GENERAL NOTES

- 1. 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 05/19/2016 BY KCI TECHNOLOGIES. INC.
- 3. HORIZONTAL AND VERTICAL SURVEY CONTROLS: THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD 83/07 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL POINTS 35F1 AND 35I2. ALL VERTICAL CONTROLS ARE BASED ON NAVD 88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE 35F1 AND 35I2.
- 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 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.
- 8. 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).... BG&E (EMERGENCY) BUREAU OF UTILITIES (DPW). ..410-313-4900

.410-795-1390 COLONIAL PIPELINE CO. .1-800-257-7777 ...410-531-5533 STATE HIGHWAY ADMINISTRATION1-800-743-0033 / 410-224-9210

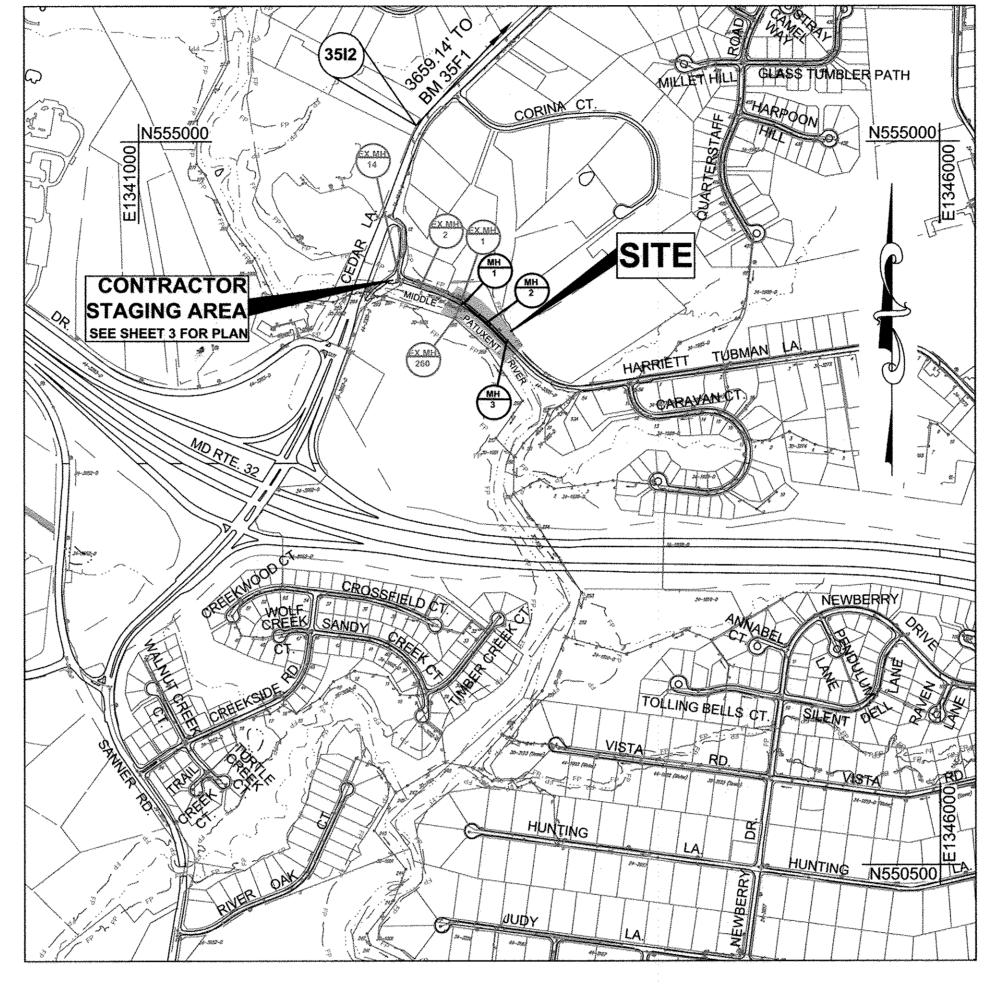
- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
- 10. CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
- 11. 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 THE UTILITY HAS BEEN INSTALLED.
- 15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND REPLACING THE EXISTING GUARDRAIL THAT IS DAMAGED OR REMOVED DURING CONSTRUCTION.

SANITARY SEWER MAIN NOTES

- ALL SEWER MAINS SHALL BE D.I.P. or P.V.C. UNLESS OTHERWISE NOTED.
- 2. ALL MANHOLES SHALL BE 4'-0" INSIDE DIAMETER UNLESS OTHERWISE NOTED.
- FORCE MAINS SHALL BE D.I.P. ONLY.
- 4. MANHOLES SHOWN WITH 12" AND 16" WALLS ARE FOR BRICK MANHOLES ONLY.
- 5. 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.
- 7. HOUSE(S) WITH THE SYMBOL "C.N.S." INDICATES THAT THE CELLAR CANNOT BE SERVED.
- 6. DISTANCES SHOWN FOR THE SANITARY SEWER MANHOLES AND STRUCTURES IN PROFILE ARE ALONG THE CENTERLINE OF THE PIPE FROM CENTER OF MANHOLE OR STRUCTURE TO THE CENTER OF MANHOLE OR STRUCTURE. ESTIMATED QUANTITIES SHOWN ON THE BILL OF MATERIALS EXCLUDE DISTANCES WITHIN MANHOLE INTERIORS.

HARRIET TUBMAN LANE SEWER EXTENSION

CAPITAL PROJECT NO. S-6296 CONTRACT NO. 30-4997 HOWARD COUNTY, MARYLAND



VICINITY MAP

SCALE: 1"= 600'

TYPE OF BUILDING: NUMBER OF PARCELS:

NUMBER OF SEWER HOUSE CONNECTIONS: NUMBER OF WATER HOUSE CONNECTIONS:

NA

MIDDLE PATUXENT

RESIDENTIAL/COMMERCIAL

CONTROL NOTE

NAVD 88 (VERTICAL)

ELEV. 400.475

of the State Of Maryland, License No. 31363, Expiration Date 1/16/2018

DRAINAGE AREA:

THE HORIZONTAL AND VERTICAL DATUM SHOWN HEREON ARE BASED ON GPS OBSERVATIONS FROM HOWARD COUNTY GEODETIC SURVEY CONTROL POINTS. NAD83/91(HORIZONTAL)

35F1 N 557787.367 E 1345217.309

35I2 N 555100.776 E 1342733.049 ELEV. 329.782

GRAPHIC SCALE 600 300 SCALE: 1" = 600'

OWNER'S/DEVELOPER'S CERTIFICATION

"I/WE CERTIFY THAT ALL 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 MARYLAND DEPARTMENT OF HE 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.

6/12/2017 OWNERS / DEVELOPERS SIGNATURE DATE

Project Manager Silver Chai PRINTED NAME & TITLE

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

TRAFFIC CONTROL PLAN

BILL OF MATERIALS

ITEM	UNIT	ESTIMATE	AS-BUILT	MANUFACTURER
8" PVC SEWER	L.F.	366	366	NORTH AMERICAN
48" (4' DIA.) PRECAST MANHOLE	EA.	3	3	ATLANTIC PRECAST
48" (4' DIA.) MANHOLE RISER > 6'	V.F.	10	10	ATLANTIC PRECAST
8" PVC SHC	L.F.	19	19	NORTH AMERICAN
8" PVC CLEANOUT	V.F.	7	7	NORTH AMERICAN
NAME OF UTILITY CONTRACTOR: UTILITIE	S UNLIM	NTED		
		CHECKBOX		
		AS-BUILT DATE		8/31/2017
			SURVEY A	ND DRAFTING DIVISION

RESTORATION SCHEDULE							
LOCATION DISTANCE TYPE							
HARRIET TUBMAN LANE	415	MACADAM					
	437						

LEGEND

LLOL	<u>.ND</u>	
EXISTING		PROPOSED
DECIDUOUS TREE		SEWER MAIN
CONIFEROUS TREE	-	SEWER MANHOLE SHIT FENCE
EXISTING UTILITY POLE		
EXISTING FIRE HYDRANT		LIMIT OF DISTURBANCE AND SILT FENO
EXISTING VALVE		AT GRADE INLET PROTECTION
EXISTING WATER MAIN		SOIL BORING
EXISTING SEWER MAIN	B-2	SOIL BORING
EXISTING STORM DRAIN		
EXISTING OVERHEAD WIRE		
EXISTING SEWER EASEMENT		
PROPERTY BOUNDARY		
MAJOR CONTOUR		
MINOR CONTOUR		
WETLAND LIMITS		
	EXISTING DECIDUOUS TREE CONIFEROUS TREE EXISTING UTILITY POLE EXISTING FIRE HYDRANT EXISTING VALVE EXISTING WATER MAIN EXISTING SEWER MAIN EXISTING STORM DRAIN EXISTING OVERHEAD WIRE EXISTING SEWER EASEMENT PROPERTY BOUNDARY MAJOR CONTOUR MINOR CONTOUR	DECIDUOUS TREE CONIFEROUS TREE EXISTING UTILITY POLE EXISTING FIRE HYDRANT EXISTING VALVE EXISTING WATER MAIN EXISTING SEWER MAIN EXISTING STORM DRAIN EXISTING OVERHEAD WIRE EXISTING SEWER EASEMENT PROPERTY BOUNDARY MAJOR CONTOUR

DESIGN CERTIFICATION

— WETLAND BUFFER

—□ GUARD RAIL

100 YR. FLOODPLAIN

TRAVERSE POINT

"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 DISTRICT."

ELECTION DISTRICT NO. 5

GUIHUA WANG

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

HOWARD SOIL CONSERVATION DISTRICT CERTIFICATION 65 EP-17-19

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

HOWARD SOIL CONSERVATION DISTRICT

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY. MARYLAND

CHIEF, UTILITY DESIGN DIVISION G.C. DATE

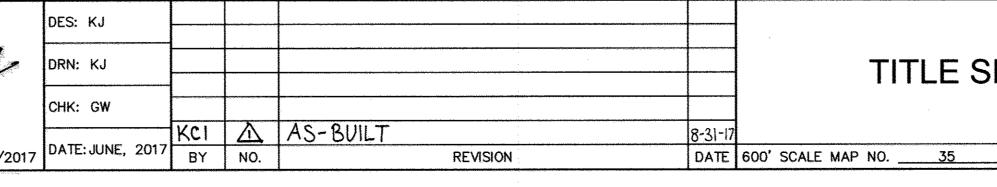


Sparks, MD 21152 PHONE: (410) 316-7800 Fax: (410) 316-7817 www.kci.com



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



TITLE SHEET

BLOCK NO. <u>23</u>

HARRIET TUBMAN LANE SEWER EXTENSION

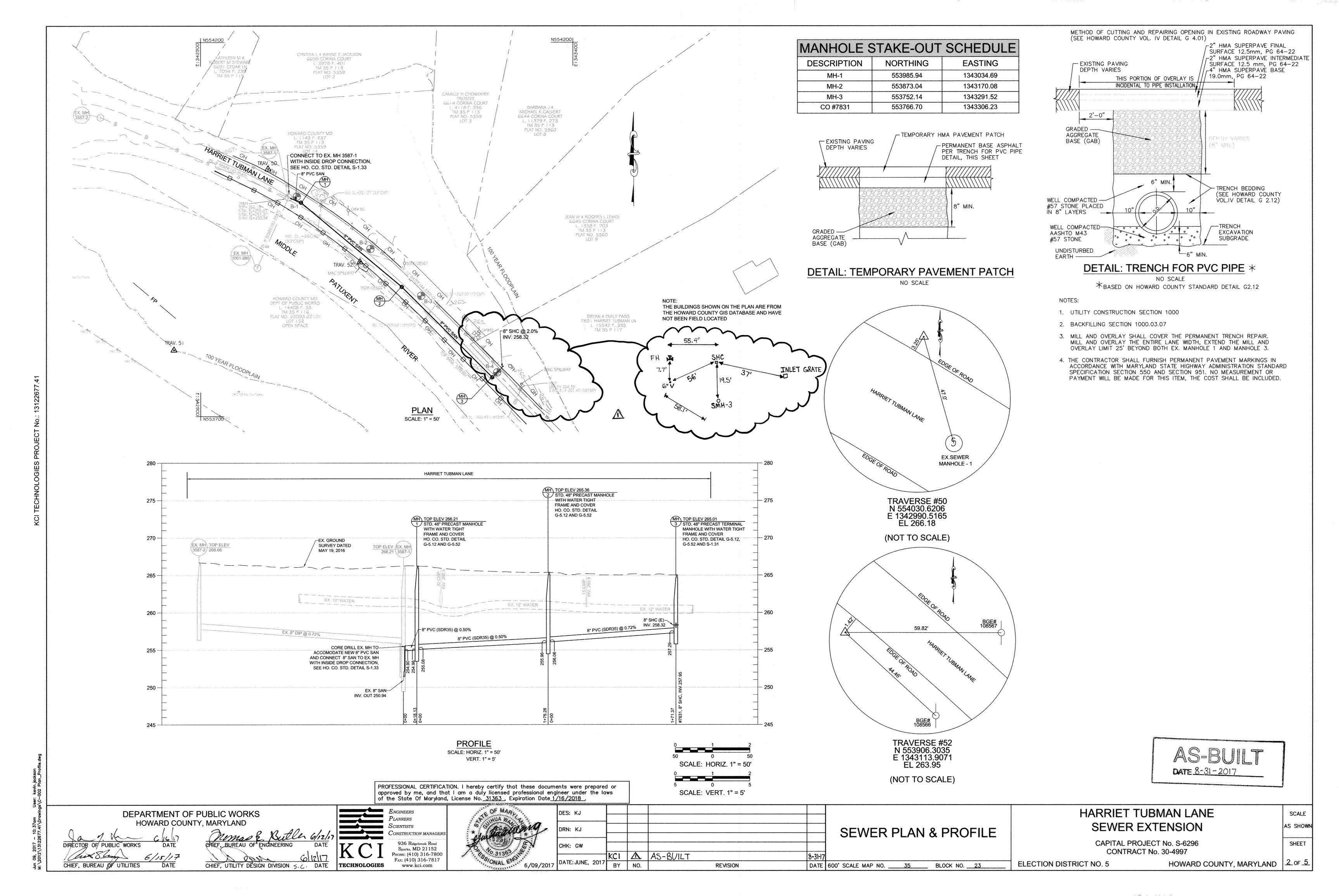
> CAPITAL PROJECT No. S-6296 CONTRACT No. 30-4997

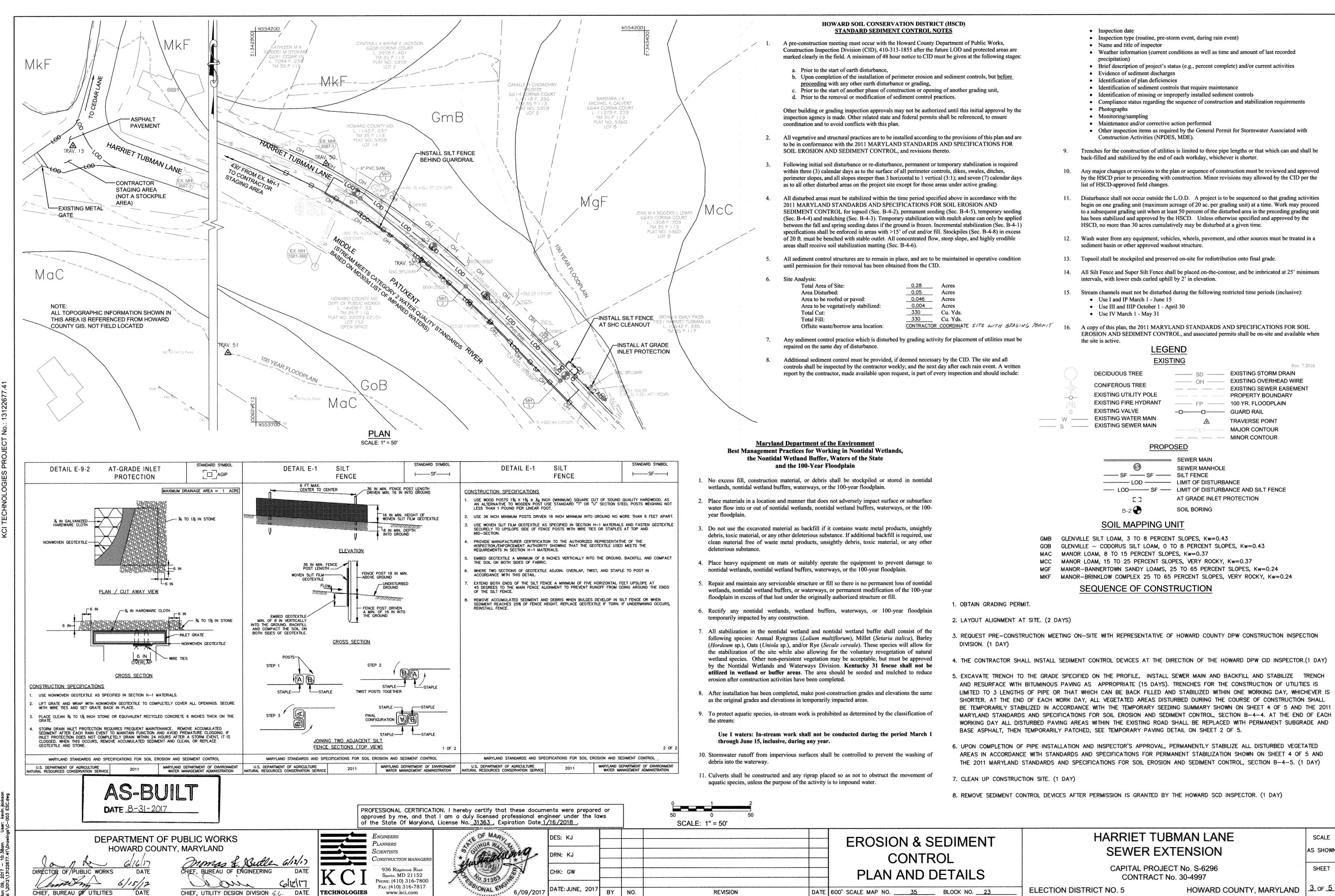
SHEET

SCALE

AS SHOWN

HOWARD COUNTY, MARYLAND





B-4-2 STANDARDS AND SPECIFICATIONS

<u>FOR</u>

SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition

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

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established

Criteria

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
- 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.
- 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 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

FOR

SEEDING AND MULCHING

Definition

<u>Purpose</u>

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

A. Seeding

- 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.

Application

- a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
- 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
- Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer)
- i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P₂O₅ (phosphorous), 200 pounds per acre; K₂O (potassium), 200 pounds per acre.
- ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding
- iii. Mix seed and fertilizer on site and seed immediately and without interruption.
- iv. When hydroseeding do not incorporate seed into the soil.

- 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
- 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.

DATE 8-31-1017

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 1/16/2018

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

FOR

TEMPORARY STABILIZATION

Definition

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

Purpose

To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies

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

Criteria

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

Temporary Seeding Summary

alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

	Hardiness Zo Seed Mixtur	Fertilizer Rate	Lime Rate				
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	(10-20-20)	tame ranc	
	ANNUAL RYEGRASS	40	3/15 - 5/15 8/1 - 10/15	0.5"	and the state of the control of the state of	2 tons/ac (90 lb/1000 sf)	
	BARLEY	96	3/15 - 5/15 8/1 - 10/15	1.0"	436 lb/ac		
	OATS	72	3/15 - 5/31 8/1 - 9/30	1.0"	(10 lb/1000 sf)		
	FOXTAIL MILLET	30	5/16 - 7/31	0.5"	<u> </u>		

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

Purpose

Criteria

Definition

To stabilize disturbed soils with permanent vegetation

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

Conditions Where Practice Applies

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

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 testing agency.
- d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.

2. Turfgrass Mixtures

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

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

Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"

c. Ideal Times of Seeding for Turf Grass Mixtures

seasons, or on adverse sites.

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

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

Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)

pose no difficulty. e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (1/2 to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot

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

Permanent Seeding Summary

	Hardiness Z Seed Mixtur	one (from Figu e (from Table E	re B.3): 6b 3.3): 6]	Lime Rate				
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P ₂ O ₅	K ₂ 0	zame Kan	
eljum jark ***/g/aela***kong	TALL FESCUE	40	5/1 - 5/15 8/1 - 10/15	1/4- 1/2 in	45 pounds	90 lb/ac (2 lb/	90 lb/ac (2 lb/	2 tons/ac	
	PERENNAIL RYEGRASS	ソカ	5/1 - 5/15 8/1 - 10/15	1/4- 1/2 in	per acre (1.0 lb/			(90 lb/	
	WHITE CLOVER	5	5/1 - 5/15 8/1 - 10/15	1/4- 1/2 in	1000 sf)	1000 sf)	1000 sf)	1000 sf)	

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 3/4 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
- 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

3. Sod Maintenance

otherwise specified.

- 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
- 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.

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.

prevent voids which would cause air drying of the roots.

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 ½ of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless

HARRIET TUBMAN LANE SEWER EXTENSION

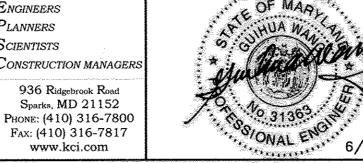
CAPITAL PROJECT No. S-6296 CONTRACT No. 30-4997

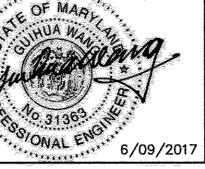
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

CHIEF, UTILITY DESIGN DIVISION 4.C. DATE







DES: KJ ORN: KJ CHK: GW

CONTROL ATE: JUNE, 201 BY NO. REVISION

NOTES DATE 600' SCALE MAP NO. 35 BLOCK NO. 23

EROSION & SEDIMENT

ELECTION DISTRICT NO. 5

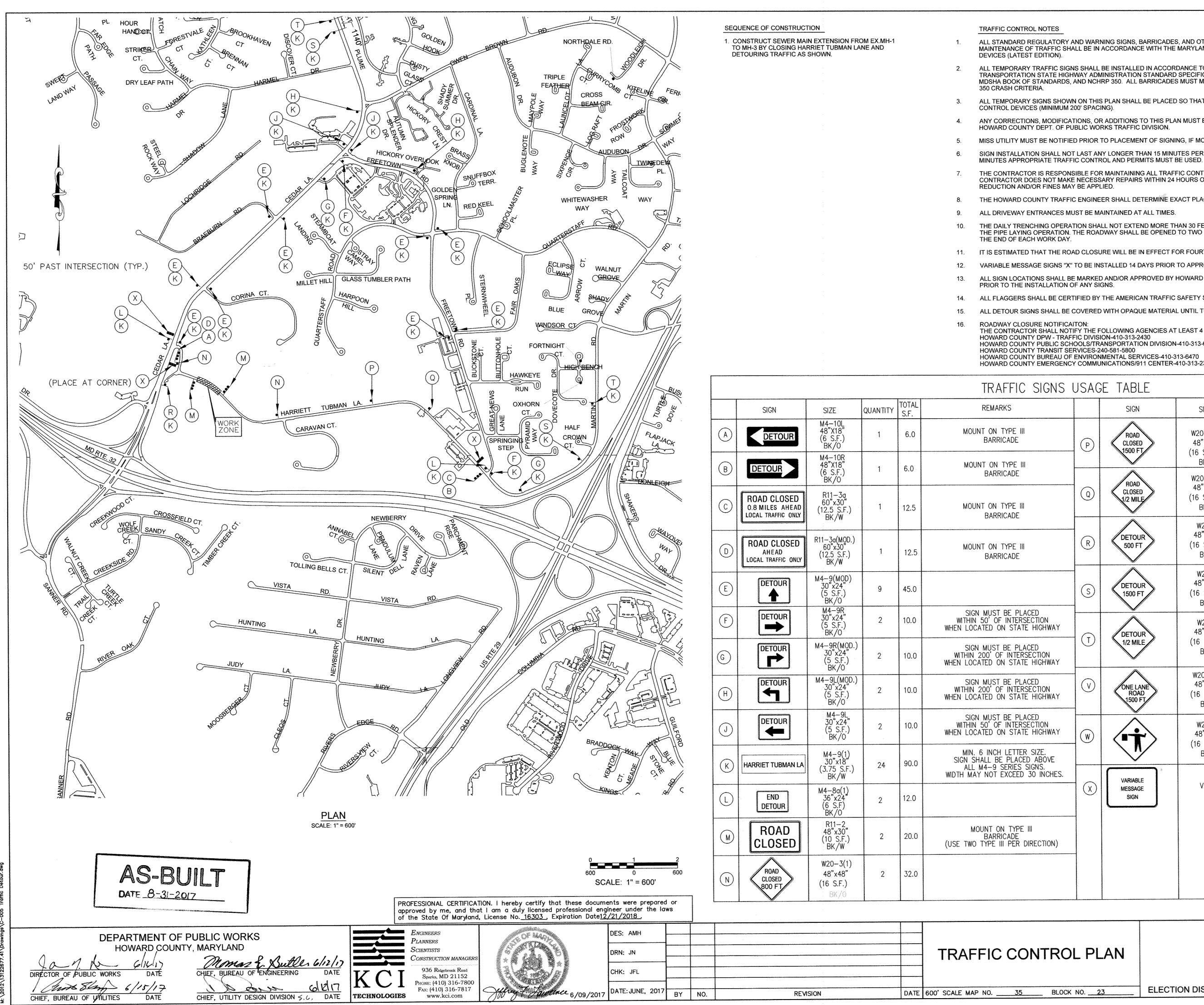
SCALE

AS SHOWN

SHEET

CHIEF. BUREAU OF VILITIES

TECHNOLOGIES



ALL STANDARD REGULATORY AND WARNING SIGNS, BARRICADES, AND OTHER TRAFFIC CONTROL DEVICES USED FOR MAINTENANCE OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL

ALL TEMPORARY TRAFFIC SIGNS SHALL BE INSTALLED IN ACCORDANCE TO MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, MDSHA BOOK OF STANDARDS, AND NCHRP 350. ALL BARRICADES MUST MEET AND HAVE BEEN TESTED UNDER THE NCHRP

ALL TEMPORARY SIGNS SHOWN ON THIS PLAN SHALL BE PLACED SO THAT THEY DO NOT OBSTRUCT EXISTING TRAFFIC CONTROL DEVICES (MINIMUM 200' SPACING).

ANY CORRECTIONS, MODIFICATIONS, OR ADDITIONS TO THIS PLAN MUST BE APPROVED BY THE HOWARD COUNTY DEPT. OF PUBLIC WORKS TRAFFIC DIVISION.

MISS UTILITY MUST BE NOTIFIED PRIOR TO PLACEMENT OF SIGNING, IF MOUNTING ON POSTS.

SIGN INSTALLATION SHALL NOT LAST ANY LONGER THAN 15 MINUTES PER LOCATION. IF LONGER THAN 15

THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL TRAFFIC CONTROL DEVICES. AT ANYTIME THE CONTRACTOR DOES NOT MAKE NECESSARY REPAIRS WITHIN 24 HOURS OF NOTIFICATION, APPROPRIATE WORK TIME

THE HOWARD COUNTY TRAFFIC ENGINEER SHALL DETERMINE EXACT PLACEMENT OF THE TYPE III BARRICADES.

ALL DRIVEWAY ENTRANCES MUST BE MAINTAINED AT ALL TIMES.

THE DAILY TRENCHING OPERATION SHALL NOT EXTEND MORE THAN 30 FEET IN ADVANCE OF THE PIPE LAYING OPERATION. THE ROADWAY SHALL BE OPENED TO TWO FULL LANES AT

11. IT IS ESTIMATED THAT THE ROAD CLOSURE WILL BE IN EFFECT FOR FOURTEEN (14) DAYS.

VARIABLE MESSAGE SIGNS "X" TO BE INSTALLED 14 DAYS PRIOR TO APPROVAL DAY OF CLOSURE.

ALL SIGN LOCATIONS SHALL BE MARKED AND/OR APPROVED BY HOWARD COUNTY TRAFFIC (410-313-2430) PRIOR TO THE INSTALLATION OF ANY SIGNS.

14. ALL FLAGGERS SHALL BE CERTIFIED BY THE AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION.

ALL DETOUR SIGNS SHALL BE COVERED WITH OPAQUE MATERIAL UNTIL THE ROAD IS CLOSED.

ROADWAY CLOSURE NOTIFICAITON: THE CONTRACTOR SHALL NOTIFY THE FOLLOWING AGENCIES AT LEAST 4 WEEKS IN ADVANCE.

HOWARD COUNTY PUBLIC SCHOOLS/TRANSPORTATION DIVISION-410-313-6728 (IF DURING SCHOOL TIMES) HOWARD COUNTY TRANSIT SERVICES-240-581-5800

HOWARD COUNTY BUREAU OF ENVIRONMENTAL SERVICES-410-313-6470 HOWARD COUNTY EMERGENCY COMMUNICATIONS/911 CENTER-410-313-2300

	TRAFFIC SIGNS USAGE TABLE										
	SIGN	SIZE	QUANTITY	TOTAL S.F.	REMARKS		SIGN	SIZE	QUANTITY	TOTAL S.F.	REMARKS
A	DETOUR	M4-10L 48"X18" (6 S.F.) BK/0	1	6.0	MOUNT ON TYPE III BARRICADE	P	ROAD CLOSED 1500 FT	W20-3(1) 48"x48" (16 S.F.)	-	16,0	
B	DETOUR	M4-10R 48"X18" (6 S.F.) BK/0	1	6.0	MOUNT ON TYPE III BARRICADE		ROAD	BK/0 W20-3(1)			
0	ROAD CLOSED 0.8 MILES AHEAD LOCAL TRAFFIC ONLY	R11-3a 60"x30" (12.5 S.F.) BK/W	1	12.5	MOUNT ON TYPE III BARRICADE	Q	CLOSED 1/2 MILE	48"x48" (16 S.F.) BK/0	T	16.0	
(D)	ROAD CLOSED AHEAD LOCAL TRAFFIC ONLY	R11-3a(MOD.) 60"x30" (12.5 S.F.) BK/W	1.	12.5	MOUNT ON TYPE III BARRICADE	R	DETOUR 500 FT	W20-2 48"x48" (16 S.F.) BK/0	1	16.0	
E	DETOUR 1	M4-9(MOD) 30"x24" (5 S.F.) BK/0	9	45.0		S	DETOUR 1500 FT	W20-2 48"x48" (16 S.F.) BK/0	2	32.0	
F	DETOUR	M4-9R 30"x24" (5 S.F.) BK/0	2	10.0	SIGN MUST BE PLACED WITHIN 50' OF INTERSECTION WHEN LOCATED ON STATE HIGHWAY	T	DETOUR	W20-2 48"x48"	2	32.0	
G	DETOUR	M4-9R(MOD.) 30"x24" (5 S.F.) BK/0	2	10.0	SIGN MUST BE PLACED WITHIN 200' OF INTERSECTION WHEN LOCATED ON STATE HIGHWAY		1/2 MILE	(16 S.F.) BK/0			
H	DETOUR	M4-9L(MOD.) 30"x24" (5 S.F.) BK/0	2	10.0	SIGN MUST BE PLACED WITHIN 200' OF INTERSECTION WHEN LOCATED ON STATE HIGHWAY	V	ONE LANE ROAD 1500 FT	W20-3(1) 48"x48" (16 S.F.) BK/0	2	32.0	SIGN NOT SHOWN ON PLAN TO BE USED DURING FLAGGING OPERATION
J	DETOUR	M4-9L 30"x24" (5 S.F.) BK/0	2	10.0	SIGN MUST BE PLACED WITHIN 50' OF INTERSECTION WHEN LOCATED ON STATE HIGHWAY	W		W20-7a 48"x48" (16 S.F.)	2	32.0	SIGN NOT SHOWN ON PLAN TO BE USED DURING FLAGGING
K	HARRIET TUBMAN LA	M4-9(1) 30"x18" (3.75 S.F.) BK/W	24	90.0	MIN. 6 INCH LETTER SIZE. SIGN SHALL BE PLACED ABOVE ALL M4-9 SERIES SIGNS. WIDTH MAY NOT EXCEED 30 INCHES.		VARIABLE *	BK/0			OPERATION ALL 14 DAYS PRIOR TO APPROVAL DAY CLOSURE.
L	END DETOUR	M4-8a(1) 36"x24" (6 S.F) BK/0	2	12.0			MESSAGE SIGN	V.M.S.	3	* SIGN	TO DISPLAY THE FOLLOWING MESSAGES: 10 DAYS BEFORE CLOSURE:
M	ROAD CLOSED	R11-2 48"x30" (10 S.F.) BK/W	2	20.0	MOUNT ON TYPE III BARRICADE (USE TWO TYPE III PER DIRECTION)					And an order of the control of the c	HARRIET TO BE CLOSED XX-XX FOR 3 DAYS STARTING WITH THE CLOSURE:
N	ROAD CLOSED 800 FT	W20-3(1) 48"x48" (16 S.F.) BK/0	2	32.0							I. II. HARRIET CLOSED TUBMAN FOLLOW LANE DETOUR

HARRIET TUBMAN LANE SEWER EXTENSION

CAPITAL PROJECT No. S-6296 CONTRACT No. 30-4997

HOWARD COUNTY, MARYLAND | 5 OF 5 **ELECTION DISTRICT NO. 5**

SHEET

AS SHOWN