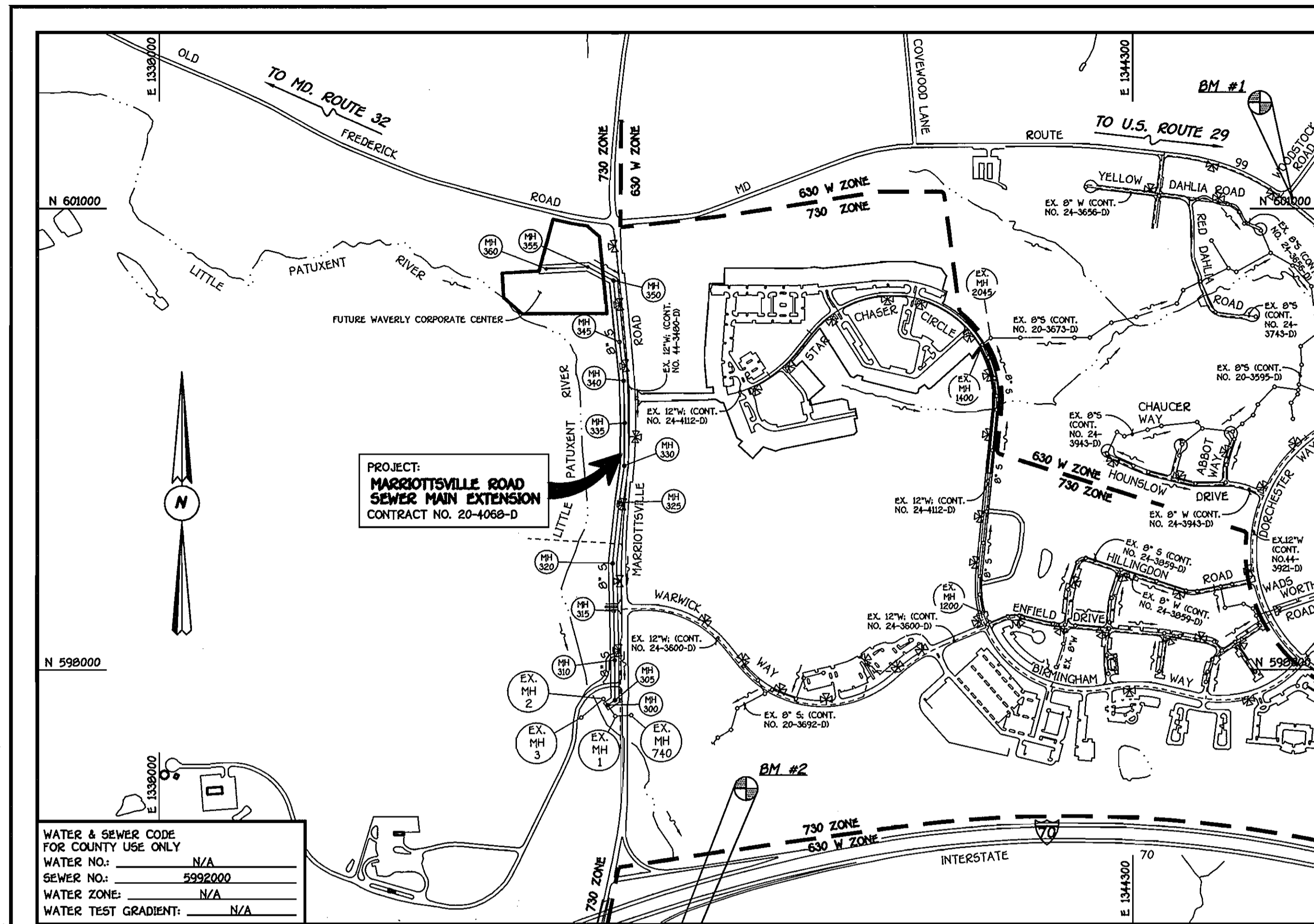


QUANTITIES				
ITEM	ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	SUPPLIER
8" SEWER	2,750 L.F.	2,726	P.V.C.	FERRELLSON
8" D.I.P. SEWER	472 L.F.	470	DIP	GRAFFIN PIPE PROD.
MANHOLES	13 EACH	13	CONCRETE	ATLANTIC PRECAST
20" STEEL SLEEVE	—	200 L.F.	STEEL	CCI PIPELINE
NAME OF UTILITY CONTRACTOR:				
SURVEY & DRAFTING DIVISION AS-BUILT DATE:				



TYPE OF BUILDING	FUTURE COMMERCIAL
NUMBER OF LOTS & PARCELS	1
NO. OF WATER HOUSE CONNECTIONS	0
NO. OF SEWER HOUSE CONNECTIONS	0
DRAINAGE AREA	LITTLE PATUXENT
TREATMENT PLANT	LITTLE PATUXENT WATER RECLAMATION PLANT

VICINITY MAP  
SCALE: 1"=600'

PLAN REFERENCE NUMBERS:	SOPM-126
(WAVERLY CORPORATE CENTER- MASS GRADING PLAN)	POS-51
(WAVERLY CORPORATE CENTER- RECORD PLAT)	

**DEVELOPER'S CERTIFICATION**  
I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT THE DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

Paul W. Keibel FOR: DBRT, LLC 02-03-05  
SIGNATURE OF DEVELOPER DATE

**ENGINEER'S CERTIFICATION**  
I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Paul W. Keibel 02/03/05  
SIGNATURE OF ENGINEER DATE

GP05-10  
LETTER OF AUTHORIZATION NUMBER: 05-NT-0052/200502120

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

Jim Meyer 2/10/05  
U.S. NATURAL RESOURCES CONSERVATION SERVICE DATE

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

John R. Robertson 2/10/05  
APPROVED: HOWARD SOIL CONSERVATION DISTRICT DATE

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE HOWARD COUNTY DESIGN MANUAL & STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL IN DEVELOPING AREAS AND AS SHOWN ON THESE PLANS.

Paul W. Keibel FOR: DBRT, LLC 02/03/05  
SIGNATURE OF DEVELOPER DATE

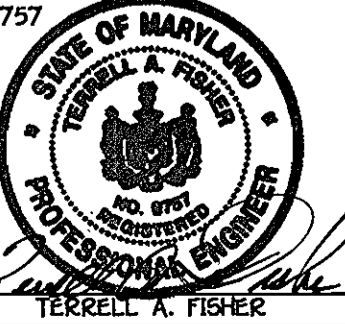
DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND

Robert W. Berman 2-14-05  
CHIEF, BUREAU OF UTILITIES DATE

John Dammann 2/10/05  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PkE  
ELLCOTT CITY, MARYLAND 21042  
4101 461 - 2995



DESIGNED BY:	P.W.K.		
DRAWN BY:	D.Y.B.		
CHECKED BY:	P.W.K.	AS-BUILT DATA ADDED	2/10/05
DATE:	FEBRUARY, 2005	ADD WAVE LETTER OF AUTHORIZATION NUMBER	2/10/05
BY:	NO.	REVISION	DATE

SEWER MAIN TITLE SHEET
600' SCALE MAP NO. 15 BLOCK NO. 4
F.C.C. WORK ORDER NO. 541
FILE NAME: FINAL SEWER MAIN TITLE SHT 1

**MARRIOTTVILLE ROAD SEWER MAIN EXTENSION**  
CONTRACT NO. 20-4068-D  
THIRD ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
SHEET 1 OF 6

**GENERAL NOTES**

- PART I**
- 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 EXPENSE.
  - TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED ON OR ABOUT JULY OF 2001 BY FISHER, COLLINS & CARTER, INC.
  - HORIZONTAL & VERTICAL SURVEY CONTROLS:  
THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83/'91 AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 101A & NO. 106I. ALL VERTICAL CONTROLS ARE BASED ON NAVD '83. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE BASED ON TRAVERSE POINT NO. 200; A P.K. NAIL SET IN THE SOUTHBOUND PAVING OF MARRIOTTVILLE ROAD AT A POINT 440' SOUTH OF THE INTERSECTION WITH MD ROUTE 99 (OLD FREDERICK ROAD).
  - ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
  - CLEAR ALL UTILITIES BY A MINIMUM OF 12 INCHES. CLEAR ALL POLES BY 3'-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 SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF THE 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.
  - 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 SITE.
  - WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL [ ] AT THE LOCATIONS OF THE TEST PITS. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
  - THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:  
ATLANTIC PRECAST . . . . . 1-800-252-1133  
BGE (CONSTRUCTION SERVICES) . . . . . 410-850-4620  
BGE (EMERGENCY) . . . . . 410-685-1400  
BUREAU OF UTILITIES . . . . . 410-313-4900  
COLONIAL PIPELINE CO . . . . . 410-795-1390  
MISS UTILITY . . . . . 1-800-257-7777  
STATE HIGHWAY ADMINISTRATION . . . . . 410-531-5533  
VERIZON . . . . . 1-800-743-0033/410-224-9210
  - 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.
  - CONTRACTOR SHALL REMOVE TREES AND ROOTS ALONG THE LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE CONSTRUCTION OF THE MAIN.
  - THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410)-313-7450 AT LEAST FIVE 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 18.11(a) OF THE HOWARD COUNTY CODE.

- PART II: WATER**
- ALL WATER MAINS SHALL BE D.I.P. CLASS 52 UNLESS OTHERWISE NOTED.
  - TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.
  - VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
  - ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
  - FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS. THE SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND SECTION 1005 OF THE STANDARD SPECIFICATIONS.
  - THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.

- PART III: SEWER**
- ALL SEWER MAINS SHALL BE D.I.P. OR P.V.C. UNLESS OTHERWISE NOTED.
  - ALL MANHOLES SHALL BE 4'-0" INSIDE DIAMETER UNLESS OTHERWISE NOTED.
  - FORCE MAINS SHALL BE D.I.P. ONLY.
  - 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 OF 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.

**BENCHMARK INFORMATION**

B.M.#1 - HOWARD COUNTY CONTROL STATION #101A (NAD '83) (NEAR THE INTERSECTION OF MARYLAND ROUTE 99 & WOODSTOCK ROAD) N 601,060.177 E 1,345,336.756 ELEVATION = 445.577
B.M.#2 - HOWARD COUNTY CONTROL STATION #106I (NAD '83) (NEAR THE INTERSECTION OF U.S. ROUTE 40 & MARRIOTTVILLE ROAD) N 993,250.932 E 1,340,922.711 ELEVATION = 509.924

**OWNER : FUTURE WAVERLY CORPORATE CENTER**  
GTW JOINT VENTURE  
C/O LAND DESIGN AND DEVELOPMENT, INC.  
8000 MAIN STREET  
ELLCOTT CITY, MARYLAND 21043  
DBRT, LLC

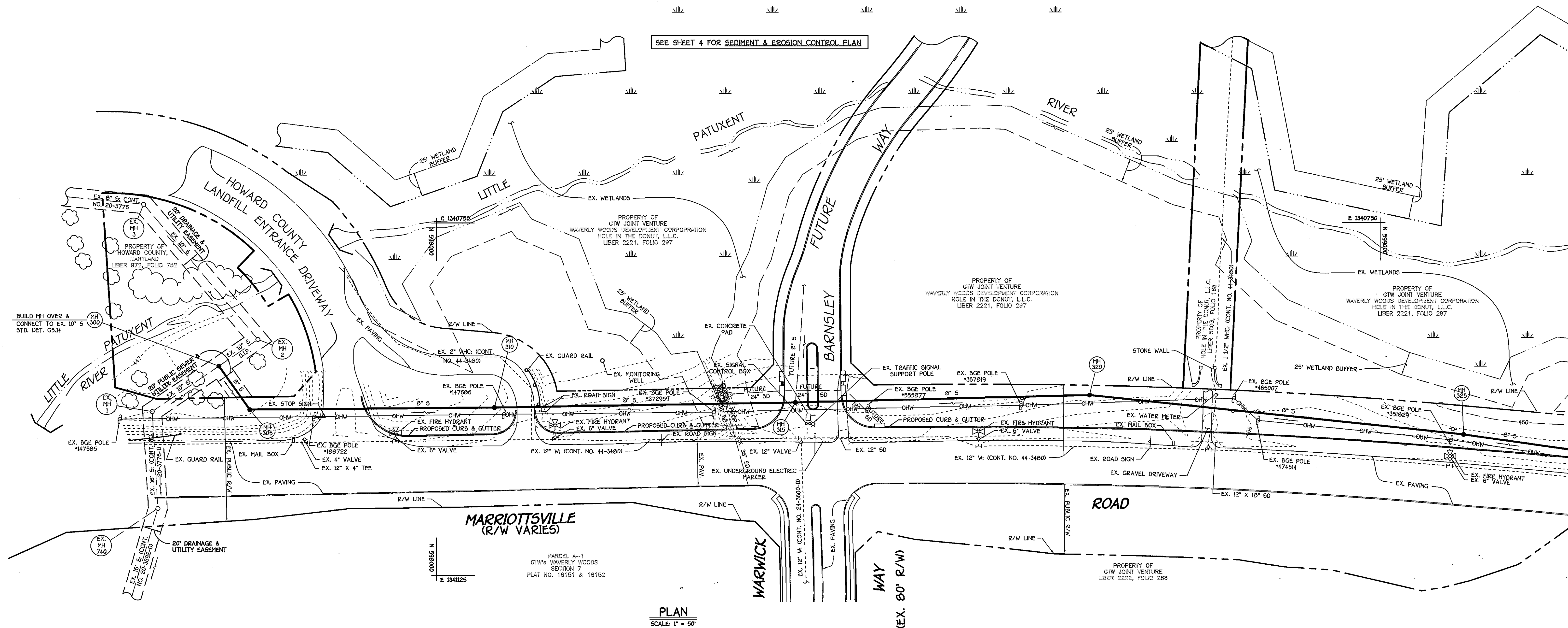
**DEVELOPER : FUTURE WAVERLY CORPORATE CENTER**  
DBRT, LLC  
GTW JOINT VENTURE  
C/O LAND DESIGN AND DEVELOPMENT, INC.  
8000 MAIN STREET  
ELLCOTT CITY, MARYLAND 21043

CONTRACT NO. 20-4068-D  
MARRIOTTVILLE ROAD  
SEWER MAIN EXTENSION  
HOWARD COUNTY, MARYLAND

K:\Drawings\54541 Marriottsville Rd Sewer Ext\Watershed\Final Sewer Main New Plan.dwg, 2/20/05 8:01:09 AM

SEE SHEET 3 FOR BEST MANAGEMENT PRACTICES FOR WORK IN NONTIDAL WETLANDS & WETLAND BUFFERS

SEE SHEET 4 FOR SEDIMENT & EROSION CONTROL PLAN



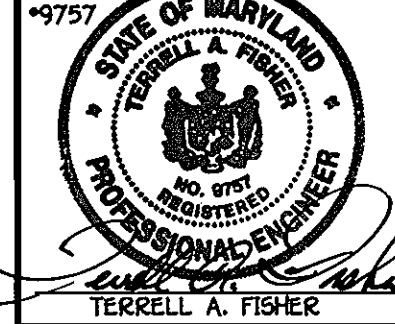
MATCH LINE: SEE SHEET 3 OF 6

CONTRACT NO. 20-4068-D  
MARRIOTTVILLE ROAD  
SEWER MAIN EXTENSION  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND

FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
GALLOTT CITY, MARYLAND 21042  
4100 461 - 2299



DESIGNED BY:	P.W.K.
DRAWN BY:	D.Y.B.
CHECKED BY:	P.W.K.
DATE:	FEBRUARY, 2005
BY NO.	
REVISION	
DATE	

SEWER MAIN PLAN

600' SCALE MAP NO. 15 BLOCK NO. 4  
F.C.C. WORK ORDER NO. 541  
FILE NAME: FINAL SEWER MAIN PLAN SHIT '2'

MARRIOTTVILLE ROAD  
SEWER MAIN EXTENSION  
CONTRACT NO. 20-4068-D  
THIRD ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
SHEET 2 OF 6

*R. D. ...* 2-14-05  
DATE

*Chad ...* 2/13/05  
DATE

K:\Drawings\54541\_MarrIottsville Rd Sewer Ext\WatsSew\Final Sewer Main New Plan.dwg, 2/20/2005 8:47:25 AM

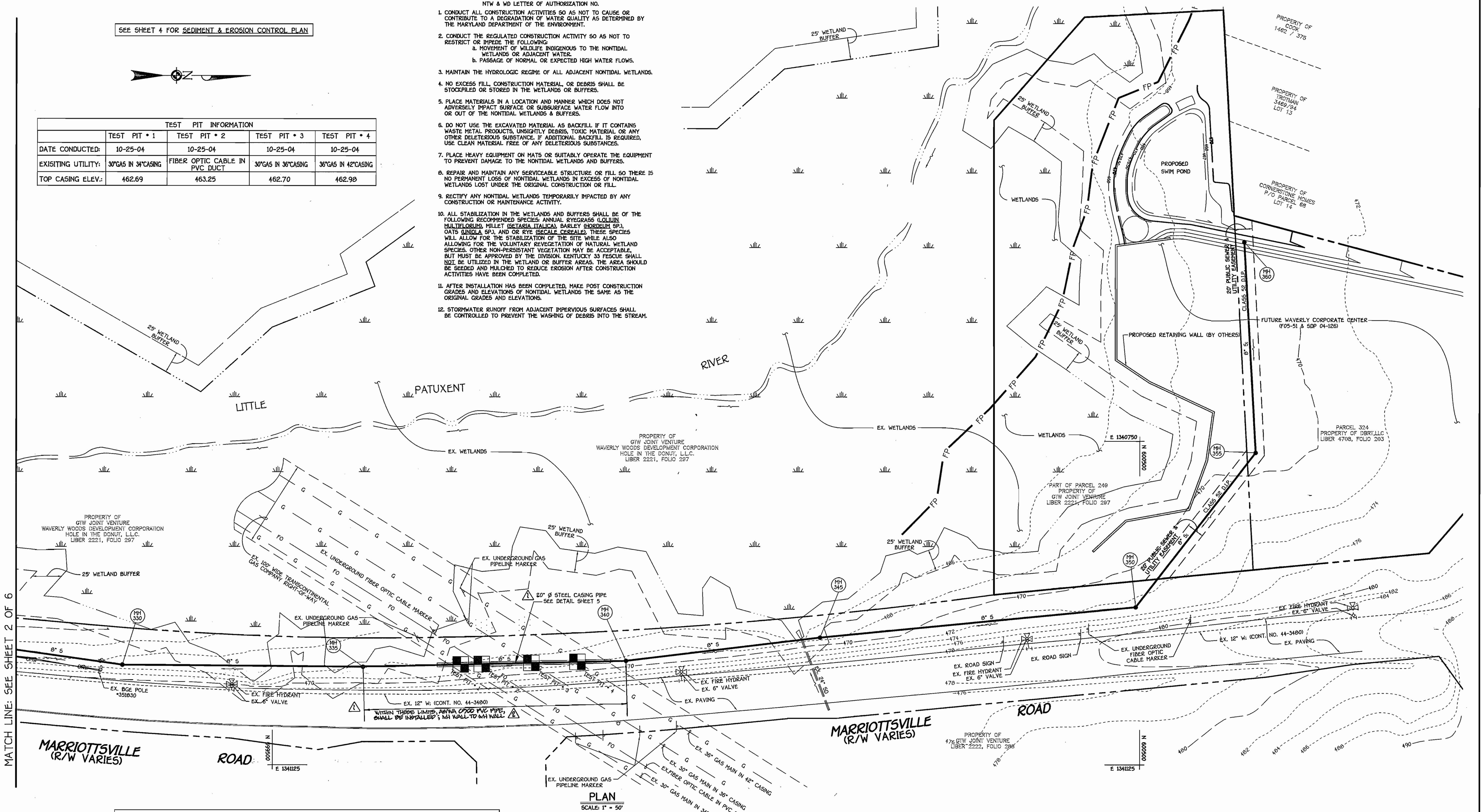
**BEST MANAGEMENT PRACTICES FOR WORK IN NONTIDAL WETLANDS AND WETLAND BUFFERS**

- NTW & WD LETTER OF AUTHORIZATION NO.
- CONDUCT ALL CONSTRUCTION ACTIVITIES SO AS NOT TO CAUSE OR CONTRIBUTE TO A DEGRADATION OF WATER QUALITY AS DETERMINED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
  - CONDUCT THE REGULATED CONSTRUCTION ACTIVITY SO AS NOT TO RESTRICT OR IMPEDE THE FOLLOWING:
    - MOVEMENT OF WILDLIFE INDIGENOUS TO THE NONTIDAL WETLANDS OR ADJACENT WATERS.
    - PASSAGE OF NORMAL OR EXPECTED HIGH WATER FLOWS.
  - MAINTAIN THE HYDROLOGIC REGIME OF ALL ADJACENT NONTIDAL WETLANDS.
  - NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN THE WETLANDS OR BUFFERS.
  - PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF THE NONTIDAL WETLANDS & BUFFERS.
  - DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF ANY DELETERIOUS SUBSTANCES.
  - PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO THE NONTIDAL WETLANDS AND BUFFERS.
  - REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS IN EXCESS OF NONTIDAL WETLANDS LOST UNDER THE ORIGINAL CONSTRUCTION OR FILL.
  - RECTIFY ANY NONTIDAL WETLANDS TEMPORARILY IMPACTED BY ANY CONSTRUCTION OR MAINTENANCE ACTIVITY.
  - ALL STABILIZATION IN THE WETLANDS AND BUFFERS SHALL BE OF THE FOLLOWING RECOMMENDED SPECIES: ANNUAL RYEGRASS (LOLIUM MULTICOLORUM), WHEAT (Triticum aestivum), BARLEY (HORDEUM SP.), OATS (Avena sp.), AND RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE DIVISION. KENTUCKY 33 FESCUE SHALL NOT BE UTILIZED IN THE WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
  - AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST CONSTRUCTION GRADES AND ELEVATIONS OF NONTIDAL WETLANDS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS.
  - STORMWATER RUNOFF FROM ADJACENT IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE STREAM.

SEE SHEET 4 FOR SEDIMENT & EROSION CONTROL PLAN



TEST PIT INFORMATION				
	TEST PIT * 1	TEST PIT * 2	TEST PIT * 3	TEST PIT * 4
DATE CONDUCTED:	10-25-04	10-25-04	10-25-04	10-25-04
EXISTING UTILITY:	30" GAS IN 34" CASING	FIBER OPTIC CABLE IN PVC DUCT	30" GAS IN 36" CASING	36" GAS IN 42" CASING
TOP CASING ELEV.:	462.69	463.25	462.70	462.98



MATCH LINE: SEE SHEET 2 OF 6

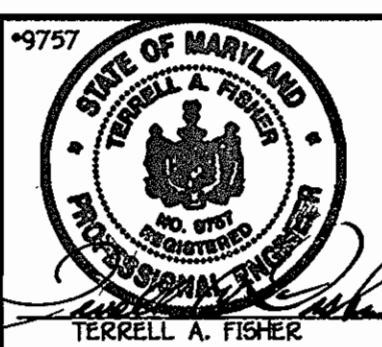
PLAN  
SCALE: 1" = 50'

SEE THIS SHEET FOR BEST MANAGEMENT PRACTICES FOR WORK IN NONTIDAL WETLANDS & WETLAND BUFFERS

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND

FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21042  
(410) 461-1899



DESIGNED BY:	P.W.K.		
DRAWN BY:	D.Y.B.		
CHECKED BY:	P.W.K.		
DATE:	FEBRUARY, 2005		
BY:	NO.	REVISION	DATE
		REV. PIPE MATERIAL; MH NO. 935 TO MH NO. 940	9/27/05
		REV. CASING PIPE SIZE & SLOPE PIPE TYPE BETWEEN MH 935 & MH 940	9/29/05

SEWER MAIN PLAN	
60' SCALE MAP NO.	15 BLOCK NO. 4
F.C.C. WORK ORDER NO.	541
FILE NAME:	FINAL SEWER MAIN PLAN SHT '3'

**MARRIOTTVILLE ROAD  
SEWER MAIN EXTENSION**  
CONTRACT NO. 20-4068-D  
THIRD ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

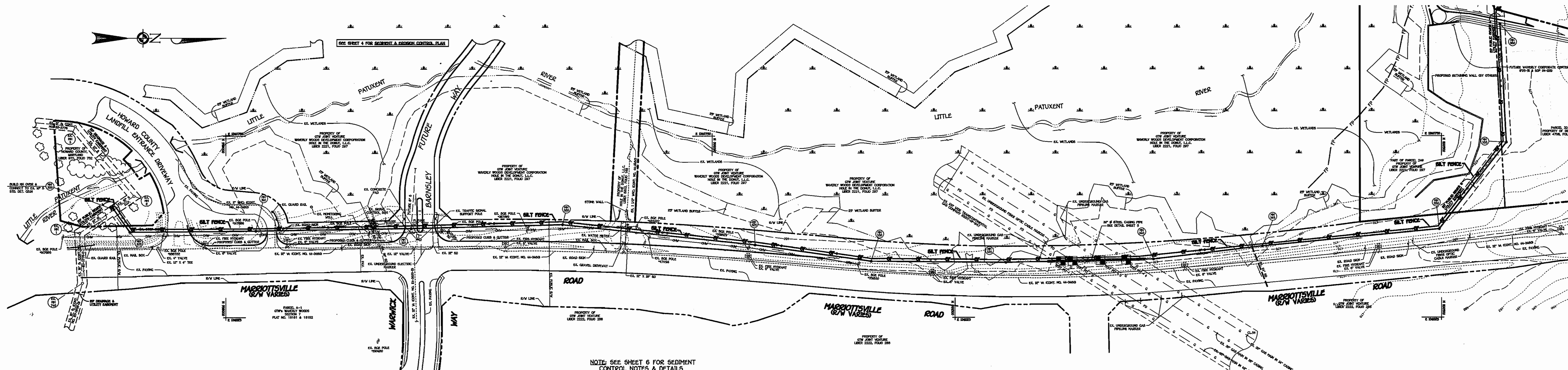
SCALE  
AS  
SHOWN  
  
SHEET  
3 OF 6

*Robert Benjamin*  
CHIEF, BUREAU OF UTILITIES  
2.14.05  
DATE

*William D. ...*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
2/18/05  
DATE

TERRELL A. FISHER

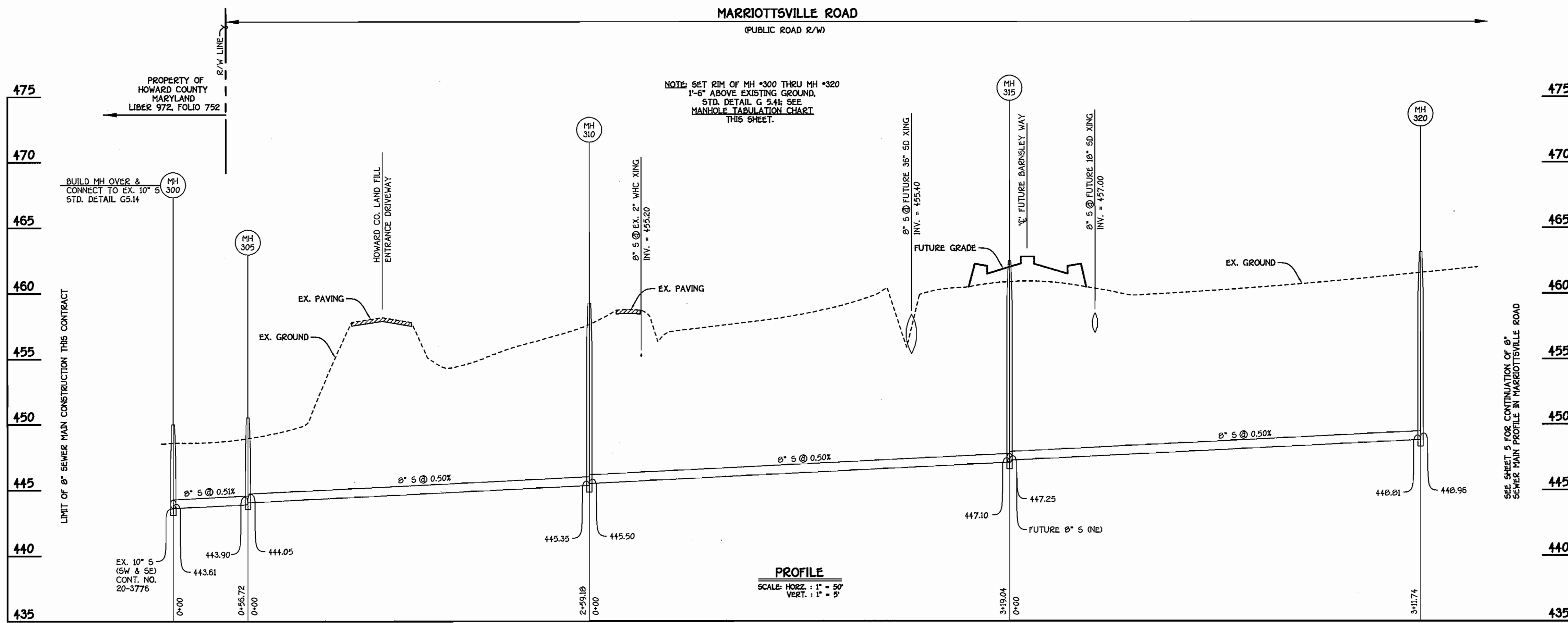
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NOTE: SEE SHEET 6 FOR SEDIMENT CONTROL NOTES & DETAILS

### SEDIMENT & EROSION CONTROL PLAN

NO SCALE



NOTE: SET RIM OF MH #300 THRU MH #320 1'-6" ABOVE EXISTING GROUND. STD. DETAIL G 5.4h. SEE MANHOLE TABULATION CHART THIS SHEET.

PROFILE  
SCALE: HORIZ. : 1" = 50'  
VERT. : 1" = 5'

### 8" SEWER MAIN: MARRIOTTSVILLE ROAD

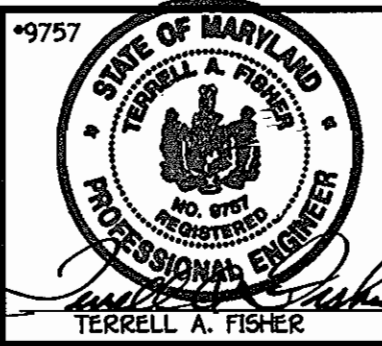
MANHOLE TABULATION CHART			
NO.	NORTHING	EASTING	RIM ELEVATION
300	597769.61	1340902.04	450.00**
305	597802.27	1340948.41	450.53**
310	598061.44	1340946.35	459.41**
315	598380.44	1340941.09	462.49**
320	598692.08	1340933.28	463.17**
325	599008.31	1340975.29	464.23**
330	599327.14	1341008.99	466.34**
335	599604.48	1341011.37	467.27**
340	599907.78	1341004.57	469.38**
345	60031.56	1340977.73	468.50**
350	600495.34	1340942.38	475.50*
355	600633.43	1340763.36	485.30*
360	600620.28	1340519.06	472.00*

\* SET MH RIM FLUSH W/ PROPOSED FINISHED GRADE  
\*\* SET MH RIM 1'-6" ABOVE EXISTING GROUND. STD. DET. G5.4I

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND

FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21042  
(410) 461-2000



DESIGNED BY:	P.W.K.
DRAWN BY:	D.Y.B.
CHECKED BY:	P.W.K.
DATE:	FEBRUARY, 2005
BY NO.	
REVISION	
DATE	

SEWER MAIN PROFILE	
SEDIMENT & EROSION CONTROL PLAN	
60' SCALE MAP NO. 16	BLOCK NO. 4
F.C.C. WORK ORDER NO. 541	
FILE NAME: FINAL SEWER MAIN PROFILE SHIT 4	

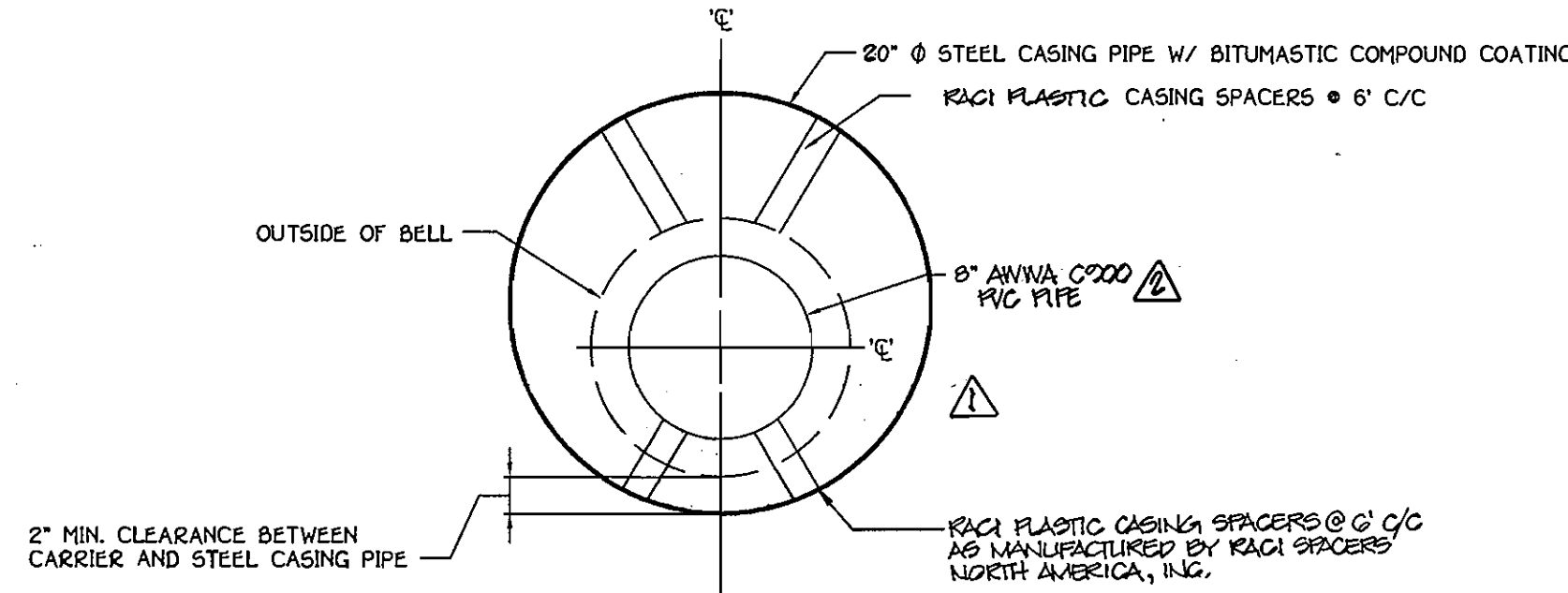
MARRIOTTSVILLE ROAD  
SEWER MAIN EXTENSION  
CONTRACT NO. 20-4068-D  
THIRD ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN  
SHEET 4 OF 6

Robert M. Buys 2-14-05  
CHIEF, BUREAU OF UTILITIES

Mr. Damann 2/18/05  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

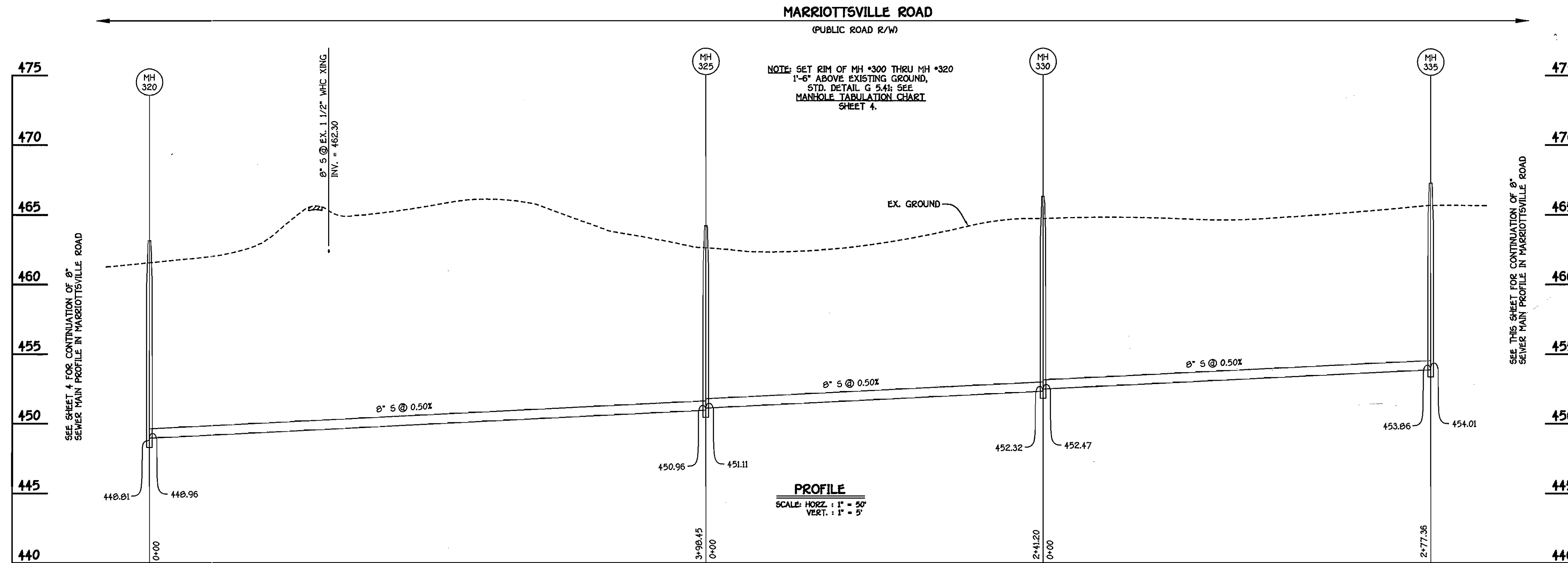
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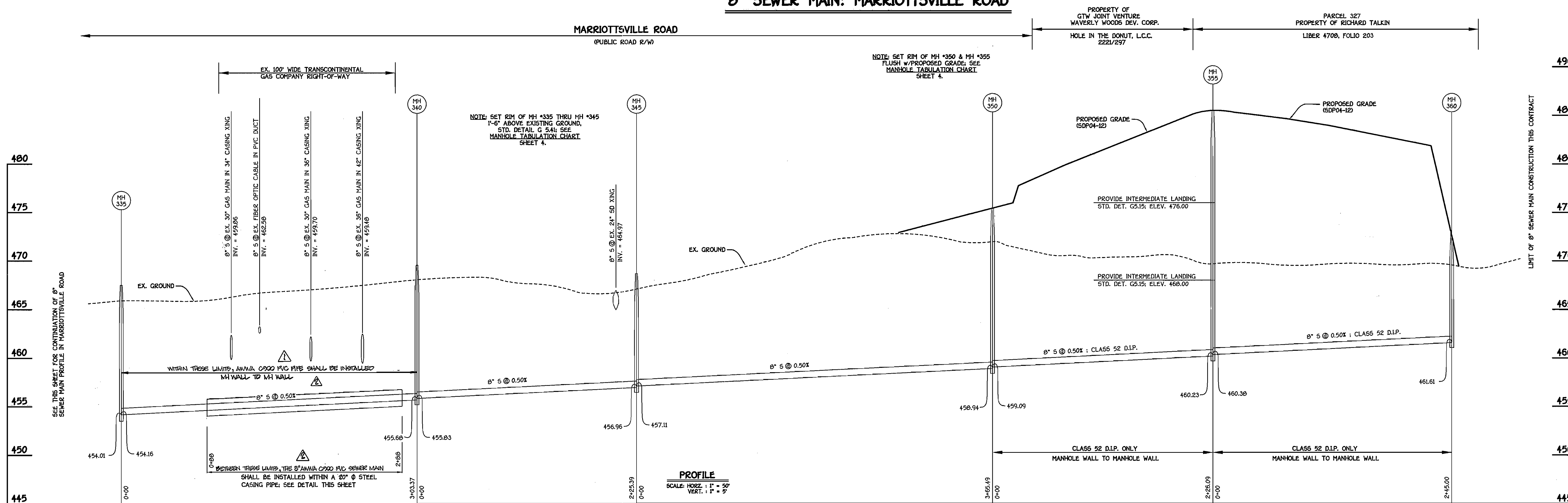
NOT TO SCALE

- NOTES:
1. PROVIDE A RUBBER BOOT AT EACH END OF CASING. PROVIDE A JOINT IN THE MAIN WITHIN 2'-0" OF THE END OF THE CASING.
  2. 20" STEEL CASING PIPE, 0.500" WALL THICKNESS, A.W.W.A. C-203 OR C-210, IN 10' LENGTHS. JOINTS TO BE WELDED FULL CIRCUMFERENCE.

**DETAIL: STEEL CASING PIPE**



**8" SEWER MAIN: MARRIOTTSVILLE ROAD**

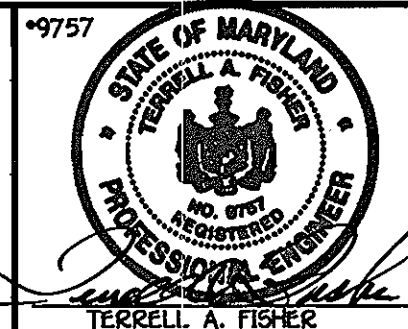


**8" SEWER MAIN: MARRIOTTSVILLE ROAD**

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND

FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL FREE  
ELLCOTT CITY, MARYLAND 21042  
(410) 461-2925



DESIGNED BY:	P.W.K.
DRAWN BY:	D.Y.B.
CHECKED BY:	P.W.K.
DATE:	FEBRUARY, 2005
BY:	NO.

SEWER MAIN PROFILES	
600' SCALE MAP NO.	16 BLOCK NO. 4
F.C.C. WORK ORDER NO.	541
FILE NAME:	FINAL SEWER MAIN PROFILE SHT 5

**MARRIOTTSVILLE ROAD  
SEWER MAIN EXTENSION**  
CONTRACT NO. 20-4068-D  
THIRD ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

SCALE  
AS  
SHOWN  
  
SHEET  
5 OF 6

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*Robert B. ...*  
2-14-05  
DATE

*Robert ...*  
2/18/05  
DATE

REVISION  
REV. PIPE MATERIAL S. MH NO. 335 TO MH NO. 340 2/27/05  
REV. CASING PIPE SIZE & CHECKY PIPE TYPE BETWEEN MH 335 & MH 340 2/15/05

CONTRACT NO. 20-4068-D  
MARRIOTTSVILLE ROAD  
SEWER MAIN EXTENSION  
HOWARD COUNTY, MARYLAND

# SECTION 20 : STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

## DEFINITION

USING VEGETATION AS COVER FOR BARE SOIL TO PROTECT IT FROM FORCES THAT CAUSE EROSION.

## PURPOSE

VEGETATIVE STABILIZATION SPECIFICATIONS ARE USED TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL. WHEN SOIL IS STABILIZED WITH VEGETATION TO ALLOW INFILTRATION OF RAINFALL, THEREBY REDUCING SEDIMENT LOADS AND RUN-OFF TO DOWNSTREAM AREAS, AND IMPROVING WILDLIFE HABITAT AND VISUAL RESOURCES.

## CONDITIONS WHERE PRACTICE APPLIES

THIS PRACTICE SHALL BE USED ON DENuded AREAS AS SPECIFIED ON THE PLANS AND MAY BE USED ON HIGHLY ERODIBLE OR CRITICALLY ERODING AREAS. THIS SPECIFICATION IS DIVIDED INTO TEMPORARY SEEDING, TO QUICKLY ESTABLISH VEGETATIVE COVER FOR SHORT DURATION UP TO TWO YEARS, AND PERMANENT SEEDING FOR LONG TERM VEGETATIVE COVER. EXAMPLES OF APPLICABLE AREAS FOR TEMPORARY SEEDING ARE: TEMPORARY SOIL STOCKPILES, CLEARED AREAS BEING LEFT IDEL BETWEEN CONSTRUCTION PHASES, EARTH DIKES, ETC. AND FOR PERMANENT SEEDING ARE LAWNS, DAMS, CUT AND FILL SLOPES AND OTHER AREAS AT FINAL GRADE, FORMER STOCKPILE AND STAGING AREAS, ETC.

## EFFECTS ON WATER QUALITY AND QUANTITY

PLANTING VEGETATION IN DISTURBED AREAS WILL HAVE AN EFFECT ON THE WATER BUDGET, ESPECIALLY ON VOLUMES AND RATES OF RUNOFF, INFILTRATION, EVAPORATION, TRANSPIRATION, PERCOLATION, AND GROUNDWATER RECHARGE. VEGETATION, OVER TIME, WILL INCREASE ORGANIC MATTER CONTENT AND IMPROVE THE WATER HOLDING CAPACITY OF THE SOIL AND SUBSEQUENT PLANT GROWTH.

VEGETATION WILL HELP REDUCE THE MOVEMENT OF SEDIMENT, NUTRIENTS, AND OTHER CHEMICALS CARRIED BY RUNOFF TO RECEIVING WATERS. PLANTS WILL ALSO HELP PROTECT GROUNDWATER SUPPLIES BY ASSIMILATING THOSE SUBSTANCES PRESENT WITH THE ROOT ZONE. SEDIMENT CONTROL DEVICES MUST REMAIN IN PLACE DURING GRADING, SEEDBED PREPARATION, SEEDING, MULCHING AND VEGETATIVE ESTABLISHMENT TO PREVENT LARGE QUANTITIES OF SEDIMENT AND ASSOCIATED CHEMICALS AND NUTRIENTS FROM WASHING INTO SURFACE WATERS.

## SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS

- A. SITE PREPARATION
  - i. INSTALL EROSION AND SEDIMENT CONTROL STRUCTURES (EITHER TEMPORARY OR PERMANENT SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, WATERWAYS, OR SEDIMENT CONTROL BASINS).
  - ii. PERFORM ALL GRADING OPERATIONS AT RIGHT ANGLES TO THE SLOPE. FINAL GRADING AND SHAPING IS NOT USUALLY NECESSARY FOR TEMPORARY SEEDING.
  - iii. SCHEDULE REQUIRED SOIL TESTS TO DETERMINE SOIL AMENDMENT COMPOSITION AND APPLICATION RATES FOR SITES HAVING DISTURBED AREA OVER 5 ACRES.
- B. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
  - i. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OVER 5 ACRES. SOIL ANALYSIS MAY BE PERFORMED BY THE UNIVERSITY OF MARYLAND OR A RECOGNIZED COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
  - ii. FERTILIZERS SHALL BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROVED EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS SHALL ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE STATE FERTILIZER LAWS AND SHALL BEAR THE NAME, TRADEMARK AND WARRANTY OF THE PRODUCER.
  - iii. LIME MATERIALS SHALL BE GROUND LIMESTONE HYDRATED OR BURNT LIME MAY BE SUBSTITUTED WHICH CONTAINS AT LEAST 50% TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT AT LEAST 50% WILL PASS THROUGH A #60 MESH SIEVE AND 98-99% WILL PASS THROUGH A #20 MESH SIEVE.
  - iv. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
- C. SEEDBED PREPARATION
  - i. TEMPORARY SEEDING
    - a. SEEDBED PREPARATION SHALL CONSIST OF LOOSENING SOIL TO A DEPTH OF 3" TO 5" 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 LOOSEND IT SHOULD NOT BE ROLLED OR DRAGGED SMOOTH, BUT LEFT IN THE ROUGHENED CONDITION. SLOPED AREAS (GREATER THAN 3%) SHOULD BE TRACKED LEAVING THE SURFACE IN AN IRREGULAR PATTERN 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 3-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
  - ii. PERMANENT SEEDING
    - a. MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT:
      1. SOIL PH SHALL BE BETWEEN 6.0 AND 7.0.
      2. SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (PPM).
      3. THE SOIL SHALL CONTAIN LESS THAN 1% CLAY, BUT ENOUGH FINE GRAINED MATERIAL (SOIL SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IS IF LOWGROSS OR SERICIA LESPEDEZAS IS TO BE PLANTED, THEN A SANDY SOIL (SOIL SILT PLUS CLAY) WOULD BE ACCEPTABLE.
      4. SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER BY WEIGHT.
      5. SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
      6. IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL IS REQUIRED.
    - b. AREAS PREVIOUSLY GRADED IN CONFORMANCE WITH THE SPECIFICATIONS SHALL BE MAINTAINED IN A TRUE AND EVEN GRADE, THEN SCRAPPED OR OTHERWISE LOOSEND TO A DEPTH OF 3-5" TO PERMIT BONDING OF THE TOPSOIL TO THE SURFACE AREA AND TO CREATE HORIZONTAL EROSION CHECK SLOTS TO PREVENT TOPSOIL FROM SLIDING DOWN A SLOPE.
    - c. APPLY SOIL AMENDMENTS AS PER SOIL TESTS OR AS INCLUDED ON THE PLANS.
    - d. MIX SOIL AMENDMENTS INTO THE TOP 3-5" OF TOPSOIL BY DISKING OR OTHER SUITABLE MEANS. LAWN AREAS SHOULD BE RAKED TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED AND APPLICATION, WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDING.

- NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
- MULCHING SEEDED AREAS - MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
- IF GRADING IS COMPLETED OUTSIDE OF THE SEEDING SEASON, MULCH ALONE SHALL BE APPLIED AS PRESCRIBED IN THIS SECTION UNTIL THE SEEDING SEASON RETURNS AND SEEDING CAN BE PERFORMED IN ACCORDANCE WITH THESE SPECIFICATIONS.
- WHEN STRAW MULCH IS USED, IT SHALL BE SPREAD OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS/ACRE. MULCH SHALL BE APPLIED TO A UNIFORM LOOSE DEPTH OF BETWEEN 1" AND 2". MULCH APPLIED SHALL ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHOULD BE INCREASED TO 2.5 TONS/ACRE.
- WOOD CELLULOSE FIBER USED AS A MULCH SHALL BE APPLIED AT A NET DRY WEIGHT OF 1,500 LBS. PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER, AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LBS. OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
- SECURING STRAW MULCH ANCHORING: MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE, DEPENDING UPON SIZE OF AREA AND EROSION HAZARD):
  - i. A MULCH ANCHORING TOOL IS AS TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF TWO (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 BE USED ON THE CONTOUR IF POSSIBLE.
  - ii. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 POUNDS/ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
  - iii. APPLICATION OF LIQUID BINDERS SHOULD BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND CRESTS OF BANKS. THE REMAINDER OF AREA SHOULD BE APPEAR UNIFORM AFTER BINDER APPLICATION. SYNTHETIC BINDERS-SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70 PETROGET, TERRA TACK II, TERRA TACK AR OR OTHER APPROVED EQUAL, MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH.
  - iv. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4' TO 15' FEET WIDE AND 300 TO 3,000 FEET LONG.
- INCREMENTAL STABILIZATION - CUT SLOPES
  - i. ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN INCREMENTS NOT TO EXCEED 15'.
    - a. EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO CONVEY RUNOFF FROM THE EXCAVATION.
    - b. PERFORM PHASE 1 EXCAVATION, DRESS, AND STABILIZE.
    - c. PERFORM PHASE 2 EXCAVATION, DRESS, AND STABILIZE OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.
    - d. PERFORM FINAL PHASE EXCAVATION, DRESS, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS NECESSARY.
  - NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD PROCEED THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL IF REQUIRED AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OF COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.
- INCREMENTAL STABILIZATION OF EMBANKMENTS - FILL SLOPES
  - i. EMBANKMENTS SHALL BE CONSTRUCTED IN LIFTS AS PRESCRIBED ON THE PLANS.
  - ii. SLOPES SHALL BE STABILIZED IMMEDIATELY WHEN THE VERTICAL HEIGHT OF THE MULTIPLE LIFTS REACHES 15', OR WHEN THE GRADING OPERATION CEASES AS PRESCRIBED IN THE PLANS.
  - iii. AT THE END OF EACH DAY, TEMPORARY BERMS AND PIPE SLOPE DRAINS SHOULD BE CONSTRUCTED ALONG THE TOP EDGE OF THE EMBANKMENT TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-GROOVE MANNER TO A SEDIMENT TRAPPING DEVICE.
  - iv. CONSTRUCTION SEQUENCE REFER TO FIGURE 4 (BELOW):
    - a. EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO DIVERT RUNOFF AROUND THE FILL. CONSTRUCT SLOPE SILT FENCE ON LOW SIDE OF FILL AS SHOWN IN FIGURE 5.
    - UNLESS OTHER METHODS SHOWN ON THE PLANS ADDRESS THIS AREA.
    - b. PLACE PHASE 1 EMBANKMENT, DRESS, AND STABILIZE.
    - c. PLACE PHASE 2 EMBANKMENT, DRESS, AND STABILIZE.
    - d. PLACE FINAL PHASE EMBANKMENT, DRESS, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.
  - NOTE: ONCE THE PLACEMENT OF FILL HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF AND PLACEMENT OF TOPSOIL IF REQUIRED AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OF COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

## SECTION 2 - TEMPORARY SEEDING

- VEGETATION - ANNUAL GRASS OR GRAIN USED TO PROVIDE COVER ON THE DISTURBED AREAS FOR UP TO 12 MONTHS. FOR LONGER DURATION OF VEGETATIVE COVER, PERMANENT SEEDING IS REQUIRED.
- A. SEED MIXTURES - TEMPORARY SEEDING
    - i. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 26 FOR THE APPROPRIATE PLANT HARDNESS ZONE FROM FIGURE 5) 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 PLANS AND COMPLETED, THEN TABLE 26 MUST BE PUT ON THE PLANS.
    - ii. FOR SITES HAVING 50 ACRES OR MORE, THE RATES SHOWN ON THE TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE TESTING AGENCY SHALL BE WRITTEN IN. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.

SEED MIXTURE (HARDNESS ZONE ... 6b...) FROM TABLE 26					FERTILIZER RATE (0-10-10)	LIME RATE
NO.	SPECIES	APPLICATION RATE (lb/acre)	SEEDING DATES	SEEDING DEPTHS		
1	BARLEY	122	3/1 - 5/15	1" - 2"	600 lb/acre	2 tons/acre
	OATS	96	8/15 - 10/15	1" - 2"	(15 lb/1000sf)	(100 lb/1000sf)
	RYE	140		1" - 2"		

## SECTION 3 - PERMANENT SEEDING

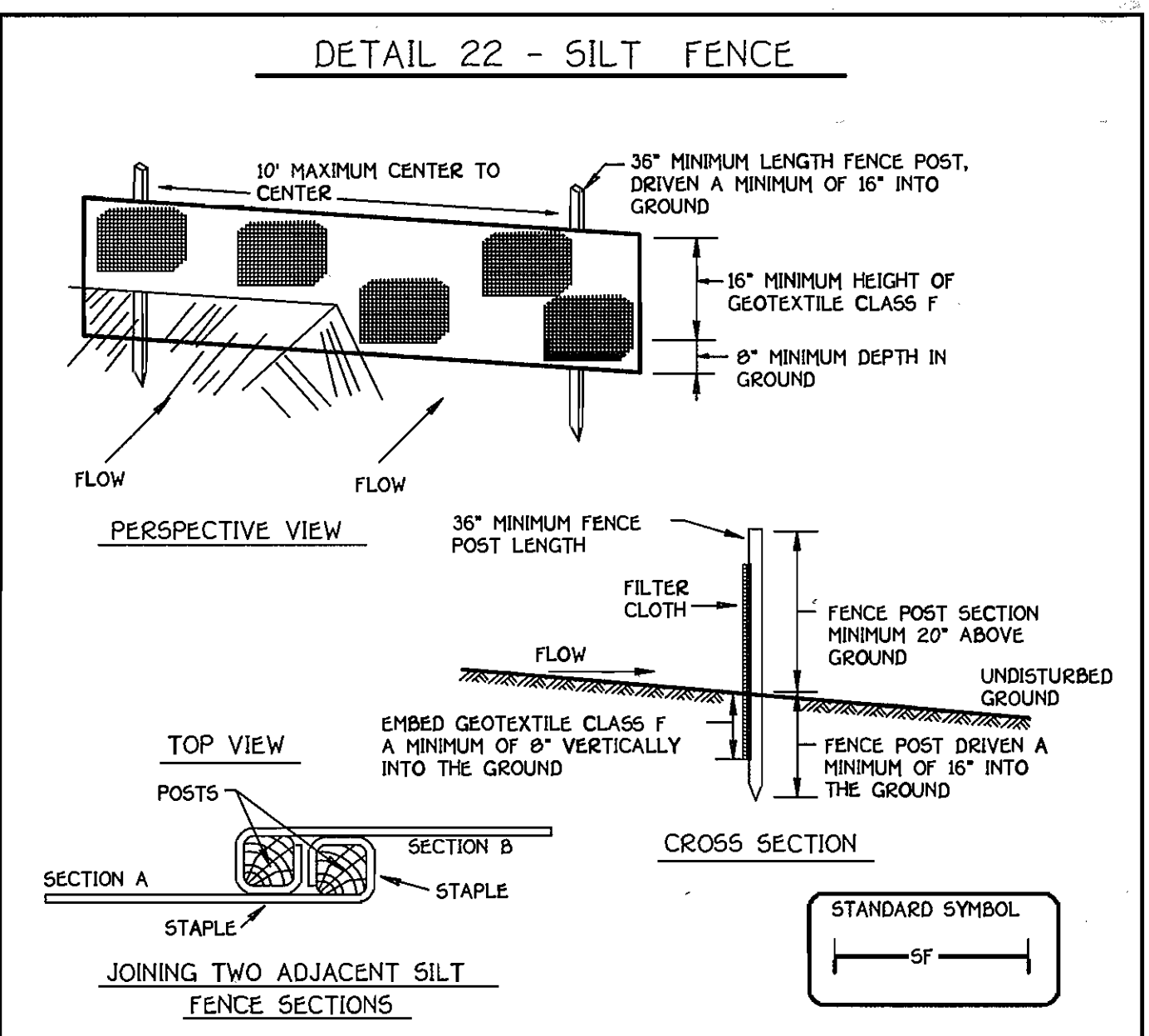
- SEEDING GRASS AND LEGUMES TO ESTABLISH GROUND COVER FOR A MINIMUM OF ONE YEAR ON DISTURBED AREAS GENERALLY RECEIVING LOW MAINTENANCE.
- A. SEED MIXTURES - PERMANENT SEEDING
    - i. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 25 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE 5) AND ENTER THEM IN THE PERMANENT SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES AND SEEDING DEPTHS CAN BE ESTIMATED USING TABLE 26. IF THIS SUMMARY IS NOT PUT ON THE CONSTRUCTION PLANS AND COMPLETED, THEN TABLE 25 MUST BE PUT ON THE PLANS. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SUCH AS SHOEBLINDS, STREAMBANKS, OR RUNNS OR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING FOR SPECIAL LAWN MAINTENANCE AREAS, SEE SECTIONS 5 500 V TURFGRASS.
    - ii. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, THE RATES SHOWN ON THIS TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY SHALL BE WRITTEN IN.
    - iii. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREAFORM FERTILIZER (46-0-0) AT 3 1/2 LBS/1000 SQ. FT. (LBS./AC.) IN ADDITION TO THE ABOVE SOIL AMENDMENTS SHOWN IN THE TABLE BELOW, TO BE PERFORMED AT THE TIME OF SEEDING.

SEED MIXTURE (HARDNESS ZONE ... 6b...) FROM TABLE 25					FERTILIZER RATE (0-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (lb/acre)	SEEDING DATES	SEEDING DEPTHS	N	P205	K2O	
3	TALL FESCUE (25%)	125	3/1 - 5/15	1" - 2"	90 lb/acre	175 lb/acre	175 lb/acre	2 tons/acre
	PERENNIAL RYE GRASS (10%)	15	8/15 - 10/15	1" - 2"	(2.0 lb/1000sf)	(4 lb/1000sf)	(4 lb/1000sf)	(100 lb/1000sf)
	KENTUCKY BLUEGRASS (5%)	10		1" - 2"				
10	TALL FESCUE (80%)	120	3/1 - 5/15	1" - 2"				
	HARD FESCUE (12%)	30	8/15 - 10/15	1" - 2"				

## SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (303-4055).
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 SEI-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1 BY 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 50, SOD (SEC. 50), TEMPORARY SEEDING (SEC. 50), AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. 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.
7. SITE ANALYSIS:
 

TOTAL AREA OF SITE	N/A ACRES
AREA DISTURBED	1.35 ACRES
AREA TO BE ROOFED OR PAVED	0 ACRES
AREA TO BE VEGETATIVELY STABILIZED	1.32 ACRES
TOTAL CUT	N/A UTILITY INSTALLATION ONLY
TOTAL FILL	N/A UTILITY BORROW AREA LOCATION
8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER SEDIMENT CONTROL STRUCTURES, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING, OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS OBTAINED.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THE THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.



## SECTION 21 : STANDARD AND SPECIFICATIONS FOR TOPSOIL

1. DEFINITION: PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF VEGETATION.
2. PURPOSE: TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.
3. SPECIFICATIONS:
  - a. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY SILT, OR OTHER SOIL TYPE AS SPECIFIED ON THE PLANS.
  - b. TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING SUBSOILS.
  - c. TOPSOIL SHALL CONTAIN LESS THAN 2% BY VOLUME OF CONCRETE, GRAVEL, STICKS, OTHER FOREIGN MATERIALS, OR OTHER DEBRIS GREATER THAN 1/2" IN DIAMETER.
  - d. APPLICATION: TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4" - 6" LAYER AND LIGHTLY COMPACTED. TOPSOIL SHALL BE APPLIED TO A MINIMUM OF 100 LBS. PER 1000 SQ. FT. OF AREA TO BE STABILIZED. TOPSOIL SHALL BE APPLIED TO A MINIMUM OF 100 LBS. PER 1000 SQ. FT. OF AREA TO BE STABILIZED. TOPSOIL SHALL BE APPLIED TO A MINIMUM OF 100 LBS. PER 1000 SQ. FT. OF AREA TO BE STABILIZED.

## BEST MANAGEMENT PRACTICES FOR WORKING IN NON-TIDAL WETLANDS, THE NON-TIDAL WETLAND BUFFER, WATERS OF THE STATE, AND 100-YEAR FLOODPLAIN

- NTW & WD LETTER OF AUTHORIZATION NO. 05-NT-0052/20056240
1. No excess fill, construction material, or debris shall be stockpiled or stored in nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
  2. Place materials in a location and manner that does not adversely impact surface or subsurface water flow into or out of nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
  3. Do not use the excavated material as backfill if it contains waste metal products, unlighty debris, toxic material, or any other deleterious substance. If additional backfill is required, use clean material free of waste metal products, unlighty debris, toxic material, or any other deleterious substance.
  4. Place heavy equipment on mats or suitably operate the equipment to prevent damage to nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
  5. Repair and maintain any serviceable structure or fill so there is no permanent loss of nontidal wetlands, nontidal wetland buffers, or waterways, or permanent modification of the 100-year floodplain in excess of that lost under the originally authorized structure or fill.
  6. Rectify any nontidal wetlands, wetland buffers, waterways, or 100-year floodplain temporarily impacted by any construction.
  7. All stabilization in the nontidal wetland and nontidal wetland buffer shall consist of the following species: Annual Ryegrass (*Lolium multiflorum*), Millet (*Setaria italica*), Barley (*Hordeum sp.*), Oats (*Avena sp.*), and/or Rye (*Crocodyl caryol.*). These species will allow for the stabilization of the site while also allowing for the voluntary revegetation of natural wetland species. Other non-persistent vegetation may be acceptable, but must be approved by the Nontidal Wetlands and Waterways Division, KENTUCKY 31 RESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. The area should be seeded and mulched to reduce erosion after construction activities have been completed.
  8. After installation has been completed, make post-construction grades and elevations the same as the original grades and elevations in temporarily impacted areas.
  9. To protect aquatic species, in-stream work is prohibited as determined by the classification of the stream:
    - i. USE 1 WATERB: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
    - ii. Stormwater runoff from impervious surfaces shall be controlled to prevent the washing of debris into the waterway.
    - iii. Culverts shall be constructed and any riprap placed so as not to obstruct the movement of aquatic species, unless the purpose of the activity is to impound water.

## SEQUENCE OF CONSTRUCTION

1. OBTAIN THE REQUIRED GRADING PERMIT.
2. NOTIFY MISS UTILITY 48 HOURS BEFORE ANY WORK (8-000-257-7777). NOTIFY HOWARD COUNTY CONSTRUCTION/INSPECTION DIVISION 24 HOURS BEFORE STARTING ANY WORK (800-593-9970).
3. INSTALL THE REQUIRED SEDIMENT AND EROSION CONTROL DEVICES AS INDICATED ON SHEET 4.
4. THE START OF CONSTRUCTION ON THE WETLAND CROSSINGS SHALL BE LIMITED TO A 5-DAY CLEAR WEATHER FORECAST FROM THE NWS.
5. CLEAR AND GRUB AS NECESSARY, ONLY AS REQUIRED FOR EXCAVATION AND INSTALLATION OF THE SEWER MAIN, AND ONLY WITHIN THE DESIGNATED SEWER AND UTILITY EASEMENTS.
6. NOTE: THE LENGTH OF OPEN SEWER MAIN TRENCH SHALL BE LIMITED TO THREE (3) PIPE LENGTHS OR THAT WHICH WILL BE BACKFILLED AND STABILIZED WITHIN ONE (1) WORKING DAY, WHICHEVER IS SHORTER.
7. CONSTRUCT THE SEWER MAIN AND APPURTENANCES. THE CONTRACTOR SHALL REFERENCE THIS SHEET FOR A LIST OF CONDITIONS: "BEST MANAGEMENT PRACTICES FOR WORK IN NON-TIDAL WETLANDS AND WETLAND BUFFERS". THESE CONDITIONS APPLY TO ALL UTILITY WORK CONDUCTED WITHIN THE NON-TIDAL WETLANDS AND BUFFERS AS SHOWN ON THESE PLANS.
8. STABILIZE SEED AND MULCH ALL DISTURBED AREAS IN ACCORDANCE WITH THE PREPARATION SEEDING NOTES SHOWN ON THIS SHEET. THE SEED AND MULCH SHALL BE STABILIZED IN ACCORDANCE WITH CONDITION "10" OF THE "BEST MANAGEMENT PRACTICES FOR WORK IN NON-TIDAL WETLANDS AND WETLAND BUFFERS" (ADJACENT).
9. FOLLOWING COMPLETION OF ALL STABILIZATION OF ALL DISTURBED AREAS, AND AFTER PERMISSION HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ALL EROSION AND SEDIMENT CONTROL DEVICES.

## DEVELOPER'S CERTIFICATION

I HAVE HEREBY CERTIFIED THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONS INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE IN A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

*Paul W. Kradel* FOR: DBRT, LLC  
SIGNATURE OF DEVELOPER  
DATE: 02-03-05

## ENGINEER'S CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*Paul W. Kradel*  
SIGNATURE OF ENGINEER  
DATE: 02/03/05

SEE SHEET 4 FOR SEDIMENT & EROSION CONTROL PLAN

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND <i>Robert B. ...</i> DATE: 2-14-05	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND <i>... ..</i> DATE: 2/18/05	FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS 1018 4th St., Suite 200 Baltimore, MD 21202 TEL: 410-528-2200 FAX: 410-528-2201	DESIGNED BY: P.W.K. DRAWN BY: D.Y.B. CHECKED BY: P.W.K. DATE: FEBRUARY, 2005 BY NO.	REVISIONS REVISION NO. DATE	600' SCALE MAP NO. 16 BLOCK NO. 4 F.C.C. WORK ORDER NO. 541 FILE NAME: FINAL SEWER MAIN SHT 6	SCALE AS SHOWN SHEET 6 OF 6
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CONTRACT NO. 20-4068-D  
MARRIOTTVILLE ROAD  
SEWER MAIN EXTENSION  
HOWARD COUNTY, MARYLAND

**MARRIOTTVILLE ROAD  
SEWER MAIN EXTENSION**  
CONTRACT NO. 20-4068-D  
THIRD ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND