

OFF-SITE MITIGATION AT HISTORIC GOSHEN FARM & EDUCATIONAL CENTER

MITIGATION PLAN FOR THE CAPE SAINT CLARE FIRE STATION

1420 CAPE ST. CLAIRE RD / 931 BLUE RIDGE DR
ANNAPOLIS, MD 21409
ANNE ARUNDEL COUNTY

GRADING PERMIT SET

APRIL 4, 2025

PROJECT SUMMARY

THE ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS (AADPW) IS PROPOSING TO RECONSTRUCT THE FIRE STATION AT 1409 AND 1411 CAPE ST CLARE ROAD IN ANNAPOLIS, MARYLAND. THE SITE IS CURRENTLY DEVELOPED WITH THE EXISTING FIRE STATION, PARKING LOT, AND A CELL TOWER. AADPW PROPOSES TO CONSTRUCT A NEW FIRE STATION AND ASSOCIATED IMPROVEMENTS ON THE PROPERTY WHICH IS LOCATED WITHIN THE CHESAPEAKE BAY CRITICAL AREA (CBCA). AADPW IS DEVELOPING AN INVASIVE SPECIES MANAGEMENT PLAN AT THE HISTORIC GOSHEN FARM AND EDUCATIONAL CENTER AS MITIGATION FOR DISTURBANCE IN THE CBCA. THE MANAGEMENT PLAN WILL INCLUDE INVASIVE SPECIES REMOVAL IN PHASES, REPLANTING OF NATIVE SPECIES IN PHASES, AND 10 YEARS OF MAINTENANCE TO PREVENT THE RE-INTRODUCTION OF UNWANTED SPECIES.

TO SATISFY MITIGATION REQUIREMENTS, AADPW IS PROPOSING 3.72 ACRES OF INVASIVE SPECIES REMOVAL, FOREST REPLANTING, AND PRESERVATION. ALL FORESTED AREAS WILL BE PLACED INTO LONG TERM FOREST CONSERVATION EASEMENTS AND PROTECTED IN PERPETUITY.

GENERAL NOTES:

- ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST ANNE ARUNDEL COUNTY STANDARDS AND SPECIFICATIONS MANUAL, THE LATEST ANNE ARUNDEL COUNTY DETAIL MANUAL AND IN ACCORDANCE WITH CURRENT COUNTY ORDINANCES.
- CONTRACTOR IS RESPONSIBLE FOR CONTACTING "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- THERE IS NO GRADING AND/OR IMPROVEMENTS PROPOSED ON SITE.
- THE PLANS WERE APPROVED BY THE CRITICAL AREA COMMISSION VIA LETTER DATED 2/5/25. THE ENTIRETY OF THE APPROVED PLAN IS DETAILED IN THE DOCUMENT "INVASIVE SPECIES MANAGEMENT PLAN - HISTORIC GOSHEN FARM AND EDUCATIONAL CENTER" (KCI TECHNOLOGIES, JANUARY 2025).

SEQUENCE OF CONSTRUCTION

PHASE I

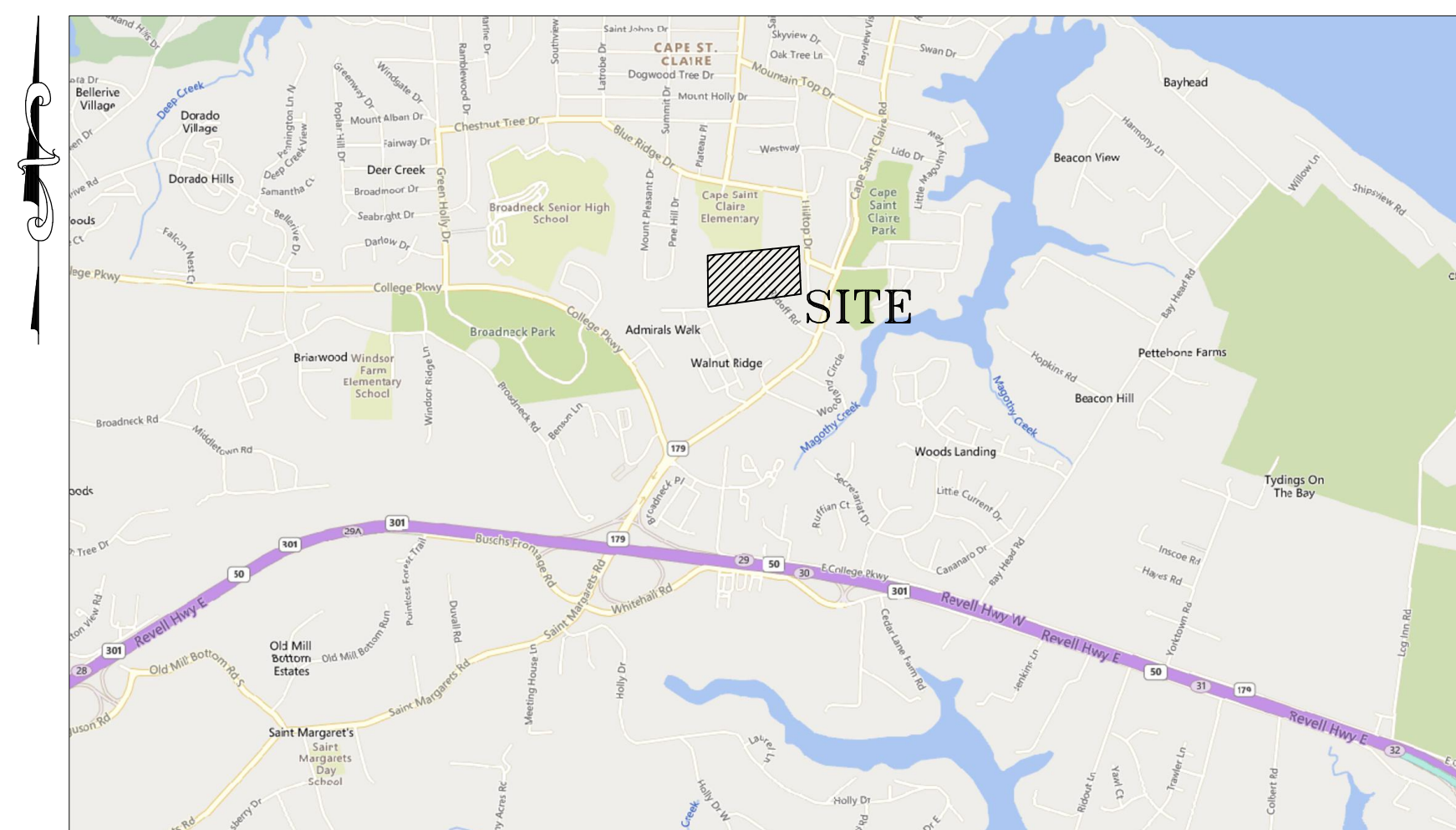
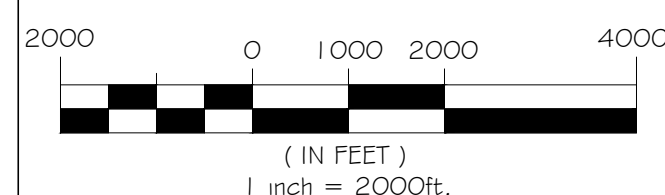
- OBTAIN ALL NECESSARY PERMITS. CONDUCT A PRE-CONSTRUCTION MEETING. CONTRACTOR TO NOTIFY THE DEPARTMENT OF INSPECTION AND PERMITS AT (410) 222-7780 AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION. WORK MAY NOT COMMENCE UNTIL THE PERMITTEE OR THE RESPONSIBLE PERSONNEL HAVE MET ON-SITE WITH THE SEDIMENT AND EROSION CONTROL INSPECTOR TO REVIEW THE APPROVED PLANS. (1 DAY)
- PHASE I SURVEY WILL BE REQUIRED FOR THIS SITE. CONTRACTOR TO COORDINATE WITH AN ARCHAEOLOGY CONSULTANT THROUGHOUT THE PROCESS AND BEFORE ANY WORK IS TO BEGIN.
- INSTALL SILT FENCE PER PLAN. NO CLEARING IS TO BE DONE EXCEPT WHERE NECESSARY FOR INSTALLATION OF SEDIMENT CONTROLS. ONCE SEDIMENT CONTROLS HAVE BEEN INSTALLED, CONTACT INSPECTOR FOR APPROVAL OF SEDIMENT CONTROL INSTALLATION. INSPECTIONS AND PERMITS MAY REQUIRE THAT AN INSPECTION AND CERTIFICATION OF THE INSTALLATION OF SEDIMENT CONTROL ALSO BE PERFORMED BY A DESIGN PROFESSIONAL PRIOR TO CONSTRUCTION COMMENCING. (2 DAYS)

PHASE II

- PRIOR TO ANY CLEARING AND GRUBBING AN ARCHAEOLOGY CONSULTANT SHOULD PROVIDE A PRELIMINARY ASSESSMENT OF THE EXISTING CONDITIONS. (2 DAYS)
- CONTRACTOR TO COORDINATE WITH THE ARCHAEOLOGY CONSULTANT AFTER THE ASSESSMENT TO DETERMINE IF ANY MONITORING WILL BE REQUIRED THROUGHOUT THE CLEARING AND GRUBBING PROCESS. (1 DAY)
- PRIOR TO ANY CLEARING, GRUBBING, OR TREATMENT, AND PRIOR TO EACH HERBICIDE TREATMENT THE COUNTY ARBORIST, CONTRACTOR, GPPS, MDNR, AND ANY OTHER NECESSARY REPRESENTATIVES SHALL WALK THE PROJECT AREA TO IDENTIFY TREES TO BE SAVED AND SELECT INVASIVE SPECIES TO BE REMOVED FROM AREAS B, D, AND E. (2 DAYS)
- CLEARCUT MITIGATION AREAS C, F, G, AND H. REMOVE INVASIVE TREES, SHRUBS, AND HERBS PER THE MITIGATION SCHEDULE PROVIDED ON SHEET E-04 OF THE MITIGATION PLAN SET. REMOVE SELECTED INVASIVE TREES, SHRUBS, AND HERBS THROUGHOUT AREAS B, D, AND E. (3 MONTH)
- REMOVE INVASIVE VINES PER THE MITIGATION SCHEDULE PROVIDED ON SHEET E-04 OF THE MITIGATION PLAN SET. (3 MONTH)
- PERIODIC MOWING POST CLEARING AND PRE PLANTING AS AN ADDITIONAL INVASIVE PREVENTATIVE. (12 MONTH)
- PROCEED WITH PLANTING UPON SUCCESSFUL REMOVAL OF INVASIVE SPECIES, NO LESS THAN 30 DAYS POST HERBICIDE SPRAYING. SEE SHEET E-05 OF THE MITIGATION PLAN SET FOR PROPOSED PLANTING SPECIES. PLANTING TO BE DELAYED IF MORE TREATMENT REQUIRED. (6 MONTH)

PHASE III

- CONTRACTOR TO COORDINATE WITH THE ARCHAEOLOGY CONSULTANT POST CLEARING FOR THE PHASE I SURVEY TO BE CONDUCTED. ARCHAEOLOGY CONSULTANT TO PROVIDE A REPORT WITH THEIR PRE AND POST FINDING. CONTINUED MONITORING AS NEEDED. (2 DAYS)
- ONCE THE MITIGATION IS COMPLETE AND THE SITE PERMANENTLY STABILIZED, ONGOING MITIGATION (TARGET NEW INVASIVE SHOOTS AND MONITORING) TO COMMENCE AND WILL FOLLOW THE MITIGATION SCHEDULE ON PLAN SHEET E-04 (SHEET 4 OF 6) OF THE MITIGATION PLAN SET. THE MAINTENANCE TO CONTINUE FOR THE NEXT 10 YEARS.
- WITH THE GRADING INSPECTOR'S APPROVAL, REMOVE ANY SEDIMENT CONTROLS. OWNER TO MAINTAIN ANY REMAINING SEDIMENT CONTROLS AS NEEDED. (1 DAY)



VICINITY MAP (1" = 2000')

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 # 28935
MD Land Surveyor License # _____
MD Landscape Architect # _____
Name Matthew Sichel
Firm Name KCI Technologies
Address 936 Ridgebrook Road
City Sparks State MD Zip Code 21152

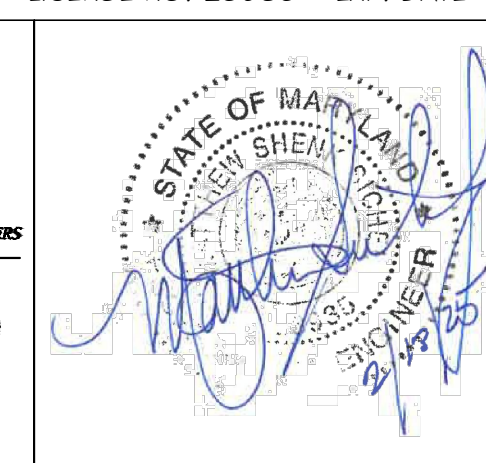
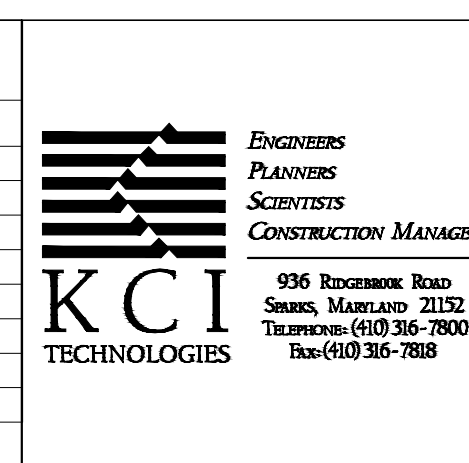
SEAL

Signature
2/18/2025
Date

NOTE: The consultant's certification must be signed and sealed by a professional engineer if the site lies within the Severn River Watershed.

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO: 28935 EXP. DATE: 01/15/2027

Revision Schedule		
#	Date	Revision



ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS							
APPROVED		DATE	APPROVED		DATE	SCALE: AS SHOWN	ANNE ARUNDEL COUNTY OFF-SITE MITIGATION AT HISTORIC GOSHEN FARM & EDUCATIONAL CENTER TITLE SHEET
PERMIT SET	CHIEF ENGINEER		PROJECT MANAGER		CHECKED BY: MS	SHEET NO.: 1 OF 7	
	APPROVED	DATE	APPROVED	DATE	PROJECT NO.: 272104240	CONTRACT NO.: F580301	
DATE: 04/04/2025	ASSISTANT CHIEF ENGINEER		CHIEF RIGHT OF WAY				

SITE DATA TABLE:

PIN #	300090001659 / 300000477229
SITE AREA:	22.680 ACRES / 29.294 ACRES
SITE DISTURBED:	3.72 ACRES
ZONING:	R5 - RESIDENTIAL
USE:	PUBLIC INSTITUTION
FLOOD ZONE:	ZONE AE (EL 5)
FEMA MAP #	24003C0187F
EFFECTIVE DATE:	FEBRUARY 17, 2015
TOTAL CUT:	N/A
TOTAL FILL:	N/A
NET (IMPORT):	N/A

SHEET INDEX

C-001	TITLE SHEET
C-100	OVERALL SITE PLAN
C-101	SITE PLAN
C-200	ESC DRAINAGE AREA MAP
C-201	ESC PHASE I-III
C-202	ESC NOTES
C-203	ESC DETAILS

STANDARD RESPONSIBILITY NOTES

- I (We) certify that:
 - 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.
 - 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: _____
 - 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.
- 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.
- 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.
- The grading and sediment control approval on this plan extends only to those areas within the limits of disturbance.
- 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.
- 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.
- All material shall be taken to a site with an approved sediment and erosion control plan.
- 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.
- Approval from the inspector must be requested on final stabilization of all sites prior to removal of sediment and erosion control.
- Existing topography must be field verified by responsible personnel to the satisfaction of the sediment control inspector prior to commencing work.

Signature of Developer/Owner: Khadija Abdur-Rahman
Date: 6/17/2025 | 08:25 PDT
Print: Name: Khadija Abdur-Rahman
Title: Engineer Manager
Affiliation: DPW
Address: 2662 Riva Road
Telephone Number: 410-222-4261
Email Address: pwabdu22@aacounty.org

EXISTING UTILITIES

WATER:
ANNE ARUNDEL COUNTY
2664 RIVA ROAD, HERITAGE OFFICE
ANNAPOLIS, MD 21401
PHONE: (410) 222-7500

SANITARY:
ANNE ARUNDEL COUNTY
2664 RIVA ROAD, HERITAGE OFFICE
ANNAPOLIS, MD 21401
PHONE: (410) 222-7500

GAS & ELECTRIC:
BALTIMORE GAS & ELECTRIC
PO BOX 1475
BALTIMORE, MD 21203
PHONE: (800) 265-61779

Anne Arundel Soil Conservation District
Sediment and Erosion Control Approval

2-9-26
Date

AASCD # 2025-0163
GPH # G02020441
Pond # _____

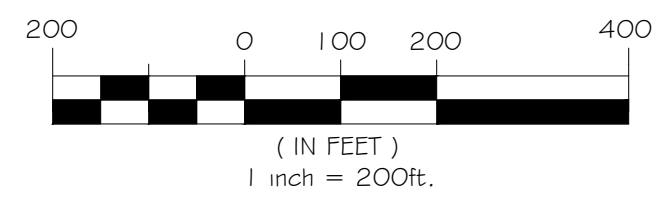
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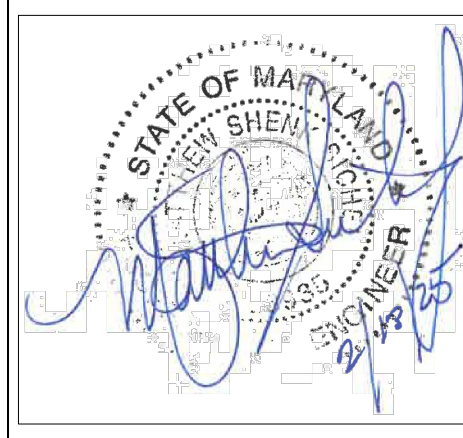
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-----760-----	EX. MAJOR CONTOUR (10' INTERVAL)
-----	EX. PROPERTY BOUNDARY
-----	ADJACENT PROPERTY LINE
- - - - - DxB DxC	SOIL DELINEATION LINE
.....	EX. TREE LINE
=====	ROAD EDGE / IMPERVIOUS SURFACE
//////	MITIGATION AREA (FOREST CONSERVATION EASEMENT)
□	EX. BUILDING

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 28935 EXP. DATE: 01/15/2027

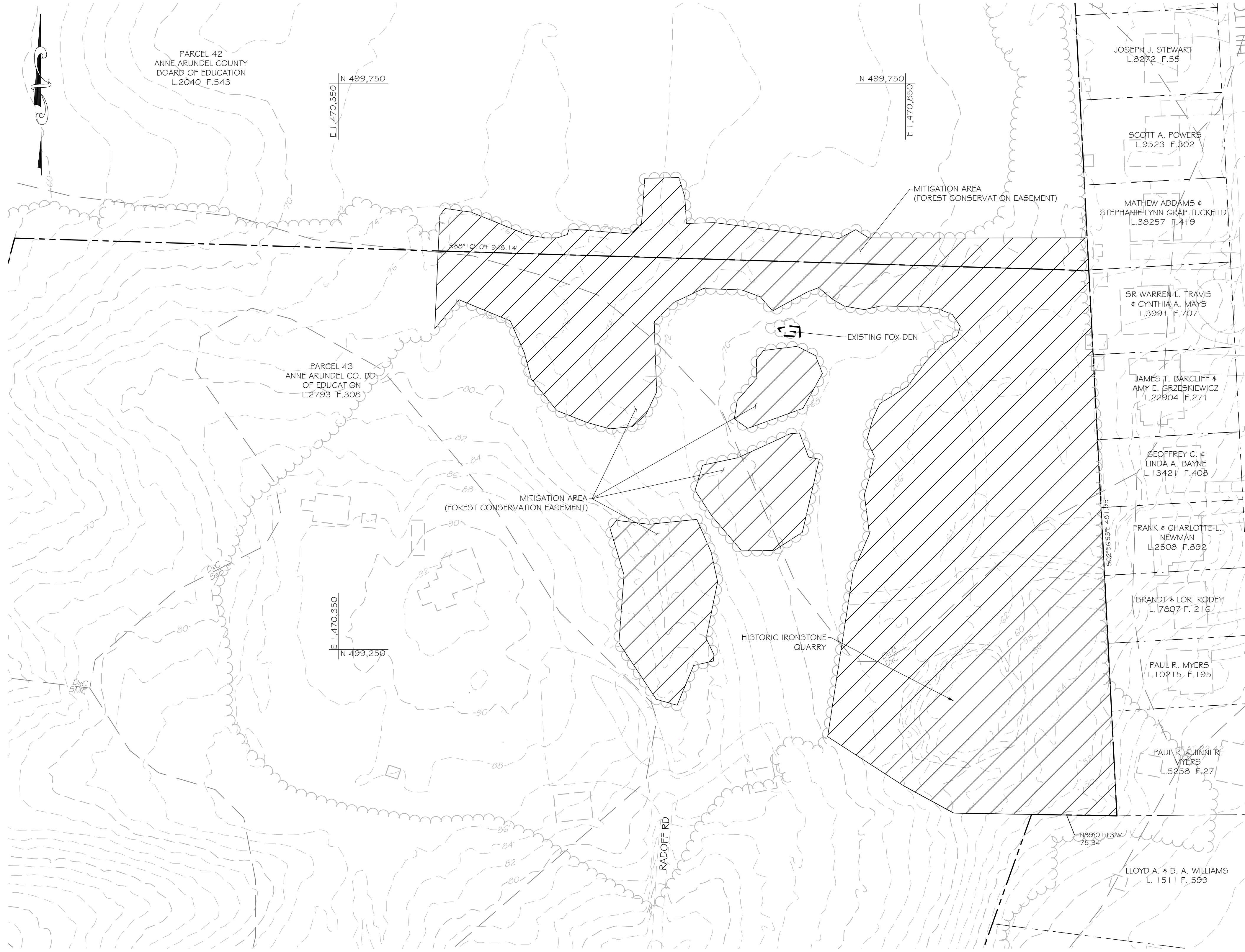


Revision Schedule

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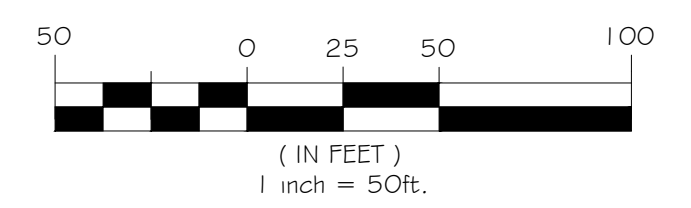


ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS						
PERMIT SET	APPROVED	DATE	APPROVED	DATE	SCALE: AS SHOWN	ANNE ARUNDEL COUNTY OFF-SITE MITIGATION AT HISTORIC GOSHEN FARM & EDUCATIONAL CENTER OVERALL SITE PLAN
	CHIEF ENGINEER		PROJECT MANAGER		DRAWN BY: FFW	
	APPROVED	DATE	APPROVED	DATE	CHECKED BY: MS	
	DATE: 04/04/2025		ASSISTANT CHIEF ENGINEER	CHIEF RIGHT OF WAY	SHEET NO.: 2 OF 7	
					PROJECT NO.: 272104240	
					CONTRACT NO.: F580301	



DRAWING LEGEND

- 762 --- EX. MINOR CONTOUR (2' INTERVAL)
- 760 --- EX. MAJOR CONTOUR (10' INTERVAL)
- EX. PROPERTY BOUNDARY
- ADJACENT PROPERTY LINE
- SOIL DELINEATION LINE
- EX. TREE LINE
- ROAD EDGE / IMPERVIOUS SURFACE
- EX. BUILDING
- MITIGATION AREA (FOREST CONSERVATION EASEMENT)

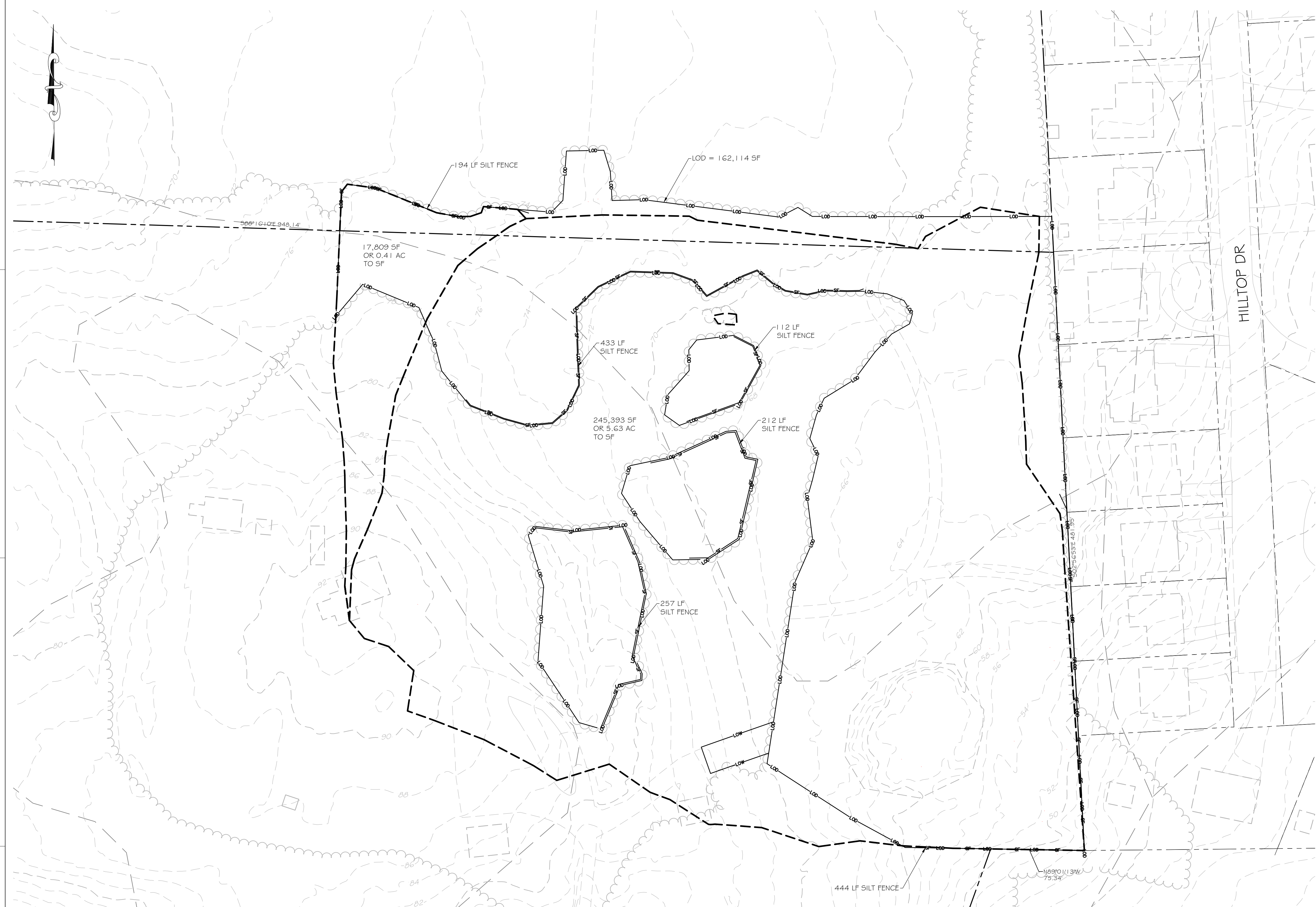


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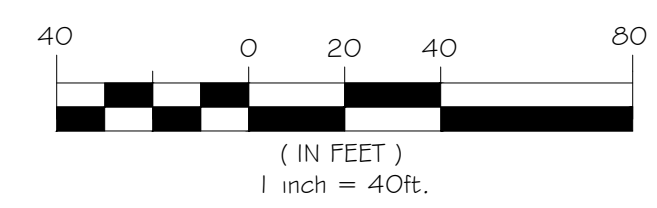


ANNE ARUNDEL COUNTY			
DEPARTMENT OF PUBLIC WORKS			
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DATE: 04/04/2025	APPROVED	DATE	DATE
ASSISTANT CHIEF ENGINEER	CHIEF RIGHT OF WAY	CHECKED BY: MS	DRAWN BY: FFW
		PROJECT NO.: 272104240	SHEET NO.: 3 OF 7
		CONTRACT NO.: F580301	ANNE ARUNDEL COUNTY
			OFF-SITE MITIGATION AT HISTORIC GOSHEN FARM & EDUCATIONAL CENTER
			SITE PLAN



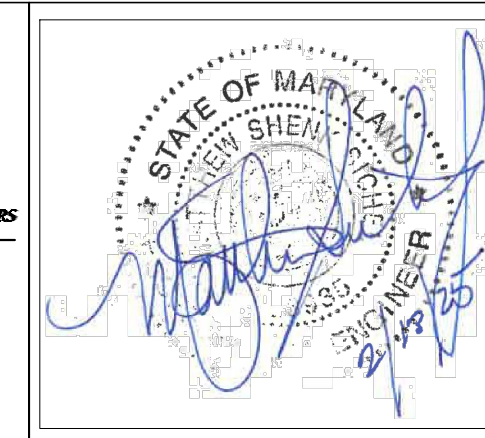
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- Dx/B
Dx/C --- SOIL DELINEATION LINE
- EX. TREE LINE
- ROAD EDGE / IMPERVIOUS SURFACE
- PROP. SILT FENCE
- LOD --- LIMIT OF DISTURBANCE
- LOW --- LIMIT OF WORK
- EX. BUILDING

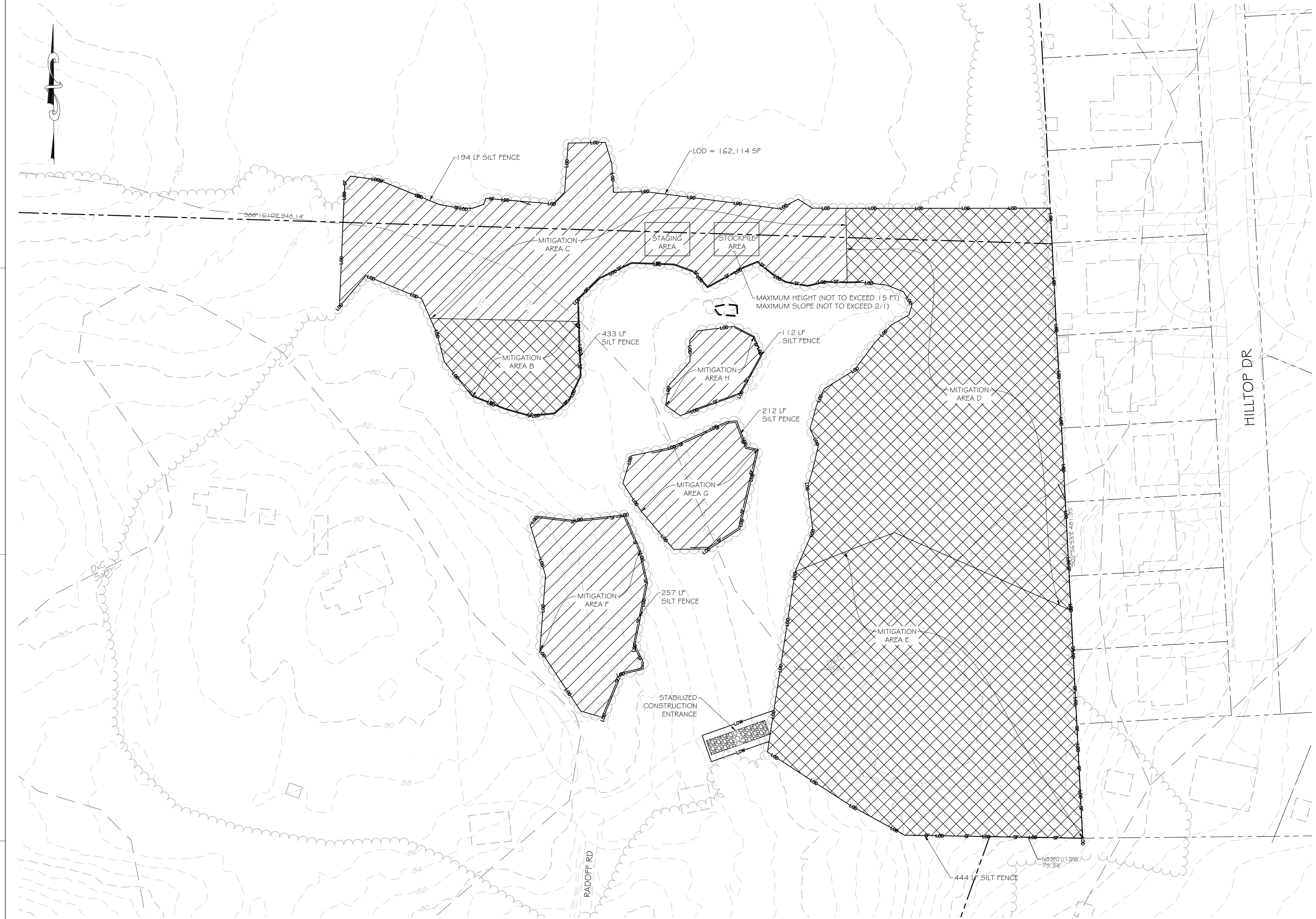


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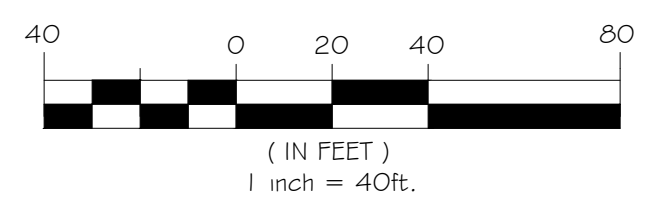
ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS			
PERMIT SET	APPROVED _____ DATE _____	APPROVED _____ DATE _____	SCALE: AS SHOWN DRAWN BY: FFW
	CHIEF ENGINEER APPROVED _____ DATE _____	PROJECT MANAGER APPROVED _____ DATE _____	CHECKED BY: MS SHEET NO.: 4 OF 7
	ASSISTANT CHIEF ENGINEER _____	CHIEF RIGHT OF WAY _____	PROJECT NO.: 272104240 CONTRACT NO.: F580301
			ANNE ARUNDEL COUNTY OFF-SITE MITIGATION AT HISTORIC GOSHEN FARM & EDUCATIONAL CENTER DRAINAGE AREA MAP
			C-200 G02020441



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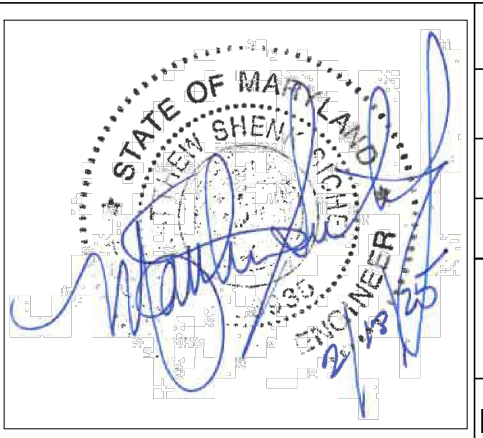
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- sf --- PROP. SILT FENCE
- LO --- LIMIT OF DISTURBANCE
- LOW --- LIMIT OF WORK
- EX. BUILDING
- /// CLEAR CUT WITH FULL REPLANTING AREA (AREAS C, F, G, # H)
- XXX SELECTIVE INVASIVE REMOVAL AREA AND SELECTIVE PLANTING (AREAS B, D, # E)

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Revision Schedule

#	Date	Revision



**ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS**

PERMIT SET	DATE: 04/04/2025	APPROVED	DATE
CHIEF ENGINEER	PROJECT MANAGER	APPROVED	DATE
APPROVED	DATE	APPROVED	DATE
ASSISTANT CHIEF ENGINEER	CHIEF RIGHT OF WAY	SCALE: AS SHOWN	DRAWN BY: FFW
		CHECKED BY: MS	SHEET NO.: 5 OF 7
		PROJECT NO.: 272104240	CONTRACT NO.: F580301

**ANNE ARUNDEL COUNTY
OFF-SITE MITIGATION AT HISTORIC
GOSHEN FARM & EDUCATIONAL CENTER
ESC PHASE I-III**

GENERAL NOTES

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

DEFINITION - THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION. PURPOSE - TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH CONDITIONS WHERE PRACTICE APPLIES - WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

- CRITERIA
 - A. SOIL PREPARATION

1. TEMPORARY STABILIZATION
 - A. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST 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.
 - D. 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 1 1/2 INCHES IN DIAMETER.
 - B. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
 - C. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.
6. TOPSOIL APPLICATION
 - A. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
 - B. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
 - C. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION. WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)

1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.
3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.
4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

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

DEFINITION - THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER. PURPOSE - TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION. CONDITIONS WHERE PRACTICE APPLIES - TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

- CRITERIA
 - A. SEEDING

1. SPECIFICATIONS
 - A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
 - B. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAW. C. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.

- D. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (1 1/4 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
2. APPLICATION
 - A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
 - i. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.3, OR PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
 - ii. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - i. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
 - ii. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
 - i. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P2O5 (PHOSPHOROUS), 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
 - ii. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
 - iii. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
 - iv. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B. MULCHING

1. MULCH MATERIALS (IN ORDER OF PREFERENCE)
 - A. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
 - B. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
 - i. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
 - ii. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
 - iii. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER. ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
 - iv. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
 - v. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.
2. APPLICATION
 - A. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
 - B. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
 - C. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
3. ANCHORING
 - A. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
 - i. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
 - ii. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 - iii. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSE, TERRA TAY II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
 - iv. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

DEFINITION - TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS. PURPOSE - TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS. CONDITIONS WHERE PRACTICE APPLIES - EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

CRITERIA

1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.1 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3), AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE B.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.
2. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.
3. WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-4.3.A.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION - TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION. PURPOSE - TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS. CONDITIONS WHERE PRACTICE APPLIES - EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

CRITERIA

- A. SEED MIXTURES
 1. GENERAL USE
 - A. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
 - B. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING.

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 28935 EXP. DATE: 01/15/2027

C. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES

RECOMMENDED BY THE SOIL TESTING AGENCY. D. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3 1/2 POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY.

2. TURFGRASS MIXTURES
 - A. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
 - B. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
 - i. KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
 - ii. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. RECOMMENDED RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
 - iii. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES; CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT. SEEDING RATE: 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.
 - iv. KENTUCKY BLUEGRASS/FINE FESCUE SHADE MIXTURE: FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS; FOR TURFGRASS MIXTURES IN HIGH QUALITY, INTENSIVELY MAINTAINED TURF AREA. MIXTURE INCLUDES; CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE: 1 1/2 TO 3 POUNDS PER 1000 SQUARE FEET.

NOTES: SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND." CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR. THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE.

C. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES

- WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDINESS ZONES: 5B, 6A)
- CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONE: 6B)
- SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 7A, 7B)

D. TILL AREAS TO RECEIVE SEED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES, LEVEL AND RAKE THE AREAS TO PREPARE A PROPER SEEDBED. REMOVE STONES AND DEBRIS OVER 1 1/2 INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY.

- E. IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH (1/2 TO 1 INCH EVERY 3 TO 4 DAYS DEPENDING ON SOIL TEXTURE) UNTIL THEY ARE FIRMLY ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

B. SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

1. GENERAL SPECIFICATIONS
 - A. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE FOREMAN AND INSPECTOR.
 - B. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4 INCH, PLUS OR MINUS 1/8 INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROKEN PADS AND TORN OR UNEVEN EDGES WILL NOT BE ACCEPTABLE.
 - C. STANDARD SIZE SECTIONS OF SOD MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.
 - D. SOD MUST NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
 - E. SOD MUST BE HARVESTED, CURED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

2. SOD INSTALLATION

- A. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD.
- B. LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE SODS.
- C. WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOD TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOILD CONTACT EXISTS BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.
- D. WATER THE SOD IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT HOURS.
3. SOD MAINTENANCE
 - A. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SOD DURING THE HEAT OF THE DAY TO PREVENT WILTING.
 - B. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
 - C. DO NOT MOW UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF MUST BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED.

PERMANENT SEEDING NOTES

SCOPE: PLANTING PERMANENT, LONG LIVED VEGETATIVE COVER ON GRADED AND/OR CLEARED AREAS AND AREAS THAT HAVE BEEN IN TEMPORARY VEGETATION FOR MORE THAN 6 MONTHS.

STANDARDS: THE FOLLOWING NOTES SHALL CONFORM TO SECTION B-4 OF THE "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL." PUBLISHED JOINTLY BY THE MARYLAND DEPARTMENT OF ENVIRONMENT - WATER MANAGEMENT ADMINISTRATION, THE NATIONAL RESOURCE CONSERVATION SERVICE AND THE MARYLAND ASSOCIATION OF SOIL CONSERVATION DISTRICTS.

THE SEED BED SHALL BE PREPARED BY LOOSENING THE SOIL TO A DEPTH OF 3 TO 5 INCHES AND INCORPORATING THE LIME AND FERTILIZER INTO THIS LOOSENED LAYER OF SOIL. SEE SECTION B-4-2.

FOR SITES OVER 5 AC. SOIL TESTS WILL BE PERFORMED. SOIL TESTS WILL BE CONDUCTED BY THE UNIVERSITY OF MARYLAND OR A RECOGNIZED COMMERCIAL LABORATORY. MINIMUM SOIL CONDITIONS SHALL MEET THE REQUIREMENTS OF SECTION B-4-2-A-2-A. OTHERWISE SOIL AMENDMENTS OR TOPSOIL WILL NEED TO BE APPLIED. TOPSOILING MAY OCCUR WHEN SOIL CONDITIONS MEET THE MINIMUM REQUIREMENTS AS STATED IN SECTION B-4-2-B. SOIL AMENDMENTS MUST MEET THE REQUIREMENTS AS SET FORTH IN SECTION B-4-2-C AND MUST BE APPLIED AS INDICATED BY THE SOILS TESTS.

FOR SITES OF 5 AC. OR LESS OF DISTURBANCE, THE FOLLOWING FERTILIZER AND LIME RATES SHALL APPLY. FERTILIZER SHALL CONSIST OF A MIXTURE OF 10-20-20 AND BE APPLIED AT THE FOLLOWING RATES: N = 45 LB. PER ACRE (1 LB. PER 1000 SQ.FT.) P2O5 = 90 LB. PER ACRE (2 LB. PER 1000 SQ.FT.) K2O = 90 LB. PER ACRE (2 LB. PER 1000 SQ.FT.) LIME SHALL BE APPLIED AT A RATE OF 2 TONS PER ACRE (90 LB. PER 1000 SQ.FT.)

SEED TYPE, TURFGRASS OR SOD APPLICATION SHALL MEET THE REQUIREMENTS IN SECTION B-4-5. SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY THE TYPE AND APPLICATION RATE OF SEED USED. MULCH TYPE AND ITS APPLICATION WILL MEET THE REQUIREMENTS IN SECTION B-4-3 A, B AND C, AND WILL BE APPLIED ALONG WITH SEED OR IMMEDIATELY AFTER SEEDING.

SEEDING MIXTURES SHALL BE SELECTED FROM OR WILL BE EQUAL TO THOSE ON TABLE B-3.

PERMANENT SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): SEED MIXTURE (FROM TABLE B.1)				FERTILIZER RATE (10-20-20)	LIME RATE	
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DATES		
1	TALL FESCUE 85%	125	3/1 TO 5/15 8/15 TO 1/1	1/2 "	436 LB/AC (10 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)
	PERENNIAL RYEGRASS 0%	15	3/1 TO 5/15 8/15 TO 1/1	1/2 "		
	KENTUCKY BLUEGRASS 5%	10	3/1 TO 5/15 8/15 TO 1/1	1/2 "		

TEMPORARY SEEDING NOTES

SCOPE: PLANTING SHORT TERM (NO MORE THAN 6 MONTHS) VEGETATION TO TEMPORARILY STABILIZE ANY AREAS WHERE SOIL DISTURBANCE HAS OCCURRED, UNTIL THE AREA CAN BE PERMANENTLY STABILIZED WITH VEGETATIVE OR NON-VEGETATIVE PRACTICES.

STANDARDS: THE FOLLOWING NOTES SHALL CONFORM TO SECTION B-4 OF THE "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL." PUBLISHED JOINTLY BY THE MARYLAND DEPARTMENT OF ENVIRONMENT - WATER MANAGEMENT ADMINISTRATION, THE NATIONAL RESOURCE CONSERVATION SERVICE AND THE MARYLAND ASSOCIATION OF SOIL CONSERVATION DISTRICTS.

THE SEED BED SHALL BE PREPARED BY LOOSENING THE SOIL TO A DEPTH OF 3 TO 5 INCHES AND INCORPORATING THE LIME AND FERTILIZER INTO THIS LOOSENED LAYER OF SOIL. SEE SECTION B-4-2.

FOR TEMPORARY STABILIZATION, FERTILIZER SHALL CONSIST OF A MIXTURE OF 10-20-20 AND BE APPLIED AT A RATE OF 436 LB. PER ACRE (10 LB. PER 1000 SQ. FT.) AND WILL MEET THE REQUIREMENTS IN SECTION B-4-2. LIME SHALL BE APPLIED AT A RATE OF 2 TONS PER ACRE (90 LB. PER SQ. FT.) AND SHALL MEET THE REQUIREMENTS IN SECTION B-4-2 AND B-4-4.

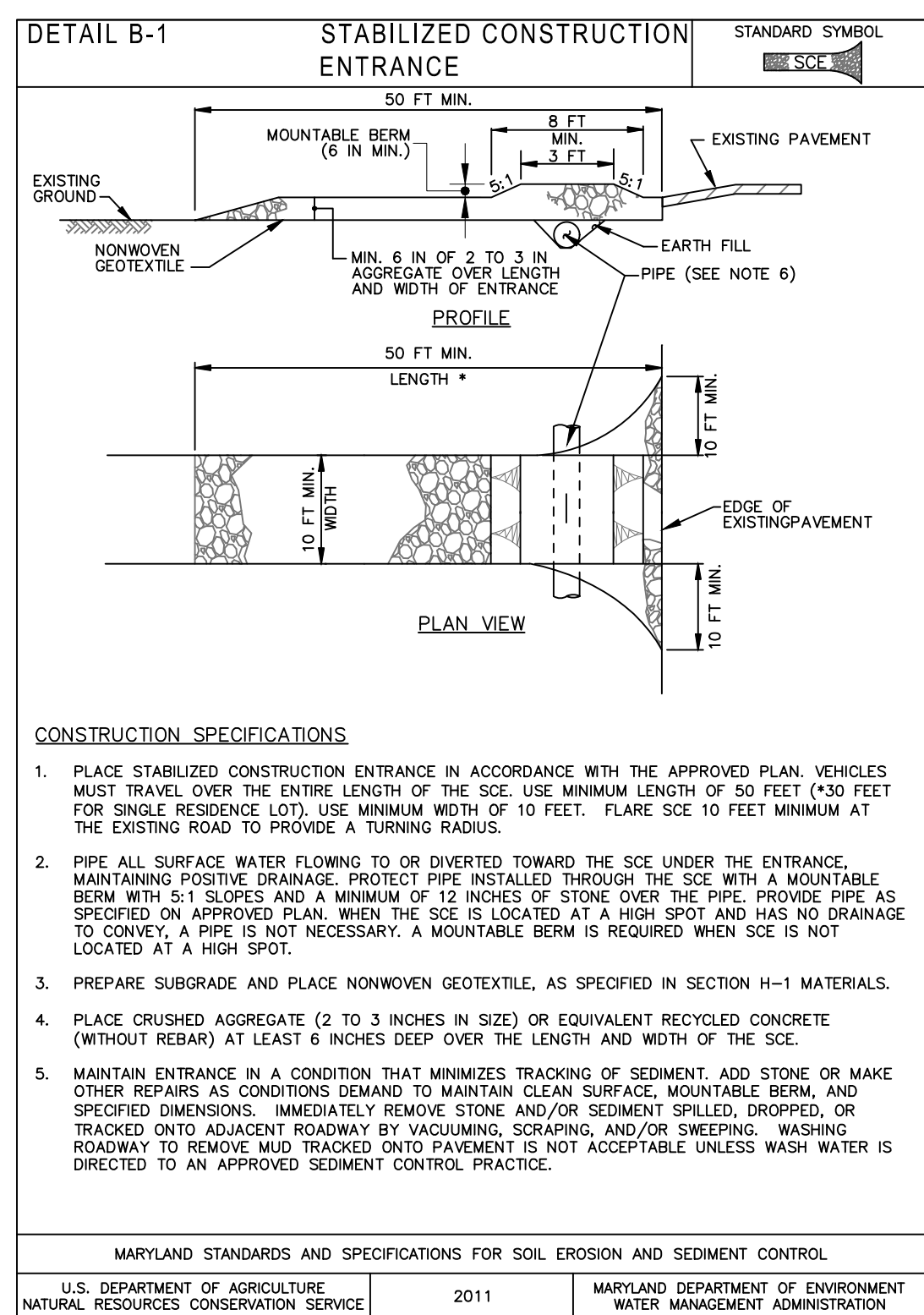
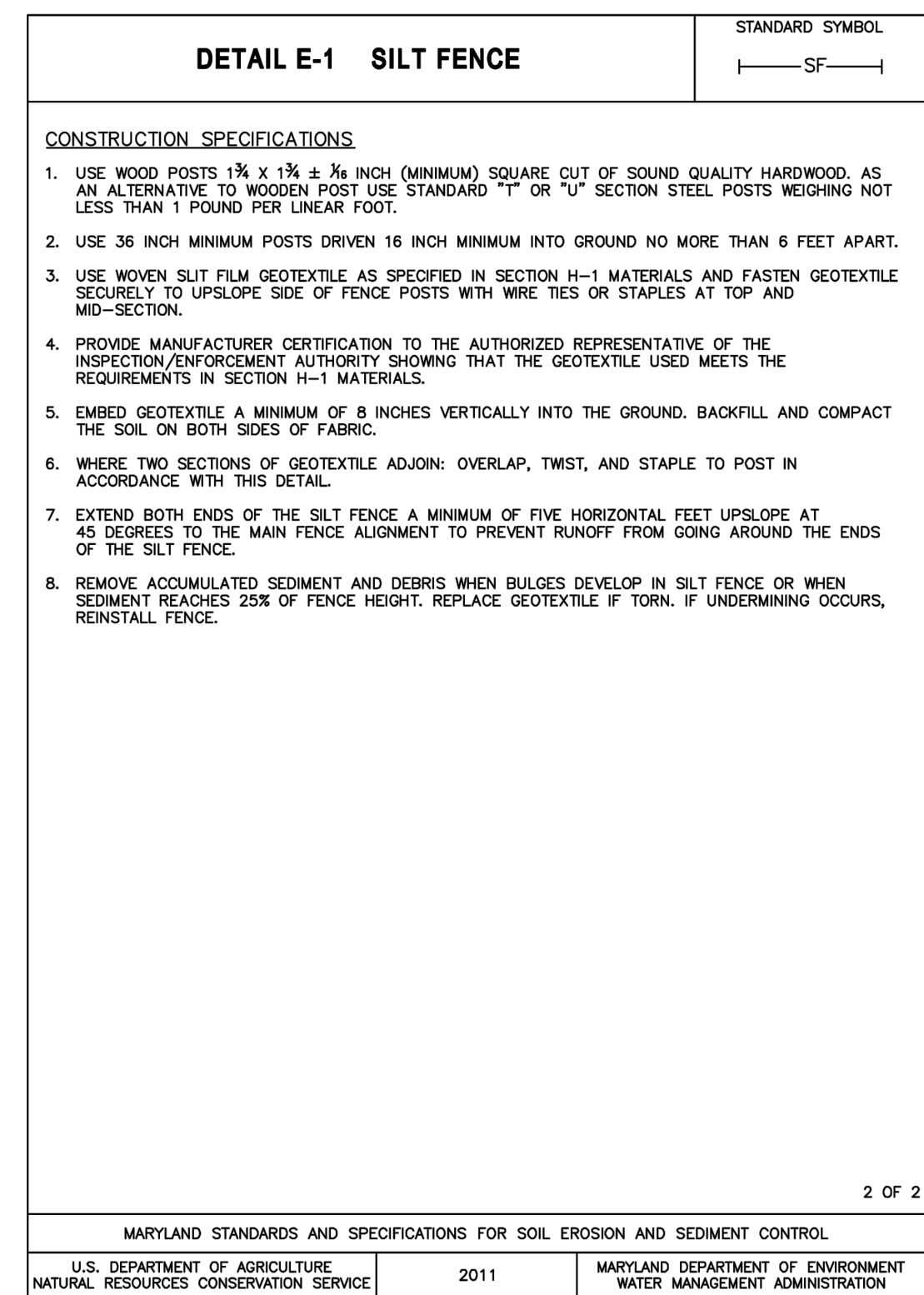
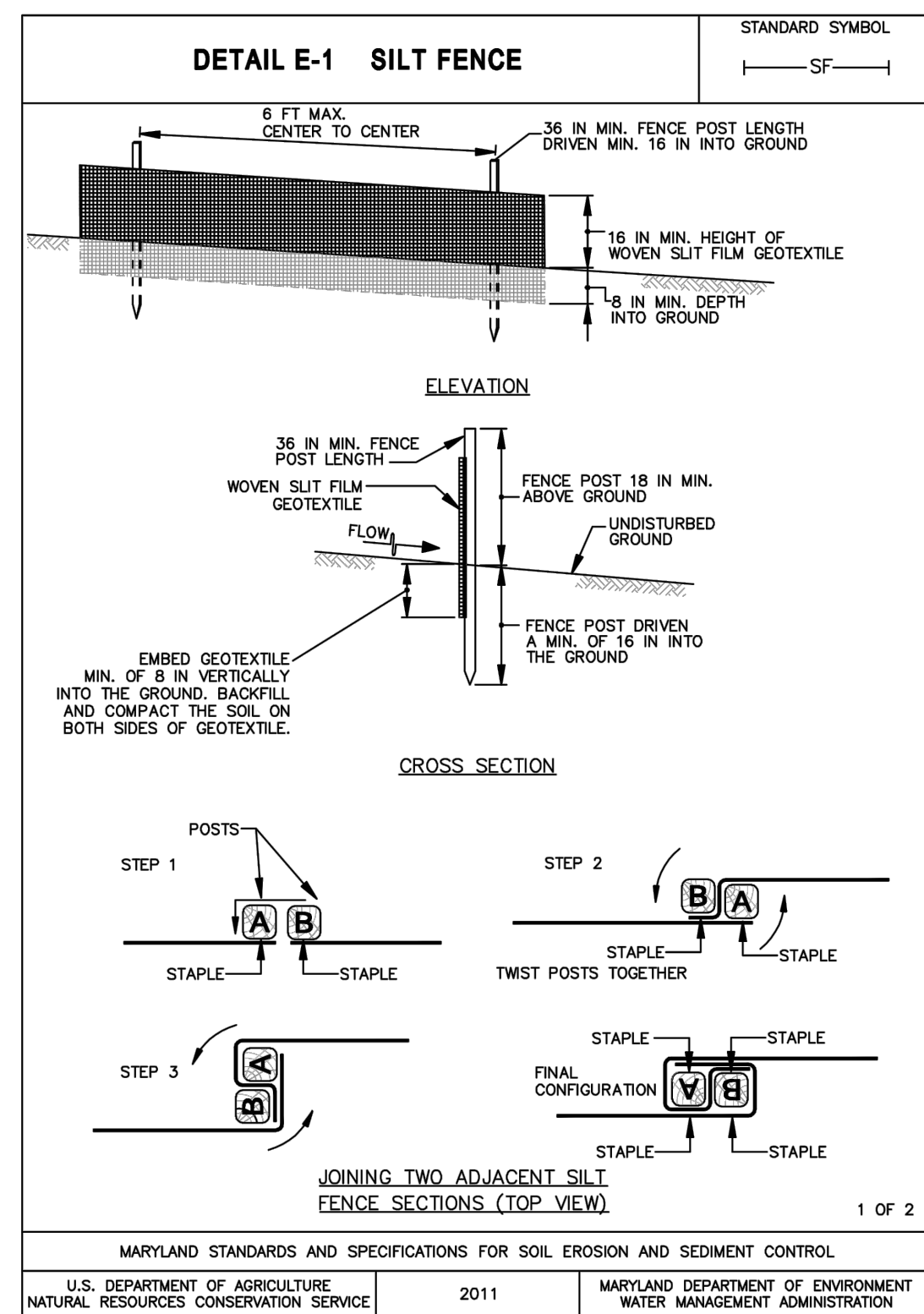
SEED TYPE AND APPLICATION SHALL MEET THE REQUIREMENTS IN SECTION B-4-3 SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY THE TYPE AND RATE OF SEED USED. MULCH TYPE AND ITS APPLICATION WILL MEET THE REQUIREMENTS IN SECTION B-4-3 A, B AND C AND WILL BE APPLIED ALONG WITH THE SEED OR IMMEDIATELY AFTER SEEDING.

SEEDING MIXTURES SHALL BE SELECTED FROM OR WILL BE EQUAL TO THOSE ON TABLE B.1 (PAGE B.20). TEMPORARY SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): SEED MIXTURE (FROM TABLE B.1)				FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	N	P2O3	K2O	
1	ANNUAL RYEGRASS	50	2/1 TO 4/30 8/15 TO 1/11	45 POUNDS PER ACRE (11.25 LB/1000 SF)	90 LB/AC (2 LB/1000 SF)	90 LB/AC (2 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)

SPSC STABILIZATION NOTES

- TEMPORARY STABILIZATION FOR ANY AREA OF EARTH DISTURBANCE AROUND THE POOLS AND RIFFLE ZONES OF A SPSC (E.G. STEP POOL STORM CONVEYANCE SYSTEM) SHALL BE CONSIDERED ACHIEVED WHEN UNIFORMLY COVERING THE AREA WITH 2 TO 4 INCHES OF WOOD CHIPS. ANNUAL RYE MAY BE UTILIZED FOR THE TEMPORARY SEEDING APPLICATION PERIOD FOUND UNDER THE ANNE AR



2018 VEGETATIVE ESTABLISHMENT NOTES

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) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IS IF LOW GRASS OR SERICIA LESPEDEZA IS TO BE PLANTED, THEN A SANDY SOIL (< 30% SILT PLUS CLAY) WILL 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 SEEDDED SHALL BE LOOSE AND FRIABLE TO A DEPTH OF AT LEAST 3-5 INCHES. THE TOP LAYER SHALL BE LOOSENEED 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 1/4 INCH IN CLAYEY SOILS AND 1/2 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.
 - D. MULCHING: MULCH SHALL BE APPLIED TO ALL SEEDDED 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:

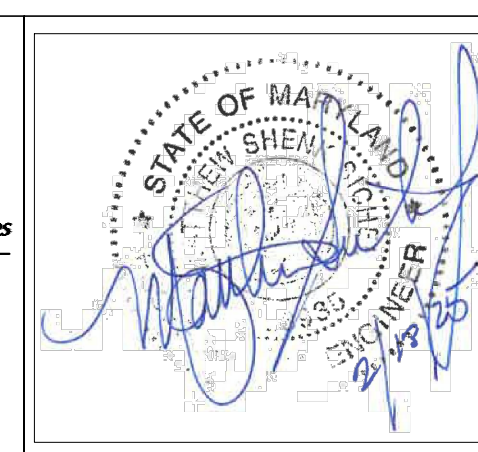
LIME: 100 POUNDS OF DOLOMITIC LIMESTONE PER 1,000 SQUARE FEET.
 FERTILIZER: 15 POUNDS OF 10-10-10 PER 1,000 SQUARE FEET.
 SEED: PERENNIAL RYE - 0.92 POUNDS PER 1,000 SQUARE FEET (FEBRUARY 1 THROUGH APRIL 30 OR AUGUST 15 THROUGH OCTOBER 31).
 MILLET - 0.92 POUNDS PER 1,000 SQUARE FEET (MAY 1 THROUGH AUGUST 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.
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 SERICIA 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.

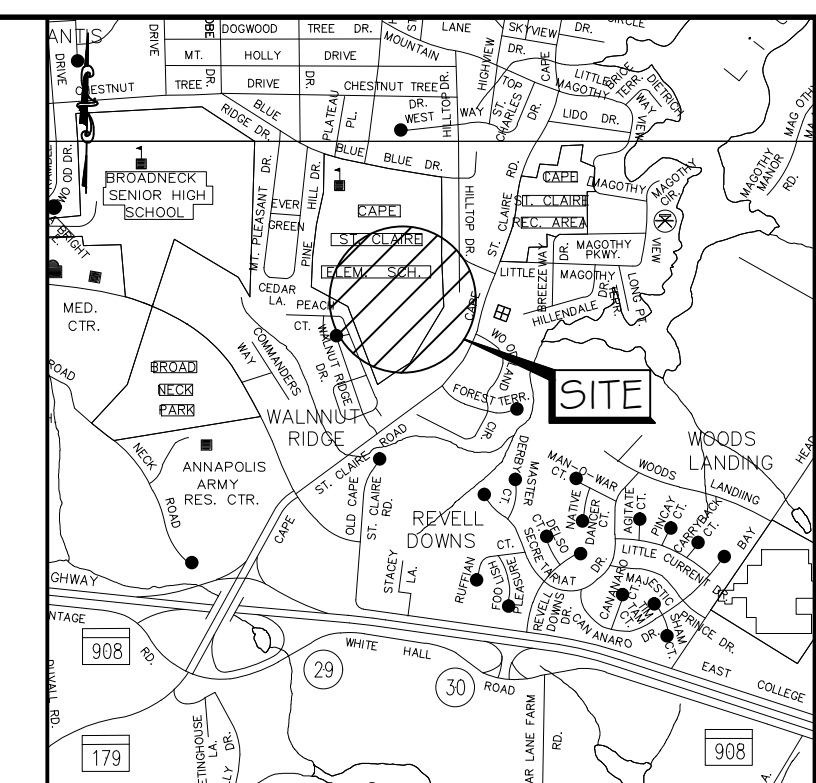
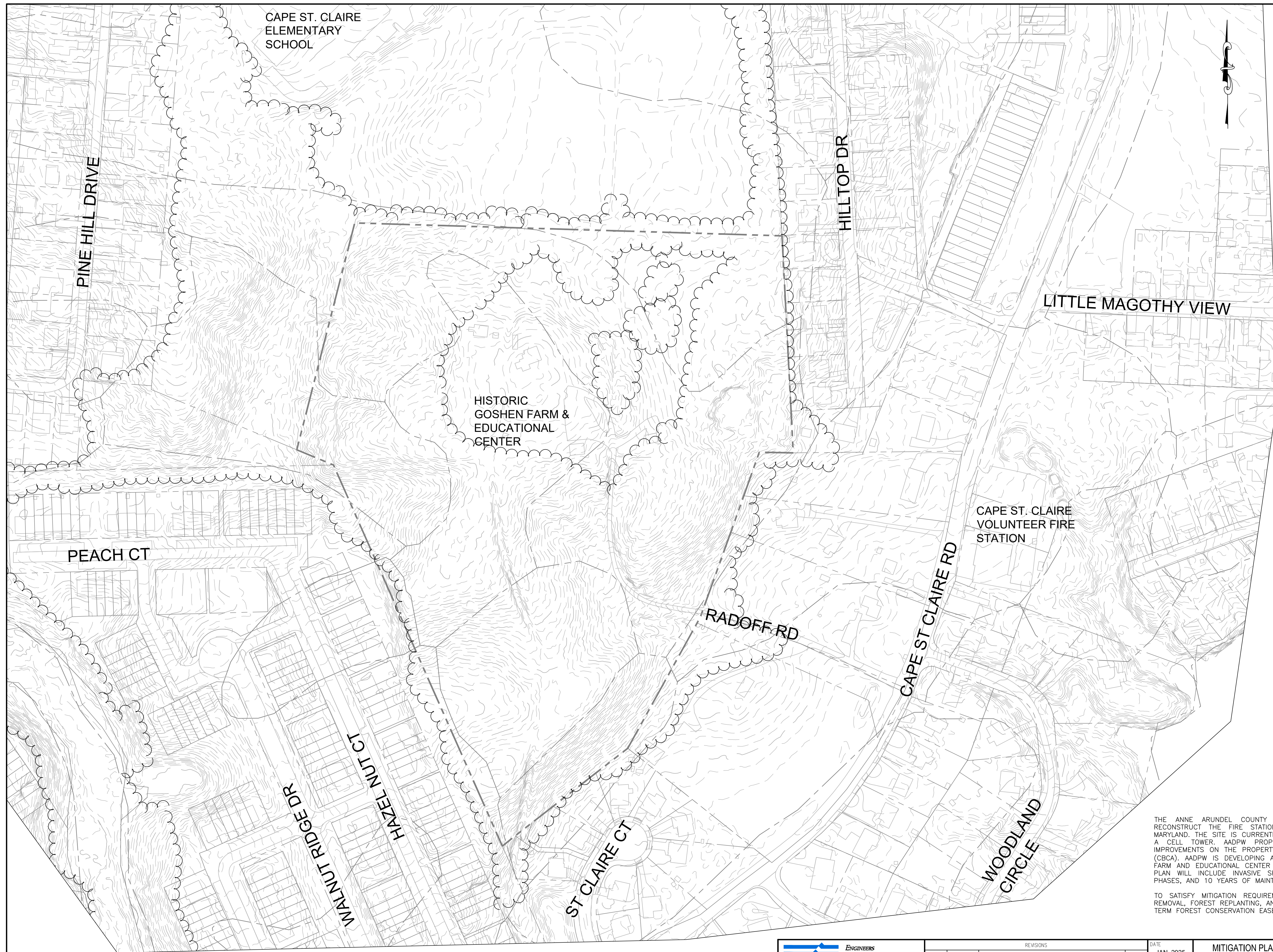
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 28935 EXP. DATE: 01/15/2027

Revision Schedule		
#	Date	Revision



ANNE ARUNDEL COUNTY
DEPARTMENT OF PUBLIC WORKS

	APPROVED	DATE	APPROVED	DATE	SCALE: AS SHOWN	ANNE ARUNDEL COUNTY
	CHIEF ENGINEER		PROJECT MANAGER		DRAWN BY: FFW	OFF-SITE MITIGATION AT HISTORIC GOSHEN FARM & EDUCATIONAL CENTER
	APPROVED	DATE	APPROVED	DATE	CHECKED BY: MS	ESC DETAILS
					SHEET NO.: 7 OF 7	
					PROJECT NO.: 272104240	
DATE: 04/04/2025	ASSISTANT CHIEF ENGINEER		CHIEF RIGHT OF WAY		CONTRACT NO.: F580301	



LEGEND

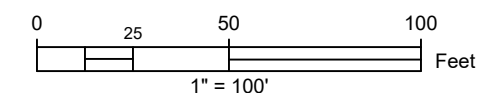
- GOSHEN FARM PROPERTY LINE
- ADJACENT PROPERTY LINE
- SOILS BOUNDARY
- EXISTING GIS MAJOR CONTOUR
- EXISTING GIS MINOR CONTOUR
- EXISTING TREE LINE
- SPECIMEN TREE
- ROAD EDGE / IMPERVIOUS SURFACE
- PROPOSED TREE
- CLEAR CUT WITH FULL REPLANTING AREA (AREAS C, F, G, & H)
- SELECTIVE INVASIVE REMOVAL AREA AND SELECTIVE PLANTING (AREAS B, D, & E)
- SEED ONLY PLANTING AREA

PROJECT SUMMARY

THE ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS (ADPW) IS PROPOSING TO RECONSTRUCT THE FIRE STATION AT 1409 AND 1411 CAPE ST. CLAIRE ROAD IN ANNAPOLIS, MARYLAND. THE SITE IS CURRENTLY DEVELOPED WITH THE EXISTING FIRE STATION, PARKING LOT, AND A CELL TOWER. ADPW PROPOSES TO CONSTRUCT A NEW FIRE STATION AND ASSOCIATED IMPROVEMENTS ON THE PROPERTY, WHICH IS LOCATED WITHIN THE CHESAPEAKE BAY CRITICAL AREA (CBCA). ADPW IS DEVELOPING AN INVASIVE SPECIES MANAGEMENT PLAN AT THE HISTORIC GOSHEN FARM AND EDUCATIONAL CENTER AS MITIGATION FOR DISTURBANCE IN THE CBCA. THE MANAGEMENT PLAN WILL INCLUDE INVASIVE SPECIES REMOVAL IN PHASES, REPLANTING OF NATIVE SPECIES IN PHASES, AND 10 YEARS OF MAINTENANCE TO PREVENT THE RE-INTRODUCTION OF UNWANTED SPECIES.

TO SATISFY MITIGATION REQUIREMENTS, ADPW IS PROPOSING 3.72 ACRES OF INVASIVE SPECIES REMOVAL, FOREST REPLANTING, AND PRESERVATION. ALL FORESTED AREAS WILL BE PLACED INTO LONG TERM FOREST CONSERVATION EASEMENTS AND PROTECTED IN PERPETUITY.

PLOTTED: 04/11/2025
 PLOT: 04/11/2025
 FILE: 04/11/2025



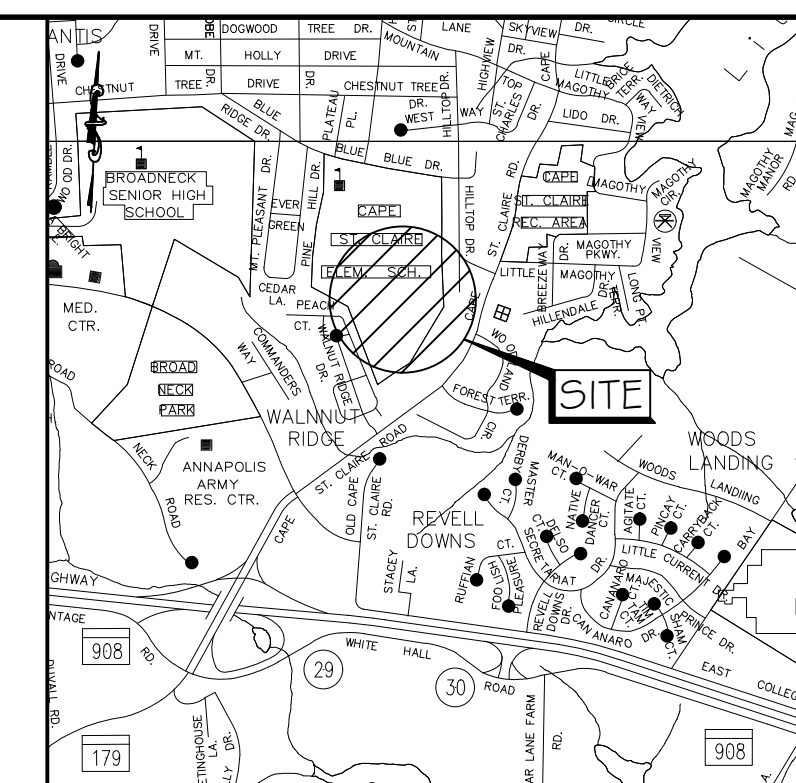

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REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2025
 SCALE: 1"=100'
 DESIGNED BY: AAW / JB
 DRAWN BY: AAW

MITIGATION PLAN FOR THE CAPE SAINT CLAIRE FIRE STATION
OFF-SITE MITIGATION AT HISTORIC GOSHEN FARM & EDUCATIONAL CENTER
APPENDIX E:
OVERALL SITE PLAN
 ANNAPOLIS, MARYLAND

DRAWING NO. E-1
 SHEET 1 OF 6
 KCI JOB NUMBER 272104240

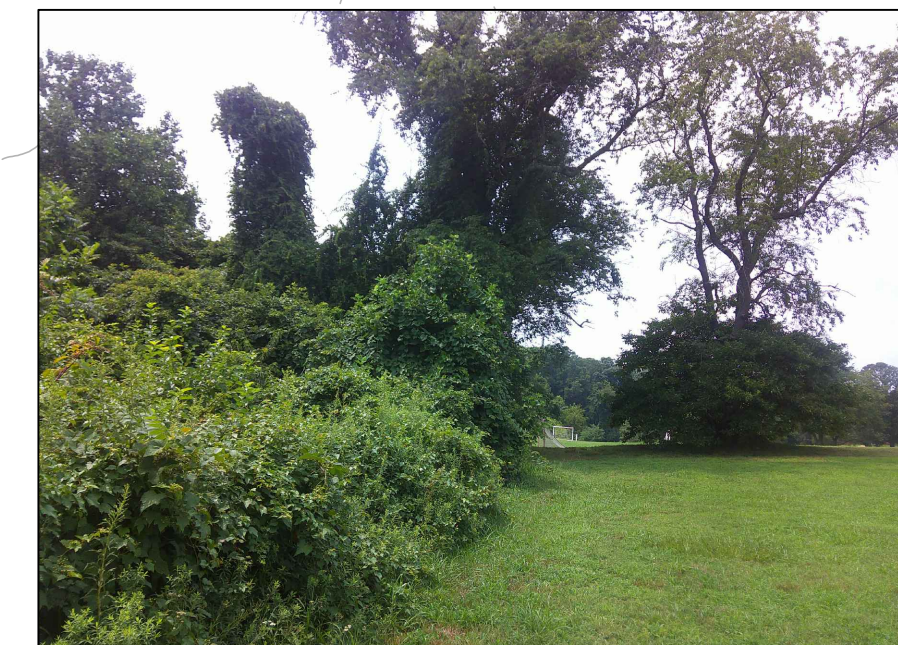


VICINITY MAP
SCALE: 1"=1000'

AREA B



AREA C



AREA H

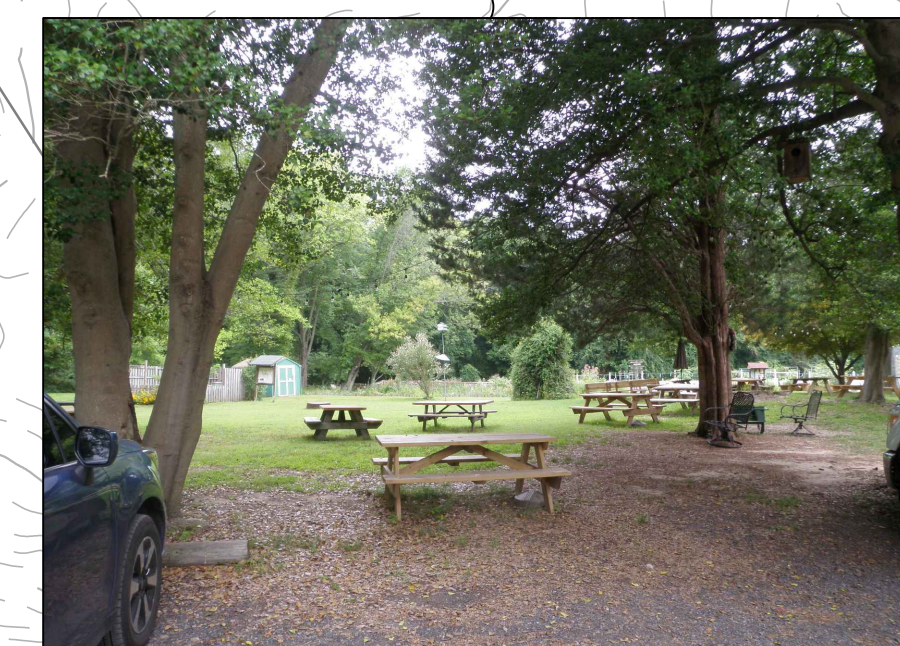


AREA D



AREA G

EXISTING SOURCE TREE OF HEAVEN



AREA A



AREA F

WHITE OAK MEMORIAL GROVE

EXISTING FOX DEN

HISTORIC IRONSTONE QUARRY

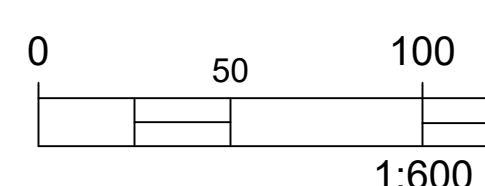
AREA E

LEGEND

- GOSHEN FARM PROPERTY LINE
- ADJACENT PROPERTY LINE
- SOILS BOUNDARY
- EXISTING GIS MAJOR CONTOUR
- EXISTING GIS MINOR CONTOUR
- EXISTING TREE LINE
- SPECIMEN TREE
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- CLEAR CUT WITH FULL REPLANTING AREA (AREAS C, F, G, & H)
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- SEED ONLY PLANTING AREA

SOILS TABLE					
Soil Symbol	Soil Unit Name	Percent Slope	K _s value	Hydric (Y/N)	Drainage Class
DwB	Downer-Hammonton-Urban land complex	0-5	N/A	No	N/A
DxB	Downer-Phalarx complex	2-5	0.1	No	Well Drained
DxC	Downer-Phalarx complex	5-10	0.1	No	Well Drained
DxD	Downer-Phalarx complex	10-15	0.1	No	Well Drained
MtA	Mattapex silt loam, northern coastal plain	0-2	0.49	No	Moderately Well Drained
SaB	Sassafras fine sandy loam	2-5	0.15	No	Well Drained
SME	Sassafras and Croom soils	15-25	0.15	No	Well Drained
SnB	Sassafras-Urban land complex	0-5	0.24	No	Well Drained
SnD	Sassafras-Urban land complex	5-15	0.15	No	Well Drained

SPECIMEN TREE TABLE					
Number	Species	Common Name	Size, DBH (in)	Condition	Notes
SP-1	<i>Ailanthus altissima</i>	Tree of Heaven	40.0	Fair	
SP-2	<i>Prunus serotina</i>	Black Cherry	32.0	Fair	Heavy vines, near access road
SP-3	<i>Prunus serotina</i>	Black Cherry	36.0	Poor	
SP-4	<i>Liriodendron tulipifera</i>	Tulip Poplar	32.0	Poor	
SP-5	<i>Liriodendron tulipifera</i>	Tulip Poplar	33.0	Poor	Covered in vines
SP-6	<i>Liriodendron tulipifera</i>	Tulip Poplar	35.0	Poor	Covered in vines
SP-7	<i>Liriodendron tulipifera</i>	Tulip Poplar	35.0	Poor	
SP-8	<i>Liriodendron tulipifera</i>	Tulip Poplar	32.0	Fair	
SP-9	<i>Liriodendron tulipifera</i>	Tulip Poplar	36.0	Poor	Covered in vines
SP-10	<i>Liriodendron tulipifera</i>	Tulip Poplar	33.0	Poor	Covered in vines
SP-11	<i>Liriodendron tulipifera</i>	Tulip Poplar	40.0	Poor	Covered in vines, through canopy
SP-12	<i>Liriodendron tulipifera</i>	Tulip Poplar	32.0	Fair	Vines are growing in crevices of trunk, not covering bark
SP-13	<i>Liriodendron tulipifera</i>	Tulip Poplar	31.0	Fair	Vine coverage
SP-14	<i>Liriodendron tulipifera</i>	Tulip Poplar	30.0	Poor	Heavy vines
SP-15	<i>Liriodendron tulipifera</i>	Tulip Poplar	32.0	Poor	Covered in vines
SP-16	<i>Liriodendron tulipifera</i>	Tulip Poplar	32.0	Poor	Covered in vines, part of a double trunk



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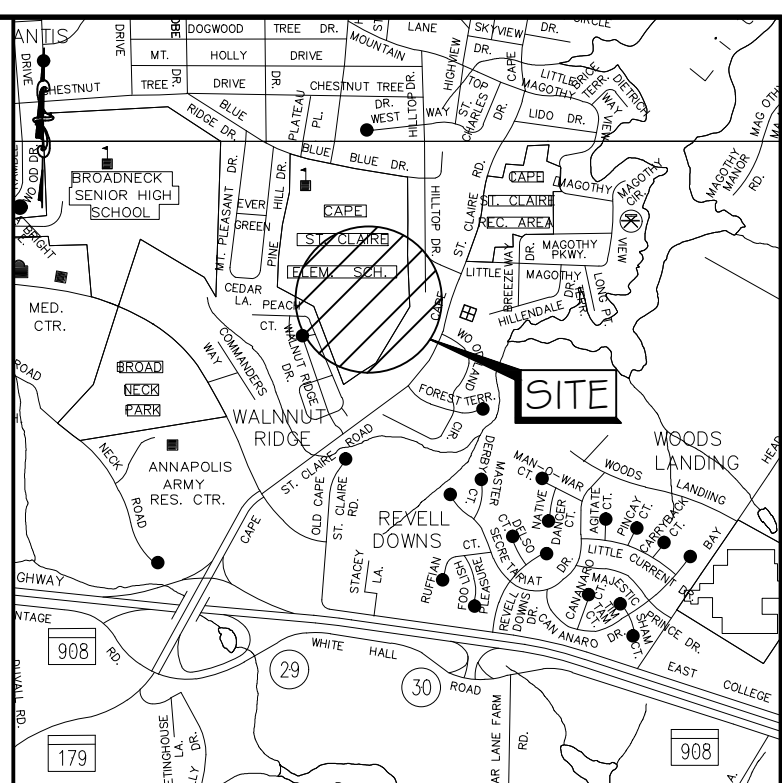
REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2025
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DESIGNED BY: AAW / JB
DRAWN BY: AAW

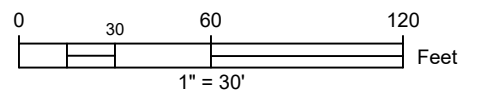
MITIGATION PLAN FOR THE CAPE SAINT CLAIRE FIRE STATION
OFF-SITE MITIGATION AT HISTORIC GOSHEN FARM & EDUCATIONAL CENTER
APPENDIX E:
EXISTING CONDITIONS PLAN
ANNAPOLIS, MARYLAND

DRAWING NO. E-02
SHEET 2 OF 6
KCI JOB NUMBER 272104240

PLOTTER: 8.5x11
PLOT DATE: 1/21/25
FILE: 272104240



- LEGEND
- GOSHEN FARM PROPERTY LINE
 - ADJACENT PROPERTY LINE
 - DxB
DxC — SOILS BOUNDARY
 - - - EXISTING GIS MAJOR CONTOUR
 - - - EXISTING GIS MINOR CONTOUR
 - ~ ~ ~ EXISTING TREE LINE
 - SP-1 SPECIMEN TREE
 - ROAD EDGE / IMPERVIOUS SURFACE
 - PROPOSED TREE
 - ▨ CLEAR CUT WITH FULL REPLANTING AREA (AREAS C, F, G, # H)
 - ▩ SELECTIVE INVASIVE REMOVAL AREA AND SELECTIVE PLANTING (AREAS B, D, # E)
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REVISIONS			
NO.	DATE	DESCRIPTION	BY

DATE: JAN. 2025
 SCALE: 1"=30'
 DESIGNED BY: AAW / JB
 DRAWN BY: AAW

MITIGATION PLAN FOR THE CAPE SAINT CLAIRE FIRE STATION
 OFF-SITE MITIGATION AT HISTORIC GOSHEN FARM & EDUCATIONAL CENTER
 APPENDIX E:
 PLANTING PLAN
 ANNAPOLIS, MARYLAND

DRAWING NO. E-03
 SHEET 3 OF 6
 KCI JOB NUMBER 272104240

PLOTTED: 04/15/2025 10:05 AM
 FILE: 272104240.DWG

LANDSCAPE SPECIFICATIONS

- A. LANDSCAPE SPECIFICATIONS SHALL BE AS OUTLINED BELOW. ANY ITEM OR PROCEDURE NOT MENTIONED BELOW SHALL BE AS SPECIFIED IN THE LANDSCAPE SPECIFICATION GUIDELINES PUBLISHED BY THE LANDSCAPE CONTRACTORS ASSOCIATION (LATEST EDITION).
- B. PLANT MATERIALS
THE LANDSCAPE CONTRACTOR SHALL FURNISH AND INSTALL AND/OR DIG, BALL, BURLAP AND TRANSPLANT ALL OF THE PLANT MATERIALS CALLED FOR ON THE DRAWINGS AND/OR LISTED IN THE PLANT SCHEDULE.
1. PLANT NAMES
ALL PLANT MATERIALS SHALL BE EQUAL TO OR BETTER THAN THE REQUIREMENTS OF THE "AMERICAN STANDARD FOR NURSERY STOCK," LATEST EDITION, AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN (HEREAFTER REFERRED TO AS AAN STANDARDS). ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY, SHALL HAVE A NORMAL HABIT OF GROWTH, AND SHALL BE FIRST QUALITY, SOUND, VIGOROUS, WELL-BRANCHED AND WITH HEALTHY, WELL-FURNISHED ROOT SYSTEMS. THEY SHALL BE FREE OF DISEASE, INSECT PESTS AND MECHANICAL INJURIES.
- (A) ALL PLANTS SHALL BE NURSERY GROWN AND SHALL HAVE BEEN GROWN UNDER THE SAME CLIMATE CONDITIONS AS THE LOCATION OF THIS PROJECT FOR AT LEAST TWO YEARS BEFORE PLANTING. NEITHER HEELED-IN PLANTS NOR PLANTS FROM COLD STORAGE WILL BE ACCEPTED.
- (B) COLLECTED PLANTS OR TRANSPLANTED TREES MAY BE CALLED FOR BY THE LANDSCAPE DESIGNER AND USED, PROVIDED, HOWEVER, THAT LOCATIONS AND SOIL CONDITIONS WILL PERMIT PROPER BALLING.
2. PLANT MEASUREMENTS ALL PLANTS SHALL CONFORM TO THE MEASUREMENTS SPECIFIED IN THE PLANT SCHEDULE.
- (A) CALIPER MEASUREMENTS SHALL BE TAKEN SIX INCHES (6") ABOVE GRADE FOR TREES UNDER FOUR-INCH (4") CALIPER AND TWELVE INCHES (12") ABOVE GRADE FOR TREES FOUR INCHES (4") IN CALIPER AND OVER.
- (B) MINIMUM BRANCHING HEIGHT FOR ALL SHADE TREES SHALL BE SIX FEET (6').
- (C) MINIMUM SIZE FOR PLANTING CANOPY TREES SHALL 1-1/2" CALIPER, 8"-10" IN HEIGHT.
- (D) MINIMUM SIZE FOR PLANTING UNDERSTORY TREES SHALL BE 3/4" IN CALIPER, 5' IN HEIGHT.
- (E) MINIMUM SIZE FOR PLANTING LARGE SHRUBS SHALL BE 5' HEIGHT.
- (F) MINIMUM SIZE FOR PLANTING SMALL SHRUBS SHALL BE 3' HEIGHT.
- (G) MINIMUM SIZE FOR PLANTING EVERGREEN TREES SHALL BE 6' HEIGHT.
- (H) ALL PLANT MATERIAL SHALL GENERALLY AVERAGE THE MEDIUM FOR THE SIZE RANGES INDICATED ABOVE AND AS INDICATED IN THE "AAN STANDARDS."
- (I) MINIMUM SIZE FOR PLANTING SHRUBS SHALL BE, IN GENERAL, 18"-24" IN HEIGHT OR SPREAD, AS APPROPRIATE, EXCEPT THAT A LARGER SIZE MAY BE REQUIRED WHEN DEEMED APPROPRIATE BY THE PLANNING DIRECTOR OR DESIGNEE IN THE CASE OF PARTICULAR SPECIES OR PLANTING SITUATIONS.

- C. PLANTING METHODS
ALL PROPOSED PLANT MATERIAL THAT MEETS THE SPECIFICATIONS IN SECTION B ABOVE ARE TO BE PLANTED IN ACCORDANCE WITH THE FOLLOWING PLANTING METHODS DURING THE PROPER SEASONS AS DESCRIBED BELOW.

1. PLANTING SEASONS
A PROFESSIONAL HORTICULTURALIST/NURSERYMAN SHALL BE CONSULTED TO DETERMINE THE PROPER TIME, BASED ON PLANT SPECIES AND WEATHER CONDITIONS, TO MOVE AND INSTALL PARTICULAR PLANT MATERIAL TO MINIMIZE STRESS TO THE PLANT. PLANTING OF DECIDUOUS MATERIAL MAY BE CONTINUED DURING THE WINTER MONTHS PROVIDED THERE IS NO FROST IN THE GROUND AND FROST-FREE TOP SOIL PLANTING MIXTURES ARE USED.
2. DIGGING
ALL PLANT MATERIAL SHALL BE DUG, BALLED AND BURLAPPED (B+B) OR BARE ROOT IN ACCORDANCE WITH THE "AAN STANDARDS."
3. EXCAVATION OF PLANT PITS
THE LANDSCAPE CONTRACTOR SHALL EXCAVATE ALL PLANT PITS, VINE PITS, HEDGE TRENCHES AND SHRUB BEDS AS FOLLOWS:
(A) ALL PITS SHALL BE GENERALLY CIRCULAR IN OUTLINE, WITH VERTICAL SIDES. THE TREE PIT SHALL BE DEEP ENOUGH TO ALLOW 1/8 OF THE BALL TO BE ABOVE THE EXISTING GRADE. PLANTS SHALL REST ON UNDISTURBED EXISTING SOIL OR WELL COMPACTED BACKFILL. THE TREE PIT MUST BE A MINIMUM OF NINE (9) INCHES LARGER ON EVERY SIDE THAN THE BALL OF THE TREE.
4. PLANT PRUNING, EDGING AND MULCHING
(A) EACH TREE, SHRUB OR VINE SHALL BE PRUNED IN AN APPROPRIATE MANNER TO ITS PARTICULAR REQUIREMENTS, IN ACCORDANCE WITH ACCEPTED STANDARD PRACTICE. BROKEN OR BRUISED BRANCHES SHALL BE REMOVED WITH CLEAN CUTS MADE ON AN ANGLE FROM THE BARK RIDGE TO THE BRANCH COLLAR, NO FLUSH CUTS, TO MINIMIZE THE AREA CUT. ALL CUTS SHALL BE MADE WITH SHARP TOOLS. TRIM ALL EDGES SMOOTH. NO TREE WOUND DRESSINGS SHALL BE APPLIED.
(B) AFTER CULTIVATION, ALL PLANT MATERIALS SHALL BE MULCHED WITH A 2"-3" LAYER OF TAN BARK, PEAT MOSS, OR ANOTHER APPROVED MATERIAL OVER THE ENTIRE AREA OF THE BED OR SAUCER.
- D. SEEDING
ALL SEEDING SHALL BE AS PER "STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL IN URBANIZING AREAS" AS PUBLISHED BY THE MARYLAND DEPARTMENT OF NATURAL RESOURCES.
- E. WARRANTY
1. WARRANTY TREES, SHRUBS, PLANTS, AND ALL SEED AREAS FOR A PERIOD OF ONE YEAR AFTER DATE OF WRITTEN ACCEPTANCE BY THE OWNER, AGAINST DEFECTS INCLUDING DEATH AND UNSATISFACTORY GROWTH, EXCEPT FOR DEFECTS RESULTING IN NEGLIGENCE BY OWNER, ABUSE OR DAMAGE BY OTHERS, OR UNUSUAL PHENOMENA OR INCIDENTS BEYOND THE INSTALLER'S CONTROL. THE SURVIVABILITY RATE IS 80%.
2. REMOVE AND REPLACE TREES, SHRUBS, PLANTS, AND SEED AREAS FOUND TO BE DEAD OR IN UNHEALTHY CONDITION DURING WARRANTY PERIOD. MAKE REPLACEMENTS DURING GROWTH SEASON FOLLOWING THE END OF WARRANTY PERIOD. REPLACE ANY PLANTS WHICH ARE IN DOUBTFUL CONDITION AT THE END OF WARRANTY PERIOD; UNLESS IN OPINION OF OWNER, IT IS ADVISABLE TO EXTEND WARRANTY PERIOD FOR A FULL GROWING SEASON.

- F. MONITORING
1. THE SITE WILL BE MONITORED IN THE SPRING AND FALL FOR PLANTING SURVIVABILITY AND INVASIVE REMOVAL SUCCESS FOR 10 YEARS POST PLANTING.
2. AN 80% SURVIVABILITY IS REQUIRED.

LANDSCAPE MAINTENANCE

- I. GENERAL
A. ALL PLANTING AREAS AND SEED AREAS SHALL BE PERIODICALLY INSPECTED.
B. REMOVE ALL LITTER, DEBRIS AND WEEDS.
C. MAINTAIN A MINIMUM OF A 2-INCH DEPTH OF ORGANIC HARDWOOD MULCH OR EQUAL IN ALL PLANTING BEDS.
D. MAINTENANCE WILL BE COMPLETED BY THE COUNTY TWO TIMES A YEAR, SPRING AND FALL, FOR 10 YEARS.

- II. PRUNING
A. REMOVAL OF DEAD, DISEASED, INSECT INFESTED OR WEAK WOOD SHALL TAKE PLACE IN THE DORMANT SEASON OR AFTER FLOWERING. EXCESSIVE SHOOTS AND SUCKERS SHALL BE REMOVED.
B. ROOT PRUNING OF TREES ADJACENT TO CURBS OR SIDEWALKS SHALL OCCUR DURING PERIODIC INSPECTIONS WITH KNOWLEDGE OF MOST RECENT PRUNING. NO MORE THAN 1/3 OF ROOT SYSTEM SHALL BE PRUNED DURING A YEAR.

- III. INSECT AND DISEASE CONTROL

- A. THE CONTROL OF INSECTS AND DISEASE ASSOCIATED WITH ALL PLANTING AREAS SHALL ALWAYS BE A MAINTENANCE PRIORITY. ALL PLANTINGS, INCLUDING EXISTING MATURE TREES, SHALL BE PERIODICALLY INSPECTED FOR INSECT OR DISEASE INFESTATION. METHODS UTILIZED TO CONTROL INSECTS OR DISEASE MAY RANGE FROM SPRAYING AND PRUNING TO PLANT REMOVAL. WHATEVER METHOD IS UTILIZED, SAFETY AND CONTROL SHALL BE OF PRIME CONCERN. TRAINED AND CERTIFIED PERSONNEL SHALL PERFORM THESE TASKS.

LANDSCAPE NOTES

- THE BOUNDARY INFORMATION SHOWN HEREON IS BASED AVAILABLE ANNE ARUNDEL COUNTY OPEN GIS DATA.
- THIS LANDSCAPE PLAN HAS BEEN PREPARED BY KCI TECHNOLOGIES, INC. NO CHANGES SHALL BE MADE TO THIS PLAN WITHOUT PERMISSION FROM KCI TECHNOLOGIES, INC. ANY UNAUTHORIZED CHANGES BY OTHER PARTIES WILL NOT BE THE RESPONSIBILITY OF KCI TECHNOLOGIES, INC.
- THIS PLAN FOR LANDSCAPE PURPOSES ONLY.
- THE LANDSCAPE WORK OF THIS PROJECT SHALL BE PERFORMED PER THE LATEST EDITION OF THE ANNE ARUNDEL COUNTY LANDSCAPE MANUAL.
- PLANTS SHALL MEET OR EXCEED CURRENT "AMERICAN STANDARDS FOR NURSERY STOCK" BY AMERICAN ASSOCIATION OF NURSERYMEN (AAN) PARTICULARLY WITH REGARDS TO SIZE, GROWTH, SIZE OF BALL, AND DENSITY OF BRANCH STRUCTURE.
- ALL PLANTS (B&B OR CONTAINER) SHALL BE PROPERLY IDENTIFIED BY WEATHERPROOF LABELS SECURELY ATTACHED THERETO BEFORE DELIVERY TO PROJECT SITE. LABELS SHALL IDENTIFY PLANTS BY NAME, SPECIES AND SIZE. LABELS SHALL NOT BE REMOVED UNTIL THE FINAL INSPECTION BY THE DESIGNER OR DESIGNER'S REPRESENTATIVE.
- ANY MATERIALS AND/OR WORK MAY BE REJECTED BY THE DESIGNER'S REPRESENTATIVE IF IT DOES NOT MEET THE REQUIREMENTS OF THE SPECIFICATIONS. ALL REJECTED MATERIALS SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.
- PLANT QUANTITIES SHOWN IN THE PLANT LIST ARE FOR THE DESIGNERS CONVENIENCE ONLY. PRIOR TO SUBMITTING A BID OR ESTIMATE, CONTRACTOR SHALL VERIFY THAT TOTAL QUANTITIES SHOWN ON THE PLAN MATCH QUANTITIES INDICATED IN PLANT LIST. SHOULD DISCREPANCIES OCCUR, PLAN INFORMATION SHALL TAKE PRIORITY, AND THE DESIGNER SHALL BE NOTIFIED IMMEDIATELY.
- THE CONTRACTOR SHALL FURNISH ALL PLANTS TO COMPLETE THE WORK AS INDICATED ON THE PLAN AND SPECIFIED IN THE PLANT LIST.
- SUBSTITUTIONS IN PLANT SPECIES OR SIZE SHALL NOT BE PERMITTED EXCEPT WITH THE WRITTEN APPROVAL OF KCI TECHNOLOGIES.
- PLANTS SHALL BE LOCATED AS SHOWN ON THE DRAWINGS AND BY SCALING OR AS DESIGNATED IN THE FIELD BY THE DESIGNER OR THEIR REPRESENTATIVE. ALL LOCATIONS OF PLANTS AND PLANTING BEDS ARE TO BE STAKED AND APPROVED BY THE DESIGNER OR REPRESENTATIVE BEFORE EXCAVATION.
- CONTRACTOR SHALL CONTACT MISS UTILITY (1-800-257-7777) PRIOR TO ANY EXCAVATION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICES. ANY DAMAGE INCURRED DUE TO THE CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT CONTRACTOR'S EXPENSE.
- THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION. SHOULD ANY CONFLICTS OCCUR BETWEEN PROPOSED CONSTRUCTION OR PLANTINGS AND ACTUAL UTILITY LOCATIONS, THE OWNER AND THE DESIGNER MUST BE NOTIFIED PRIOR TO ANY EXCAVATION OR GRADING. ALL ENTRANCE WALLS, PIERS AND PLANTING BED LOCATIONS MUST BE FIELD STAKED BY THE CONTRACTOR AND THE LOCATION APPROVED BY THE OWNER PRIOR TO CONSTRUCTION.
- IF UTILITY LINES ARE ENCOUNTERED IN EXCAVATION OF TREE PITS, OTHER LOCATIONS FOR THE TREES SHALL BE SELECTED BY THE DESIGNER OR THEIR REPRESENTATIVE. SUCH CHANGES SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COMPENSATION. NO CHANGES OF LOCATION SHALL BE MADE WITHOUT THE APPROVAL OF THE LANDSCAPE DESIGNER.
- NO WORK IN PUBLIC RIGHT-OF-WAY SHALL BE DONE UNLESS ALL THE REQUIRED PERMITS ARE OBTAINED.
- ALL EQUIPMENT AND TOOLS SHALL BE PLACED SO AS TO NOT INTERFERE OR HINDER THE PEDESTRIAN AND VEHICULAR TRAFFIC FLOW.
- DURING PLANTING OPERATIONS EXCESS AND WASTE MATERIALS SHALL BE DISPOSED OF PROPERLY OFFSITE AT NO EXTRA COST TO THE OWNER.

PROJECT SEQUENCE / SCHEDULE

TIME OF YEAR	ACTION	NOTES
SPRING 2026 - PRIOR TO ANY WORK	SITE WALK	PRIOR TO ANY CLEARING, GRUBBING, OR TREATMENT, THE COUNTY ARBORIST, CONTRACTOR, GFPS, MDNR, AND ANY OTHER NECESSARY REPRESENTATIVES SHALL WALK THE PROJECT ARE TO IDENTIFY TREES TO BE SAVED
PRIOR TO EACH HERBICIDE APPLICATION	SITE WALK	PRIOR TO EACH HERBICIDE APPLICATION A SITE WALK SHALL OCCUR WITH MDNR
SPRING 2026	TARGET INVASIVE TREES	CLEARCUT C, F, G, AND H. REMOVE AND TREAT BRADFORD PEAR AND NORWAY MAPLE USING BASAL BARK AND FOLIAR TREATMENTS IN JUNE 2025.
SPRING 2026	TARGET INVASIVE SHRUBS	CLEARCUT C, F, G, AND H. REMOVE SHRUBS SUCH AS MULTIFLORA ROSE, BUSH HONEYSUCKLE, AND BURNING BUSH THROUGH CLEARING AND GRUBBING.
SPRING 2026 THROUGH SPRING 2027	MAINTENANCE - MOWING	GOSHEN FARMS MAINTENANCE CREW WILL MOW CLEAR CUT AREAS, (AREA C, F, G, AND H) PERIODICALLY POST CLEARING AND PRE PLANTING AS AN ADDITIONAL INVASIVE PREVENTATIVE
LATE SPRING 2026	TARGET INVASIVE HERBS	GARLIC MUSTARD CAN BE PULLED BY HAND IN MAY/JUNE 2025, WITH GLYPHOSATE TREATMENT AS NEEDED IN LARGE INFESTATION AREAS. MINIMIZE HERBICIDE TREATMENTS AND FOCUS ON HAND PULLING WHERE FEASIBLE.
LATE SUMMER/FALL 2026	TREE OF HEAVEN	SEE TREATMENT METHODS ON THIS SHEET.
FALL 2026	TARGET INVASIVE VINES	CUT VINES TO 2 INCHES ABOVE THE GROUND LEVEL AND AT EYE LEVEL WHERE APPROPRIATE.
LATE WINTER/EARLY SPRING 2027	TARGET NEW INVASIVE SHOOTS	USE PRE-EMERGENT HERBICIDE TO PREVENT NEW GROWTH IN ALL TREATMENT AREAS IN FEBRUARY/MARCH 2026. CONTINUE TO MONITOR FOR NEW VINE GROWTH THROUGH THE SPRING AND TREAT WITH TRICLOPYR OR GLYPHOSATE.
LATE SPRING AND FALL 2027	PLANTING	PLANTING SHOULD OCCUR IN THE LATE SPRING AND FALL OF 2026, NO LESS THAN 30 DAYS POST SPRAYING OF INVASIVE SPECIES. SPRING OR FALL PLANTING IN THE VARIOUS ZONES WILL DEPENDENT UPON THE SUCCESS OF INVASIVE REMOVAL. PLANTING MAY OCCUR WHERE INVASIVE SPECIES HAVE BEEN SUCCESSFULLY REMOVED. IF SIGNIFICANT TREATMENT IS STILL REQUIRED, PLANTING SHOULD BE DELAYED. TREES WILL BE PLANTED FIRST, FOLLOWED BY UNDERSTORY TREES, SHRUBS, AND HERBACEOUS PLANTS.
SPRING AND FALL 2027-2037	TARGET NEW INVASIVE SHOOTS AND MONITORING	CONTINUE MONITORING AND INVASIVE TREATMENTS AS NOTED ABOVE FOR A PERIOD OF 10 YEARS POST PLANTING.
SPRING AND FALL 2027-2037	MAINTENANCE	THE COUNTY SHALL PERFORM MAINTENANCE TWICE A YEAR, FOR 10 YEARS INCLUDING REMOVAL OF LITTER, DEBRIS, AND ANY DEAD OR DISEASED MATERIAL. MOWING OF THE SEED ONLY AREAS SHOULD OCCUR DURING THE FALL OR SPRING. IF DONE IN THE FALL, WAIT TILL PLANTS HAVE GONE TO SEED. IF THERE ARE WEEDS IN THESE AREAS, CUT BACK BEFORE THEY GO TO SEED. IF MOWED IN THE SPRING, WAIT TILL TEMPERATURES HAVE CONSISTENTLY REACHED 50 DEGREES FAHRENHEIT TO ENSURE POLLINATORS AND BENEFICIAL INSECTS THAT ARE HIBERNATING HAVE A CHANCE TO WAKE UP FOR THE SEASON.

INVASIVE SPECIES TREATMENT

TREE OF HEAVEN
FOLLOW THE TREATMENT PLAN IN THE TABLE BELOW TO MITIGATE AND CONTROL TREE OF HEAVEN SPREAD.

TREATMENT	TIMING	HERBICIDE	PRODUCT RATE	COMMENTS
FOLIAR APPLICATION	JULY 1 TO ONSET OF FALL COLOR	GLYPHOSATE PLUS SYSTEMIC HERBICIDE (TRICLOPYR)	AS DIRECTED BY MANUFACTURER	THE COMBINATION OF GLYPHOSATE AND TRICLOPYR PROVIDES A BROAD-SPECTRUM TREATMENT THAT IS EFFECTIVE AGAINST TREE-OF-HEAVEN AND OTHER WOODY SPECIES THAT SHOULD ALSO BE TARGETED DURING TREATMENT. THIS NONSELECTIVE MIXTURE HAS MINIMAL SOIL ACTIVITY AND POSES LITTLE RISK TO NONTARGET ORGANISMS THROUGH ROOT UPTAKE. GARLON 3A AND VASTLAN ARE BOTH TRICLOPYR FORMULATIONS BUT HAVE DIFFERENT ACTIVE INGREDIENT CONCENTRATIONS. A SURFACTANT (E.G., ALLIGARE 90) NEEDS TO BE ADDED. IF USING A DIFFERENT GLYPHOSATE PRODUCT, BE SURE TO CHECK THE PRODUCT LABEL TO SEE IF A SURFACTANT IS NEEDED (SOME COME PREMIXED).
BASAL BARK	JULY 1 TO ONSET OF FALL COLOR	TRICLOPYR ESTER	AS DIRECTED BY MANUFACTURER	IDENTIFY A READY-TO-USE FORM OF TRICLOPYR ESTER FOR BASAL BARK APPLICATIONS. TREAT STEMS UP TO 6 INCHES IN BASAL DIAMETER BY WETTING THE ENTIRE CIRCUMFERENCE OF THE LOWER 12 TO 18 INCHES. USE THIS METHOD AS A FOLLOW-UP TO TREAT SURVIVING STEMS AFTER A FOLIAR APPLICATION. IF STEMS ARE LARGER THAN 6 INCHES IN BASAL DIAMETER USE HACK-AND-SQUIRT.
HACK AND SQUIRT	JULY 1 TO ONSET OF FALL COLOR	GLYPHOSATE OR SYSTEMIC HERBICIDE (TRICLOPYR)	AS DIRECTED BY MANUFACTURER	GLYPHOSATE OR TRICLOPYR IN WATER ARE EFFECTIVE FOR HACK-AND-SQUIRT TREATMENTS. MAKE CUTS IN THE BARK, LEAVING INTACT BARK BETWEEN THE CUTS. IF THE STEM IS COMPLETELY GIRDLED, THE HERBICIDE CANNOT TRANSLocate TO ROOTS. MAKE ONE CUT PER INCH OF DIAMETER, WITH A MINIMUM OF TWO. SPRAY HERBICIDE SOLUTION INTO HACKS IMMEDIATELY USING A SQUIRT BOTTLE, FILLING THE CUTS. THIS TREATMENT IS BEST SUITED FOR LOW STEM NUMBERS AND STEMS AT LEAST 1 INCH IN DIAMETER.
CUT / REMOVE STUMP AND ROOTS	N/A	N/A	N/A	THE LARGE TREE OF HEAVEN BY THE HISTORIC HOME WILL NEED TO BE CUT DOWN AND THE ROOTS REMOVED. IN ADDITION, THE STUMP BY THE PICNIC AREA MUST BE REMOVED. ANY NEW SHOOTS IN SUBSEQUENT SEASONS SHOULD BE SPRAYED AND THEN PULLED AND REMOVED AFTER WILTING.

NOTE: IT SHOULD BE NOTED THAT SMALL TREE OF HEAVEN SAPLINGS ARE SCATTERED THROUGHOUT AREAS A AND B AND THE ENTIRE AREA MUST BE INVESTIGATED AND TREATED AS NEEDED.

ORIENTAL BITTERSWEET, PORCELAIN BERRY, ENGLISH IVY, JAPANESE HONEYSUCKLE, WINTER CREEPER, POISON IVY, COMMON GREENBRIER, WINEBERRY, WISTERIA

USE PULL AND DIG, CUT/MOW AND RE-CUT, FLOWER/SEED REMOVAL, AND CUT AND SPRAY METHODS FOR VINES. APPLYING HERBICIDE IN HIGH CONCENTRATIONS WITH A SPREADER STICKER, A NON-IONIC GENERAL-PURPOSE SURFACTANT. USE CUT/MOW AND RE-CUT METHODS IN AREAS B, C, F, G, AND H, AND USE PULL AND DIG METHODS IN FORESTED AREAS D AND E. TARGET HERBICIDE TO THE INVASIVE SPECIES, WHILE AVOIDING NATIVE SPECIES. IF A BRUSH HOG IS USED IN AREAS D AND E, TAKE CARE TO MINIMIZE DAMAGE TO HEALTHY, NATIVE TREES. AVOID DAMAGE TO NEWLY PLANTED CONIFERS IN AREA C AND D. TAKE CARE TO REMOVE VINES FROM, BUT NOT DAMAGE LARGE SPECIMEN TREES. TREES IN FAIR TO GOOD CONDITION ARE TO BE SAVED.

MULTIFLORA ROSE/BUSH HONEYSUCKLE/BURNING BUSH

MECHANICALLY REMOVE INVASIVE SHRUBS. ONCE THE SHRUBS HAVE BEEN REMOVED, SPRAY NEW SHOOTS WITH HERBICIDE TO PREVENT REGROWTH.

BRADFORD PEAR AND NORWAY MAPLE

REMOVE SMALL SAPLINGS THROUGH PULL AND DIG METHODS OR A WEED WRENCH. FOR LARGER TREES, USE GIRDLING METHODS TO REMOVE THE BARK AND CAMBRIUM LAYER AND SPRAYING ANY NEW SHOOTS. TREES CAN BE CUT AND SPRAYED, OR A CUT AND GRIND METHOD CAN BE USED FOR THE STUMPS. REMOVE THE STUMP AND ROOTS TO THE EXTENT PRACTICABLE TO MINIMIZE NEW SHOOTS AND TREAT SHOOTS WITH HERBICIDE.

HERBACEOUS WEEDS

PULL HERBACEOUS WEEDS, SUCH AS GARLIC MUSTARD, BEFORE THEY GO TO SEED.

HERBICIDE USE WILL BE PRECEDED BY NOTIFICATIONS TO ADJOINING LAND OWNERS AND SIGNAGE ONSITE TO NOTIFY GOSHEN FARM VISITORS. HERBICIDE WILL BE APPLIED BY CERTIFIED PESTICIDE APPLICATORS. PRIOR TO TREATMENT, THE CONTRACTOR SHALL REVIEW ANY LOCAL OR STATE REGULATIONS REGARDING THE USE OF HERBICIDES THAT WILL APPLY TO THIS SITE, INCLUDING ALL RECORDKEEPING REQUIREMENTS. THE CONTRACTOR SELECTED SHALL SUBMIT NAMES, APPLICATION TYPE, AND DOSAGE OF ALL HERBICIDES THAT WILL BE USED FOR REVIEW BY THE COUNTY AND MARYLAND DEPARTMENT OF NATURAL RESOURCES. ALL HERBICIDES SHALL BE USED IN ACCORDANCE WITH MANUFACTURER'S DIRECTIONS.

ALL BEEHIVES ON THE PROPERTY SHALL BE HOODED WHILE THE SPRAYING OF HERBICIDES OCCURS AND FOR A DAY OR TWO AFTER.

ALL VEHICLES AND EQUIPMENT SHALL BE CLEANED DAILY TO PREVENT ANY FURTHER INVASIVE SEED SPREAD.

ALL INVASIVE PLANT MATERIAL AND DEBRIS REMOVED FROM THE SITE SHALL BE DISPOSED OF OFF-SITE AT THE DIRECTION OF ANNE ARUNDEL COUNTY.

PLANTING NOTES

- EXISTING WALKING TRAILS ARE TO BE PRESERVED AND NOT PLANTED.
- CARE SHOULD BE TAKEN TO NOT DISTURB THE FOX DEN BETWEEN AREAS C AND H.
- SMALL MAMMALS AND BIRDS TEND TO MATE AND GIVE BIRTH FROM LATE WINTER TO SPRING AND GIVE BIRTH IN THE SPRING.
- CARE SHOULD BE TAKEN TO NOT DISTURB THE HISTORIC IRONSTONE QUARRY IN AREA E.
- CARE SHOULD BE TAKEN TO NOT DISTURB THE 6-INCH X 6-INCH SITE MARKERS - WOODEN POSTS WITH A PAINTED GREEN TOP AND NUMBER AND THE 4-INCH X 4-INCH WOODEN POSTS WITH QR CODES ON TOP THAT ARE SCATTERED THROUGHOUT THE GOSHEN FARM PROPERTY.
- CARE SHOULD BE TAKEN TO NOT DISTURB THE CONIFERS PLANTING ALONG THE FOREST EDGES THROUGHOUT THE SITE.
- EXISTING FENCE POSTS ARE TO BE PRESERVED WHERE POSSIBLE. WHEN USING HEAVY EQUIPMENT, TAKE CARE TO AVOID DAMAGING FENCE POSTS.
- PLANTING SHALL ONLY OCCUR WHEN CONDITIONS ARE SUITABLE. THE GROUND SHALL NOT BE FROZEN.
- TEMPORARY AND PERMANENT SEEDING SHALL BE PLACED AT THE SAME TIME. SEE SHEET 5 FOR TEMPORARY SEEDING TABLE.
- CONTRACTOR WILL NEED TO BRING WATER SUPPLY OR CONNECT TO THE HYDRANT ALONG CAPE ST. CLAIRE ROAD AT RADOFF ROAD TO WATER THE PLANTS.
- AREAS B, C, D, E, F, G, AND H WILL BE PLACED INTO FOREST CONSERVATION EASEMENTS.
- ALL SEED ONLY AREAS SHALL BE 15 FEET WIDE. ALL SEED ONLY AREAS SHALL BE AS PER THE LATEST VERSION OF "STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" ISSUED BY MARYLAND DEPARTMENT OF THE ENVIRONMENT.

MITIGATION NOTES

- THE CRITICAL AREA MITIGATION REQUIREMENT FOR THE IMPACTS AT THE CAPE ST CLARE FIRE STATION IS 5.15 ACRES. TOTAL PLANTING PROPOSED AT GOSHEN FARM IS 3.72 ACRES AT 1:1 CREDIT. TOTAL INVASIVE REMOVAL AT GOSHEN FARM IS 3.72 ACRE AT 0.5 CREDITS. TOTAL MITIGATION IS 5.58 ACRES.

SCANNED, REPAIRED, SCALED, AND FILED IN PDF FILES



REVISIONS		DATE
NO.	DATE	DESCRIPTION
		JAN. 2025
		SCALE
		N.T.S.
		DESIGNED BY
		AAW / JB
		DRAWN BY
		AAW

MITIGATION PLAN FOR THE CAPE SAINT CLAIRE FIRE STATION
OFF-SITE MITIGATION AT HISTORIC GOSHEN FARM & EDUCATIONAL CENTER
APPENDIX E:
PLANTING NOTES & DETAILS
ANNAPOLIS, MARYLAND

DRAWING NO.
E-04
SHEET 4 OF 6
KCI JOB NUMBER
272104240

Invasive Species Management Area A (15,985 SF / 0.37 AC)					
Botanical Name	Common Name	Size	Form	Spacing	Quantity
Trees - 200 credits					
Quercus phellos	Willow Oak	2" Cal. / 12' Height	B&B	As Shown	2

Invasive Species Management Area B (7,411 SF / 0.17 AC)					
Botanical Name	Common Name	Size	Form	Spacing	Quantity
Trees					
Juniperus virginiana	Eastern Red Cedar	6' Height	B&B/ Container	Random	2
Carya glabra	Pignut Hickory	1-1.5" Cal. / 8-10' Height	B&B/ Container	Random	2
Understory Trees					
Nyssa sylvatica	Black Gum	3/4" Cal. / 5' Height	B&B/ Container	Random	2
Ilex opaca	American Holly	3/4" Cal. / 5' Height	B&B/ Container	Random	2
Large Shrubs					
Amelanchier canadensis	Serviceberry	5' Height	#7 Container	Random	3
Hamamelis virginiana	Witch Hazel	5' Height	#7 Container	Random	3
Viburnum prunifolium	Blackhaw Viburnum	5' Height	#7 Container	Random	3
Small Shrubs					
Ceanothus americanus	New Jersey Tea	3' Height	#5 Container	Random	4
Rhododendron canadense	Sweet Azalea	3' Height	#5 Container	Random	4
Cornus sericea	Red Osier Dogwood	3' Height	#5 Container	Random	4
Herbaceous					
Polystichum acrostichoides	Christmas Fern	6" Height Min.	1 Gallon Cont.	Random	10
Polygonatum pubescens	Solomon's seal	6" Height Min.	1 Gallon Cont.	Random	10

Seed Mix for Invasive Species Management Area B (7,411 SF / 0.17 AC)		
Seed Mix	Application Rate	Quantity (lbs)
Ernst Seed Mix ERNMX140 Partially Shaded Area Roadside Seed Mix	40 Lb/Acre	6.8

Invasive Species Management Area C (32,259 SF / 0.74 AC)					
Botanical Name	Common Name	Size	Form	Spacing	Quantity
Trees - 50% (16,130 SF)					
Acer rubrum	Red Maple	1-1.5" Cal. / 8-10' Height	B&B/ Container	10' o.c.	20
Liquidambar styraciflua	Sweet Gum	1-1.5" Cal. / 8-10' Height	B&B/ Container	10' o.c.	20
Platanus occidentalis	American Sycamore	1-1.5" Cal. / 8-10' Height	B&B/ Container	10' o.c.	20
Liriodendron tulipifera	Tulip Poplar	1-1.5" Cal. / 8-10' Height	B&B/ Container	10' o.c.	20
Pinus taeda	Loblolly Pine	6' Height	B&B/ Container	10' o.c.	20
Juniperus virginiana	Eastern Red Cedar	6' Height	B&B/ Container	10' o.c.	20
Quercus velutina	Black Oak	1-1.5" Cal. / 8-10' Height	B&B/ Container	10' o.c.	20
Quercus phellos	Willow Oak	1-1.5" Cal. / 8-10' Height	B&B/ Container	10' o.c.	20
Understory Trees - 15% (4,839 SF)					
Sassafras albidum	Sassafras	3/4" Cal. / 5' Height	B&B/ Container	10' o.c.	10
Nyssa sylvatica	Black Gum	3/4" Cal. / 5' Height	B&B/ Container	10' o.c.	9
Magnolia virginiana	Sweetbay Magnolia	3/4" Cal. / 5' Height	B&B/ Container	10' o.c.	10
Ilex opaca	American Holly	3/4" Cal. / 5' Height	B&B/ Container	10' o.c.	10
Cornus florida	Flowering Dogwood	3/4" Cal. / 5' Height	B&B/ Container	10' o.c.	9
Large Shrubs - 15% (4,839 SF)					
Amelanchier canadensis	Serviceberry	5' Height	#7 Container	7' o.c.	25
Hamamelis virginiana	Witch Hazel	5' Height	#7 Container	7' o.c.	24
Lindera benzoin	Northern Spicebush	5' Height	#7 Container	7' o.c.	25
Viburnum dentatum	Southern Arrowwood Viburnum	5' Height	#7 Container	7' o.c.	25
Small Shrubs - 10% (3,226 SF)					
Calycanthus floridus	Carolina Allspice	3' Height	#5 Container	7' o.c.	17
Clethra alnifolia	Sweet Pepperbush	3' Height	#5 Container	7' o.c.	17
Ilex glabra	Inkberry	3' Height	#5 Container	7' o.c.	16
Callicarpa americana	American Beautyberry	3' Height	#5 Container	7' o.c.	16
Herbaceous - 10% (3,226 SF)					
Chelone glabra	White Turtlehead	6" Height Min.	1 Gallon Cont.	Random	16
Conoclinium coelestinum	Mistflower	6" Height Min.	1 Gallon Cont.	Random	17
Eurybia divaricata	White Wood Aster	6" Height Min.	1 Gallon Cont.	Random	17
Polygonatum pubescens	Solomons Seal	6" Height Min.	1 Gallon Cont.	Random	16

Seed Mix for Invasive Species Management Area C (32,259 SF / 0.74 AC)		
Seed Mix	Application Rate	Quantity (lbs)
Ernst Seed Mix ERNMX172 Maryland Upland Seed Mix	30 Lb/Acre	22.2

Invasive Species Management Area D (50,919 SF / 1.17 AC)					
Botanical Name	Common Name	Size	Form	Spacing	Quantity
Trees - 10% (5,092 SF)					
Acer rubrum	Red Maple	1-1.5" Cal. / 8-10' Height	B&B/ Container	Random	12
Juniperus virginiana	Eastern Red Cedar	6' Height	B&B/ Container	Random	13
Liriodendron tulipifera	Tulip Poplar	1-1.5" Cal. / 8-10' Height	B&B/ Container	Random	13
Quercus phellos	Willow Oak	1-1.5" Cal. / 8-10' Height	B&B/ Container	Random	13
Understory Trees - 20% (10,184 SF)					
Sassafras albidum	Sassafras	3/4" Cal. / 5' Height	B&B/ Container	Random	20
Ilex opaca	American Holly	3/4" Cal. / 5' Height	B&B/ Container	Random	21
Cornus florida	Flowering Dogwood	3/4" Cal. / 5' Height	B&B/ Container	Random	20
Nyssa sylvatica	Black Gum	3/4" Cal. / 5' Height	B&B/ Container	Random	20
Magnolia virginiana	Sweetbay Magnolia	3/4" Cal. / 5' Height	B&B/ Container	Random	21
Large Shrubs - 20% (10,184 SF)					
Hamamelis virginiana	Witch Hazel	5' Height	#7 Container	Random	34
Leucothoe racemosa	Fetterbush	5' Height	#7 Container	Random	35
Vaccinium corymbosum	Highbush Blueberry	5' Height	#7 Container	Random	34
Lindera benzoin	Northern Spicebush	5' Height	#7 Container	Random	35
Morella pensylvanica	Northern Bayberry	5' Height	#7 Container	Random	35
Viburnum prunifolium	Blackhaw Viburnum	5' Height	#7 Container	Random	35
Small Shrubs - 15% (7,638 SF)					
Calycanthus floridus	Carolina Allspice	3' Height	#5 Container	Random	39
Rhododendron canadense	Sweet Azalea	3' Height	#5 Container	Random	39
Ilex glabra	Inkberry	3' Height	#5 Container	Random	39
Gaylussacia baccata	Black Huckleberry	3' Height	#5 Container	Random	39
Herbaceous - 15% (7,638 SF)					
Gaultheria procumbens	Wintergreen	6" Height Min.	1 Gallon Cont.	Random	31
Thelypteris noveboracensis	New York Fern	6" Height Min.	1 Gallon Cont.	Random	31
Polystichum acrostichoides	Christmas Fern	6" Height Min.	1 Gallon Cont.	Random	32
Dryopteris marginalis	Marginal Fern	6" Height Min.	1 Gallon Cont.	Random	31
Conoclinium coelestinum	Mistflower	6" Height Min.	1 Gallon Cont.	Random	31

Seed Mix for Invasive Species Management Area D (50,919 SF / 1.17 AC)		
Seed Mix	Application Rate	Quantity (lbs)
Ernst Seed Mix ERNMX140 Partially Shaded Area Roadside Seed Mix	40 Lb/Acre	46.6

Invasive Species Management Area E (49,221 SF / 1.13 AC)					
Botanical Name	Common Name	Size	Form	Spacing	Quantity
Trees - 5% (2,461 SF)					
Acer rubrum	Red Maple	1-1.5" Cal. / 8-10' Height	B&B/ Container	Random	6
Celtis occidentalis	Hackberry	1-1.5" Cal. / 8-10' Height	B&B/ Container	Random	7
Quercus palustris	Pin Oak	1-1.5" Cal. / 8-10' Height	B&B/ Container	Random	6
Quercus phellos	Willow Oak	1-1.5" Cal. / 8-10' Height	B&B/ Container	Random	6
Understory Trees - 15% (7,383 SF)					
Nyssa sylvatica	Black Gum	3/4" Cal. / 5' Height	B&B/ Container	Random	14
Sassafras albidum	Sassafras	3/4" Cal. / 5' Height	B&B/ Container	Random	15
Ilex opaca	American Holly	3/4" Cal. / 5' Height	B&B/ Container	Random	15
Cornus florida	Flowering Dogwood	3/4" Cal. / 5' Height	B&B/ Container	Random	15
Magnolia virginiana	Sweetbay Magnolia	3/4" Cal. / 5' Height	B&B/ Container	Random	15
Large Shrubs - 15% (7,383 SF)					
Hamamelis virginiana	Witch Hazel	5' Height	#7 Container	Random	25
Leucothoe racemosa	Fetterbush	5' Height	#7 Container	Random	25
Vaccinium corymbosum	Highbush Blueberry	5' Height	#7 Container	Random	25
Lindera benzoin	Northern Spicebush	5' Height	#7 Container	Random	25
Morella pensylvanica	Northern Bayberry	5' Height	#7 Container	Random	25
Viburnum prunifolium	Blackhaw Viburnum	5' Height	#7 Container	Random	25
Small Shrubs - 10% (4,922 SF)					
Calycanthus floridus	Carolina Allspice	3' Height	#5 Container	Random	25
Rhododendron canadense	Sweet Azalea	3' Height	#5 Container	Random	25
Ilex glabra	Inkberry	3' Height	#5 Container	Random	25
Gaylussacia baccata	Black Huckleberry	3' Height	#5 Container	Random	25
Herbaceous - 10% (4,922 SF)					
Gaultheria procumbens	Wintergreen	6" Height Min.	1 Gallon Cont.	Random	20
Thelypteris noveboracensis	New York Fern	6" Height Min.	1 Gallon Cont.	Random	20
Polystichum acrostichoides	Christmas Fern	6" Height Min.	1 Gallon Cont.	Random	20
Dryopteris marginalis	Marginal Fern	6" Height Min.	1 Gallon Cont.	Random	20
Conoclinium coelestinum	Mistflower	6" Height Min.	1 Gallon Cont.	Random	20

Seed Mix for Invasive Species Management Area E (49,221 SF / 1.13 AC)		
Seed Mix	Application Rate	Quantity (lbs)
Ernst Seed Mix ERNMX140 Partially Shaded Area Roadside Seed Mix	40 Lb/Acre	45.2

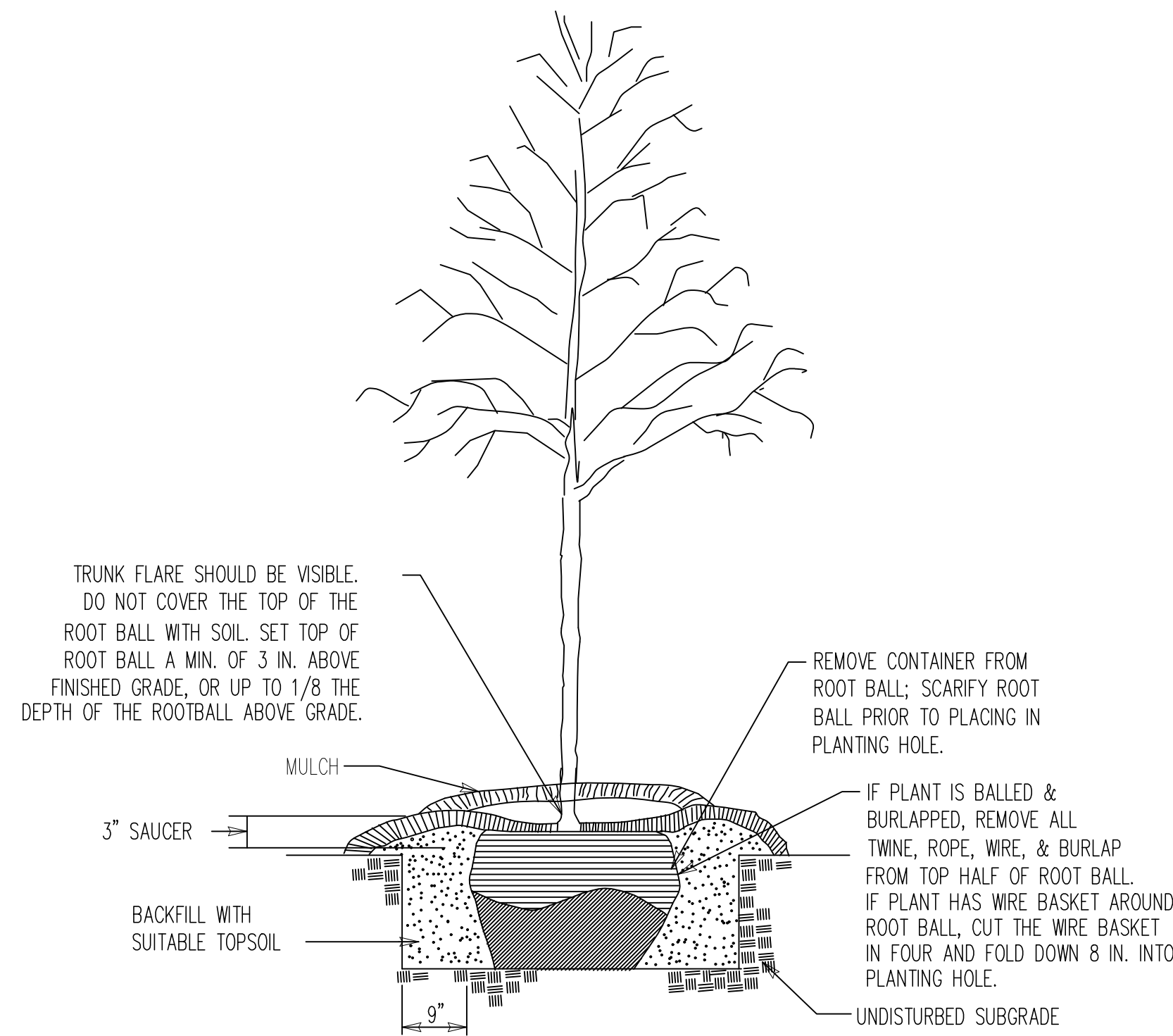
Invasive Species Management Area F (11,208 SF / 0.26 AC)					
Botanical Name	Common Name	Size	Form	Spacing	Quantity
Trees - 50% (5,604 SF)					
Acer rubrum	Red Maple	1-1.5" Cal. / 8-10' Height	B&B/ Container	10' o.c.	9
Celtis occidentalis	Common Hackberry	6' Height	B&B/ Container	10' o.c.	9
Diospyros virginiana	Common Persimmon	1-1.5" Cal. / 8-10' Height	B&B/ Container	10' o.c.	10
Carya glabra	Pignut Hickory	1-1.5" Cal. / 8-10' Height	B&B/ Container	10' o.c.	9
Quercus alba	White Oak	1-1.5" Cal. / 8-10' Height	B&B/ Container	10' o.c.	9
Quercus phellos	Willow Oak	1-1.5" Cal. / 8-10' Height	B&B/ Container	10' o.c.	10
Understory Trees - 15% (1,681 SF)					
Nyssa sylvatica	Black Gum	3/4" Cal. / 5' Height	B&B/ Container	10' o.c.	3
Sassafras albidum	Sassafras	3/4" Cal. / 5' Height	B&B/ Container	10' o.c.	4
Asimina triloba	Pawpaw	3/4" Cal. / 5' Height	B&B/ Container	10' o.c.	3
Magnolia virginiana	Sweetbay Magnolia	3/4" Cal. / 5' Height	B&B/ Container	10' o.c.	4
Chionanthus virginicus	White Fringetree	3/4" Cal. / 5' Height	B&B/ Container	10' o.c.	3
Large Shrubs - 15% (1,681 SF)					
Amelanchier canadensis	Serviceberry	5' Height	#7 Container	7' o.c.	9
Aronia arbutifolia	Red Chokeberry	5' Height	#7 Container	7' o.c.	8
Lindera benzoin	Northern Spicebush	5' Height	#7 Container	7' o.c.	9
Viburnum prunifolium	Blackhaw Viburnum	5' Height	#7 Container	7' o.c.	8
Small Shrubs - 10% (1,121 SF)					
Calycanthus floridus	Carolina Allspice	3' Height	#5 Container	7' o.c.	6
Clethra alnifolia	Sweet Pepperbush	3' Height	#5 Container	7' o.c.	6
Ilex glabra	Inkberry	3' Height	#5 Container	7' o.c.	5
Callicarpa americana	American Beautyberry	3' Height	#5 Container	7' o.c.	6
Herbaceous - 10% (1,121 SF)					
Chelone glabra	White Turtlehead	6" Height Min.	1 Gallon Cont.	Random	5
Conoclinium coelestinum	Mistflower	6" Height Min.	1 Gallon Cont.	Random	6
Eurybia divaricata	White Wood Aster	6" Height Min.	1 Gallon Cont.	Random	6
Polygonatum pubescens	Solomons Seal	6" Height Min.	1 Gallon Cont.	Random	6

Seed Mix for Invasive Species Management Area F (11,208 SF / 0.26 AC)		
Seed Mix	Application Rate	Quantity (lbs)
Ernst Seed Mix ERNMX172 Maryland Upland Seed Mix	30 Lb/Acre	7.8

Invasive Species Management Area G (7,574 SF / 0.17 AC)					
Botanical Name	Common Name	Size	Form	Spacing	Quantity
Trees - 50% (3,787 SF)					
Betula nigra	River Birch	1-1.5" Cal. / 8-10' Height	B&B/ Container	10' o.c.	8
Carya tomentosa	Mockernut Hickory	1-1.5" Cal. / 8-10' Height	B&B/ Container	10' o.c.	7
Juniperus virginiana	Eastern Red Cedar	6' Height	B&B/ Container	10' o.c.	8
Quercus montana	Chestnut Oak	1-1.5" Cal. / 8-10' Height	B&B/ Container	10' o.c.	7
Quercus palustris	Pin Oak	1-1.5" Cal. / 8-10' Height	B&B/ Container	10' o.c.	8
Understory Trees - 15% (1,136 SF)					
Sassafras albidum	Sassafras	3/4" Cal. / 5' Height	B&B/ Container	10' o.c.	3
Nyssa sylvatica	Black Gum	3/4" Cal. / 5' Height	B&B/ Container	10' o.c.	2
Ilex opaca	American Holly	3/4" Cal. / 5' Height	B&B/ Container	10' o.c.	2
Cornus florida	Flowering Dogwood	3/4" Cal. / 5' Height	B&B/ Container	10' o.c.	2
Cercis canadensis	Eastern Red Bud	3/4" Cal. / 5' Height	B&B/ Container	10' o.c.	2
Large Shrubs - 15% (1,136 SF)					
Amelanchier canadensis	Serviceberry	5' Height	#7 Container	7' o.c.	6
Hamamelis virginiana	Witch Hazel	5' Height	#7 Container	7' o.c.	6
Lindera benzoin	Northern Spicebush	5' Height	#7 Container	7' o.c.	5
Viburnum dentatum	Southern Arrowwood Viburnum	5' Height	#7 Container	7' o.c.	6
Small Shrubs - 10% (757 SF)					
Calycanthus floridus	Carolina Allspice	3' Height	#5 Container	7' o.c.	4
Clethra alnifolia	Sweet Pepperbush	3' Height	#5 Container	7' o.c.	4
Ilex glabra	Inkberry	3' Height	#5 Container	7' o.c.	3
Callicarpa americana	American Beautyberry	3' Height	#5 Container	7' o.c.	4
Herbaceous - 10% (757 SF)					
Chelone glabra	White Turtlehead	6" Height Min.	1 Gallon Cont.	Random	3
Conoclinium coelestinum	Mistflower	6" Height Min.	1 Gallon Cont.	Random	4
Eurybia divaricata	White Wood Aster	6" Height Min.	1 Gallon Cont.	Random	4
Polygonatum pubescens	Solomons Seal	6" Height Min.	1 Gallon Cont.	Random	4

Seed Mix for Invasive Species Management Area G (7,574 SF / 0.17 AC)		
Seed Mix	Application Rate	Quantity (lbs)
Ernst Seed Mix ERNMX172 Maryland Upland Seed Mix	30 Lb/Acre	5.1

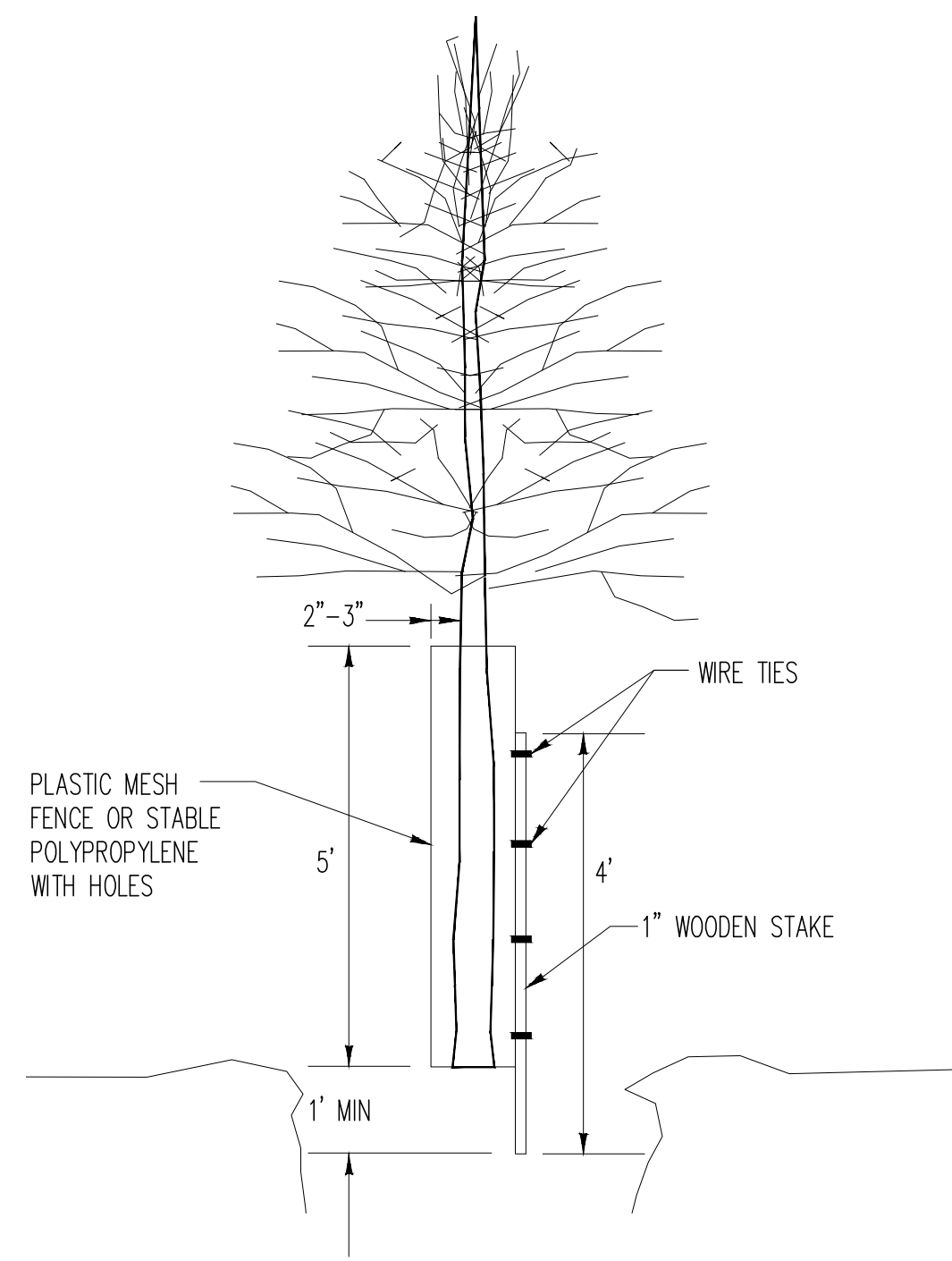
Invasive Species Management Area H (3,521 SF / 0.08 AC)					
Botanical Name	Common Name	Size	Form	Spacing	Quantity
Trees - 50% (1,761 SF)					
Diospyros virginiana	Common Persimmon	1-1.5" Cal. / 8-10' Height	B&B/ Container	10' o.c.	4
Betula nigra	River Birch	1-1.5" Cal. / 8-10' Height	B&B/ Container	10' o.c.	4
Carya glabra	Pignut Hickory	1-1.5" Cal. / 8-10' Height	B&B/ Container	10' o.c.	3
Quercus palustris	Pin Oak	1-1.5" Cal. / 8-10' Height	B&B/ Container	10' o.c.	3
Quercus rubra	Northern Red Oak	1-1.5" Cal. / 8-10' Height	B&B/ Container	10' o.c.	4
Understory Trees - 15% (528 SF)					



TREE PLANTING DETAIL

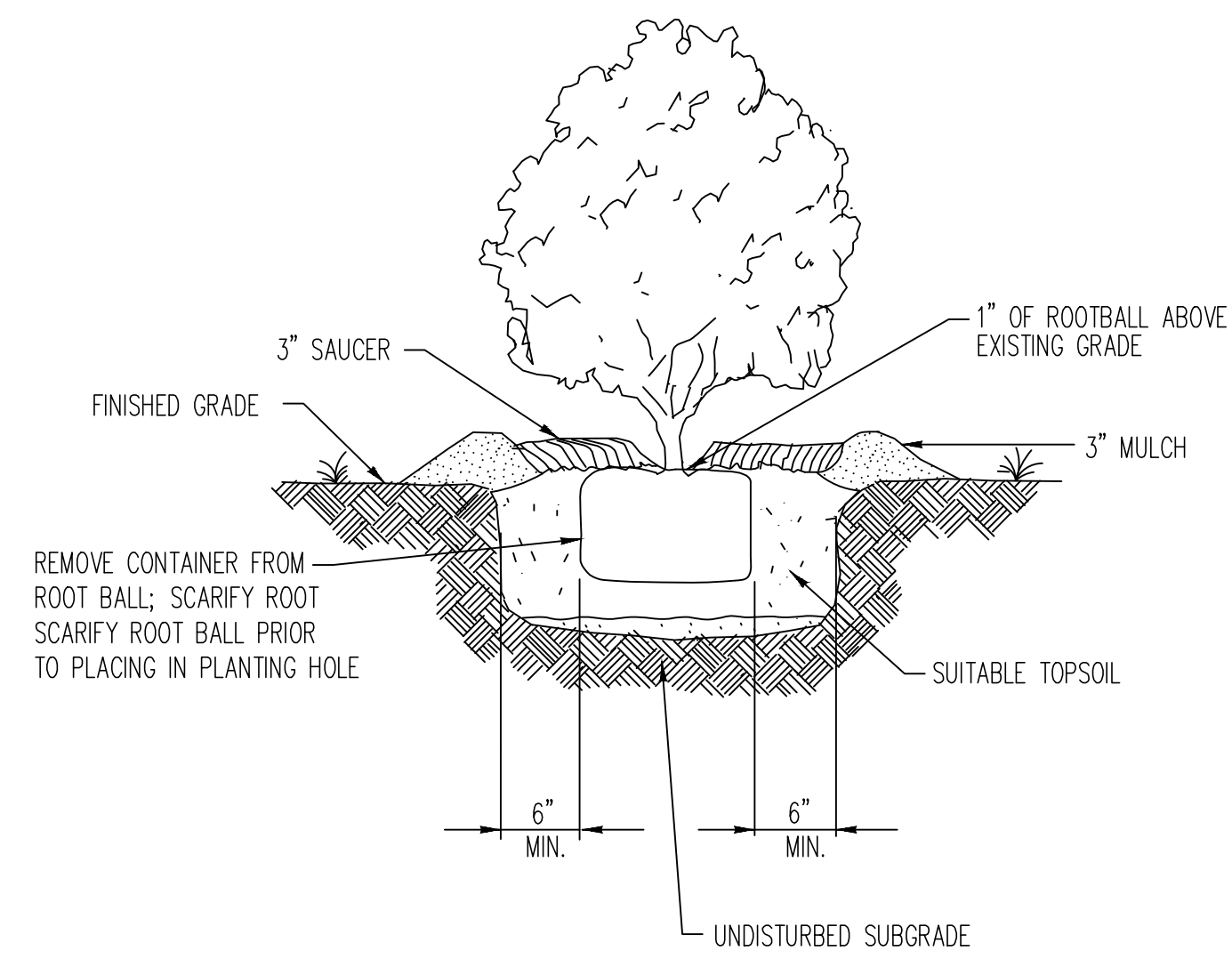
NOT TO SCALE

NOTES: THIS DETAIL IS FOR ANY CONTAINER TREE OR B&B TREE.
TREE SHELTERS TO BE ADDED TO ALL TREES PLANTED
FLOOD PLANTS TWICE WITHIN FIRST 24 HOURS



TREE PLANTING DETAIL

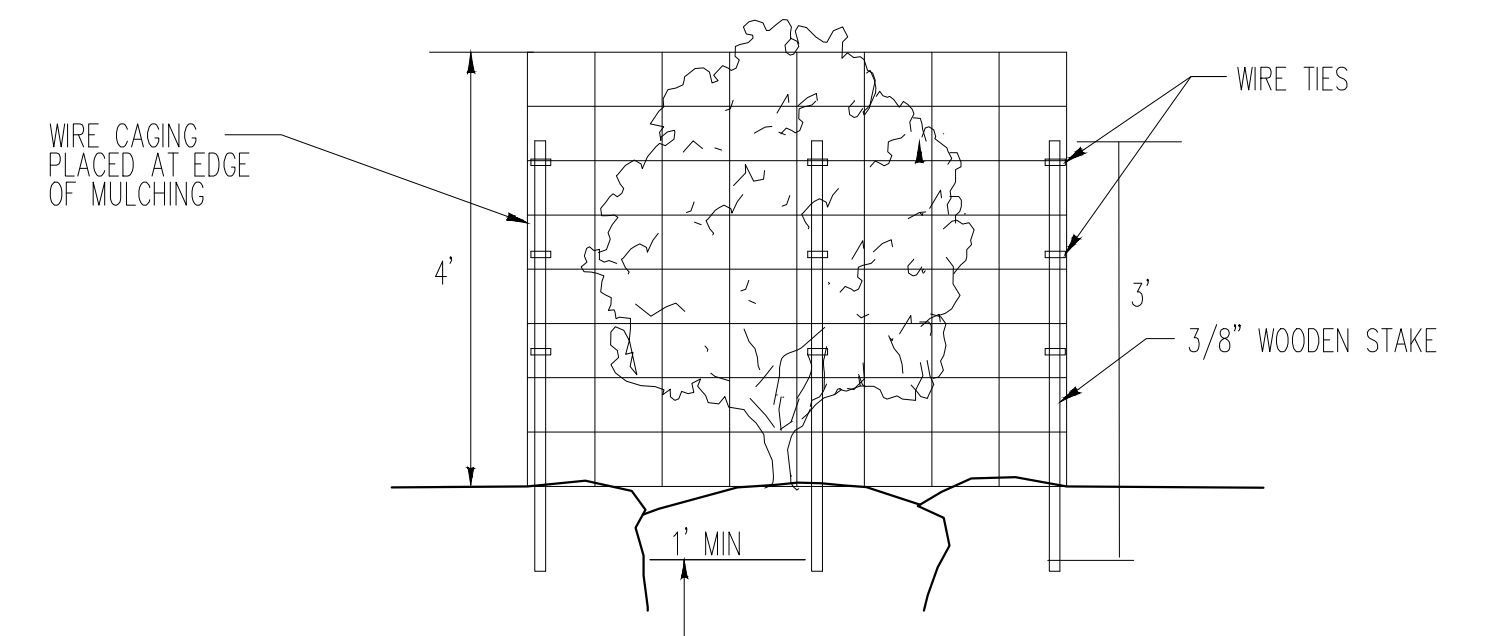
NOT TO SCALE



SHRUB PLANTING DETAIL

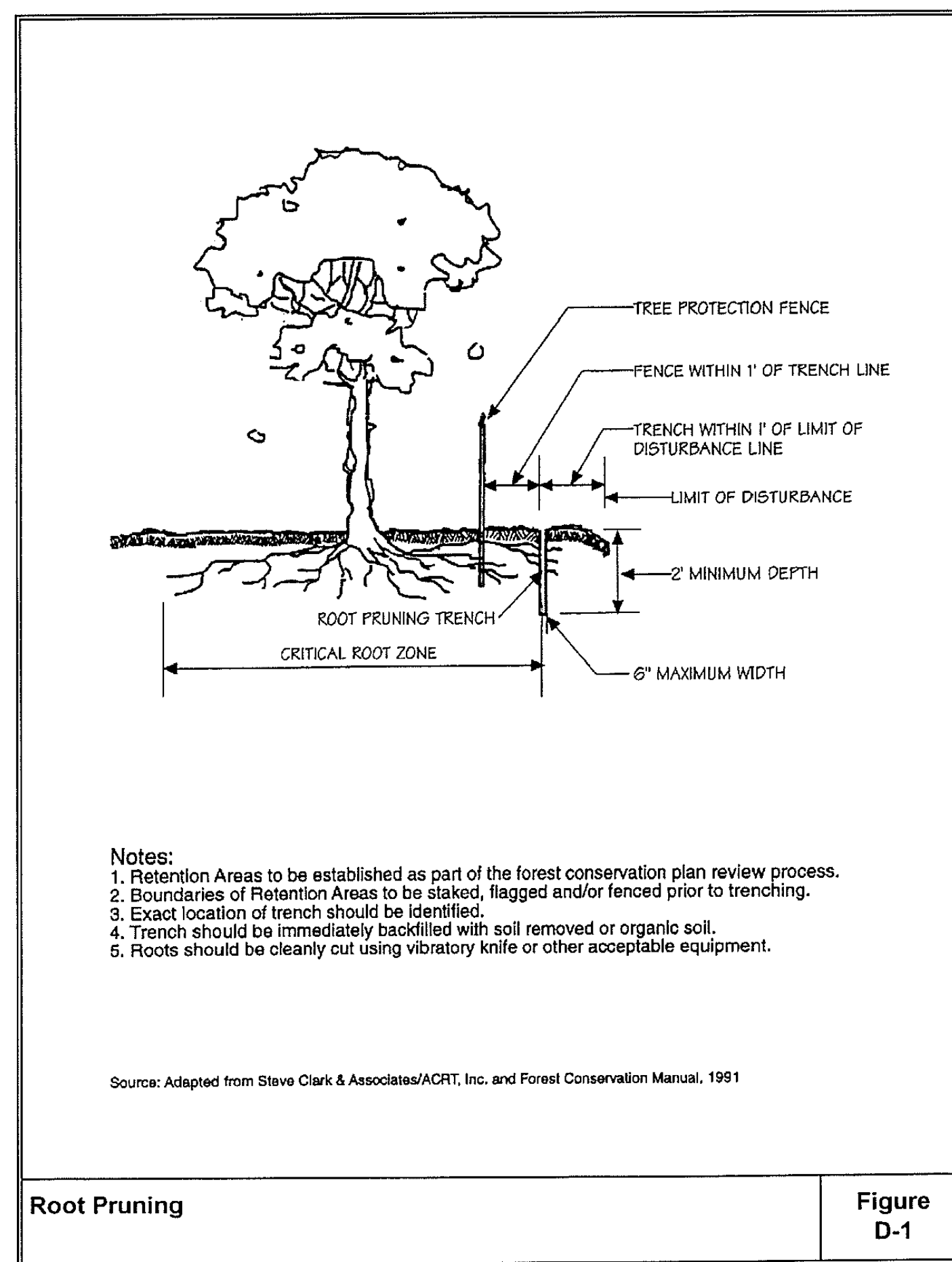
NOT TO SCALE

NOTE: FLOOD PLANTS TWICE WITHIN FIRST 24 HOURS



SHRUB PROTECTION DETAIL

NOT TO SCALE



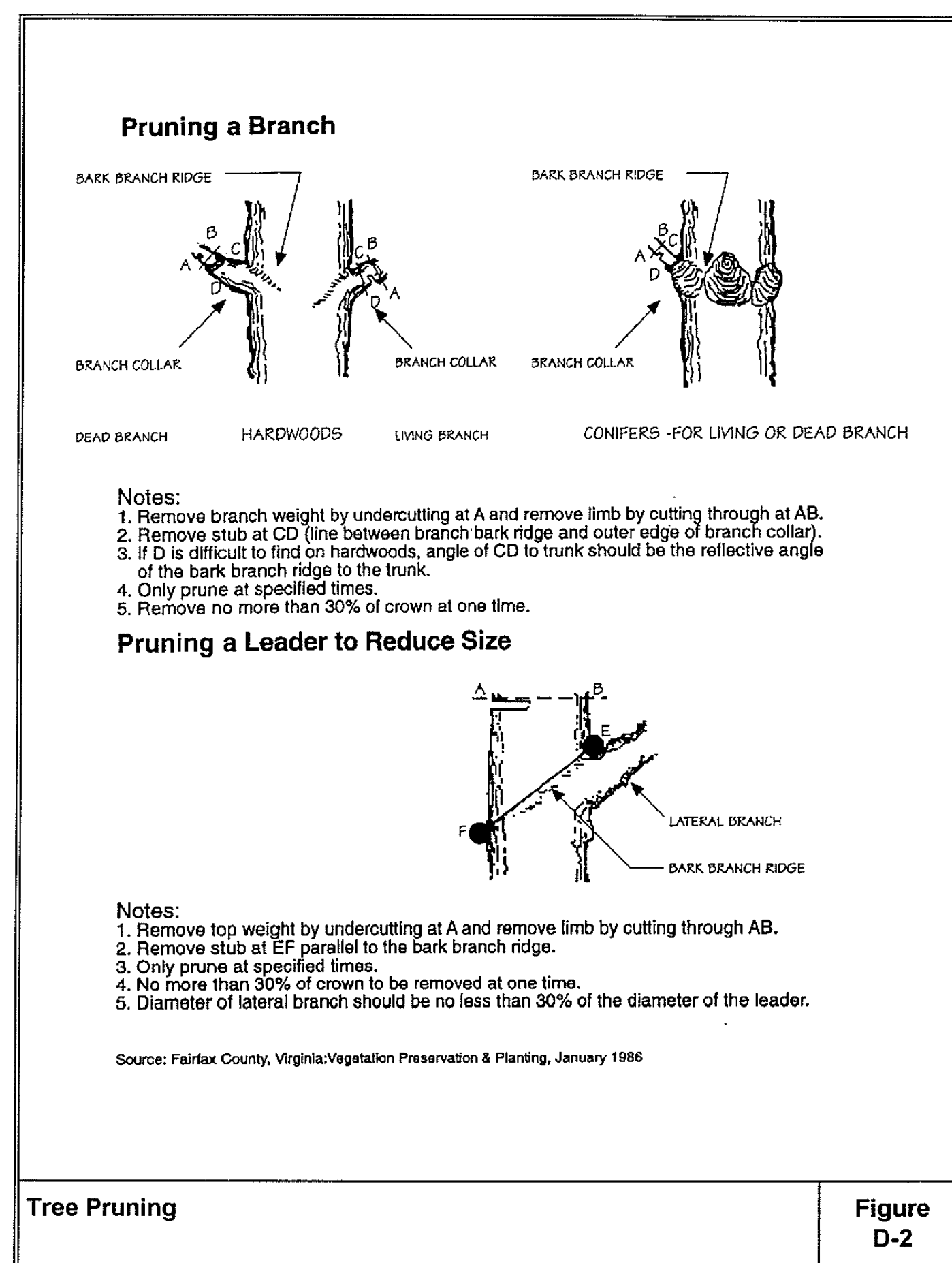
Notes:
1. Retention Areas to be established as part of the forest conservation plan review process.
2. Boundaries of Retention Areas to be staked, flagged and/or fenced prior to trenching.
3. Exact location of trench should be identified.
4. Trench should be immediately backfilled with soil removed or organic soil.
5. Roots should be cleanly cut using vibratory knife or other acceptable equipment.

Source: Adapted from Steve Clark & Associates/ACRT, Inc. and Forest Conservation Manual, 1991

Root Pruning

Figure D-1

D - 2



Notes:
1. Remove branch weight by undercutting at A and remove limb by cutting through at AB.
2. Remove stub at CD (line between branch bark ridge and outer edge of branch collar).
3. If D is difficult to find on hardwoods, angle of CD to trunk should be the reflective angle of the bark branch ridge to the trunk.
4. Only prune at specified times.
5. Remove no more than 30% of crown at one time.

Pruning a Leader to Reduce Size

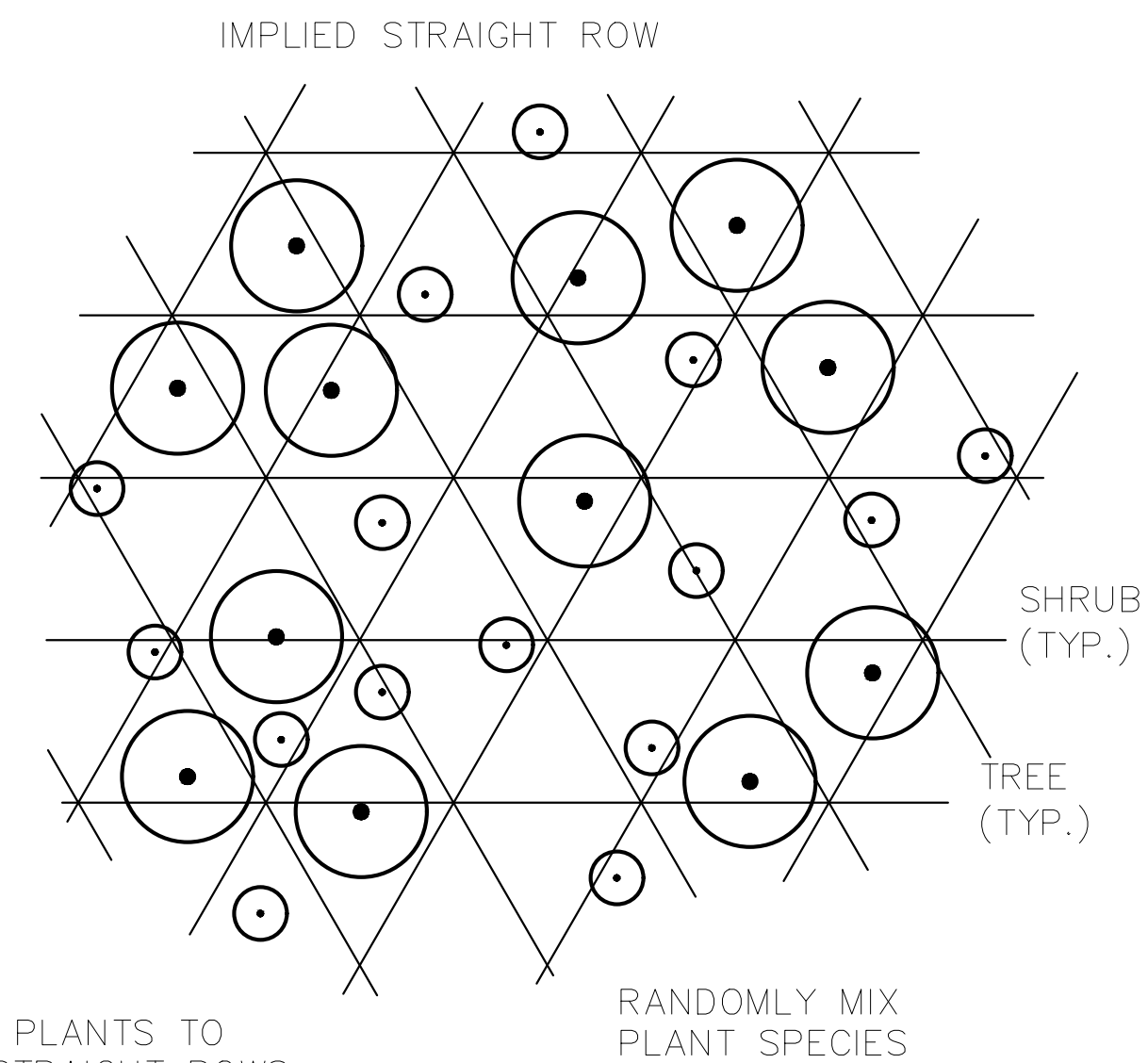
Notes:
1. Remove top weight by undercutting at A and remove limb by cutting through AB.
2. Remove stub at EF parallel to the bark branch ridge.
3. Only prune at specified times.
4. No more than 30% of crown to be removed at one time.
5. Diameter of lateral branch should be no less than 30% of the diameter of the leader.

Source: Fairfax County, Virginia:Vegetation Preservation & Planting, January 1986

Tree Pruning

Figure D-2

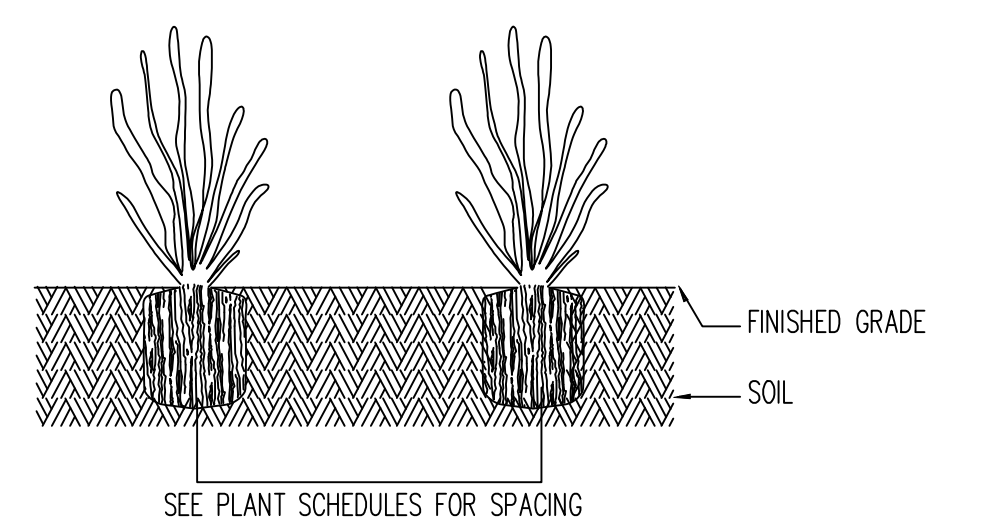
D - 3



RANDOM PLANT SPACING

NOT TO SCALE

NOTES:
1. TREE PLANTING SHALL BE A RANDOM DISTRIBUTION OF SPECIES AND TREE TYPE.
2. REFER TO PLANT SCHEDULES FOR DENSITIES. CLUSTER PLANTS RANDOMLY AS DIRECTED BY ON-SITE INSPECTOR.



HERBACEOUS PLANTING DETAIL

NOT TO SCALE

KCI TECHNOLOGIES
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
936 RIDGEBROOK ROAD
SPARKS, MARYLAND 21152
TELEPHONE: (410) 316-7800
FAX: (410) 316-7818

REVISIONS				DATE
NO.	DATE	DESCRIPTION	BY	JAN. 2025

SCALE: N.T.S.
DESIGNED BY: AAW / JB
DRAWN BY: AAW

MITIGATION PLAN FOR THE CAPE SAINT CLAIRE FIRE STATION
OFF-SITE MITIGATION AT HISTORIC GOSHEN FARM & EDUCATIONAL CENTER
APPENDIX E:
PLANTING NOTES & DETAILS
ANNAPOLIS, MARYLAND

DRAWING NO. E-06
SHEET 6 OF 6
KCI JOB NUMBER 272104240

PLOTTER: 48" X 36" 24" X 36" 36" X 48" 48" X 36" 36" X 48" 48" X 48" FILE: 272104240