GENERAL NOTES

PART 1 - GENERAL

1. Approximate location of existing mains are shown. The Contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted supply. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer at the Contractor's expense.
2. All horizontal controls are based on Maryland State Coordinates.
3. All vertical controls are based on U.S.G.S. data.
4. All pipe elevations shown are invert elevations.
5. 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.
6. For details not shown on the drawings and for materials and construction methods, use Howard County Design Manual, Volume IV, Standard Specifications and Details for Construction (latest edition). The Contractor shall have a copy of Volume IV on the job.
7. 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.
8. Contractor shall notify the following utility companies or agencies at least five (5) working days before starting work shown on these plans:

a. SHA:	(410) 531-5533
b. BGE (Contractor Services):	(410) 850-4620
c. BGE (Underground damage control):	(410) 787-9068
d. Miss Utility:	1-800-257-7777
e. Colonial Pipeline Company:	(410) 795-1390
f. Howard County Dept. of Public Works, Bureau of Utilities:	(410) 313-4900
g. Howard County Health Department:	(410) 313-2640

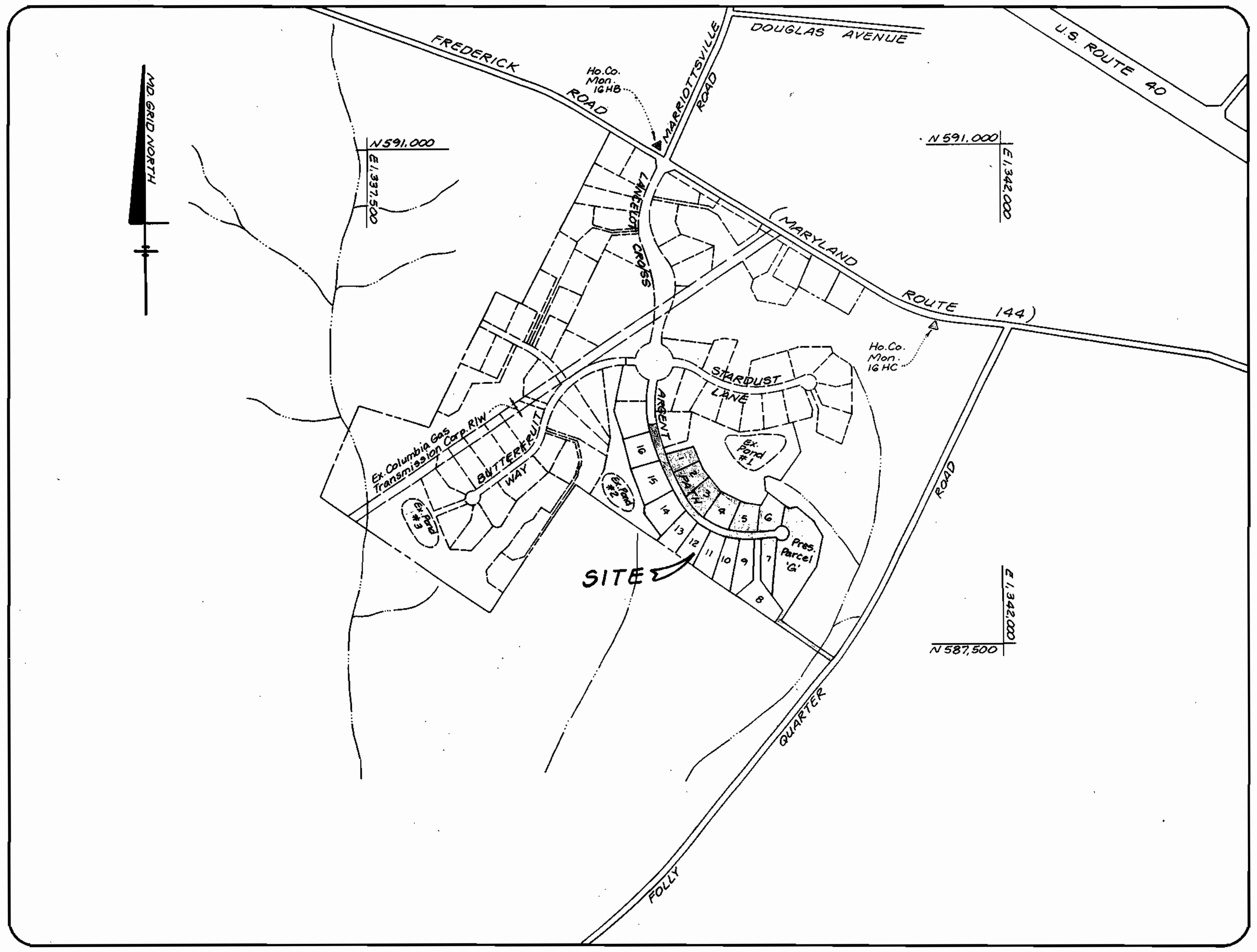
9. Trees and shrubs are to be protected from damage to maximum extent. Trees and shrubs within the construction strip are not to be removed or damaged by the Contractor.
10. Contractor shall remove trees, stumps and roots along line of excavation. Payment for such removal shall be included in the unit price bid for construction of the main.
11. The Contractor shall notify the Bureau of Highways - Howard County, at (410) 313-2450 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.

PART 3 - SEWER

12. All sewer mains to be D.I.P Class 52,and P.V.C. unless otherwise noted.
13. The Contractor shall provide a joint in all sewer mains within 2'-0" of exterior manhole wall.
14. All manholes shall be 4'0" inside diameter unless otherwise noted.
15. Force mains shall be SDR 21 P.V.C.
16. Manholes shown with twelve (12) inch and sixteen (16) inch walls are for brick manholes only.
17. All manholes are to be constructed on undisturbed earth.
18. Manholes designated W.T. in plan and profile shall have watertight frame & covers, Standard Detail G 5.52 where watertight manhole frame & cover is used, set top of frame 1'-6" above finished grade unless otherwise noted on the drawings.
19. Houses with the symbol "C.N.S." indicates that cellar cannot be served.

NOTES:

1. A Septic Fee in the amount of $180 per Lot serviced by the common septic system shall be paid to the Howard County Environmental Health Department at the time of the septic construction permit issuance.
2. The builder shall install a backflow preventer and relief vent on the sewer service at the house. At the time of the house construction or as required by the plumbing inspector.
3. Contractor shall notify the Construction Inspection Division (410-313-1880) at least fourteen (14) days prior to construction.
4. Septic tanks shall be vacuum tested on-site by the manufacturer. Septic tank shop drawings from the manufacturer should be submitted to the Howard County Environmental Health Department prior to any installation of the septic tanks.
5. All pressure sewer is to be pressure tested according to the Howard County Department of Public Works Standards and Specifications.
6. The contractor shall notify Howard County Health Department at (410) 313-2640 at least five (5) working days before any pressure test of pressure sewers, and any septic tanks vacuum or water testing is performed.
7. The builder shall be responsible for the requirements and method of installation of grinder pump and its appurtenances.
8. Observation well to be installed after trench installation is completed.
9. The portions of the public sewer line which are closer than 50 feet to any well will be encased in concrete or constructed out of welded steel as required by COMAR 26.04.04.05.
10. LDE, Inc shall perform all as-built surveys and drawing recordation for the sewer system as specified by the Developer Agreement, including the as-built survey of the septic trench portion of the shared septic system for the Health Department approval.



VICINITY MAP

Scale: 1"=600'

Type of Building	Single Family Detached
No. of Lots / Parcels (Buildable)	16
No. of Non Buildable Lots	1 (Preservation Parcel 'G')
No. of SHC's to Shared System	7 (Lots 1-7)
Drainage Area	Middle Patuxent
Treatment Plant	Brantwood Shared Septic System

WATER & SEWER COUNTY CODE	
WATER CODE	N/A
SEWER CODE	N/A
TEST GRADIENT	N/A

INDEX OF SHEETS

SHEET NO.	TITLE
1	Cover Sheet
2	Plan View
3	Sewer Profiles
4	Details
5	Details
6	Details
7	Sediment and Erosion Control Plan
8	Sediment and Erosion Control Details

BENCH MARKS:

Howard County Monument # 16HC
Elevation: 449.451
Description: Concrete Monument .2' below surface. South side MD 144, 0.1 Mile West Folly Quarter Road

Howard County Monument # 16HB
Elevation: 540.658
Description: Concrete Monument flush with surface. 21.9' South of centerline MD 144, 147.5' West of Marriottsville Road

TRENCH REQUIREMENTS

- Use 750 GPD per House
- = 750 x 7 Houses = 5,250 GPD
- 5,250 GPD / 1 GPD / sq.ft. = 5,250 sq.ft. Effective Area
- 5,250 sq.ft. / 3 ft. Wide Trench
- = 1,750 Linear Feet Required

LEGEND

▨	PUBLIC SEWER & UTILITY EASEMENT
〰	EXISTING TREE LINE
▭	PROPOSED DWELLING
▨	PROPOSED SEPTIC FIELD
● WELL	PROPOSED WELL

Wastewater Collection, Treatment, and Disposal System

BRANTWOOD

SECTION TWO - AREA TWO

LOTS 1 - 7 AND PRESERVATION PARCEL "G"

3rd Election District

Howard County, Maryland

CONTRACT NO. 50-3816-D

QUANTITIES

ITEM	QUANTITIES ESTIMATED	RECORD QUANTITIES	RECORD TYPE	RECORD MANUFACTURER/SUPPLIER
4" Sewer	253 LF			
8" Sewer	961 LF			
Manholes	7			
"Resilient Seat" Gate Valve	2			
3000 Gal. Septic Tank	2			
Ho.Co. S-2.22 "SHC"	7			
"Dial-A-Flow" Levelers	18			
Zabel A 100-HIP Filter	2			
2500 Gal. Septic Tank	2			
Distribution Box	1			
Leaching Field	1750 LF			
				CHECK BOX:
NAME OF UTILITY CONTRACTOR:				SURVEY & DRAFTING DIVISION AS BUILT DATE:

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET TECHNICAL REQUIREMENTS.

[illegible] 12/9/99
Signature Date
NATURAL RESOURCES CONSERVATION SERVICE

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

[illegible] 12/9/99
HOWARD SOIL CONSERVATION DISTRICT DATE

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE STANDARD SPECIFICATION AND FINAL ROAD CONSTRUCTION PLANS: **F 99-149**

APPROVED: FOR PRIVATE WATER AND PUBLIC SEWERAGE SYSTEMS HOWARD COUNTY HEALTH DEPARTMENT

[illegible] 11/24/99
County Health Officer Date

DEPARTMENT OF PUBLIC WORKS

[illegible] Dec 8, 1999
CHIEF-BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING & ZONING

[illegible] 12/13/99
CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE

LDE, INC.
9250 RUMSEY ROAD, SUITE 106
COLUMBIA, MARYLAND 21045
(410) 715-1070 (301) 596-3424
Fax: (410) 715-9540

STATE OF MARYLAND
No. 19184 REGISTERED
PROFESSIONAL ENGINEER

DESIGNED	EDS/BDB
DRAWN	KBW
CHECKED	BDB
DATE	11 / 99

BY	NO.	REVISION	DATE

TITLE SHEET

600 SCALE MAP NO. 23 BLOCK 22

SEWER HOUSE CONNECTION TABLE

Lot #	Inv. @ Main	Inv. @ PL	Min. Cellar El.
1	484.54	484.72	488.0 (1)
2	483.54	483.88	487.5 (1)
3	482.09	482.39	486.0 (1)
4	481.27	481.57	485.5 (1)
5	480.20	482.56	484.5 (1)
6	479.20	480.00	481.0 (2)
7	479.12	480.32	481.0 (2)

1. First Floor Gravity Service Only Lots 2-5 Require Interior Sewage Pump for Basement Service.
2. Exterior Sewage Pump Required for First Floor Service Interior Sewage Pump required for basement service.

SEWER MANHOLE LOCATION DATA

MH #	Northing	Easting
1	588347.018	1340395.899
2	588323.939	1340202.104
3	588339.517	1340074.912
4	588392.306	1339936.910
5	588475.472	1339820.700
6	588587.886	1339724.490
7	588724.109	1339653.222

NOTES:

1) SEE SHEET 3 FOR TRENCH DATA TABLE.
2) FOR LANDSCAPING PLAN AND DETAILS FOR PRESERVATION PARCEL 'G', SEE SHEET 11 OF 12 (F99-149).
3) FOR SPLIT RAIL FENCE DETAIL, SEE SHEET 7.

Approved: For Private Water and Public Sewerage Systems Howard County Health Department.

Diane Matuszak M.D. / [signature] 11/24/99
County Health Officer — Date

DEPARTMENT OF PUBLIC WORKS

Robert M Beringer Dec 8, 1999
CHIEF-BUREAU OF UTILITIES — DATE

DEPARTMENT OF PLANNING & ZONING

[signature] 12/13/99
CHIEF-DEVELOPMENT ENGINEERING DIVISION — DATE

LDE, INC.
9250 RUMSEY ROAD, SUITE 106
COLUMBIA, MARYLAND 21045
(410) 715-1070 (301) 596-3424
Fax: (410) 715-9540

STATE OF MARYLAND — BRUCE DAVID BURTON — No. 19183 REGISTERED PROFESSIONAL ENGINEER

DESIGNED: EDS
DRAWN: CADD / KBW
CHECKED: BDB
DATE: 11 / 99

BY	NO.	REVISION	DATE

PLAN VIEW

600 SCALE MAP NO. 23 — BLOCK 22

Wastewater Collection, Treatment, and Disposal System

BRANTWOOD

SECTION TWO - AREA TWO

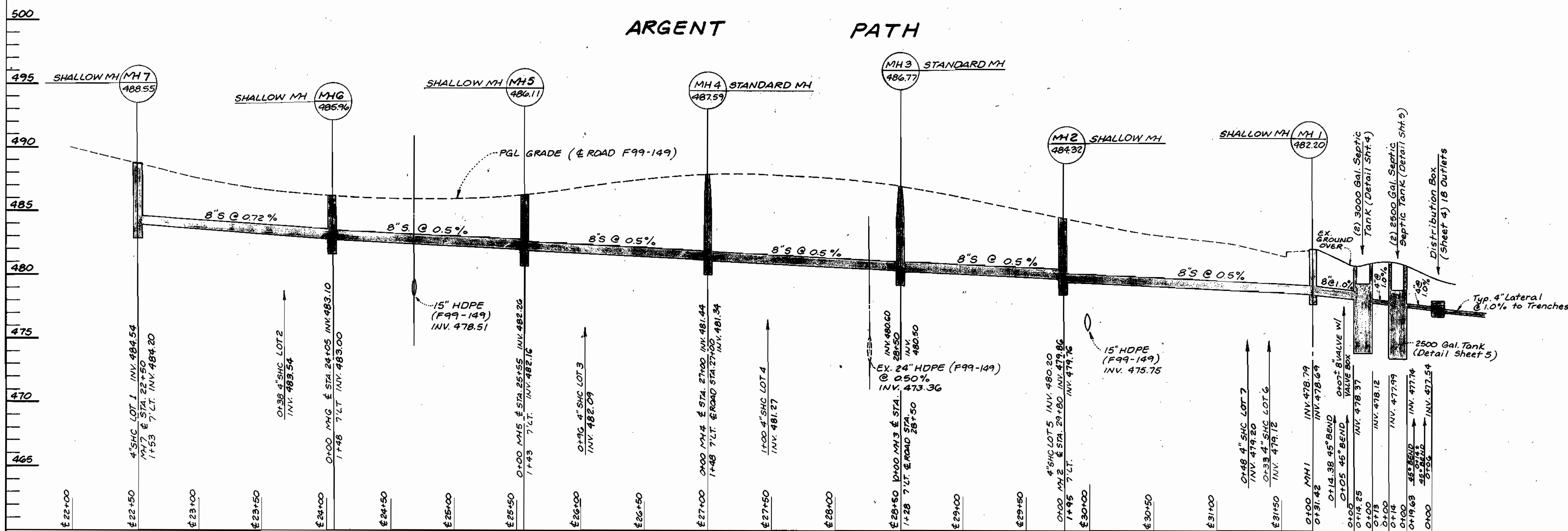
LOTS 1 THRU 7 & PRESERVATION PARCEL 'G'

3rd Election District — Howard County, Maryland

CONTRACT NO. 50 - 3816 - D

SCALE: 1" = 50'

SHEET: 2 OF 7



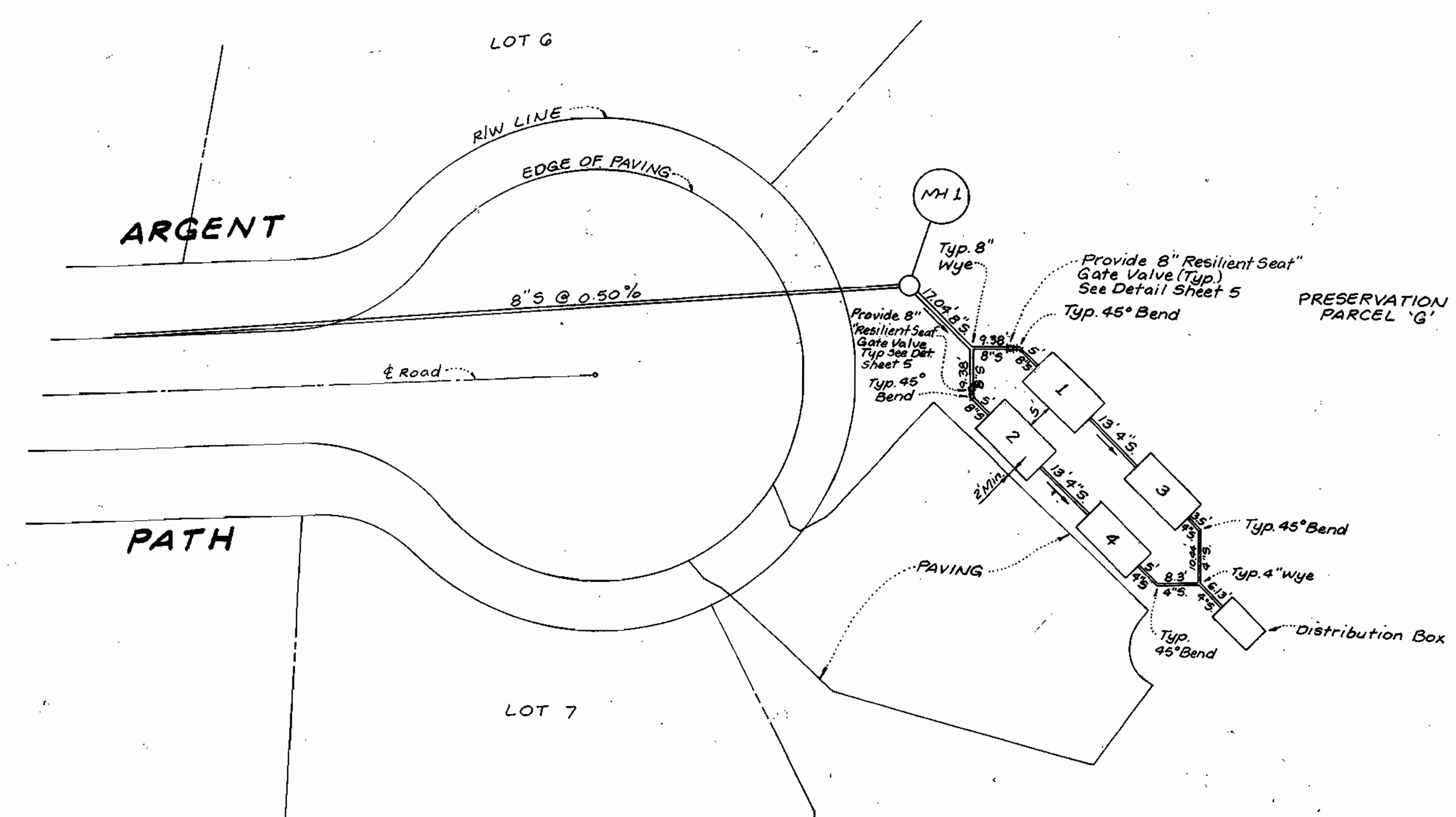
TRENCH DATA TABLE

TRENCH No.	EX. GRADE @ TRENCH	INVERT TRENCH	BOTTOM TRENCH	LENGTH
1L	480.00	477.00	475.00	85 ft.
2L	479.50	476.50	474.50	90 ft.
3L	479.00	476.00	474.00	100 ft.
4L	478.50	475.50	473.50	100 ft.
5L	478.00	475.00	473.00	100 ft.
6L	477.25	474.25	472.25	100 ft.
7L	476.50	473.50	471.50	100 ft.
8L	475.35	472.35	470.35	100 ft.
9L	474.65	471.65	469.65	100 ft.
1R	480.00	477.00	475.00	85 ft.
2R	479.50	476.50	474.50	90 ft.
3R	479.00	476.00	474.00	100 ft.
4R	478.50	475.50	473.50	100 ft.
5R	478.00	475.00	473.00	100 ft.
6R	477.00	474.00	472.00	100 ft.
7R	476.00	473.00	471.00	100 ft.
8R	474.00	471.00	469.00	100 ft.
9R	472.00	469.00	467.00	100 ft.

NOTE: ALL TRENCHES TO 100 ft. MAXIMUM LENGTH, 3 ft. WIDE WITH A MINIMUM SEPARATION OF 10 ft. BETWEEN THE CENTERLINE OF THE TRENCHES.

Percolation Test Data Chart

Percolation Test Hole Numbers	Percolation Test Time	Depth to Water Table
1107	2 min.	Dry @ 12 feet - 9/27/95
1008	1 min.	Wet @ 10 feet - 9/27/95
1009	not tested	Dry @ 11 feet - 3/18/96
1010	2 min.	Dry @ 12 feet - 9/27/95
1011	2 min.	Dry @ 12 feet - 9/26/95
1012	2 min.	Dry @ 11.5 feet - 9/26/95
1013	2 min.	Dry @ 12 feet - 9/26/95
1014	2 min.	Dry @ 12 feet - 9/21/95
1115	1.5 min.	Dry @ 13 feet - 9/21/95
1116	5 min.	Dry @ 12.5 feet - 9/21/95
1117	2 min.	Dry @ 12 feet - 9/21/95
8001	2 min.	Dry @ 13 feet - 9/24/99
8002	4 min.	Dry @ 13 feet - 9/24/99
8003	2 min.	Dry @ 13 feet - 9/24/99
9019	not tested	Wet @ 6.5 feet - 5/2/97
9020	not tested	Wet @ 6.5 feet - 5/2/97
9021	not tested	Wet @ 7.0 feet - 5/2/97
9022	not tested	Wet @ 9.0 feet - 5/2/97



TANK LOCATION PLAN VIEW

SCALE : 1" = 20'

NOTE: 1) FOR TANK COORDINATE INFORMATION REFER TO SHEETS 4 & 5 OF 7.

Approved: For Private Water and Public Sewerage Systems Howard County Health Department.

Diane Matuszak M.D. / [illegible] 11/24/99
County Health Officer Date

DEPARTMENT OF PUBLIC WORKS

Robert M. Beringer Dec. 8, 1999
CHIEF-BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING & ZONING

[illegible] 12/13/99
CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE

LDE, INC.
9250 RUMSEY ROAD, SUITE 106
COLUMBIA, MARYLAND 21045
(410) 715-1070 (301) 596-3424
Fax: (410) 715-9540

STATE OF MARYLAND BRUCE DAVID BURTON No. 19138 REGISTERED PROFESSIONAL ENGINEER

DESIGNED EDS
DRAWN KBW
CHECKED BDB
DATE 11 / 99

BY	NO.	REVISION	DATE

PROFILE

600 SCALE MAP NO. 23 BLOCK 22

Wastewater Collection, Treatment, and Disposal System

BRANTWOOD

SECTION TWO - AREA TWO

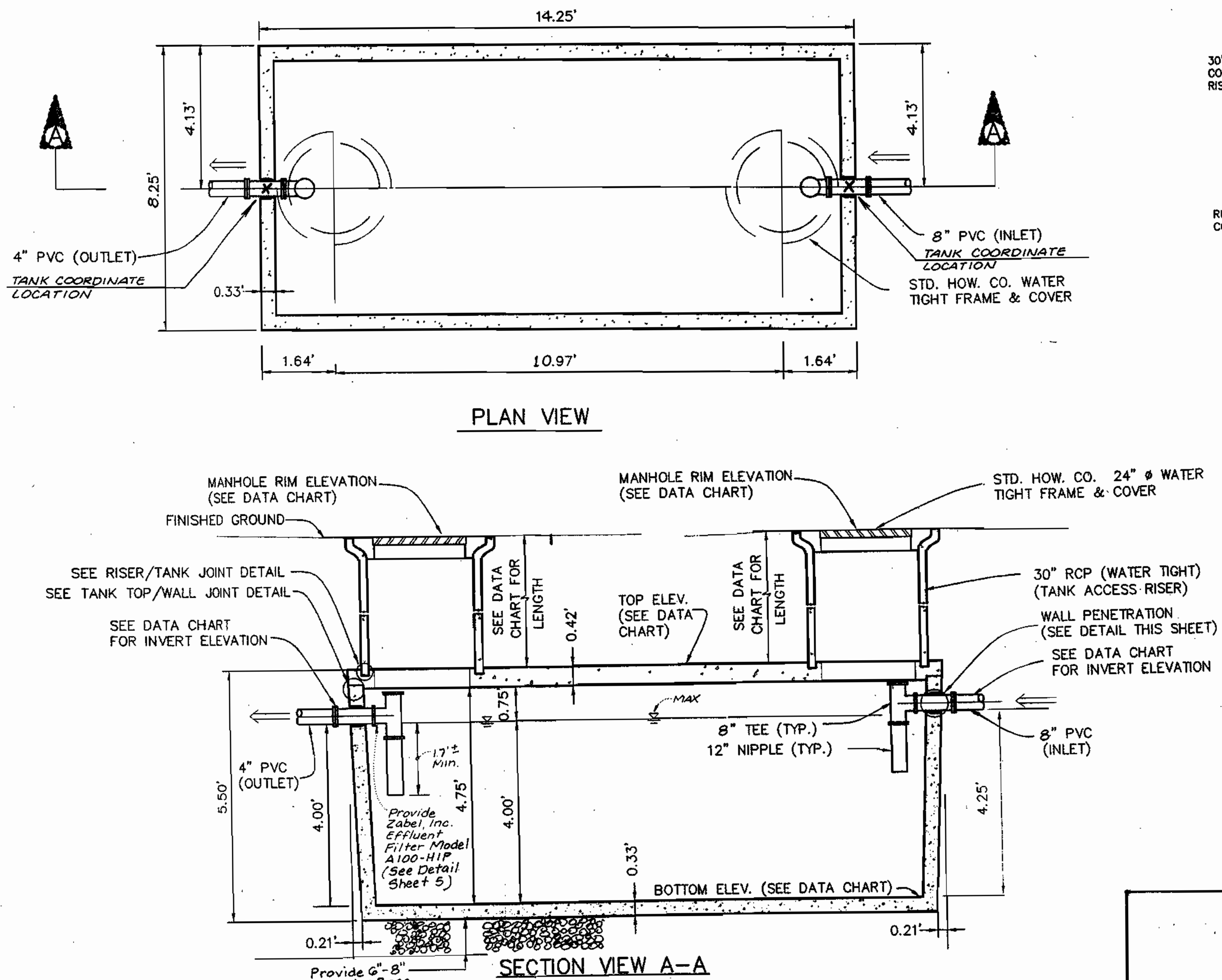
LOTS 1 THRU 7 & PRESERVATION PARCEL 'G'

3rd Election District Howard County, Maryland

CONTRACT NO. 50-3816-D

SCALE AS SHOWN

SHEET 3 OF 7

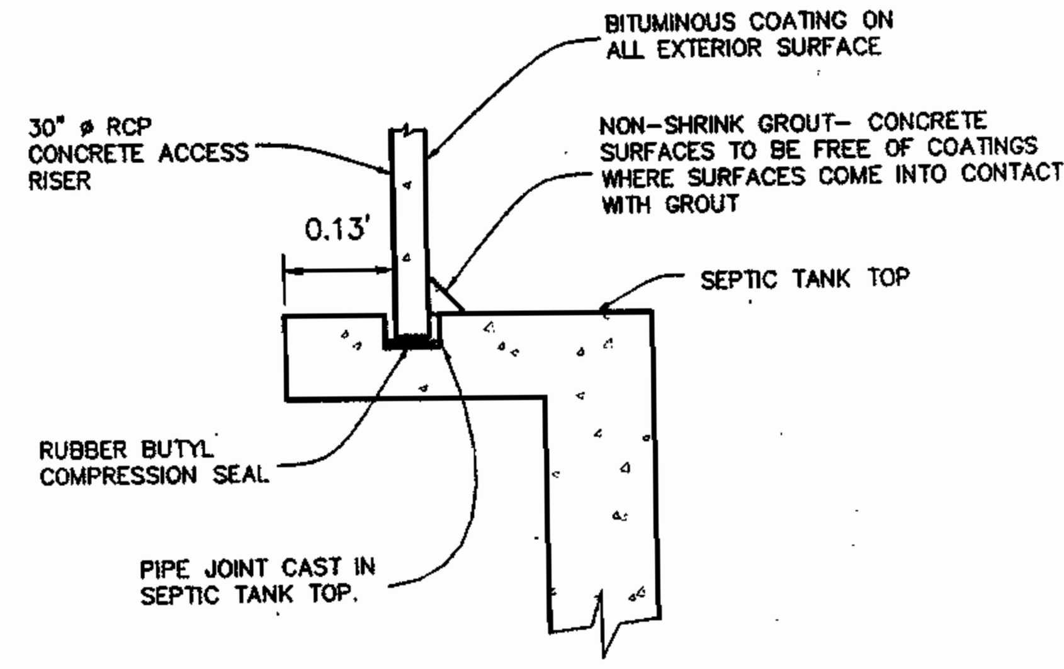


SECTION VIEW A-A

PLAN VIEW

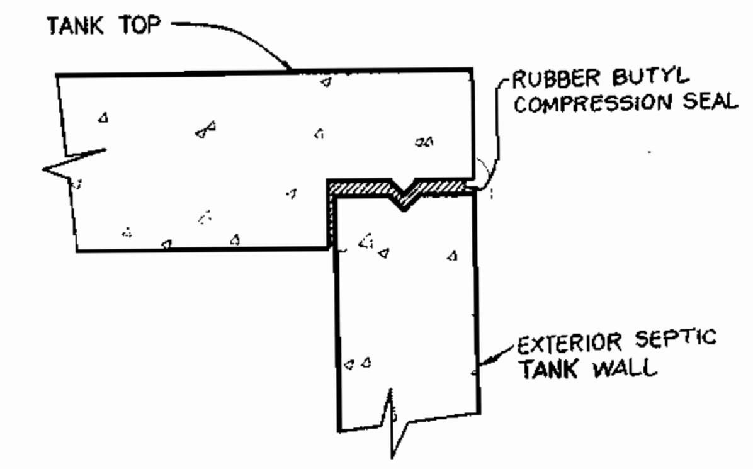
3000 GALLON SEPTIC TANK SECTION AND DETAIL

SCALE: 1" = 2'



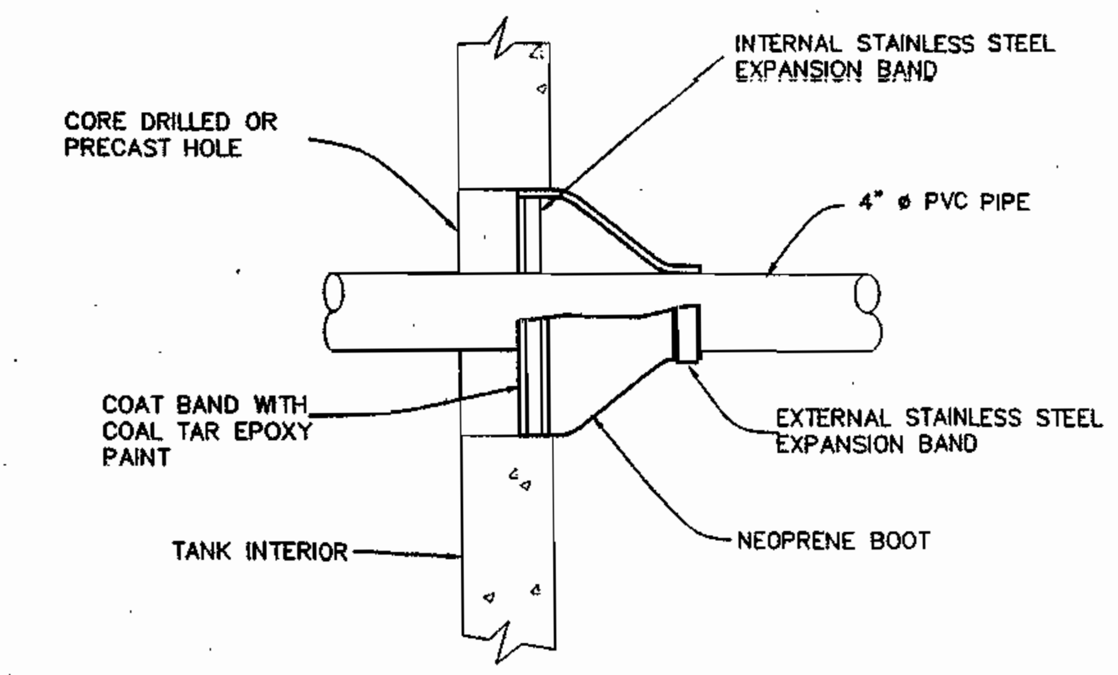
RISER/TANK JOINT DETAIL

NOT TO SCALE



TANK TOP/WALL JOINT DETAIL

NOT TO SCALE



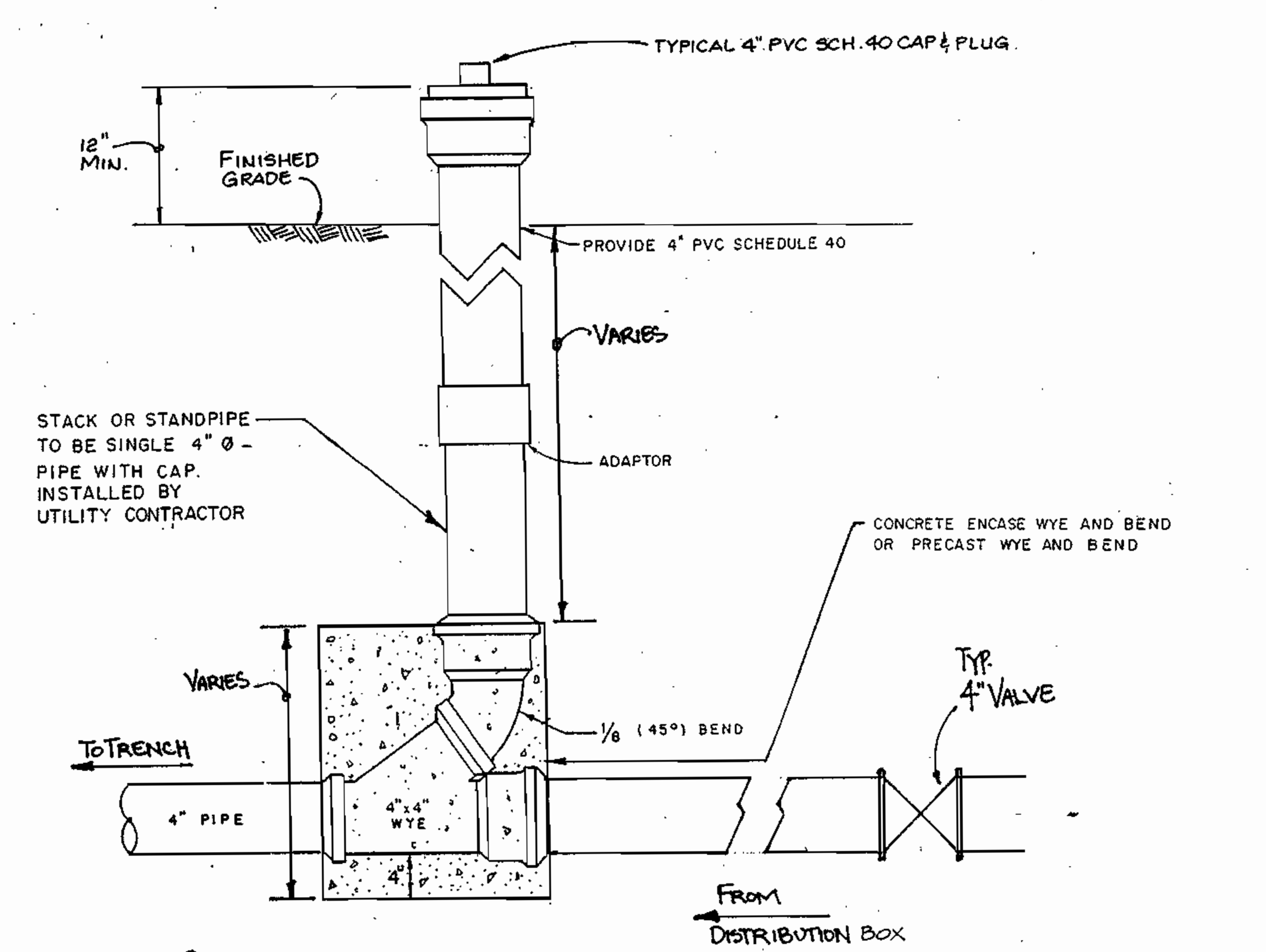
WALL PENETRATION DETAIL

NOT TO SCALE

SEPTIC TANK DATA

	TANK ELEVATION	INVERT ELEVATION	TANK COORDINATES	MANHOLE RIM ELEVATION	REMARK
3000 GALLON TANK NO. 1	479.29 TOP	INV. IN. 478.37	N 588332.57 E 1340421.53	480.70	TANK BY SUPERIOR TANK, INC. OR EQUAL
	474.12 BOT.	INV. OUT 478.12	N 588322.95 E 1340432.05	481.00	
3000 GALLON TANK NO. 2	479.29 TOP	INV. IN. 478.37	N 588322.78 E 1340412.59	480.70	TANK BY SUPERIOR TANK, INC. OR EQUAL
	474.12 BOT.	INV. OUT 478.12	N 588313.17 E 1340423.11	480.50	
2500 GALLON TANK NO. 3	478.91 TOP	INV. IN 477.99	N 588314.18 E 1340441.65	481.00	TANK BY SUPERIOR TANK, INC. OR EQUAL
	473.74 BOT.	INV. OUT 477.74	N 588304.74 E 1340451.98	480.75	
2500 GALLON TANK NO. 4	478.91 TOP	INV. IN 477.99	N 588304.39 E 1340432.70	480.70	TANK BY SUPERIOR TANK, INC. OR EQUAL
	473.74 BOT.	INV. OUT 477.74	N 588294.95 E 1340443.04	480.70	

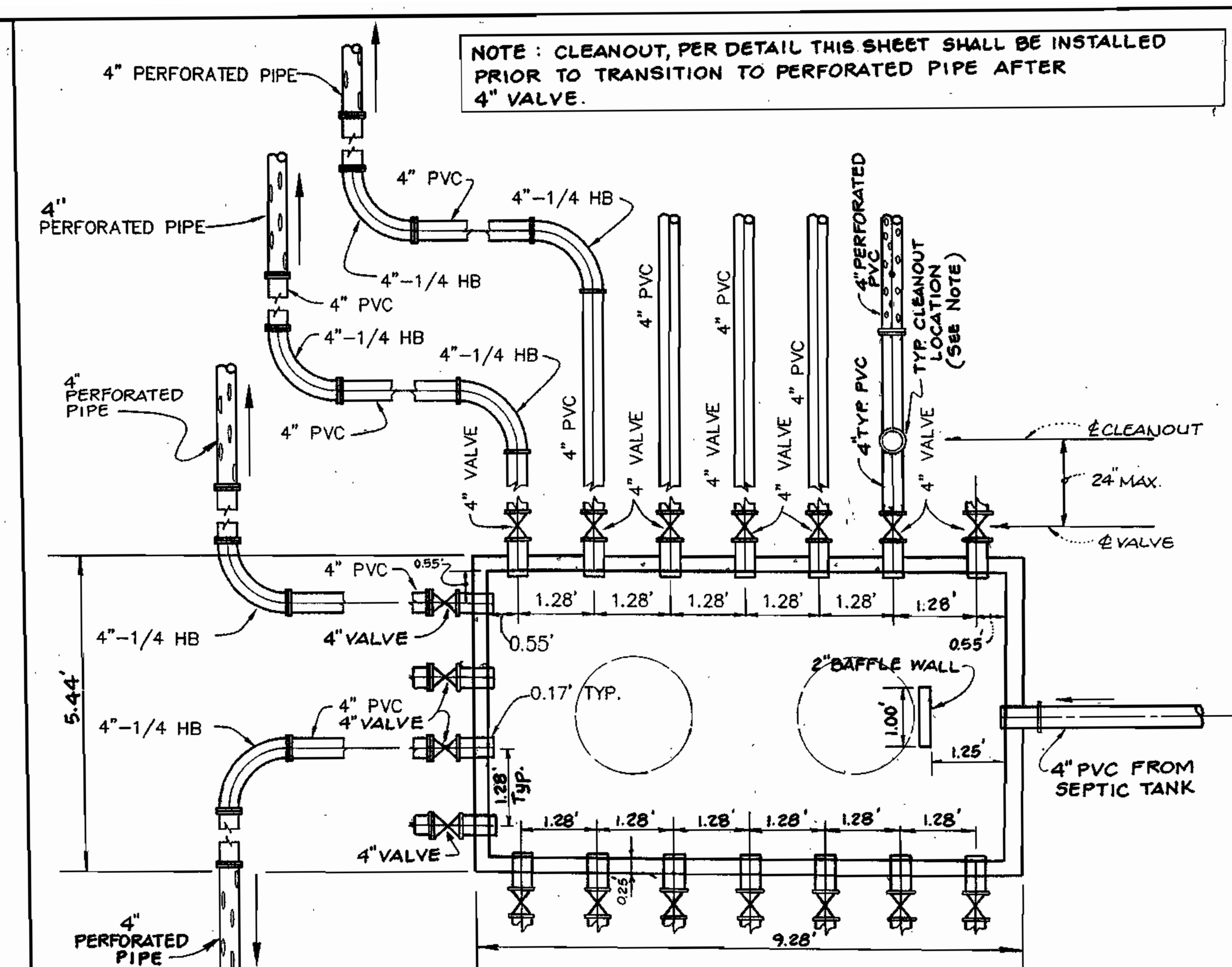
NOTE: 1) MANHOLE RIM ELEVATION SHOWN HEREON IS AT THE CENTER OF THE RIM.
2) TANK COORDINATES ARE AT THE MIDPOINT / ℄ OF EACH END. SEE SECTION A-A PLAN VIEW ABOVE.
3) FOR 2500 GALLON SEPTIC TANK SECTION & DETAIL, SEE SHEET 5 OF 8.



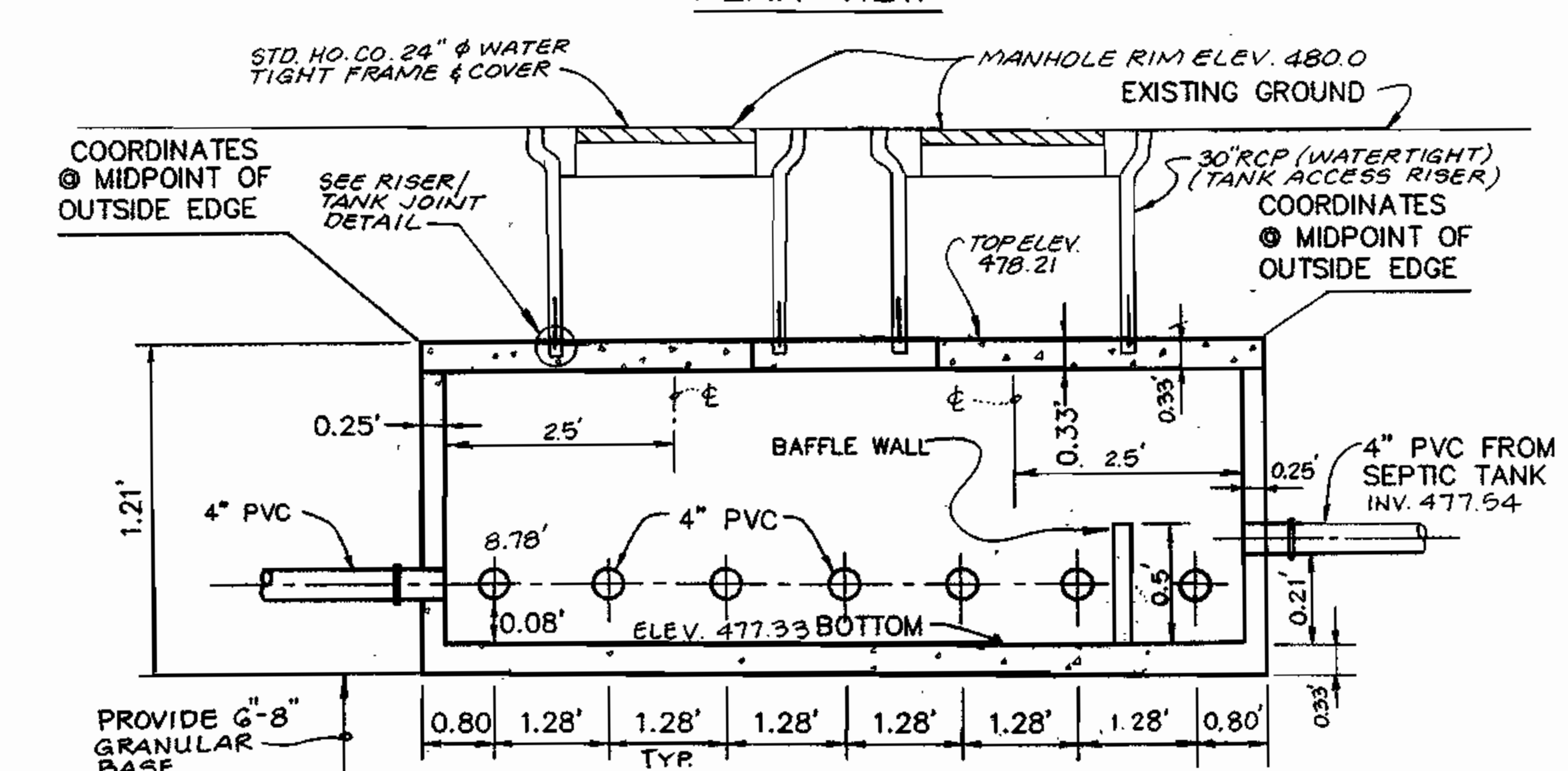
SEWER CLEANOUT @ DISTRIBUTION BOX

MODIFIED Ho. Co. S-2.22 - NOT TO SCALE

NOTE : CLEANOUT, PER DETAIL THIS SHEET SHALL BE INSTALLED PRIOR TO TRANSITION TO PERFORATED PIPE AFTER 4" VALVE.



PLAN VIEW



SECTION VIEW

DISTRIBUTION BOX COORDINATES DATA

	INLET SIDE	OUTLET SIDE
SEPTIC AREA 1	N 588287.814 E 1340459.543	N 588281.553 E 1340466.393

TYPICAL CONCRETE DISTRIBUTION BOX DETAIL

NOT TO SCALE

NOTE: ① TO INSURE EQUAL DISTRIBUTION TO LATERAL, PROVIDE "DIAL-A-FLOW" WHICH FIT IN THE OUTLET PORTS OF EACH LATERAL LEAVING THE BOX. REFER TO SPECIFICATIONS SHEET 5 OF 7.

Approved: For Private Water and Public Sewerage Systems Howard County Health Department.
[illegible] M.D. 11/24/99
County Health Officer Date

DEPARTMENT OF PUBLIC WORKS
Robert M Beumer Dec 8 1999
CHIEF-BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING & ZONING
[illegible] 12/13/99
CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE

LDE, INC.
9250 RUMSEY ROAD, SUITE 106
COLUMBIA, MARYLAND 21045
(410) 715-1070 (301) 596-3424
Fax: (410) 715-9540

STATE OF MARYLAND BRUCE DAVID [illegible] No. [illegible] REGISTERED PROFESSIONAL ENGINEER

DESIGNED	EDS
DRAWN	KBW
CHECKED	BDB
DATE	11 / 99

BY	NO.	REVISION	DATE

DETAILS

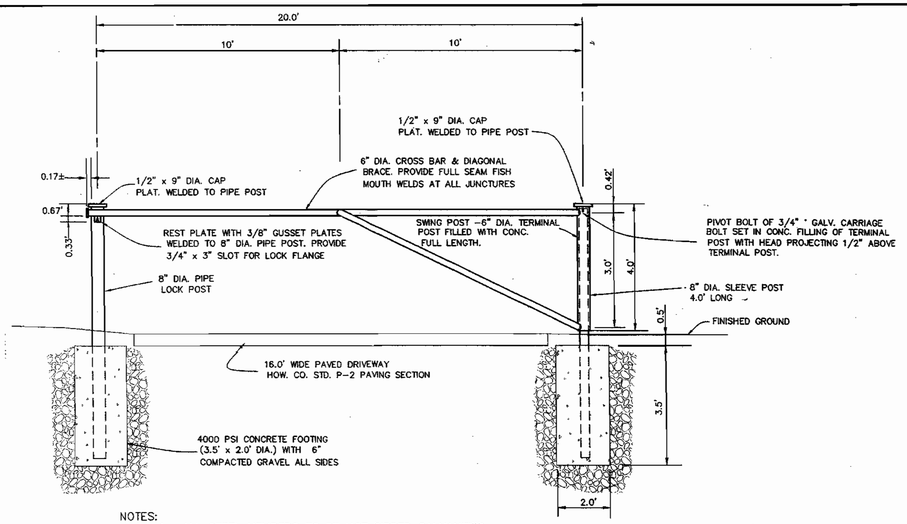
600 SCALE MAP NO. 23 BLOCK 22

Wastewater Collection, Treatment, and Disposal System

BRANTWOOD

SECTION TWO - AREA TWO
LOTS 1 THRU 7 & PRESERVATION PARCEL 'G'
3rd Election District Howard County, Maryland
CONTRACT NO. 50 - 3816 - D

SCALE AS SHOWN

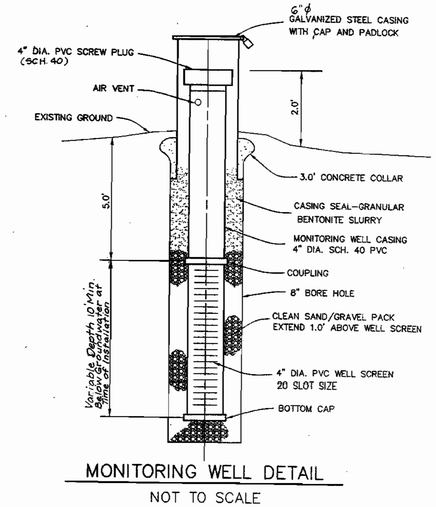


NOTES:

1. ALL STEEL MEMBERS TO BE HOT DIPPED GALVANIZED.
2. PROVIDE REFLECTIVE TAPES ON CENTER OF POSTS AND CROSSBARS.
3. PADLOCK TO BE KEYED TO HOWARD CO. PDW MASTER KEY SYSTEM.

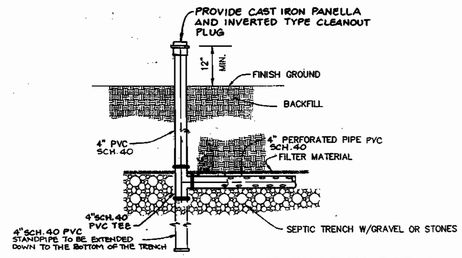
SWING GATE DETAIL

NOT TO SCALE



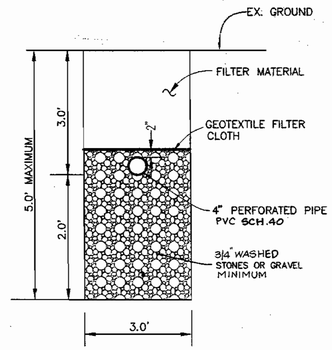
MONITORING WELL DETAIL

NOT TO SCALE



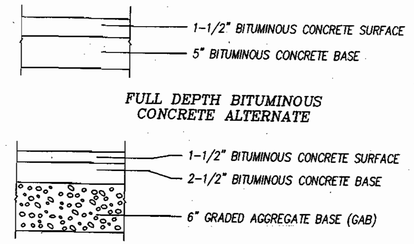
DISTRIBUTION LATERAL TERMINATION DETAIL

NOT TO SCALE

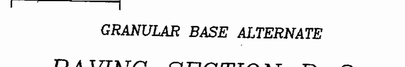


SEPTIC TRENCH DETAIL

NOT TO SCALE



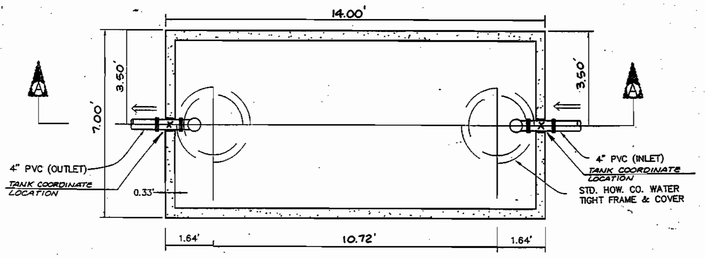
FULL DEPTH BITUMINOUS CONCRETE ALTERNATE



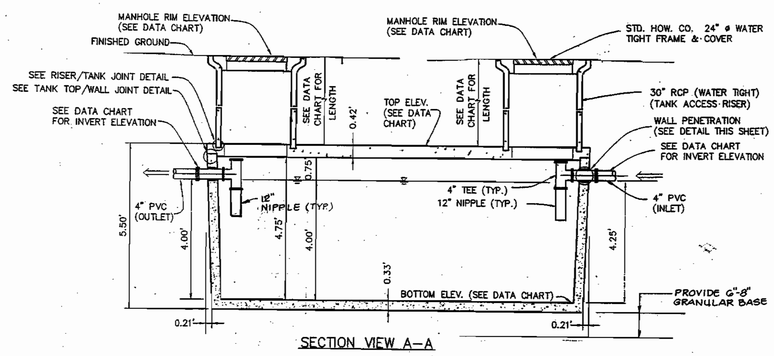
GRANULAR BASE ALTERNATE

PAVING SECTION P-2

NOT TO SCALE



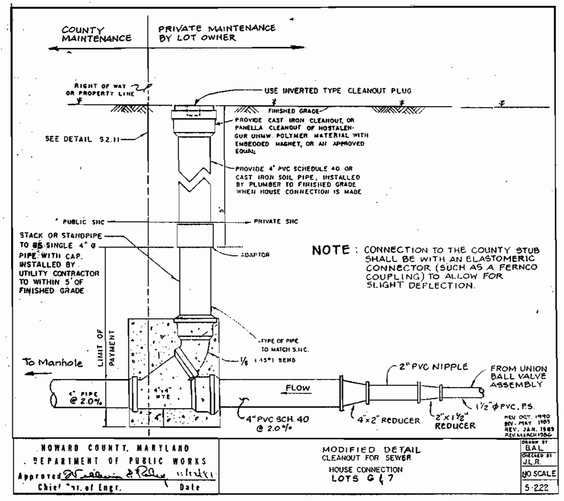
PLAN VIEW



SECTION VIEW A-A

2500 GALLON SEPTIC TANK SECTION AND DETAIL

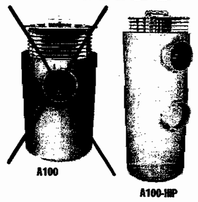
NOT TO SCALE

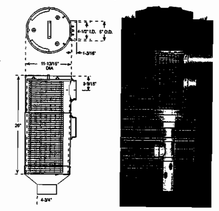


Approved: For Private Water and Public Sewerage Systems
Howard County Health Department

Diane Matuszak M.D. /Bfm 11/24/99
County Health Officer Date

A100-HIP





Zabel® Recommendation: Any configuration of Risers used **should not** exceed 48" in height.

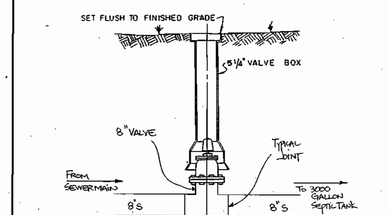
The product(s) shown are covered by one or more of the following patents:
U.S. 5,382,357, 5,482,621, 5,683,577, 5,580,453, 5,582,716, 5,591,331, 4,710,295, 5,593,584,
U.S. Des. 386,241,349067, 4605501,5095568, Des. 309007, Canadian: 2,135,937 New Zealand: 264824,
Other Patents Pending

Zabel™ A100 Series
Commercial & Residential Effluent Filter
Product Specification

1. Product Name: Zabel™ A100 Commercial & Residential Effluent Filter, U.S. Patent: 4,710,295
2. Model Numbers: A100 Case & Cartridge; A101 Cartridge Only; A100-HIP Case & Cartridge; A101-HIP Cartridge Only
3. Applications: Apartments, trailer parks, schools, churches, shopping centers, and offices; Septic dump stations and community treatment plants; Single and Multi-family homes
4. Performance Specification
   4.1. Model A100: 3,000 gpd
   4.2. Model A100-HIP: 4,500 gpd
   4.3. Multiple filters may be installed in manifolds to handle larger flows. Use a Zabel Flow Control Plate Model FC100 to set the effluent flow to predetermined limits.
   4.4. TSS: Reductions in TSS within six months of installation - 50 to 90 percent. The higher the pre-filtered TSS the greater the percentage of reduction.
   4.5. BOD_5 Reduction in BOD_5 within six months of installation - 20 to 45 percent is dependent on the make-up of the wastewater.
5. Materials: All materials are non-corrosive. Case & Lid - PVC; Filter discs - Polystyrene; Rods - Polyethylene; Nuts - Nylon. A100-HIP rods and nuts are stainless steel.
6. New System Installation: Center the top of the 12 inch Filter Case under an outlet access opening at least 16 inches in diameter. PVC solvent weld the bell coupling to the 4 inch Schedule 40 PVC exit pipe of the tank as required by local code. The PVC outlet pipe should extend at least 18 inches beyond the outside face of the tank wall. If required to meet depth requirements, install a Zabel™ Extension Reducer and 4-inch Schedule 40 pipe to the bottom of the filter case. A riser to grade is recommended. High performance double stack (Model A100-HIP) filters and multiple filters installed in manifolds will require additional support and access.
7. Existing System Installation: The filter may be installed in an existing septic tank if an outlet access opening already exists and the filter can be installed without damaging the existing tank. If a 4-inch Schedule 40 PVC pipe does not extend into the tank, the filter can be installed utilizing a plumbing flange. If the existing septic tank cannot be used, the filter can be installed using a Zabel™ Container Assembly Model CA100 or Zeus™ Basin System.
8. Service: A professional onsite service company should perform all onsite system service.
9. Service Method: Grasp the filter handle and pull the filter cartridge upward. A Zabel™ 36" T-Handle is available if required to reach filters more than 12 inches below grade. Hose off the cartridge into the tank and reinsert into the case. If required, the filter may be disassembled for further cleaning.
10. Service Frequency: The filter requires cleaning when the septic tank is normally inspected and pumped as required by local regulation. The A100s are designed to slough most normal solids off the inside of the vertical disc dam walls and back into the tank when the effluent flow is in a resting state. Installation of an effluent filter may increase the frequency of service if the homeowner discharges materials that are harmful to the system.
11. Warranty: The A100s are warranted to be free from defects in material and workmanship for the life of the original purchaser. Zabel's™ liability is limited to repair or replacement of the part and in no event shall Zabel™ be liable for any consequential damages of any kind.
12. Dimensions:

A100-HIP	12"	26"	1/16"	1,018.08 in³	2,908.8 in²	297

Typical 8" Gate Valve



ELEVATION
N.T.S.

Specification: Dial-A-Flow®

Provide a non-corrosive flow control device to be rotateably secured in the discharge piping of the drainfield distribution box. The device shall have a 1-15/16" diAmeter eccentrically located circular opening to provide a uniform weir in any rotated position. The device shall have a leveling lip extending into the box 1/8". The sealing means shall be a cylindrical extension inside the pipe with radially extending seal to initiate contact with pipe at least 3/4" inside the pipe. The device shall be provided with a gripping edge on the periphery of the end faces for easy rotation. The gripping edge shall consist of six uniform extensions and valleys for easy finger gripping.

The device shall be made of low density polyethylene, and one piece construction. This seal shall also be capable of snapping behind a corrugation of standard 4" corrugated pipe. The flow control device shall be Dial-A-Flow® as manufactured by American Manufacturing Company, Inc., Manassas, VA.

Featuring One Piece Construction

Flow Control:

The American Dial-A-Flow® provides a circular weir. Each outlet of the distribution box will equally discharge wastewater upon rising water level in the box. When the opening becomes submerged the Dial-A-Flow® becomes an orifice and further enhances equal distribution.

Installation Instructions

1. Cut pipe as evenly as possible and remove shavings.
2. Insert pipe into distribution box and extend pipe 1" into box.
3. Insert Dial-A-Flow® into pipe ends with opening to one side (do not use glue.)
   Note: Proper cutting of corrugated pipe will result in Dial-A-Flow® snapping behind one corrugation.
4. Level pipe individually or place level on orifice lip.
5. Purge pipes in concrete boxes into place with suitable material.
6. Fill with water and "DIAL UP" each pipe to water surface.

4" Nominal	
SCHEDULE40	SDR 35
ASTM 3034	ASTM 2729
S & D	CORRUGATED

NOTE:
ASTM does not set standards for I.D. of many types of pipe. Many types of pipe are specified by O.D. and wall thickness tolerances. Make sure you check your regionally available pipe for fit prior to ordering the green or the gray unit. Ask for our free sample for size check.

AMERICAN MANUFACTURING COMPANY, INC.
Last revised: May-13-1998 – Comments to: info@americanonsite.com

DEPARTMENT OF PUBLIC WORKS

Robert Berning Dec 8 1999
CHIEF-BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING & ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE 12/13/99

LDE, INC.
9250 RUMSEY ROAD, SUITE 106
COLUMBIA, MARYLAND 21045
(410) 715-1070 (301) 596-3424
Fax: (410) 715-9540

STATE OF MARYLAND — BRUCE DAVID LEWIS — No. 19151 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED	EDS
DRAWN	
CHECKED	BDB
DATE	11 / 99

BY	NO.	REVISION	DATE

DETAILS

600 SCALE MAP NO. 23 BLOCK 22

Wastewater Collection, Treatment, and Disposal System

BRANTWOOD

SECTION TWO – AREA TWO

LOTS 1 THRU 7 & PRESERVATION PARCEL 'G'

3rd Election District Howard County, Maryland

CONTRACT NO. 50 - 3816 - D

SCALE AS SHOWN

SHEET 5 OF 7

SEWER MANHOLE LOCATION DATA		
MH #	Northing	Easting
1	588347.018	1340395.899
2	588323.939	1340202.104
3	588339.517	1340074.912
4	588392.306	1339936.910
5	588475.472	1339820.700
6	588587.886	1339724.490
7	588724.109	1339653.222

E 1339600
N 588000

WALTER W. and JANET T. BECK
Liber 925 / Folio 42
Zoned: RC

NOTE: The Limit of Disturbance shown on this plan provides construction of the shared system located on Preservation Parcel 'G'. The construction located beyond the Limit of Disturbance shown is provided under F99-149.

Approved: For Private Water and Public Sewerage Systems
Howard County Health Department.
Diane Matuszak M.D. / [signature] 11/24/99
County Health Officer — Date

DEPARTMENT OF PUBLIC WORKS
[signature] Dec 8 1999
CHIEF-BUREAU OF UTILITIES — DATE

DEPARTMENT OF PLANNING & ZONING
[signature] 12/13/99
CHIEF-DEVELOPMENT ENGINEERING DIVISION — DATE

LDE, INC.
9250 RUMSEY ROAD, SUITE 106
COLUMBIA, MARYLAND 21045
(410) 715-1070 (301) 596-3424
Fax: (410) 715-9540

STATE OF MARYLAND — BRUCE DAVID [illegible] — No. 19184 REGISTERED — PROFESSIONAL ENGINEER

DESIGNED: EDS
DRAWN: CADD / KBW
CHECKED: BDB
DATE: 11 / 99

BY	NO.	REVISION	DATE

Soil Erosion & Sediment Control Plan View

600 SCALE MAP NO. 23 — BLOCK 22

Wastewater Collection, Treatment, and Disposal System
BRANTWOOD
SECTION TWO - AREA TWO
LOTS 1 THRU 7 & PRESERVATION PARCEL 'G'
3rd Election District — Howard County, Maryland
CONTRACT NO. 50-3816-D

SCALE 1" = 50'

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 most current "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", and revisions thereto.
3. Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater 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 (Section G) for permanent seeding, sod, temporary seeding, and mulching. 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	4.0116	Acres
Area Disturbed	1.44	Acres
Area to be roofed or paved	0.08	Acres
Area to be vegetatively stabilized	1.32	Acres
Total Cut	—	Cu. Yds.
Total Fill	—	Cu. Yds.
Offsite waste/borrow area location	N/A	

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 can be back filled and stabilized within one working day, whichever is shorter.

HOWARD SOIL CONSERVATION DISTRICT
PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

SEEDBED PREPARATION: Loosen upper three inches of soil by raking, disking, or other acceptable means before seeding, if not previously loosened.

SOIL AMENDMENTS: In lieu of soil test recommendations, use one of the following schedules:
1) PREFERRED — Apply 2 tons per acres dolomitic limestone (92 lbs/1000sq. ft.) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000sq. ft.)
2) ACCEPTABLE — Apply 2 tons per acres dolomitic limestone (92 lbs/1000sq. ft.) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil.

SEEDING — For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/1000sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs per acre (1.4 lbs/1000sq. ft.) of Kentucky 31 Tall Fescue and 2 lbs. per acre (.05 lbs/1000sq. ft.) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) – 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) – Use sod. Option (3) – Seed with 60 lbs.per acre Kentucky 31 Tall Fescue and mulch 2 tons / acre well anchored straw.

MULCHING — Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000sq. ft.) for anchoring.

MAINTENANCE — Inspect all seeding areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

SEEDBED PREPARATION: Loosen upper three inches of soil by raking, disking, or other acceptable means before seeding, if not previously loosened.

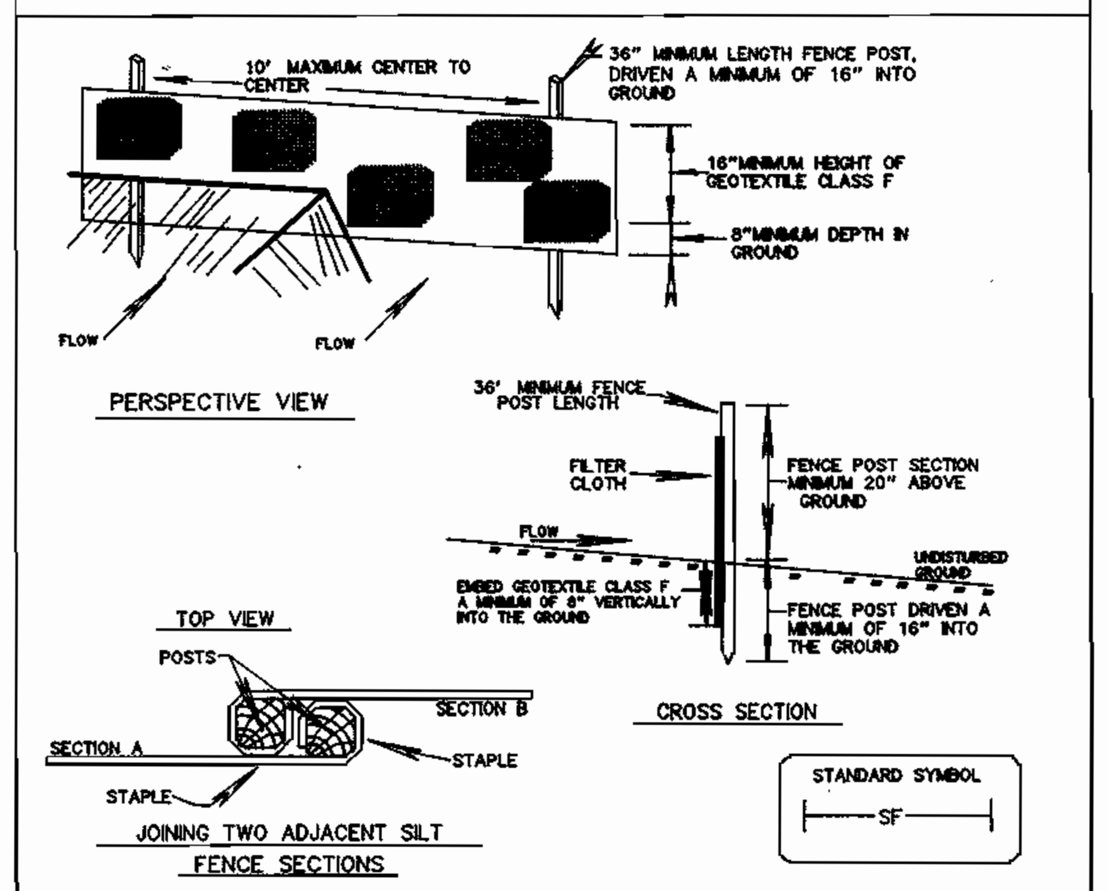
SOIL AMENDMENTS: — Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000sq. ft.).

SEEDING — For periods March 1 thru April 30, and from August 15 thru October 15 seed with 2-12 bushels per acre of annual rye (3.2 lbs/1000sq. ft.). For the period May 1 thru August 14, seed with 3 lbs. per acre of weeping lovegrass (.07 lbs/1000sq. ft.). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

MULCHING — Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000sq. ft.) of unrotted weed free small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000sq. ft.) for anchoring.

Refer to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional rates and methods not covered.

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 pound per linear foot.

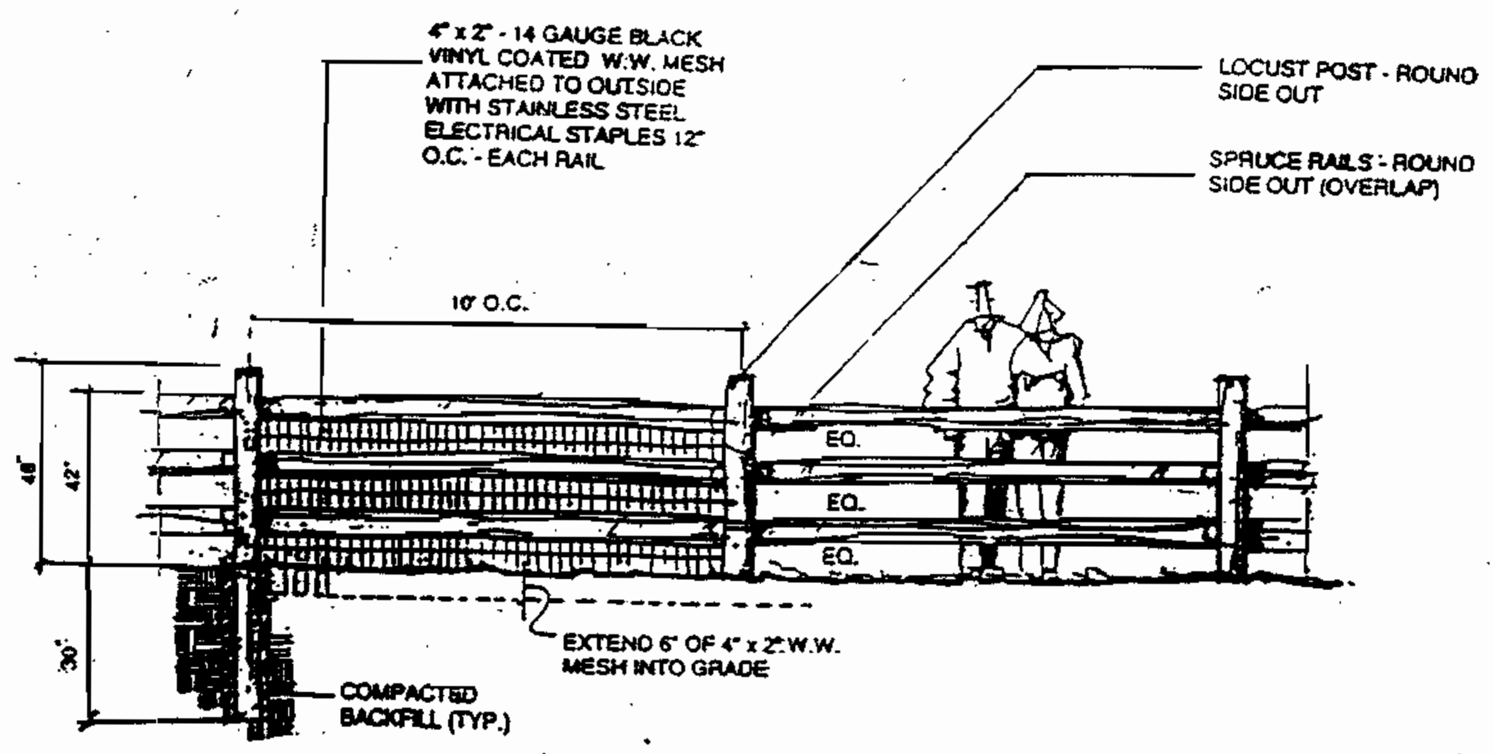
2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft / 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.

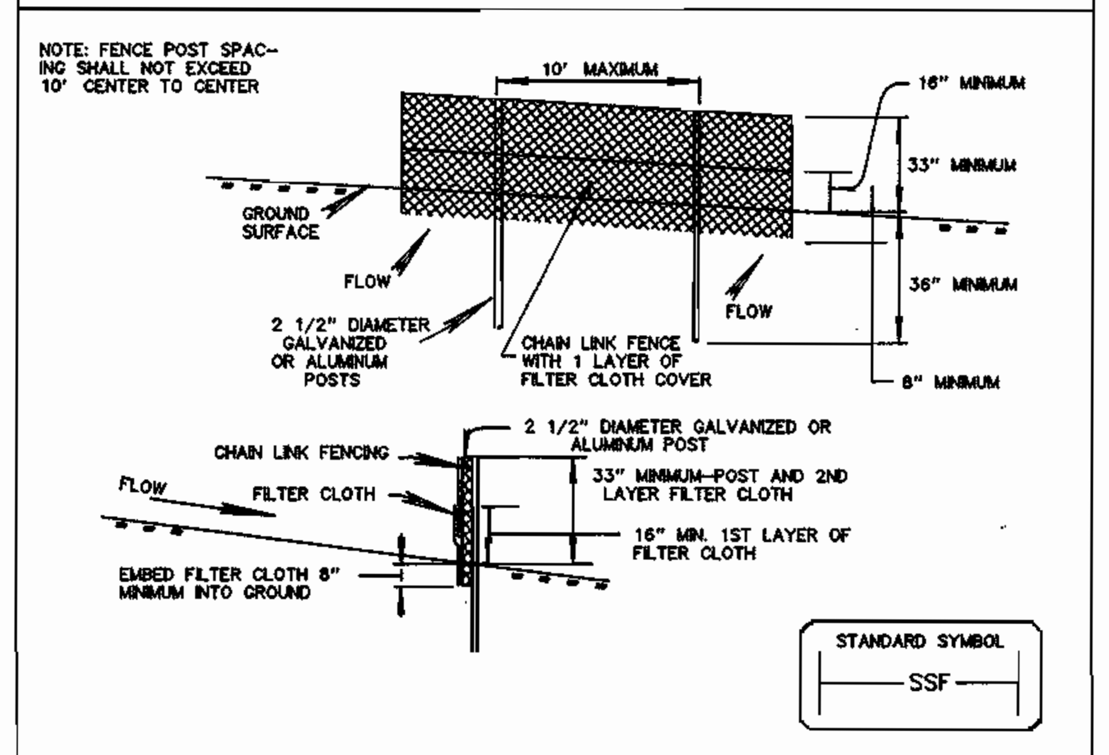
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 15 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



SPLIT RAIL FENCE
THREE RAIL 4 FEET HIGH
NOT TO SCALE

EVERGREEN TREE PLANTING DETAIL
N.T.S.

DETAIL 33 – SUPER SILT FENCE



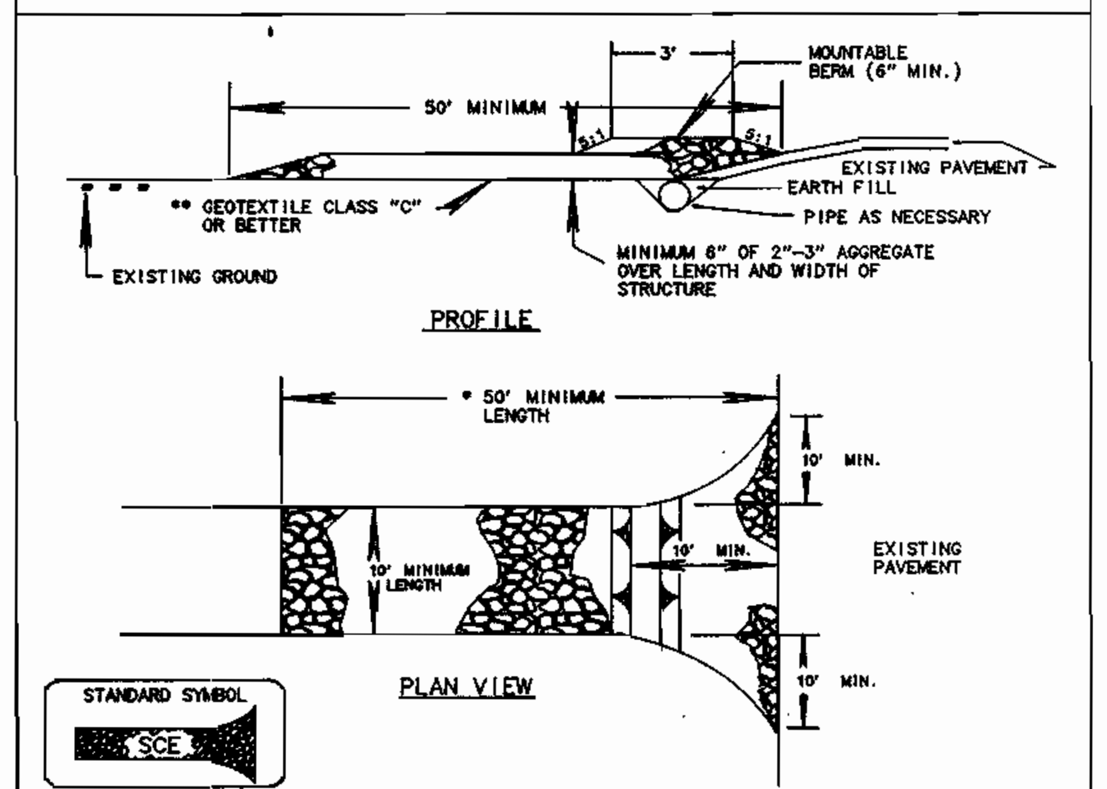
Construction Specifications

Fencing shall be 42 inches in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6 foot fence shall be used, substituting 42 inch fabric and 6 foot length posts.

1. The poles do not need to set in concrete.
2. Chain link fence shall be fastened securely to the fence posts with wire ties or staples.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H – 26 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

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 mountable 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

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

Definition

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

Purpose

To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

Conditions Where Practice Applies

I. This practice is limited to areas having 2:1 or flatter slopes where:

a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
c. The original soil to be vegetated contains material toxic to plant growth.
d. The soil is so acidic that treatment with limestone is not feasible.

II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.

II. 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 11/2" 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.

III. 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.

IV. 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.

V. 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.

VI. 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.

Approved: For Private Water and Public Sewerage Systems
Howard County Health Department
Diane Matuszak M.D. [illegible] 11/24/99
County Health Officer
Date

DEPARTMENT OF PUBLIC WORKS
[illegible] Dec 8, 1999
CHIEF-BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING & ZONING
[illegible] 12/13/99
CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE

LDE, INC.
9250 RUMSEY ROAD, SUITE 106
COLUMBIA, MARYLAND 21045
(410) 715-1070 (301) 596-3424
Fax: (410) 715-9540

STATE OF MARYLAND
BRUCE DAVID BURTON
No. 19184
REGISTERED
PROFESSIONAL ENGINEER

DESIGNED	EDS
DRAWN	CADD
CHECKED	BDB
DATE	11 / 99

BY	NO.	REVISION	DATE

Soil Erosion & Sediment Control Details

600 SCALE MAP NO. 23 BLOCK 22

Wastewater Collection, Treatment, and Disposal System
BRANTWOOD
SECTION TWO – AREA TWO
LOTS 1 THRU 7 & PRESERVATION PARCEL 'G'
3rd Election District Howard County, Maryland
CONTRACT NO. 50-3816-D

SCALE AS SHOWN