMENT AREA: 5.22 AC SITE REV: 0.2203

TARGET PE: 1.06 IN APPROX SITE ESDv: 4444 CF

DRAINAGE AREA	FACILITY	IMPERVIOUS	GRASS	TOTAL	PERCENT IMPERVIOUS	ESDv	ESDv TARGET	PROVIDED	TARGET	PROVIDED		
1	MBR #1	16837	34803	51640	32.60	0.34	1478	3843	1567	1853	463	463
2	MBR #2	9725	6363	16088	60.45	0.59	796	2071	844	1200	300	300
3	BIO-SWALE #1	12109	33158	45267	26.75	0.29	1097	2852	1163	1840	460	460
TOTAL AREA		112995		SF	3573		4893	1223	1223			
		2.59		AC								

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 12/22/19

CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 2/19/2020

DIRECTOR DATE: 2-27-2020

PROJECT CUNNINGHAM FOOD HUB DESIGNER GAH DATE 12/14/17

ROBERT H. VOGEL ENGINEERING, INC.

DRAINAGE AREA	TREATED	MBR #1	MBR #2	BIO-SWALE #3	TOTALS	
1	62520	0	0	0	62520	
2	18623	0	1200	0	19823	
3	44357	0	0	1840	46197	
TOTALS		0	3053	0	4444	
STORAGE: 76% OF ESD TREATED		4444		CF	TOTAL ESDv PROVIDED: 4893	

APPENDIX B.4.C SPECIFICATIONS FOR MICRO-BIORETENTION, RAIN GARDEN, LANDSCAPE INFILTRATION & INFILTRATION BERMS

1. MATERIAL SPECIFICATIONS

2. FILTERING MEDIA OR PLANTING SOIL

3. COMPACTION

4. PLANT MATERIAL

5. PLANT INSTALLATION

6. UNDERDRAINS

7. MISCELLANEOUS

BIO-SWALE 6" x 6" CHECK DAM
TYPICAL CROSS SECTION (NOT TO SCALE)

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANDOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING FENCE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LIMIT OF EXISTING WETLANDS
- PROPOSED 100 YEAR DFRM FLOODPLAIN
- EX. 50' BGE EASEMENT
- SOILS BOUNDARY
- EXISTING TREELINE
- PROPOSED TREELINE
- PROPOSED SIDEWALK
- PROPOSED CONCRETE LOADING DOCK
- PROPOSED PRIVATE SEPTIC EASEMENT
- PROPOSED PRIVATE WELL
- 4" PRIVATE PRESSURE SEWER
- PROPOSED 6" PRIVATE WATER
- PROPOSED STORM DRAIN/INLET
- UNDERDRAIN/ CLEANDOUT
- DEVELOPMENT AREA / LOD
- LIMIT OF DISTURBANCE
- ESDv DRAINAGE DIVIDE
- ESDv DRAINAGE AREA/FACILITY NUMBER
- MICRO-BIORETENTION (M-6)
- BIO-SWALE (M-8)
- MODERATELY STEEP SLOPES 15%-25% SLOPES
- STEEP SLOPES >25%

OPERATION AND MAINTENANCE SCHEDULE FOR LANDSCAPE INFILTRATION (M-3), MICRO-BIORETENTION (M-6), RAIN GARDENS (M-7), BIORETENTION SWALE (M-8), AND ENHANCED FILTERS (M-9)

- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT, ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL, PRUNING, ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUME II, TABLE A.4.1 AND 2.
- THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
- THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
- THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

MICRO-BIORETENTION (UNDERDRAIN)
MICRO-BIORETENTION (OVERFLOW)

MAPPED SOILS TYPES - CLARKSVILLE NW / NE MAP #16 / 17

SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	HYDRIC INCLUSIONS	PRIME FARMLAND	15% SLOPE W/ EROSION POTENTIAL
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	.32	NO	NO	YES
BeB	BENEVOLE SILT LOAM, 3 TO 8 PERCENT SLOPES	B	.43	NO	NO	YES
McC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	C	.28	NO	NO	*YES
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	.28	NO	NO	*YES

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY *FARMLAND OF STATEWIDE IMPORTANCE

NOTE: HIGHLY ERODIBLE SOILS ARE 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 PERCENT

SITE DEVELOPMENT PLAN
ESDv SWM DRAINAGE AREA MAP
CUNNINGHAM PROPERTY - FOOD HUB
4979 SHEPPARD LANE
L. 1576/F. 426

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10 SHEET OF 10
SDP-18-004