

GENERAL NOTES

- PART I - GENERAL**
- Subject property Zoned "RC-DEO" per 02/02/04 Comprehensive Zoning Plan and per the "Comp. Lite" Zoning Regulation Amendments effective 7/28/06.
 - Property is within the Metropolitan District.
 - Approximate locations 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.
 - Topography and Boundary is based on a field run survey prepared by C.B. Miller and Associates, Inc. in August, 2003.
 - The coordinates shown hereon are based upon the Howard County Geodetic Control which is based on the Maryland State Plane Coordinate system. Howard County monument numbers 16E1 and 16H3 were used for this project.
 - All vertical controls are based on NAVD'83. Vertical controls provided on the drawings are 16E1 and 16H3 (see vicinity map).
 - 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 owned 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.
 - 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	410.319.4900
Colonial Pipeline Company	410.795.1390
Miss Utility	1.800.257.7777
Verizon	1.800.749.0033/410.224.9210

 SHA District Utility Engineer 301-624-8115 or 1-800-635-5119 ext. 8115
 - The Contractor shall notify the Construction Inspection Division at 410.313.1880, at least fourteen (14) days prior to construction.
 - 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 line of excavation. Payment for such removal shall be included in the unit price bid for the construction of the main.
 - The Contractor shall notify the Bureau of Highways, Howard County, at 410.313.7450 at least five working days before any 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.
 - Previous Howard County file numbers: SP-04-11.
 - No clearing, grading or construction is permitted within wetlands, streams or their required buffers.

- PART II - WATER**
- Public water will be used within this site.
 - All water mains to be C-900 PVC unless otherwise noted.
 - Top of all water mains to have a minimum of 3'-6" of cover unless otherwise noted.
 - Valves adjacent to tees shall be strapped to tees.
 - All fittings shall be buttressed or anchored with concrete in accordance with the Standard Details unless otherwise provided for on the drawings.
 - Fire Hydrants shall be set to the bury line elevations shown on the Drawings. All Fire Hydrants shall be restrained and buttressed in accordance with Standard Detail 1000 and 1005 of the Standard Specifications.
 - The Contractor shall not operate any water main valves on the existing water system.
 - All water house connections shall be for OUTSIDE meter settings unless otherwise noted on plans or in specifications.
 - All water house connections shall be installed in accordance with Howard County Standard Detail W3.28, including ball valve curb stop and curb service box and cover.
 - Water line trench excavation and backfill shall be in accordance with Howard County Standard Detail G 3.01.
 - Fire Hydrants shall be set in accordance with Howard County Standard Detail H 1.11.
 - Water house connections (WHC's) shall be constructed in accordance with Howard County Standard Detail W 3.21.
 - Repair of paving in Frederick Road Right of Way shall be in accordance with Howard County Standard Detail G 4.01. Subbase and paving course thickness shall be not less than is shown for Maryland State Highway Administration (MSHA) Standard pavement detail, see sheet 7 of 7.

- PART III - SEWER**
- Private sewage systems will be used within this site.
 - All sewer mains shall be D.I.P. or P.V.C. unless otherwise noted.
 - All manholes shall be 4'-0" inside diameter unless otherwise noted.
 - Force mains shall be SDR-21 PVC (ASTM D-2241)
 - Manholes shown with 12" and 16" walls are for brick manholes only.
 - Basement sewer service on lots 6-9 shall be provided by private on-site pump.
 - Design parameters for shared septic system:
 - 5 lots connected
 - 5 bedrooms per dwelling
 - 1-5,000 Gal. Tank # 1-2,500 Gal. Tank provided
 - Flow calculations: 25 bedrooms x 150 GPD = 3,750 GPD Total
 - Septic Distribution trenches: 3' wide x 2' deep, below distribution pipes = 1,570' Total length
 - Grinder pumps and their installation/startup are the responsibility of developer.
 - A Septic Fee in the amount of \$396.00 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 a backflow 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 on-site by the manufacturer. Septic tank shop drawings from the manufacturer shall be submitted to the Howard County Environmental Health Department prior to installation of the septic tanks.
 - All pressure sewer is to be pressure tested according to the Howard County Department of Public Works Standards and Specifications.
 - The contractor shall notify the 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.
 - Observation wells shall be installed after trench installation is completed.
 - Portions of sewer lines closer than 50 feet to any well shall be cased in concrete or constructed of welded steel, as required by COMAR 26.04.04.05.B(2)(a)(vii).

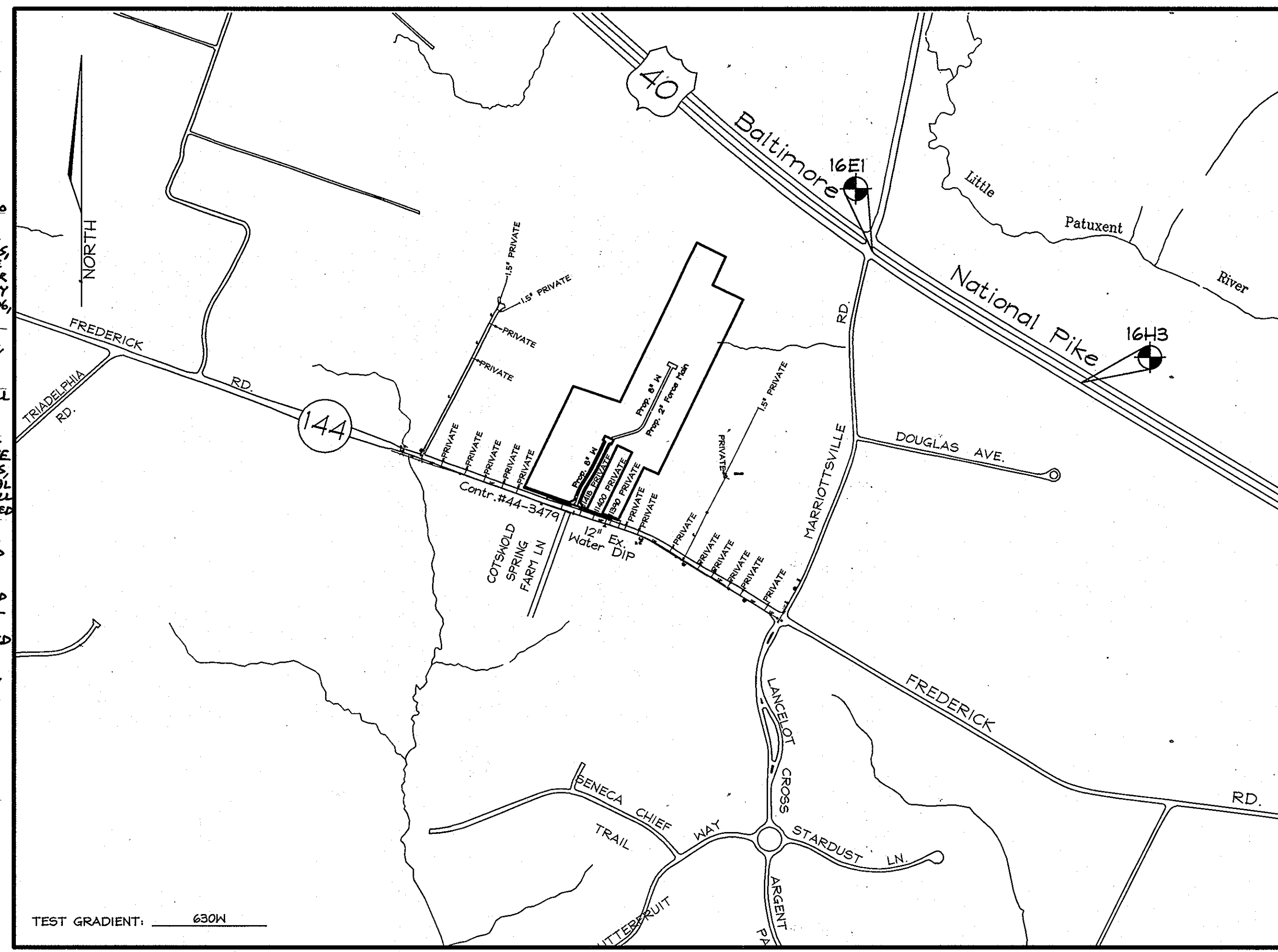
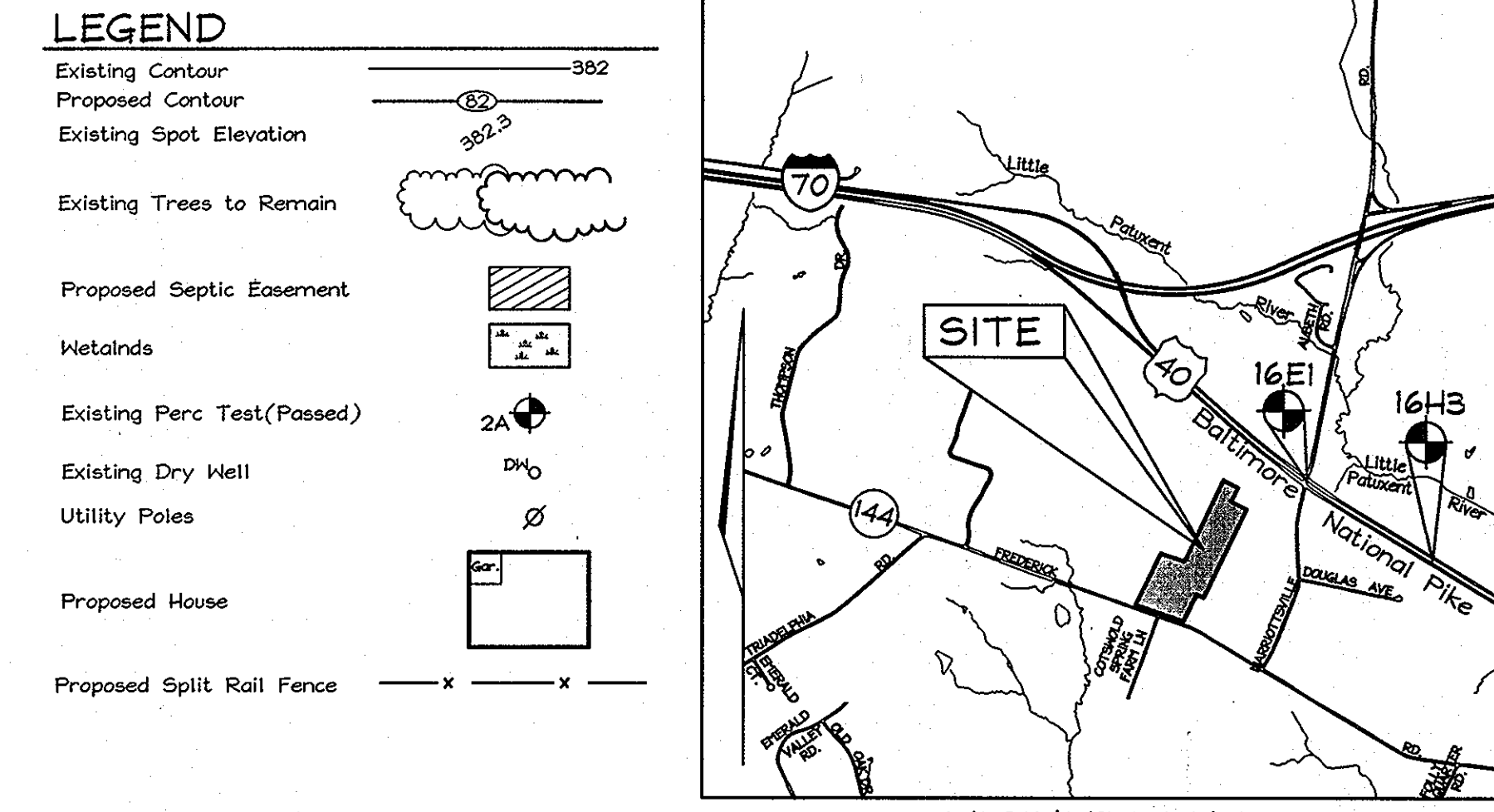
WATER AND SEWER PLANS

WILLOW RIDGE

LOTS 1 THRU 9 AND PRESERVATION PARCELS 'A', 'B', 'C', AND 'D'

HOWARD COUNTY, MARYLAND

CONTRACT NO. 54-4301-D



14. THE CONSTRUCTION OF THE C-900 PVC WATER MAIN MUST BE IN ACCORDANCE WITH ALL APPLICABLE HOWARD COUNTY DESIGN STANDARDS AND TO THE SATISFACTION OF THE HOWARD COUNTY INSPECTOR. REFER TO THE FOLLOWING HOWARD COUNTY DESIGN MANUAL SECTIONS: 1002.02.06, 1002.03.04, 1002.05.02, AND DETAILS C-5.01 THROUGH C-5.04, C-1.02, C-2.01 THROUGH C-2.14, AND C-3.02 (OTHER HOWARD COUNTY DESIGN STANDARDS MAY ALSO APPLY.)

15. FIRE SPRINKLER SYSTEMS FOR ALL SINGLE FAMILY DWELLINGS SHALL HAVE A MINIMUM OF A 1 1/2" CONNECTION WITH 1" METER.

16. UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS, SEVENTEEN (17) POUND BRASS BALL VALVES SHALL BE INSTALLED ON ALL VALVES AND METALLIC FITTINGS USED WITH PVC WATER MAINS IN ACCORDANCE WITH VOLUME IX, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION. MAGNESIUM ANODES SHALL BE INSTALLED ON ALL VALVES AND DUCTILE IRON FITTINGS INCLUDING RESTRAINTS & HARNESSSES. ZINC ANODES SHALL BE INSTALLED ON ALL STAINLESS STEEL FITTINGS AND SADDLES USED WITH PVC MAINS. ALL "TEES" USED WITH PVC MAINS SHALL BE DUCTILE IRON.

BUILDABLE LOTS FRONTAGE CHART

Lot #	Total frontage along Public R/W
1	5.93'
2	5.93'
3	5.93'
4	5.93'
5	5.93'
6	20.62'
7	147.00'
8	149.93'
9	139.35'

BENCHMARKS

Coordinates based on NAD'83, Maryland coordinate system as projected by Howard County geodetic control stations no. 16E1 and no. 16H3 denotes approximate location (see vicinity map).

Sta. 16E1	N 593,250.9638	E 1,340,192.7010	El.: 463.893
Sta. 16H3	N 592,408.0425	E 1,341,523.9677	El.: 464.712

SHEET INDEX

DESCRIPTION	SHEET No.
Cover Sheet	1 of 7
Water and Sewer Plan	2 of 7
Water and Sewer Plan And Details	3 of 7
Water and Sewer Profiles	4 of 7
Sewer Details	5 of 7
Sewer and Miscellaneous Details	6 of 7
Sewer and Miscellaneous Details	7 of 7

QUANTITIES

NAME OF UTILITY CONTRACTOR :		SURVEY AND DRAFTING DIVISION AS-BUILT DATE :		
ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUFACTURER/SUPPLIER
5,000 Gallon Septic Tank	1		Concrete	
2,500 Gallon Septic Tank	1		Concrete	
Transition Manhole	1			
Distribution Box	2		Concrete	
Monitoring Well	3			
Terminal Flushing Connection	1			
Split Rail Fence	1310 LF		Wood	
Entrance Gate	1		Steel	
Grinder Pump	2		2014-1291 Duplex	Environment One Corporation
2" Force Main	330 L.F.		PVC	
4" SHC	54 L.F.		PVC	
8" Valve	2			
8" SEWER	134 L.F.		PVC	
8" WATER	1208 L.F.		C-900 PVC	
1.5" WHC	237 L.F.		Copper	
FIRE HYDRANT	3			
8" CAP & BUTTRESS	1			
1/8" HB	2			
W/ 6" Valve	2			
1/32 H.B.	1			
HOR. JOINT DEFLECTIONS	2			
VERT. JOINT DEFLECTIONS	8			

PROFESSIONAL CERTIFICATION

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, license No. #22119, Expiration Date: 1/23/09

SEDIMENT CONTROL MEASURES WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE STANDARD SPECIFICATIONS AND WITH ROAD CONSTRUCTION PLANS. - F-08-50

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

John K. Robertson 7/24/08 DATE

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

W.M. DATE

APPROVED FOR PUBLIC WATER AND A SHARED SEPTIC SYSTEM FOR LOTS 1 - 5 AND PRIVATE SEWAGE FOR LOTS 6 - 9 AND BUILDABLE PRESERVATION PARCEL C.

W. Nelson de Peter Biselensen 7/18/08 DATE

COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

COMMUNITY SEWAGE DESIGN FLOW

Maximum Sewage Flow =
150 GPD/ Bedrooms x 5 Dwellings x 5 Bedrooms / Dwelling = 3,750 GPD

COMMUNITY SEPTIC TANK DESIGN

5 Dwellings x (1250 Gal. for 4 bedrooms + 250 Gal. for a 5th bedroom) = 7,500 Gal.

One 5,000 Gal. tank and one 2,500 Gal. tank required.



OWNERS

GREENFIELD HOMES, INC
6656 LUSTER DRIVE
HIGHLAND, MARYLAND 20777
(410) 781-6782

AND

WILLOW BROOK, LLC
6656 LUSTER DRIVE
HIGHLAND, MARYLAND 20777
(410) 781-6782

DEVELOPER

GREENFIELD HOMES, INC
6656 LUSTER DRIVE
HIGHLAND, MARYLAND 20777
(410) 781-6782

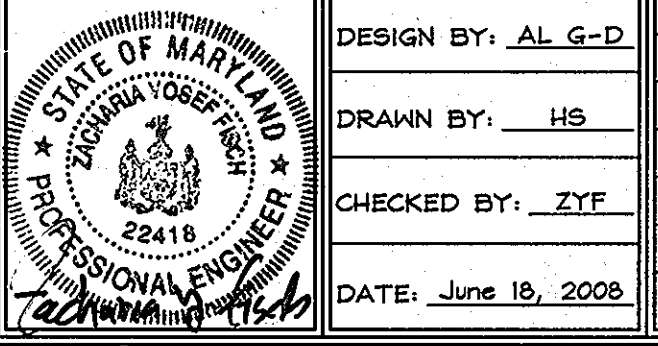
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John K. Robertson 7/3/08 DATE

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND

W. Nelson de Peter Biselensen 8/10/08 DATE

FSH Associates
Engineers Planners Surveyors
6339 Howard Lane, Elkridge, MD 21075
Tel: 410-567-5200 Fax: 410-796-1562
E-mail: info@fsher.com



DESIGN BY: AL G-D	
DRAWN BY: HS	
CHECKED BY: ZYF	
DATE: June 18, 2008	
BY NO.	REVISION
DATE	

COVER SHEET

600' SCALE MAP NO.: 16 BLOCK NO.: 15

WILLOW RIDGE

LOTS 1 THRU 9 & PRESERVATION PARCELS 'A', 'B', 'C' & 'D'

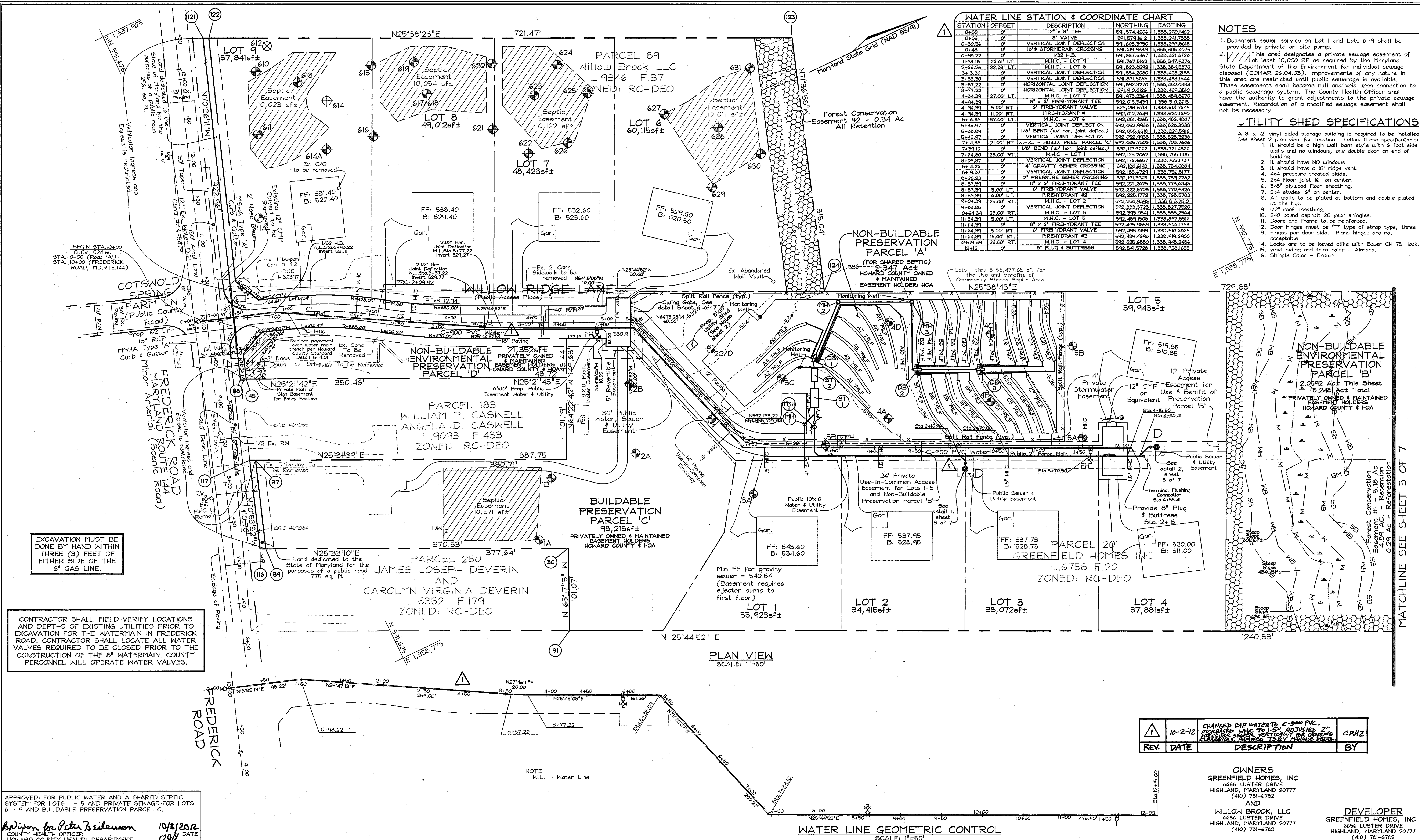
ZONED RC-DEO 11418 FREDERICK ROAD

CONTRACT NO. 54-4301-D

TAX MAP 16 GRID 15 PARCELS 89, 91 AND 201
3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SCALE
As Shown

SHEET NO.
1 OF 7



NOTES

- Basement sewer service on Lot 1 and Lots 6-9 shall be provided by private on-site pump.
- This area designates a private sewage easement of at least 10,000 SF as required by the Maryland State Department of the Environment for individual sewage disposal (COMAR 26.04.03). Improvements of any nature in this area are restricted until public sewerage is available. These easements shall become null and void upon connection to a public sewerage system. The County Health Officer shall have the authority to grant adjustments to the private sewage easement. Recordation of a modified sewage easement shall not be necessary.

UTILITY SHED SPECIFICATIONS

A 8' x 12' vinyl sided storage building is required to be installed. See sheet 2 plan view for location. Follow these specifications:

- It should be a high wall barn style with 6 foot side walls and no windows, one double door on end of building.
- It should have NO windows.
- It should have a 10' ridge vent.
- 4x4 pressure treated skids.
- 2x4 floor joist 16" on center.
- 5/8" plywood floor sheathing.
- 2x4 studs 16" on center.
- All walls to be plated at bottom and double plated at the top.
- 1/2" roof sheathing.
- 2x0 pound asphalt 20 year shingles.
- Doors and frame to be reinforced.
- Door hinges must be #11 type of strap type, three hinges per door side. Plano hinges are not acceptable.
- Locks are to be keyed alike with Bauer CH 751 lock.
- vinyl siding and trim color - Almond.
- Shingle Color - Brown

EXCAVATION MUST BE DONE BY HAND WITHIN THREE (3) FEET OF EITHER SIDE OF THE 6" GAS LINE.

CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND DEPTHS OF EXISTING UTILITIES PRIOR TO EXCAVATION FOR THE WATERMAIN IN FREDERICK ROAD. CONTRACTOR SHALL LOCATE ALL WATER VALVES REQUIRED TO BE CLOSED PRIOR TO THE CONSTRUCTION OF THE 8" WATERMAIN. COUNTY PERSONNEL WILL OPERATE WATER VALVES.

APPROVED: FOR PUBLIC WATER AND A SHARED SEPTIC SYSTEM FOR LOTS 1 - 5 AND PRIVATE SEWAGE FOR LOTS 6 - 9 AND BUILDABLE PRESERVATION PARCEL C.

William P. Peter Bilawson 10/31/2012
 COUNTY HEALTH OFFICER
 HOWARD COUNTY HEALTH DEPARTMENT

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Steve Chen 10/11/12
 CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING & ZONING
 HOWARD COUNTY, MARYLAND

William P. Peter Bilawson 10/5/12
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

FSH Associates
 Engineers Planners Surveyors
 6339 Howard Lane, Elkridge, MD 21075
 Tel: 410-567-5200 Fax: 410-796-1552
 E-mail: info@fshert.com



DESIGN BY: CRH2
 DRAWN BY: HSACRH2
 CHECKED BY: ZTF
 DATE: Oct. 2, 2012

BY NO.	REVISION	DATE

WATER AND SEWER PLAN

600' SCALE MAP NO.: 16 BLOCK NO.: 15

WILLOW RIDGE
 LOTS 1 THRU 9 & PRESERVATION PARCELS 'A', 'B', 'C' & 'D'
 ZONED RC-DEO 11418 FREDERICK ROAD
 CONTRACT NO. 54-4301-D
 TAX MAP 16 GRID 15
 3RD ELECTION DISTRICT

OWNERS
 GREENFIELD HOMES, INC
 6656 LUSTER DRIVE
 HIGHLAND, MARYLAND 20777
 (410) 781-6782
 AND
 WILLOW BROOK, LLC
 6656 LUSTER DRIVE
 HIGHLAND, MARYLAND 20777
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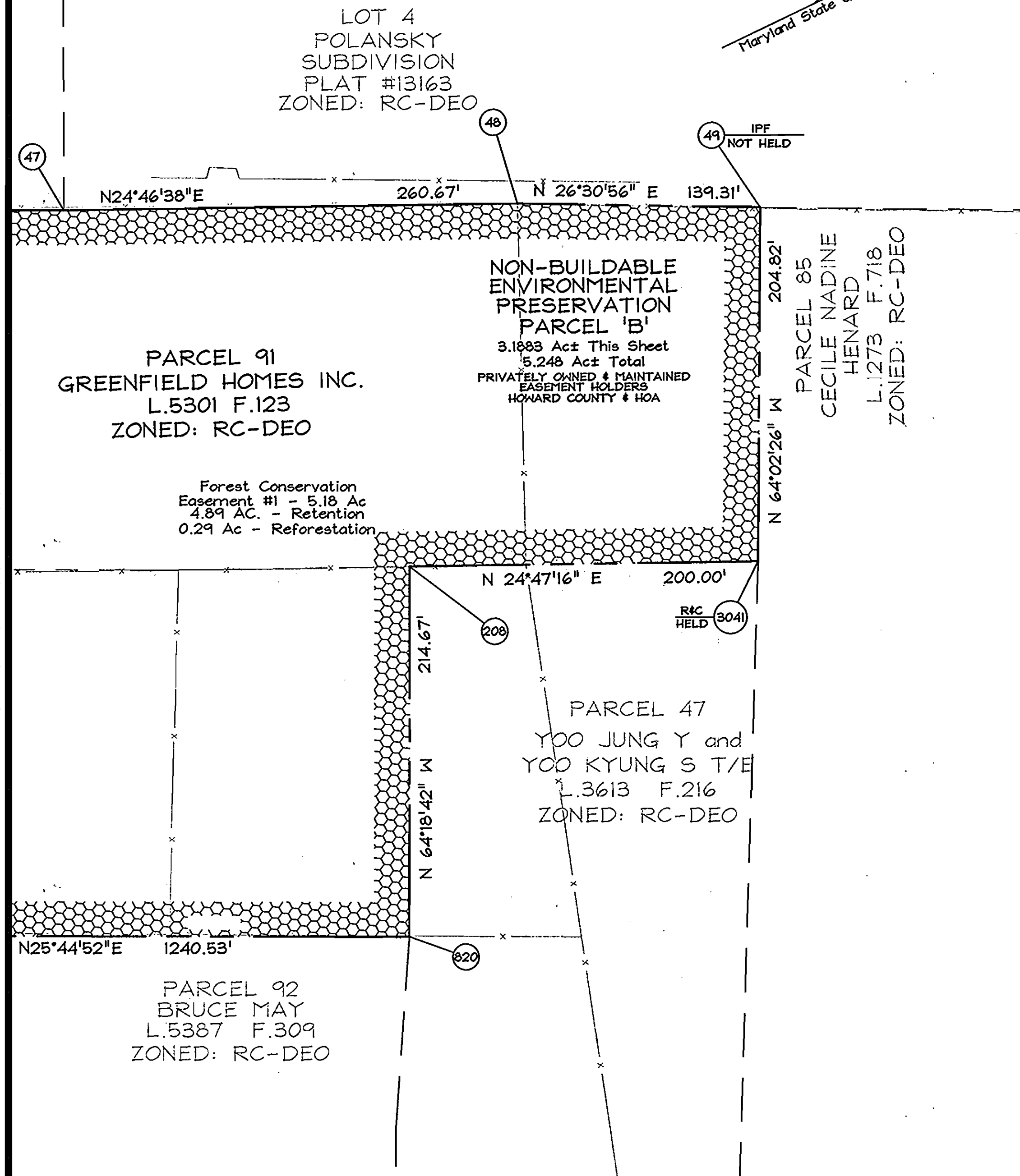
DEVELOPER
 GREENFIELD HOMES, INC
 6656 LUSTER DRIVE
 HIGHLAND, MARYLAND 20777
 (410) 781-6782

SCALE
 As Shown

SHEET NO.
 2 OF 7

MATCHLINE SEE SHEET 3 OF 7

MATCHLINE SEE SHEET 2 OF 7



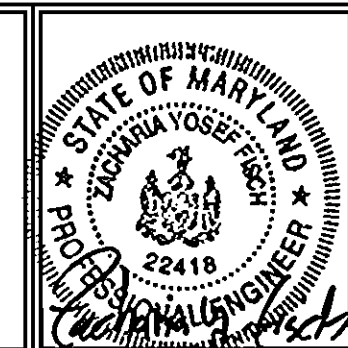
PLAN
SCALE: 1"=50'

APPROVED FOR PUBLIC WATER AND A SHARED SEPTIC SYSTEM FOR LOTS 1 - 5 AND PRIVATE SEWAGE FOR LOTS 6 - 9 AND BUILDABLE PRESERVATION PARCEL C.
B. Wilson & Peter Beilenson 7/18/08
COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
John W. Smith 7/16/09
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND
William E. Blakes 8/10/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION

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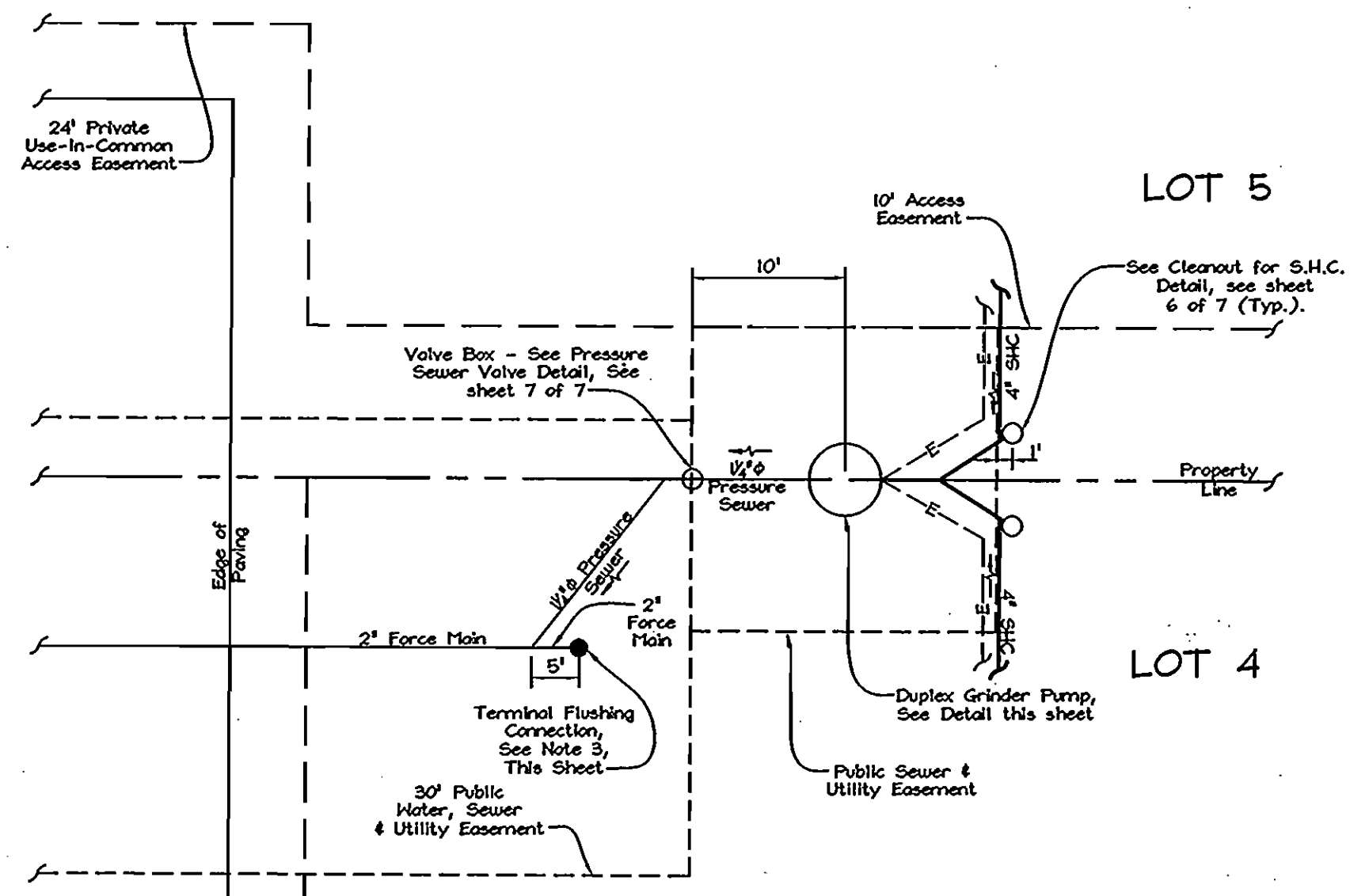
DESIGN BY: AL G-D
DRAWN BY: HS
CHECKED BY: ZYF
DATE: June 18, 2008

BY	NO.	REVISION	DATE

WATER AND SEWER PLAN AND DETAILS
600' SCALE MAP NO.: 16 BLOCK NO.: 15

WILLOW RIDGE
LOTS 1 THRU 9 & PRESERVATION PARCELS 'A', 'B', 'C' & 'D'
ZONED RC-DEO 11418 FREDERICK ROAD
CONTRACT NO. 54-4301-D
TAX MAP 16 GRID 15 PARCELS 89, 91 AND 201
3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

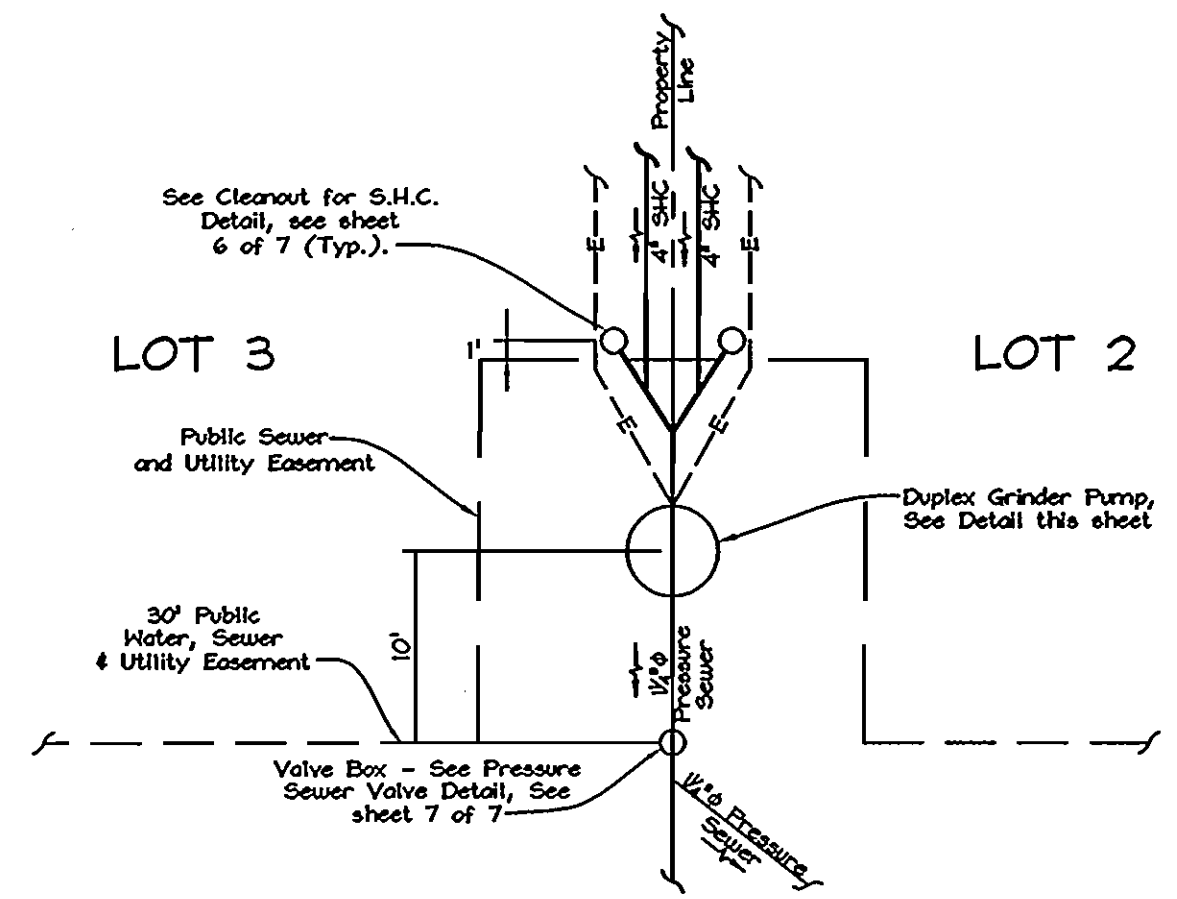
SCALE
As Shown
SHEET NO.
3 OF 7



GRINDER PUMP ELEVATION CHART

ELEVATION		DESCRIPTION
LOT 4	LOT 5	
507.27	507.47	S.H.C. C.O. INV.
507.07	507.07	4" PVC INV. @ PUMP
508.19	508.19	1 1/4" PRESSURE SEWER INV @ PUMP
504.61	504.61	PUMP CASE BOTTOM ELEVATION

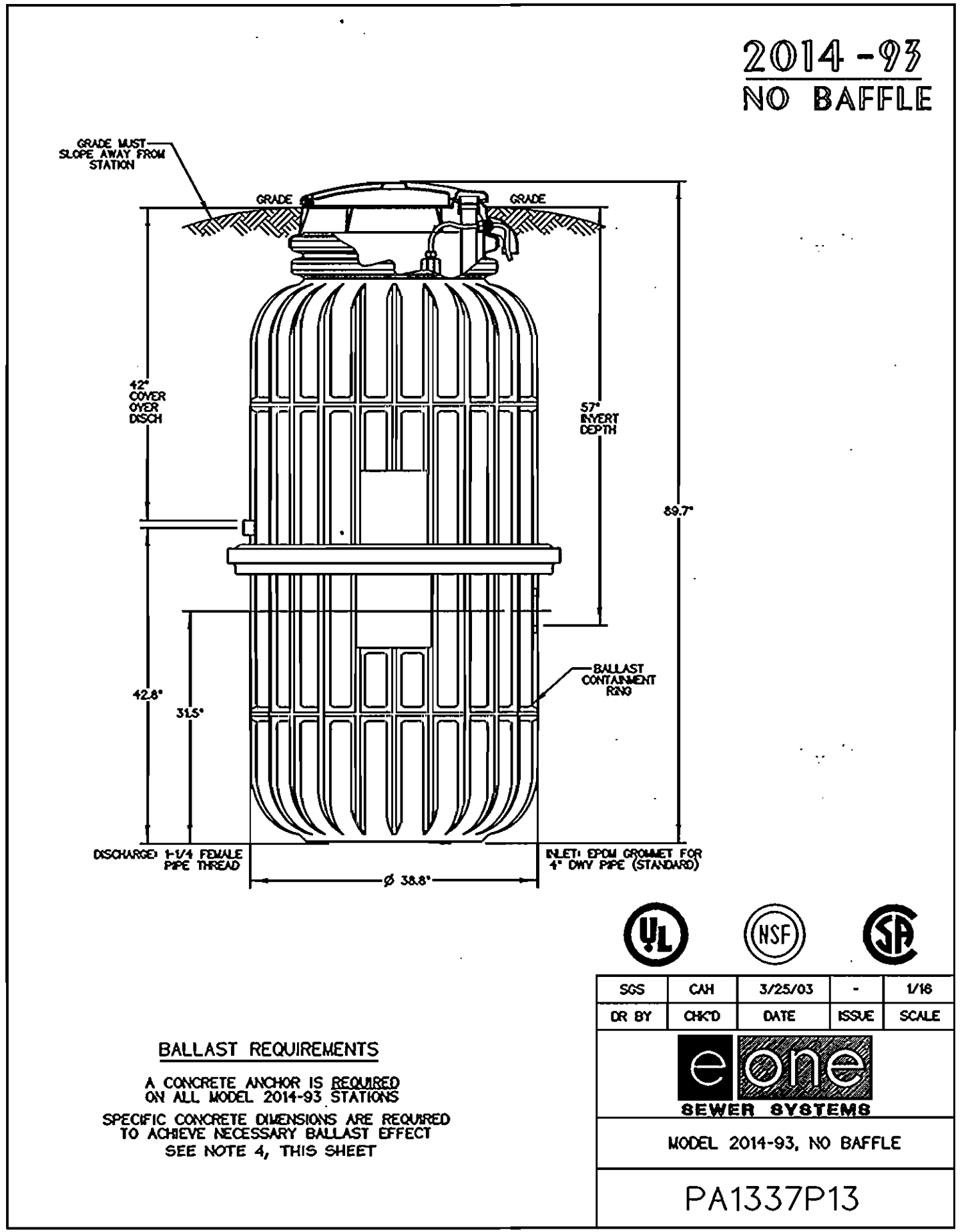
**DUPLEX GRINDER PUMP CONNECTION
LOTS 4 & 5
WITH TERMINAL FLUSHING CONNECTION**
NOT TO SCALE
"DETAIL 2"



GRINDER PUMP ELEVATION CHART

ELEVATION		DESCRIPTION
LOT 3	LOT 2	
525.20	525.40	S.H.C. C.O. INV.
524.96	524.96	4" PVC INV. @ PUMP
526.01	526.01	1 1/4" PRESSURE SEWER INV @ PUMP
522.50	522.50	PUMP CASE BOTTOM ELEVATION

**DUPLEX GRINDER PUMP CONNECTION
LOTS 2 & 3**
NOT TO SCALE
"DETAIL 1"



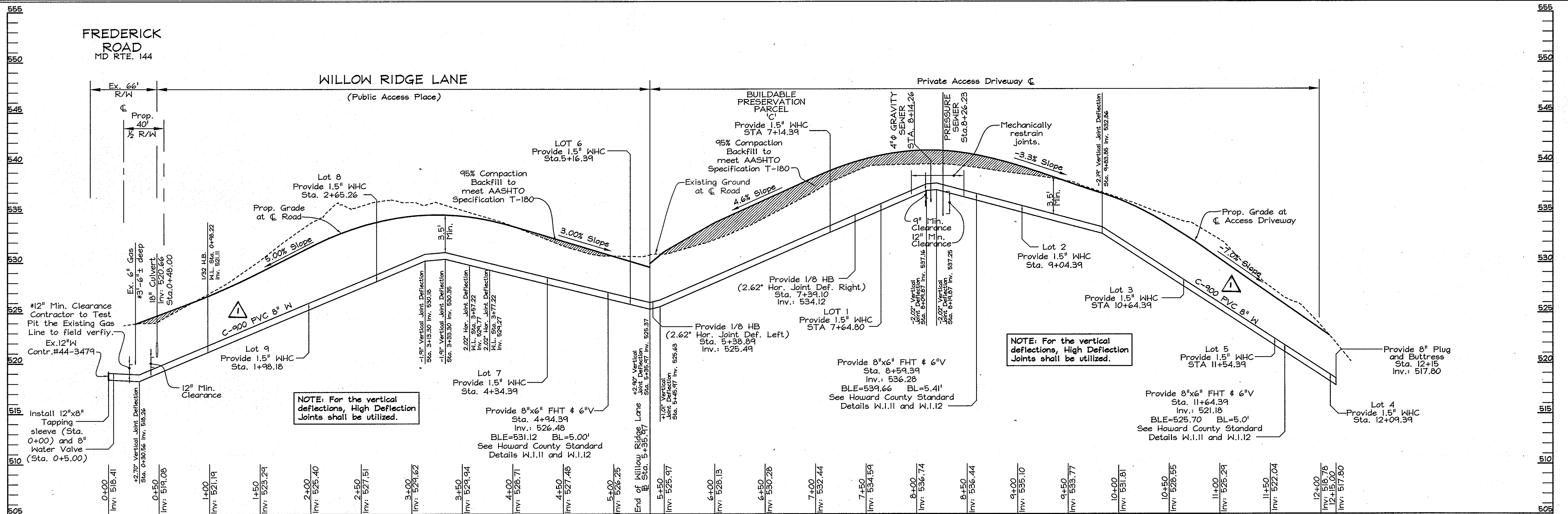
BALLAST REQUIREMENTS
A CONCRETE ANCHOR IS REQUIRED ON ALL MODEL 2014-93 STATIONS
SPECIFIC CONCRETE DIMENSIONS ARE REQUIRED TO ACHIEVE NECESSARY BALLAST EFFECT
SEE NOTE 4, THIS SHEET

eone
SEWER SYSTEMS
MODEL 2014-93, NO BAFFLE
PA1337P13

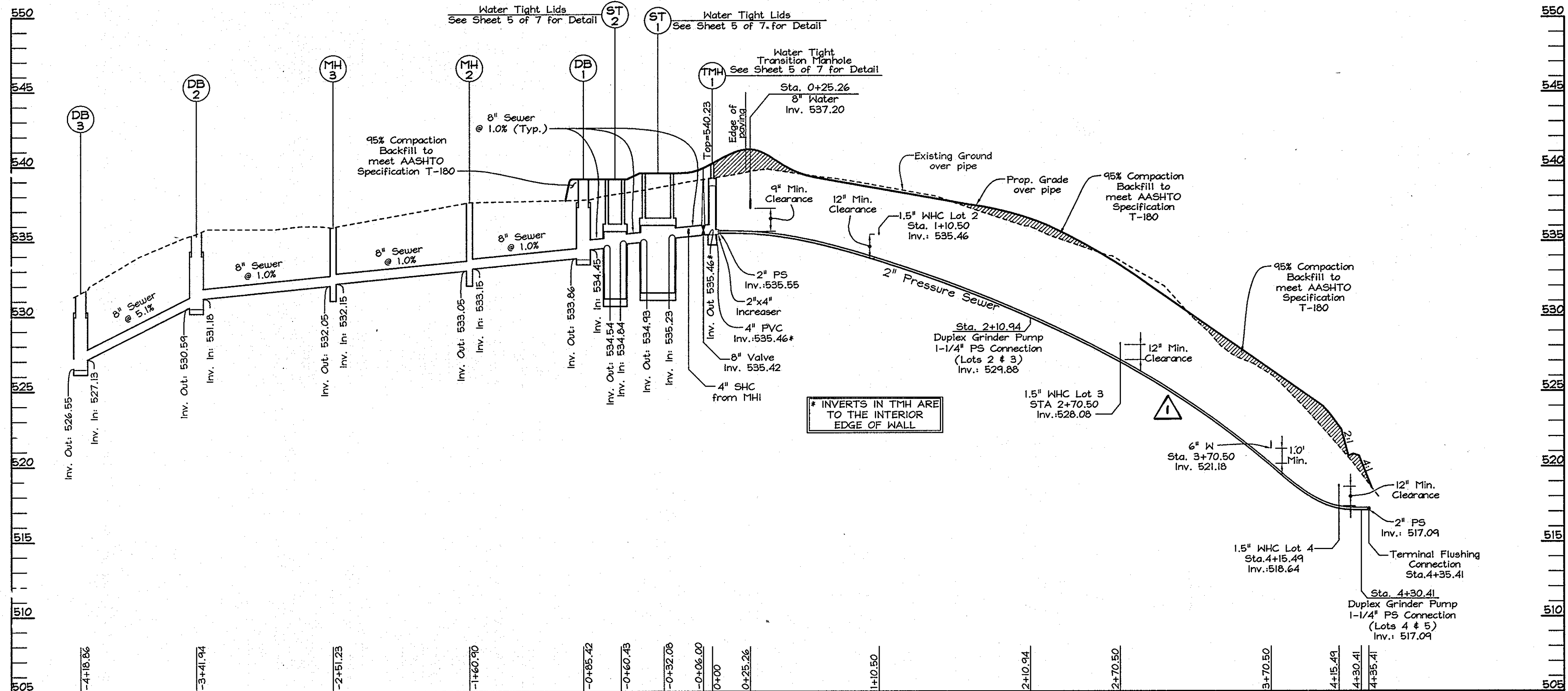
SHARED SEPTIC SYSTEM - 3' WIDE TRENCH DATA

DIST. BOX (SYSTEM)	TRENCH ID	TRENCH LENGTH	TOP ELEV. OF STONE	BOTTOM ELEV. OF STONE	INV. ELEV. OF PERF. PIPE	MIN. & MAX. ELEV. OF GROUND OVER TRENCH	APPROX. AVG. COVER OVER TRENCH
1	A1	79 LF	534.0	530.0	533.5	537.8 - 537.4	3.4±
1	A2	79 LF	534.0	530.0	533.5	537.5 - 537.8	3.6±
1	A3	79 LF	533.7	529.7	533.2	537.7 - 537.8	4.0±
1	A4	79 LF	533.8	529.8	533.3	536.8 - 537.3	3.2±
1	A5	79 LF	533.6	529.6	533.1	537.3 - 537.5	3.7±
1	A6	79 LF	533.1	529.1	532.6	536.2 - 536.5	3.2±
1	A7	79 LF	533.4	529.4	532.9	536.9 - 537.1	3.6±
1	A8	79 LF	533.2	529.2	532.7	536.7 - 536.7	3.9±
1	A9	79 LF	532.9	528.9	532.4	536.2 - 536.5	3.4±
1	A10	79 LF	532.6	528.6	532.1	535.9 - 536.2	3.4±
1	B1	79 LF	530.9	526.9	530.4	535.5 - 536.9	4.8±
2	B2	79 LF	530.9	526.9	530.4	535.3 - 535.5	4.6±
2	B3	79 LF	530.8	526.8	530.3	535.0 - 535.0	4.2±
2	B4	79 LF	530.7	526.7	530.2	534.5 - 534.8	3.9±
2	B5	79 LF	530.6	526.6	530.1	534.3 - 534.3	3.7±
2	B6	79 LF	530.6	526.6	530.1	534.1 - 534.3	3.5±
2	B7	79 LF	530.4	526.4	529.9	533.5 - 533.5	3.1±
2	B8	79 LF	530.3	526.3	529.8	533.1 - 533.4	3.0±
2	B9	79 LF	529.7	525.7	529.2	532.7 - 532.7	3.0±
2	B10	79 LF	529.4	525.4	529.0	532.2 - 532.5	3.0±
3	C1	79 LF	526.8	522.8	526.3	531.8 - 532.1	5.0±
3	C2	79 LF	526.9	522.9	526.4	531.5 - 531.7	4.6±
3	C3	79 LF	526.7	522.7	526.2	530.6 - 530.6	3.9±
3	C4	79 LF	526.7	522.7	526.2	530.0 - 530.0	3.3±
3	C5	79 LF	526.5	522.5	526.0	529.5 - 529.5	3.0±
3	C6	79 LF	526.6	522.6	526.1	528.6 - 528.8	3.0±
3	C7	79 LF	525.2	521.2	524.7	528.2 - 528.2	3.0±
3	C8	79 LF	524.5	520.5	524.0	527.5 - 527.5	3.0±
3	C9	79 LF	523.0	519.0	522.5	526.0 - 526.0	3.0±
3	C10	79 LF	521.6	517.6	521.1	524.6 - 524.6	3.0±

TRENCH DESIGN CALCULATIONS:
(5 houses x 5 bedrooms x 150 GPD) / 3' trench width = 1250' trench length
1250' trench length / 0.8 gals per SF = 1562.5' required trench length
1562.5' trench length x 0.5 (3' deep usable side wall) = 781.25' trench length
781.25' trench length / 10 trenches = 78.125' per trench (rounded up to 79')
Horizontal Spacing Note: All trenches are between 9' and 18' edge to edge.



WATER PROFILE
Scale: Horizontal - 1"=50'
Vertical - 1"=5'



PRESSURE SEWER PROFILE
Scale: Horizontal - 1"=50'
Vertical - 1"=5'

APPROVED: FOR PUBLIC WATER AND A SHARED SEPTIC SYSTEM FOR LOTS 1 - 5 AND PRIVATE SEWAGE FOR LOTS 6 - 9 AND BUILDABLE PRESERVATION PARCEL C.
Rafaela for Peter B. Silberman 10/3/2012
COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

PROFESSIONAL CERTIFICATION
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. #23418, Expiration Date: 7/23/13.

REV.	DATE	DESCRIPTION	BY
10-2-12		CHANGED DIP WATER TO C-300 PVC INSTEAD OF 15" RIBBED 2" WALL THICKNESS. SEE SHEET 5 FOR CONNECTIONS. SEE SHEET 6 FOR CONNECTIONS. SEE SHEET 7 FOR CONNECTIONS.	CRH2

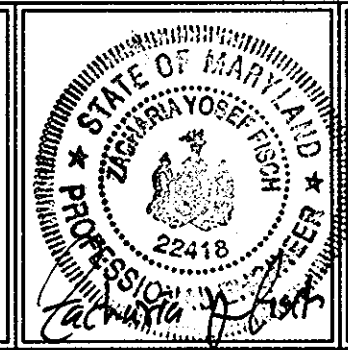
OWNERS
GREENFIELD HOMES, INC
6656 LUSTER DRIVE
HIGHLAND, MARYLAND 20777
(410) 781-6782
AND
WILLOW BROOK, LLC
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(410) 781-6782

DEVELOPER
GREENFIELD HOMES, INC
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(410) 781-6782

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Silva Chen 10/15/12
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND
Michael P. ... 10/15/12
CHIEF, DEVELOPMENT ENGINEERING DIVISION

FSH Associates
Engineers Planners Surveyors
6339 Howard Lane, Elkridge, MD 21075
Tel: 410-587-5200 Fax: 410-796-1562
E-mail: info@fsh.net



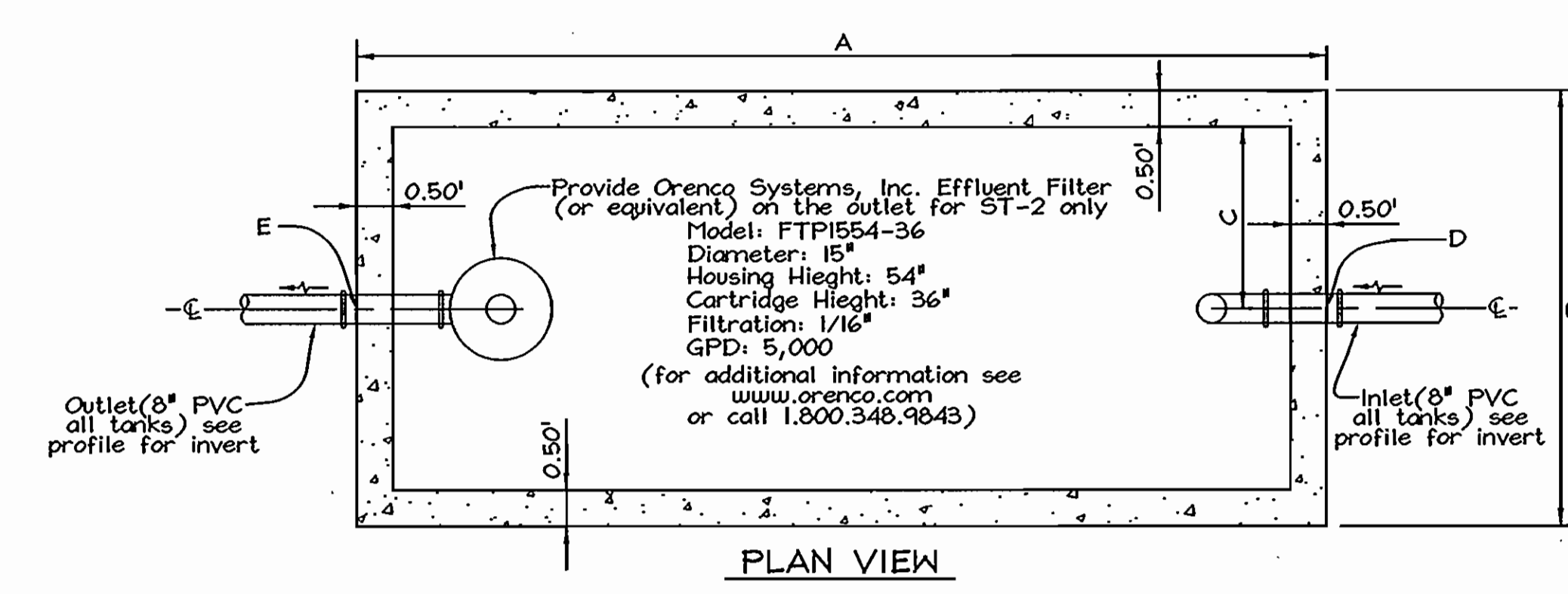
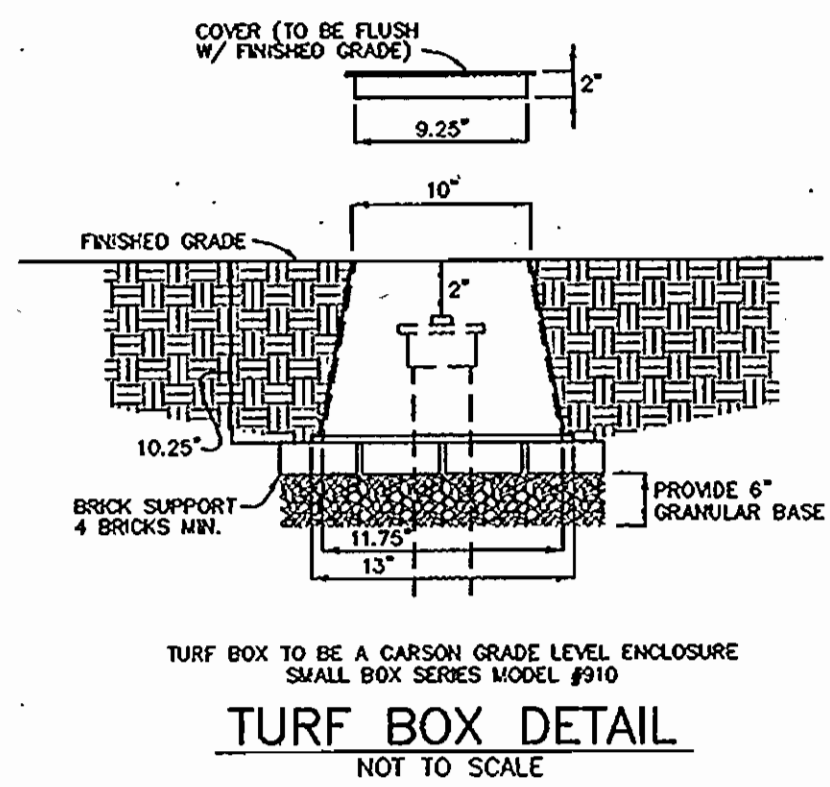
DESIGN BY: CRH2
DRAWN BY: H64CRH2
CHECKED BY: ZYF
DATE: Oct. 2, 2012

BY NO.	REVISION	DATE

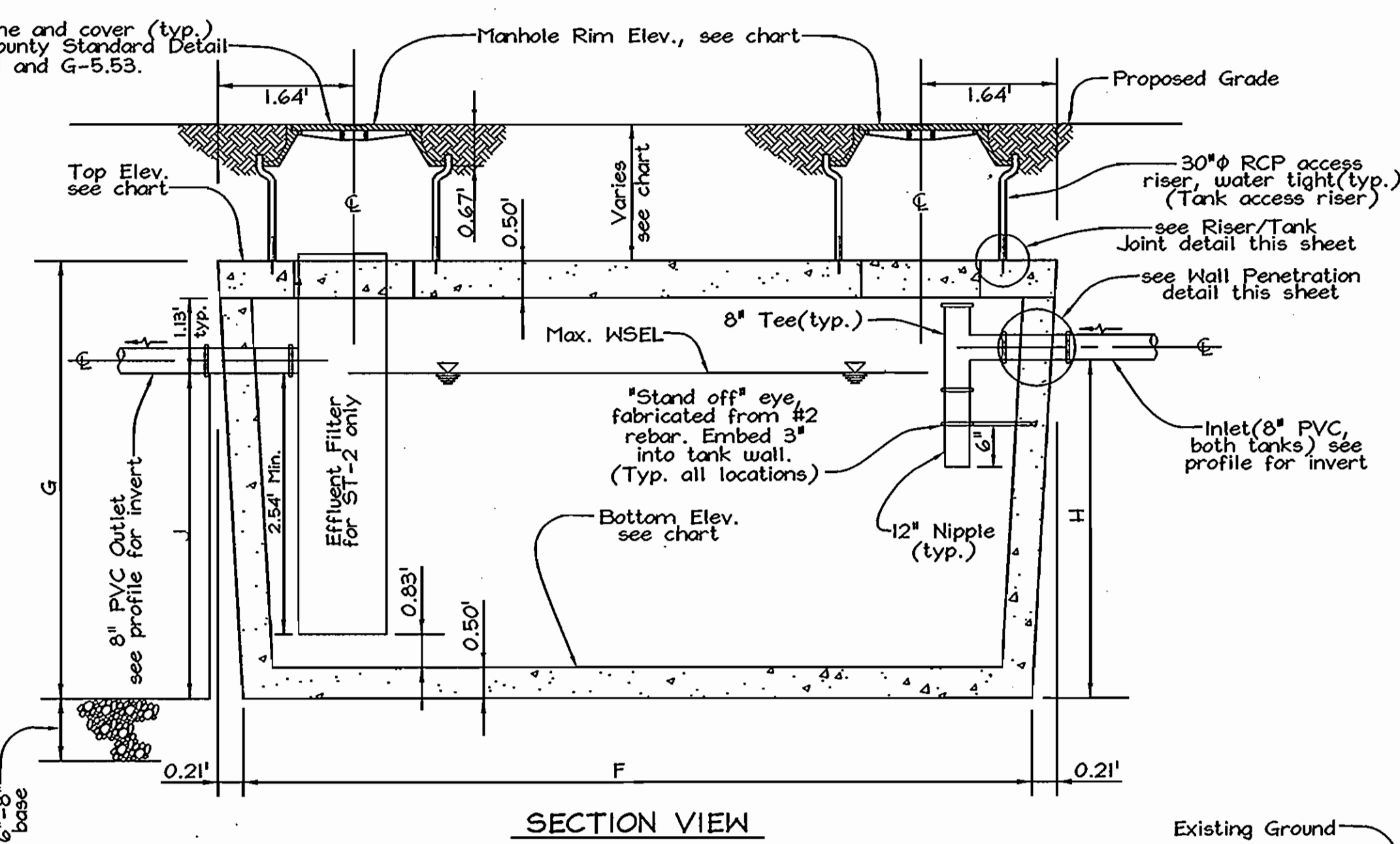
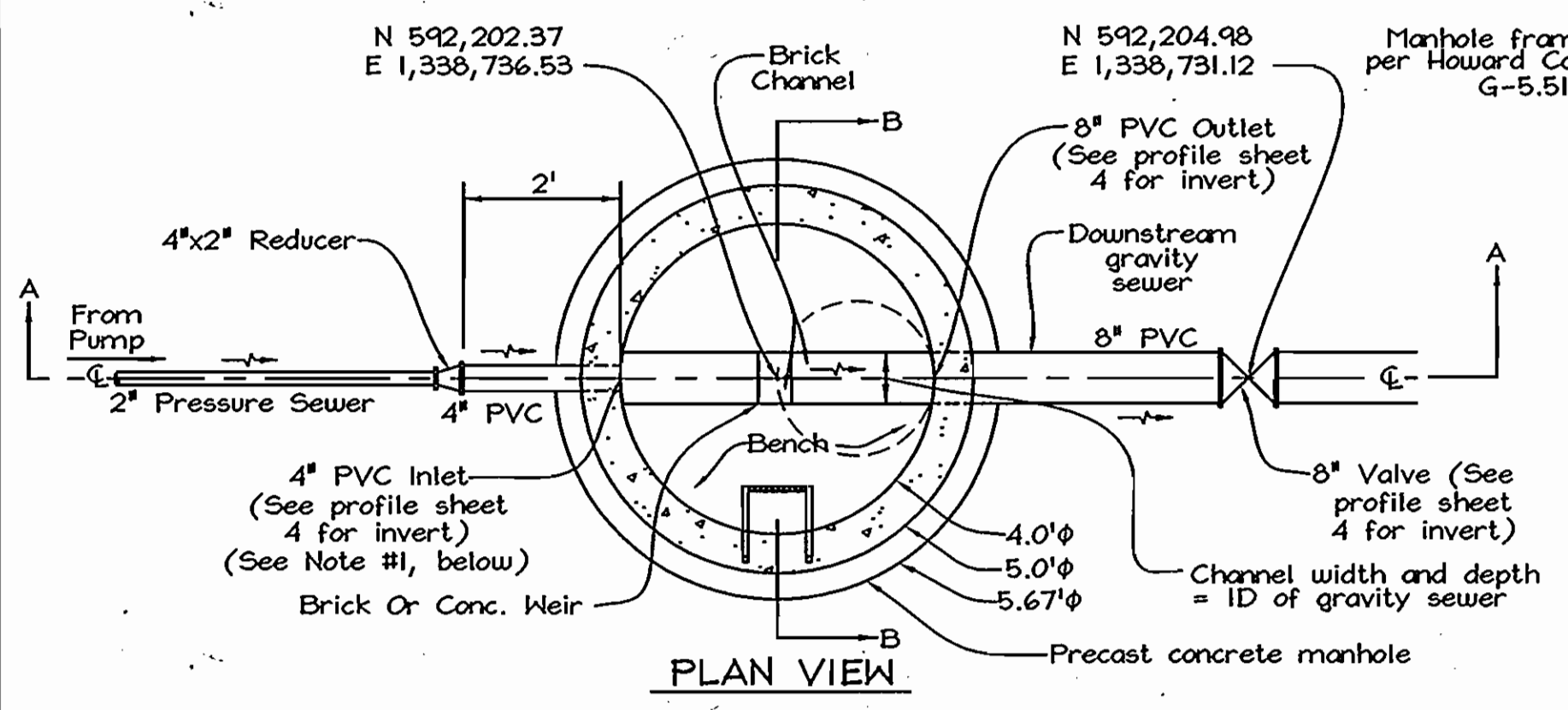
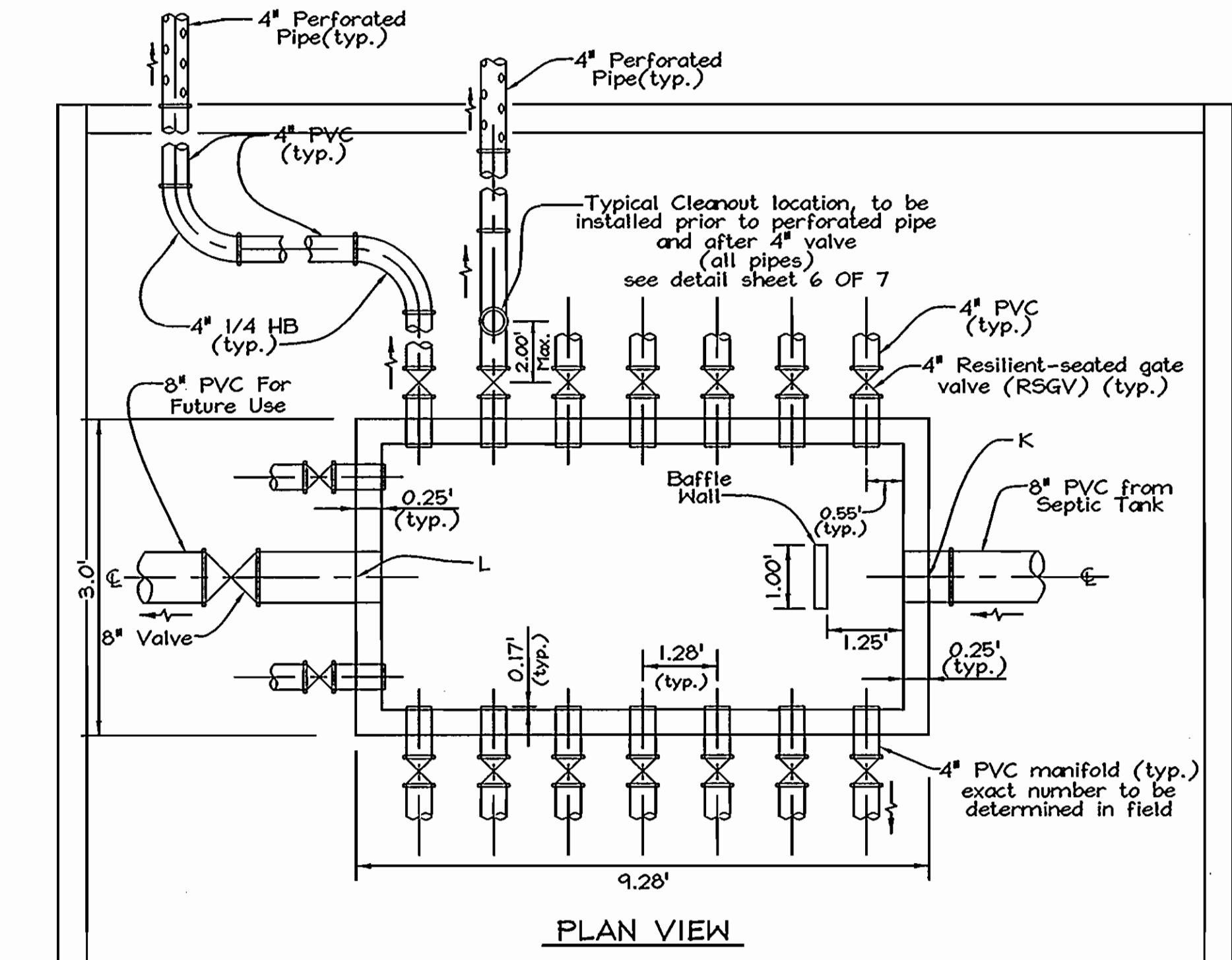
WATER AND SEWER PROFILES
600' SCALE MAP NO.: 16 BLOCK NO.: 15

WILLOW RIDGE
LOTS 1 THRU 9 & PRESERVATION PARCELS 'A', 'B', 'C' & 'D'
ZONED RC-DEO 11418 FREDERICK ROAD
CONTRACT NO. 54-4301-D
TAX MAP 16 GRID 15 PARCELS 89, 91 AND 201
3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

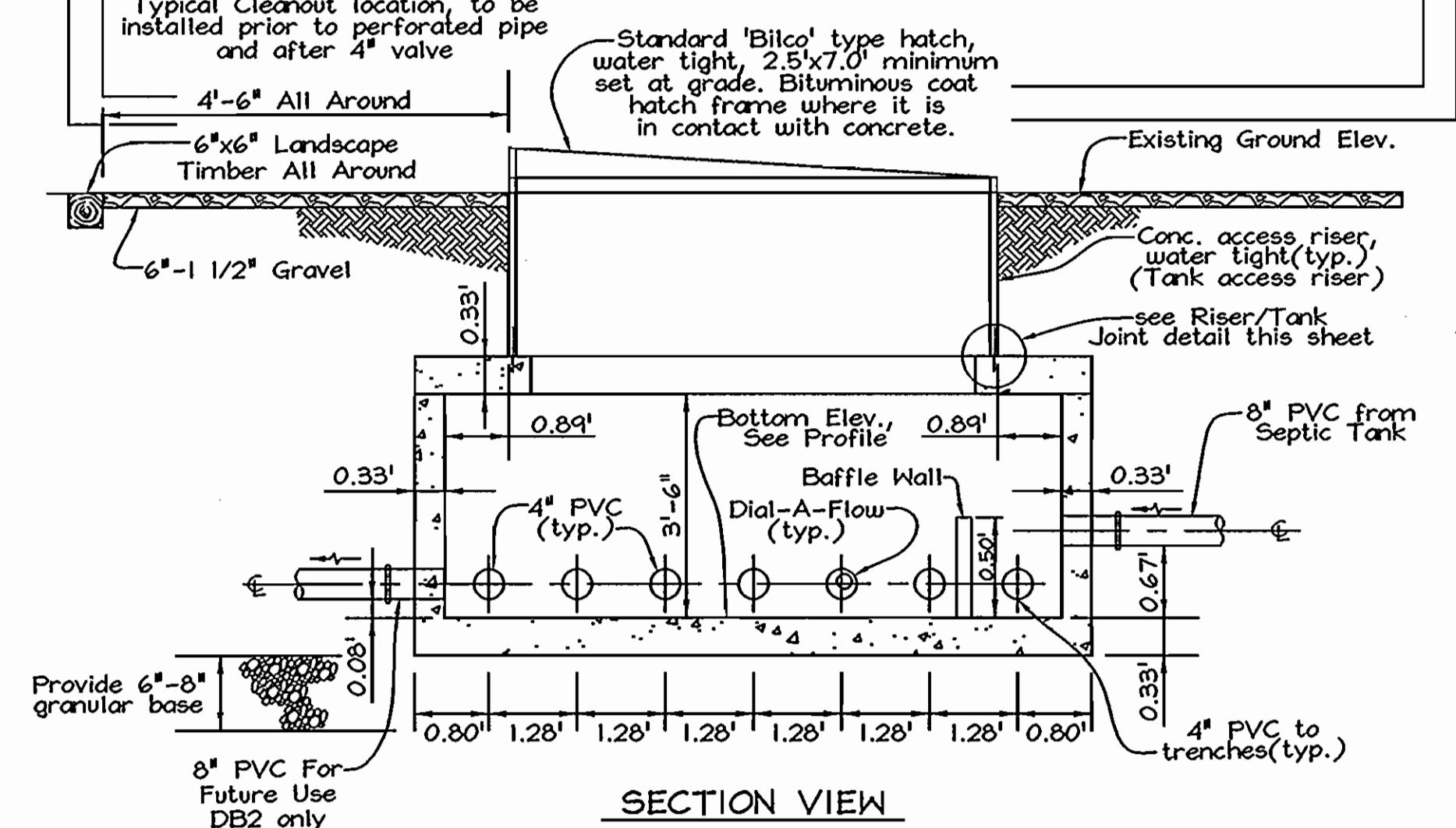
SCALE
As Shown
SHEET NO.
4 OF 7



SEPTIC TANK CHART		
	ST-1	ST-2
SIZE	5,000 Gal.	2,500 Gal.
RIM ELEV.	534.57 (both)	534.17 (both)
TOP ELEV.	536.57	536.17
BOT. ELEV.	531.07	530.67
A	24.00'	16.00'
B	10.00'	8.00'
C	4.50'	3.50'
D	N 542,212.83 E 1,338,714.84	N 542,226.87 E 1,338,685.70
E	N 542,223.25 E 1,338,693.22	N 542,233.82 E 1,338,671.28
F	23.58'	15.58'
G	5.5'	5.5'
H	4.17'	4.17'
J	3.87'	3.87'



TYPICAL CONCRETE SEPTIC TANK
Not to Scale

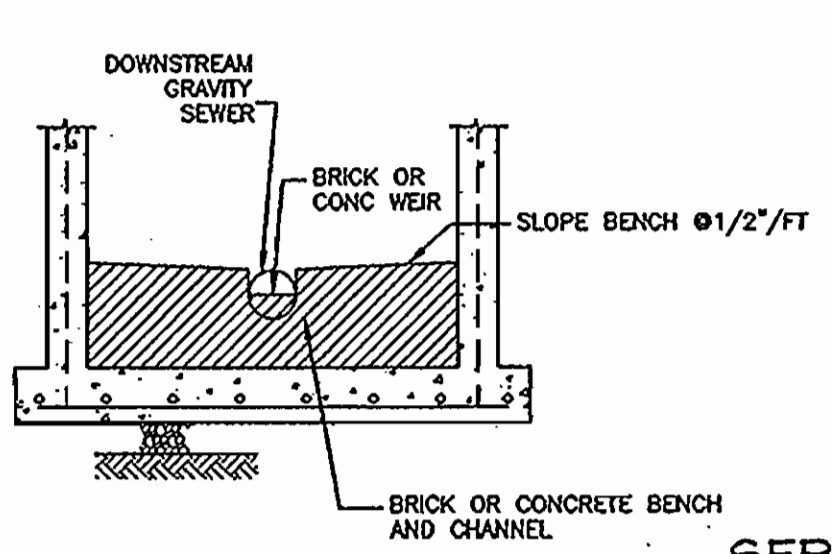
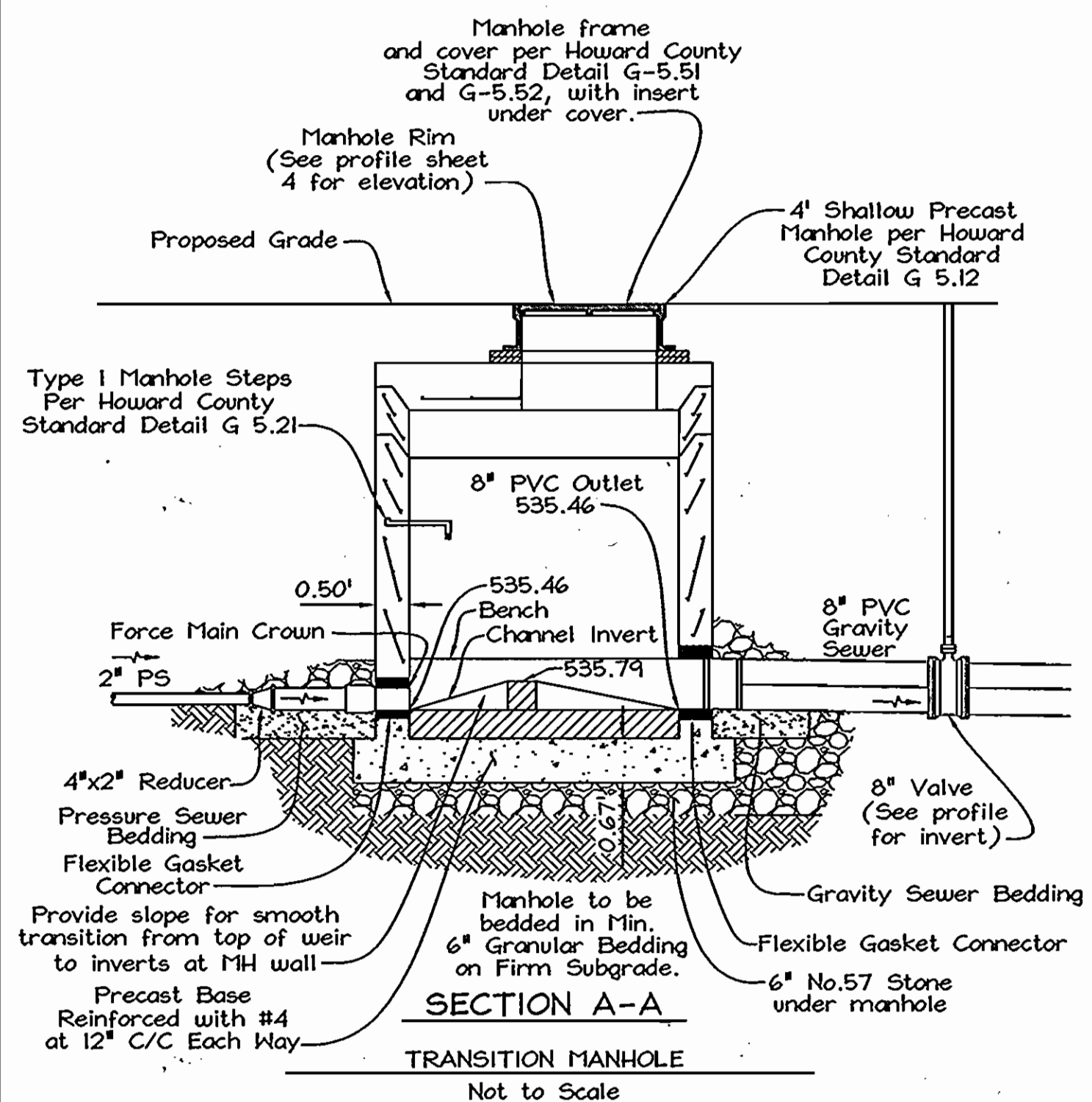


NOTE: To ensure equal distribution to each manifold, provide 'Dial-a-Flow' levelers from American Manufacturing Company, Inc. (or equivalent).

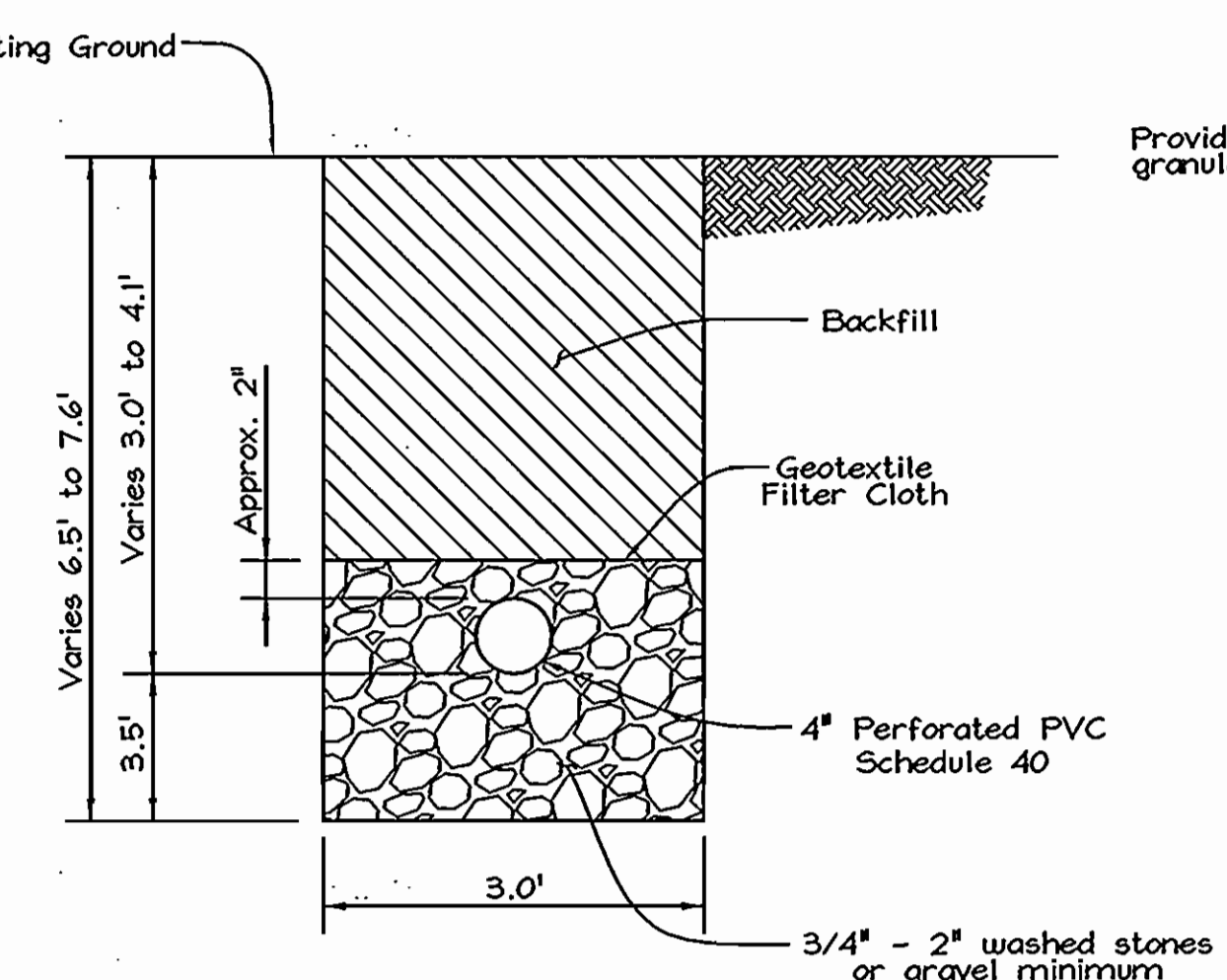
Part #	Size	Color
170-0038	4" Nominal - 4" ID # above	Green
170-0039	4" Nominal - Under 4" ID	Grey

(for additional information see www.americansite.com or call 1.800.345.3132)

TYPICAL CONCRETE DISTRIBUTION BOX
Not to Scale

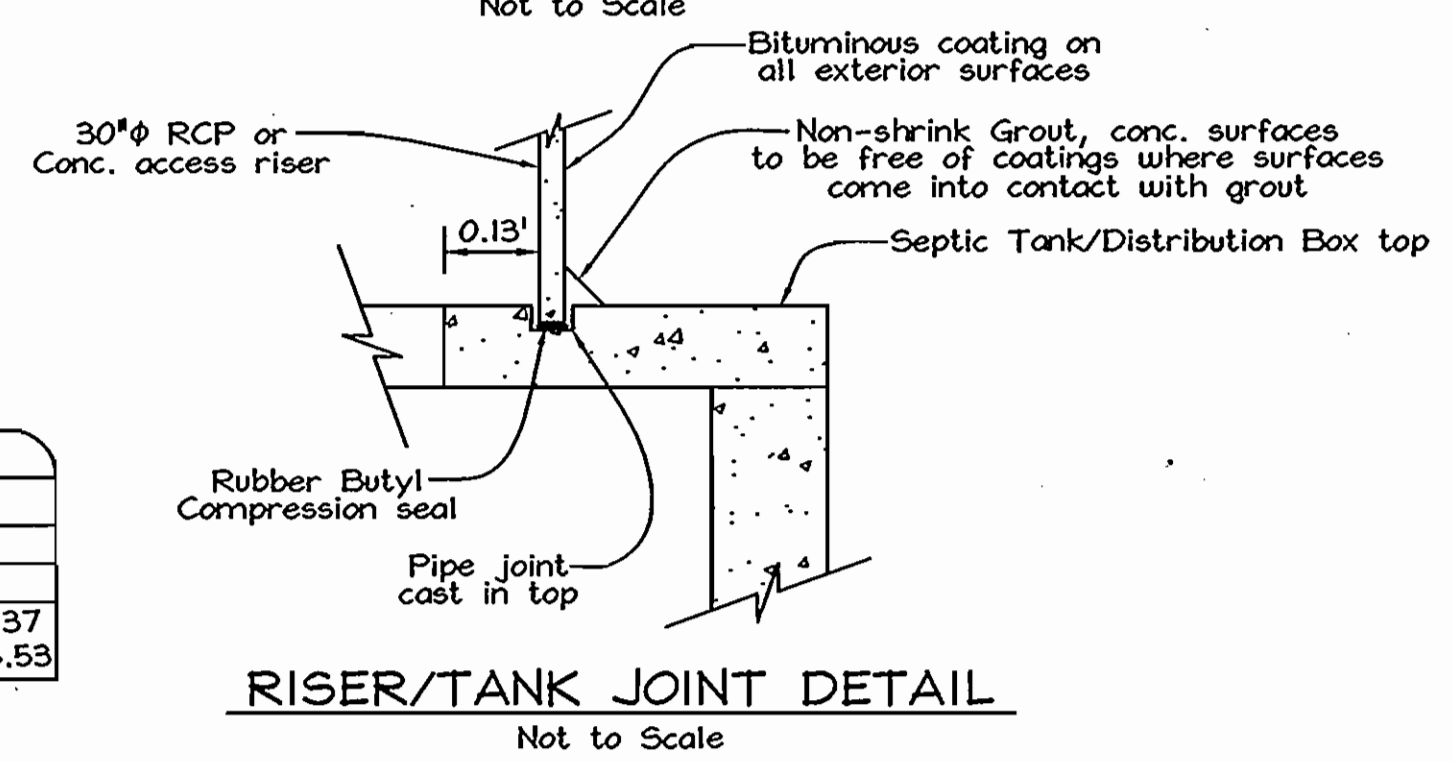


SEPTIC TANK TOP/WALL JOINT DETAIL
Not to Scale



NOTES:
1. Trenches shall be constructed 9 ft. (Min.) edge to edge.
2. Trench bottoms shall be level along the length of 4" Perforated Distribution Pipe.

SEPTIC TRENCH DETAIL
Not to Scale



ELEVATION AND FITTING SCHEDULE

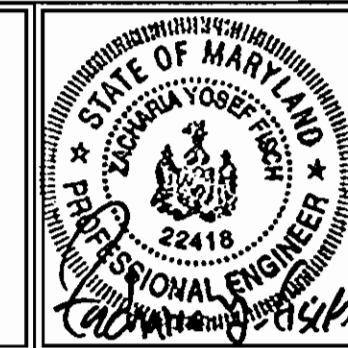
APPROVED: FOR PUBLIC WATER AND A SHARED SEPTIC SYSTEM FOR LOTS 1 - 5 AND PRIVATE SEWAGE FOR LOTS 6 - 9 AND BUIDABLE PRESERVATION PARCEL C.
John P. Peter 7/18/08
COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

SEWER MANHOLE CHART				
	MH1	MH2	MH3	TMH1
INVERT IN	535.76	533.05	532.05	535.46
INVERT OUT	535.66	533.15	532.15	535.46
CENTER	N 542,193.22 E 1,338,727.94	N 542,245.35 E 1,338,609.48	N 542,376.79 E 1,338,648.58	N 542,202.37 E 1,338,736.53

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND

FSH Associates
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Tel: 410-567-5200 Fax: 410-796-1562
E-mail: info@fsh.com



DESIGN BY: AL G-D
DRAWN BY: HS
CHECKED BY: ZYF
DATE: June 18, 2008

BY NO.	REVISION	DATE

PROFESSIONAL CERTIFICATION
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. #22418, Expiration Date: 7/29/2017

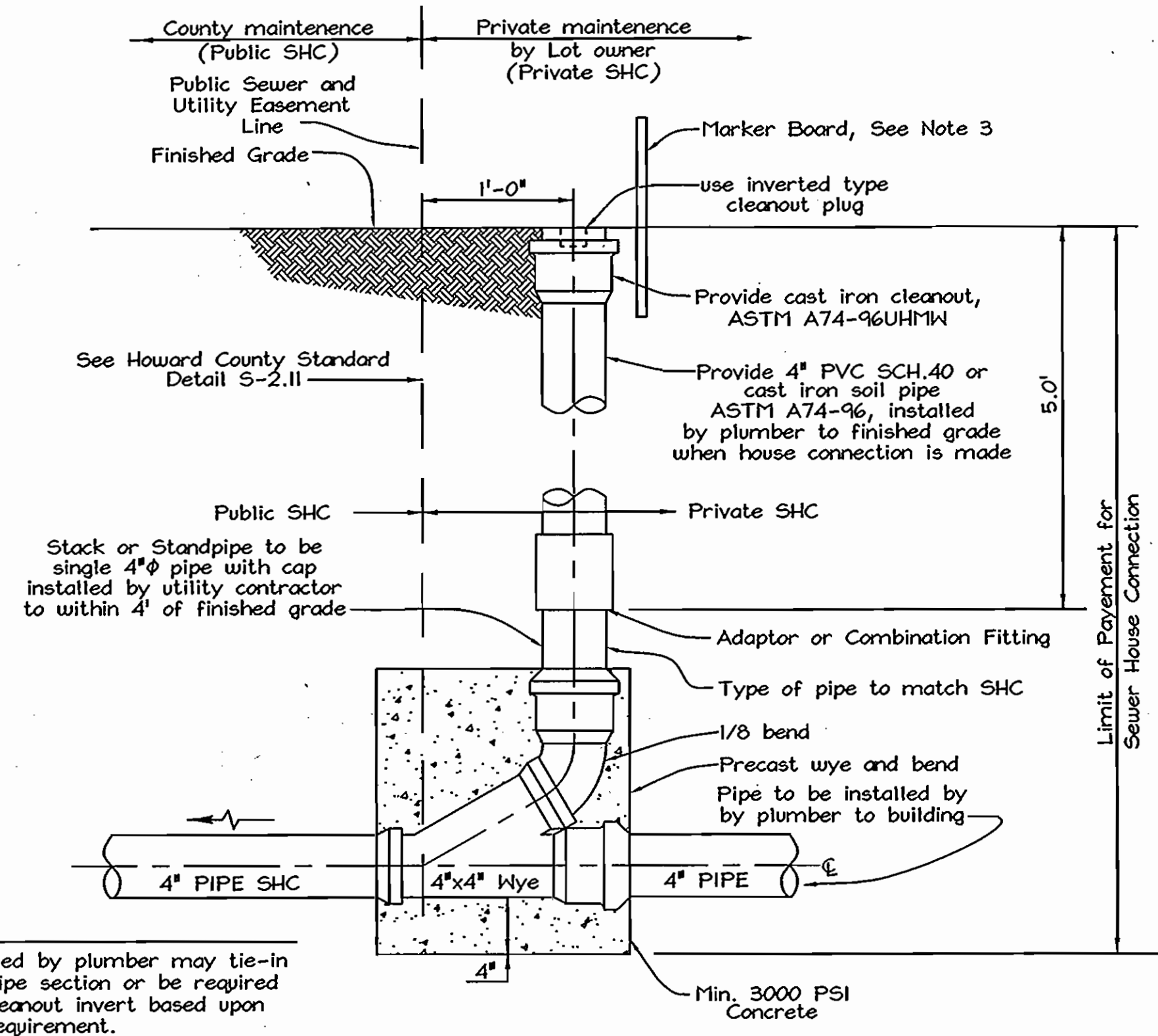
SEWER DETAILS
600' SCALE MAP NO.: 16 BLOCK NO.: 15

OWNERS
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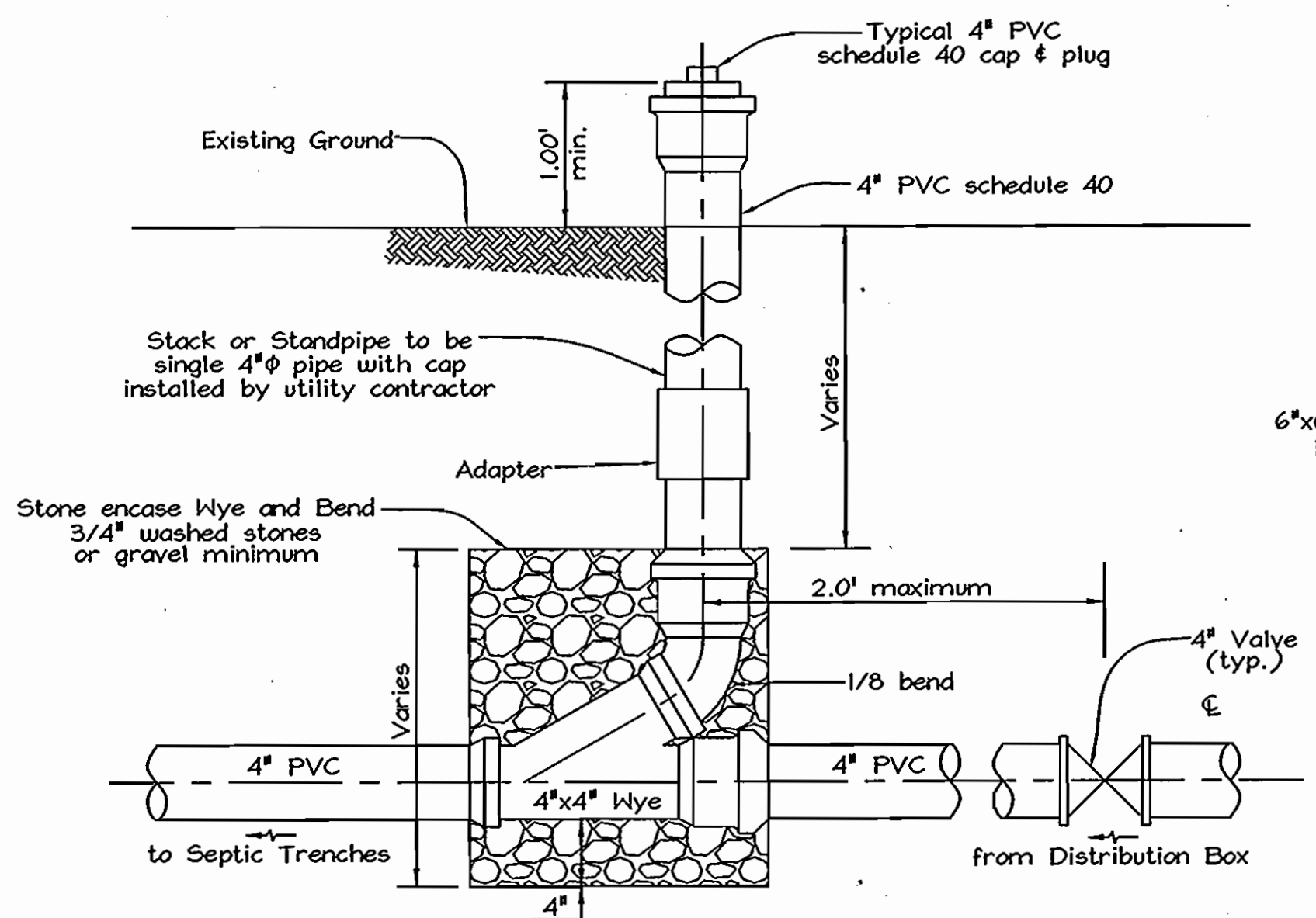
WILLOW RIDGE
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ZONED RC-DEO 11418 FREDERICK ROAD
CONTRACT NO. 54-4301-D
TAX MAP 16 GRID 15 PARCELS 89, 91 AND 201
3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SCALE
As Shown
SHEET NO.
5 OF 7

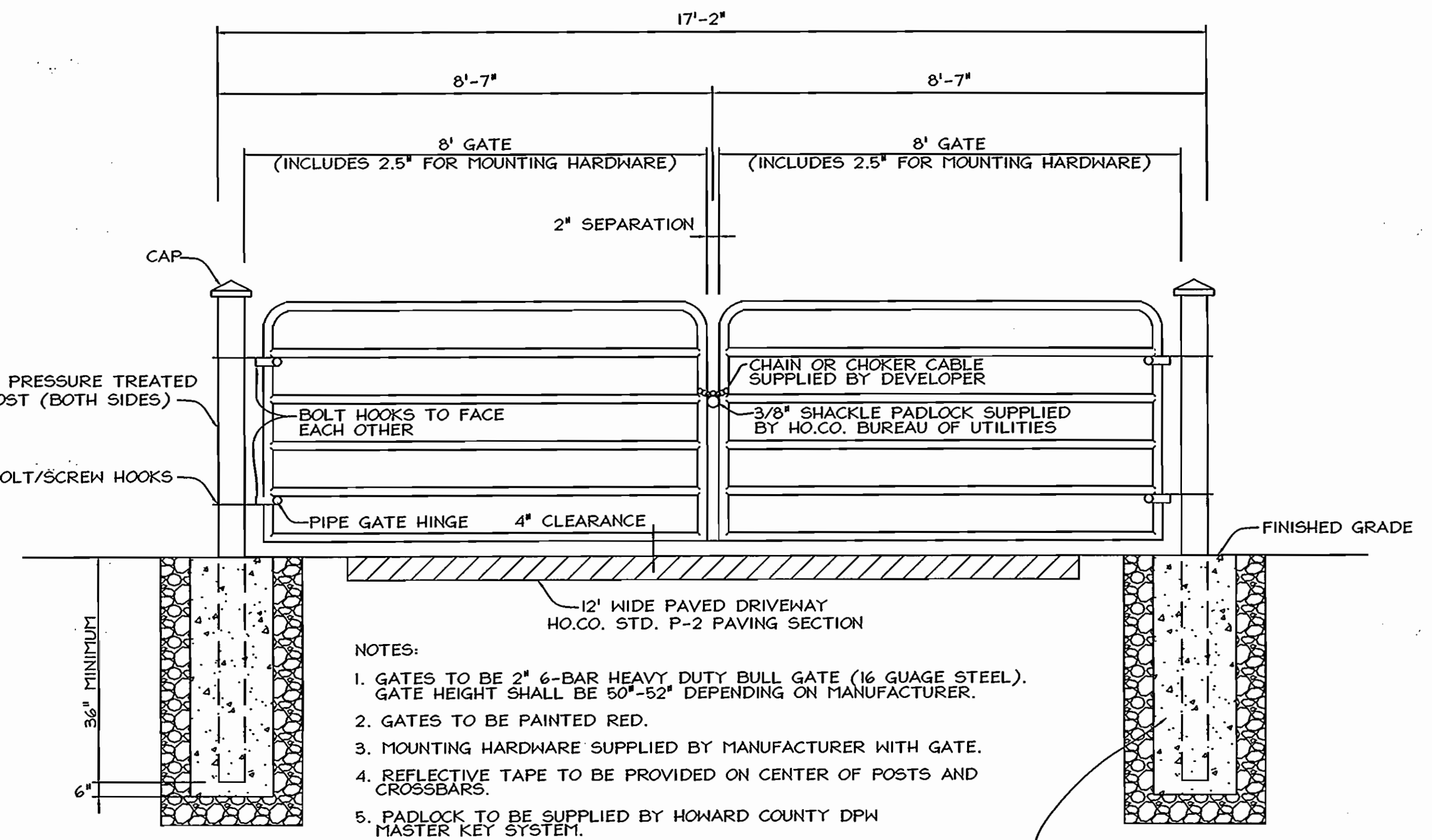


- NOTES:**
- Private SHC installed by plumber may tie-in to stack or standpipe section or be required to tie-in at the cleanout invert based upon service elevation requirement.
 - Proper sewer cleanout connection. Change direction on house sewer line between cleanout fitting and building. No horizontal change in alignment of cleanout stack.
 - Install 2"x6" marker board painted green.

CLEANOUT FOR SEWER HOUSE CONNECTION
Not to Scale

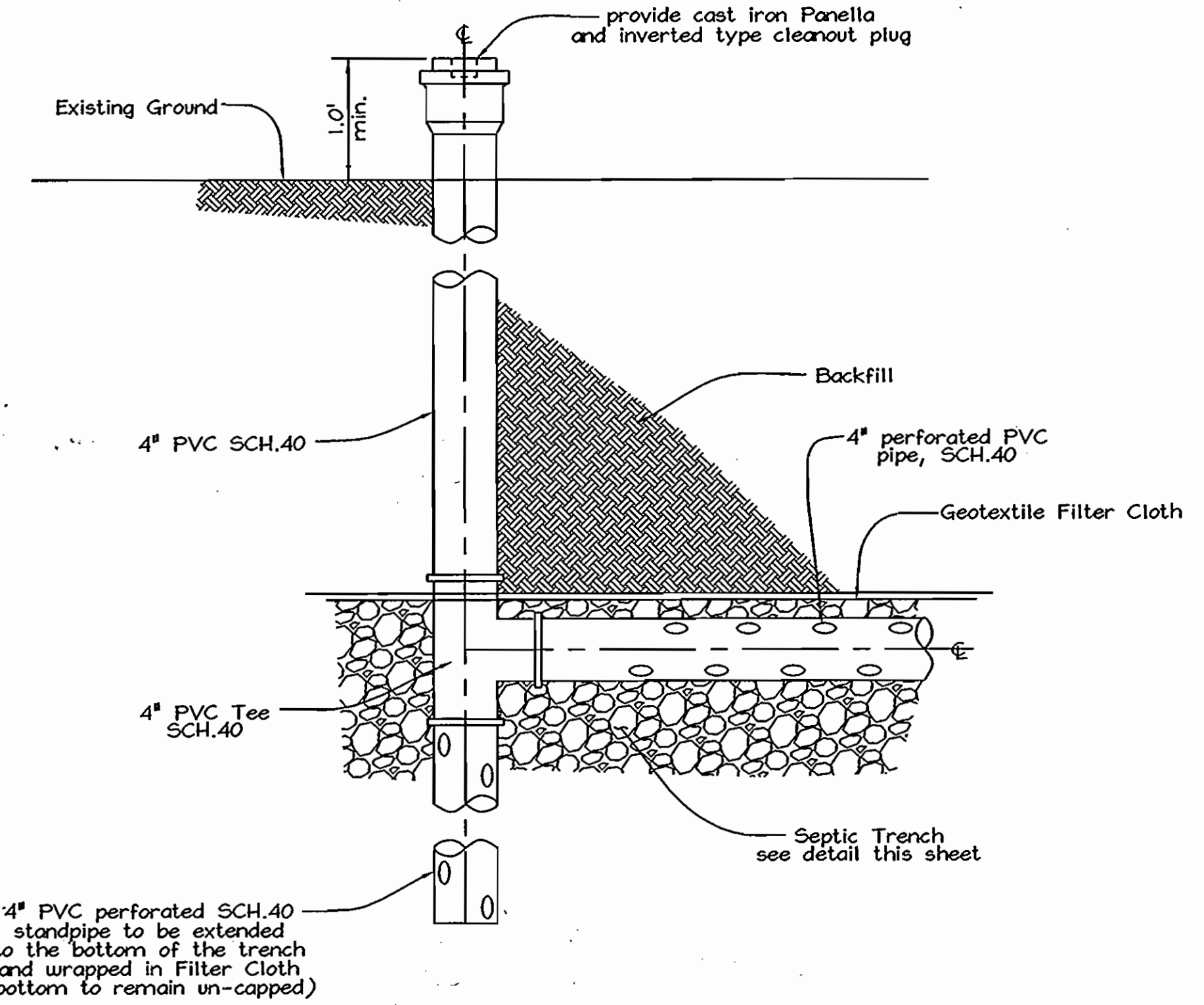


CLEANOUT @ DISTRIBUTION BOX
Modified Ho. Co. Std. Detail 5-2.22
Not to Scale

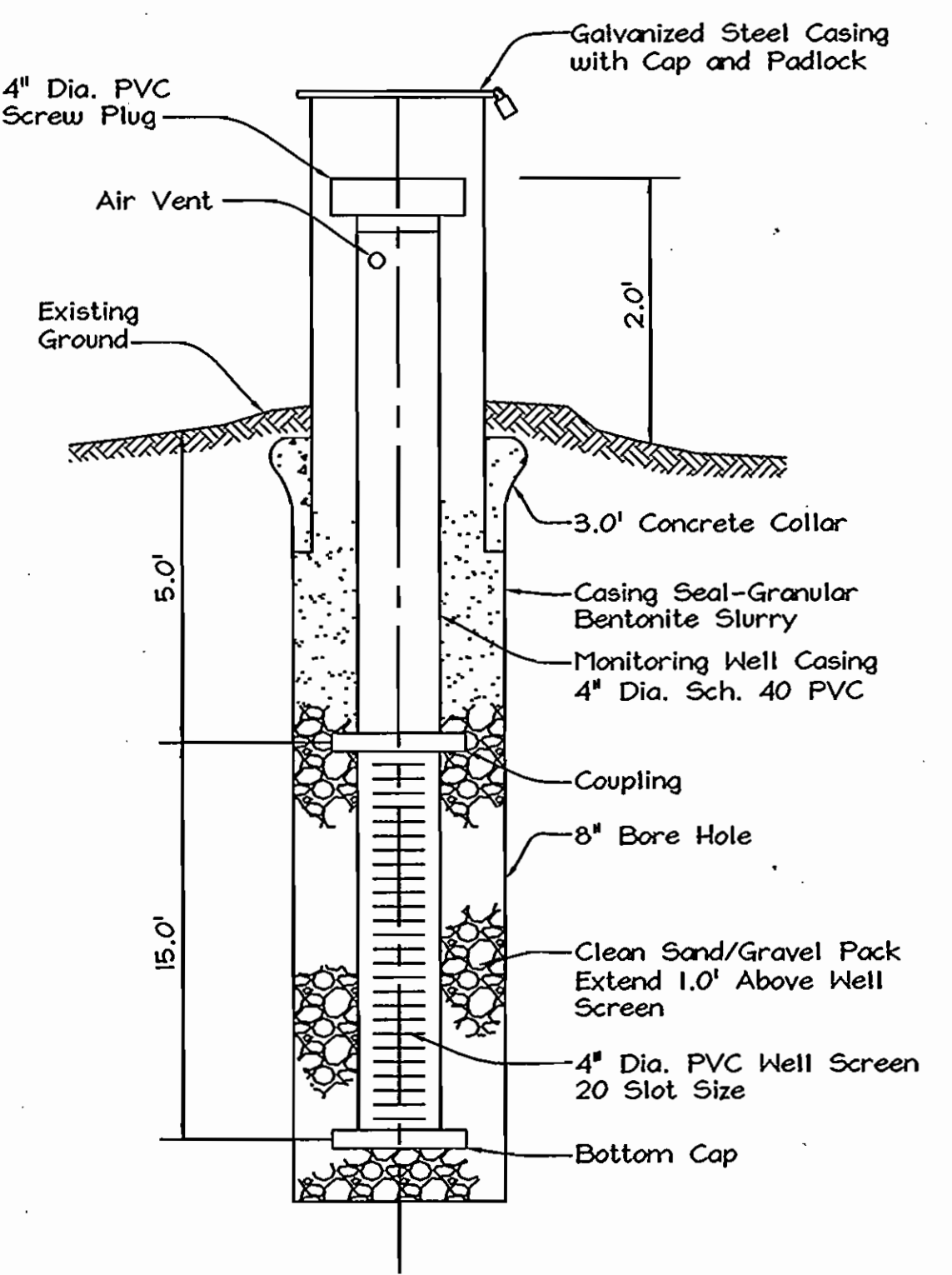


- NOTES:**
- GATES TO BE 2" 6-BAR HEAVY DUTY BULL GATE (16 GAUGE STEEL). GATE HEIGHT SHALL BE 50"-52" DEPENDING ON MANUFACTURER.
 - GATES TO BE PAINTED RED.
 - MOUNTING HARDWARE SUPPLIED BY MANUFACTURER WITH GATE.
 - REFLECTIVE TAPE TO BE PROVIDED ON CENTER OF POSTS AND CROSSBARS.
 - PADLOCK TO BE SUPPLIED BY HOWARD COUNTY DPW MASTER KEY SYSTEM.

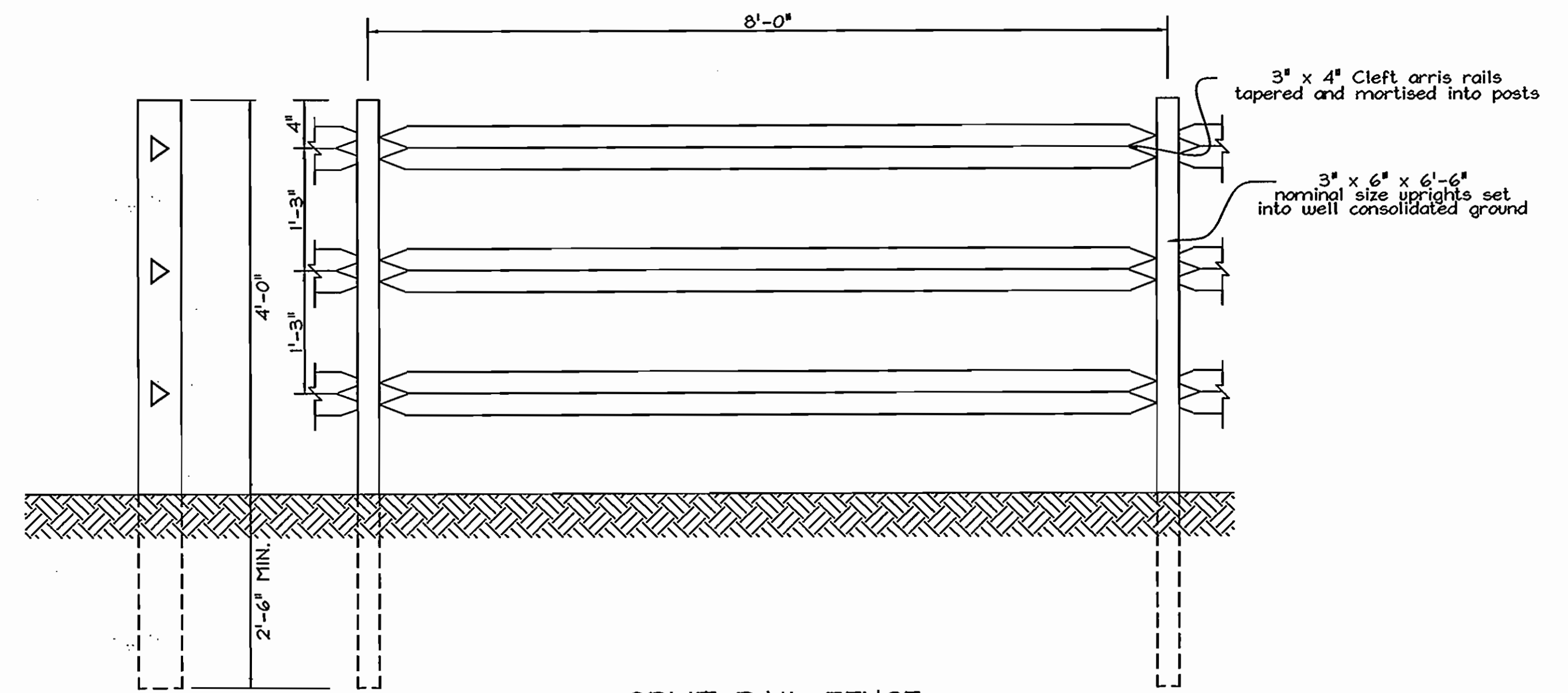
GATE DETAIL
Not to Scale



DISTRIBUTION LATERAL TERMINATION DETAIL
Not to Scale



MONITORING WELL DETAIL
Not to Scale



SPLIT RAIL FENCE
Not to Scale

APPROVED: FOR PUBLIC WATER AND A SHARED SEPTIC SYSTEM FOR LOTS 1 - 5 AND PRIVATE SEWAGE FOR LOTS 6 - 9 AND BUILDABLE PRESERVATION PARCEL C.

Peter Beilerman 7/18/08
COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

PROFESSIONAL CERTIFICATION

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22312, Expiration Date 2/23/22

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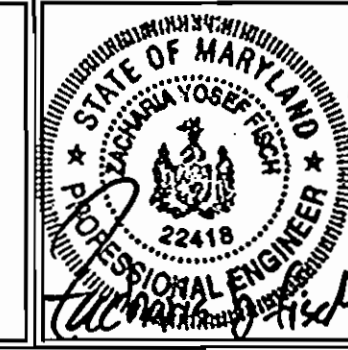
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John K. Wilby 7/3/08
BUREAU OF UTILITIES

DEPARTMENT OF PLANNING & ZONING
HOWARD COUNTY, MARYLAND

Chief, Development Engineering Division
CHIEF, DEVELOPMENT ENGINEERING DIVISION

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DESIGN BY: AL G-D
DRAWN BY: HS
CHECKED BY: ZYF
DATE: June 18, 2008

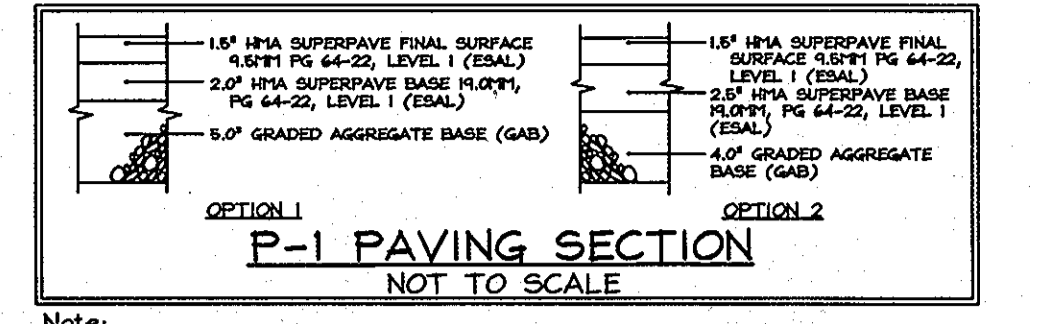
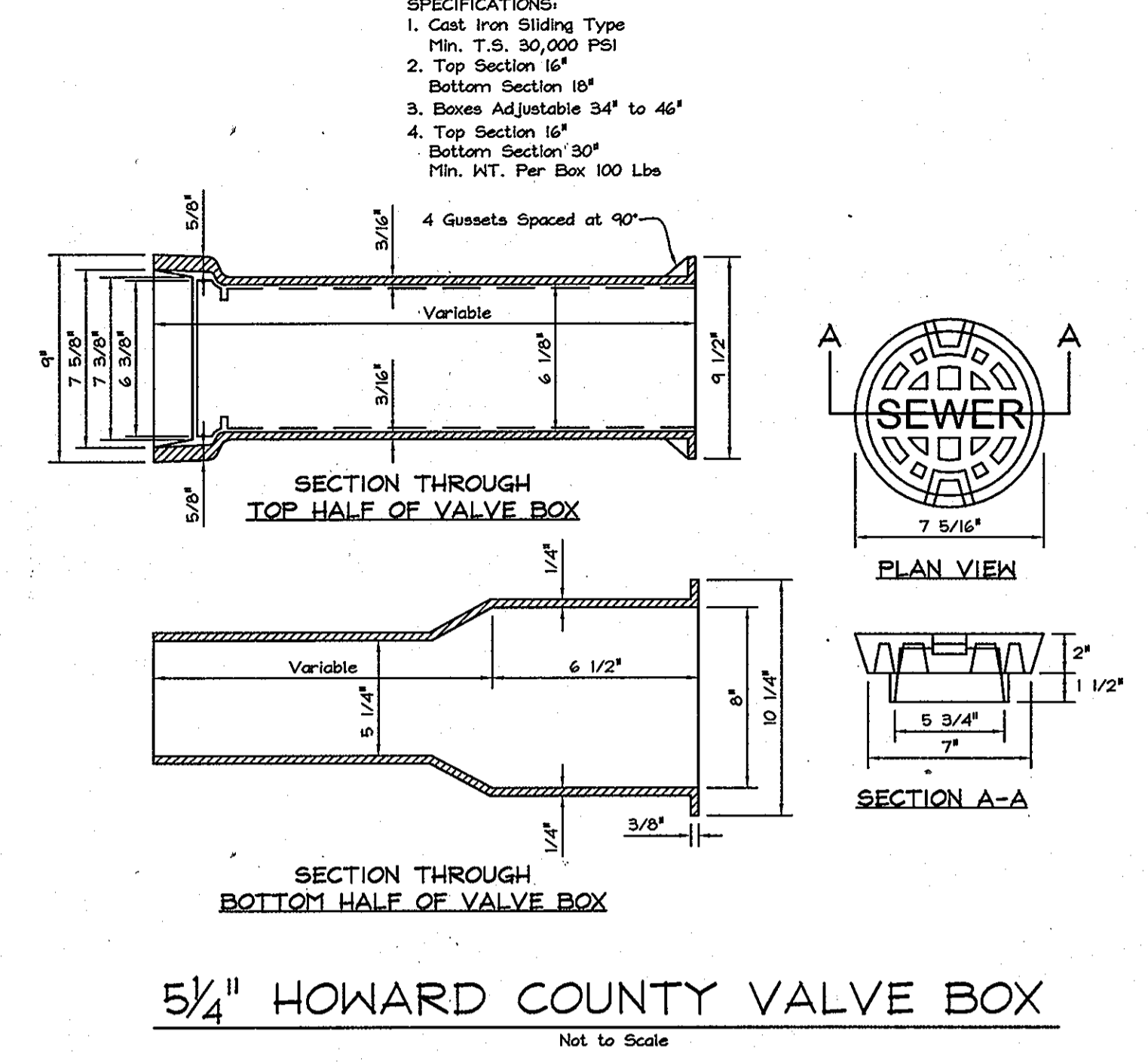
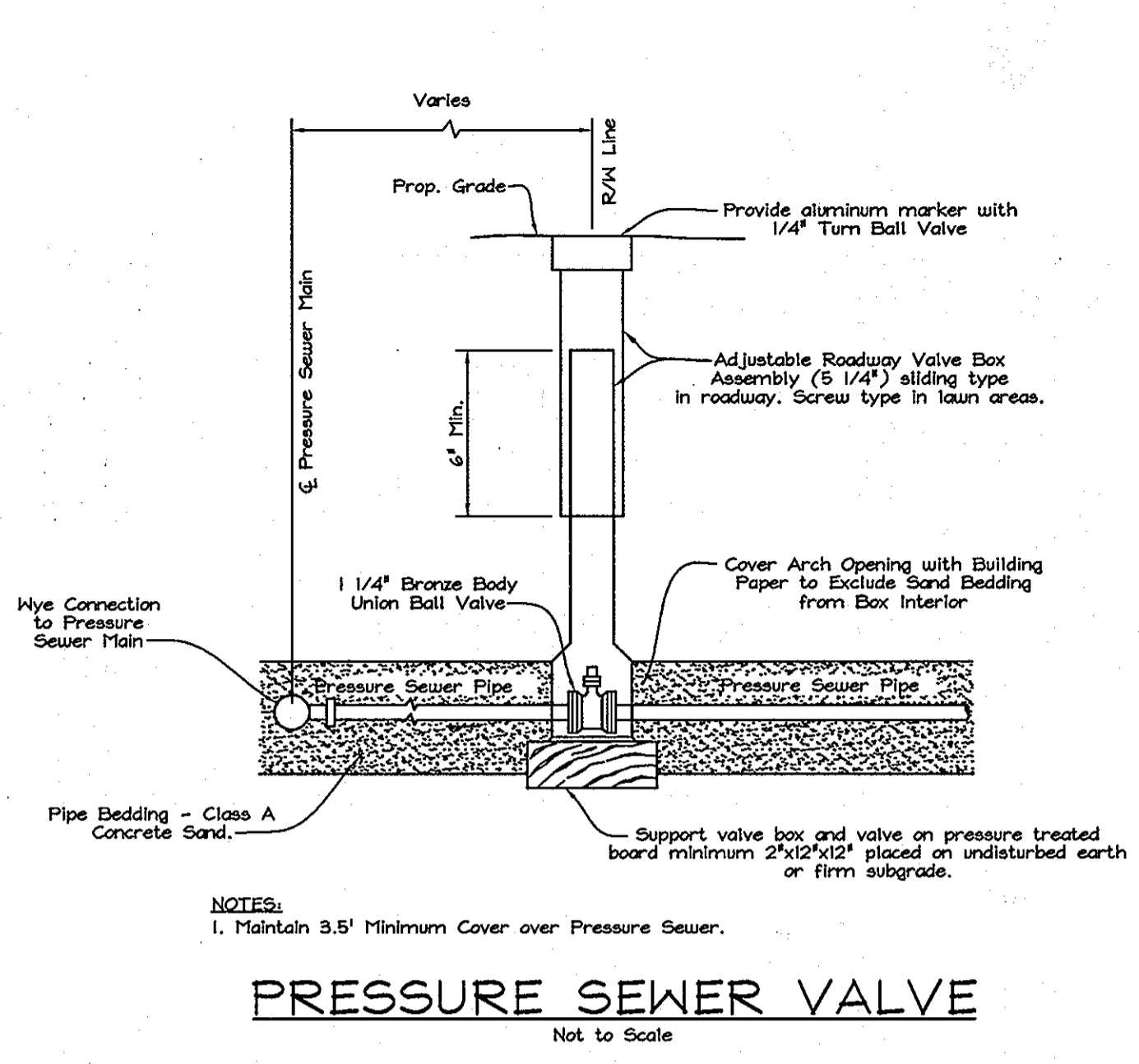
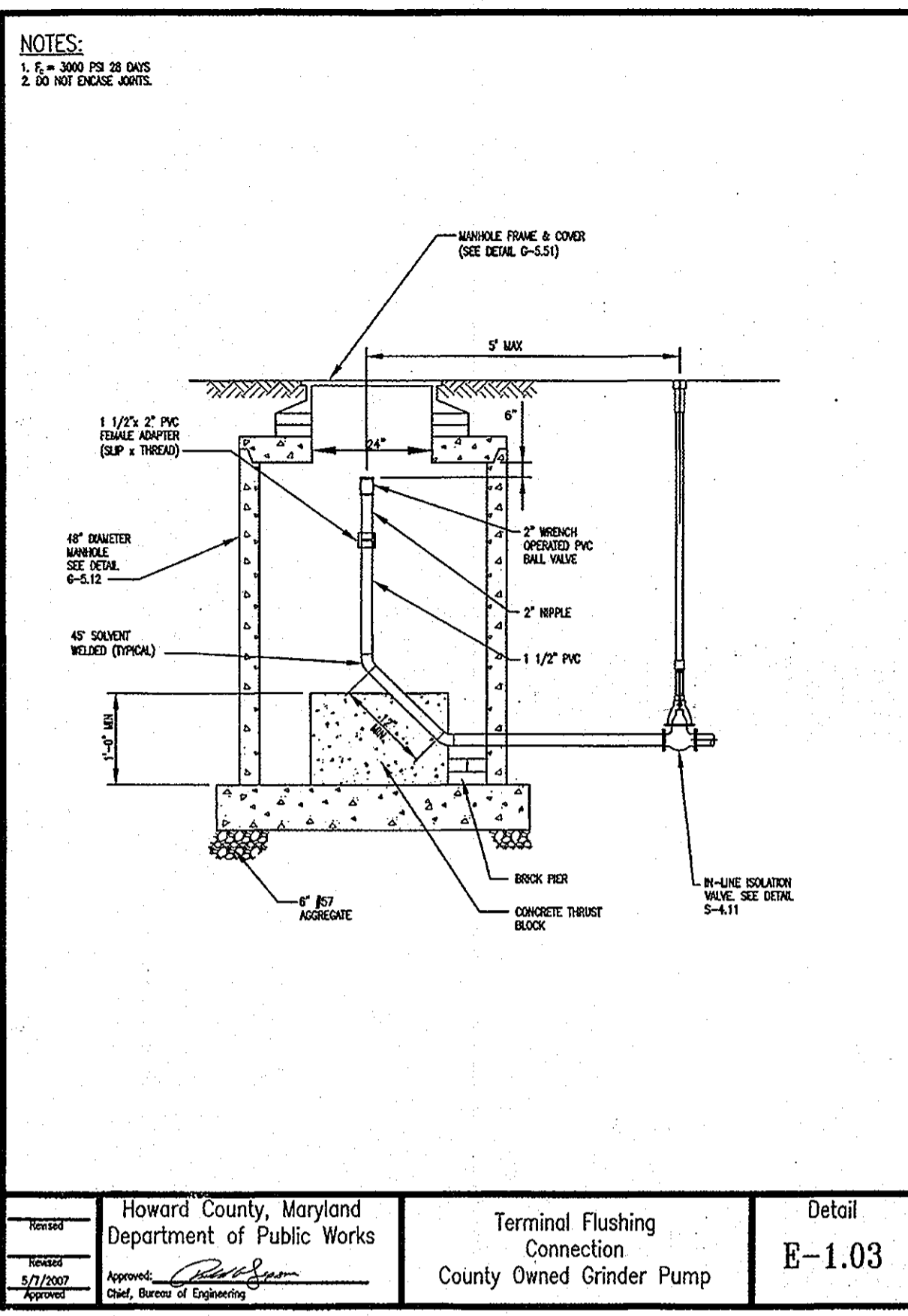
BY	NO.	REVISION	DATE

SEWER AND MISCELLANEOUS DETAILS

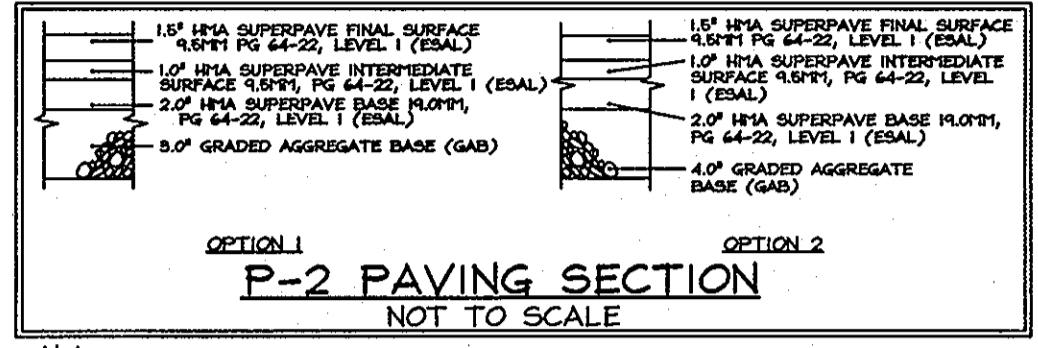
600' SCALE MAP NO.: 16 BLOCK NO.: 15

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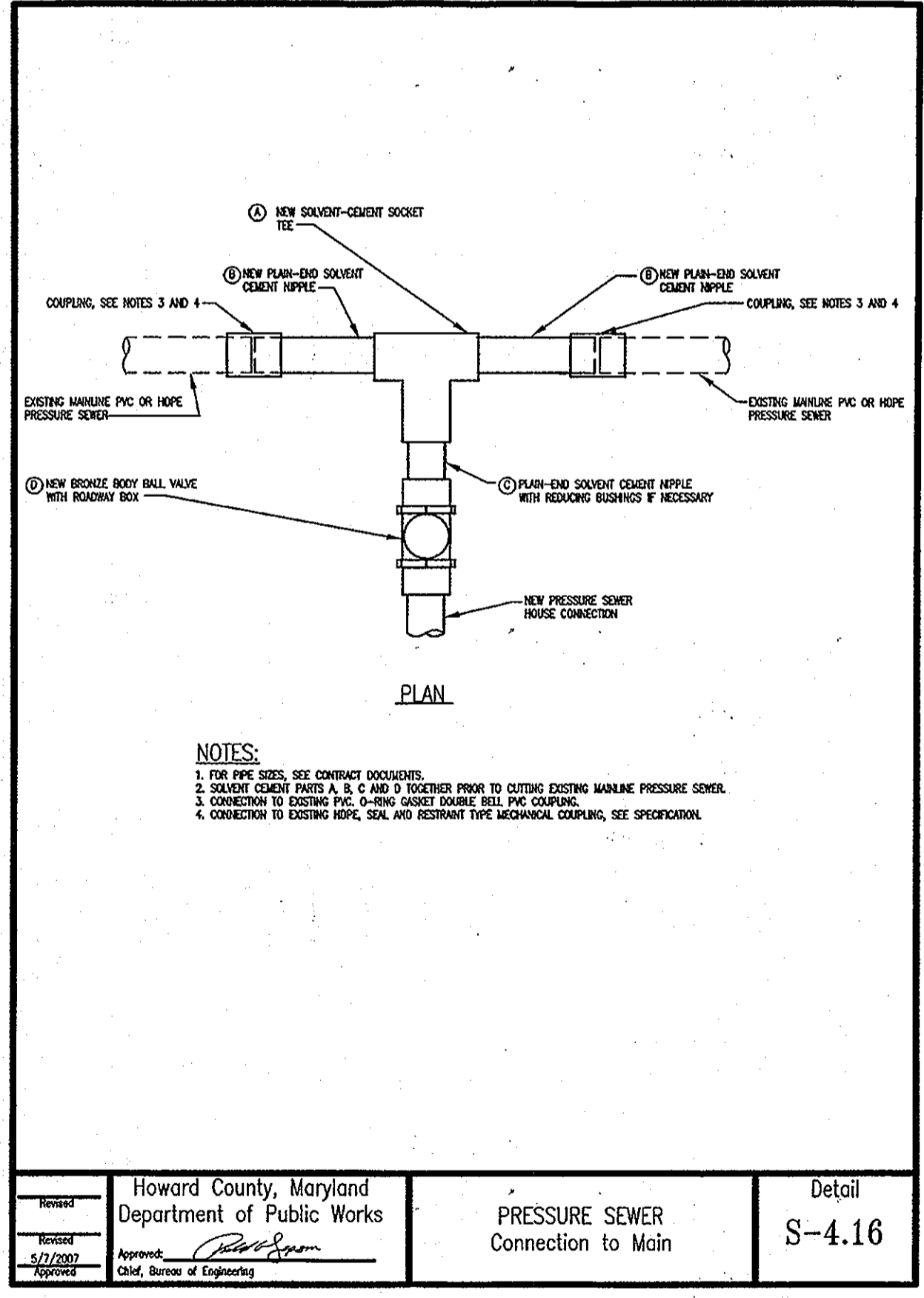
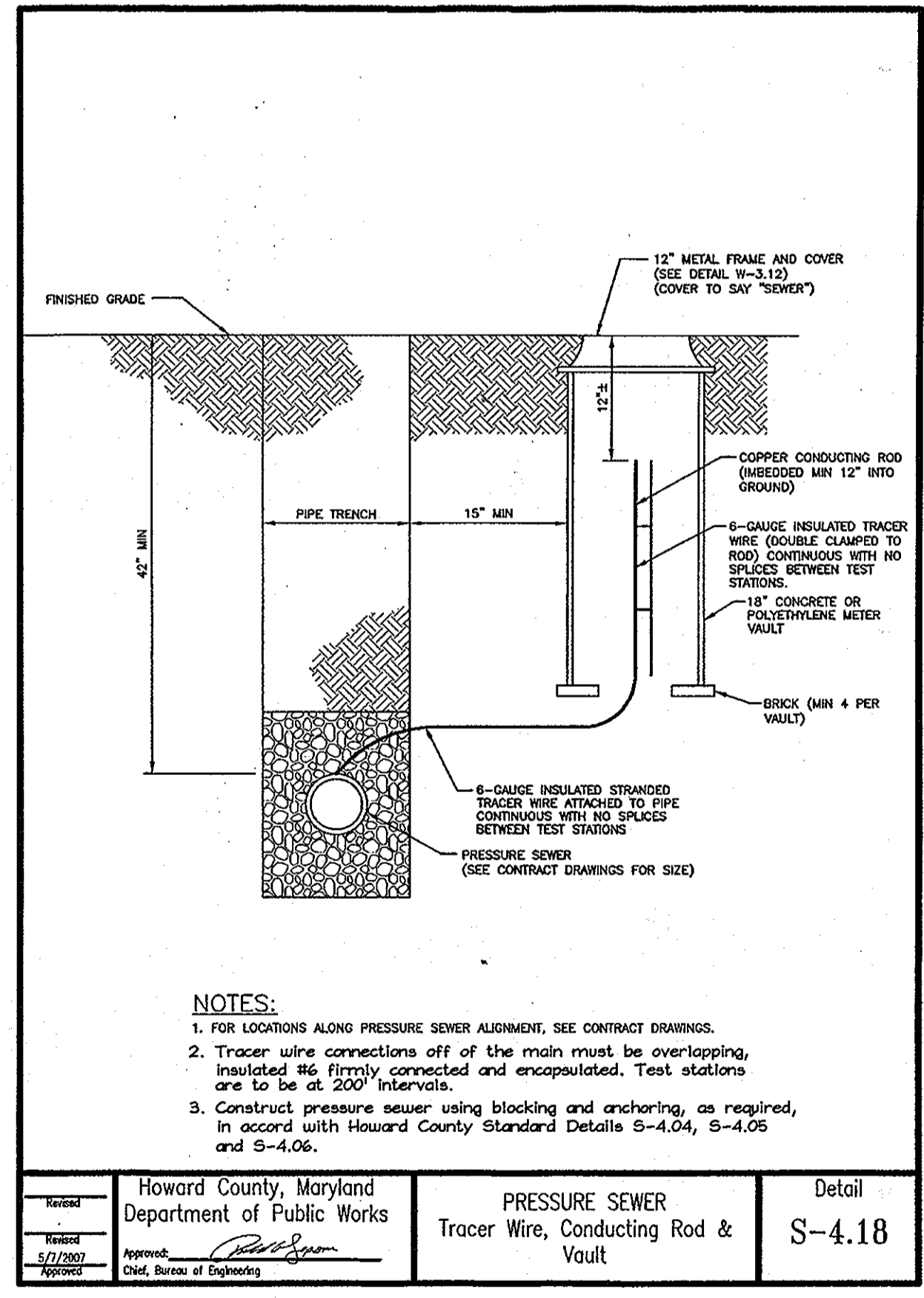
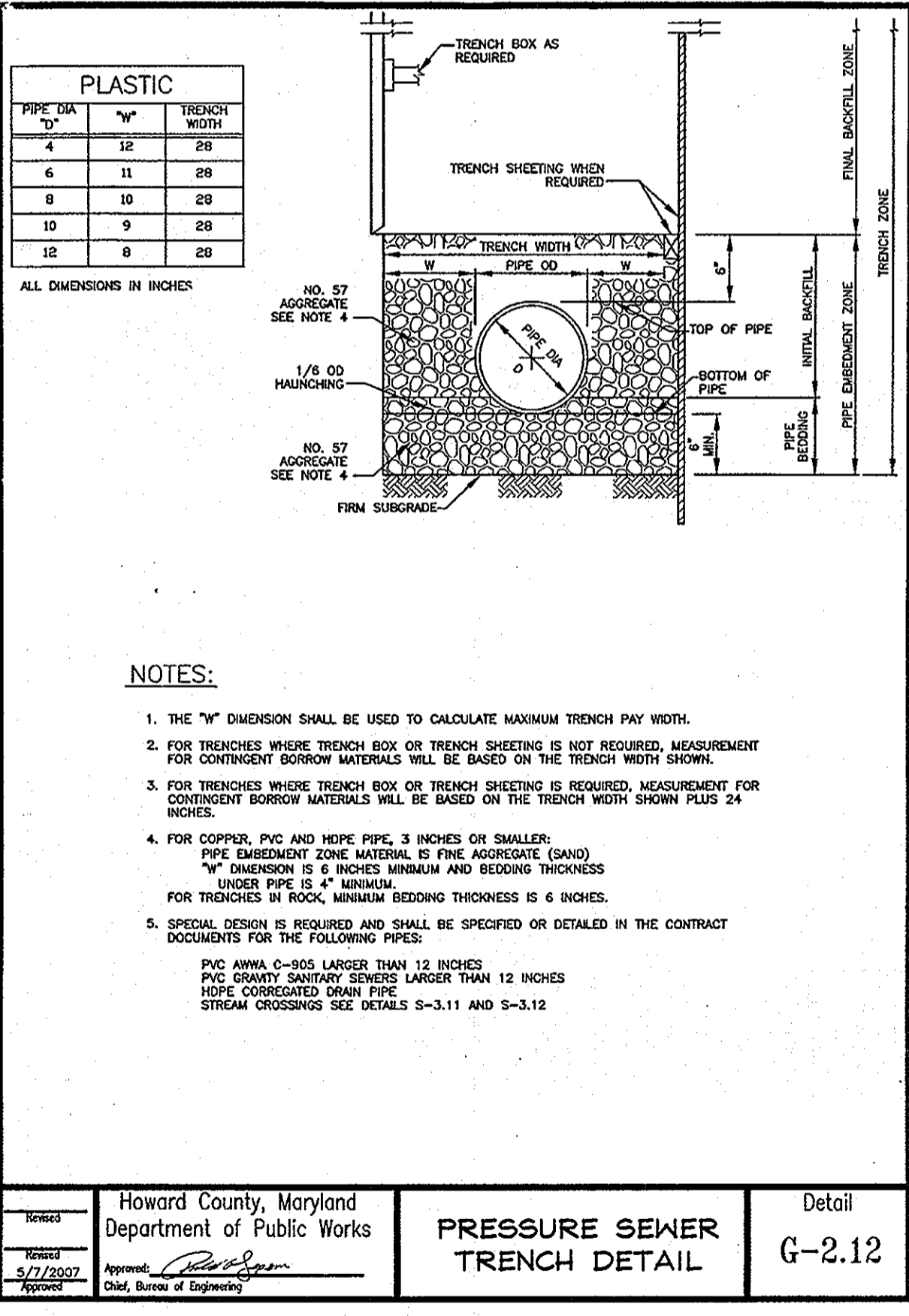
SCALE None
SHEET NO. 6 OF 7



Note:
 Paving sections shown are based on a California Bearing Ratio (CBR) of greater than or equal to 7. Actual CBR tests may result in modifications to the paving sections. For other CBR values go to the Howard County Volume IV Design Manual, standard detail R-2.01, for associated P-1 Paving Sections.

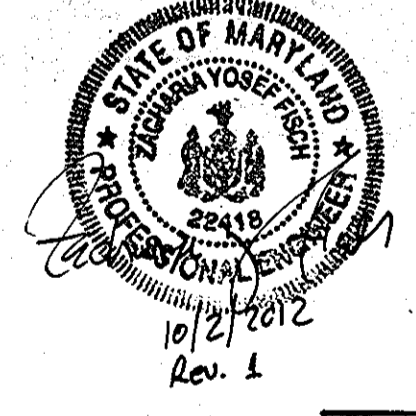


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PRESSURE SEWER BLOCKING & ANCHORING

Construct pressure sewer using blocking and anchoring, as required, in accord with Howard Co. Standard Details S-4.04, S-4.05 and S-4.06.



REV.	DATE	DESCRIPTION	BY
1	10-2-12	CHANGED DIP WATER TO C-900 PVC, INCREASED WALL TO 1 1/2" ADJUSTED 2" PRESSURE SEWER, REMOVED TSBV MANHOLE DETAIL.	CRH2

PROFESSIONAL CERTIFICATION

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. #22418, Expiration Date: 7/21/27

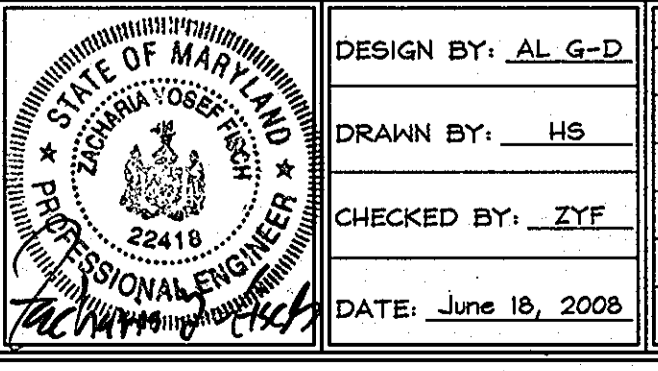
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 Peter D. Bileman 7/18/08
 COUNTY HEALTH OFFICER
 HOWARD COUNTY HEALTH DEPARTMENT

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DESIGN BY: AL G-D
 DRAWN BY: HS
 CHECKED BY: ZYF
 DATE: June 18, 2008



BY NO.	REVISION	DATE

SEWER AND MISCELLANEOUS DETAILS

600' SCALE MAP NO.: 16 BLOCK NO.: 15

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 CONTRACT NO. 54-4301-D
 TAX MAP 16 GRID 15
 3RD ELECTION DISTRICT
 PARCELS 89, 91 AND 201
 HOWARD COUNTY, MARYLAND

SCALE
 As Shown
 SHEET NO.
 7 OF 7