

WESTERN SCHOOL COMPLEX

INTERCEPTOR SEWER CAPITAL PROJECT NO. W-8213 HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS CONTRACT NO. 20-3506

LEGEND

- EX. SANITARY SEWER
- == PROP. SANITARY SEWER
- (-)-(-)- EX. SANITARY MANHOLE
- (S) PROP. SANITARY MANHOLE
- U UTILITY POLE
- B-S12 SOIL BORING
- BM BENCH MARK


BENCHMARKS

- BM1 HOWARD COUNTY MONUMENT NO. ELEV.
- BM2 HOWARD COUNTY MONUMENT NO. ELEV.

INDEX OF DRAWINGS

SHEET NO.	SHEET NO.
1	TITLE SHEET
2	PLAN AND PROFILE, MH 1-6
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6	PLAN AND PROFILE, EX. MH-MH 25
7	PLAN AND PROFILE, MH 26-32
8	SEDIMENT AND EROSION CONTROL, NOTES
9	SEDIMENT AND EROSION CONTROL, DETAILS
10	SEDIMENT AND EROSION CONTROL, DETAILS

GENERAL NOTES

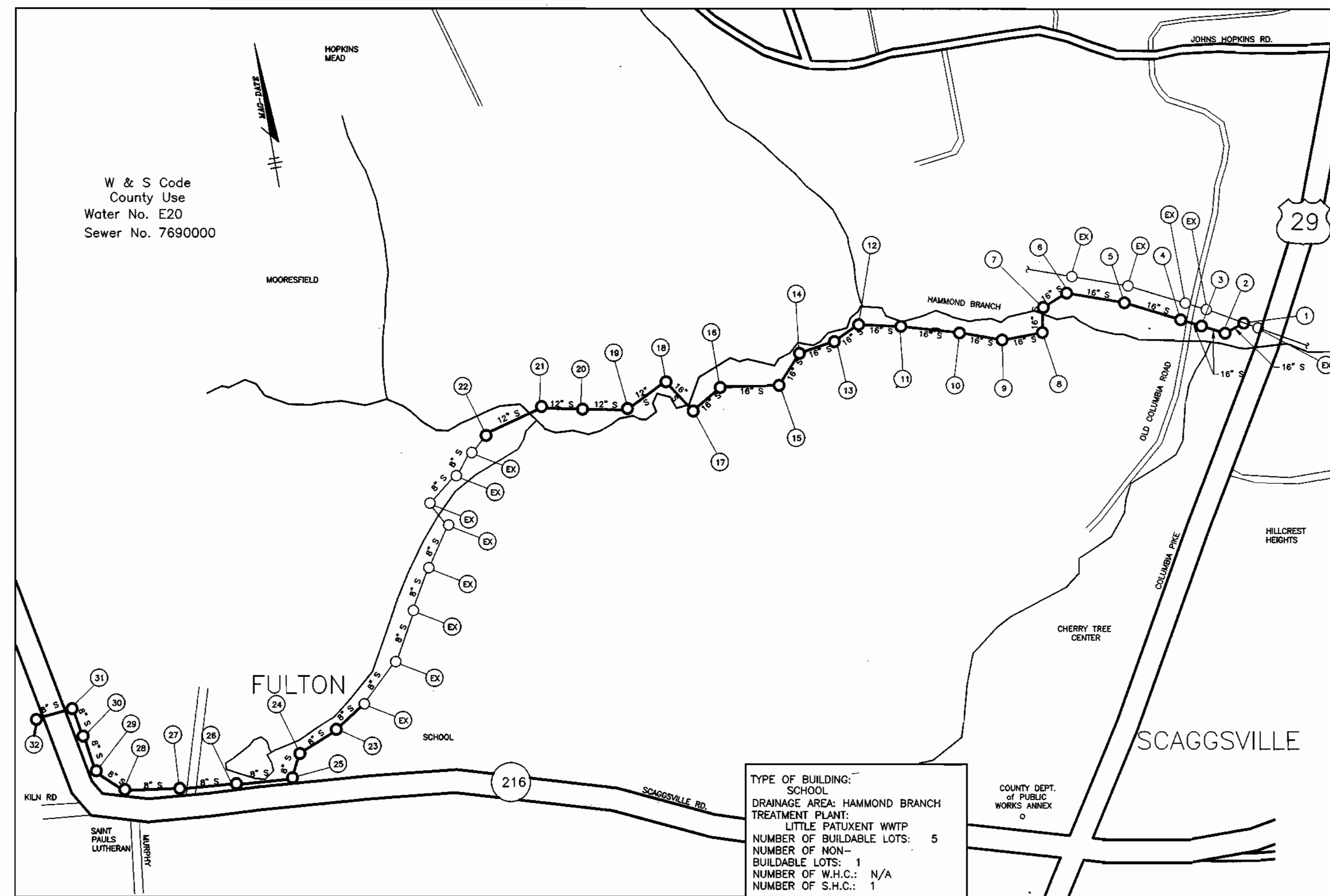
- Approximate location of existing sewers are shown. The contractor shall take all necessary precautions to protect existing sewers and maintain uninterrupted service. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer at the Contractor's expense.
- All horizontal controls are based on Maryland State Coordinates.
- All vertical controls are based on U.S.G.S. data.
- All pipe elevations shown are invert elevations.
- Clear all utilities by a minimum of 6". Clear all poles by 2'-0" minimum or tunnel as required. 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 the bracing of additional poles, any cost incurred by the owner for bracing of additional poles or damages shall be deducted from money 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 Detail for Construction. (Latest Edition). The contractor shall have a copy of Volume IV on the job.
- 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. 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.
- Contractor shall notify the following utility companies or agencies at least five working days before starting work shown on these plans:

State Highway Administration	531-5533
Baltimore Gas & Electric Co. Contractor Services	850-4620
Baltimore Gas & Electric Co. Underground Damage Control	787-9068
Miss Utility	1-800-257-7777
Colonial Pipeline Co.	795-1390
Bureau of Utilities, Howard County Department of Public Works	313-4900
Potomac Electric Power Co.	202-388-2775
- Trees and shrubs are to be protected from damage to maximum extent. Trees and shrubs located within the construction strip are not to be removed or damaged by the contractor.
- 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.
- All interceptor sewers to be D.I.P. Class 50 unless otherwise noted.
- All manholes shall be 4'-0" inside diameter unless otherwise noted.
- 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 covers, Standard Detail G5.52. Where watertight manhole frame and cover is used, set top of frame 1'-6" above finished grade unless otherwise noted on the drawings.
- Manholes can be either brick or precast concrete structures.
- Contractor is solely responsible for construction means, methods, techniques, sequences, procedures, and safety precautions and programs.
- The contractor shall notify the Bureau of Highways, Howard County, at (410) 313-7450 at least five (5) 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.
- Maryland Department of the Environment Waterway Construction Permit tracking number is #199662290.

RECORD DRAWING
AS PER INFORMATION
SUPPLIED BY CONTRACTOR

QUANTITIES

ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUFACTURER / SUPPLIER
16" DIP, CL 52	400 LF	395 LF	DIP CL 52	US PIPE
12" DIP, CL 52	340 LF	337 LF	DIP CL 52	"
8" DIP, CL 52	15 LF	15 LF	DIP CL 52	"
16" DIP, CL 50	3,420 LF	3,615 LF	DIP CL 50	"
12" DIP, CL 50	1,000 LF	998 LF	DIP CL 50	"
8" PVC, SDR 35	2,460 LF	2,458 LF	PVC	J.M. MANUFACTURING
4' DIA. CONC. MH 8" VF	32 EA.	32	PRECAST	ATLANTIC PRECAST
4' CONC. MH ADDITIONAL VF	100 VF	90.5 VF	PRECAST	"
TRENCHLESS EXCAVATION OF OLD COLUMBIA RD	130 LF	130 LF	FLO-ASH	AMERICAN STONE-MX INC.
TRENCHLESS EXCAVATION OF SCAGGSVILLE RD (RT. 216)	55 LF	55 LF	FLO-ASH	"



VICINITY MAP

SCALE: 1"=600'

DEVELOPER'S CERTIFICATION

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THIS CONSTRUCTION PROJECT WILL HAVE A CERTIFICATION OF ATTENDANCE AT A MARYLAND DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT". I/WE ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

Rudolph S. Seppan 10/18/96
BUREAU OF ENGINEERING
DEPARTMENT OF PUBLIC WORKS

ENGINEER'S CERTIFICATION

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

George Miles & Buhr
RIEMER MUEGGE & ASSOCIATES, INC./GEORGE MILES & BUHR A JOINT VENTURE
8818 CENTRE PARK DRIVE SUITE 200 COLUMBIA, MD. 21045

NAME OF UTILITY CONTRACTOR: W.F. WILSON & SONS

Sediment control measures for this contract will be implemented in accordance with Section 219 of the Specifications

CHECKBOX T.E.B.
AS-BUILT DATE 10/9/97
SURVEY AND DRAFTING DIVISION

Review for Howard Soil Conservation District and meets technical requirements.

J.C. Wafford/65. 10/20/96
NATURAL RESOURCES CONSERVATION SERVICE

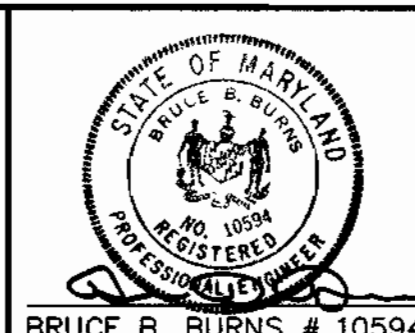
This plan is approved for soil erosion and sediment control by the Howard Soil Conservation District

Shelly Adkins 10/21/96
HOWARD SOIL CONSERVATION DISTRICT

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Rudolph S. Seppan 10/23/96
DIRECTOR OF PUBLIC WORKS
George Miles & Buhr 10-18-96
CHIEF, BUREAU OF ENGINEERING
George Miles & Buhr 10-22-96
CHIEF, WATER AND SEWER DESIGN DIVISION

RIEMER MUEGGE & ASSOCIATES, INC.
8818 Centre Park Drive Suite 200 Columbia, MD 21045
410-997-8900 FAX: 410-997-9282
A JOINT VENTURE
GEORGE, MILES & BUHR, LLP
1 North Park Drive Suite 204 Baltimore, MD 21030
410-584-8370 FAX: 410-584-9076



DES: BF	WBF	SEWER CAPACITY STATEMENT PER MDE	11-15-96
DRN: SR			
CHK: JK			
DATE:	BY NO.	REVISION	DATE

TITLE SHEET

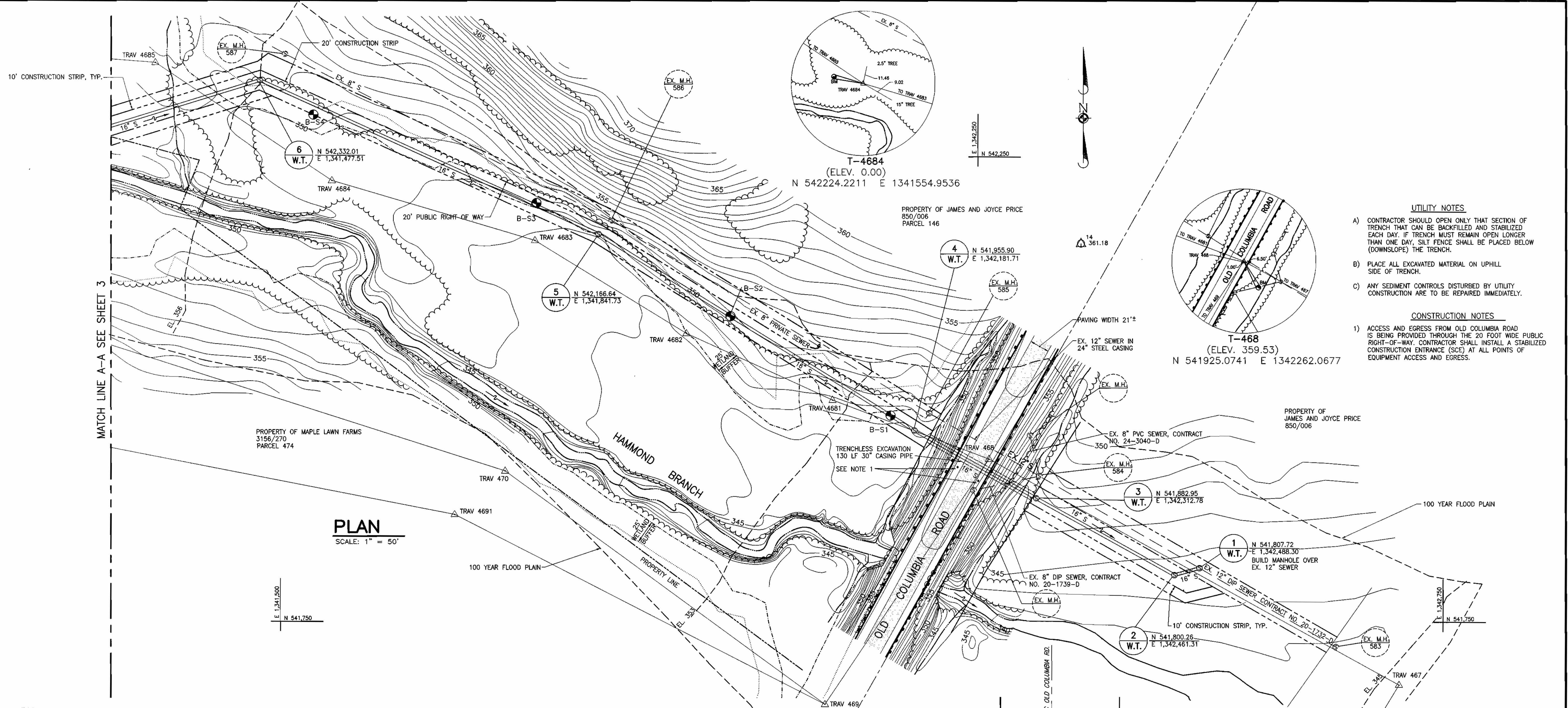
600' SCALE MAP NO. 41 BLOCK NO. 20 & 21

WESTERN SCHOOL COMPLEX
INTERCEPTOR SEWER
TAX MAP: 41 PARCEL:
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. 20-3506

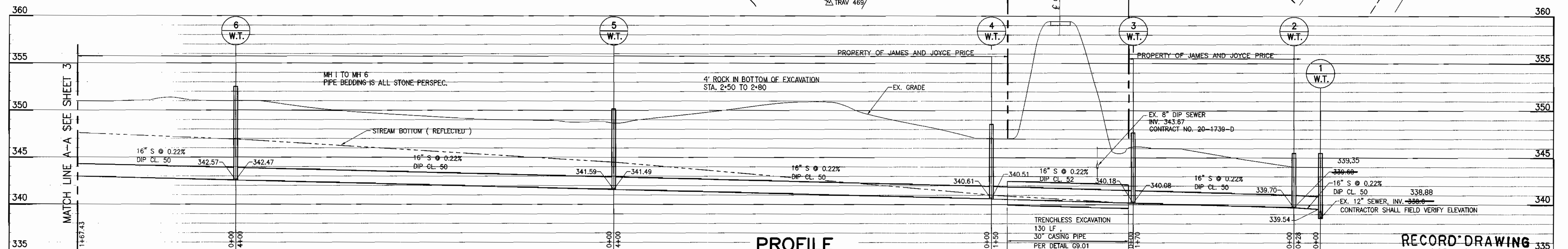
SCALE AS SHOWN

SHEET 1 OF 10

AS-BUILT 10/9/97



PLAN
SCALE: 1" = 50'



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

RECORD DRAWING
AS PER INFORMATION
SUPPLIED BY CONTRACTOR

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James P. Blum 10/22/96
DIRECTOR OF PUBLIC WORKS DATE

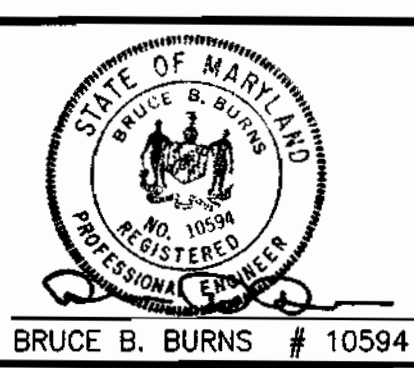
Richard J. Sisson 10/18/96
CHIEF, BUREAU OF ENGINEERING DATE

Richard J. Sisson 10-22-96
CHIEF, WATER AND SEWER DESIGN DIVISION DATE

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410-584-8870 FAX: 410-584-9078



DES: BF					
DRN: SR					
CHK: JK					
DATE:					
BY:	NO.	REVISION	DATE		

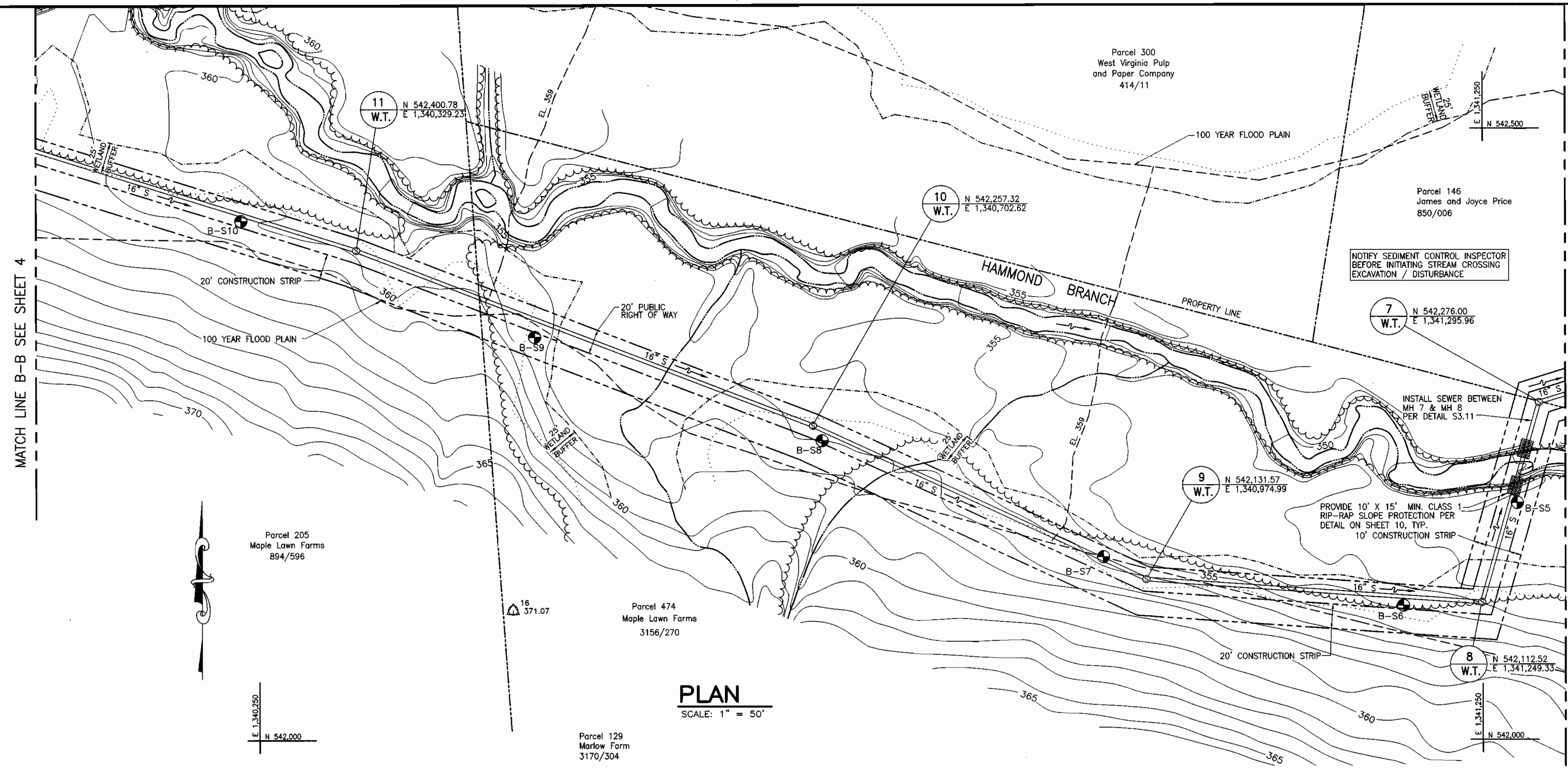
**PLAN AND PROFILE
FOR INTERCEPTOR SEWER
MH 1 - MH 6**

600' SCALE MAP NO. 41 BLOCK NO. 20 & 21

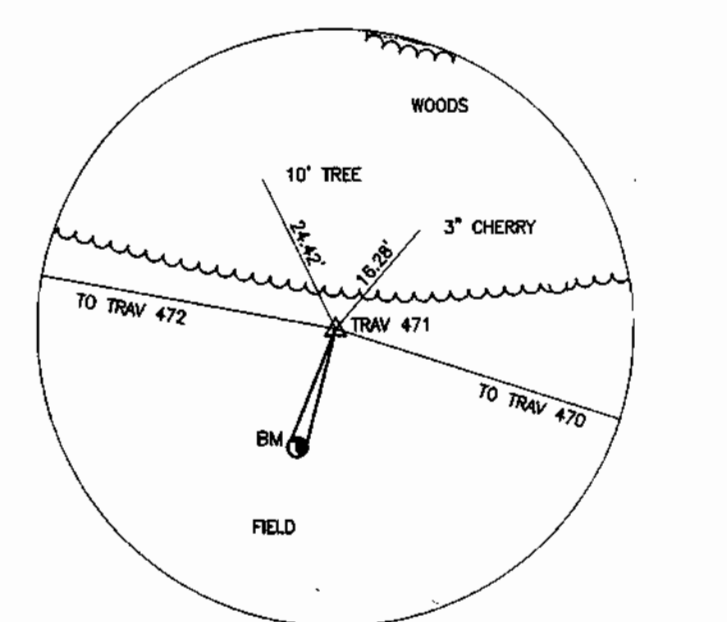
WESTERN SCHOOL COMPLEX
INTERCEPTOR SEWER
TAX MAP: 41 PARCEL:
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. 20-3506

SCALE AS SHOWN

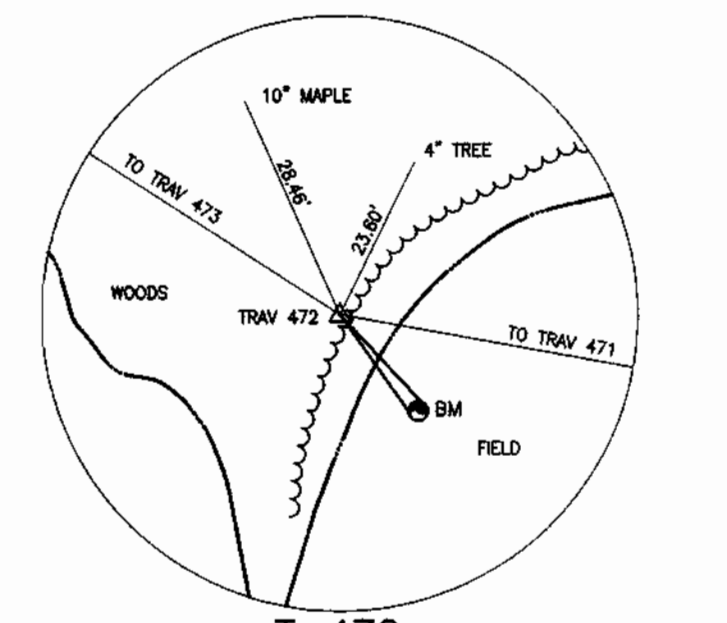
SHEET 2 OF 10



PLAN
SCALE: 1" = 50'



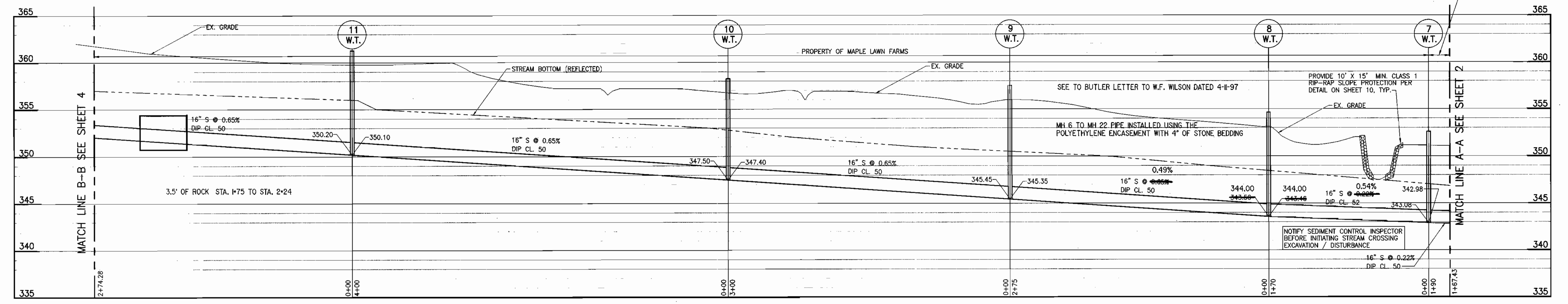
T-471
(ELEV. 354.59)
N 542096.2362 E 1341163.2411



T-472
(ELEV. 359.37)
N 542181.4297 E 1340693.2755

UTILITY NOTES

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



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

FIELD SURVEYED 9-20-96

RECORD DRAWING
AS PER INFORMATION
SUPPLIED BY CONTRACTOR

95098 WES2 9-24-96

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James P. Shive 10/23/96
DIRECTOR OF PUBLIC WORKS DATE

Paul D. Sisson 10/18/96
CHIEF, BUREAU OF ENGINEERING DATE

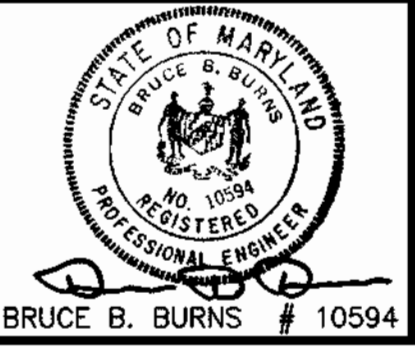
Robert J. ... 10-22-96
CHIEF, BUREAU OF UTILITIES DATE

... 10-18-96
CHIEF, WATER AND SEWER DESIGN DIVISION DATE

RIEMER MUEGGE & ASSOCIATES, INC.
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410-997-8900 FAX: 410-997-9282

A JOINT VENTURE

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DES:	BF	BY:	NO.	REVISION	DATE
DRN:	SR				
CHK:	JK				
DATE:					

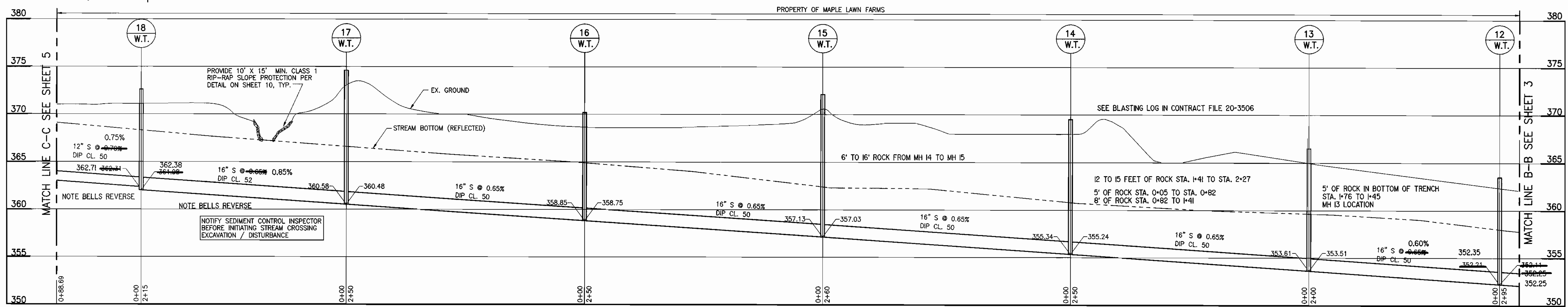
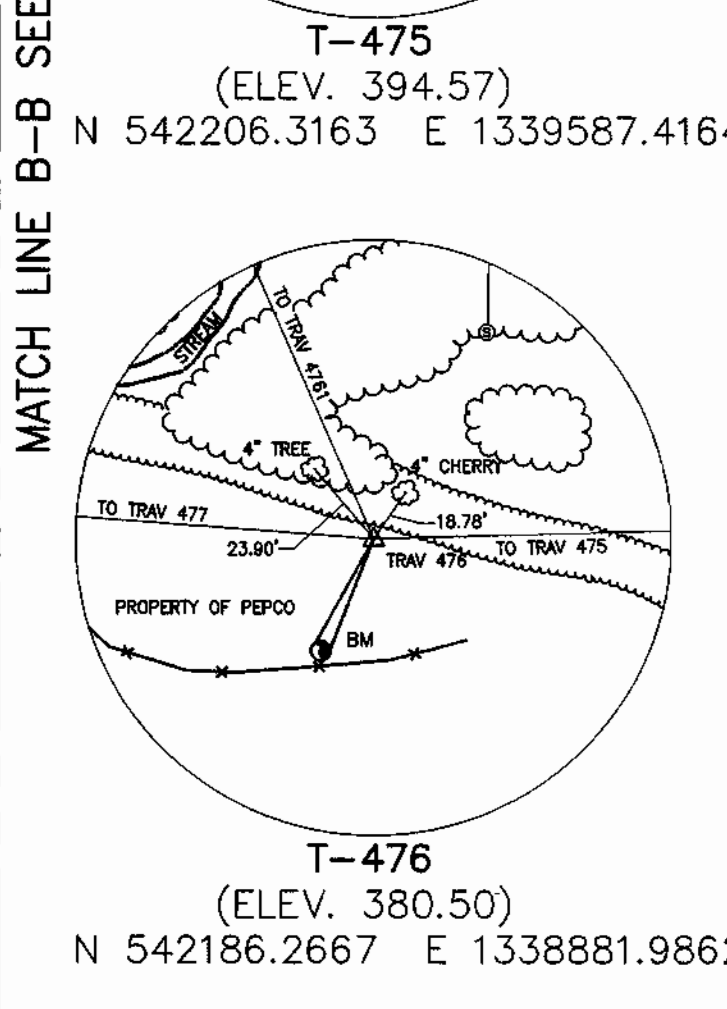
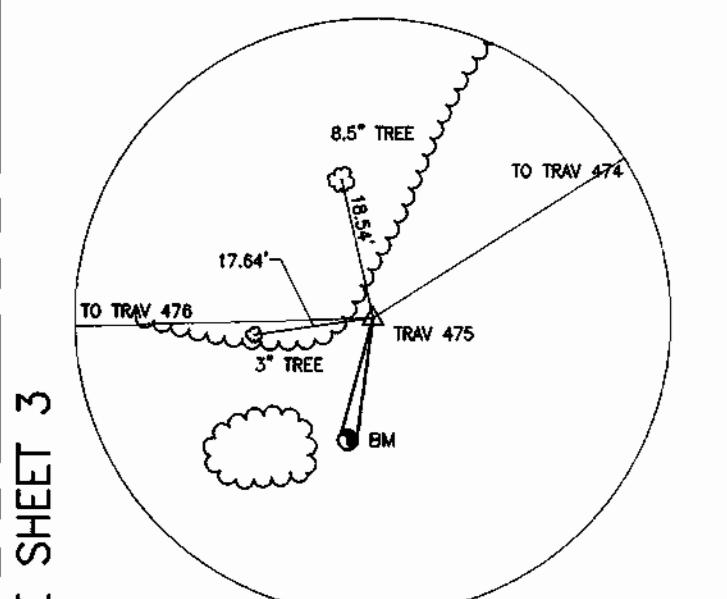
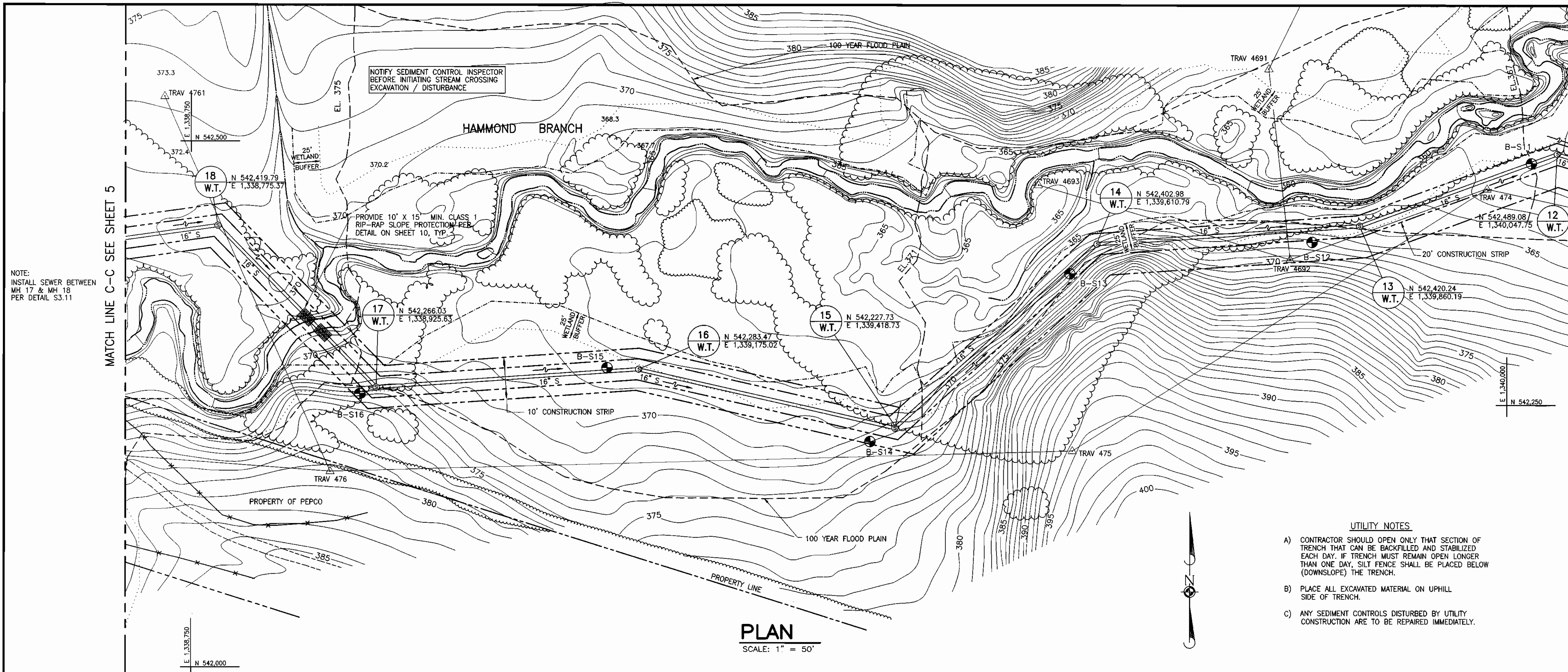
PLAN AND PROFILE
FOR INTERCEPTOR SEWER
MH 7 - MH 11

600' SCALE MAP NO. 41 BLOCK NO. 20 & 21

WESTERN SCHOOL COMPLEX
INTERCEPTOR SEWER
TAX MAP: 41 PARCEL:
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. 20-3506

SCALE
AS
SHOWN

SHEET
3 OF 10



RECORD DRAWING
AS PER INFORMATION
SUPPLIED BY CONTRACTOR

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

10/23/96
10-22-96

10/18/96
10-18-96

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STATE OF MARYLAND
REGISTERED PROFESSIONAL ENGINEER
BRUCE B. BURNS # 10594

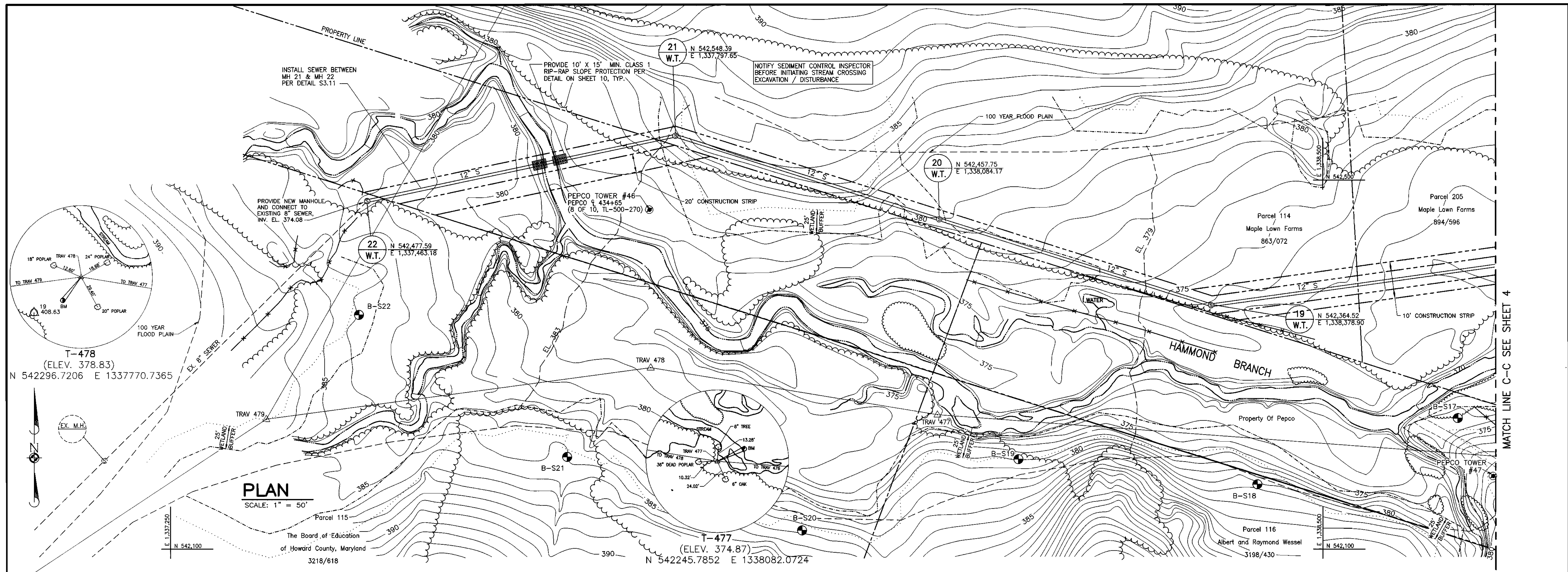
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DRN:	SR				
CHK:	JK				
DATE:					

**PLAN AND PROFILE
FOR INTERCEPTOR SEWER
MH 12 - MH 18**

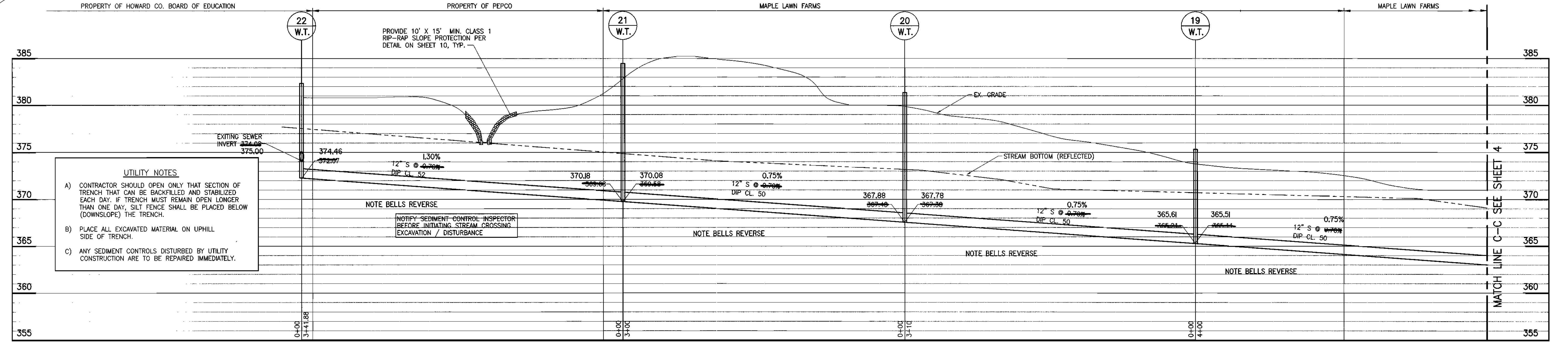
600' SCALE MAP NO. 41 BLOCK NO. 20 & 21

WESTERN SCHOOL COMPLEX
INTERCEPTOR SEWER
TAX MAP: 41 PARCEL:
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. 20-3506

SCALE AS SHOWN
SHEET 4 OF 10



PLAN
SCALE: 1" = 50'



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

FIELD SURVEYED 9-20-96

RECORD DRAWING
AS PER INFORMATION
SUPPLIED BY CONTRACTOR

95098 WES4 9-4-96

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Sam J. New 10/23/96
DIRECTOR OF PUBLIC WORKS DATE

Paul J. Johnson 10/18/96
CHIEF, BUREAU OF ENGINEERING DATE

Robert J. ... 10-22-96
CHIEF, BUREAU OF UTILITIES DATE

... 10-18-96
CHIEF, WATER AND SEWER DESIGN DIVISION DATE

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STATE OF MARYLAND
BRUCE B. BURNS # 10594
REGISTERED PROFESSIONAL ENGINEER

DES: BF					
DRN: SR					
CHK: JK					
DATE:	BY NO.	REVISION	DATE		

**PLAN AND PROFILE
FOR INTERCEPTOR SEWER
MH 19 - MH 22**

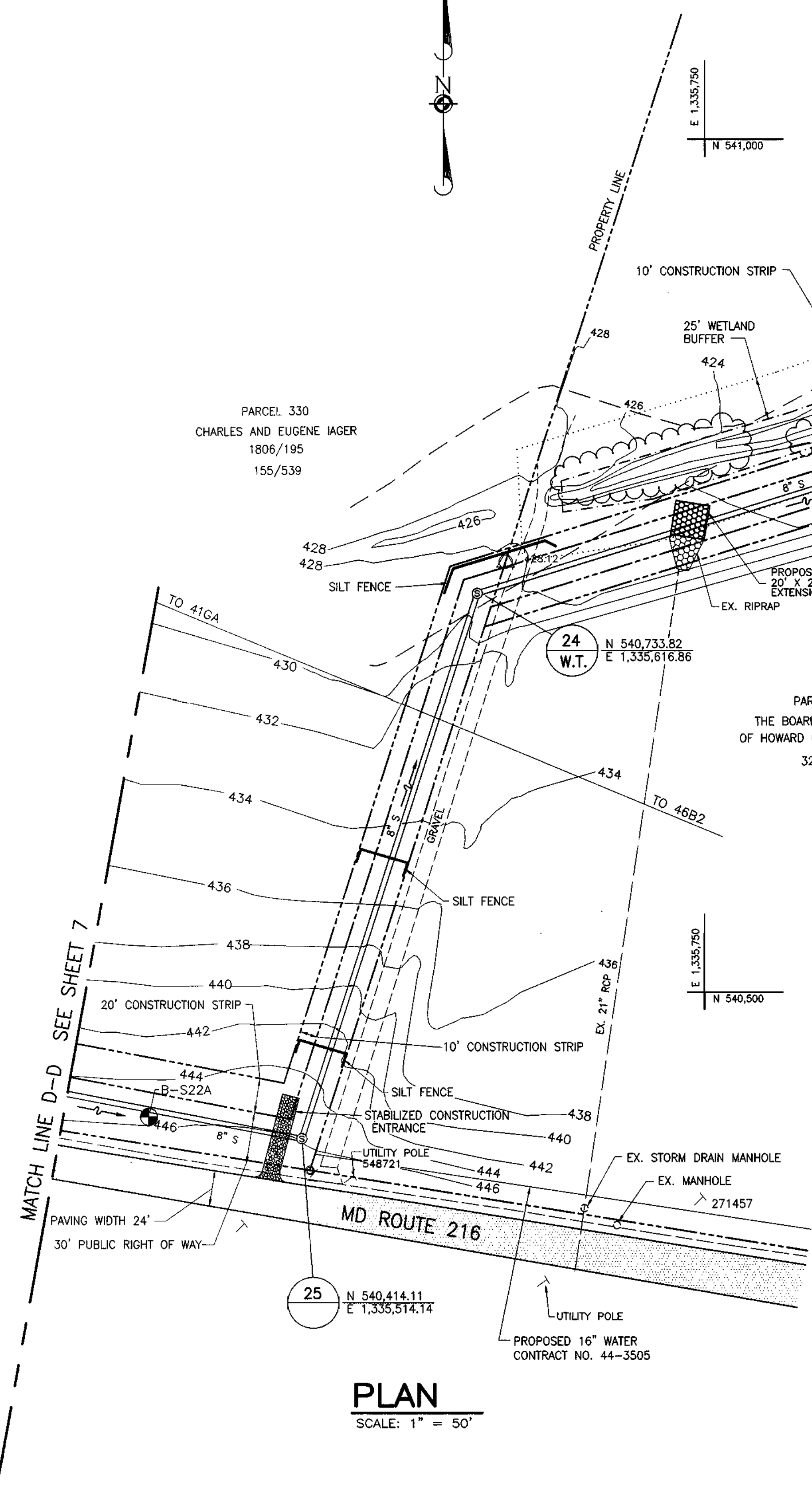
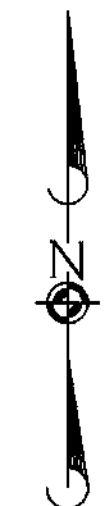
600' SCALE MAP NO. 41 BLOCK NO. 20 & 21

WESTERN SCHOOL COMPLEX
INTERCEPTOR SEWER
TAX MAP: 41 PARCEL:
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. 20-3506

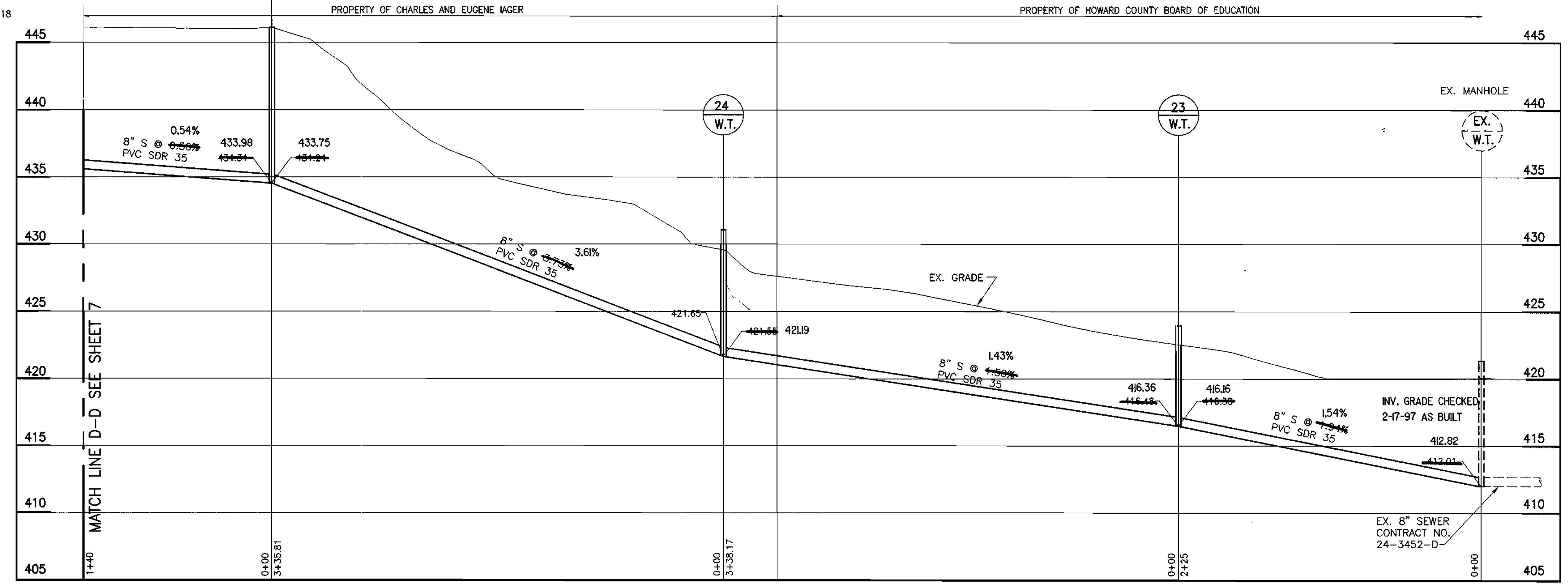
SCALE AS SHOWN

SHEET 5 OF 10

95099 WESSA 9-27-96



PLAN
SCALE: 1" = 50'



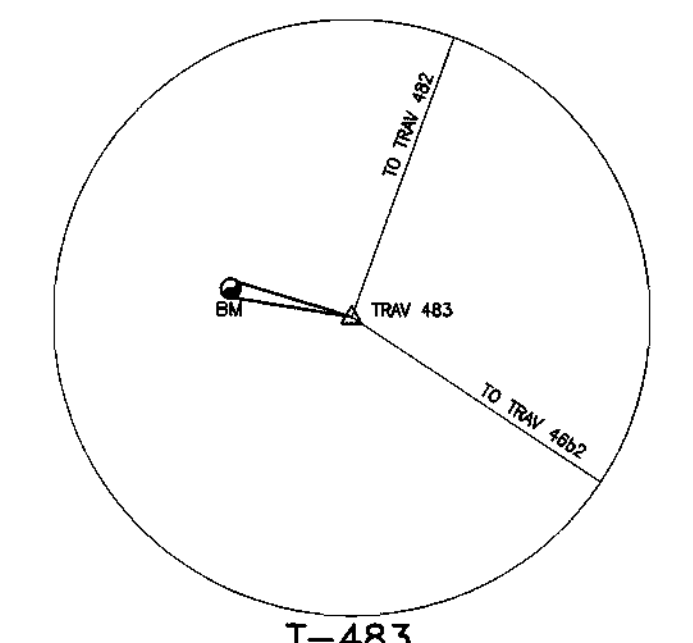
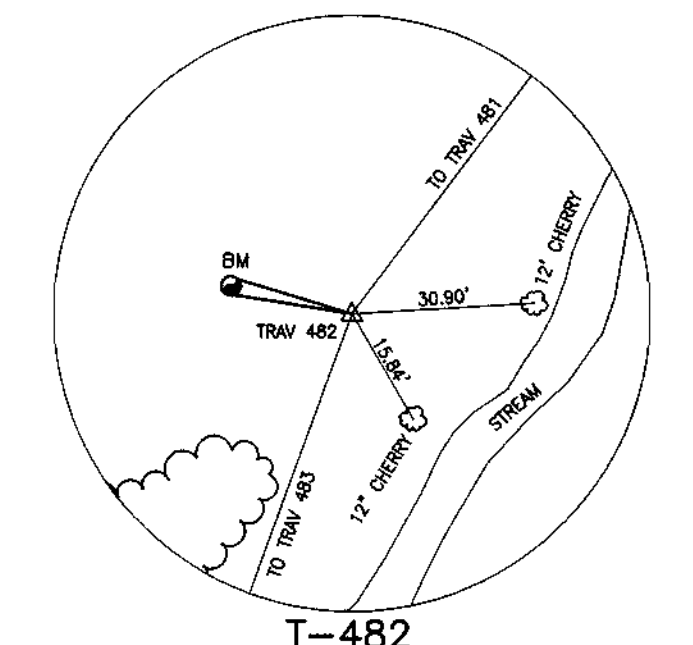
PROFILE

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

FIELD SURVEYED 9-20-96

RECORD DRAWING
AS PER INFORMATION
SUPPLIED BY CONTRACTOR

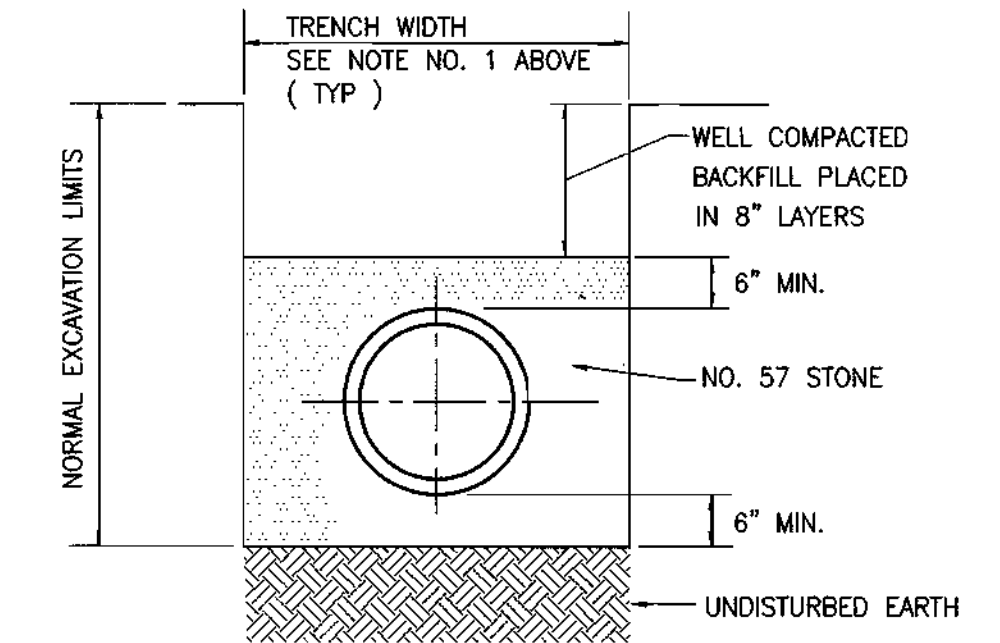
- UTILITY NOTES**
- A) CONTRACTOR SHOULD OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE) THE TRENCH.
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 - C) ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.



FROM MH 6 TO MH 22
POLYETHYLENE ENCASEMENT WITH 4" OF STONE BEDDING

NOTES

- 1) FOR PAY WIDTHS SEE DETAIL G 2.02 - A
- 2) FOR DUCTILE IRON & PVC PIPE



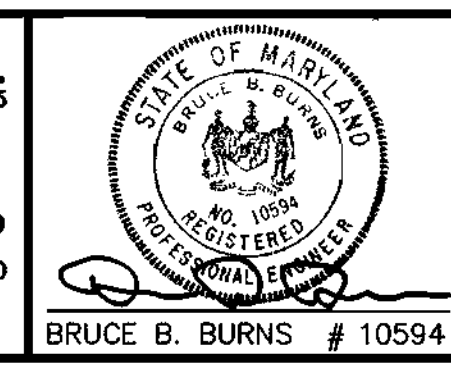
TRENCH DETAIL
NO SCALE

THIS DETAIL USED FROM MH 1 TO MH 6
FROM MH EXISTING BEHIND SCHOOL TO MH 32

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *James J. Chew* 10/23/96
Chief, Bureau of Engineering: *Paul J. Brown* 10/10/96
Chief, Bureau of Utilities: *Robert J. Brown* 10-22-96
Chief, Water and Sewer Design Division: *Paul J. Brown* 10-18-96

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410-584-8970 FAX: 410-584-9076

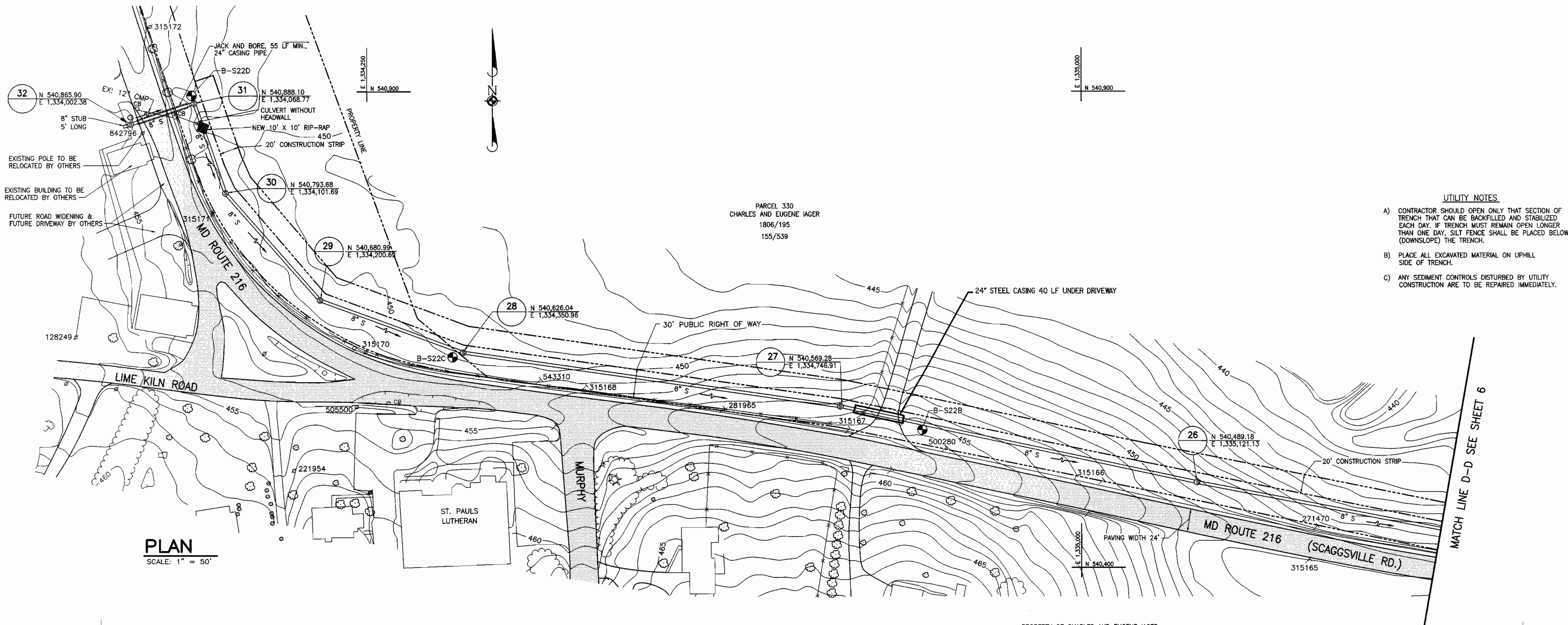


DES:	BF				
DRN:	SR				
CHK:	JK				
DATE:					
BY:	NO.	REVISION	DATE		

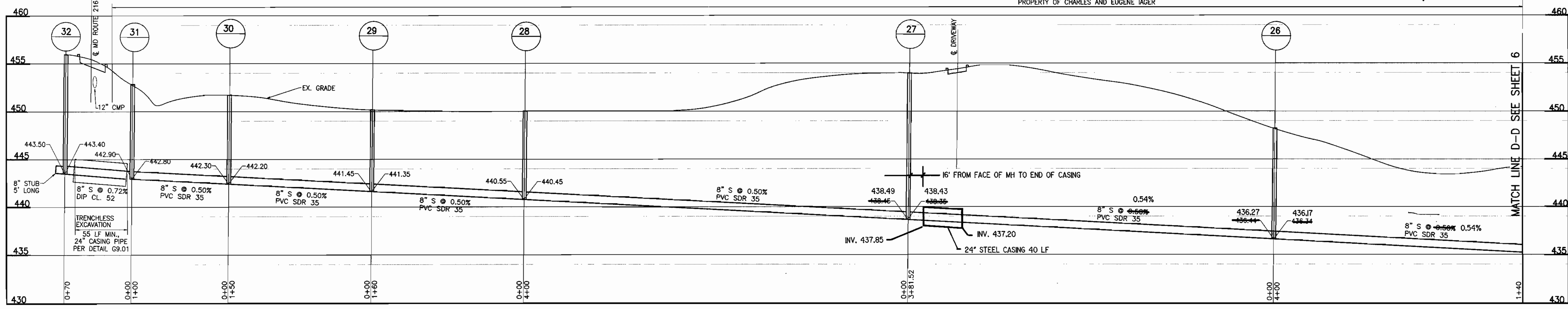
**PLAN AND PROFILE
FOR INTERCEPTOR SEWER
EXISTING MH - MH 25**

WESTERN SCHOOL COMPLEX
INTERCEPTOR SEWER
TAX MAP: 41 PARCEL:
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. 20-3506

SCALE AS SHOWN
SHEET 6 OF 10



PLAN
SCALE: 1" = 50'



PROFILE

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

FIELD SURVEYED 9-20-96

RECORD DRAWING
AS PER INFORMATION
SUPPLIED BY CONTRACTOR

95098 WESS 10-1-96

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James J. Lee 10/23/96
DIRECTOR OF PUBLIC WORKS DATE

Paul J. Seaman 10/18/96
CHIEF, BUREAU OF ENGINEERING DATE

Ruth M. Burnis 10-22-96
CHIEF, BUREAU OF UTILITIES DATE

Dr. Dan... 10-18-96
CHIEF, WATER AND SEWER DESIGN DIVISION DATE

RIEMER MUEGGE & ASSOCIATES, INC.
8818 Centre Park Drive Suite 200 Columbia, MD 21046
410-997-8900 FAX: 410-997-9582

A JOINT VENTURE

GEORGE, MILES & BUHR, LLP
1 North Park Drive Suite 204 Baltimore, MD 21090
410-584-8370 FAX: 410-584-9078



DES:	BF			
DRN:	SR			
CHK:	JK			
DATE:				
BY:	NO.	REVISION	DATE	

PLAN AND PROFILE
FOR INTERCEPTOR SEWER
MH 26 - MH 32

600' SCALE MAP NO. 41 BLOCK NO. 20 & 21

WESTERN SCHOOL COMPLEX
INTERCEPTOR SEWER
TAX MAP: 41 PARCEL:
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. 20-3506

SCALE AS SHOWN
SHEET 7 OF 10

Section I - 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, trade name or trademark and warrantee 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 #100 mesh sieve and 98 - 100% 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 loosened it should not be rolled or dragged smooth but left in the roughened condition. Sloped areas (greater than 3:1) should be tracked leaving the surface in an irregular condition 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 40% clay but enough fine grained material (> 30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if lowgrass or serotia lespedeza is to be planted, then a sandy soil (< 30% 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 in accordance with Section 21 Standard and Specification for Topsoil.
- b. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened 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 test 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 application. Where site conditions will not permit normal seedbed preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1 - 3" of soil should be loose and friable. Seedbed loosening may not be necessary on newly disturbed areas.

D. Seed Specifications

- i. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material on this job.

Note: Seed tags shall be made available to the inspector to verify type and rate of seed used.
- ii. Inoculant - The inoculant for treating legume seed mixtures shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species. Inoculants shall not be used later than the date indicated on the container. Add fresh inoculant as directed on 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 75-80°F. can weaken bacteria and make the inoculant less effective.

E. Methods of Seeding

- i. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeder, or a cultipacker seeder.
 - a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen: maximum of 100 lbs. per acre total of soluble nitrogen; P205 (phosphorous): 200 lbs/ac; K20 (potassium): 200 lbs/ac.
 - b. 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.
 - c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.
- ii. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
 - a. Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 25 or 26. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact.
 - b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
 - iii. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
 - a. Cultipacker 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.
 - b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

F. Mulch Specifications (in order of preference)

- i. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonably bright in color, and shall not be musty, moldy, caked, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.
- ii. Wood Cellulose Fiber Mulch (WCFM)
 - a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.
 - b. WCFM shall 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.
 - c. WCFM, including dye, shall contain no germination or growth inhibiting factors.
 - d. WCFM materials shall 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 shall form a blotter-like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
 - e. WCFM material shall contain no elements or compounds at concentration levels that will be phyto-toxic.
 - f. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm., diameter approximately 1 mm., pH range of 4.0 to 8.5, ash content of 1.6% maximum and water holding capacity of 90% minimum.

Note: Only sterile straw mulch should be used in areas where one species of grass is desired.

G. Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.

- i. If grading is completed outside of the seeding season, mulch alone shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.
- ii. 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.
- iii. 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 of 50 lbs. of wood cellulose fiber per 100 gallons of water.
- H. Securing Straw Mulch (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 a 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 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 on crests of banks. The remainder of area should be appear uniform after binder application. Synthetic binders - such as Acrylic DLR (Agra-Tack), DCA-70, Petrosel, Terra Tax 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 over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.

Section II - Temporary Seeding

Vegetation - annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetation 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 appropriate Plant Hardiness 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 soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in. Soil tests are not required for Temporary Seeding.

Temporary Seeding Summary

Seed Mixture (Hardiness Zone SB...) From Table 26				Fertilizer Rate (10-10-10)	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates		
	Annual Rye	50	3/01-4/30 8/15-11/01	800 lb/ac (15 lb/1000 sq)	2 tons/ac (100 lb/1000 sq)
	Weeping Lovegrass	4	5/01-8/14		

- iii. For the period November 2 - February 28, protect site with 2 tons / acre of well anchored straw mulch and seed as soon as possible in the spring or use sod.

Section III - Permanent Seeding

Seeding grass and legumes to establish ground cover for a minimum period 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 Hardiness Zone (from Figure 5) and enter them in the Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this Summary is not put on the construction plans and completed, then Table 26 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-SCS Technical Field Office Guide, Section 342 - Critical Area Planting. For special lawn maintenance areas, see Sections IV Sod and 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. (150 lbs/ac), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

Permanent Seeding Summary

Seed Mixture (Hardiness Zone SB...) From Table 26				Fertilizer Rate (15-25-20)			Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	N	P205	K20	
10	Tall Fescue (80%) Kentucky Bluegrass (20%)	120 30	3/01-5/15 And 8/15-11/15	90 lb/ac (2.0 lb/1000 sq)	175 lb/ac (4.4 lb/1000 sq)	175 lb/ac (4.4 lb/1000 sq)	2 tons/ac (100 lb/1000 sq)

- iv. For the period November 16 - February 28, protect site with 2 tons / acre of well anchored straw mulch and seed as soon as possible in the spring or use sod.

Section IV - Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

A. General specifications

- i. Class of turfgrass sod shall be Maryland or Virginia State Certified or Approved. Sod labels shall be made available to the job foreman and inspector.
- ii. Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus 1/4", at the time of cutting. Measurement for thickness shall exclude top growth and thatch. Individual pieces of sod shall be cut to the suppliers width and length. Maximum allowable deviation from standard widths and lengths shall be 5 percent. Broken pads and torn or uneven ends will not be acceptable.
- iii. Standard size sections of sod shall 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.
- iv. Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- v. Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation.

B. Sod Installation

- i. During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the sod.
- ii. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other. Lateral joints shall be staggered 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.
- iii. Wherever possible, sod shall be laid with the long edges parallel to the contour and with staggering joints. Sod shall be rolled and tamped, pegged or otherwise secured to prevent slippage on slopes and to ensure solid contact between sod roots and the underlying soil surface.
- iv. Sod shall be watered immediately following rolling or tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. The operations of laying, tamping and irrigating for any piece of sod shall be completed within eight hours.

C. Sod Maintenance

- i. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of 4". Watering should be done during the heat of the day to prevent wilting.
- ii. After the first week, sod watering is required as necessary to maintain moisture content.
- iii. The first mowing of sod should not be attempted until the sod is firmly rooted. No more than 1/3 of the grass leaf shall be removed by the initial cutting or subsequent cuttings. Grass height shall be maintained between 2" and 3" unless otherwise specified.

I. Topsoil Specifications - Soil to be used as topsoil must meet the following:

- i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2" in diameter.
- ii. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.
- iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.
- II. For sites having disturbed areas under 5 acres:
 - i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
- III. For sites having disturbed areas over 5 acres:
 - i. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
 - a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
 - b. Organic content of topsoil shall be not less than 1.5 percent by weight.
 - c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.
 - d. No sod or seed shall 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.

Note: 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.

ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

IV. Topsoil Application

- i. When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.
 - ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.
 - iii. Topsoil shall be uniformly distributed in a 4" - 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall 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 shall be corrected in order to prevent the formation of depressions or water pockets.
 - iv. Topsoil shall not be placed while 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.
 - V. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
 - i. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:
 - a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.
 - b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
 - c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
 - ii. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.
- References: Guideline Specifications, Soil Preparation and Sodding. MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973

RECORD DRAWING
AS PER INFORMATION
SUPPLIED BY CONTRACTOR

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 10/23/94
DIRECTOR OF PUBLIC WORKS DATE

[Signature] 10-22-96
CHIEF, BUREAU OF UTILITIES DATE

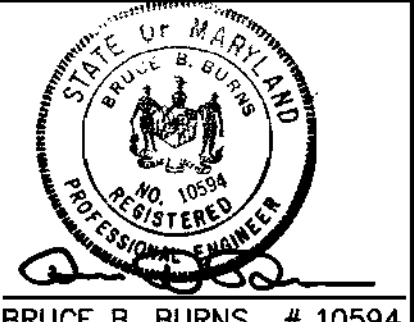
[Signature] 10/18/96
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 10-18-96
CHIEF, WATER AND SEWER DESIGN DIVISION DATE

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DES: BF					
DRN: SR					
CHK: JK					
DATE:	BY	NO.	REVISION	DATE	

SEDIMENT AND EROSION CONTROL NOTES

600' SCALE MAP NO. 41 BLOCK NO. 20 & 21

WESTERN SCHOOL COMPLEX
INTERCEPTOR SEWER
TAX MAP: 41 PARCEL:
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. 20-3506

SCALE AS SHOWN

SHEET 8 OF 10

SEEDING:

SEEDING FOR WETLAND MITIGATION AND WETLAND CREATION AREAS:

All disturbed areas shall be seeded and mulched upon completion of all grading work using seeding as specified.

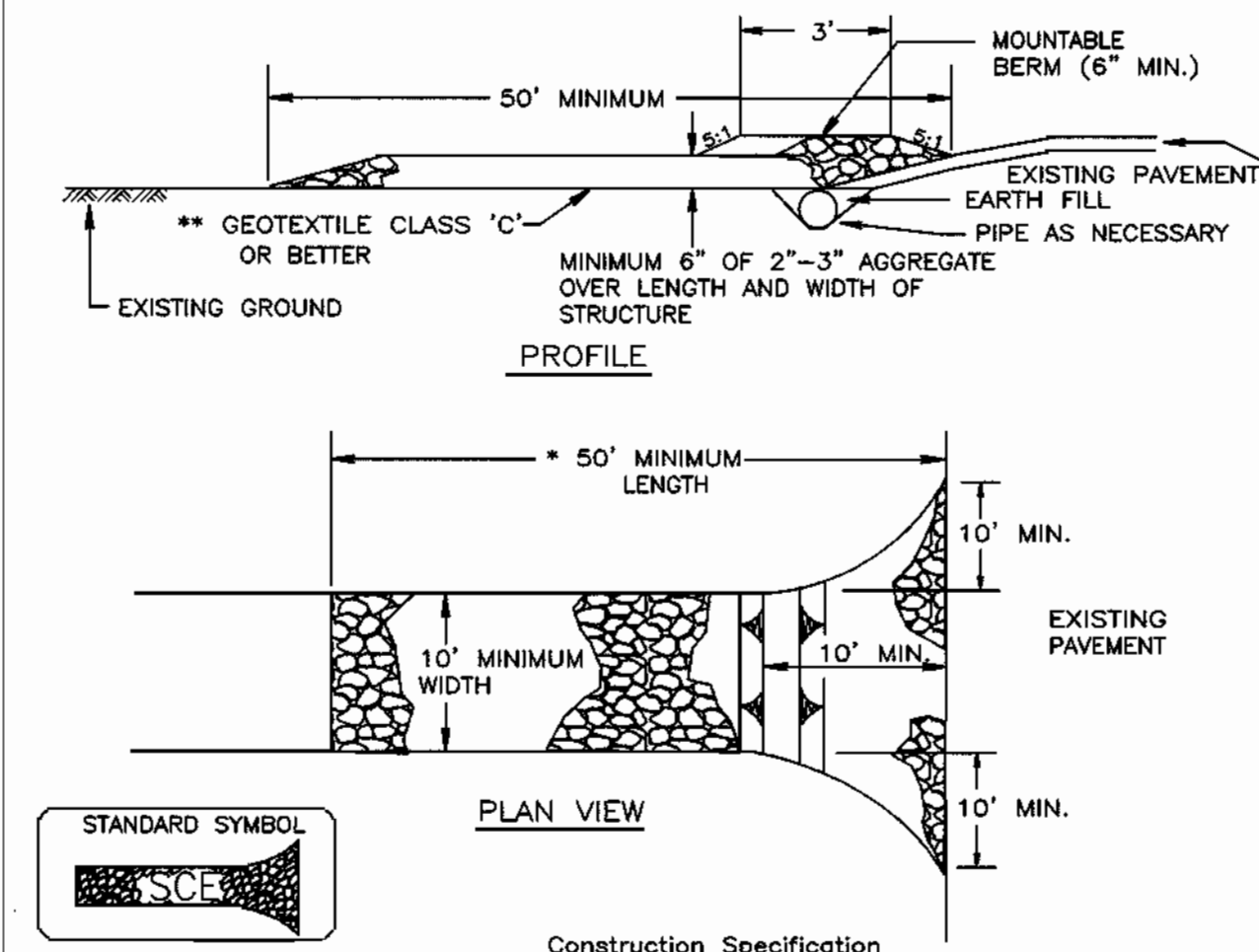
All stabilization in wetland areas shall be of the following species:

- Annual Ryegrass, (*Lolium multiplorum*)
- Millet, (*Setaria italica*)
- Barley, (*Hordeum sp*)
- Oats, (*Avena sp*)
- and / or
- Rye, (*Secale carale*)

These species allow for the stabilization of the site, while allowing for the voluntary revegetation of wetland species.

Kentucky-31 Fescue shall not be utilized in the wetland or buffer areas.

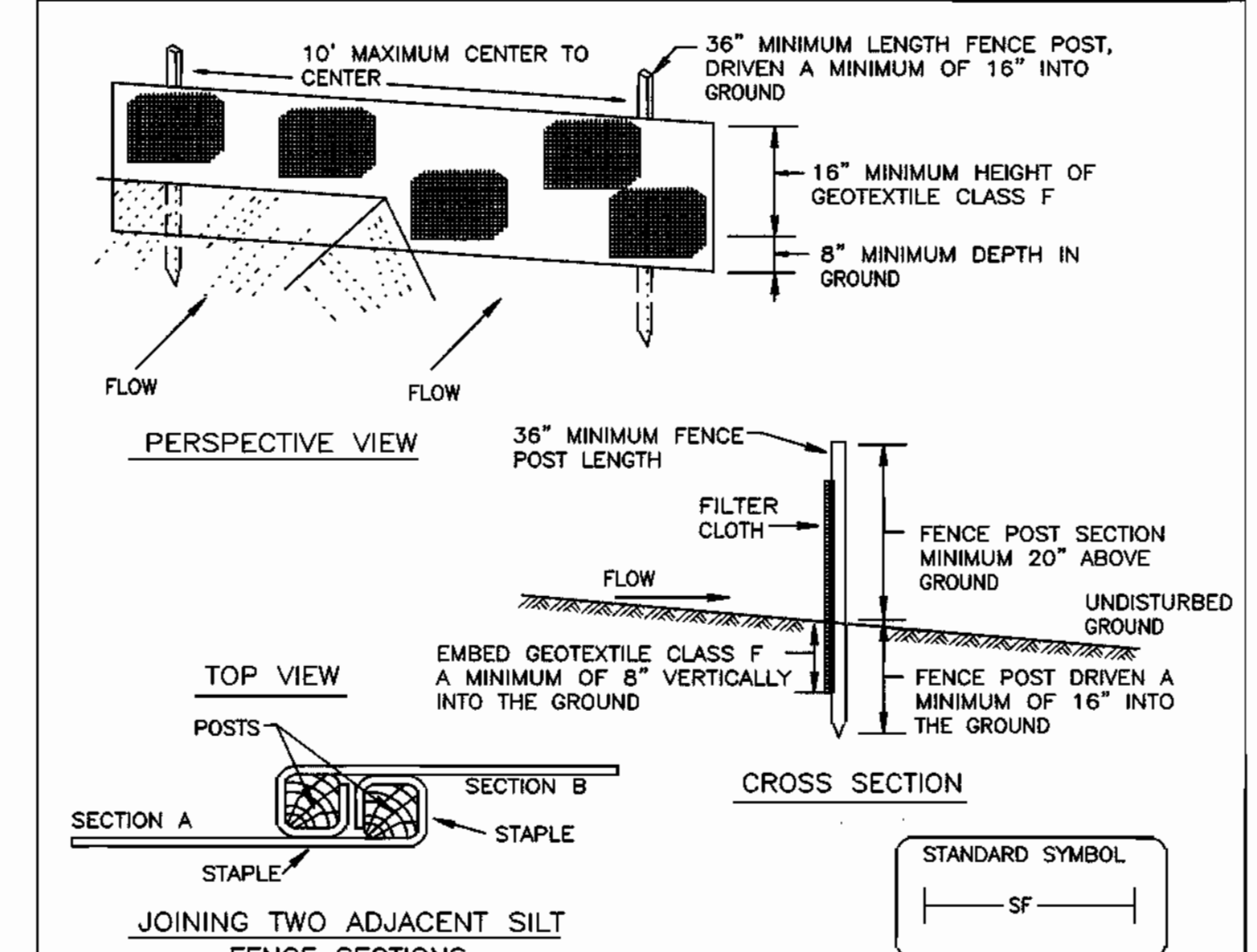
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



1. Length - minimum of 50' (*30' for single residence lot).
2. Width - 10' minimum, should be flared at the existing road to provide a turning radius.
3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.
4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
5. Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mounded berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
6. Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE F-17-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 22 - SILT FENCE



- Construction Specifications
1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.
 2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft ² / minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322
 3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
 4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-15-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

RESTORATION SCHEDULE

LOCATION AND MANHOLE NUMBER	RESTORATION TYPE
MANHOLE 1 TO MANHOLE 22	SEED AND MULCH
EXISTING MANHOLE TO MANHOLE 32	SEED AND MULCH

HOWARD SOIL CONSERVATION DISTRICT
STANDARD 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 (313-1855).
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 1994 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) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes steeper than 3:1; (b) 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 7 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, sod, temporary seeding, and mulching (Sec. G). Temporary stabilization with mulch alone shall 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	=	>7.4	Acres
Area Disturbed	=	3.7	Acres
Area to be Roofed or Paved	=	0.0	Acres
Area to be Vegetatively Stabilized	=	3.7	Acres
Total Cut	=	1865	Cu. Yds.
Total Fill	=	1575	Cu. Yds.
Other Waste/Borrow Area Location	=	Site with an approved and active grading permit.	
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 control 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 erosion and sediment controls, 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 made.
11. Trenches for the construction of utilities is limited to three pipe lengths or that which shall be backfilled and stabilized within one working day, whichever is shorter.

SEQUENCE OF CONSTRUCTION

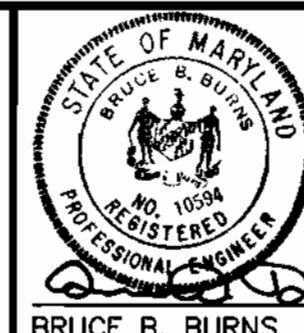
1. Notify Howard County Department of Inspections, Licenses and Permits (313-1855) at least 48 hours prior to beginning work on-site and obtain grading permit (1 day).
2. Clear and grub for sediment and erosion control measures or devices only (10 days).
3. Install all sediment and erosion control measures and devices including stabilized construction entrance. (10 days).
4. Notify Howard County Department of Inspections, Licenses and Permits upon completion of said installation (1 day).
5. With the approval of the Howard County Department of Inspections, Licenses and Permits, clear and grub remainder of site and stabilize immediately. (25 days).
6. Begin excavation and installation of utilities. Work shall be limited to three pipe lengths per Standard note no. 11. Stabilize work area at the end of each work day. (80 days).
7. Connect to existing utilities where applicable (5 days).
8. With permission from Sediment Control Inspector, remove stabilized construction entrance (2 days).
9. Stabilize all disturbed areas (2 days).
10. Following approval from the Howard County Department of Inspections, Licenses and Permits Inspector, remove all remaining sediment control measures and stabilize any remaining areas (2 days).

RECORD DRAWING
AS PER INFORMATION
SUPPLIED BY CONTRACTOR

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James J. ... 10/23/96
DIRECTOR OF PUBLIC WORKS DATE
Robert ... 10-22-96
CHIEF, BUREAU OF UTILITIES DATE
Robert ... 10-18-96
CHIEF, WATER AND SEWER DESIGN DIVISION DATE

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DES: BF			
DRN: SR			
CHK: JK			
DATE:	BY:	NO.	REVISION

SEDIMENT AND EROSION CONTROL
DETAILS

600' SCALE MAP NO. 41 BLOCK NO. 20 & 21

WESTERN SCHOOL COMPLEX
INTERCEPTOR SEWER
TAX MAP: 41 PARCEL:
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. 20-3506

SCALE
AS
SHOWN

SHEET
9 OF 10

PLAN & PROFILE

I. Description
The work shall consist of installing a flow diversion structure in conjunction with a temporary culvert crossing during in-stream construction such as utility crossings.

II. Construction Requirements

- All erosion and sediment control devices shall be installed as the first order of business.
- Pipes must be sized to accommodate normal stream flow.
- The flow barrier shall be constructed of sandbags, washed riprap, or other approved material as per WPD.3. The materials shall be sized to withstand normal stream flow velocities.
- All dewatering of the construction area shall be pumped to a dewatering basin (WPD.1) prior to re-entering the stream.
- The temporary culvert crossing shall be constructed in accordance with Standard Detail (TAC-1), 1983 Maryland Standards and Specifications for Sediment and Erosion Control.
- Sediment control devices shall remain in place until all disturbed areas have been stabilized in accordance with an approved sediment and erosion control plan and the inspecting authority approves their removal.

WATER RESOURCES ADMINISTRATION Culvert Pipe with Access Road Approved On 10/18/96
Chief, Waterway Permits WPD 2.1

SECTION AA

I. Description
The work shall consist of installing flow diversions for the purpose of erosion control when construction activities take place within the stream channel such as bank stabilization or bridge abutment construction.

II. Material Specifications

- Sandbags: Sandbags shall consist of materials which are resistant to ultraviolet radiation, tearing and puncture and woven tightly enough to prevent leakage of fill material (i.e., sand, fine gravel, etc.).
- Stone: Stone shall be washed and have a minimum diameter of 6 inches.
- Sheeting: Sheeting shall consist of polyethylene or other material which is impervious and resistant to puncture and tearing.

III. Construction Requirements

- All erosion and sediment control devices shall be installed as the first order of work.
- The diversion structure shall be installed from upstream to downstream.
- The height of the diversion structure shall be one half the distance from stream bed to stream bank plus one foot, as indicated on the cross-section view.
- All excavated materials shall be disposed of in a SCD approved disposal area outside the 100-year floodplain unless otherwise approved on the plans by the MRA.
- All dewatering of the construction area shall be pumped to a dewatering basin prior to re-entering the stream.
- Sheeting shall be overlapped such that the upstream portion covers the downstream portion with at least an 18-inch overlap.
- Sediment control devices are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspecting authority approves their removal.

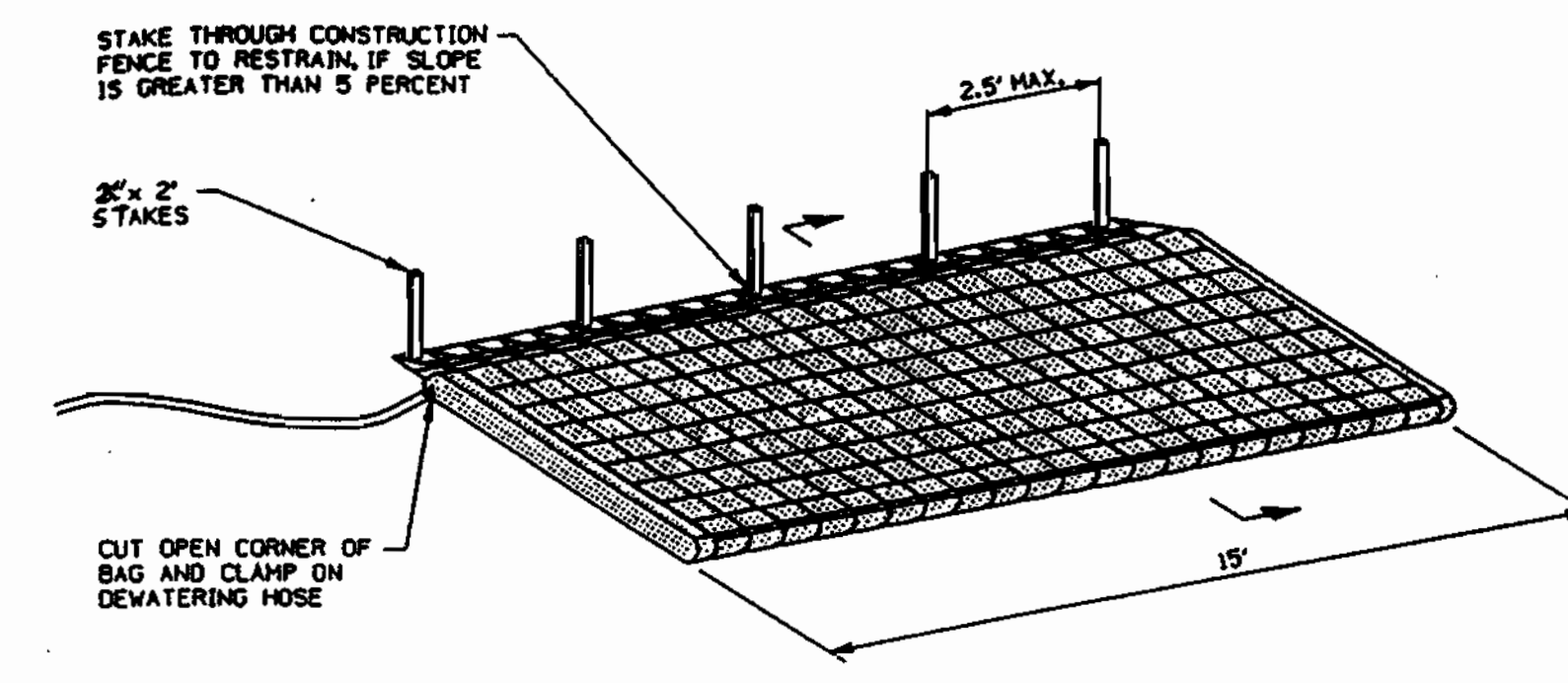
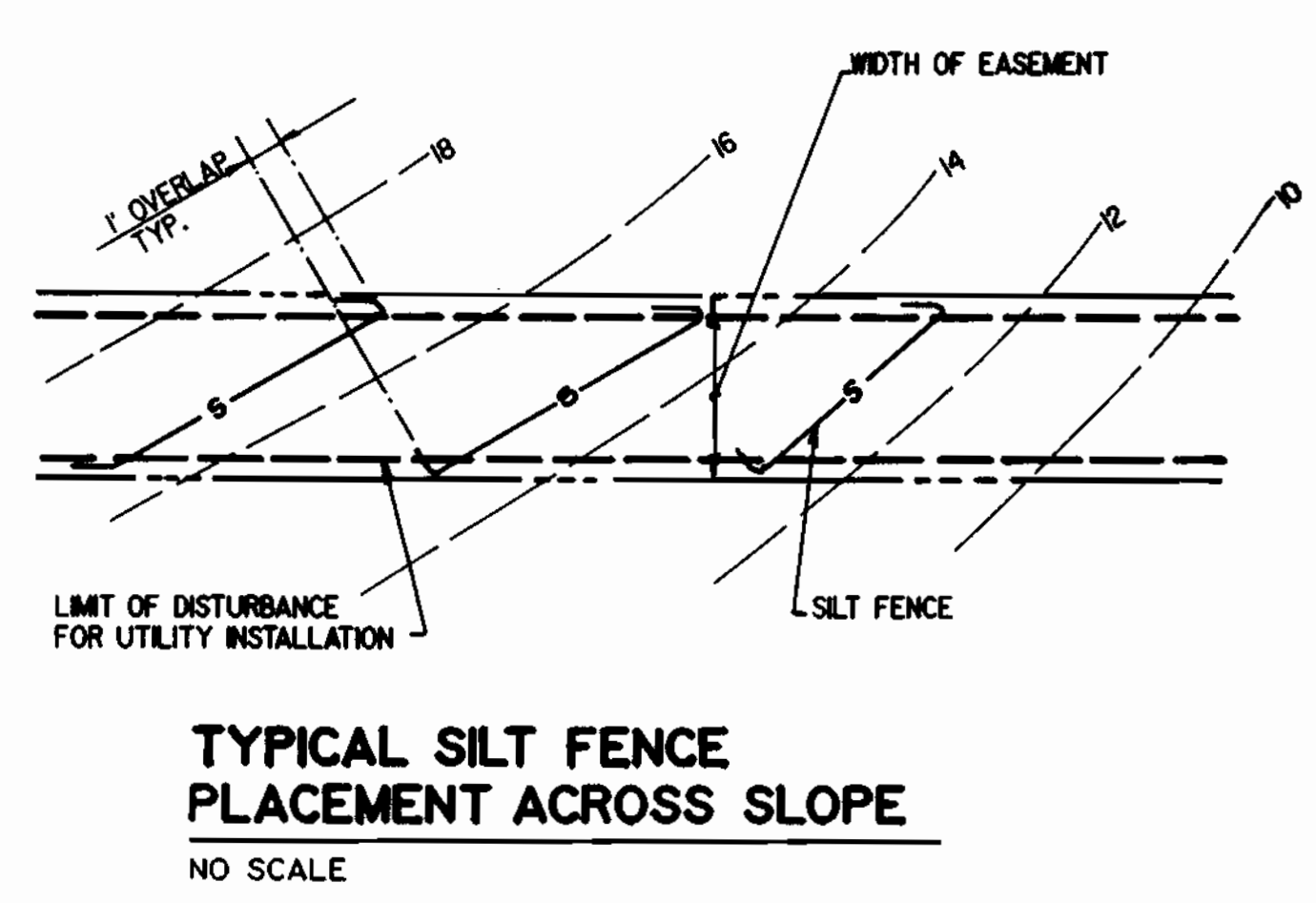
WATER RESOURCES ADMINISTRATION Sandbag/Stone Diversion Approved On 10/18/96
Chief, Waterway Permits WPD 2.3

CROSS SECTION

RIPPRAP GRADATION

Class	100 to 200 up to 2.0 ft/sec	200 to 300 up to 2.5 ft/sec	300 to 400 up to 3.0 ft/sec	400 to 500 up to 3.5 ft/sec	500 to 600 up to 4.0 ft/sec	600 to 700 up to 4.5 ft/sec	700 to 800 up to 5.0 ft/sec	800 to 900 up to 5.5 ft/sec	900 to 1000 up to 6.0 ft/sec
Class 1	100 to 200 up to 2.0 ft/sec	200 to 300 up to 2.5 ft/sec	300 to 400 up to 3.0 ft/sec	400 to 500 up to 3.5 ft/sec	500 to 600 up to 4.0 ft/sec	600 to 700 up to 4.5 ft/sec	700 to 800 up to 5.0 ft/sec	800 to 900 up to 5.5 ft/sec	900 to 1000 up to 6.0 ft/sec
Class 2	100 to 200 up to 2.0 ft/sec	200 to 300 up to 2.5 ft/sec	300 to 400 up to 3.0 ft/sec	400 to 500 up to 3.5 ft/sec	500 to 600 up to 4.0 ft/sec	600 to 700 up to 4.5 ft/sec	700 to 800 up to 5.0 ft/sec	800 to 900 up to 5.5 ft/sec	900 to 1000 up to 6.0 ft/sec
Class 3	100 to 200 up to 2.0 ft/sec	200 to 300 up to 2.5 ft/sec	300 to 400 up to 3.0 ft/sec	400 to 500 up to 3.5 ft/sec	500 to 600 up to 4.0 ft/sec	600 to 700 up to 4.5 ft/sec	700 to 800 up to 5.0 ft/sec	800 to 900 up to 5.5 ft/sec	900 to 1000 up to 6.0 ft/sec

**WATER RESOURCES ADMINISTRATION Riprap Approved On 10/18/96
Chief, Waterway Permits WPD 3.1**



- NOTES:**
- FILTER BAG SHALL BE PLACED ON A SLOPING OR LEVEL, WELL GRADED VEGETATED SITE SUCH THAT WATER WILL FLOW AWAY FROM DEVICE AND ANY WORK AREAS.
 - WIDTH AND LENGTH SHALL BE AS SHOWN.
 - THE FILTER BAG MUST BE STAKED IN PLACE AND SECURED TO THE PUMP DISCHARGE LINE.
 - FILTER BAG SHALL NOT BE USED FOR DISCHARGE FLOWS GREATER THAN 300 GPM.
 - DEVICE SHALL BE REMOVED AND DISPOSED OF AFTER BAG IS FILLED WITH SEDIMENT. SEDIMENT FROM BAG SHALL BE SPREAD IN AN UPLAND AREA.

FILTER BAG
TEMPORARY EROSION CONTROL MEASURE (FB)

PLAN VIEW

SECTION AA

SECTION BB

Alternatives

**WATER RESOURCES ADMINISTRATION Utility Crossing Approved On 10/18/96
Chief, Waterway Permits WPD 5.1**

RECORD DRAWING
AS PER INFORMATION
SUPPLIED BY CONTRACTOR

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

10/13/96
10-22-96

CHIEF, BUREAU OF ENGINEERING
CHIEF, WATER AND SEWER DESIGN DIVISION

RIEMER MUEGGE & ASSOCIATES, INC.
8818 Centre Park Drive Suite 200 Columbia, MD 21045
410-997-8900 FAX: 410-997-9282

A JOINT VENTURE

GEORGE, MILES & BUHR, LLP
1 North Park Drive Suite 204 Baltimore, MD 21030
410-584-8370 FAX: 410-584-9076

BRUCE B. BURNS # 10594

DES: BF					
DRN: SR					
CHK: JK					
DATE:					
BY:	NO.	REVISION	DATE		

SEDIMENT AND EROSION CONTROL

600' SCALE MAP NO. 41 BLOCK NO. 20 & 21

WESTERN SCHOOL COMPLEX
INTERCEPTOR SEWER
TAX MAP: 41 PARCEL:
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
CONTRACT NO. 20-3506

SCALE AS SHOWN

SHEET 10 OF 10