ANNE ARUNDEL COUNTY MARYLAND
DEPARTMENT OF PUBLIC WORKS
LAKE WATERFORD PARK

830 PASADENA ROAD, PASADENA, MARYLAND 21122
PROJECT NO.: P591000, CONTRACT NO. P591001

AUGUST 05, 2026

STANDARD RESPONSIBILITY NOTES:

1. I (WE) CERTIFY THAT:
   a. ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE IN ACCORDANCE WITH THIS SEDIMENT AND EROSION CONTROL PLAN, AND FURTHER, AUTHORIZE THE RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY THE ANNE ARUNDEL SOIL CONSERVATION DISTRICT (AASCD) BOARD OF SUPERVISORS OR THEIR AUTHORIZED AGENTS.
   b. ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE FROM THE MARYLAND DEPARTMENT OF THE ENVIRONMENT'S APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. RESPONSIBLE PERSONNEL ON SITE: _____
   c. IF APPLICABLE, THE APPROPRIATE ENCLOSURE WILL BE CONSTRUCTED AND MAINTAINED ON SEDIMENT BASIN(S) INCLUDED IN THIS PLAN. SUCH STRUCTURE(S) WILL BE IN COMPLIANCE WITH THE ANNE ARUNDEL COUNTY CODE.
2. THE DEVELOPER IS RESPONSIBLE FOR THE ACQUISITION OF ALL EASEMENTS, RIGHT, AND/OR RIGHTS-OF-WAY THAT MAY BE REQUIRED FOR THE SEDIMENT AND EROSION CONTROL PRACTICES, STORM WATER MANAGEMENT PRACTICES AND THE DISCHARGE OF STORM WATER ONTO OR ACROSS ADJACENT OR DOWNSTREAM PROPERTIES INCLUDED IN THE PLAN.
3. FOR INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT AND/OR TEMPORARY STABILIZATION PER THE AASCD VEGETATIVE ESTABLISHMENT SHALL BE COMPLETED WITHIN THREE CALENDAR DAYS FOR THE SURFACE OF ALL CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND SEVEN DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. THE GRADING AND SEDIMENT CONTROL APPROVAL ON THIS PLAN EXTENDS ONLY TO THOSE AREAS WITHIN THE LIMITS OF DISTURBANCE.
5. THE APPROVAL OF THIS PLAN FOR SEDIMENT AND EROSION CONTROL DOES NOT RELIEVE THE DEVELOPER/CONSULTANT FROM COMPLYING WITH FEDERAL, STATE OR COUNTY REQUIREMENTS PERTAINING TO ENVIRONMENTAL ISSUES.
6. THE DEVELOPER MUST REQUEST THAT THE SEDIMENT AND EROSION CONTROL INSPECTOR APPROVE WORK COMPLETED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN, THE GRADING OR BUILDING PERMIT, AND THE ORDINANCE.
7. ALL MATERIAL SHALL BE TAKEN TO A SITE WITH AN APPROVED SEDIMENT AND EROSION CONTROL PLAN.
8. FIRST PHASE INSPECTION AND APPROVAL OF THE SEDIMENT AND EROSION CONTROL INSPECTOR SHALL BE REQUIRED UPON COMPLETION OF THE INSTALLATION OF EROSION AND SEDIMENT CONTROLS PRIOR TO PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THE INITIAL APPROVAL BY THE SEDIMENT AND EROSION CONTROL INSPECTOR IS GIVEN. INSPECTION AND PERMITS MAY ALSO REQUIRE THAT AN INSPECTION AND CERTIFICATION OF THE INSTALLATION OF SEDIMENT CONTROL ALSO BE PERFORMED BY A DESIGN PROFESSIONAL PRIOR TO CONSTRUCTION COMMENCING.
9. APPROVAL FROM THE INSPECTOR MUST BE REQUESTED ON FINAL STABILIZATION OF ALL SITES PRIOR TO REMOVAL OF SEDIMENT AND EROSION CONTROLS.
10. EXISTING TOPOGRAPHY MUST BE FIELD VERIFIED BY RESPONSIBLE PERSONNEL TO THE SATISFACTION OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO COMMENCING WORK.

Signed by: David Braun — 5/11/2026 | 09:54 EDT
SIGNATURE OF DEVELOPER/OWNER — DATE

PRINT NAME: DAVID BRAUN
TITLE: ENGINEER ADMINISTRATOR
ADDRESS: ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS
2662 RIVA ROAD
ANNAPOLIS, MARYLAND 21401
TELEPHONE NUMBER: 410-222-7500
EMAIL ADDRESS: PWBRAU78@AACOUNTY.ORG

CONSULTANT'S CERTIFICATION

THE DEVELOPER'S PLAN TO CONTROL SILT AND EROSION IS ADEQUATE TO CONTAIN THE SILT AND EROSION ON THE PROPERTY COVERED BY THE PLAN. I CERTIFY THAT THIS PLAN OF EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THIS SITE, AND WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASCD PLAN SUBMITTAL GUIDELINES AND THE CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. I HAVE REVIEWED THIS EROSION AND SEDIMENT CONTROL PLAN WITH THE OWNER/DEVELOPER.

MD P.E. LICENSE # 27734
MD LAND SURVEYOR LICENSE # _____
MD LANDSCAPE ARCHITECT # _____
NAME JESSE LINDSAY, P.E.
FIRM NAME TRANSYSTEMS
ADDRESS 300 E. JOPPA ROAD, SUITE 200 — 08/05/2026 DATE
CITY TOWSON STATE MD ZIP CODE 21286

STATE OF MARYLAND — JESSE MICHAEL LINDSAY — NO. 27734 — PROFESSIONAL ENGINEER

NOTE: THE CONSULTANT'S CERTIFICATION MUST BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER IF THE SITE LIES WITHIN THE SEVERN RIVER WATERSHED.

GENERAL NOTES:

1. THE PROPERTY DELINEATED HEREON IS SHOWN ON TAX MAP 23, GRID 6, PARCEL 71 AND IS LISTED IN THE NAME OF ANNE ARUNDEL COUNTY, MARYLAND AS RECORDED IN LIBER 2032 AT FOLIO 15 AMONG THE LAND RECORDS OF ANNE ARUNDEL COUNTY, MARYLAND.
   PASADENA ROAD IS DESIGNATED SCENIC AND HISTORIC ROAD.
   DEVELOPMENT MUST COUNTY WITH ARTICLE 17-7-504.
2. THE PROPERTY LIES WITHIN ZONE 'X' (AREA OF 0.2% ANNUAL CHANCE OF FLOOD) AS PLOTTED ON NATIONAL FLOOD INSURANCE PROGRAM, FLOOD INSURANCE RATE MAP, COMMUNITY PANEL MAP NO. 24003C0156F DATED FEBRUARY 18, 2015 FOR ANNE ARUNDEL COUNTY, MARYLAND.
3. NO TITLE REPORT FURNISHED: THIS SURVEY IS NOT A COMPREHENSIVE RECORD OF APPURTENANCES OR ENCUMBRANCES OF RECORD OR IN USE.
4. THIS SURVEY INFORMATION SHOWN HEREON IS BASED ON MARYLAND STATE PLAN COORDINATE SYSTEM NAD 83(2011) HORIZONTAL DATUM AND NAVD 88 VERTICAL DATUM. PRIMARY CONTROL IS BASED ON GPS OBSERVATIONS USING OPUS PROCESSED THROUGH NGS.
   AEC100 N 526,350.0424 E 1,437,806.7600 EL 66.18' (REBAR&CAP)
   AEC101 N 526,518.0712 E 1,438,255.8197 EL 64.76' (REBAR&CAP)
   COMBINED SCALE FACTOR: (AEC107A - GRID TO GROUND) 0.9999612107
5. THIS FIELD RUN BOUNDARY AND TOPOGRAPHIC SURVEY WAS PERFORMED BY ARUNDEL COUNTY, MARYLAND DURING JANUARY 2022 THRU JANUARY 2023.
6. NO EVIDENCE OF EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITION WAS OBSERVED AT THE TIME OF THE SURVEY.
7. THE EXISTENCE OF VEGETATED OR TIDAL WETLANDS, WATERS OF THE U.S. AND/OR HAZARDOUS WASTES HAS BEEN NEITHER INVESTIGATED NOR CONFIRMED DURING THE PERFORMANCE OF THIS SURVEY.
8. ADDITIONAL SPOT ELEVATIONS RESIDE IN THE ELECTRONIC VERSION OF THIS DRAWING BUT ARE NOT PLOTTED HEREON.
9. THE EXISTING UTILITIES SHOWN HEREON HAVE BEEN LOCATED BY ACTUAL FIELD MEASUREMENTS OF OBSERVABLE EVIDENCE. WE DO NOT GUARANTEE THE ACCURACY OR THE COMPLETENESS OF THE INFORMATION RECEIVED. THE CONTRACTOR MUST VERIFY ALL SUCH INFORMATION TO HIS OWN SATISFACTION AND MUST NOTIFY THE UTILITY COMPANIES INVOLVED PRIOR TO THE START OF THE WORK. OBSERVED PAINT MARKINGS WERE LOCATED AS SHOWN.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ACTUAL SITE CONDITIONS PRIOR TO THE START OF ANY WORK. THERE IS NO WARRANTY OR GUARANTEE ON THE COMPLETENESS OR CORRECTNESS OF THE EXISTING CONDITION INFORMATION. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT/ENGINEER PRIOR TO THE START OF ANY WORK.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING "MISS UTILITY" AT 1-800-257-7777 THREE DAYS PRIOR TO THE START OF ANY EXCAVATION WORK.
12. THE WORDS "CERTIFY" OR "CERTIFICATION" AS USED HEREON ARE UNDERSTOOD TO BE AN EXPRESSION OF PROFESSIONAL OPINION BY THE UNDERSIGNED SURVEYOR, BASED UPON HIS BEST KNOWLEDGE, INFORMATION, AND BELIEF. AS SUCH, IT DOES NOT CONSTITUTE A GUARANTEE NOR A WARRANTY, EXPRESSED OR IMPLIED.
13. TRACK-TYPE VEHICLES ARE PROHIBITED FROM TRAVELING ON OR ACROSS PAVED SITE ROADWAYS.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY REMOVAL OF ALL DUST AND MUD ON ALL THE ROADS. DUE TO CONTRACTOR ARRIVING AND LEAVING THE JOB SITE AND AS DIRECTED BY THE ENGINEER OR ANNE ARUNDEL COUNTY INSPECTOR. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR APPLYING AND OBTAINING ALL TRADE (ELECTRICAL, BUILDING AND PLUMBING) PERMITS.
15. CONTRACTOR IS RESPONSIBLE FOR PREPARING THE STORMWATER MANAGEMENT AS-BUILT PLANS, REPORT AND CERTIFICATION.
16. ALL WORK TO BE DONE ON THIS PROJECT SHALL BE IN COMPLIANCE WITH THE LATEST EDITION OF THE ANNE ARUNDEL COUNTY STANDARDS DETAILS & SPECIFICATIONS FOR CONSTRUCTION.

OUTFALL STATEMENT #1

A FIELD INVESTIGATION OF OUTFALL #1 WAS PERFORMED BY TRANSYSTEMS ON OCTOBER 8, 2025. OUTFALL #1 IS LOCATED AT LAKE WATERFORD 852 FEET WEST OF BALTIMORE ANNAPOLIS BOULEVARD. RUN-OFF PICKS UP NEAR PASADENA ROAD AND IS CONVEYED THROUGH A STORM DRAIN SYSTEM (6-18" PIPES) BENEATH THE MOST WESTERN TRAIL OF THE PARK. DRAINAGE TO THE OUTFALL AND ITS CONNECTING STRUCTURES ARE ADEQUATE. THE PROPOSED DEVELOPMENT WILL NOT INCREASE RAINFALL RUN-OFF THROUGHOUT THE EXISTING STORM DRAIN SYSTEM. THERE IS PONDING AT THE OUTFALL DUE TO DEBRIS, WHEN UNOBSTRUCTED WATER CAN CONTINUE TO FLOW.

OUTFALL STATEMENT #2

A FIELD INVESTIGATION OF OUTFALL #2 WAS PERFORMED BY TRANSYSTEMS ON OCTOBER 8, 2025. OUTFALL #2 IS LOCATED NORTH OF THE EXISTING MAINTENANCE BUILDING OR 430 FEET WEST OF BALTIMORE ANNAPOLIS BOULEVARD. THE OUTFALL PIPE (15" RCP) IS HALFWAY SUBMERGED IN THE WATER AT LAKE WATERORD. THE PROPOSED DEVELOPEMNT WILL INCREASE RUNOFF ONSITE. THE INCREASE IN RUNOFF IS ADRESSED IN THE PROPOSED STORMWATER MANAGEMENT DESIGN AND STORM DRAIN SYSTEM RESULTING IN NO INCREASE AT THIS OUTFALL. THE COUNTY IS IN THE PROCESS OF UPGRADING THE SITES PERIMETER, IMPROVING CONDITIONS TO THIS OUTFALL EVEN FURTHER.

OUTFALL STATEMENT #3

A FIELD INVESTIGATION OF OUTFALL #3 WAS PERFORMED BY TRANSYSTEMS ON OCTOBER 8, 2025. OUTFALL #3 IS LOCATED 126 FEET WEST OF BALTIMORE ANNAPOLIS BOULEVARD. THE OUTFALL PIPE COULD NOT BE DISCOVERED AFTER EXTENSIVE SEARCH AND IS SUSPECTED TO HAVE BEEN SUBMERGED UNDER SOILS OR THE LAKE. THE PROPOSED DEVELOPMENT WILL NOT INCREASE THE RUN-OFF THROUGHOUT THE EXISTING STORM DRAIN SYSTEM.

OUTFALL STATEMENT #4

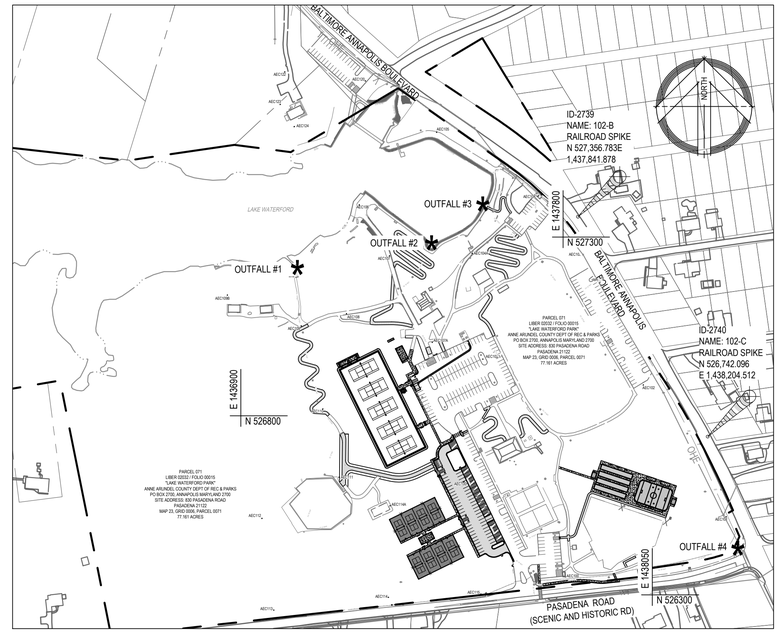
A FIELD INVESTIGATION OF OUTFALL #4 WAS PERFORMED BY TRANSYSTEMS ON OCTOBER 8, 2025. OUTFALL #4 IS LOCATED AT THE PASADENA ROAD AND BALTIMORE ANNAPOLIS BOULEVARD INTERSECTION ADJACENT TO THE NORTH WEST CURB OF THE INTERSECTION. THE PROPOSED DEVELOPMENT WILL INCREASE THE RUN-OFF THROUGHOUT THE EXISTING STORM DRAIN SYSTEM BY 0.11 CUBIC FEET PER SECOND AND WILL NOT REQUIRE THE EXISTING NETWORK TO BE UPGRADED AS THE CURRENT STORM DRAIN SYSTEM IS ADEQUATE TO WITHSTAND THE INCREASE

SITE ANALYSIS

1.	TOTAL AREA OF PARCEL:	77.161 ACRES
2.	TOTAL DISTURBED AREA:	6.70 ACRES
3.	TOTAL AREA TO BE STABILIZED	6.70 ACRES
4.	TOTAL IMPERVIOUS AREA	3.34 ACRES
5.	TOTAL TO BE VEGETATIVELY STABILIZED:	3.36 ACRES
6.	PROPOSED NEW IMPERVIOUS AREA	2.14 ACRES
7.	ESTIMATED CUT:	2,864 CU.YDS
8.	ESTIMATED FILL:	11,959 CU.YDS

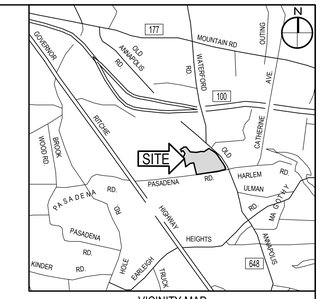
NOTE:
THE EARTHWORK QUANTITIES SHOWN HEREON ARE FOR INFORMATION PURPOSES ONLY. NO GUARANTEES OF ACCURACY OF QUANTITIES OR BALANCE OF SITE. THE CONTRACTOR SHALL TAKE FULL RESPONSIBILITY OF ACTUAL EARTHWORK QUANTITIES ENCOUNTERED DURING CONSTRUCTION.

OWNER	APPLICANT
ANNE ARUNDEL COUNTY	TRANSYSTEMS
2660 RIVA ROAD FL 3	300 E. JOPPA ROAD, STE 200
ANNAPOLIS, MARYLAND 21401-7055	BALTIMORE, MARYLAND 21286
(410) 222-7300	(410) 512-4500



1"=200'-0" (200 0 100 200 400)

LOCATION MAP
SCALE: 1" = 200'



VICINITY MAP
SCALE: 1" = 2,000'

LEGEND

DESCRIPTION	EXISTING	REMOVE	NEW
BUILDING	EX. BLDG	EX. BLDG	
BITUMINOUS CONCRETE PAVING	EX. MACADAM		
MACADAM WALK	MACADAM WALK		
CONCRETE WALK	CONC WALK		
MILL AND OVERLAY	EX. MACADAM		
FOREST CLEARING			
ATHLETIC COURT SURFACE			
CONC. CURB			
WALL			
METAL FENCE	X	X	X
WOOD FENCE			
SIGN (ONE-POST)			
SPOT ELEVATION	× 50.5		+ 50.5
MAJOR CONTOUR	50		50
MINOR CONTOUR	51		51
O/H ELECTRIC	OHE	OHE	OHE
U/G ELECTRIC	E	E	
U/G STORM	D	D	
UG WATER	W		
PROPERTY LINE			
BLDG SETBACK LINE			
SOIL BORING	B#		
SURVEY LIMITS			
TREES	10" 6"	10" 6"	
TREE LINE			
DRAIN INLET			
STORM DRAIN MH	D	D	
BBQ GRILL			
POWER POLE			
STREET LIGHT			
TRAVERSE STATION	AEC#		
WELL	W		
WATER VALVE	WV		
CLEAN OUT	CO		
SOIL LINE	PgB (A) PeB (A)		
STEEP SLOPES (15% - 25%)			
STEEP SLOPES (25% OR GREATER)			
LIMIT OF DISTURBANCE		LOD	LOD
FLOW ARROW			

(*) ANNE ARUNDEL COUNTY IS EXEMPT FROM BUILDING SETBACK REQUIREMENTS

811 Know what's below. Call before you dig.

ENGINEER CERTIFICATION

STORMWATER MANAGEMENT RECORD DRAWING CERTIFICATION

THIS CERTIFIES TO THE BEST OF MY PROFESSIONAL BELIEF AND KNOWLEDGE, THE APPROVED S.W.M. SYSTEM(S) AS SHOWN HEREON HAVE BEEN CONSTRUCTED IN SUCH A MANNER THAT WOULD BE CONSISTENT WITH THE APPROVED PLANS. ANY CHANGES/MODIFICATIONS ARE SHOWN IN RED.

NAME (PRINTED) — SIGNATURE
MARYLAND REGISTRATION NUMBER — DATE
SEAL

OWNER/PERMITTEE ACKNOWLEDGEMENT

"ALL GRADING, DRAINAGE, STRUCTURES, AND EROSION AND SEDIMENT CONTROL PRACTICES INCLUDING FACILITIES AND VEGETATIVE MEASURES HAVE BEEN COMPLEATED IN CONFORMANCE WITH THE APPROVED PLANS."

OWNER/ PERMITTEE'S NAME (PRINT) — OWNER/PREMITTEE'S SIGNATURE — DATE

SURVEY TRAVERSE CONTROL LISTING

PT#	NORTHING	EASTING	ELEV.	DESCRIPTION
AEC100,	526,350.0424,	1437806.7600,	66.1800,	TRAV AEC RC
AEC101,	526518.0712,	1438255.8197,	64.7600,	TRAV AEC RC
AEC101A,	526616.0936,	1437523.1029,	62.8100,	TRAV MAGHUB NAIL
AEC102,	526886.6171,	1438024.3109,	65.5500,	TRAV AEC RC
AEC102A,	526958.9308,	1437575.8569,	59.8600,	TRAV AEC RC
AEC103,	527258.2177,	1437855.6774,	49.4000,	TRAV AEC RC
AEC104,	527415.1304,	1437730.8024,	35.8200,	TRAV MAGHUB NAIL
AEC104A,	527254.7317,	1437546.0774,	44.2200,	TRAV MAG NAIL
AEC105,	527593.1824,	1437446.7133,	30.1600,	TRAV MAG NAIL
AEC106,	527390.1602,	1437230.6554,	28.6700,	TRAV MAG NAIL
AEC107,	527247.3416,	1437314.8561,	42.5700,	TRAV MAG NAIL
AEC107A,	527005.7951,	1437434.7426,	54.8000,	TRAV MAGHUB NAIL
AEC108,	527085.9458,	1437194.7413,	42.5600,	TRAV MAG NAIL
AEC109,	527051.8416,	1437068.3203,	42.3000,	TRAV MAG NAIL
AEC109A,	527187.7215,	1437052.5534,	28.3600,	TRAV MAGHUB NAIL
AEC109B,	527137.9937,	1436861.9115,	45.9700,	TRAV MAGHUB NAIL
AEC110,	526819.6700,	1437128.6932,	53.0200,	TRAV MAG NAIL
AEC111,	526628.5105,	1437173.9017,	55.2800,	TRAV MAG NAIL
AEC112,	526513.6189,	1436958.5115,	56.5800,	TRAV MAGHUB NAIL
AEC113,	526257.3011,	1436991.4773,	62.9000,	TRAV MAGHUB NAIL
AEC114,	526292.9943,	1437312.0872,	62.3700,	TRAV MAGHUB NAIL
AEC114A,	526548.8260,	1437316.5627,	57.1500,	TRAV MAG NAIL
AEC115,	526302.3650,	1437570.3548,	62.9700,	TRAV MAGHUB NAIL
AEC120,	527736.5545,	1437247.6041,	23.6300,	TRAV MAG NAIL
AEC121,	527960.9010,	1437040.0442,	40.9100,	TRAV AEC RC
AEC122,	527761.6917,	1437022.4223,	47.9800,	TRAV MAGHUB NAIL
AEC123,	527670.7774,	1437009.5352,	49.3000,	TRAV MAGHUB NAIL
AEC124,	527608.7282,	1437048.8516,	43.9700,	TRAV MAGHUB NAIL

INDEX OF DRAWINGS

DRAWING NUMBER	DRAWING TITLE CIVIL
1.	COVER SHEET
2.	OVERALL EXISTING CONDITIONS PLAN
3.	EXISTING CONDITIONS AND DEMOLITION PLAN
4.	EXISTING CONDITIONS AND DEMOLITION PLAN
5.	SOIL BORING LOG
6.	SOIL BORING LOG
7.	OVERALL SITE LAYOUT PLAN
8.	SITE LAYOUT PLAN
9.	SITE LAYOUT PLAN
10.	SITE DETAILS
11.	SITE DETAILS
12.	SITE DETAILS
13.	SITE DETAILS
14.	OVERALL GRADING AND STORM DRAIN PLAN
15.	GRADING AND STORM DRAIN PLAN
16.	GRADING AND STORM DRAIN PLAN
17.	STORM DRAIN PROFILES
18.	STORM DRAIN PROFILES
19.	OVERALL STORM WATER MANAGEMENT PLAN
20.	STORM WATER MANAGEMENT PART PLAN
21.	STORM WATER MANAGEMENT PART PLAN
22.	STORM WATER MANAGEMENT PART PLAN
23.	STORM WATER MANAGEMENT PART PLAN
24.	STORM WATER MANAGEMENT PART PLAN
25.	STORM WATER MANAGEMENT PART PLAN
26.	STORM WATER MANAGEMENT DETAILS - MICROBIORETENTION
27.	STORM WATER MANAGEMENT DETAILS - MICROBIORETENTION
28.	OVERALL SEDIMENT AND EROSION CONTROL PLAN - INITIAL PHASE
29.	SEDIMENT AND EROSION CONTROL PLAN - INITIAL PHASE
30.	SEDIMENT AND EROSION CONTROL PLAN - INITIAL PHASE
31.	SEDIMENT AND EROSION CONTROL PLAN - INTERIM PHASE
32.	SEDIMENT AND EROSION CONTROL PLAN - INTERIM PHASE
33.	SEDIMENT AND EROSION CONTROL PLAN - FINAL PHASE
34.	SEDIMENT AND EROSION CONTROL PLAN - FINAL PHASE
35.	SEDIMENT AND EROSION CONTROL PLAN - FINAL PHASE
36.	SEDIMENT AND EROSION CONTROL NOTES
37.	SEDIMENT AND EROSION CONTROL DETAILS
38.	SEDIMENT AND EROSION CONTROL DETAILS
39.	LANDSCAPE PLAN
40.	LANDSCAPE NOTES AND DETAILS
41.	OVERALL FOREST STAND DELINEATION PLAN
42.	FOREST STAND DELINEATION PLAN
43.	FOREST STAND DELINEATION PLAN
44.	FOREST DELINEATION FIELD DATA SHEETS
45.	OVERALL FOREST CONSERVATION PLAN
46.	FOREST CONSERVATION PLAN
47.	FOREST CONSERVATION PLAN
48.	FOREST CONSERVATION NOTES AND DETAILS
49.	EXISTING DRAINAGE AREA MAP
50.	PROPOSED DRAINAGE AREA MAP

ELECTRICAL

DRAWING NUMBER	DRAWING TITLE
51.	OVERALL ELECTRICAL SITE LAYOUT PLAN
52.	ELECTRICAL SITE LAYOUT PLAN
53.	ELECTRICAL SITE LAYOUT PLAN
54.	ELECTRICAL RISER DIAGRAM
55.	ELECTRICAL DETAILS
56.	ELECTRICAL DETAILS AND SCHEDULES
57.	ELECTRICAL DETAILS

BENCHMARK CONTROL LISTING

PT#	NORTHING	EASTING	ELEV.	DESCRIPTION
1	526,350.0424	1,437,806.7600	EL 66.18'	(REBAR&CAP)
	526,518.0712	1,438,255.8197	EL 64.76'	(REBAR&CAP)

ADA COMPLIANCE NOTE

IN ORDER TO MEET THE ADOPTED 2010 ADA MINIMUM REQUIREMENTS AND IN ACCORDANCE WITH THE PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG) PUBLISHED BY THE U.S. ACCESS BOARD IN 2011, ALL PUBLIC AND PRIVATE PEDESTRIAN ACCESS ROUTES, SIDEWALKS, CURB AND GUTTER, CURB RAMPS, AND TRAFFIC CONTROL DEVICES SHALL BE DESIGNED IN ACCORDANCE WITH THE ANNE ARUNDEL COUNTY PEDESTRIAN FACILITY STANDARDS PF1 – PF29 .

300 East Joppa Road Suite 200
Baltimore, MD 21286
410.512.4500 www.gftinc.com
GFT

STATE OF MARYLAND — JESSE MICHAEL LINDSAY — NO. 27734 — PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/28

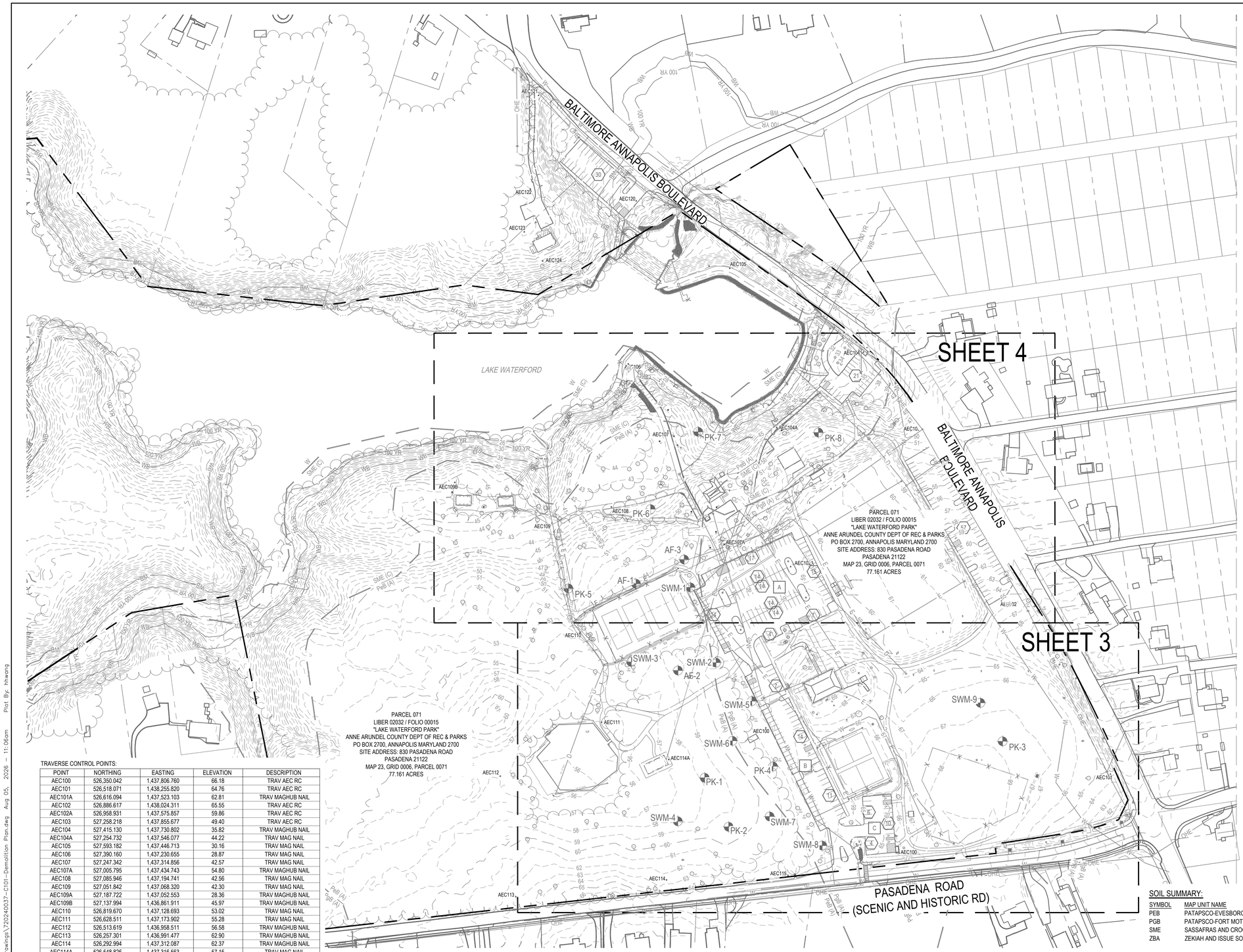
REVISIONS

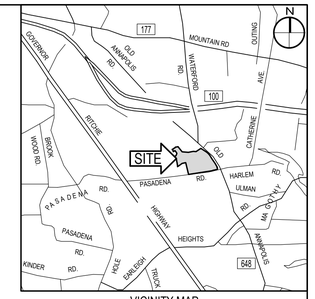
NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: AS SHOWN	LAKE WATERFORD PARK
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	COVER SHEET
		SHEET NO. 01 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

G:\Projects_2024\BL720\72024037\Site\Drawings\72024037-G101-Cover Sheet.dwg Aug 05, 2026 - 11:41am Plot By: thwang





VICINITY MAP
SCALE: 1" = 2,000'

SITE INFORMATION :

1. OWNER:

ANNE ARUNDEL COUNTY DEPARTMENT OF RECREATIONS AND PARKS
P.O. BOX 2700
ANNAPOLIS, MARYLAND 21404-2700

SITE ADDRESS:

LAKE WATERFORD PARK
830 PASADENA ROAD
PASADENA, MARYLAND 21122

SITE DATA TABLE:

PARCEL: 071
TAX MAP ID: 03-000-00477574
DEED REFERENCE: 02032 / 00015
ANNE ARUNDEL COUNTY
2660 RIVA ROAD
ANNAPOLIS, MARYLAND 21401
MAP: 0023, GRID: 0006, PARCEL: 071
ZONING: OS (OPEN SPACE)
77.161 ACRES

PARCEL: 0457
TAX MAP ID: 03-000-09862225
DEED REFERENCE: 09452 / 00592
ANNE ARUNDEL COUNTY
2660 RIVA ROAD
ANNAPOLIS, MARYLAND 21401
MAP: 0023, GRID: 0006, PARCEL 0457
ZONING: OS (OPEN SPACE)
AREA: 6.00 ACRES

PARCEL: 0147
TAX MAP ID: 03-722-90053454
DEED REFERENCE: 04302 / 00084
ANNE ARUNDEL COUNTY
2660 RIVA ROAD
ANNAPOLIS, MARYLAND 21401
MAP: 0023, GRID: 0005, PARCEL 0147
ZONING: OS (OPEN SPACE)
AREA: 871 SQ FT

PARCEL: 0147 FLOODPLAIN
TAX MAP ID: 03-722-00477442
DEED REFERENCE: 01668 / 00141
ANNE ARUNDEL COUNTY
2660 RIVA ROAD
ANNAPOLIS, MARYLAND 21401
MAP: 0023, GRID: 0005, PARCEL 0147
ZONING: OS (OPEN SPACE)
AREA: 5.55 ACRES

1. EXISTING FEATURES SHOWN HEREON WERE TAKEN FROM ACTUAL FIELD MEASUREMENTS BY AECOM DURING JANUARY 2022 THRU JANUARY 2023.

2. SURVEY INFORMATION SHOWN HEREON IS BASED ON MARYLAND STATE PLAN COORDINATE SYSTEM NAD83(2011) HORIZONTAL DATUM AND NAVD88 VERTICAL DATUM. PRIMARY CONTROL IS BASED ON GPS OBSERVATIONS USING OPUS PROCESSED THROUGH NGS.

AEC100 N 526,350.0424 E 1,437,806.7600 EL 66.18' (REBAR&CAP)

AEC101 N 526,518.0712 E 1,438,255.8197 EL 64.76' (REBAR&CAP)
COMBINED SCALE FACTOR: (AEC107A - GRID TO GROUND) 0.9999612107

3. UTILITIES SHOWN HEREON HAVE BEEN LOCATED BY ACTUAL FIELD MEASUREMENTS OF OBSERVABLE EVIDENCE. WE DO NOT GUARANTEE THE ACCURACY OR THE COMPLETENESS OF THE INFORMATION RECEIVED. THE CONTRACTOR MUST VERIFY ALL SUCH INFORMATION TO HIS OWN SATISFACTION AND MUST NOTIFY THE UTILITY COMPANIES INVOLVED PRIOR TO THE START OF THE WORK. OBSERVED PAINT MARKINGS WERE LOCATED AS SHOWN.

PARKING TABULATION:

EXISTING PARKING LOT 'A'		
STANDARD PARKING SPACES	=	108 SPACES
HANDICAP (ADA) PARKING SPACES	=	5 (5 VAN ACCESSIBLE)
TOTAL PARKING SPACES	=	113 SPACES
EXISTING PARKING LOT 'B'		
STANDARD PARKING SPACES	=	61 SPACES
HANDICAP (ADA) PARKING SPACES	=	3 (3 VAN ACCESSIBLE)
TOTAL PARKING SPACES	=	64 SPACES
EXISTING PARKING LOT 'C'		
STANDARD PARKING SPACES	=	16 SPACES
HANDICAP (ADA) PARKING SPACES	=	4 (3 VAN ACCESSIBLE)
TOTAL PARKING SPACES	=	20 SPACES

SOIL SUMMARY:

SYMBOL	MAP UNIT NAME	K RATING
PEB	PATAPSCO-EVESBORO-FORT MOTT COMPLEX, 0 TO 5%	0.02 LOW ERODIBILITY
PGB	PATAPSCO-FORT MOTT-URBAN LAND COMPLEX, 0 TO 5%	0.02 LOW ERODIBILITY
SME	SASSAFRAS AND CROOM SOILS, 15 TO 25%	0.15 MODERATELY LOW ERODIBILITY
ZBA	ZEKIAH AND ISSUE SOILS, 0 TO 2%, FREQUENTLY FLOODED	0.32 MODERATELY HIGH ERODIBILITY

TRAVERSE CONTROL POINTS:

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
AEC100	526,350.042	1,437,806.760	66.18	TRAV AEC RC
AEC101	526,518.071	1,438,255.820	64.76	TRAV AEC RC
AEC101A	526,616.094	1,437,523.103	62.81	TRAV MAGHUB NAIL
AEC102	526,886.617	1,438,024.311	65.55	TRAV AEC RC
AEC102A	526,958.931	1,437,575.857	59.86	TRAV AEC RC
AEC103	527,258.218	1,437,855.677	49.40	TRAV AEC RC
AEC104	527,415.130	1,437,730.802	35.82	TRAV MAGHUB NAIL
AEC104A	527,254.732	1,437,546.077	44.22	TRAV MAG NAIL
AEC105	527,593.182	1,437,446.713	30.16	TRAV MAG NAIL
AEC106	527,390.160	1,437,230.655	28.87	TRAV MAG NAIL
AEC107	527,247.342	1,437,314.856	42.57	TRAV MAG NAIL
AEC107A	527,005.795	1,437,434.743	54.80	TRAV MAGHUB NAIL
AEC108	527,085.946	1,437,194.741	42.56	TRAV MAG NAIL
AEC109	527,051.842	1,437,068.320	42.30	TRAV MAG NAIL
AEC109A	527,187.722	1,437,052.553	28.36	TRAV MAGHUB NAIL
AEC109B	527,137.994	1,436,861.911	45.97	TRAV MAGHUB NAIL
AEC110	526,819.670	1,437,128.693	53.02	TRAV MAG NAIL
AEC111	526,628.511	1,437,173.902	55.28	TRAV MAG NAIL
AEC112	526,513.619	1,436,958.511	56.58	TRAV MAGHUB NAIL
AEC113	526,257.301	1,436,991.477	62.90	TRAV MAGHUB NAIL
AEC114	526,292.994	1,437,312.087	62.37	TRAV MAGHUB NAIL
AEC114A	526,548.826	1,437,316.563	57.15	TRAV MAG NAIL
AEC115	526,302.365	1,437,570.355	62.97	TRAV MAGHUB NAIL
AEC120	527,736.554	1,437,247.604	23.63	TRAV MAG NAIL
AEC121	527,960.901	1,437,040.044	40.91	TRAV AEC RC
AEC122	527,761.692	1,437,022.422	47.98	TRAV MAGHUB NAIL
AEC123	527,670.777	1,437,009.535	49.30	TRAV MAGHUB NAIL
AEC124	527,608.728	1,437,048.852	43.97	TRAV MAGHUB NAIL

CAUTION:
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USE THE GRAPHIC SCALES.

1"=100'-0" (100 0 50 100 200)

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300 East Joppa Road Suite 200
Baltimore, MD 21286
410.512.4500 www.gftinc.com

STATE OF MARYLAND — JESSE MICHAEL LINGAN — NO. 37748 — REGISTERED PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/28

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER
APPROVED DATE — PROJECT MANAGER
APPROVED DATE — ASSISTANT CHIEF ENGINEER
APPROVED DATE — CHIEF, RIGHT-OF-WAY

SCALE: 1" = 100'
DRAWN BY: R.S.S.
CHECKED BY: R.W.H.
SHEET NO. 02 OF 57
PROJECT NO.: P591000
CONTRACT NO.: P591001

LAKE WATERFORD PARK

OVERALL EXISTING CONDITIONS PLAN

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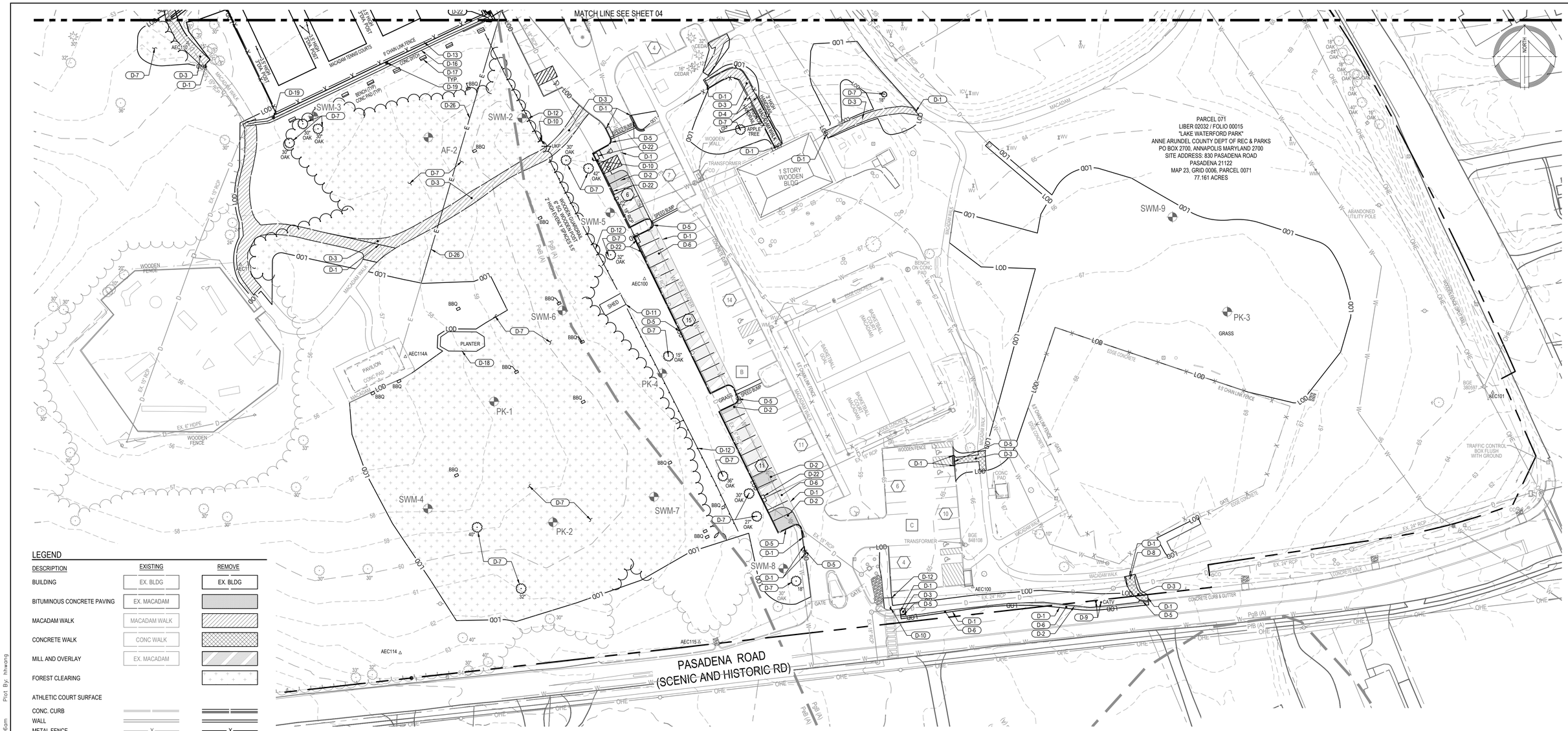

LEGEND

DESCRIPTION	EXISTING	REMOVE
BUILDING	EX. BLDG	EX. BLDG
BITUMINOUS CONCRETE PAVING	EX. MACADAM	
MACADAM WALK	MACADAM WALK	
CONCRETE WALK	CONC WALK	
MILL AND OVERLAY	EX. MACADAM	
FOREST CLEARING		
ATHLETIC COURT SURFACE		
CONC. CURB		
WALL		
METAL FENCE	X	X
WOOD FENCE		
SIGN (ONE-POST)		
SPOT ELEVATION	× 50.5	
MAJOR CONTOUR	50	
MINOR CONTOUR	51	
O/H ELECTRIC	OHE	OHE
U/G ELECTRIC	E	E
U/G STORM	D	D
UG WATER	W	
PROPERTY LINE		
BLDG SETBACK LINE		
SOIL BORING	B#	
SURVEY LIMITS		
TREES	10" 6"	10" 6"
TREE LINE		
DRAIN INLET		
STORM DRAIN MH		
BBQ GRILL		
POWER POLE		
STREET LIGHT		
TRAVERSE STATION	AEC#	
WELL		
WATER VALVE		
CLEAN OUT	CO	
SOIL LINE	PgB (A) PeB (A)	
STEEP SLOPES (15% - 25%)		
STEEP SLOPES (25% OR GREATER)		
LIMIT OF DISTURBANCE		LOD

CAUTION:
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USE THE GRAPHIC SCALES.

1"=40'-0" 40 0 20 40 80

DEMOLITION NOTES

D-1 SAW CUT BITUMINOUS CONCRETE PAVING AND CONCRETE CURB.
D-2 REMOVE AND DISPOSE OF BITUMINOUS CONCRETE PAVING.
D-3 REMOVE AND DISPOSE OF MACADAM/CONCRETE WALK.
D-4 REMOVE AND DISPOSE OF HANDRAIL.
D-5 REMOVE AND DISPOSE OF CONCRETE CURB.
D-6 MILL 2" OF EXISTING BITUMINOUS PAVING.
D-7 REMOVE EXISTING TREE / WOODS.
D-8 REMOVE AND DISPOSED OF WOOD POST.
D-9 EXISTING CATV BOX'S TO BE RELOCATED.
D-10 REMOVE EXISTING SIGN.
D-11 REMOVE EXISTING SHED.
D-12 REMOVE EXISTING WOODEN GUARDRAIL.
D-13 REMOVE AND SALVAGE OF CHAIN LINK FENCE.
D-14 REMOVE EXISTING CHAIN LINK FENCE AND GATE.
D-15 REMOVE AND DISPOSE OF WOODEN WALL.
D-16 REMOVE AND DISPOSE OF CONCRETE DITCH.
D-17 REMOVE AND DISPOSE OF CONCRETE PAD AND BENCH.
D-18 REMOVE AND DISPOSE PLANTER/WOODEN RETAINING WALL.
D-19 REMOVE ELECTRIC LIGHT.
D-20 REMOVE EXISTING GRAVEL STONE RIP-RAP.
D-21 REMOVE WOODEN SPLIT -RAIL FENCE.
D-22 REMOVE AND DISPOSE STORM DRAIN PIPE AND INLET.
D-23 REMOVE AND DISPOSE WOOD POST WITH ROPE FENCE.
D-24 REMOVE AND DISPOSE OF TWO STORY BUILDING.
D-25 REMOVE AND DISPOSE OF CONCRETE PAD.
D-26 EXISTING ELECTRIC TO BE RELOCATED.
D-27 REMOVE EXISTING ELECTRIC.
D-28 REMOVE AND RELOCATE EXISTING SIGN.

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STATE OF MARYLAND
JESSE MICHAEL LINGAN
NO. 27734
PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/28

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 40'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	EXISTING CONDITIONS AND DEMOLITION PLAN
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 03 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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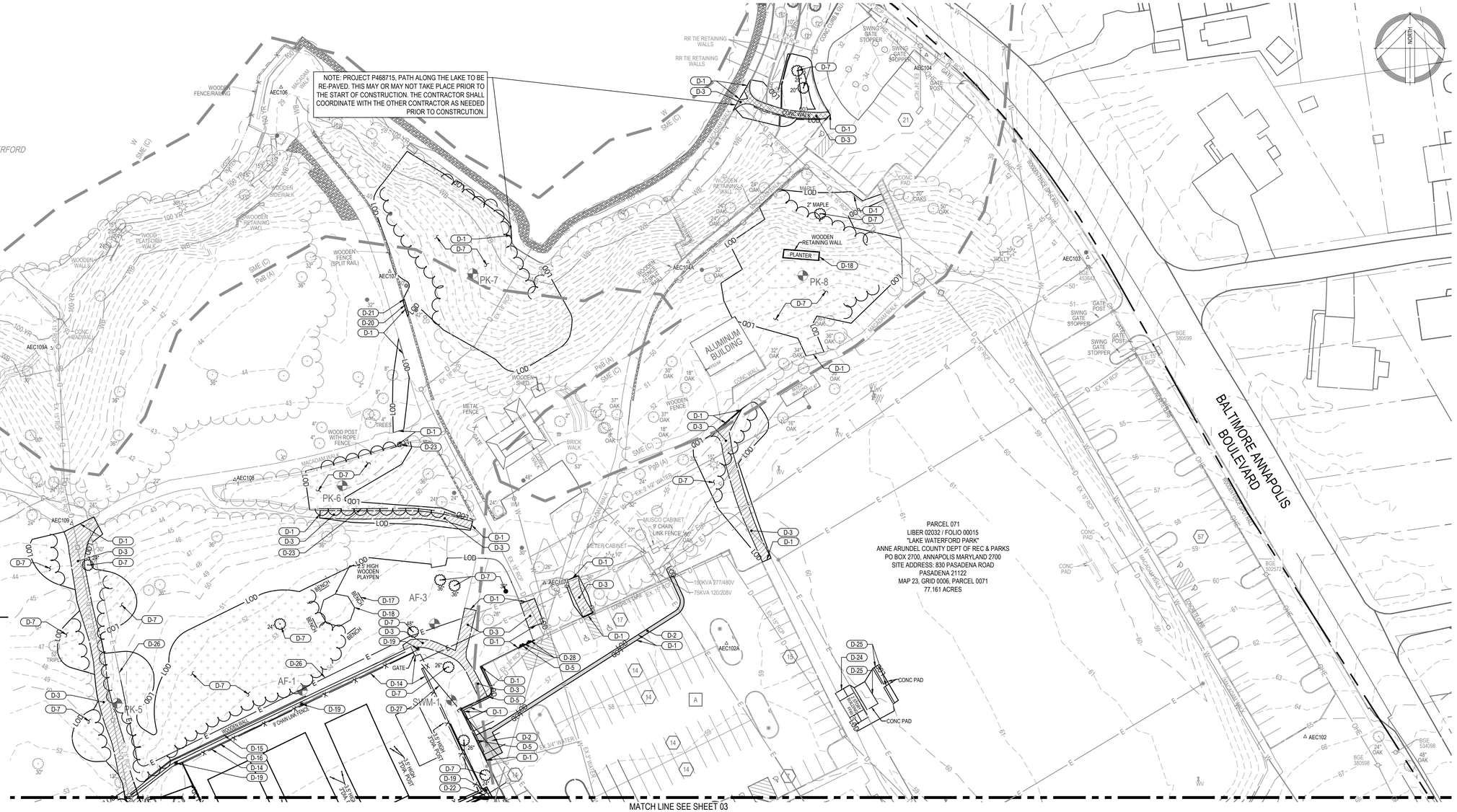

LEGEND

DESCRIPTION	EXISTING	REMOVE
BUILDING	EX. BLDG	EX. BLDG
BITUMINOUS CONCRETE PAVING	EX. MACADAM	
MACADAM WALK	MACADAM WALK	
CONCRETE WALK	CONC WALK	
MILL AND OVERLAY	EX. MACADAM	
FOREST CLEARING		
ATHLETIC COURT SURFACE		
CONC. CURB		
WALL		
METAL FENCE	X	X
WOOD FENCE	/	/
SIGN (ONE-POST)		
SPOT ELEVATION	× 50.5	
MAJOR CONTOUR	50	
MINOR CONTOUR	51	
O/H ELECTRIC	OHE	OHE
U/G ELECTRIC	E	E
U/G STORM	D	D
U/G WATER	W	
PROPERTY LINE		
BLDG SETBACK LINE		
SOIL BORING	B#	
SURVEY LIMITS		
TREES	10" 6"	10" 6"
TREE LINE		
DRAIN INLET		
STORM DRAIN MH	D	D
BBQ GRILL		
POWER POLE		
STREET LIGHT		
TRAVERSE STATION	AEC#	
WELL		
WATER VALVE		
CLEAN OUT	CO	
SOIL LINE	PsB (A) PeB (A)	
STEEP SLOPES (15% - 25%)		
STEEP SLOPES (25% OR GREATER)		
LIMIT OF DISTURBANCE		LOD

CAUTION:
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1"=40'-0" (40 0 20 40 80)

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STATE OF MARYLAND — JESSE MICHAEL LINDSAY — NO. 27734 — REGISTERED PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/28

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 40'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	EXISTING CONDITIONS AND DEMOLITION PLAN
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 04 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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Schnabel Engineering — TEST BORING LOG

Project: Lake Waterford Park Improvements — Pasadena, Maryland

Boring Number: AF-01 | **Contract Number:** 24140009 | **Sheet:** 1 of 1

Contractor: Connelly and Associates, Inc. Frederick, Maryland
Contractor Foreman: Quin
Schnabel Representative: J. Uribe
Equipment: CME -55 ATV
Method: 3-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 2/19/25 **Finished:** 2/19/25
Latitude: 39.11268 **Longitude:** -76.55976
Ground Surface Elevation: 54.5 (ft) **Total Depth:** 25.0 ft

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	2/19	—	Dry	—	—
Completion	2/19	—	Dry	23.5'	—
Auger Pulled	2/19	—	Dry	—	15.0'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
0.5	Mulch; 6 inches							
	POORLY GRADED SAND; moist, dark brown	SP	54.0			S-1; SS 3+3+2 REC=9", 44%		Potomac (CG)
						S-2; SS 2+3+2 REC=10", 56%		
					5	S-3; SS 2+3+3 REC=12", 67%		
				B1		S-4; SS 3+7+7 REC=18", 100%		
					10	S-5; SS 5+8+4 REC=18", 100%		
					15			
18.0	CLAYEY SAND; moist, orange- brown	SC	36.5		20	S-6; SS 3+8+4 REC=18", 100%	LL = 39 PL = 22 MC = 15.6% % Passing #200 = 42.9	
23.5	FAT CLAY; moist, reddish brown	CH	31.0	B2				
25.0			29.5		25	S-7; SS 4+8+12 REC=18", 100%	PP = 4.00 tsf	Potomac (FG)

Bottom of Boring at 25.0 ft.

Boring Number: AF-02 | **Contract Number:** 24140009 | **Sheet:** 1 of 1

Contractor: Connelly and Associates, Inc. Frederick, Maryland
Contractor Foreman: Quin
Schnabel Representative: J. Uribe
Equipment: CME -55 ATV
Method: 3-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 2/21/25 **Finished:** 2/21/25
Latitude: 39.11217 **Longitude:** -76.55945
Ground Surface Elevation: 58.5 (ft) **Total Depth:** 10.0 ft

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	2/21	—	Dry	—	—
Completion	2/21	—	Dry	8.5'	—
Auger Pulled	2/21	—	Dry	—	5.2'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
0.5	Mulch; 6 inches							
	POORLY GRADED SAND; moist, light brown	SP	58.0			S-1; SS 2+3+3 REC=18", 100%		Potomac (CG)
						S-2; SS 3+3+3 REC=18", 100%		
				B1	5	S-3; SS 3+4+6 REC=18", 100%		
8.5	WELL GRADED SAND WITH SILT AND GRAVEL; light gray with mottles of brown	SW-SM	50.0					
10.0			48.5		10	S-4; SS 12+18+19 REC=18", 89%	LL = NP MC = 3.7% % Passing #200 = 9.4	

Bottom of Boring at 10.0 ft.

Boring Number: AF-03 | **Contract Number:** 24140009 | **Sheet:** 1 of 1

Contractor: Connelly and Associates, Inc. Frederick, Maryland
Contractor Foreman: Quin
Schnabel Representative: J. Uribe
Equipment: CME -55 ATV
Method: 3-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 2/19/25 **Finished:** 2/19/25
Latitude: 39.11282 **Longitude:** -76.55940
Ground Surface Elevation: 54.5 (ft) **Total Depth:** 20.0 ft

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	2/19	—	Dry	—	—
Completion	2/19	—	Dry	18.5'	—
Auger Pulled	2/19	—	Dry	—	12.0'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
0.5	Mulch; 6 inches							
	POORLY GRADED SAND; moist, brown	SP	54.0			S-1; SS 2+3+2 REC=9", 44%	MC = 9.2%	Potomac (CG)
						S-2; SS 3+3+2 REC=9", 44%		
					5	S-3; SS 2+3+2 REC=18", 100%		
				B1		S-4; SS 1+10+15 REC=18", 100%		
					10			
					15	S-5; SS 8+11+13 REC=18", 100%	LL = NP MC = 6.9% % Passing #200 = 22.1	
13.0	SILTY SAND; moist, orange- brown	SM	41.5					
20.0			34.5		20	S-6; SS 8+18+14 REC=18", 100%		

Bottom of Boring at 20.0 ft.

Boring Number: PK-01 | **Contract Number:** 24140009 | **Sheet:** 1 of 1

Contractor: Connelly and Associates, Inc. Frederick, Maryland
Contractor Foreman: Quin
Schnabel Representative: J. Uribe
Equipment: CME -55 ATV
Method: 3-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 2/20/25 **Finished:** 2/20/25
Latitude: 39.11154 **Longitude:** -76.55926
Ground Surface Elevation: 58.5 (ft) **Total Depth:** 15.0 ft

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered ▽	2/20	—	14.0'	—	—
Completion	2/20	—	Dry	13.5'	—
Auger Pulled	2/20	—	Dry	—	7.0'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
0.5	Mulch; 6 inches							
	POORLY GRADED SAND; moist, brown, estimated <5% gravel	SP	58.0			S-1; SS 3+3+2 REC=18", 100%		Potomac (CG)
						S-2; SS 3+3+2 REC=18", 100%		
				B1	5	S-3; SS 2+3+4 REC=18", 100%		
8.5	LEAN CLAY; moist, light gray	CL	50.0			S-4; SS 6+8+12 REC=18", 100%	LL = 45 PL = 25 MC = 20.5% % Passing #200 = 97.0	Potomac (FG)
12.0	SANDY SILT; wet, light gray	ML	46.5	B2				
15.0			43.5		15	S-5; SS 7+8+10 REC=18", 100%		

Bottom of Boring at 15.0 ft.

Boring Number: PK-02 | **Contract Number:** 24140009 | **Sheet:** 1 of 1

Contractor: Connelly and Associates, Inc. Frederick, Maryland
Contractor Foreman: Quin
Schnabel Representative: J. Uribe
Equipment: CME -55 ATV
Method: 3-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 2/18/25 **Finished:** 2/20/25
Latitude: 39.11125 **Longitude:** -76.55908
Ground Surface Elevation: 59.5 (ft) **Total Depth:** 25.0 ft

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	2/20	—	Dry	—	—
Completion	2/20	—	Dry	23.5'	—
Auger Pulled	2/20	—	Dry	—	20.0'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
0.5	Mulch; 6 inches							
	POORLY GRADED SAND; moist, light brown with mottles of orange	SP	59.0			S-1; SS 3+3+4 REC=18", 100%	MC = 5.9%	Potomac (CG)
						S-2; SS 3+4+6 REC=18", 100%		
				B1	5	S-3; SS 4+5+7 REC=18", 100%		
8.0	SILTY SAND; moist, tan and orange	SM	51.5			S-4; SS 3+7+7 REC=18", 100%	LL = NP MC = 14.9% % Passing #200 = 21.8	
13.5	LEAN CLAY; moist, light gray	CL	46.0		10	S-5; SS 3+3+3 REC=18", 94%	PP = 2.50 tsf	Potomac (FG)
					15			Auger chatter
18.5	FAT CLAY; reddish brown with mottles of light brown	CH	41.0	B2				
					20	S-6; SS 4+5+6 REC=18", 100%	PP = 4.00 tsf	
								Auger chatter
25.0			34.5		25	S-7; SS 4+4+8 REC=18", 100%		

Bottom of Boring at 25.0 ft.

Boring Number: PK-03 | **Contract Number:** 24140009 | **Sheet:** 1 of 1

Contractor: Connelly and Associates, Inc. Frederick, Maryland
Contractor Foreman: Quin
Schnabel Representative: J. Uribe
Equipment: CME -55 ATV
Method: 3-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 2/18/25 **Finished:** 2/18/25
Latitude: 39.11175 **Longitude:** -76.55702
Ground Surface Elevation: 68.5 (ft) **Total Depth:** 10.0 ft

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	2/19	—	Dry	—	—
Completion	2/19	—	Dry	6.5'	—
Auger Pulled	2/19	—	Dry	—	3.8'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
0.7	Topsoil; 8 inches							
	POORLY GRADED SAND; moist, light brown and yellowish brown	SP	67.8	B1		S-1; SS 2+3+3 REC=18", 100%	MC = 7.9%	Bulk sample collectad Potomac (CG)
2.5	SANDY LEAN CLAY; moist, light brown with mottles of yellow	CL	66.0	B2	5	S-2; SS 4+7+8 REC=18", 96%	LL = 30 PL = 18 MC = 11.6% % Passing #200 = 68.7	Potomac (FG)
5.0	POORLY GRADED SAND; moist, light brown	SP	63.5	B1		S-3; SS 2+9+9 REC=18", 100%		Potomac (CG)
10.0			58.5		10	S-4; SS 2+8+8 REC=18", 100%		

Bottom of Boring at 10.0 ft.

Boring Number: PK-04 | **Contract Number:** 24140009 | **Sheet:** 1 of 1

Contractor: Connelly and Associates, Inc. Frederick, Maryland
Contractor Foreman: Quin
Schnabel Representative: J. Uribe
Equipment: CME -55 ATV
Method: 3-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 2/20/25 **Finished:** 2/20/25
Latitude: 39.11161 **Longitude:** -76.55874
Ground Surface Elevation: 61.5 (ft) **Total Depth:** 10.0 ft

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	2/20	—	Dry	—	—
Completion	2/20	—	Dry	8.5'	—
Auger Pulled	2/20	—	Dry	—	5.5'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
0.5	Mulch; 6 inches							
	POORLY GRADED SAND WITH SILT; moist, light brown	SP-SM	61.0			S-1; SS 3+3+2 REC=18", 100%	MC = 9.7%	Bulk Sample Collected Potomac (CG)
						S-2; SS 2+3+3 REC=18", 100%	LL = NP MC = 7.7% % Passing #200 = 9.7	
				B1	5	S-3; SS 2+5+5 REC=18", 100%		
10.0			51.5		10	S-4; SS 11+13+10 REC=18", 100%		

Bottom of Boring at 10.0 ft.

Boring Number: PK-05 | **Contract Number:** 24140009 | **Sheet:** 1 of 2

Contractor: Connelly and Associates, Inc. Frederick, Maryland
Contractor Foreman: Quin
Schnabel Representative: J. Uribe
Equipment: CME -55 ATV
Method: 3-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 2/20/25 **Finished:** 2/20/25
Latitude: 39.11266 **Longitude:** -76.56027
Ground Surface Elevation: 49.0 (ft) **Total Depth:** 30.0 ft

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	2/20	—	Dry	—	—
Completion	2/20	—	Dry	28.5'	—
Auger Pulled	2/20	—	Dry	—	20.0'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
0.5	Mulch; 6 inches							
	SILTY SAND; moist, dark gray	SM	48.5			S-1; SS 3+2+2 REC=18", 100%	LL = NP MC = 21.0% % Passing #200 = 18.0	Bulk sample collected Potomac (CG)
						S-2; SS 1+2+4 REC=10", 56%		
				B1	5	S-3; SS 5+8+10 REC=18", 100%		
13.5	FAT CLAY; moist, reddish brown with mottles of white	CH	35.5			S-4; SS 10+12+15 REC=18", 100%	LL = NP MC = 3.2% % Passing #200 = 18.6	
				B2	10			
18.5	POORLY GRADED SAND; moist, light gray with mottles of yellow	SP	30.5		15	S-5; SS 5+8+4 REC=18", 100%	PP = 2.50 tsf	Potomac (FG)
				B1	20	S-6; SS 12+12+13 REC=18", 100%		Potomac (CG)
	Change: yellowish gray				25	S-7; SS 12+19+20 REC=18", 100%		

Boring Number: PK-05 | **Contract Number:** 24140009 | **Sheet:** 2 of 2

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED SAND; moist, light gray with mottles of yellow (continued)	SP	19.0	B1				
30.0					30	S-8; SS 18+19+29 REC=18", 100%		

Bottom of Boring at 30.0 ft.

Boring Number: PK-06 | **Contract Number:** 24140009 | **Sheet:** 1 of 2

Contractor: Connelly and Associates, Inc. Frederick, Maryland
Contractor Foreman: Quin
Schnabel Representative: J. Uribe
Equipment: CME -55 ATV
Method: 3-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 2/20/25 **Finished:** 2/20/25
Latitude: 39.11309 **Longitude:** -76.55968
Ground Surface Elevation: 44.5 (ft) **Total Depth:** 30.0 ft

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered ▽	2/20	—	23.0'	—	—
Completion	2/20	—	Dry	28.5'	—
Auger Pulled	2/20	—	Dry	—	18.0'
After Drilling	2/21	—	Dry	—	18.0'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
0.5	Mulch; 6 inches							
	POORLY GRADED SAND WITH SILT; moist, light brown with mottles of white	SP-SM	44.0			S-1; SS 6+8+5 REC=18", 100%		Bulk sample collectad Potomac (CG)
						S-2; SS 6+8+5 REC=18", 100%		
				B1	5	S-3; SS 5+5+5 REC=18", 100%	LL = NP MC = 9.3% % Passing #200 = 10.3	
8.5	FAT CLAY; moist, reddish brown	CH	36.0			S-4; SS 4+13+21 REC=18", 100%		Potomac (FG)
				B2	10			
13.5	POORLY GRADED SAND WITH SILT; moist, light gray	SP-SM	31.0		15	S-5; SS 14+21+26 REC=18", 100%		Potomac (CG)
18.5	POORLY GRADED SAND; light gray	SP	26.0	B1	20	S-6; SS 20+27+50 REC=17", 100%		
					25	S-7; SS 12+21+27 REC=18", 100%		

Boring Number: PK-06 | **Contract Number:** 24140009 | **Sheet:** 2 of 2

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED SAND; light gray (continued)	SP	14.5	B1				
30.0					30	S-8; SS 12+12+12 REC=18", 100%		

Bottom of Boring at 30.0 ft.
Boring offset 12 ft South of original staked location due to access to original location.
Boring left open for 24 hour groundwater readings.

Boring Number: PK-07 | **Contract Number:** 24140009 | **Sheet:** 1 of 1

Contractor: Connelly and Associates, Inc. Frederick, Maryland
Contractor Foreman: Quin
Schnabel Representative: J. Uribe
Equipment: CME -55 ATV
Method: 3-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 2/19/25 **Finished:** 2/19/25
Latitude: 39.11356 **Longitude:** -76.55829
Ground Surface Elevation: 35.5 (ft) **Total Depth:** 25.0 ft

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered ▽	2/19	—	12.0'	—	—
Completion	2/19	—	Dry	23.5'	—
Auger Pulled	2/19	—	Dry	—	10.0'
After Drilling	2/20	—	Dry	—	10.0'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
0.5	Mulch; 6 inches							
	WELL GRADED SAND; moist, light brown	SW	35.0			S-1; SS 2+1+1 REC=18", 100%	MC = 12.7%	Bulk sample collectad Potomac (CG)
2.5	CLAYEY SAND; moist, light brown with mottles of gray	SC	33.0			S-2; SS 1+3+4 REC=18", 100%		
5.0	SILTY SAND; moist, brown	SM	30.5	B1	5	S-3; SS 3+3+2 REC=18", 100%		
					10	S-4; SS 4+5+5 REC=18", 89%	LL = NP MC = 17.0% % Passing #200 = 42.3	
	Change: wet, gray with mottles of light brown				15	S-5; SS 8+10+9 REC=18", 100%		
					20	S-6; SS 8+14+22 REC=18", 100%		High friction between auger and saturated sand, auger could not be advanced to the planned depth of 30 ft.
25.0			10.5		25	S-7; SS 25+32+35 REC=18", 100%		

Bottom of Boring at 25.0 ft.

GFT
300 East Joppa Road Suite 200
Baltimore, MD 21286
410.512.4500 www.gftinc.com

STATE OF MARYLAND — JESSE MICHAEL LINGAN — NO. 37734 — REGISTERED PROFESSIONAL ENGINEER

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 # 37734 Expiration Date: 07/12/28

REVISIONS			
NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER
APPROVED DATE — PROJECT MANAGER
APPROVED DATE — ASSISTANT CHIEF ENGINEER
APPROVED DATE — CHIEF, RIGHT-OF-WAY

SCALE:	NO SCALE
DRAWN BY:	R.S.S.
CHECKED BY:	R.W.H.
SHEET NO.	05 OF 57
PROJECT NO.:	P591000
CONTRACT NO.:	P591001

LAKE WATERFORD PARK

SOIL BORING LOG

G:\Projects_2024\BLT20\20240037\Site\Drawings\20240037-B001-Boring Log.dwg Jul 06, 2026 - 8:30am Plot By: rhwang

Schnabel Associates TEST BORING LOG

Project: Lake Waterford Park Improvements
Pasadena, Maryland

Contract Number: 24140009

Boring Number: PK-08
Sheet: 1 of 2

Contractor: Connelly and Associates, Inc. Frederick, Maryland
Contractor Foreman: Quin
Schnabel Representative: J. Uribe
Equipment: CME -55 ATV
Method: 3-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 2/19/25 Finished: 2/19/25
Latitude: 39.11355 Longitude: -76.55839
Ground Surface Elevation: 50.5 (ft) Total Depth: 30.0 ft

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	2/19	—	13.0'	—	—
Completion	2/19	—	Dry	28.5'	—
Auger Pulled	2/19	—	Dry	—	14.0'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
0.4	Mulch; 5 inches.		50.1					
	SILTY SAND; moist, light brown					S-1; SS 2+2+1 REC=10", 83%	LL = NP PL = 9 MC = 9.2% % Passing #200 = 12.6	Potomac (CG)
	Change: estimated <5% quartz gravel					S-2; SS 1+2+1 REC=14", 78%		
	Change: greenish gray with mottles of brown	SM			5	S-3; SS 0+6+6 REC=18", 100%		
						S-4; SS 12+22+11 REC=18", 100%		
					10			
13.5	WELL GRADED SAND; moist, light brown		37.0	B1		S-5; SS 3+3+3 REC=18", 100%		
	Change: yellowish brown	SW			15	S-6; SS 5+5+6 REC=18", 100%		
					20			
					25	S-7; SS 3+4+3 REC=18", 100%		

Bottom of Boring at 10.0 ft.

Schnabel Associates TEST BORING LOG

Project: Lake Waterford Park Improvements
Pasadena, Maryland

Boring Number: PK-08
Contract Number: 24140009
Sheet: 2 of 2

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
	WELL GRADED SAND; moist, light brown (continued)	SW		B1				
30.0			20.5		30	S-8; SS 6+7+13 REC=18", 100%		

Bottom of Boring at 30.0 ft.

Schnabel Associates TEST BORING LOG

Project: Lake Waterford Park Improvements
Pasadena, Maryland

Boring Number: SWM-01
Contract Number: 24140009
Sheet: 1 of 1

Contractor: Connelly and Associates, Inc. Frederick, Maryland
Contractor Foreman: Quin
Schnabel Representative: J. Uribe
Equipment: CME -55 ATV
Method: 3-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 2/21/25 Finished: 2/21/25
Latitude: 39.11265 Longitude: -76.55936
Ground Surface Elevation: 56.5 (ft) Total Depth: 10.0 ft

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	2/21	—	Dry	—	—
Completion	2/21	—	Dry	8.5'	—
Auger Pulled	2/21	—	Dry	—	7.3'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
0.3	Mulch; 3 inches.		56.3					
	POORLY GRADED SAND WITH SILT; moist, light brown	SP-SM		B1		S-1; SS 2+2+2 REC=9", 25%	MC = 8.9%	Potomac (CG)
					5	S-2; SS 2+1+1 REC=18", 75%		
						S-3; SS 3+2+1 REC=24", 100%		
						S-4; SS 3+6+6 REC=24", 100%		
						S-5; SS 4+5+7 REC=18", 75%		
10.0			46.5		10			

Bottom of Boring at 10.0 ft.

Schnabel Associates TEST BORING LOG

Project: Lake Waterford Park Improvements
Pasadena, Maryland

Boring Number: SWM-02
Contract Number: 24140009
Sheet: 1 of 1

Contractor: Connelly and Associates, Inc. Frederick, Maryland
Contractor Foreman: Quin
Schnabel Representative: J. Uribe
Equipment: CME -55 ATV
Method: 3-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 2/21/25 Finished: 2/21/25
Latitude: 39.11221 Longitude: -76.55917
Ground Surface Elevation: 60.5 (ft) Total Depth: 10.0 ft

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	2/21	—	Dry	—	—
Completion	2/21	—	Dry	8.5'	—
Auger Pulled	2/21	—	Dry	—	3.0'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
0.5	Mulch; 6 inches.		60.0					
	POORLY GRADED SAND; moist, light brown					S-1; SS 1+2+2+1 REC=24", 100%		
						S-2; SS 1+2+1+2 REC=24", 83%		
						S-3; SS 3+1+2+3 REC=18", 83%		
	Change: brown	SP		B1	5	S-4; SS 7+15+15+13 REC=18", 75%	MC = 11.3%	Potomac (CG)
						S-5; SS 9+13+14+15 REC=22", 92%		
10.0			50.5		10			

Bottom of Boring at 10.0 ft.

Schnabel Associates TEST BORING LOG

Project: Lake Waterford Park Improvements
Pasadena, Maryland

Boring Number: SWM-03
Contract Number: 24140009
Sheet: 1 of 1

Contractor: Connelly and Associates, Inc. Frederick, Maryland
Contractor Foreman: Quin
Schnabel Representative: J. Uribe
Equipment: CME -55 ATV
Method: 3-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 2/21/25 Finished: 2/21/25
Latitude: 39.11222 Longitude: -76.55980
Ground Surface Elevation: 56.5 (ft) Total Depth: 10.0 ft

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	2/21	—	Dry	—	—
Completion	2/21	—	Dry	8.5'	—
Auger Pulled	2/21	—	—	—	3.0'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
0.7	Mulch; 8 inches.		55.8					
	POORLY GRADED SAND; moist, light brown	SP				S-1; SS 3+1+1+2 REC=24", 83%		
						S-2; SS 3+3+4+3 REC=18", 78%	MC = 8.6%	Potomac (CG)
				B1	5	S-3; SS 13+3+9+4 REC=18", 75%		
						S-4; SS 10+15+17+19 REC=24", 100%		
	POORLY GRADED SAND WITH SILT; white, estimated <5% gravel	SP-SM	50.5			S-5; SS 9+13+14+12 REC=24", 100%		
10.0			46.5		10			

Bottom of Boring at 10.0 ft.

Schnabel Associates TEST BORING LOG

Project: Lake Waterford Park Improvements
Pasadena, Maryland

Boring Number: SWM-04
Contract Number: 24140009
Sheet: 1 of 1

Contractor: Connelly and Associates, Inc. Frederick, Maryland
Contractor Foreman: Quin
Schnabel Representative: J. Uribe
Equipment: CME -55 ATV
Method: 3-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 2/21/25 Finished: 2/21/25
Latitude: 39.11129 Longitude: -76.55946
Ground Surface Elevation: 58.0 (ft) Total Depth: 10.0 ft

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	2/21	—	Dry	—	—
Completion	2/21	—	Dry	8.5'	—
Auger Pulled	2/21	—	Dry	—	6.5'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
0.7	Mulch; 8 inches.		57.3					
	POORLY GRADED SAND; moist, dark brown	SP				S-1; SS 2+2+2+2 REC=24", 100%		Potomac (CG)
2.0	WELL GRADED SAND; light brown, estimated <5% quartz gravel	SW	56.0	B1		S-2; SS 2+2+2+4 REC=24", 100%		
4.0	FAT CLAY WITH SAND; moist, light gray		54.0		5	S-3; SS 4+8+11+10 REC=24", 100%		Potomac (PG)
		CH		B2		S-4; SS 3+6+7+11 REC=24", 83%		
						S-5; SS 3+7+8+7 REC=18", 75%		
10.0			48.0		10			

Bottom of Boring at 10.0 ft.

Schnabel Associates TEST BORING LOG

Project: Lake Waterford Park Improvements
Pasadena, Maryland

Boring Number: SWM-05
Contract Number: 24140009
Sheet: 1 of 1

Contractor: Connelly and Associates, Inc. Frederick, Maryland
Contractor Foreman: Quin
Schnabel Representative: J. Uribe
Equipment: CME -55 ATV
Method: 3-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 2/21/25 Finished: 2/21/25
Latitude: 39.11159 Longitude: -76.55890
Ground Surface Elevation: 62.0 (ft) Total Depth: 10.0 ft

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	2/21	—	Dry	—	—
Completion	2/21	—	Dry	8.5'	—
Auger Pulled	2/21	—	Dry	—	6.0'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
0.5	Mulch; 6 inches.		61.5					
	POORLY GRADED SAND WITH SILT; moist, brown	SP-SM				S-1; SS 2+1+2+2 REC=24", 100%		Potomac (CG)
						S-2; SS 1+1+1+1 REC=18", 75%		
	Change: yellowish brown			B1	5	S-3; SS 3+7+8+11 REC=24", 100%	MC = 10.9%	Infiltration test
						S-4; SS 3+8+11+16 REC=18", 67%		
6.0	SILTY SAND; moist, brown	SM	56.0			S-5; SS 5+12+14+15 REC=24", 100%		
10.0			52.0		10			

Bottom of Boring at 10.0 ft.

Schnabel Associates TEST BORING LOG

Project: Lake Waterford Park Improvements
Pasadena, Maryland

Boring Number: SWM-06
Contract Number: 24140009
Sheet: 1 of 1

Contractor: Connelly and Associates, Inc. Frederick, Maryland
Contractor Foreman: Quin
Schnabel Representative: J. Uribe
Equipment: CME -55 ATV
Method: 3-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 2/21/25 Finished: 2/21/25
Latitude: 39.11176 Longitude: -76.55905
Ground Surface Elevation: 60.5 (ft) Total Depth: 10.0 ft

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	2/21	—	Dry	—	—
Completion	2/21	—	Dry	8.5'	—
Auger Pulled	2/21	—	Dry	—	9.8'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
0.3	Mulch; 4 inches.		60.2					
	POORLY GRADED SAND WITH SILT; moist, brown	SP-SM				S-1; SS 3+1+1+2 REC=18", 67%		Potomac (CG)
						S-2; SS 2+2+2+3 REC=24", 83%		
	Change: light brown, estimated <5% quartz fragments			B1	5	S-3; SS 3+2+3+5 REC=24", 100%	MC = 10.3%	
						S-4; SS 6+12+14+12 REC=24", 100%		
6.0	POORLY GRADED SAND WITH SILT; moist, reddish brown, contains gravel	SP-SM	54.5			S-5; SS 4+11+13+15 REC=24", 100%		
10.0			50.5		10			

Bottom of Boring at 10.0 ft.

Schnabel Associates TEST BORING LOG

Project: Lake Waterford Park Improvements
Pasadena, Maryland

Boring Number: SWM-07
Contract Number: 24140009
Sheet: 1 of 1

Contractor: Connelly and Associates, Inc. Frederick, Maryland
Contractor Foreman: Quin
Schnabel Representative: J. Uribe
Equipment: CME -55 ATV
Method: 3-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 2/21/25 Finished: 2/21/25
Latitude: 39.11131 Longitude: -76.55877
Ground Surface Elevation: 60.5 (ft) Total Depth: 10.0 ft

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	2/21	—	Dry	—	—
Completion	2/21	—	Dry	8.5'	—
Auger Pulled	2/21	—	Dry	—	6.2'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
0.7	Mulch; 8 inches.		59.8					
	POORLY GRADED SAND; moist, dark brown	SP		B1		S-1; SS 2+1+2+2 REC=24", 100%	MC = 6.7%	Potomac (CG)
	Change: light brown					S-2; SS 3+1+2+2 REC=24", 100%		
4.0	LEAN CLAY WITH SAND AND SILT; moist, reddish brown	CL	56.5	B2	5	S-3; SS 4+5+5+7 REC=24", 100%		Potomac (PG)
6.0	CLAYEY SAND; moist, light brown with mottles of light gray	SC	54.5	B1		S-4; SS 5+10+13+8 REC=24", 100%		Potomac (CG)
	Change: light brown					S-5; SS 5+11+13+20 REC=24", 100%		
10.0			50.5		10			

Bottom of Boring at 10.0 ft.
Boring offset 4 ft South of original staked location.

Schnabel Associates TEST BORING LOG

Project: Lake Waterford Park Improvements
Pasadena, Maryland

Boring Number: SWM-08
Contract Number: 24140009
Sheet: 1 of 1

Contractor: Connelly and Associates, Inc. Frederick, Maryland
Contractor Foreman: Quin
Schnabel Representative: J. Uribe
Equipment: CME -55 ATV
Method: 3-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 2/21/25 Finished: 2/21/25
Latitude: 39.11114 Longitude: -76.55838
Ground Surface Elevation: 64.0 (ft) Total Depth: 10.0 ft

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	2/21	—	Dry	—	—
Completion	2/21	—	Dry	8.5'	—
Auger Pulled	2/21	—	Dry	—	6.0'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
0.3	Mulch; 4 inches.		63.7					
	POORLY GRADED SAND; moist, light brown					S-1; SS 2+2+4+6 REC=18", 67%		
						S-2; SS 2+2+2+2 REC=24", 100%		
				B1	5	S-3; SS 1+2+1+1 REC=24", 100%	MC = 4.9%	Potomac (CG)
		SP				S-4; SS 2+2+2+2 REC=24", 100%		
	Change: light gray					S-5; SS 5+6+8+10 REC=24", 100%		
10.0			54.0		10			

Bottom of Boring at 10.0 ft.
Boring offset 4 ft North of original staked location for infiltration test.

Schnabel Associates TEST BORING LOG

Project: Lake Waterford Park Improvements
Pasadena, Maryland

Boring Number: SWM-09
Contract Number: 24140009
Sheet: 1 of 1

Contractor: Connelly and Associates, Inc. Frederick, Maryland
Contractor Foreman: Quin
Schnabel Representative: J. Uribe
Equipment: CME -55 ATV
Method: 3-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 2/21/25 Finished: 2/21/25
Latitude: 39.11139 Longitude: -76.55719
Ground Surface Elevation: 66.5 (ft) Total Depth: 10.0 ft

Groundwater Observations	Date	Time	Depth	Casing	Caved
Encountered	2/21	—	Dry	—	—
Completion	2/21	—	Dry	8.5'	—
Auger Pulled	2/21	—	Dry	—	5.3'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DATA (DEPTH)	SAMPLING DATA	TESTS	REMARKS
0.3	Mulch; 3 inches.		66.3					
	POORLY GRADED SAND WITH SILT; moist, light brown					S-1; SS 2+2+3+3 REC=24", 83%		
						S-2; SS 3+2+3+3 REC=18", 78%	MC = 10.8% % Passing #200 = 12.5	Potomac (CG)
				B1	5	S-3; SS 3+2+3+3 REC=18", 75%		
		SP-SM				S-4; SS 2+2+3+4 REC=24", 83%		
						S-5; SS 5+6+7+8 REC=24", 83%		
10.0			56.5		10			

Bottom of Boring at 10.0 ft.

300 East Joppa Road Suite 200
Baltimore, MD 21286
410.512.4500 www.gftinc.com
GFT

STATE OF MARYLAND — SERIE MICHAEL LINDAU — NO. 27734 — REGISTERED PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/28

REVISIONS			
NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: NO SCALE	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	SOIL BORING LOG
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 06 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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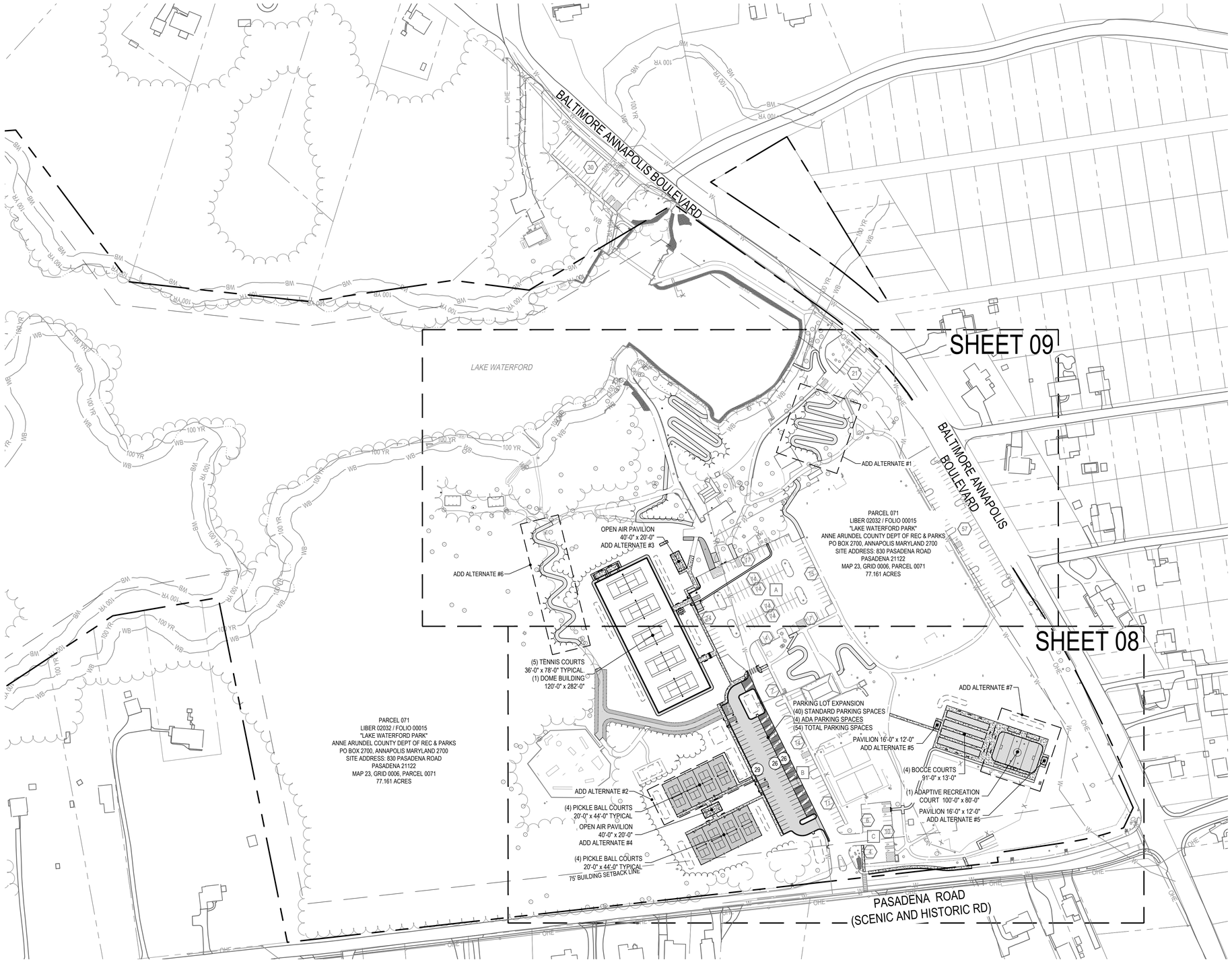

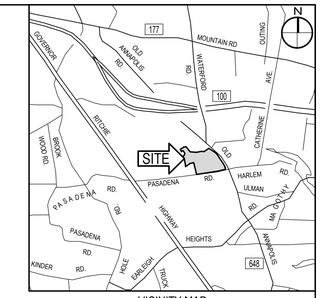

VICINITY MAP
SCALE: 1" = 2,000'

LEGEND

DESCRIPTION	EXISTING	NEW
BUILDING	EX. BLDG	
BITUMINOUS CONCRETE PAVING	EX. MACADAM	
MACADAM WALK	MACADAM WALK	
CONCRETE WALK	CONC WALK	
MILL AND OVERLAY	EX. MACADAM	
FOREST CLEARING		
ATHLETIC COURT SURFACE		
CONC. CURB		
WALL		
METAL FENCE	X	X
WOOD FENCE		
SIGN (ONE-POST)		
SPOT ELEVATION	× 50.5	+ 50.5
MAJOR CONTOUR	50	50
MINOR CONTOUR	51	51
O/H ELECTRIC	OHE	OHE
U/G ELECTRIC	E	
U/G STORM	D	
UG WATER	W	
PROPERTY LINE		
BLDG SETBACK LINE		
SOIL BORING	B#	
SURVEY LIMITS		
TREES	10" 6"	
TREE LINE		
DRAIN INLET		
STORM DRAIN MH	D	
BBQ GRILL		
POWER POLE		
STREET LIGHT		
TRAVERSE STATION		
WELL		
WATER VALVE		
NEW CONCRETE WALK / PAD		
NEW BOCCE COURT SURFACE		
NEW ADAPTIVE HOCKEY RINK SURFACE		
NEW PERMEABLE GRASS PAVER (FIRE LANE)		

PARKING TABULATION:

PROPOSED PARKING LOT 'A'		
STANDARD PARKING SPACES	=	107 SPACES
HANDICAP (ADA) PARKING SPACES	=	6 (6 VAN ACCESSIBLE)
TOTAL PARKING SPACES	=	113 SPACES
PROPOSED PARKING LOT 'B'		
STANDARD PARKING SPACES PROVIDED	=	107 SPACES
HANDICAP (ADA) SPACES	=	6 (6 VAN ACCESSIBLE)
TOTAL PARKING SPACES PROVIDED	=	113 SPACES
PROPOSED PARKING LOT 'C'		
STANDARD PARKING SPACES	=	16 SPACES
HANDICAP (ADA) PARKING SPACES	=	4 (3 VAN ACCESSIBLE)
TOTAL PARKING SPACES	=	20 SPACES

CAUTION:
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1"=100'-0" 100 0 50 100 200

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NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 100'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	OVERALL SITE LAYOUT PLAN
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 07 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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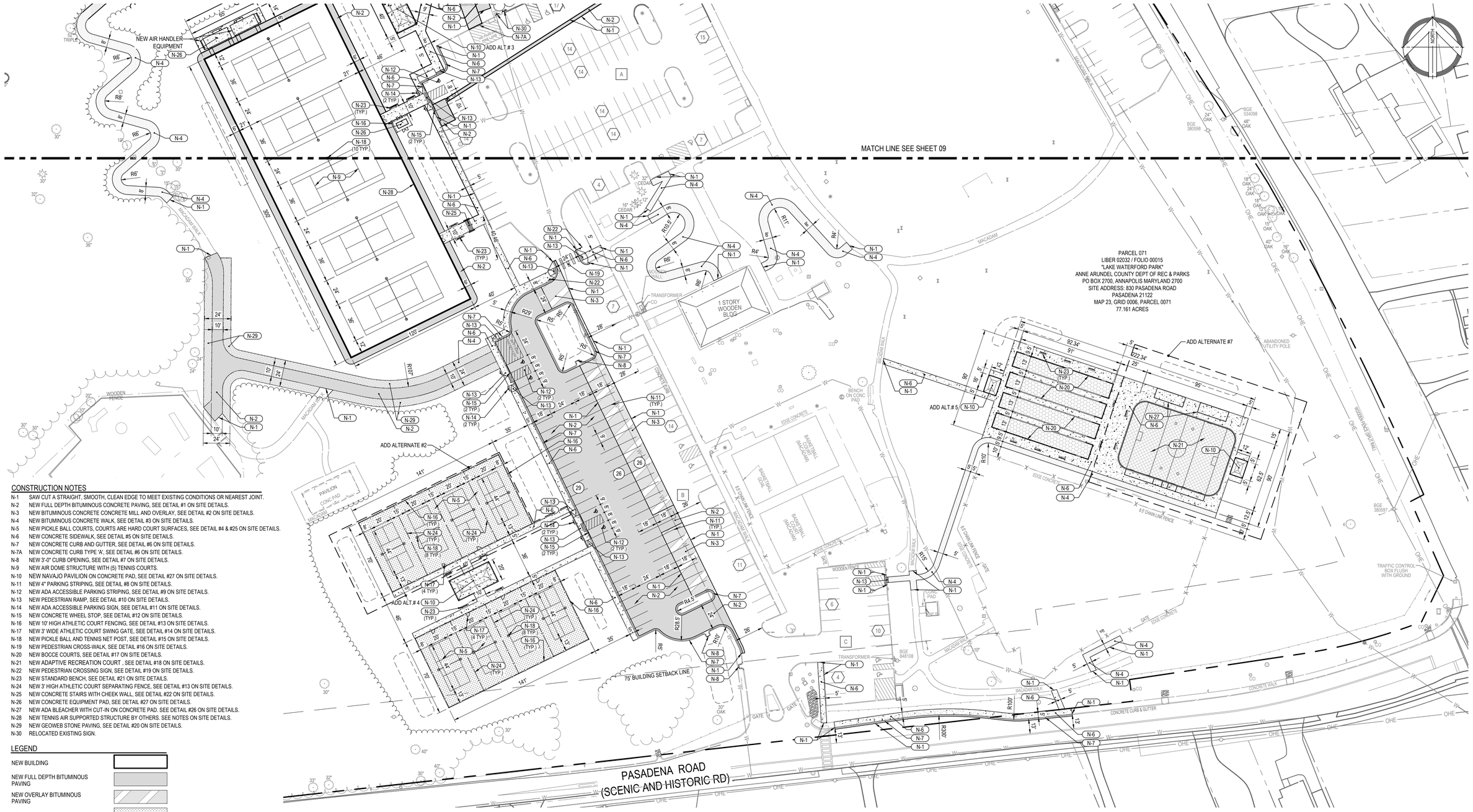

CONSTRUCTION NOTES

- N-1 SAW CUT A STRAIGHT, SMOOTH, CLEAN EDGE TO MEET EXISTING CONDITIONS OR NEAREST JOINT.
- N-2 NEW FULL DEPTH BITUMINOUS CONCRETE PAVING, SEE DETAIL #1 ON SITE DETAILS.
- N-3 NEW BITUMINOUS CONCRETE CONCRETE MILL AND OVERLAY, SEE DETAIL #2 ON SITE DETAILS.
- N-4 NEW BITUMINOUS CONCRETE WALK, SEE DETAIL #3 ON SITE DETAILS.
- N-5 NEW PICKLE BALL COURTS, COURTS ARE HARD COURT SURFACES, SEE DETAIL #4 & #25 ON SITE DETAILS.
- N-6 NEW CONCRETE SIDEWALK, SEE DETAIL #5 ON SITE DETAILS.
- N-7 NEW CONCRETE CURB AND GUTTER, SEE DETAIL #6 ON SITE DETAILS.
- N-7A NEW CONCRETE CURB TYPE 'A', SEE DETAIL #6 ON SITE DETAILS.
- N-8 NEW 3'-0" CURB OPENING, SEE DETAIL #7 ON SITE DETAILS.
- N-9 NEW AIR DOME STRUCTURE WITH (5) TENNIS COURTS.
- N-10 NEW NAVAJO PAVILION ON CONCRETE PAD, SEE DETAIL #27 ON SITE DETAILS.
- N-11 NEW 4" PARKING STRIPING, SEE DETAIL #8 ON SITE DETAILS.
- N-12 NEW ADA ACCESSIBLE PARKING STRIPING, SEE DETAIL #9 ON SITE DETAILS.
- N-13 NEW PEDESTRIAN RAMP, SEE DETAIL #10 ON SITE DETAILS.
- N-14 NEW ADA ACCESSIBLE PARKING SIGN, SEE DETAIL #11 ON SITE DETAILS.
- N-15 NEW CONCRETE WHEEL STOP, SEE DETAIL #12 ON SITE DETAILS.
- N-16 NEW 10' HIGH ATHLETIC COURT FENCING, SEE DETAIL #13 ON SITE DETAILS.
- N-17 NEW 3' WIDE ATHLETIC COURT SWING GATE, SEE DETAIL #14 ON SITE DETAILS.
- N-18 NEW PICKLE BALL AND TENNIS NET POST, SEE DETAIL #15 ON SITE DETAILS.
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- N-22 NEW PEDESTRIAN CROSSING SIGN, SEE DETAIL #19 ON SITE DETAILS.
- N-23 NEW STANDARD BENCH, SEE DETAIL #21 ON SITE DETAILS.
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- N-26 NEW CONCRETE EQUIPMENT PAD, SEE DETAIL #27 ON SITE DETAILS.
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- N-28 NEW TENNIS AIR SUPPORTED STRUCTURE BY OTHERS. SEE NOTES ON SITE DETAILS.
- N-29 NEW GEOWEB STONE PAVING, SEE DETAIL #20 ON SITE DETAILS.
- N-30 RELOCATED EXISTING SIGN.

LEGEND

- NEW BUILDING
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- NEW OVERLAY BITUMINOUS PAVING
- NEW COURT SURFACE
- NEW BITUMINOUS CONCRETE WALK
- NEW CONCRETE WALK / PAD
- NEW BOCCE COURT SURFACE
- NEW ADAPTIVE HOCKEY RINK SURFACE
- NEW PERMEABLE GRASS PAVER (FIRE LANE)
- NEW CONCRETE CURB AND GUTTER
- NEW FENCE
- PARKING SPACE COUNT

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40 0 20 40 80
1"=40'-0"

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REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 40'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	SITE LAYOUT PLAN
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 08 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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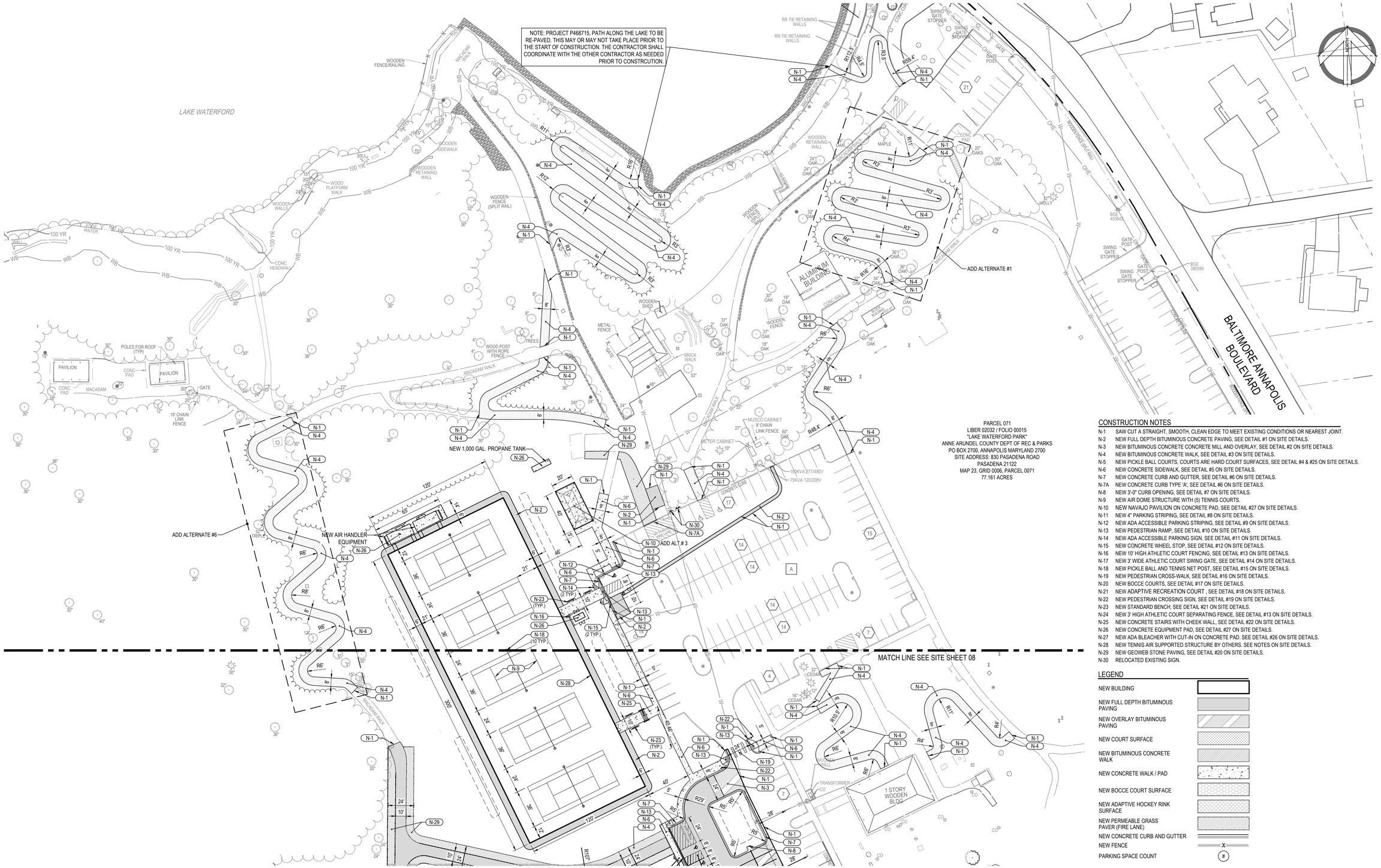

PARCEL 071
LIBER 02032 / FOLIO 00015
"LAKE WATERFORD PARK"
ANNE ARUNDEL COUNTY DEPT OF REC & PARKS
PO BOX 2700, ANNAPOLIS MARYLAND 2700
SITE ADDRESS: 830 PASADENA ROAD
PASADENA 21122
MAP 23, GRID 0006, PARCEL 0071
77.161 ACRES

CONSTRUCTION NOTES

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- NEW BUILDING
- NEW FULL DEPTH BITUMINOUS PAVING
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- NEW FENCE
- PARKING SPACE COUNT

CAUTION:
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1"=40'-0" (40 0 20 40 80)

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REVISIONS

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ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 40'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	SITE LAYOUT PLAN
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 09 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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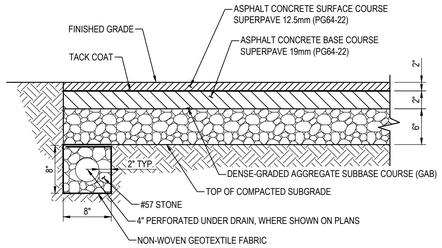
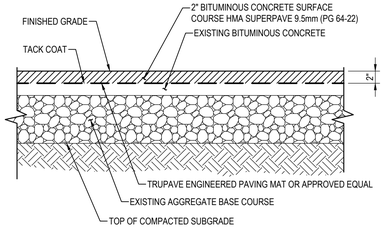


SECTION

NOTES:
1. MAINTAIN POSITIVE DRAINAGE AT ALL TIMES.
2. AT PERIMETERS OF OVERLAY PAVING AREAS: MEET NEW ROAD PAVING SECTION FINISHED GRADE FLUSH.
3. MILL THE TOP 2INCHES OF THE PARKING LOT AND ROADWAY SURFACE.
4. EXAMINE THE MILLED SURFACE. CUT OUT ANY FAILED BASE COURSE AREA EXHIBITING ALLIGTOR OR PATCHWORK CRACKING, WHICH MAY HAVE BEEN HIDDEN BELOW THE SURFACE COURSE, TO EXPOSE THE UNDERLYING SOIL OR CRUSHED STONE BASE.
5. CLEAN EXPOSED LINEAR CRACKS IN THE EXPOSED SURFACE, FILLING CRACKS THINNER THAN 1/4-INCH WIDTH WITH LIQUID ASPHALT AND FILLING CRACKS LARGER THAN 1/4-INCH WITH SAND/ASPHALT MIX.
6. PLACE THE LIQUID ASPHALT TACK COAT AND APPROPRIATE PAVEMENT GRADE GEOTEXTILE FABRIC ACROSS THE ENTIRE OVERLAY AREA TO MEET MANUFACTURER'S REQUIREMENTS. PAVING FABRIC SHOULD BE INSTALLED BY AN APPROVED SPECIALTY CONTRACTOR.
7. PLACE A 2-INCH THICK OVERLAY SECTION OF HOT-MIX ASPHALT (9.5MM SUPERPAVE, LEVEL 10 OVER THE ENTIRE OVERLAY AREA.

1 BITUMINOUS CONCRETE PAVING

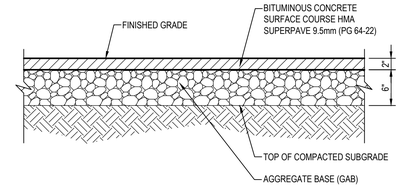
SCALE: 1" = 1'-0"



SECTION

2 MILL AND OVERLAY PAVEMENT SECTION

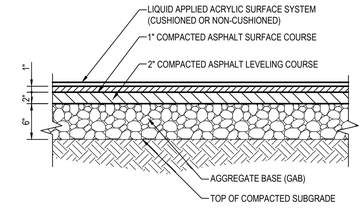
SCALE: 1" = 1'-0"



SECTION

3 BITUMINOUS CONCRETE WALK

SCALE: 1" = 1'-0"

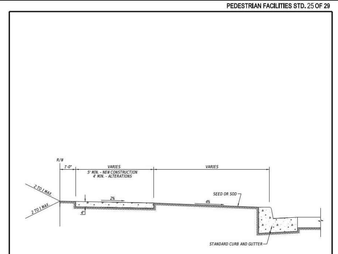


SECTION

4 ATHLETIC COURT SURFACE

SCALE: 1" = 1'-0"

PEDESTRIAN FACILITIES STD. 25 OF 29



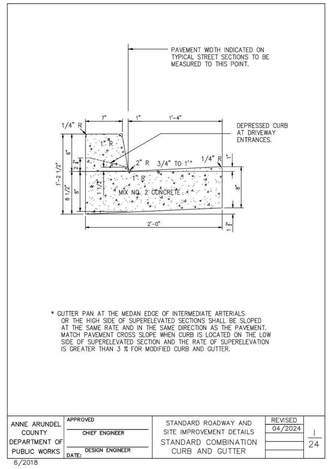
NOTES:
1. JOINTS AND EXPANSION MATERIAL PLACED IN ACCORDANCE WITH STANDARD DETAIL PF-27 SIDEWALK JOINTS.
2. ALL UNPAVED AREAS WITHIN R/W TO BE SEEDED AND MULCHED WITH 4" OF TOP SOIL OR SODDED TO OBTAIN A THICK STAND OF GRASS.

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED: CHIEF ENGINEER / DESIGN ENGINEER / DATE:	STANDARD PEDESTRIAN FACILITY DETAILS: SIDEWALK	REVISED	PF 29

PubBished: Revised:4/29/2022

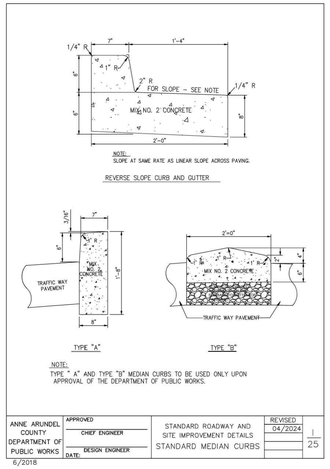
5 CONCRETE WALK / PAD

SCALE: NONE



ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED: CHIEF ENGINEER / DESIGN ENGINEER / DATE:	STANDARD ROADWAY AND SITE IMPROVEMENT DETAILS: STANDARD COMBINATION CURB AND GUTTER	REVISED 04/2024	24

6/2018

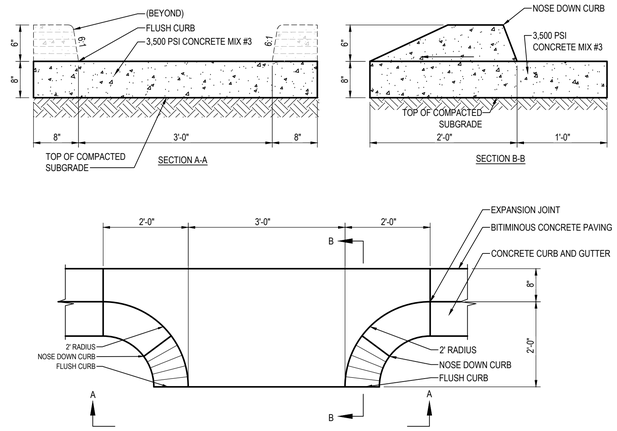


ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED: CHIEF ENGINEER / DESIGN ENGINEER / DATE:	STANDARD ROADWAY AND SITE IMPROVEMENT DETAILS: STANDARD MEDIAN CURBS	REVISED 04/2024	25

6/2018

6 6" CURB AND GUTTER

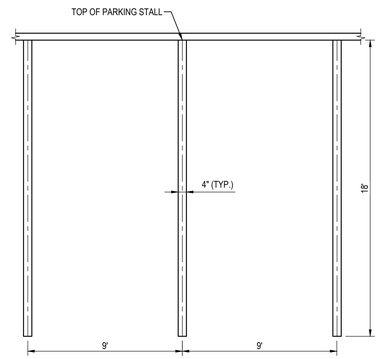
NOT TO SCALE



ELEVATION

7 3' CONCRETE CURB OPENING

SCALE: 1" = 1'-0"

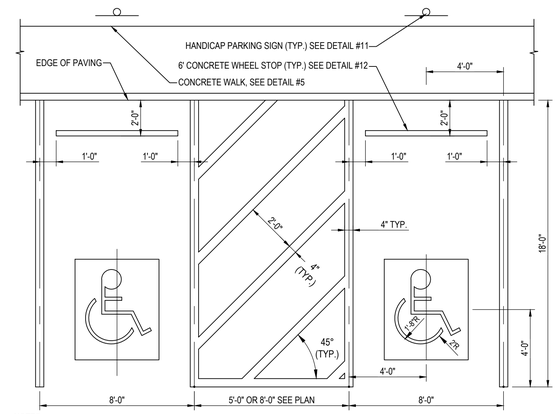


NOTES:
1. PAINT IS TO BE WHITE TRAFFIC PAINT APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS (TWO (2) COATS REQUIRED)
2. DETAIL SHOWS TYPICAL SPACE DIMENSIONS. SEE PLAN FOR SPACE LOCATIONS.

PLAN

8 4" PAVEMENT MARKING

NOT TO SCALE



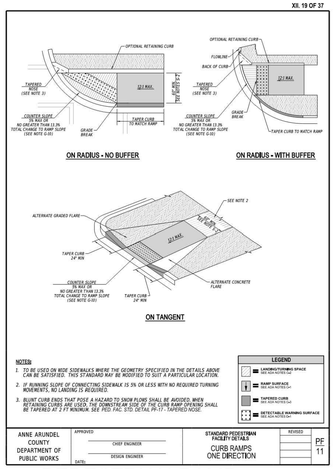
NOTES:
1. PAINT TO BE WHITE TRAFFIC PAINT APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. TWO (2) COATS REQUIRED.
2. SEE PLAN TO DETERMINE IF MULTIPLE HANDICAP SPACES ARE REQUIRED.
3. HANDICAPPED SYMBOL TO BE WHITE TRAFFIC PAINT ON BLUE TRAFFIC PAINT BACKGROUND APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. TWO (2) COATS REQUIRED.

PLAN

9 ADA ACCESSIBLE PARKING STRIPING

NOT TO SCALE

XX. 19 OF 37



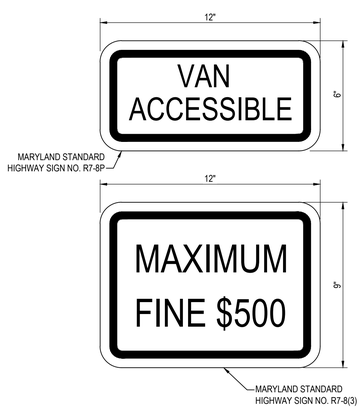
NOTES:
1. TO BE USED ON WIDE SIDEWALKS WHERE THE GEOMETRY SPECIFIED IN THE DETAILS ABOVE CAN BE SATISFIED. THIS STANDARD MAY BE MODIFIED TO SUIT A PARTICULAR LOCATION.
2. IF RUNNING SLOPE OF CONNECTING SIDEWALK IS 5% OR LESS WITH NO REQUIRED TURNING MOVEMENTS, NO LANDING IS REQUIRED.
3. BLUNT CURB ENDS THAT POSE A HAZARD TO SNOW PLOWS SHALL BE AVOIDED. WHEN RETAINING CURBS ARE USED, THE DOWNSTREAM SIDE OF THE CURB RAMP OPENING SHALL BE TAPERED AT 7 FT MINIMUM. SEE PED. FAC. STD. DETAIL PF-17 - TAPERED NOSE.

LEGEND
- LANDING/TURNING SPACE — 48" MIN. NOTED SIZE
- RAMP SURFACE — 48" MIN. NOTED SIZE
- TAPERED CURB — 48" MIN. NOTED SIZE
- DETECTABLE WARNING SURFACE — 24" MIN. NOTED SIZE

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED: CHIEF ENGINEER / DESIGN ENGINEER / DATE:	STANDARD PEDESTRIAN FACILITY DETAILS: CURB RAMPS: ONE DIRECTION	REVISED	PF 11

10 PEDESTRIAN RAMP

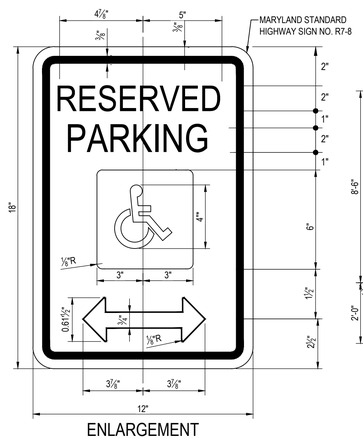
NOT TO SCALE



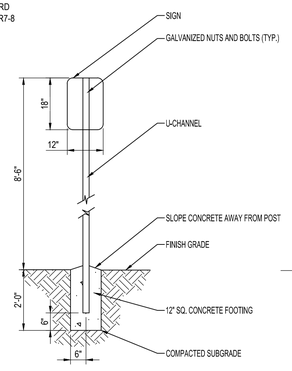
SPECIFICATION: SHA STANDARD SPECIFICATION SECTION 813-SIGNS.

* SEE PROPORTIONS FOR SYMBOL DESIGN (ALL DIMESIONS FOR SIGN IN INCHES)

COLORS: LEGEND & BORDER-GREEN
WHITE SYMBOL ON BLUE BACKGROUND,
BACKGROUND-WHITE.



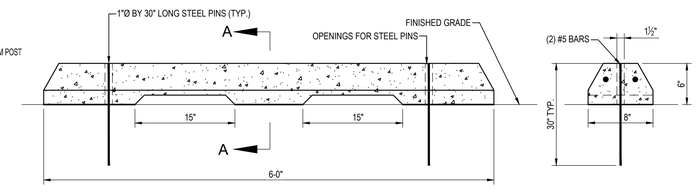
ENLARGEMENT



ELEVATION

11 HANDICAP PARKING SIGN

NOT TO SCALE



ELEVATION

SECTION A-A

12 CONCRETE WHEELSTOP

SCALE: 1" = 1'-0"

300 East Joppa Road Suite 200
Baltimore, MD 21286
410.512.4500 www.gftinc.com
GFT

STATE OF MARYLAND — JESSE MICHAEL LINDSAY — NO. 27734 — PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/28

REVISIONS			
NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED / DATE / CHIEF ENGINEER	APPROVED / DATE / PROJECT MANAGER	SCALE: AS SHOWN	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	SITE DETAILS
APPROVED / DATE / ASSISTANT CHIEF ENGINEER	APPROVED / DATE / CHIEF, RIGHT-OF-WAY	SHEET NO. 10 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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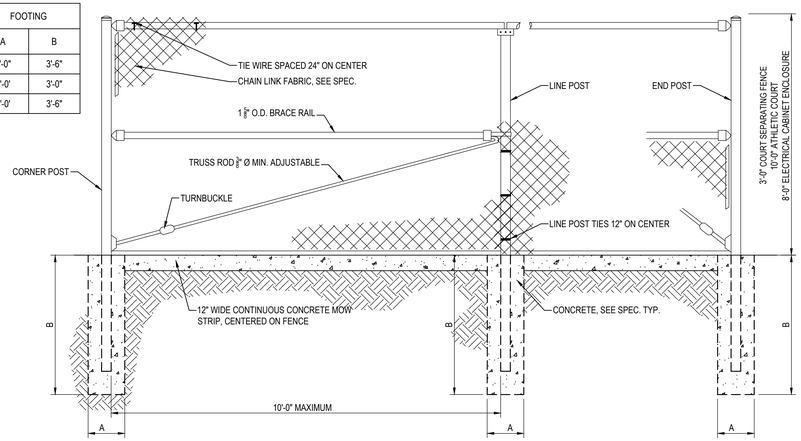
POST TYPE	POST DIA. O. D.	FOOTING	
		A	B
CORNER	4"	2'-0"	3'-6"
LINE	3"	1'-0'	3'-0"
END & GATE	4"	2'-0'	3'-6"

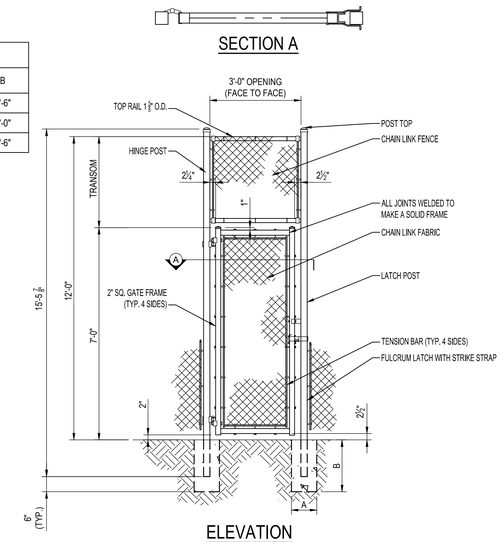


SECTION

13 ATHLETIC COURT FENCE

NOT TO SCALE

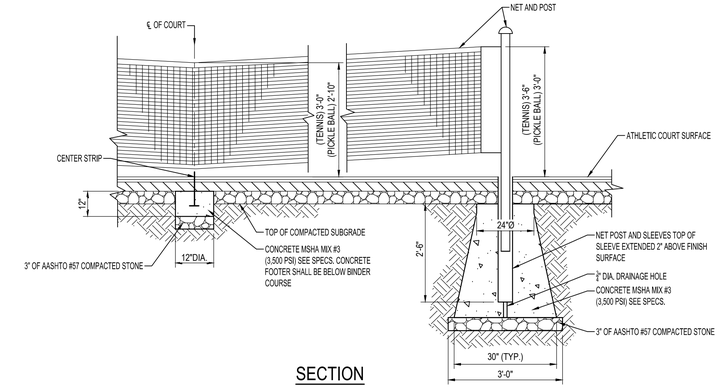
POST TYPE	POST DIA. O. D.	FOOTING	
		A	B
CORNER	4"	2'-0"	3'-6"
LINE	3"	1'-0'	3'-0"
END & GATE	4"	2'-0'	3'-6"



ELEVATION

14 ATHLETIC COURT SWING GATE

NOT TO SCALE



SECTION

15 NET POST DETAIL

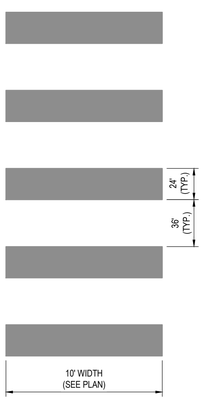
NOT TO SCALE

REINFORCED ACCESS ROAD SPECIFICATIONS

1. BASIS OF DESIGN PRODUCT: GEOWEB PERFORATED GW30V6 WITH A CELL DEPTH OF 6 INCHES AS MANUFACTURED BY PRESTO PRODUCTS, INC. OR APPROVED EQUAL.
2. INSTALL AND ORIENT GEOWEB TO ACHIEVE 7 FEET WIDE MIN. ACCESS ROAD, 18 CELL LENGTH, OR EQUAL.

PERFORMANCE & MATERIAL SPECIFICATION SUMMARY

	Property	Value				Test Method
Base Material	Material Composition	Polymer – Polyethylene with density of 0.935 – 0.965 g/cm³ (58.4 - 60.2 lb/ft³)				ASTM D 1505
	Color	Black - from Carbon Black		Tan, Green, Other Colors with no heavy metal content		N/A
	Stabilizer	Carbon black content 1.5% - 2% by weight		Hindered amine light stabilizer (HALS) 1.0% by weight of carrier		N/A
	Minimum ESCR	5000 hr				ASTM D 1693
Strip Properties	Sheet Thickness	1.27 mm -5% +10% (50 mil -5% +10%)				ASTM D 5199
	Surface Treatment	**Performance:** The polyethylene strips shall be textured and perforated such that the peak friction angle between the surface of the textured / perforated plastic and a #40 silica sand at 100% relative density shall be no less than 85% of the peak friction angle of the silica sand in isolation when tested by the direct shear method per ASTM D 5321. The quantity of perforations shall remove 21.2% ± 1.0% of the cell wall area.		**Material:** The polyethylene strips shall be textured with a multitude of rhomboidal (diamond shape) indentations. The rhomboidal indentations shall have a surface density of 22 – 31 per cm² (140 – 200 per in²). In addition, the strips shall be perforated with horizontal rows of 10 mm (0.4 in) diameter holes. Perforations within each row shall be 19 mm (0.75 in) on-center. Horizontal rows shall be staggered and separated 12 mm (0.50 in) relative to the hole centers. The edge of strip to the nearest edge of perforation shall be 8 mm (0.3 in) minimum and the centerline of the weld to the nearest edge of perforation shall be 18 mm (0.7 in) minimum. A slot with a dimension of 10 mm x 35 mm (3/8 in x 1 3/8 in) is standard in the center of the non-perforated areas and at the center of each weld.		
Cell & Seam Properties	Cell Details	Depth	Nominal Dimensions ±10%		Density per m² (yd²)	Nominal Area ±1%
			Length	Width		
	GW30V	150 mm (6 in)	330 mm (12.6 in)	287 mm (11.3 in)	36.4 (28.9)	289 cm² (44.8 in²)
	Short-term Seam Peel Strength	Cell Depth			Minimum Certified Cell Seam Strength	
		150 mm (6 in)			142 N (80 lbf)	
	Long-term Seam Peel Strength	Long term seam peel-strength test shall be performed on all resin or pre-manufactured sheet or strips. A 100 mm (4.0 in) wide seam sample shall support a 72.5 kg (160 lb) load for a period of 168 hours (7 days) minimum in a temperature-controlled environment undergoing a temperature change on a 1-hour cycle from ambient room to 54°C (130°F). Ambient room temperature is per ASTM E 41.				
Section Properties	Section Dimension	Section Width	Section Length Range (Cells Long: 18, 21, 25, 29, 34)			
		Variable	Minimum		Maximum	
	GW30V	2.3 m (7.7 ft) to 2.8 m (9.2 ft)	4.7 m (15.4 ft)		10.7 m (35.1 ft)	
Certifications & Warranties	Geoweb® Material	Geoweb® sections are manufactured under a quality management system that is ISO-9001:2008 certified. For additional certification and warranty information, refer to the **Presto Geosystems *Geoweb® Cellular Confinement System Material Specification.***				



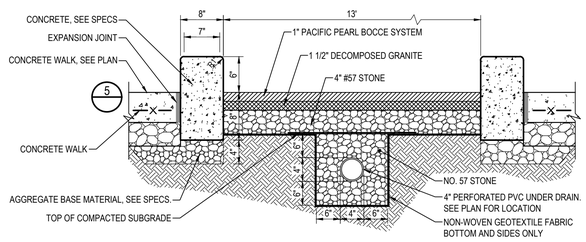
NOTES:

1. MARKINGS ARE TO BE WHITE THERMOPLASTIC APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

PLAN

16 PEDESTRIAN CROSSWALK

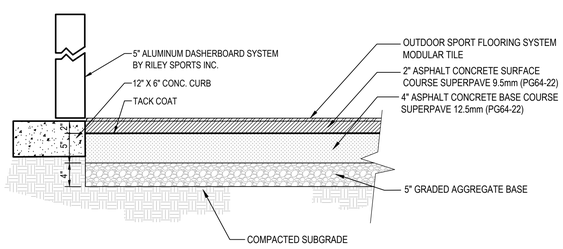
NOT TO SCALE



SECTION

17 BOCCE COURT SURFACE

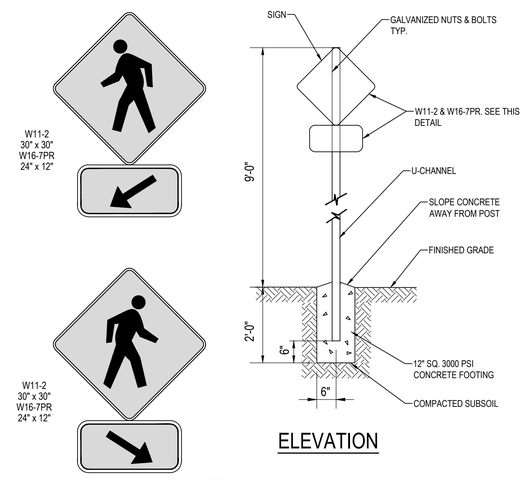
NOT TO SCALE



SECTION

18 ADAPTIVE HOCKEY RINK SURFACE WITH TILE

NOT TO SCALE



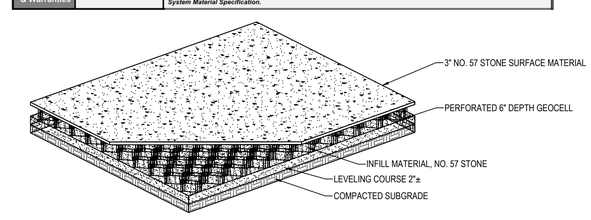
ELEVATION

NOTES:

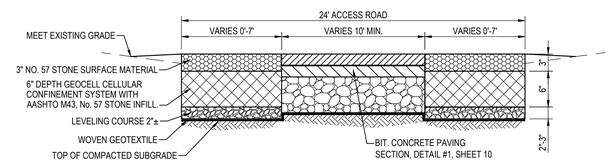
1. SIGNS ARE TO BE MOUNTED ON ONE POST FRONT TO BACK.

19 PEDESTRIAN CROSSING SIGN

NOT TO SCALE



ISOMETRIC



NOTES:

1. AGGREGATE STONE BASE MATERIAL SHALL BE CLEAN, WASHED, AND FREE OF FINES.
2. WOVEN GEOTEXTILE SHALL BE MIRAFI HP270, WINFAB 270HP, US FABRICS US2400 OR APPROVED EQUIVALENT.

SECTION

20 FIRE LANE ACCESS ROAD

SCALE: NONE

300 East Joppa Road Suite 200
Baltimore, MD 21286
410.512.4500 www.gftinc.com

GFT

STATE OF MARYLAND — JESSE MICHAEL LINDSAY — NO. 27734 — REGISTERED PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/28

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: NOT TO SCALE	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	SITE DETAILS
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 11 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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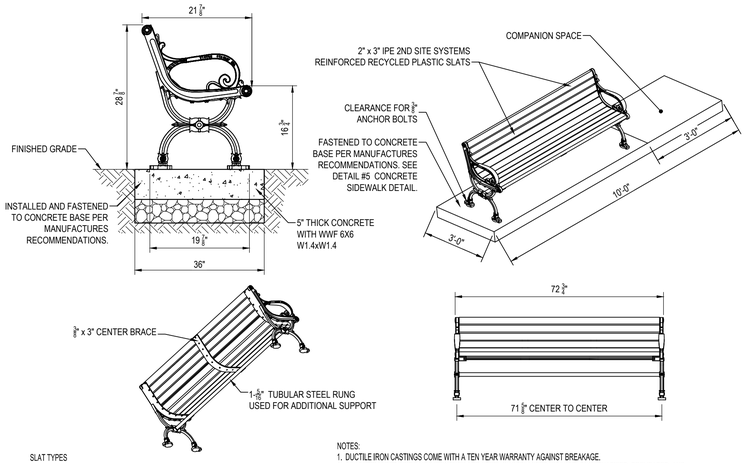


SLAT TYPES

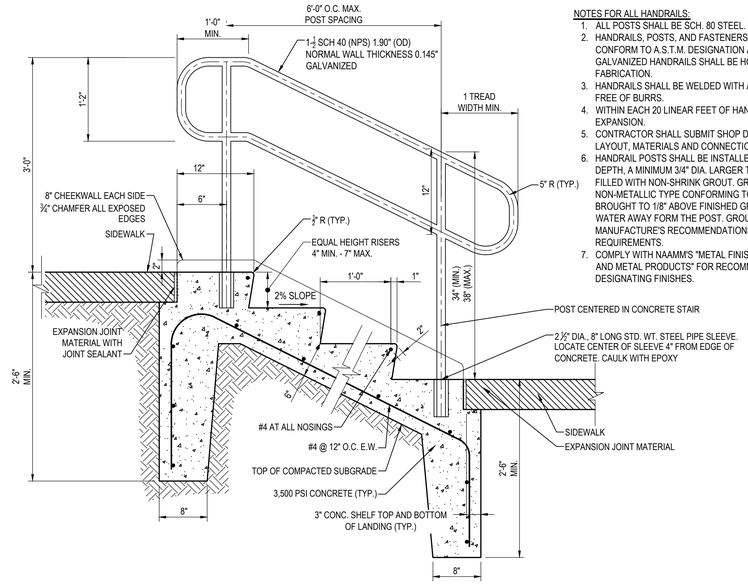
RECYCLED PLASTIC: IPE 2ND SITE SYSTEMS REINFORCED RECYCLED PLASTIC SLATS
COLOR: GRAY, MAPLE, CHERRY, AND WALNUT (NOT AVAILABLE IN 8-FOOT LENGTHS)

MANUFACTURE: VICTOR STANLEY, CLASSIC SERIES

NOTES:
1. DUCTILE IRON CASTINGS COME WITH A TEN YEAR WARRANTY AGAINST BREAKAGE.
3. ALL FABRICATED METAL COMPONENTS ARE STEEL SHOTBLASTED, ETCHED, PHOSPHATIZED, PREHEATED, AND ELECTROSTATICALLY POWDER-COATED WITH T.G.I.C. POLYESTER POWDER COATINGS. PRODUCTS ARE FULLY CLEANED AND PRETREATED, PREHEATED AND COATED WHILE HOT TO FILL CREVICES AND BUILD COATING FILM. COATED PARTS ARE THEN FULLY CURED TO COATING MANUFACTURER'S SPECIFICATIONS. THE THICKNESS OF THE RESULTING FINISH AVERAGES 8-10 MILS (200-250 MICRONS).
4. IT IS NOT RECOMMENDED TO LOCATE ANCHOR BOLTS UNTIL BENCH IS IN PLACE. THIS VICTOR STANLEY, INC. PRODUCT MUST BE PERMANENTLY AFFIXED TO THE GROUND. CONSULT YOUR LOCAL CODES FOR REGULATIONS.
5. ANCHOR BOLTS NOT PROVIDED BY VICTOR STANLEY, INC., CONTRACTOR TO PROVIDE ANCHOR BOLTS PER MANUFACTURE RECOMMENDATIONS.

21 STANDARD BENCH ON CONCRETE PAD

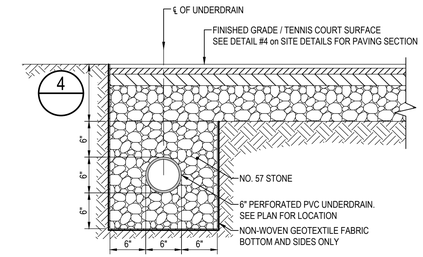
NOT TO SCALE



NOTES FOR ALL HANDRAILS:
1. ALL POSTS SHALL BE SCH. 80 STEEL. ALL RAILS SHALL BE SCH. 40 STEEL.
2. HANDRAILS, POSTS, AND FASTENERS TO BE GALVANIZED AND SHALL CONFORM TO A.S.T.M. DESIGNATION A-441, A 123/A 123M, A 153/A 153M. GALVANIZED HANDRAILS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
3. HANDRAILS SHALL BE WELDED WITH ALL JOINTS GROUND SMOOTH AND FREE OF BURRS.
4. WITHIN EACH 20 LINEAR FEET OF HANDRAIL, PROVIDE FOR 1/4" EXPANSION.
5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW INDICATING LAYOUT, MATERIALS AND CONNECTIONS.
6. HANDRAIL POSTS SHALL BE INSTALLED IN CORE DRILLED HOLES 8" DEPTH, A MINIMUM 3/4" DIA. LARGER THAN O.D. OF POST WHICH ARE FILLED WITH NON-SHRINK GROUT. GROUT SHALL BE NON-SHRINK, NON-METALLIC TYPE CONFORMING TO ASTM-C1107. GROUT SHALL BE BROUGHT TO 1/8" ABOVE FINISHED GRADE AND SLOPED TO DIRECT WATER AWAY FORM THE POST. GROUT SHALL BE INSTALLED PER MANUFACTURE'S RECOMMENDATIONS AND REFERENCED ASTM REQUIREMENTS.
7. COMPLY WITH NAAMM'S "METAL FINISHES MANUAL FOR ARCHITECTURAL AND METAL PRODUCTS" FOR RECOMMENDATIONS FOR APPLYING AND DESIGNATING FINISHES.

22 CONCRETE STAIRS WITH HANDRAIL

NOT TO SCALE

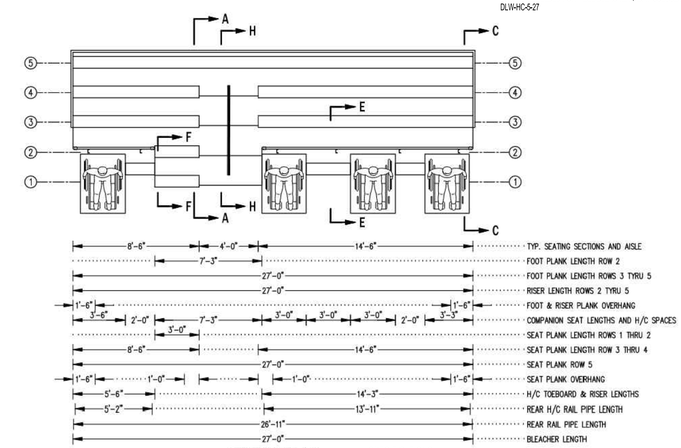


SECTION

25 PICKLEBALL COURT PAVING UNDERDRAIN

NOT TO SCALE

MANUFACTURE: OUTDOOR ALUMINUM (https://outdooraluminum.com)
DURA-LITE WELDED PORTABLE BLEACHER (ADA ACCESSIBLE)
DLW-HC-5-27



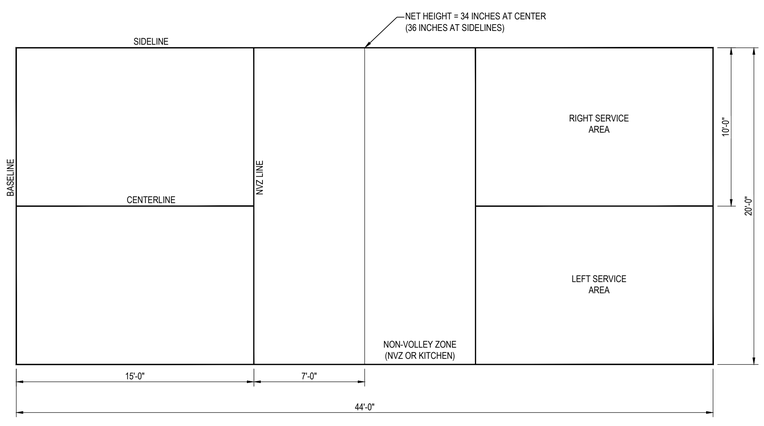
SEATING PLAN
1/4" = 1'-0"

50 NET SEATS @ 18" PER SEAT
4 HDCP @ 36" PER SPACE
4 COMPANIONS @ 18"
58 TOTAL

SPECIFICATIONS
- 8" RISE & A 24" RUN
- DOUBLE 2X10 FOOTBOARDS
- 2X10 CLEAR ANODIZED SEAT PLANKS
- VERTICAL AISLE
- HANDICAPPED ACCESSIBLE AREA(S) WITH COMPANION BENCH(S)
- CHAIN-LINK GUARDRAIL SYSTEM
- BLEACHERS SHALL BE ANCHORED TO CONCRETE SLAB IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS

26 ADA BLEACHERS ON CONCRETE PAD

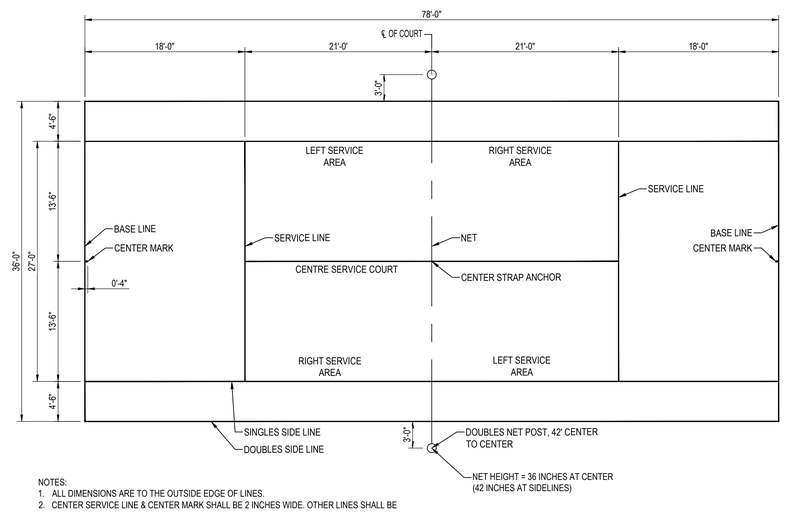
NOT TO SCALE



PLAN

23 PICKLEBALL COURT

NOT TO SCALE

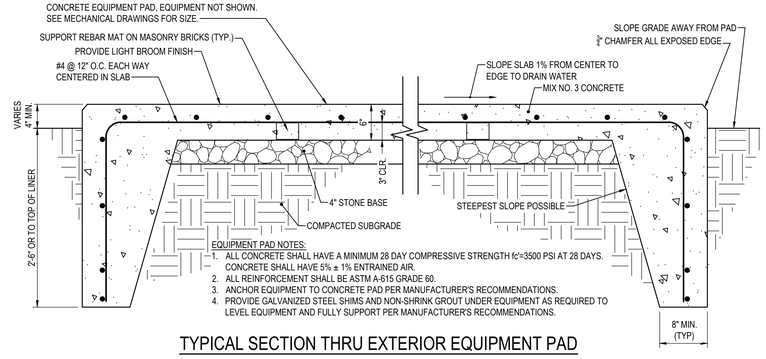


NOTES:
1. ALL DIMENSIONS ARE TO THE OUTSIDE EDGE OF LINES.
2. CENTER SERVICE LINE & CENTER MARK SHALL BE 2 INCHES WIDE. OTHER LINES SHALL BE BETWEEN 1" AND 2" WIDE, EXCEPT THE BASELINES MAY BE UP TO 4" WIDE.

PLAN

24 TENNIS COURT (78' COURT)

NOT TO SCALE



EQUIPMENT PAD NOTES:
1. ALL CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH f'c=3500 PSI AT 28 DAYS. CONCRETE SHALL HAVE 5% ± 1% ENTRAINED AIR.
2. ALL REINFORCEMENT SHALL BE ASTM A-615 GRADE 60.
3. ANCHOR EQUIPMENT TO CONCRETE PAD PER MANUFACTURER'S RECOMMENDATIONS.
4. PROVIDE GALVANIZED STEEL SHIMS AND NON-SHRINK GROUT UNDER EQUIPMENT AS REQUIRED TO LEVEL EQUIPMENT AND FULLY SUPPORT PER MANUFACTURER'S RECOMMENDATIONS.

TYPICAL SECTION THRU EXTERIOR EQUIPMENT PAD

27 CONCRETE EQUIPMENT PAD

SCALE: 1" = 1'-0"

300 East Joppa Road Suite 200
Baltimore, MD 21286
410.512.4500 www.gftinc.com

STATE OF MARYLAND — JESSE MICHAEL LINGAN — NO. 27734 — PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/28

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: NOT TO SCALE	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	SITE DETAILS
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 12 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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PAVILLION NOTES

I. CODE

A. ALL CONSTRUCTION SHALL CONFORM TO 2021 INTERNATIONAL BUILDING CODE, AND ANNE ARUNDEL COUNTY LOCAL AMENDMENTS.

II. DESIGN LOADING

A. THE DESIGN DEAD LOAD FOR THE PRE-FABRICATED/PRE-ENGINEERED CANOPY = 15 PSF (ESTIMATED).

B. THE FOLLOWING LIVE LOADS WERE USED IN DESIGN:
IBC 1603.1.2 - ROOF LIVE LOAD = 20 PSF
IBC 1603.1.3 - ROOF SNOW LOAD
GROUND SNOW LOAD (P_G) = 25 PSF
FLAT SNOW LOAD (P_F) = 18.9 PSF
SNOW EXPOSURE FACTOR (C_E) = 0.9
SNOW LOAD IMPORTANCE FACTOR (I) = 1.0
THERMAL FACTOR (C_T) = 1.2
SLOPE FACTOR (CS) = 1.0
SLOPED SNOW LOAD (PS) = 18.9 PSF
IBC 1603.1.4 - WIND LOAD
ULTIMATE DESIGN WIND SPEED (V_{ULT}) = 115 MPH
NOMINAL DESIGN WIND SPEED (V_{ASD}) = 89 MPH
RISK CATEGORY = II
WIND EXPOSURE = C
IBC 1603.1.5 - EARTHQUAKE DESIGN DATA
RISK CATEGORY = II
SEISMIC IMPORTANCE FACTOR (I_E) = 1.0
SPECTRAL RESPONSE ACCELERATION PARAMETERS;
(ASCEHAZARDTOOL.ORG)
S_S = 0.15 G
S_1 = 0.041 G
SITE CLASS = D
DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS;
S_{DS} = 0.16 G
S_{D1} = 0.066 G
SEISMIC DESIGN CATEGORY = A
BASIC SEISMIC FORCE-RESISTING SYSTEM:
STEEL ORDINARY MOMENT FRAMES
DESIGN BASE SHEAR = 0.15 KIPS
SEISMIC RESPONSE COEFFICIENT (C_S) = 0.01
RESPONSE MODIFICATION COEFFICIENT (R) = 3.5
ANALYSIS PROCEDURE USED = EQUIVALENT LATERAL FORCE

C. ALL STRUCTURAL COMPONENTS HAVE BEEN DESIGNED FOR THE DEAD LOADS SHOWN ON THE PLANS AND THE LIVE LOADS SHOWN ABOVE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALLOWABLE CONSTRUCTION LOADS AND TO PROVIDE PROPER DESIGN AND CONSTRUCTION OF THOSE ITEMS NECESSARY TO FACILITATE CONSTRUCTION INCLUDING BUT NOT LIMITED TO FALSEWORK, FORMWORK, STAGING, BRACING, SHEETING AND SHORING, ETC.

D. THE STABILITY OF THE STRUCTURE IS DEPENDENT UPON THE DIAPHRAGM ACTION OF THE ROOFS. THE CONTRACTOR IS COMPLETELY RESPONSIBLE FOR THE METHODS OF CONSTRUCTIONS AND SHALL PROVIDE ALL GUYS, BRACING AND SHORING REQUIRED TO ACCOMMODATE ALL INTERIM LOADING CONDITIONS THROUGHOUT THE CONSTRUCTION PHASE.

III. GENERAL

A. THE CONTRACTOR SHALL FIELD CHECK AND VERIFY ALL DIMENSIONS AND ELEVATIONS OF EXISTING WORK PRIOR TO FABRICATION OF ANY NEW MATERIALS.

B. THE CONTRACTOR IS ADVISED THAT ALL PLANS, DIMENSIONS, AND DETAILS DEPICT FIELD CONDITION AS SHOWN. MINOR VARIATIONS ARE TO BE EXPECTED AND ANY DEVIATIONS FROM THE CONTRACT DOCUMENTS SHALL BE APPROVED BY THE ENGINEER IN WRITING PRIOR TO PROCEEDING.

C. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SATISFY HIMSELF AS TO THE LOCATION OF ANY UTILITIES IN THE IMMEDIATE VICINITY OF CONSTRUCTION SO AS TO PREVENT DAMAGE TO THEM. SHOULD ANY DAMAGE TO SUCH UTILITIES OCCUR THE CONTRACTOR SHALL BE REQUIRED TO REPAIR SUCH DAMAGE AT HIS OWN EXPENSE AND TO THE SATISFACTION OF THE OWNER.

D. CONSULT THE MECHANICAL AND ELECTRICAL DRAWINGS FOR VERIFICATION OF LOCATION AND DIMENSION OF CHASES, INSERTS, OPENINGS, SLEEVES, WASHERS, DRIPS, REVEALS, DEPRESSIONS AND OTHER PROJECT REQUIREMENTS.

E. ALL WORK SPECIFIED HEREIN SHALL BE INSPECTED IN ACCORDANCE WITH THE BUILDING CODE AND ALL LOCAL ORDINANCES. THE OWNER OR CONTRACTOR (SEE SPECIFICATIONS) SHALL HIRE AN EXPERIENCED, QUALIFIED INSPECTOR TO PERFORM ALL THE REQUIRED INSPECTION WORK. THE ENGINEER WILL NOT PERFORM THE REQUIRED INSPECTION AS A PART OF THEIR DESIGN SERVICES. THE ENGINEER MAY VISIT THE SITE TO ASCERTAIN GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS. SUCH SITE VISITS ARE NOT TO BE CONSTRUED AS MEETING ANY INSPECTION REQUIREMENTS UNLESS THE ENGINEER SPECIFICALLY SO STATES IN WRITING.

F. THE PAVILION SHALL BE DESIGNED FOR ALL APPLICABLE DEAD LOADS AND FOR ALL LIVE, WIND, AND SEISMIC LOADS AS SPECIFIED IN THE LOCAL BUILDING CODE. SHOP DRAWINGS AND CALCULATIONS FOR THESE ITEMS SHALL BE SIGNED AND SEALED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND AND SHALL BE SUBMITTED TO THE ENGINEER.

G. ANY REVIEW OF STRUCTURAL ITEM SHOP DRAWINGS BY (THE STRUCTURAL ENGINEER) IS FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT AS PRESENTED BY THE CONTRACT DOCUMENTS. NO DETAILED CHECK OF QUANTITIES OR DIMENSIONS WILL BE MADE.

H. AT THE TIME OF SHOP DRAWING SUBMISSION, THE GENERAL CONTRACTOR SHALL STATE IN WRITING ANY DEVIATION OR OMISSIONS FROM THE CONTRACT DOCUMENTS. THE GENERAL CONTRACTOR SHALL REVIEW ALL SHOP DRAWINGS BEFORE SUBMISSION AND MAKE ALL CORRECTIONS AS HE DEEMS NECESSARY.

I. SUBMIT SHOP DRAWINGS FOR SPECIFIC AREAS IN THEIR ENTIRETY. THAT IS, IN A GIVEN AREA OF THE BUILDING INCLUDE ALL COLUMNS, BASE PLATES, BEAMS AND CONNECTION DETAILS. SHOP DRAWINGS FOR SIMILAR FLOORS SHALL BE SUBMITTED IN THE SAME PACKAGE.

J. THE STRUCTURAL CONTRACT DOCUMENTS ARE NOT TO BE REPRODUCED FOR USE AS SHOP DRAWINGS.

K. SHOP DRAWINGS FOR ALL STRUCTURAL ELEMENTS SHOWN ON THE CONTRACT DOCUMENTS MUST BE SUBMITTED BY THE GENERAL CONTRACTOR. IF A CONTRACTOR OR OWNER FAILS TO SUBMIT THE SHOP DRAWINGS, THE ENGINEER WILL NOT BE RESPONSIBLE FOR THE STRUCTURAL CERTIFICATION OR FOR THE DESIGN OF THE PROJECT.

L. CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING FOR AND OBTAINING BUILDING PERMIT FOR EACH STRUCTURE.

IV. FOUNDATIONS

A. SPREAD FOOTING FOUNDATIONS

1. BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BE A MINIMUM OF 2'-6" BELOW FINISH GRADE OR 1'-0" BELOW EXISTING GRADE, WHICHEVER IS GREATER, UNLESS NOTED OTHERWISE ON THE DRAWINGS. SEE SITE PLANS FOR EXISTING AND FINISHED GRADES.
2. ALL FOOTINGS HAVE BEEN DESIGNED FOR AN ASSUMED NET SOIL BEARING PRESSURE OF 1,500 PSF. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SECURE THE SERVICES OF A GEOTECHNICAL ENGINEER FOR FIELD VERIFICATION OF THE ASSUMED SOIL BEARING PRESSURES. SHOULD THE SOIL BEARING PRESSURE BE FOUND TO BE LESS THAN THIS VALUE THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER. IN THIS CASE, THE FOOTINGS WILL EITHER HAVE TO BE LOWERED OR RE-DESIGNED. CONTRACTOR SHALL RECEIVE THE APPROVAL OF THE TESTING AGENCY PRIOR TO POURING ALL FOUNDATIONS.
3. ALL FILL UNDER FOOTINGS AND SLABS SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DRY DENSITY PER ASTM D-1577, MODIFIED PROCTOR.
4. ALL EXCAVATION, BACKFILLING, AND FILLING OPERATIONS BENEATH THE BUILDING SLAB AND FOUNDATIONS, AND ALL COMPACTION TESTS AND INSPECTION, SHALL BE DONE UNDER THE DIRECTION AND SUPERVISION OF A REGISTERED PROFESSIONAL SOILS ENGINEER RETAINED BY THE OWNER. ALL SOIL, EQUIPMENT AND PROCEDURES SHALL BE APPROVED BY THE SOILS ENGINEER PRIOR TO ALL EARTHWORK OPERATIONS.

V. CAST-IN-PLACE CONCRETE

A. GENERAL CONSTRUCTION

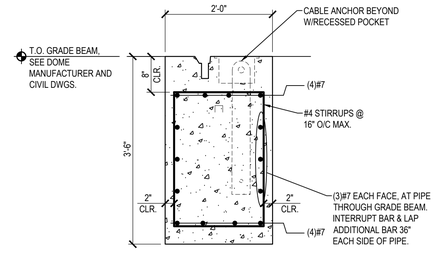
1. ALL CONCRETE WORK SHALL CONFORM TO THE LATEST APPROVED (BY LOCAL GOVERNMENT) EDITIONS OF THE FOLLOWING A.C.I. AND A.S.T.M. DOCUMENTS:

ACI-302.1R	FLOOR AND SLAB CONSTRUCTION
ACI-318	BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE
ACI-214	COMPRESSION TESTS
ACI-306	COLD WEATHER
ACI-315	DETAILING
ACI-347	FORMWORK
ACI-305	HOT WEATHER
ACI-211	PROPORTIONS OF CONCRETE
ACI-304	PLACING CONCRETE
ASTM C94	READY-MIX CONCRETE

2. ALL FIELD AND LAB TESTING OF CONCRETE SHALL CONFORM TO THE LATEST APPROVED (BY LOCAL GOVERNMENT) EDITIONS OF ASTM.

ASTM C31	FIELD CYLINDER SPECIMENS
ASTM C143	SLUMP TEST
ASTM C231	AIR CONTENT (WHEN REQUIRED)
ASTM C39	LAB TESTING CYLINDERS
ASTM C172	SAMPLING FRESH CONCRETE
ASTM C42	HARDENED CORES (WHEN REQUIRED)

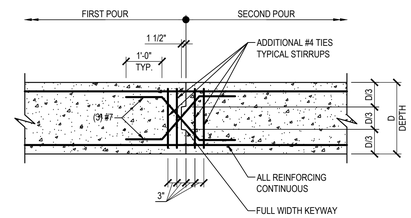
3. THE CONTRACTOR IS CAUTIONED THAT THE SCHEDULED CONSTRUCTION SEQUENCE FOR THE CONCRETE WORK MAY REQUIRE HIGHER CONCRETE STRENGTHS FOR SUPPORT OF CONSTRUCTION LOADINGS. CONCRETE MEMBERS CANNOT CARRY THEIR DESIGN LOADING UNTIL THE SPECIFIED 28-DAY COMPRESSIVE STRENGTHS ARE OBTAINED. CONTRACTOR SHALL INCREASE CONCRETE STRENGTHS AS REQUIRED.
4. ALL CONCRETE SHALL BE STONE AGGREGATE CONCRETE HAVING A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS. ALL CONCRETE EXPOSED TO WEATHER SHALL HAVE AN AIR ENTRAINMENT OF 5%±1%. NO ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL BE PERMITTED. MAXIMUM AGGREGATE SIZE FOR CONCRETE SHALL BE 1", AND MAXIMUM SLUMP SHALL BE 4", AND 3" FOR SLABS ON GRADE. ALL CONCRETE SHALL CONTAIN A WATER REDUCING ADMIXTURE.
5. ALL CONCRETE MIX DESIGNS AND ADMIXTURES SHALL BE APPROVED BY THE ENGINEER 30 DAYS PRIOR TO INITIATION OF FIRST POUR.
6. ALL REINFORCING BARS SHALL CONFORM TO ASTM A-615 GRADE 60. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185.
7. ALL CONCRETE SHALL BE SAMPLED AND TESTED BY AN AGENCY RETAINED BY THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY THE TESTING AGENCY 48 HOURS PRIOR TO THE POURING OF ANY CONCRETE.
8. TESTING FREQUENCY: OBTAIN ONE CONCRETE SAMPLE FOR EACH DAY'S POUR OF EACH CONCRETE MIXTURE EXCEEDING 5 CU. YD. BUT LESS THAN 25 CU. YD. PLUS ONE SET FOR EACH ADDITIONAL 50 CU. YD. OR FRACTION THEREOF.
   a. CAST AND LABORATORY CURE TWO SETS OF TWO STANDARD CYLINDER
   b. CAST AND FIELD CURE TWO SETS OF TWO STANDARD CYLINDER
9. COMPRESSIVE STRENGTH TESTS: ASTM C39/C 39M; TEST ONE SET OF TWO LABORATORY CURED SPECIMENS AT 7 DAYS AND ONE SET OF TWO SPECIMENS AT 28 DAYS.
   a. TEST ONE SET OF TWO FIELD-CURED SPECIMENS AT 7 DAYS AND ONE SET OF TWO SPECIMENS AT 28 DAYS.
   b. A COMPRESSIVE-STRENGTH TEST SHALL BE THE AVERAGE COMPRESSIVE STRENGTH FROM A SET OF TWO SPECIMENS OBTAINED FROM SAME COMPOSITE SAMPLE AND TESTED AT AGE INDICATED.
10. CONCRETE EXPOSED TO PUBLIC VIEW SHALL MEET THE REQUIREMENTS FOR ARCHITECTURAL CONCRETE OF ACI 301.



GRADE BEAM REINFORCEMENT DETAIL

1

SCALE: 3/4" = 1'-0"

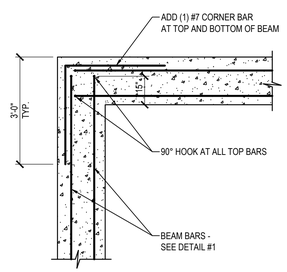


NOTE: JOINTS SHALL BE LOCATED WITHIN MIDDLE 1/3 OF SPAN.

TYPICAL CONCRETE GRADE BEAM CONSTRUCTION JOINT DETAIL

2

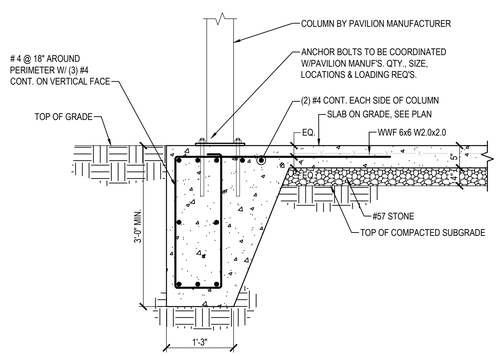
NOT TO SCALE



TYPICAL GRADE BEAM CORNER PLAN DETAIL

3

NOT TO SCALE

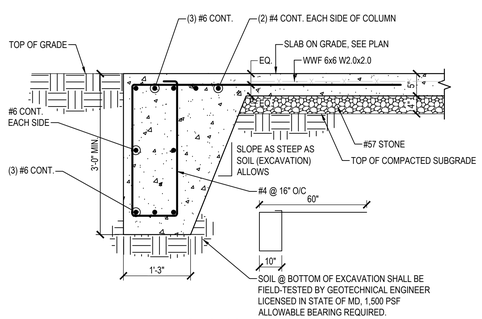


SECTION

PAVILION PIER DETAIL

-

SCALE: 3/4" = 1'-0"



SECTION

PAVILION SLAB ON GRADE

-

SCALE: 3/4" = 1'-0"

PAVILION FOUNDATION DETAIL

27

TENNIS AIR SUPPORTED STRUCTURE BUILDING GENERAL NOTES

1. CODE

A. ALL CONSTRUCTION SHALL CONFORM TO 2021 INTERNATIONAL BUILDING CODE, AND ANNE ARUNDLE LOCAL AMENDMENTS.

2. DESIGN LOADS

A. THE MANUFACTURE SHALL PROVIDE ALL DESIGN LOADS AND REACTIONS USED IN PREPARATION OF SHOP DRAWLINGS.

3. GENERAL

A. THE CONTRACTOR SHALL FIELD CHECK AND VERIFY ALL DIMENSIONS AND ELEVATIONS OF EXISTING WORK AND COORDINATE WITH FINAL SHOP DRAWINGS FROM DOME MANUFACTURER PRIOR TO FABRICATION OF ANY NEW MATERIALS.

B. THE CONTRACTOR IS ADVISED THAT ALL PLANS, DIMENSIONS, AND DETAILS DEPICT FIELD CONDITION AS SHOWN. MINOR VARIATIONS ARE TO BE EXPECTED AND ANY DEVIATIONS FROM THE CONTRACT DOCUMENTS SHALL BE APPROVED BY THE ARCHITECT IN WRITING PRIOR TO PROCEEDING.

C. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SATISFY HIMSELF AS TO THE LOCATION OF ANY UTILITIES IN THE IMMEDIATE VICINITY OF CONSTRUCTION SO AS TO PREVENT DAMAGE TO THEM. SHOULD ANY DAMAGE TO SUCH UTILITIES OCCUR THE CONTRACTOR SHALL BE REQUIRED TO REPAIR SUCH DAMAGE AT HIS OWN EXPENSE AND TO THE SATISFACTION OF THE OWNER.

D. THE CONTRACTOR SHALL EXERCISE CARE DURING THE EXCAVATION AND CONSTRUCTION OF NEW GRADE BEAMS AS REQUIRED TO MAINTAIN STABILITY OF THE SOIL AND/OR FORMWORK.

E. LOADS GREATER THAN THE DESIGN LIVE LOADS SHALL NOT BE PLACED ON THE STRUCTURE. THE CONCRETE GRADE BEAMS WILL NOT SUPPORT LOADS UNTIL THE CONCRETE HAS REACHED IT'S 28-DAY DESIGN STRENGTH. CONTRACTOR SHALL SUPPORT ADJACENT STRUCTURES, UTILITIES AND EXCAVATIONS AS REQUIRED. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL TEMPORARY FORMWORK, SHEETING, SHORING AND UNDERPINNING SEALED BY A PROFESSIONAL ENGINEER AS A PART OF THE CONTRACTOR'S WORK.

F. CONSULT THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND DOME FINAL DRAWINGS FOR VERIFICATION OF LOCATION AND DIMENSION OF CHASES, INSERTS, OPENINGS, SLEEVES, WASHERS, DRIPS, REVEALS, DEPRESSIONS AND OTHER PROJECT REQUIREMENTS.

G. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS BEFORE PROCEEDING WITH CONSTRUCTION. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.

H. ALL WORK SPECIFIED HEREIN SHALL BE INSPECTED IN ACCORDANCE WITH THE BUILDING CODE AND ALL LOCAL ORDINANCES. THE CONTRACTOR SHALL HIRE AN EXPERIENCED, QUALIFIED INSPECTOR TO PERFORM ALL THE REQUIRED INSPECTION WORK. THE ENGINEER WILL NOT PERFORM THE REQUIRED INSPECTION AS A PART OF THEIR DESIGN SERVICES. THE ENGINEER MAY VISIT THE SITE TO ASCERTAIN GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS. SUCH SITE VISITS ARE NOT TO BE CONSTRUED AS MEETING ANY INSPECTION REQUIREMENTS UNLESS THE ENGINEER SPECIFICALLY SO STATES IN WRITING.

I. ANY REVIEW OF STRUCTURAL ITEM SHOP DRAWINGS BY (THE STRUCTURAL ENGINEER) IS FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT AS PRESENTED BY THE CONTRACT DOCUMENTS. NO DETAILED CHECK OF QUANTITIES OR DIMENSIONS WILL BE MADE.

J. AT THE TIME OF SHOP DRAWING SUBMISSION, THE GENERAL CONTRACTOR SHALL STATE IN WRITING ANY DEVIATION OR OMISSIONS FROM THE CONTRACT DOCUMENTS. THE GENERAL CONTRACTOR SHALL REVIEW ALL SHOP DRAWINGS BEFORE SUBMISSION AND MAKE ALL CORRECTIONS AS HE DEEMS NECESSARY AND SHALL PROVIDE THEIR SHOP DRAWING STAMP ON THE DRAWINGS.

K. ALL CHANGES AND ADDITIONS MADE ON RE-SUBMITTALS MUST BE CLEARLY FLAGGED AND NOTED. THE PURPOSE OF THE RE-SUBMITTALS MUST BE CLEARLY NOTED ON THE LETTER OF TRANSMITTAL. THE REVIEW OF THE RE-SUBMITTALS WILL BE LIMITED TO THOSE ITEMS CAUSING THE RE-SUBMISSION.

L. THE STRUCTURAL CONTRACT DOCUMENTS ARE NOT TO BE REPRODUCED FOR USE AS SHOP DRAWINGS.

M. SHOP DRAWINGS FOR ALL STRUCTURAL ELEMENTS SHOWN ON THE CONTRACT DOCUMENTS MUST BE SUBMITTED BY THE GENERAL CONTRACTOR. IF A CONTRACTOR OR OWNER FAILS TO SUBMIT THE SHOP DRAWINGS, THE ENGINEER WILL NOT BE RESPONSIBLE FOR THE STRUCTURAL CERTIFICATION OR FOR THE DESIGN OF THE PROJECT.

4. GRADE BEAM FOUNDATIONS

A. THE BOTTOM OF ALL GRADE BEAMS AND TURNED-DOWN EDGES OF PADS SHALL BE A MINIMUM OF 2'-6" BELOW FINISH GRADE, UNLESS NOTED OTHERWISE.

B. ALL CONCRETE PADS ON GRADE HAVE BEEN DESIGNED FOR AN ALLOWABLE NET SOIL BEARING PRESSURE OF 500 PSF. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SECURE THE SERVICES OF A GEOTECHNICAL ENGINEER FOR FIELD VERIFICATION OF THE SOIL BEARING PRESSURE. SHOULD THE BEARING PRESSURE BE FOUND TO BE LESS THAN THE VALUE ASSUMED BY THE MANUFACTURES DESIGN, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT.

C. ALL FILL UNDER PADS SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DRY DENSITY PER ASTM D-1577, MODOFIED PROCTOR, OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER.

D. ALL EXCAVATION, BACKFILLING, AND FILLING OPERATIONS SHALL BE DONE UNDER THE DIRECTION AND SUPERVISION OF A REGISTERED PROFESSIONAL SOILS ENGINEER RETAINED BY THE OWNER. ALL SOIL, EQUIPMENT AND PROCEDURES SHALL BE APPROVED BY THE SOILS ENGINEER PRIOR TO ALL EARTHWORK OPERATIONS.

E. CONCRETE PADS FOR EQUIPMENT SUPPORT HAVE BEEN DESIGNED FOR AN ALLOWABLE SOIL BEARING PRESSURE OF 500 PSF. CONTRACTOR SHALL HIRE A MARYLAND LICENSED GEOTECHNICAL ENGINEER TO VERIFY THE ALLOWABLE SOIL PRESSURE IN THE FIELD, IF FOUND TO BE LESS THAN THE DESIGN PRESSURE, THE PADS WILL HAVE TO BE REDESIGNED.

5. CAST-IN-PLACE CONCRETE

A. ALL CONCRETE WORK SHALL CONFORM TO THE LATEST APPROVED EDITIONS OF THE FOLLOWING A.C.I. AND A.S.T.M. DOCUMENTS:

ACI-301	SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS
ACI-318	BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE
ACI-214	COMPRESSION TESTS
ACI-306	COLD WEATHER
ACI-315	DETAILING
ACI-347	FORMWORK
ACI-305	HOT WEATHER
ACI-211	PROPORTIONS OF CONCRETE
ACI-304	PLACING CONCRETE
ASTM C94	READY-MIX CONCRETE

B. ALL FIELD AND LAB TESTING OF CONCRETE SHALL CONFORM TO THE LATEST APPROVED EDITIONS OF ASTM:

ASTM C31	FIELD CYLINDER SPECIMENS
ASTM C143	SLUMP TEST
ASTM C231	AIR CONTENT (WHEN REQUIRED)
ASTM C39	LAB TESTING CYLINDERS
ASTM C172	SAMPLING FRESH CONCRETE
ASTM C42	HARDENED CORES (WHEN REQUIRED)

UPON COMPLETION OF CONCRETE TESTING, THE AGENCY SHALL CERTIFY THEIR RESULTS AS FOLLOWS:

"I CERTIFY THAT THE FIELD AND LAB TESTING CONFORMS TO THE ASTM DOCUMENTS AND GOOD PRACTICE.

SIGNED....., P.E.
(FOR AGENCY)"

C. ALL CONCRETE, UNLESS NOTED OTHERWISE, SHALL BE STONE AGGREGATE CONCRETE HAVING A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS. ALL CONCRETE EXPOSED TO WEATHER SHALL HAVE AN AIR ENTRAINMENT OF 6%±1%. NO ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL BE PERMITTED. MAXIMUM AGGREGATE SIZE FOR CONCRETE SHALL BE 1", AND MAXIMUM SLUMP SHALL BE 5".

D. ALL CONCRETE MIX DESIGNS AND ADMIXTURES SHALL BE APPROVED BY THE ARCHITECT 30 DAYS PRIOR TO INITIATION OF FIRST POUR.

E. ALL REINFORCING BARS SHALL CONFORM TO ASTM A-615 GRADE 60. ALL REINFORCING SHALL BE DETAILED, FABRICATED, AND PLACED IN ACCORDANCE WITH THE ACI'S MANUAL OF STANDARD PRACTICE FOR DETAILING CONCRETE STRUCTURES (ACI-315).

F. ALL CONCRETE SHALL BE SAMPLED AND TESTED BY AN ENGINEER RETAINED BY THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY THE TESTING AGENCY 48 HOURS PRIOR TO THE POURING OF ANY CONCRETE. THREE SETS OF TWO CYLINDERS SHALL BE MADE FOR EACH 50 CUBIC YARDS OF CONCRETE POURED, OR FOR EACH DAY'S POUR.

G. CONCRETE EXPOSED TO PUBLIC VIEW SHALL MEET THE REQUIREMENTS FOR ARCHITECTURAL CONCRETE OF ACI 301.

H. ALL FORMWORK SHALL BE IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE "FORMWORK FOR CONCRETE", SPECIAL PUBLICATION NO. 4 AND ACI'S "STANDARD RECOMMENDED PRACTICE FOR CONCRETE FORMWORK" (ACI-347, LATEST LOCAL APPROVED EDITION).

I. GENERAL CONTRACTOR SHALL SUBMIT A CERTIFIED FORMWORK PLAN SEALED BY A MARYLAND REGISTERED PROFESSIONAL ENGINEER FOR APPROVAL SHOWING SIZES AND STRENGTHS OF FORMWORK, SEQUENCE OF CONSTRUCTION, AND DETAILED PLANS OF FORMWORK.

J. SLEEVES AND OPENINGS THROUGH GRADE BEAM SHALL BE FORMED. ABSOLUTELY NO CORE DRILLING THROUGH THE GRADE BEAM SHALL BE PERMITTED.

K. WHERE CONTINUOUS BARS ARE CALLED FOR, THEY SHALL BE RUN CONTINUOUSLY AROUND CORNERS AND LAPPED AT NECESSARY SPLICES OR HOOKED AT DISCONTINUOUS ENDS. LAPS SHALL BE NOT LESS THAN THE TYPICAL SPLICE LENGTH UNLESS NOTED.

L. ALL SPLICES IN REINFORCING SHALL BE CLASS "B" SPLICES IN ACCORDANCE WITH ACI-318 (LATEST LOCAL APPROVED EDITION) EXCEPT AS NOTED IN THE PLANS.

6. PRE-ENGINEERED FABRIC DOME STRUCTURE

A. SHOP DRAWINGS AND DESIGN CALCULATIONS FOR ALL DOME STRUCTURE COMPONENTS SHALL BE SUBMITTED FOR REVIEW AND SHALL BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MARYLAND.

B. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE ALL DIMENSIONS AND OTHER WORK WITH THE DOME MANUFACTURER'S DESIGNS, AND PROVIDE ALL POCKETS, RECESSES, ANCHORS, INSERTS AND OTHER ELEMENTS REQUIRED FOR A COMPLETE FACILITY.

C. REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF MARYLAND SHALL CERTIFY THE DESIGN, FABRICATION, AND ERECTION OF THE DOME STRUCTURE. CERTIFICATION SHALL BE BY THE SEAL AND SIGNATURE OF THE REGISTERED PROFESSIONAL ENGINEER ON THE MANUFACTURED DRAWINGS AND ON THE FINAL SHOP AND FIELD INSPECTION REPORTS.

D. THE TOTAL RESPONSIBILITY OF THE DESIGN AND CONSTRUCTION OF THE DOME STRUCTURE (INCLUDING FOUNDATION SYSTEM) SHALL BE BORNE BY THE CONTRACTOR, THE DOME MANUFACTURER, AND THEIR REGISTERED PROFESSIONAL ENGINEER. THE STRUCTURAL ENGINEER WILL NOT BE RESPONSIBLE UNDER ANY CONDITION(S) FOR THE STRUCTURAL DESIGN, FABRICATION AND ERECTION OF THE DOME STRUCTURE AND ITS COMPONENTS.

CAUTION:
IF THIS DRAWING IS A REDUCTION,
USE THE GRAPHIC SCALES.

3/4"=1'-0" 0 1 2 3 4

300 East Joppa Road Suite 200
Baltimore, MD 21286
410.512.4500 www.gftinc.com

STATE OF MARYLAND JESSIE MICHAEL LINDSAY NO. 27734 CONFERRED PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/28

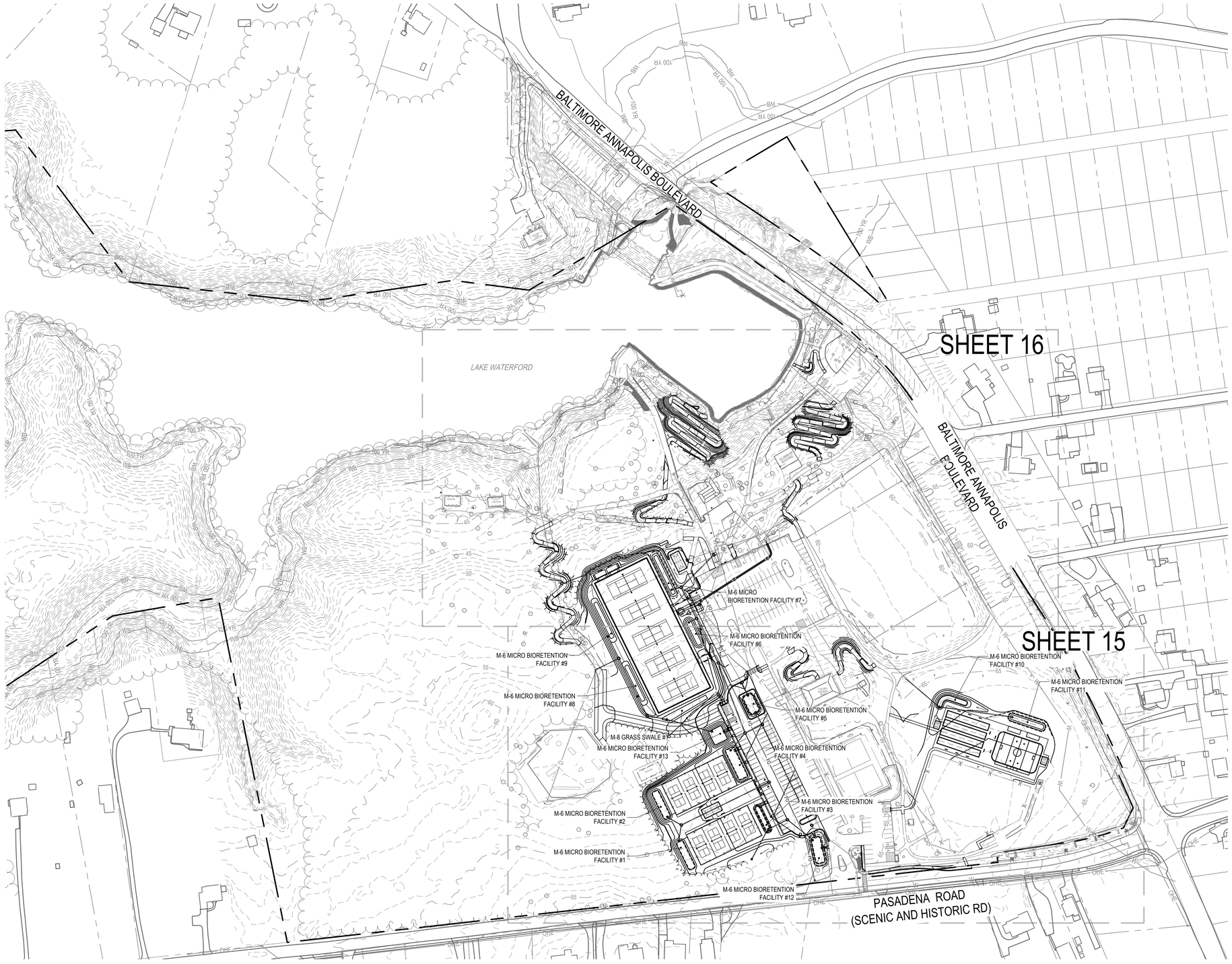
REVISIONS

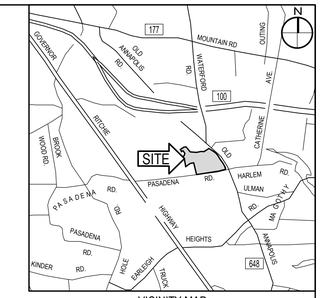
NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: AS SHOWN	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	SITE DETAILS
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 13 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

G:\Projects_2024\BL720\72024037\Site\Drawings\72024037-C206-Site Details.dwg Jul 22, 2026 - 11:29am Plot By: hhwang





VICINITY MAP
SCALE: 1" = 2,000'

GRADING LEGEND

NEW MAJOR CONTOUR	50
NEW MINOR CONTOUR	51
NEW SPOT ELEVATION	51.50
FLOW ARROW	
NEW STORM DRAIN	
NEW U/G ELECTRIC	E
NEW U/G CONDUIT	FO
NEW INLET	
NEW MANHOLE	
NEW RIPRAP	
NEW CLEAN OUT	CO #
NEW INLET	I #
NEW OBSERVATION WELL	OBS #
NEW MANHOLE	DMH #

CAUTION:
IF THIS DRAWING IS A REDUCTION,
USE THE GRAPHIC SCALES.

100 0 50 100 200
1"=100'-0"

GFT
300 East Joppa Road Suite 200
Baltimore, MD 21286
410.512.4500 www.gftinc.com

STATE OF MARYLAND
JESSE MICHAEL LINDSAY
NO. 27734
REGISTERED
PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/28

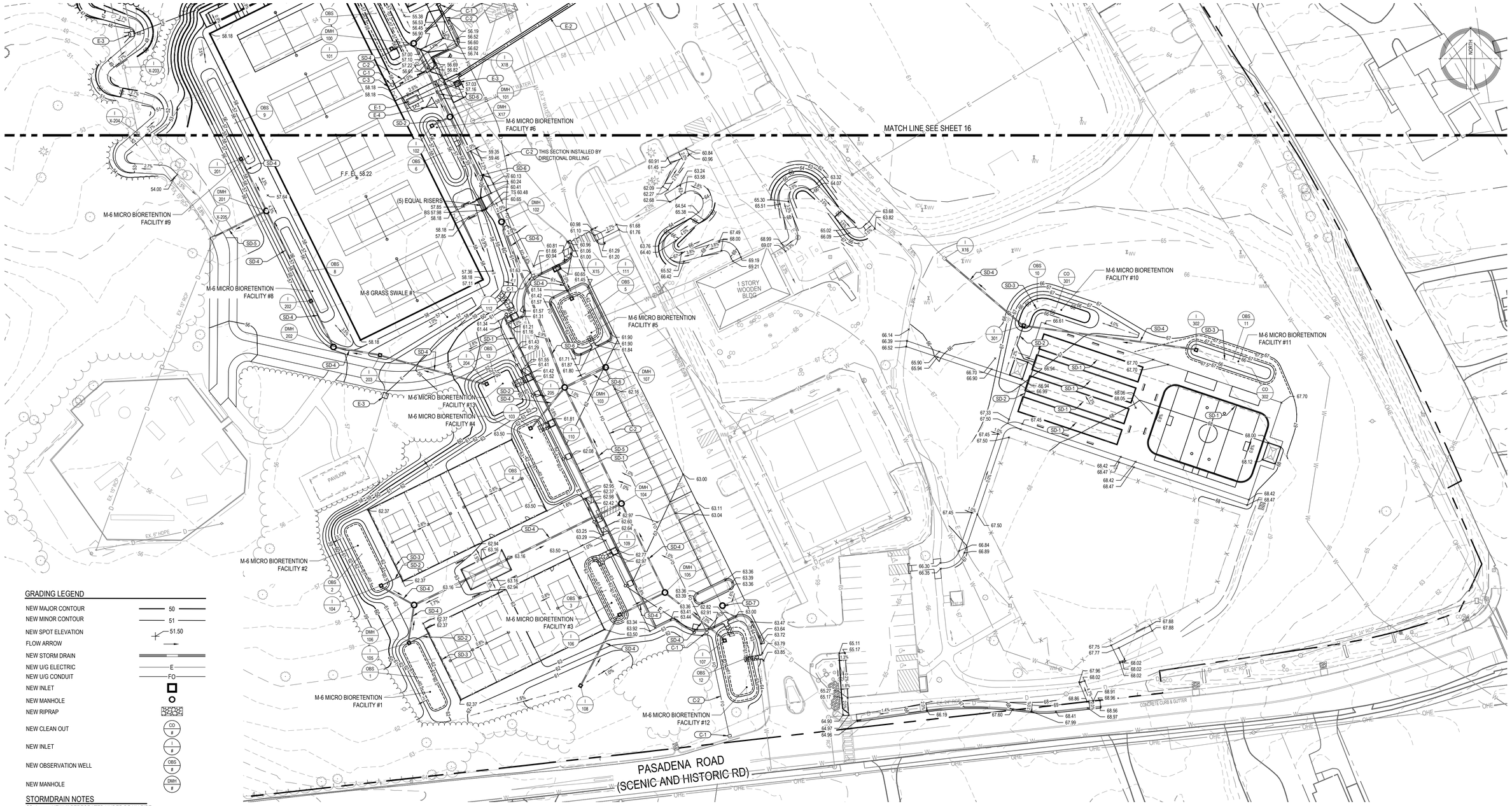
REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE	APPROVED DATE	SCALE: 1" = 100'	LAKE WATERFORD PARK
CHIEF ENGINEER	PROJECT MANAGER	DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	OVERALL GRADING AND STORM DRAIN PLAN
APPROVED DATE	APPROVED DATE	SHEET NO. 14 OF 57	
ASSISTANT CHIEF ENGINEER	CHIEF, RIGHT-OF-WAY	PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

G:\Projects_2024\B.720\720240037\Site\Drawings\720240037-C301-Grading Plan.dwg Aug 05, 2026 - 1:24pm Plot By: hhwang



GRADING LEGEND

NEW MAJOR CONTOUR	50
NEW MINOR CONTOUR	51
NEW SPOT ELEVATION	51.50
FLOW ARROW	
NEW STORM DRAIN	
NEW U/G ELECTRIC	E
NEW U/G CONDUIT	FO
NEW INLET	
NEW MANHOLE	
NEW RIPRAP	
NEW CLEAN OUT	CO #
NEW INLET	I #
NEW OBSERVATION WELL	OBS #
NEW MANHOLE	DMH #

STORMDRAIN NOTES

SD-1 NEW 4" PERFORATED UNDER DRAIN PIPE.
SD-2 NEW 6" SOLID SCH. 40 PVC PIPE.
SD-3 NEW 6" PERFORATED PVC UNDER DRAIN, SEE DETAIL #25 ON SITE DETAILS.
SD-4 NEW 12" HDPE PIPE.
SD-5 NEW 15" HDPE PIPE.
SD-6 NEW 18" HDPE PIPE.
SD-7 NEW MANHOLE FRAME AND GRATE.

NOTE:
ALL STORM DRAINS WILL BE MAINTAINED BY ANNE ARUNDEL COUNTY

ELECTRICAL NOTES

E-1 NEW METER/CABINET.
E-2 NEW ELECTRIC DUCT.
E-3 NEW HANDHOLE.
E-4 ELECTRICAL GROUNDING AREA

CONDUIT NOTES

C-1 NEW 24"x36"x36" FRP, TIER 15 HANDBOX. INSTALL FLUSH WITH GRADE.
C-2 NEW 2" PVC SCH 40 CONDUIT (EMPTH FOR FUTURE USE BY OTHERS)
C-3 TERMINATE INSIDE BUILDING. COORDINATE WITH AIR SUPPORTED STRUCTURE MANUFACTURER.

CAUTION:
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USE THE GRAPHIC SCALES.

1"=40'-0" 40 0 20 40 80

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STATE OF MARYLAND
JESSE MICHAEL LINDEMAN
NO. 27734
REGISTERED
PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/26

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 40'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	GRADING AND STORM DRAIN PLAN
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 15 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

G:\Projects_2024\BLT20\T2024003T\Site\Drawings\T2024003T-C301-Grading Plan.dwg Aug 05, 2026 - 1:22pm Plot By: hhwang

STRUCTURE SCHEDULE

NO.	DESCRIPTION	INVERTS	NORTHING	EASTING	TOP ELEV.
CO-301	CLEAN OUT	INV OUT 61.25	N 526687.78	E 1437919.13	65.50
CO-302	CLEAN OUT	INV OUT 62.31	N 526634.61	E 1438091.04	66.50
DMH-099	ANNE ARUNDEL COUNTY STD. D-12 PRECAST MANHOLE	INV IN 49.91 INV IN 49.91 INV OUT 49.91	N 526987.96	E 1437422.85	55.18
DMH-100	ANNE ARUNDEL COUNTY STD. D-12 PRECAST MANHOLE	INV IN 52.45 INV IN 50.95 INV OUT 50.87	N 526920.14	E 1437354.90	56.76
DMH-101	ANNE ARUNDEL COUNTY STD. D-12 PRECAST MANHOLE	INV IN 51.76 INV IN 53.03 INV OUT 51.67	N 526855.54	E 1437386.70	58.33
DMH-102	ANNE ARUNDEL COUNTY STD. D-12 PRECAST MANHOLE	INV IN 52.88 INV OUT 52.79	N 526763.39	E 1437432.07	60.73
DMH-103	ANNE ARUNDEL COUNTY STD. D-12 PRECAST MANHOLE	INV IN 54.52 INV IN 56.69 INV IN 55.56 INV OUT 54.44	N 526618.02	E 1437487.56	61.78
DMH-104	ANNE ARUNDEL COUNTY STD. D-12 PRECAST MANHOLE	INV IN 55.91 INV IN 55.71 INV OUT 55.66	N 526516.03	E 1437537.42	62.63
DMH-105	ANNE ARUNDEL COUNTY STD. D-12 PRECAST MANHOLE	INV IN 56.78 INV IN 56.88 INV OUT 56.78	N 526437.86	E 1437575.63	63.21
DMH-106	ANNE ARUNDEL COUNTY STD. D-12 PRECAST MANHOLE	INV IN 56.83 INV IN 56.83 INV OUT 56.84	N 526426.97	E 1437355.28	62.32
DMH-107	ANNE ARUNDEL COUNTY STD. D-12 PRECAST MANHOLE	INV IN 57.59 INV OUT 57.49	N 526635.76	E 1437523.90	62.01
I-101	ANNE ARUNDEL COUNTY STD. D-40 STANDARD TYPE 'S' INLET	INV OUT 52.65	N 526915.49	E 1437335.44	57.00
I-102	ANNE ARUNDEL COUNTY STD. D-40 STANDARD TYPE 'S' INLET	INV OUT 53.21	N 526847.76	E 1437370.89	57.00
I-103	ANNE ARUNDEL COUNTY STD. D-40 STANDARD TYPE 'S' INLET	INV OUT 56.50	N 526582.14	E 1437457.51	61.50
I-104	ANNE ARUNDEL COUNTY STD. D-40 STANDARD TYPE 'S' INLET	INV OUT 57.17	N 526443.96	E 1437326.23	61.50
I-105	ANNE ARUNDEL COUNTY STD. D-40 STANDARD TYPE 'S' INLET	INV OUT 57.17	N 526393.61	E 1437350.85	61.51
I-106	ANNE ARUNDEL COUNTY STD. D-40 STANDARD TYPE 'S' INLET	INV IN 57.74 INV OUT 57.76	N 526418.43	E 1437535.88	62.50
I-107	ANNE ARUNDEL COUNTY STD. D-40 STANDARD TYPE 'S' INLET	INV OUT 57.45	N 526395.75	E 1437628.36	62.50
I-108	ANNE ARUNDEL COUNTY STD. D-40 STANDARD TYPE 'S' INLET	INV OUT 58.46	N 526356.06	E 1437501.48	60.50
I-109	PRECAST COG / COS OPENING SHA STD. MD 374.68		N 526474.46	E 1437531.53	64.31
I-110	PRECAST COG / COS OPENING SHA STD. MD 374.68		N 526586.98	E 1437476.52	63.38
I-111	ANNE ARUNDEL COUNTY STD. D-40 STANDARD TYPE 'S' INLET	INV OUT 57.00	N 526696.01	E 1437493.70	61.50
I-112	PRECAST COG / COS OPENING SHA STD. MD 374.68		N 526671.97	E 1437441.06	62.21

STRUCTURE SCHEDULE

NO.	DESCRIPTION	INVERTS	NORTHING	EASTING	TOP ELEV.
DMH-201	ANNE ARUNDEL COUNTY STD. D-12 PRECAST MANHOLE	INV IN 52.23 INV IN 52.25 INV OUT 51.98	N 526773.02	E 1437225.59	57.77
DMH-202	ANNE ARUNDEL COUNTY STD. D-12 PRECAST MANHOLE	INV IN 53.09 INV OUT 52.99	N 526653.50	E 1437284.42	57.70
I-201	ANNE ARUNDEL COUNTY STD. D-40 STANDARD TYPE 'S' INLET	INV OUT 52.75	N 526818.59	E 1437203.16	57.00
I-202	ANNE ARUNDEL COUNTY STD. D-40 STANDARD TYPE 'S' INLET	INV IN 52.77 INV OUT 52.67	N 526693.88	E 1437264.55	57.00
I-203	ANNE ARUNDEL COUNTY STD. D-40 STANDARD TYPE 'S' INLET	INV IN 53.40 INV OUT 53.30	N 526646.34	E 1437325.30	56.06
I-204	ANNE ARUNDEL COUNTY STD. D-40 STANDARD TYPE 'S' INLET	INV OUT 57.21	N 526621.02	E 1437419.00	61.00
I-205	PRECAST COG / COS OPENING SHA STD. MD 374.68		N 526627.18	E 1437456.86	63.02

STRUCTURE SCHEDULE

NO.	DESCRIPTION	INVERTS	NORTHING	EASTING	TOP ELEV.
CO-301	CLEAN OUT	INV OUT 61.25	N 526687.78	E 1437919.13	65.50
CO-302	CLEAN OUT	INV OUT 62.31	N 526634.61	E 1438091.04	66.50
I-301	ANNE ARUNDEL COUNTY STD. D-40 STANDARD TYPE 'S' INLET	INV IN 60.70 INV IN 61.25 INV OUT 60.60	N 526672.47	E 1437890.78	66.00
I-302	ANNE ARUNDEL COUNTY STD. D-40 STANDARD TYPE 'S' INLET	INV IN 62.31 INV OUT 62.23	N 526650.96	E 1438042.20	67.00

GRADING LEGEND

NEW MAJOR CONTOUR	50
NEW MINOR CONTOUR	51
NEW SPOT ELEVATION	51.50
FLOW ARROW	
NEW STORM DRAIN	
NEW U/G ELECTRIC	E
NEW U/G CONDUIT	FO
NEW INLET	
NEW MANHOLE	
NEW RIPRAP	
NEW CLEAN OUT	CO #
NEW INLET	I #
NEW OBSERVATION WELL	OBS #
NEW MANHOLE	DMH #

STORMDRAIN NOTES

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SD-3 NEW 6" PERFORATED PVC UNDER DRAIN, SEE DETAIL #25 ON SITE DETAILS.
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ELECTRICAL NOTES

E-1 NEW METER/CABINET.
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1"=40'-0" (40 0 20 40 80)

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410.512.4500 www.gftinc.com

STATE OF MARYLAND — JESSE MICHAEL LINDSAY — NO. 27734 — MONTERO — PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/28

REVISIONS			
NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 40'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	GRADING AND STORM DRAIN PLAN
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 16 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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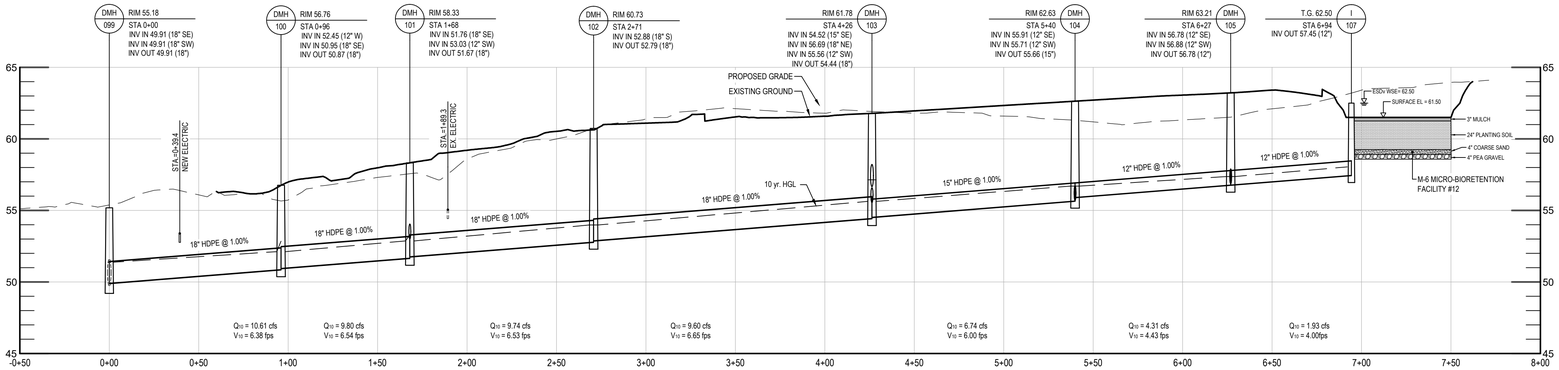
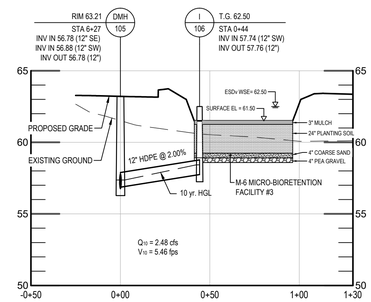


DMH-099 TO I-108
SCALE: HORIZ. 1"=40' VERT. 1"=5'



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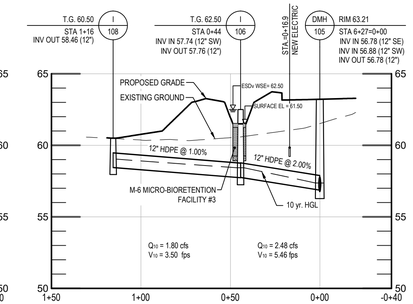

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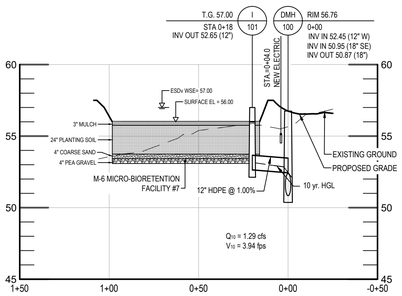

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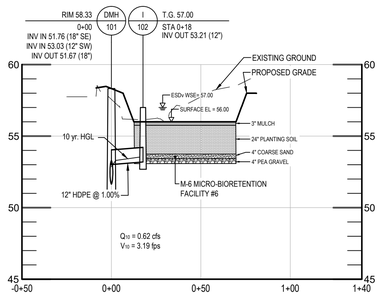

DMH-101 TO I-102
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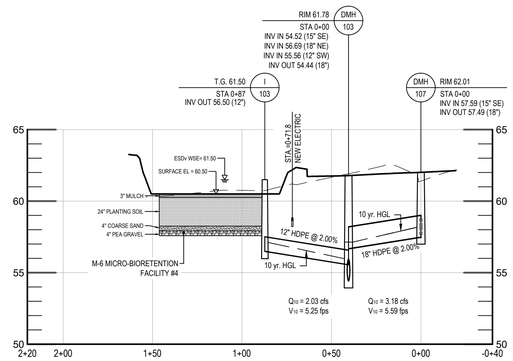

DMH-107 TO I-103
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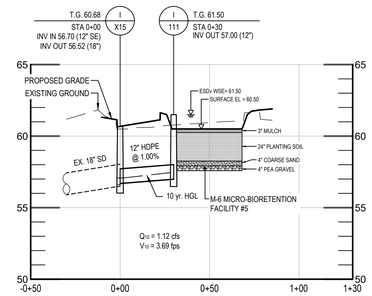

I-X-15 TO I-111
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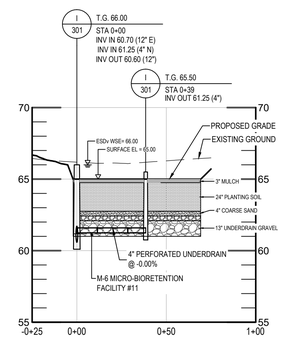
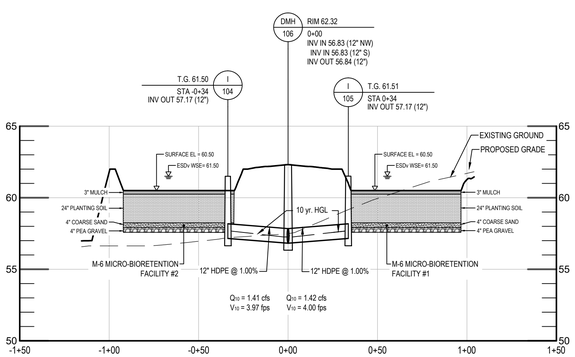


I-301 TO CO-301
SCALE: HORIZ. 1"=40' VERT. 1"=5'



I-104 TO I-105
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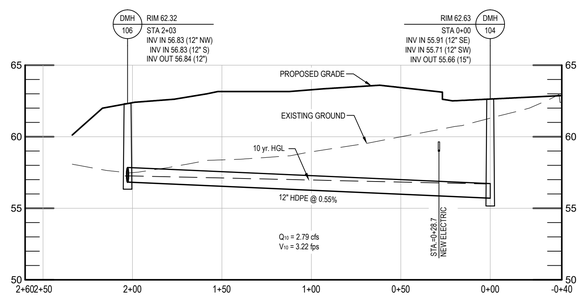
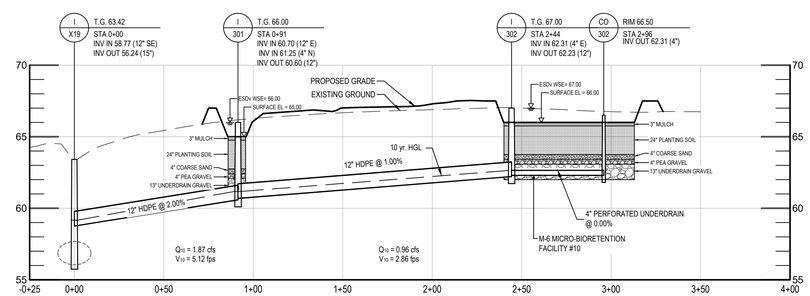


DMH-104 TO DMH-106
SCALE: HORIZ. 1"=40' VERT. 1"=5'



I-X19 TO CO-302
SCALE: HORIZ. 1"=40' VERT. 1"=5'

CAUTION:
IF THIS DRAWING IS A REDUCTION,
USE THE GRAPHIC SCALES.

1"=5'-0" (5 0 2.5 5 10)

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1"=40'-0" (40 0 20 40 80)

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410.512.4500 www.gftinc.com

STATE OF MARYLAND JESSE MICHAEL LINGAN NO. 27734 REGISTERED PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/28

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: AS SHOWN	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	STORM DRAIN PROFILES
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 17 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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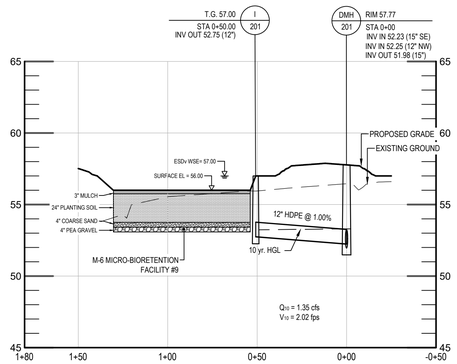

DMH-201 TO I-201

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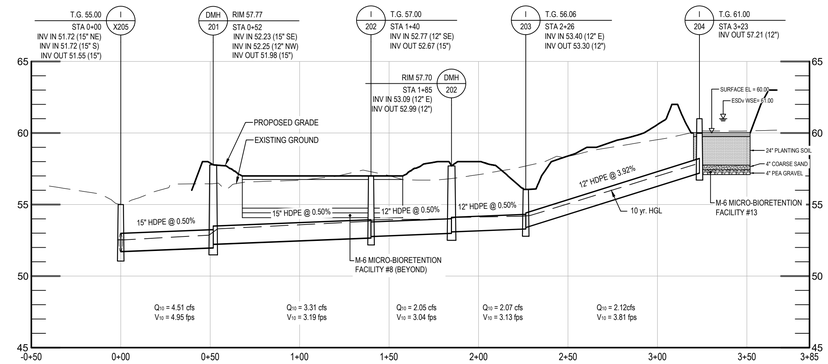

I-X205 TO I-204

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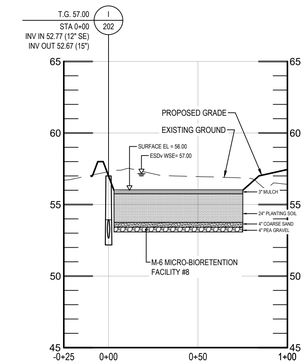
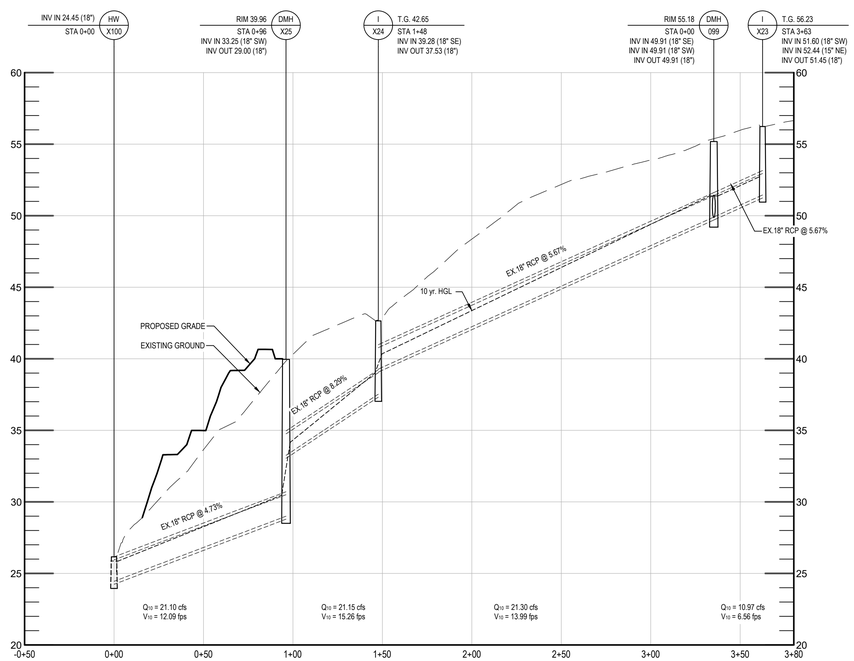


DMH-201 TO I-202

SCALE: HORIZ. 1"=40' VERT. 1"=5'



EX. HW-X100 TO EX. I-23

SCALE: HORIZ. 1"=40' VERT. 1"=5'

CAUTION:
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1"=5'-0" (5 0 2.5 5 10)

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1"=40'-0" (40 0 20 40 80)

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STATE OF MARYLAND
JESSE MICHAEL LINDAW
No. 27734
PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/26

REVISIONS			
NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY

DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: AS SHOWN	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	STORM DRAIN PROFILES
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 18 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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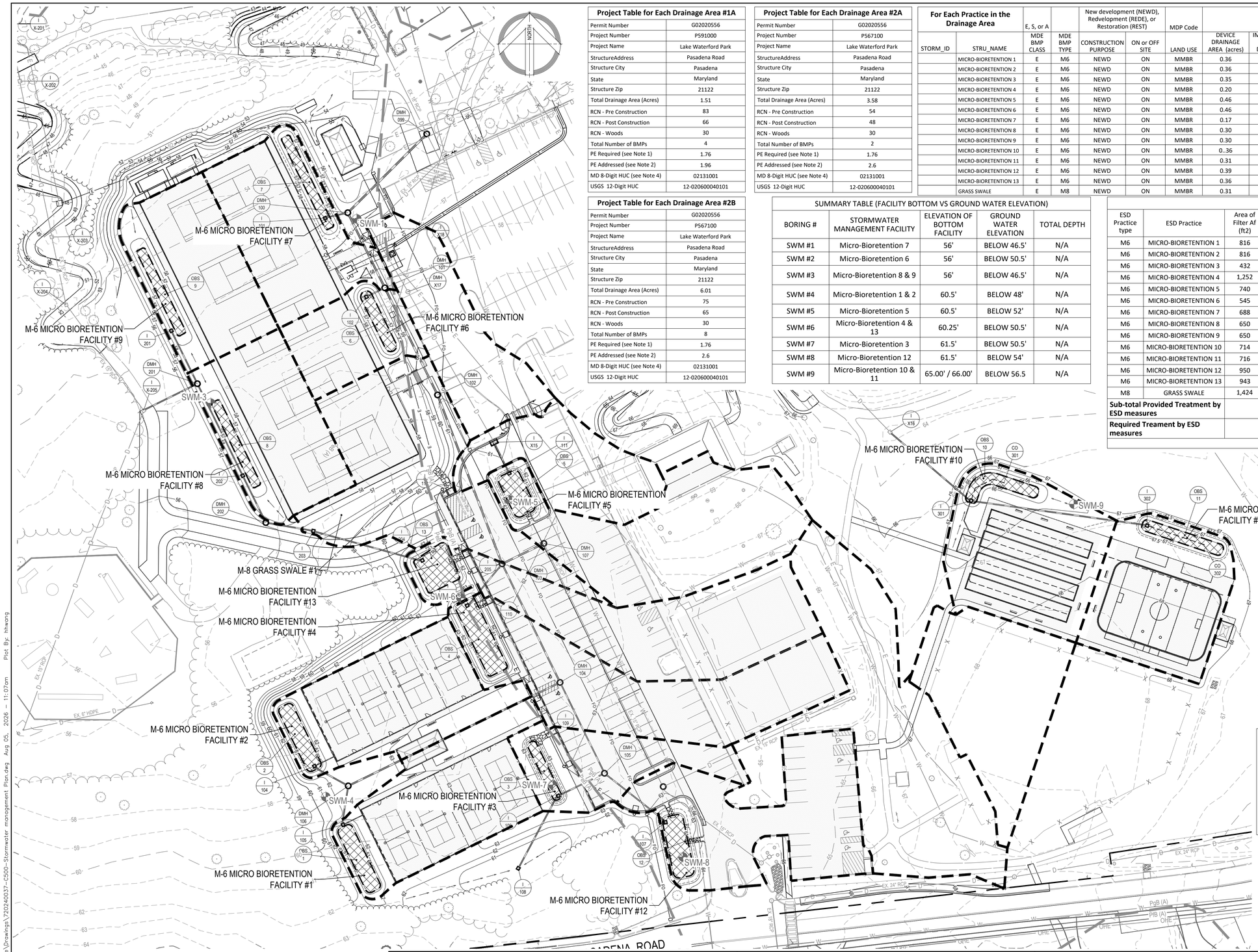

Project Table for Each Drainage Area #1A	
Permit Number	G02020556
Project Number	P591000
Project Name	Lake Waterford Park
StructureAddress	Pasadena Road
Structure City	Pasadena
State	Maryland
Structure Zip	21122
Total Drainage Area (Acres)	1.51
RCN - Pre Construction	83
RCN - Post Construction	66
RCN - Woods	30
Total Number of BMPs	4
PE Required (see Note 1)	1.76
PE Addressed (see Note 2)	1.96
MD 8-Digit HUC (see Note 4)	02131001
USGS 12-Digit HUC	12-020600040101

Project Table for Each Drainage Area #2A	
Permit Number	G02020556
Project Number	P567100
Project Name	Lake Waterford Park
StructureAddress	Pasadena Road
Structure City	Pasadena
State	Maryland
Structure Zip	21122
Total Drainage Area (Acres)	3.58
RCN - Pre Construction	54
RCN - Post Construction	48
RCN - Woods	30
Total Number of BMPs	2
PE Required (see Note 1)	1.76
PE Addressed (see Note 2)	2.6
MD 8-Digit HUC (see Note 4)	02131001
USGS 12-Digit HUC	12-020600040101

Project Table for Each Drainage Area #2B	
Permit Number	G02020556
Project Number	P567100
Project Name	Lake Waterford Park
StructureAddress	Pasadena Road
Structure City	Pasadena
State	Maryland
Structure Zip	21122
Total Drainage Area (Acres)	6.01
RCN - Pre Construction	75
RCN - Post Construction	65
RCN - Woods	30
Total Number of BMPs	8
PE Required (see Note 1)	1.76
PE Addressed (see Note 2)	2.6
MD 8-Digit HUC (see Note 4)	02131001
USGS 12-Digit HUC	12-020600040101

For Each Practice in the Drainage Area		E, S, or A		New development (NEWD), Redvelopment (REDE), or Restoration (REST)		MDP Code							
STORM_ID	STRU_NAME	MDE BMP CLASS	MDE BMP TYPE	CONSTRUCTION PURPOSE	ON or OFF SITE	LAND USE	DEVICE DRAINAGE AREA (acres)	IMPERVIOUS AREA DRAINING TO DEVICE (SQ. FT.)	IMPERVIOUS ACRES RESTORED (See Note 3)	MD NORTH COORD (NAD83 - FT)	MD EAST COORD (NAD83 - FT)	WQV (ft3) (See Note 5)	Maintenance Responsibility	Comments
	MICRO-BIORETENTION 1	E	M6	NEWD	ON	MMBR	0.36	11,129	N/A	526364.677	1437365.092	2337	County	DA 2B
	MICRO-BIORETENTION 2	E	M6	NEWD	ON	MMBR	0.36	11,111	N/A	526468.964	1437314.258	2335	County	DA 2B
	MICRO-BIORETENTION 3	E	M6	NEWD	ON	MMBR	0.35	5,857	N/A	526440.502	1437525.075	1238	County	DA 2B
	MICRO-BIORETENTION 4	E	M6	NEWD	ON	MMBR	0.20	17,079	N/A	526556.541	1437470.028	3551	County	DA 2B
	MICRO-BIORETENTION 5	E	M6	NEWD	ON	MMBR	0.46	6,772	N/A	526678.437	1437500.230	1538	County	DA 2B
	MICRO-BIORETENTION 6	E	M6	NEWD	ON	MMBR	0.46	4,950	N/A	526826.735	1437381.384	1045	County	DA 2B
	MICRO-BIORETENTION 7	E	M6	NEWD	ON	MMBR	0.17	10,456	N/A	526929.843	1437328.392	2189	County	DA 2B
	MICRO-BIORETENTION 8	E	M6	NEWD	ON	MMBR	0.30	9,906	N/A	526716.260	1437261.335	2074	County	DA 1A
	MICRO-BIORETENTION 9	E	M6	NEWD	ON	MMBR	0.30	9,906	N/A	526840.967	1437199.938	2074	County	DA 1A
	MICRO-BIORETENTION 10	E	M6	NEWD	ON	MMBR	0..36	10,141	N/A	526689.843	1437900.933	2148	County	DA 2A
	MICRO-BIORETENTION 11	E	M6	NEWD	ON	MMBR	0.31	10,009	N/A	526640.334	1438073.730	2100	County	DA 2A
	MICRO-BIORETENTION 12	E	M6	NEWD	ON	MMBR	0.39	14,097	N/A	526375.437	1437641.029	2820	County	DA 2B
	MICRO-BIORETENTION 13	E	M6	NEWD	ON	MMBR	0.36	15,692	N/A	526623.000	1437434.000	2643	County	DA 2B
	GRASS SWALE	E	M8	NEWD	ON	MMBR	0.31	11,795	N/A	526663.000	1437354.000	683	County	DA 2B

SUMMARY TABLE (FACILITY BOTTOM VS GROUND WATER ELEVATION)

BORING #	STORMWATER MANAGEMENT FACILITY	ELEVATION OF BOTTOM FACILITY	GROUND WATER ELEVATION	TOTAL DEPTH
SWM #1	Micro-Bioretention 7	56'	BELOW 46.5'	N/A
SWM #2	Micro-Bioretention 6	56'	BELOW 50.5'	N/A
SWM #3	Micro-Bioretention 8 & 9	56'	BELOW 46.5'	N/A
SWM #4	Micro-Bioretention 1 & 2	60.5'	BELOW 48'	N/A
SWM #5	Micro-Bioretention 5	60.5'	BELOW 52'	N/A
SWM #6	Micro-Bioretention 4 & 13	60.25'	BELOW 50.5'	N/A
SWM #7	Micro-Bioretention 3	61.5'	BELOW 50.5'	N/A
SWM #8	Micro-Bioretention 12	61.5'	BELOW 54'	N/A
SWM #9	Micro-Bioretention 10 & 11	65.00' / 66.00'	BELOW 56.5	N/A

SWM Summary

ESD Practice type	ESD Practice	Area of Filter Af (ft2)	Drainage Area (ft2)	Impervious Area (ft2)	I%	Rv	Pe Target	Pe Design	ESDv treated (ft3)	Recharge (ft3)	Comments
M6	MICRO-BIORETENTION 1	816	15,474	11,129	72%	0.70	1.76	2.60	2337	2337	DA #2B
M6	MICRO-BIORETENTION 2	816	15,332	11,111	73%	0.70	1.76	2.60	2335	2335	DA #2B
M6	MICRO-BIORETENTION 3	432	8,761	5,857	67%	0.65	1.76	2.60	1238	1238	DA #2B
M6	MICRO-BIORETENTION 4	1,252	19,987	17,079	86%	0.82	1.76	2.60	3551	3551	DA #2B
M6	MICRO-BIORETENTION 5	740	19,882	6,772	34%	0.36	1.76	2.60	1538	1538	DA #2B
M6	MICRO-BIORETENTION 6	545	7,342	4,950	67%	0.66	1.76	2.60	1045	1045	DA #2B
M6	MICRO-BIORETENTION 7	688	13,897	10,456	75%	0.73	1.76	2.60	2189	2189	DA #2B
M6	MICRO-BIORETENTION 8	650	13,204	9,906	75%	0.73	1.76	2.60	2074	2074	DA #1A
M6	MICRO-BIORETENTION 9	650	13,204	9,906	75%	0.73	1.76	2.60	2074	2074	DA #1A
M6	MICRO-BIORETENTION 10	714	15,762	10,141	64%	0.63	1.76	2.60	2148	381	DA #2A
M6	MICRO-BIORETENTION 11	716	13,710	10,009	73%	0.71	1.76	2.60	2100	382	DA #2A
M6	MICRO-BIORETENTION 12	950	16,982	14,097	83%	0.80	1.76	2.50	2820	2820	DA #2B
M6	MICRO-BIORETENTION 13	943	19,512	15,692	80%	0.77	1.76	2.10	2643	2643	DA #1A
M8	GRASS SWALE	1,424	19,878	11,795	59%	0.58	1.00	0.71	683	-	DA #1A
Sub-total Provided Treatment by ESD measures			**212,927**	**148,900**		**0.68**		**2.39**	**28,775**	**24,607**	
Required Treament by ESD measures				**145,423**				**1.76**	**21,309**	**4,383**	

* Required Surface Storage is based on % of target ESDv from TMDL storage table.

GENERAL NOTES:

1. STORMWATER MANAGEMENT FACILITIES SHALL NOT BE INSTALLED UNTIL ALL UPSTREAM CONTRIBUTING DRAINAGE AREAS HAVE BEEN PERMANENTLY STABILIZED OR IF ADEQUATE SEC CONTROLS AROUND THE FACILITIES HAVE BEEN ESTABLISHED.

2. A PRE-CONSTRUCTION MEETING WITH THE SWM INSPECTOR MUST BE PERFORMED PRIOR TO COMMENCING ANY SWM WORK.

3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM THE STORM WATER FACILITIES AS-BUILT PLANS AND CERTIFICATIONS.

4. SOD IS TO BE INSTALLED AND MAINTAINED UNTIL FULLY ESTABLISHED ON ALL FACILITIES INTERIOR SLOPES AND AT LEAST 4' ON THE TOP OF THE SLOPES.

5. THE CONTRACTOR IS RESPONSIBLE FOR ALL MAINTENANCE AND CORRECTIONS TO THE STORM WATER MANAGEMENT FACILITIES UNTIL IT IS ACCEPTED BY ANNE ARUNDEL COUNTY AND CONTRIBUTING AREAS ARE ESTABLISHED.

SWM LEGEND

- ESD SWM FACILITY
- DRAINAGE AREA BOUNDARY
- IMPERVIOUS AREA TREATED BY SWM FACILITY
- SOIL BOUNDARY — PgB (A), PeB (A)

STORMWATER MANAGEMENT RECORD DRAWING CERTIFICATION

THIS CERTIFIES TO THE BEST OF MY PROFESSIONAL BELIEF AND KNOWLEDGE, THE APPROVED S.W.M. SYSTEM(S) AS SHOWN HEREON HAVE BEEN CONSTRUCTED IN SUCH MANNER THAT WOULD BE CONSISTENT WITH THE APPROVED PLANS. ANY CHANGES / MODIFICATIONS ARE SHOWN IN RED.

PROFESSIONAL'S NAME (PRINTED) | SIGNATURE | LICENSE NUMBER | SEAL | DATE

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STATE OF MARYLAND — JESSE MICHAEL LINGAN — NO. 27734 — REGISTERED PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/26

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER
APPROVED DATE — PROJECT MANAGER
APPROVED DATE — ASSISTANT CHIEF ENGINEER
APPROVED DATE — CHIEF, RIGHT-OF-WAY

SCALE:	1" = 100'
DRAWN BY:	R.S.S.
CHECKED BY:	R.W.H.
SHEET NO.	19 OF 57
PROJECT NO.:	P591000
CONTRACT NO.:	P591001

LAKE WATERFORD PARK

OVERALL STORM WATER MANAGEMENT PLAN

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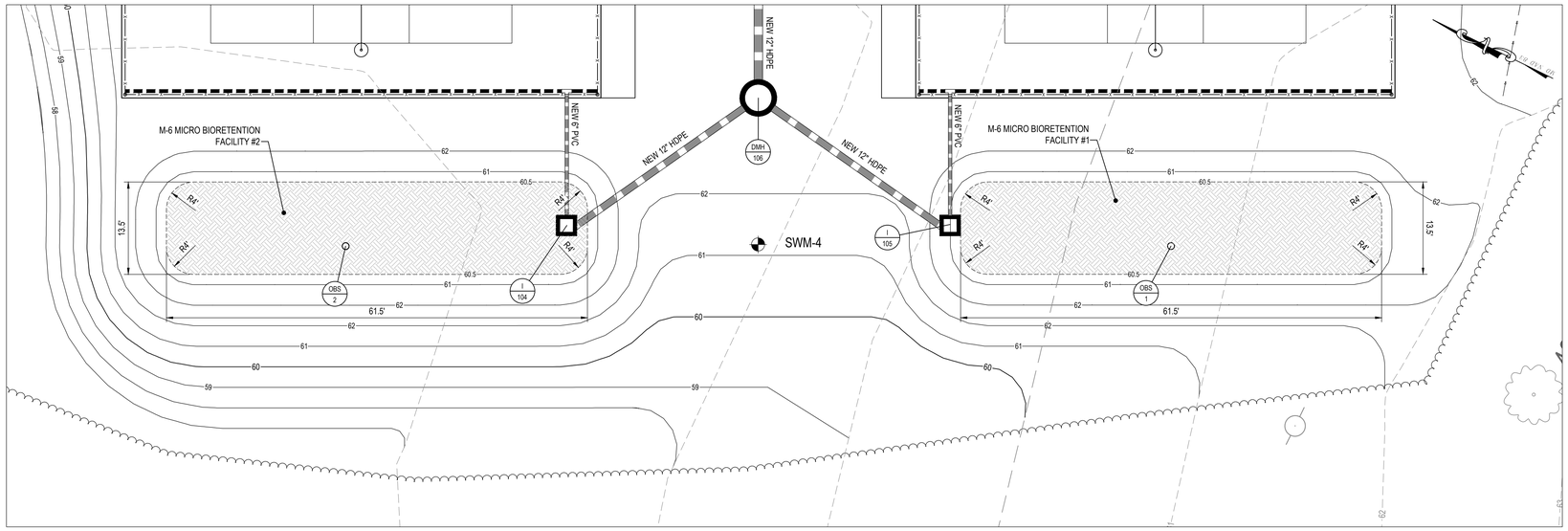
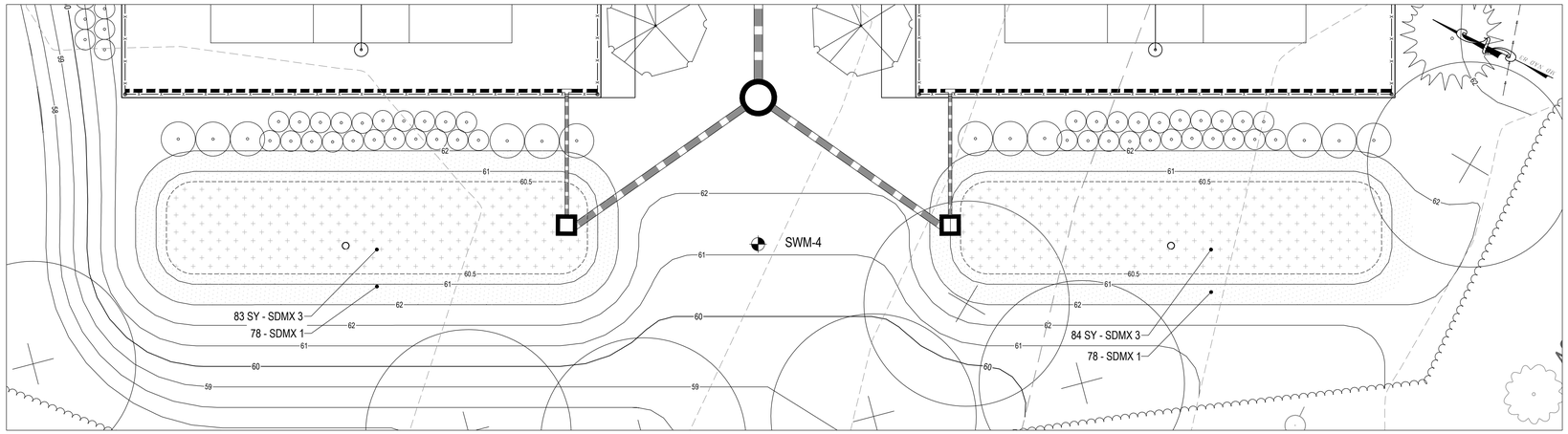


M-6 MICRO BIORETENTION FACILITY #1 & 2

SCALE: 1" = 10'

PROJECT NAME: LAKE WATERFORD PARK		
DESIGN / AS - BUILT DATA FOR MICRO-BIORETENTION		
* TO BE COMPLETED BY THE CERTIFYING ENGINEER		
TYPE OF FACILITY: M-6, MICRO-BIORETENTION	BMP ID: MICRO-BIORETENTION (M-6) FACILITY #1	
FEATURE	**DESIGN**	***AS-BUILT**
FILTER BED DIMENSIONS (L x W)	61.5' x 13.5'	
LEFT SIDE SLOPE	3:1	
RIGHT SIDE SLOPE	3:1	
FILTER BED SURFACE ELEVATION (TOP OF MULCH)	60.50'	
10-YEAR FREEBOARD (FT)	0.32'	
OVERFLOW INLET / TOP ELEVATION	61.50'	
OUTLET PIPE DIAMETER / TYPE (HDPE, RCP, CMP)	12" HDPE	
OUTLET PIPE INVERT	57.17	
TOP OF EMBANKMENT ELEVATION, Tb	62.00'	
TOP OF EMBANKMENT WIDTH	N/A	
THICKNESS OF MULCH	3"	
THICKNESS OF FILTER MEDIA SHA BSM	24"	
THICKNESS OF COARSE SAND	4"	
THICKNESS OF PEA GRAVEL	4"	
PLACEMENT OF GEOTEXTILE	SIDES ONLY	
PLANTINGS	SEE THIS SHEET	
OBSERVATION WELL WITH DEPTH TO FILTER BOTTOM INDICATED ON CAP	OBS #1	
DATE AS-BUILT ACCEPTED BY ANNE ARUNDEL COUNTY:		



M-6 MICRO BIORETENTION FACILITY #1 & 2 (PLANTING PLAN)

SCALE: 1" = 10'

PROJECT NAME: LAKE WATERFORD PARK		
DESIGN / AS - BUILT DATA FOR MICRO-BIORETENTION		
* TO BE COMPLETED BY THE CERTIFYING ENGINEER		
TYPE OF FACILITY: M-6, MICRO-BIORETENTION	BMP ID: MICRO-BIORETENTION (M-6) FACILITY #2	
FEATURE	**DESIGN**	***AS-BUILT**
FILTER BED DIMENSIONS (L x W)	61.5' x 13.5'	
LEFT SIDE SLOPE	3:1	
RIGHT SIDE SLOPE	3:1	
FILTER BED SURFACE ELEVATION (TOP OF MULCH)	60.50'	
10-YEAR FREEBOARD (FT)	0.33'	
OVERFLOW INLET / TOP ELEVATION	61.50'	
OUTLET PIPE DIAMETER / TYPE (HDPE, RCP, CMP)	12" HDPE	
OUTLET PIPE INVERT	57.17'	
TOP OF EMBANKMENT ELEVATION, Tb	62.00'	
TOP OF EMBANKMENT WIDTH	N/A	
THICKNESS OF MULCH	3"	
THICKNESS OF FILTER MEDIA SHA BSM	24"	
THICKNESS OF COARSE SAND	4"	
THICKNESS OF PEA GRAVEL	4"	
PLACEMENT OF GEOTEXTILE	SIDES ONLY	
PLANTINGS	SEE THIS SHEET	
OBSERVATION WELL WITH DEPTH TO FILTER BOTTOM INDICATED ON CAP	OBS #2	
DATE AS-BUILT ACCEPTED BY ANNE ARUNDEL COUNTY:		

STORMWATER MANAGEMENT LEGEND

- PgB (A) / PeB (A) — MAPPED SOIL UNIT / HYDROLOGIC SOIL GROUP RATING
- PROPOSED STORM DRAIN
- PROPOSED PERFORATED PIPE
- FILTER BED AREA

PLANTING LEGEND

- SEED MIX 1: ERNMX-172
- SEED MIX 2: ERNMX-730
- SEED MIX 3: ERNMX-126
- SEED MIX 4: ERNMX-180
- SEED MIX 5: ERNMX-900

SWM 1 & 2 PLANT SCHEDULE (THIS SHEET ONLY)

Key	Seed Mix Name / Code	Application Area	Supplier / Reference	Mix Type / Notes	Quantity (SY)
SEED MIX					
SDMX 1	Maryland Upland Seed Mix – ERNMX-172	Upland Slopes, SWM Embankments	Ernst Conservation Seeds	Native perennial grasses and wildflowers suitable for 3:1 slopes or flatter	156
SDMX 3	Retention Basin Floor Mix – ERNMX-126	Basin Bottoms, Micro-Bioretention Floors	Ernst Conservation Seeds	Hydrophytic mix for intermittently wet soils	167
				Total	**323**

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STATE OF MARYLAND — JESSE MICHAEL LINDSAY — NO. 27734 — REGISTERED PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/26

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 10'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	STORM WATER MANAGEMENT PART PLAN
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 20 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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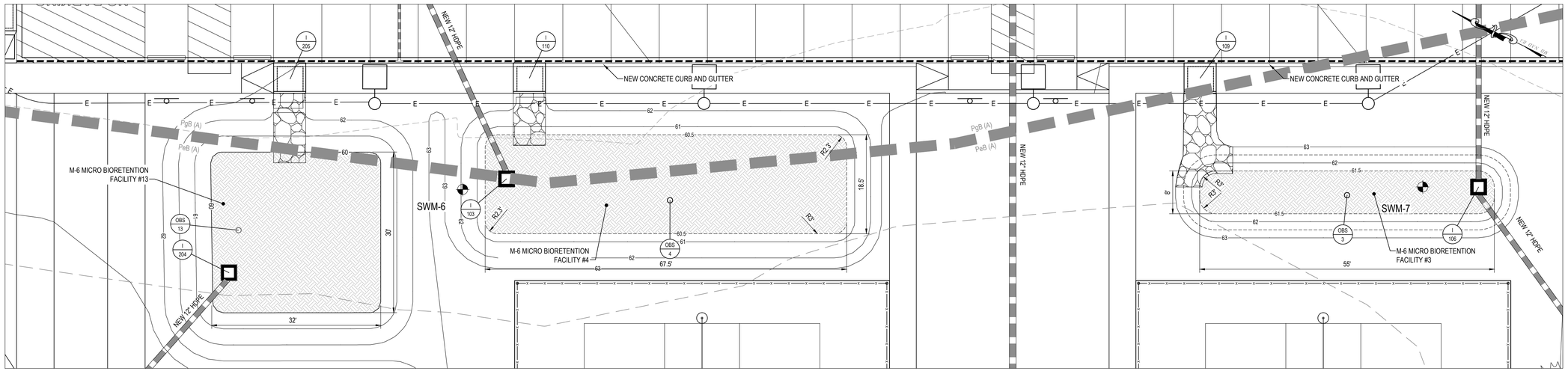
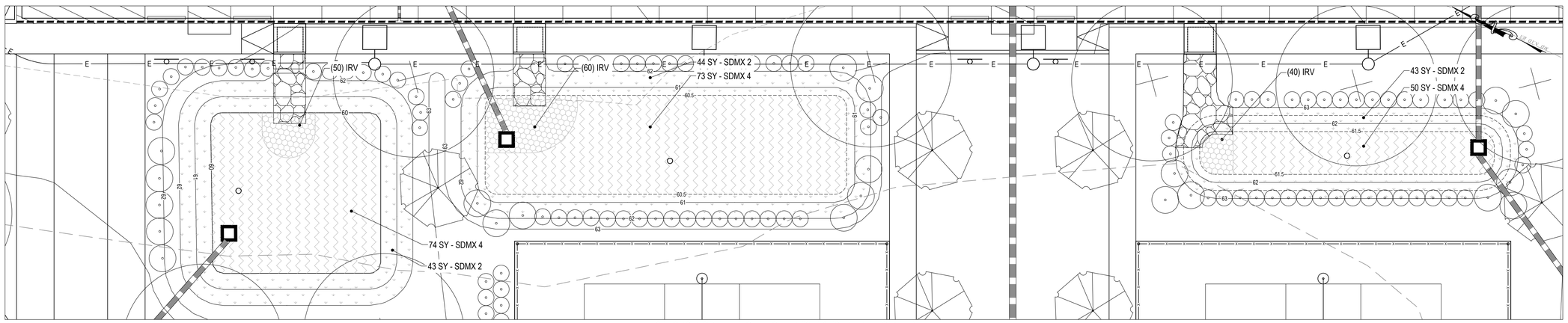


M-6 MICRO BIORETENTION FACILITY #3, 4 & 13

SCALE: 1" = 10'



M-6 MICRO BIORETENTION FACILITY #3, 4 & 13 (PLANTING PLAN)

SCALE: 1" = 10'

STORMWATER MANAGEMENT LEGEND

- PgB (A) / PeB (A) — MAPPED SOIL UNIT / HYDROLOGIC SOIL GROUP RATING
- PROPOSED STORM DRAIN
- PROPOSED PERFORATED PIPE
- FILTER BED AREA

PLANTING LEGEND

- SEED MIX 1: ERNMX-172
- SEED MIX 2: ERNMX-730
- SEED MIX 3: ERNMX-126
- SEED MIX 4: ERNMX-180
- SEED MIX 5: ERNMX-900

SWM #3, 4 & 13 PLANT SCHEDULE (THIS SHEET ONLY)

Key	Botanical Name	Common Name	Size (Min.)	Root	Remarks	Quantity
Perrenials / Grasses						
IRV	Iris versicolor	Blue Flag Iris	#1	Cont.	18" O.C.	150
					Total	150

SWM #3, 4 & 13 PLANT SCHEDULE (THIS SHEET ONLY)

Key	Seed Mix Name / Code	Application Area	Supplier / Reference	Mix Type / Notes	Quantity (SY)
SEED MIX					
SDMX 2	MD COASTAL PLAIN UPLAND GRASS MIX – ERNMX-730	Upland slopes, dry pond benches, and embankments	Ernst Conservation Seeds	Native warm-season grass mix dominated by Schizachyrium scoparium, Elymus virginicus, Sorghastrum nutans, and Panicum virgatum; suitable for dry-mesic uplands	130
SDMX 4	RAIN GARDEN MIX – ERNMX-180	Basin Bottoms, Micro-Bioretention Floors	Ernst Conservation Seeds	Native herbaceous and grass-like perennials tolerant of fluctuating moisture; includes Panicum virgatum, Panicum amarum, Elymus riparius, and Juncus spp.	197
				Total	327

PROJECT NAME: LAKE WATERFORD PARK

DESIGN / AS - BUILT DATA FOR MICRO-BIORETENTION

* TO BE COMPLETED BY THE CERTIFYING ENGINEER

TYPE OF FACILITY: M-6, MICRO-BIORETENTION — BMP ID: MICRO-BIORETENTION (M-6) FACILITY #4

FEATURE	DESIGN	*AS-BUILT
FILTER BED DIMENSIONS (L x W)	67.5' x 18.5	
LEFT SIDE SLOPE	3:1	
RIGHT SIDE SLOPE	3:1	
FILTER BED SURFACE ELEVATION (TOP OF MULCH)	60.50'	
10-YEAR FREEBOARD (FT)	0.34'	
OVERFLOW INLET / TOP ELEVATION	61.50'	
OUTLET PIPE DIAMETER / TYPE (HDPE, RCP, CMP)	12" HDPE	
OUTLET PIPE INVERT	56.50'	
TOP OF EMBANKMENT ELEVATION, Tb	63.00'	
TOP OF EMBANKMENT WIDTH	N/A	
THICKNESS OF MULCH	3"	
THICKNESS OF FILTER MEDIA SHA BSM	24"	
THICKNESS OF COARSE SAND	4"	
THICKNESS OF PEA GRAVEL	4"	
PLACEMENT OF GEOTEXTILE	SIDES ONLY	
PLANTINGS	SEE THIS SHEET	
OBSERVATION WELL WITH DEPTH TO FILTER BOTTOM INDICATED ON CAP	OBS #4	
DATE AS-BUILT ACCEPTED BY ANNE ARUNDEL COUNTY:		

PROJECT NAME: LAKE WATERFORD PARK

DESIGN / AS - BUILT DATA FOR MICRO-BIORETENTION

* TO BE COMPLETED BY THE CERTIFYING ENGINEER

TYPE OF FACILITY: M-6, MICRO-BIORETENTION — BMP ID: MICRO-BIORETENTION (M-6) FACILITY #3

FEATURE	DESIGN	*AS-BUILT
FILTER BED DIMENSIONS (L x W)	55' x 8'	
LEFT SIDE SLOPE	3:1	
RIGHT SIDE SLOPE	3:1	
FILTER BED SURFACE ELEVATION (TOP OF MULCH)	61.50'	
10-YEAR FREEBOARD (FT)	0.41'	
OVERFLOW INLET / TOP ELEVATION	62.50'	
OUTLET PIPE DIAMETER / TYPE (HDPE, RCP, CMP)	12" HDPE	
OUTLET PIPE INVERT	57.76'	
TOP OF EMBANKMENT ELEVATION, Tb	63.00'	
TOP OF EMBANKMENT WIDTH	N/A	
THICKNESS OF MULCH	3"	
THICKNESS OF FILTER MEDIA SHA BSM	24"	
THICKNESS OF COARSE SAND	4"	
THICKNESS OF PEA GRAVEL	4"	
PLACEMENT OF GEOTEXTILE	SIDES ONLY	
PLANTINGS	SEE THIS SHEET	
OBSERVATION WELL WITH DEPTH TO FILTER BOTTOM INDICATED ON CAP	OBS #3	
DATE AS-BUILT ACCEPTED BY ANNE ARUNDEL COUNTY:		

PROJECT NAME: LAKE WATERFORD PARK

DESIGN / AS - BUILT DATA FOR MICRO-BIORETENTION

* TO BE COMPLETED BY THE CERTIFYING ENGINEER

TYPE OF FACILITY: M-6, MICRO-BIORETENTION — BMP ID: MICRO-BIORETENTION (M-6) FACILITY #13

FEATURE	DESIGN	*AS-BUILT
FILTER BED DIMENSIONS (L x W)	32' x 30'	
LEFT SIDE SLOPE	3:1	
RIGHT SIDE SLOPE	3:1	
FILTER BED SURFACE ELEVATION (TOP OF MULCH)	60.00	
10-YEAR FREEBOARD (FT)	0.26'	
OVERFLOW INLET / TOP ELEVATION	61.00	
OUTLET PIPE DIAMETER / TYPE (HDPE, RCP, CMP)	12" HDPE	
OUTLET PIPE INVERT	57.21	
TOP OF EMBANKMENT ELEVATION, Tb	62.00'	
TOP OF EMBANKMENT WIDTH	3'	
THICKNESS OF MULCH	3"	
THICKNESS OF FILTER MEDIA SHA BSM	24"	
THICKNESS OF COARSE SAND	4"	
THICKNESS OF PEA GRAVEL	4"	
PLACEMENT OF GEOTEXTILE	SIDES ONLY	
PLANTINGS	SEE THIS SHEET	
OBSERVATION WELL WITH DEPTH TO FILTER BOTTOM INDICATED ON CAP	OBS #13	
DATE AS-BUILT ACCEPTED BY ANNE ARUNDEL COUNTY:		

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STATE OF MARYLAND — JESSE MICHAEL LINDSAY — NO. 27734 — REGISTERED PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/26

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER
APPROVED DATE — PROJECT MANAGER
APPROVED DATE — ASSISTANT CHIEF ENGINEER
APPROVED DATE — CHIEF, RIGHT-OF-WAY

SCALE:	1" = 10'
DRAWN BY:	R.S.S.
CHECKED BY:	R.W.H.
SHEET NO.	21 OF 57
PROJECT NO.:	P591000
CONTRACT NO.:	P591001

LAKE WATERFORD PARK

STORM WATER MANAGEMENT PART PLAN

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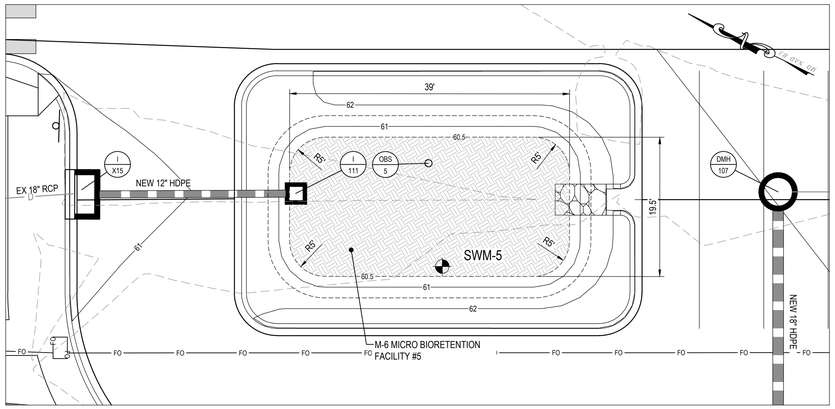
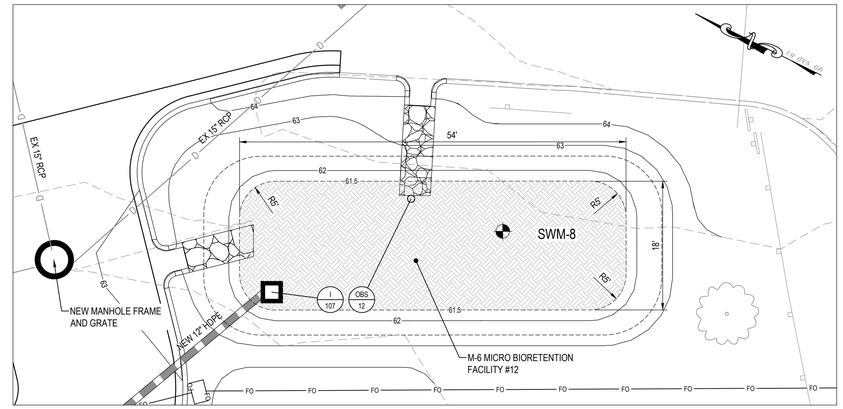


M-6 MICRO BIORETENTION FACILITY #5
SCALE: 1" = 10'



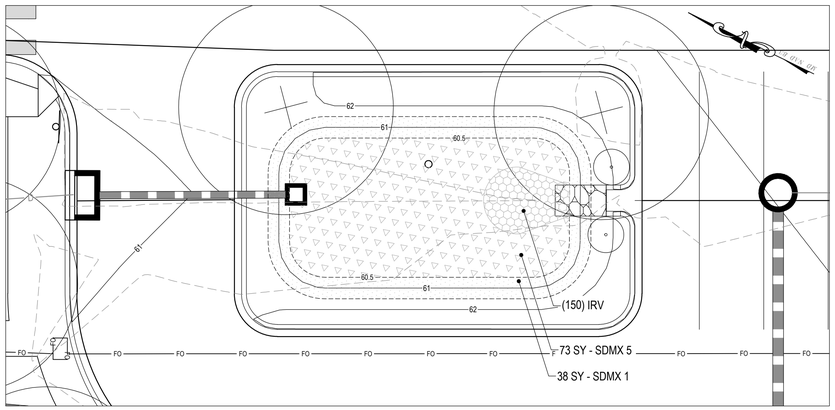
M-6 MICRO BIORETENTION FACILITY #12
SCALE: 1" = 10'

STORMWATER MANAGEMENT LEGEND

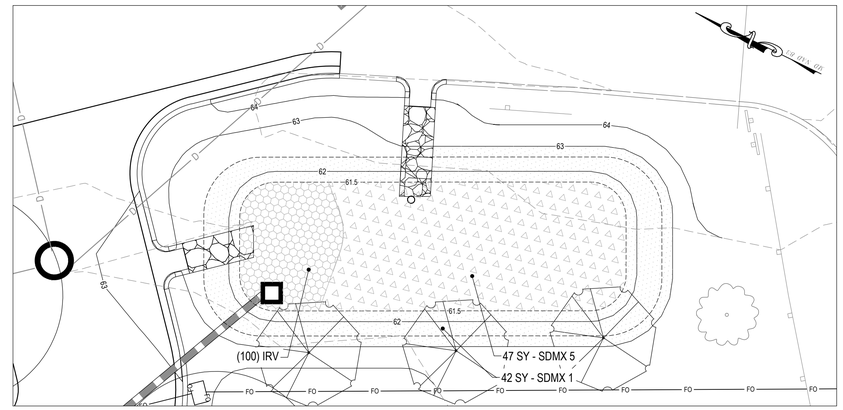
- PgB (A) / PeB (A) — MAPPED SOIL UNIT / HYDROLOGIC SOIL GROUP RATING
- PROPOSED STORM DRAIN
- PROPOSED PERFORATED PIPE
- FILTER BED AREA

PLANTING LEGEND

- SEED MIX 1: ERNMX-172
- SEED MIX 2: ERNMX-730
- SEED MIX 3: ERNMX-126
- SEED MIX 4: ERNMX-180
- SEED MIX 5: ERNMX-900



M-6 MICRO BIORETENTION FACILITY #5 (PLANTING PLAN)
SCALE: 1" = 10'



M-6 MICRO BIORETENTION FACILITY #12 (PLANTING PLAN)
SCALE: 1" = 10'

SWM #5 & 12 PLANT SCHEDULE (THIS SHEET ONLY)

Key	Botanical Name	Common Name	Size (Min.)	Root	Remarks	Quantity
Perrenials / Grasses						
IRV	Iris versicolor	Blue Flag Iris	#1	Cont.	18" O.C.	250
					Total	250

SWM #5 & 12 PLANT SCHEDULE (THIS SHEET ONLY)

Key	Seed Mix Name / Code	Application Area	Supplier / Reference	Mix Type / Notes	Quantity (SY)
SEED MIX					
SDMX 1	Maryland Upland Seed Mix – ERNMX-172	Upland Slopes, SWM Embankments	Ernst Conservation Seeds	Native perennial grasses and wildflowers suitable for 3:1 slopes or flatter	80
SDMX 5	SALT-TOLERANT BASIN MIX – ERNMX-900	Lower pond benches, and drainage outfalls subject to salt spray or periodic inundation	Ernst Conservation Seeds	Salt-tolerant native grass mix including Panicum virgatum 'Habitat', Panicum amarum, Sorghastrum nutans, Elymus riparius, and Juncus spp.; provides long-term stabilization under saline and moist conditions wet soils	120
				Total	200

PROJECT NAME: LAKE WATERFORD PARK

DESIGN / AS - BUILT DATA FOR MICRO-BIORETENTION

* TO BE COMPLETED BY THE CERTIFYING ENGINEER

TYPE OF FACILITY: M-6, MICRO-BIORETENTION — BMP ID: MICRO-BIORETENTION (M-6) FACILITY #5

FEATURE	DESIGN	*AS-BUILT
FILTER BED DIMENSIONS (L x W)	39' x 19.5'	
LEFT SIDE SLOPE	3:1	
RIGHT SIDE SLOPE	3:1	
FILTER BED SURFACE ELEVATION (TOP OF MULCH)	60.50'	
10-YEAR FREEBOARD (FT)	0.36'	
OVERFLOW INLET / TOP ELEVATION	61.50'	
OUTLET PIPE DIAMETER / TYPE (HDPE, RCP, CMP)	12" HDPE	
OUTLET PIPE INVERT	57.50'	
TOP OF EMBANKMENT ELEVATION, Tb	62.00'	
TOP OF EMBANKMENT WIDTH	N/A	
THICKNESS OF MULCH	3"	
THICKNESS OF FILTER MEDIA SHA BSM	24"	
THICKNESS OF COARSE SAND	4"	
THICKNESS OF PEA GRAVEL	4"	
PLACEMENT OF GEOTEXTILE	SIDES ONLY	
PLANTINGS	SEE THIS SHEET	
OBSERVATION WELL WITH DEPTH TO FILTER BOTTOM INDICATED ON CAP	OBS #5	
DATE AS-BUILT ACCEPTED BY ANNE ARUNDEL COUNTY:		

PROJECT NAME: LAKE WATERFORD PARK

DESIGN / AS - BUILT DATA FOR MICRO-BIORETENTION

* TO BE COMPLETED BY THE CERTIFYING ENGINEER

TYPE OF FACILITY: M-6, MICRO-BIORETENTION — BMP ID: MICRO-BIORETENTION (M-6) FACILITY #12

FEATURE	DESIGN	*AS-BUILT
FILTER BED DIMENSIONS (L x W)	54' x 18'	
LEFT SIDE SLOPE	3:1	
RIGHT SIDE SLOPE	3:1	
FILTER BED SURFACE ELEVATION (TOP OF MULCH)	61.50'	
10-YEAR FREEBOARD (FT)	0.29'	
OVERFLOW INLET / TOP ELEVATION	62.50'	
OUTLET PIPE DIAMETER / TYPE (HDPE, RCP, CMP)	12" HDPE	
OUTLET PIPE INVERT	58.00'	
TOP OF EMBANKMENT ELEVATION, Tb	63.00'	
TOP OF EMBANKMENT WIDTH	3'	
THICKNESS OF MULCH	3"	
THICKNESS OF FILTER MEDIA SHA BSM	24"	
THICKNESS OF COARSE SAND	4"	
THICKNESS OF PEA GRAVEL	4"	
PLACEMENT OF GEOTEXTILE	SIDES ONLY	
PLANTINGS	SEE THIS SHEET	
OBSERVATION WELL WITH DEPTH TO FILTER BOTTOM INDICATED ON CAP	OBS #12	
DATE AS-BUILT ACCEPTED BY ANNE ARUNDEL COUNTY:		

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STATE OF MARYLAND — JESSE MICHAEL LINDSAY — NO. 37734 — PROFESSIONAL ENGINEER

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 # 37734 Expiration Date: 07/12/28

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED / DATE — CHIEF ENGINEER	APPROVED / DATE — PROJECT MANAGER	SCALE: 1" = 10'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	STORM WATER MANAGEMENT PART PLAN
APPROVED / DATE — ASSISTANT CHIEF ENGINEER	APPROVED / DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 22 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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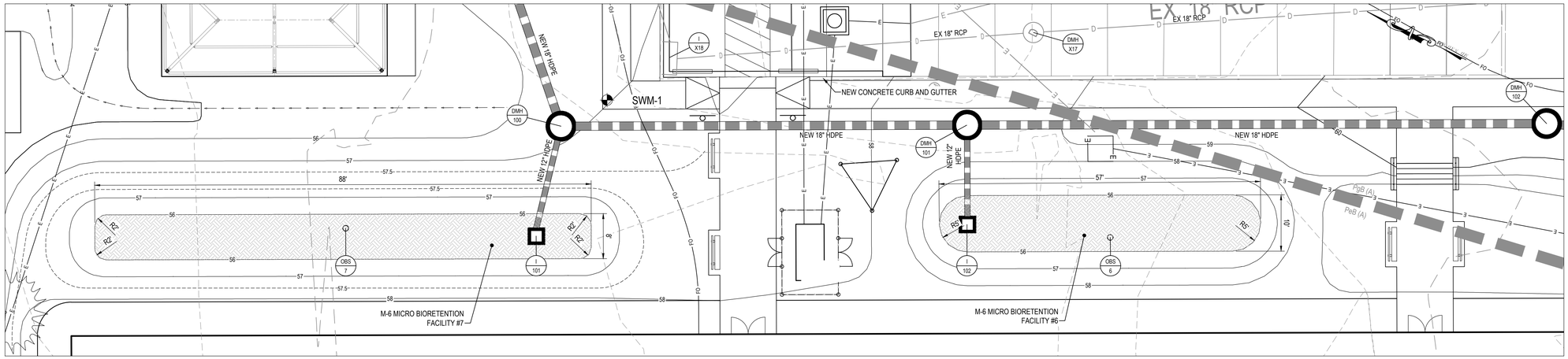
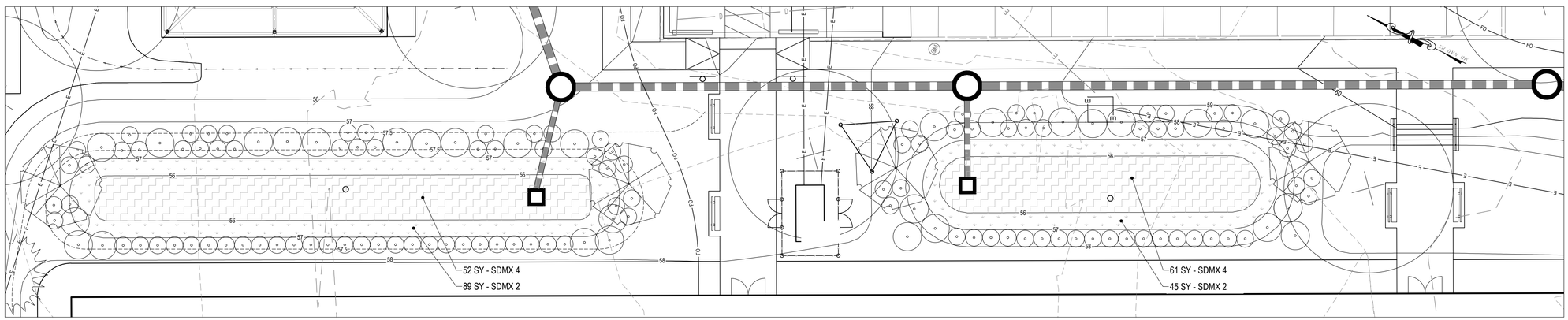


M-6 MICRO BIORETENTION FACILITY #6 & 7

SCALE: 1" = 10'



M-6 MICRO BIORETENTION FACILITY #6 & 7 (PLANTING PLAN)

SCALE: 1" = 10'

STORMWATER MANAGEMENT LEGEND

PgB (A) / PeB (A)	MAPPED SOIL UNIT / HYDROLOGIC SOIL GROUP RATING
	PROPOSED STORM DRAIN
	PROPOSED PERFORATED PIPE
	FILTER BED AREA

PLANTING LEGEND

	SEED MIX 1: ERNMX-172
	SEED MIX 2: ERNMX-730
	SEED MIX 3: ERNMX-126
	SEED MIX 4: ERNMX-180
	SEED MIX 5: ERNMX-900

SWM #6 & 7 PLANT SCHEDULE (THIS SHEET ONLY)

Key	Seed Mix Name / Code	Application Area	Supplier / Reference	Mix Type / Notes	Quantity (SY)
SEED MIX					
SDMX 2	MD COASTAL PLAIN UPLAND GRASS MIX – ERNMX-730	Upland slopes, dry pond benches, and embankments	Ernst Conservation Seeds	Native warm-season grass mix dominated by Schizachyrium scoparium, Elymus virginicus, Sorghastrum nutans, and Panicum virgatum; suitable for dry-mesic uplands	134
SDMX 4	RAIN GARDEN MIX – ERNMX-180	Basin Bottoms, Micro-Bioretention Floors	Ernst Conservation Seeds	Native herbaceous and grass-like perennials tolerant of fluctuating moisture; includes Panicum virgatum, Panicum amarum, Elymus riparius, and Juncus spp.	113
				Total	**247**

PROJECT NAME: LAKE WATERFORD PARK

DESIGN / AS - BUILT DATA FOR MICRO-BIORETENTION

* TO BE COMPLETED BY THE CERTIFYING ENGINEER

TYPE OF FACILITY: M-6, MICRO-BIORETENTION — BMP ID: MICRO-BIORETENTION (M-6) FACILITY #7

FEATURE	DESIGN	*AS-BUILT
FILTER BED DIMENSIONS (L x W)	88' x 8'	
LEFT SIDE SLOPE	3:1	
RIGHT SIDE SLOPE	3:1	
FILTER BED SURFACE ELEVATION (TOP OF MULCH)	56.00'	
10-YEAR FREEBOARD (FT)	0.34'	
OVERFLOW INLET / TOP ELEVATION	57.00'	
OUTLET PIPE DIAMETER / TYPE (HDPE, RCP, CMP)	12" HDPE	
OUTLET PIPE INVERT	52.65'	
TOP OF EMBANKMENT ELEVATION, Tb	57.50'	
TOP OF EMBANKMENT WIDTH	3'	
THICKNESS OF MULCH	3"	
THICKNESS OF FILTER MEDIA SHA BSM	24"	
THICKNESS OF COARSE SAND	4"	
THICKNESS OF PEA GRAVEL	4"	
PLACEMENT OF GEOTEXTILE	SIDES ONLY	
PLANTINGS	SEE THIS SHEET	
OBSERVATION WELL WITH DEPTH TO FILTER BOTTOM INDICATED ON CAP	OBS #7	
DATE AS-BUILT ACCEPTED BY ANNE ARUNDEL COUNTY:		

PROJECT NAME: LAKE WATERFORD PARK

DESIGN / AS - BUILT DATA FOR MICRO-BIORETENTION

* TO BE COMPLETED BY THE CERTIFYING ENGINEER

TYPE OF FACILITY: M-6, MICRO-BIORETENTION — BMP ID: MICRO-BIORETENTION (M-6) FACILITY #6

FEATURE	DESIGN	*AS-BUILT
FILTER BED DIMENSIONS (L x W)	57' x 10'	
LEFT SIDE SLOPE	3:1	
RIGHT SIDE SLOPE	3:1	
FILTER BED SURFACE ELEVATION (TOP OF MULCH)	56.00	
10-YEAR FREEBOARD (FT)	0.42'	
OVERFLOW INLET / TOP ELEVATION	57.00'	
OUTLET PIPE DIAMETER / TYPE (HDPE, RCP, CMP)	12" HDPE	
OUTLET PIPE INVERT	53.21	
TOP OF EMBANKMENT ELEVATION, Tb	59.00'	
TOP OF EMBANKMENT WIDTH	3'	
THICKNESS OF MULCH	3"	
THICKNESS OF FILTER MEDIA SHA BSM	24"	
THICKNESS OF COARSE SAND	4"	
THICKNESS OF PEA GRAVEL	4"	
PLACEMENT OF GEOTEXTILE	SIDES ONLY	
PLANTINGS	SEE THIS SHEET	
OBSERVATION WELL WITH DEPTH TO FILTER BOTTOM INDICATED ON CAP	OBS #6	
DATE AS-BUILT ACCEPTED BY ANNE ARUNDEL COUNTY:		

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STATE OF MARYLAND — JESSE MICHAEL LINDSAY — NO. 27734 — REGISTERED PROFESSIONAL ENGINEER

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License # 27734 Expiration Date: 07/12/26

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY

DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 10'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	STORM WATER MANAGEMENT PART PLAN
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 23 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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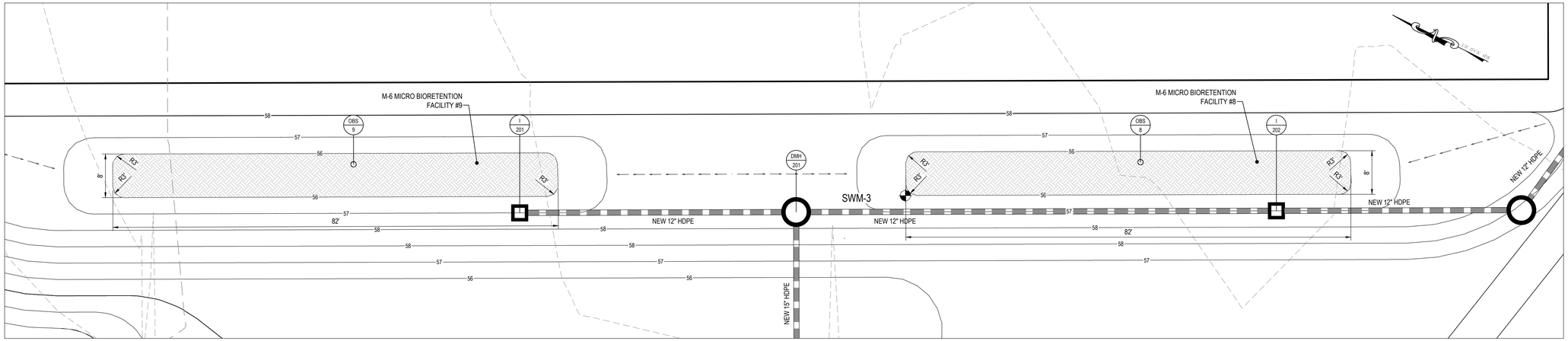
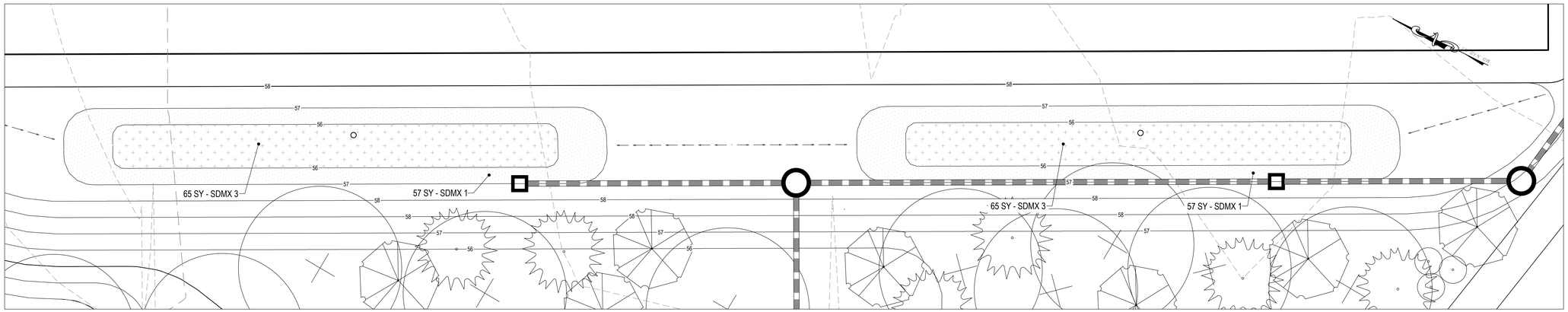


M-6 MICRO BIORETENTION FACILITY #8 & 9

SCALE: 1" = 10'



M-6 MICRO BIORETENTION FACILITY #8 & 9 (PLANTING PLAN)

SCALE: 1" = 10'

STORMWATER MANAGEMENT LEGEND

PgB (A) / PeB (A)	MAPPED SOIL UNIT / HYDROLOGIC SOIL GROUP RATING
	PROPOSED STORM DRAIN
	PROPOSED PERFORATED PIPE
	FILTER BED AREA

PLANTING LEGEND

	SEED MIX 1: ERNMX-172
	SEED MIX 2: ERNMX-730
	SEED MIX 3: ERNMX-126
	SEED MIX 4: ERNMX-180
	SEED MIX 5: ERNMX-900

SWM #8 & 9 PLANT SCHEDULE (THIS SHEET ONLY)

Key	Seed Mix Name / Code	Application Area	Supplier / Reference	Mix Type / Notes	Quantity (SY)
SEED MIX					
SDMX 1	Maryland Upland Seed Mix – ERNMX-172	Upland Slopes, SWM Embankments	Ernst Conservation Seeds	Native perennial grasses and wildflowers suitable for 3:1 slopes or flatter	114
SDMX 3	Retention Basin Floor Mix – ERNMX-126	Basin Bottoms, Micro-Bioretention Floors	Ernst Conservation Seeds	Hydrophytic mix for intermittently wet soils	130
				Total	244

PROJECT NAME: LAKE WATERFORD PARK

DESIGN / AS - BUILT DATA FOR MICRO-BIORETENTION

* TO BE COMPLETED BY THE CERTIFYING ENGINEER

TYPE OF FACILITY: M-6, MICRO-BIORETENTION — BMP ID: MICRO-BIORETENTION (M-6) FACILITY #9

FEATURE	DESIGN	*AS-BUILT
FILTER BED DIMENSIONS (L x W)	82' x 8'	
LEFT SIDE SLOPE	3:1	
RIGHT SIDE SLOPE	3:1	
FILTER BED SURFACE ELEVATION (TOP OF MULCH)	56.00'	
10-YEAR FREEBOARD (FT)	0.35'	
OVERFLOW INLET / TOP ELEVATION	57.00'	
OUTLET PIPE DIAMETER / TYPE (HDPE, RCP, CMP)	12" HDPE	
OUTLET PIPE INVERT	52.75'	
TOP OF EMBANKMENT ELEVATION, Tb	58.00'	
TOP OF EMBANKMENT WIDTH	N/A	
THICKNESS OF MULCH	3"	
THICKNESS OF FILTER MEDIA SHA BSM	24"	
THICKNESS OF COARSE SAND	4"	
THICKNESS OF PEA GRAVEL	4"	
PLACEMENT OF GEOTEXTILE	SIDES ONLY	
PLANTINGS	SEE THIS SHEET	
OBSERVATION WELL WITH DEPTH TO FILTER BOTTOM INDICATED ON CAP	OBS #9	
DATE AS-BUILT ACCEPTED BY ANNE ARUNDEL COUNTY:		

PROJECT NAME: LAKE WATERFORD PARK

DESIGN / AS - BUILT DATA FOR MICRO-BIORETENTION

* TO BE COMPLETED BY THE CERTIFYING ENGINEER

TYPE OF FACILITY: M-6, MICRO-BIORETENTION — BMP ID: MICRO-BIORETENTION (M-6) FACILITY #8

FEATURE	DESIGN	*AS-BUILT
FILTER BED DIMENSIONS (L x W)	82' x 8'	
LEFT SIDE SLOPE	3:1	
RIGHT SIDE SLOPE	3:1	
FILTER BED SURFACE ELEVATION (TOP OF MULCH)	56.00'	
10-YEAR FREEBOARD (FT)	0.35'	
OVERFLOW INLET / TOP ELEVATION	57.00'	
OUTLET PIPE DIAMETER / TYPE (HDPE, RCP, CMP)	12" HDPE	
OUTLET PIPE INVERT	52.67	
TOP OF EMBANKMENT ELEVATION, Tb	58.00'	
TOP OF EMBANKMENT WIDTH	N/A	
THICKNESS OF MULCH	3"	
THICKNESS OF FILTER MEDIA SHA BSM	24"	
THICKNESS OF COARSE SAND	4"	
THICKNESS OF PEA GRAVEL	4"	
PLACEMENT OF GEOTEXTILE	SIDES ONLY	
PLANTINGS	SEE THIS SHEET	
OBSERVATION WELL WITH DEPTH TO FILTER BOTTOM INDICATED ON CAP	OBS #8	
DATE AS-BUILT ACCEPTED BY ANNE ARUNDEL COUNTY:		

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License # 27734 Expiration Date: 07/12/28

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED / DATE / CHIEF ENGINEER	APPROVED / DATE / PROJECT MANAGER	SCALE: 1" = 10'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	STORM WATER MANAGEMENT PART PLAN
APPROVED / DATE / ASSISTANT CHIEF ENGINEER	APPROVED / DATE / CHIEF, RIGHT-OF-WAY	SHEET NO. 24 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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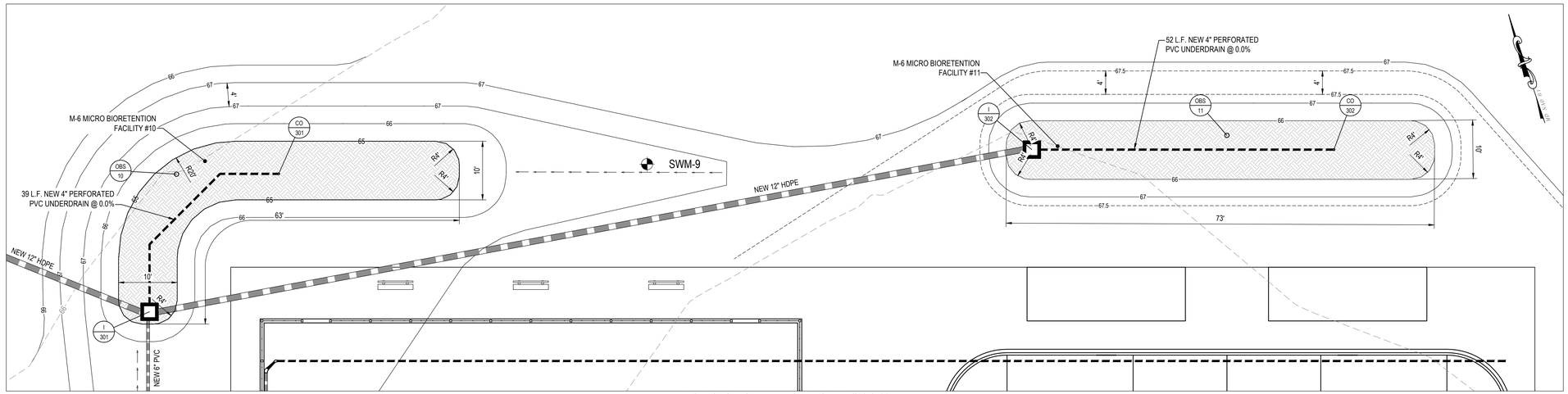
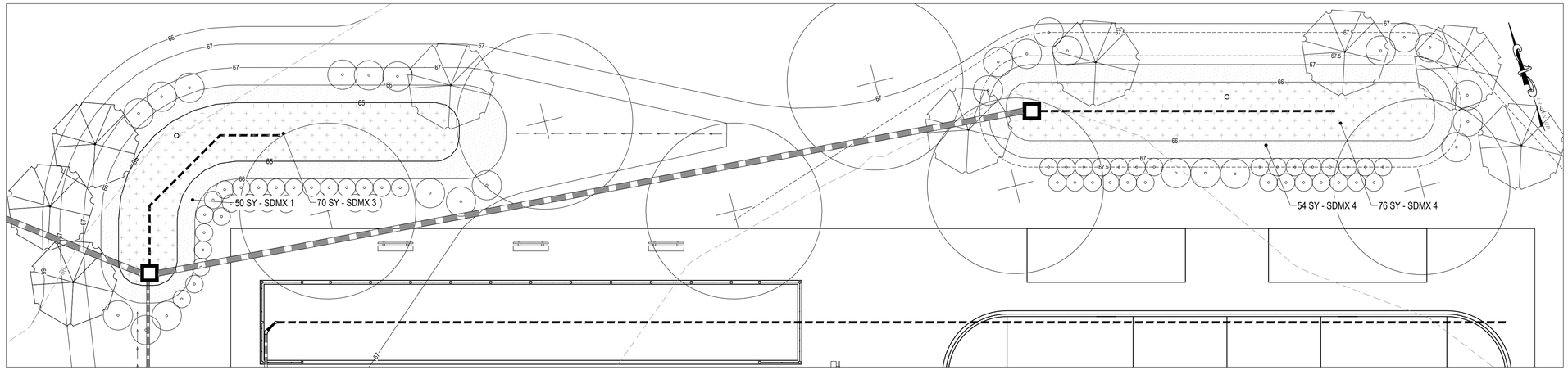


M-6 MICRO BIORETENTION FACILITY #10 & 11

SCALE: 1" = 10'



M-6 MICRO BIORETENTION FACILITY #10 & 11 (PLANTING PLAN)

SCALE: 1" = 10'

STORMWATER MANAGEMENT LEGEND

- PgB (A) / PeB (A) — MAPPED SOIL UNIT / HYDROLOGIC SOIL GROUP RATING
- PROPOSED STORM DRAIN
- PROPOSED PERFORATED PIPE
- FILTER BED AREA

PLANTING LEGEND

- SEED MIX 1: ERNMX-172
- SEED MIX 2: ERNMX-730
- SEED MIX 3: ERNMX-126
- SEED MIX 4: ERNMX-180
- SEED MIX 5: ERNMX-900

PROJECT NAME: LAKE WATERFORD PARK		
DESIGN / AS - BUILT DATA FOR MICRO-BIORETENTION		
* TO BE COMPLETED BY THE CERTIFYING ENGINEER		
TYPE OF FACILITY: M-6, MICRO-BIORETENTION	BMP ID: MICRO-BIORETENTION (M-6) FACILITY #10	
FEATURE	**DESIGN**	***AS-BUILT**
FILTER BED DIMENSIONS (L x W)	63' x 10'	
LEFT SIDE SLOPE	3:1	
RIGHT SIDE SLOPE	3:1	
FILTER BED SURFACE ELEVATION (TOP OF MULCH)	65.00'	
10-YEAR FREEBOARD (FT)	0.33'	
OVERFLOW INLET / TOP ELEVATION	66.00	
OUTLET PIPE DIAMETER / TYPE (HDPE, RCP, CMP)	12" HDPE	
OUTLET PIPE INVERT	60.60'	
TOP OF EMBANKMENT ELEVATION, Tb	67.00'	
TOP OF EMBANKMENT WIDTH	3'	
THICKNESS OF MULCH	3"	
THICKNESS OF FILTER MEDIA SHA BSM	24"	
THICKNESS OF COARSE SAND	4"	
THICKNESS OF PEA GRAVEL	4"	
THICKNESS OF UNDERDRAIN GRAVEL	23"	
PLACEMENT OF GEOTEXTILE	SIDES ONLY	
PLANTINGS	SEE THIS SHEET	
OBSERVATION WELL WITH DEPTH TO FILTER BOTTOM INDICATED ON CAP	OBS #10	
DATE AS-BUILT ACCEPTED BY ANNE ARUNDEL COUNTY:		

SWM #10 & 11 PLANT SCHEDULE (THIS SHEET ONLY)

Key	Seed Mix Name / Code	Application Area	Supplier / Reference	Mix Type / Notes	Quantity (SY)
SEED MIX					
SDMX 1	Maryland Upland Seed Mix – ERNMX-172	Upland Slopes, SWM Embankments	Ernst Conservation Seeds	Native perennial grasses and wildflowers suitable for 3:1 slopes or flatter	104
SDMX 3	Retention Basin Floor Mix – ERNMX-126	Basin Bottoms, Micro-Bioretention Floors	Ernst Conservation Seeds	Hydrophytic mix for intermittently wet soils	146
				Total	**250**

PROJECT NAME: LAKE WATERFORD PARK		
DESIGN / AS - BUILT DATA FOR MICRO-BIORETENTION		
* TO BE COMPLETED BY THE CERTIFYING ENGINEER		
TYPE OF FACILITY: M-6, MICRO-BIORETENTION	BMP ID: MICRO-BIORETENTION (M-6) FACILITY #11	
FEATURE	**DESIGN**	***AS-BUILT**
FILTER BED DIMENSIONS (L x W)	73' x 10'	
LEFT SIDE SLOPE	3:1	
RIGHT SIDE SLOPE	3:1	
FILTER BED SURFACE ELEVATION (TOP OF MULCH)	66.00'	
10-YEAR FREEBOARD (FT)	0.34'	
OVERFLOW INLET / TOP ELEVATION	67.00	
OUTLET PIPE DIAMETER / TYPE (HDPE, RCP, CMP)	12" HDPE	
OUTLET PIPE INVERT	62.23	
TOP OF EMBANKMENT ELEVATION, Tb	67.50'	
TOP OF EMBANKMENT WIDTH	3'	
THICKNESS OF MULCH	3"	
THICKNESS OF FILTER MEDIA SHA BSM	24"	
THICKNESS OF COARSE SAND	4"	
THICKNESS OF PEA GRAVEL	4"	
THICKNESS OF UNDERDRAIN GRAVEL	23"	
PLACEMENT OF GEOTEXTILE	SIDES ONLY	
PLANTINGS	SEE THIS SHEET	
OBSERVATION WELL WITH DEPTH TO FILTER BOTTOM INDICATED ON CAP	OBS #11	
DATE AS-BUILT ACCEPTED BY ANNE ARUNDEL COUNTY:		

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Baltimore, MD 21286
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STATE OF MARYLAND — JESSE MICHAEL LINDSAY — NO. 27734 — REGISTERED PROFESSIONAL ENGINEER

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License # 27734 Expiration Date: 07/12/26

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REVISIONS			
NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY

DEPARTMENT OF PUBLIC WORKS

APPROVED	DATE	APPROVED	DATE			
CHIEF ENGINEER		PROJECT MANAGER		SCALE:	1" = 10'	LAKE WATERFORD PARK
				DRAWN BY:	R.S.S.	
				CHECKED BY:	R.W.H.	STORM WATER MANAGEMENT PART PLAN
APPROVED	DATE	APPROVED	DATE	SHEET NO.	25 OF 57	
ASSISTANT CHIEF ENGINEER		CHIEF, RIGHT-OF-WAY		PROJECT NO.:	P591000	
				CONTRACT NO.:	P591001	

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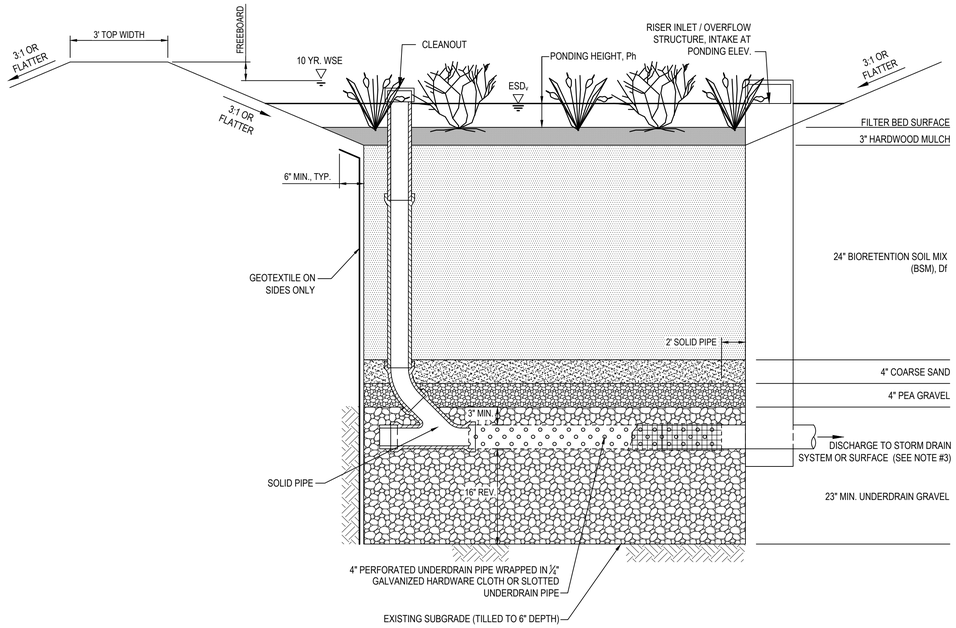


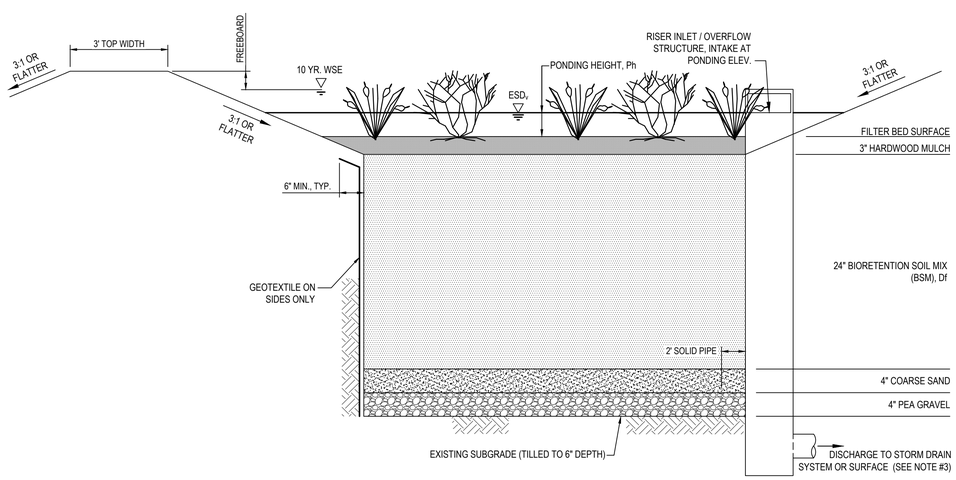
NOTES:

1. A MINIMUM OF ONE OBSERVATION WELL MUST BE PROVIDED FOR EVERY 1000SF OF FILTER SURFACE AREA. SEE PLANS FOR OBSERVATION WELL LOCATIONS.
2. DO NOT INSTALL GEOTEXTILE ALONG THE TOP, BOTTOM, OR ANY HORIZONTAL LAYER.
3. DISCHARGE MUST BE TO A STABLE, NON-EROSIVE OUTFALL.

SECTION

SECTION FOR MICRO-BIORETENTION WITH UNDERDRAIN

NOT TO SCALE



NOTES:

1. A MINIMUM OF ONE OBSERVATION WELL MUST BE PROVIDED FOR EVERY 1000SF OF FILTER SURFACE AREA. SEE PLANS FOR OBSERVATION WELL LOCATIONS.
2. DO NOT INSTALL GEOTEXTILE ALONG THE TOP, BOTTOM, OR ANY HORIZONTAL LAYER.
3. DISCHARGE MUST BE TO A STABLE, NON-EROSIVE OUTFALL.

SECTION

SECTION FOR MICRO-BIORETENTION WITHOUT UNDERDRAIN

NOT TO SCALE

GENERAL NOTES:

THE BIORETENTION SOIL MIX (BSM) CANNOT BE INSTALLED UNTIL AFTER THE UPSTREAM DRAINAGE AREAS ARE STABILIZED. HARDWOOD MULCH MAY NOT BE SUBSTITUTED WITH OTHER MATERIAL UNLESS SPECIFIED BY THE PROJECT MANAGER.

SPECIFICATIONS:

1. SEE CHART BELOW.
2. THE CONTRACTOR SHALL SUBMIT SOIL TEST RESULTS (1 PER 30 CY BSM) TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. PERFORM SOIL TESTS REQUIRED FOR BOTH IMPORTED SOIL AND RE-USED / AMENDED TOP SOIL. SOIL TEST AND RESULTS SHALL INCLUDE AT A MINIMUM; PHOSPHORUS, ORGANIC MATTER, SOLUBLE SALTS, NUTRIENTS, AND TEXTURAL ANALYSIS.
3. MINIMIZE COMPACTION OF SUBGRADE SOILS IN BIORETENTION AREAS. CONTRACTOR SHALL TILL THE SUBGRADE SOILS TO A DEPTH OF 6" BELOW THE BOTTOM OF EACH FACILITY. 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 SHALL BE REPRESENTATIVE OF SPECIES AND CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1-2004.

MATERIALS SPECIFICATIONS FOR MICRO-BIORETENTION

MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTINGS	SEE PLAN SHEET	N/A	PLANTINGS ARE SITE SPECIFIC
BSM	SHA BIORETENTION SOIL MIX (BSM) SECTION 920.01.05 ORGANIC CONTENT MIN. 5% BY DRY WEIGHT (ASTM D 2974)	N/A	MARYLAND STATE HIGHWAY ADMINISTRATION STANDARDS SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS DATED MAY 2017 INCLUDING AND ADDENDA THERETO. COPY TO BE KEPT ON-SITE
MULCH	SHREDDED HARDWOOD		AGED 6 MONTHS, MINIMUM; NO PINE OR WOOD CHIPS
PEA GRAVEL	ASTM-D-448	NO.8 OR NO.9 (1/8" TO 3/8")	
GEOTEXTILE		N/A	NONWOVEN GEOTEXTILE TABLE H.1 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
UNDERDRAIN GRAVEL	AASHTO M-43	NO.57, 6, OR 67 (3/8" TO 3/4")	
UNDERDRAIN PIPING	F 758, TYPE PS 28 AASHTO M-278 AASHTO M-252	4" TO 6"	SLOTTED OR PERFORATED PIPE; SLOTTED PIPE SHALL HAVE A MINIMUM OPEN AREA OF 1.5 SQ.IN. / LINEAR FOOT WITH A MAXIMUM SLOT LENGTH OF 2" AND MAXIMUM SLOT WIDTH OF 1/8 INCH. PERFORATED PIPE SHALL BE WRAPPED WITH 1/4 INCH GALVANIZED HARDWARE CLOTH.
CAST-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 CAST-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
COARSE SAND	AASHTO-M6 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
STABILIZATION MATTING	SHA SECTION 920.05		TYPE A, B, C OR D AS NOTED ON PLAN / SECTION / DETAILS MARYLAND STATE HIGHWAY ADMINISTRATION STANDARDS SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS DATED MAY 2017 INCLUDING AND ADDENDA THERETO. COPY TO BE KEPT ON-SITE

MAINTENANCE SCHEDULE:

AFTER CONSTRUCTION COMPLETION AND ACCEPTANCE OF THE WORK, INSPECTION AND MAINTENANCE SHALL BE THE RESPONSIBILITY OF ANNE ARUNDEL COUNTY. THE FACILITIES MUST DRAIN DOWN WITHIN 24 HOURS OF A RAINFALL EVENT.

INSPECTION ITEM	FREQUENCY OF INSPECTION	INSPECTION REQUIREMENTS	REMEDIAL ACTION
BIORETENTION BASIN	SEASONALLY AND AFTER A MAJOR STORM		
VEGETATION	SEASONALLY AND AFTER A MAJOR STORM	FACILITY MUST DEWATER WITHIN 24 HOURS OF RAINFALL. NOTICEABLE ODORS, STAINED WATER ON THE FILTER SURFACE OR AT THE OUTLET, OR THE PRESENCE OF ALGAE OR AQUATIC VEGETATION ARE INDICATORS OF ANAEROBIC CONDITIONS, AND INADEQUATE DEWATERING OF THE FACILITY.	THE TOP THREE INCHES OF SOIL SHOULD BE REMOVED AND REPLACED WITH SOIL MATERIAL AS PER PLAN SPECIFICATIONS. FOLLOW UP INSPECTIONS MUST CONFIRM ADEQUATE DEWATERING. IF THE FACILITY DOES NOT FUNCTION AS INTENDED AFTER THE ABOVE ACTION, THE ENTIRE FILTER AND UNDERDRAIN SYSTEM MAY NEED MAINTENANCE. MDE APPROVAL MAY BE NECESSARY.
MULCH LAYER	SEASONALLY AND AFTER A MAJOR STORM	CHECK MULCH FOR ADEQUATE COVER, SEDIMENT ACCUMULATION, OR DISCOLORATION.	REPLACE AND REMOVE OLD MULCH AND EXCESS SEDIMENTS. PROVIDE ADEQUATE MULCH COVER ACCORDING TO APPROVED DESIGN.
VEGETATIVE SURFACES	MONTHLY		
PLANT COMPOSITION AND HEALTH	MONTHLY	COMPARE PLANT COMPOSITION WITH APPROVED PLANS. CHECK FOR INVASIVE SPECIES OR WEEDS. CHECK FOR DEAD OR DYING VEGETATION.	REMOVE AND REPLACE PLANTS IN ACCORDANCE WITH PLAN SPECIFICATIONS.
VEGETATIVE COVER AND EROSION	MONTHLY	CHECK FOR EVIDENCE OF EROSION, RUNOFF CHANNELIZING, OR BARE SPOTS.	RE-SEED OR RE-PLANT IN ACCORDANCE WITH APPROVED LANDSCAPING PLANS. RE-GRADING MAY BE REQUIRED WHEN CONCENTRATED FLOW CAUSES RILLS OR GULLYING THROUGH THE FACILITY.
DEBRIS AND TRASH CLEANOUT	MONTHLY	CHECK THAT THE FACILITY IS CLEAN OF TRASH AND DEBRIS. INLETS, OUTLETS, AND CONTRIBUTING AREAS AROUND THE FACILITY MUST BE CHECKED.	TRASH AND DEBRIS MUST BE DISPOSED OF IN AN ACCEPTABLE MANNER ACCORDING TO CURRENT REGULATIONS.
STRUCTURAL COMPONENTS	ANNUALLY	CHECK FOR EVIDENCE OF STRUCTURAL DETERIORATION, SPALLING, OR CRACKING. INLET AND OUTLET STRUCTURES MUST BE IN GOOD CONDITION.	REPAIR TO GOOD CONDITION ACCORDING TO SPECIFICATIONS ON THE APPROVED PLANS.
OUTLETS	SEASONALLY AND AFTER A MAJOR STORM	CHECK FOR EVIDENCE OF EROSION, RILLS, OR GULLYING.	STABILIZE ALL ERODED AREAS AND GRADE TO PROVIDE STABLE CONVEYANCE.
		RIPRAP OUTLET MUST BE MAINTAINED IN GOOD FUNCTIONAL CONDITION.	REPAIR ACCORDING TO APPROVED PLAN.
PRETREATMENT	SEASONALLY AND AFTER A MAJOR STORM		
SEDIMENT ACCUMULATION		CHECK FOR SEDIMENT ACCUMULATION.	WHEN SEDIMENT ACCUMULATIONS TO A DEPTH OF ONE HALF THE DESIGN PONDING DEPTH OR COVERS MORE THAN , SEDIMENT MUST BE REMOVED AND THE FACILITY RESTORED ACCORDING TO THE APPROVED DESIGN.
GRASS CHANNEL CONVEYANCE SYSTEMS		CHECK FOR EROSION, FLOW BLOCKAGES, AND STABLE CONVEYANCE.	STABILIZE AND GRADE ACCORDING TO APPROVED PLAN.
OVERALL FUNCTION OF THE FACILITY	ANNUALLY	CHECK THAT FLOW SPLITTERS ARE FUNCTIONING AS DESIGNED AND THAT BYPASS IS OPERATING AS DESIGNED.	CONSTRUCTION MUST BE IN ACCORDANCE WITH APPROVED PLANS.

INSPECTION:

REGULAR INSPECTIONS SHALL BE MADE DURING THE FOLLOWING STAGES OF CONSTRUCTION:
CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD RESPONSIBLE FOR AS-BUILTS 48 HOURS PRIOR TO REQUIRED INSPECTION.

- DURING EXCAVATION TO SUBGRADE.
- DURING PLACEMENT AND BACKFILL OF UNDERDRAIN PIPE AND GRAVEL.
- DURING PLACEMENT OF GEOTEXTILE.
- DURING PLACEMENT OF BACKFILL AND PLANTING SOIL.
- DURING PLACEMENT OF MULCH.
- DURING PLACEMENT OF PLANTS.
- UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.

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STATE OF MARYLAND — JESSE MICHAEL LINDEMAN — NO. 27734 — REGISTERED PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/26

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: NOT TO SCALE	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	STORM WATER MANAGEMENT DETAILS - MICROBIORETENTION
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 26 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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920.01.05 BIORETENTION SOIL MIX (bsm). A HOMOGENEOUS MIXTURE COMPOSED BY LOOSE VOLUME OF 5 PARTS COARSE SAND, 3 PARTS BASE SOIL, AND 2 PARTS FINE BARK. BSM SHALL CONFORM TO THE FOLLOWING:

a. **COMPONENTS:** COMPONENTS OF BSM SHALL BE SAMPLE, TESTED AND APPROVED BEFORE MIXING AS FOLLOWS:

1. **COARSE SAND:** MSMT 356. COARSE SAND SHALL BE WASHED SILICA SAND OR CRUSHED GLASS THAT CONFORMS TO ASTM FINE AGGREGATE C-33. COARSE SAND SHALL INCLUDE LESS THAN 1% BY WEIGHT OF CLAY OR SILT SIZE PARTICLES, AND LESS THAN 5% BY WEIGHT OF ANY COMBINATION OF DIABASE, GREYSTONE, CALCAREOUS OR DOLOMITIC SAND.
2. **BASE SOIL:** BASE SOIL SHALL BE TESTED AND CERTIFIED BY THE PRODUCER TO CONFORM TO THE FOLLOWING REQUIREMENTS:

COMPOSITION - BASE SOIL					
TEST PROPERTY	TEST METHOD	TEST VALUE AND AMENDMENT			
PROHIBITED WEEDS	—	FREE OF SEED AND VIABLE PLANT PARTS OF SPECIES IN 920.06.02(a)(b)(c) WHEN INSPECTED.			
DEBRIS	—	NO OBSERVABLE CONTENT OF CEMENT, CONCRETE, ASPHALT, CRUSHED GRAVEL OR CONSTRUCTION DEBRIS WHEN INSPECTED.			
GRADING ANALYSIS	T 87	SIEVE SIZE		PASSING BY WEIGHT MINIMUM %	
		2 IN.		100	
		NO. 4		90	
		NO. 10		80	
TEXTURAL ANALYSIS	T 88	PARTICLE		PASSING BY WEIGHT	
		SIZE	MM	MINIMUM	MAXIMUM
		SAND	2.0 - 0.050	50	85
		SILT	0.050 - 0.002	5	45
		CLAY	LESS THAN 0.002	5	10
SOIL PH	D 4972	PH OF 5.7 TO 6.9			
ORGANIC MATTER	T 194	1.0 TO 10.0% BY WEIGHT.			
SOLUBLE SALTS	EC1:2 (V:V)	500 PPM (1.25 MMHOS/CM) OR LESS.			
HARMFUL MATERIALS	—	920.01.01(a)			

3. **FINE BARK:** FINE BARK SHALL BE THE BARK OF HARDWOOD TREES THAT IS MILLED AND SCREENED TO A UNIFORM PARTICLE SIZE OF 2 IN. OR LESS. FINE BARK SHALL BE COMPOSTED AND AGED FOR 6 MONTHS OR LONGER AND BE FREE FROM SAWDUST AND FOREIGN MATERIALS.

   A 1 TO 2 LB SAMPLE OF FINE BARK SHALL BE SUBMITTED TO THE LANDSCAPE OPERATIONS DIVISION FOR EXAMINATION.

b. **COMPOSITION:** BSM SHALL BE SAMPLED AND TESTED ACCORDING TO THE REQUIREMENTS OF MSMT 356 AND CONFORM TO THE FOLLOWING:

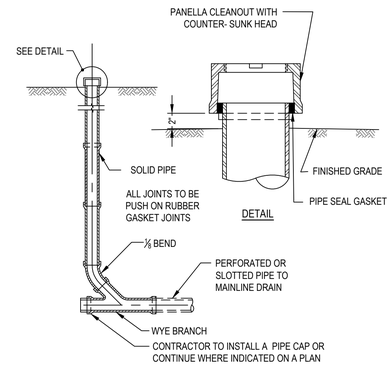
COMPOSITION - BIORETENTION SOIL MIX (BSM)					
TEST PROPERTY	TEST METHOD	TEST VALUE AND AMENDMENT			
WEEDS	—	FREE OF SEED AND VIABLE PLANT PARTS OF SPECIES IN 920.0602(a)(b)(c) WHEN INSPECTED			
DEBRIS	—	920.01.05(a)(2)			
TEXTURAL ANALYSIS	T 88	PARTICLE		% PASSING BY WEIGHT	
		SIZE	MM	MINIMUM	MAXIMUM
		SAND	2.0 - 0.050	55	85
		SILT	0.050 - 0.002	—	20
		CLAY	LESST THAN 0.002	1	8
SOIL PH	D 4972	PH OF 5.7 TO 7.1.			
ORGANIC MATTER	T 194	MINIMUM 1.5% BY WEIGHT.			
NUTRIENT ANALYSIS AND SOLUBLE SALTS	MEHLICH-3	CONCENTRATION			
		ELEMENT	MINIMUM		MAXIMUM
			PPM	F/V	PPM	F/V
		CALCIUM (CA)	32	25	NO LIMIT	NO LIMIT
		MAGNESIUM (MG)	15	25	NO LIMIT	NO LIMIT
		PHOSPHORUS (P)	18	25	92	100
		POTASSIUM (K)	22	25	NO LIMIT	NO LIMIT
		SULFUR (SO4)	25	N/A	NO LIMIT	NO LIMIT
	ECA1:2 (V:V)	SOLUBLE SALTS	40	N/A	500	N/A
HARMFUL MATERIALS	—	920.01.01(a).				

c. **AMENDMENT OR FAILURE**: BSM THAT DOES NOT CONFORM TO COMPOSITION REQUIREMENTS FOR PH OR NUTRIENT ANALYSIS SHALL BE AMENDED AS SPECIFIED BY THE NMP. BSM THAT EXCEEDS MAXIMUM PHOSPHORUS CONCENTRATION OR FAILS OTHER COMPOSITION REQUIREMENTS WILL NOT BE ACCEPTED, AND SHALL NOT BE DELIVERED OR USED AS BSM.

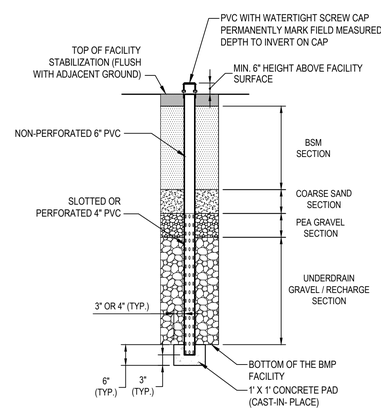
d. **STORAGE:** 920.01.02(b). BSM SHALL BE STORED IN A STOCKPILE THAT IS PROTECTED FROM WEATHER UNDER TARP OR SHED. BSM STORED FOR 6 MONTHS OR LONGER SHALL BE RESAMPLED, RETESTED, AND REAPPROVED BEFORE USE.

e. **APPROVAL:** 920.0102(c).

f. **CERTIFICATION AND DELIVERY**: 920.01.02(d).

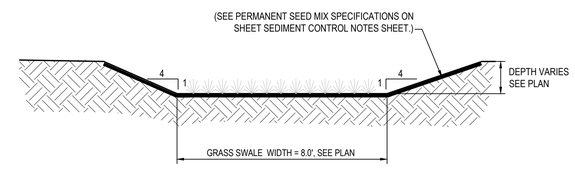


CLEANOUT - DETAILS
NOT TO SCALE



SECTION

OBSERVATION WELL
NOT TO SCALE



INSPECTION:

REGULAR INSPECTIONS SHALL BE MADE DURING THE FOLLOWING STAGES OF CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE CONTRACTING OFFICER 48 HOURS PRIOR TO REQUIRED INSPECTION:

- DURING EXCAVATION TO SUBGRADE.
- DURING PLACEMENT OF SEED.
- UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.

GRASS SWALE - TYPICAL SECTION
NOT TO SCALE

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STATE OF MARYLAND — JESSE MICHAEL LINDSAY — NO. 27734 — REGISTERED PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/26

REVISIONS			
NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: NOT TO SCALE	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	STORM WATER MANAGEMENT DETAILS
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 27 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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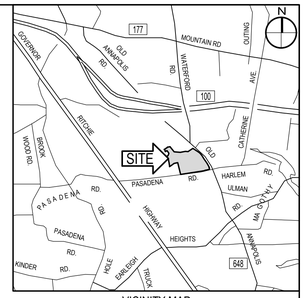

VICINITY MAP
SCALE: 1" = 2,000'

STANDARD STABILIZATION NOTE:

"FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1), AND SEVEN DAYS (7) AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE."

MAINTENANCE OF SEDIMENT CONTROL

CONTRACTOR SHALL WITHOUT EXTRA COST TO THE PROJECT, REPAIR AND MAINTAIN EXISTING SEDIMENT CONTROL DEVICES UNTIL ALL AREAS WITHIN LIMITS OF CONSTRUCTION ARE STABILIZED. ALL SEDIMENT CONTROL MEASURES REFERRED TO ON THESE PLANS SHALL BE IN ACCORDANCE WITH THE PUBLICATION ENTITLED "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL".

CONTRACTOR SHALL INSPECT AND MAINTAIN ALL SEDIMENT CONTROL MEASURES AND DEVICES AFTER EVERY STORM EVENT. MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO THE REMOVAL OF ALL ACCUMULATED SEDIMENT. GEOTEXTILE FABRIC SHALL BE REPLACED AS NEEDED TO ENSURE PROPER FUNCTION.

NOTE FOR SAME DAY STABILIZATION

CONTRACTOR SHALL ONLY DISTURB THAT AREA WHICH CAN BE COMPLETED AND STABILIZED BY THE END OF EACH WORKING DAY.
STABILIZATION SHALL BE AS FOLLOWS:

1) FOR AREAS TO BE PAVED, THE APPLICATION OF STONE BASE.
2) FOR AREAS TO BE VEGETATIVELY STABILIZED:
   A) PERMANENT SEED AND SOIL STABILIZATION MATTING OR SOD FOR ALL STEEP SLOPES, CHANNELS OR SWALES.
   B) PERMANENT SEED AND MULCH FOR OTHER AREAS.

ANY AREAS WHICH CANNOT BE STABILIZED BY THE END OF EACH WORKING DAY MUST HAVE SILT FENCE INSTALLED ON THE DOWNSLOPE SIDE.

UTILITY NOTE

1) CONTRACTOR SHOULD OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH.
2) PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
3) ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

MAINTENANCE NOTE:

CONTRACTOR SHALL INSPECT AND MAINTAIN ALL SEDIMENT CONTROL MEASURES AND DEVICES AFTER EVERY STORM EVENT. MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO THE REMOVAL OF ALL ACCUMULATED SEDIMENT. GEOTEXTILE FABRIC SHALL BE REPLACED AS NEEDED TO ENSURE PROPER FUNCTION.

SEDIMENT CONTROL LEGEND

STABILIZED CONSTRUCTION ENTRANCE	SCE
LIMITS OF DISTURBANCE	LOD
REINFORCED SILT FENCE	RSF
SUPER SILT FENCE	SSF
TEMPORARY CONSTRUCTION FENCE	CF
TREE PROTECTION FENCE	TP
EXISTING CONTOURS	65 / 64
PROPOSED CONTOURS	65 / 64
PROPERTY BOUNDARY	
TEMPORARY STOCKPILE AREA	
CONTRACTOR STAGING AREA	
SAME DAY STABILIZATION	
STANDARD INLET PROTECTION	SIP_B
AT GRADE INLET PROTECTION	AGIP
CURB INLET PROTECTION	CIP
SOIL BOUNDARY LINE (HYDROLOGIC SOIL GROUP)	PgB (A) / PeB (A)
DRAINAGE BOUNDARY	

CAUTION:
IF THIS DRAWING IS A REDUCTION,
USE THE GRAPHIC SCALES.

1"=60'-0" (60 0 30 60 120)

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STATE OF MARYLAND — JESUS MICHAEL LINDSAY — NO. 27734 — REGISTERED PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/26

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 60'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	OVERALL SEDIMENT AND EROSION CONTROL PLAN - INITIAL PHASE
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 28 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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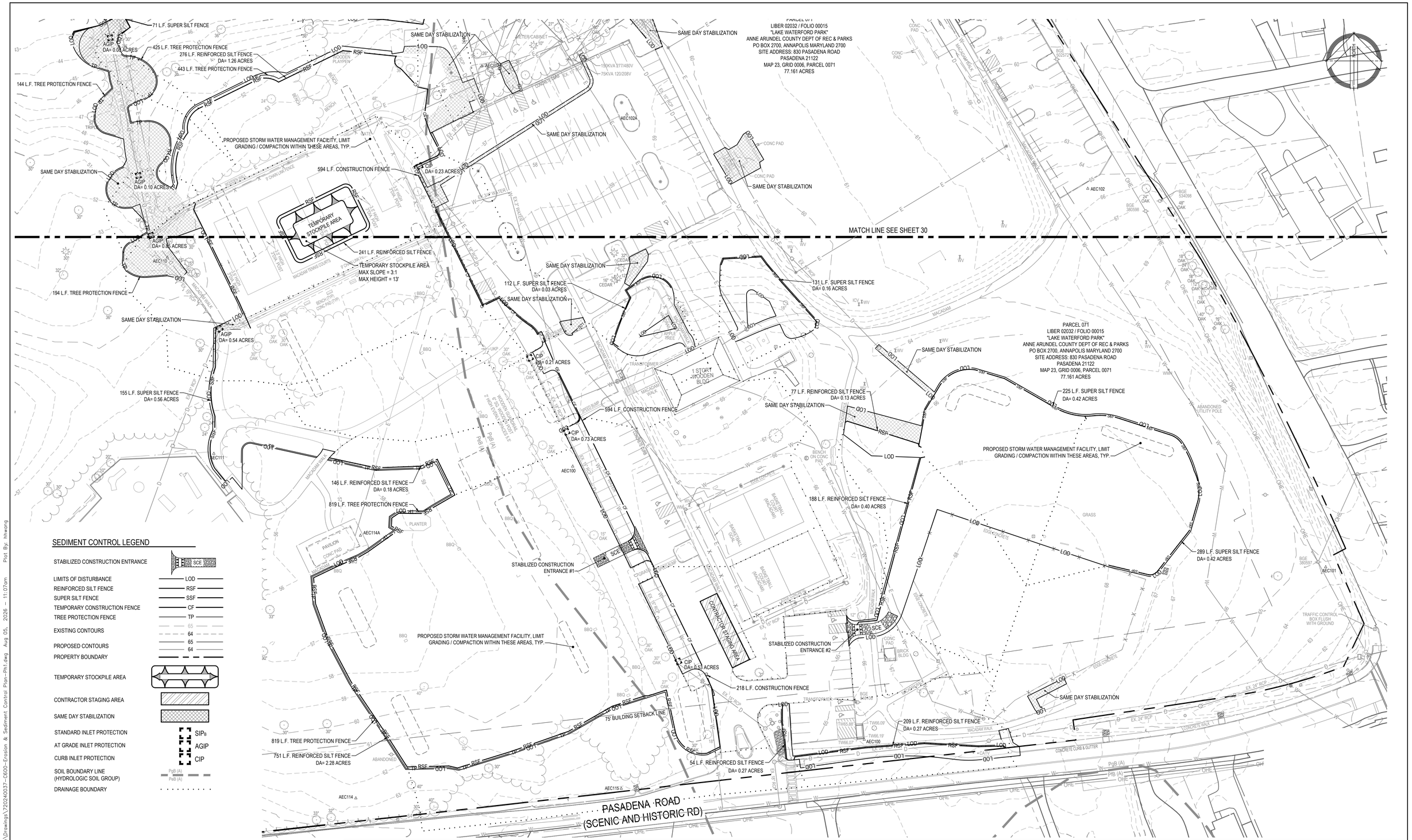

SEDIMENT CONTROL LEGEND

STABILIZED CONSTRUCTION ENTRANCE	SCE
LIMITS OF DISTURBANCE	LOD
REINFORCED SILT FENCE	RSF
SUPER SILT FENCE	SSF
TEMPORARY CONSTRUCTION FENCE	CF
TREE PROTECTION FENCE	TP
EXISTING CONTOURS	65
	64
PROPOSED CONTOURS	65
	64
PROPERTY BOUNDARY	
TEMPORARY STOCKPILE AREA	
CONTRACTOR STAGING AREA	
SAME DAY STABILIZATION	
STANDARD INLET PROTECTION	SIPa
AT GRADE INLET PROTECTION	AGIP
CURB INLET PROTECTION	CIP
SOIL BOUNDARY LINE (HYDROLOGIC SOIL GROUP)	PgB (A) PtB (A)
DRAINAGE BOUNDARY	

CAUTION:
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1"=40'-0" (40 0 20 40 80)

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License # 37734 Expiration Date: 07/12/28

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 40'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	SEDIMENT AND EROSION CONTROL PLAN INITIAL PHASE
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 29 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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SEDIMENT CONTROL LEGEND

STABILIZED CONSTRUCTION ENTRANCE	SCE
LIMITS OF DISTURBANCE	LOD
REINFORCED SILT FENCE	RSF
SUPER SILT FENCE	SSF
TEMPORARY CONSTRUCTION FENCE	CF
TREE PROTECTION FENCE	TP
EXISTING CONTOURS	65
PROPOSED CONTOURS	64 / 65 / 64
PROPERTY BOUNDARY	
TEMPORARY STOCKPILE AREA	
CONTRACTOR STAGING AREA	
SAME DAY STABILIZATION	
STANDARD INLET PROTECTION	SIP_B
AT GRADE INLET PROTECTION	AGIP
CURB INLET PROTECTION	CIP
SOIL BOUNDARY LINE (HYDROLOGIC SOIL GROUP)	PsB (A) / PsB (A)
DRAINAGE BOUNDARY	

CAUTION:
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USE THE GRAPHIC SCALES.

1"=40'-0" (40 0 20 40 80)

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STATE OF MARYLAND — JEREMY MICHAEL JIRONSKI — NO. 27734 — PROFESSIONAL ENGINEER

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License # 27734 Expiration Date: 07/12/26

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 40'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	SEDIMENT AND EROSION CONTROL PLAN INITIAL PHASE
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 30 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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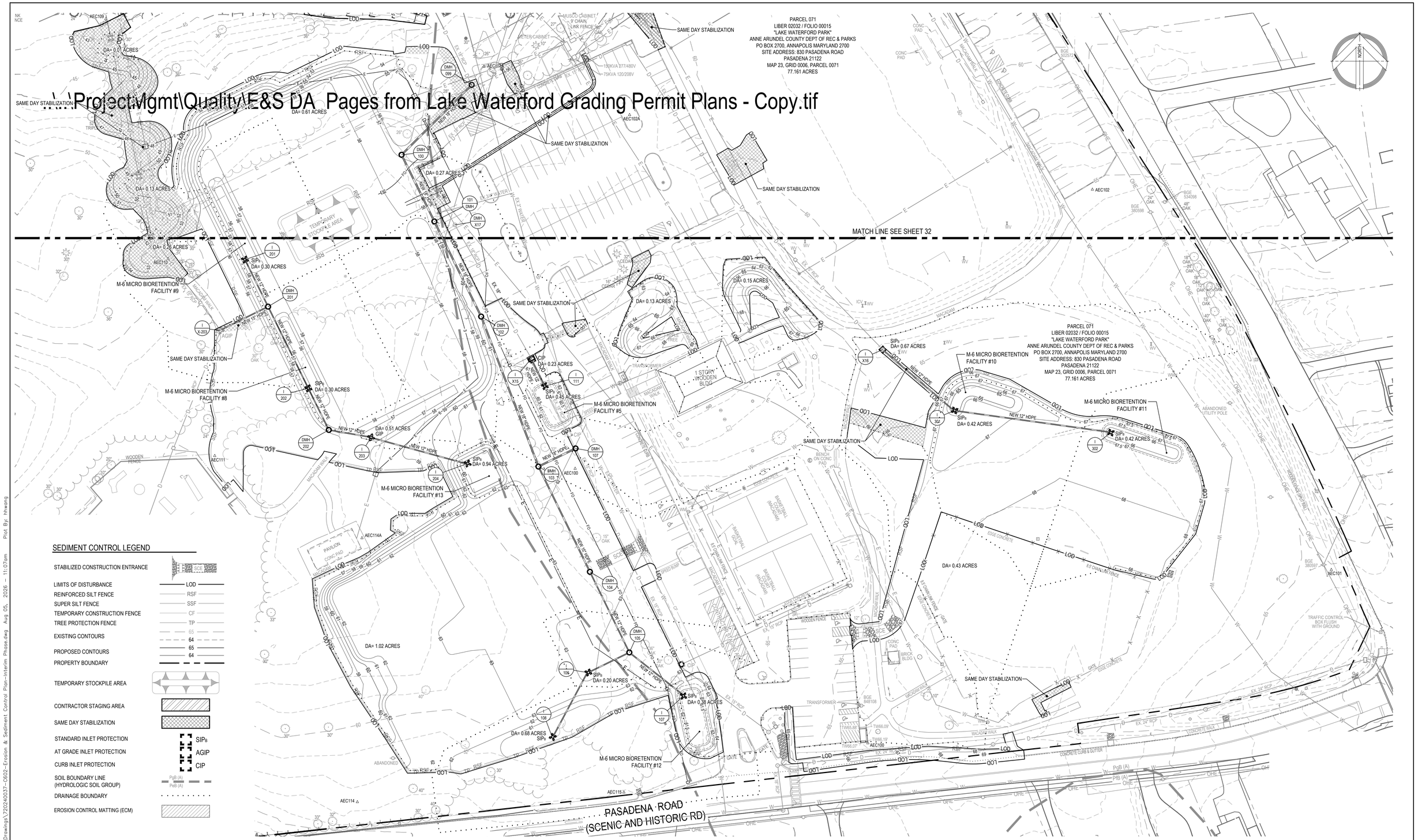

SEDIMENT CONTROL LEGEND

STABILIZED CONSTRUCTION ENTRANCE	SCE
LIMITS OF DISTURBANCE	LOD
REINFORCED SILT FENCE	RSF
SUPER SILT FENCE	SSF
TEMPORARY CONSTRUCTION FENCE	CF
TREE PROTECTION FENCE	TP
EXISTING CONTOURS	65
PROPOSED CONTOURS	64 / 65 / 64
PROPERTY BOUNDARY	
TEMPORARY STOCKPILE AREA	
CONTRACTOR STAGING AREA	
SAME DAY STABILIZATION	
STANDARD INLET PROTECTION	SIPs
AT GRADE INLET PROTECTION	AGIP
CURB INLET PROTECTION	CIP
SOIL BOUNDARY LINE (HYDROLOGIC SOIL GROUP)	PgB (A) / PeB (A)
DRAINAGE BOUNDARY	
EROSION CONTROL MATTING (ECM)	

CAUTION:
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40 0 20 40 80
1"=40'-0"

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		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	SEDIMENT AND EROSION CONTROL PLAN INTERIM PHASE
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 31 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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SEDIMENT CONTROL LEGEND

STABILIZED CONSTRUCTION ENTRANCE	SCE
LIMITS OF DISTURBANCE	LOD
REINFORCED SILT FENCE	RSF
SUPER SILT FENCE	SSF
TEMPORARY CONSTRUCTION FENCE	CF
TREE PROTECTION FENCE	TP
EXISTING CONTOURS	65
PROPOSED CONTOURS	64 / 65
PROPERTY BOUNDARY	64
TEMPORARY STOCKPILE AREA	
CONTRACTOR STAGING AREA	
SAME DAY STABILIZATION	
STANDARD INLET PROTECTION	SIP8
AT GRADE INLET PROTECTION	AGIP
CURB INLET PROTECTION	CIP
SOIL BOUNDARY LINE (HYDROLOGIC SOIL GROUP)	PeB (A)
DRAINAGE BOUNDARY	
EROSION CONTROL MATTING (ECM)	

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DEPARTMENT OF PUBLIC WORKS

APPROVED / DATE / CHIEF ENGINEER	APPROVED / DATE / PROJECT MANAGER	SCALE: 1" = 40'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	SEDIMENT AND EROSION CONTROL PLAN INTERIM PHASE
APPROVED / DATE / ASSISTANT CHIEF ENGINEER	APPROVED / DATE / CHIEF, RIGHT-OF-WAY	SHEET NO. 32 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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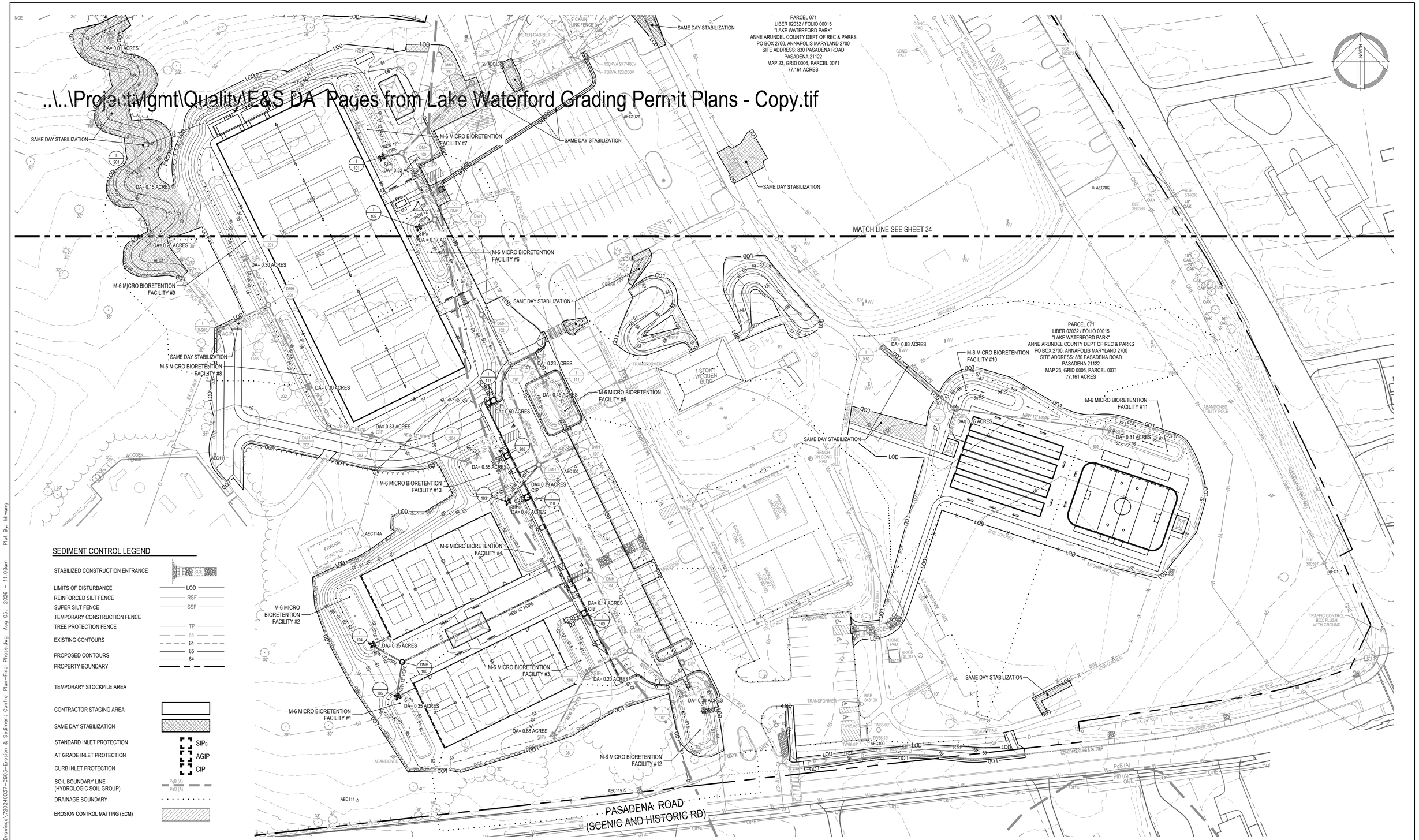

SEDIMENT CONTROL LEGEND

STABILIZED CONSTRUCTION ENTRANCE	SCE
LIMITS OF DISTURBANCE	LOD
REINFORCED SILT FENCE	RSF
SUPER SILT FENCE	SSF
TEMPORARY CONSTRUCTION FENCE	
TREE PROTECTION FENCE	TP
EXISTING CONTOURS	65
PROPOSED CONTOURS	64
PROPERTY BOUNDARY	65
TEMPORARY STOCKPILE AREA	64
CONTRACTOR STAGING AREA	
SAME DAY STABILIZATION	
STANDARD INLET PROTECTION	SIPa
AT GRADE INLET PROTECTION	AGIP
CURB INLET PROTECTION	CIP
SOIL BOUNDARY LINE (HYDROLOGIC SOIL GROUP)	PgB (A) / PtB (A)
DRAINAGE BOUNDARY	
EROSION CONTROL MATTING (ECM)	

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DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 40'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	SEDIMENT AND EROSION CONTROL PLAN FINAL PHASE
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 33 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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SEDIMENT CONTROL LEGEND

STABILIZED CONSTRUCTION ENTRANCE	SCE
LIMITS OF DISTURBANCE	LOD
REINFORCED SILT FENCE	RSF
SUPER SILT FENCE	SSF
TEMPORARY CONSTRUCTION FENCE	
TREE PROTECTION FENCE	TP
EXISTING CONTOURS	65 / 64
PROPOSED CONTOURS	65 / 64
PROPERTY BOUNDARY	
TEMPORARY STOCKPILE AREA	
CONTRACTOR STAGING AREA	
SAME DAY STABILIZATION	
STANDARD INLET PROTECTION	SIP_S
AT GRADE INLET PROTECTION	AGIP
CURB INLET PROTECTION	CIP
SOIL BOUNDARY LINE (HYDROLOGIC SOIL GROUP)	PgB (A) / PeB (A)
DRAINAGE BOUNDARY	
EROSION CONTROL MATTING (ECM)	

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STATE OF MARYLAND — JESSE MICHAEL LINDAY — No. 37744 — REGISTERED PROFESSIONAL ENGINEER

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DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 40'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	SEDIMENT AND EROSION CONTROL PLAN FINAL PHASE
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 34 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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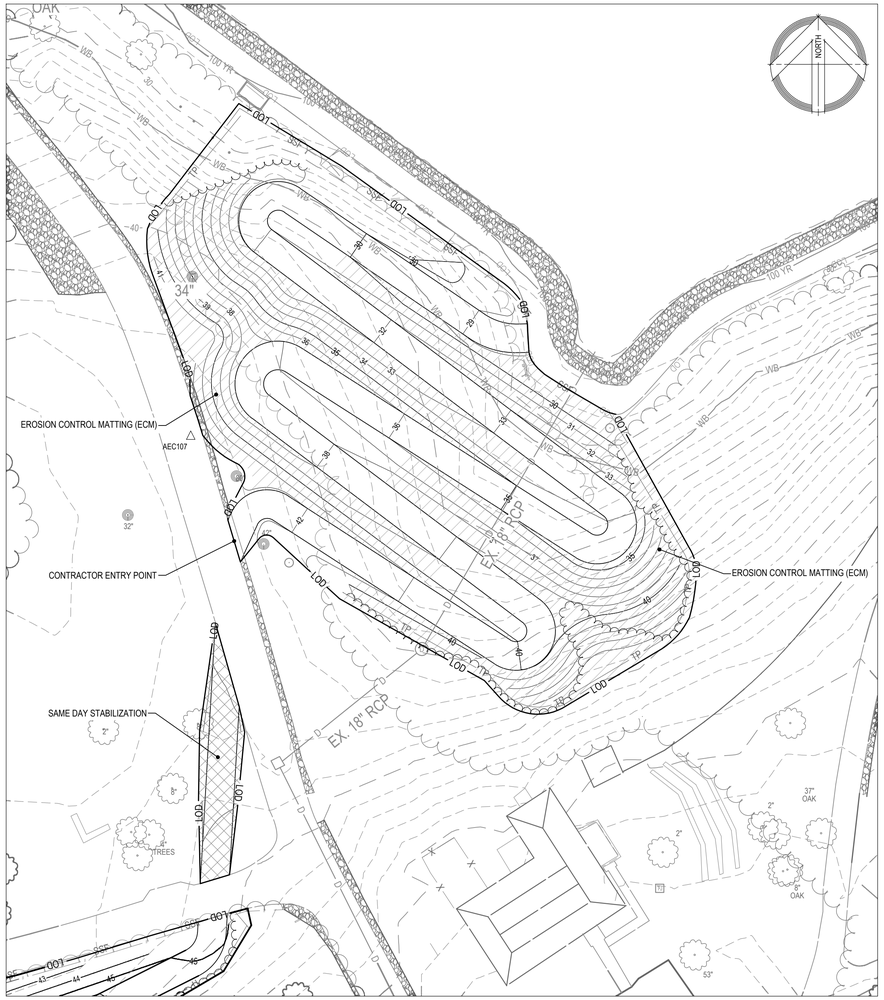
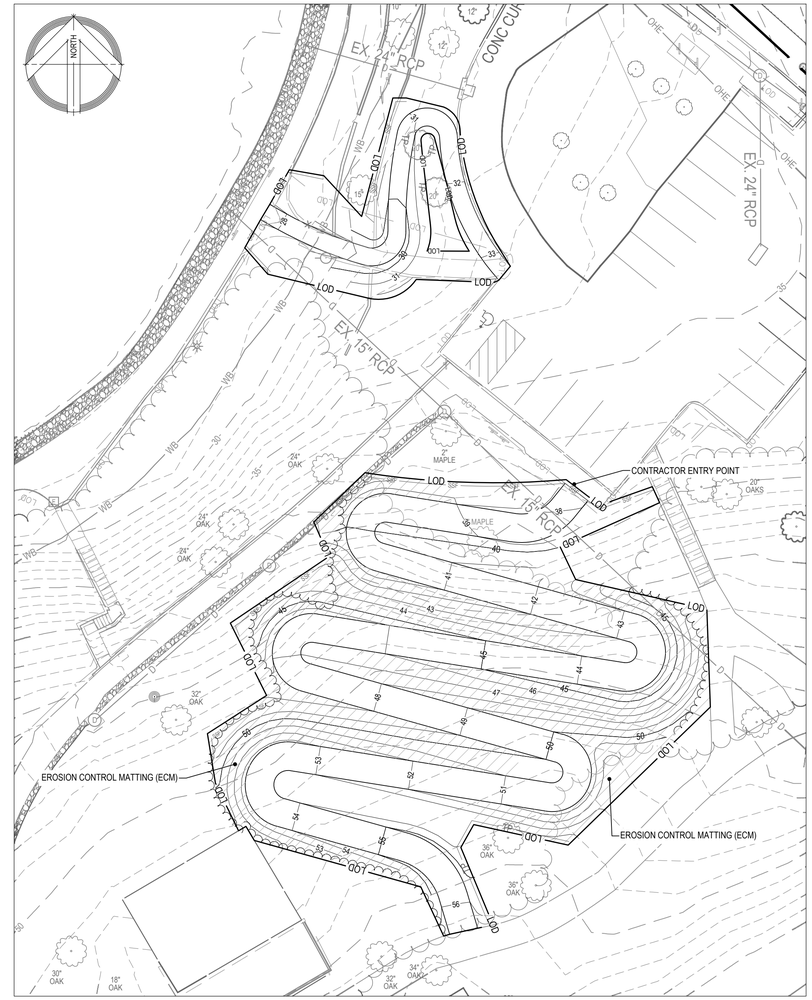


ENLARGEMENT DETAIL
SCALE: 1" = 20'



ENLARGEMENT DETAIL
SCALE: 1" = 20'

NOTES

1. WHERE NO SCE IS PROVIDED, THE CONTRACTOR SHALL DESIGNATE PIECES OF CONSTRUCTION EQUIPMENT THAT SHALL BE ALLOWED WITHIN THE LOD AND ENTER ONLY THROUGH THE CONTRACTOR ENTRY POINT(S). THIS EQUIPMENT SHALL BE KEPT WITHIN THE LOD UNTIL THE PROPOSED WORK IS COMPLETE AND SHALL HAVE TREADS/TIRES CLEANED PRIOR TO LEAVING THE LOD. ALL MATERIAL REMOVAL/LOAD OUT SHALL BE LIFTED FROM THE LOD.
2. NO AREAS SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS THE RUNOFF IS DIRECTED TO AN MDE APPROVED SEDIMENT CONTROL DEVICE.
3. STOCKPILE AREAS ON PAVEMENT SHALL NOT BE USED FOR PLACEMENT OR STORAGE OF ANY ERODIBLE MATERIALS. DAMAGE TO EXISTING PAVEMENT DURIING CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR.
4. PLACE PERMANENT SOIL STABILIZATION MATTING ALONG SLOPES GREATER THAN 4:1.
5. SUPER SILT FENCE MAY BE REMOVED DURING ACTIVE CONSTRUCTION AS LONG AS NO RUNOFF GENEREATING PRECIPITATION IS OCCURRING. SUPER SILT FENCE SHALL BE FULLY FUNCTIONAL AT THE END OF EACH DAY.
6. NO ERODIBLE MATERIALS ARE TO BE STORED IN THE STAGING AREA.

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1"=20'-0"

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License # 27734 Expiration Date: 07/12/26

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DEPARTMENT OF PUBLIC WORKS

APPROVED DATE CHIEF ENGINEER	APPROVED DATE PROJECT MANAGER	SCALE: 1" = 20' DRAWN BY: R.S.S. CHECKED BY: R.W.H.	LAKE WATERFORD PARK
APPROVED DATE ASSISTANT CHIEF ENGINEER	APPROVED DATE CHIEF, RIGHT-OF-WAY	SHEET NO. 35 OF 57 PROJECT NO.: P591000 CONTRACT NO.: P591001	SEDIMENT AND EROSION CONTROL PLAN FINAL PHASE

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VEGETATIVE ESTABLISHMENT

FOLLOWING INITIAL SOIL DISTURBANCES OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN THREE CALENDAR DAYS FOR THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND SEVEN DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

1. PERMANENT SEEDING:

A. SOIL TESTS: LIME AND FERTILIZER WILL BE APPLIED PER SOIL TESTS RESULTS FOR SITES GREATER THAN 5 ACRES. SOIL TESTS WILL BE DONE AT COMPLETION OF INITIAL ROUGH GRADING OR AS RECOMMENDED BY THE SEDIMENT CONTROL INSPECTOR. RATES AND ANALYSES WILL BE PROVIDED TO THE GRADING INSPECTOR AS WELL AS THE CONTRACTOR. OCCURRENCE OF ACID SULFATE SOILS (GRAYISH BLACK COLOR) WILL REQUIRE COVERING WITH A MINIMUM OF 12 INCHES OF CLEAN SOIL WITH 6 INCHES MINIMUM CAPPING OF TOP SOIL. NO STOCKPILING OF MATERIAL IS ALLOWED. IF NEEDED, SOIL TESTS SHOULD BE DONE BEFORE AND AFTER A 6-WEEK INCUBATION PERIOD TO ALLOW OXIDATION OF SULFATES.

THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:

a. SOIL PH SHALL BE BETWEEN 6.0 AND 7.0.
b. SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (PPM).
c. THE SOIL SHALL CONTAIN LESS THAN 40% CLAY BUT ENOUGH FINE GRAINED MATERIAL (> 30% SILT PLUS clay)a)a) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IS IF LOVEGRASS OR SERECIA LESPEDEZA IS TO BE PLANTED, THEN A SANDY SOIL (< 30% SILT PLUS CLAY) WOULD BE ACCEPTABLE.
d. SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER BY WEIGHT.
e. SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
f. IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL IS REQUIRED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS FROM THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL OR AMENDMENTS MADE AS RECOMMENDED BY A CERTIFIED AGRONOMIST.

B. SEEDBED PREPARATION: AREA TO BE SEEDED SHALL BE LOOSE AND FRIABLE TO A DEPTH OF AT LEAST 3-5 INCHES. THE TOP LAYER SHALL BE LOOSENED BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING OCCURS. FOR SITES LESS THAN 5 ACRES, APPLY 100 POUNDS DOLOMITIC LIMESTONE AND 21 POUNDS OF 10-10-10 FERTILIZER PER 1,000 SQUARE FEET. HARROW OR DISK LIME AND FERTILIZER INTO THE SOIL TO A DEPTH OF AT LEAST 3-5 INCHES ON SLOPES FLATTER THAN 3:1.

C. SEEDING: APPLY 5-6 POUNDS PER 1,000 SQUARE FEET OF TALL FESCUE BETWEEN FEBRUARY 1 AND APRIL 30 OR BETWEEN AUGUST 15 AND OCTOBER 31. APPLY SEED UNIFORMLY ON A MOIST FIRM SEEDBED WITH A CYCLONE SEEDER, CULTIPACKER SEEDER OR HYDROSEEDER (SLURRY INCLUDES SEEDS AND FERTILIZER, RECOMMENDED ON STEEP SLOPES ONLY). MAXIMUM SEED DEPTH SHOULD BE ¼ INCH IN CLAYEY SOILS AND ½ INCH IN SANDY SOILS WHEN USING OTHER THAN THE HYDROSEEDER METHOD. IRRIGATE WHERE NECESSARY TO SUPPORT ADEQUATE GROWTH UNTIL VEGETATION IS FIRMLY ESTABLISHED. IF OTHER SEED MIXES ARE TO BE USED, SELECT FROM TABLE B3 AND B5 OF THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
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D. MULCHING: MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING. DURING THE TIME PERIODS WHEN SEEDING IS NOT PERMITTED, MULCH SHALL BE APPLIED IMMEDIATELY AFTER GRADING. MULCH SHALL BE UNROTTED, UNCHOPPED, SMALL GRAIN STRAW APPLIED AT A RATE OF 2 TONS PER ACRE OR 90 POUNDS PER 1,000 SQUARE FEET (2 BALES). APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. IF A MULCH-ANCHORING TOOL IS USED, APPLY 2.5 TONS PER ACRE. MULCH MATERIALS SHALL BE RELATIVELY FREE OF ALL KINDS OF WEEDS AND SHALL BE COMPLETELY FREE OF PROHIBITED NOXIOUS WEEDS. SPREAD MULCH UNIFORMLY, MECHANICALLY OR BY HAND, TO A DEPTH OF 1-2 INCHES.

E. SECURING STRAW MULCH: STRAW MULCH SHALL BE SECURED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE MOVEMENT BY WIND OR WATER. THE FOLLOWING METHODS ARE PERMITTED:

i. USE A MULCH-ANCHORING TOOL WHICH IS DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE TO A MINIMUM DEPTH OF 2 INCHES. THIS IS THE MOST EFFECTIVE METHOD FOR SECURING MULCH, HOWEVER, IT IS LIMITED TO RELATIVELY FLAT AREAS WHERE EQUIPMENT CAN OPERATE SAFELY.
ii. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. IF MIXED WITH WATER, USE 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
iii. LIQUID BINDERS MAY BE USED. APPLY AT HIGHER RATES AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF SLOPES. THE REMAINDER OF THE AREA SHOULD APPEAR UNIFORM AFTER BINDER APPLICATION. BINDERS LISTED IN THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL OR APPROVED EQUAL SHALL BE APPLIED AT RATES RECOMMENDED BY THE MANUFACTURERS.
iv. LIGHTWEIGHT PLASTIC NETTING MAY BE USED TO SECURE MULCH. THE NETTING WILL BE STAPLED TO THE GROUND ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

2. TEMPORARY SEEDING:
LIME: 100 POUNDS OF DOLOMITIC LIMESTONE PER 1,000 SQUARE FEET.
FERTILIZER: 15 POUNDS OF 10-10-10 PER 1,000 SQUARE FEET.
SEED: PERENNIAL RYE – 0.92 POUNDS PER 1,000 SQUARE FEET (FEBRUARY 1 THROUGH APRIL 30 OR AUGUST 15 THROUGH OCTOBER 31). MILLET – 0.92 POUNDS PER 1,000 SQUARE FEET (MAY 1 THROUGH AUGUST 15).
MULCH: SAME AS 1 D AND E ABOVE.

3. NO FILLS MAY BE PLACED ON FROZEN GROUND. ALL FILL IS TO BE PLACED IN APPROXIMATELY HORIZONTAL LAYERS, EACH LAYER HAVING A LOOSE THICKNESS OF NOT MORE THAN 8 INCHES. ALL COMPACTION REQUIREMENTS ARE IN ACCORDANCE TO ANNE ARUNDEL COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION AS WELL AS THE AA COUNTY DESIGN MANUAL AND STANDARD DETAILS. FILLS FOR POND EMBANKMENTS SHALL BE COMPACTED AS PER MD-378 CONSTRUCTION SPECIFICATIONS. ALL OTHER FILLS SHALL BE COMPACTED SUFFICIENTLY SO AS TO BE STABLE AND PREVENT EROSION AND SLIPPAGE.
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4. PERMANENT SOD:
INSTALLATION OF SOD SHOULD FOLLOW PERMANENT SEEDING DATES. SEEDBED PREPARATION FOR SOD SHALL BE AS NOTED IN SECTION (B) ABOVE. PERMANENT SOD IS TO BE TALL FESCUE, STATE APPROVED SOD; LIME AND FERTILIZER PER PERMANENT SEEDING SPECIFICATIONS AND LIGHTLY IRRIGATE SOIL PRIOR TO LAYING SOD. SOD IS TO BE LAID ON THE CONTOUR WITH ALL ENDS TIGHTLY ABUTTING. JOINTS ARE TO BE STAGGERED BETWEEN ROWS. WATER AND ROLL OR TAMP SOD TO INSURE POSITIVE ROOT CONTACT WITH THE SOIL. ALL SLOPES STEEPER THAN 3:1, AS SHOWN, ARE TO BE PERMANENTLY SODDED OR PROTECTED WITH AN APPROVED EROSION CONTROL NETTING. ADDITIONAL WATERING FOR ESTABLISHMENT MAY BE REQUIRED. SOD IS NOT TO BE INSTALLED ON FROZEN GROUND. SOD SHALL NOT BE TRANSPLANTED WHEN MOISTURE CONTENT (DRY OR WET) AND/OR EXTREME TEMPERATURE MAY ADVERSELY AFFECT ITS SURVIVAL. IN THE ABSENCE OF ADEQUATE RAINFALL, IRRIGATION SHOULD BE PERFORMED TO ENSURE ESTABLISHMENT OF SOD.

5. MINING OPERATIONS:
SEDIMENT CONTROL PLANS FOR MINING OPERATIONS MUST INCLUDE THE FOLLOWING SEEDING DATES AND MIXTURES:
FOR SEEDING DATES OF FEBRUARY 1 THROUGH APRIL 30 AND AUGUST 15 THROUGH OCTOBER 31, USE SEED MIXTURE OF TALL FESCUE AT THE RATE OF 2 POUNDS PER 1,000 SQUARE FEET AND SERICEA LESPEDEZA AT THE MINIMUM RATE OF 0.5 POUNDS PER 1,000 SQUARE FEET.

6. TOPSOIL SHALL BE APPLIED AS PER THE STANDARD AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS FROM THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

7. USE OF THESE VEGETATIVE ESTABLISHMENT SPECIFICATIONS DOES NOT DIMINISH THE DEVELOPER'S RESPONSIBILITY TO MEET ALL OF THE REQUIREMENT TO SET FORTH IN THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

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 NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED 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 AN 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 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.

SITE ANALYSIS

1.	TOTAL AREA OF PARCEL:	77.161 ACRES
2.	TOTAL DISTURBED AREA:	6.70 ACRES
3.	TOTAL AREA TO BE STABILIZED:	6.70 ACRES
	a. TOTAL IMPERVIOUS AREA:	3.34 ACRES
	b. TOTAL TO BE VEGETATIVE STABILIZED:	3.36 ACRES
4.	PROPOSED NEW IMPERVIOUS AREA:	2.14 ACRES
5.	ESTIMATED CUT:	2,864 CU.YDS.
6.	ESTIMATED FILL:	11,959 CU.YDS.

NOTE:
THE EARTHWORK QUANTITIES SHOWN HEREON ARE FOR INFORMATION PURPOSES ONLY.
WBCM MAKES NO GUARANTEES OF ACCURACY OF QUANTITIES OR BALANCE OF SITE. THE CONTRACTOR SHALL TAKE FULL RESPONSIBILITY OF ACTUAL EARTHWORK QUANTITIES ENCOUNTERED DURING CONSTRUCTION.

SEQUENCE OF CONSTRUCTION:

INITIAL PHASE

(2 DAYS) 1. CONDUCT A PRE-CONSTRUCTION MEETING. NOTIFY THE DEPARTMENT OF INSPECTIONS AND PERMITS AT LEAST 48 HOURS BEFORE COMMENCING WORK AT 410-222-7780. WORK MAY NOT COMMENCE UNTIL THE PERMITTEE OR THE RESPONSIBLE PERSONNEL HAVE MET ON SITE WITH THE SEDIMENT AND EROSION CONTROL INSPECTOR TO REVIEW THE APPROVED PLANS AND VERIFY THE EXISTING TOPOGRAPHY.
THE PERMITTEE OR CONTRACTOR SHALL NOT COMMENCE WITH CLEARING OR ANY EARTH DISTURBANCE ACTIVITIES ON THE SITE DURING OR BEFORE PREDICTED WET WEATHER EVENTS. ONCE SITE WORK BEGINS, CLEARING AND GRUBBING ACTIVITIES SHALL BE FOR THE INSTALLATION AND STABILIZATION OF THE PERIMETER EROSION CONTROL MEASURES ONLY.

(1 MONTH) 2. CLEAR AND GRUB AREAS NECESSARY FOR INSTALLATION OF SEDIMENT AND EROSION PERIMETER CONTROLS, INCLUDING STABILIZED CONSTRUCTION ENTRANCES, REINFORCED SILT FENCE, SUPER SILT FENCE, TREE PROTECTION FENCING (ROOT PRUNING AS NECESSARY), CONSTRUCTION FENCE.

(3 DAYS) 3. INSTALL TREE PROTECTION AND FOREST CONSERVATION PROTECTION SIGNS AS INDICATED ON FCP PLANS. ALONG EXISTING FORESTED AREAS TO REMAIN.

(1 WEEK) 4. INSTALL REMAINING SEDIMENT CONTROL DEVICES AS REQUIRED PER THE PLANS. CONTACT THE INSPECTOR FOR APPROVAL OF THE SEDIMENT CONTROL INSTALLATION. INSPECTION AND PERMITS WILL REQUIRE THAT THE DESIGNER OF RECORD WILL INSPECT THE WORK AND PROVIDE A CERTIFIED STAMPED LETTER INDICATING THE SEC'S ARE INSTALLED PER PLAN PRIOR TO THE AACO INSPECTOR INSPECTING THE SEC'S TO ALLOW WORK TO COMMENCE.

INTERIM PHASE

(2 WEEKS) 5. BEGIN DEMOLITION OF STRUCTURES, PAVEMENT REMOVAL, TREE CLEARING & ROOT PRUNING AS NECESSARY.

(3 WEEKS) 6. BEGIN STORM DRAIN INSTALLATION OF DMH-99 TO I-108, I-X203 TO I-204, DMH-201 TO I-201, X-116 TO I-302; DMH-103 TO DMH-107, I-X15 TO I-111, DMH-105 TO I-107 TIE INTO EXISTING STORM DRAIN SYSTEMS ACCORDING TO PLANS. CONSTRUCT INLET PROTECTION AS INLETS ARE CONSTRUCTED.

(3 WEEKS) 7. PERFORM THE FOLLOWING SEQUENCE FOR EACH DAY OF UTILITY CONSTRUCTION OPERATIONS:
A.CONTRACTOR TO ONLY DISTURB THE AREA THAT WILL BE STABILIZED THE SAME DAY.
B.INSTALL REINFORCED SILT FENCE DOWNGRADE OF AREA TO BE WORKED ON A DAILY BASIS.
C.CLEAR AND GRUB AREA WHERE UTILITIES WILL BE INSTALLED. REMOVE AND SALVAGE TOPSOIL.
D.EXCAVATE AND INSTALL UTILITIES AND APPURTENANCES. PLACE BACKFILL AND COMPACT.
E.PLACE TOPSOIL, FINE GRADE, SEED AND APPLY MULCH IN UNPAVED DISTURBED AREAS.
F.DIRECT ALL WATER PUMPED DURING TRENCH DEWATERING OPERATIONS TO AN APPROVED PORTABLE SEDIMENT TANK OR FILTER BAG. CLEAN OUT TANK WHEN ONE-THIRD (1/3) FILLED WITH SILT. HAUL SEDIMENT TO AN APPROVED SITE.

(3 MONTHS) 8. BEGIN MASS GRADING OPERATIONS, STABILIZE ALL SLOPES STEEPER OR EQUAL TO 4:1 WITH SSM.

(1 WEEK) 9. TEMPORARILY STABILIZE ALL DISTURBED AREAS. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR PROCEED WITH THE NEXT PHASE OF CONSTRUCTION.

FINAL PHASE

(2 MONTHS) 10. COMPLETE MASS GRADING AND BEGIN PARKING LOT, ROAD (CONSTRUCT BASE COURSE PAVING) AND SIDEWALK PAVING INCLUDING SWITCHBACK WALKWAYS. CONSTRUCT STORM DRAIN DMH-104 TO I-104 AND I-105, DMH-103 TO I-103, DMH-100 TO I-101, AND DMH-101 TO I-102.

(3 MONTHS) 11. CONSTRUCT NEW TENNIS "BUBBLE BUILDING.

(6 WEEKS) 12. CONSTRUCT PAVILIONS.

(2 MONTHS) 13. CONSTRUCT BOCCE COURTS.

(2 MONTHS) 14. CONSTRUCT ADAPTIVE RECREATION COURT.

(3 WEEKS) 15. BEGIN LANDSCAPE INSTALLATION. PERMANENTLY STABILIZE ALL DISTURBED AREAS

16. WHEN DRAINAGE AREAS TO SWM FACILITIES ARE PERMANENTLY STABILIZED, NOTIFY THE CERTIFYING ENGINEER AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, CONSTRUCT SWM FACILITIES.

(3 MONTHS) 17. ONCE UPSTREAM AREAS ARE 95% STABILIZED AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, INSTALL SWM SYSTEMS AND DEVICES AND/OR PLANTINGS. (SEDIMENT IS TO BE PREVENTED FROM ENTERING SWM SYSTEMS DURING CONSTRUCTION; INFLOW PIPES TO BE CONNECTED AFTER CONTRIBUTING AREAS ARE ALSO STABILIZED). THE ENGINEER MUST CERTIFY SWM INSTALLATION. UPON COMPLETION OF PAVING AND CURB AND GUTTER INSTALLATION AND DURING A NOAA 3-DAY DRY FORECASTED PERIOD. SILT FENCE OR OTHER FILTERING PRACTICES ARE NOT ACCEPTABLE METHODS FOR PREVENTING SEDIMENT FROM ENTERING THE BMPS. STABILIZE ANY REMAINING DISTURBED AREAS AS REQUIRED.

(1 WEEK) 18. PERMANENTLY STABILIZE ALL REMAINING DISTURBED AREAS.

(1 WEEK) 19. WITH THE APPROVAL FROM ANNE ARUNDEL COUNTY INSPECTIONS AND PERMITS DIVISION, REMOVE ANY REMAINING SEDIMENT CONTROLS. FINE GRADE AND PERMANENTLY STABILIZE AREA FORMERLY OCCUPIED BY PERIMETER CONTROLS.

20. CONTRACTOR TO REMOVE ANY STAPLES AND OR SPIKES ON OR WITHIN THE STABILIZATION MATTING.

21. CONTRACTOR SHALL SUBMIT SWM AS-BUILTS SIGNED AND SEALED BY A MARYLAND REGISTERED PROFESSIONAL ENGINEER AND REQUIRED DOCUMENTATION TO ANNE ARUNDEL COUNTY.

REQUIRED ACKNOWLEDGEMENT AND CERTIFICATION

OWNER/ PERMITTEE ACKNOWLEDGEMENT

"ALL GRADING, DRAINAGE, STRUCTURES, AND EROSION AND SEDIMENT CONTROL PRACTICES INCLUDING FACILITIES AND VEGETATIVE MEASURES HAVE BEEN COMPLETED IN CONFORMANCE WITH THE APPROVED PLANS."

OWNER/PERMITTEE'S NAME (PRINTED) | OWNER/PERMITTEE'S SIGNATURE | DATE

NOTES:
1. EROSION CONTROL MATTING SHALL BE INSTALLED ON ALL SLOPE AREAS 3:1 OR GREATER.
2. FILL SOILS MAY BE AVAILABLE FROM ON-SITE SOIL BORROW AREA (CELL 9) PROVIDED THE SOILS MEET THE PROJECT SPECIFICATIONS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SOILS (TOP SOIL AND FILL SOIL) MEETING THE PROJECT SPECIFICATIONS FROM ON-SITE AND OFF-SITE SOURCES.

STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

a.) THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN THREE HORIZONTAL TO ONE VERTICAL (3:1), AND

b.) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS RUNOFF IS DIRECTED TO A MDE APPROVED SEDIMENT CONTROL DEVICE

NOTE TO CONTRACTOR: SEDIMENT AND EROSION CONTROL SHALL BE STRICTLY ENFORCED.

300 East Joppa Road Suite 200
Baltimore, MD 21286
410.512.4500 www.gftinc.com

STATE OF MARYLAND · JESUS MICHAEL LINDER · NO. 27734 · REGISTERED PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/28

REVISIONS

NO.	DESCRIPTION	BY	DATE

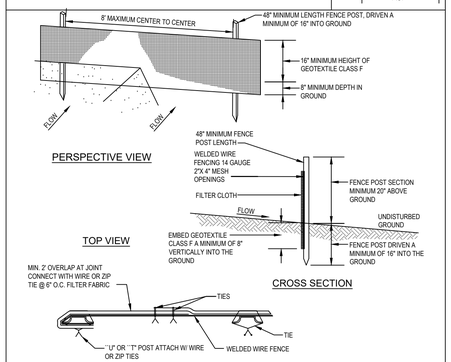
ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: NO SCALE	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	EROSION AND SEDIMENT CONTROL NOTES
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 36 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

G:\Projects_2024\BL720\720240037\Site\Drawings\720240037-GEOB-Erosion & Sediment Notes & Details.dwg Jul 22, 2026 - 1:22pm Plot By: hhwang

REINFORCED SILT FENCE

STANDARD SYMBOL — RSF



CONSTRUCTION SPECIFICATIONS

1. METAL FENCE POST SHALL BE A MINIMUM OF 48" LONG DRIVEN 16" MINIMUM INTO THE GROUND AND NO MORE THAN 8 FEET APART. POST SHALL BE STANDARD T OR U SECTION WEIGHTING NOT LESS THAN 1.00 POUND PER LINEAR FOOT. REINFORCEMENT SHALL BE 14 GAUGE WELDED WIRE FENCING WITH 2 INCH X 4 INCH MESH OPENINGS.
2. GEOTEXTILE SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES OR ZIP TIES AT TOP AND MIDSECTION. WHERE ENDS OF GEOTEXTILE FABRIC COME TOGETHER, THEY SHALL BE OVERLAPPED, FOLDED AND WIRE TIED OR ZIP TIED TO PREVENT SEDIMENT BYPASS.
3. USE A WOVEN GEOTEXTILE. AS SPECIFIED IN SECTION H-1 MATERIALS, AND FASTEN TO THE UPSLOPE SIDE OF THE FENCE POSTS WITH WIRE OR ZIP TIES AT TOP AND MIDSECTION. THE MANUFACTURER'S CERTIFICATION THAT THE FABRIC MEETS THE REQUIREMENTS IN SECTION H-1 MUST BE MADE AVAILABLE TO THE INSPECTION/ENFORCEMENT AUTHORITY.
4. EXTEND BOTH ENDS OF REINFORCED SILT FENCE A MINIMUM OF FIVE (5) HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS.
5. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN THE REINFORCED SILT FENCE FABRIC OR WHEN SEDIMENT REACHES 25% OF THE FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

ANNE ARUNDEL SOIL CONSERVATION DISTRICT	2015	

REINFORCED SILT FENCE

DESIGN CRITERIA

REINFORCED SILT FENCE DESIGN CONSTRAINTS

AVERAGE SLOPE STEEPNESS	(MAXIMUM) SLOPE LENGTH	(MAXIMUM) SILT FENCE LENGTH
FLATTER THAN 50:1 (<2%)	300 FEET*	UNLIMITED
50:1 TO 10:1 (2-10%)	125 FEET	1,000 FEET
10:1 TO 5:1 (10-20%)	100 FEET	750 FEET
5:1 (>20%)	40 FEET	250 FEET
	40 FEET	250 FEET

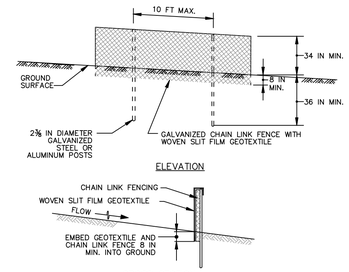
*MAXIMUM SLOPE LENGTH IS UNLIMITED ON THE HYDROLOGIC SOIL GROUP (HSG) "A" SOILS

1. THE USE OF REINFORCED SILT FENCE MUST CONFORM TO THE DESIGN CONSTRAINTS LISTED ABOVE.
2. THE AREA DOWNGRADE OF THE REINFORCED SILT FENCE MUST BE UNDISTURBED GROUND.
3. REINFORCED SILT FENCE MUST BE PLACED ALONG THE CONTOUR.
4. REINFORCED SILT FENCE SHOULD BE USED WITH CAUTION IN AREAS WHERE ROCKY SOILS MAY PREVENT TRENCHING.
5. EXTEND BOTH ENDS OF REINFORCED SILT FENCE A MINIMUM OF FIVE (5) HORIZONTAL FEET UPSLOPE AND 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE EDGES.

ANNE ARUNDEL SOIL CONSERVATION DISTRICT	2015	

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL — SSF



CONSTRUCTION SPECIFICATIONS

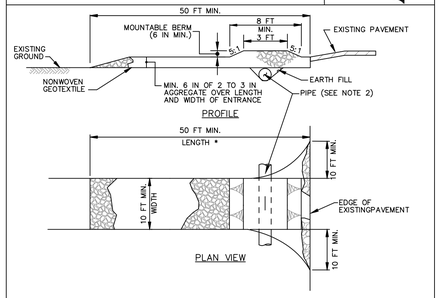
1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY 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-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.

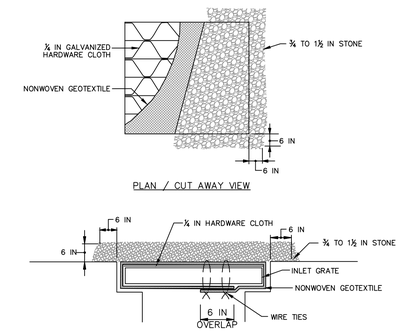
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL E-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.

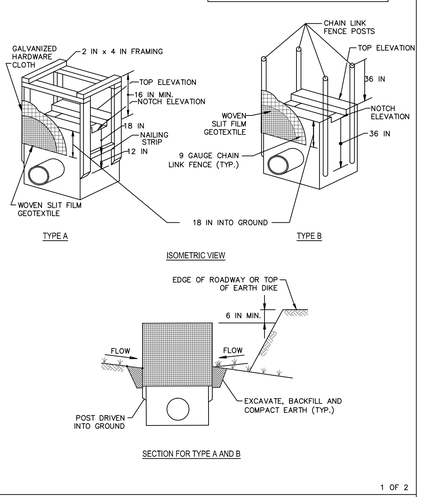
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL E-9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL — SIP

TYPE A MAXIMUM DRAINAGE AREA = ¼ ACRE
TYPE B MAXIMUM DRAINAGE AREA = 1 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-9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL — SIP

CONSTRUCTION SPECIFICATIONS

1. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
2. EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18 INCHES BELOW THE NOTCH ELEVATION.
3. FOR TYPE A, USE NOMINAL 2 INCH X 4 INCH CONSTRUCTION GRADE LUMBER POSTS, DRIVEN 1 FOOT INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE NAIL STRIPS BETWEEN THE POSTS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP PORTION OF THE 2X4 FRAME AS SHOWN. STRETCH ½ INCH GALVANIZED HARDWARE CLOTH TIGHTLY AROUND THE FRAME AND FASTEN SECURELY. FASTEN GEOTEXTILE SECURELY TO THE HARDWARE CLOTH WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND HARDWARE CLOTH A MINIMUM OF 18 INCHES BELOW THE WEIR CREST. THE ENDS OF THE GEOTEXTILE MUST MEET AT A POST, BE OVERLAPPED AND FOLDED, THEN FASTENED TO THE POST.

   FOR TYPE B, USE 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND 6 FOOT LENGTH, DRIVEN A MINIMUM OF 36 INCHES BELOW THE WEIR CREST AT EACH CORNER OF THE STRUCTURE. FASTEN 9 GAUGE OR HEAVIER CHAIN LINK FENCE, 42 INCHES IN HEIGHT, SECURELY TO THE FENCE POSTS WITH WIRE TIES. FASTEN GEOTEXTILE SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 18 INCHES BELOW THE WEIR CREST.
4. BACKFILL AROUND THE INLET IN LOOSE 4 INCH LIFTS AND COMPACT UNTIL SOIL IS LEVEL WITH THE NOTCH ELEVATION ON THE ENDS AND TOP ELEVATION ON THE SIDES.
5. 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.

2 OF 2

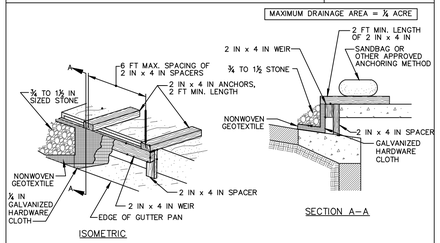
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL E-9-3 CURB INLET PROTECTION

STANDARD SYMBOL — CIP

MAXIMUM DRAINAGE AREA = ¼ ACRE



CONSTRUCTION SPECIFICATIONS

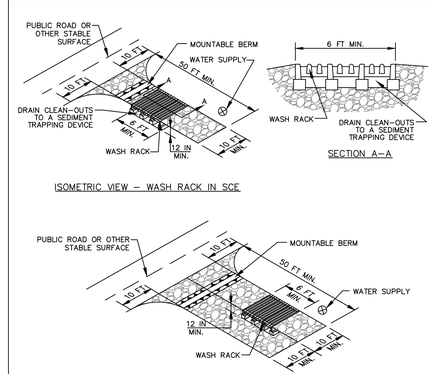
1. USE NOMINAL 2 INCH x 4 INCH LUMBER
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
3. NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).
4. ATTACH A CONTINUOUS PIECE OF ¼ INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH 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 B-2 WASH RACK OPTION

STANDARD SYMBOL — WR

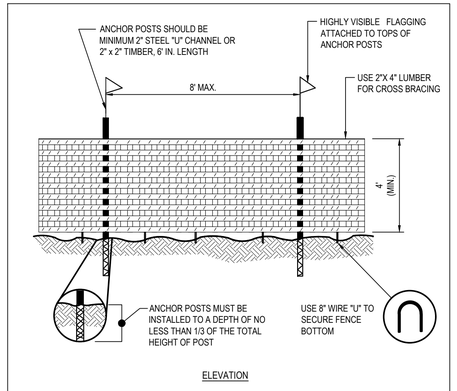


CONSTRUCTION SPECIFICATIONS

1. USE A WASH RACK DESIGNED AND CONSTRUCTED/MANUFACTURED FOR THE ANTICIPATED TRAFFIC LOADS. CONCRETE, STEEL, OR OTHER MATERIALS ARE ACCEPTABLE. PRE-FABRICATED UNITS SUCH AS CATTLE GUARDS ARE ACCEPTABLE. USE MINIMUM DIMENSION OF 6 FEET x 10 FEET. ORIENT DIRECTION OF RIBS AS SHOWN ON THE DETAIL.
2. INSTALL PRIOR TO, ALONG SIDE OF, OR AS PART OF THE SCE.
3. DIRECT WASH WATER TO AN APPROVED SEDIMENT TRAPPING DEVICE.
4. KEEP AREA UNDER WASH RACK FREE OF ACCUMULATED SEDIMENT. IF DAMAGED, REPAIR OR REPLACE WASH RACK.

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



NOTES:

1. BLAZE ORANGE OR BLUE PLASTIC MESH FENCE FOR FOREST PROTECTION DEVICE ONLY.
2. BOUNDARIES OF RETENTION AREA WILL BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHALL BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
4. AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OR SEVER LARGE ROOTS WHEN INSTALLING POSTS.
5. PROTECTION SIGNS ARE REQUIRED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

BLAZE ORANGE CONSTRUCTION FENCE

NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS RUNOFF IS DIRECTED TO A MDE APPROVED SEDIMENT CONTROL DEVICE

NOTE TO CONTRACTOR: SEDIMENT AND EROSION CONTROL SHALL BE STRICTLY ENFORCED.

300 East Joppa Road Suite 200
Baltimore, MD 21286
410.512.4500 www.gftinc.com

STATE OF MARYLAND — JESSE MICHAEL LINDSAY — No. 27734 — REGISTERED PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/26

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: NO SCALE	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 37 OF 57	EROSION AND SEDIMENT CONTROL DETAILS
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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H-1 STANDARDS AND SPECIFICATIONS FOR MATERIALS

TABLE H.1: GEOTEXTILE FABRICS

		WOVEN SILT FILM GEOTEXTILE		WOVEN MONOFILAMENT GEOTEXTILE		NONWOVEN GEOTEXTILE	
		MINIMUM AVERAGE ROLL VALUE [1]					
PROPERTY	TEST METHOD	MD	CD	MD	CD	MD	CD
GRAB TENSILE STRENGTH	ASTM D-4632	200 LB	200 LB	370 LB	250 LB	200 LB	200 LB
GRAB TENSILE ELONGATION	ASTM D-4632	15%	10%	15%	15%	50%	50%
TRAPEZOIDAL TEAR STRENGTH	ASTM D-4533	75 LB	75 LB	100 LB	60 LB	80 LB	80 LB
PUNCTURE STRENGTH	ASTM D-6241	450 LB		900 LB		450 LB	
APPARENT OPENING SIZE[2]	ASTM D-4751	U.S. SIEVE 30 (0.59 MM)		U.S. SIEVE 70 (0.21 MM)		U.S. SIEVE 70 (0.21 MM)	
PERMITTIVITY	ASTM D-4491	0.05 SEC^{-1}		0.28 SEC^{-1}		1.1 SEC^{-1}	
ULTRAVIOLET RESISTANCE RETAINED AT 500 HOURS	ASTM D-4355	70% STRENGTH		70% STRENGTH		70% STRENGTH	

[1] ALL NUMERIC VALUES EXCEPT APPARENT SIZE (AOS) REPRESENT MINIMUM AVERAGE ROLL VALUES (MARV). MARV IS CALCULATED AS THE TYPICAL MINUS TWO STANDARD DEVIATIONS. MD IS MACHINE DIRECTION; CD IS CROSS DIRECTION.

[2] VALUES FOR AOS REPRESENT THE AVERAGE MAXIMUM OPENING.

GEOTEXTILES MUST BE EVALUATED BY THE NATIONAL TRANSPORTATION PRODUCT EVALUATION PROGRAM (NTPEP) AND CONFORM TO THE VALUES IN TABLE H.1.

THE GEOTEXTILE MUST BE INERT TO COMMONLY ENCOUNTERED CHEMICALS AND HYDROCARBONS AND MUST BE ROT AND MILDEW RESISTANT. THE GEOTEXTILE MUST BE MANUFACTURED FROM FIBERS CONSISTING OF LONG CHAIN SYNTHETIC POLYMERS AND COMPOSED OF A MINIMUM OF 85 PERCENT BY WEIGHT OF POLYOLEFINS OR POLYESTERS, AND FORMED INTO A STABLE NETWORK SO THE FILAMENTS OR YARNS RETAIN THEIR DIMENSIONAL STABILITY RELATIVE TO EACH OTHER, INCLUDING SELVAGES.

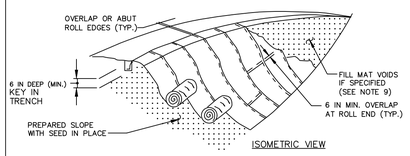
WHEN MORE THAN ONE SECTION OF GEOTEXTILE IS NECESSARY, OVERLAP THE SECTIONS BY AT LEAST ONE FOOT. THE GEOTEXTILE MUST BE PULLED TAUT OVER THE APPLIED SURFACE. EQUIPMENT MUST NOT RUN OVER EXPOSED FABRIC. WHEN PLACING RIPRAP ON GEOTEXTILE, DO NOT EXCEED A ONE FOOT DROP HEIGHT.

DETAIL B-4-6-D PERMANENT SOIL STABILIZATION MATTING SLOPE APPLICATION

STANDARD SYMBOL

PSSMS – * 1.5 lb/ft²

(* INCLUDE SHEAR STRESS)



ISOMETRIC VIEW

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 DOWN SLOPE. 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 DOWNSLOPE 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

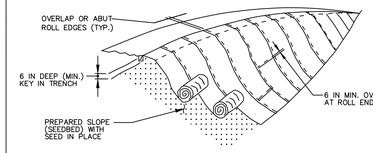
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-B TEMPORARY SOIL STABILIZATION MATTING SLOPE APPLICATION

STANDARD SYMBOL

TSSMS – * 1.5 lb/ft²

(* INCLUDE SHEAR STRESS)



ISOMETRIC VIEW

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 TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN–MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. 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, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. 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 A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH–SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED 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 & SEDIMENT CONTROL PLAN.
5. UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
7. KEY IN THE UPSLOPE 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. 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

NO DISTURBED AREA SHALL BE LEFT UNSTABILIZED OVERNIGHT UNLESS RUNOFF IS DIRECTED TO A MDE APPROVED SEDIMENT CONTROL DEVICE

NOTE TO CONTRACTOR: SEDIMENT AND EROSION CONTROL SHALL BE STRICTLY ENFORCED.

GFT

300 East Joppa Road Suite 200
Baltimore, MD 21286
410.512.4500 www.gftinc.com

STATE OF MARYLAND · JESSICA MICHAEL JORDAN · NO. 27734 · REGISTERED PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/26

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY

DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: NO SCALE	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	EROSION AND SEDIMENT CONTROL DETAILS
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 38 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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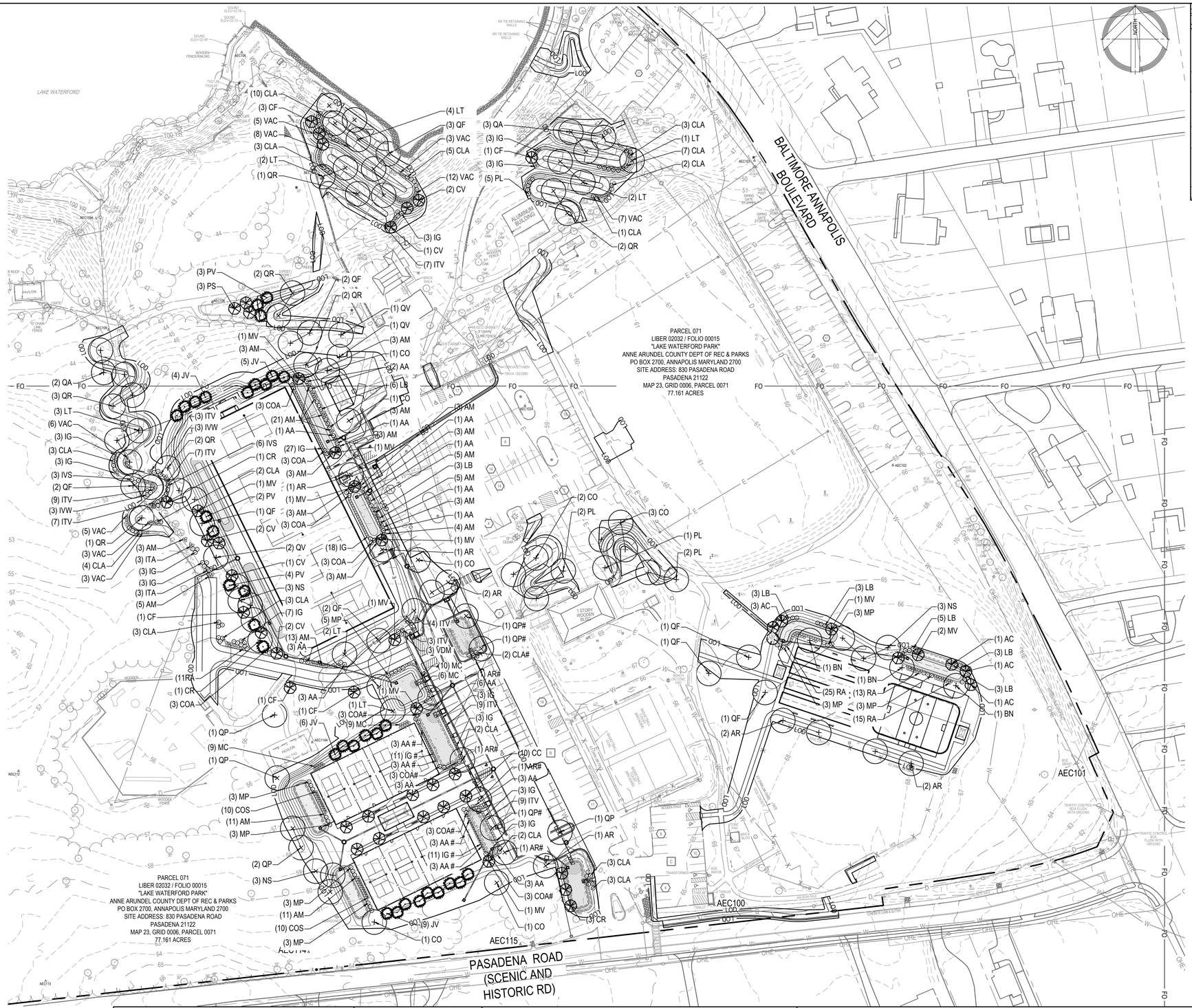
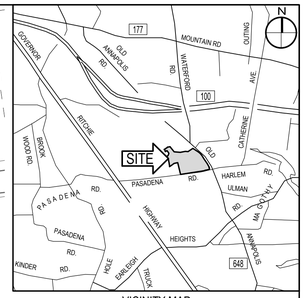
ANNE ARUNDEL COUNTY COMPLIANCE CHARTS	
SECTION V: LANDSCAPE AND SCREENING REQUIREMENTS	B.1.a. INTERIOR PARKING LOT LANDSCAPING REQUIRED: TOTAL PARKING LOT AREA = 23,845 S.F. x (10%) = 2,385 S.F. 2,385 S.F. OF INTERIOR GREEN SPACE REQUIRED 9,345/250 = 10 PLANT UNITS REQUIRED PROVIDED: 6,504S.F. (27.3%) OF INTERIOR GREEN SPACE HAS BEEN PROVIDED 11 PLANT UNITS 8 MAJOR DECIDUOUS SHADE TREES 3 MINOR DECIDUOUS TREES 49 SHRUBS "#" INDICATES PLANT MATERIAL UTILIZED TO FULFILL REQUIREMENT
	P. OPEN SPACE (PUBLICLY OR PRIVATELY OWNED) REQUIRED: ONE PLANT UNIT PER 1500 S.F. TOTAL OPEN SPACE = 210,092 S.F. / 1,500 S.F. = 140.06 S.F. 140 PLANT UNITS REQUIRED PROVIDED: 140 PLANT UNITS 99 MAJOR DECIDUOUS SHADE TREES 30 MINOR DECIDUOUS TREES 33 EVERGREEN TREES 447 SHRUBS





VICINITY MAP
SCALE: 1" = 2,000'

PLANTING LEGEND:

- DECIDUOUS SHADE TREE
- DECIDUOUS ORNAMENTAL TREE
- EVERGREEN TREE
- SHRUB
- FOREST CONSERVATION TREE PROTECTION
- PERENNIALS
- SEED MIX 1: ERNMX-172
- SEED MIX 2: ERNMX-730
- SEED MIX 3: ERNMX-126
- SEED MIX 4: ERNMX-180
- SEED MIX 5: ERNMX-900

CAUTION:
IF THIS DRAWING IS A REDUCTION,
USE THE GRAPHIC SCALES.

1"=60'-0" (60 0 30 60 120)

300 East Joppa Road Suite 200
Baltimore, MD 21286
410.512.4500 www.gftinc.com
GFT

LANDSCAPE ARCHITECT
RICHARD W. HUNTER
3394
STATE OF MARYLAND

REVISIONS			
NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE CHIEF ENGINEER	APPROVED DATE PROJECT MANAGER	SCALE: 1" = 60'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	LANDSCAPE PLAN
APPROVED DATE ASSISTANT CHIEF ENGINEER	APPROVED DATE CHIEF, RIGHT-OF-WAY	SHEET NO. 39 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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MASTER PLANT SCHEDULE

Key	Botanical Name	Common Name	Size (Min.)	Root	Remarks	Quantity
Major Deciduous Trees						
AR	Acer rubrum 'October Glory'	Red Maple 'October Glory'	2.5" Cal.	B&B	As Shown	13
BN	Betula nigra	River Birch	2.5" Cal. / Multi-Stem	B&B	As Shown	3
CO	Celtis occidentalis	Hackberry	2.5" Cal.	B&B	As Shown	10
LT	Liriodendron tulipifera	Tulip Poplar	2.5" Cal.	B&B	As Shown	12
NS	Nyssa sylvatica	Black Gum	2.5" Cal.	B&B	As Shown	9
PL	Platanus occidentalis	American Sycamore	2.5" Cal.	B&B	As Shown	10
QA	Quercus alba	White Oak	2.5" Cal.	B&B	As Shown	5
QF	Quercus falcata	Southern Red Oak	2.5" Cal.	B&B	As Shown	13
QP	Quercus phellos	Willow Oak	2.5" Cal.	B&B	As Shown	8
QR	Quercus rubra	Northern Red Oak	2.5" Cal.	B&B	As Shown	13
QV	Quercus velutina	Black Oak	2.5" Cal.	B&B	As Shown	4
					Total	**100**
Minor Deciduous Trees						
AC	Amelanchier canadensis	Serviceberry	2" Cal.	B&B	As Shown	6
CF	Cornus florida	Flowering Dogwood	2" Cal.	B&B	As Shown	7
CV	Chionanthus virginicus	Fringe Tree	2" Cal.	B&B	As Shown	8
CC	Cercis canadensis	Eastern Redbud	2" Cal.	B&B	As Shown	10
CR	Crataegus viridis 'Winter King'	Winter King Hawthorn	2" Cal.	B&B	As Shown	5
MV	Magnolia virginiana 'Green Shadow'	Sweetbay Magnolia	2" Cal.	B&B	As Shown	11
PS	Prunus serotina	Black Cherry	2" Cal.	B&B	As Shown	3
					Total	**50**
Evergreen Trees						
JV	Juniperus virginiana	Eastern Red Cedar	2.5" Cal.	B&B	As Shown	24
PV	Pinus virginiana	Virginia Pine	2.5" Cal.	B&B	As Shown	9
					Total	**33**
Shrubs						
AA	Aronia arbutifolia	Red Chokeberry	24 - 36" Hgt. & Sprd., #5	Cont.	36"-48" O.C.	41
AM	Aronia melanocarpa	Ground Hug	24 - 36" Hgt. & Sprd., #5	Cont.	36"-48" O.C.	108
COA	Cornus amomum	Silky Dogwood	24 - 36" Hgt. & Sprd., #5	Cont.	36"-48" O.C.	27
COS	Cornus sericea	Redosier Dogwood	24 - 36" Hgt. & Sprd., #5	Cont.	36"-48" O.C.	20
CLA	Clethra alnifolia	Summersweet	24 - 36" Hgt. & Sprd., #5	Cont.	36"-48" O.C.	58
IG	Ilex glabra	Inkberry Holly	24 - 36" Hgt. & Sprd., #5	Cont.	36"-48" O.C.	107
ITV	Itea virginica	Virginia Sweetspire	24 - 36" Hgt. & Sprd., #5	Cont.	36"-48" O.C.	58
IVW	Ilex verticillata 'Winter Red'	Winterberry	26 - 36" Hgt. & Sprd., #7	Cont.	60" O.C.	6
IVS	Ilex verticillata 'Southern Gentleman	Winterberry (1 MALE PER 7 FEMALE)	26 - 36" Hgt. & Sprd., #7	Cont.	60" O.C	9
LB	Lindera benzoin	Spicebush	24 - 36" Hgt. & Sprd., #5	Cont.	36"-48" O.C.	26
MC	Myrica cerifera 'Little Bull'	Southern Wax Myrtle	24 - 36" Hgt. & Sprd., #5	Cont.	36"-48" O.C.	34
MP	Myrica pensylvanica	Northern Bayberry,	24 - 36" Hgt. & Sprd., #5	Cont.	36"-48" O.C.	26
RA	Rhus aromatica 'Gro-Low'	Low Grow Sumac	24 - 36" Hgt. & Sprd., #5	Cont.	36"-48" O.C.	53
VAC	Vaccinium corymbosum	Highbush Blueberry	24 - 36" Hgt. & Sprd., #5	Cont.	36"-48" O.C.	52
VDM	Viburnum dentatum	Southern Arrowood	30 - 36" Hgt. & Sprd., #7	Cont.	36"-60" O.C.	3
					Total	**628**

SEED MIX:

MEADOW SEED MIX 1:

	Botanical Name	Common Name	Price/Lb
35.00 %	*Andropogon gerardii, 'Prairie View'-IN Ecotype*	Big Bluestem, 'Prairie View'-IN Ecotype	6.55
30.00 %	*Sorghastrum nutans, NY# Ecotype*	Indiangrass, NY# Ecotype	5.42
20.00 %	*Panicum virgatum, 'Shawnee'*	Switchgrass, 'Shawnee'	11.75
15.00 %	*Elymus virginicus, Madison-NY Ecotype*	Virginia Wildrye, Madison-NY Ecotype	10.46
100.00 %		**Mix Price/Lb Bulk:**	**$7.84**

Seeding Rate: 10-15 lb per acre with 30 lbs/acre of a cover crop. For a cover crop use either grain oats (1 Jan to 31 Jul) or grain rye (1 Aug to 31 Dec).

Biomass; Grasses & Grass-like Species - Herbaceous Perennial; Uplands & Meadows

A mix of native warm and cool season grasses for wildlife habitat. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

SWM SEED MIX 1: MARYLAND UPLAND MIX – ERNMX-172

	Botanical Name	Common Name	Price/Lb
36.70 %	*Schizachyrium scoparium, Fort Indiantown Gap-PA Ecotype*	Little Bluestem, Fort Indiantown Gap-PA Ecotype	17.61
21.10 %	*Elymus virginicus, Madison-NY Ecotype*	Virginia Wildrye, Madison-NY Ecotype	11.22
20.00 %	*Panicum amarum, Eastern Shore MD Ecotype*	Beaked Panicgrass, Eastern Shore MD Ecotype	52.00
4.00 %	*Rudbeckia hirta*	Blackeyed Susan	33.80
2.70 %	*Chamaecrista fasciculata, PA Ecotype*	Partridge Pea, PA Ecotype	13.00
2.70 %	*Liatpadsis virginica, BA Ecotype*	Slender Liatpadsis, VA Ecotype	234.00
2.00 %	*Helianthus helianthoides, PA Ecotype*	Ovate Sunflower, PA Ecotype	36.40
2.00 %	*Penstemon digitalis, PA Ecotype*	Tall White Beardtongue, PA Ecotype	182.00
1.70 %	*Aster latiorifolius*	Calico Aster	364.00
1.30 %	*Fragrastis spectabilis, RI Ecotype*	Purple Lovegrass, RI Ecotype	208.00
1.00 %	*Asclepias tuberosa*	Butterfly Milkweed	468.00
1.00 %	*Pycnanthemum tenuifolium*	Narrowleaf Mountainmint	260.00
1.00 %	*Senna hebecarpa, VA & WV Ecotype*	Wild Senna, VA & WV Ecotype	31.20
0.70 %	*Aster pilosus, PA Ecotype*	Heath Aster, PA Ecotype	286.00
0.40 %	*Asclepias syriaca, PA Ecotype*	Common Milkweed, PA Ecotype	104.00
0.40 %	*Monarda fistulosa, Fort Indiantown Gap-PA Ecotype*	Wild Bergamot, Fort Indiantown Gap-PA Ecotype	104.00
0.40 %	*Eupatorium perfoliatum, PA Ecotype*	Boneset, PA Ecotype	208.00
0.30 %	*Solidago bicolor, PA Ecotype*	White Goldenrod, PA Ecotype	312.00
0.30 %	*Solidago nemoralis, PA Ecotype*	Gray Goldenrod, PA Ecotype	312.00
0.20 %	*Pycnanthemum incanum*	Hoary Mountainmint	468.00
0.20 %	*Solidago juncea, PA Ecotype*	Early Goldenrod, PA Ecotype	364.00
100.00 %		**Mix Price/Lb Bulk:**	**$56.03**

Seeding Rate: 15 lb per acre with a cover crop (30 lb per acre of grain oats, Jan 1-May 1; 10 lb per acre of brown top millet, May 1-Sept 1; 30 lb per acre of grain rye, Sept 1-Jan 1)

SWM SEED MIX 2: MD COASTAL PLAIN UPL GRASS MIX – ERNMX-730

MD Coastal Plain UPL Grass Mix - ERNMX-730

	Botanical Name	Common Name	Price/Lb
37.00 %	*Schizachyrium scoparium, Fort Indiantown Gap-PA Ecotype*	Little Bluestem, Fort Indiantown Gap-PA Ecotype	17.61
30.00 %	*Elymus virginicus, Madison-NY Ecotype*	Virginia Wildrye, Madison-NY Ecotype	11.22
21.00 %	*Sorghastrum nutans, 'Holt'*	Indiangrass, 'Holt'	18.58
7.00 %	*Tridens flavus, Fort Indiantown Gap-PA Ecotype*	Purpletop, Fort Indiantown Gap-PA Ecotype	40.80
5.00 %	*Panicum virgatum, 'Habitat'-NJ Ecotype*	Switchgrass, 'Habitat'-NJ Ecotype	10.80
100.00 %		**Mix Price/Lb Bulk:**	**$17.18**

Seeding Rate: 15 lbs/acre with a cover crop. For a cover crop use one of the following: oats (30 lbs/acre; 1 Jan to 30 Apr), brown top millet (10 lbs/acre; 1 May to 31 Aug), or grain rye (30 lbs/acre; 1 Sep to 31 Dec).

SWM SEED MIX 3: RETENTION BASIN FLOOR MIX - ERNMX-126

	Botanical Name	Common Name	Price/Lb
28.00 %	*Panicum clandestinum, 'Tioga'*	Deertongue, Tioga	23.67
20.00 %	*Fuccinellia distans, 'Fults'*	Alkaligrass, Fults	6.16
18.00 %	*Elymus virginicus, Madison-NY Ecotype*	Virginia Wildrye, Madison-NY Ecotype	11.22
15.00 %	*Agrostis stolonifera, 'PC 2.0'*	Creeping Bentgrass, 'PC 2.0'	15.60
15.00 %	*Poa palustris*	Fowl Bluegrass	34.20
10.00 %	*Carex vulpinoidea, PA Ecotype*	Fox Sedge, PA Ecotype	33.80
1.00 %	*Carex lurida, PA Ecotype*	Lurid Sedge, PA Ecotype	324.80
1.00 %	*Juncus effusus*	Soft Rush	52.00
100.00 %		**Mix Price/Lb Bulk:**	**$19.75**

Seeding Rate: 20-40 lbs per acre, or 0.5-1 lb/1,000 sq ft with a cover crop. For a cover crop use one of the following: grain rye (1 Sep to 30 Apr; 30 lbs/acre), Japanese millet (1 May to 31 Aug; 10 lbs/acre), or barnyard grass (1 May to 31 Aug; 10 lbs/acre).

SWM SEED MIX 4: RAIN GARDEN MIX - ERNMX - 180

	Botanical Name	Common Name	Price/Lb
25.60 %	*Schizachyrium scoparium, Fort Indiantown Gap-PA Ecotype*	Little Bluestem, Fort Indiantown Gap-PA Ecotype	17.61
20.00 %	*Elymus virginicus, Madison-NY Ecotype*	Virginia Wildrye, Madison-NY Ecotype	11.22
9.00 %	*Carex vulpinoidea, PA Ecotype*	Fox Sedge, PA Ecotype	33.80
8.00 %	*Echinacea purpurea*	Purple Coneflower	46.80
7.80 %	*Chasmanthium latifolium, WV Ecotype*	River Oats, WV Ecotype	104.00
6.80 %	*Panicum rigidulum, PA Ecotype*	Rooftop Panicgrass, PA Ecotype	78.00
3.00 %	*Coreopsis lanceolata*	Lanceleaf Coreopsis	31.20
3.00 %	*Rudbeckia hirta*	Blackeyed Susan	33.80
2.50 %	*Verbena hastata, PA Ecotype*	Blue Vervain, PA Ecotype	41.60
2.00 %	*Chamaecrista fasciculata, PA Ecotype*	Partridge Pea, PA Ecotype	13.00
2.00 %	*Panicum clandestinum, Tioga*	Deertongue, Tioga	23.67
1.50 %	*Asclepias incarnata, PA Ecotype*	Swamp Milkweed, PA Ecotype	192.40
1.50 %	*Helianthus helianthoides, PA Ecotype*	Ovate Sunflower, PA Ecotype	36.40
1.30 %	*Penstemon digitalis, PA Ecotype*	Tall White Beardtongue, PA Ecotype	182.00
1.20 %	*Zizia aurea, PA Ecotype*	Golden Alexanders, PA Ecotype	62.40
0.70 %	*Pycnanthemum tenuifolium*	Narrowleaf Mountainmint	260.00
0.50 %	*Aster laevis, NY Ecotype*	Smooth Blue Aster, NY Ecotype	364.00
0.50 %	*Baptisia australis, Southern WV Ecotype*	Blue False Indigo, Southern WV Ecotype	104.00
0.50 %	*Juncus effusus*	Soft Rush	52.00
0.50 %	*Juncus tenuis, PA Ecotype*	Path Rush, PA Ecotype	65.00
0.50 %	*Senna hebecarpa, VA & WV Ecotype*	Wild Senna, VA & WV Ecotype	31.20
0.50 %	*Vernonia noveboracensis, PA Ecotype*	New York Ironweed, PA Ecotype	286.00
0.30 %	*Monarda fistulosa, Fort Indiantown Gap-PA Ecotype*	Wild Bergamot, Fort Indiantown Gap-PA Ecotype	104.00
0.20 %	*Aster latiorifolius*	Calico Aster	364.00
0.20 %	*Solidago nemoralis, PA Ecotype*	Gray Goldenrod, PA Ecotype	312.00
0.10 %	*Aster pilosus, PA Ecotype*	Heath Aster, PA Ecotype	286.00
0.10 %	*Eupatorium perfoliatum, PA Ecotype*	Boneset, PA Ecotype	208.00
0.10 %	*Mimulus ringens, PA Ecotype*	Square Stemmed Monkeyflower, PA Ecotype	260.00
0.10 %	*Solidago juncea, PA Ecotype*	Early Goldenrod, PA Ecotype	364.00
100.00 %		**Mix Price/Lb Bulk:**	**$46.34**

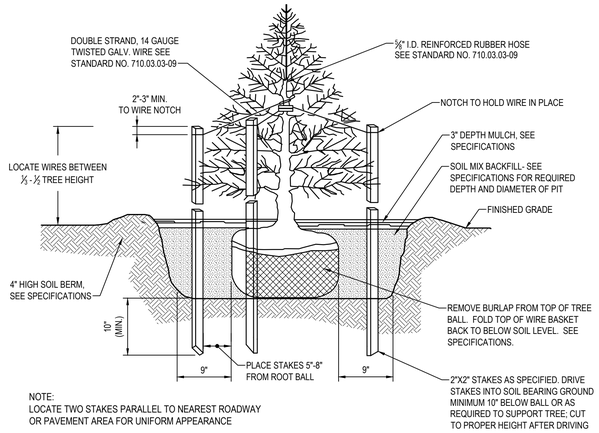
Seeding Rate: 20 lb per acre with a cover crop. For sites that drain within 24 hours of a rain event use one of the following cover crops:Oats (1 Jan to 31 Jul; 30 lbs/acre), Japanese Millet (1 May to 31 Aug; 10 lbs/acre), or grain rye (1 Aug to 31 Dec; 30 lbs/acre).

SWM SEED MIX 5: SALT-TOLERANT BASIN MIX – ERNMX-900

	Botanical Name	Common Name	Price/Lb
26.00 %	*Panicum virgatum, 'Habitat'-NJ Ecotype*	Switchgrass, 'Habitat'-NJ Ecotype	10.80
21.00 %	*Coreopsis rosea, Atlantic-VA Ecotype*	Coastal Tickseed, Atlantic-VA Ecotype	12.10
21.00 %	*Sorghastrum nutans, 'Holt'*	Indiangrass, 'Holt'	18.58
20.00 %	*Elymus riparius, PA Ecotype*	Riverbank Wildrye, PA Ecotype	10.96
10.00 %	*Agrostis hyemalis, Piedmont NC Ecotype*	Winter Bentgrass, Piedmont NC Ecotype	28.60
1.00 %	*Juncus effusus*	Soft Rush	52.00
1.00 %	*Juncus tenuis, PA Ecotype*	Path Rush, PA Ecotype	65.00
100.00 %		**Mix Price/Lb Bulk:**	**$15.47**

Seeding Rate: 20 lb per acre with a cover crop of grain rye at 30 lb per acre

Grasses & Grass-like Species - Herbaceous Perennial; Stormwater Management

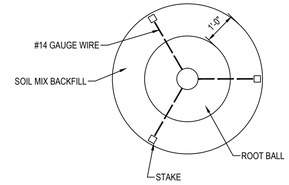


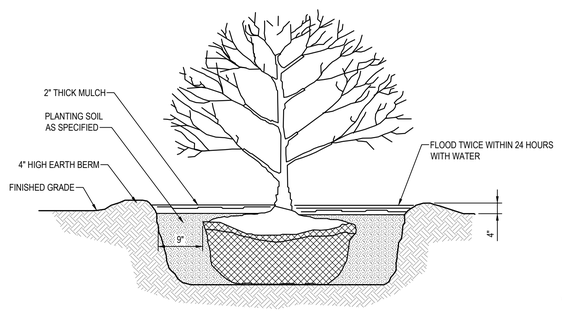
NOTE:
LOCATE TWO STAKES PARALLEL TO NEAREST ROADWAY OR PAVEMENT AREA FOR UNIFORM APPEARANCE

ELEVATION

EVERGREEN TREE

NOT TO SCALE



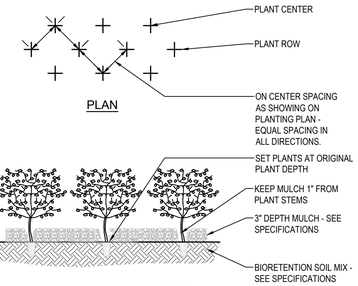


NOTES:
1. SHRUBS SHALL BE PLANTED IN TILLED, MULCHED BEDS WHICH HAVE BEEN AMENDED WITH EITHER PEAT MOSS OR COMPOSTED LEAF MOLD.
2. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND ALL MATERIALS.

ELEVATION

SHRUB

NOT TO SCALE

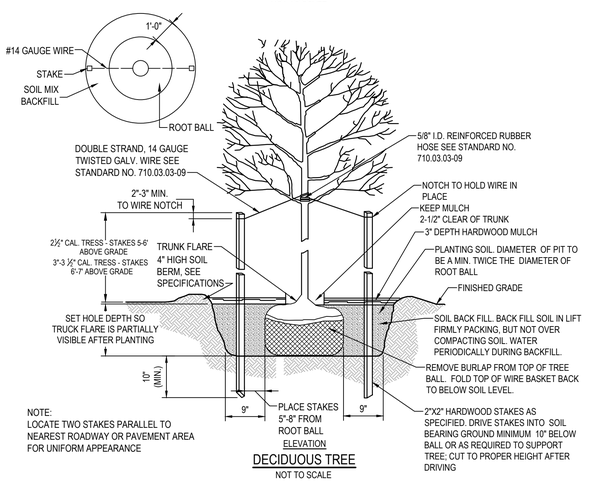


PLAN

SECTION

GROUND COVER / PERENNIALS

NOT TO SCALE



NOTE:
LOCATE TWO STAKES PARALLEL TO NEAREST ROADWAY OR PAVEMENT AREA FOR UNIFORM APPEARANCE

ELEVATION

DECIDUOUS TREE

NOT TO SCALE

MINIMUM LANDSCAPE MAINTENANCE REQUIREMENTS:

1. MOWING: MAINTAIN LAWN AREAS AT A HEIGHT OF 2 TO 3 INCHES. LAWNS SHALL NOT EXCEED 4 INCHES IN HEIGHT BEFORE MOWING.
2. EDGING: EDGE ALL CURBS, WALKS, AND BED LINES AS NEEDED TO MAINTAIN A CLEAN APPEARANCE.
3. TRIMMING: TRIM ALL LAWN AREAS ADJACENT TO BUILDING FACES, STRUCTURES, FENCES, AND PLANTING BEDS.
4. FERTILIZATION: APPLY A SLOW-RELEASE, BALANCED FERTILIZER (2-1-1 RATIO) AT A MAXIMUM RATE OF 2 LBS. OF NITROGEN PER 1,000 SQUARE FEET IN SEPTEMBER OR OCTOBER ONLY. (Note: Multiple applications per year are discouraged under the Maryland Fertilizer Law.)
5. LIMING: APPLY AGRICULTURAL LIME ONLY AS INDICATED BY A SOIL TEST REPORT.
6. WEED CONTROL: APPLY A PRE-EMERGENT HERBICIDE (E.G., BETASAN OR APPROVED EQUAL) IN EARLY SPRING PER MANUFACTURER'S RECOMMENDATIONS.
7. POST-EMERGENT HERBICIDE: APPLY A SELECTIVE BROADLEAF HERBICIDE (E.G., TRIMEC OR APPROVED EQUAL) IN LATE SPRING OR EARLY FALL AS NEEDED.
8. PEST MANAGEMENT: USE INSECTICIDES AND FUNGICIDES ONLY WHEN PEST OR DISEASE ACTIVITY IS EVIDENT. INTEGRATED PEST MANAGEMENT (IPM) PRACTICES ARE RECOMMENDED.
9. AERATION & RESEEDING: PERFORM CORE AERATION ANNUALLY AND RESEED THIN OR BARE AREAS AS NEEDED IN EARLY FALL.
10. CLEANUP: REMOVE TRASH, LITTER, AND DEBRIS FROM LAWNS, PARKING LOTS, AND PLANTING AREAS REGULARLY.
11. MULCHING: MAINTAIN ALL SHRUB AND GROUNDCOVER BEDS WITH 3 INCHES OF SHREDDED HARDWOOD MULCH, RENEWED ANNUALLY. AVOID MULCH PILING ("VOLCANO MULCHING") AGAINST TREE TRUNKS.
12. PLANT GROWTH: ALLOW SHRUBS AND TREES TO GROW TO THEIR INTENDED MATURE SIZE AND FORM. CONSULT THE LANDSCAPE ARCHITECT BEFORE ANY CORRECTIVE PRUNING OR PLANT REPLACEMENT.
13. TREE PRUNING: PRUNE TREES IN ACCORDANCE WITH ANSI A300 STANDARDS AND THE LANDSCAPE SPECIFICATION GUIDELINES FOR THE BALTIMORE–WASHINGTON METROPOLITAN AREA (CURRENT EDITION).

GENERAL NOTES:

1. PLANT MATERIAL STANDARDS:
ALL PLANT MATERIAL SHALL CONFORM TO THE SIZES AND SPECIFICATIONS INDICATED IN THE PLANT LIST AND SHALL BE NURSERY-GROWN IN ACCORDANCE WITH THE LATEST EDITION OF THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z60.1) PUBLISHED BY THE AMERICANHORT (FORMERLY AMERICAN ASSOCIATION OF NURSERYMEN).
2. UTILITY COORDINATION:
THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO PLANT INSTALLATION.
CONTACT MISS UTILITY (1-800-257-7777) A MINIMUM OF 48 HOURS PRIOR TO EXCAVATION.
THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS AND APPROVALS PRIOR TO CONSTRUCTION.
3. MULCHING:
ALL PLANTING BEDS SHALL RECEIVE A 2-INCH MINIMUM TO 3-INCH MAXIMUM LAYER OF SHREDDED HARDWOOD BARK MULCH WITHIN TWO (2) DAYS AFTER PLANTING.
MULCH SHALL COVER ALL EXPOSED SOIL IN PLANTING AREAS AND SHALL NOT BE PLACED IN CONTACT WITH TREE TRUNKS OR SHRUB STEMS.
4. CARE DURING CONSTRUCTION:
PLANT CARE, WATERING, AND REPLACEMENT DURING THE CONSTRUCTION PERIOD SHALL CONFORM TO ANNE ARUNDEL COUNTY STANDARD SPECIFICATION SECTION 02860 – LANDSCAPE PLANTING.
5. SOIL PREPARATION:
EXISTING SOIL IN PLANTING BEDS SHALL BE AMENDED TO A DEPTH OF 12 INCHES.
AMENDMENT MIX SHALL CONSIST OF TWO-THIRDS (2/3) EXISTING SOIL AND ONE-THIRD (1/3) ORGANIC MATERIAL (SUCH AS LEAFGRO® OR APPROVED EQUAL).
6. PLANT SUBSTITUTIONS:
IF SPECIFIED PLANT MATERIAL IS UNAVAILABLE AT TIME OF CONSTRUCTION, THE CONTRACTOR SHALL PROPOSE EQUIVALENT OR LARGER MATERIAL OF THE SAME GENERAL FORM AND CHARACTER.
ALL SUBSTITUTIONS SHALL BE APPROVED IN WRITING BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
7. TREE PLANTING – WIRE BASKETS:
FOR BALLED AND BURLAPPED TREES DELIVERED IN WIRE BASKETS, CUT THE WIRE IN AT LEAST FOUR PLACES AND PEEL BACK FROM THE ROOT BALL PRIOR TO FINAL PLACEMENT.
NO PORTION OF THE WIRE BASKET OR BURLAP SHALL REMAIN EXPOSED OR INTACT ABOVE FINISHED GRADE.
8. DAMAGE REPAIR:
ANY DAMAGE TO EXISTING UTILITIES, STRUCTURES, PAVEMENT, CURBING, WALLS, OR VEGETATION (NOT DESIGNATED FOR REMOVAL) SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST.
ALL DISTURBED AREAS SHALL BE SEEDED OR SODDED UNLESS OTHERWISE NOTED.
9. FIELD ADJUSTMENTS:
ADJUST TREE AND SHRUB LOCATIONS IN THE FIELD AS REQUIRED TO AVOID CONFLICTS WITH EXISTING VEGETATION, STRUCTURES, OR UTILITIES NOT SHOWN ON THE SURVEY.
FINAL LAYOUT SHALL BE SUBJECT TO APPROVAL BY THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE.
10. SITE STABILIZATION:
ALL DISTURBED AREAS NOT OTHERWISE TREATED SHALL BE SEEDED IN ACCORDANCE WITH ANNE ARUNDEL COUNTY STORMWATER AND EROSION CONTROL REQUIREMENTS.

GFT
300 East Joppa Road Suite 200
Baltimore, MD 21286
410.512.4500 www.gftinc.com

LANDSCAPE ARCHITECT
STEVEN M. WILLIAMS
No. 3304
STATE OF MARYLAND

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: NOT TO SCALE	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	LANDSCAPE NOTES AND DETAILS
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 40 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

G:\Projects_2024\BL720\72024037\Site\Drawings\72024037-C701-Landscape Plan.dwg Jul 22, 2026 - 1:24pm Plot By: hhwang

FOREST STND DELINEATION NOTES:

1. EXISTING FOREST ON SITE = 29.53 AC.
   a. EXISTING FOREST WITHIN PROJECT AREA: 3.1 AC.
2. ALL TREE DELINEATION AND ENVIRONMENTAL DATA SHOWN ON THIS FOREST STAND DELINEATION (FSD) WERE FIELD-VERIFIED IN JULY 2025 BY GFT (GANNETT FLEMING, INC.) IN COORDINATION WITH THE ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS. FIELD DATA COLLECTION AND VERIFICATION WERE PERFORMED BY A MARYLAND-LICENSED LANDSCAPE ARCHITECT IN ACCORDANCE WITH COMAR 08.19.06 AND ANNE ARUNDEL COUNTY CODE §17-6-302..
3. ADDRESS: LAKE WATERFORD PARK, 830 PASADENA ROAD, PASADENA, MARYLAND 21122.
4. OWNER: ANNE ARUNDEL COUNTY DEPARTMENT OF RECREATION AND PARKS, P.O. BOX 2700, ANNAPOLIS, MARYLAND 21404-2700.
5. ZONING: OS (OPEN SPACE)
   TAX ID: 03-000-00477574
   TAX MAP / GRID: 0023 / 0006
   PARCEL: 0071
   LIBER / FOLIO: 02032 / 00015
   PROPERTY LAND AREA: 77.16 AC.
6. NO RARE, THREATENED, OR ENDANGERED SPECIES OR HABITATS WERE OBSERVED ON THE PROPERTY, AS INDICATED IN THE MARYLAND DEPARTMENT OF NATURAL RESOURCES WILDLIFE AND HERITAGE SERVICE REVIEW LETTER (ER# 2024.1817.AA). HOWEVER, THE FORESTED AREAS ON THIS PROPERTY ARE RECOGNIZED AS FOREST INTERIOR DWELLING SPECIES (FIDS) HABITAT, WHICH IS SIGNIFICANT FOR BIRD CONSERVATION. MAINTAINING LARGE, CONTIGUOUS FORESTED AREAS IS RECOMMENDED TO SUPPORT FIDS HABITAT, IN ACCORDANCE WITH STATE AND COUNTY GUIDANCE.
7. COUNTY RECORDS INDICATE THE POTENTIAL PRESENCE OF AN UNVERIFIED CEMETERY WITHIN THE PROPERTY BOUNDARY; HOWEVER, NO CONFIRMED CEMETERY FEATURES WERE IDENTIFIED DURING FIELD INVESTIGATION.
8. A ZONE A (100-YEAR) FLOODPLAIN IS PRESENT WITHIN PORTIONS OF THE PROPERTY AND ADJACENT TO LAKE WATERFORD, AS INDICATED ON THE SITE PLAN.
9. STEEP SLOPES (15% OR GREATER) ARE PRESENT WITHIN PORTIONS OF THE PROJECT AREA. THESE ARE IDENTIFIED FOR SITE CHARACTERIZATION PURPOSES.
10. NO ISOLATED NONTIDAL WETLANDS OR STREAMS WERE IDENTIFIED WITHIN THE PROJECT SITE BASED ON FIELD OBSERVATION. LAKE WATERFORD IS A SIGNIFICANT OPEN-WATER FEATURE LOCATED WITHIN THE SOUTHERN PORTION OF THE PROPERTY AND CONNECTED TO THE REGIONAL DRAINAGE SYSTEM..
11. TWENTY-EIGHT (28) SPECIMEN TREES WERE FIELD-IDENTIFIED WITHIN THE PROJECT SITE. THEIR LOCATIONS, SPECIES, DIAMETERS, AND CONDITIONS ARE DOCUMENTED IN THE SPECIMEN TREE TABLE AND SHOWN ON THE PLAN.

FOREST STAND DELINEATION

PROJECT DESCRIPTION
THE MARYLAND FOREST CONSERVATION ACT (NATURAL RESOURCES ARTICLE §5-1601 ET SEQ.) AND ANNE ARUNDEL COUNTY CODE REQUIRE THE PREPARATION OF A FOREST STAND DELINEATION (FSD) PRIOR TO DEVELOPMENT ACTIVITIES TO IDENTIFY EXISTING FOREST RESOURCES AND PRIORITY RETENTION AREAS. THE FSD, IN CONJUNCTION WITH A FOREST CONSERVATION PLAN (FCP), UTILIZES METHODS APPROVED BY ANNE ARUNDEL COUNTY AND THE STATE FOREST CONSERVATION TECHNICAL MANUAL TO GUIDE THE PROTECTION AND MANAGEMENT OF FOREST RESOURCES DURING CONSTRUCTION. PRIORITY RETENTION AREAS ARE IDENTIFIED BASED ON THE PRESENCE OF WETLANDS, STREAMS AND THEIR BUFFERS, STEEP SLOPES, SPECIMEN TREES, AND HABITATS ASSOCIATED WITH FOREST INTERIOR DWELLING SPECIES (FIDS) OR OTHER ECOLOGICALLY SIGNIFICANT FEATURES.

THE ANNE ARUNDEL COUNTY DEPARTMENT OF RECREATION AND PARKS IS IMPLEMENTING IMPROVEMENTS WITHIN LAKE WATERFORD PARK, LOCATED AT 830 PASADENA ROAD, PASADENA, MARYLAND 21122. THE PARK CONTAINS APPROXIMATELY 29.53 ACRES OF EXISTING FOREST, OF WHICH 3.10 ACRES ARE LOCATED WITHIN THE DESIGNATED PROJECT AREA. THE FORESTED AREA IS PART OF A MANAGED PARK LANDSCAPE THAT HAS EXPERIENCED NOTICEABLE CANOPY STRESS AND TREE LOSS IN RECENT YEARS.

ON JULY 16, 2025, GFT (GANNETT FLEMING, INC.) COMPLETED A FOREST STAND DELINEATION TO DOCUMENT EXISTING FOREST CONDITIONS USING A COMBINATION OF COUNTY-PROVIDED BASE DATA AND FIELD INVESTIGATION. THE ANALYSIS INCLUDED THREE (3) 1/10-ACRE SAMPLE PLOTS AND SUPPLEMENTAL FIELD VERIFICATION TO IDENTIFY SPECIMEN TREES, CANOPY CONDITIONS, UNDERSTORY COMPOSITION, AND SITE CHARACTERISTICS.

SPECIMEN TREES WERE FIELD-IDENTIFIED, TAGGED, AND SURVEYED, AND ARE LABELED ST-1 THROUGH ST-28 ON THE ACCOMPANYING PLAN SHEETS.

STUDY AREA DESCRIPTION
THE PROJECT STUDY AREA IS LOCATED WITHIN THE SOUTHERN PORTION OF LAKE WATERFORD PARK IN ANNE ARUNDEL COUNTY. THE AREA IS CHARACTERIZED AS A CURATED RECREATIONAL LANDSCAPE THAT INCLUDES TRAILS, OPEN SPACE, AND ASSOCIATED PARK INFRASTRUCTURE. THE FOREST STAND IS GENERALLY BOUNDED BY LAKE WATERFORD TO THE NORTH AND WEST AND BY RESIDENTIAL DEVELOPMENT AND ROADWAYS TO THE EAST AND SOUTH. SITE CONDITIONS INCLUDE GENTLE TO MODERATE SLOPES, VARIABLE UNDERSTORY DENSITY DUE TO ACTIVE PARK MANAGEMENT, AND LOCALIZED AREAS OF CANOPY DECLINE.

RARE, THREATENED, AND ENDANGERED SPECIES COORDINATION
A REVIEW LETTER FROM THE MARYLAND DEPARTMENT OF NATURAL RESOURCES (DNR) WILDLIFE AND HERITAGE SERVICE (WHS), DATED MAY 2024 (ER# 2024.1817.AA), INDICATES THAT NO RARE, THREATENED, OR ENDANGERED (RTE) SPECIES OR HABITATS ARE KNOWN FROM THE PROJECT AREA. HOWEVER, THE FORESTED PORTION OF THE SITE IS IDENTIFIED AS FOREST INTERIOR DWELLING SPECIES (FIDS) HABITAT. PRESERVATION OF CONTIGUOUS FORESTED AREAS IS RECOMMENDED WHERE PRACTICABLE TO SUPPORT AVIAN HABITAT FUNCTIONS.

COUNTY RECORDS INDICATE THE POTENTIAL PRESENCE OF AN UNVERIFIED CEMETERY WITHIN THE PROPERTY BOUNDARY; HOWEVER, NO CONFIRMED CEMETERY FEATURES WERE OBSERVED DURING FIELD INVESTIGATION.

FIELD INVESTIGATION
GFT CONDUCTED THE FOREST STAND DELINEATION USING THREE (3) 1/10-ACRE SAMPLE PLOTS TO CHARACTERIZE VEGETATION STRUCTURE, SPECIES COMPOSITION, AND FOREST HEALTH. DATA COLLECTION INCLUDED DOMINANT AND CO-DOMINANT TREE SPECIES, DIAMETER CLASS DISTRIBUTION, CANOPY CLOSURE, UNDERSTORY AND HERBACEOUS CONDITIONS, AND THE PRESENCE OF INVASIVE SPECIES.

A TOTAL OF TWENTY-SEVEN (27) SPECIMEN TREES WERE IDENTIFIED AND FIELD-VERIFIED WITHIN THE PROJECT AREA, AND THEIR LOCATIONS, SPECIES, DIAMETERS, AND CONDITIONS ARE SHOWN ON THE ACCOMPANYING PLAN AND SUMMARIZED IN THE SPECIMEN TREE TABLE.

FIELD OBSERVATIONS INDICATED SIGNS OF ENVIRONMENTAL STRESS, INCLUDING PATCHY CANOPY LOSS, DECLINING OAK SPECIES, AND AREAS OF DISTURBED GROUND COVER. DISCUSSIONS WITH COUNTY STAFF CONFIRMED THAT SEVERAL DEAD OR DECLINING TREES HAD BEEN REMOVED FROM THE SITE BETWEEN PRIOR SURVEY EFFORTS AND THE 2025 FIELD VERIFICATION. THESE CONDITIONS ARE CONSISTENT WITH REGIONAL PATTERNS OF OAK DECLINE OBSERVED IN ANNE ARUNDEL COUNTY AND MAY BE ASSOCIATED WITH A COMBINATION OF TREE AGE, ENVIRONMENTAL STRESSORS (INCLUDING VARIABLE MOISTURE CONDITIONS AND RUNOFF), AND BIOLOGICAL FACTORS.

FOREST STAND ANALYSIS
STAND A
FOREST STAND A IS CHARACTERIZED AS A MID- TO LATE-SUCCESSIONAL FOREST DOMINATED BY SOUTHERN RED OAK (QUERCUS FALCATA), BLACK OAK (QUERCUS VELUTINA), RED MAPLE (ACER RUBRUM), AND TULIP POPLAR (LIRIODENDRON TULIPIFERA). SEVERAL INDIVIDUAL TREES EXCEED 40 INCHES DIAMETER AT BREAST HEIGHT (DBH), INCLUDING A 45-INCH TULIP POPLAR.

THE UNDERSTORY INCLUDES WHITE OAK, TULIP POPLAR, CHESTNUT, AND RED MAPLE REGENERATION, WITH AN ASSOCIATED HERBACEOUS LAYER OF CAROLINA SWEETSHRUB, DEVIL'S WALKING STICK, BLACK HUCKLEBERRY, VIRGINIA CREEPER, AND POKEWEED.

CANOPY CLOSURE WAS ESTIMATED AT APPROXIMATELY 75 PERCENT BASED ON FIELD OBSERVATION. THE STAND EXHIBITS CHARACTERISTICS OF A MATURE FOREST STRUCTURE, WITH LOCALIZED AREAS OF DECLINE AND STANDING DEAD TREES. LONG-TERM FOREST HEALTH MAY BE INFLUENCED BY CONTINUED ENVIRONMENTAL STRESSORS. MANAGEMENT CONSIDERATIONS INCLUDE PRESERVATION OF HIGH-VALUE SPECIMEN TREES, MONITORING OF OAK DECLINE, AND CONTROL OF INVASIVE SPECIES WHERE PRESENT.

SPECIMEN TREE TABLE

Point No.	Common Name	Species	DBH (in.)	CRZ	CRZ Impact %	Condition	Remove
ST-1	Southern Red Oak	*Quercus falcata*	31	46.5	78%	Poor	X
ST-2	Red Oak	*Quercus rubra*	35.5	53.25	100%	Good	X
ST-3	Southern Red Oak	*Quercus falcata*	31	46.5	23%	Good	
ST-4	Southern Red Oak	*Quercus falcata*	31	46.5	38%	Good	
ST-5	Southern Red Oak	*Quercus falcata*	30.5	45.75	100%	Poor	X
ST-6	Southern Red Oak	*Quercus falcata*	31	46.5	100%	Good	X
ST-7	Southern Red Oak	*Quercus falcata*	36.1	54.15	74%	Good	X
ST-8	Black Oak	*Quercus velutina*	41.5	62.25	86%	Good	X
ST-9	Southern Red Oak	*Quercus falcata*	33	49.5	40%	Good	X
ST-10	Red Oak	*Quercus rubra*	31.5	47.25	46%	Good	X
ST-11	Southern Red Oak	*Quercus falcata*	31	46.5	72%	Good	X
ST-12	Red Oak	*Quercus rubra*	33	49.5	0%	Good	
ST-13	Black Oak	*Quercus velutina*	33	49.5	13%	Poor	
ST-14	Southern Red Oak	*Quercus falcata*	30.5	45.75	90%	Good	X
ST-15	Southern Red Oak	*Quercus falcata*	34	51	21%	Good	
ST-16	Black Oak	*Quercus velutina*	35	52.5	0%	Poor	
ST-17	Southern Red Oak	*Quercus falcata*	31.5	47.25	24%	Good	
ST-18	Southern Red Oak	*Quercus falcata*	42.6	63.9	12%	Good	
ST-19	Southern Red Oak	*Quercus falcata*	42	63	7%	Good	
ST-20	Southern Red Oak	*Quercus falcata*	33	49.5	34%	Good	X
ST-21	Southern Red Oak	*Quercus falcata*	30	45	0%	Good	
ST-22	Southern Red Oak	*Quercus falcata*	32	48	1%	Good	
ST-23	White Oak	*Quercus alba*	42	63	0%	Good	
ST-24	Southern Red Oak	*Quercus falcata*	36	54	0%	Good	
ST-25	Southern Red Oak	*Quercus falcata*	30.2	45.3	87%	Good	X
ST-26	Southern Red Oak	*Quercus falcata*	30.2	45.3	90%	Good	X
ST-27	Southern Red Oak	*Quercus falcata*	41.5	62.25	0%	Good	

FOREST STAND SUMMARY

Stand Variable	Stand A
1. Dominant species / Codominant species	*Southern Red Oak (Quercus falcata), Loblolly Pine (Pinus taeda), Tulip Poplar (Liriodendron tulipifera)*
2. Successional stage	*Mid to Late (Modified) — Mature trees dominate, but in a curated, modified park environment*
3. Basal area in s.f. per acre	*100*
4. Size class of dominant species	*12"– 30" DBH*
5. Percent of canopy closure	*84%*
6. Number of tree species per acre	*11*
7. Common understory species per acre	*Sassafras (Sassafras albidum), White Oak (Quercus alba), Red Maple (Acer rubrum), Chestnut (Castanea spp.), Blackgum (Nyssa sylvatica)*
8. Percent of understory cover 3' to 20' tall	*30%*
9. Number of woody plant species 3' to 20' tall	*9*
10. Common herbaceous species 0' to 3' tall	*Virginia Creeper (Parthenocissus quinquefolia), Carolina Sweetshrub (Calycanthus floridus), Devil's Walking Stick (Aralia spinosa), Deerberry (Vaccinium stamineum), Pokeweed (Phytolacca americana), Knotweed (Persicaria spp.)*
11. Percent of herbaceous & woody plant cover 0' to 3' tall	*66%*
12. List of major invasive plant species & percent of cover	*Japanese Stiltgrass (Microstegium vimineum) 30%*
13. Number of standing dead trees 6" dbh or greater	*3*
14. Comments	*Mature oak-pine canopy in a curated park with trails, open mulched areas, moderate slope in areas, and patches of invasive stiltgrass. Mixed-age understory with good native diversity.*

VICINITY MAP
SCALE: 1" = 2,000'

LEGEND
- BUILDING
- CONCRETE CURB AND GUTTER
- BITUMINOUS PAVEMENT
- CONCRETE PAVEMENT
- ELEVATION CONTOUR
- CHAIN LINK FENCE
- PROPERTY LINE
- SPECIMEN TREE, > 30" DBH
- FOREST
- MAPPED SOIL UNIT / HYDROLOGIC SOIL GROUP RATING
- STEEP SLOPES (15% TO 25%)
- STEEP SLOPES (25% OR GREATER)
- EXISTING FOREST WITHIN THE PROPERTY BOUNDARY
- FOREST SAMPLING DATA PLOT LOCATION
- CRITICAL ROOT ZONE FOR SPECIMEN TREE
- LIMIT OF DISTURBANCE
- FOREST STAND DELINEATION SURVEY AREA

MANAGEMENT AND RECOMMENDATIONS

RETENTION:
HIGH-VALUE SPECIMEN TREES AND PRIORITY RETENTION AREAS SHOULD BE PRESERVED TO THE MAXIMUM EXTENT PRACTICABLE. SPECIMEN TREES, INCLUDING LARGE NORTHERN RED OAKS AND SOUTHERN RED OAKS, PROVIDE SIGNIFICANT CANOPY COVER AND ECOLOGICAL FUNCTION AND SHOULD BE PROTECTED DURING CONSTRUCTION IN ACCORDANCE WITH THE APPROVED FOREST CONSERVATION PLAN AND TREE PROTECTION MEASURES.

REFORESTATION:
FOREST CLEARING ASSOCIATED WITH THE PROPOSED IMPROVEMENTS SHALL BE MITIGATED IN ACCORDANCE WITH THE APPROVED FOREST CONSERVATION PLAN (FCP). REFORESTATION AND AFFORESTATION PLANTINGS SHALL BE LOCATED TO REINFORCE FOREST EDGES, ENHANCE CONTIGUITY OF EXISTING FOREST AREAS, AND SUPPORT FOREST INTERIOR DWELLING SPECIES (FIDS) HABITAT WHERE PRACTICABLE.

SOIL AND EROSION CONTROL:
APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED IN ACCORDANCE WITH ANNE ARUNDEL COUNTY AND MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) REQUIREMENTS. THESE MEASURES SHALL INCLUDE STANDARD BEST MANAGEMENT PRACTICES (BMPS) TO MINIMIZE SOIL DISTURBANCE AND PREVENT SEDIMENT TRANSPORT, PARTICULARLY IN AREAS OF STEEP SLOPES OR DISTURBED SOILS.

INVASIVE SPECIES:
POST-CONSTRUCTION MONITORING AND MANAGEMENT OF INVASIVE SPECIES SHALL BE IMPLEMENTED AS PART OF SITE MAINTENANCE. TARGET SPECIES MAY INCLUDE TREE OF HEAVEN (AILANTHUS ALTISSIMA) AND OTHER INVASIVE VEGETATION. MANAGEMENT EFFORTS SHOULD SUPPORT THE ESTABLISHMENT AND LONG-TERM SUCCESS OF NATIVE REFORESTATION AREAS.

SOIL SUMMARY:

SYMBOL	MAP UNIT NAME	K RATING
PEB	PATAPSCO-EVESBORO-FORT MOTT COMPLEX, 0 TO 5%	0.02 LOW ERODIBILITY
PGB	PATAPSCO-FORT MOTT-URBAN LAND COMPLEX, 0 TO 5%	0.02 LOW ERODIBILITY
SME	SASSAFRAS AND CROOM SOILS, 15 TO 25%	0.15 MODERATELY LOW ERODIBILITY
ZBA	ZEKIAH AND ISSUE SOILS, 0 TO 2%, FREQUENTLY FLOODED	0.32 MODERATELY HIGH ERODIBILITY

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A QUALIFIED PROFESSIONAL UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE:

DATE: 8/05/26

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GFT

LANDSCAPE ARCHITECT
RICHARD W. HOWARD
3304
STATE OF MARYLAND

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 100'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	OVERALL FOREST STAND DELINEATION PLAN
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 41 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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PARCEL 071
LIBER 02032 / FOLIO 00015
"LAKE WATERFORD PARK"
ANNE ARUNDEL COUNTY DEPT OF REC & PARKS
PO BOX 2700, ANNAPOLIS MARYLAND 2700
SITE ADDRESS: 830 PASADENA ROAD
PASADENA 21122
MAP 23, GRID 0006, PARCEL 0071
77.161 ACRES

EXISTING ON-SITE
REFORESTATION AREA
15,954 SQ.FT. / 0.37 ACRES

MATCH LINE SEE SHEET 43

FOREST STAND 'A' STUDY AREA

75' BUILDING SETBACK LINE

PASADENA ROAD
(SCENIC AND HISTORIC RD)

1 STORY WOODEN BLDG

BASEBALL COURT (MACADAM)

BASKETBALL COURT (MACADAM)

MACADAM TENNIS COURTS

PAVILION
CONC PAD
MACADAM

TRANSFORMER

BRICK BLDG

ST-1 ST-2 ST-3 ST-4 ST-5 ST-6 ST-7 ST-8 ST-9 ST-10 ST-11 ST-12 ST-13 ST-14 ST-18 ST-21 ST-22 ST-25 ST-26

PK-1 PK-2 PK-3 PK-4

SWM-1 SWM-2 SWM-3 SWM-4 SWM-5 SWM-6 SWM-7 SWM-8 SWM-9

AF-1 AF-2 AF-3

A-1 A-2

LEGEND

- BUILDING
- CONCRETE CURB AND GUTTER
- BITUMINOUS PAVEMENT
- CONCRETE PAVEMENT
- ELEVATION CONTOUR
- CHAIN LINK FENCE
- PROPERTY LINE
- SPECIMEN TREE, > 30" DBH
- FOREST
- MAPPED SOIL UNIT / HYDROLOGIC SOIL GROUP RATING
- STEEP SLOPES (15% TO 25%)
- STEEP SLOPES (25% OR GREATER)
- EXISTING FOREST WITHIN THE PROPERTY BOUNDARY
- FOREST SAMPLING DATA PLOT LOCATION
- CRITICAL ROOT ZONE FOR SPECIMEN TREE
- LOD — LIMIT OF DISTURBANCE
- FOREST STAND DELINEATION SURVEY AREA

CAUTION:
IF THIS DRAWING IS A REDUCTION,
USE THE GRAPHIC SCALES.

1"=40'-0" (40 0 20 40 80)

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A QUALIFIED PROFESSIONAL UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE:

DATE: 8/05/26

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Baltimore, MD 21286
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REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 40'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	FOREST STAND DELINEATION PLAN
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 42 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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LEGEND

- BUILDING
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- BITUMINOUS PAVEMENT
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REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 100'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	FOREST STAND DELINEATION PLAN
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 43 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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Property: LAKE WATERFORD Prepared By: J. MESSINGER
Stand #: A Plot #: 1 Plot Size: 1/10 Date: 7-16-25
Basal Area in sf/acre: 90
Size class of trees > 20' height within sample plot

Tree Species	# of Trees 2-5.9" dbh			# of Trees 6-11.9" dbh			# of Trees 12-19.9" dbh			# of Trees 20-29.9 dbh			# of Trees > 30" dbh			Total
Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	
S. Red Oak							III			I						4
W. Oak	I			I												2
D. Cedar	III															3
L. Pine					I											1
V. Pine		II														3
W. Pine		I														1
Chestnut		I														1
Pin Oak							I			I						2
Total Number of Trees per Size Class	9			2			4			2						17
Number & Size of Standing Dead Trees	—			—			—			—			1			1

List of Common Understory Species: Sweet berry, Sweetgum

% of Canopy Closure: C 40, N 35, E 40, S 45, W 30, Total 35

Percent of Invasive Cover per Plot (All Layers): Sep. Stiltgrass

Plot Successional Stage: LATE / Mature (Modified)

List of Herbaceous Species: Pokeweed, Knotweed, Sep. Stiltgrass, Sedge

Number of shrubs and seedlings <2" (1/1000 acre): C 0, N 1, E 1, S 0, W 0, Total 2

% of Herbaceous Cover: C 5, N 10, E 5, S 10, W 10, Total 10

Comments

Sheet __ of__

Forest Sampling Data Worksheet C:1

C-2

Property: LAKE WATERFORD Prepared By: J. MESSINGER
Stand #: A Plot #: 1/10 Plot Size: 1 Date: 7-16-25
Basal Area in sf/acre: 100
Size class of trees > 20' height within sample plot

Tree Species	# of Trees 2-5.9" dbh			# of Trees 6-11.9" dbh			# of Trees 12-19.9" dbh			# of Trees 20-29.9 dbh			# of Trees > 30" dbh			Total
Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	
Sassafras	THR			I												
S. Red Oak				III						I			I			
White Oak				I												
R. Maple	I															
L. Pine										I						
Total Number of Trees per Size Class	6			5			—			2			1			15
Number & Size of Standing Dead Trees	1															1

List of Common Understory Species: White Oak, Tulip, R. Maple, Chestnut

% of Canopy Closure: C 75, N 85, E 90, S 70, W 80, Total 85

Percent of Invasive Cover per Plot (All Layers): Pokeweed

Plot Successional Stage: Mid-Late (Modified)

List of Herbaceous Species: Carolina sweet shrub, Devils walking stick, VA Creeper, Deerberry, Black Huckleberry

Number of shrubs and seedlings <2" (1/1000 acre): C 5, N 10, E 5, S 0, W 0, Total 19

% of Herbaceous Cover: C 35, N 30, E 99, S 25, W 30, Total 35

Comments

Sheet __ of__

Forest Sampling Data Worksheet C:1

Pattern 110

C-2

Property: LAKE WATERFORD Prepared By:
Stand #: A Plot #: 3 Plot Size: 1/10 Date: 7-16-25
Basal Area in sf/acre: 110
Size class of trees > 20' height within sample plot

Tree Species	# of Trees 2-5.9" dbh			# of Trees 6-11.9" dbh			# of Trees 12-19.9" dbh			# of Trees 20-29.9 dbh			# of Trees > 30" dbh			Total
Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	
Sassafras	THR															
W. Oak				III			I									
R. Maple	I															
Blackgum				I												
L. Pine										I						
A. Holly	II		I				I									
Total Number of Trees per Size Class	10			6			2			1			—			
Number & Size of Standing Dead Trees							1									

List of Common Understory Species: Alder, Sassafras

% of Canopy Closure: S 95, N 75, E 90, S 70, W 70, Total 80

Percent of Invasive Cover per Plot (All Layers): 5%

Plot Successional Stage: Mid Modified

List of Herbaceous Species: VA Creeper

Number of shrubs and seedlings <2" (1/1000 acre): C 10, N 10, E 10, S 10, W 10, Total 10

% of Herbaceous Cover: C 90, N 75, E 80, S 75, W 85, Total 90

Comments

on slope of Pit, Steep 10%. Filled w/ Sweet pepper bush top Area Flat, cleared?

Sheet __ of__

Forest Sampling Data Worksheet C:1

C-2

FOREST DELINEATION FIELD DATA SHEETS

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A QUALIFIED PROFESSIONAL UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE:

DATE: 8/05/26

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GFT

LANDSCAPE ARCHITECT
RUSSELL W. HUMPHREYS
No. 3394
STATE OF MARYLAND

REVISIONS			
NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 100'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	FOREST DELINEATION FIELD DATA SHEETS
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 44 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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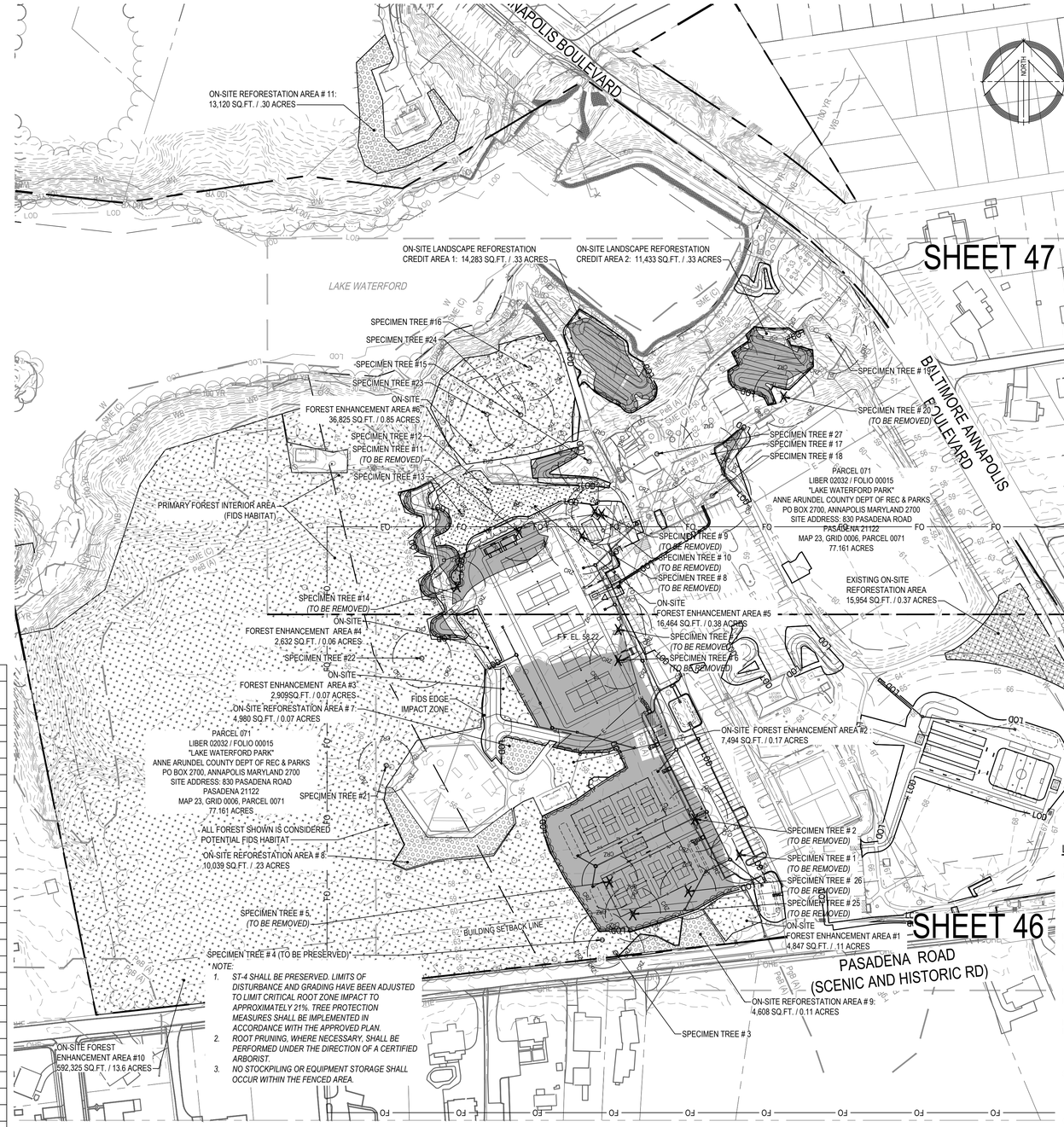
FOREST CONSERVATION WORKSHEET:

Variables	Unique Tract 1
Site Information	
A. Growth Management Area	Outside Priority Funding Area
B. Land Use Type	Institutional
C. Total Unique Tract Area	77.2
D. Universal Deductions (Critical Area or 100-Yr Floodplain)	15.1
E. Impervious Surface Deductions for Targeted Growth and Priority Funding Areas	0.0
F. Existing Forest Cover within Net Unique Tract Area	29.6
G. Proposed Forest Clearing within Net Unique Tract Area	3.1
H. Net Unique Tract Area = (C)-(D)-(E)	62.1
Is Total Net Tract Area less than or equal to 5 Acres?	No
Key for lookup table	*Outside Priority Funding Area Institutional/No*
I. Conservation Threshold	20%
J. Afforestation Threshold	15%
Forest Conservation	
K. Conservation Threshold Area = (H) X (I)	12.4
L. Area of Forest Above Conservation Threshold = (F) - (K)	17.2
M. Breakeven Point (Amount of forest that must be retained so that no mitigation is required.)	18.1
If the Area of Forest Above Conservation Threshold (L) is greater than 0, then M = ((0.3333) X (L)) + (K). If the Area of Forest Above Conservation Threshold is equal to 0, then M = (F).	
N. Forest Clearing Permitted without Mitigation = (F) - (M)	11.4
O. Proposed Forest Retention = (F) - (G)	26.6
P. Reforestation for Retention Above the Threshold	1.5
If Proposed Forest Clearing (G) is > Area of Forest Above Conservation Threshold (L), then (P) = (L) X (0.5). If not, then (P) = (G) X (0.5).	
Q. Credit for Retention Above the Threshold	14.2
If Proposed Forest Clearing (G) is > Area of Forest Above Conservation Threshold (L), then (R) = 0. If not, then (R) = (L) - (G).	
R. Reforestation for Retention Below the Threshold	0.0
If Proposed Forest Clearing (G) < Area of Forest Above Conservation Threshold (L), then (R) = 0. If not, then (R) = ((G) - (L)) X 2	
S. Total Reforestation Required = (P) + (R) - (Q)	0.0
T. Afforestation Threshold Area = (H) X (J)	9.3
U. Total Afforestation Required	0.0
If Existing Forest Cover (F) < Afforestation Threshold Area (T), then (U) = (T) - (F). If not, then (U) = 0.	
V. Total Mitigation Required By Tract = (S) + (U)	0.0
W. Total Mitigation Provided =	*8.33 Acres*

SPECIMEN TREE TABLE

Point No.	Common Name	Species	DBH (in.)	CRZ	CRZ Impact %	Condition	Remove
ST-1	Southern Red Oak	*Quercus falcata*	31	46.5	78%	Poor	X
ST-2	Red Oak	*Quercus rubra*	35.5	53.25	100%	Good	X
ST-3	Southern Red Oak	*Quercus falcata*	31	46.5	23%	Good	
ST-4	Southern Red Oak	*Quercus falcata*	31	46.5	38%	Good	
ST-5	Southern Red Oak	*Quercus falcata*	30.5	45.75	100%	Poor	X
ST-6	Southern Red Oak	*Quercus falcata*	31	46.5	100%	Good	X
ST-7	Southern Red Oak	*Quercus falcata*	36.1	54.15	74%	Good	X
ST-8	Black Oak	*Quercus velutina*	41.5	62.25	86%	Good	X
ST-9	Southern Red Oak	*Quercus falcata*	33	49.5	40%	Good	X
ST-10	Red Oak	*Quercus rubra*	31.5	47.25	46%	Good	X
ST-11	Southern Red Oak	*Quercus falcata*	31	46.5	72%	Good	X
ST-12	Red Oak	*Quercus rubra*	33	49.5	0%	Good	
ST-13	Black Oak	*Quercus velutina*	33	49.5	13%	Poor	
ST-14	Southern Red Oak	*Quercus falcata*	30.5	45.75	90%	Good	X
ST-15	Southern Red Oak	*Quercus falcata*	34	51	21%	Good	
ST-16	Black Oak	*Quercus velutina*	35	52.5	0%	Poor	
ST-17	Southern Red Oak	*Quercus falcata*	31.5	47.25	24%	Good	
ST-18	Southern Red Oak	*Quercus falcata*	42.6	63.9	12%	Good	
ST-19	Southern Red Oak	*Quercus falcata*	42	63	7%	Good	
ST-20	Southern Red Oak	*Quercus falcata*	33	49.5	34%	Good	X
ST-21	Southern Red Oak	*Quercus falcata*	30	45	0%	Good	
ST-22	Southern Red Oak	*Quercus falcata*	32	48	1%	Good	
ST-23	White Oak	*Quercus alba*	42	63	0%	Good	
ST-24	Southern Red Oak	*Quercus falcata*	36	54	0%	Good	
ST-25	Southern Red Oak	*Quercus falcata*	30.2	45.3	87%	Good	X
ST-26	Southern Red Oak	*Quercus falcata*	30.2	45.3	90%	Good	X
ST-27	Southern Red Oak	*Quercus falcata*	41.5	62.25	0%	Good	



FOREST CONSERVATION NOTES:

1. EXISTING FOREST ON SITE = 29.6 AC.
   1.1. EXISTING FOREST WITHIN PROJECT AREA: 3.10 AC.
2. ALL TREE DELINEATION AND ENVIRONMENTAL DATA SHOWN ON THIS FOREST CONSERVATION PLAN WERE FIELD-VERIFIED IN JULY 2025 BY GFT, INC. DURING COMPLETION OF THE FULL FOREST STAND DELINEATION (FSD). FIELD DATA COLLECTION AND VERIFICATION WERE CONDUCTED BY A MARYLAND-LICENSED LANDSCAPE ARCHITECT IN ACCORDANCE WITH COMAR 08.19.06 AND ANNE ARUNDEL COUNTY CODE §17-6-302.
3. ADDRESS: LAKE WATERFORD PARK, 830 PASADENA ROAD, PASADENA, MARYLAND 21122
4. OWNER: ANNE ARUNDEL COUNTY DEPARTMENT OF RECREATION AND PARKS, P.O. BOX 2700, ANNAPOLIS, MARYLAND 21404-2700.
5. ZONING: OS, OPEN SPACE
   TAX ID: 03-000-00477574
   TAX MAP / GRID: 0023 / 0006
   PARCEL: 0071
   LIBER / FOLIO: 02032 / 00015
   PROPERTY LAND AREA: 77.16 AC
6. THIS PROJECT WILL REMOVE 133,004 SQUARE FEET (3.1 ACRES) OF EXISTING FOREST FROM WITHIN THE NET TRACT AREA.
7. TOTAL FIDS MITIGATION REQUIRED = 6.20 ACRES (BASED ON 3.10 ACRES OF FOREST CLEARING AT A 2:1 MITIGATION RATIO IN ACCORDANCE WITH GREEN NOTICE OPZ-20-01).

   TOTAL SPECIMEN TREE MITIGATION REQUIRED = 2.13 ACRES (BASED ON THE REMOVAL OF 13 SPECIMEN TREES TOTALING 425 INCHES DBH AT 217.8 SQUARE FEET PER INCH).

   TOTAL MITIGATION REQUIRED = 8.33 ACRES.

   FOREST ENHANCEMENT AREAS (AREAS #1 THROUGH #6 AND #10) PROVIDE 15.24 ACRES OF FOREST ENHANCEMENT, WHICH YIELDS 7.62 ACRES OF MITIGATION CREDIT AT THE REQUIRED 50% CREDIT RATIO. REFORESTATION AREAS (AREAS #7 THROUGH #9 AND #11) PROVIDE 0.71 ACRES OF MITIGATION CREDIT. TOTAL ONSITE MITIGATION CREDIT PROVIDED = 8.33 ACRES.
8. FOREST ENHANCEMENT AREAS (AREAS #1 THROUGH #6 AND #10) ARE CREDITED AT 50%, AND REFORESTATION AREAS (AREAS #7 THROUGH #9 AND #11) ARE CREDITED AT 100% IN ACCORDANCE WITH ANNE ARUNDEL COUNTY REQUIREMENTS.
9. ALL REQUIRED FIDS MITIGATION AND SPECIMEN TREE MITIGATION CREDITS ARE PROVIDED ONSITE THROUGH THE COMBINATION OF FOREST ENHANCEMENT AND REFORESTATION AREAS SHOWN ON THIS PLAN. NO FEE-IN-LIEU OR OFFSITE MITIGATION IS PROPOSED.
10. ALL REFORESTATION AND FOREST ENHANCEMENT PLANTINGS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH ARTICLE 17, §§17-6-303 AND 17-6-304 OF THE ANNE ARUNDEL COUNTY CODE AND THE MARYLAND FOREST CONSERVATION TECHNICAL MANUAL (DNR 2005, AS AMENDED).
11. FOREST CLEARING WITHIN PRIORITY RETENTION AREAS IS INCLUDED AS PART OF MODIFICATION REQUEST MOD-2025-0060 SUBMITTED IN ACCORDANCE WITH ARTICLE 17-2-108 OF THE ANNE ARUNDEL COUNTY CODE. THE REQUEST ADDRESSES IMPACTS TO PRIORITY RETENTION AREAS IDENTIFIED UNDER ARTICLE 17-6-303(b), INCLUDING: (5) SPECIMEN TREES (≥30-INCH DBH), (6) FORESTED AREAS MEETING MINIMUM SIZE CRITERIA, AND (7) FOREST INTERIOR DWELLING SPECIES (FIDS) HABITAT. THE MODIFICATION REQUEST INCLUDES THE REMOVAL OF THIRTEEN (13) SPECIMEN TREES (425 INCHES DBH) AND CLEARING WITHIN FIDS HABITAT ASSOCIATED WITH THE PROPOSED PARK IMPROVEMENTS. FINAL FOREST CONSERVATION PLAN APPROVAL IS SUBJECT TO APPROVAL AND CONDITIONS OF MOD-2025-0060. IMPACTS TO FIDS HABITAT ARE ADDRESSED THROUGH DESIGN MINIMIZATION AND MITIGATION MEASURES AS DESCRIBED IN NOTE 13.
12. THE FORESTED AREAS WITHIN THE PROJECT SITE ARE IDENTIFIED AS FOREST INTERIOR DWELLING SPECIES (FIDS) HABITAT. IN ACCORDANCE WITH ANNE ARUNDEL COUNTY GUIDANCE AND GREEN NOTICE OPZ-20-01, THE PROPOSED DESIGN HAS BEEN CONFIGURED TO MINIMIZE FOREST FRAGMENTATION AND PRESERVE CONTIGUOUS FOREST AREAS TO THE MAXIMUM EXTENT PRACTICABLE. LIMITS OF DISTURBANCE HAVE BEEN CONSOLIDATED AROUND EXISTING DISTURBED AREAS, ACTIVE PARK USE ZONES, AND EXISTING INFRASTRUCTURE TO REDUCE ENCROACHMENT INTO INTERIOR FOREST. FOREST CLEARING HAS BEEN AVOIDED IN LARGE, CONTIGUOUS FOREST BLOCKS WHERE PRACTICABLE, AND IMPACTS ARE PRIMARILY LOCATED ALONG FOREST EDGES AND PREVIOUSLY MANAGED AREAS. PROPOSED FOREST ENHANCEMENT AND REFORESTATION AREAS ARE LOCATED TO REINFORCE EXISTING FOREST EDGES, IMPROVE FOREST CONTINUITY, AND REDUCE EDGE EFFECTS, CONSISTENT WITH FIDS HABITAT PROTECTION OBJECTIVES. THE EXPANDED FOREST ENHANCEMENT AREA LOCATED WEST OF THE PROPOSED IMPROVEMENTS PROVIDES ADDITIONAL FOREST STRUCTURE, NATIVE UNDERSTORY ESTABLISHMENT, AND LONG-TERM FOREST FUNCTION TO SATISFY THE REQUIRED ONSITE FIDS MITIGATION. THESE MEASURES ARE CONSISTENT WITH THE INTENT OF GREEN NOTICE OPZ-20-01 AND ARE DESIGNED TO MAINTAIN EXISTING FOREST FUNCTION AND SUPPORT FOREST INTERIOR HABITAT CONDITIONS. THE PROPOSED MITIGATION APPROACH IS CONSISTENT WITH THE INTENT OF GREEN NOTICE OPZ-20-01, WITH IMPACTS ADDRESSED THROUGH A COMBINATION OF DESIGN MINIMIZATION AND FOREST CONSERVATION MEASURES AS APPROVED THROUGH THE MODIFICATION PROCESS.
13. ONSITE FOREST CONSERVATION AND MITIGATION HAVE BEEN MAXIMIZED TO THE GREATEST EXTENT PRACTICABLE THROUGH THE USE OF FOREST ENHANCEMENT AND REFORESTATION AREAS SHOWN ON THIS PLAN (AREAS #1 THROUGH #11). THE FOREST ENHANCEMENT AREA HAS BEEN EXPANDED TO PROVIDE SUFFICIENT ONSITE MITIGATION TO SATISFY BOTH THE REQUIRED FOREST INTERIOR DWELLING SPECIES (FIDS) MITIGATION AND THE REQUIRED SPECIMEN TREE MITIGATION. ALL REQUIRED MITIGATION IS PROVIDED ONSITE IN ACCORDANCE WITH THE APPROVED MODIFICATION AND APPLICABLE ANNE ARUNDEL COUNTY REQUIREMENTS.
14. CULTURAL RESOURCES: COUNTY GIS IDENTIFIES A POTENTIAL CEMETERY (SELBY GROVE) WITHIN OR NEAR THE PROPERTY. PLANS HAVE BEEN FORWARDED TO THE OFFICE OF PLANNING AND ZONING (OPZ) CULTURAL RESOURCES SECTION FOR REVIEW. ANY COMMENTS OR REQUIREMENTS PROVIDED BY OPZ CULTURAL RESOURCES SHALL BE INCORPORATED INTO THE FINAL APPROVED PLANS. IF CULTURAL RESOURCES ARE ENCOUNTERED DURING CONSTRUCTION, WORK SHALL CEASE IN THE IMMEDIATE AREA AND ANNE ARUNDEL COUNTY SHALL BE NOTIFIED.

SOIL SUMMARY:

SYMBOL	MAP UNIT NAME	K RATING
PeB	Patapsco-Evesboro-Fort Mott complex, 0 to 5%	0.02 Low erodibility
PgB	Patapsco-Fort Mott-Urban land complex, 0 to 5%	0.02 Low erodibility
SME	Sassafras and Croom soils, 15 to 25%	0.15 Moderately low erodibility
ZBA	Zekiah and Issue soils, 0 to 2%, frequently flooded	0.32 Moderately high erodibility

LEGEND

- EXISTING FOREST ON PROJECT PROPERTY
- FOREST TO BE REMOVED
- FOREST ENHANCEMENT PLANTING AREA
- REFORESTATION PLANTING AREA
- REFORESTATION PLANTING AREA FROM LANDSCAPE PLAN
- EXISTING REFORESTATION PLANTING AREA
- SPECIMEN TREES #
- CRITICAL ROOT ZONE (CRZ) RZ CRZ
- SPECIMEN TREE TO BE REMOVED X
- TREE PROTECTION / ROOT PRUNING TP

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A QUALIFIED PROFESSIONAL UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE:

DATE: 8/05/26

CAUTION:
IF THIS DRAWING IS A REDUCTION, USE THE GRAPHIC SCALES.

1"=100'-0" 100 0 50 100 200

MITIGATION PLANTING SUMMARY:

PLANTING REQUIRED (FIDS & SPECIMEN TREE MITIGATION)	= 8.33 AC
FOREST ENHANCEMENT PROVIDED (AREAS 1–6,10)	= 15.24 AC
ALLOWABLE CREDIT (50%)	= 7.62 AC
REFORESTATION PROVIDED (AREAS 7 - 9, 11) *	= 0.71 AC
TOTAL ONSITE MITIGATION CREDIT PROVIDED	=8.33 AC

GENERAL NOTE:
1. * INDICATES REFORESTATION AREA (100% CREDIT). ALL OTHER AREAS ARE FOREST ENHANCEMENT (50% CREDIT).

SPECIMEN TREE MITIGATION:

SPECIMEN TREES TO BE REMOVED	= 13 TOTAL TREES / 425" DBH
REQUIRED MITIGATION RATIO	= 217.8 SQ.FT. PER 1" OF DBH
MITIGATION REQUIRED (217.8 × 425)	= 92,565 SQ.FT. / 2.13 AC

FOREST INTERIOR DWELLING SPECIES (FIDS) MITIGATION:

3.10 AC FOREST CLEARING REQUIRED MITIGATION RATIO @2:1	= 6.20 AC
MITIGATION REQUIRED	= 270,072 SQ.FT. / 6.20 AC

300 East Joppa Road Suite 200
Baltimore, MD 21286
410.512.4500 www.gftinc.com

GFT

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 100'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	OVERALL FOREST CONSERVATION PLAN
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 45 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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* NOTE:

1. ST-4 SHALL BE PRESERVED. LIMITS OF DISTURBANCE AND GRADING HAVE BEEN ADJUSTED TO LIMIT CRITICAL ROOT ZONE IMPACT TO APPROXIMATELY 21%. TREE PROTECTION MEASURES SHALL BE IMPLEMENTED IN ACCORDANCE WITH THE APPROVED PLAN.
2. ROOT PRUNING, WHERE NECESSARY, SHALL BE PERFORMED UNDER THE DIRECTION OF A CERTIFIED ARBORIST.
3. NO STOCKPILING OR EQUIPMENT STORAGE SHALL OCCUR WITHIN THE FENCED AREA.

LEGEND

- EXISTING FOREST ON PROJECT PROPERTY
- FOREST TO BE REMOVED
- FOREST ENHANCEMENT PLANTING AREA
- REFORESTATION PLANTING AREA
- REFORESTATION PLANTING AREA FROM LANDSCAPE PLAN
- EXISTING REFORESTATION PLANTING AREA
- SPECIMEN TREES (#)
- CRITICAL ROOT ZONE (CRZ)
- SPECIMEN TREE TO BE REMOVED (X)
- TREE PROTECTION / ROOT PRUNING (TP)

CAUTION:
IF THIS DRAWING IS A REDUCTION,
USE THE GRAPHIC SCALES.

1"=40'-0" (40 0 20 40 80)

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A QUALIFIED PROFESSIONAL UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE:

DATE: 8/05/26

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Baltimore, MD 21286
410.512.4500 www.gftinc.com

LANDSCAPE ARCHITECTURE
RICHARD W. HUNTER
No. 3304
STATE OF MARYLAND

REVISIONS			
NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 40'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	FOREST CONSERVATION PLAN
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 46 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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CAUTION:
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USE THE GRAPHIC SCALES.

1"=40'-0" 40 0 20 40 80

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SIGNATURE:

DATE: 8/05/26

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REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 40'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	FOREST CONSERVATION PLAN
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 47 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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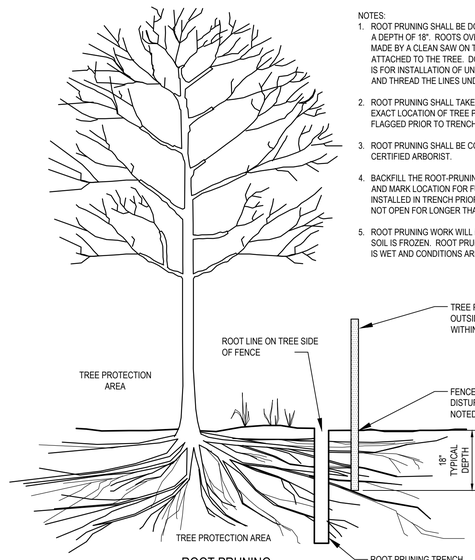
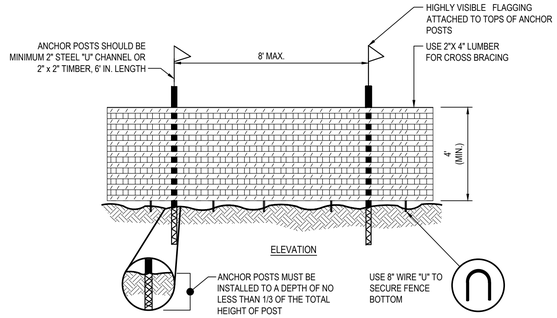


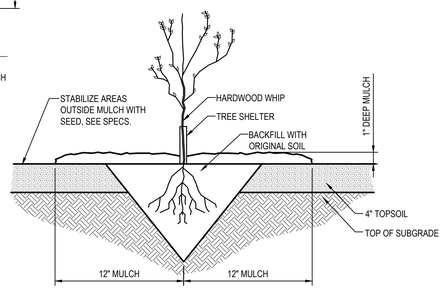
NOTES:
1. ROOT PRUNING SHALL BE DONE WITH A TRENCHER OR VIBRATORY PLOW TO A DEPTH OF 18". ROOTS OVER 1.5" IN DIAMETER SHALL HAVE A CLEAN CUT MADE BY A CLEAN SAW ON THE SURFACE OF THE ROOT, WHICH IS STILL ATTACHED TO THE TREE. DO NOT PAINT THE CUT ROOT END. IF EXCAVATION IS FOR INSTALLATION OF UNDERGROUND UTILITIES, LEAVE THE ROOT INTACT AND THREAD THE LINES UNDERNEATH.
2. ROOT PRUNING SHALL TAKE PLACE PRIOR TO ANY CLEARING AND GRADING. EXACT LOCATION OF TREE PROTECTION AREAS SHALL BE STAKED OR FLAGGED PRIOR TO TRENCHING.
3. ROOT PRUNING SHALL BE CONDUCTED WITH THE SUPERVISION OF A CERTIFIED ARBORIST.
4. BACKFILL THE ROOT-PRUNING TRENCH WITH EXCAVATED SOIL AND MULCH AND MARK LOCATION FOR FUTURE REFERENCE. SILT FENCE MAY BE INSTALLED IN TRENCH PRIOR TO BACKFILLING AS LONG AS THE TRENCH IS NOT OPEN FOR LONGER THAN 48 HOURS WITHOUT WATERING.
5. ROOT PRUNING WORK WILL NOT BE DONE WHEN MORE THAN TOP 1 INCHOF SOIL IS FROZEN. ROOT PRUNING WILL NOT BE UNDERTAKEN WHEN THE SOIL IS WET AND CONDITIONS ARE MUDDY.

ROOT PRUNING
NOT TO SCALE



NOTES:
1. BLAZE ORANGE OR BLUE PLASTIC MESH FENCE FOR FOREST PROTECTION DEVICE ONLY.
2. BOUNDARIES OF RETENTION AREA WILL BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHALL BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
4. AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OR SEVER LARGE ROOTS WHEN INSTALLING POSTS.
5. PROTECTION SIGNS ARE REQUIRED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION FENCE
NOT TO SCALE

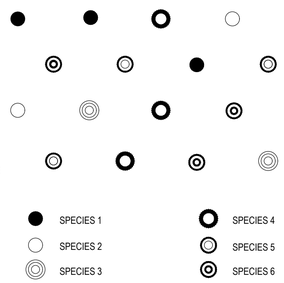


NOTES:
1. EXTREME CARE SHALL BE TAKEN TO INSURE RETAINED MOISTURE OF THE ROOTS. A MOIST CARRYING CONTAINER SHALL BE USED WHEN TRANSPORTING WHIPS TO THE FIELD.
2. DO NOT SUBMERGE ROOTS OF WHIPS IN WATER OVERNIGHT.

ELEVATION

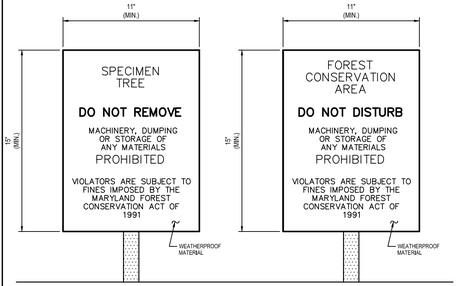
TYPICAL PLANTING LAYOUT
NOT TO SCALE

WHIP / SHRUB PLANTING
NOT TO SCALE



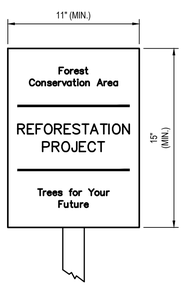
NOTE:
VARY PLANTING OF SPECIES TO ACHIEVE RANDOM PATTERN. IF SHRUBS PLANT IN ODD MASSING OF 1, 3 AND / OR 5.

6 PLANT LAYOUT



NOTES:
1. BOTTOM OF SIGNS TO BE HIGHER THAN TOP OF TREE PROTECTION FENCE.
2. SIGNS TO BE PLACED APPROXIMATELY 100' APART ALONG THE LIMITS OF DISTURBANCE. CONDITIONS ON SITE AFFECTING VISIBILITY MAY WARRANT PLACING SIGNS CLOSER OR FARTHER APART.
3. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.

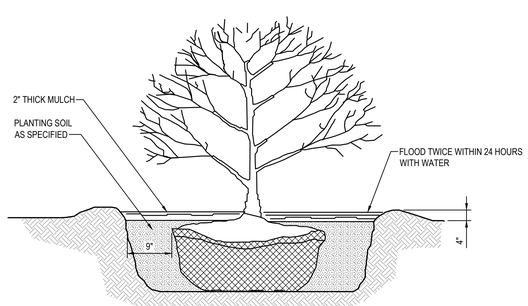
CONSTRUCTION SIGNS
NOT TO SCALE



NOTES:
1. SIGNAGE TO BE INSTALLED ALONG THE COMMON BOUNDARY OF THE TREE PROTECTION FENCE WITH REFORESTATION / AFFORESTATION PLANTING AREAS.
2. SIGNS TO BE INSTALLED A MAXIMUM OF 100' ON CENTER AND AT EVERY CORNER OF THE PROTECTED AREA.
3. SIGNS TO BE MOUNTED AT A HEIGHT OF 4' ON 4"X4" PRESSURE TREATED POSTS.
4. SIGNAGE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

ELEVATION

AFFORESTATION PROTECTION SIGNAGE
NOT TO SCALE



NOTES:
1. SHRUBS SHALL BE PLANTED IN TILLED, MULCHED BEDS WHICH HAVE BEEN AMENDED WITH EITHER PEAT MOSS OR COMPOSTED LEAF MOLD.
2. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND ALL MATERIALS.

ELEVATION

SHRUB
NOT TO SCALE

AFFORESTATION OR REFORESTATION MAINTENANCE AND REPLACEMENT REQUIREMENTS

A MINIMUM TWO (2)-YEAR MAINTENANCE AND REPLACEMENT PERIOD IS REQUIRED FOR ALL NEWLY PLANTED MATERIALS, OR AS OTHERWISE REQUIRED BY ARTICLE 17, SUBTITLE 3 OF THE ANNE ARUNDEL COUNTY CODE AND THE COUNTY'S FOREST CONSERVATION PROGRAM GUIDELINES. THE MAINTENANCE AND REPLACEMENT WARRANTY PERIOD SHALL COMMENCE UPON THE WRITTEN ACCEPTANCE OF THE PLANTING AREAS BY THE OWNER/PERMITTEE AND ANNE ARUNDEL COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS (I&P). A WRITTEN WARRANTY AND MAINTENANCE RECORD SHALL BE PROVIDED TO I&P AT THE TIME OF ACCEPTANCE.

THE OWNER/PERMITTEE SHALL BE RESPONSIBLE FOR ENSURING ALL AFFORESTATION AND REFORESTATION AREAS ARE MAINTAINED AND REPLACED IN ACCORDANCE WITH COUNTY STANDARDS, EVEN IF MAINTENANCE IS PERFORMED BY A CONTRACTOR. ALL LANDSCAPE PLANT MATERIAL INSTALLED FOR FOREST CONSERVATION CREDIT SHALL BE COVERED UNDER THIS MAINTENANCE AND REPLACEMENT PROGRAM.

MAINTENANCE

THE CONTRACTOR SHALL FIELD-INSPECT ALL NEWLY PLANTED AREAS AND PROVIDE THE FOLLOWING MAINTENANCE ACTIVITIES IN ACCORDANCE WITH COUNTY REQUIREMENTS AND THE APPROVED FOREST CONSERVATION PLAN. MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER ACCEPTANCE OF THE PLANTING INSTALLATION.

1. WATERING: WATER ALL NEWLY PLANTED TREES ONCE PER WEEK AS WEATHER PERMITS DURING THE INITIAL GROWING SEASON. THEREAFTER, WATER ON AN "AS NEEDED" BASIS DEPENDING ON NATURAL RAINFALL. DURING JULY, AUGUST, OR PERIODS OF DROUGHT, THOROUGHLY WATER EACH TREE ONCE PER WEEK. WATER DEEPLY AND SLOWLY, ALLOWING FULL SOIL SATURATION OF THE ROOT ZONE. MAINTAIN WATERING LOGS AND SUBMIT TO I&P UPON REQUEST.
2. FERTILIZING: FERTILIZE ONLY AFTER SOIL TESTING INDICATES A NEED. APPLY ORGANIC OR SLOW-RELEASE FERTILIZER AT THE RATES RECOMMENDED IN THE SOIL ANALYSIS REPORT. NO FERTILIZATION SHALL OCCUR WITHIN THE FIRST GROWING SEASON AFTER PLANTING. SUBSEQUENT APPLICATIONS MAY OCCUR IN EARLY SPRING OR LATE FALL PER COUNTY GUIDELINES.
3. SUPPLEMENTAL MULCH: MAINTAIN A 3-INCH LAYER OF ORGANIC MULCH AROUND EACH PLANTING TO SUPPRESS WEEDS AND RETAIN SOIL MOISTURE. REMOVE INVASIVE VEGETATION BY HAND WITHIN MULCH ZONES. MECHANICAL TRIMMING, HERBICIDE APPLICATION, OR ROOT DISTURBANCE IS PROHIBITED.
4. INVASIVE SPECIES CONTROL: MONITOR AFFORESTATION AND REFORESTATION AREAS FOR INVASIVE VINES, SHRUBS, OR HERBACEOUS WEEDS AT LEAST QUARTERLY. REMOVE OR TREAT INVASIVES USING COUNTY-APPROVED METHODS.
5. PRUNING: REMOVE DEAD, DISEASED, DYING, AND BROKEN BRANCHES FROM ALL PLANT MATERIALS. PRUNING SHALL BE DONE CLEANLY, LEAVING NO RAGGED EDGES.
6. PROTECTION DEVICES: MAINTAIN ALL TREE SHELTERS, STAKES, AND SIGNAGE IN UPRIGHT, FUNCTIONAL CONDITION THROUGHOUT THE MAINTENANCE PERIOD. REPLACE OR REPAIR DAMAGED DEVICES AS NEEDED. REMOVE SHELTERS AT THE END OF THE MAINTENANCE PERIOD ONLY UPON COUNTY APPROVAL.

REPLACEMENT OF DEAD OR DYING MATERIALS

1. SURVIVAL REQUIREMENT: AREAS AT THE END OF THE SECOND GROWING SEASON SHALL MEET THE FOLLOWING MINIMUM PERCENTAGES OF TOTAL PLANTS SPECIFIED BY THE APPROVED PLAN:
   A. BARE ROOT SEEDLINGS OR WHIPS- 55%
   B. CONTAINER-GROWN SEEDLING TUBES OR WHIPS WITH TREE SHELTERS- 65%
   C. CONTAINER-GROWN 1.-2.- AND 3- GALLON- 75%
   D. CONTAINER-GROWN 5- AND 7- GALLON OR 1" CAL.) B&B- 85%
   E. 2" CAL. B&B- 100%.
2. INSPECTION: CONTRACTOR SHALL SCHEDULE AN INSPECTION OF THE AFFORESTATION OR REFORESTATION AREA(S) BY A QUALIFIED REPRESENTATIVE OF ANNE ARUNDEL COUNTY AND BY THE QUALIFIED PROFESSIONAL WHO PREPARED THE PLAN (GFT, INC.), AT THE BEGINNING AND AT THE END OF THE GROWING SEASON TO OBSERVE ANY PROBLEMS, MONITOR SURVIVAL RATE, AND SPECIFY NECESSARY REMEDIAL ACTIONS. THE INSPECTION SHALL FOCUS ON:
   A. VIGOR AND THREAT OF COMPETING VEGETATION
   B. PLANT STRUCTURE
   C. GROWTH RATE
   D. CROWN DEVELOPMENT
   E. TRUNK CONDITIONS AND HEALTH.
3. PLANT CONDITION CHECK SHEETS: THE CONTRACTOR SHALL MAINTAIN ACCURATE RECORDS ON FIELD DATA CHECK SHEETS DOCUMENTING ALL CONDITIONS RELATED TO PLANT HEALTH AND SURVIVAL. CHECK SHEETS SHALL BE COMPLETED DURING EACH MAINTENANCE VISIT THROUGHOUT THE 24-MONTH PERIOD. ONE COPY SHALL BE PROVIDED TO THE OWNER, ONE COPY TO GFT, INC., AND ONE COPY TO ANNE ARUNDEL COUNTY.
4. REPLACEMENT: ANY PLANT MATERIALS WHICH ARE 25% DEAD OR MORE SHALL BE REPLACED DURING THE APPROPRIATE SPRING OR FALL PLANTING SEASONS IN ACCORDANCE WITH THE PLANTING DETAILS. ALL REPLACEMENTS SHALL MATCH THE ORIGINAL SPECIES AND SIZE.
5. INSPECTION/CERTIFICATION SCHEDULE: THE CONTRACTOR SHALL SUBMIT A SCHEDULE INCLUDING INSPECTIONS BY GFT, INC. AT THE CONCLUSION OF INSTALLATION AND AT THE START AND END OF EACH GROWING SEASON DURING THE TWO-YEAR WARRANTY PERIOD.
6. PENALTY FOR VIOLATION: A FINAL SITE INSPECTION SHALL BE CONDUCTED AT THE END OF THE 24-MONTH MAINTENANCE PERIOD BY THE CONTRACTOR AND A REPRESENTATIVE OF GFT,INC. IF THE REQUIRED SURVIVAL RATE IS NOT MET, THE REMAINING BOND OR SURETY MAY BE SUBJECT TO FORFEITURE OR OTHER PENALTIES AS DETERMINED BY ANNE ARUNDEL COUNTY.

REFORESTATION PLANTING SCHEDULE

	RFA #1	RFA #2	RFA #3	RFA #4	RFA #5	RFA #6	RFA #7	RFA #8	RFA #9	RFA #10	RFA #11				
ACREAGE	0.11 AC	0.17 AC	0.07 AC	0.06 AC	0.38 AC	0.85 AC	*.07 AC	*.23 AC	*.11 AC	1.64 AC	*.30 AC				
P.U. REQUIRED	22	34	14	12	76	170	14	46	22	328	60				
	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	SPECIES	SIZE	SPACING	TOTAL RFA UNITS
	4	6	2	2	15	30	2	8	4	46	5	ACER RUBRUM - RED MAPLE	1.5 CAL.	11' O.C.	119
	4	6	0	2	7	0	2	8	4	40	15	QUERCUS FALCATA - SOUTHERN RED OAK	1.5 CAL.	11' O.C.	73
	0	0	2	0	0	20	2	8	4	0	10	QUERCUS PALUSTRIS - PIN OAK	1.5 CAL.	11' O.C.	36
	0	5	0	0	7	0	2	8	4	30	15	QUERCUS RUBRA - RED OAK	1.5 CAL.	11' O.C.	56
	0	0	0	0	0	0	3	7	3	0	5	LIRIODENDRON TULIPIFERA - TULIP POPLAR	1.5 CAL.	11' O.C.	13
	0	6	4	0	25	35	0	0	3	76	0	CERCIS CANADENSIS - EASTERN REDBUD	1.5 CAL.	11' O.C.	149
	4	6	0	2	10	0	0	0	0	76	0	CARPINUS CAROLINIANA - AMERICAN HORNBEAM	1.5 CAL.	11' O.C.	98
	3	0	4	2	0	35	0	0	0	0	10	OSTRYA VIRGINIANA - EASTERN HOPHORNBEAM	1.5 CAL.	11' O.C.	44
	0	5	0	3	12	30	0	0	0	0	0	AMELANCHIER CANADENSIS - SERVICEBERRY	1.5 CAL.	11' O.C.	50
	7	0	2	1	0	20	3	7	0	60	0	ILEX OPACA - AMERICAN HOLLY	5–6' HT	11' O.C.	100
	10	15	10	5	15	30	0	0	0	45	0	VIBURNUM PRUNIFOLIUM - BLACKHAW VIBURNUM	3 GAL.	11' O.C.	130
	10	15	10	5	15	30	0	0	0	45	0	VIBURNUM DENTATUM - ARROWWOOD VIBURNUM	3 GAL.	11' O.C.	130
P.U. PROVIDED	22	34	14	12	76	170	14	46	22	328	60			TOTAL PLANTINGS	998

NOTES:
1. Trees planted in reforestation areas are 1.5" caliper B&B stock. Due to PU requirements and limited reforestation area, trees are spaced at approximately 11' on center. This density is consistent with typical reforestation practices, allows for natural thinning over time, and meets County planting unit and area requirements per Appendix A, Figure A.18.
2. Shrubs shall be installed in naturalized groupings and clusters (3, 5, or 7 plants per grouping) to create irregular woodland structure. Spacing within clusters shall range from 5 to 8 feet on center. Clusters shall be staggered and distributed throughout the reforestation areas to avoid linear planting patterns. Shrub layout shall be field-adjusted to accommodate microtopography and canopy tree placement.
3. * Indicates reforestation area (full credit). All other areas are forest enhancement (50% credit).

SEQUENCE OF OPERATIONS

PRE-CONSTRUCTION SITE PREPARATION

ALL CONSTRUCTION ACTIVITIES, PRACTICES, AND TECHNIQUES SHALL BE IN ACCORDANCE WITH THE MARYLAND FOREST CONSERVATION PROGRAM, AS SPECIFIED IN THE STATE FOREST CONSERVATION TECHNICAL MANUAL (LATEST EDITION). IN THE EVENT OF A CONFLICT BETWEEN THESE PLANS AND THE TECHNICAL MANUAL, THE TECHNICAL MANUAL SHALL GOVERN.

1. INSTALL TREE PROTECTION FENCING AND IMPLEMENT TREE PROTECTION MEASURES AS SHOWN ON THE APPROVED PLANS PRIOR TO ANY LAND DISTURBANCE. TREE PROTECTION SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION IN ACCORDANCE WITH COUNTY REQUIREMENTS.
2. MOW OR BRUSHHOG EXISTING VEGETATION WITHIN THE LIMITS OF PROPOSED REFORESTATION AND AFFORESTATION AREAS. DO NOT REMOVE OR DAMAGE EXISTING TREES, SAPLINGS, OR NATURAL REGENERATION UNLESS SPECIFICALLY IDENTIFIED FOR REMOVAL.
3. REMOVE OR TREAT INVASIVE AND NOXIOUS VEGETATION, INCLUDING BUT NOT LIMITED TO MULTIFLORA ROSE, MILE-A-MINUTE (TEARTHUMB), AND JOHNSON GRASS, USING APPROVED METHODS PRIOR TO INSTALLATION OF PLANT MATERIAL.
4. INSTALL TREE PROTECTION SIGNAGE AT ALL PROTECTED AREAS IN ACCORDANCE WITH THE APPROVED PLAN AND COUNTY STANDARDS.
5. STABILIZE ALL DISTURBED AREAS WITH AN APPROVED SEED MIX OR STABILIZATION METHOD THAT SUPPORTS THE ESTABLISHMENT OF NATIVE FOREST VEGETATION AND NATURAL SUCCESSION.

FOREST RETENTION SEQUENCE OF OPERATIONS

ALL CONSTRUCTION ACTIVITIES, PRACTICES, TECHNIQUES, ETC., SHALL BE IN CONFORMANCE WITH THE MARYLAND FOREST CONSERVATION PROGRAM, AS SPECIFIED IN THE STATE FOREST CONSERVATION TECHNICAL MANUAL. IN THE EVENT OF A CONFLICT BETWEEN THESE PLANS AND THE TECHNICAL MANUAL, THE TECHNICAL MANUAL SHALL GOVERN.

1. PRIOR TO BEGINNING ANY GRADING OPERATIONS ON THIS SITE OR ON A RESPECTIVE LOT, THERE SHALL BE A PRECONSTRUCTION MEETING HELD AT THE SITE. WHICH IS TO INCLUDE THE CONTRACTOR AND REPRESENTATIVES FROM GFT, INC. THE ANNE ARUNDEL COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS (I&P) AND THE OWNER WILL BE NOTIFIED BY THE CONTRACTOR AS TO THE TIME AND PLACE OF THE FIELD MEETING, SHOULD THEY WISH TO SEND A REPRESENTATIVE. THE PURPOSE OF THIS MEETING WILL BE TO REVIEW THE APPROVED FCP AND TO FIELD VERIFY THE CORRECT LIMITS OF DISTURBANCE (LOD).
2. THE LIMITS OF DISTURBANCE (LOD) PERTINENT TO THE PRESERVATION OF WOODED AREAS SHALL BE STAKED IN THE FIELD WITH FINAL ADJUSTMENTS BEING MADE AS NECESSARY TO ENSURE ADEQUATE PROTECTION OF THE CRITICAL ROOT ZONE OF TREES DESIGNATED FOR RETENTION.
   STAKES TO BE USED SHALL BE THOSE SPECIFIED FOR THE "TREE PROTECTION DEVICES" TO WHICH APPROVED PROTECTIVE MATERIAL WILL BE ATTACHED.
3. ALTERNATE MEANS OF DEFINING THE LOD MAY BE USED IF APPROVED BY ANNE ARUNDEL COUNTY.ALL FOREST RETENTION AREAS SHALL BE PROTECTED BY HIGHLY VISIBLE, WELL-ANCHORED, TEMPORARY PROTECTION DEVICES (SEE DETAIL), WHICH SHALL BE SECURELY IN PLACE PRIOR TO ANY CLEARING OR GRADING OPERATIONS.
4. GRADING OPERATIONS OR OTHER CONSTRUCTION OPERATIONS THAT COULD DISLODGE OR OTHERWISE DAMAGE THE PROTECTIVE DEVICES SHALL BE AVOIDED ALONG THE EDGES OF THE LOD LINES IF POSSIBLE. THE CONTRACTOR SHALL PROPERLY REPAIR ANY PROTECTIVE DEVICES, WHICH ARE DAMAGED DURING SITE CONSTRUCTION OPERATIONS, IMMEDIATELY.
5. AFTER SITE GRADING AND CONSTRUCTION HAVE BEEN COMPLETED, ALL EXISTING TREES ADJACENT TO THE LOD LINE SHALL BE INSPECTED FOR INDICATIONS OF CROWN DIE-BACK (SUMMER INDICATOR), DAMAGE WITHIN RESPECTIVE CRITICAL ROOT ZONES, ANY DEAD WOOD OR OTHER CONDITIONS WHICH MIGHT BE HAZARDOUS SUCH AS TO PEDESTRIANS, BUILDINGS, UTILITY LINES, VEHICULAR ACCESS WAYS, OR PARKED VEHICLES.
   A. SHOULD THERE BE EVIDENCE OF ANY DAMAGE TO TREE TRUNKS, BRANCHES, OR OTHER CRITICAL ROOT ZONE OF TREES WITHIN THE PROTECTED AREAS, OR TO ISOLATED SPECIMEN TREES TO BE PRESERVED, THE DAMAGE SHALL BE EXAMINED WITHIN A PERIOD OF TWO (2) DAYS FROM THE DATE OF OBSERVANCE BY A LICENSED TREE CARE PROFESSIONAL. EXPOSED ROOTS SHOULD BE COVERED IMMEDIATELY TO A DEPTH OF 6-8 INCHES WITH SOIL, PREFERABLY MIXED WITH 50% PEAT MOSS OR LEAF MOLD.
   B. THE CONTRACTOR SHALL REMOVE DAMAGED, DEAD, OR DYING TREES OR LIMBS ONLY IF THE TREES OR LIMBS POSE AN IMMEDIATE SAFETY HAZARD TO BUILDINGS, UTILITY LINES, VEHICLES, OR ACCESS AND EGRESS DRIVES OR PEDESTRIAN AREAS. TREES DESIGNATED FOR PRUNING OR REMOVAL SHALL BE PRUNED OR REMOVED USING EQUIPMENT AND METHODS WHICH WILL NOT DAMAGE OR DESTROY ADJACENT LARGE TREES OR UNDERSTORY TREES OR SHRUBS DESIGNATED FOR RETENTION.
6. ALL TEMPORARY FOREST PROTECTION DEVICES SHALL BE CAREFULLY REMOVED AFTER ALL GENERAL CONSTRUCTION, NECESSARY TREE SURGERY, REMOVAL OF DEBRIS, REGRADING, AND STABILIZATION OF DISTURBED AREAS HAVE BEEN COMPLETED, AND AFTER FINAL ACCEPTANCE BY ANNE ARUNDEL COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS (I&P).

AFFORESTATION/REFORESTATION PLANTING SEQUENCE OF OPERATIONS

ALL CONSTRUCTION ACTIVITIES, PRACTICES, TECHNIQUES, ETC., SHALL BE IN CONFORMANCE WITH THE MARYLAND FOREST CONSERVATION PROGRAM, AS SPECIFIED IN THE STATE FOREST CONSERVATION TECHNICAL MANUAL. IN THE EVENT OF A CONFLICT BETWEEN THESE PLANS AND THE TECHNICAL MANUAL, THE TECHNICAL MANUAL SHALL GOVERN.

1. THE CONTRACTOR(S) SHALL INFORM THE ANNE ARUNDEL COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS (I&P) WHEN PLANTING OPERATIONS ARE TO BEGIN.
2. DETERMINE STORAGE AREAS FOR MATERIALS AND EQUIPMENT. OBTAIN APPROVAL OF LOCATION FROM OWNER AND ANNE ARUNDEL COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS (I&P).
3. PRIOR TO BEGINNING ANY PLANTING, THE SOILS WITHIN THE AREA(S) DESIGNATED FOR AFFORESTATION OR REFORESTATION SHALL BE ANALYZED REGARDING THE FOLLOWING FEATURES: NUTRIENT CONTENT, ORGANIC MATTER, STRUCTURE, PH AND CATION EXCHANGE CAPACITY. SOILS THAT HAVE BEEN ACTIVELY FORMED MAY REQUIRE EVALUATION FOR PESTICIDE OR HERBICIDE CONTAMINATION. THE LOCAL SOIL CONSERVATION SERVICE OR AGRICULTURAL EXTENSION SERVICE MAY PERFORM SUCH ANALYSIS. A MINIMUM OF THREE RANDOM SAMPLES SHOULD BE COLLECTED FOR THE ANALYSIS. AN ASSESSMENT OF SOIL MOISTURE SHOULD ALSO BE MADE AT THIS TIME. CORRECTIVE MEASURES SHALL BE MADE IN ACCORDANCE WITH ANALYSIS RESULTS AND RECOMMENDATIONS.
4. THE CONTRACTOR, ASSISTED BY A REPRESENTATIVE OF GFT, INC., SHALL STAKE (OR WIRE-FLAG) PLANTING AREA LIMITS AND PLANT LOCATIONS IN ACCORDANCE WITH THE PLAN AND DETAILS.
5. PROVIDE AND PLANT ALL TREES OF THE SPECIES AND SIZES SPECIFIED AND IN ACCORDANCE WITH THE DETAIL(S) SHOWN ON THE FOREST CONSERVATION PLANS, UNLESS OTHERWISE DIRECTED BY ANNE ARUNDEL COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS (I&P). ANY SPECIES SUBSTITUTIONS SHALL BE APPROVED BY GFT, INC. OR ANNE ARUNDEL COUNTY. THE CONTRACTOR IS URGED TO SEEK SUCH APPROVAL PRIOR TO ORDERING OR PLANTING.
6. AT THE COMPLETION OF PLANTING, REMOVE ALL EXCESS MATERIALS AND MISCELLANEOUS DEBRIS FROM THE RESPECTIVE AREA(S) OF WORK.
7. PROTECTION DEVICES: TO PREVENT DAMAGE WITHIN PLANTED AREAS, ALL REFORESTATION AND/OR AFFORESTATION SITES MUST BE POSTED WITH APPROPRIATE SIGNS AND THE AREA(S) DELINEATED WITH APPROPRIATE PROTECTIVE FENCING. NEITHER CONSTRUCTION EQUIPMENT NOR STORAGE OF MATERIALS SHALL BE PERMITTED WITHIN THE PLANTED AREAS. DETAILS ARE SHOWN ON THE FOREST CONSERVATION PLANS REGARDING TYPICAL SIGN SIZE AND WORDING. NO PEDESTRIAN TRAFFIC SHALL BE ALLOWED WITHIN THE PROTECTED AREAS.
8. ATTACHMENT OF SIGNS OR ANY OTHER OBJECTS TO TREES WITHIN THE PROTECTED AREAS IS PROHIBITED.

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A QUALIFIED PROFESSIONAL UNDER THE LAWS OF THE STATE OF MARYLAND.
SIGNATURE:
DATE: 8/05/26

300 East Joppa Road Suite 200
Baltimore, MD 21286
410.512.4500 www.gftinc.com

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: NOT TO SCALE	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	FOREST CONSERVATION NOTES AND DETAILS
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 48 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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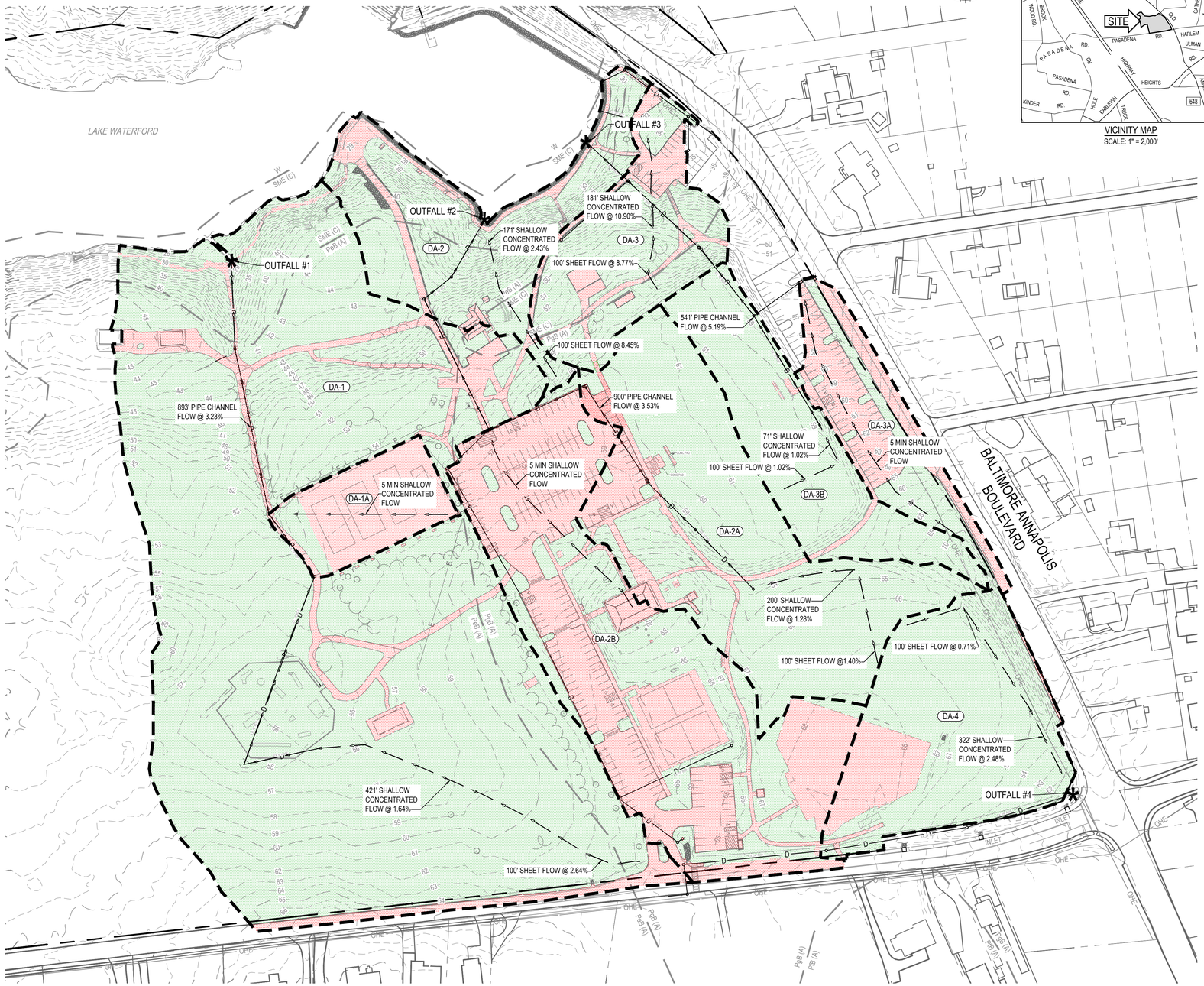
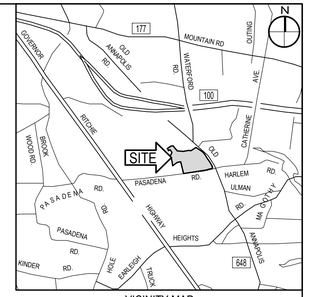
Existing	DA-1	Open Space "A"	Open Space "C"	Woods "A"	Woods "C"	Impervious "A"	Impervious "C"	CN	Tc (min.)	Q10 (cfs)
Sq.ft.	521,153	122,779	1,298	323,414	33,191	36,690	3,781	40	24.2	0.48
Acres	11.96	2.82	0.03	7.42	0.76	0.84	0.09			
Existing	DA-1A	Open Space "A"	Open Space "C"	Woods "A"	Woods "C"	Impervious "A"	Impervious "C"	CN	Tc (min.)	Q10 (cfs)
Sq.ft.	30,866	3,485	0.00	0.00	0.00	27,381	0.00	91	5	4.63
Acres	0.71	0.08	0.00	0.00	0.00	0.63	0.00			
Existing	DA-2	Open Space "A"	Open Space "C"	Woods "A"	Woods "C"	Impervious "A"	Impervious "C"	CN	Tc (min.)	Q10 (cfs)
Sq.ft.	80,923	14,550	16,815	13,797	23,681	2,516	9,564	63	5.9	4.58
Acres	1.82	0.31	0.37	0.32	0.54	0.05	0.23			
Existing	DA-2A	Open Space "A"	Open Space "C"	Woods "A"	Woods "C"	Impervious "A"	Impervious "C"	CN	Tc (min.)	Q10 (cfs)
Sq.ft.	142,750	123,967	0.00	0.00	0.00	18,783	0.00	47	14.6	1.21
Acres	3.28	2.85	0.00	0.00	0.00	0.43	0.00			
Existing	DA-2B	Open Space "A"	Open Space "C"	Woods "A"	Woods "C"	Impervious "A"	Impervious "C"	CN	Tc (min.)	Q10 (cfs)
Sq.ft.	174,454	60,228	0.00	0.00	0.00	114,226	0.00	78	5	19.15
Acres	4.00	1.38	0.00	0.00	0.00	2.62	0.00			
Existing	DA-3	Open Space "A"	Open Space "C"	Woods "A"	Woods "C"	Impervious "A"	Impervious "C"	CN	Tc (min.)	Q10 (cfs)
Sq.ft.	60,757	11,065	8,220	3,874	22,672	1,843	13,083	69	5.9	4.61
Acres	1.38	0.24	0.19	0.09	0.52	0.01	0.33			
Existing	DA-3A	Open Space "A"	Open Space "C"	Woods "A"	Woods "C"	Impervious "A"	Impervious "C"	CN	Tc (min.)	Q10 (cfs)
Sq.ft.	42,918	14,805	0.00	0.00	0.00	28,113	0.00	78	5	4.70
Acres	0.99	0.34	0.00	0.00	0.00	0.65	0.00			
Existing	DA-3B	Open Space "A"	Open Space "C"	Woods "A"	Woods "C"	Impervious "A"	Impervious "C"	CN	Tc (min.)	Q10 (cfs)
Sq.ft.	62,550	61,042	0.00	0.00	0.00	1,508	0.00	40	14	0.06
Acres	1.44	1.40	0.00	0.00	0.00	0.03	0.00			
Existing	DA-4	Open Space "A"	Open Space "C"	Woods "A"	Woods "C"	Impervious "A"	Impervious "C"	CN	Tc (min.)	Q10 (cfs)
Sq.ft.	91,580	76,529	0.00	0.00	0.00	15,051	0.00	49	17.9	0.94
Acres	2.10	1.76	0.00	0.00	0.00	0.35	0.00			





VICINITY MAP
SCALE: 1" = 2,000'

LEGEND

EXISTING CONTOUR	60 / 59
SOILS TYPES	SME (C) PeB (A)
Tc PATH	A → B
DRAINAGE BOUNDARY	
POINT OF INTEREST	POI#
IMPERVIOUS AREA	
PERVIOUS AREA	

CAUTION:
IF THIS DRAWING IS A REDUCTION,
USE THE GRAPHIC SCALES.

1"=80'-0" (80 0 40 80 160)

GFT
300 East Joppa Road Suite 200
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STATE OF MARYLAND — JESSE MICHAEL LINDSAY — NO. 27734 REGISTERED PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/28

REVISIONS

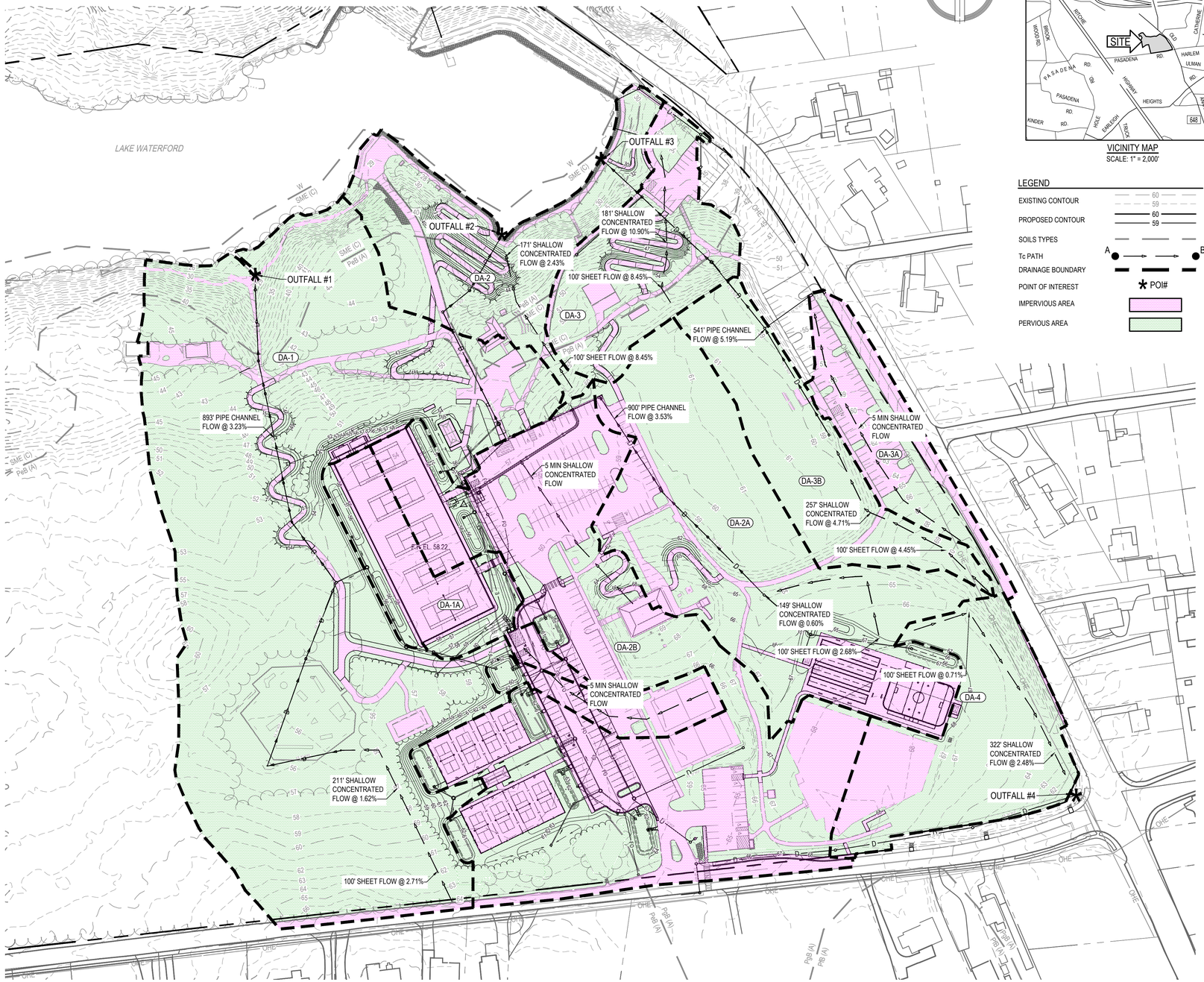
NO.	DESCRIPTION	BY	DATE

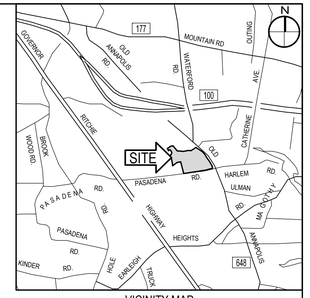
ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 80'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	EXISTING DRAINAGE AREA MAP
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 49 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

G:\Projects_2024\BL720\720240037\Site\Drawings\720240037-EXDA-Existing Drainage Area.dwg Jul 22, 2026 - 1:52pm Plot By: thwang

Proposed	DA-1	Open Space "A"	Open Space "C"	Woods "A"	Woods "C"	Impervious "A"	Impervious "C"	CN	Tc (min.)	Q10 (cfs)
Sq.ft.	402,376	117,868	1,298	211,454	33,191	34,784	3,781	42	22.3	0.74
Acres	9.24	2.71	0.03	4.85	0.76	0.80	0.09			
Proposed	DA-1A	Open Space "A"	Open Space "C"	Woods "A"	Woods "C"	Impervious "A"	Impervious "C"	CN	Tc (min.)	Q10 (cfs)
Sq.ft.	62,748	15,945	0.00	0.00	0.00	46,803	0.00	69	5	4.96
Acres	1.44	0.37	0.00	0.00	0.00	1.07	0.00			
Proposed	DA-2	Open Space "A"	Open Space "C"	Woods "A"	Woods "C"	Impervious "A"	Impervious "C"	CN	Tc (min.)	Q10 (cfs)
Sq.ft.	80,923	14,418	24,095	10,028	14,158	5,615	12,609	67	5.8	5.70
Acres	1.86	0.33	0.55	0.23	0.33	0.13	0.29			
Proposed	DA-2A	Open Space "A"	Open Space "C"	Woods "A"	Woods "C"	Impervious "A"	Impervious "C"	CN	Tc (min.)	Q10 (cfs)
Sq.ft.	156,094	115,479	0.00	0.00	0.00	40,615	0.00	46	10.7	1.32
Acres	3.58	2.65	0.00	0.00	0.00	0.93	0.00			
Proposed	DA-2B	Open Space "A"	Open Space "C"	Woods "A"	Woods "C"	Impervious "A"	Impervious "C"	CN	Tc (min.)	Q10 (cfs)
Sq.ft.	261,603	101,804	0.00	0.00	0.00	159,799	0.00	65	5	17.25
Acres	6.01	2.34	0.00	0.00	0.00	3.67	0.00			
Proposed	DA-3	Open Space "A"	Open Space "C"	Woods "A"	Woods "C"	Impervious "A"	Impervious "C"	CN	Tc (min.)	Q10 (cfs)
Sq.ft.	60,757	11,346	14,106	2,902	12,993	2,055	17,355	72	6	5.23
Acres	1.39	0.26	0.32	0.07	0.30	0.05	0.40			
Proposed	DA-3A	Open Space "A"	Open Space "C"	Woods "A"	Woods "C"	Impervious "A"	Impervious "C"	CN	Tc (min.)	Q10 (cfs)
Sq.ft.	42,918	14,805	0.00	0.00	0.00	28,113	0.00	78	8.7	4.17
Acres	0.99	0.34	0.00	0.00	0.00	0.65	0.00			
Proposed	DA-3B	Open Space "A"	Open Space "C"	Woods "A"	Woods "C"	Impervious "A"	Impervious "C"	CN	Tc (min.)	Q10 (cfs)
Sq.ft.	62,550	61,042	0.00	0.00	0.00	1,508	0.00	40	8.3	0.07
Acres	1.44	1.40	0.00	0.00	0.00	0.03	0.00			
Proposed	DA-4	Open Space "A"	Open Space "C"	Woods "A"	Woods "C"	Impervious "A"	Impervious "C"	CN	Tc (min.)	Q10 (cfs)
Sq.ft.	77,982	62,312	0.00	0.00	0.00	15,670	0.00	51	12.7	1.30
Acres	1.79	1.43	0.00	0.00	0.00	0.36	0.00			





VICINITY MAP
SCALE: 1" = 2,000'

LEGEND

EXISTING CONTOUR	60 59
PROPOSED CONTOUR	60 59
SOILS TYPES	
Tc PATH	A B
DRAINAGE BOUNDARY	
POINT OF INTEREST	POI#
IMPERVIOUS AREA	
PERVIOUS AREA	

CAUTION:
IF THIS DRAWING IS A REDUCTION,
USE THE GRAPHIC SCALES.

1"=80'-0" 80 0 40 80 160

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Baltimore, MD 21286
410.512.4500 www.gftinc.com

STATE OF MARYLAND
JESSE MICHAEL LINDSAY
No. 27734
PROFESSIONAL ENGINEER

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 # 27734 Expiration Date: 07/12/26

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE	APPROVED DATE		
CHIEF ENGINEER	PROJECT MANAGER	SCALE: 1" = 80'	LAKE WATERFORD PARK
		DRAWN BY: R.S.S.	
		CHECKED BY: R.W.H.	PROPOSED DRAINAGE AREA
APPROVED DATE	APPROVED DATE	SHEET NO. 50 OF 57	
ASSISTANT CHIEF ENGINEER	CHIEF, RIGHT-OF-WAY	PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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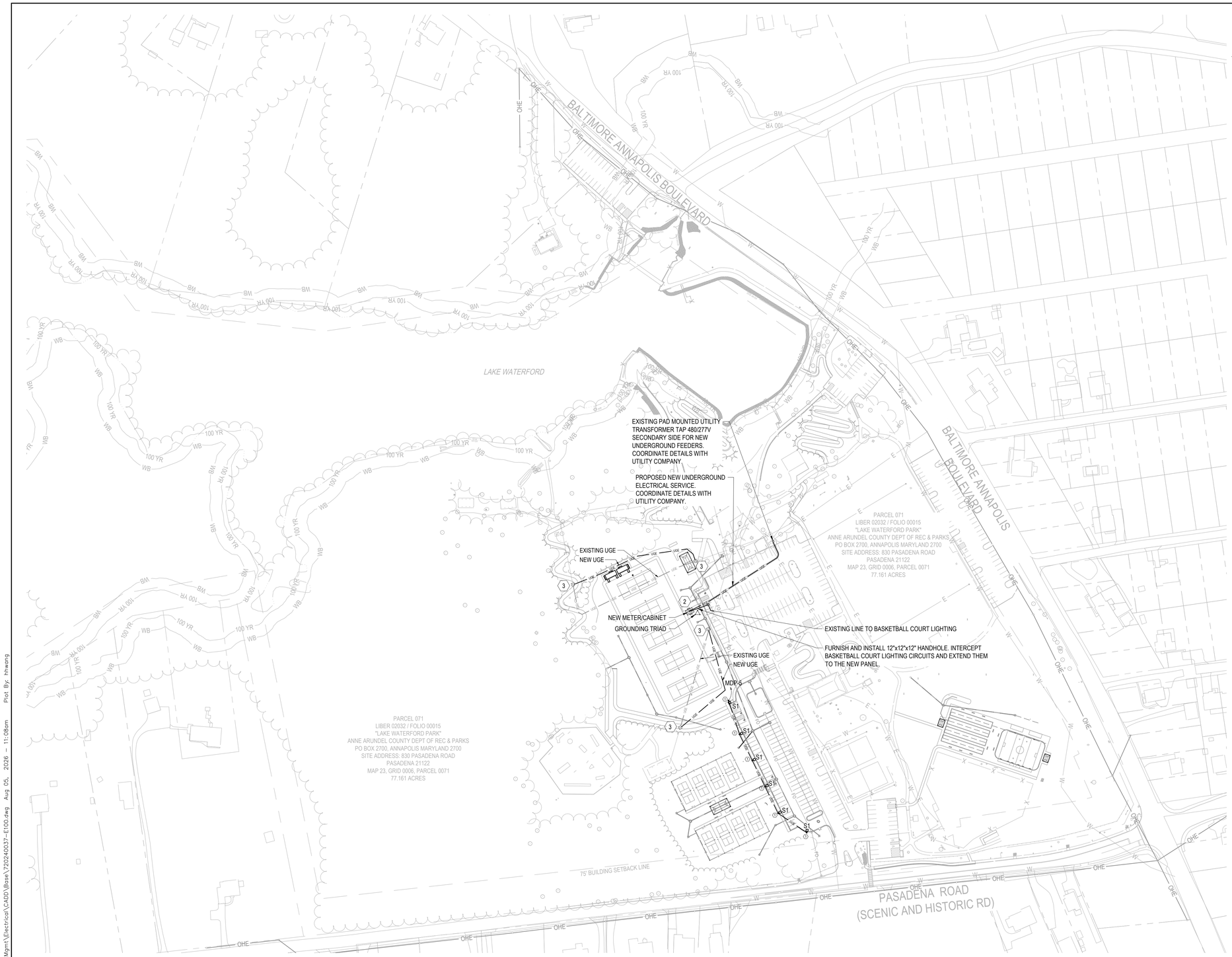

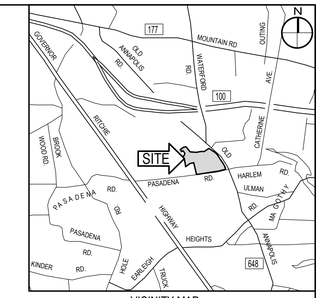

VICINITY MAP
SCALE: 1" = 2,000'

GENERAL NOTES:

1. EC SHALL COORDINATE ALL UNDERGROUND TRENCHING WITH THE MOST CURRENT SITE SURVEY AND WILL BE RESPONSIBLE FOR VISITING THE FACILITY AND DETERMINING ALL NECESSARY CONDUIT ROUTING TO THE TERMINATION POINT. SITE SURVEY AND MARK-OUT SHALL BE COORDINATED WITH OWNER REPRESENTATIVE.
2. PAVEMENT WILL BE PUT BACK TO MATCH THE EXISTING GRADE / MATERIAL AND THE SITE WILL MAINTAIN THE EXISTING DRAINAGE PATTERN.
3. REFER TO CIVIL PLANS FOR MORE INFORMATION AND COORDINATION WITH ALL UNDERGROUND UTILITIES.

KEY NOTES:

1 - CONTRACTOR SHALL FURNISH AND INSTALL S1 LIGHT FIXTURES AND POLE-MOUNTED LIGHT FIXTURE CONCRETE BASES. REFER TO LIGHTING FIXTURE SCHEDULE ON E-502 AND POLE-MOUNTED LIGHT FIXTURE CONCRETE BASE DETAIL ON 4/E-501.

2 - CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING 100A PANELBOARD INCLUDING CONDUIT AND WIRE FOR FEEDER AND TENNIS COURT LIGHTS. BASKETBALL COURT LIGHTING CIRCUITS (4) TO REMAIN AND BE EXTENDED TO NEW PANEL. FURNISH AND INSTALL WIRE AND CONDUIT TO MATCH EXISTING BASKETBALL LIGHTING CIRCUITS TO NEW PANEL. MATCH EXISTING CONDUIT AND WIRE SIZE.

3 - CONTRACTOR SHALL FURNISH AND INSTALL (2) 12"x12"x12" HANDHOLES. INTERCEPT EXISTING CONDUIT AND WIRE UNDER NEW BUILDING LOCATIONS AND REROUTE AS SHOWN. MATCH EXISTING CIRCUIT SIZE.

LEGEND:

UGE - NEW UNDERGROUND ELECTRICAL PER "RISER DIAGRAM" ON 1/E4-01 REFER TO "TRENCH BACKFILL DETAIL" 2/E-501 TYP.

- NEW PANEL, SEE RISER DIAGRAM ON 1/E-401 AND PANEL SCHEDULES ON E-502.

T - EXISTING TRANSFORMER ON EQUIPMENT PAD SEE RISER DIAGRAM ON 1/E-401.

XX1-1,3 - NEW PANEL BOARD IDENTIFICATION.
XX1 INDICATES PANEL BOARD NUMBER 1 (SEE ELEC SCHED ON E-502)
-1,3 INDICATES THE CIRCUIT NUMBER (SEE ELEC SCHED ON E-502)
BRANCH CIRCUIT WIRING, HOME RUN TO PANEL BOARD

CAUTION:
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1"=100'-0" (100 0 50 100 200)

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License # 43482 Expiration Date: 03/25/2027

REVISIONS			
NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 100	LAKE WATERFORD PARK
		DRAWN BY: B.C. / R.C.D.	
		CHECKED BY: B.S.B.	E-100 OVERALL ELECTRICAL SITE LAYOUT PLAN
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 51 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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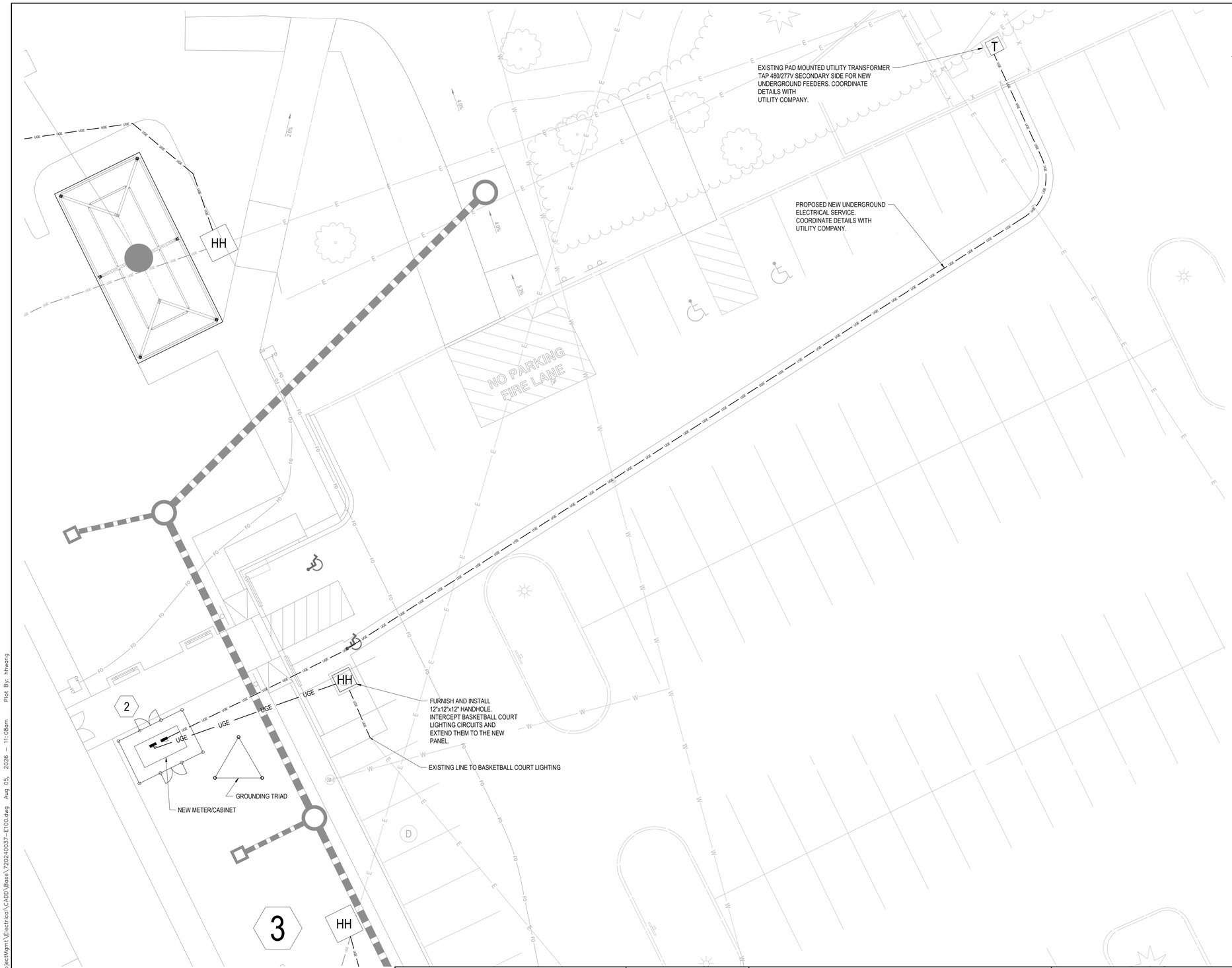

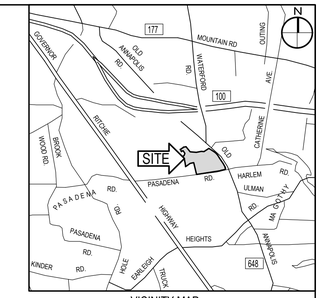

VICINITY MAP
SCALE: 1" = 2,000'

GENERAL NOTES:

1. EC SHALL COORDINATE ALL UNDERGROUND TRENCHING WITH THE MOST CURRENT SITE SURVEY AND WILL BE RESPONSIBLE FOR VISITING THE FACILITY AND DETERMINING ALL NECESSARY CONDUIT ROUTING TO THE TERMINATION POINT. SITE SURVEY AND MARK-OUT SHALL BE COORDINATED WITH OWNER REPRESENTATIVE.
2. PAVEMENT WILL BE PUT BACK TO MATCH THE EXISTING GRADE / MATERIAL AND THE SITE WILL MAINTAIN THE EXISTING DRAINAGE PATTERN.
3. REFER TO CIVIL PLANS FOR MORE INFORMATION AND COORDINATION WITH ALL UNDERGROUND UTILITIES.

KEY NOTES:

1 - CONTRACTOR SHALL FURNISH AND INSTALL S1 LIGHT FIXTURES AND POLE-MOUNTED LIGHT FIXTURE CONCRETE BASES. REFER TO LIGHTING FIXTURE SCHEDULE ON E-502 AND POLE-MOUNTED LIGHT FIXTURE CONCRETE BASE DETAIL ON 4/E-501.

2 - CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING 100A PANELBOARD INCLUDING CONDUIT AND WIRE FOR FEEDER AND TENNIS COURT LIGHTS. BASKETBALL COURT LIGHTING CIRCUITS (4) TO REMAIN AND BE EXTENDED TO NEW PANEL. FURNISH AND INSTALL WIRE AND CONDUIT TO MATCH EXISTING BASKETBALL LIGHTING CIRCUITS TO NEW PANEL. MATCH EXISTING CONDUIT AND WIRE SIZE.

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LEGEND:

UGE - NEW UNDERGROUND ELECTRICAL PER "RISER DIAGRAM" ON 1/E4-01 REFER TO "TRENCH BACKFILL DETAIL" 2/E-501 TYP.

- NEW PANEL, SEE RISER DIAGRAM ON 1/E-401 AND PANEL SCHEDULES ON E-502.

T - EXISTING TRANSFORMER ON EQUIPMENT PAD SEE RISER DIAGRAM ON 1/E-401.

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-1,3 INDICATES THE CIRCUIT NUMBER (SEE ELEC SCHED ON E-502)
BRANCH CIRCUIT WIRING, HOME RUN TO PANEL BOARD

CAUTION:
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1"=10'-0" (10 0 5 10 20)

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License # 43482 Expiration Date: 02/25/2027

REVISIONS			
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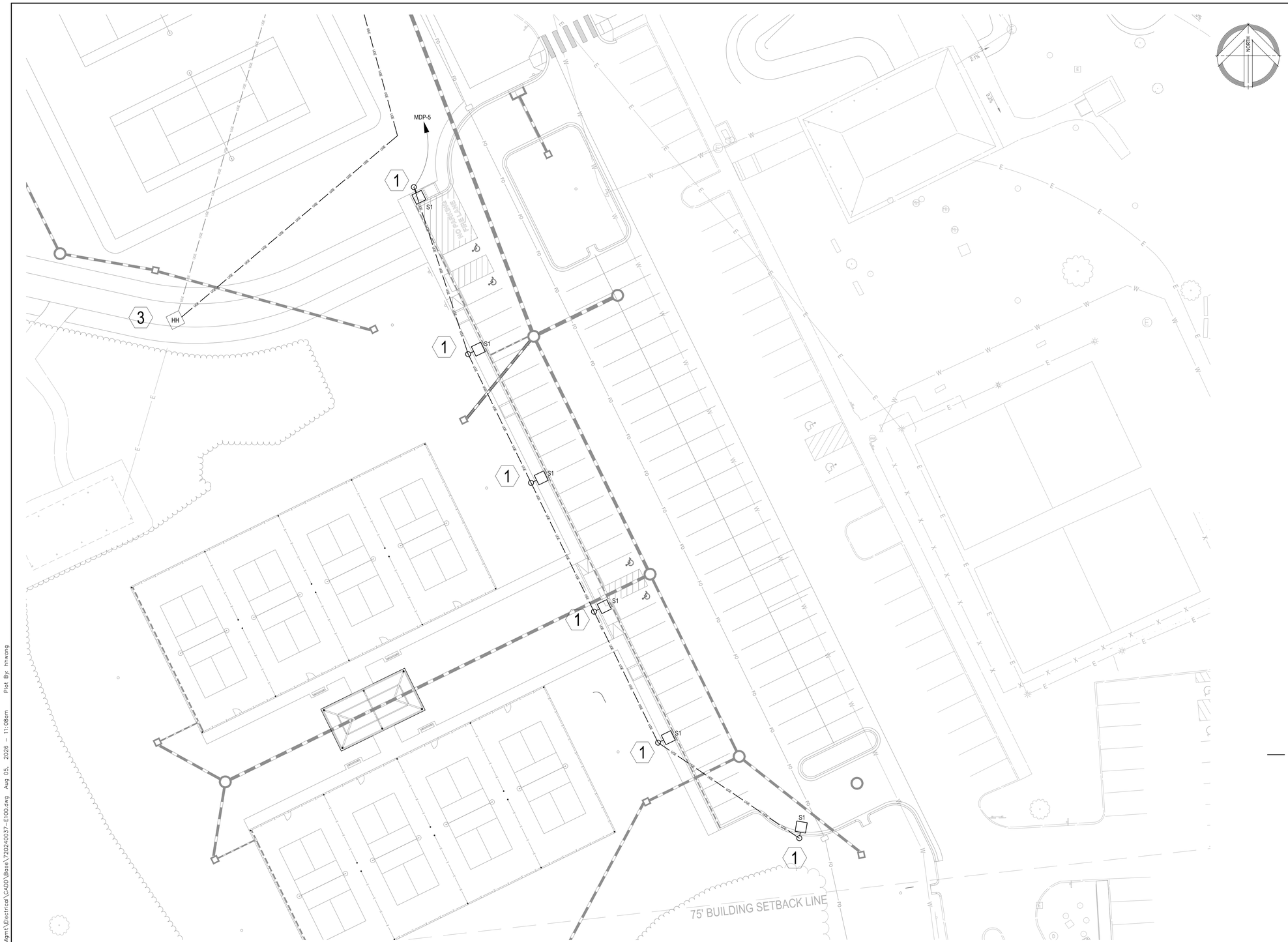
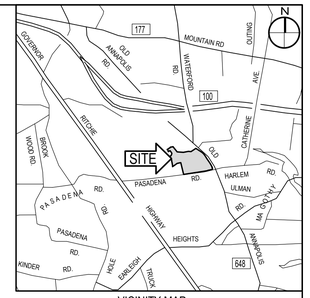
ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 10'-0"	LAKE WATERFORD PARK
		DRAWN BY: B.C. / R.C.D.	
		CHECKED BY: B.S.B.	E-101 ELECTRICAL SITE LAYOUT PLAN
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 52 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

G:\Projects_2024\BL720\720240037\ProjectMgmt\Electrical\CADD\Base\720240037-E100.dwg Aug 05, 2026 - 11:08am Plot By: thwang





VICINITY MAP
SCALE: 1" = 2,000'

GENERAL NOTES:

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LEGEND:

UGE - NEW UNDERGROUND ELECTRICAL PER "RISER DIAGRAM" ON 1/E4-01 REFER TO "TRENCH BACKFILL DETAIL" 2/E-501 TYP.

- NEW PANEL, SEE RISER DIAGRAM ON 1/E-401 AND PANEL SCHEDULES ON E-502.

T - EXISTING TRANSFORMER ON EQUIPMENT PAD SEE RISER DIAGRAM ON 1/E-401.

XX1-1,3 - NEW PANEL BOARD IDENTIFICATION.
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-1,3 INDICATES THE CIRCUIT NUMBER (SEE ELEC SCHED ON E-502)
BRANCH CIRCUIT WIRING, HOME RUN TO PANEL BOARD

CAUTION:
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1"=20'-0" (20 0 10 20 40)

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License # 43482 Expiration Date: 02/25/2027

REVISIONS			
NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: 1" = 20'-0"	LAKE WATERFORD PARK
		DRAWN BY: B.C. / R.C.D.	
		CHECKED BY: B.S.B.	E-102 ELECTRICAL SITE LAYOUT PLAN
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 53 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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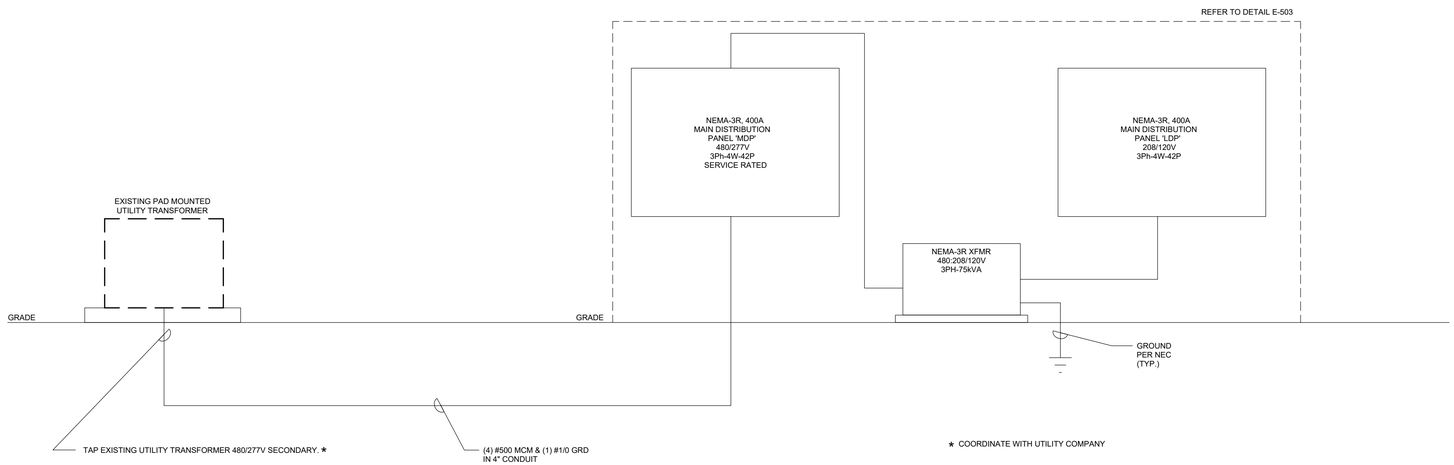

1 RISER DIAGRAM - ELECTRICAL
NTS

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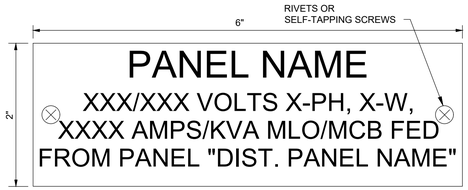
REVISIONS			
NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

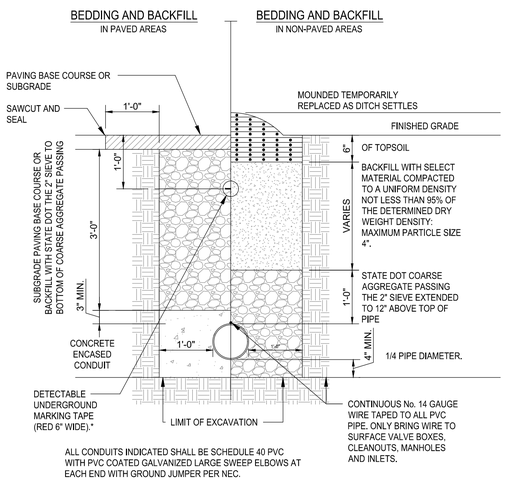
APPROVED DATE CHIEF ENGINEER	APPROVED DATE PROJECT MANAGER	SCALE: NOT TO SCALE DRAWN BY: B.C. / R.C.D. CHECKED BY: B.S.B.	LAKE WATERFORD PARK
APPROVED DATE ASSISTANT CHIEF ENGINEER	APPROVED DATE CHIEF, RIGHT-OF-WAY	SHEET NO. 54 OF 57 PROJECT NO.: P591000 CONTRACT NO.: P591001	E-401 ELECTRICAL RISER DIAGRAM

G:\Projects_2024\BL720\720240037\ProjectMgmt\Electrical\CADD\Base\720240037-E401-503.dwg Jul 22, 2026 - 2:20pm Plot By: hhwang



1. PANEL NAME SHALL HAVE A MINIMUM LETTER HEIGHT OF 3/8". ALL OTHER TEXT SHALL HAVE A MINIMUM LETTER HEIGHT OF 1/4".
2. NAMEPLATE SHALL BE MACHINE ENGRAVED, LAMINATED PLASTIC, WITH WHITE LETTERING. PANELBOARD NAMEPLATE SCHEDULE FOR BACKGROUND COLOR SHALL BE BLACK.
3. NAMEPLATE SHALL BE ATTACHED WITH RIVETS OR SELF-TAPPING SCREWS.
4. DIMENSIONS INDICATED ARE MINIMUM DIMENSIONS. PROVIDE LARGER DIMENSIONED NAMEPLATE IF REQUIRED TO FIT ALL PERTINENT INFORMATION ON NAMEPLATE.
5. "X" INDICATES FIELD TO BE FILLED IN PER ELECTRICAL PANELBOARD SCHEDULES.
6. PROVIDE NAMEPLATE FOR ALL ELECTRICAL EQUIPMENT AS INDICATED ON THE ELECTRICAL PANELBOARD SCHEDULES.

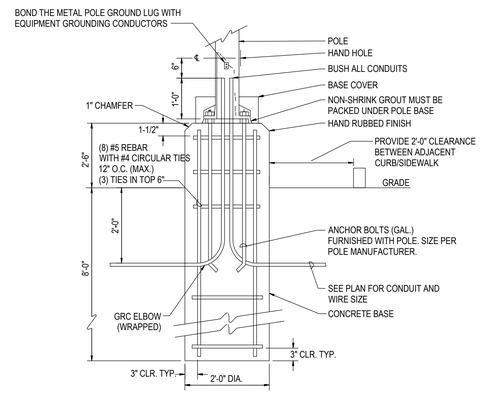
1 ELECTRICAL EQUIPMENT NAMEPLATE DETAIL
NTS



NOTE:

1. MEDIUM VOLTAGE CONDUITS SHALL BE CONCRETE ENCASED IN NON-PAVED AREAS ALSO.

2 TRENCH BACKFILL DETAIL
NTS



NOTES THIS DETAIL:

1. BASIC WIND SPEED, V = 112 MPH
2. DIAMETER OF POLE < 9"
3. MAXIMUM PROJECTED AREA IN ANY PLANE OF THE LIGHT FIXTURES IS 10FT².
4. MAXIMUM WEIGHT OF ALL COMBINED LIGHT FIXTURES IS 100LB. AT A MAXIMUM STANDOFF DISTANCE FROM THE CL OF THE POLE TO THE POLE TO THE CENTER OF GRAVITY OF THE FIXTURES IS 24".
5. INLINE FUSING IS REQUIRED TO BE INSTALLED IN EACH UNGROUNDED CONDUCTOR AT THE LIGHT POLE BASE (MERSEN FEB-21-21 OR EQUAL). CONNECTIONS AND SPLICES SHALL BE INSTALLED WITH CLEAR INSULATED MULTIPLE TAP CONNECTOR, BURNDY, UNITAP, OR EQUAL. ALL POLES MUST HAVE ACCESS DOOR IN THE BASE TO ALLOW ACCESS TO FUSES.

3 POLE-MOUNTED LIGHT FIXTURE CONCRETE BASE DETAIL
NTS

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REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: NOT TO SCALE	LAKE WATERFORD PARK
		DRAWN BY: B.C. / R.C.D.	
		CHECKED BY: B.S.B.	E-501 ELECTRICAL DETAILS
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 55 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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PANELBOARD ID	PANELBOARD DESCRIPTION
MDP	**SERVICE RATED THREE PHASE PANELBOARD**

TUB 1 OF 1

FILE NO: P720240037-
PROJECT: LAKE WATERFORD PARK
DATE:

CKT NO	REV NO	VOLT AMPS LTG	MTRS	REC	OTHER	DESCRIPTION	CKT BKR	F	CKT BKR	DESCRIPTION	VOLT AMPS LTG	MTRS	REC	OTHER	REV NO	CKT NO
1		3000				BASKETBALL COURT LIGHTS	30/1	A	30/1	BASKETBALL COURT LIGHTS	3000					2
3		3000				BASKETBALL COURT LIGHTS	30/1	B	30/1	BASKETBALL COURT LIGHTS	3000					4
5		600				PARKING LOT LIGHTS	20/1	C								6
7								A								8
9								B								10
11								C								12
13								A								14
15								B								16
17								C								18
19								A								20
21								B								22
23								C								24
25								A								26
27								B								28
29								C								30
SUBT		6600	0	0	0						6000	0	0	0		SUBT

	LTG	MTRS	REC	OTHER
PHASE A	6000	0	0	0
PHASE B	6000	0	0	0
PHASE C	600	0	0	0
LOAD (VA)	12600	0	0	0

PHASE LOADS (VA)		
	A	6000
	B	6000
	C	600
TOT LOAD (VA)		12600

VOLTAGE: 480 VOLTS
CIRCUIT CAPACITY: 30 POLES
MAIN BREAKER: 400A
MOUNTING: SURFACE
AIC RATING:
NEUTRAL (%): 100
LOCATION: STANCHION MOUNTED EXTERIOR

NOTES:
1. SEE RISER DIAGRAM FOR OVERCURRENT DEVICE SIZE AND FEEDER SIZE

PANELBOARD ID	PANELBOARD DESCRIPTION
LDP	**SERVICE RATED THREE PHASE PANELBOARD**

TUB 1 OF 1

FILE NO: P720240037-
PROJECT: LAKE WATERFORD PARK
DATE:

CKT NO	REV NO	VOLT AMPS LTG	MTRS	REC	OTHER	DESCRIPTION	CKT BKR	F	CKT BKR	DESCRIPTION	VOLT AMPS LTG	MTRS	REC	OTHER	REV NO	CKT NO
1								A								2
3								B								4
5								C								6
7								A								8
9								B								10
11								C								12
13								A								14
15								B								16
17								C								18
19								A								20
21								B								22
23								C								24
25								A								26
27								B								28
29								C								30
SUBT		0	0	0	0						0	0	0	0		SUBT

	LTG	MTRS	REC	OTHER
PHASE A	0	0	0	0
PHASE B	0	0	0	0
PHASE C	0	0	0	0
LOAD (VA)	0	0	0	0

PHASE LOADS (VA)		
	A	0
	B	0
	C	0
TOT LOAD (VA)		0

VOLTAGE: 208 VOLTS
CIRCUIT CAPACITY: 30 POLES
MAIN BREAKER: 225 AMPERES FULLY RATED
MOUNTING: SURFACE
AIC RATING:
NEUTRAL (%): 100
LOCATION: STANCHION MOUNTED EXTERIOR

NOTES:
1. SEE RISER DIAGRAM FOR OVERCURRENT DEVICE SIZE AND FEEDER SIZE

ELECTRICAL NOTES:

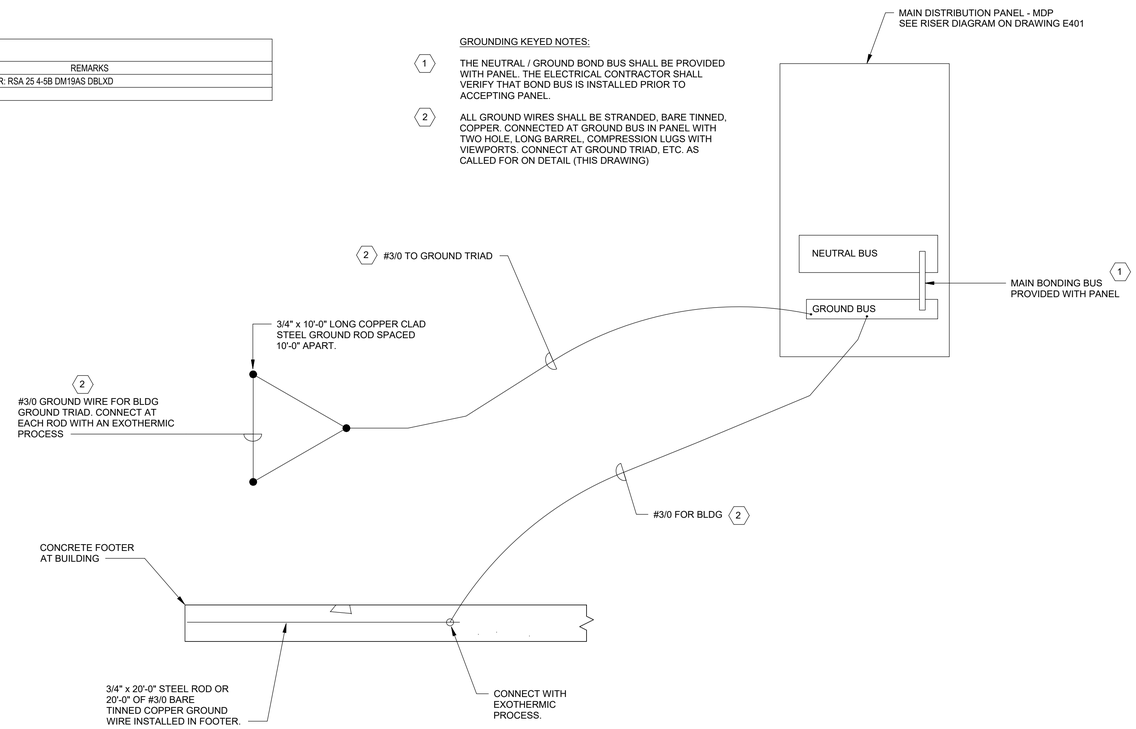
1. ALL PROVIDED MATERIALS REQUIRED SHALL CONFORM WITH THE STANDARDS OF THE UNDERWRITERS LABORATORIES, INC, IN EVERY CASE WHERE SUCH A STANDARD HAS BEEN ESTABLISHED FOR THE PARTICULAR TYPE OF MATERIAL IN QUESTION, UNLESS OTHERWISE NOTED.
2. UPDATE THE DIRECTORIES OF ALL EXISTING PANELS TO CONFORM TO WORK COMPLETED UNDER THIS CONTRACT, VERIFYING EXISTING REMAINING CIRCUITS.
3. ALL WIRING SHALL BE CONCEALED.
4. REFER TO ALL OTHER DRAWINGS FOR MISCELLANEOUS ELECTRICAL WORK.
5. ALL ELECTRICAL WORK SHALL BE ACCOMPLISHED BY QUALIFIED LICENSED ELECTRICIANS UNDER THE DIRECT SUPERVISION OF A LICENSED MASTER ELECTRICIAN. THE CONTRACTOR SHALL SUBMIT A COPY OF THE MASTER ELECTRICIAN'S LICENSE / CERTIFICATION FOR REVIEW TO THE CONTRACTING OFFICER BEFORE BEGINNING ANY ELECTRICAL WORK.
6. THE CONTRACTOR SHALL COMPLY WITH APPLICABLE LAWS, ORDINANCES, RULES AND REGULATIONS, INCLUDING NATIONAL, STATE, AND LOCAL ELECTRICAL CODES. WHERE THERE ARE CONFLICTING REQUIREMENTS, THE MOST STRINGENT SHALL BE USED.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR START-UP AND TESTING OF ALL SYSTEMS IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER AND THE NFPA TESTING GUIDELINES. THE TESTING SHALL INCLUDE START-UP, PERFORMANCE VERIFICATION, TESTING, AND ADJUSTING.

LIGHTING FIXTURE SCHEDULE

TYPE MARK	DESCRIPTION	MOUNTING	LAMP	MANUFACTURER	CATALOG NUMBER	WATTS	REMARKS
S1	SINGLE HEAD POLE LIGHT	POLE	LED	LITHONIA LIGHTING	DSX1 LED P3 40K 70CRI T4M MVOLT RPA PIR DBLXD	102 VA	POLE CATALOG NUMBER: RSA 25 4-5B DM19AS DBLXD

GROUNDING KEYED NOTES:

1. THE NEUTRAL / GROUND BOND BUS SHALL BE PROVIDED WITH PANEL. THE ELECTRICAL CONTRACTOR SHALL VERIFY THAT BOND BUS IS INSTALLED PRIOR TO ACCEPTING PANEL.
2. ALL GROUND WIRES SHALL BE STRANDED, BARE TINNED, COPPER. CONNECTED AT GROUND BUS IN PANEL WITH TWO HOLE, LONG BARREL, COMPRESSION LUGS WITH VIEWPORTS. CONNECT AT GROUND TRIAD, ETC. AS CALLED FOR ON DETAIL (THIS DRAWING)



1 ELECTRICAL SERVICE GROUNDING DETAIL
NTS

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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 # 43482 Expiration Date: 02/25/2027

REVISIONS			
NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE: NOT TO SCALE	LAKE WATERFORD PARK
		DRAWN BY: B.C. / R.C.D.	
		CHECKED BY: B.S.B.	E-502 ELECTRICAL DETAILS AND SCHEDULES
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 56 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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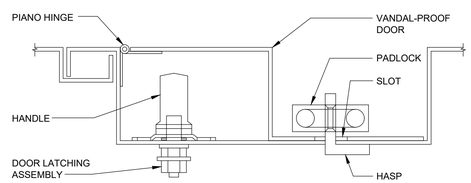
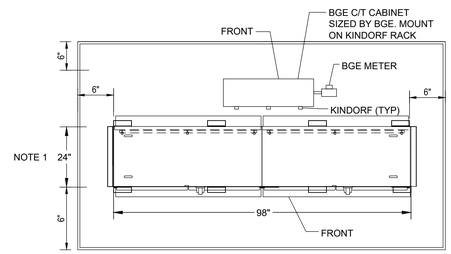


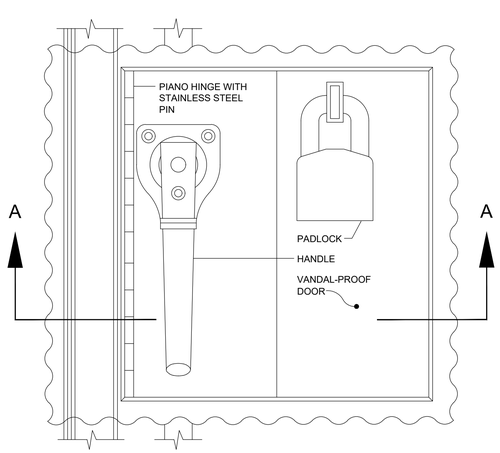
SECTION 'A-A'



TOP VIEW

LIGHTING CONTROL CABINET INTERIOR VIEW GENERAL NOTES:

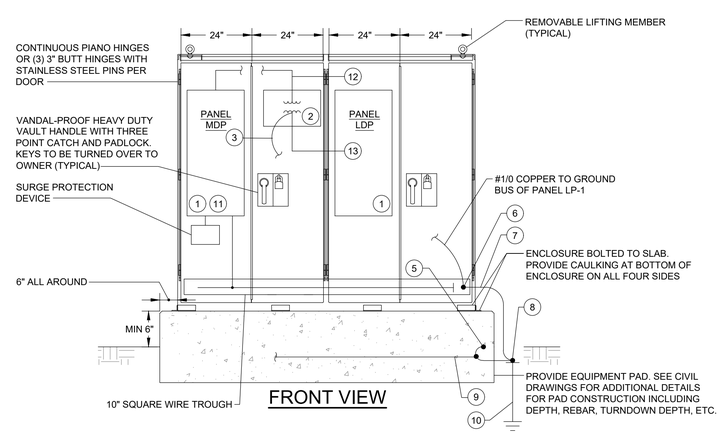
1. LAYOUT IS APPROXIMATE AND MAY BE MODIFIED AS DESIRED TO SUIT EQUIPMENT FURNISHED.
2. PROVIDE EXHAUST FAN, HEATER, THERMOSTAT, GROUND ROD, LIGHTNING ARRESTER, GFI RECEPTACLE, LIGHT AND SWITCH. THESE ITEMS ARE NOT SHOWN FOR CLARITY, BUT SHALL BE PROVIDED AS PER MANUFACTURERS RECOMMENDATIONS OR AS SPECIFIED ON DRAWINGS.



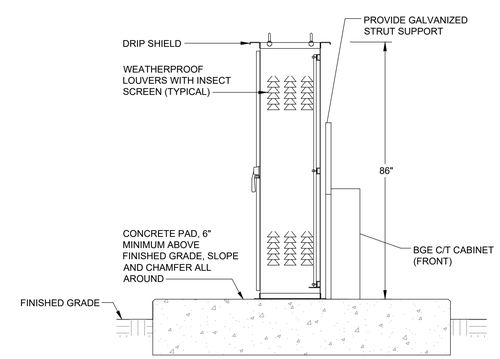
FRONT VIEW

VANDAL-PROOF DOOR HANDLE DETAIL (TYPICAL)

NTS



FRONT VIEW



SIDE VIEW

NEW ELECTRICAL EQUIPMENT CABINET DETAILS

NTS

DRAWING NOTES: (APPLY TO THIS DRAWING ONLY)

1. SEE PANEL SCHEDULE ON DRAWING E-502.
2. 75 KVA DRY TYPE TRANSFORMER. 480V-3Ø-3W PRIMARY TO 208Y/120V-3Ø-4W SECONDARY.
3. #6 COPPER GROUNDING ELECTRODE CONDUCTOR IN 1" CONDUIT. CONNECT TO GROUNDING LUG IN WIRE TROUGH.
4. NOT USED
5. #1/0 BARE COPPER BONDING JUMPER. MAKE CONNECTION TO REBAR WITH EXOTHERMIC WELD.
6. GROUNDING LUG.
7. #1/0 BARE COPPER GROUNDING ELECTRODE CONDUCTOR IN A 1" CONDUIT.
8. EXOTHERMIC WELD.
9. #1/0 BARE COPPER UFER GROUNDING CONDUCTOR. MINIMUM 20" LONG ENCASED IN CONCRETE SLAB.
10. 3/4" x 10'-0" LONG COPPER-CLAD STEEL GROUND ROD. TOP OF ROD MINIMUM 1'-0" BELOW GRADE.
11. BOND NEUTRAL & GROUND IN THIS PANELBOARD.
12. 3#2 & 1#6 G IN 1-1/4" C.
13. 4#1/0 & 1#6 G IN 2" C.

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License # 43492 Expiration Date: 02/25/2027

REVISIONS

NO.	DESCRIPTION	BY	DATE

ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

APPROVED DATE — CHIEF ENGINEER	APPROVED DATE — PROJECT MANAGER	SCALE:	LAKE WATERFORD PARK
		DRAWN BY: B.C. / R.C.D.	
		CHECKED BY: B.S.B.	E-503 ELECTRICAL DETAILS
APPROVED DATE — ASSISTANT CHIEF ENGINEER	APPROVED DATE — CHIEF, RIGHT-OF-WAY	SHEET NO. 57 OF 57	
		PROJECT NO.: P591000	
		CONTRACT NO.: P591001	

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