

SHEET INDEX	
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1	TITLE SHEET
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6	GRINDER PUMP WIRING & OTHER DETAILS, AND SEDIMENT CONTROL NOTES & DETAILS
7	FORCE MAIN PLAN AND DETAILS

QUANTITIES				
ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUF. / SUPPLIER
SIMPLEX GRINDER PUMP	1 EA.	1 EA.		
DUPLEX GRINDER PUMP	3 EA.	3 EA.		
1 1/2" HOUSE CONNECTION	240 L.F.	240 LF		
1 1/2" FORCE MAIN	2231 L.F.	2230 LF		
TERMINAL FLUSHING CONNECTION	1 EA.	1 EA		
IN-LINE FLUSHING CONNECTION (INLINE PRESSURE CLEANOUT)	5 EA.	5 EA		
*TRANSITION MH*	1 EA.	1 EA		
4" PVC SCH. 40 PERFORATED LATERAL	3,243 L.F.		PRECAST CONC.	MONARCH PRODUCTS
4" PVC SCH. 40 GRAVITY PIPE	3,838 L.F.		SCH 40 PVC	JM EAGLE
6" PVC SCH. 40 GRAVITY PIPE	1,464 L.F.		SCH 40 PVC	JM EAGLE
3,000 GALLON SEPTIC TANK	4 EA.	4 EA	PRECAST CONC.	MONARCH PRODUCTS
DISTRIBUTION BOX (VARIOUS SIZES)	7 EA.	7 EA	PRECAST CONC.	MONARCH PRODUCTS
SEPTIC TANK EFFLUENT FILTER	1 EA.	1 EA		POLYLOK MODEL #625 & 535
4" Ø PVC SCH. 40 LATERAL INSPECTION	53			
6" GATE VALVE AT DB-1	6 EA	6 EA	GATE VALVE	KENNEDY
NAME OF UTILITY CONTRACTOR <b>FOGLE CONSTRUCTION</b>				
SURVEY AND DRAFTING DIVISION AS-BUILT DATE: <b>5-19-10</b>				

SHARED SEPTIC SYSTEM FLOW TABLE			
SHARED SEPTIC SYSTEM	# OF LOTS	# OF BEDROOM HOUSE	TOTAL SYSTEM FLOW
SHARED SEPTIC SYSTEMS A & B	7 LOTS	5 - 5 BEDROOMS 2 - 4 BEDROOMS	4,950 GPD

- NOTE :
- A SEPTIC FEE IN 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.
  - A SIGNED "DECLARATION OF COVENANTS" WILL BE REQUIRED ON SHARED SEPTIC LOTS.
  - THE BUILDER SHALL INSTALL BACK FLOW PREVENTER AND RELIEF VENT ON THE SEWER SERVICE AT THE HOUSE, AT THE TIME OF THE HOUSE CONNECTION OR AS REQUIRED BY THE PLUMBING INSPECTOR.
  - SEPTIC TANKS SHALL BE VACUUM TESTED AND WATER TESTED ON-SITE BY THE MANUFACTURER. SEPTIC TANK SHOP DRAWINGS FROM THE MANUFACTURER SHALL BE PERMITTED TO THE HOWARD COUNTY ENVIRONMENTAL HEALTH DEPARTMENT PRIOR TO ANY INSTALLATION OF THE SEPTIC TANKS.
  - THE CONTRACTOR SHALL NOTIFY HOWARD COUNTY HEALTH DEPARTMENT AT 410-313-2540 AT LEAST FIVE (5) WORKING DAYS BEFORE ANY PRESSURE TEST OF PRESSURE SEWERS, AND ANY SEPTIC TANKS VACUUM OR WATER TESTING IS PERFORMED.
  - OBSERVATION WELL TO BE INSTALLED AFTER TRENCH INSTALLATION IS COMPLETED.
  - THE HOWARD COUNTY HEALTH DEPARTMENT SHALL AS-BUILT THE SEPTIC TRENCH PORTION OF THE COMMON SEPTIC SYSTEM. THE COLLECTION PORTION OF THE THIS SYSTEM SHALL BE AS-BUILT BY OTHERS AS SPECIFIED BY THE DEVELOPER AGREEMENT.

APPROVED: FOR PRIVATE WATER AND A SHARED SEWERAGE SYSTEMS, LOTS 17 THRU 23 AND FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEM FOR LOT 24.  
 HOWARD COUNTY HEALTH DEPARTMENT  
 [Signature]  
 HOWARD COUNTY HEALTH OFFICER  
 DATE: 5/21/08

HOWARD SOIL CONSERVATION DISTRICT  
 REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.  
 [Signature]  
 HOWARD SOIL CONSERVATION DISTRICT  
 DATE: 2/28/08

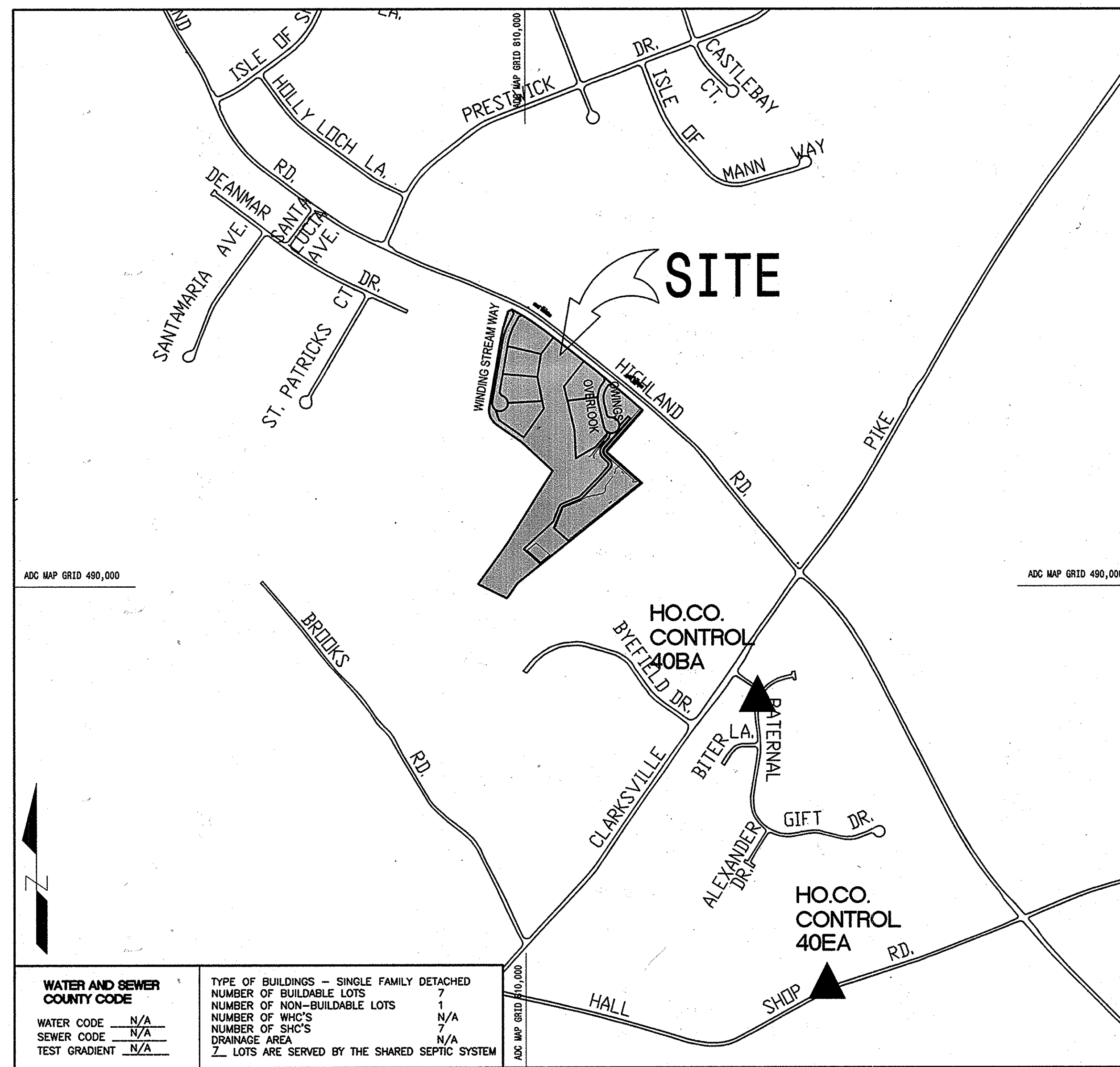
U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE  
 DATE: [Signature]

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 [Signature]  
 HOWARD SOIL CONSERVATION DISTRICT  
 DATE: 2/28/08

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE HOWARD COUNTY STANDARDS AND SPECIFICATIONS AND AS PER ROAD CONSTRUCTION PLANS PER F-06-112

OWNER/DEVELOPER  
 SK HOMES AT HIGHLAND OWINGS, LLC  
 7090 SAMUEL MORSE DRIVE  
 SUITE 500  
 COLUMBIA, MD 21046  
 301-870-5603

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date : 12-26-08.



WATER AND SEWER COUNTY CODE	TYPE OF BUILDINGS - SINGLE FAMILY DETACHED
WATER CODE N/A	NUMBER OF BUILDABLE LOTS 7
SEWER CODE N/A	NUMBER OF NON-BUILDABLE LOTS 1
TEST GRADIENT N/A	NUMBER OF WHC'S 7
	NUMBER OF SHC'S 7
	DRAINAGE AREA N/A
	7 LOTS ARE SERVED BY THE SHARED SEPTIC SYSTEM

LOCATION MAP  
 SCALE : 1" = 600'

- GENERAL NOTES :
- PART I
- Approximate locations of existing mains are shown. The contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted service. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer at the contractor's expense.
  - Topographic field surveys were performed on March 18, 2001 by A.B. Consultants Inc.
  - The coordinates shown on the drawings are based on Maryland State Reference System NAD '83/91' as projected by Howard County Geodetic Control Stations No. 40BA and No. 40EA.
  - All vertical controls are based on NAVD'88.
  - All pipe elevations shown are invert elevations unless otherwise noted on the plans.
  - Clear all utilities by a minimum of 12 inches. Clear all poles by 5'-0" minimum or tunnel as required unless otherwise noted. The owner has contacted the utility companies and has made arrangements for bracing of poles as shown on the drawings. In the event the contractor's work requires the bracing of additional poles, any cost incurred by the owner for the bracing of additional poles or damages shall be deducted from monies owed by the contractor. The contractor shall coordinate with the utility companies to schedule the bracing of the poles.
  - For details not shown on the drawing, 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.
  - Where test pits have been made on existing utilities, they are noted by the symbol at the locations of the test pits. A note or notes containing the results of the test pit or pits included on the drawings. Existing utilities in the vicinity of the proposed work for which test pits have not been dug shall be located by the contractor two weeks in advance of construction operations at his own expense.
  - The contractor shall notify the following utility companies or agencies at least five working days before starting work shown on these plans:  
 AT & T 1-800-252-1133  
 BGE (Construction Services) 410-850-4620  
 BGE (Emergency) 410-685-1400  
 Bureau of Utilities 410-313-4900  
 Colonial Pipeline Company 410-795-1590  
 MISS UTILITY 1-800-257-7777  
 State Highway Administration 410-531-5533  
 Verizon 1-800-743-0033/410-224-9210
  - Trees and shrubs are to be protected from damage to the maximum extent. Trees and shrubs located within the construction strip are not to be removed or damaged by the contractor.
  - The contractor shall remove trees, stumps, and roots along the line of excavation. Payment for such removal shall be included in the unit price bid for construction of the main.
  - The contractor shall notify the Bureau of Highways, Howard County, at (410)313-7450 at least five working days before open cutting or boring/jacking of any county road for laying water/sewer mains or house connections. The approval of these drawings will constitute compliance with DPW requirements per section 18.114(a) of the Howard County Code.
- PART II
- A septic fee in the amount of \$ 398 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.
  - The builder shall install back flow 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.
  - The contractor shall notify howard county health department at (410) 313-2540 at least five (5) working days before any pressure test of pressure sewers, and any septic tanks vacuum or water testing is performed.
  - Installation of grinder pumps and appurtenances, and the 4" pvc sewer house connections (shc) are to be installed by the developer. The developer shall be required to prepurchase the specified grinder pumps and provide storage at the manufacturer's facility until such time as they are installed and placed into service. no pumps shall be set until the house is ready for u & o, and any debris which has entered the tank prior to the pump installation shall be pumped out at the developer's expense. The developer will retain responsibility for installation of the grinder pumps and shall contract with the manufacturer to provide start up services just prior to U & O. Gravity connection to the grinder pumps will not be allowed until all work inside the homes is complete and the homes are ready for occupancy.
- PART III
- All sewer mains shall be dip and p.v.c. unless otherwise noted.
  - The contractor shall provide a joint in all sewer mains within 2'-0" of exterior manhole wall.
  - All manholes shall be 4'-0" inside diameter unless otherwise noted.
  - Force mains shall be HDPE DR11
  - Manholes shown with 12" and 18" wells are for brick manholes only.
  - Manhole covers shall be standard frames and covers with plastic inserts under lids.
  - House(s) with the symbol "c.n.s." indicates that cellar cannot be serviced.
  - The "bars" for simplex pumps shall be a minimum diameter of 3/8 inches.

# OWINGS PROPERTY, LOT 5

## LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F, G AND NON-BUILDABLE BULK PARCEL H

### A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY

#### SHARED SEWAGE DISPOSAL AND FORCE MAIN

#### CONTRACT # 50-4436-D

HOWARD COUNTY GEODETIC CONTROL			
MON. NOS.	N	E	ELEV.
40BA	549,925.102	1,324,025.124	534.654
40EA	547,911.373	1,324,510.058	503.948

CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS	
STATE HIGHWAY ADMINISTRATION	410-531-5533
BALTIMORE GAS & ELECTRIC CO.	410-850-4620
CONTRACTOR SERVICES	410-850-4620
BALTIMORE GAS & ELECTRIC CO.	410-787-8088
UNDERGROUND DAMAGE CONTROL	1-800-257-7777
MISS UTILITY	410-795-1590
COLONIAL PIPELINE CO	410-313-4900
HOWARD COUNTY DEPT. OF PUBLIC WORKS	410-313-2640
BUREAU OF UTILITIES	
HO. CO. ENVIRONMENTAL HEALTH DEPT	

AS BUILT  
 DATE: 5-19-10

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND  
 [Signature]  
 CHIEF, BUREAU OF UTILITIES  
 DATE: 5/13/08

DEPARTMENT OF PLANNING AND ZONING  
 HOWARD COUNTY, MARYLAND  
 [Signature]  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE: 5/14/08

DALE THOMPSON  
 REGISTERED PROFESSIONAL ENGINEER  
 6300 Woodside Court  
 Columbia, MD 21045  
 410-995-6736  
 301-966-7280  
 Fax 410-381-1217

DES.: JHE/AG  
 DRN.: AVG  
 CHK.: JHE  
 DATE: 12-17-07

BY	NO.	REVISIONS	DATE
HRP	1	Revised Owner/Developer	9/12

TITLE SHEET

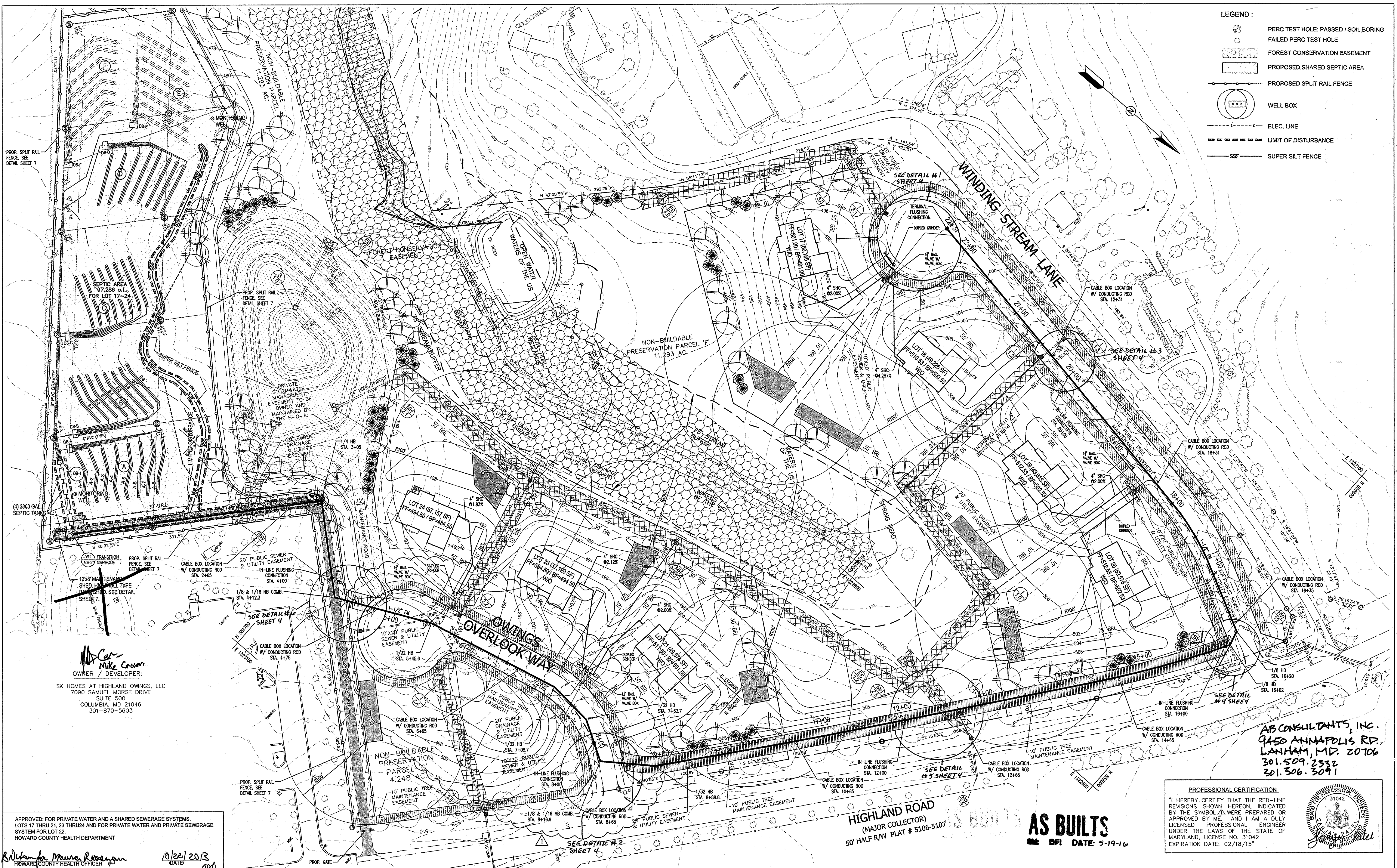
600' SCALE MAP No. 21 BLOCK No. 12

OWINGS PROPERTY, LOT 5  
 LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F, G AND NON-BUILDABLE BULK PARCEL H  
 A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY  
 SHARED SEWAGE DISPOSAL AND FORCE MAIN  
 CONTRACT No. : 50-4436-D  
 5th ELECTION DISTRICT HOWARD COUNTY, MD.

SCALE : AS SHOWN  
 SHEET No. 1 OF 7



- LEGEND :**
- PERC TEST HOLE: PASSED / SOIL BORING
  - FAILED PERC TEST HOLE
  - FOREST CONSERVATION EASEMENT
  - PROPOSED SHARED SEPTIC AREA
  - PROPOSED SPLIT RAIL FENCE
  - WELL BOX
  - ELEC. LINE
  - LIMIT OF DISTURBANCE
  - SUPER SILT FENCE



**Mike Cron**  
OWNER / DEVELOPER:  
SK HOMES AT HIGHLAND OWINGS, LLC  
7090 SAMUEL MORSE DRIVE  
SUITE 500  
COLUMBIA, MD 21046  
301-870-5603

**AB CONSULTANTS, INC.**  
9450 ANNAPOLIS RD.  
LANHAM, MD. 20706  
301.509.2332  
301.306.3091

**PROFESSIONAL CERTIFICATION**  
"I HEREBY CERTIFY THAT THE RED-LINE REVISIONS SHOWN HEREON, INDICATED BY THE SYMBOL WERE PREPARED OR APPROVED BY ME, AND I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31042 EXPIRATION DATE: 02/18/15"

**AS BUILTS**  
DATE: 5-19-16

APPROVED: FOR PRIVATE WATER AND A SHARED SEWERAGE SYSTEMS, LOTS 17 THRU 21, 23 THRU 24 AND FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEM FOR LOT 22.  
HOWARD COUNTY HEALTH DEPARTMENT

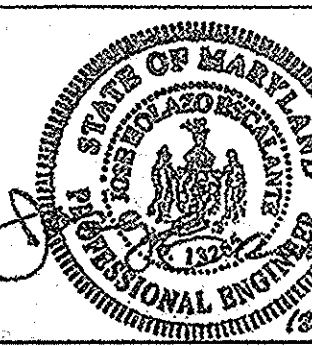
*Rafaela Maria Rossman*  
HOWARD COUNTY HEALTH OFFICER

DATE: 02/22/2013

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND

**DALE THOMPSON**  
BUILDERS  
6300 Woodside Court  
Columbia, MD 21045  
301-995-6736  
301-296-7280  
Fax: 410-567-9647



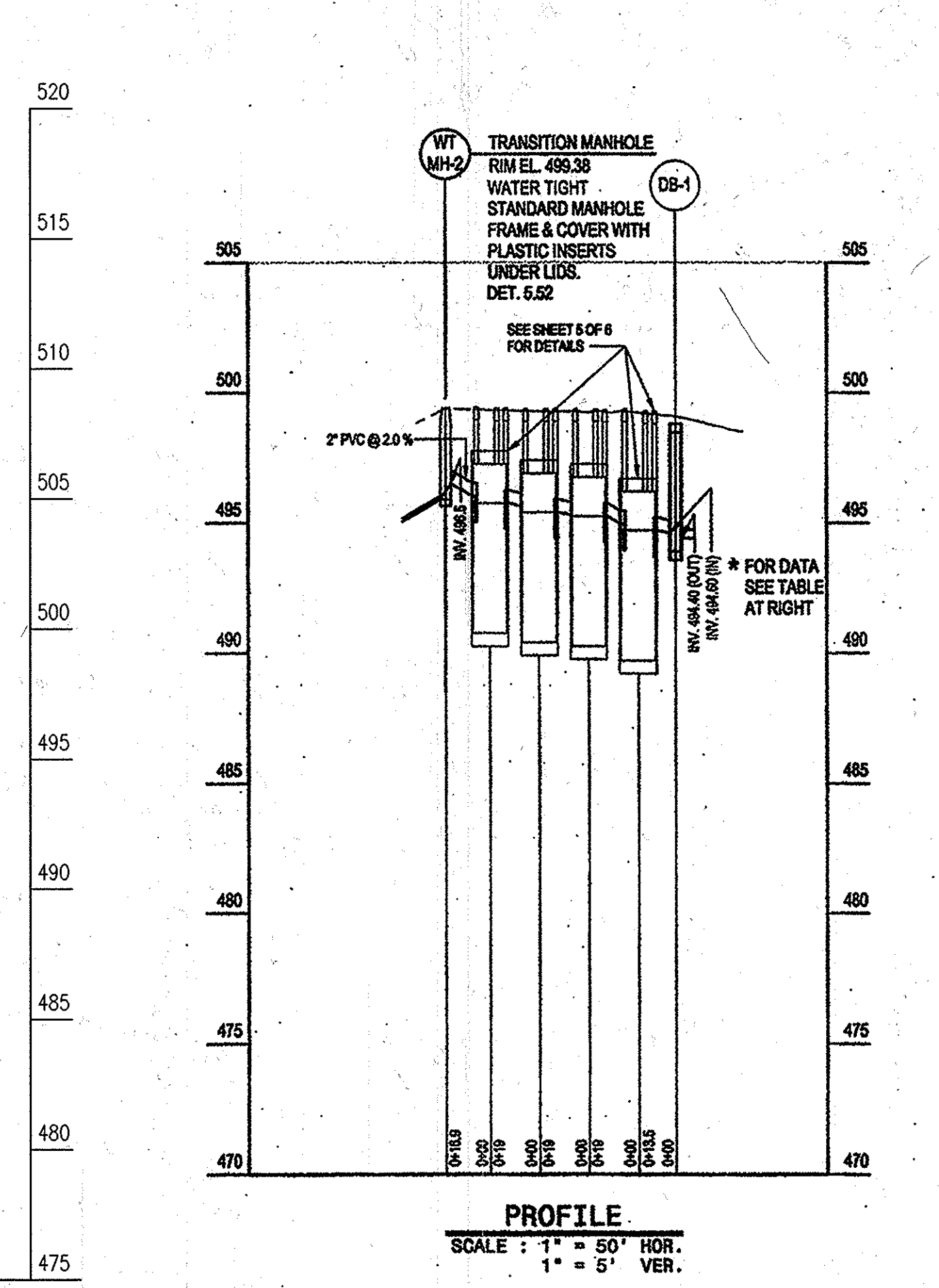
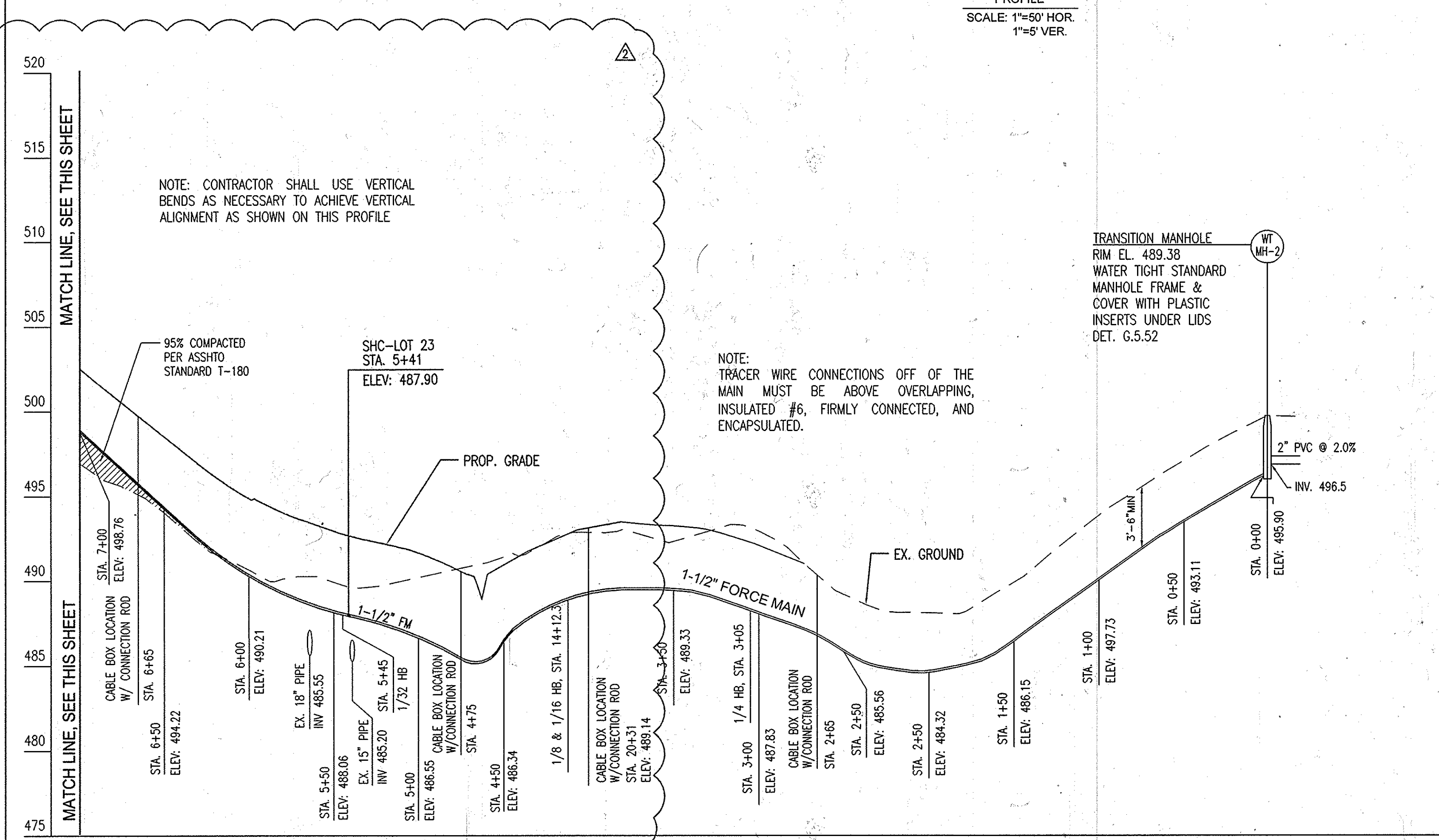
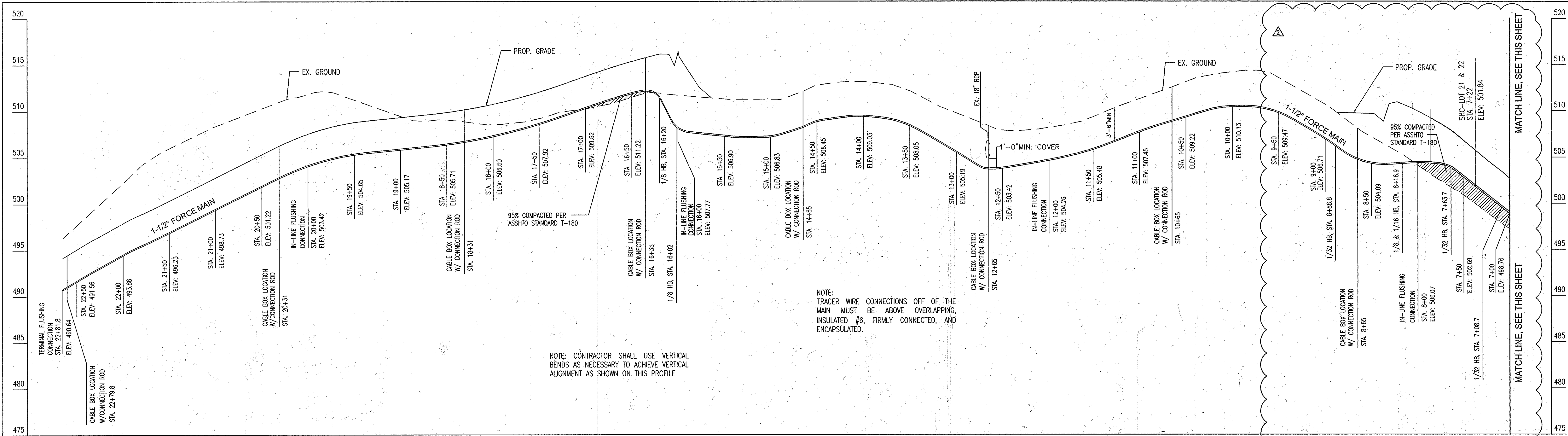
DES. : JHE/JAG					
DRN. : AVG					
CHK. : JHE					
DATE: 12-17-07					
BY NO.					
REVISIONS					
DATE					
600' SCALE MAP No. 21					
BLOCK No. 12					

**FORCE MAIN PLAN**

**OWINGS PROPERTY, LOT 5**  
LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F, G AND NON-BUILDABLE BULK PARCEL H  
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY  
SHARED SEWAGE DISPOSAL AND FORCE MAIN  
CONTRACT No. : 50-4436-D  
5th ELECTION DISTRICT HOWARD COUNTY, MD.

SCALE : 1" = 50'  
SHEET No. 2 OF 7





OWINGS LOT 5 SHARED SEPTIC SYSTEM DISTRIBUTION BOXES DATA						
STRUCTURE NUMBER	TOP ELEVATION	INV. IN ELEVATION	INV. OUT ELEVATION	DISTR. FROM DB-1 (FT)	ELEVATION DIFFERENCE FROM DB-1	DISTR. PIPE SLOPE (%)
SEPTIC TANK No. 1	488.3	499.62	488.00	495.62		
SEPTIC TANK No. 2	488.3	499.62	485.00	494.38		
SEPTIC TANK No. 3	488.3	499.17	485.00	495.32		
SEPTIC TANK No. 4	488.3	499.09	484.00	494.96		
DIST. BOX-A	488.3	498.62	484.00	494.32		
DIST. BOX-A	488.3	498.62	484.00	494.32	20	0.8
DIST. BOX-B	488.3	498.65	483.00	493.35	45	1.1
DIST. BOX-C	488.3	498.76	484.00	491.16	160	3.3
DIST. BOX-D	488.3	489.25	486.00	486.65	410	8.3
DIST. BOX-E	488.1	485.50	484.00	485.45	467	9.3
DIST. BOX-F	488.3	489.45	487.00	486.35	362	7.3

AB CONSULTANTS, INC  
 9450 ANNAPOLIS RD.  
 LANHAM, MD. 20706  
 301.509.2332  
 301.306.3091

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THE RED-LINE REVISIONS SHOWN HEREON, INDICATED BY THE SYMBOL AND , WERE PREPARED OR APPROVED BY ME AND I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31042 EXPIRATION DATE: 02/18/15

**AS BUILT**  
 DATE: 5-19-16

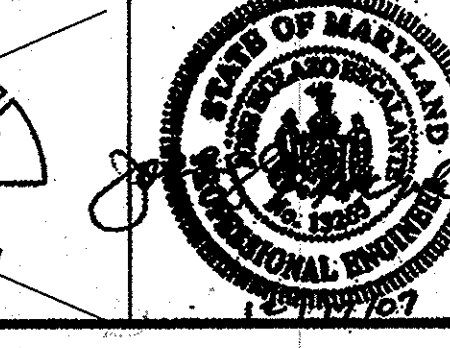
APPROVED: FOR PRIVATE WATER AND A SHARED SEWERAGE SYSTEMS, LOTS 17 THRU 23 AND FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEM FOR LOT 24  
 HOWARD COUNTY HEALTH DEPARTMENT  
 B. Wilson for Maureen Roseman  
 10/22/2013

OWNER / DEVELOPER:   
 SK HOMES AT HIGHLAND OWINGS, LLC  
 7090 SAMUEL MORSE DRIVE  
 SUITE 500  
 COLUMBIA, MD 21046  
 301-870-5603

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND  
  
 CHIEF, BUREAU OF UTILITIES  
 9/30/15

DEPARTMENT OF PLANNING AND ZONING  
 HOWARD COUNTY, MARYLAND  
  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 5.27.14

**DALE THOMPSON**  
 BUILDERS  
 6300 Woodside Court  
 Columbia, MD 21045  
 410-596-9700  
 301-396-7220  
 Fax: 410-361-8747



DES.:	JHE/AG	DATE:	12-17-07
HRP	LOWERED PROP. ROAD GRADES AND LOWERED SEWER ACCORDINGLY	8/13	
HRP	LOWERED PROP. ROAD GRADES AND LOWERED SEWER ACCORDINGLY	9/12	

DATE	600' SCALE MAP No. 21	BLOCK No. 12
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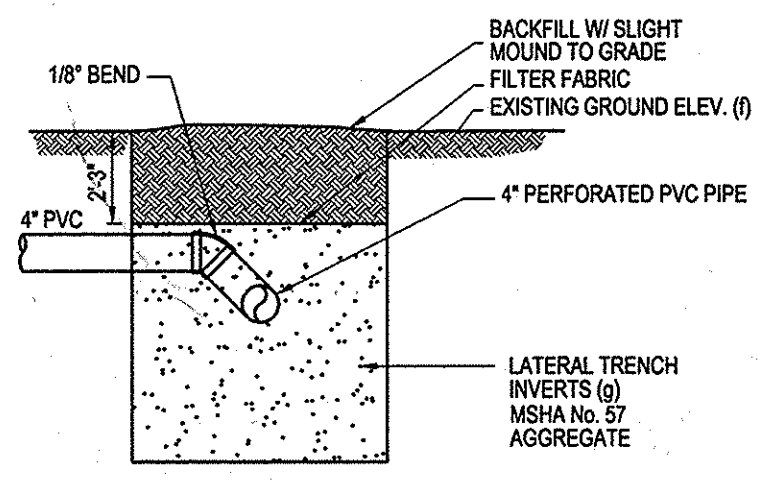
**PROFILE**

**OWINGS PROPERTY, LOT 5**  
 LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F, G AND NON-BUILDABLE BULK PARCEL H  
 A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY  
 SHARED SEWERAGE DISPOSAL AND FORCE MAIN  
 CONTRACT No. : 50-4436-D  
 5th ELECTION DISTRICT. HOWARD COUNTY, MD.

SCALE : AS SHOWN  
 SHEET No. : 3 OF 7



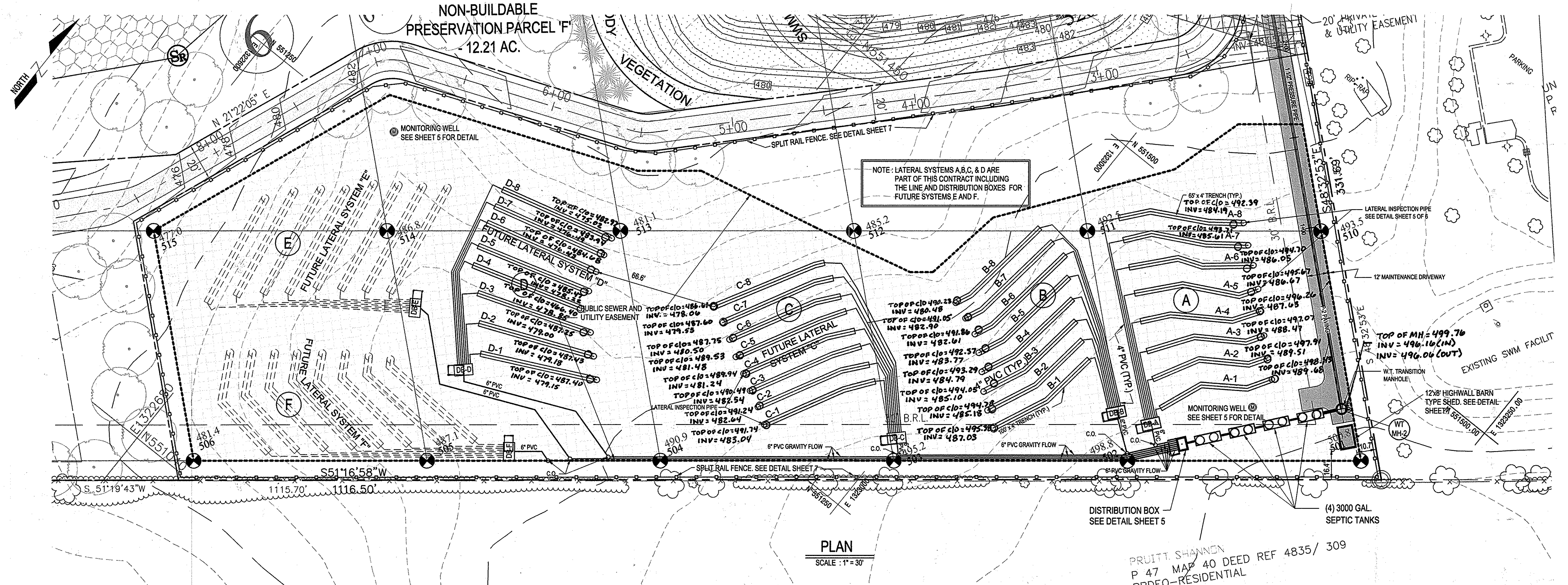
NON-BUILDABLE PRESERVATION PARCEL 'F' 12.21 AC.



TYPICAL DISTR. PIPE/LATERAL TRENCH CONNECTION - DETAIL

DESIGN FLOWS

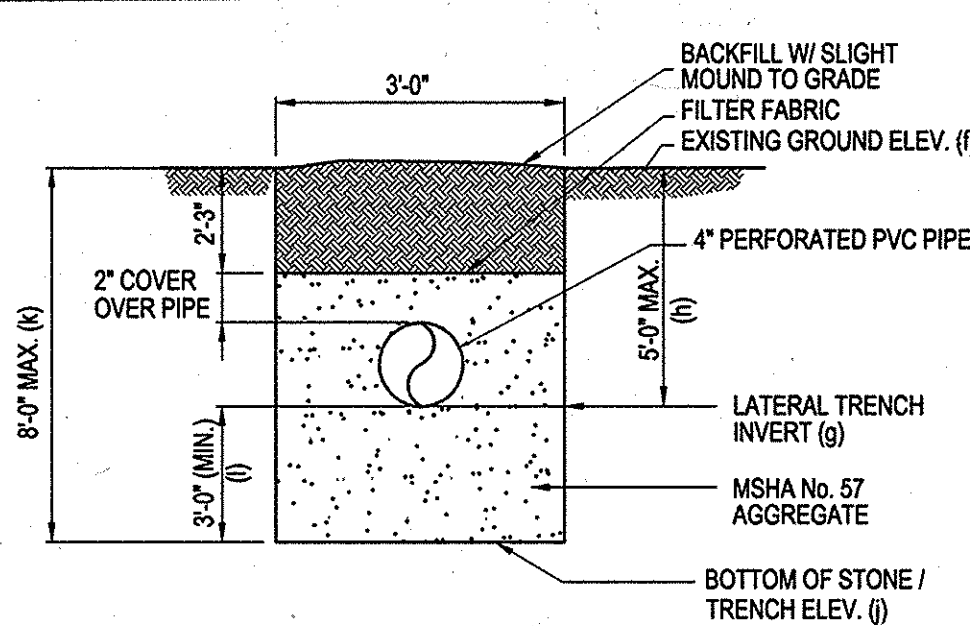
- DESIGN FLOW
  - Number of Bedrooms
    - 5 Dwelling Units with 5 Bedrooms = 25 BDRMS
    - 2 Dwelling Units with 4 Bedrooms = 8 BDRMS
    - Total No. of Bedrooms = 33
  - Flow Generation @ 150 gpd/BDRMS
    - 33 x 150 = 4,950 gpd
- SEPTIC TANK DESIGN
  - Number of Dwelling Units = 7
  - 7 @ 1500 = 10,500 gal.
  - use 4 Septic Tanks / 3,000 gal.
  - = 4 x 3,000 = 12,000 gal. > 10,500 gal.
- TRENCH DESIGN
  - Design Flow = 4,950 gpd
    - Area of Drain
      - @ 0.80 gpd/s.f., Area = 4,950 gpd / 0.80 gpd/s.f. = 6,188 s.f.
    - Length of Drain Required with trench width = 3.0'
      - Length = 6,188 / 3 = 2,063 l.f.
      - With wall credit of 3.0'
      - Length (100% of Design) = 2,063 x [(3+2)/(3+1+2x3)] = 2,063 x 5/10 = 1,032 l.f.
- Trench Length Provided
  - Primary Trench
    - Systems A & B with 8 rows each @ 65' = 16 X 65 = 1,040 l.f. > 1,032 l.f.
  - Replacement Trenches
    - Systems C & D with 8 rows each @ 65' = 16 X 65 = 1,040 l.f. > 1,032 l.f.
    - Systems E & F
      - E = 8 rows @ 65' = 520 l.f.
      - F = 8 rows @ 65' = 520 l.f.
      - TOTAL = 1,040 l.f. > 1,032 l.f.



PLAN SCALE: 1" = 30'

(a) Lateral Trench Number	(b) Distr. Box, Inv. In	(c) Distr. Box, Inv. Out	(d) Distr. Pipe Length (Ft)	(e) Exist. Gnd Elev. @ Trench	(f) Lateral Pipe Invert	(g) Depth of Lateral (Ft)	(h) Distr. Pipe/Lateral Inv. Diff	(i) Trench Bottom Elev.	(j) Trench Depth (Ft)	(k) Stone Depth in Trench (Ft)	(l) Trench Length (Ft)	
E-1	485.1	484.9	6	484.8	487.9	482.9	5.0	1.9	479.9	8.0	3.0	65
E-2	19	484.5	487.2	482.7	4.5	1.8	479.2	8.0	3.5	65		
E-3	32	484.2	486.6	482.6	4.0	1.6	478.6	8.0	4.0	65		
E-4	45	484.0	485.9	482.4	3.5	1.6	477.9	8.0	4.5	65		
E-5	57	483.7	484.5	481.4	3.5	2.3	476.9	8.0	4.5	65		
E-6	70	483.4	483.9	480.4	3.5	3.0	475.9	8.0	4.5	65		
E-7	84	483.2	482.7	479.2	3.5	4.0	474.7	8.0	4.5	65		
E-8	96	482.9	481.5	478.0	3.5	4.9	473.5	8.0	4.5	65		

(a) Lateral Trench Number	(b) Distr. Box, Inv. In	(c) Distr. Box, Inv. Out	(d) Distr. Pipe Length (Ft)	(e) Exist. Gnd Elev. @ Trench	(f) Lateral Pipe Invert	(g) Depth of Lateral (Ft)	(h) Distr. Pipe/Lateral Inv. Diff	(i) Trench Bottom Elev.	(j) Trench Depth (Ft)	(k) Stone Depth in Trench (Ft)	(l) Trench Length (Ft)	
C-1	491.1	490.9	29	490.3	492.1	488.1	4.0	2.2	484.1	8.0	4.0	65
C-2	39	490.1	491.5	487.5	4.0	2.6	483.5	8.0	4.0	65		
C-3	51	489.8	490.8	487.3	3.5	2.5	482.8	8.0	4.5	65		
C-4	63	489.6	490.2	486.7	3.5	2.9	482.2	8.0	4.5	65		
C-5	76	489.3	489.2	485.7	3.5	3.6	481.2	8.0	4.5	65		
C-6	88	489.1	488.5	485.0	3.5	4.1	480.5	8.0	4.5	65		
C-7	96	488.9	487.5	484.0	3.5	4.9	479.5	8.0	4.5	65		
C-8	104	488.7	486.7	483.2	3.5	5.5	478.7	8.0	4.5	65		

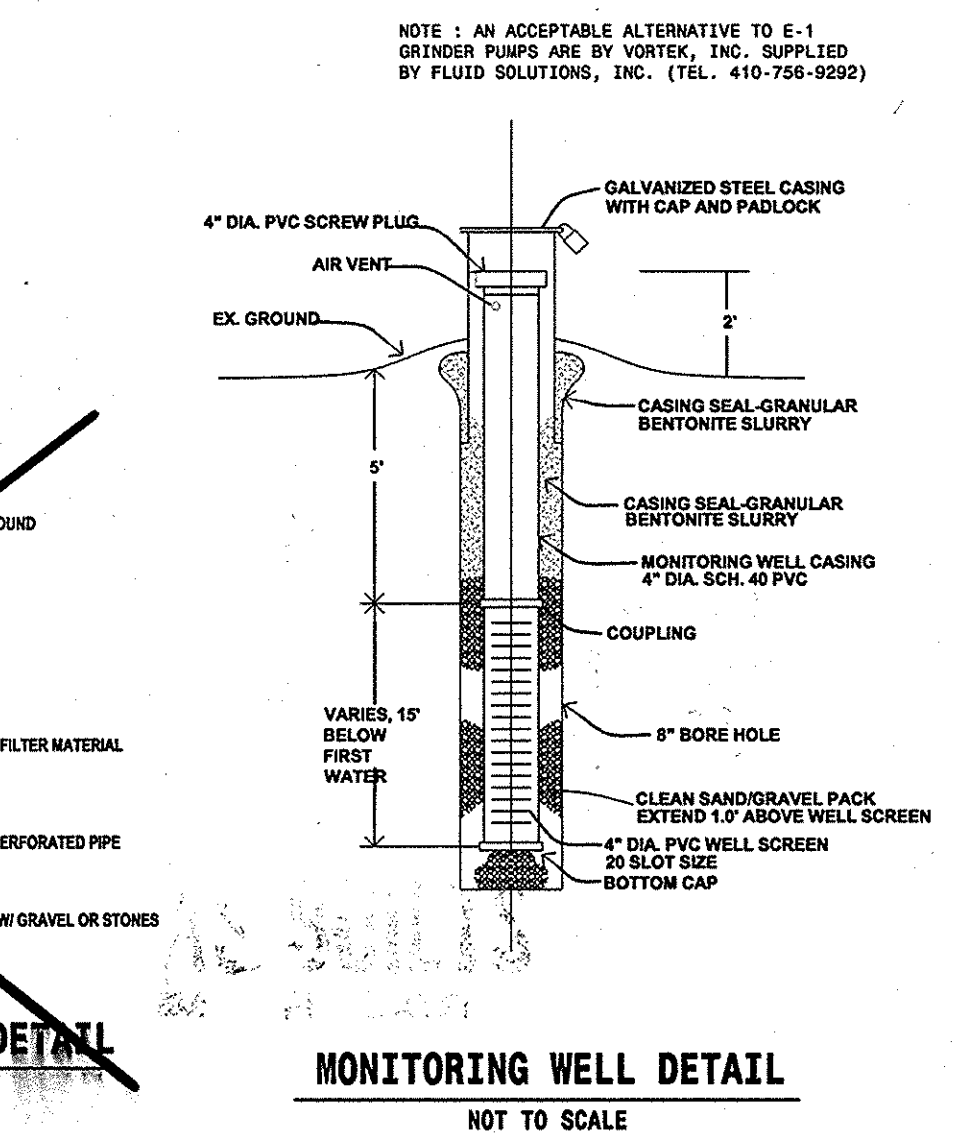


TYPICAL LATERAL CROSS SECTION SYSTEM A, B, C, & D

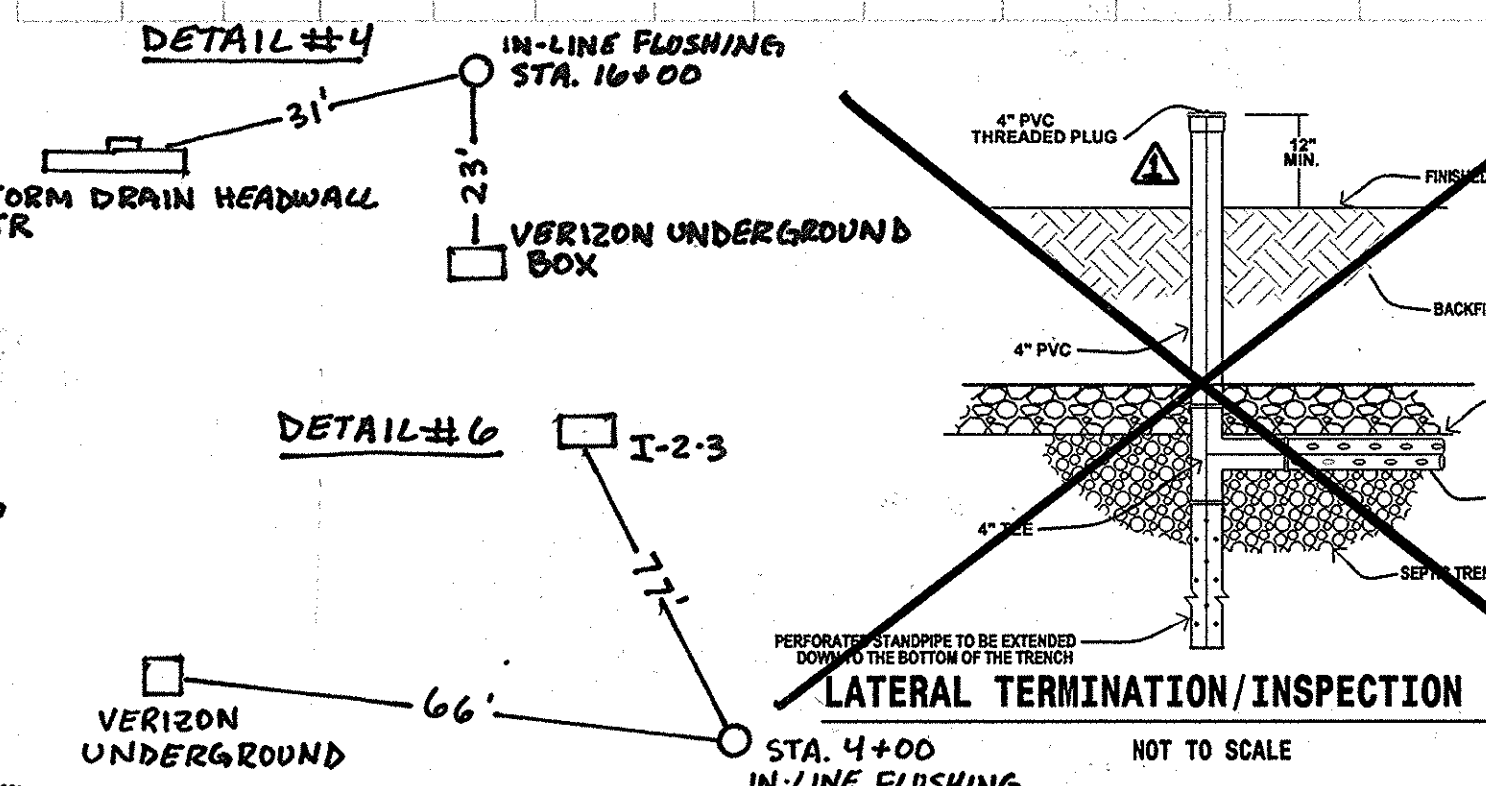
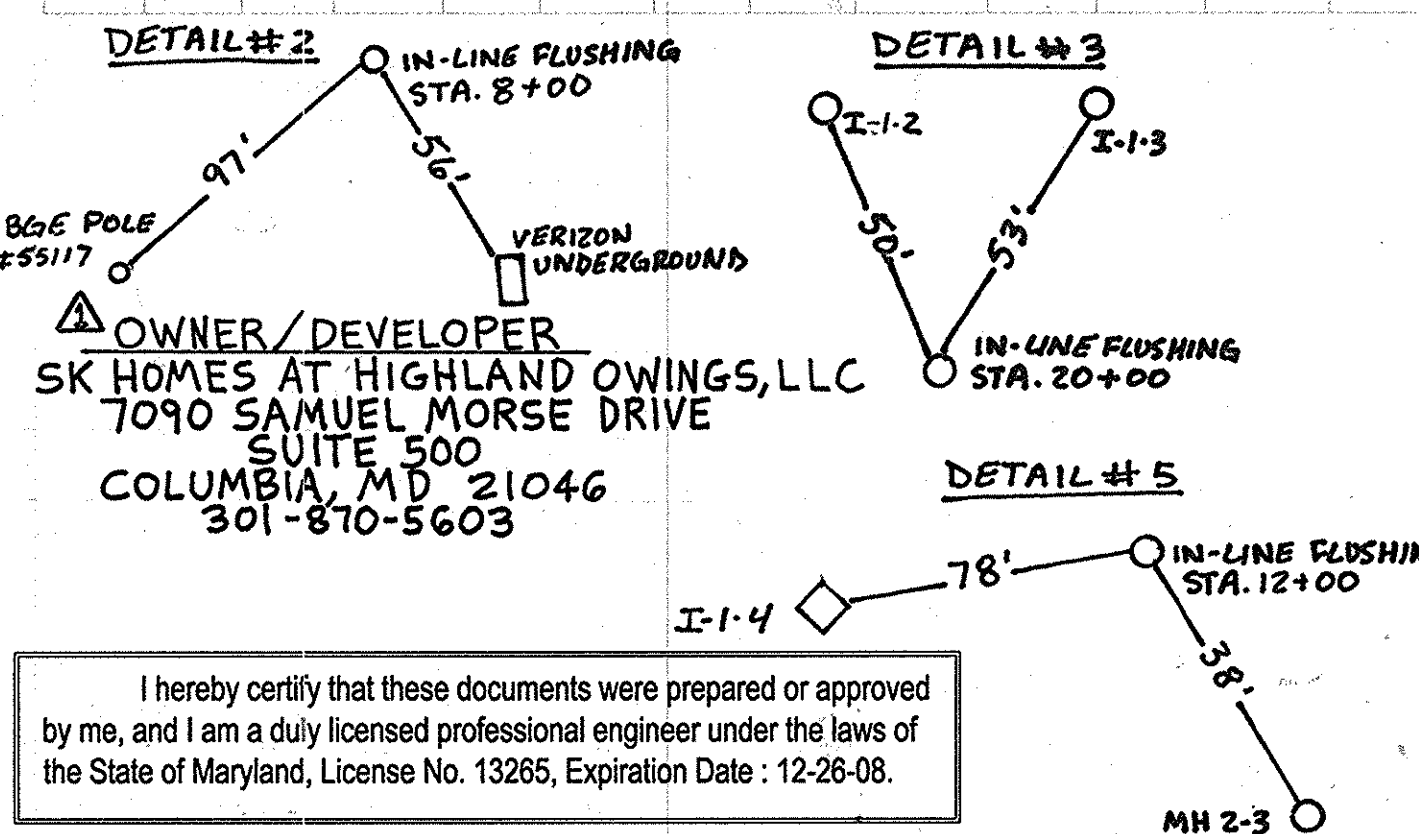
(a) Lateral Trench Number	(b) Distr. Box, Inv. In	(c) Distr. Box, Inv. Out	(d) Distr. Pipe Length (Ft)	(e) Exist. Gnd Elev. @ Trench	(f) Lateral Pipe Invert	(g) Depth of Lateral (Ft)	(h) Distr. Pipe/Lateral Inv. Diff	(i) Trench Bottom Elev.	(j) Trench Depth (Ft)	(k) Stone Depth in Trench (Ft)	(l) Trench Length (Ft)	
A-1	494.0	493.8	10	493.7	498.1	493.1	5.0	0.6	490.1	8.0	3.0	65
A-2	27	493.5	497.4	492.4	5.0	1.1	489.4	8.0	3.0	65		
A-3	42	493.3	496.7	492.2	4.5	1.1	488.7	8.0	3.5	65		
A-4	59	492.6	496.1	491.6	4.5	1.0	488.1	8.0	3.5	65		
A-5	74	492.3	495.3	490.8	4.5	1.5	487.3	8.0	3.5	65		
A-6	89	492.8	494.6	490.6	4.0	2.2	486.6	8.0	4.0	65		
A-7	104	491.6	493.8	489.8	4.0	1.8	485.8	8.0	4.0	65		
A-8	116	491.4	493.1	489.1	4.0	2.3	485.1	8.0	4.0	65		

(a) Lateral Trench Number	(b) Distr. Box, Inv. In	(c) Distr. Box, Inv. Out	(d) Distr. Pipe Length (Ft)	(e) Exist. Gnd Elev. @ Trench	(f) Lateral Pipe Invert	(g) Depth of Lateral (Ft)	(h) Distr. Pipe/Lateral Inv. Diff	(i) Trench Bottom Elev.	(j) Trench Depth (Ft)	(k) Stone Depth in Trench (Ft)	(l) Trench Length (Ft)	
F-1	487.1	486.9	14	486.6	488.1	483.6	4.5	3.0	480.1	8.0	3.5	65
F-2	32	486.2	487.9	483.4	4.5	2.8	479.9	8.0	3.5	65		
F-3	50	485.9	487.1	482.6	4.5	3.3	479.1	8.0	3.5	65		
F-4	65	485.5	486.5	482.5	4.0	3.0	478.5	8.0	4.0	65		
F-5	80	485.2	485.9	481.9	4.0	3.3	477.9	8.0	4.0	65		
F-6	95	484.9	485.2	481.7	3.5	3.2	477.2	8.0	4.5	65		
F-7	110	484.6	484.5	481.0	3.5	3.6	476.5	8.0	4.5	65		
F-8	126	484.3	483.9	480.3	3.5	4.0	475.8	8.0	4.5	65		

(a) Lateral Trench Number	(b) Distr. Box, Inv. In	(c) Distr. Box, Inv. Out	(d) Distr. Pipe Length (Ft)	(e) Exist. Gnd Elev. @ Trench	(f) Lateral Pipe Invert	(g) Depth of Lateral (Ft)	(h) Distr. Pipe/Lateral Inv. Diff	(i) Trench Bottom Elev.	(j) Trench Depth (Ft)	(k) Stone Depth in Trench (Ft)	(l) Trench Length (Ft)	
D-1	486.1	485.9	5	485.8	488.7	484.2	4.5	1.6	480.7	8.0	3.5	65
D-2	22	485.4	488.5	484.0	4.5	1.4	480.5	8.0	3.5	65		
D-3	39	485.1	488.2	483.7	4.5	1.4	480.2	8.0	3.5	65		
D-4	56	484.7	487.4	482.9	4.5	1.8	479.4	8.0	3.5	65		
D-5	70	484.4	486.6	482.6	4.0	1.8	478.6	8.0	4.0	65		
D-6	83	484.2	485.6	481.6	4.0	2.6	477.6	8.0	4.0	65		
D-7	94	483.9	484.8	481.3	3.5	2.6	476.8	8.0	4.5	65		
D-8	105	483.7	484.1	480.6	3.5	3.1	476.1	8.0	4.5	65		



MONITORING WELL DETAIL NOT TO SCALE



LATERAL TERMINATION/INSPECTION DETAIL NOT TO SCALE

(a) Lateral Trench Number	(b) Distr. Box, Inv. In	(c) Distr. Box, Inv. Out	(d) Distr. Pipe Length (Ft)	(e) Exist. Gnd Elev. @ Trench	(f) Lateral Pipe Invert	(g) Depth of Lateral (Ft)	(h) Distr. Pipe/Lateral Inv. Diff	(i) Trench Bottom Elev.	(j) Trench Depth (Ft)	(k) Stone Depth in Trench (Ft)	(l) Trench Length (Ft)	
B-1	493.3	493.10	16	492.9	496.0	491.5	4.5	1.4	488.0	8.0	3.5	65
B-2	29	492.8	495.3	490.8	4.5	2.0	487.3	8.0	3.5	65		
B-3	39	492.7	494.6	490.1	4.5	2.6	486.6	8.0	3.5	65		
B-4	51	492.5	493.9	489.4	4.5	3.1	485.9	8.0	3.5	65		
B-5	62	492.4	493.3	488.8	4.5	3.6	485.3	8.0	3.5	65		
B-6	74	491.6	492.6	488.1	4.5	3.5	484.6	8.0	3.5	65		
B-7	84	491.4	492.0	487.5	4.5	3.9	484.0	8.0	3.5	65		
B-8	94	491.1	491.2	486.7	4.5	4.4	483.2	8.0	3.5	65		

AS BUILT DATE: 5-19-16

- NOTES:
- INVERT FOR DISTRIBUTION PIPES (e) IS INVERT AT END OF PIPE
  - EXISTING GROUND ELEVATIONS FOR TRENCH (f) IS HIGHEST GROUND ELEVATION ALONG TRENCH
  - DISTRIBUTION PIPE SLOPE IS 4"/FT. UNLESS OTHERWISE NOTED.
  - WHERE NOTED, (k), DISTRIBUTION PIPE SLOPE IS 2"/FT.

OWNER / DEVELOPER  
**RUNNING BROOK, LLC**  
 6300 WOODSIDE COURT  
 COLUMBIA, MD 21046  
 ATTN: TRACY THOMPSON  
 PHONE: (410) 986-8888  
 FAX: (410) 381-8747

APPROVED FOR PRIVATE WATER AND A SHARED SEWERAGE SYSTEMS, LOTS 17 THRU 23 AND FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEM FOR LOT 24.  
 HOWARD COUNTY HEALTH DEPARTMENT  
 HOWARD COUNTY HEALTH OFFICER

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

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE

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

HOWARD SOIL CONSERVATION DISTRICT  
 SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE HOWARD COUNTY STANDARDS AND SPECIFICATIONS AND AS PER ROAD CONSTRUCTION PLANS PER F-06-112

OWNER / DEVELOPER  
**SK HOMES AT HIGHLAND OWINGS, LLC**  
 7090 SAMUEL MORSE DRIVE  
 SUITE 500  
 COLUMBIA, MD 21046  
 301-870-5603

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date: 12-26-08.

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND  
 DATE: 5/1/08

DEPARTMENT OF PLANNING AND ZONING  
 HOWARD COUNTY, MARYLAND  
 DATE: 5/1/08

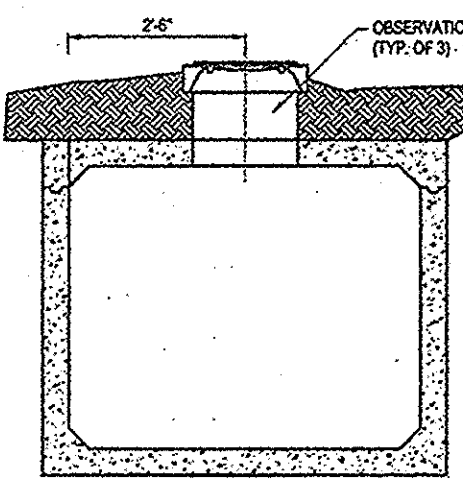
DESIGNER: JHE/AG  
 CHECKED: JHE  
 DATE: 12-17-07

SEWER SYSTEM PLAN  
 600' SCALE MAP No. 21  
 BLOCK No. 12

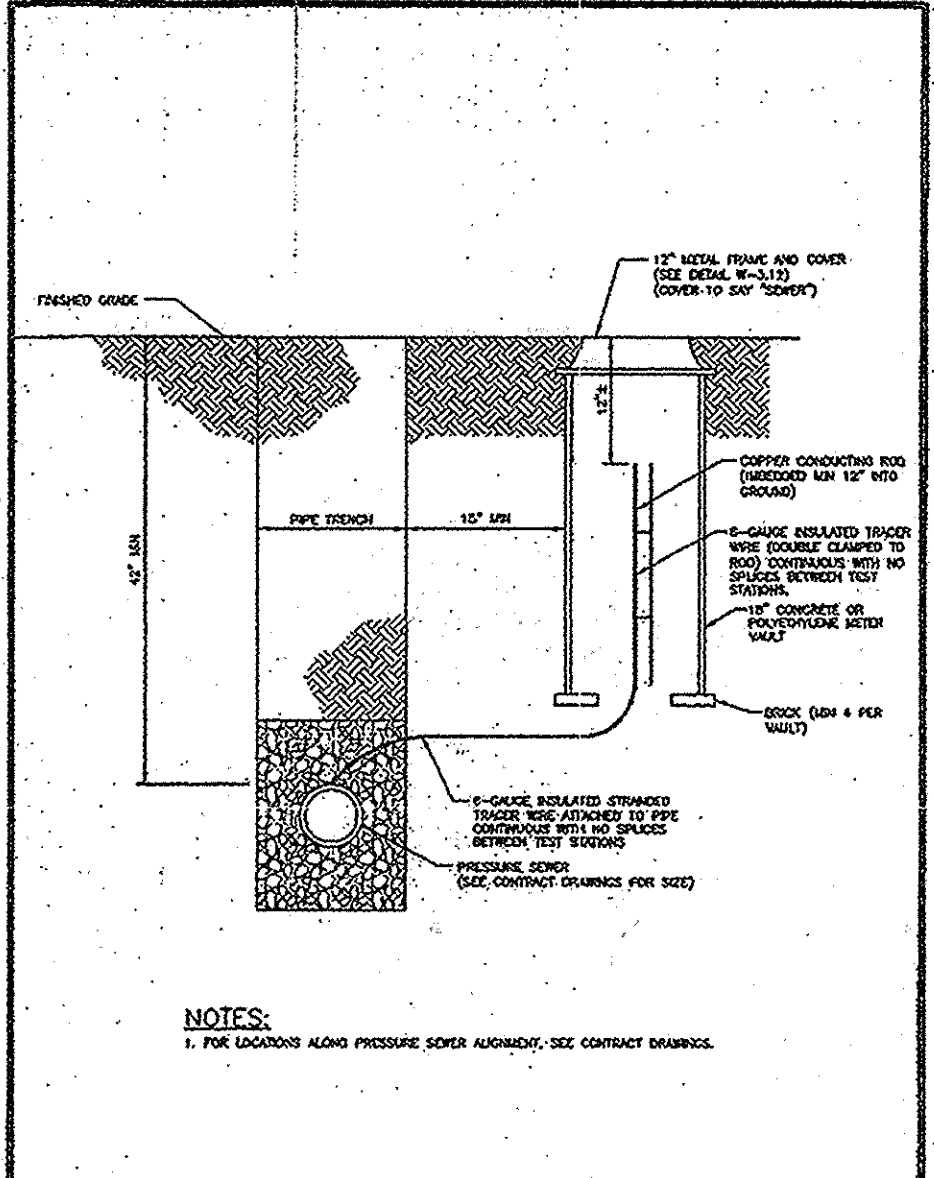
OWINGS PROPERTY, LOT 5  
 LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F, G  
 AND NON-BUILDABLE BULK PARCEL H  
 A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY  
 SHARED SEWAGE DISPOSAL AND FORCE MAIN  
 CONTRACT No. : 50-4436-D  
 5th ELECTION DISTRICT HOWARD COUNTY, MD.  
 SCALE: AS SHOWN  
 SHEET No. 4 OF 7



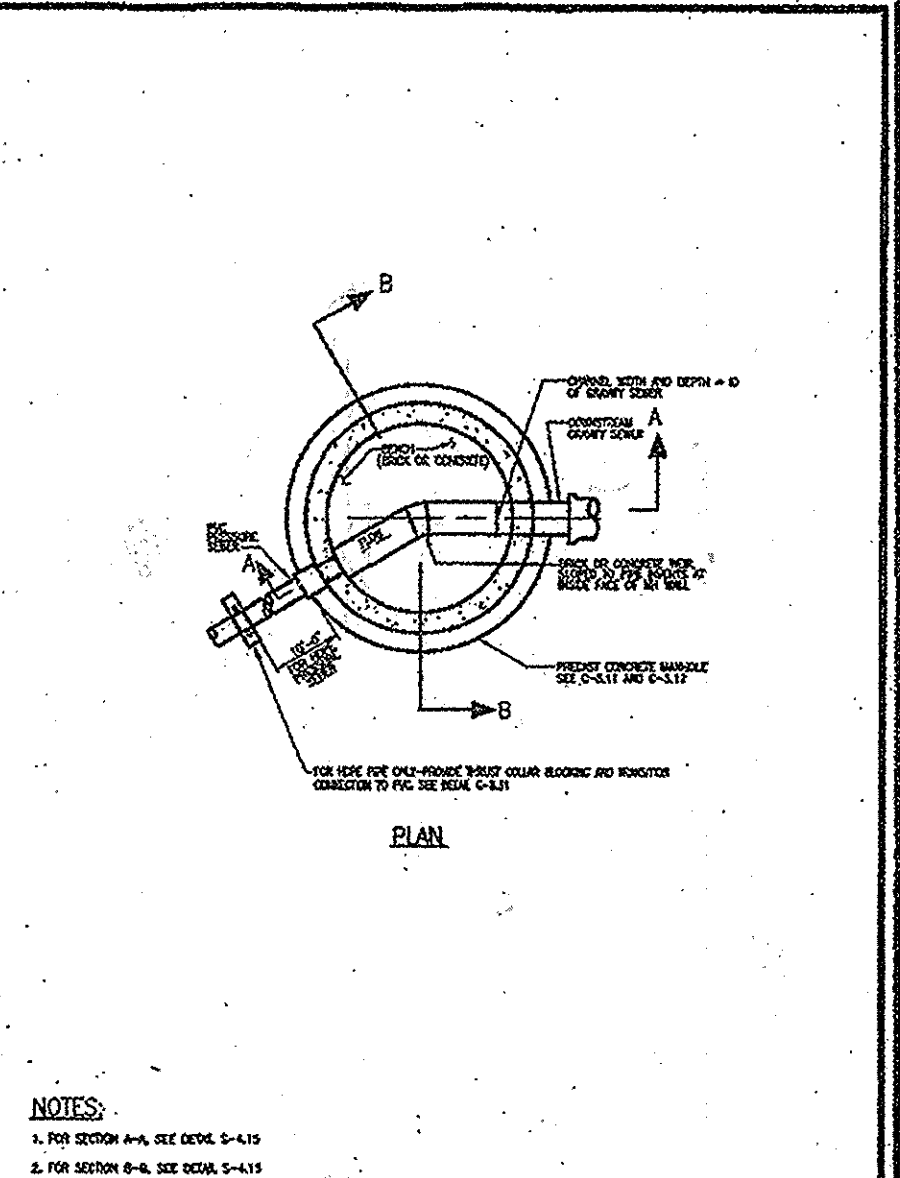
SEPTIC TANK DATA			
TANK NUMBER	TOP ELEV.	INFLUENT INVERT (IN)	EFFLUENT INVERT (OUT)
1	499.3	496.00	495.75
2	499.3	495.65	495.40
3	499.3	495.30	495.05
4	499.3	494.95	494.70



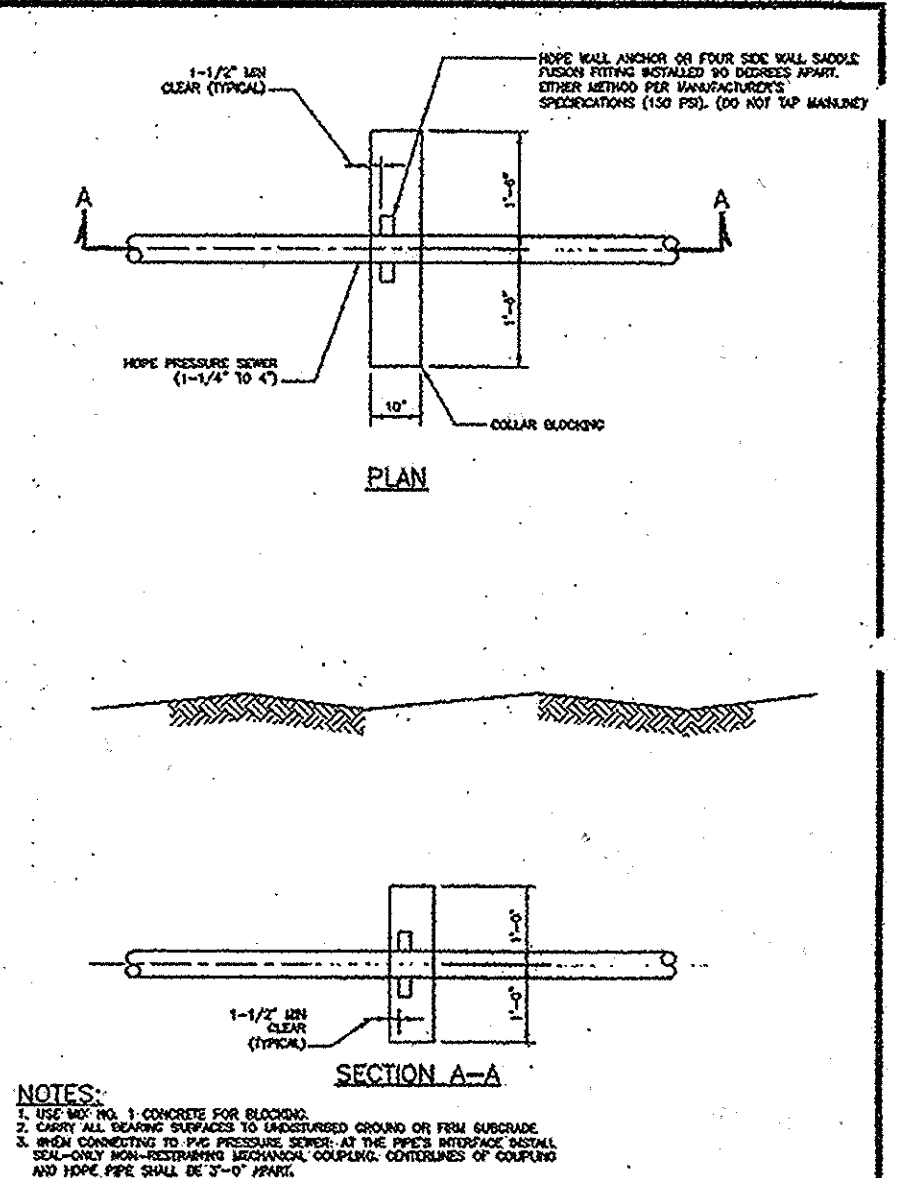
SECTION B-B



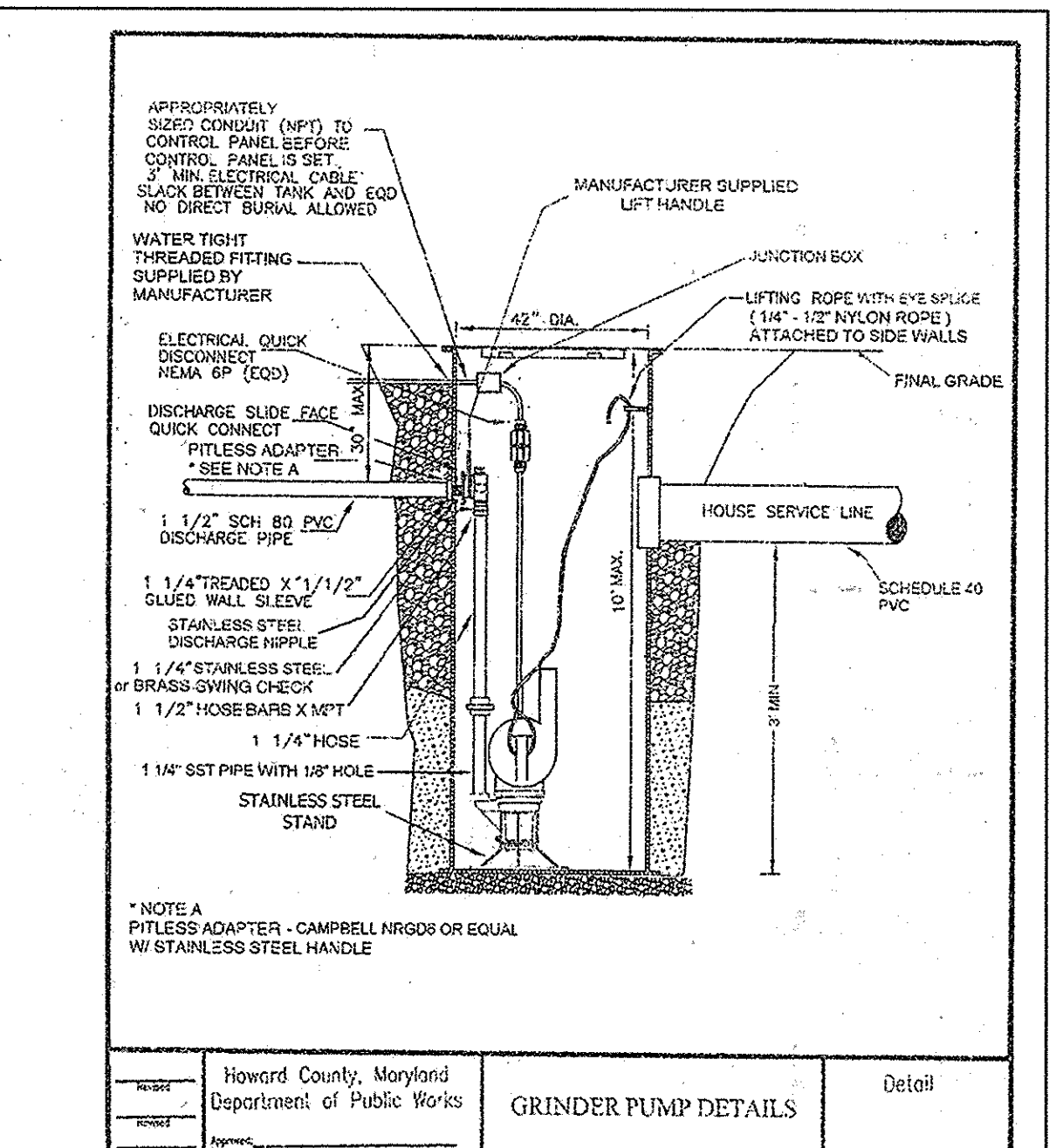
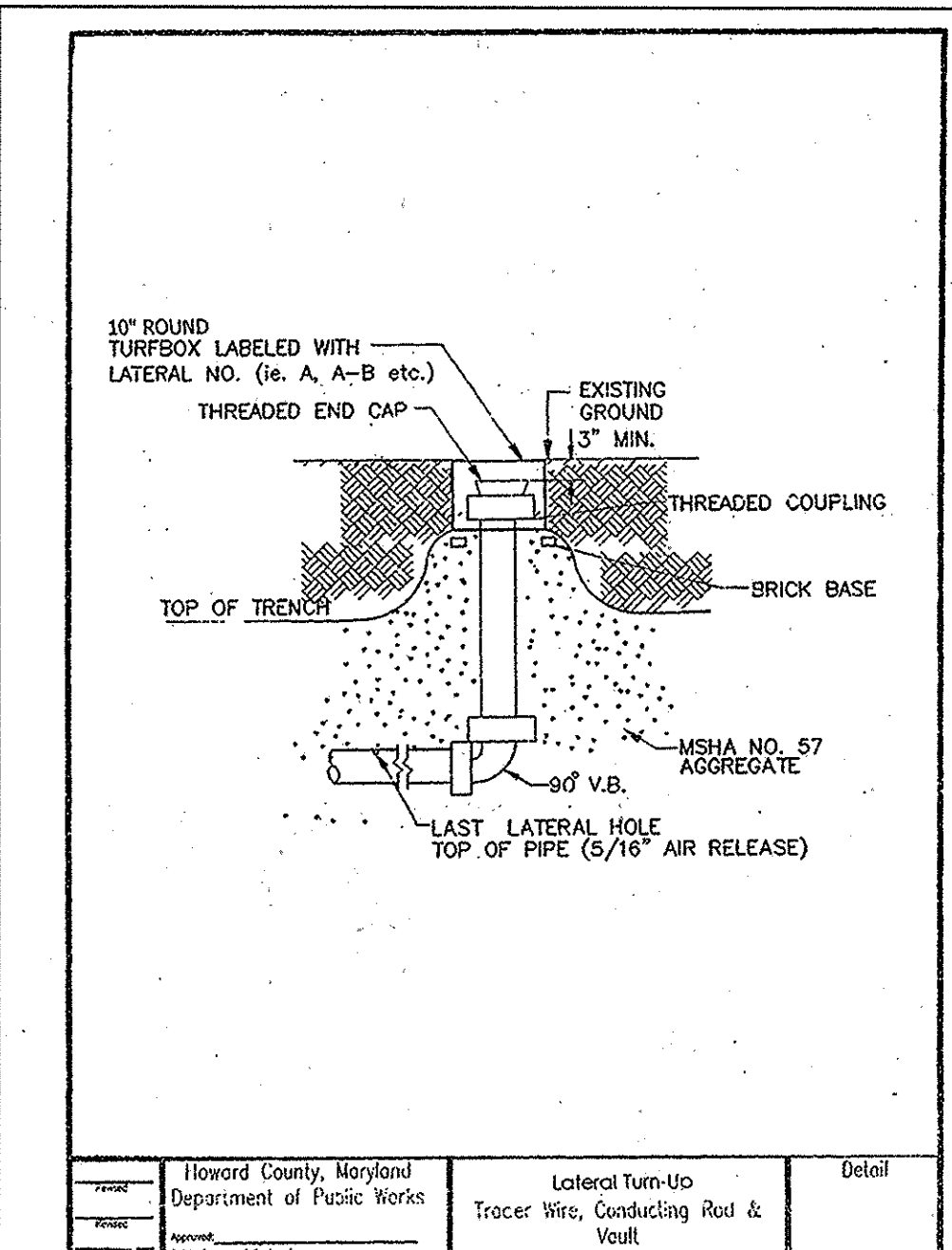
Pressure Sewer Tracer Wire, Conducting Rod & Vault S-4.18



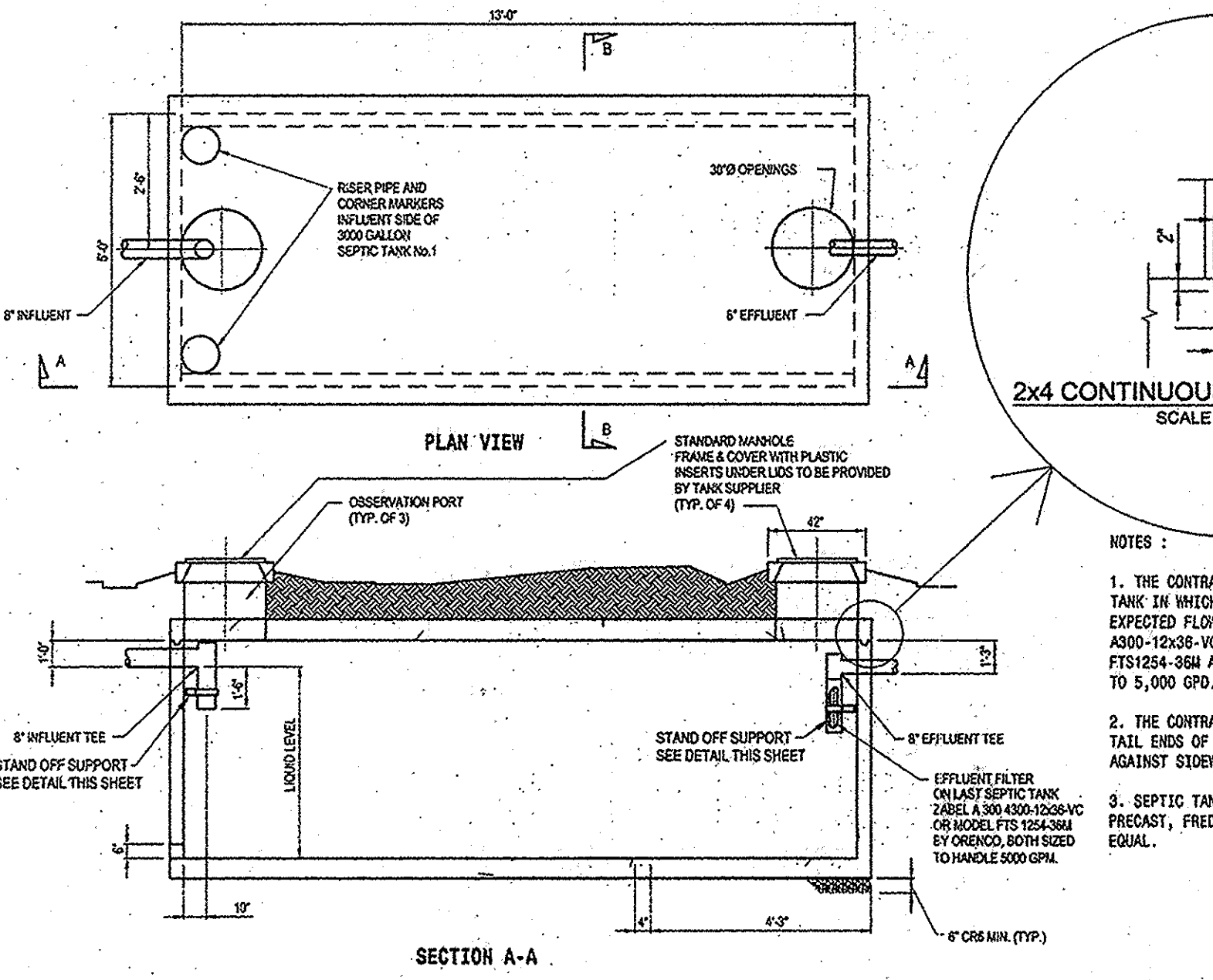
Pressure Sewer Blocking Collar HDPE Pipe S-4.14



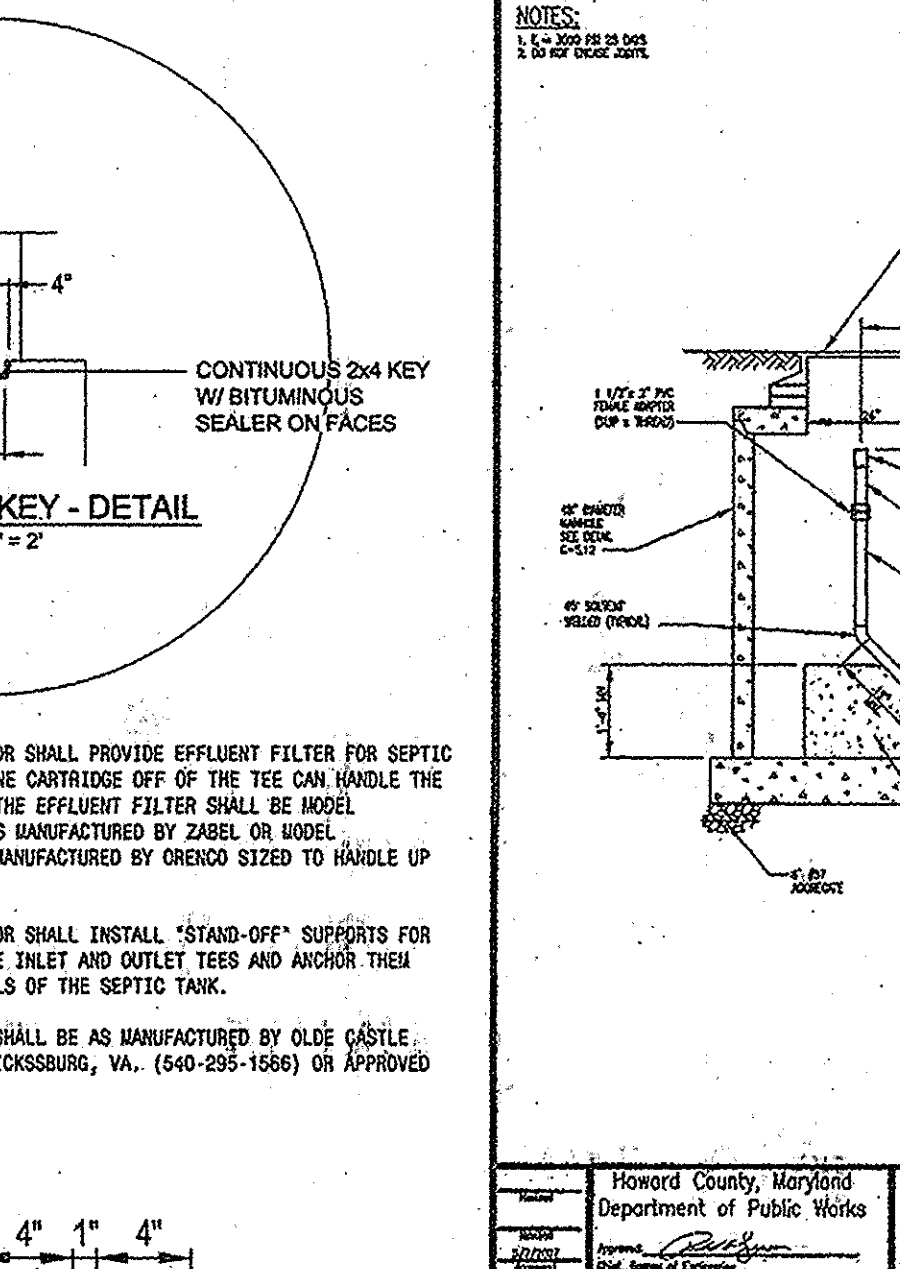
Pressure Sewer Lateral Turn-Up Tracer Wire, Conducting Rod & Vault S-4.12



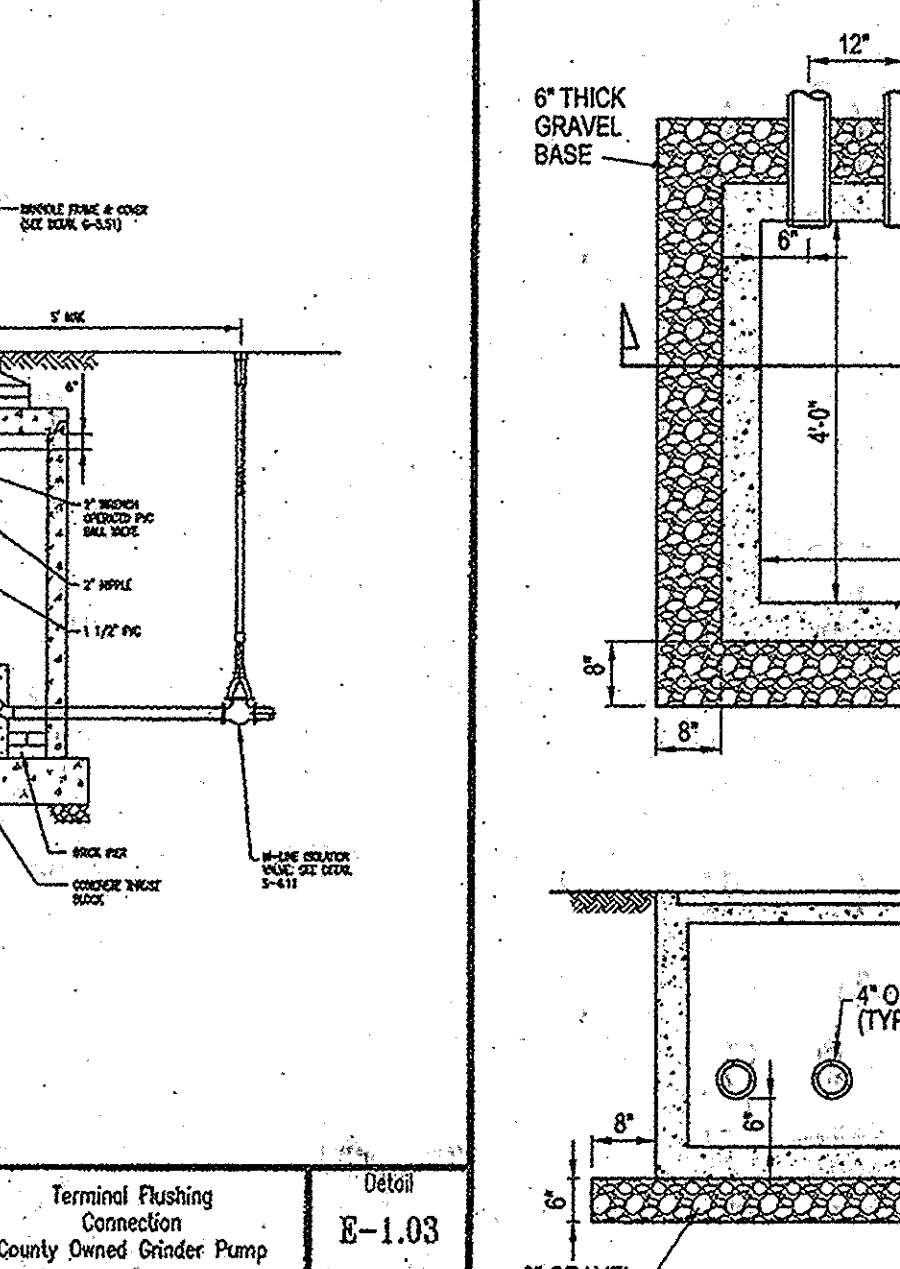
Grinder Pump Details S-4.11



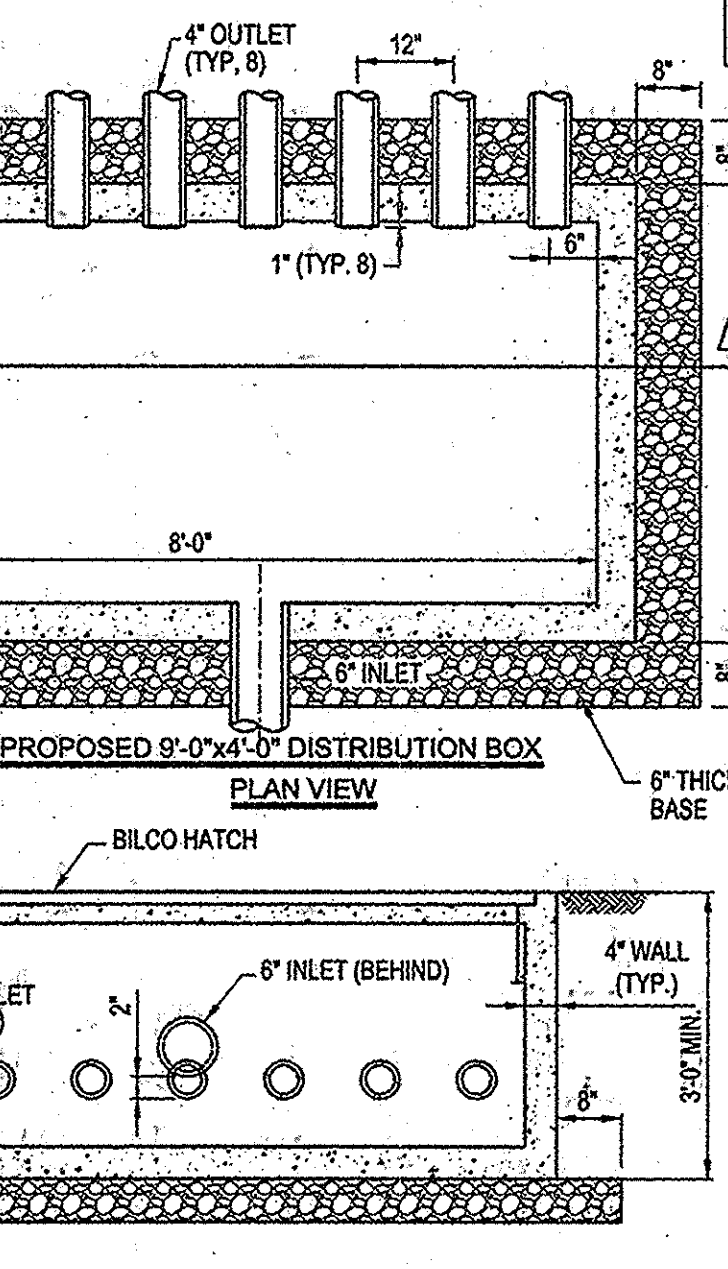
SEPTIC TANK DETAIL NOT TO SCALE



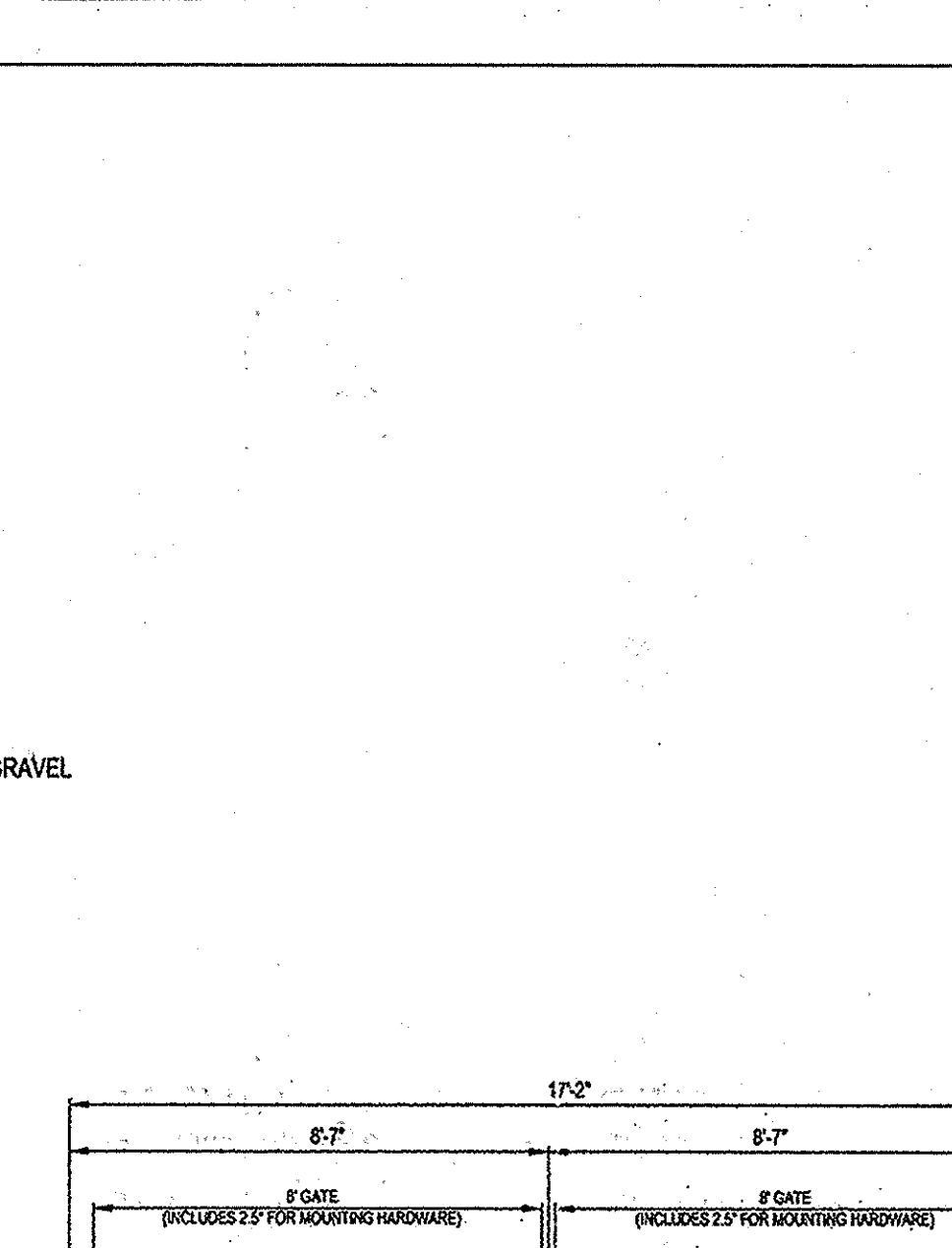
2x4 CONTINUOUS KEY - DETAIL SCALE: 1" = 2"



Terminal Pushing Connection County Owned Grinder Pump E-1.03



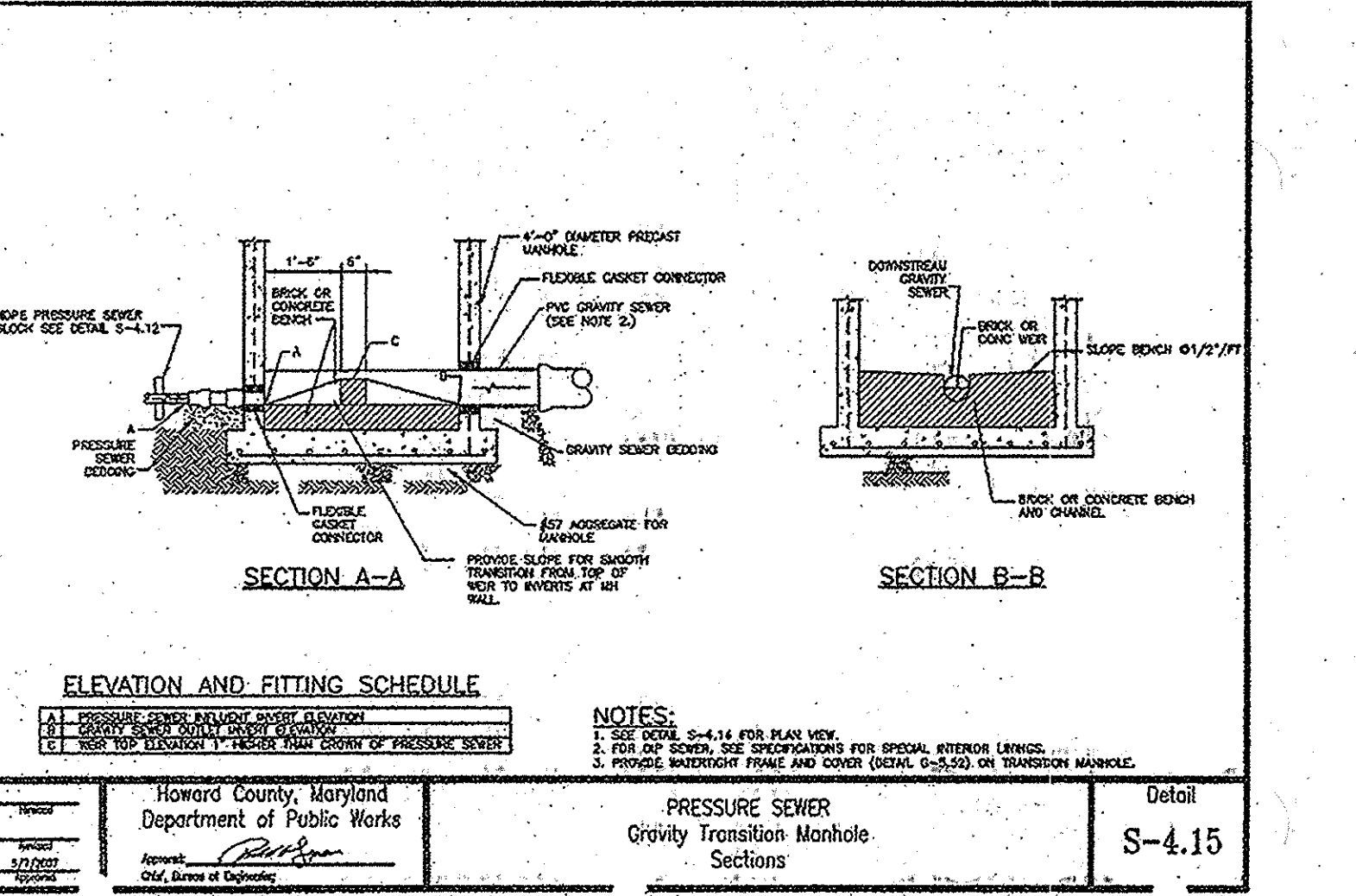
PROPOSED 9'-0" x 4'-0" DISTRIBUTION BOX PLAN VIEW



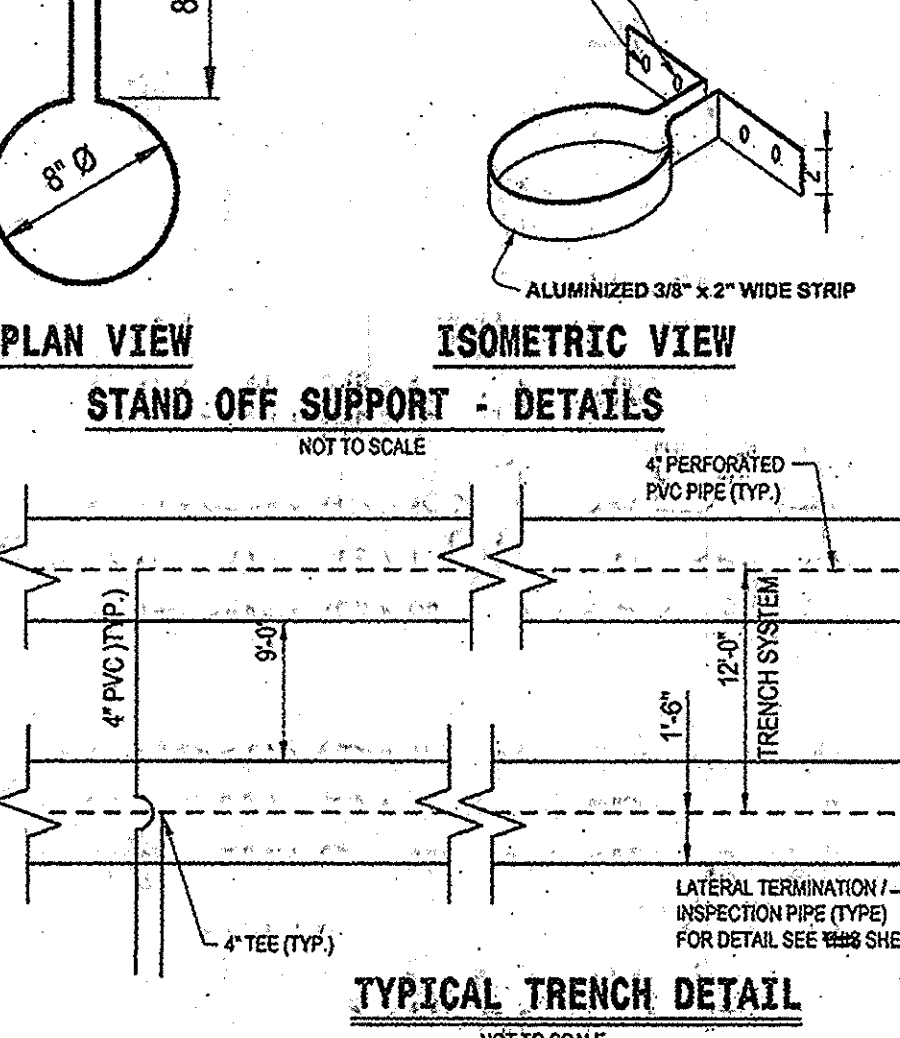
PROPOSED 9'-0" x 4'-0" DISTRIBUTION BOX SECTION VIEW

**PROFESSIONAL CERTIFICATION**

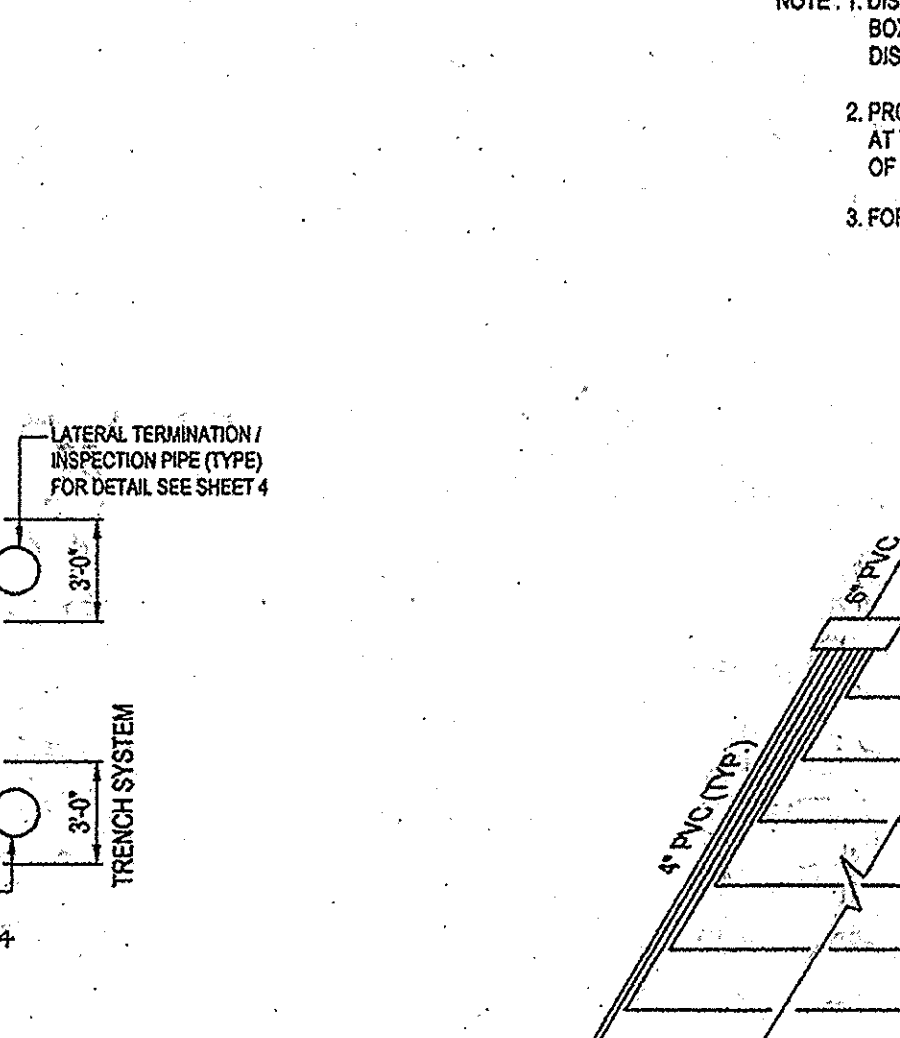
I HEREBY CERTIFY THAT THE RED-LINE REVISIONS SHOWN HEREON, INDICATED BY THE SYMBOL , WERE PREPARED OR APPROVED BY ME, AND I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31042 EXPIRATION DATE: 02/18/13



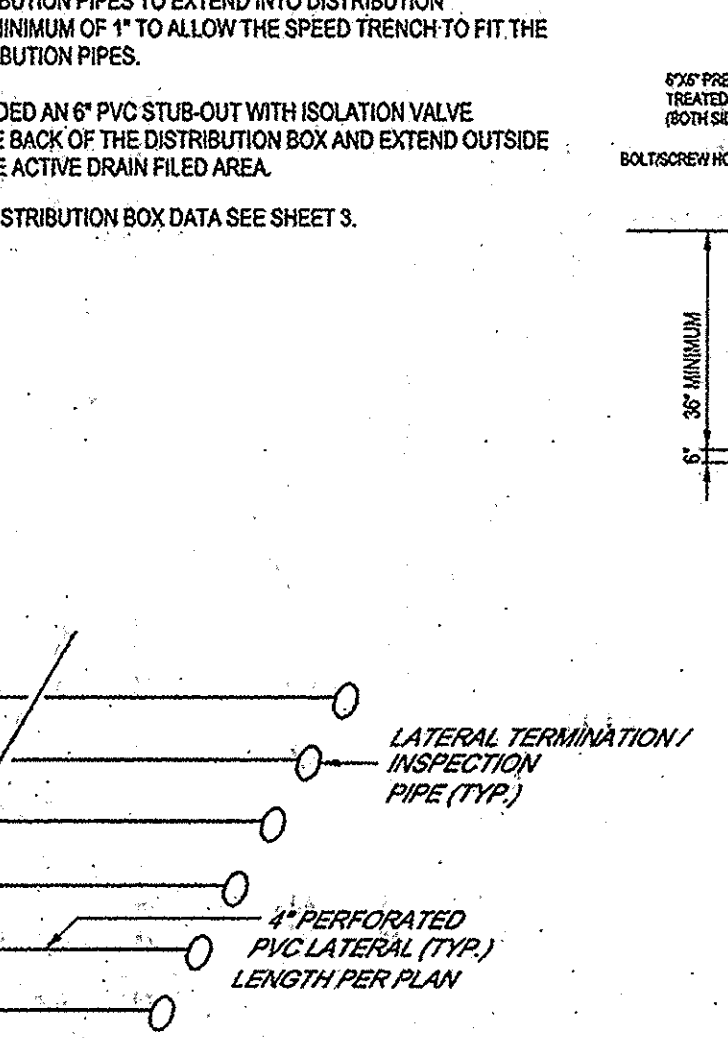
ELEVATION AND FITTING SCHEDULE



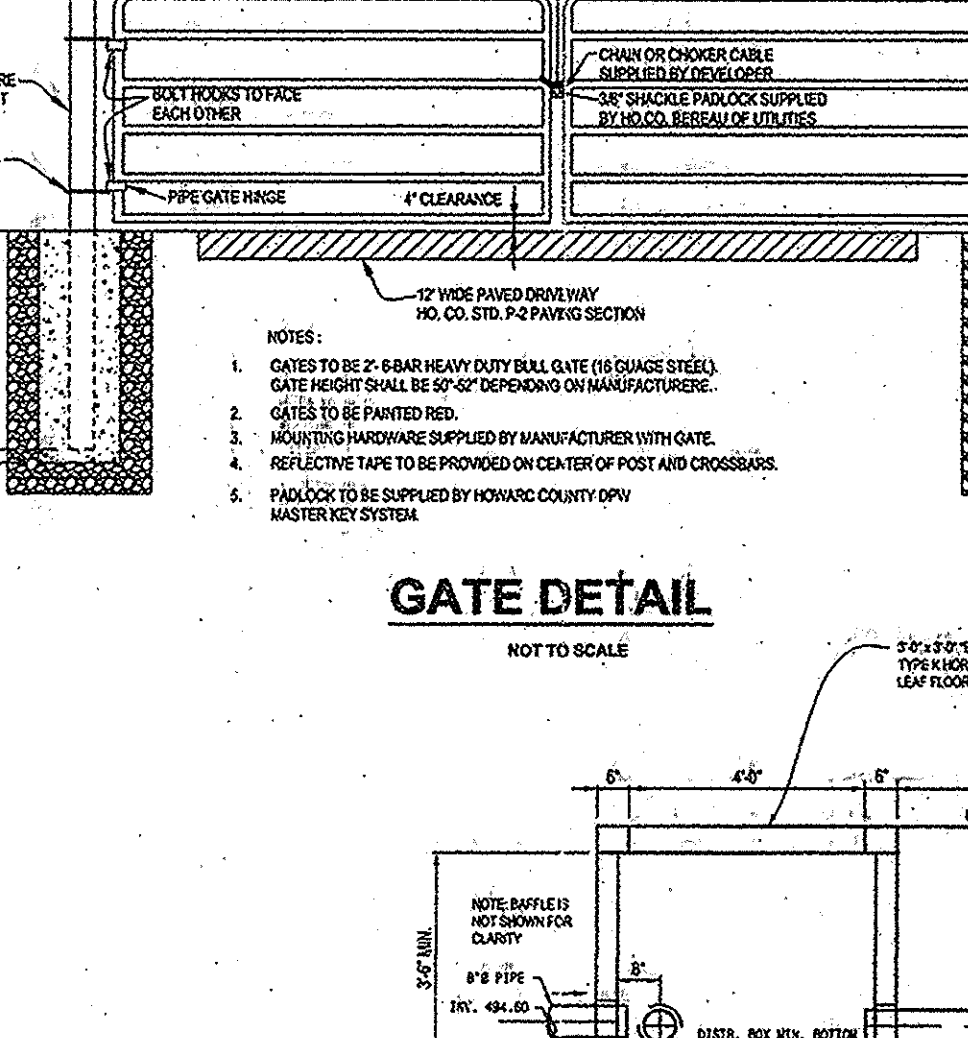
STAND OFF SUPPORT - DETAILS NOT TO SCALE



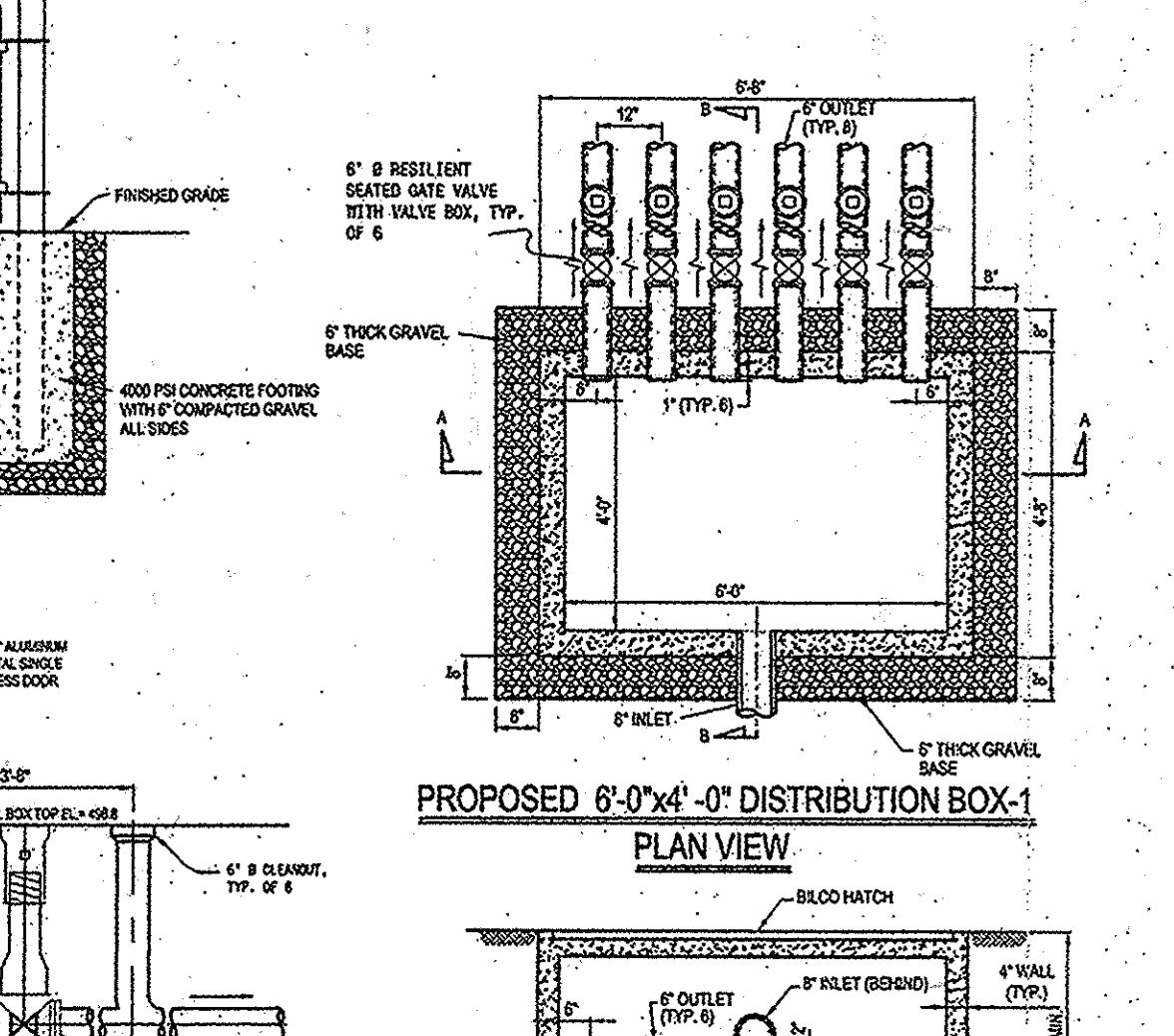
TYPICAL TRENCH DETAIL NOT TO SCALE



SEPTIC FIELD LAYOUT DETAIL NOT TO SCALE



GATE DETAIL NOT TO SCALE



PROPOSED 6'-0" x 4'-0" DISTRIBUTION BOX-1 PLAN VIEW

APPROVED FOR PRIVATE WATER AND A SHARED SEWERAGE SYSTEM, LOTS 17 THRU 23 AND FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEM FOR LOT 24 HOWARD COUNTY HEALTH DEPARTMENT

HOWARD COUNTY HEALTH OFFICER: DATE: \_\_\_\_\_

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND

OWNER / DEVELOPER: SK HOMES AT HIGHLAND OWINGS, LLC 7090 SAMUEL MORSE DRIVE SUITE 500 COLUMBIA, MD 21046 301-870-5603

DALE THOMPSON BUILDERS 4907 Woodside Court Columbia, MD 21046 301-995-6756 301-995-2780 Fax: 410-531-7947

DES.: JHE/AG  
 DRN.: AVG  
 CHK.: JHE  
 HRP.: ADD GRINDER PUMP AND LATERAL TURN-UP DETAILS 9/12  
 DATE: 12-17-07

I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13285, Expiration Date: 12-26-08.

AS BUILT  
 DATE: 5-19-16

PROPOSED 6'-0" x 4'-0" DISTRIBUTION BOX-1 SECTION B-B

PROPOSED 6'-0" x 4'-0" DISTRIBUTION BOX-1 SECTION A-A

OWINGS PROPERTY, LOT 5  
 LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F, G AND NON-BUILDABLE BULK PARCEL H  
 A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY SHARED SEWER DISPOSAL AND FORCE MAIN  
 CONTRACT NO. : 50-4436-D  
 5th ELECTION DISTRICT HOWARD COUNTY, MD.

SCALE: AS SHOWN  
 SHEET NO. 5 OF 7

DETAIL SHEET



STANDARD SEDIMENT CONTROL NOTES

- 1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permit, Sediment Control Division prior to the start of any construction... 2. All vegetative and structural practices are to be installed according to the provisions of this plan...

PERMANENT SEEDING NOTES

- Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed. 2. All vegetative and structural practices are to be installed according to the provisions of this plan...

TEMPORARY SEEDING NOTES

- Apply to graded or cleared areas likely to be reseeded where a short-term vegetative cover is needed. 2. All vegetative and structural practices are to be installed according to the provisions of this plan...

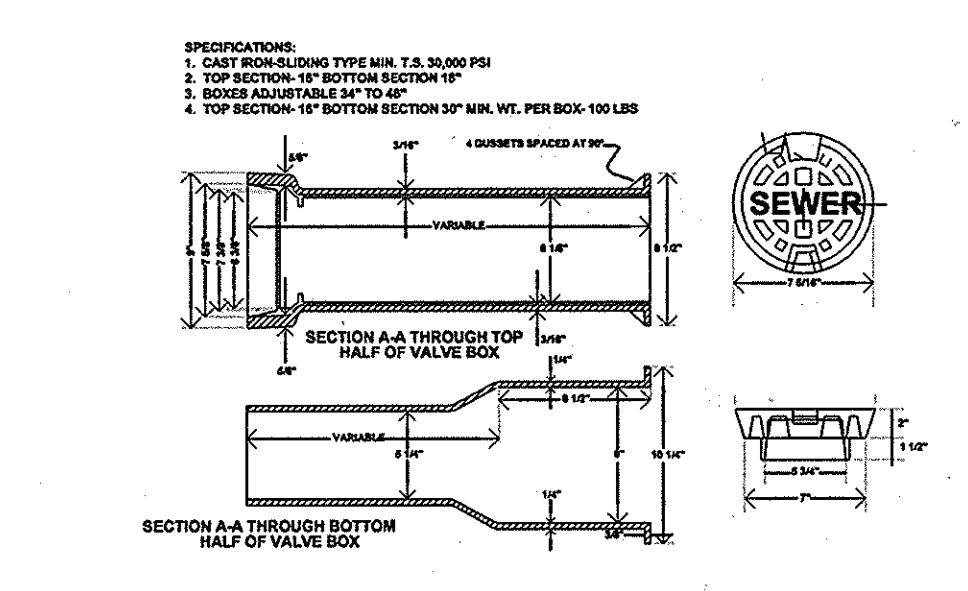
STANDARDS AND SPECIFICATIONS FOR TOPSOIL

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 structure.

- 1. 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.

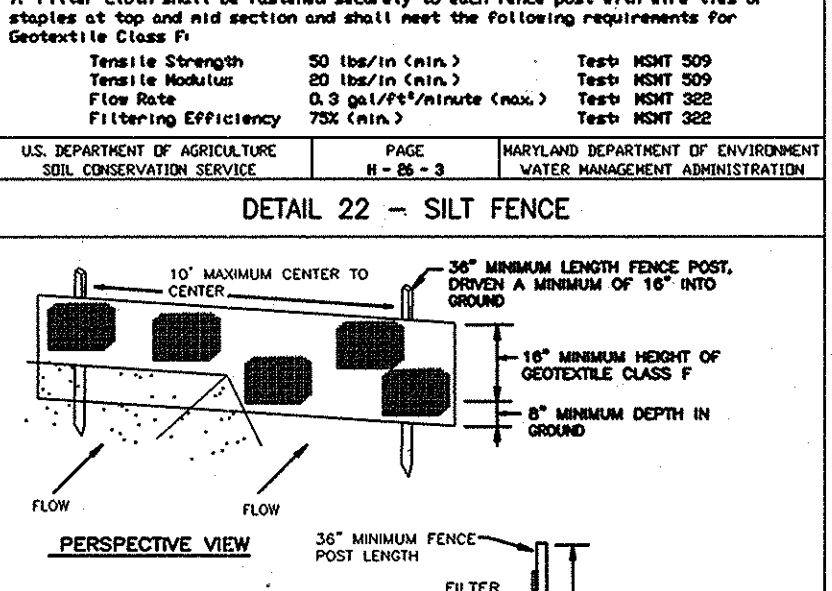
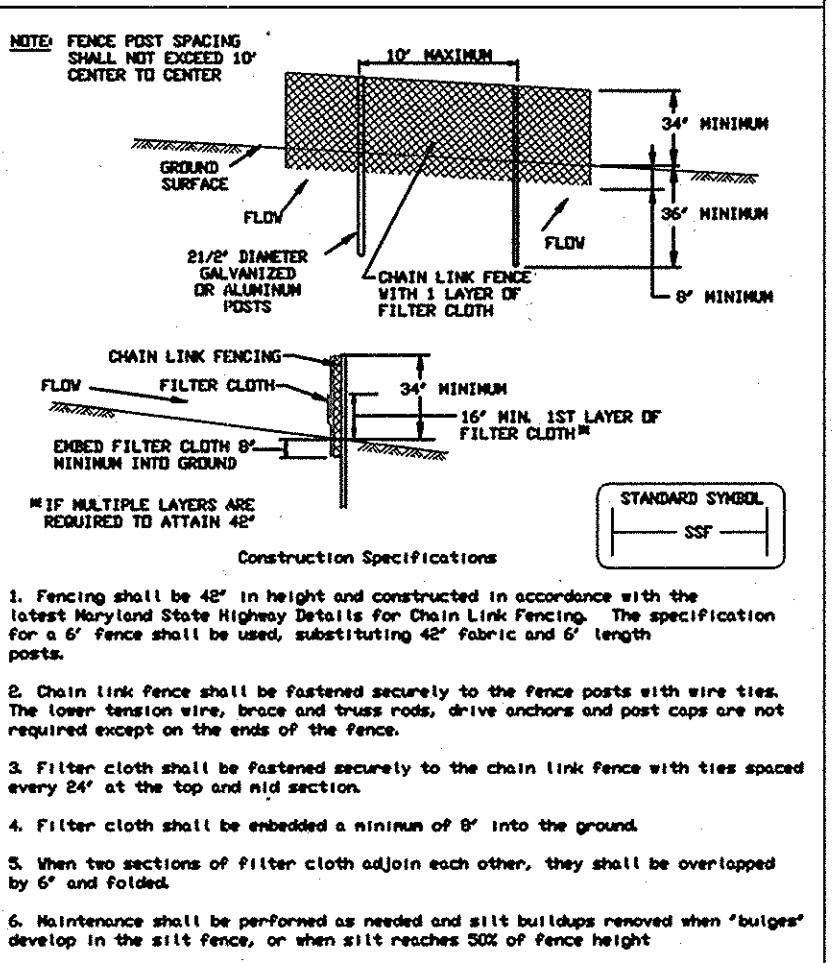
V. Topsoil Application

- 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, about 4"-8" higher in elevation.



ADJUSTABLE VALVE BOX ROUND HEAD SLIDING TYPE NOT TO SCALE

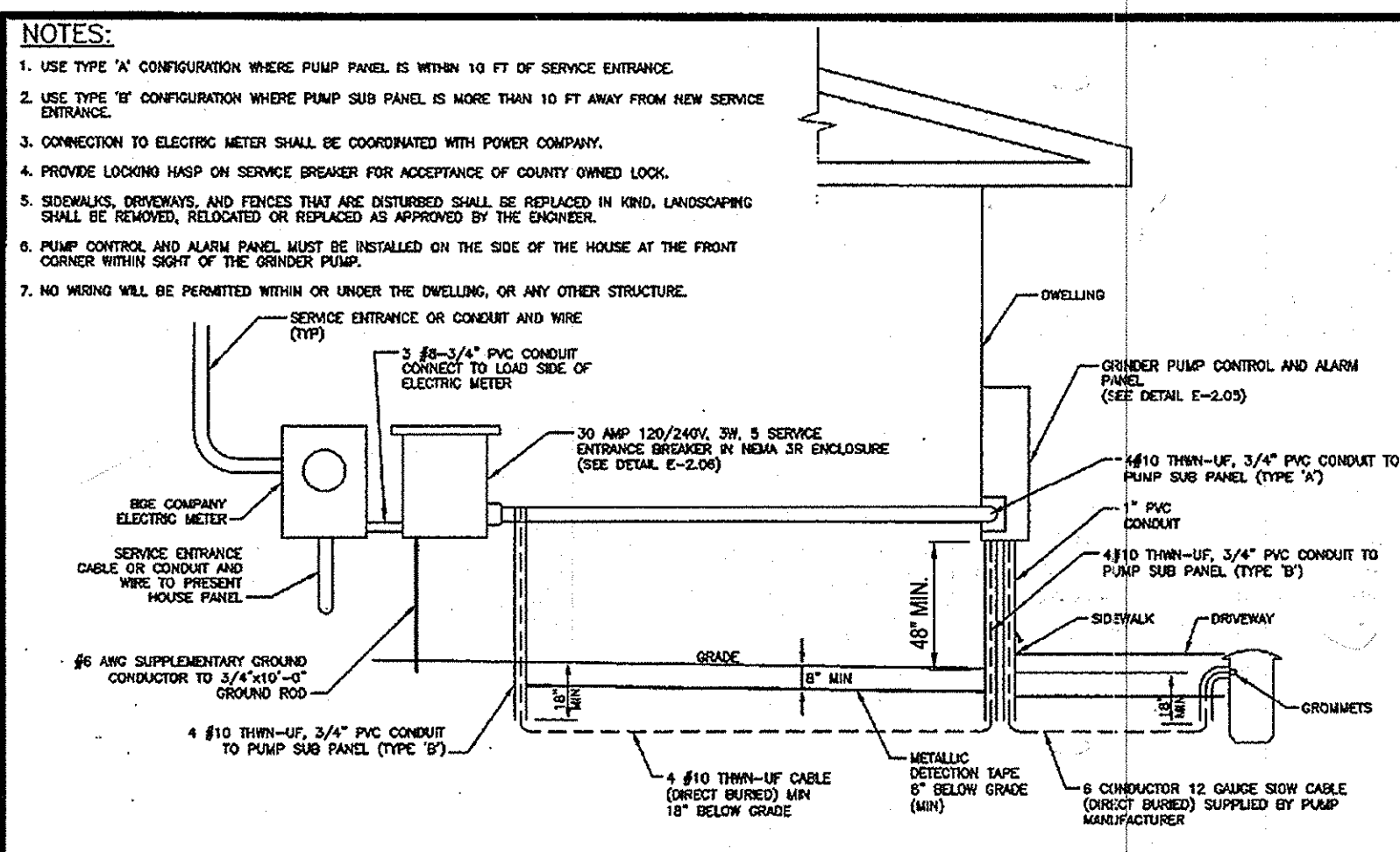
DETAIL 33 - SUPER SILT FENCE



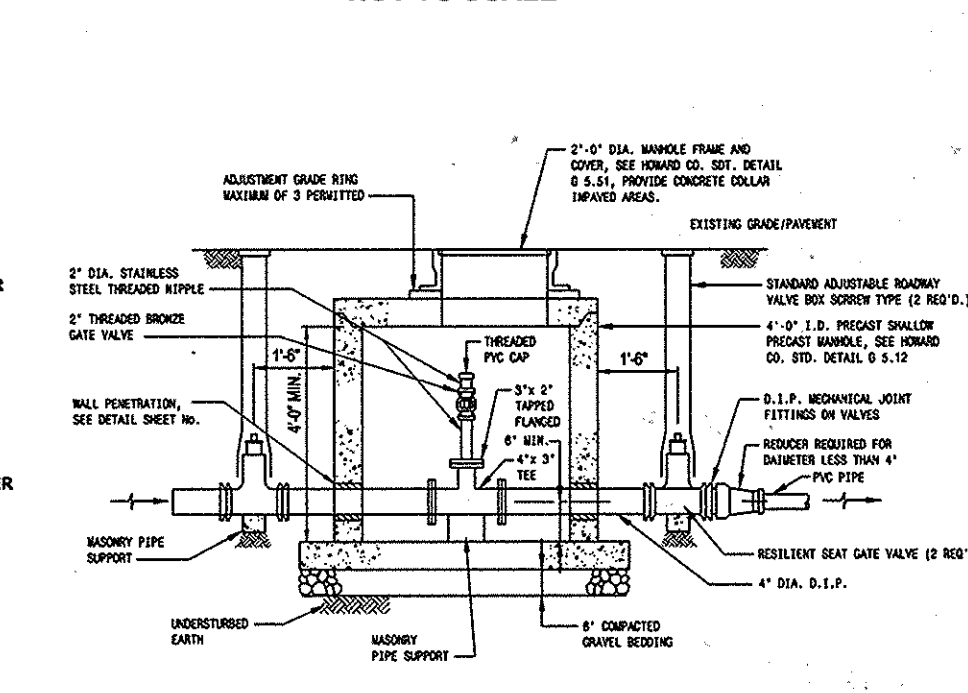
DETAIL 22 - SILT FENCE

20.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

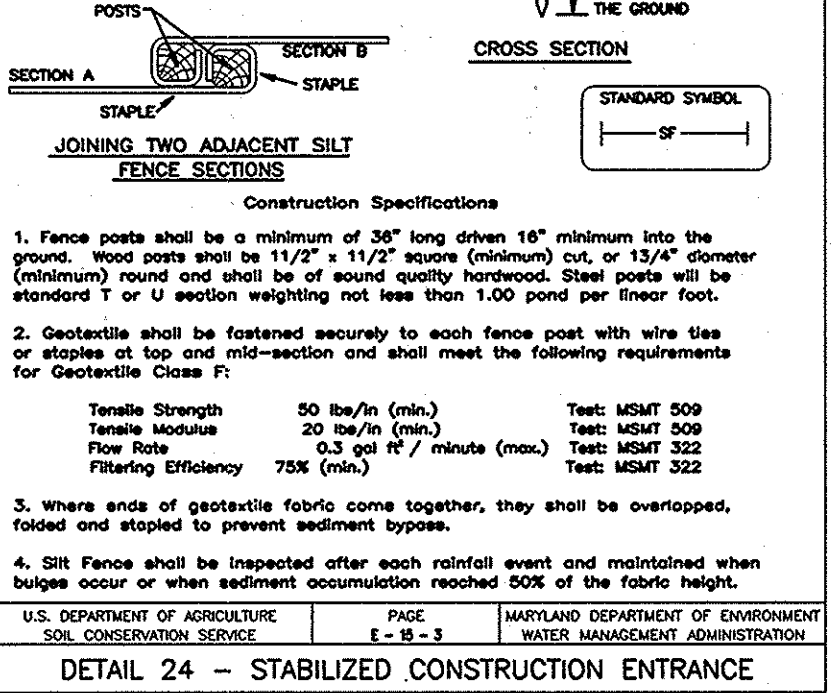
- DEFINITION: Using vegetation to cover for barren soil to protect it from forces that cause erosion. PURPOSE: Vegetative stabilization specifications are used to promote the establishment of vegetation on exposed soil. 1. Minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permit, Sediment Control Division prior to the start of any construction...



SEWAGE GRINDER PUMP WIRING DIAGRAM (240V) TYPICAL EACH PUMP UNIT NOT TO SCALE



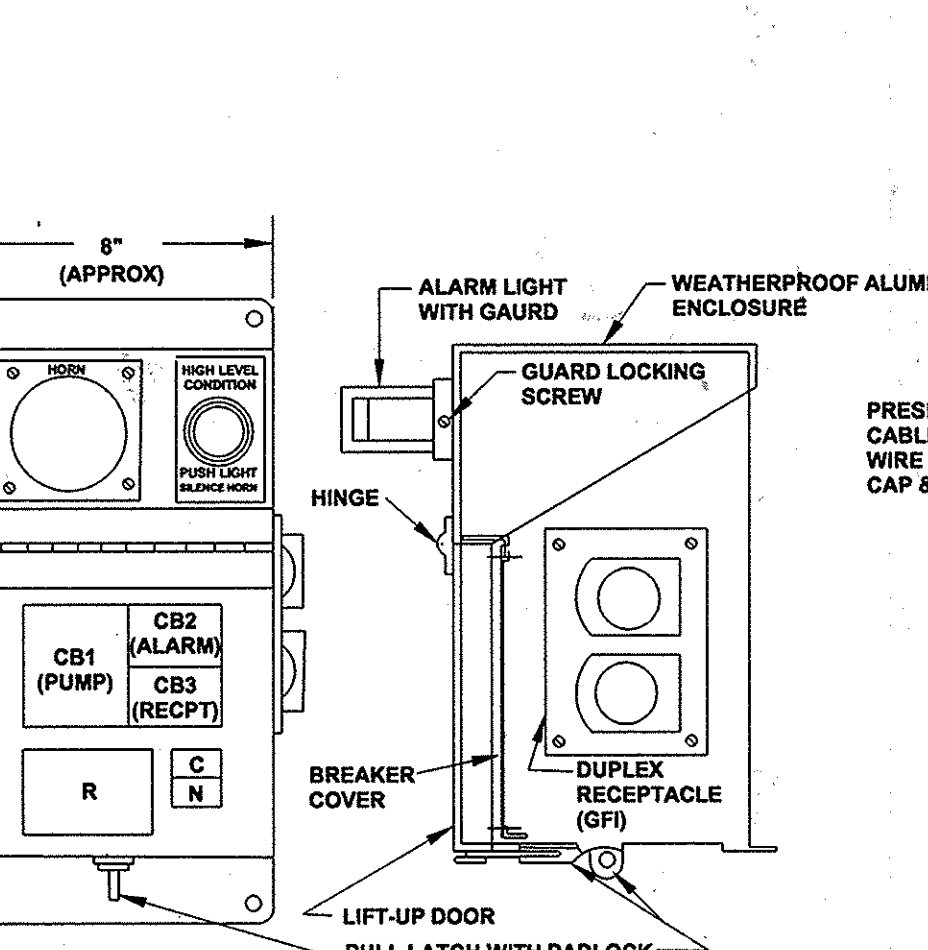
SECTION B-B INLINE PRESSURE CLEANOUT NOT TO SCALE



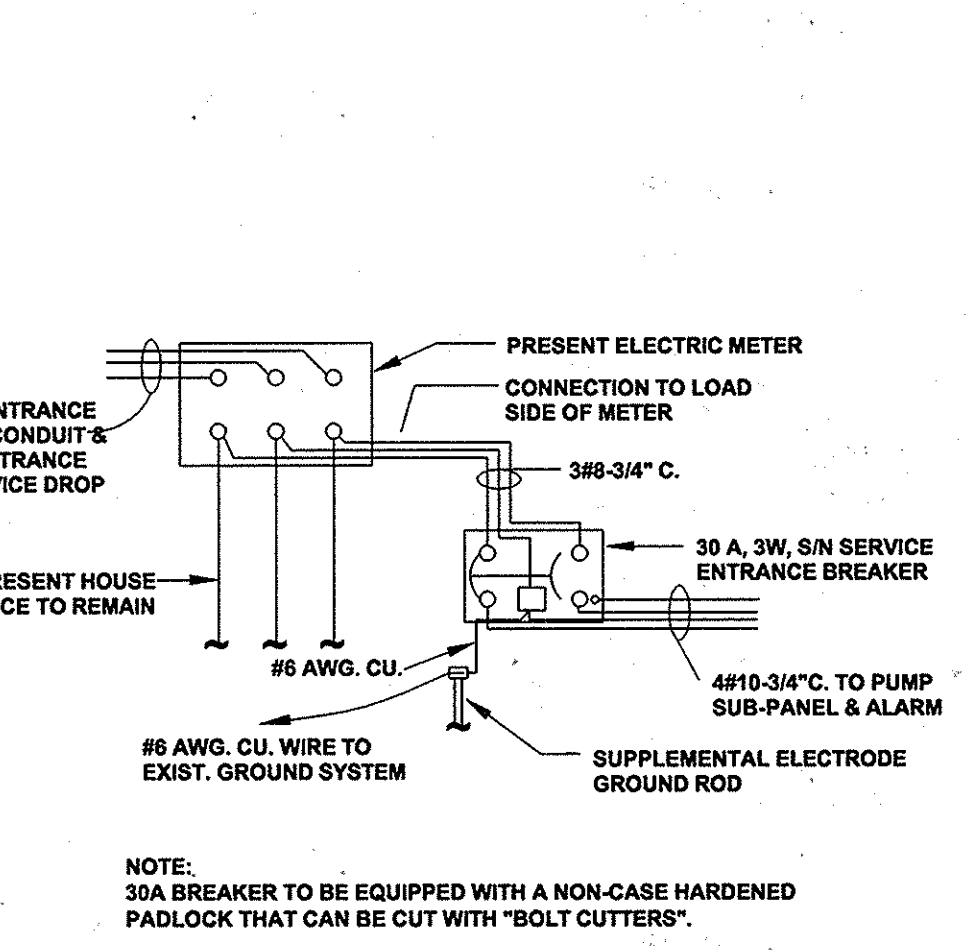
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE NOT TO SCALE

Table with 4 columns: Howard County, Maryland Department of Public Works; Electric Service County Owned Grinder Pump; Detail; E-1.01.

OWNER/DEVELOPER: PLANNING BROOK, LLC, 6300 WOODSIDE COURT, COLUMBIA, MD 21046. ATTN: TRACY THOMPSON. PHONE: (410) 993-6736. FAX: (410) 381-8747.



GRINDER PUMP CONTROL & ALARM PANEL NOT TO SCALE



NEW SERVICE ENTRANCE WIRING DIAGRAM NOT TO SCALE

APPROVED FOR PRIVATE WATER AND A SHARED SEWERAGE SYSTEMS, LOTS 17 THRU 23 AND FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEM FOR LOT 24. HOWARD COUNTY HEALTH DEPARTMENT. DATE: 1/10/08.

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE HOWARD COUNTY STANDARDS AND SPECIFICATIONS AND AS PER ROAD CONSTRUCTION PLANS PER F-06-112. I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13265, Expiration Date: 12-26-08.

DALE THOMPSON, PROFESSIONAL ENGINEER. License No. 13265, Expiration Date: 12-26-08. Address: 301-596-0735, 301-596-0736, 301-596-0737, 301-596-0738, 301-596-0739, 301-596-0740, 301-596-0741, 301-596-0742, 301-596-0743, 301-596-0744, 301-596-0745, 301-596-0746, 301-596-0747, 301-596-0748, 301-596-0749, 301-596-0750.

DEPARTMENT OF PUBLIC WORKS, HOWARD COUNTY, MARYLAND. DEPARTMENT OF PLANNING AND ZONING, HOWARD COUNTY, MARYLAND. PREPARED BY: DALE THOMPSON. DATE: 12-17-07.

DESIGNED BY: JHE/AG. DRAWN BY: AVG. CHECKED BY: JHE. DATE: 12-17-07. BY NO. REVISIONS. DATE: 600' SCALE MAP No. 21. BLOCK No. 12.

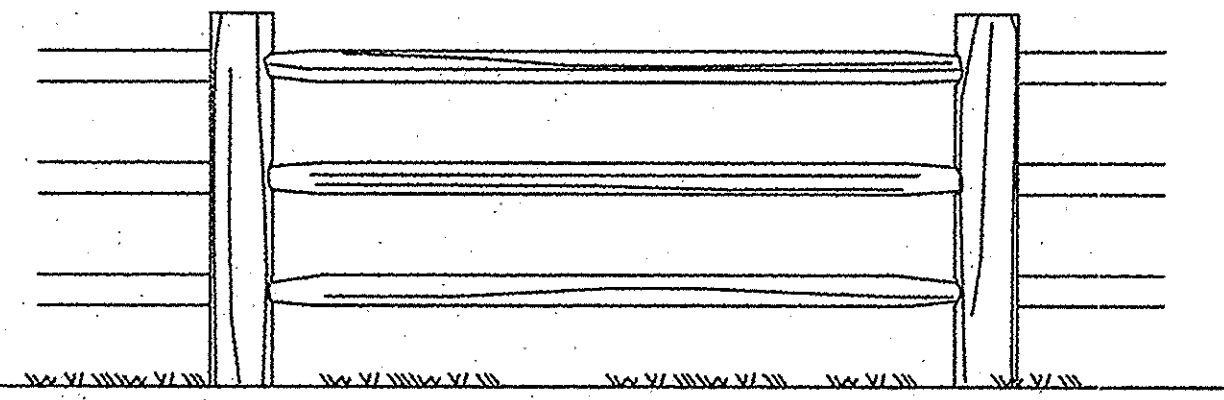
GRINDER PUMP WIRING & OTHER DETAILS, AND SEDIMENT CONTROL NOTES AND DETAILS. DATE: 600' SCALE MAP No. 21. BLOCK No. 12.

AS BULTS. DATE: 5-19-16. OWINGS PROPERTY, LOT 5. LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F, G AND NON-BUILDABLE BULK PARCEL H. A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY. SHARED SEWAGE DISPOSAL AND FORCE MAIN. CONTRACT No.: 50-4436-D. 5th ELECTION DISTRICT, HOWARD COUNTY, MD. SCALE: AS SHOWN. SHEET No. 6 OF 7.

OWINGS PROPERTY, LOT 5. LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F, G AND NON-BUILDABLE BULK PARCEL H. A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY. SHARED SEWAGE DISPOSAL AND FORCE MAIN. CONTRACT No.: 50-4436-D. 5th ELECTION DISTRICT, HOWARD COUNTY, MD. SCALE: AS SHOWN. SHEET No. 6 OF 7.

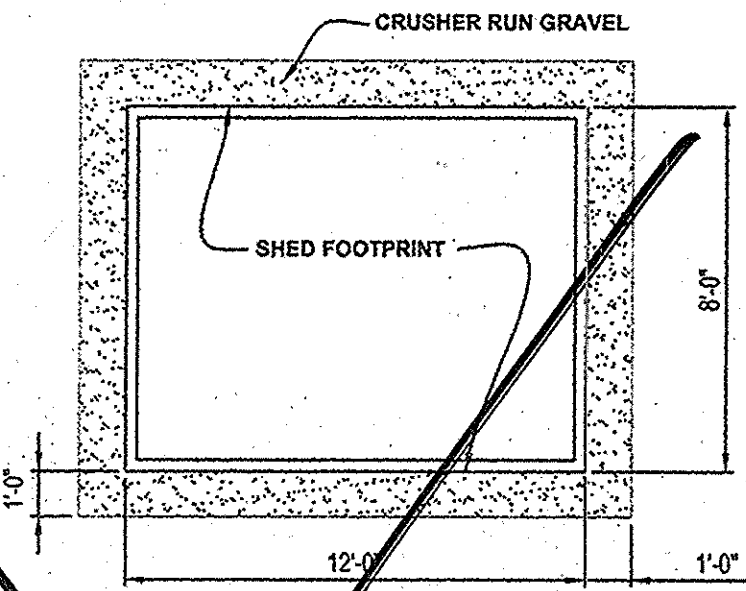
OWINGS PROPERTY, LOT 5. LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F, G AND NON-BUILDABLE BULK PARCEL H. A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY. SHARED SEWAGE DISPOSAL AND FORCE MAIN. CONTRACT No.: 50-4436-D. 5th ELECTION DISTRICT, HOWARD COUNTY, MD. SCALE: AS SHOWN. SHEET No. 6 OF 7.





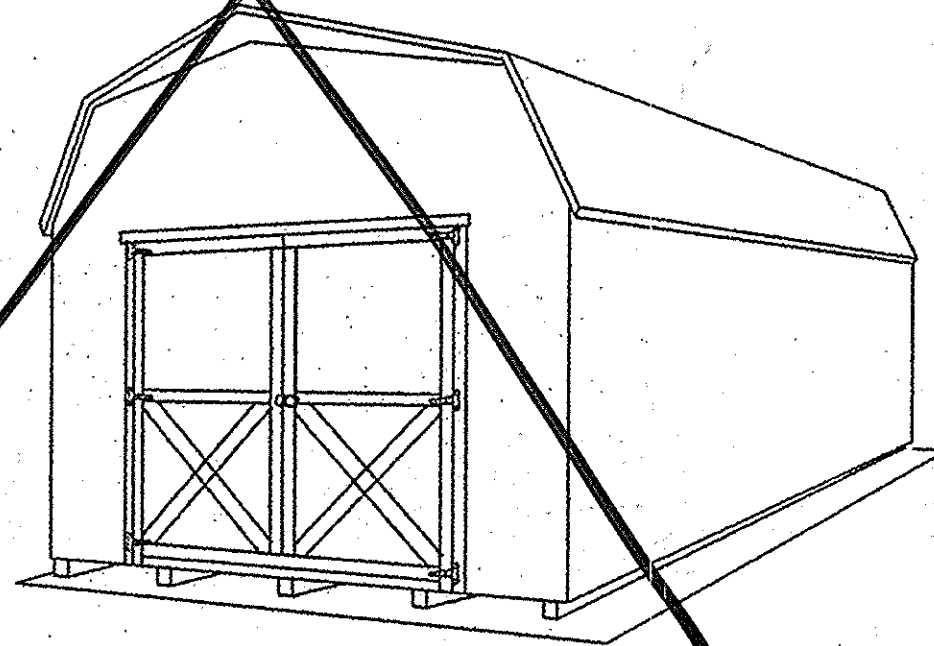
**SPLIT RAIL FENCE**  
THREE RAIL - 4 FEET HIGH

NOT TO SCALE



**HIGHWALL BARN - FOUNDATION PLAN**

SCALE: 1" = 6'



**HIGHWALL BARN**

NOT TO SCALE

**SPECIFICATIONS TO INCLUDE:**

- NO WINDOWS.
- 10' RIDGE VENT.
- 4 x 4 PRESSURE TREATED SKIDS.
- 2 x 4 FLOOR JOIST 16" ON CENTER.
- 1/2" PLYWOOD FLOOR SHEATHING.
- 2 x 4 STUDS 16" ON CENTER.
- ALL WALLS TO BE PLATED AT BOTTOM AND DOUBLE PLATED AT THE TOP.
- 240 POUND ASPHALT 20 YEAR SHINGLE.
- DOOR AND FRAME TO BE REINFORCED.
- DOOR HINGES MUST BE "T" TYPE OR STRAP TYPE, THREE HINGES PER DOOR SIDE. PIANO HINGES ARE NOT ACCEPTABLE.
- LOCKS ARE TO BE KEYPAD STYLE WITH BAUER CH751 LOCK.
- VINYL SIDING AND TRIM COLOR - ALMOND.
- SHINGLE COLOR - BROWN.

*Mike Croan*  
OWNER / DEVELOPER:  
SK HOMES AT HIGHLAND OWINGS, LLC  
7090 SAMUEL MORSE DRIVE  
SUITE 500  
COLUMBIA, MD 21046  
301-870-5603

**AB CONSULTANTS, INC.**  
9450 ANNAPOLIS ROAD  
LANHAM, MD. 20706  
301.509.2332 301.306.3091

**PROFESSIONAL CERTIFICATION**  
I HEREBY CERTIFY THAT THE RED-LINE REVISIONS SHOWN HEREON, INDICATED BY THE SYMBOL  $\Delta$  WERE PREPARED OR APPROVED BY ME, AND I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31042  
EXPIRATION DATE: 02/18/15"

APPROVED: FOR PRIVATE WATER AND A SHARED SEWERAGE SYSTEMS, LOTS 17 THRU 21, 23 THRU 24 AND FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEM FOR LOT 22.  
HOWARD COUNTY HEALTH DEPARTMENT

*R. Wilbur Moore Rossman*  
HOWARD COUNTY HEALTH OFFICER

10/22/2013  
DATE

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*Steve C. Coan*  
CHIEF, BUREAU OF UTILITIES

11/20/13  
DATE

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND

*Chad Church*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

5-27-14  
DATE

**DALE THOMPSON**  
BUILDERS  
6300 Woodside Court  
Columbia, MD 21045  
310.995.6736  
301.294.2283  
Fax: 410.381.2447

DES.: JHE/AG  
DRN.: AVG  
CHK.: JHE  
DATE: 12-17-07

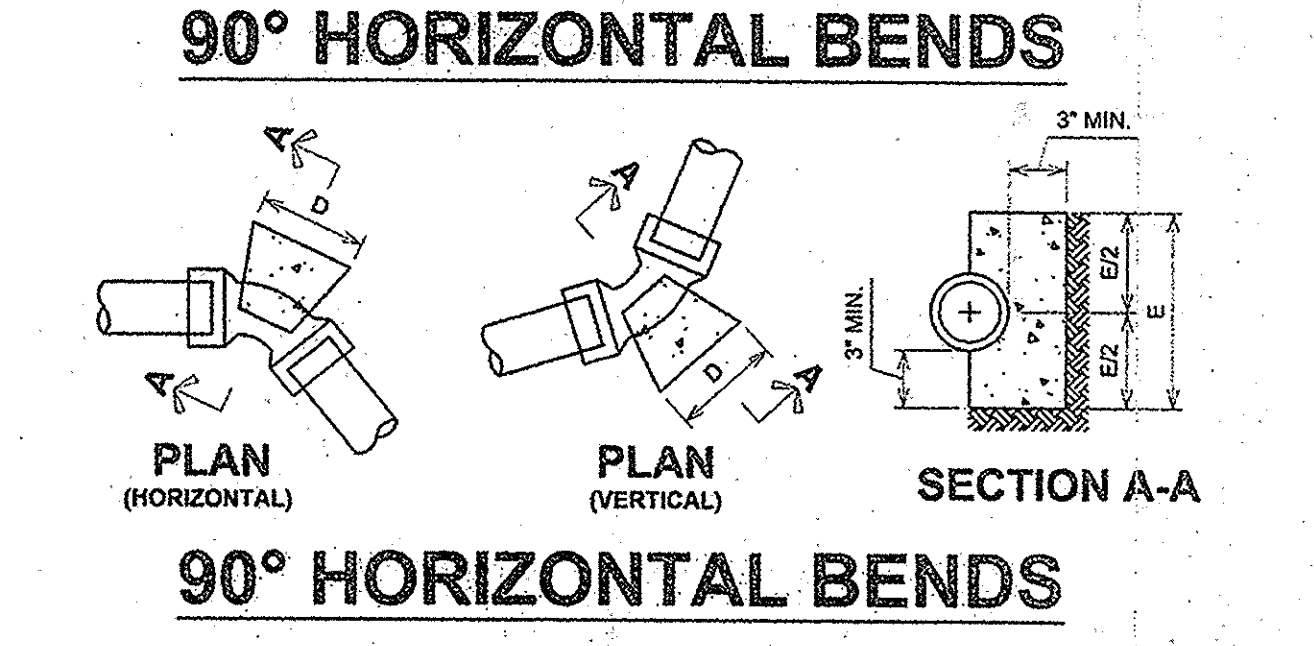
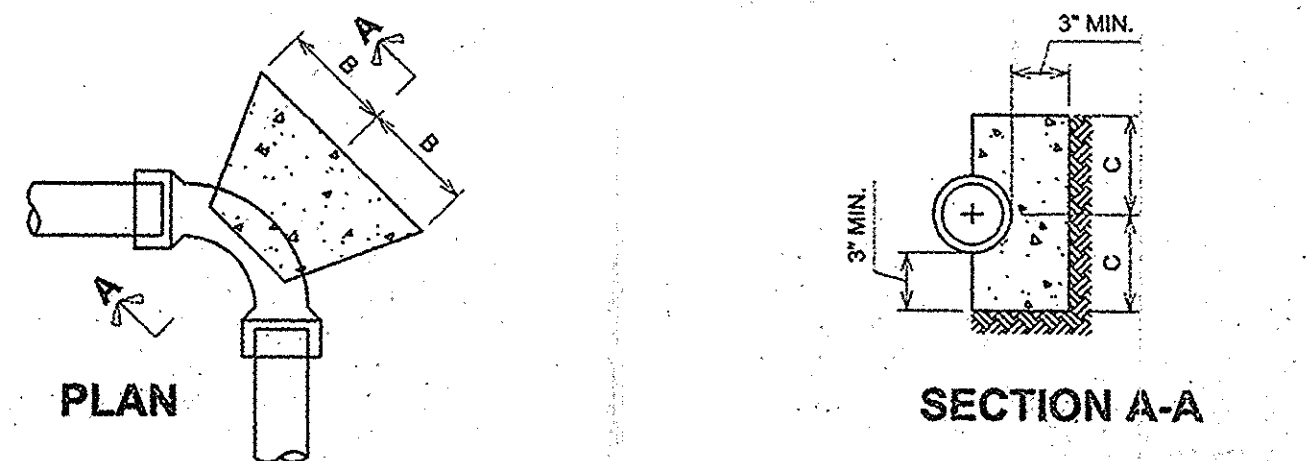
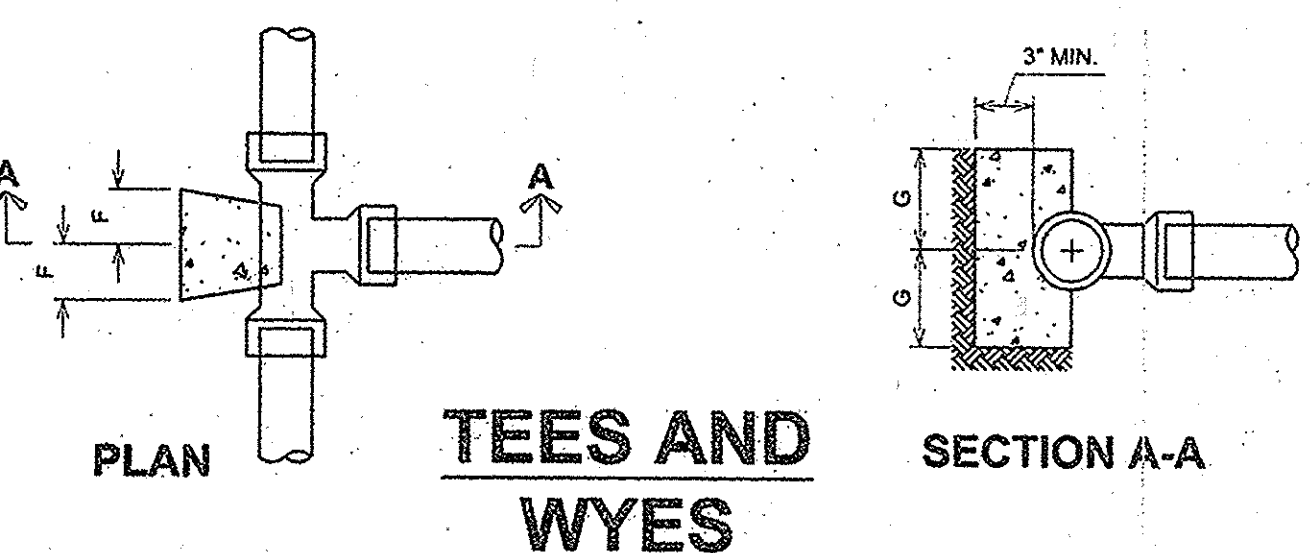
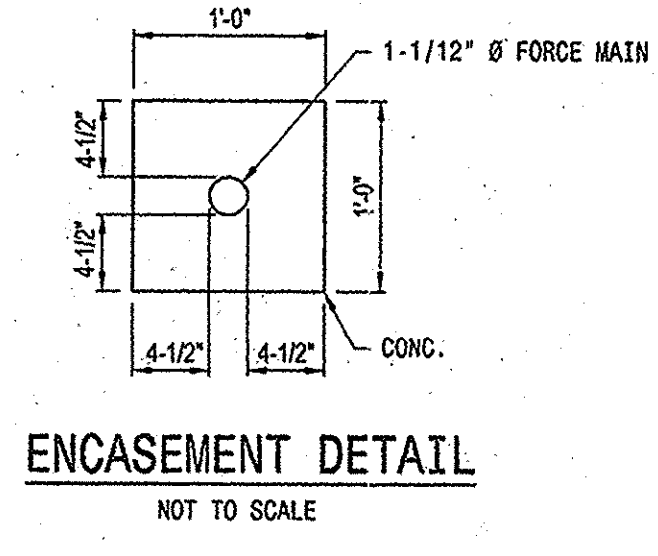
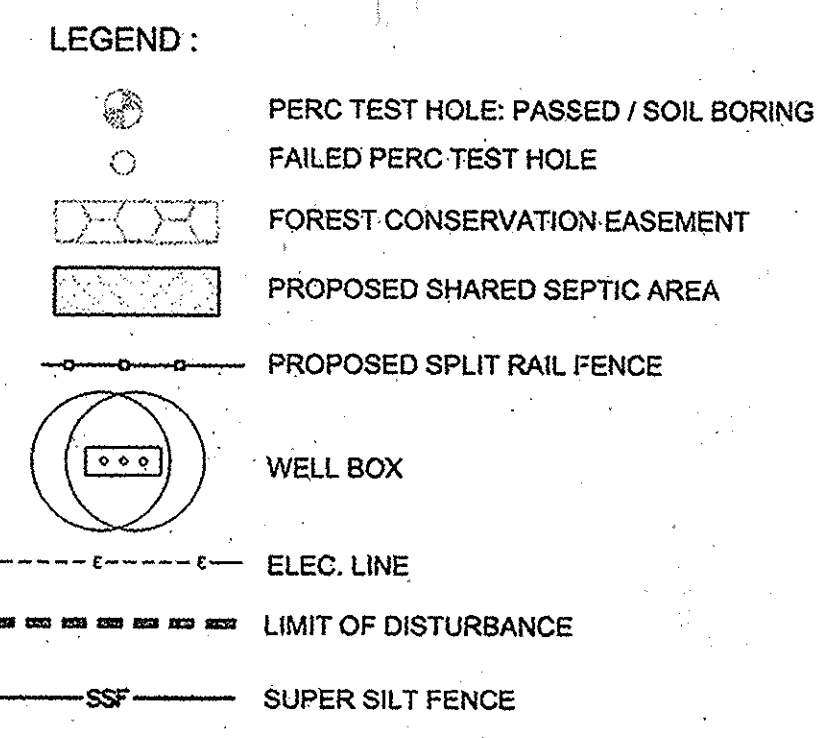
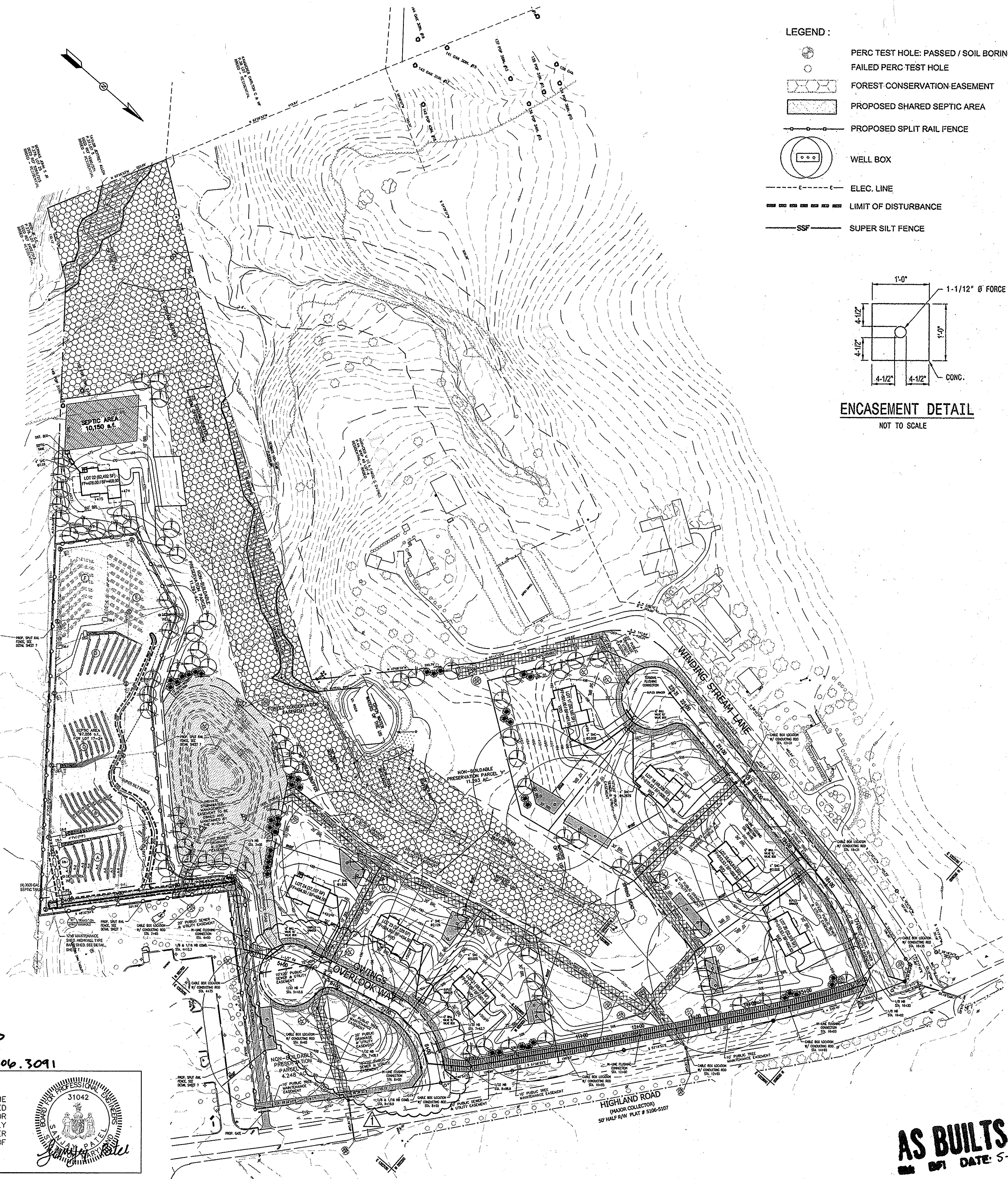
NO.	REVISIONS	DATE
1	LOWERED PROP. ROAD GRADES AND LOWERED SEWER ACCORDINGLY	7/26

**FORCE MAIN PLAN & DETAILS**  
SCALE: 1" = 100'

600' SCALE MAP No. 21 | BLOCK No. 12

**OWINGS PROPERTY, LOT 5**  
LOTS 17-22, NON-BUILDABLE PRESERVATION PARCELS F, G AND NON-BUILDABLE BULK PARCEL H  
A RESUBDIVISION OF LOT 5 - HARWOOD OWINGS PROPERTY  
SHARED SEWAGE DISPOSAL AND FORCE MAIN  
CONTRACT No. : 50-4436-D  
5th ELECTION DISTRICT | HOWARD COUNTY, MD.

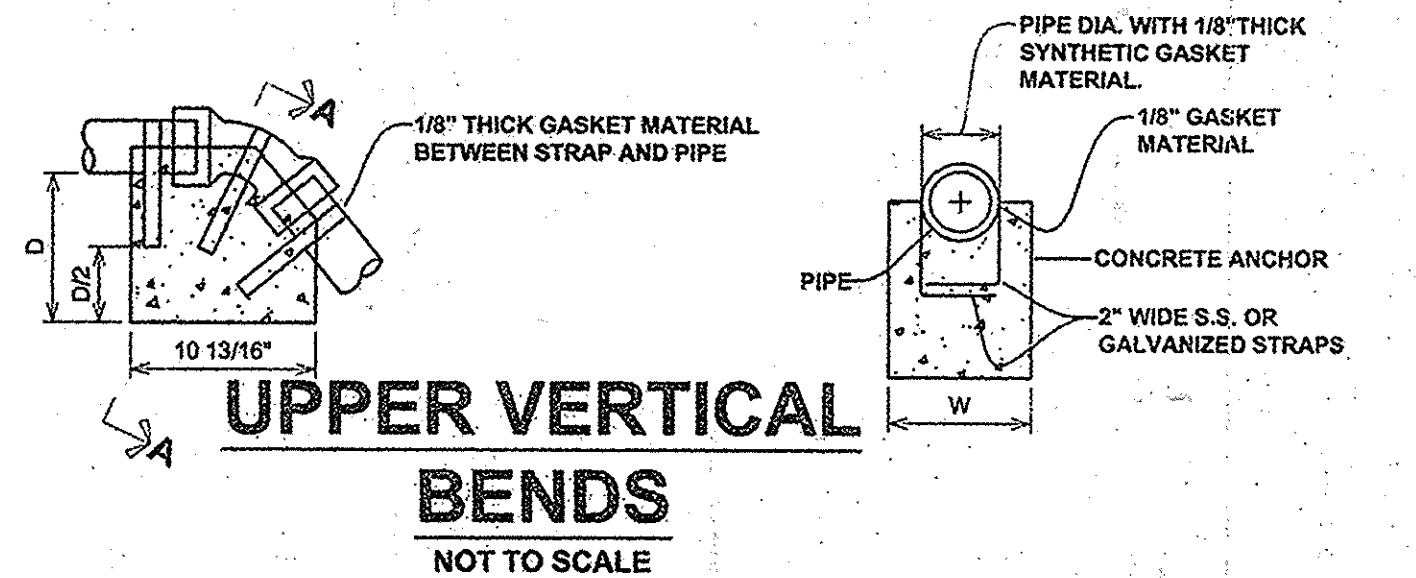
SCALE : AS SHOWN  
SHEET No. 7 OF 7



PIPE SIZE	BUTTRESS DIMENSIONS					
	B	C	D	E	F	G
1 1/2" OR 2"	4 1/2"	4 1/2"	5"	9"	4 1/2"	4"
2"	5"	5"	7"	7"	5"	5"
2 1/2"	5"	5"	7"	7"	5"	5"
3"	6"	6"	9"	9"	6"	6"

- NOTES:**
- FC=3000 P.S.I. @ 28 DAYS
  - CARRY ALL BEARING SURFACES TO UNDISTURBED GROUND OR FIRM SUBGRADE.
  - BUTTRESS SIZED FOR 150 P.S.I. AND SOIL WITH C = 2000 P.S.I.

**1/32", 1/16" 1/8" HORIZONTAL AND LOWER VERTICAL BENDS**  
NOT TO SCALE



BEND	SIZE IN INCHES	SIZE IN INCHES			
		1 1/4", 1 1/2"	2", 2-1/2"	3"	
(11 1/4") 1/32"	L	12	15	18	
	W	10	12	15	
	D	10	15	15	
(22 1/2") 1/16"	L	15	20	20	
	W	15	20	20	
	D	12	12	18	
(45") 1/8"	L	20	24	24	
	W	20	20	24	
	D	12	20	24	

**AS BUILT**  
DATE: 5-19-16