### **GENERAL NOTES:**

- APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S
- 2. TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED IN DECEMBER 2018 BY RUMMEL. KLEPPER & KAHL, LLP (RK&K).
- HORIZONTAL AND VERTICAL SURVEY CONTROLS:
  - THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83 (ADJUSTED 2011) AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATION NO. 35IA, NO. 36DB AND NO. 36DF. ALL VERTICAL CONTROLS ARE BASED ON NAVD '88.
- 4. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- 5. CLEAR ALL UTILITIES BY A MINIMUM OF 12 INCHES. CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
- 6. FOR DETAILS NOT SHOWN ON THE DRAWING OR DESCRIBED IN THE CONTRACT DOCUMENTS, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB.
- ALL EXISTING UTILITIES SHALL BE TEST PITTED/LOCATED AS NECESSARY AND IN ADVANCE OF THE PROPOSED CONSTRUCTION, IN ORDER TO PROPERLY MAKE ALL REQUIRED UTILITY CROSSINGS AND/OR CONNECTIONS. ANY DISCREPANCIES OR UTILITY CONFLICTS SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER. WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL 🖫 AT THE LOCATION OF THE TEST PIT. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS ARE INCLUDED IN THE DRAWINGS OR SPECIFICATIONS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG, SHALL BE LOCATED BY THE CONTRACTOR TWO (2) WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
- 8. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

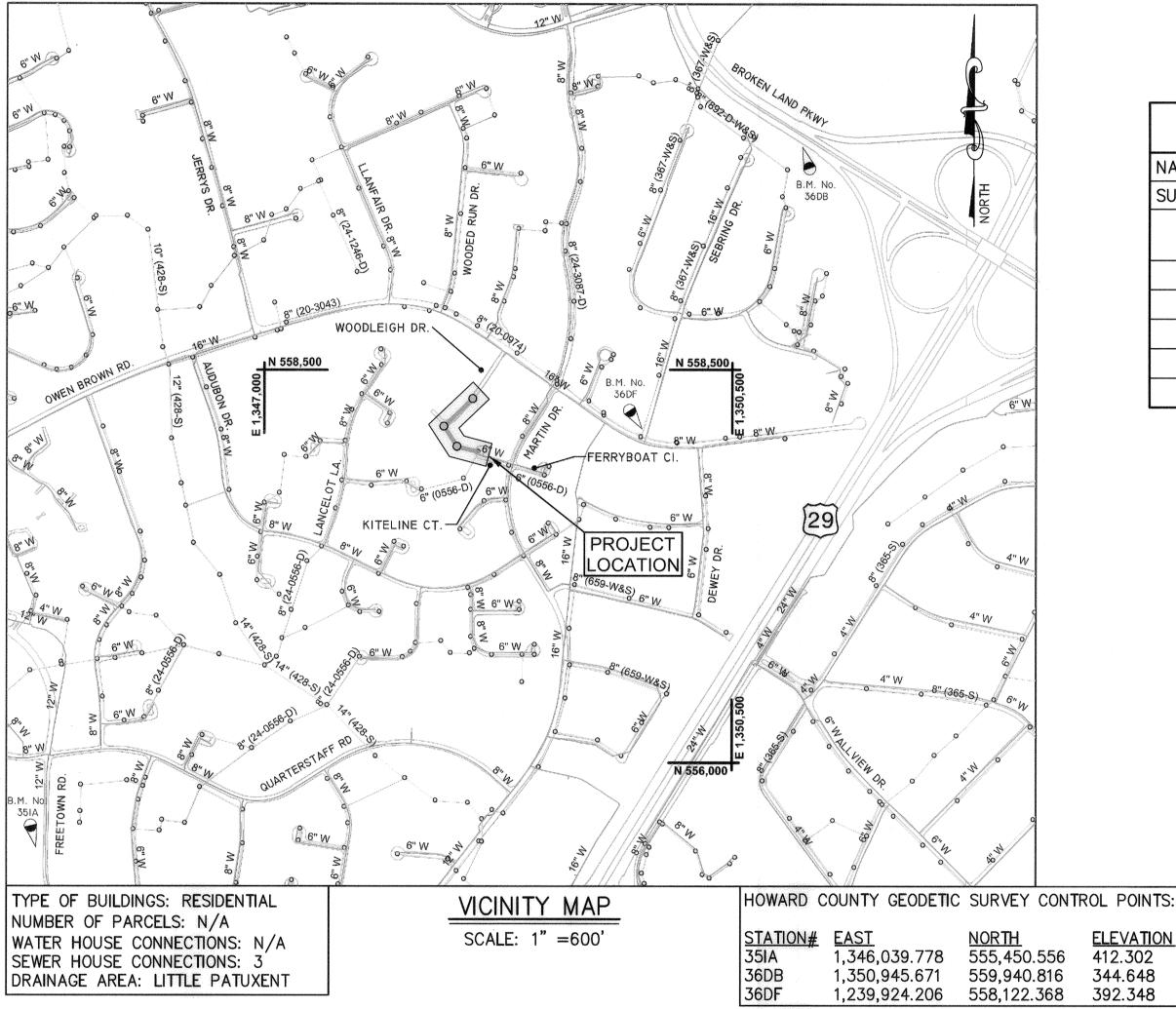
AT&T	1-800-252-1133
BGE (CONSTRUCTION SERVICES)	410-637-8713
BGE (EMERGENCY)	800-685-0123
BUREAU OF UTILITIES	410-313-4900
COLONIAL PIPELINE CO	410-795-1390
MISS UTILITY	1-800-257-7777
STATE HIGHWAY ADMINISTRATION	410-531-5533
VEDIZON	1 000 747 0077

- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
- 10. THE CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG THE LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
- 11. THE CONTRACTOR SHALL NOTIFY BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410) 313-7450 AT LEAST FIVE (5) WORKING DAYS BEFORE OPEN CUTTING OR BORING/JACKING OF ANY COUNTY ROAD FOR LAYING WATER/SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.114(A) OF THE HOWARD COUNTY CODE.

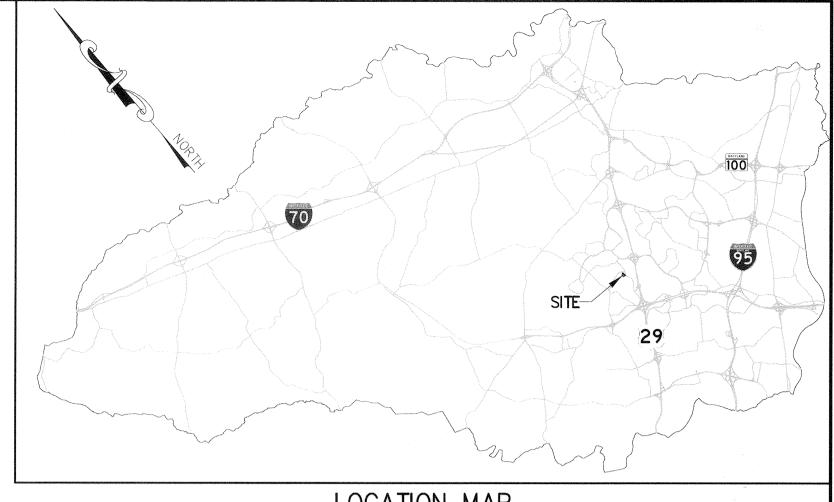
# WOODLEIGH DRIVE SEWER EXTENSION

# HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CAPITAL PROJECT NO. S6699 CONTRACT NO. 20-5093



PURPOSE STATEMENT: IN RESPONSE TO PROPERTY OWNER REQUEST, CONTRACT NO. 20-5093 WILL EXTEND PUBLIC SEWER TO WOODLEIGH DRIVE, WHICH IS INCORPORATED IN THE METROPOLITAN DISTRICT AND ELIGIBLE FOR PUBLIC WATER AND SEWER SERVICE.



LOCATION MAP NOT TO SCALE

		QUAN	TITIES	
NAME OF UTILITY CONTRACTOR	R: UTILIT	TES UNLIN	ITED, INC.	
SURVEY AND DRAFTING DIVISION				
ESTIMATED AS-BUILT				
ITEM	QUANTITY	QUANTITY	TYPE	MANUFACTURER/SUPPLIER
8" PVC SEWER	421 LF	426 LF	PVC SDR35	NATIONAL
48" MANHOLE	3 EA	3 EA.	PRECAST	CONTRACTORS PRECAST CORP.
8" x 4" WYE BRANCH	3 EA	3 EA.	CONC. BLOCK	PRISM PRECAST
4" SHC	113 <b>LF</b>		Puc SDR 26	NATIONAL
CLEANOUT	3 EA	3ÉA.	CI. 4.36	FOX FOUNDRY

granter and the second						
	SURVEY CONTROL					
POINT NO.	COORD NORTH	INATES EAST	ELEVATION (NAVD 88)	DESCRIPTION		
KPLI	557,983.6064	1,348,727.7434	381.89'	REBAR & CAP		
RKK1	557,851.8129	1,349,271.7672	386.89'	MAG NAIL		
RKK2	557,946.4430	1,348,871.6943	383.32	MAG NAIL		
RKK3	558,174.5241	1,348,673.3685	386.31'	MAG NAIL		
RKK4	558,316.8276	1,348,845.6933	395.19'	MAG NAIL		
RKK5	558,672.4386	1,349,069.3842	399.23'	MAG NAIL		

# **SEWER NOTES:**

- ALL SEWER MAINS SHALL BE DIP OR PVC UNLESS OTHERWISE NOTED.
- ALL MANHOLES SHALL BE 4'-0" INSIDE DIAMETER UNLESS OTHERWISE
- HOUSE(S) WITH THE SYMBOL "C.N.S." INDICATES THAT CELLAR CANNOT BE

# SEWER HOUSE CONNECTION (SHC) NOTES:

- 1. SHC SHALL BE PVC MATCHING MATERIAL OF THE SEWER MAIN. SHC SHALL BE PER STANDARD DETAIL G-5.12.
- 2. SHC SHALL BE BUILT TO THE PROPERTY LINE. CLEANOUTS SHALL BE PROVIDED ON ALL SHC AT THE PROPERTY LINE ON THE HOMEOWNER'S SIDE PER STANDARD DETAIL S-2.22.
- 3. CONTRACTOR SHALL PROVIDE A PLUG AT THE PROPERTY LINE CLEANOUT FOR THE PRIVATE BUILDING SEWER.
- 4. MINIMUM COVER OVER ALL SHC WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE 4-FEET.

#### INDEX OF DRAWINGS

600' SCALE MAP NO. 35

OWNER/DEVELOPER CERTIFICATION: /WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.

3/9/1 ZACHARY C.KNIGHT Owner's Developer's Signature

CHIEF, BUREAU C

1-31-2020

HSCD: EP-20-004 HOWARD SOIL CONSERVATION DISTRICT CERTIFICATION: THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY

dromines Howard Soil Conservation District

THE HOWARD SOIL CONSERVATION DISTRICT (HSCD).

ENGINEER'S CERTIFICATION: HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT

UD ZOSLdo Engineer's Signature - Registration Number

01/29/2020

DESCRIPTION TITLE SHEET, GENERAL NOTES AND INDEX OF SHEETS ABBREVIATIONS, LEGEND AND HSCD STANDARD NOTES SEWER PLAN & PROFILE EROSION AND SEDIMENT CONTROL PLAN EROSION AND SEDIMENT CONTROL DETAILS EROSION AND SEDIMENT CONTROL STANDARDS AND SPECIFICATIONS

ASBUILT

BY: Z.KNIGHT, 11-24-2020



DEPARTMENT OF PUBLIC WORKS

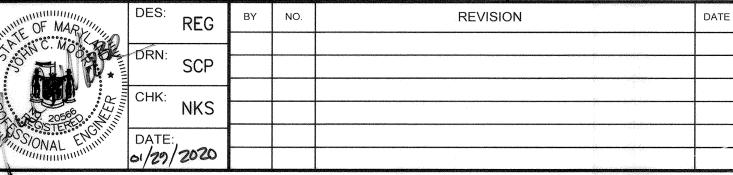
RKK Engineers | Construction Managers | Planners | Scientists

Responsive People | Creative Solutions

PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE
DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I M A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. <u>20566</u> EXPIRATION DATE: 09/06/2020.

3/2/20

Date /



TITLE SHEET, GENERAL NOTES, AND INDEX OF DRAWINGS

JANUARY 23, 2020

BLOCK NO. 18 | ELECTION DISTRICT NO. 4

PROJECT NO. S6699 CONTRACT NO. 20-5093

WOODLEIGH DRIVE SEWER EXTENSION

SHEET NO. OF 6

SCALE

AS SHOWN

HOWARD COUNTY, MARYLAND

# 10489 GORMAN ROAD SEWER EXTENSION CAPITAL PROJECT NO. S6699 CONTRACT NO. 30-5103

HOWARD COUNTY, MARYLAND

# (CONT. 30-1532 GENTLE BROOK STONE COURT N 538750 N 538750

VICINITY MAP

SCALE: 1"= 600"

CONTROL NOTE

# INDEX OF SHEETS SHEET NO. DESCRIPTION TITLE SHEET SEWER PLAN AND PROFILE EROSION AND SEDIMENT CONTROL NOTES AND DETAILS 3 **EROSION AND SEDIMENT CONTROL NOTES**

#### **QUANTITIES**

ITEM	UNIT	ESTIMATE	AS-BUILT	MANUFACTURER
8" PVC SDR35 SEWER	L.F.	312	304	DIAMOND PIPE
4' DIA PRECAST MANHOLE	EA.	1	2	CONTRACTORS PRECAST
4" PVC SHC	L.F.	50	36	DIAMOND PRECAST
10" PVC SDR-35 INSIDE DROP	L.F.	5	5	NORTH AMERICAN
NAME OF UTILITY CONTRACTOR:	UTILITIES UN	LIMITED		
		CHECKBOX		

#### LEGEND

**AS-BUILT DATE** 

#### **EXISTING**

	DECIDUOUS TREE		FIRE HYDRANT
*	CONIFEROUS TREE	<b>\$</b>	WATER VALVE SEWER MANHOLE
<b>.</b>	BUSH	(D)	SEVVER MANHOLE STORM DRAIN MANHOLE
00000000	HEDGE		WATER MAIN
	UTILITY POLE GUY	S	SEWER MAIN
	LIGHT POST	SD	STORM DRAIN
grant (manuag 2000) 2000 2000 Anayonta annuag	MAIL BOX		
TP	TELECOM PEDESTAL	UE	UNDERGROUND ELECTRIC CABLE TV
O WELL	WATER WELL	**************************************	
⊚ ¤	WATER METER / CURB STOP SEWER CLEAN-OUT		
d	SIGN	in the contraction of the contr	MAJOR CONTOUR MINOR CONTOUR
	TRAVERSE POINT		

#### **PROPOSED**

8	SEWER MANHOLE	SEWER MAIN
	SHC WITH CLEAN-OUT	 FLOW ARROW
<b>9</b> B-2	SOIL BORING	

#### PURPOSE STATEMENT

FOR REFERENCE DURING WORKING HOURS.

IN RESPONSE TO PROPERTY OWNER REQUEST, CONTRACT NO. 30-5103 WILL PROVIDE AN 8" SEWER MAIN INCLUDING A 4" SEWER HOUSE CONNECTION TO SERVE 10489 GORMAN ROAD.

NOTE:
THE WORK SITE SHALL BE CONTROLLED IN ACCORDANCE WITH THE HOWARD SOIL

CONSERVATION DISTRICT "STANDARD EROSION AND SEDIMENT CONTROL PLAN

FOR MINOR EARTH DISTURBANCE", AND ADHERE TO THE LIMITATIONS, CONDITIONS

AND REQUIREMENTS THEREIN. A COPY OF THE STANDARD PLAN SHALL BE ON-SITE

FEBRUARY 2020

SURVEY AND DRAFTING DIVISION

## **DESIGN CERTIFICATION**

"I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRIC

**GUIHUA WANG** 

PRINTED NAME

MD REGISTRATION NO. 31363 P.E., R.L.S. OR R.L.A. (CIRCLE ONE)

# AS-BUILT REPLACEMENT SHEET

#### **GENERAL NOTES**

- APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR EXPENSE.
- 2. TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED ON 02/14/2019 BY KCI TECHNOLOGIES, INC.
- 3. HORIZONTAL AND VERTICAL SURVEY CONTROLS: THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD 83/11 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 411A AND 411B. ALL VERTICAL CONTROLS ARE BASED ON NAVD 88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE 411A AND 411B.
- 4. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- 5. CLEAR ALL UTILITIES BY A MINIMUM OF 12". CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS REQUIRED. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
- 6. FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB.
- 7. ALL EXISTING UTILITIES SHALL BE TEST PITTED / LOCATED AS NECESSARY AND IN ADVANCE OF THE PROPOSED CONSTRUCTION, IN ORDER TO PROPERLY MAKE ALL REQUIRED UTILITY CROSSINGS AND / OR CONNECTIONS. ANY DISCREPANCIES OR UTILITY CONFLICTS SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER. WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL AT THE LOCATION OF THE TEST PIT. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS OR IN THE SPECIFICATIONS LOCATIONS OF OTHER EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN NOTED SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE
- CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

.1-800-252-1133 **BG&E (CONSTRUCTION SERVICES)...** ...410-637-8713 BG&E (EMERGENCY) ...410-685-0123

BUREAU OF UTILITIES (DPW). .410-313-4900 COLONIAL PIPELINE CO. ...410-795-1390 MISS UTILITY. .1-800-257-7777 STATE HIGHWAY ADMINISTRATION .. ...410-531-5533

TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT.

- TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR. 10. CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG LINE OF EXCAVATION.
- PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN. . THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY.
- AT (410)313-7450 AT LEAST FIVE WORKING DAYS BEFORE ANY OPEN CUT OF ANY COUNTY ROAD OR BORING/JACKING OPERATION IN COUNTY ROADS FOR LAYING WATER/SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.114(a) OF THE HOWARD COUNTY CODE.
- 12. THE CONTRACTOR SHALL PROVIDE SURVEY CONSTRUCTION STAKEOUT FOR ALL NECESSARY LINES. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY LINES, GRADES AND ELEVATIONS, AND CUT SHEETS SHALL BE PREPARED BASED ON THE LINES AND GRADES SHOWN ON THE CONTRACT DRAWINGS.
- 13. SPOIL FROM TRENCHING OPERATIONS SHALL BE PLACED ON THE UPHILL SIDE OF THE TRENCH.
- 14. THE CONTRACTOR SHALL USE THE AREA DESIGNATED ON THE PLANS AS THE STAGING / STORAGE AREA. THE WORK SHALL BE CONDUCTED UNDER STRICT ADHERENCE TO SECTION 308 - EROSION AND SEDIMENT CONTROL OF THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV. PRECONSTRUCTION CONTOURS SHALL BE RESTORED ONCE

#### SANITARY SEWER MAIN NOTES

- 1. ALL SEWER MAINS SHALL BE P.V.C. UNLESS OTHERWISE NOTED.
- 2. ALL MANHOLES SHALL BE 4'-0" INSIDE DIAMETER UNLESS OTHERWISE NOTED.
- 3. FORCE MAINS SHALL BE D.I.P. ONLY.

THE UTILITY HAS BEEN INSTALLED.

- 4. MANHOLES SHOWN WITH 12" AND 16" WALLS ARE FOR BRICK MANHOLES ONLY.
- MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATERTIGHT FRAME AND COVER, STANDARD DETAIL G5.52. WHERE WATERTIGHT MANHOLE FRAMES AND COVERS ARE USED, SET TOP FRAME 1'-6" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- HOUSE(S) WITH THE SYMBOL "C.N.S." INDICATES THAT THE CELLAR CANNOT BE SERVED.

DEPARTMENT OF PUBLIC WORKS

HOWARD COUNTY, MARYLAND

TYPE OF BUILDING: NUMBER OF PARCELS: NUMBER OF SEWER HOUSE CONNECTIONS: PRESSURE ZONE **TEST GRADIENT:** TEST PRESSURE DRAINAGE AREA:

TREATMENT PLANT:

 $oldsymbol{P}_{oldsymbol{LANNERS}}$ 

SCIENTISTS

CONSTRUCTION MANAGERS

936 Ridgebrook Road

Sparks, MD 21152

PHONE: (410) 316-7800

Fax: (410) 316-7817

www.kci.com

RESIDENTIAL N/A

LPWRP

HOWARD COUNTY GEODETIC SURVEY CONTROL POINTS. NAD 1983 / 2011 (HORIZONTAL) MIDDLE PATUXENT

NAVD 1988 (VERTICAL) 411A N 542333.82 411B N 541494.29 E 1345783.95 E 1346924.86 ELEV. 400.24 ELEV. 402.05

THE HORIZONTAL AND VERTICAL DATUM SHOWN

HEREON ARE BASED ON GPS OBSERVATIONS FROM

**GRAPHIC SCALE** SCALE: 1" = 600'

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. 31363 , Expiration Date 01/16/2020.

DES: KFJ DRN: KFJ KFJ DATE: MARCH 20 BY NO.

AS-BUILT, RECORD DRAWING REVISION DATE 600' SCALE MAP NO.

TITLE SHEET

BLOCK NO.

10489 GORMAN ROAD SEWER EXTENSION CAPITAL PROJECT No. S6699

CONTRACT No. 30-5103

AS SHOWN

SHEET

DIRECTOR OF PUBLIC WORKS DATE 7-17-19 CHIEF, BUREAU OF UTIKITIES DATE

In A sufair 1 ACTING F- TEB 7/16/2019 CHIEF, BUREAU OF ENGINEERING DATE CHIEF, UTILITY DESIGN DIVISION DATE ZCK

**TECHNOLOGIES** 

OWNER'S/DEVELOPER'S CERTIFICATION

"I/WE CERTIFY THAT ALL CLEARING, GRADING, CONSTRUCTION

INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A

CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF

OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED

EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING

THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE

CONTROL OF EROSION AND SEDIMENT PRIOR TO THE BEGINNING

OF THE PROJECT, I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC

ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL

CONSERVATION DISTRICT AND/OR MDE."

OWNERS DEVELOPERS SIGNATURE

ZACHARY C.KNIGHT

AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL

**ELECTION DISTRICT NO. 6** 

HOWARD COUNTY, MARYLAND

LEGEND

	ADDITEVIATIONS		LEGEND
<b>@</b>	AT		EVISTING
ADA	AMERICANS WITH DISABLITIES ACT		EXISTING
APPROX.	APPROXIMATE		8" S (0556-D)
BGE	BALTIMORE GAS & ELECTRIC	SANITARY SEWER	
BLDG.	BUILDING	SANITARY SEWER MANHOLE	(§)
B.M.	BENCHMARK		
C <b>E</b> C <b>L</b> R.	CELLAR ELEVATION CLEAR	SANITARY SEWER CLEANOUT	
CNS	CELLAR NOT SERVED	SANITARY SEPTIC WELL	₩
C.O.	CLEANOUT	WATER	——————————————————————————————————————
CONC.	CONCRETE	WATER FIRE HYDRANT	
CONST.	CONSTRUCTION		
CRZ	CRITICAL ROOT ZONE	WATER VALVE	φ
D.	STORM DRAIN	CURB STOP	©
DIA.	DIAMETER	STORM DRAIN	
DIP DWG.	DUCTILE IRON PIPE DRAWING	STORM DRAIN INLET	
E E	ELECTRIC, EAST		
ELEV.	ELEVATION	OVERHEAD ELECTRIC	OHE OHE
EX.	EXISTING	UNDERGROUND ELECTRIC	
FFE	FIRST FLOOR ELEVATION	UTILITY POLE	ø
F.O.	FIBEROPTIC	LIGHT POLE	· · · · · · · · · · · · · · · · · · ·
FF FLO	FIRST FLOOR		¥
FLG. FM	FLANGE FORCE MAIN	HAND BOX	
G.	GAS	UNDERGROUND CABLE	CATV
G.P.M.	GALLONS PER MINUTE	UNDERGROUND TELEPHONE	Tomas Tomas Tomas Tomas Tomas
HC	HOWARD COUNTY		The state of the s
HB	HORIZONTAL BEND	TELEPHONE JUNCTION BOX	
HOR.	HORIZONTAL	GAS	continues amounted C montaining distribution C attribution.
INV.	INVERT	GAS VALVE	©
ICBN	INTER-COUNTY BROADBAND NETWORK	PROPERTY LINE (GIS)	
JT.	JOINT	` <i>,</i>	
MAX. MIN.	MAXIMUM MINIMUM	PROPERTY LINE (SURVEYED)	
MDSHA	MARYLAND STATE HIGHWAY	MAJOR CONTOURS (SURVEY, 1-FT)	380
WDOI I/ (	ADMINISTRATION	MINOR CONTOURS (SURVEY, 1-FT)	
MJ.	MECHANICAL JOINT	·	
MGD	MILLION GALLONS PER DAY	TREE LINE OR WOODS	
MH	MANHOLE	CRITICAL ROOT ZONE	CRZ CRZ
MPH	MILES PER HOUR	CDEOMEN TOES	
O <b>H</b> PC	OVERHEAD UTILITIES	SPECIMEN TREE	
PCC	POINT OF CURVATURE POINT OF CONTINUOUS CURVE	NON-SPECIMEN TREE	
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE		No.
PE	PLAIN END	SURVEY TRAVERSE CONTROL	
PI	POINT OF INTERSECTION	SORVET TRAVERSE CONTROL	<u> </u>
POL	POINT ON LINE	GEODETIC SURVEY CONTROL	BM 35I2
PROP.	PROPOSED		
PRC	POINT OF REVERSE CURVE		DDODOGED
PSI PT	POUNDS PER SQUARE INCH POINT OF TANGENCY		PROPOSED
PVC	POLYVINYL CHLORIDE OR POINT OF		-W -
1 40	VERTICAL CURVATURE	SANITARY SEWER	8" S
PVI	POINT OF VERTICAL INTERSECTION	SANITARY SEWER SERVICE PIPE	4" SHC
PVT	POINT OF VERTICAL TANGENCY		_
R	RADIUS	SANITARY SEWER MANHOLE	<b>©</b>
RCP	REINFORCED CONCRETE PIPE	SANITARY SEWER CLEANOUT	©
S.	SANITARY SEWER, SOUTH	BORING	<b>⊕</b> B−1
SHC S.S.	SEWER HOUSE CONNECTION STAINLESS STEEL	DOMING	B-1
STA.	STATION	LIMITS OF DISTURBANCE	LOD LOD
STD.	STANDARD		
UG	UNDERGROUND UTILITIES	SILT FENCE	
VB	VERTICAL BEND	CURB INLET PROTECTION	CIP 
VERT.	VERTICAL	COND INCLI I NOTECTION	<b> </b>
\ A /	MATER (DOTABLE) MEST		processing the same designation of the same same same same same same same sam



#### HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES

- 1. A PRECONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410-313-1855 AFTER THE FUTURE LOD AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD. A MINIMUM OF 48 HOURS NOTICE TO CID MUST BE GIVEN AT THE FOLLOWING STAGES: PRIOR TO THE START OF EACH DISTURBANCE
- . UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING
- PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT.
- PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES.

OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.

- 2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
- 3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- 4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN. INCREMENTAL STABILIZATION (SEC. B-4-1) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH > 15' OF CUT AND/OR FILL. STOCKPILES (SEC. B-4-8) IN EXCESS OF 20 FT. MUST BE BENCHED WITH STABLE OUTLET. ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOIL STABILIZATION MATTING (SEC. B-4-6).
- 5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- 6. SITE ANALYSIS:

TOTAL AREA OF SITE:	0.14 ACRES	(LINEAR PUBLIC UTILITY PROJECT)	
AREA DISTURBED:	0.14 ACRES	,	
AREA TO BE ROOFED OR PAVED:	0.12 ACRES		
AREA TO BE VEGETATIVELY STABILIZED:	0.02 ACRES		
TOTAL CUT:	1,978 CU. Y	ƊS.	
TOTAL FILL:	1,978 CU. Y	DS.	
SITE WITH AN ACTIVE GRADING PERMIT:	TO BE DETERM	MINED BY CONTRACTOR FOR EXCESS	

- 7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- 8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR. THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY, AND THE NEXT DAY AFTER EACH RAIN EVENT. A WRITTEN REPORT BY THE CONTRACTOR, MADE AVAILABLE UPON REQUEST, IS PART OF EVERY INSPECTION AND SHOULD INCLUDE: INSPECTION DATE
- INSPECTION TYPE (ROUTINE, PRE-STORM EVENT, DURING RAIN EVENT)
- NAME AND TITLE OF INSPECTOR
- WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST RECORDED PRECIPITATION)
- BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES
- EVIDENCE OF SEDIMENT DISCHARGES
- IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
- IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
- COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
- PHOTOGRAPHS
- MONITORING/SAMPLING
- MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
- OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORM ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES,
- 9. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACKFILLED AND STABILIZED BY THE END OF EACH WORK DAY, WHICHEVER IS SHORTER.
- 10. ANY MAJOR CHANGES OR REVISIONS ON THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION. MINOR REVISIONS MAY ALLOWED BY THE CID PER LIST OF HSCD-APPROVED FIELD CHANGES.
- 11. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE LOD. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRÉCEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE CID. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE HSCD. NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.
- 12. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.
- 13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.
- 14. ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBRICATED AT 25' MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPHILL BY 2' IN ELEVATION.
- 15. STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE):
- USE I AND IP MARCH 1 JUNE 15 • USE III AND IIIP OCTOBER 1 - APRIL 30
- USE IV MARCH 1 MAY 31
- 16. A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.

JANUARY 23, 2020

G - 02

SCALE

AS SHOWN

DEPARTMENT OF PUBLIC WORKS

DATE

WATER (POTABLE), WEST

WATER HOUSE CONNECTION

HOWARD COUNTY, MARYLAND

RKK 700 East Pratt Street, Suite 500 | Baltimore, MD 21202 Engineers | Construction Managers | Planners | Scientists www.rkk.com

PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 20566, EXPIRATION DATE: <u>09/06/2020.</u>

DES:	REG	BY	NO.	REVISION	DAT
DRN:	·				
DKN.	SCP				
CHK:					
	NKS				
DATE	: /				
01/29	1/2020				

ABBREVIATIONS, LEGEND AND HSCD STANDARD NOTES

PROJECT NO. S6699 CONTRACT NO. 20-5093

WOODLEIGH DRIVE SEWER EXTENSION

SHEET NO. 2 OF 6

2-28-2020

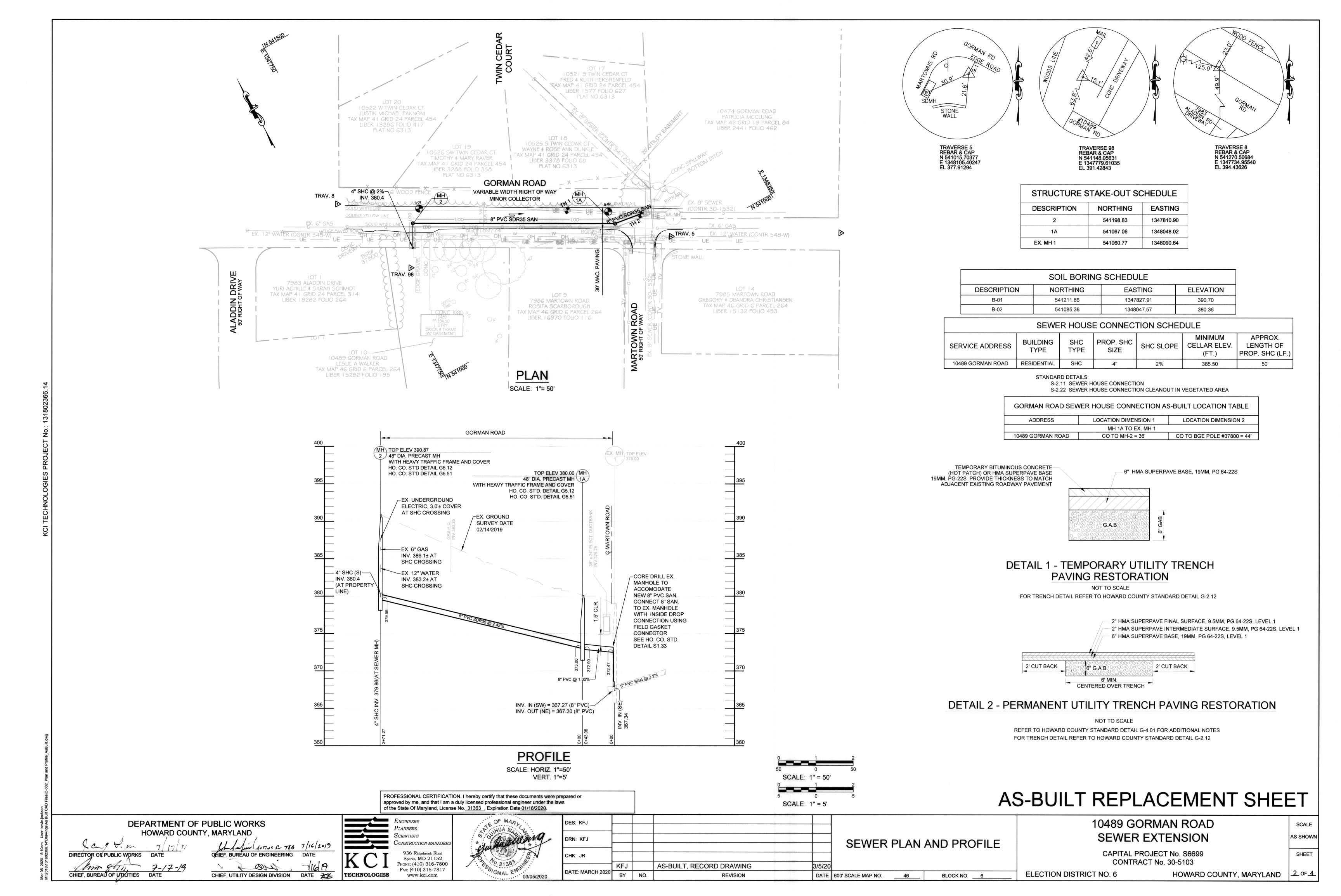
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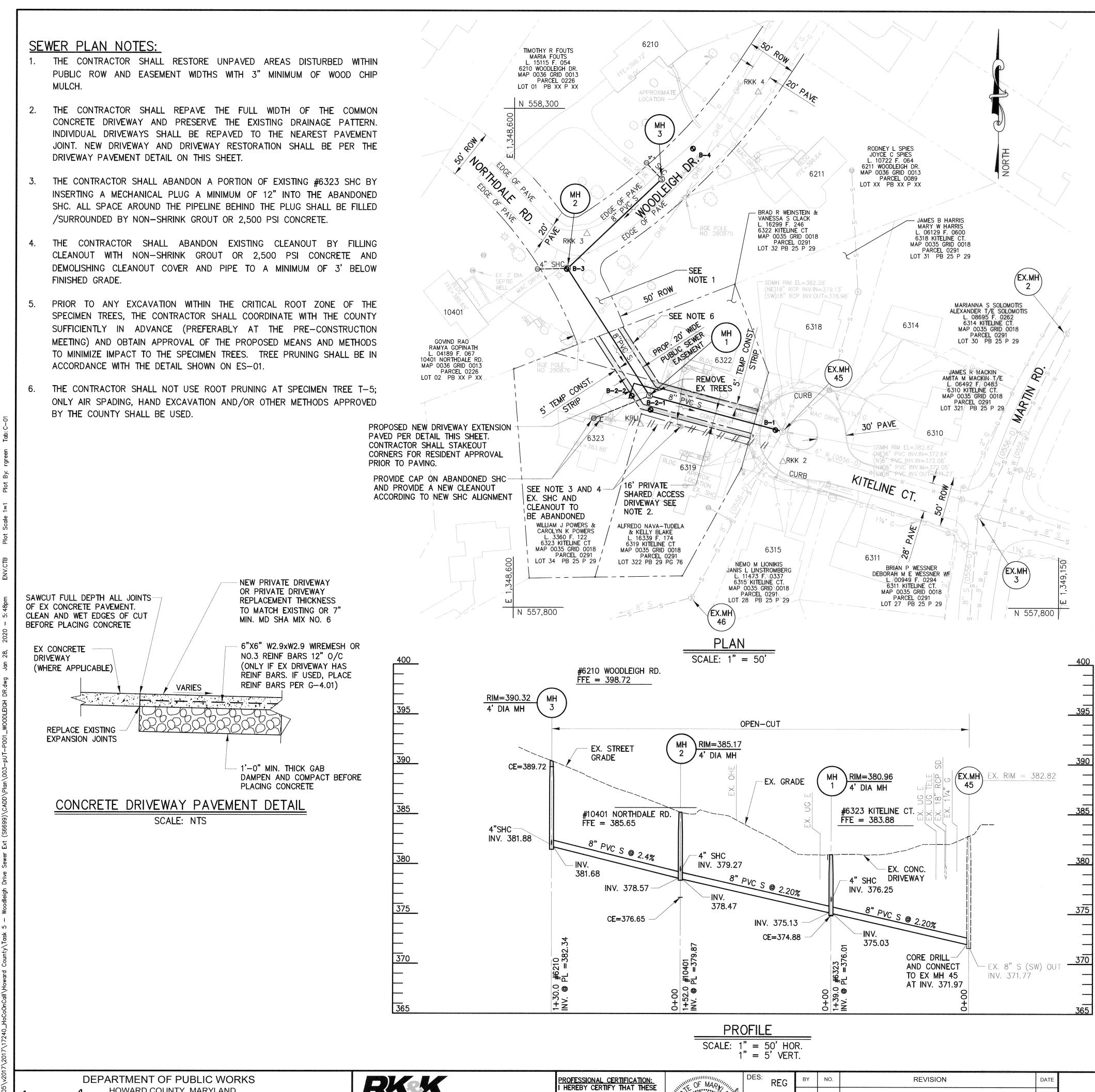
DATE Responsive People | Creative Solutions CHIEF, UTILITY DESIGN DIVISION

5-FOOT CONSTRUCTION STRIP

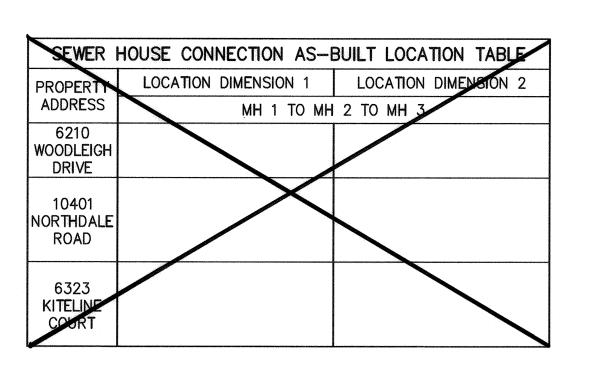
BLOCK NO. 18 | ELECTION DISTRICT NO. 4

HOWARD COUNTY, MARYLAND





			PROPOSED	SEWER HOUSE CONNEC	CTIONS			
PROPERTY ADDRESS	FIRST FLOOR ELEVATION	ASSUMED CELLAR ELEVATION	PROP. SHC INVERT AT PROPERTY LINE	SERVICE TYPE	BUILDING TYPE	SHC SIZE	SHC SLOPE	APPROXIMATE SHC LENGTH
6210 WOODLEIGH DRIVE	398.72	389.72	382.34	CELLAR	RESIDENTIAL	4"	2%	22'
10401 NORTHDALE ROAD	385.65	376.65	379.87	FIRST FLOOR ONLY (CNS)	RESIDENTIAL	4"	2%	30'
6323 KITELINE COURT	383.88	374.88	375.38	FIRST FLOOR ONLY (CNS)	RESIDENTIAL	4"	2%	61'



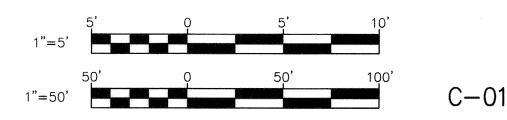
	SEWE	R MANHOLE LOC	ATION TABLE		
ID.	COORDI	COORDINATES		AS-BUILT	
ID	NORTH	EAST	NORTH	EAST	RIM ELEV
EX. MH 45	N 557,976.63	E 1,348,871.22			
MH 1	N 558,012.23	E 1,348,736.86			
MH 2	N 558,139.59	E 1,348,653.89			
MH 3	N 558,229.31	E 1,348,748.56			

	SPECIMEN TREE TABLE					
Tree ID	Common Name	Scientific Name	DBH (Inches)			
T-0	Northern red oak	Quercus rubra	28.1			
T-1	Tulip poplar	Liriodendron tulipifera	43.2			
T-2	Northern red oak	Quercus rubra	25.9			
T-3	Tulip poplar	Liriodendron tulipifera	26.9			
T-4	Tulip poplar	Liriodendron tulipifera	30.2			
T-5	Pin oak	Quercus palustris	30.3			
T-6	White Pine	Pinus strobus	33.6			

	SOIL	BORINGS	
BORING	COOR	DINATES	GROUND
NUMBER	NORTH	EAST	ELEVATION
B-1	N 557,978	E 1,348,864	383.00
B-2-1	N 557,998	E 1,348,738	381.00
B-2-2	N 558,012	E 1,348,719	381.00
B-3	N 558,139	E 1,348,653	385.00
B-4	N 558,260	E 1,348,780	392.00

SEWER MH AND SHE AS-BUILT LOCATION TABLE							
ID/ Address	LOCATION I		LOCATION DIMENSION Z	DIM. Z. LENGTH			
WHI	Left corner # 6323 (s.e.)	36 FT.	Right corner #63z3 (n.w.)	79 FT.			
MHZ	LEFT CORMER # 10401 (S.E.)	96 PT.	STREET SIGN "MORTHDALE RD."	37 FT.			
MH3	LEFT CORNER \$6210 (S.W.)	99 FT.	LEFT CORNER # 6210'S (S.W.) PORCH	IIGFT.			
PRIVE GO	Left corner #6210 (s.w.)	77 FT.	LEFT CORNER #6210'S (S.W.) PORCH	100 FT.			
10401 NOKHĐALE RDAD C/O	LEFT CORNER # 10401 (S.E.)	73 FT.	RIGHT CORNER#10401 (NORTH)	85 <i>F</i> T.			
6323 KITELINE COURT C/O	LEFT CORNER #6323 (S.E.)	25 PT.	RIGHT CORNER #6323 (N.W.)	57 FT.			

AS-BUILT BY: Z.KNIGHT, 11-24-2020



DEPARTMENT OF PUBLIC WORKS

HOWARD COUNTY, MARYLAND

IRECTOR OF PUBLIC WORKS DATE

CHIEF, BUREAU OF ENGINEERING DATE

CHIEF, BUREAU OF ENGINEERING DATE

CHIEF, UTILITY DESIGN DIVISION DATE AND DATE AND

P: 410.728.2900
700 East Pratt Street, Suite 500 | Baltimore, MD 21202
Engineers | Construction Managers | Planners | Scientists

Responsive People | Creative Solutions

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. 20566,
EXPIRATION DATE: 09/06/2020.

OF MARLY	DES:	REG	BY	NO.	REVISION		DATE
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20560 CUSTERED						<del>System a system (jedydyd y accordiae</del>	
NONAL ENMIN	DATE:	roro					

SEWER PLAN AND PROFILE

600' SCALE MAP NO. 35

JANUARY 23, 2020

PROJECT NO. S6699
CONTRACT NO. 20-5093

WOODLEIGH DRIVE SEWER EXTENSION

SHEET NO.

WOODLEIGH DRIVE SEWER EXTENSION

BLOCK NO. 18 ELECTION DISTRICT NO. 4 HOWARD COUNTY, MARYLAND

SHEET NO. 3 OF 6

#### HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES

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

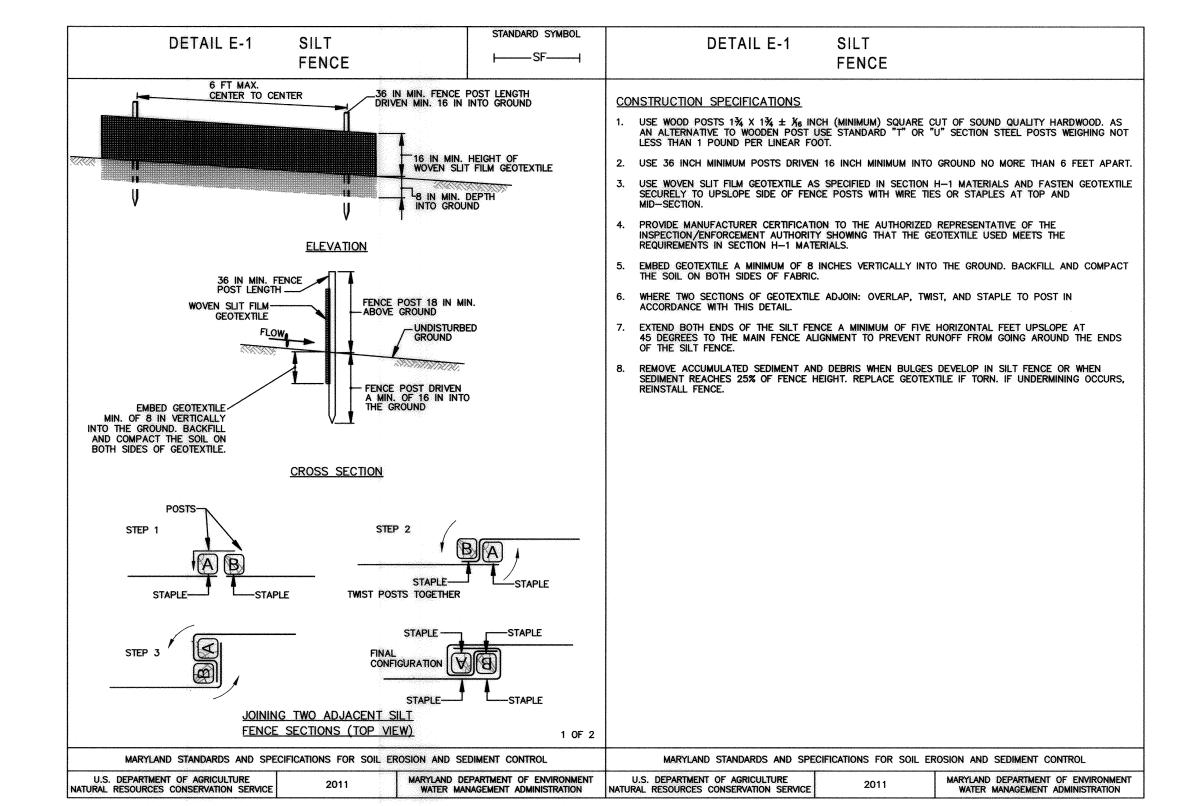
Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made. Other related state and federal permits shall be referenced, to ensure coordination and to avoid conflicts with this plan.

- All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and revisions thereto.
- Following initial soil disturbance or re-disturbance, permanent or temporary stabilization is required within three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1); and seven (7) calendar days as to all other disturbed areas on the project site except for those areas under active grading.
- 4. All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for topsoil (Sec. B-4-2), permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only be applied between the fall and spring seeding dates if the ground is frozen. Incremental stabilization (Sec. B-4-1) specifications shall be enforced in areas with >15' of cut and/or fill. Stockpiles (Sec. B-4-8) in excess of 20 ft. must be benched with stable outlet. All concentrated flow, steep slope, and highly erodible areas shall receive soil stabilization matting (Sec. B-4-6).
- 5. All sediment control structures are to remain in place, and are to be maintained in operative condition until permission for their removal has been obtained from the CID.
- 6. Site Analysis:

ialysis.		
Total Area of Site:	0.05	Acres
Area Disturbed:	0.032	Acres
Area to be roofed or paved:	0.031	Acres
Area to be vegetatively stabilized:	0.001	Acres
Total Cut:	267	Cu. Yds
Total Fill:	267	Cu. Yds
Offsite waste/borrow area location:	CONTRACTOR	COORDIN

- 7. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- 8. Additional sediment control must be provided, if deemed necessary by the CID. The site and all controls shall be inspected by the contractor weekly; and the next day after each rain event. A written report by the contractor, made available upon request, is part of every inspection and should include:

- Inspection date
- Inspection type (routine, pre-storm event, during rain event)
- Name and title of inspector
- Weather information (current conditions as well as time and amount of last recorded precipitation)
- Brief description of project's status (e.g., percent complete) and/or current activities
- Evidence of sediment discharges
- Identification of plan deficiencies
- Identification of sediment controls that require maintenance
- Identification of missing or improperly installed sediment controls • Compliance status regarding the sequence of construction and stabilization requirements
- Photographs
- Monitoring/sampling
- Maintenance and/or corrective action performed
- Other inspection items as required by the General Permit for Stormwater Associated with Construction Activities (NPDES, MDE).
- Trenches for the construction of utilities is limited to three pipe lengths or that which can and shall be back-filled and stabilized by the end of each workday, whichever is shorter.
- 10. Any major changes or revisions to the plan or sequence of construction must be reviewed and approved by the HSCD prior to proceeding with construction. Minor revisions may allowed by the CID per the list of HSCD-approved field changes.
- 11. Disturbance shall not occur outside the L.O.D. A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage of 20 ac. per grading unit) at a time. Work may proceed to a subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has been stabilized and approved by the HSCD. Unless otherwise specified and approved by the HSCD, no more than 30 acres cumulatively may be disturbed at a given time.
- 12. Wash water from any equipment, vehicles, wheels, pavement, and other sources must be treated in a sediment basin or other approved washout structure.
- 13. Topsoil shall be stockpiled and preserved on-site for redistribution onto final grade.
- 14. All Silt Fence and Super Silt Fence shall be placed on-the-contour, and be imbricated at 25' minimum intervals, with lower ends curled uphill by 2' in elevation.
- 15. Stream channels must not be disturbed during the following restricted time periods (inclusive):
  - Use I and IP March 1 June 15
  - Use III and IIIP October 1 April 30
  - Use IV March 1 May 31
- 16. A copy of this plan, the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and associated permits shall be on-site and available when the site is active.



# SEQUENCE OF CONSTRUCTION

- 1. OBTAIN GRADING PERMIT.
- 2. LAYOUT ALIGNMENT AT SITE. (2 DAYS)
- 3. REQUEST PRE-CONSTRUCTION MEETING ON-SITE WITH REPRESENTATIVE OF HOWARD COUNTY DPW CONSTRUCTION INSPECTION DIVISION. (1 DAY)
- 4. IF NECESSARY, THE CONTRACTOR SHALL INSTALL SEDIMENT CONTROL DEVICES AT THE DIRECTION OF THE HOWARD DPW CID INSPECTOR.(1 DAY)
- 5. EXCAVATE TRENCH TO THE GRADE SPECIFIED ON THE PROFILE, INSTALL SEWER MAIN AND BACKFILL AND STABILIZE TRENCH AND RESURFACE WITH BITUMINOUS PAVING AS APPROPRIATE (30 DAYS). TRENCHES FOR THE CONSTRUCTION OF UTILITIES ARE LIMITED TO 3 LENGTHS OF PIPE OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER. AT THE END OF EACH WORK DAY, ALL VEGETATED AREAS DISTURBED DURING THE COURSE OF CONSTRUCTION SHALL BE TEMPORARILY STABILIZED IN ACCORDANCE WITH THE TEMPORARY SEEDING SUMMARY SHOWN ON SHEET 4 OF 4 AND THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, SECTION B-4-4. AT THE END OF EACH WORKING DAY ALL DISTURBED PAVING AREAS WITHIN THE EXISTING ROAD SHALL BE REPLACED WITH PERMANENT SUBGRADE AND BASE ASPHALT, THEN TEMPORARILY PATCHED, SEE TEMPORARY PAVING DETAIL ON SHEET 2 OF 4.
- 6. UPON COMPLETION OF PIPE INSTALLATION AND INSPECTOR'S APPROVAL, PERMANENTLY STABILIZE ALL DISTURBED VEGETATED AREAS IN ACCORDANCE WITH STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION SHOWN ON SHEET 4 OF 4 AND THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, SECTION B-4-5. (1 DAY)
- 7. CLEAN UP CONSTRUCTION SITE. (1 DAY)
- 8. REMOVE SEDIMENT CONTROL DEVICES AFTER SEED/MULCH HAS COMPLETED VEGETATIVE ESTABLISHMENTS AND THE HOWARD COUNTY CID INSPECTOR APPROVES THE REMOVAL. (1 DAY)

AS-BUILT DATE 03-05-2020

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

Uno 8 m 7-17/9

In Suf A ACTING FOR TEB 7/16/2019

**TECHNOLOGIES** 

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. 31363 , Expiration Date 01/16/2020.

DES: KFJ DRN: KFJ CHK: JR DATE: JULY 2019 DATE 600' SCALE MAP NO.

**EROSION & SEDIMENT CONTROL NOTES AND** DETAILS

46\_\_\_\_

10489 GORMAN ROAD SEWER EXTENSION

> CAPITAL PROJECT No. S6699 CONTRACT No. 30-5103

HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS CHIEF, BUREAU OF UTILITIES DATE

CHIEF, UTILITY DESIGN DIVISION DATE 2

ENGINEERS LANNERS Construction manager 936 Ridgebrook Road Sparks, MD 21152 PHONE: (410) 316-7800 Fax: (410) 316-7817 www.kci.com

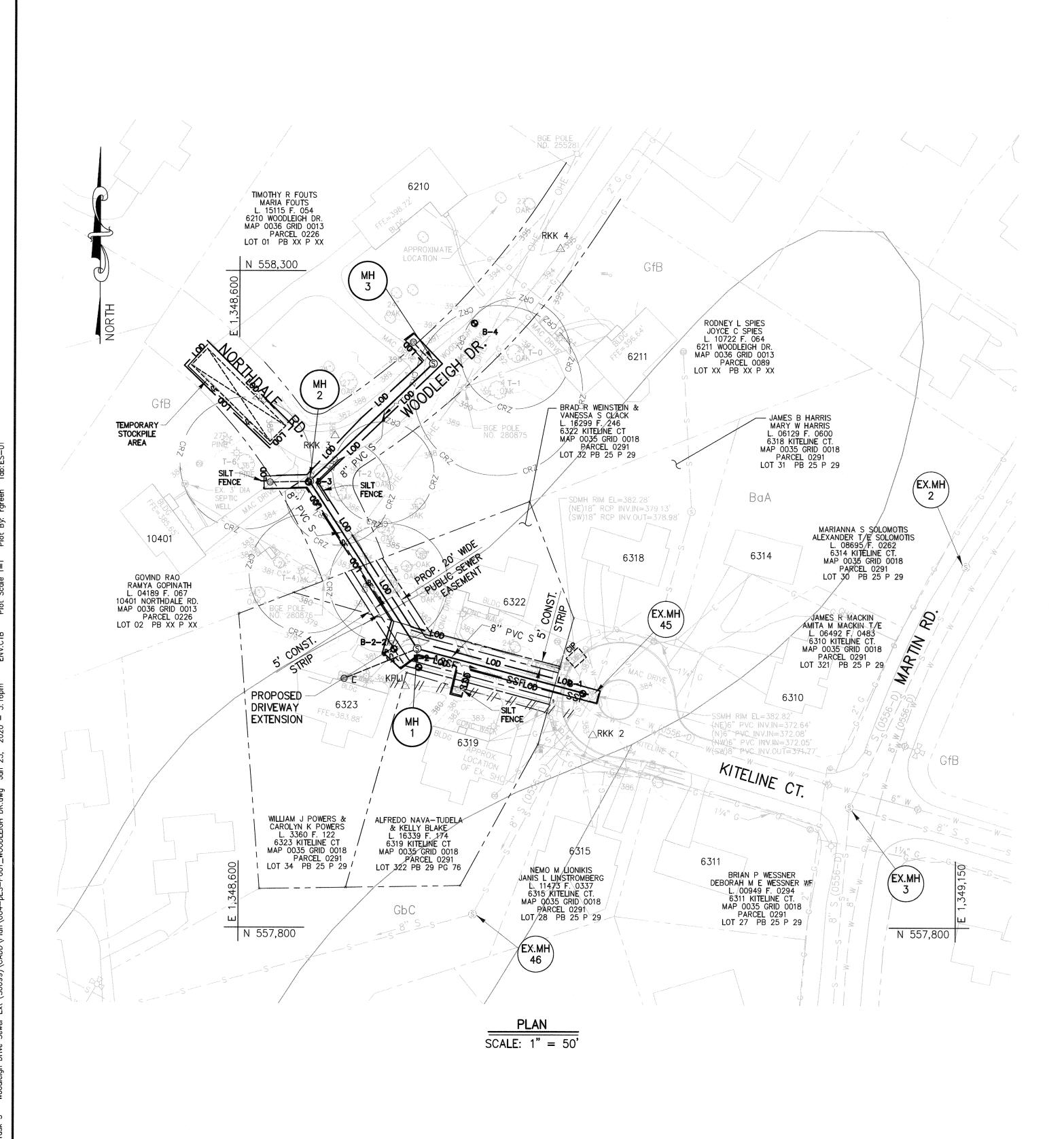
BY NO. REVISION

BLOCK NO. 6

AS SHOWN SHEET

SCALE

**ELECTION DISTRICT NO. 6** 



#### SUPPLEMENTAL EROSION AND SEDIMENT CONTROL NOTES

- 1. WORK MAY NOT COMMENCE UNTIL THE CONTRACTOR AND RESPONSIBLE PERSONNEL HAVE MET ON SITE WITH THE COUNTY SEDIMENT AND EROSION CONTROL INSPECTOR TO REVIEW THE APPROVED PLANS.
- 2. CONTRACTOR SHALL DIRECT ALL WATER PUMPED DURING TRENCH DEWATERING OPERATIONS TO AN APPROVED PORTABLE SEDIMENT TANK. CLEAN OUT TANK WHEN ONE—THIRD (1/3) FILLED WITH SILT. HAUL SEDIMENT TO A HOWARD COUNTY APPROVED SITE.
- 3. NO EXCAVATED MATERIAL SHALL BE PLACED ON THE PRIVATE PROPERTIES ADJACENT TO THE TRENCH. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PREVENT THE DISTURBANCE OF EXISTING VEGETATED AREAS TO THE EXTENT POSSIBLE. ANY VEGETATED AREAS DISTURBED BY THE CONTRACTOR'S WORK OPERATIONS SHALL BE STABILIZED BY THE END OF THE WORK DAY AND RESTORED BY THE END OF THE PROJECT.
- 4. STABILIZED CONSTRUCTION ENTRANCE (SCE) AND EQUIPMENT CLEANING AREA (ECA):

THERE ARE NO SCES INCLUDED IN THIS PROJECT. PROVIDE AN EQUIPMENT CLEANING AREA (ECA) DURING CONSTRUCTION, AS DIRECTED BY THE ENGINEER. REFER TO ECA DETAIL ON DRAWING ES-02 (SHEET 5 OF 6). REMOVE ACCUMULATED STONE AND SEDIMENT PRIOR TO DISMANTLING THE ECA.

5. SEQUENCE OF CONSTRUCTION

THE SEQUENCE OF CONSTRUCTION INCLUDED IN THESE PLANS IS APPROVED BY HOWARD COUNTY. THIS SEQUENCE OF CONSTRUCTION MAY BE MODIFIED BY THE CONTRACTOR. HOWEVER, THE CONTRACTOR MUST OBTAIN HOWARD COUNTY APPROVAL FOR ANY MODIFICATIONS PRIOR TO IMPLEMENTING A REVISED SEQUENCE OF CONSTRUCTION IN THE FIELD.

NO DISTURBED AREAS SHALL BE LEFT UNSTABILIZED OVERNIGHT, UNLESS RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.

CONTRACTOR SHALL REMOVE SPOILS TO A SITE WITH AN APPROVED SEDIMENT AND EROSION CONTROL PERMIT.

# SOIL NOTES

- SOIL DATA IS BASED ON THE WEB SOIL SURVEY WEBSITE BY THE USDA NATURAL RESOURCES CONSERVATION SERVICE:
- GfB GLADSTONE-URBAN LAND COMPLEX, 0 TO 8 PERCENT SLOPES Kw=0.28
- BaA BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES Kw=0.37
- GbC GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES Kw=0.28
- 2. TOP SOIL SHALL BE PROVIDED IN ACCORDANCE WITH THE LATEST EDITION OF THE SHA STANDARD SPECIFICATIONS OF CONSTRUCTION AND MATERIALS. SECTION 920 LANDSCAPING MATERIALS.

#### UTILITY TRENCH SEDIMENT CONTROL PROCEDURES

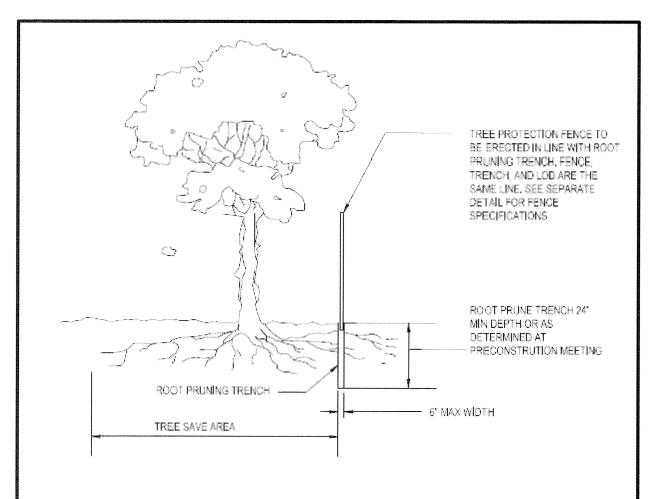
- 1. EXCAVATED TRENCH MATERIAL SHALL BE PLACED ON THE HIGH SIDE OF THE TRENCH.
- 2. IMMEDIATELY FOLLOWING PIPE INSTALLATION THE TRENCH SHALL BE BACKFILLED, COMPACTED AND STABILIZED AT THE END OF EACH WORKING DAY. SEE HSCD NOTE #9 ON DWG. G-02 (SHT 2 OF 6).
- 3. TEMPORARY STEEL PLATES SHALL BE PLACED ON ANY DISTURBED AREA DAILY.

#### PAVEMENT RESTORATION NOTE

KITELINE COURT AND WOODLEIGH DRIVE ARE RESIDENTIAL ROADWAYS. REFER TO STANDARD DETAILS G-4.01 AND R-2.01, PAVING SECTION P-2 AND CBR 10 FOR RESTORATION OF THE ROADWAY AFTER THE SEWER EXTENSION IS COMPLETE.

#### SEQUENCE OF CONSTRUCTION

- 1. A PRECONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410–313–1855 AFTER THE FUTURE LOD AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD. A MINIMUM OF 48 HOURS NOTICE TO CID MUST BE GIVEN AT THE FOLLOWING STAGES:
  - A. PRIOR TO THE START OF EACH DISTURBANCE
  - B. UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING
  - C. PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING
  - D. PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES.
- 2. INSTALL PERIMETER CONTROLS AS NECESSARY.... ONE (1) DAY
- 3. CONTACT CID PER 1.B ABOVE.
- 4. PERFORM THE FOLLOWING SEQUENCE FOR EACH DAY OF UTILITY CONSTRUCTION OPERATIONS:
  - A. EXCAVATE AND INSTALL SANITARY SEWER AND APPURTENANCES. PLACE BACKFILL AND COMPACT. CONTRACTOR SHOULD OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY.
  - B. PLACE SOIL ON UPHILL SIDE OF TRENCH.
  - C. PLACE TOPSOIL, FINE GRADE, SEED AND APPLY SOIL STABILIZATION MATTING AS REQUIRED TO DISTURBED AREA.
  - D. ALL ROADWAYS (PUBLIC & PRIVATE) ARE TO BE SWEPT FREE OF DIRT AND DEBRIS.
  - E. ANY SEDIMENT LADEN WATER RESULTING FROM DEWATERING OPERATIONS SHALL BE DISCHARGED THROUGH A PORTABLE SEDIMENT TANK WHICH WILL NOT BE MEASURED FOR PAYMENT BUT SHALL BE CONSIDERED INCIDENTAL TO PROJECT CONSTRUCTION
- 5. COMPLETE SEWER MAIN CONSTRUCTION.... FIFTEEN (15) DAYS
- 6. COMPLETE TIE-IN TO EXISTING SEWER MANHOLE.... THREE (3) DAYS
- 7. RESTORE PAVING AND SURROUNDING AREAS, CONTACT CID PER 1.C ABOVE.... FIVE (5) DAYS
- 8. ONCE THE PROJECT SITE IS STABILIZED AND CONTROLS CAN BE REMOVED, CONTACT CID PER 1.D ABOVE.
- 9. REMOVE ANY REMAINING SEDIMENT CONTROLS AND STABILIZE AREAS DISTURBED BY REMOVAL OF SEDIMENT CONTROLS.... ONE (1) DAY



#### NOTES:

- RETENTION AREAS WILL BE SET AS PART OF THE REVIEW PROCESS AND PRECONSTRUCTION MEETING.
- 2. BOUNDARIES OF RETENTION AREAS MUST BE STAKED AT THE PRECONSTRUCTION MEETING AND FLAGGED PRIOR TO TRENCHING.
- 3, EXACT LOCATION OF TRENCH SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FOREST CONSERVATION (FC) INPECTOR.
- 4. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH EXCAVATED SOIL OR OTHER ORGANIC SOIL AS SPECIFIED PER PLAN OR BY THE FC INSPECTOR.
  5. ROOTS SHALL BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE
- EQUIPMENT.
- 6. ALL PRUNING MUST BE EXECUTED WITH LOD SHOWN ON PLANS OR AS AUTHORIZED IN WRITING BY THE FC INSPECTOR.

\*ROOT PRUNING DETAIL

\*ROOT PRUNING DOES NOT APPLY TO SPECIMEN TREE T-5

AS-BUILT BY: Z.KNIGHT, 11-24-2020

JANUARY 23, 2020

DEPARTMENT OF PUBLIC WORKS

HOWARD COUNTY, MARYLAND

2/2E/2C

RECTOR OF PUBLIC WORKS

DATE

CHIEF, BUREAU OF ENGINEERING

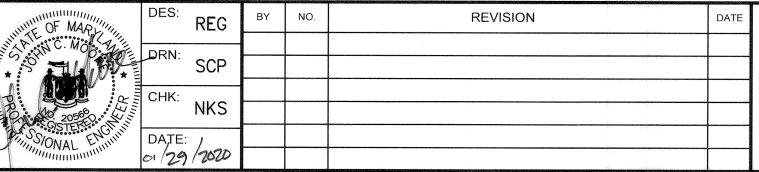
13/2020

CHIEF, UTILITY DESIGN DIVISION

P: 410.728.2900
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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. 20566,
EXPIRATION DATE: 09/06/2020.



EROSION AND SEDIMENT CONTROL PLAN

600' SCALE MAP NO. 35

BLOCK NO. 18 ELECTION DISTRICT NO. 4

PROJECT NO. S6699 CONTRACT NO. 20-5093

WOODLEIGH DRIVE SEWER EXTENSION

AS SHOWN
SHEET NO.

ES-01

SCALE

HOWARD COUNTY, MARYLAND

4 OF 6

# **FOR**

#### SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

#### <u>Definition</u>

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

# <u>Purpose</u>

**B-4-2 STANDARDS AND SPECIFICATIONS** 

To provide a suitable soil medium for vegetative growth.

#### **Conditions Where Practice Applies**

Where vegetative stabilization is to be established.

#### <u>Criteria</u>

#### 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

#### 2. Permanent Stabilization

- a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
- i. Soil pH between 6.0 and 7.0.
- ii. Soluble salts less than 500 parts per million (ppm).
- iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
- iv. Soil contains 1.5 percent minimum organic matter by weight.
- v. Soil contains sufficient pore space to permit adequate root penetration.
- b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
- c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

- d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil
- 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.

#### Topsoiling

- 1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
- 2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
- 3. Topsoiling is limited to areas having 2:1 or flatter slopes where:
- a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
- b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
- c. The original soil to be vegetated contains material toxic to plant growth.
- d. The soil is so acidic that treatment with limestone is not feasible.
- 4. Areas having slopes steeper than 2:1 require special consideration and design.
- 5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
- a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter.
- b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
- c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist

and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

#### 6. Topsoil Application

- a. Erosion and sediment control practices must be maintained when applying topsoil
- b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or 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.

#### 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**

#### SEEDING AND MULCHING

## **Definition**

The application of seed and mulch to establish vegetative cover.

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

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

#### Conditions Where Practice Applies

Criteria

#### A. Seeding

#### 1. Specifications

- a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
- b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
- c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.
- d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

- a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
- i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
- ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil
- 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
- 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; P<sub>2</sub>O<sub>5</sub> (phosphorous), 200 pounds per acre; K<sub>2</sub>O (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.

#### Mulching

- 1. Mulch Materials (in order of preference)
- a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where one species of grass is desired.
- b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
- i. WCFM is to be dyed green or contain a green dye in the package that will provide an 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.

- 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, Petroset, Terra Tax 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**

#### TEMPORARY STABILIZATION

#### Definition

To stabilize disturbed soils with vegetation for up to 6 months.

<u>Purpose</u>

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-4-3.A.1.b and maintain until the next seeding season.

#### **Temporary Seeding Summary**

	Hardiness Z Seed Mixtur	Fertilizer Rate	Lime Rate			
No.	Species	(10-20-20)	Enne Rate			
	ANNÚAL RYEGRASS	40	3/15 - 5/15 8/1 - 10/15	0.5"		
	BARLEY	96	3/15 - 5/15 8/1 - 10/15	1.0"	436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)
	OATS	72	3/15 - 5/31 8/1 - 9/30	1.0"		
	FOXTAIL MILLET	30	5/16 - 7/31	0.5"	<b>T</b>	

#### NOTES:

1/ Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as

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

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

2/ For sandy soils, plant seeds at twice the depth listed above. 3/ The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.

#### **B-4-5 STANDARDS AND SPECIFICATIONS**

#### **FOR**

#### PERMANENT STABILIZATION

## Definition

To stabilize disturbed soils with permanent vegetation.

<u>Purpose</u>

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

# Exposed soils where ground cover is needed for 6 months or more.

Conditions Where Practice Applies

Criteria

AS-BUILT DATE 03-05-2020

- A. Seed Mixtures
  - 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.

- c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil
- d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.

#### 2. Turfgrass Mixtures

- a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
- b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
- i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
- ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
- iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium 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 establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1½ to 3 pounds per 1000 square feet.

#### Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"

Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line

#### c. Ideal Times of Seeding for Turf Grass Mixtures

Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)

Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b) Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15

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 1½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.

(Hardiness Zones: 7a, 7b)

e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (½ 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.

#### **Permanent Seeding Summary**

	Hardiness Zone (from Figure B.3): 6b Fertilizer Rate Seed Mixture (from Table B.3): 6 (10-20-20)					te	Lime Rate	
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> 0	Dime Rate
	TALL FESCUE	40	5/1 - 5/15 8/1 - 10/15	½- ½ in	45 pounds	90 lb/ac	90 lb/ac	2 tons/ac
	PERENNAIL RYEGRASS		5/1 - 5/15 8/1 - 10/15	½- ½ in	per acre (1.0 lb/	(2 lb/	(2 lb/	(90 lb/
	WHITE CLOVER	5	5/1 - 5/15 8/1 - 10/15	½- ½ in	1000 sf)	1000 sf)	1000 sf)	1000 sf)

CLOVER 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
- b. Sod must be machine cut at a uniform soil thickness of ¾ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
- 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
- d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival. e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its

- 2. Sod Installation a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate
- the subsoil immediately prior to laying the sod. b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
- c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface. d. Water the sod immediately following rolling and tamping until the underside of the new sod pad

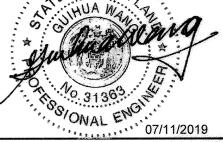
#### and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours. Sod Maintenance

- 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
- 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

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. 31363 , Expiration Date 01/16/2020.

LANNERS Construction manager 936 Ridgebrook Road Sparks, MD 21152

ENGINEERS



DES: KFJ DRN: KFJ BY NO. REVISION

**EROSION & SEDIMENT CONTROL NOTES** 

10489 GORMAN ROAD SEWER EXTENSION

> CAPITAL PROJECT No. S6699 CONTRACT No. 30-5103

HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF UTILITIES DATE

DIRECTOR OF PUBLIC WORKS

DEPARTMENT OF PUBLIC WORKS

HOWARD COUNTY, MARYLAND

CHIEF, UTILITY DESIGN DIVISION DATE

ACTING F. TEB 7/16/2019

TECHNOLOGIES

PHONE: (410) 316-7800 Fax: (410) 316-7817 www.kci.com

CHK: JR DATE: JULY 2019

DATE 600' SCALE MAP NO. BLOCK NO. 6 **ELECTION DISTRICT NO. 6** 

SHEET

**SCALE** 

AS SHOW

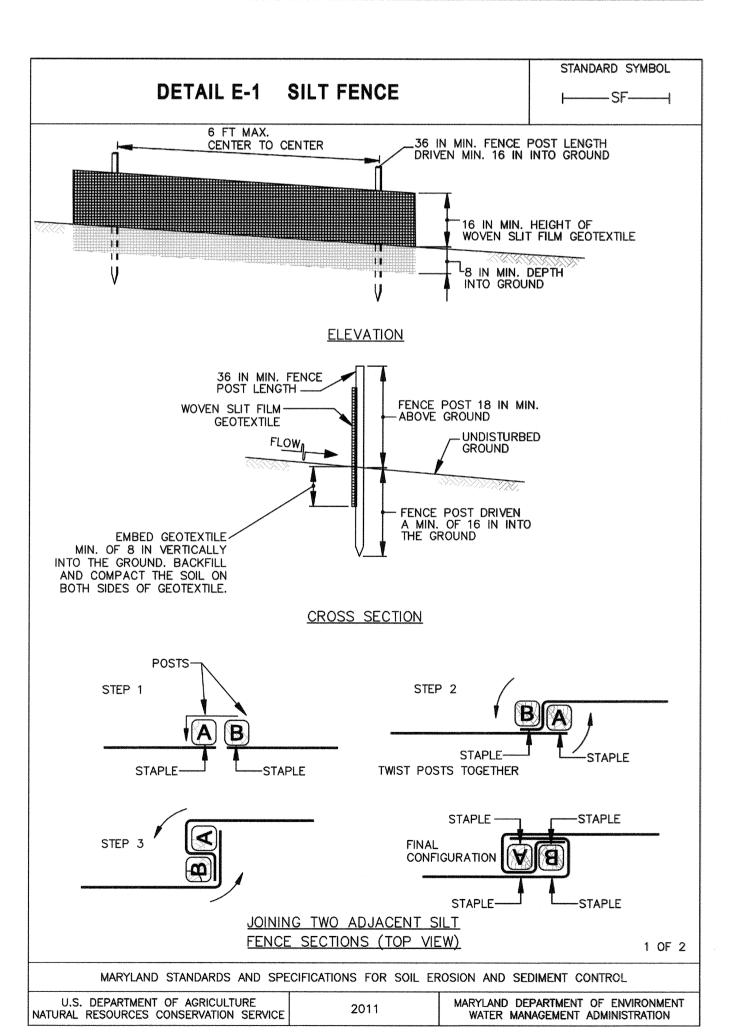
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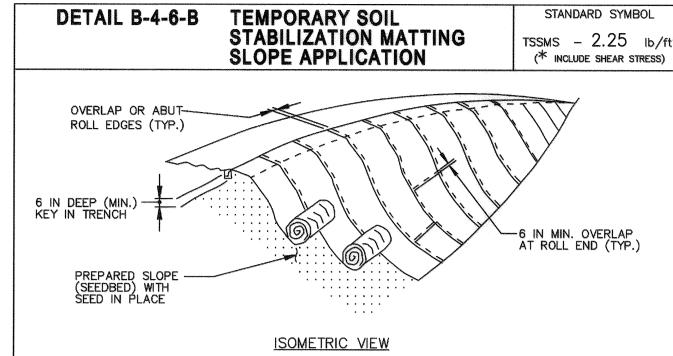
- 3. NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART)
- 4. ATTACH A CONTINUOUS PIECE OF 1/4 INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2x4 WEIR, EXTENDING IT 2 FEET BEYOND THROAT ON EACH SIDE.
- 5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2x4 WEIR.
- 6. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2x4 ANCHORS (MINIMUM 2 FEET LENGTH). EXTEND THE ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
- INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
- FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND FACE OF CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN 34 TO 11/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE.
- 9. AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
- 10. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

NATURAL RESOURCES CONSERVATION SERVICE

MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION





CONSTRUCTION SPECIFICATIONS

- 1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
- 2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
- 3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 11/2 INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG. AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD. 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
- PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION & SEDIMENT CONTROL PLAN.
- 5. UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
- 6. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
- KEY IN THE UPSLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
- 8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
- 3. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE

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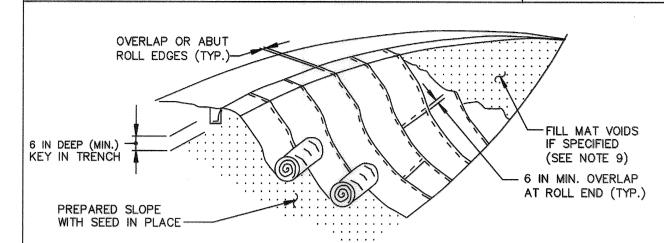
#### STANDARD SYMBOL DETAIL E-1 SILT FENCE -----SF-----

. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND

CONSTRUCTION SPECIFICATIONS USE WOOD POSTS  $1\frac{7}{4}$  X  $1\frac{7}{4}$   $\pm$   $\frac{7}{16}$  INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT. 2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, 2 OF : MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

PERMANENT SOIL STANDARD SYMBOL DETAIL B-4-6-D STABILIZATION MATTING PSSMS = 2.25 lb/ft SLOPE APPLICATION (\* INCLUDE SHEAR STRESS)



ISOMETRIC VIEW

CONSTRUCTION SPECIFICATIONS

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

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

MARYLAND DEPARTMENT OF ENVIRONMENT NATURAL RESOURCES CONSERVATION SERVICE WATER MANAGEMENT ADMINISTRATION

# STANDARD SYMBOL DETAIL E-2 SILT FENCE ON PAVEMENT -SFOP----10 FT MAX 2 IN x 4 IN ACROSS-TOP OF STONE ISOMETRIC VIEW SUPPORT -WOVEN SIIT FILM GEOTEXTILE OF GEOTEXTILE GEOTEXTILE -MASTIC SEAL CONSTRUCTION SPECIFICATIONS SECTION A-A . USE NOMINAL 2 INCH X 4 INCH LUMBER.

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

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF AGRICULTURE MARYLAND DEPARTMENT OF ENVIRONMENT

JANUARY 23, 2020

600' SCALE MAP NO. 35

WATER MANAGEMENT ADMINISTRATION

CONTROL DETAILS

CONTRACT NO. 20-5093

WOODLEIGH DRIVE SEWER EXTENSION

HOWARD COUNTY, MARYLAND

PROJECT NO. S6699

STANDARD SYMBOL

-LIFT HOLES

→ OUTFLOW

- NONWOVEN GEOTEXTILE

2 FT CLEANOUT DEPTH

60 IN PIPE

PLAN VIEW

PROVIDE 1 CUBIC FOOT OF STORAGE FOR EACH GALLON PER MINUTE OF PUMP CAPACITY. REQUIRED

STORAGE VOLUME MAY BE ATTAINED BY PLACEMENT OF TANKS IN PARALLEL WITH INFLOW EVENLY

2. USE 60 INCH CORRUGATED METAL OR PLASTIC PIPE WITH 1 INCH DIAMETER PERFORATIONS, 6 INCHES

H-1 MATERIALS, SANDWICHED BETWEEN, AND ATTACHED TO, 1/2 INCH HARDWARE CLOTH.

3. OVERLAP GEOTEXTILE 8 INCHES MINIMUM AT VERTICAL SEAM AND AT THE BOTTOM PLATE.

4. ANCHOR GEOTEXTILE AT BOTTOM OF TANK WITH 4 INCHES OF 2 TO 3 INCH CLEAN STONE OR

5. USE 72 INCH CORRUGATED METAL OR PLASTIC OUTER PIPE WITH PERMANENT OUTFLOW PIPE WITH

7. PLACE TANK ON LEVEL SURFACE AND DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.

8. A PORTABLE SEDIMENT TANK REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT

FROM INNER PIPE WHEN IT REACHES TWO FEET IN DEPTH. IF SYSTEM CLOGS, PULL OUT INNER PIPE,

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

NOTES:

THEREOF

SWEEPING.

SEED/SSM OR SOD.

1. SFOP TO MEET DETAIL E-2 AND

2. ECA TO BE PLACED AT LOWEST

3. IMMEDIATELY REMOVE STONE

AND/OR SEDIMENT SPILLED,

ADJACENT ROADWAY BY

DROPPED, OR TRACKED ONTO

VACUUMING, SCRAPING, AND/OR

4. CID MAY WAIVE INSTALLATION OF

SAME-DAY STABILIZATION WITH

ECA WHERE INSPECTOR ACCEPTS

CONSTRUCTION SPECIFICATIONS

END OF LOD AND CLEANED DAILY.

REMOVE ACCUMULATED SEDIMENT, AND REPLACE GEOTEXTILE. KEEP POINT OF DISCHARGE FREE OF

ON CENTER FOR THE INNER PIPE. LINE PIPE WITH NONWOVEN GEOTEXTILE. AS SPECIFIED IN SECTION

DISTRIBUTED AMONG TANKS. OVERTOPPING OF TANKS IS NOT PERMITTED.

6. INFLOW PIPE MUST DISCHARGE INTO INNER PIPE AND BE REMOVABLE.

∽WATERTIGHT CAP OR ¼ IN STEEL PLATE WELDED ON EACH PIPE

→ ¼ IN GALVANIZED HARDWARE CLOTH

MARYLAND DEPARTMENT OF ENVIRONMENT

WATER MANAGEMENT ADMINISTRATION

DETAIL F-3 PORTABLE SEDIMENT TANK

60 IN PERFORATED PIPE -

4 IN OF CLEAN 2 TO 3 IN STONE-

HARDWARE CLOTH

CONSTRUCTION SPECIFICATIONS

EQUIVALENT RECYCLED CONCRETE.

INVERT LOWER THAN INFLOW PIPE

U.S. DEPARTMENT OF AGRICULTURE

CURB

NATURAL RESOURCES CONSERVATION SERVICE

-EQUIPMENT-

CLEANING

AREA (ECA)

72 IN PIPE

SHEET NO. 5 OF 6

ES-02

AS SHOWN

SCALE

CHIEF, UTILITY DESIGN DIVISION Responsive People | Creative Solutions

RKK

700 East Pratt Street, Suite 500 | Baltimore, MD 21202 Engineers | Construction Managers | Planners | Scientists

NATURAL RESOURCES CONSERVATION SERVICE

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. <u>20566</u>, EXPIRATION DATE: 09/06/2020

REVISION

NATURAL RESOURCES CONSERVATION SERVICE

EROSION AND SEDIMENT

BLOCK NO. 18 | ELECTION DISTRICT NO. 4

U-SHAPED EQUIPMENT CLEANING AREA

A5-BUILT

BY: Z.KNIGHT, 11-24-2020

DEPARTMENT OF PUBLIC WORKS

#### 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

- 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
- 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
- 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. TOPSOILING 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
- 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 11/2 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 MY, 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.
- 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

#### A. SEEDING

- 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
- 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
- d. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

- a. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE—SPECIFIC SEEDING SUMMARIES.
- II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO
- 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
- 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; P205
- (PHOSPHOROUS), 200 POUNDS PER ACRE; K20 (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.

#### 1. MULCH MATERIALS (IN ORDER OF PREFERENCE)

- a. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
- b. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
- I. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN 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.

#### 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, PETROSET, TERRA TAX 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

#### B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

#### <u>DEFINITION</u>: TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS

#### <u>PURPOSE:</u> TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS.

<u>CONDITIONS WHERE PRACTICE APPLIES:</u> 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.

- 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-4-3.A.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

#### TEMPORARY SEEDING SUMMARY

		HARDINESS ZON SEED MIXTUR	FERTILIZER RATE	LIME RATE			
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	- (10–20–20)		
1	ANNUAL RYE	40	2/1- 4/30	0.5"	436 LB/AC (10 LB/1000SF)	2 TONS/AC (90 LB/1000SF)	
2	FOXTAIL MILLET	30	5/1- 8/14	0.5"	436 LB/AC (10 LB/1000SF)	2 TONS/AC (90 LB/1000SF)	
3	annual Rye	40	8/15- 11/30	0.5"	436 LB/AC (10 LB/1000SF)	2 TONS/AC (90 LB/1000SF)	

#### PERMANENT SEEDING SUMMARY

*	HARDINESS ZONE: 7A FERTILIZER RATE SEED MIXTURE: 8, 9 OR 11 (10-20-20)						LIME RATE	
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> 0	
8	TALL FESCUE	100	5/1- 8/30	0.5"				
	HARD FESCUE	40				(2.0	C 90 LB/AC (2.0 F) LB/1000SF)	2 TONS/AC (90 LB/1000SF)
9	KENTUCKY BLUEGRASS	40	3/1- 6/15		45 LB/AC			
	PERENNIAL RYEGRASS	20			(1.0			
	CREEPING RED FESCUE	30						
11	CHEWINGS FESCUE	30	3/1- 6/15	- 6/15				
	KENTUCKY BLUEGRASS	20						

#### B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION CRITERIA:

- 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. 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 ½ POUNDS
- PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY.
- a. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
- b. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
- i. KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
- ii. Kentucky bluegrass/perennial Rye: Full sun mixture: For use in full sun areas where RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENNIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY
- 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 ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREA. MIXTURE INCLUDES; CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE: 11/2 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 PURITY. THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE

c. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES <u>WESTERN MD</u>: 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 11/2 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 (½TO 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). . GENERAL SPECIFICATIONS

- a. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE
- AVAILABLE TO THE JOB FOREMAN AND INSPECTOR. b. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF % INCH, PLUS OR MINUS 1/4 INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH.
- BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE c. Standard size sections of sod must be strong enough to support their own weight and RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.
- d. SOD MUST NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL. e. SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT
- TRANSPLANTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION. 2. SOD INSTALLATION

#### a. During Periods of Excessively high temperature or in Areas Having Dry Subsoil, Lightly IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD.

- b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE
- c. WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOD TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.
- d. Water the sod immediately following rolling and tamping until the underside of the New SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT HOURS.
  - 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

a. In the absence of adequate rainfall, water daily during the first week or as often and

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

A5-BULT BY: Z.KNIGHT, 11-24-2020

ES-03

WOODLEIGH DRIVE SEWER EXTENSION

PROJECT NO. S6699

CONTRACT NO. 20-5093

OF PUBLIC WORKS DATE

DEPARTMENT OF PUBLIC WORKS

HOWARD COUNTY, MARYLAND

CHIEF, BUREAU OF ENGINEERING Sul CHIEF, UTILITY DESIGN DIVISION

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I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR PPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 20566, EXPIRATION DATE: <u>09/06/2020.</u>

SCP NKS

REVISION

600' SCALE MAP NO. 35

EROSION AND SEDIMENT CONTROL

STANDARDS AND SPECIFICATIONS

JANUARY 23, 2020

BLOCK NO. 18 | ELECTION DISTRICT NO. 4

3 INCHES UNLESS OTHERWISE SPECIFIED.

SHEET NO. 6 OF 6 HOWARD COUNTY, MARYLAND

SCALE

AS SHOWN