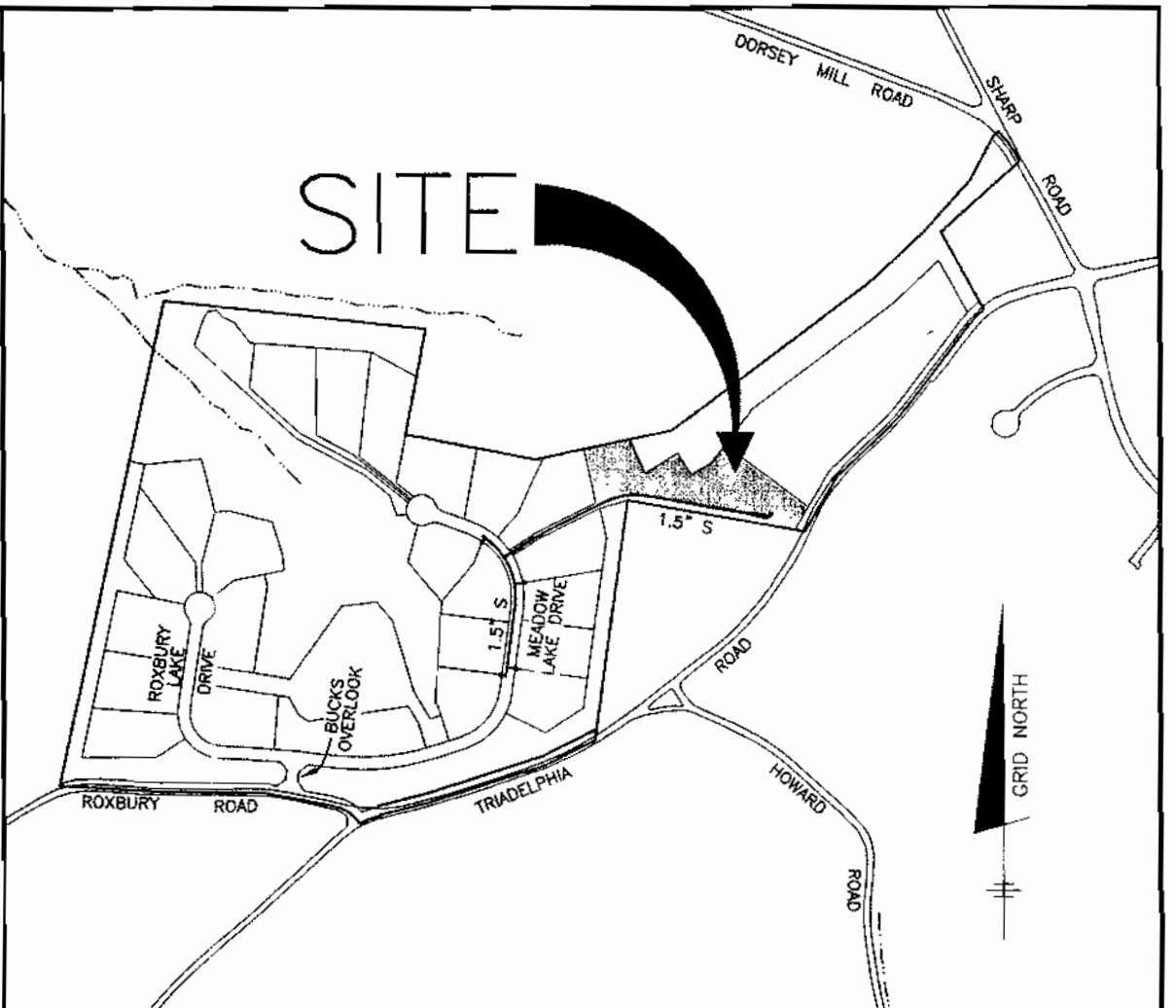


BENCH MARKS NAD 83

HO. CO. #211A	HO. CO. #27CA
N 577115.368	N 575270.018
E 1306507.280	E 1307150.239
ELEV. 554.305	ELEV. 551.610



WATER AND SEWER COUNTY CODE

WATER CODE:	N/A	TYPE OF BUILDING: SINGLE FAMILY DETACHED
SEWER CODE:	N/A	NUMBER OF BUILDABLE LOTS: 22
TEST GRADIENT:	N/A	NUMBER OF SHCS: 8
		NUMBER OF WHCS: 0
		DRAINAGE: _____ PATUENT
		TREATMENT PLANT: _____ N/A

VICINITY MAP
SCALE: 1" = 60'

SOILS LEGEND

MAP SYMBOL	SOIL GROUP	SOIL TYPE
Ba	D*	BAILE SILT LOAM
ChB2	B	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
ChC3	B	CHESTER SILT LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED
Eka	B	ELOAK SILT LOAM, 0 TO 3 PERCENT SLOPES
ExB2	B	ELOAK SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
GIB2	B	GLENELG LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
GIC2	B	GLENELG LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
GnB2	C*	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
MIC2	B	MANOR LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
MIC3	B	MANOR LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED
MID3	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES, SEVERELY ERODED

* INDICATES HYDRIC SOILS
TAKEN FROM SOIL SURVEY, HOWARD COUNTY, MARYLAND (ISSUED JULY 1988) MAP NO. 13 AND 17

SEPTIC TANK CAPACITY

*USE 4 BEDROOM HOUSE
1250 GALLONS PER 4 BEDROOM HOUSE
8 HOUSES X 1250 GALLONS = 10,000 GALLONS
USE TWO 5,000 GALLON TANKS

QUANTITIES

ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUF./SUPPLIER
1.5" SDR 21 PVC	1125 L.F.			
DUPLEX GRINDER PUMP	4 EA.			
TERMINAL FLUSHING CONNECTION	3 EA.			
5000 G. SEPTIC TANKS	2 EA.			
CONC. DISTRIBUTION BOX	3 EA.			
LEACHING FIELD	1285 L.F.			
VALVE BOX WITH CONDUCTING ROD	6 EA.			
1.5" HDPEP SEWER	305 L.F.			
4" PVC SEWER	1202 L.F.			
TRANSITION MANHOLE	1 EA.			
ZOELLER SPLITTER BOX	1 EA.			
MONITORING WELLS	3 EA.			

NAME OF UTILITY CONTRACTOR:
SURVEY AND DRAFTING DIVISION AS-BUILT DATE:

TRENCH REQUIREMENTS

INITIAL SYSTEM - AREA A	RESERVE #1 - AREA A	RESERVE #2 - AREA A
USE 4 BEDROOM HOUSE (with 150 GPD per BEDROOM)	600 gpd PER HOUSE 600 gpd/HOUSE X 8 HOUSES = 4,800 gpd 4,800 gpd/0.8 ga./s.f./day = 6,000 s.f. EFFECTIVE AREA 6,000 s.f. / 3 (3 FT. WIDE TRENCH) = 2,000 l.f. NO SIDEWALL 2,000 l.f. x 0.83 (% DECREASE FOR 1" SIDEWALL) = 1,660 l.f. 1,660 l.f. x 0.33 (1/3rd OF EACH SYSTEM) = 554 l.f.	* (1/2) RESERVE #1 - AREA B * (1/2) RESERVE #2 - AREA A
USE 4 BEDROOM HOUSE (with 150 GPD per BEDROOM)	600 gpd PER HOUSE 600 gpd/HOUSE X 8 HOUSES = 4,800 gpd 4,800 gpd/0.8 ga./s.f./day = 6,000 s.f. EFFECTIVE AREA 6,000 s.f. / 3 (3 FT. WIDE TRENCH) = 2,000 l.f. NO SIDEWALL 2,000 l.f. x 0.55 (% DECREASE FOR 2.5" SIDEWALL) = 1,100 l.f. 1,100 l.f. x 0.33 (1/3rd OF EACH SYSTEM) = 363 l.f. * 363 l.f. / 2 (1/2 OF EACH 1/3 OF A SYSTEM) = 182 l.f.	

- NOTES:**
- WELLS ON THE LOTS SURROUNDING THE COMMON SHARED SEPTIC AREAS SHALL BE TESTED FOR BACKGROUND LEVELS OF CONTAMINANTS TO BE SPECIFIED BY THE DEPARTMENT OF PUBLIC WORKS PRIOR TO PUTTING THE SHARED SEPTIC SYSTEM IN SERVICE.
 - THE BUILDER SHALL INSTALL 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.
 - INSTALLATION OF GRINDER PUMPS AND APPURTENANCES, AND THE 4" PVC SEWER HOUSE CONNECTIONS (SHC) SHALL BE THE RESPONSIBILITY OF THE DEVELOPER.
 - ALL PRESSURE SEWER SHALL BE SDR 21, PVC, SOLVENT WELDED EXCEPT PORTIONS WITHIN 50 FEET OF A WELL. IN THOSE INSTANCES THE SEWER SHALL BE HDPEP SDR11. A 6 GAUGE TRACER WIRE SHALL BE WRAPPED AROUND OR ATTACHED TO THE PVC PIPE.
 - SEPTIC TANKS SHALL BE VACUUM OR WATER 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 ISSUANCE OF SHARED SEPTIC SYSTEM PERMIT.
 - ALL PRESSURE SEWER IS TO BE PRESSURE TESTED ACCORDING TO THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS STANDARDS AND SPECIFICATIONS.
 - THE CONTRACTOR SHALL NOTIFY HOWARD CO. HEALTH DEPARTMENT AT (410) 313-1771 AT LEAST FIVE (5) WORKING DAYS BEFORE ANY PRESSURE TEST OF PRESSURE SEWERS, AND ANY SEPTIC TANKS VACUUM OR WATER TESTING IS PERFORMED.
 - THE DEVELOPER SHALL BE RESPONSIBLE FOR THE REQUIREMENTS AND METHOD OF INSTALLATION OF GRINDER PUMP AND ITS APPURTENANCES.
 - OBSERVATION WELLS TO BE INSTALLED AFTER TRENCH INSTALLATION IS COMPLETED.
 - LOTS WITH "CELLAR NOT SERVICED VIA GRAVITY" IS INDICATED. EJECTOR PUMPS LOCATED INSIDE THE BASEMENT ARE REQUIRED IN ORDER TO SERVICE THE CELLAR.

- GENERAL NOTES**
- PART 1 - GENERAL**
- 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.
 - ALL HORIZONTAL CONTROLS ARE BASED ON MARYLAND STATE COORDINATES. (NORTH AMERICAN DATUM OF 1983 (NAD'83)).
 - ALL VERTICAL CONTROLS ARE BASED ON U.S.G.S. DATA.
 - ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
 - CLEAR ALL UTILITIES BY A MINIMUM OF 12". CLEAR ALL POLES BY 2'-0" MINIMUM OR TUNNEL AS REQUIRED. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONEY OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
 - FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS USE HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATIONS AND DETAIL FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB.
 - WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL AT THE LOCATION OF THE TEST PIT. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
 - CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:
 - STATE HIGHWAY ADMINISTRATION.....410-531-5533
 - BGE CONTRACTOR SERVICES.....410-850-4620
 - BGE UNDERGROUND DAMAGE CONTROL.....410-291-4607
 - MISS UTILITY.....1-800-257-7777
 - COLONIAL PIPELINE CO.....410-549-4120
 - HOWARD CO. DEPT. OF PUBLIC WORKS.....410-313-4900
 - BUREAU OF UTILITIES.....1-800-446-5266
 - BELL ATLANTIC.....1-800-446-5266
 - TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
 - CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
 - PLACE REGULATION "MEN WORKING" AND WARNING SIGNS AS REQUIRED TO COMPLY WITH MARYLAND STATE HIGHWAY ADMINISTRATION MANUAL OF TRAFFIC CONTROL FOR HIGHWAY MAINTENANCE OPERATIONS.
 - 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(c) OF THE HOWARD COUNTY CODE.

APPROVED:

FOR PRIVATE WATER AND PUBLIC SEWERAGE SYSTEMS
HOWARD COUNTY HEALTH DEPARTMENT

[Signature] 10/16/04
COUNTY HEALTH OFFICER DATE

HOWARD SOIL CONSERVATION DISTRICT:
REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

[Signature] 9/12/04
NATURAL RESOURCES CONSERVATION DATE

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

[Signature] 9/12/04
HOWARD SOIL CONSERVATION DISTRICT DATE

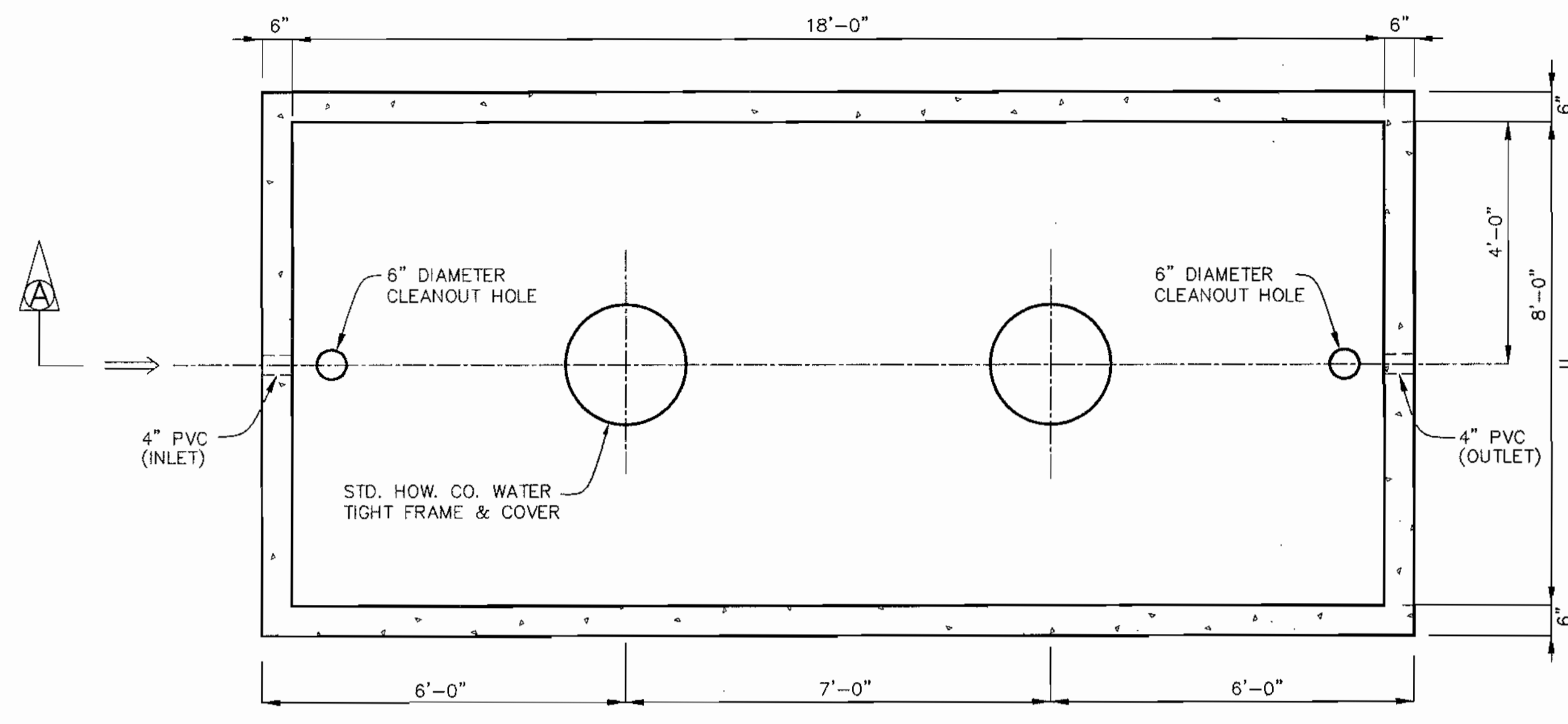
SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE HOWARD COUNTY STANDARD SPECIFICATIONS AND AS PER ROAD CONSTRUCTION PLANS F-04-118

OWNER/DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046

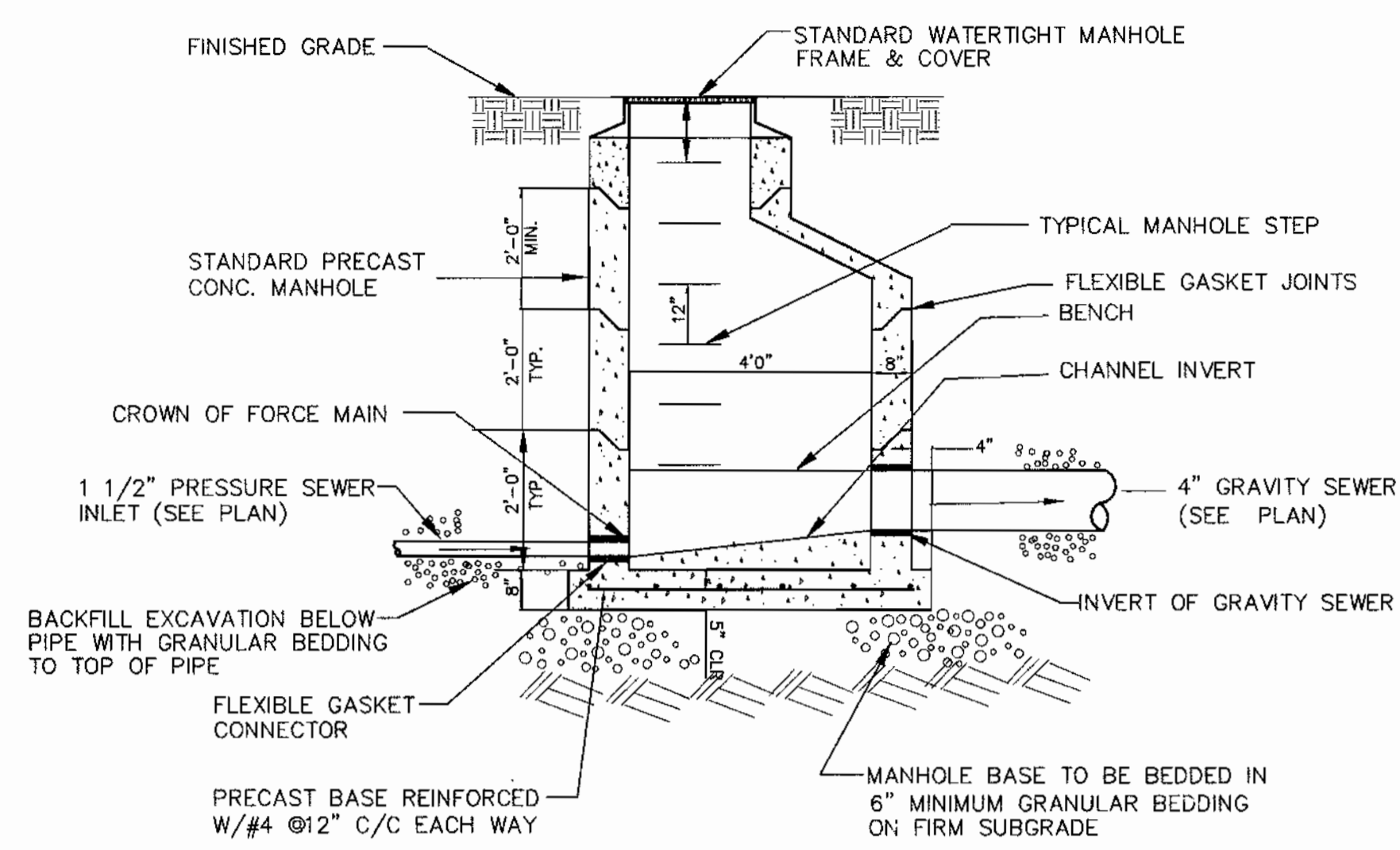
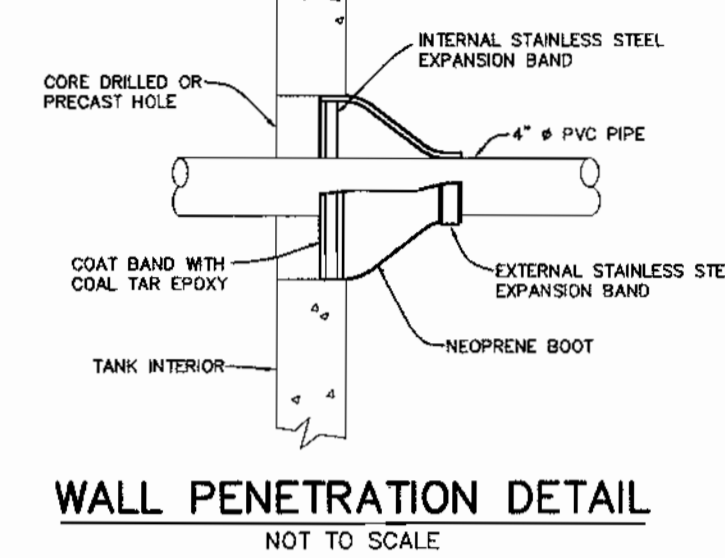
****MAXIMUM NUMBER OF BEDROOMS FOR EACH HOUSE ON LOTS 9 - 12 AND 19 - 22 SHALL BE FOUR (4).**

****ALL SEWAGE GRINDER PUMPS ARE TO BE PUBLICLY OWNED AND MAINTAINED**

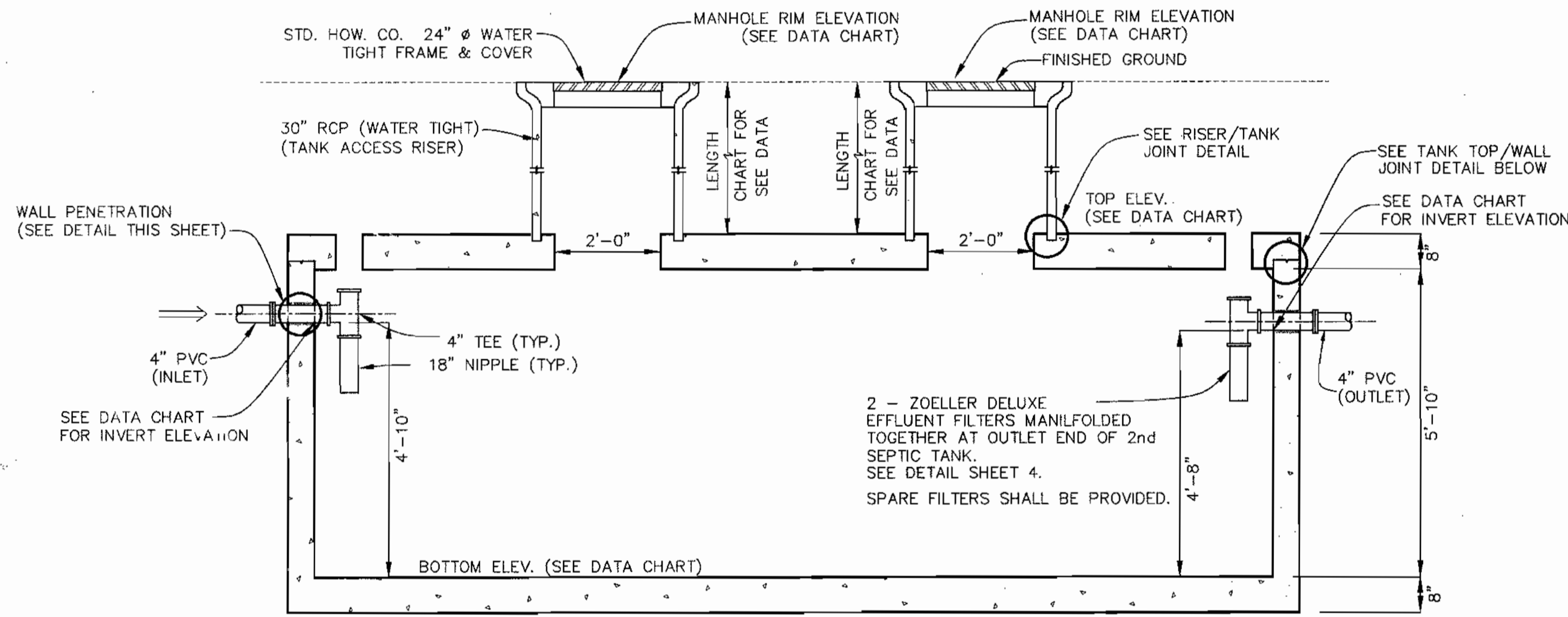
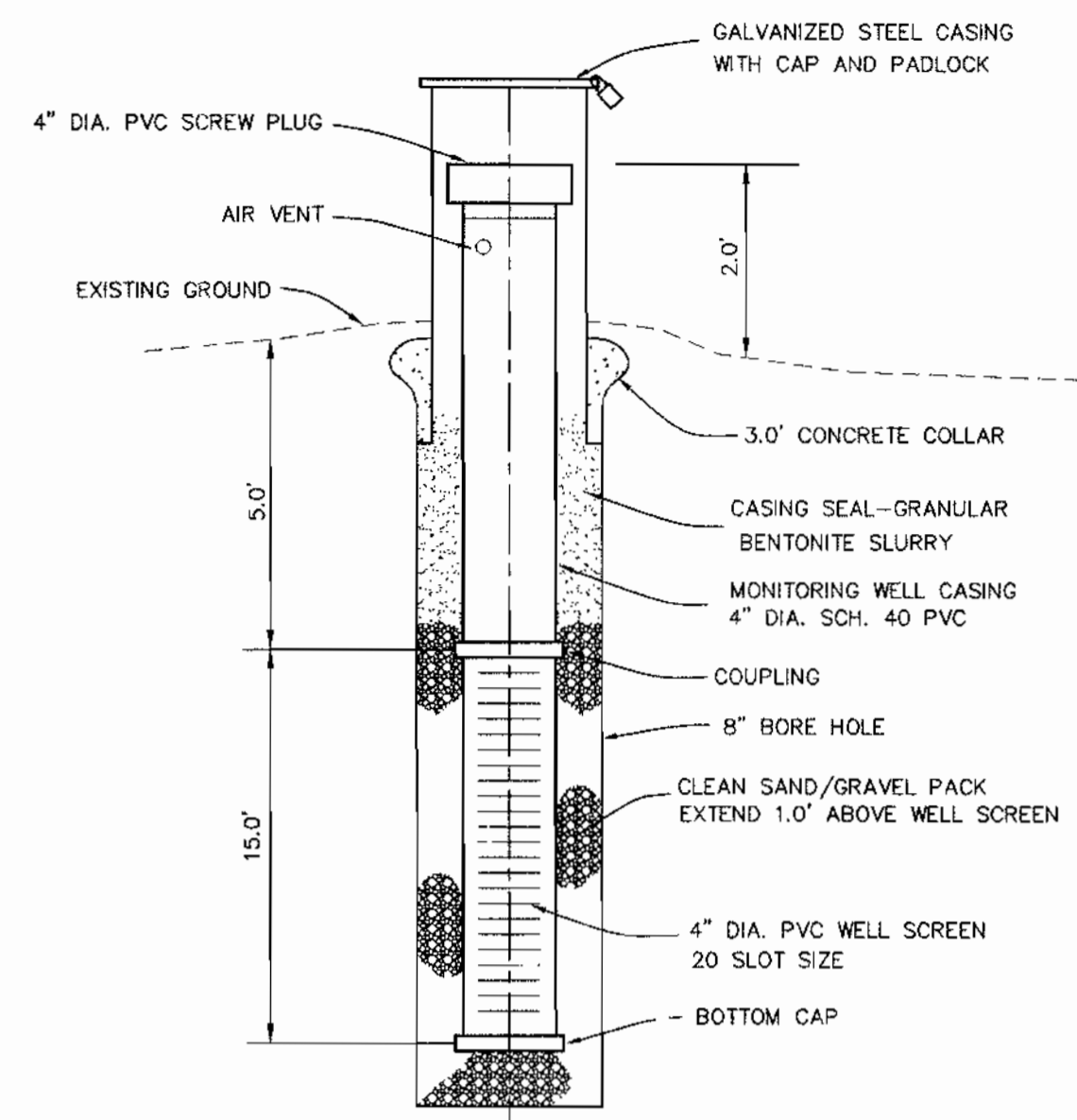
DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND	BENCHMARK ENGINEERS • LAND SURVEYORS • PLANNERS ENGINEERING, INC. <i>Donald Mason</i> 8480 BALTIMORE NATIONAL PIKE • SUITE 418 ELICOTT CITY, MARYLAND 21043 PHONE: 410-465-6105 FAX: 410-465-6844	DESIGN: DBT DRAFT: DBT CHK: DAM DATE: 9-1-04	BY NO. REVISIONS DATE	600 SCALE MAP NO. 50	BLOCK 3	TRIADELPHIA CROSSING LOTS 1 THRU 22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I' FOURTH ELECTION DISTRICT CONTRACT NO. 50-4207-D	SCALE: AS SHOWN SHEET NO. 1 OF 4
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PLAN VIEW



- NOTES:
1. ELEVATION OF GRAVITY SEWER INVERT SHALL BE MINIMUM 0.1' ABOVE ELEVATION OF PRESSURE SEWER CROWN.
2. PROVIDE SMOOTH UPWARD SLOPING CHANNEL FROM FORCE MAIN TO GRAVITY SEWER.



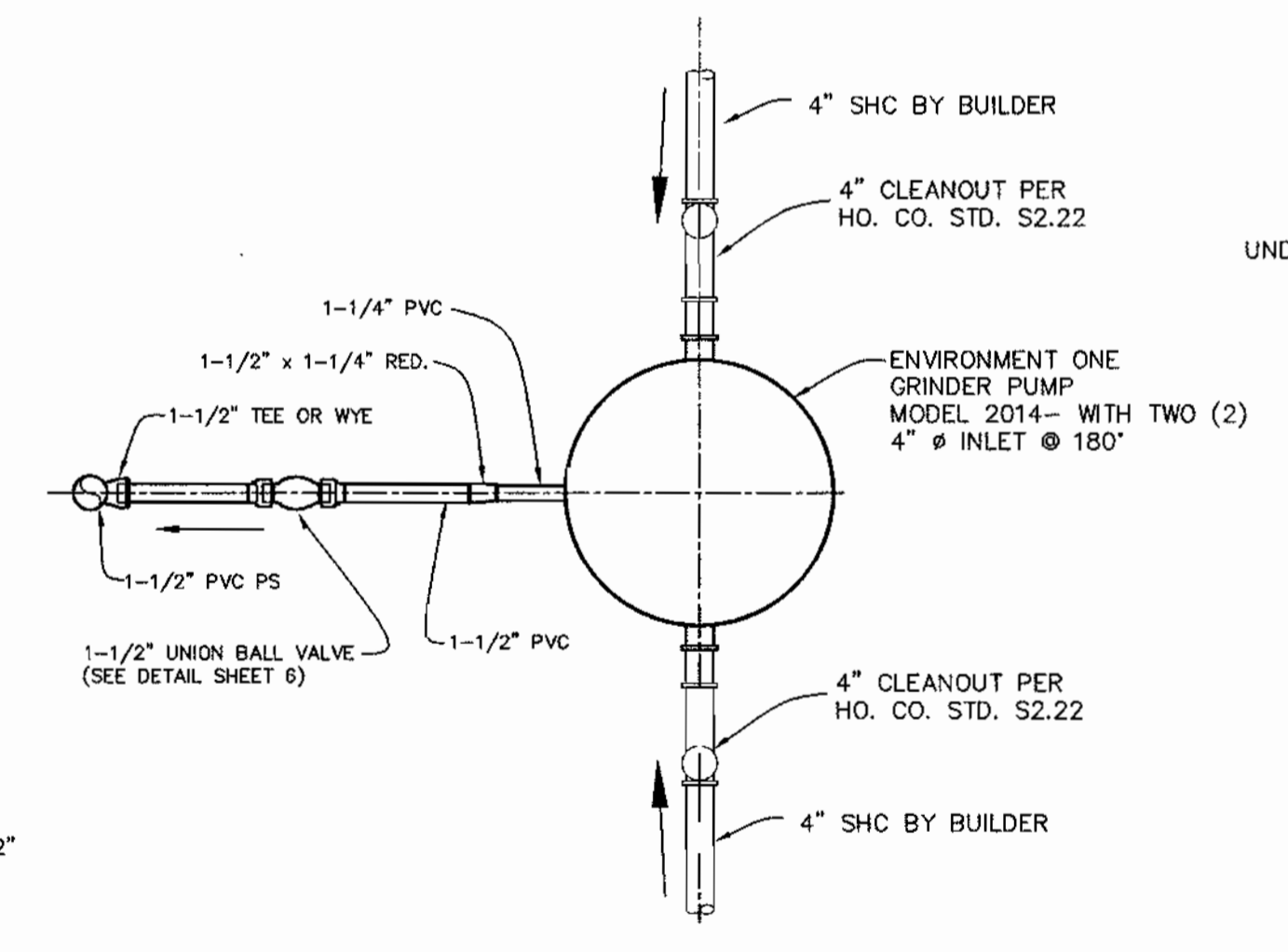
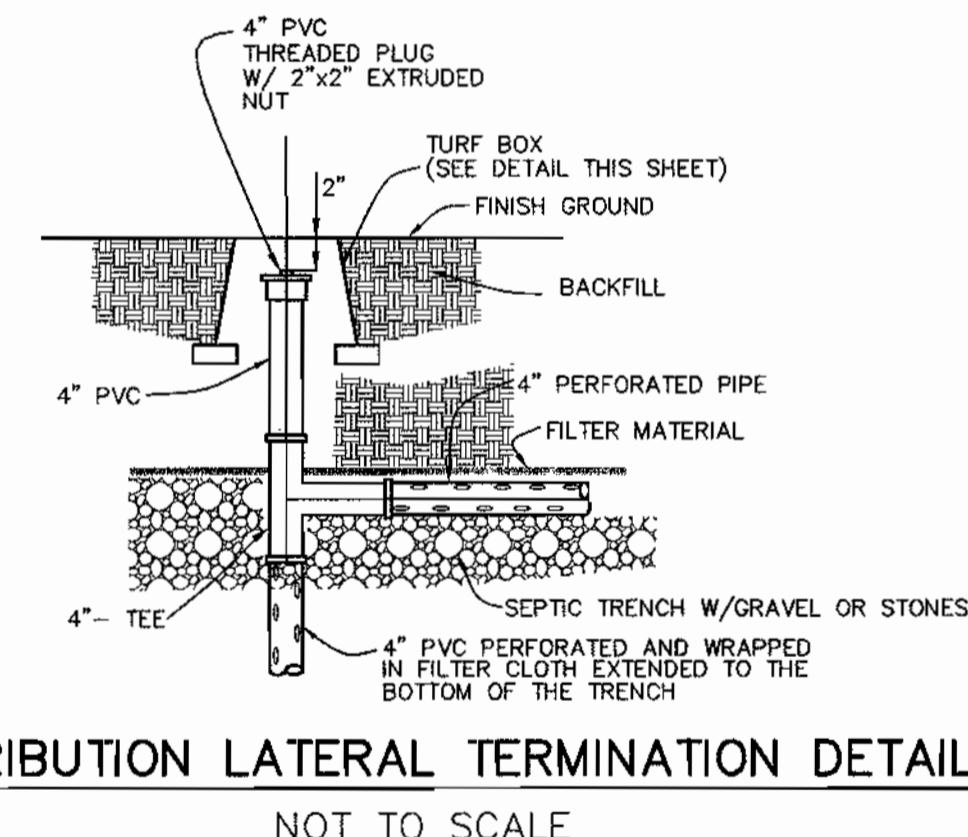
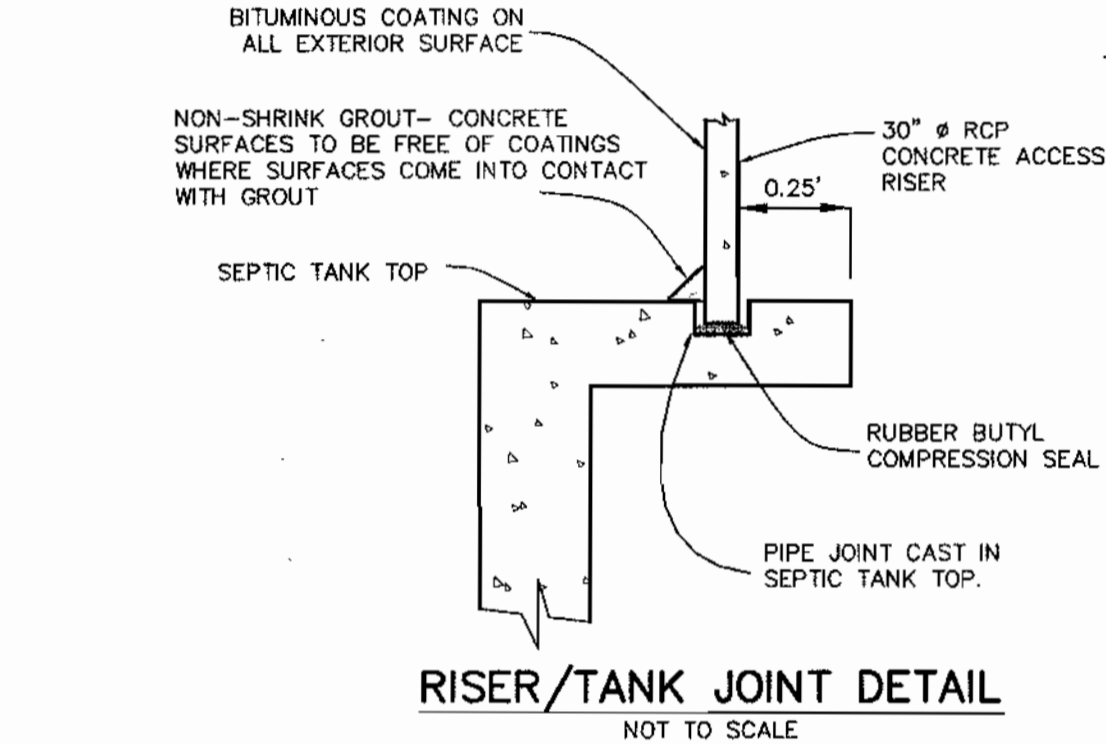
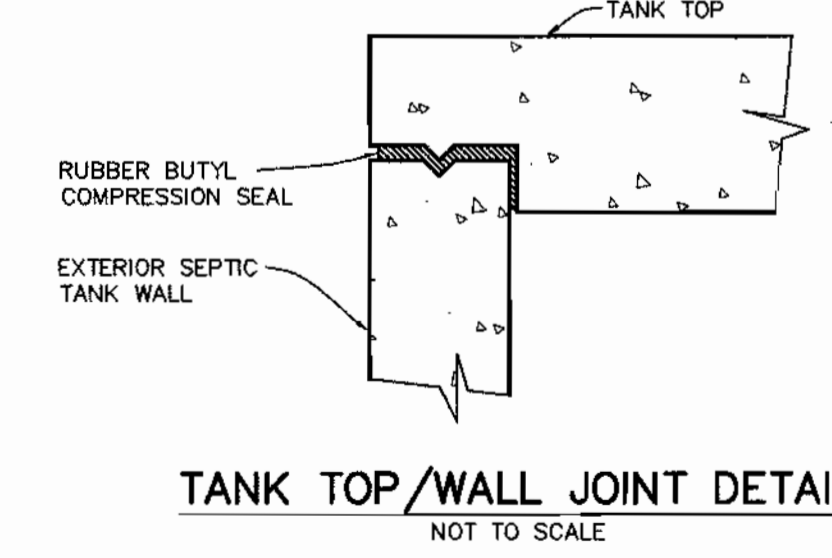
REINFORCING:
WALLS - #4 REBAR, 8" C/C E/W
SLAB TOP - #4 REBAR, 8" C/C E/W
BASE - #4 REBAR, 8" C/C E/W
REBAR GRADE 60
JOINTS SEALED WITH BUTYL ROPE FORM AND MORTAR.
CONCRETE 4,000 PSI IN 28 DAYS
INTERIOR COATED WITH TWO COATS INERT COATING.

5,000 GALLON SEPTIC TANK DATA				
	TANK ELEVATION	INVERT ELEVATION	TANK COORDINATES	MANHOLE RIM ELEVATION
SEPTIC TANK #1	TOP = 584.77	583.12 IN	N 579539.51 E 1308755.18	586.3
	BOT = 578.28	582.95 OUT	N 579536.25 E 1308773.89	586.3
SEPTIC TANK #2	TOP = 584.55	582.90 IN	N 579535.39 E 1308778.82	586.1
	BOT = 578.06	582.73 OUT	N 579532.12 E 1308797.54	586.1

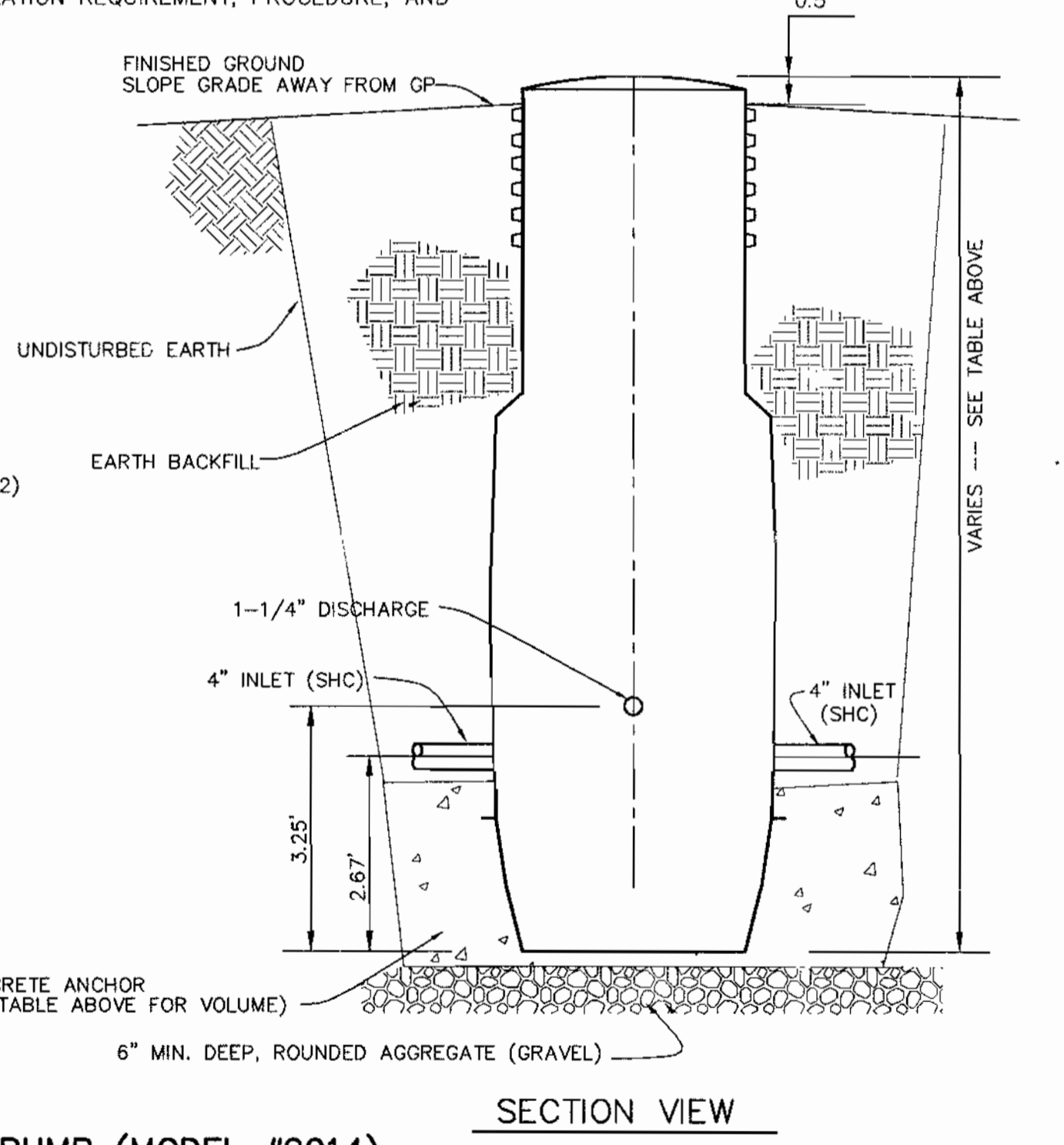
- NOTES:
1. MANHOLE RIM ELEVATION SHOWN HEREON IS AT THE CENTER OF THE RIM.
2. TANK COORDINATES ARE AT THE MIDPOINT OF EACH END.

SEPTIC TANK TO BE PRECAST BY J.F. GILLESPIE, INC. OR EQUAL.

PRECAST CONCRETE 5000 GALLON CAPACITY SINGLE COMPARTMENT SEPTIC TANK
SCALE: 1" = 2'

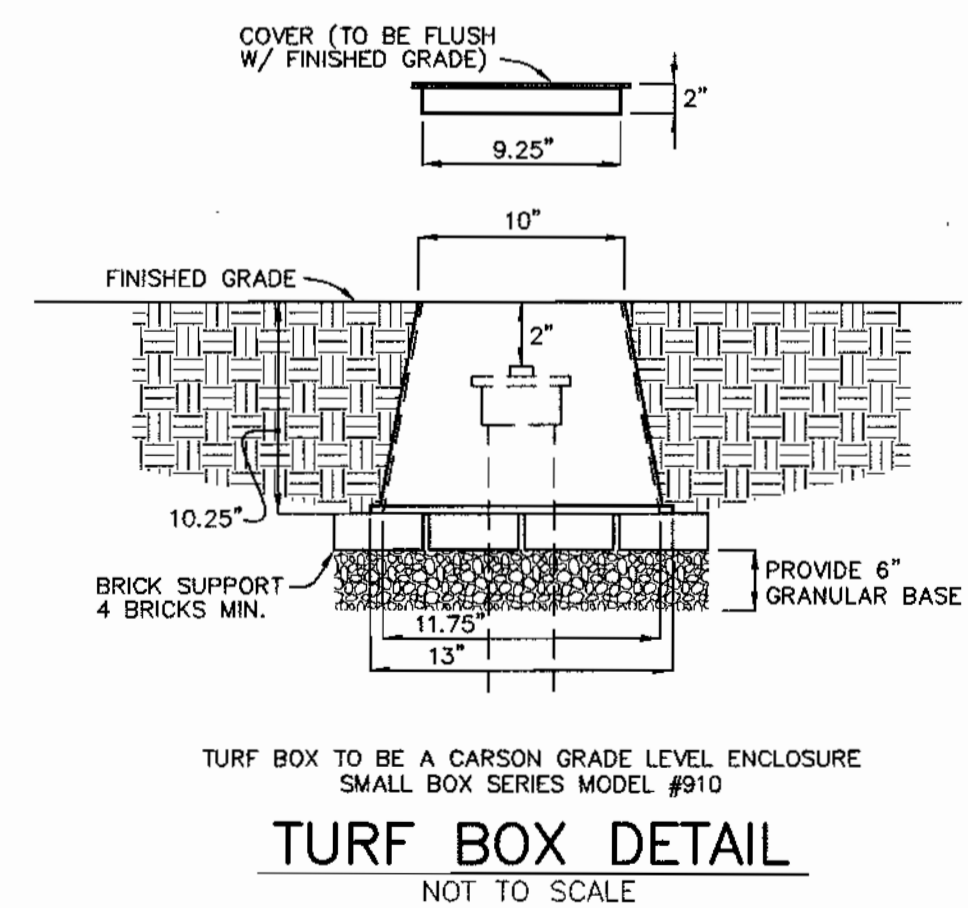


TYPICAL DUPLEX GRINDER PUMP (MODEL #2014)
NOT TO SCALE



ENVIRONMENT ONE GRINDER PUMP DATA TABLE							
LOTS	TOP ELEV.	BOTTOM ELEV.	DEPTH	INLET ELEV.	DISCHARGE ELEV.	CONC. ANCHOR VOLUME	REMARKS
9 & 10	548.5	538.5	10.00' (120")	541.17	541.75	35.7 C.F.	MODEL NO. 2014 (DUPLX)
11 & 12	552.0	542.0	10.00' (120")	544.67	545.25	35.7 C.F.	MODEL NO. 2014 (DUPLX)
19 & 20	550.5	540.5	10.00' (120")	543.17	543.75	35.7 C.F.	MODEL NO. 2014 (DUPLX)
21 & 22	548.0	538.0	10.00' (120")	540.67	541.25	35.7 C.F.	MODEL NO. 2014 (DUPLX)

NOTE: SEE MANUFACTURER'S MANUAL FOR GRINDER PUMP INSTALLATION REQUIREMENT, PROCEDURE, AND ELECTRICAL CONNECTION.



APPROVED:
FOR PRIVATE WATER AND PUBLIC SEWERAGE SYSTEMS
HOWARD COUNTY HEALTH DEPARTMENT
[Signature]
COUNTY HEALTH OFFICER
DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
[Signature] 9-15-04
CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
[Signature] 10/15/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION

BENCHMARK
ENGINEERS & LAND SURVEYORS & PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE & SUITE 418
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-465-8105 FAX: 410-465-8644

Donald Moran
9/1/04

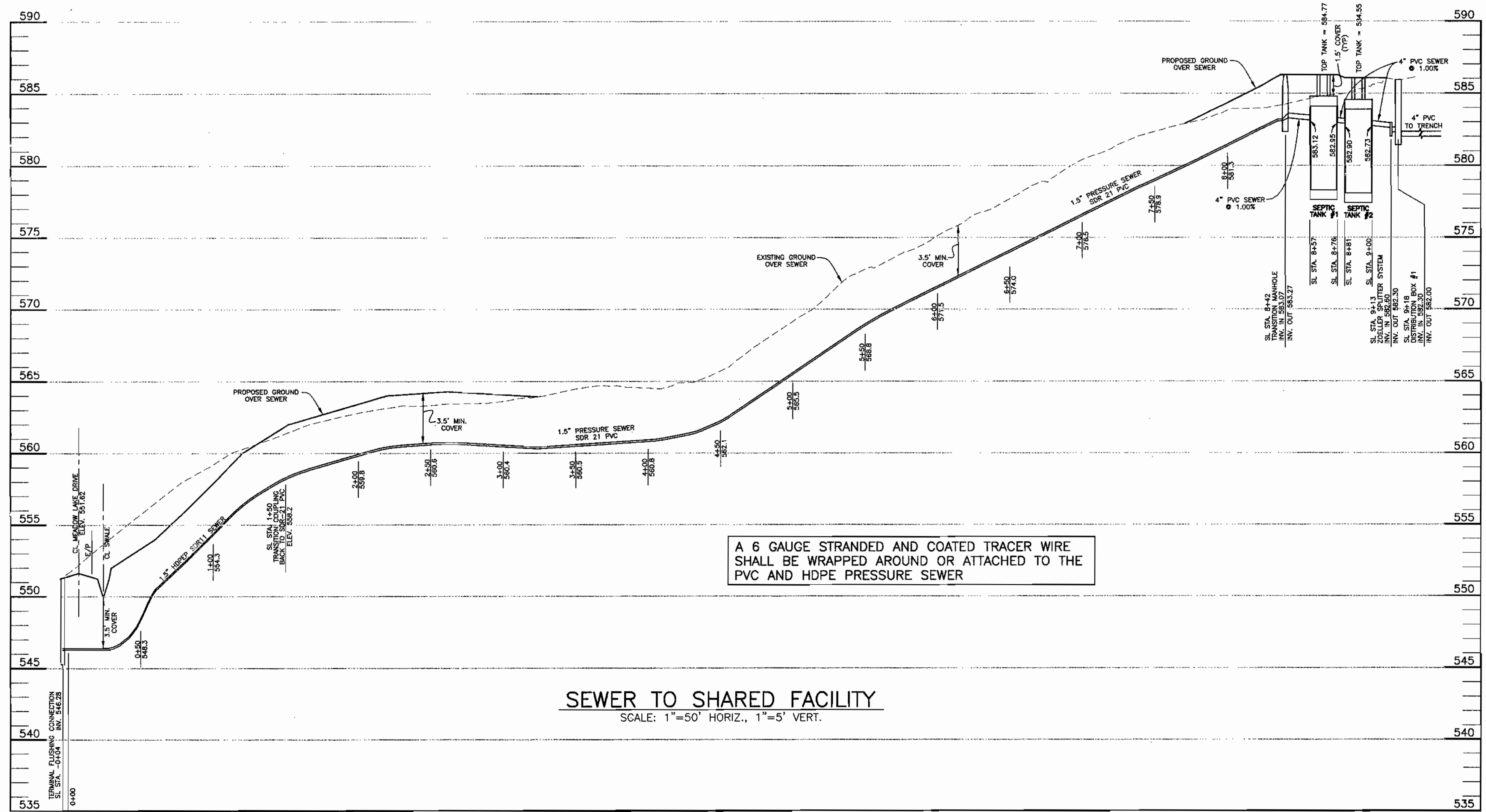
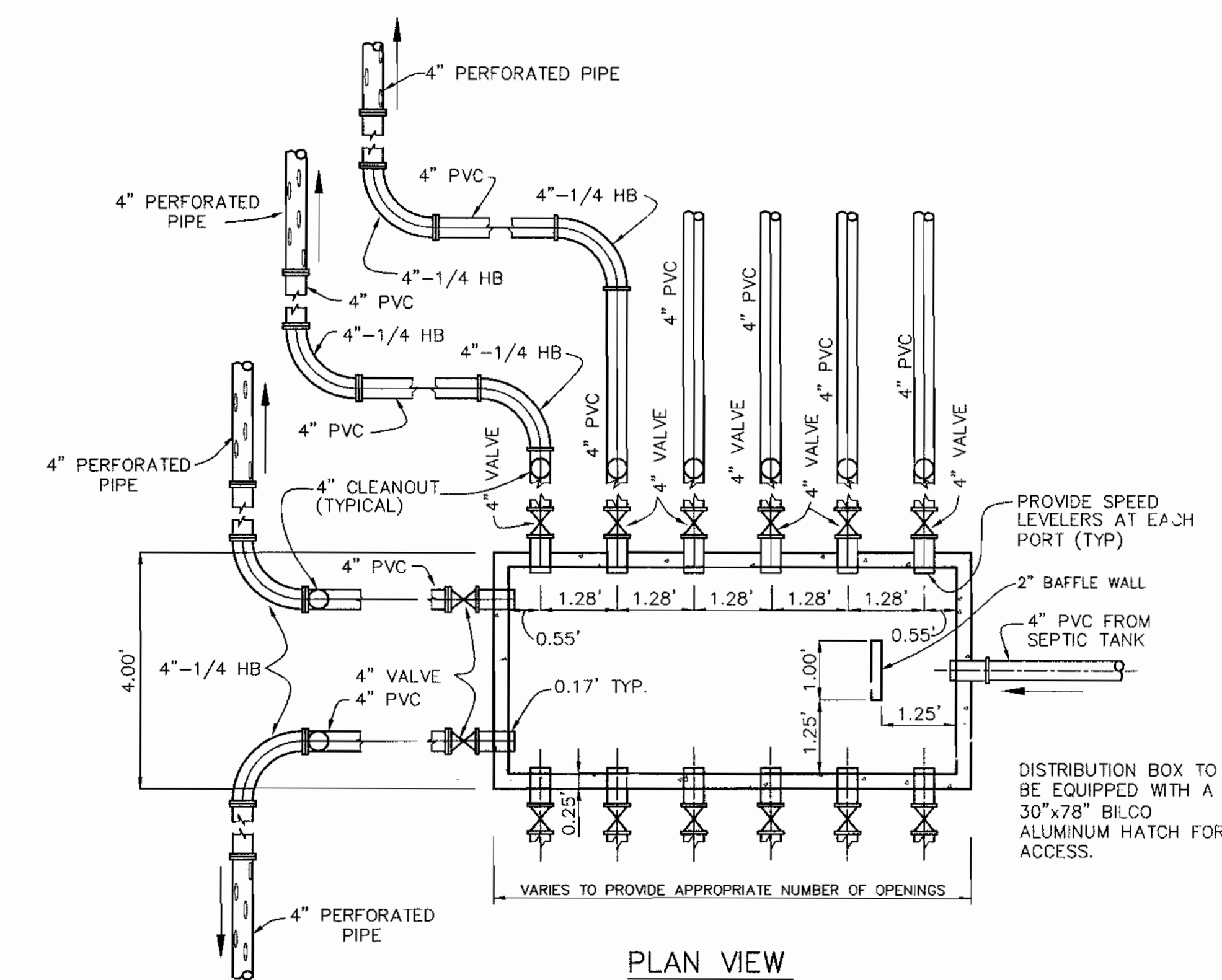
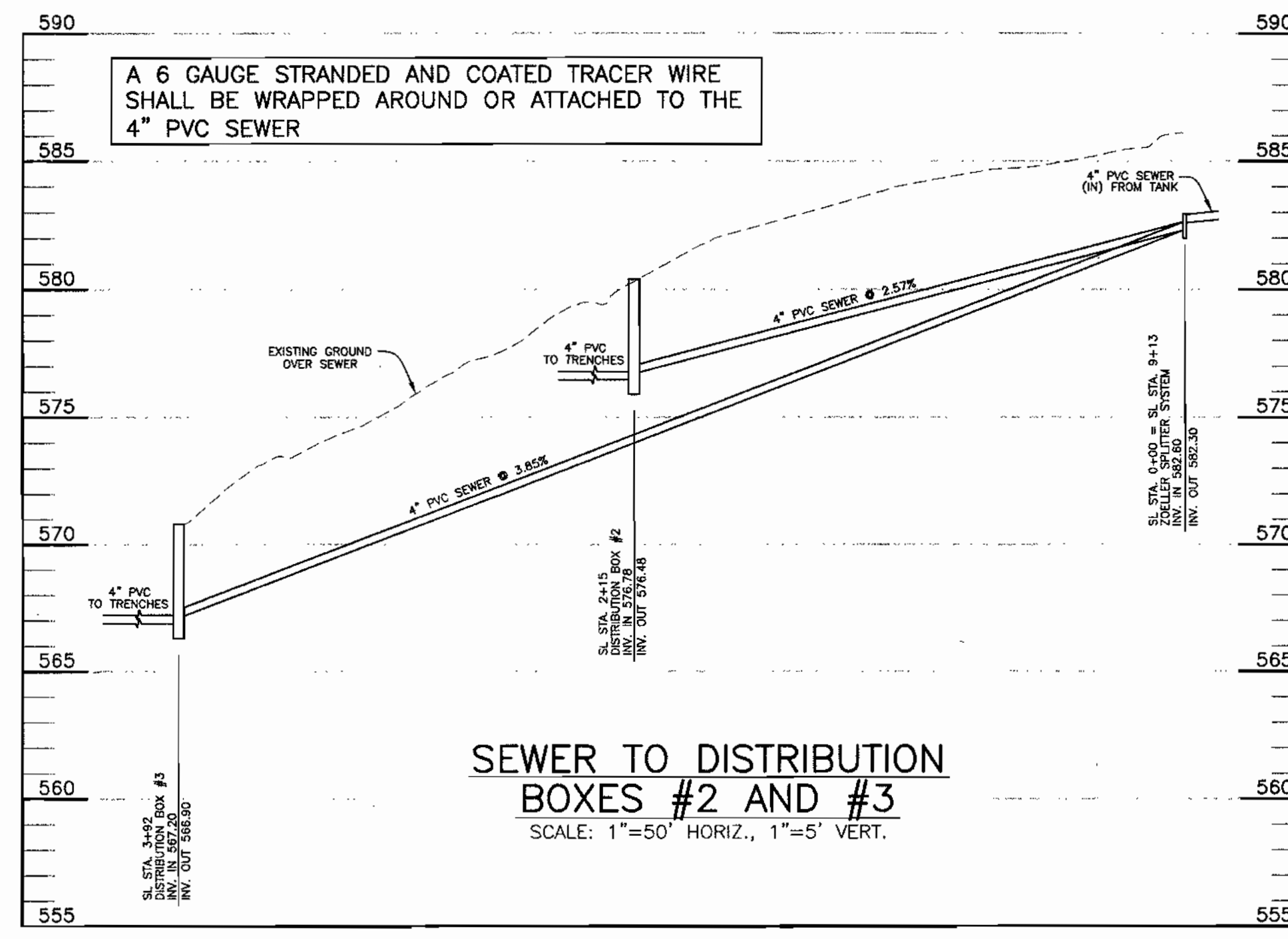
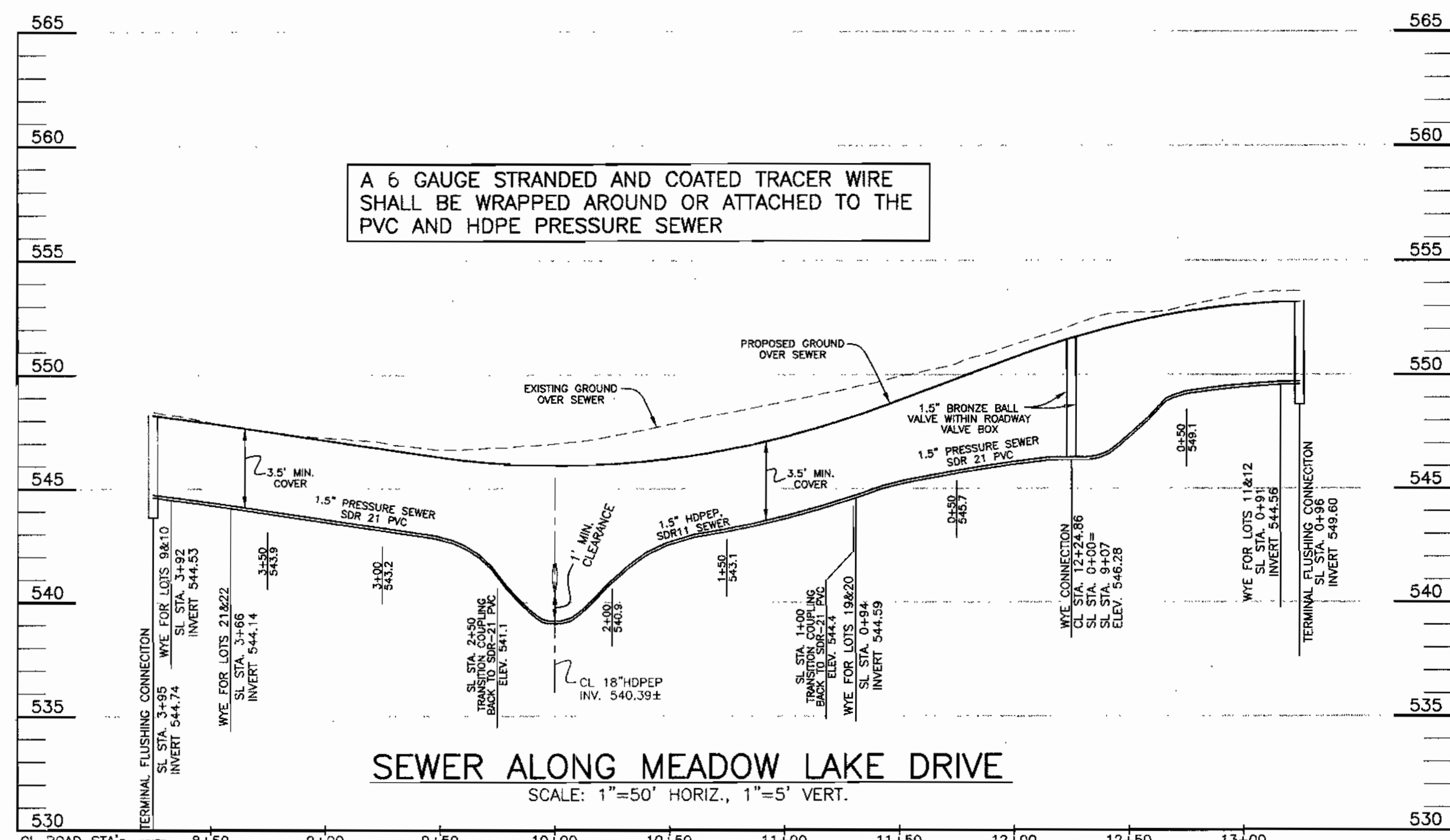
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DRAFT:	DBT				
CHK:	DAM				
DATE:	9-1-04				
BY:	NO.				
REVISIONS					

DETAILS

600 SCALE MAP NO. 50 BLOCK 3

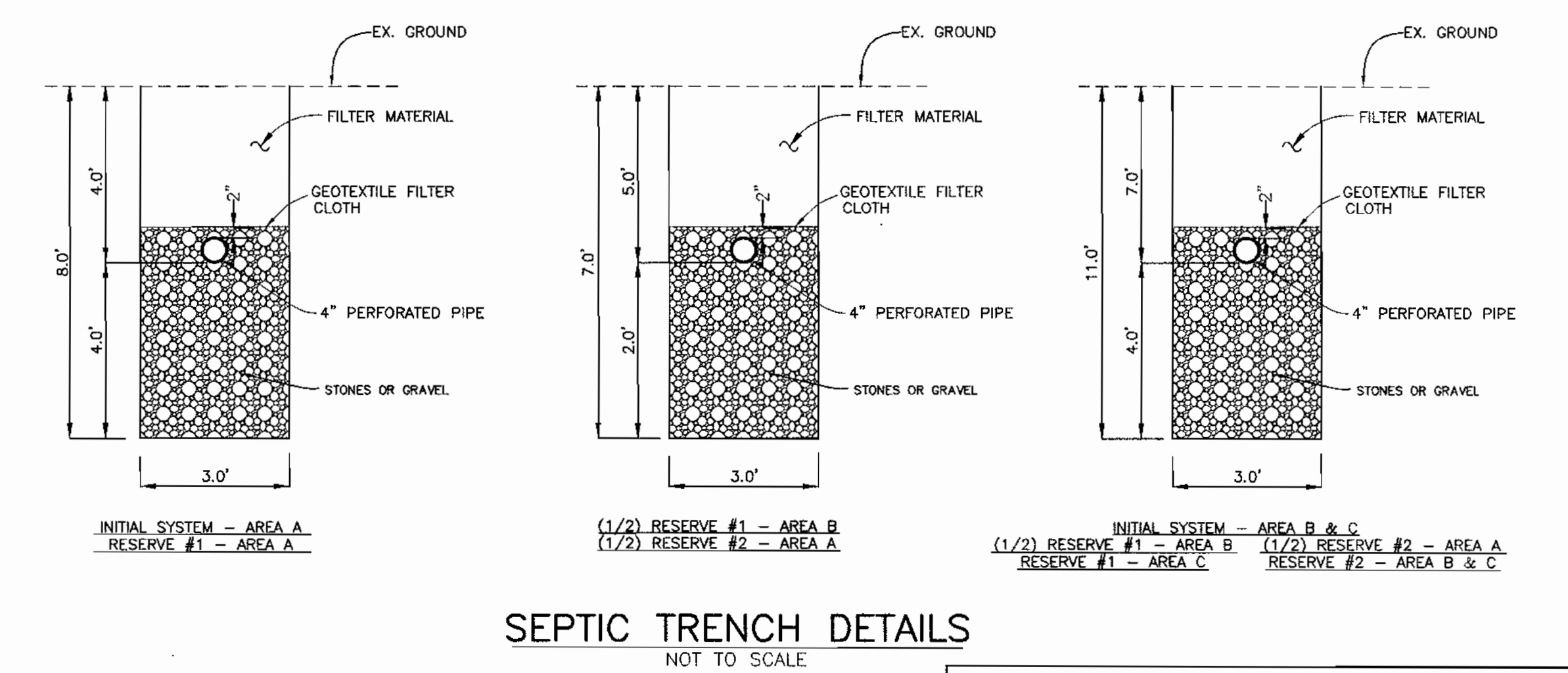
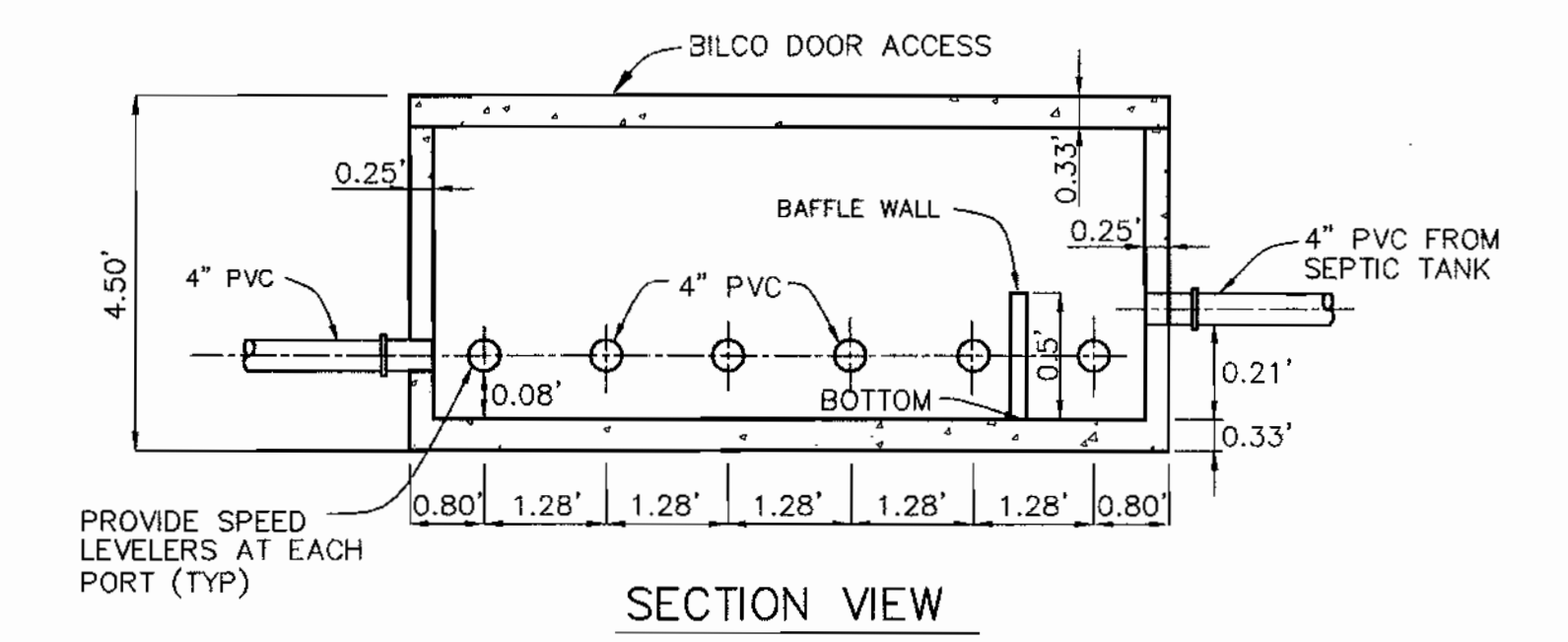
TRIADELPHIA CROSSING
LOTS 1 THRU 22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H'
AND NON-BUILDABLE BULK PARCEL 'I'
FOURTH ELECTION DISTRICT
CONTRACT NO. 50-4207-D

SCALE:
AS SHOWN
SHEET NO.
3 OF 4



DISTRIBUTION BOX DATA		
BOX NO.	INLET SIDE	TOP ELEV.
BOX #1	N 579541.18 E 1308808.93	586.26
BOX #2	N 579577.76 E 1308596.00	580.40
BOX #3	N 579606.09 E 1308420.50	570.70

COORDINATE LOCATION IS AT THE TOP CENTER OF BOX.



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

[Signature]
COUNTY HEALTH OFFICER

[Signature]
DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature]
CHIEF, BUREAU OF UTILITIES

9-15-04
DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

[Signature]
CHIEF, DEVELOPMENT ENGINEERING DIVISION

10/15/04
DATE

BENCHMARK
ENGINEERS • LAND SURVEYORS • PLANNERS
ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE • SUITE 418
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-485-8105 FAX: 410-485-8644

[Signature]
9/1/04

DESIGN: DBT				
DRAFT: DBT				
CHK: DAM				
DATE: 9-1-04	BY NO.	REVISIONS	DATE	

PROFILE OF SEWER MAINS AND DETAILS

600 SCALE MAP NO. 50

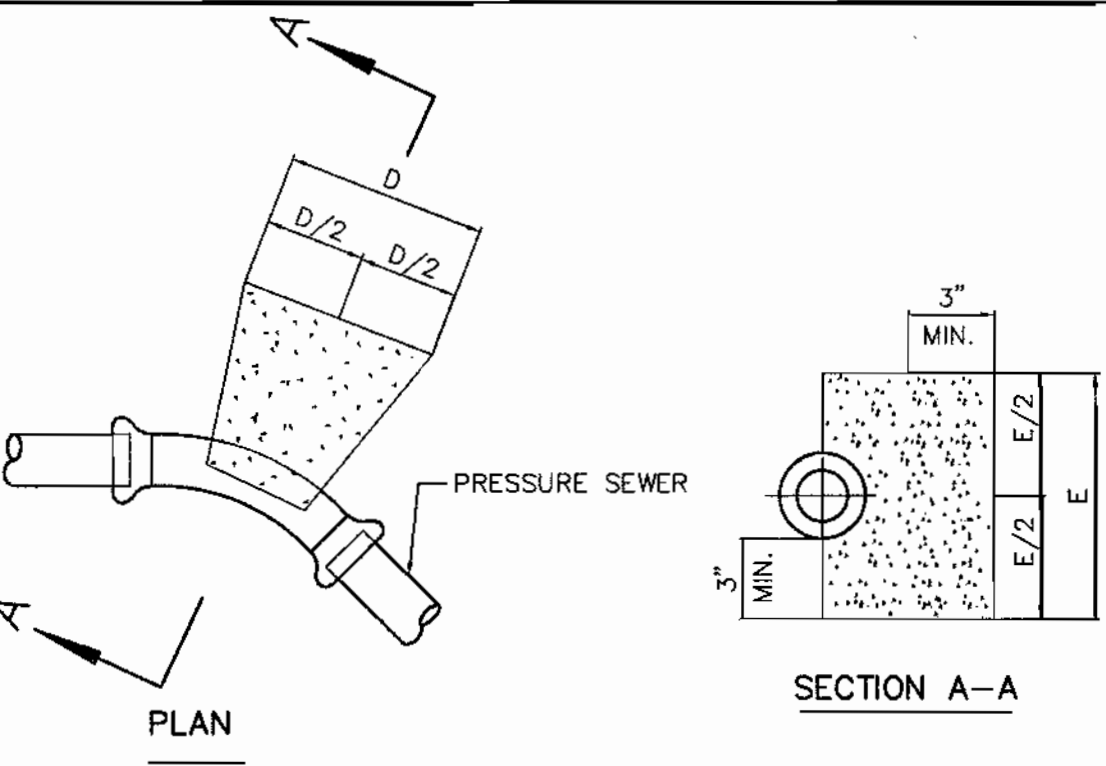
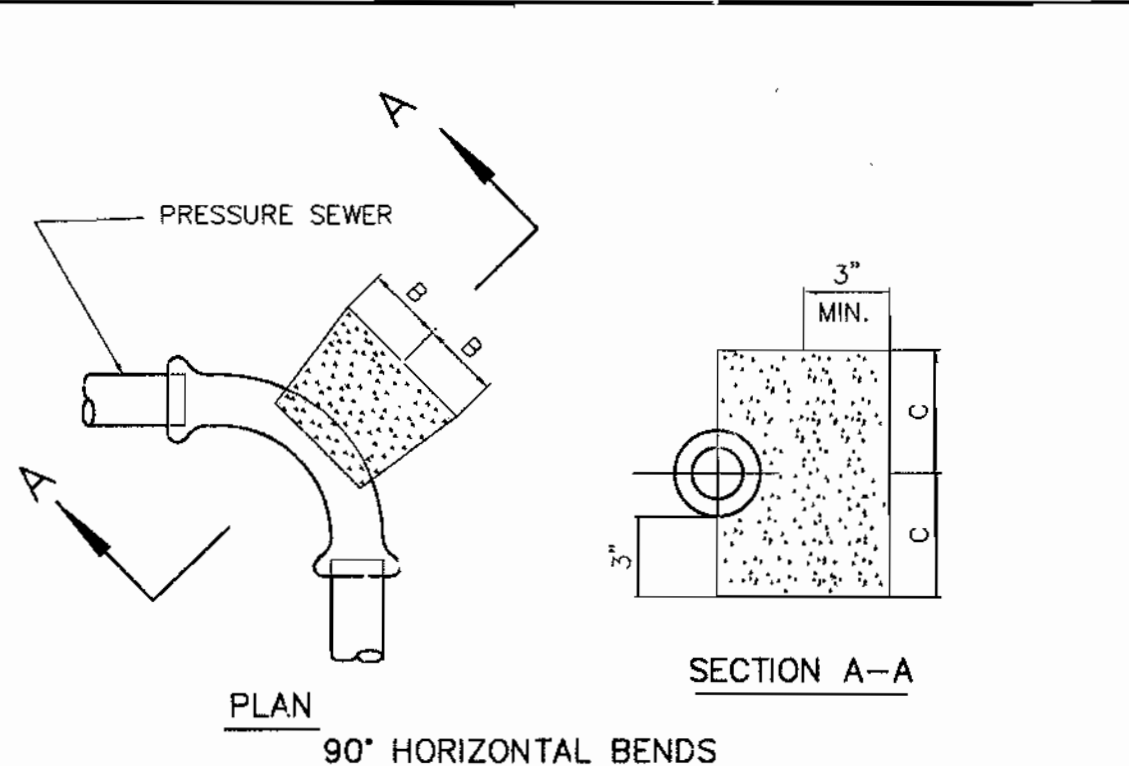
BLOCK 3

TRIADELPHIA CROSSING
LOTS 1 THRU 22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

FOURTH ELECTION DISTRICT
CONTRACT NO. 50-4207-D

SCALE:
AS SHOWN

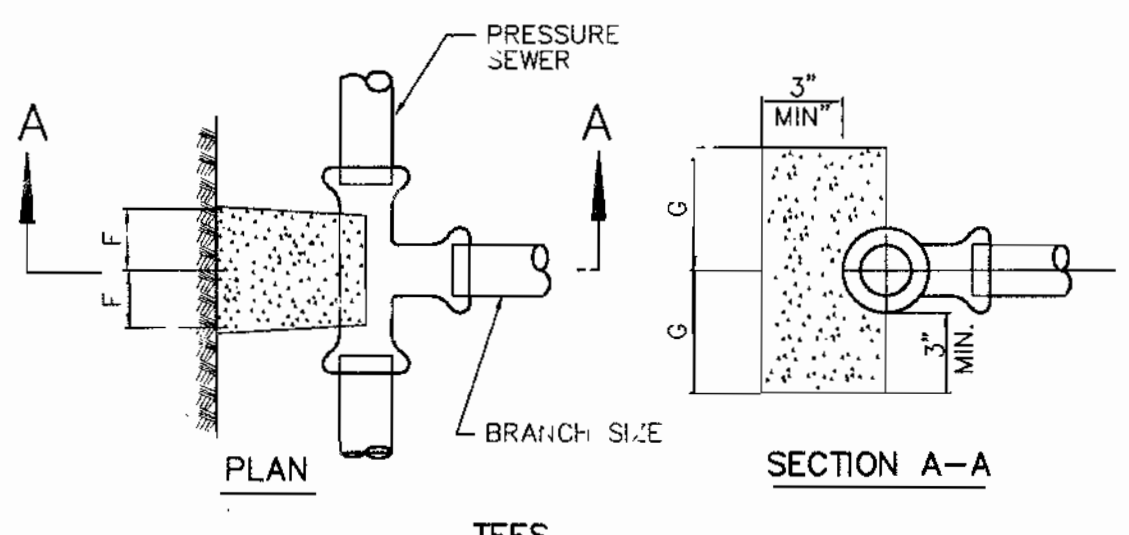
SHEET NO.
2 OF 4



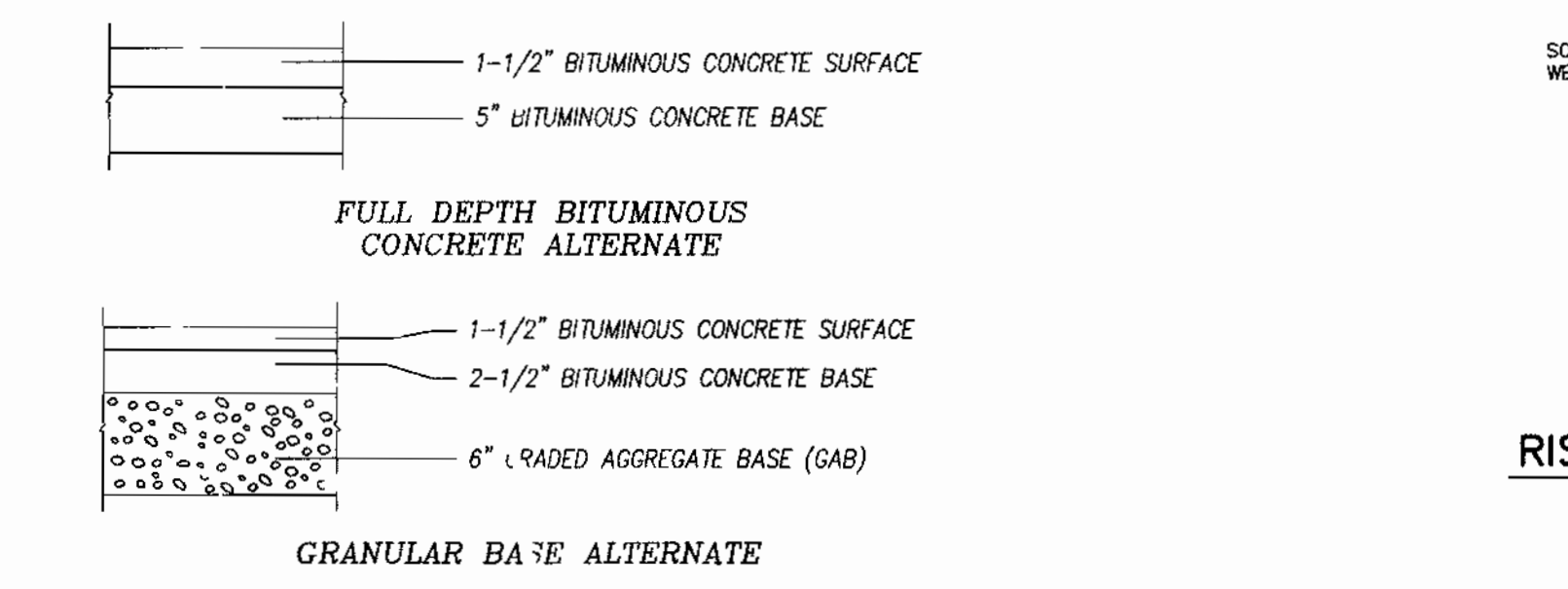
11-1/4, 22-1/2, 45° HORIZONTAL & LOWER VERTICAL BENDS

PIPE SIZE	B	C	D	E	F	G
1-1/4" & 1-1/2"	4"	4"	5"	5"	3"	3"
2"	5"	5"	7"	7"	5"	5"

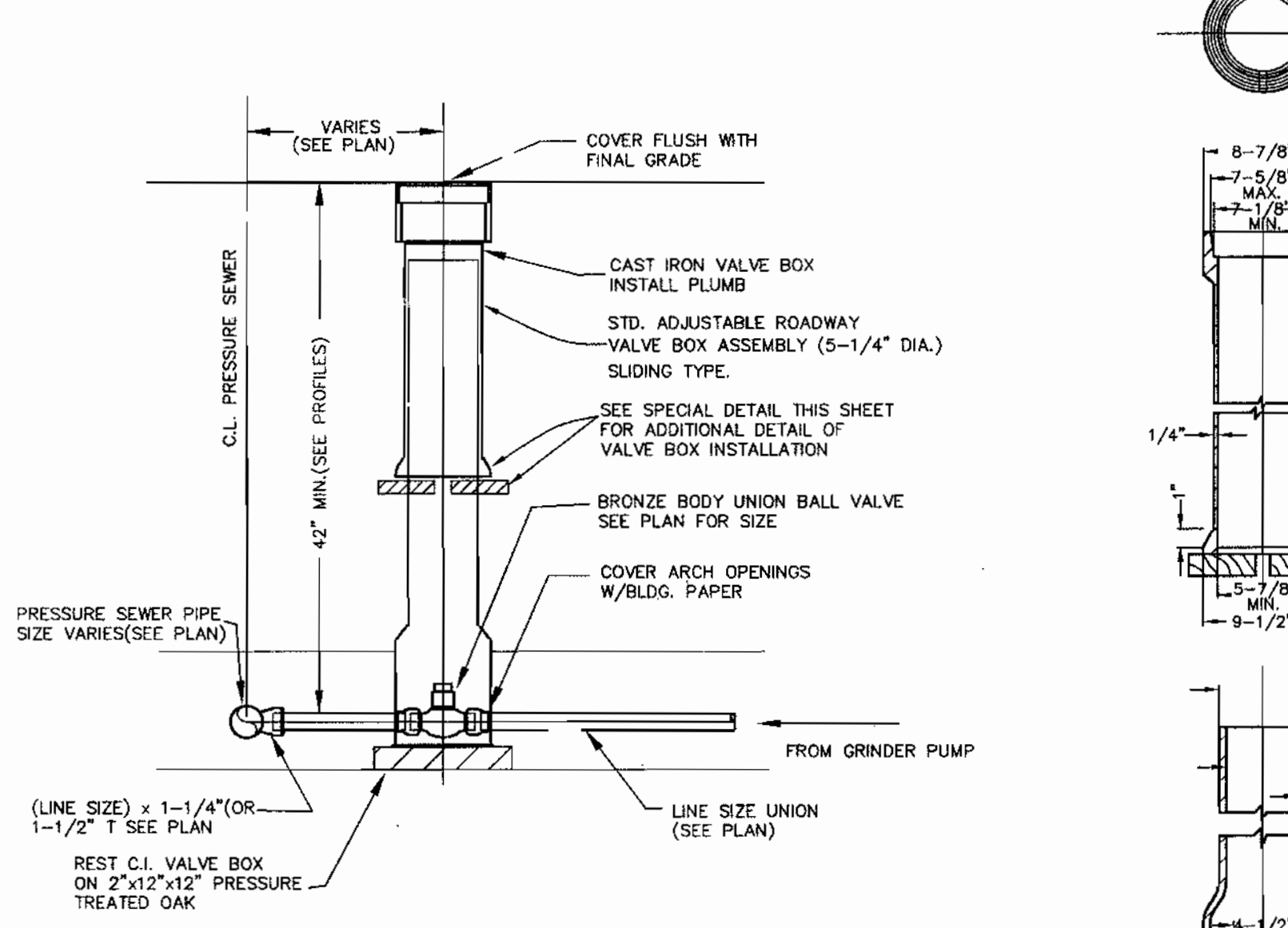
- NOTES:
- f_c = 3000 psi @ 28 DAYS.
 - CARRY ALL BEARING SURFACE TO UNDISTURBED GROUND OR FIRM SUBGRADE.
 - BUTTRESS SIZED FOR 150 psi.
 - DO NOT ENCASE JOINTS.



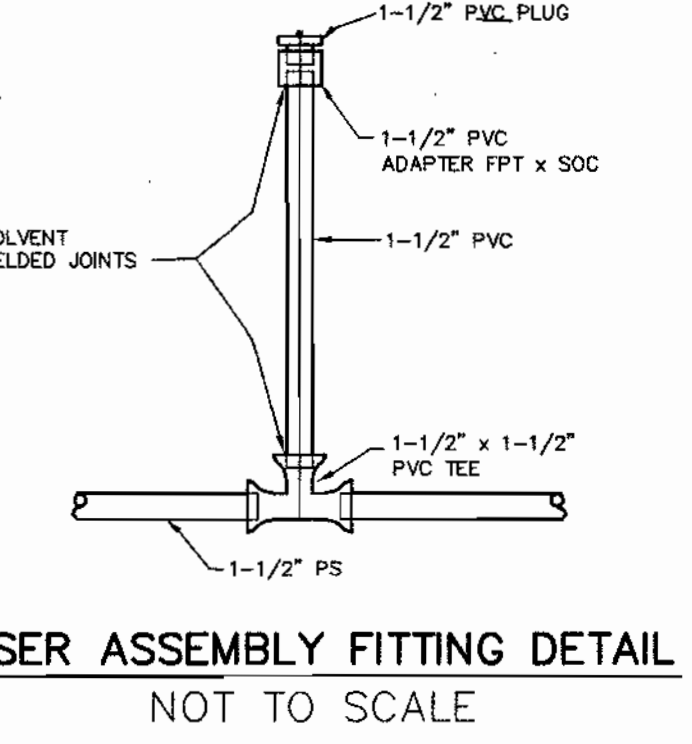
PRESSURE SEWER BLOCKING DETAILS NOT TO SCALE



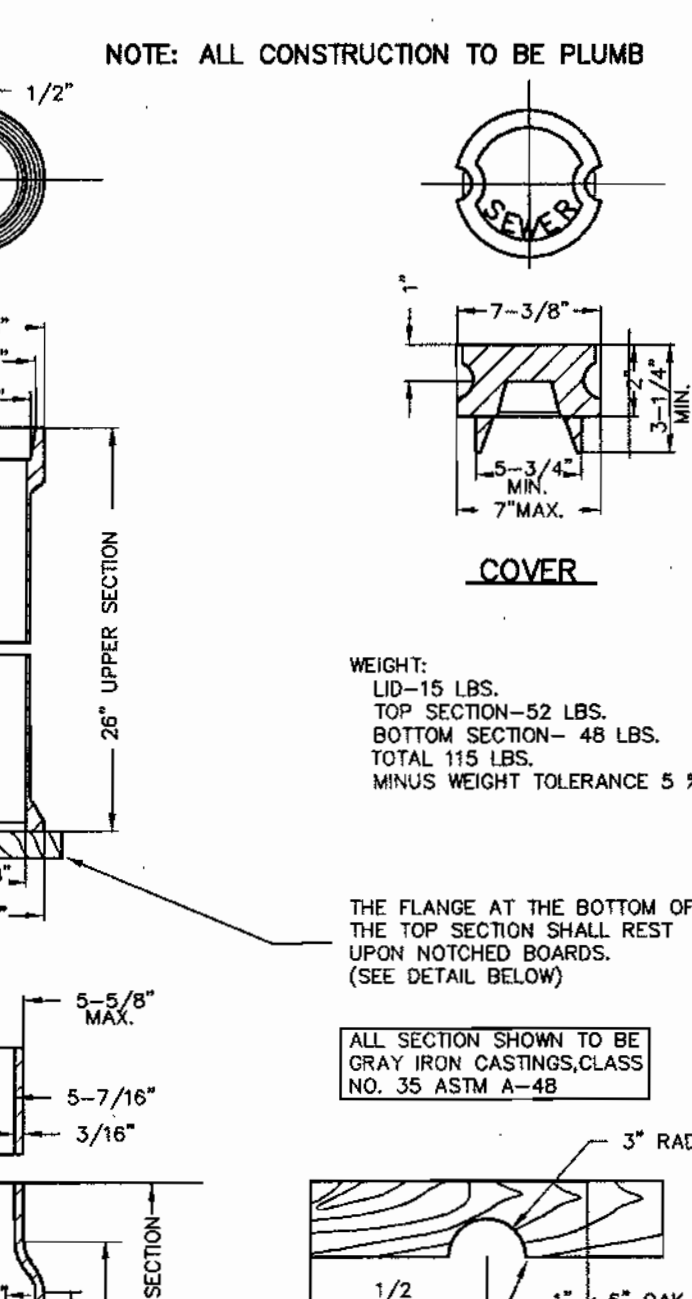
PAVING SECTION P-2 NOT TO SCALE



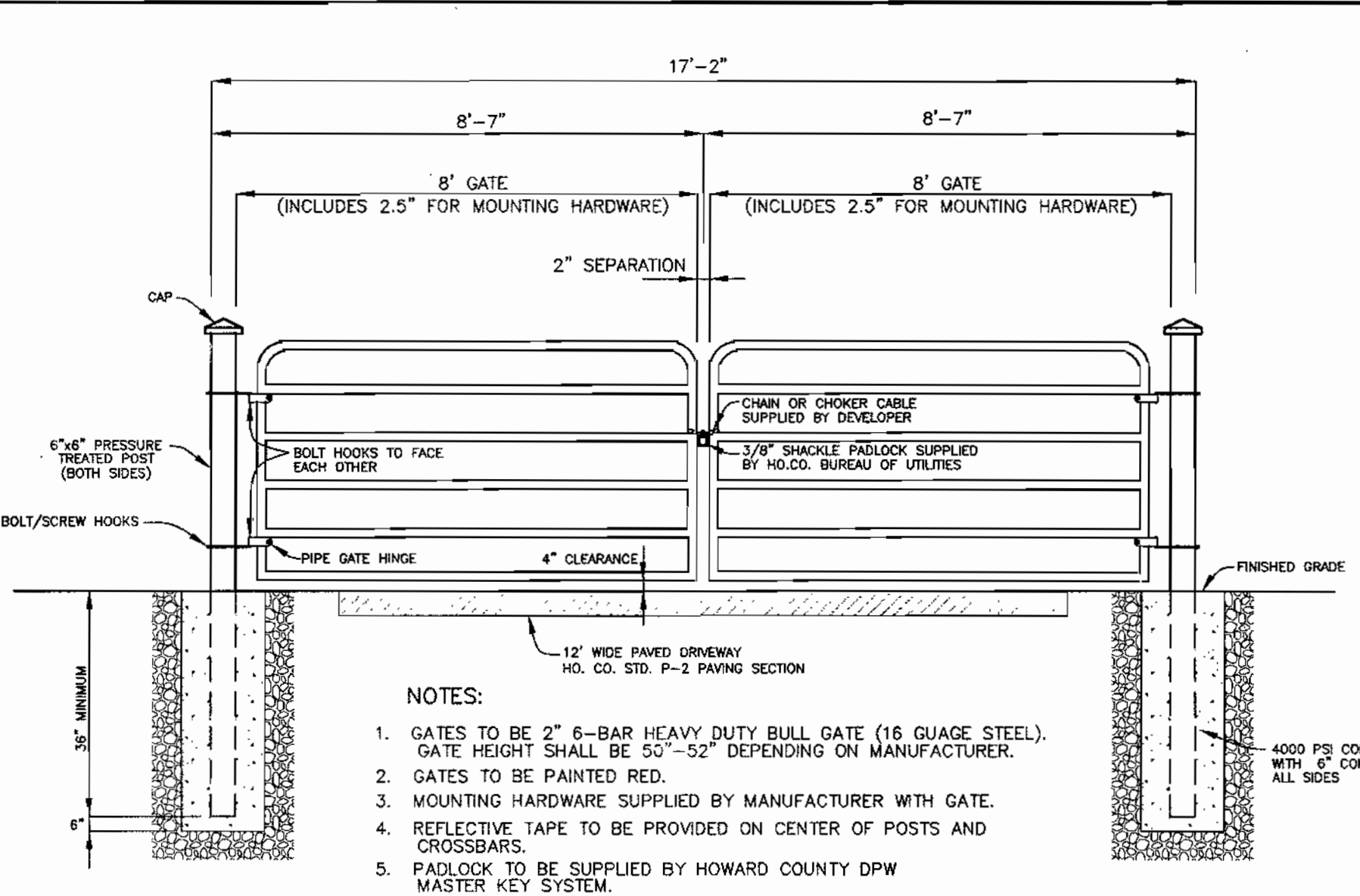
UNION BALL VALVE ASSEMBLY NOT TO SCALE



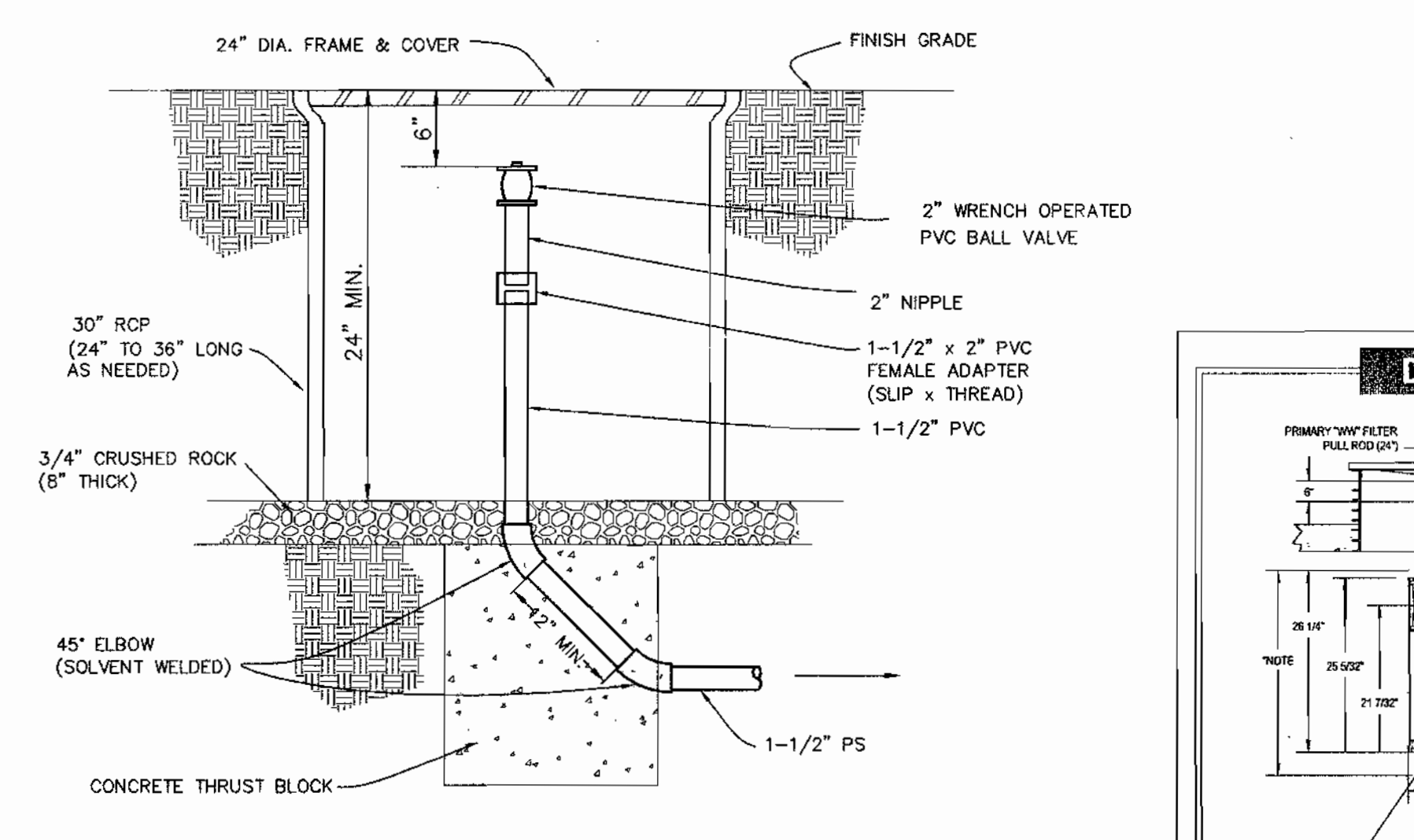
RISER ASSEMBLY FITTING DETAIL NOT TO SCALE



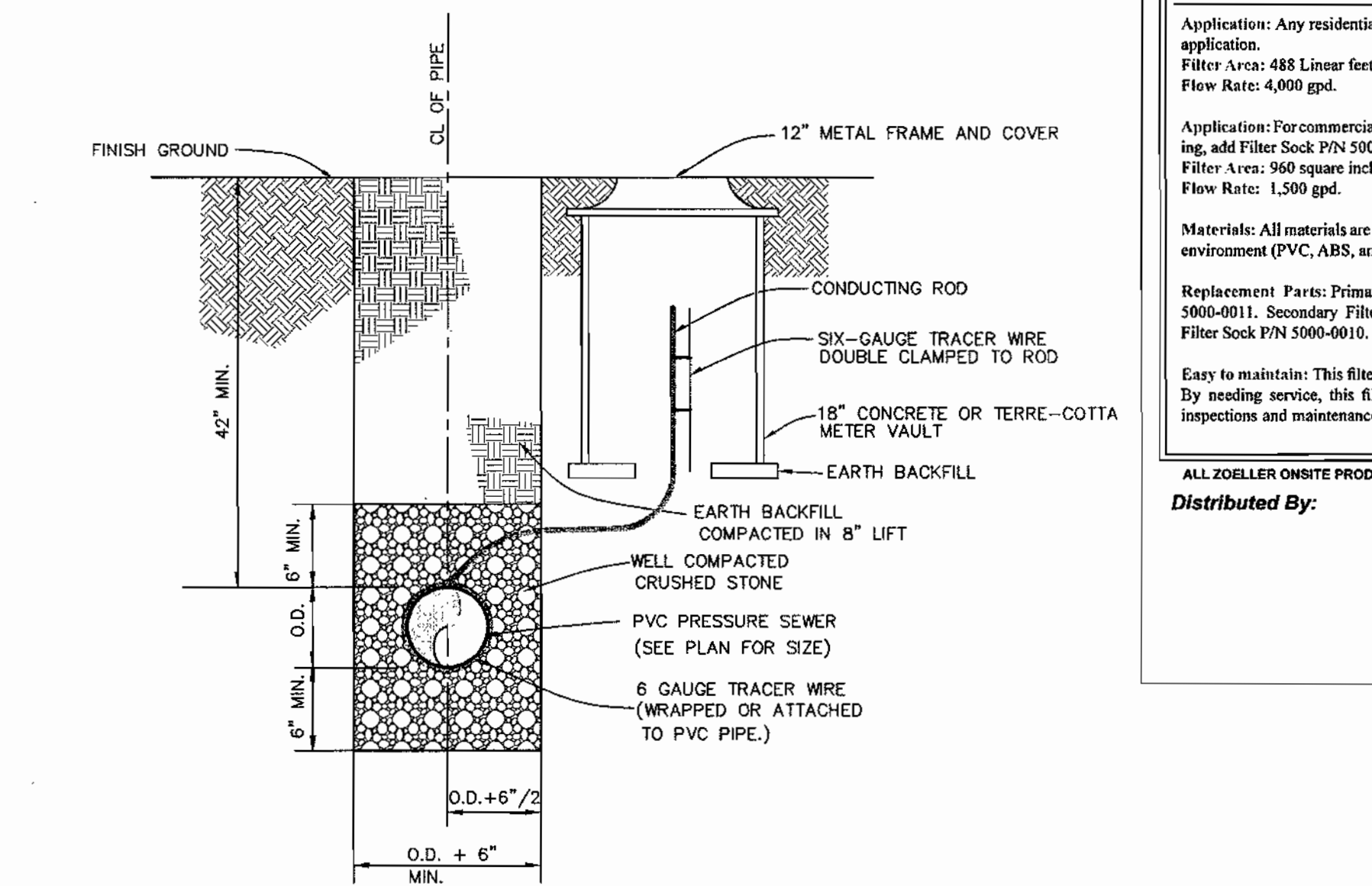
ADJUSTABLE VALVE BOX ROUND HEAD SLIDING TYPE NOT TO SCALE



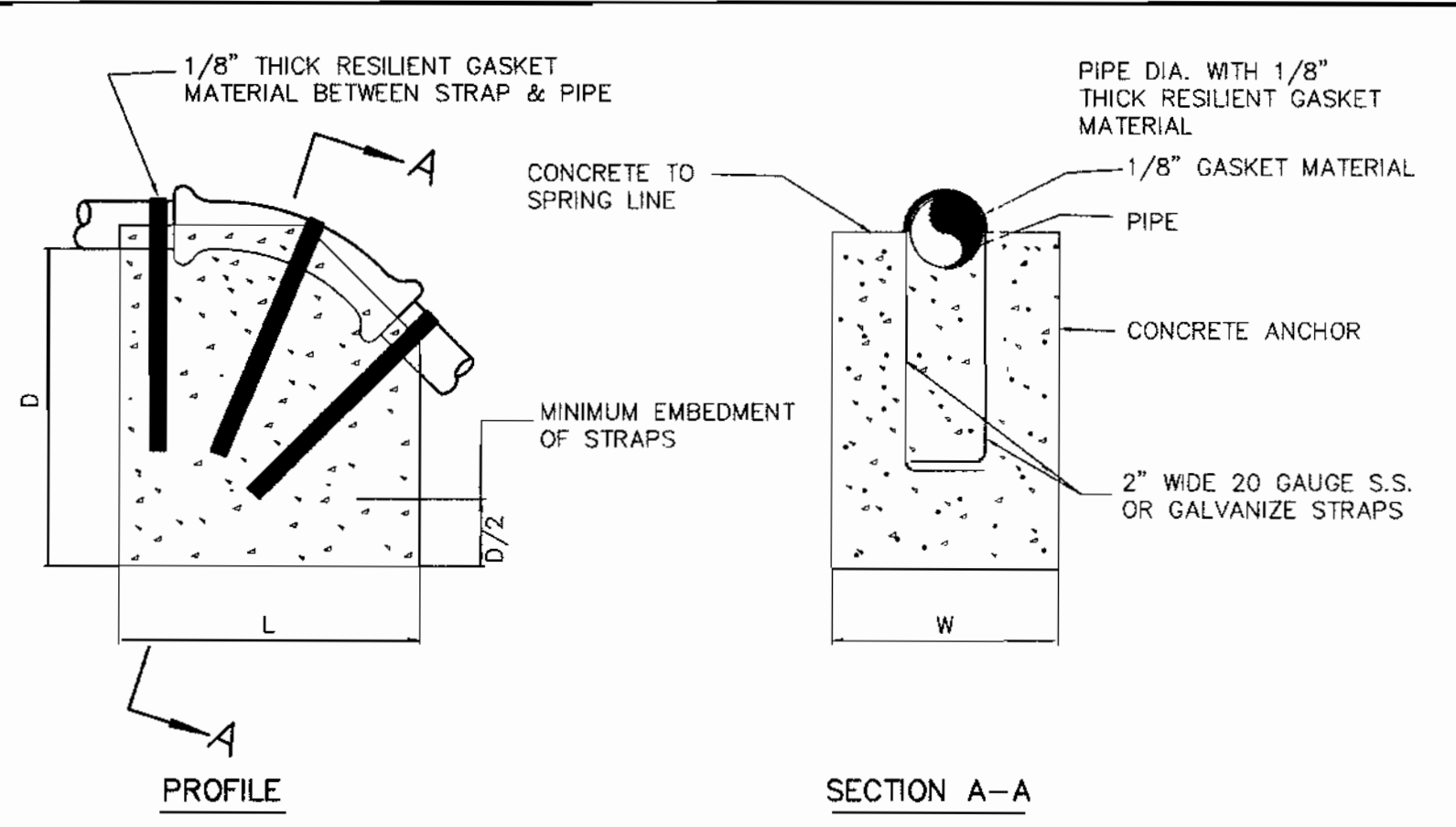
GATE DETAIL NOT TO SCALE



TERMINAL FLUSHING CONNECTION NOT TO SCALE



PRESSURE SEWER TRENCH, BEDDING & CONDUCTING ROD CABLE BOX LOCATION DETAIL NOT TO SCALE



BEND	1-1/4"	1-1/2"
11-1/4"	L	12" 12"
	W	10" 10"
	D	10" 10"
22-1/2"	L	15" 15"
	W	15" 15"
	D	12" 12"
45°	L	20" 20"
	W	20" 20"
	D	12" 12"

ANCHORING PRESSURE SEWERS (UPPER VERTICAL BEND) NOT TO SCALE

Deluxe Effluent Filter Specifications

NOTE: State and local plumbing codes may require a specific fluid penetration. For example, 25% 40/100 mesh sand or 2" of fine bank bottom.

Application: Any residential or commercial filtering application. Filter Area: 488 Linear feet of 1/16" filtration slots. Flow Rate: 4,000 gpd.

Application: For commercial filtering requiring 1/32" filtering, add Filter Sock P/N 5000-0010 to Deluxe Filter. Filter Area: 960 square inches of 1/32" filtration. Flow Rate: 1,500 gpd.

Materials: All materials are noncorrosive in the septic tank environment (PVC, ABS, and Polyethylene).

Replacement Parts: Primary "W-W" Filter Assembly P/N 5000-0011. Secondary Filter Assembly P/N 5000-0012. Filter Sock P/N 5000-0010.

Easy to maintain: This filter will require periodic service. By needing service, this filter facilitates needed system inspections and maintenance. Modern septic tanks can be free from abuse or improper installation.

Lifetime Warranty: Every Zoeller filter is guaranteed to be free from defects in materials and workmanship for the lifetime of the homeowner/purchaser. Free repair or replacement, excluding labor, will be made on return of the filter prepaid to the factory. This warranty is limited to product proven to be free from abuse or improper installation.

Distributed By: **ZOELLER PUMP CO.** 1-800-928-PUMP www.zoeller.com

Technical Specifications

SAMPLE ENGINEERING SPECIFICATION: CONTRACTOR must furnish a Zoeller Tri-Flow splitter system, model 173-0001. A concrete or plastic distribution box requiring speed levelers should not be considered equal. The assembled splitter system must be lightweight to ease the burden of installation. Product must be capable of splitting effluent from 1/10th to 30 GPM evenly into 2 to 5 distribution lines. Product must not require external water for distribution line flow balancing purposes. System must be maintainable from the surface. Bubble level will be built in for easy adjustments and service. A 4" or 6" riser pipe shall be brought to the surface for future access, inspection, and adjustment. Splitter housing shall be rigid enough to withstand the anticipated frost and traffic loading. The splitter system must be made of all non-corrosive materials. Housing shall be made of polypropylene to increase the chemical resistance to the effluent and gases present in the waste stream. Diverter shall be made of virgin ABS with Vinyzinc additive to enhance product life. Six 4" SDR 35 pipe seals shall be provided with the unit.

Distributed By: **ZOELLER PUMP CO.** 1-800-928-PUMP www.zoeller.com

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND
 DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY, MARYLAND
 R. J. B. 9-15-04
 DATE

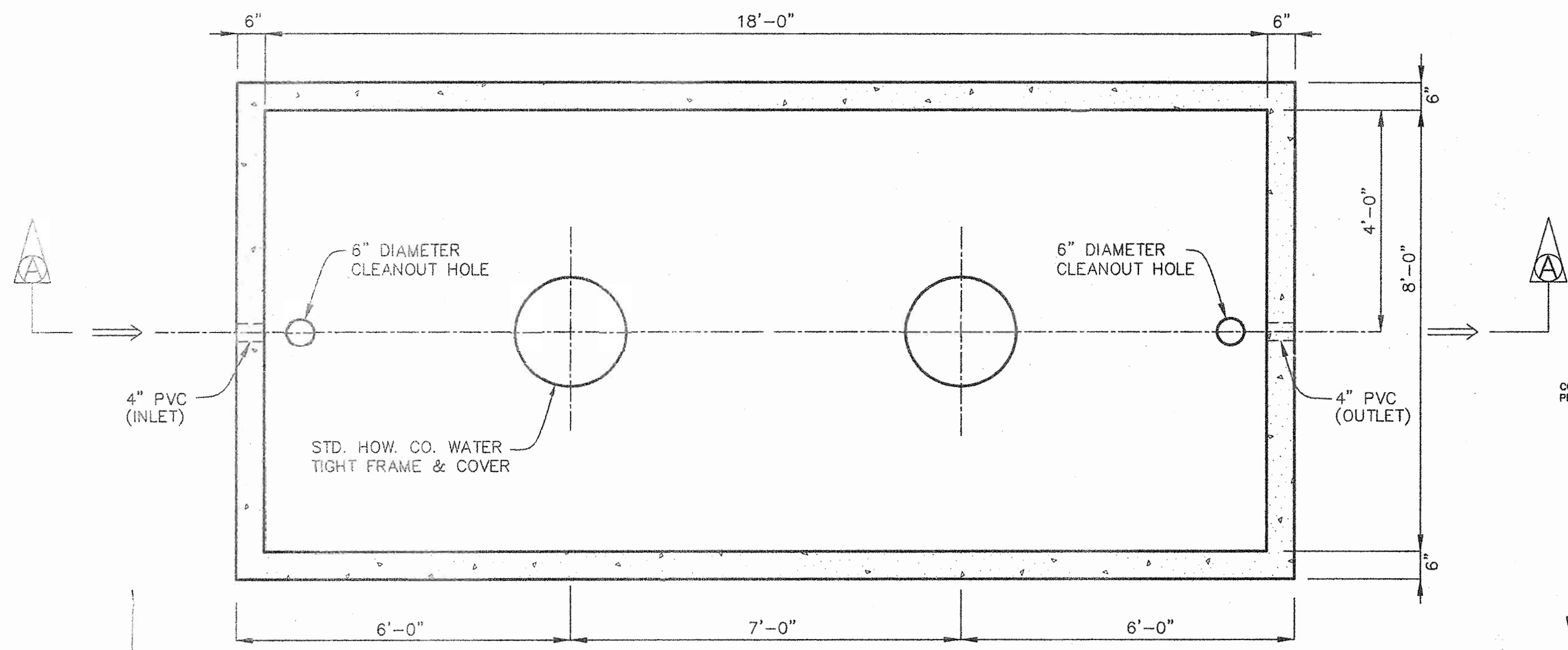
BENCHMARK ENGINEERING, INC.
 ENGINEERS • LAND SURVEYORS • PLANNERS
 8480 BALTIMORE NATIONAL PIKE • SUITE 418
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-465-6105 FAX: 410-465-6844

DESIGN: DBT
 DRAFT: DBT
 CHK: DAM
 DATE: 9-1-04
 BY NO. REVISIONS DATE

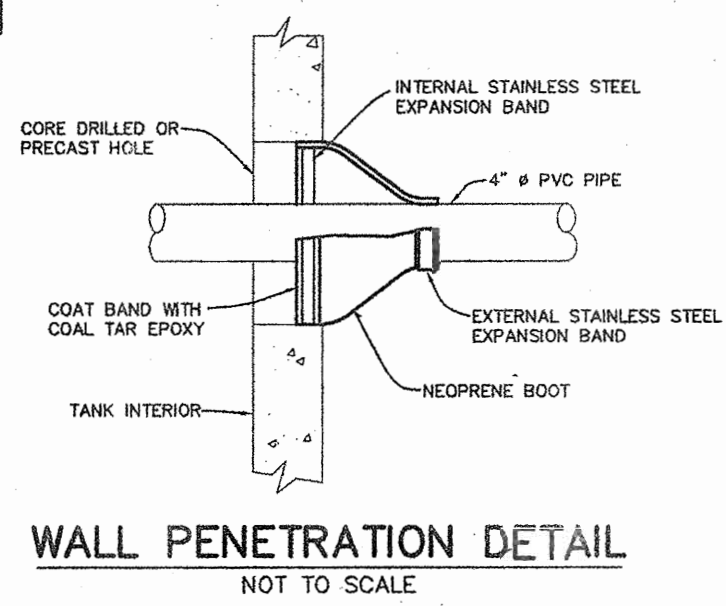
600 SCALE MAP NO. 50
 BLOCK 3

TRIADELPHIA CROSSING
 LOTS 1 THRU 22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'
 FOURTH ELECTION DISTRICT
 CONTRACT NO. 50-4207-D
 SCALE: AS SHOWN
 SHEET NO. 4 OF 4

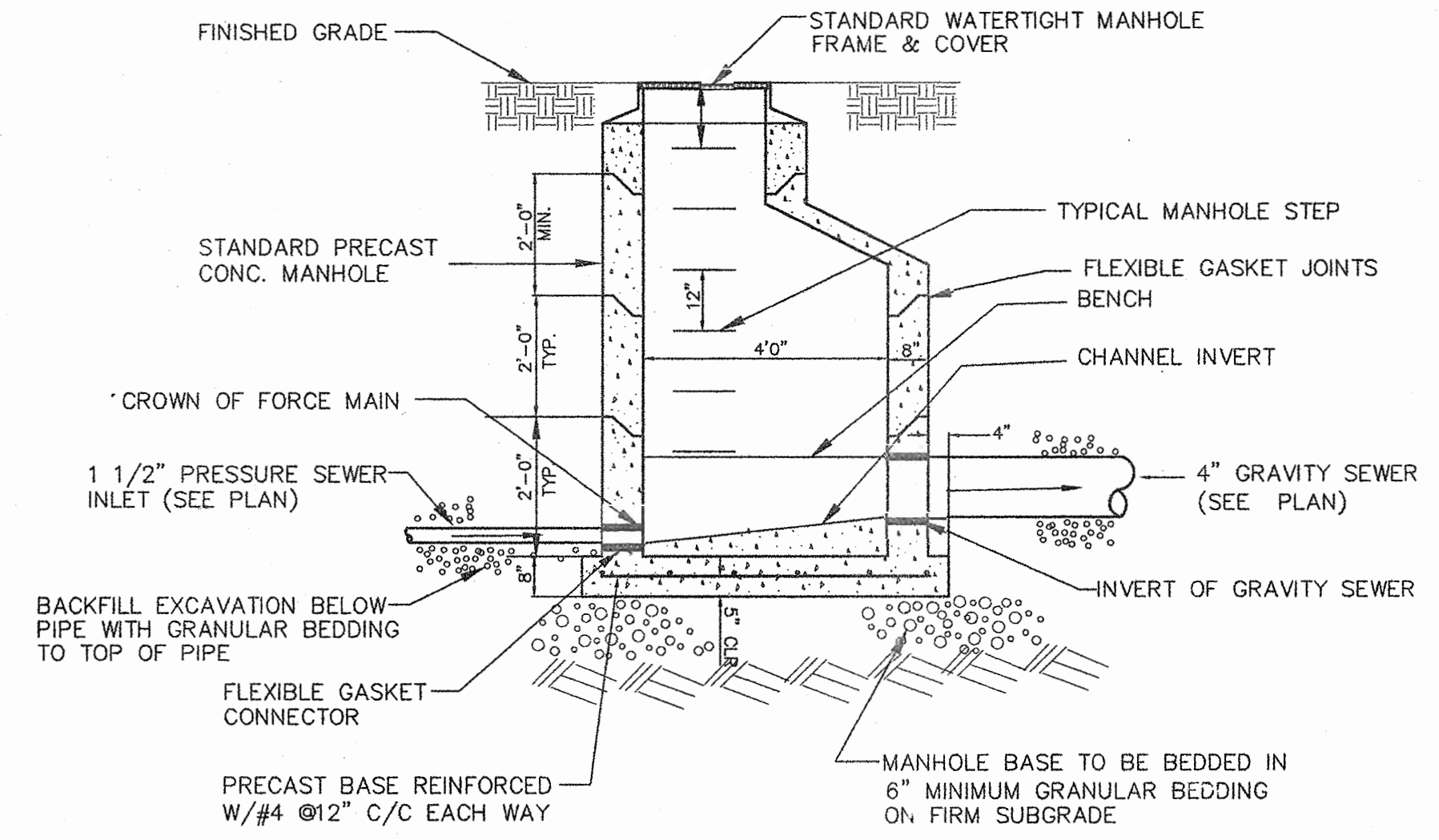
APPROVED:
 FOR PRIVATE WATER AND PUBLIC SEWERAGE SYSTEMS
 HOWARD COUNTY HEALTH DEPARTMENT
 COUNTY HEALTH OFFICER
 DATE: 10/14/04



PLAN VIEW

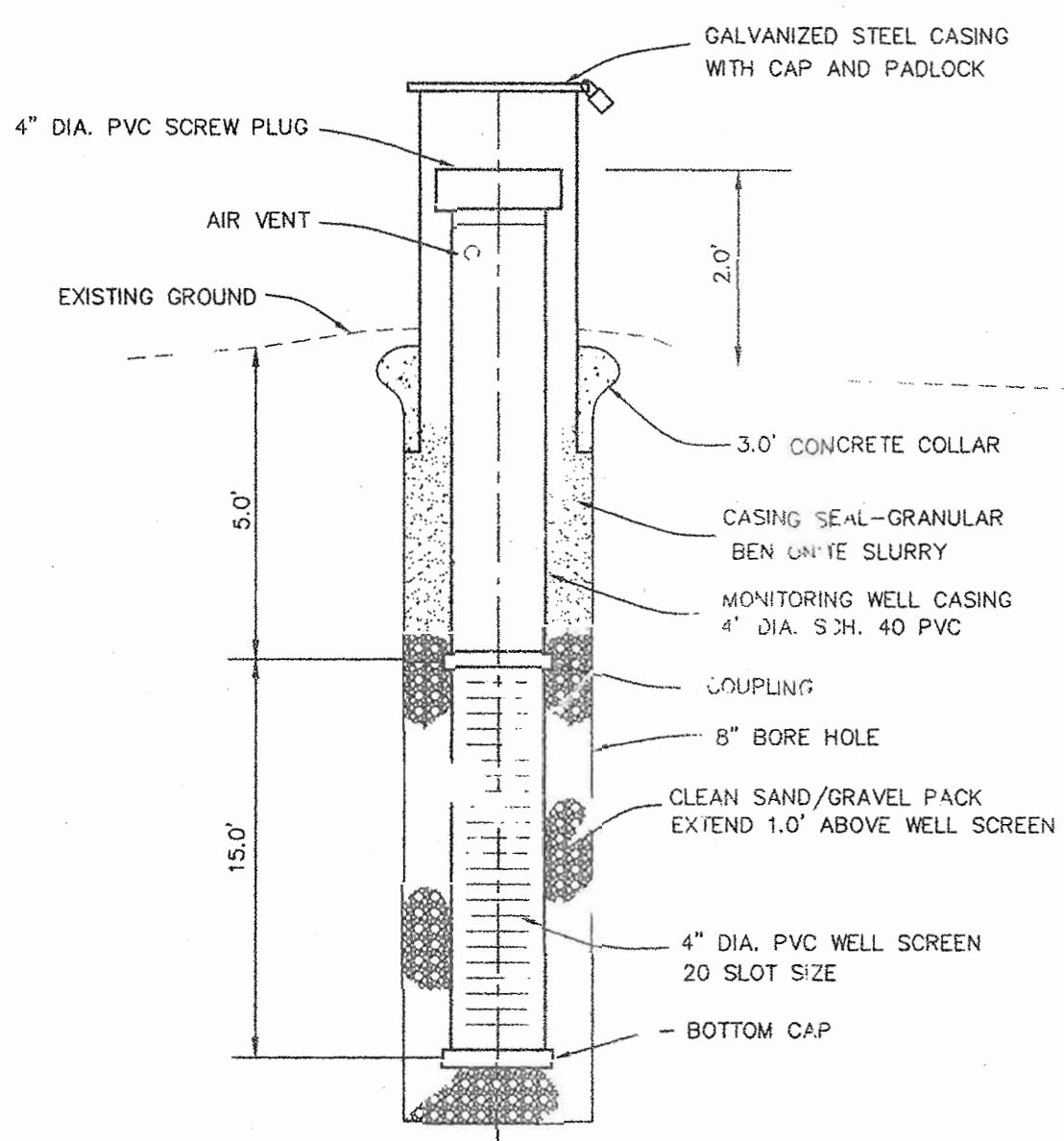


WALL PENETRATION DETAIL
NOT TO SCALE

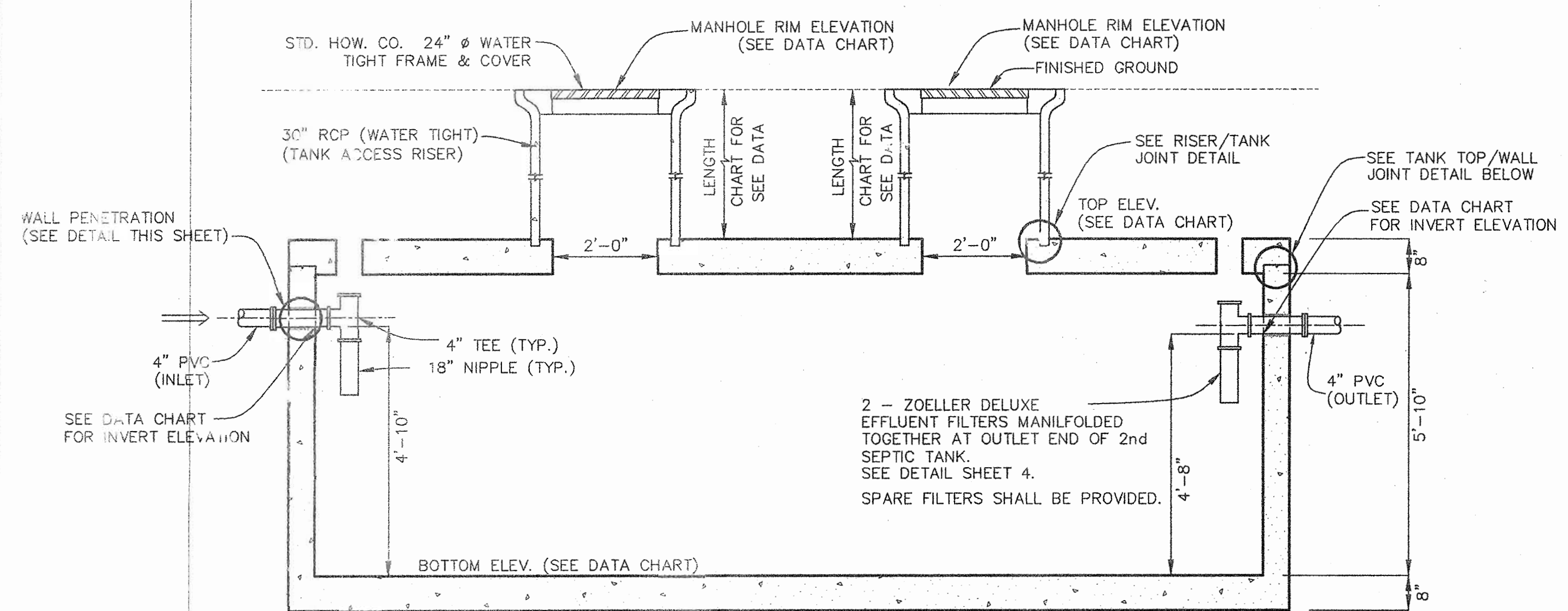


- NOTES:
- ELEVATION OF GRAVITY SEWER INVERT SHALL BE MINIMUM 0.1' ABOVE ELEVATION OF PRESSURE SEWER CROWN.
 - PROVIDE SMOOTH UPWARD SLOPING CHANNEL FROM FORCE MAIN TO GRAVITY SEWER.

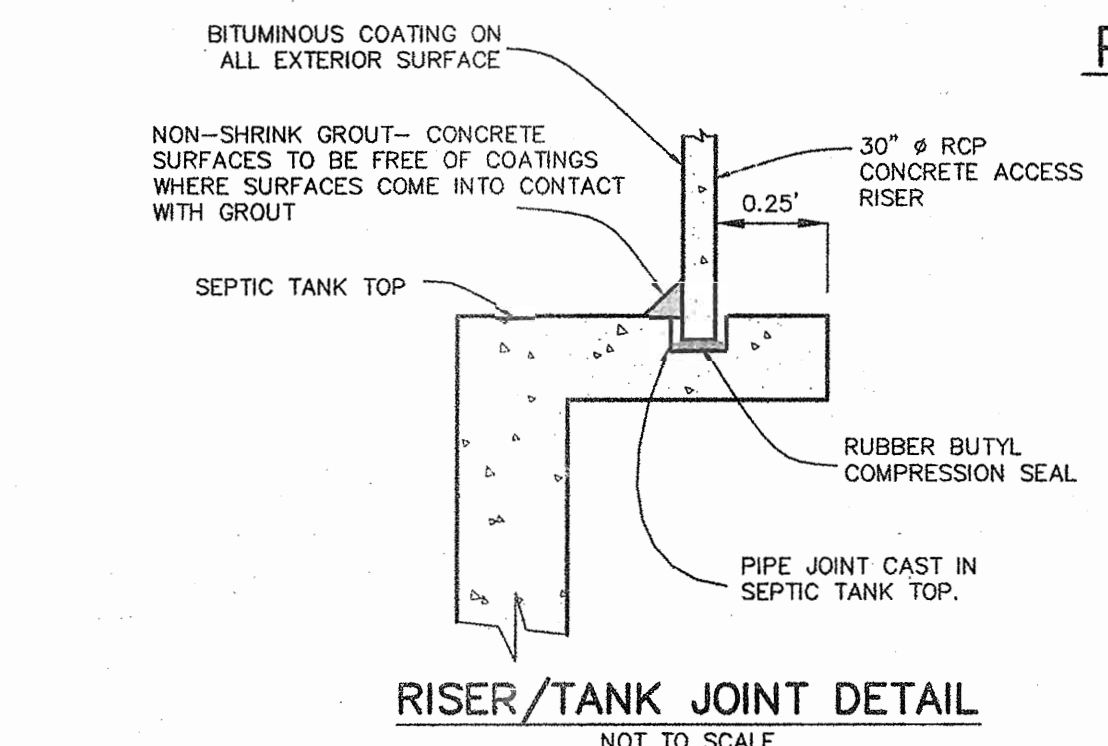
TRANSITION MANHOLE:
PRESSURE SEWER TO GRAVITY SEWER
NOT TO SCALE



MONITORING WELL DETAIL
NOT TO SCALE



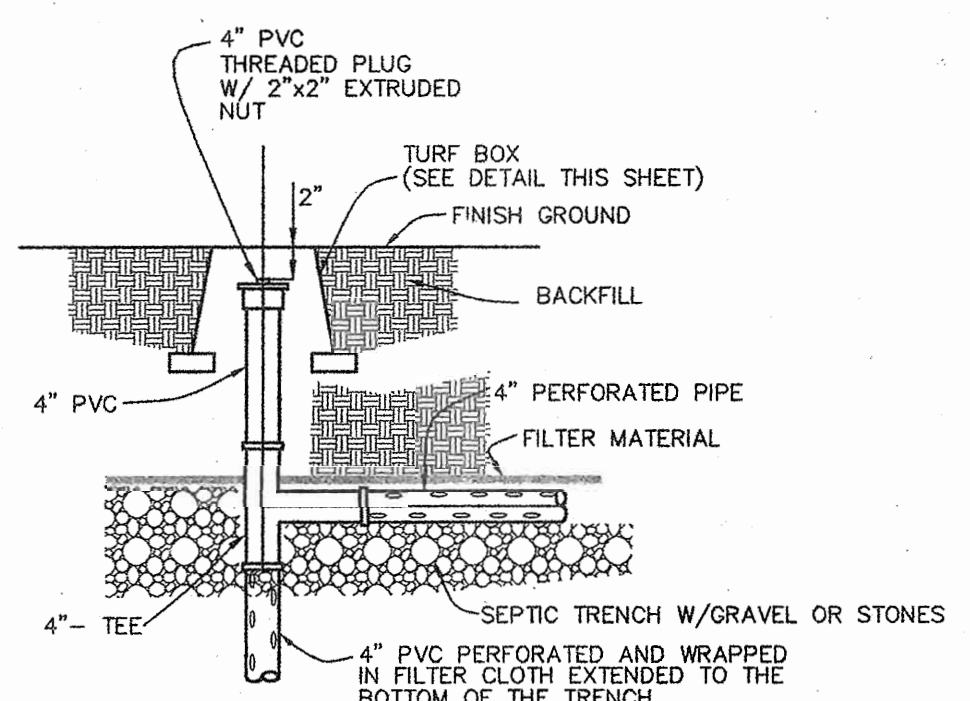
SECTION VIEW A-A



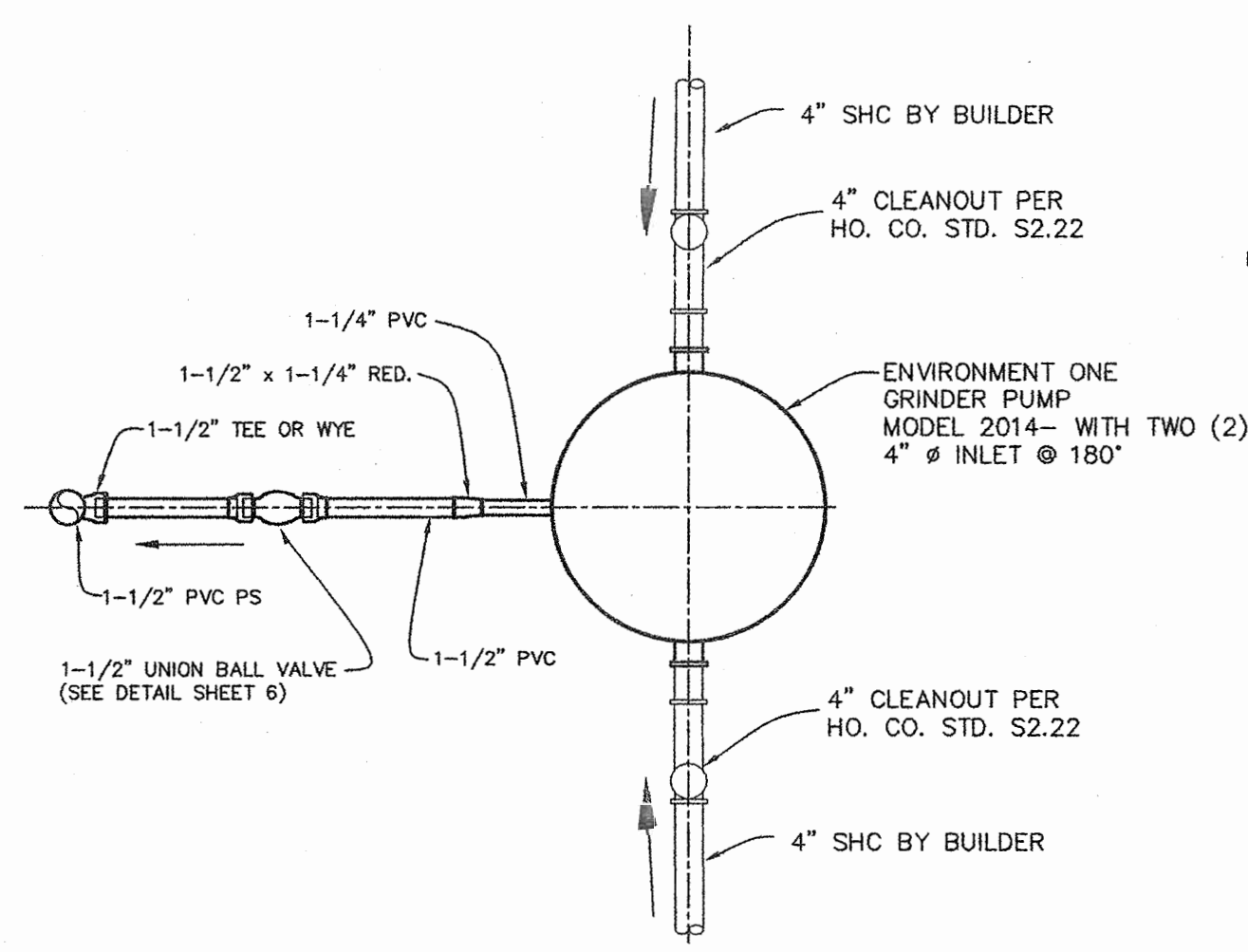
RISER/TANK JOINT DETAIL
NOT TO SCALE

LOTS	TOP ELEV.	BOTTOM ELEV.	DEPTH	INLET ELEV.	DISCHARGE ELEV.	CONC. ANCHOR VOLUME	REMARKS
9 & 10	547.5	537.5	10.00' (120")	540.17	540.75	35.7 C.F.	MODEL NO. 2014 (DUPLEX)
11 & 12	551.0	541.0	10.00' (120")	543.67	544.25	35.7 C.F.	MODEL NO. 2014 (DUPLEX)
19 & 20	549.5	539.5	10.00' (120")	542.17	542.75	35.7 C.F.	MODEL NO. 2014 (DUPLEX)
21 & 22	547.0	537.0	10.00' (120")	539.67	540.25	35.7 C.F.	MODEL NO. 2014 (DUPLEX)

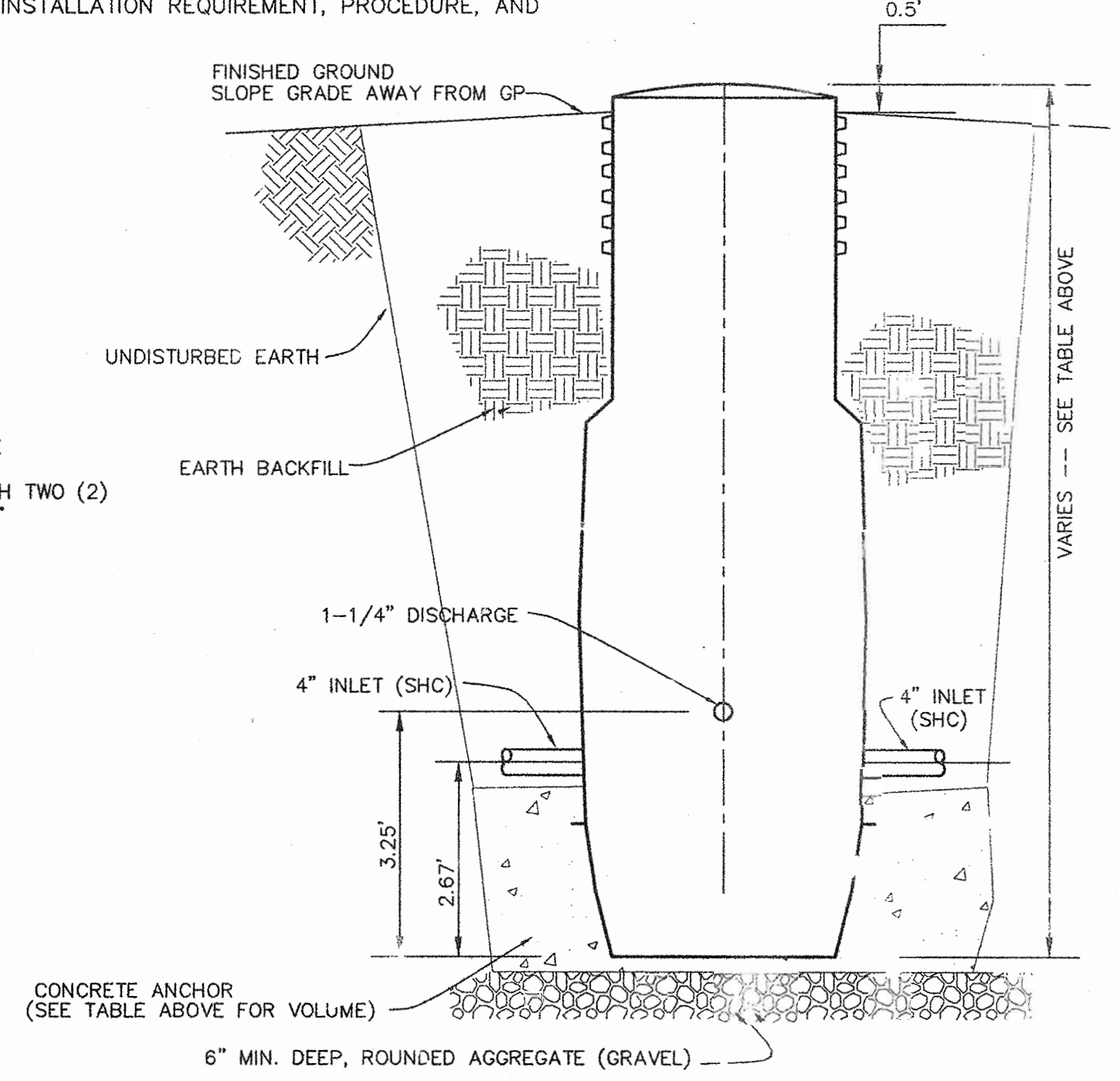
NOTE: SEE MANUFACTURER'S MANUAL FOR GRINDER PUMP INSTALLATION REQUIREMENT, PROCEDURE, AND ELECTRICAL CONNECTION.



DISTRIBUTION LATERAL TERMINATION DETAIL
NOT TO SCALE



PLAN VIEW



SECTION VIEW

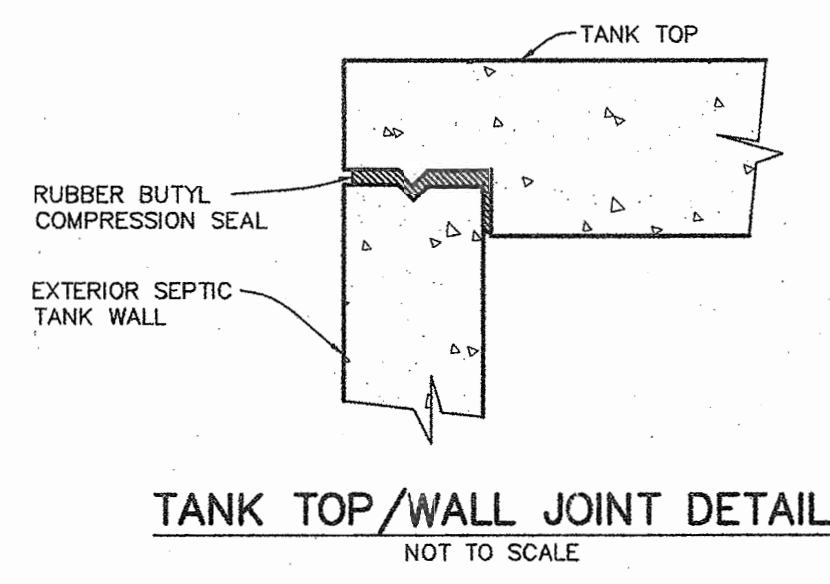
TYPICAL DUPLEX GRINDER PUMP (MODEL #2014)
NOT TO SCALE

	TANK ELEVATION	INVERT ELEVATION	TANK COORDINATES	MANHOLE RIM ELEVATION
SEPTIC TANK #1	TOP = 584.77	583.12 IN	N 579539.51 E 1308755.18	586.3
	BOT = 578.28	582.95 OUT	N 579536.25 E 1308773.89	586.3
SEPTIC TANK #2	TOP = 584.55	582.90 IN	N 579535.39 E 1308778.82	586.1
	BOT = 578.06	582.73 OUT	N 579532.12 E 1308797.54	586.1

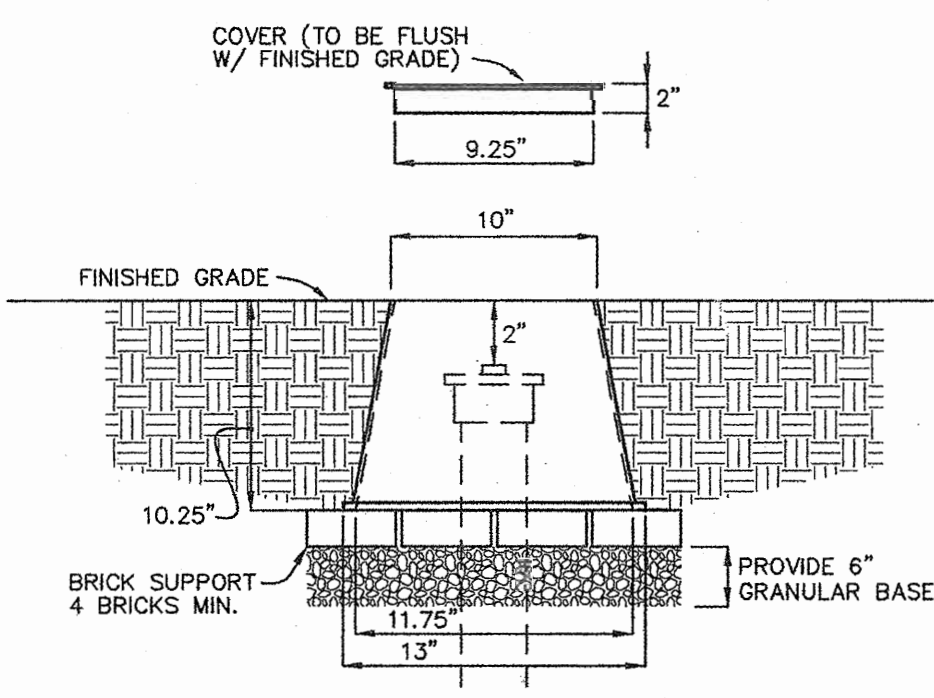
- NOTES:
- MANHOLE RIM ELEVATION SHOWN HEREON IS AT THE CENTER OF THE RIM.
 - TANK COORDINATES ARE AT THE MIDPOINT OF EACH END.

SEPTIC TANK TO BE PRECAST BY J.F. GILLESPIE, INC. OR EQUAL.

PRECAST CONCRETE 5000 GALLON
CAPACITY SINGLE COMPARTMENT SEPTIC TANK
SCALE: 1" = 2'



TANK TOP/WALL JOINT DETAIL
NOT TO SCALE



TURF BOX DETAIL
NOT TO SCALE

REINFORCING:
WALLS - #4 REBAR, 8" C/C E/W
SLAB TOP - #4 REBAR, 8" C/C E/W
BASE - #4 REBAR, 8" C/C E/W
REBAR GRADE 60

JOINTS SEALED WITH BUTYL ROPE
FORM AND MORTAR.

CONCRETE 4,000 PSI IN 28 DAYS

INTERIOR COATED WITH TWO COATS
INERT COATING.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
R. J. ...
9-15-04
DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND
...
9/15/04
DATE

BENCHMARK
ENGINEERS & LAND SURVEYORS & PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE & SUITE 418
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

Donald Moran
9/1/04

DESIGN:	DBT				
DRAFT:	DBT				
CHK:	DAM				
DATE:	9-1-04				
BY:	NO.				
		LOWER SEWER MAINS 1 FOOT		6-7-05	
		REVISIONS		DATE	

600 SCALE MAP NO. 50

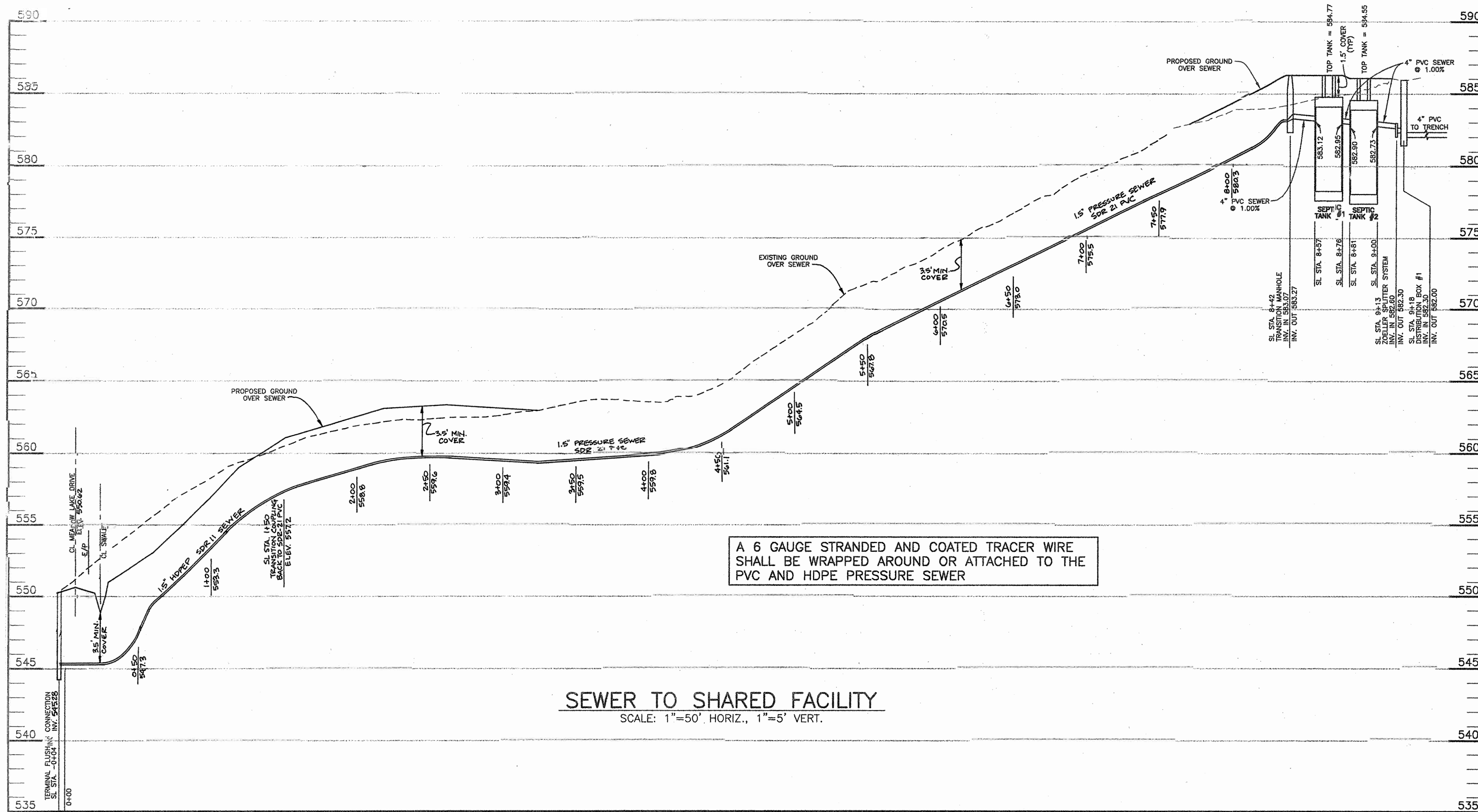
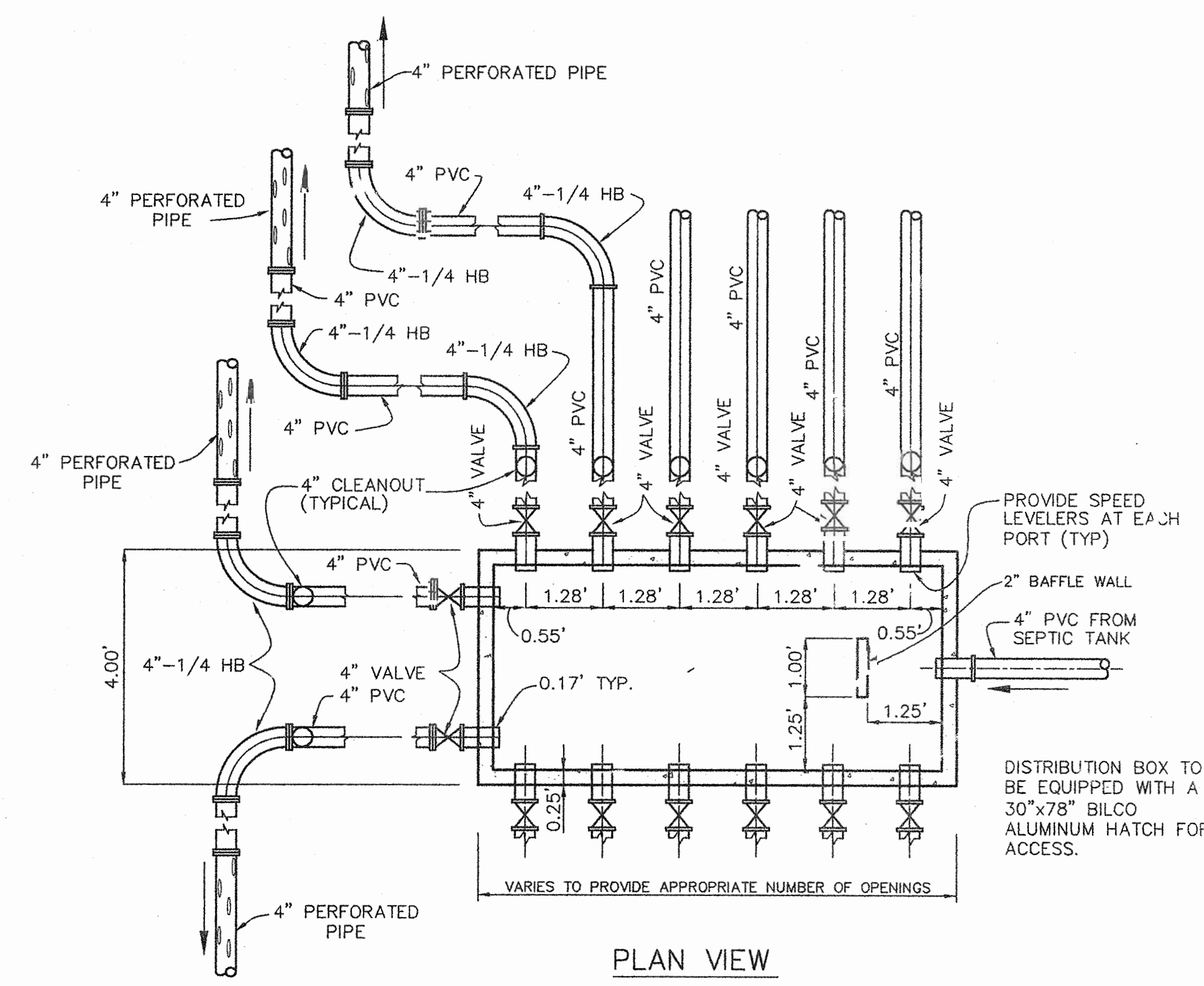
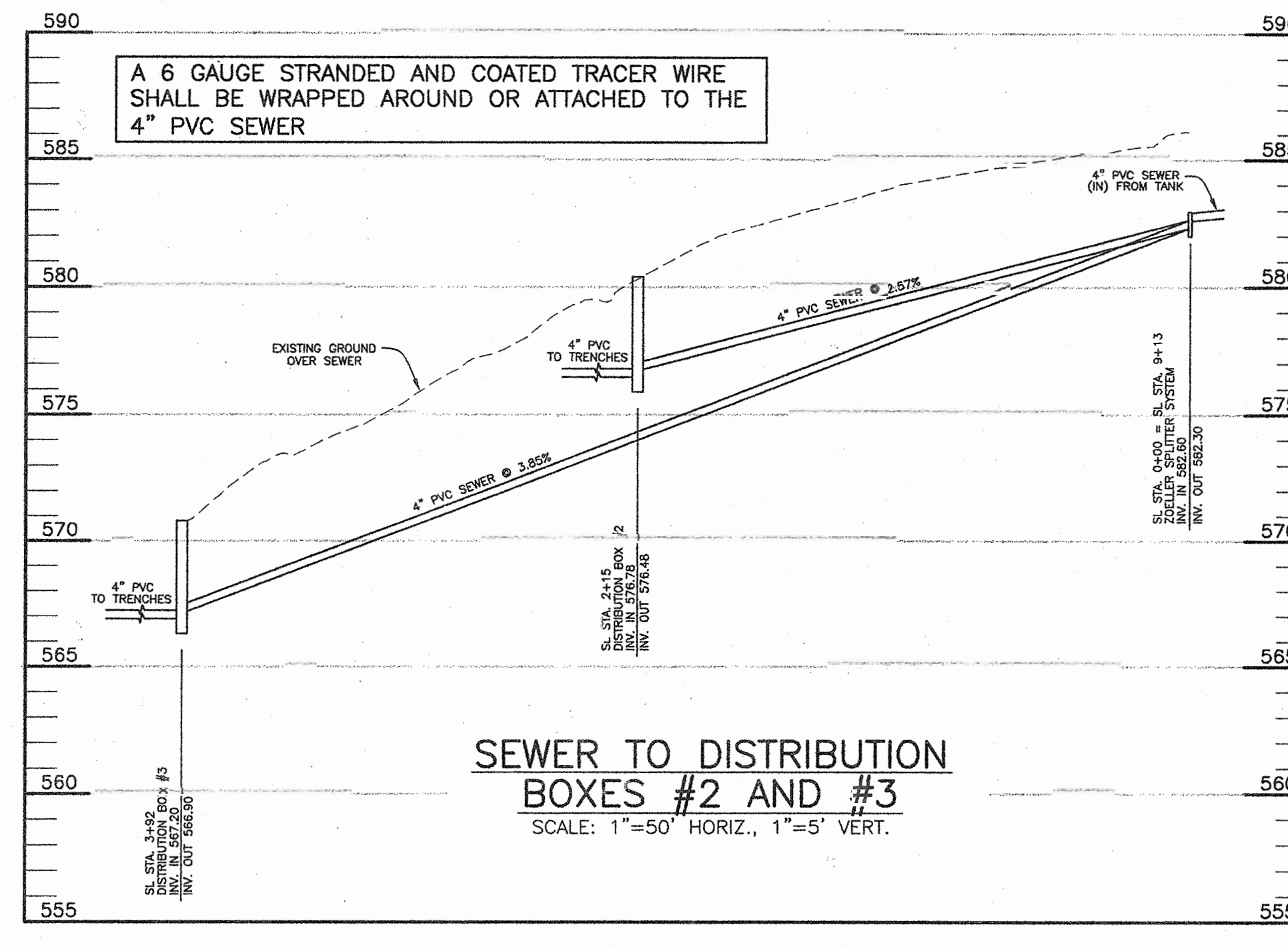
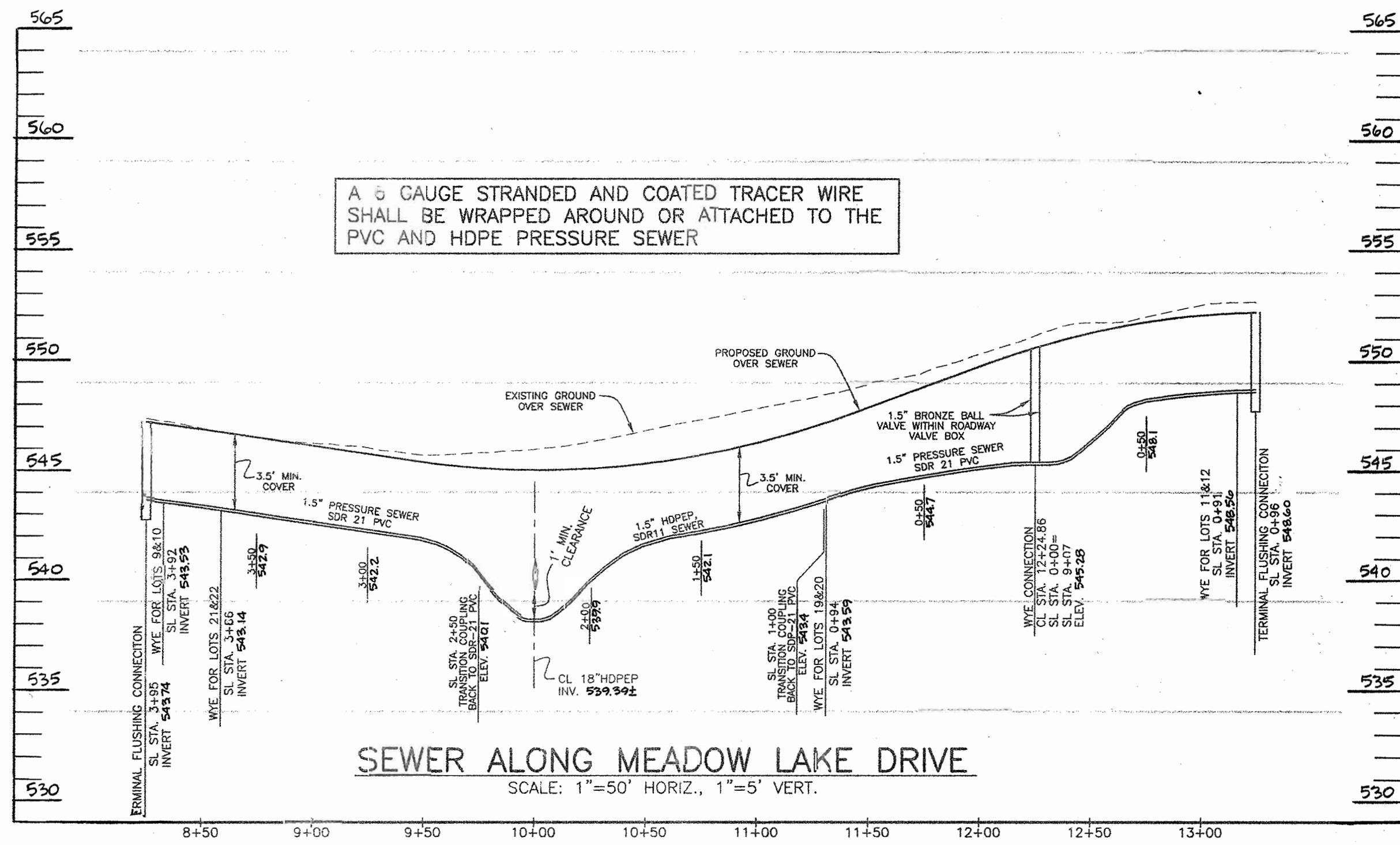
DETAILS

BLOCK 3

TRIADELPHIA CROSSING
LOTS 1 THRU 22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H'
AND NON-BUILDABLE BULK PARCEL 'I'
FOURTH ELECTION DISTRICT
CONTRACT NO. 50-4207-D

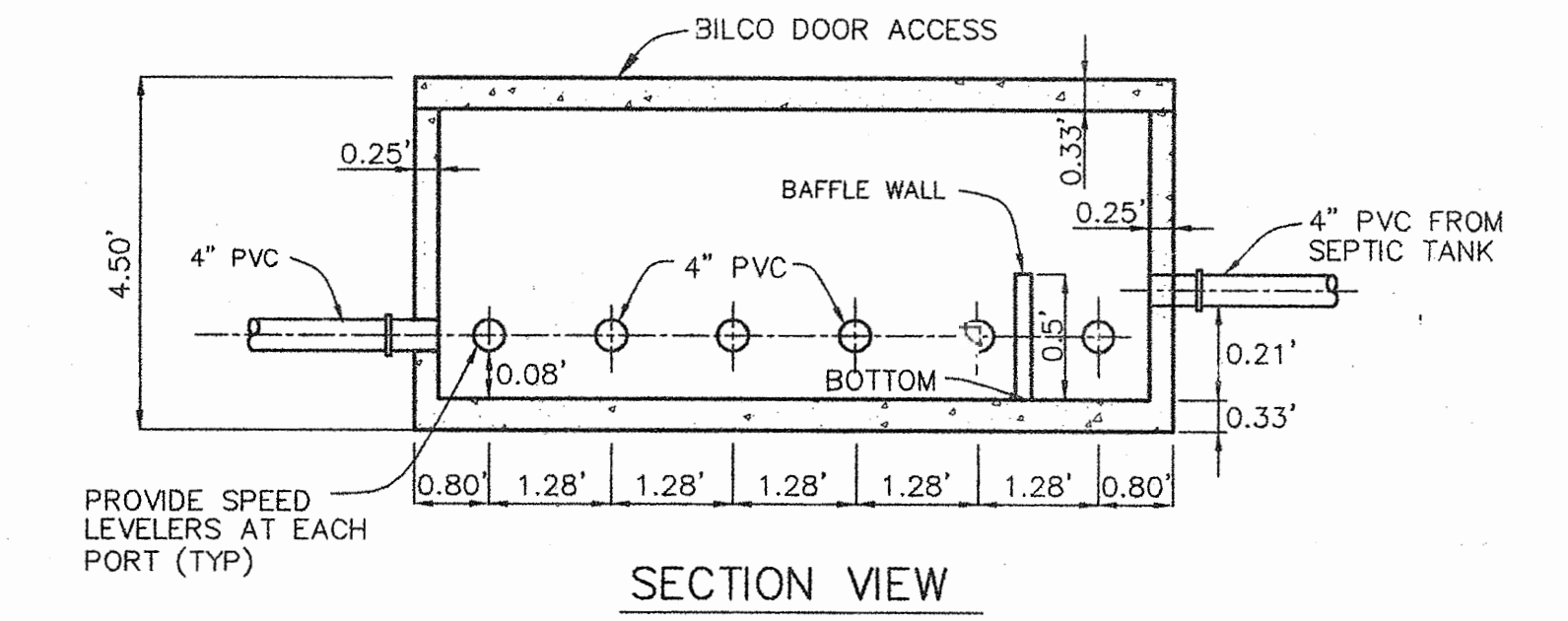
SCALE:
AS SHOWN
SHEET NO.
3 OF 4

APPROVED:
FOR PRIVATE WATER AND PUBLIC SEWERAGE SYSTEMS
HOWARD COUNTY HEALTH DEPARTMENT
R. J. ...
COUNTY HEALTH OFFICER
DATE 9/15/04

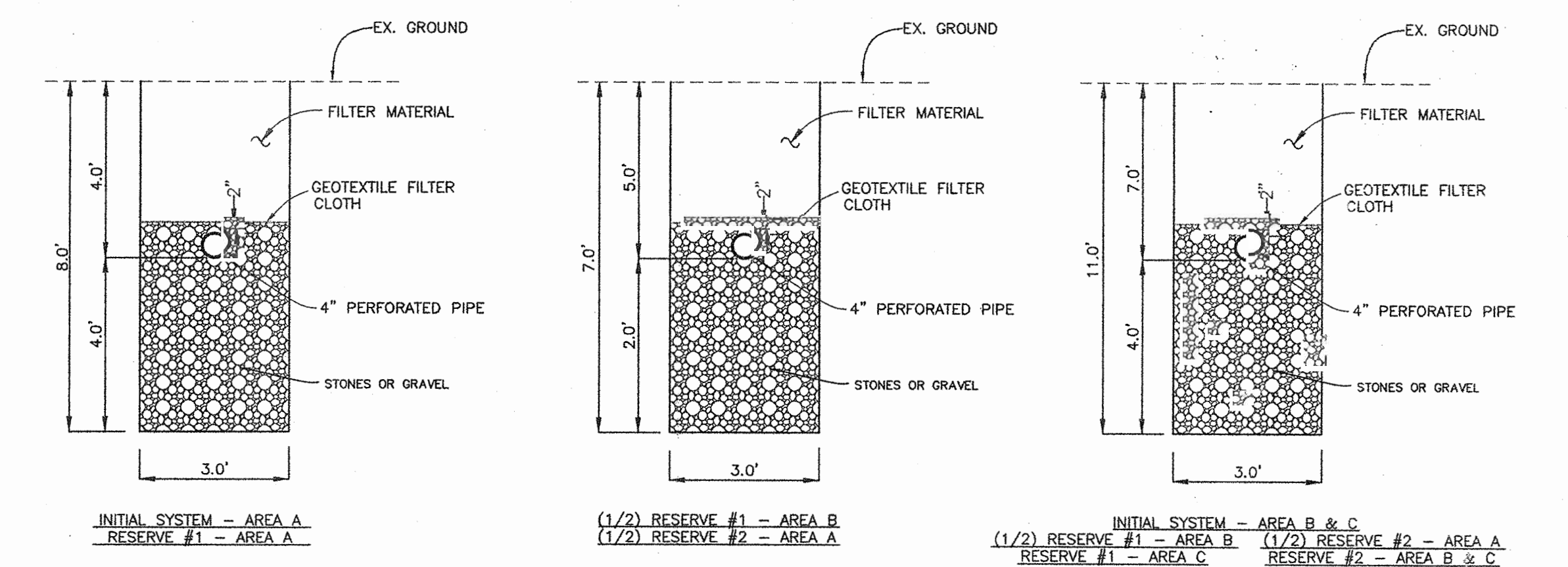


DISTRIBUTION BOX DATA		
BOX NO.	INLET SIDE	TOP ELEV.
BOX #1	N 579541.18 E 1308808.93	586.26
BOX #2	N 579577.76 E 1308596.00	580.40
BOX #3	N 579606.09 E 1308420.50	570.70

COORDINATE LOCATION IS AT THE TOP CENTER OF BOX.



TYPICAL CONCRETE DISTRIBUTION BOX DETAIL
NOT TO SCALE



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

[Signature]
COUNTY HEALTH OFFICER

[Signature]
DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature]
9-15-04
DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

[Signature]
10/15/04
DATE

BENCHMARK
ENGINEERS • LAND SURVEYORS • PLANNERS
ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE • SUITE 418
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-465-8105 FAX: 410-465-8644

[Signature]
9/16/04

DESIGN: DBT				
DRAFT: DBT				
CHK: DAM				
DATE: 9-1-04	DBT	I	LOWER SEWER MAINS 1 FOOT	6-7-05
	BY	NO.	REVISIONS	DATE

PROFILE OF SEWER MAINS AND DETAILS

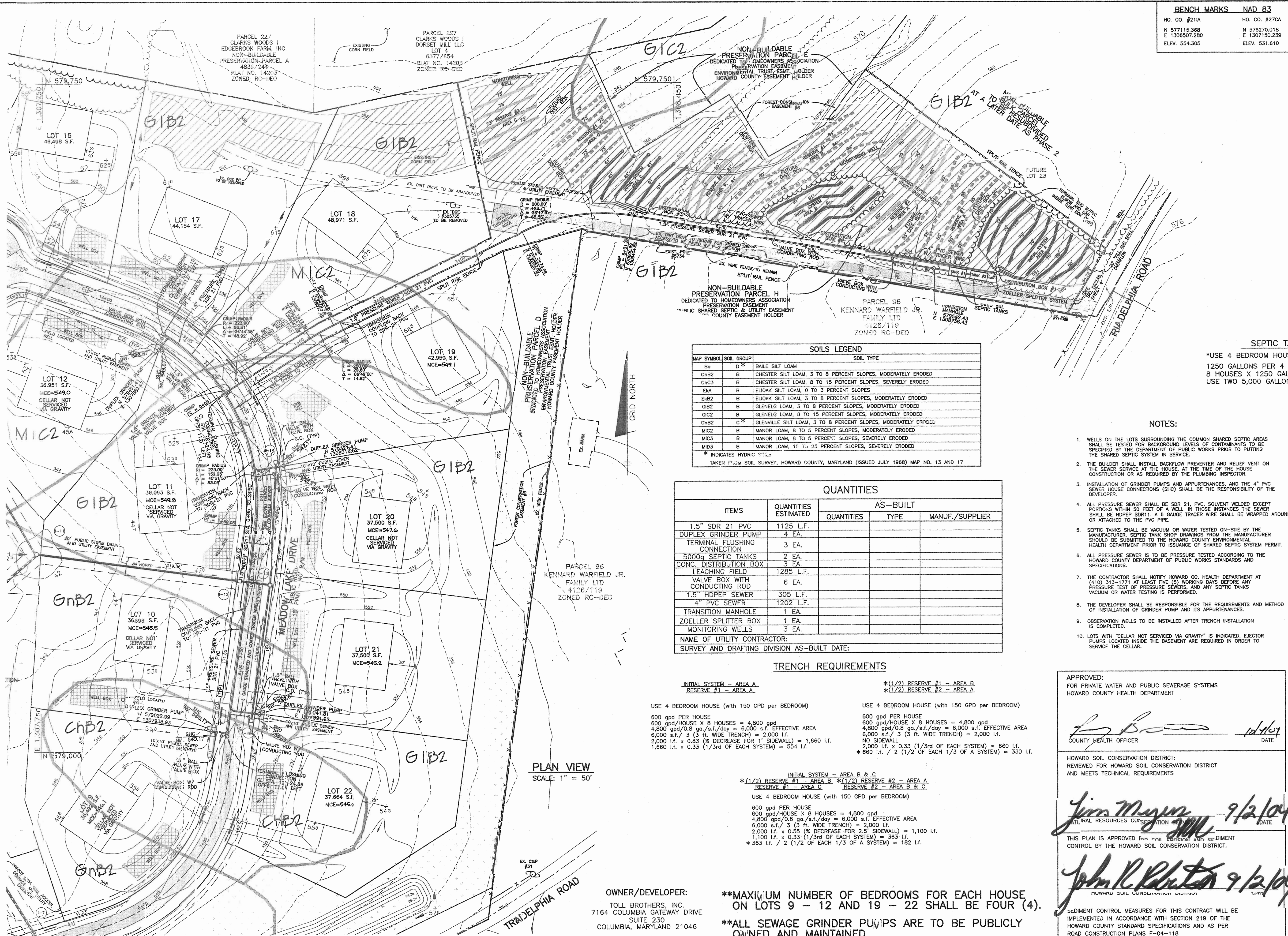
600 SCALE MAP NO. 50

TRIADELPHIA CROSSING
LOTS 1 THRU 22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H'
AND NON-BUILDABLE BULK PARCEL 'I'

FOURTH ELECTION DISTRICT
CONTRACT NO. 50-4207-D

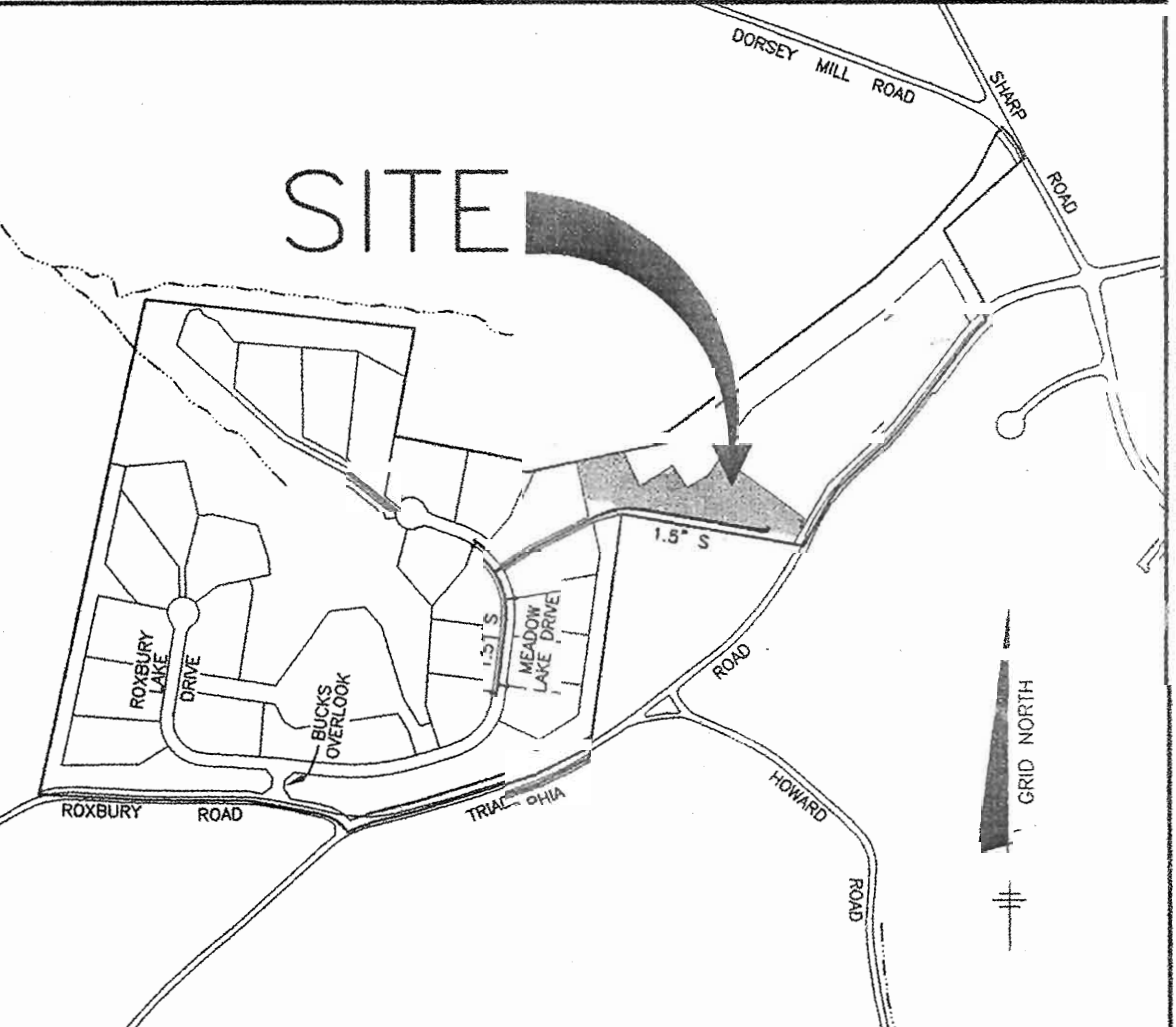
SCALE:
AS SHOWN

SHEET NO.
2 OF 4



BENCH MARKS NAD 83

HO. CO. #211A N 577115.368 E 1306507.280 ELEV. 554.305	HO. CO. #27CA N 575270.018 E 1307150.239 ELEV. 531.610
---	---



WATER AND SEWER COUNTY CODE

WATER CODE: N/A	TYPE OF BUILDING: SINGLE FAMILY DETACHED
SEWER CODE: N/A	NUMBER OF BUILDABLE LOTS: 22
TEST GRADIENT: N/A	NUMBER OF SHC'S: 8
	NUMBER OF WHC'S: 0
	DRAINAGE AREA: PATUXENT
	TREATMENT PLANT: 1/A

VICINITY MAP
SCALE: 1" = 600'

SOILS LEGEND

MAP SYMBOL	SOIL GROUP	SOIL TYPE
Bs	D *	BAILE SILT LOAM
ChB2	B	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
CnC3	B	CHESTER SILT LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED
EaA	B	ELIOAK SILT LOAM, 0 TO 3 PERCENT SLOPES
ExB2	B	ELIOAK SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
G1B2	B	GLENELG LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
G1C2	B	GLENELG LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
GhB2	C *	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
M1C2	B	MANOR LOAM, 8 TO 5 PERCENT SLOPES, MODERATELY ERODED
M1C3	B	MANOR LOAM, 8 TO 5 PERCENT SLOPES, SEVERELY ERODED
M1D3	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES, SEVERELY ERODED

* INDICATES HYDRIC SOILS
* TAKEN FROM SOIL SURVEY, HOWARD COUNTY, MARYLAND (ISSUED JULY 1988) MAP NO. 13 AND 17

QUANTITIES

ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUF./SUPPLIER
1.5" SDR 21 PVC	1125 L.F.			
DUPLEX GRINDER PUMP	4 EA.			
TERMINAL FLUSHING CONNECTION	3 EA.			
5000g SEPTIC TANKS	2 EA.			
CONC. DISTRIBUTION BOX	3 EA.			
LEACHING FIELD	1285 L.F.			
VALVE BOX WITH CONDUCTING ROD	6 EA.			
1.5" HDPEP SEWER	305 L.F.			
4" PVC SEWER	1202 L.F.			
TRANSITION MANHOLE	1 EA.			
ZOELLER SPLITTER BOX	1 EA.			
MONITORING WELLS	3 EA.			

NAME OF UTILITY CONTRACTOR:
SURVEY AND DRAFTING DIVISION AS-BUILT DATE:

TRENCH REQUIREMENTS

INITIAL SYSTEM - AREA A	RESERVE #1 - AREA A	RESERVE #2 - AREA A
USE 4 BEDROOM HOUSE (with 150 GPD PER BEDROOM)	USE 4 BEDROOM HOUSE (with 150 GPD PER BEDROOM)	USE 4 BEDROOM HOUSE (with 150 GPD PER BEDROOM)
600 gpd PER HOUSE 600 gpd/HOUSE X 8 HOUSES = 4,800 gpd 4,800 gpd/0.8 gal./s.f./day = 6,000 s.f. EFFECTIVE AREA 6,000 s.f. / 3 (3 FT. WIDE TRENCH) = 2,000 l.f. 2,000 l.f. x 0.83 (1/3rd OF EACH SYSTEM) = 1,660 l.f. 1,660 l.f. x 0.33 (1/3rd OF EACH SYSTEM) = 554 l.f.	600 gpd PER HOUSE 600 gpd/HOUSE X 8 HOUSES = 4,800 gpd 4,800 gpd/0.8 gal./s.f./day = 6,000 s.f. EFFECTIVE AREA 6,000 s.f. / 3 (3 FT. WIDE TRENCH) = 2,000 l.f. NO SIDEWALL 2,000 l.f. x 0.33 (1/3rd OF EACH SYSTEM) = 660 l.f. * 660 l.f. / 2 (1/2 OF EACH 1/3 OF A SYSTEM) = 330 l.f.	600 gpd PER HOUSE 600 gpd/HOUSE X 8 HOUSES = 4,800 gpd 4,800 gpd/0.8 gal./s.f./day = 6,000 s.f. EFFECTIVE AREA 6,000 s.f. / 3 (3 FT. WIDE TRENCH) = 2,000 l.f. 2,000 l.f. x 0.55 (% DECREASE FOR 2.5' SIDEWALL) = 1,100 l.f. 1,100 l.f. x 0.33 (1/3rd OF EACH SYSTEM) = 363 l.f. * 363 l.f. / 2 (1/2 OF EACH 1/3 OF A SYSTEM) = 182 l.f.

SEPTIC TANK CAPACITY

USE 4 BEDROOM HOUSE
1250 GALLONS PER 4 BEDROOM HOUSE
8 HOUSES X 1250 GALLONS = 10,000 GALLONS
USE TWO 5,000 GALLON TANKS

- NOTES:**
- WELLS ON THE LOTS SURROUNDING THE COMMON SHARED SEPTIC AREAS SHALL BE TESTED FOR BACKGROUND LEVELS OF CONTAMINANTS TO BE SPECIFIED BY THE DEPARTMENT OF PUBLIC WORKS PRIOR TO PUTTING THE SHARED SEPTIC SYSTEM IN SERVICE.
 - THE BUILDER SHALL INSTALL 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.
 - INSTALLATION OF GRINDER PUMPS AND APPURTENANCES, AND THE 4" PVC SEWER SEWER CONNECTIONS (SHC) SHALL BE THE RESPONSIBILITY OF THE DEVELOPER.
 - ALL PRESSURE SEWER SHALL BE SDR 21, PVC, SOLVENT WELDED EXCEPT PORTIONS WITHIN 30 FEET OF A WELL, IN THOSE INSTANCES THE SEWER SHALL BE HOPEP SDR11, A 6 GAUGE TRACER WIRE SHALL BE WRAPPED AROUND OR ATTACHED TO THE PVC PIPE.
 - SEPTIC TANKS SHALL BE VACUUM OR WATER 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 ISSUANCE OF SHARED SEPTIC SYSTEM PERMIT.
 - ALL PRESSURE SEWER IS TO BE PRESSURE TESTED ACCORDING TO THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS STANDARDS AND SPECIFICATIONS.
 - THE CONTRACTOR SHALL NOTIFY HOWARD CO. HEALTH DEPARTMENT AT (410) 313-1771 AT LEAST FIVE (5) WORKING DAYS BEFORE ANY PRESSURE TEST OF PRESSURE SEWERS, AND ANY SEPTIC TANKS VACUUM OR WATER TESTING IS PERFORMED.
 - THE DEVELOPER SHALL BE RESPONSIBLE FOR THE REQUIREMENTS AND METHOD OF INSTALLATION OF GRINDER PUMP AND ITS APPURTENANCES.
 - OBSERVATION WELLS TO BE INSTALLED AFTER TRENCH INSTALLATION IS COMPLETED.
 - LOTS WITH "CELLAR NOT SERVICED VIA GRAVITY" IS INDICATED, EJECTOR PUMPS LOCATED INSIDE THE BASEMENT ARE REQUIRED IN ORDER TO PUMP THE CELLAR.

GENERAL NOTES

- PART 1 - GENERAL**
- 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.
 - ALL HORIZONTAL CONTROLS ARE BASED ON MARYLAND STATE COORDINATES. (NORTH AMERICAN DATUM OF 1983 (NAD'83)).
 - ALL VERTICAL CONTROLS ARE BASED ON U.S.C.S. DATA.
 - ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
 - CLEAR ALL UTILITIES BY A MINIMUM OF 12" CLEARANCE. POLES BY 2'-0" MINIMUM OR TUNNEL AS REQUIRED. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONEY OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
 - FOR DETAILS NOT SHOWN ON THE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS USE HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATIONS AND DETAIL FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB.
 - WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL "C.N.S." 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. UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN MADE SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS.
 - TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
 - CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
 - PLACE REGULATION "MEN WORKING" AND WARNING SIGNS AS REQUIRED TO COMPLY WITH MARYLAND STATE HIGHWAY AND TRAFFIC CONTROL ACT OF TRAFFIC CONTROL FOR HIGHWAY MAINTENANCE OPERATIONS.
 - 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(g) OF THE HOWARD COUNTY CODE.

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

[Signature]
COUNTY HEALTH OFFICER DATE

HOWARD SOIL CONSERVATION DISTRICT:
REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT
AND MEETS TECHNICAL REQUIREMENTS

[Signature] 9/12/04
NATURAL RESOURCES CONSERVATION DISTRICT DATE

THIS PLAN IS APPROVED AND ACCEPTED AND IS SUBJECT TO THE CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] 9/12/04
SOIL CONSERVATION DISTRICT

SEDEMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 219 OF THE HOWARD COUNTY STANDARD SPECIFICATIONS AND AS PER ROAD CONSTRUCTION PLANS F-04-118

OWNER/DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046

****MAXIMUM NUMBER OF BEDROOMS FOR EACH HOUSE ON LOTS 9 - 12 AND 19 - 22 SHALL BE FOUR (4).**

****ALL SEWAGE GRINDER PUMPS ARE TO BE PUBLICLY OWNED AND MAINTAINED**

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 9-15-04
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

[Signature] 10/15/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

BENCHMARK ENGINEERING, INC.
ENGINEERS & LAND SURVEYORS & PLANNERS
8480 BALTIMORE NATIONAL PIKE A SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-8105 FAX: 410-465-8644

[Signature] Donald Mason
9/16/04

DESIGN: DBT
DRAFT: DBT
CHK: DAM
DATE: 9-1-04

NO.	REVISIONS	DATE
1	LOWER SEWER MAINS 1 FOOT	6-7-05

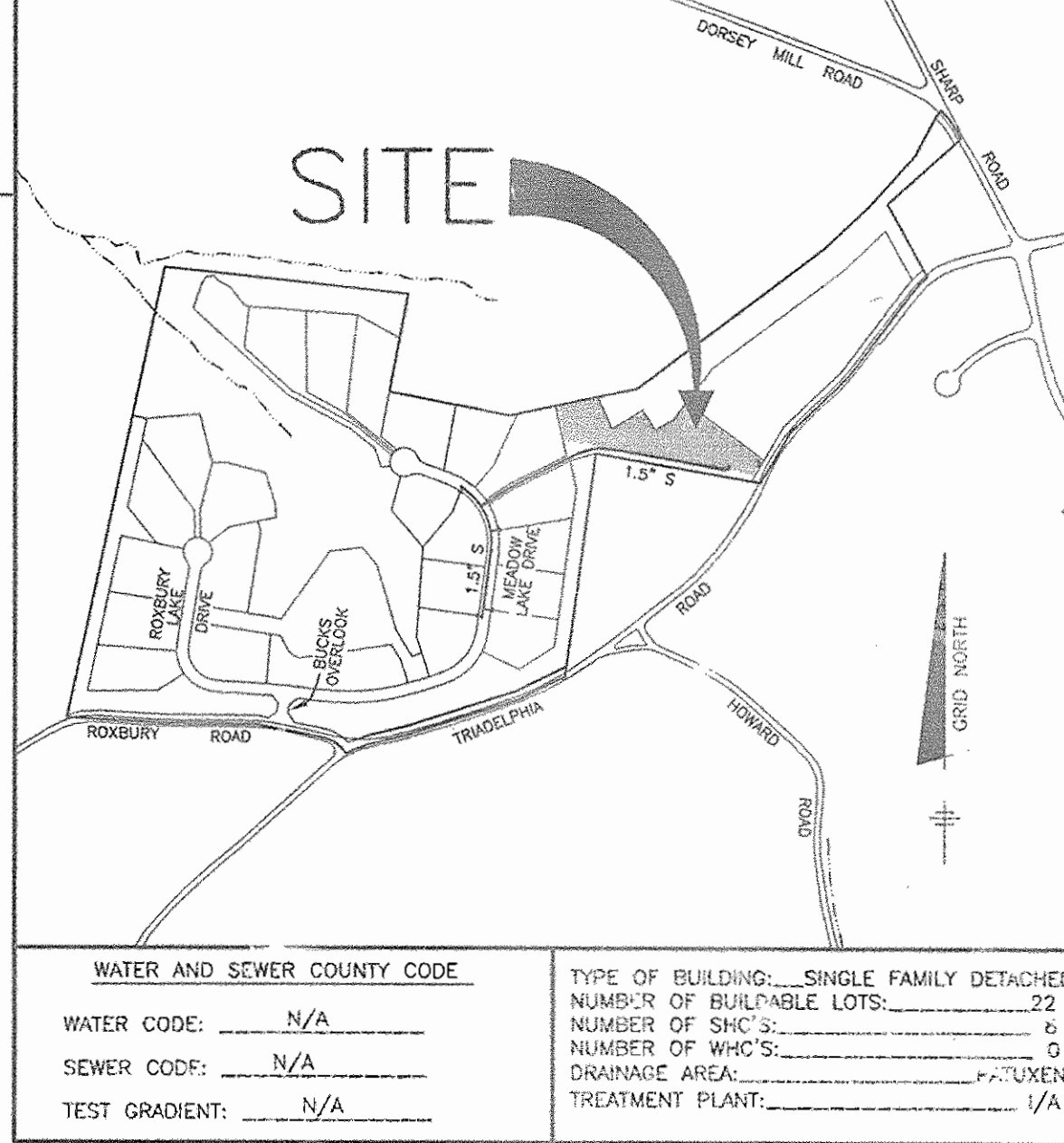
PLAN VIEW OF SHARED SEPTIC SYSTEM
600 SCALE MAP NO. 50
BLOCK 3

TRIADELPHIA CROSSING
LOTS 1 THRU 22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H' AND NON-BUILDABLE BULK PARCEL 'I'

FOURTH ELECTION DISTRICT
CONTRACT NO. 50-4207-D

SCALE: AS SHOWN
SHEET NO. 1 OF 4

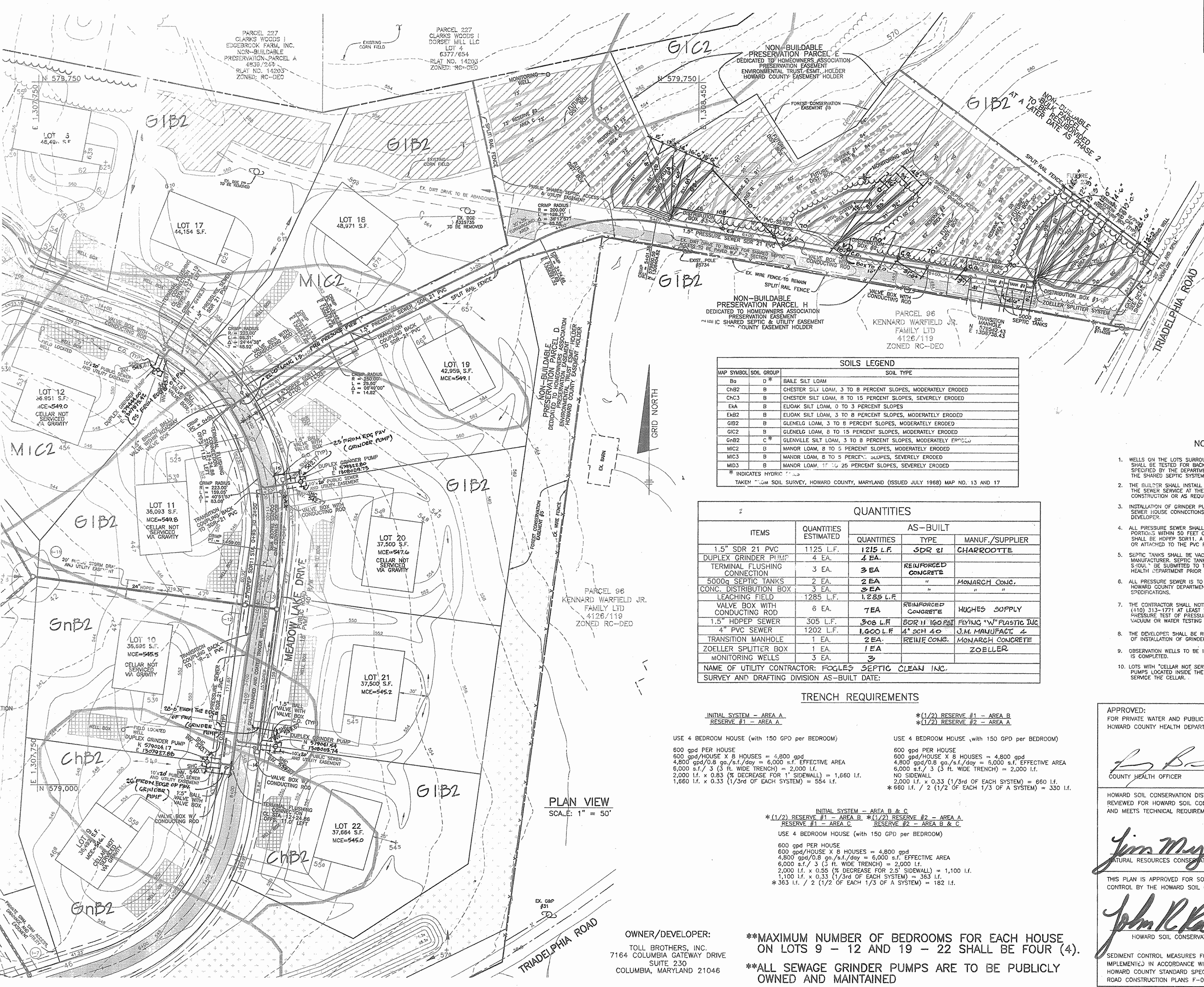
BENCH MARKS NAD 83	
HO. CO. #21A N 577115.368 E 1306507.280 ELEV. 554.305	HO. CO. #27CA N 575270.018 E 1307150.239 ELEV. 551.610



WATER AND SEWER COUNTY CODE		TYPE OF BUILDING: SINGLE FAMILY DETACHED	
WATER CODE: N/A	SEWER CODE: N/A	NUMBER OF BUILDABLE LOTS: 22	NUMBER OF HOUSES: 6
TEST GRADIENT: N/A		NUMBER OF WHC'S: 6	CHANCE AREA: 2.0%
			TREATMENT PLANT: 1/A

VICINITY MAP
SCALE: 1" = 600'

SEPTIC TANK CAPACITY
 *USE 4 BEDROOM HOUSE
 1250 GALLONS PER 4 BEDROOM HOUSE
 8 HOUSES X 1250 GALLONS = 10,000 GALLONS
 USE TWO 5,000 GALLON TANKS



MAP SYMBOL	SOIL GROUP	SOIL TYPE
B0	D	BALE SILT LOAM
CH2	B	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
CH3	B	CHESTER SILT LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED
EKA	B	ELIOAK SILT LOAM, 0 TO 3 PERCENT SLOPES
EB2	B	ELIOAK SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
G1B2	B	GLENELG LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
G1C2	B	GLENELG LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
GnB2	C*	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
M1C2	B	MANOR LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
M1C3	B	MANOR LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED
M1D3	B	MANOR LOAM, 17 TO 25 PERCENT SLOPES, SEVERELY ERODED

* INDICATES HYDRIC SOILS
 TAKEN FROM SOIL SURVEY, HOWARD COUNTY, MARYLAND (ISSUED JULY 1988) MAP NO. 13 AND 17

ITEMS	QUANTITIES ESTIMATED	AS-BUILT	
		QUANTITIES	TYPE
1.5" SDR 21 PVC	1125 L.F.	1215 L.F.	SDR 21
DUPLEX GRINDER PUMP	4 EA.	4 EA.	CHARROOTTE
TERMINAL FLUSHING CONNECTION	3 EA.	3 EA.	REINFORCED CONCRETE
5000g SEPTIC TANKS	2 EA.	2 EA.	MONARCH CONC.
CONC. DISTRIBUTION BOX	3 EA.	3 EA.	"
LEACHING FIELD	1285 L.F.	1,285 L.F.	"
VALVE BOX WITH CONDUCTING ROD	6 EA.	7 EA.	REINFORCED CONCRETE
1.5" HDPEP SEWER	305 L.F.	308 L.F.	BOR II 160 PSI FLYING "W" PLASTIC INC.
4" PVC SEWER	1202 L.F.	1,000 L.F.	4" SCH 40 J.M. MANUFACT.
TRANSITION MANHOLE	1 EA.	2 EA.	REIN. CONC. MONARCH CONCRETE
ZOELLER SPLITTER BOX	1 EA.	1 EA.	ZOELLER
MONITORING WELLS	3 EA.	3	"

NAME OF UTILITY CONTRACTOR: FOGLE'S SEPTIC CLEAN INC.
 SURVEY AND DRAFTING DIVISION AS-BUILT DATE:

TRENCH REQUIREMENTS	
INITIAL SYSTEM - AREA A	* (1/2) RESERVE #1 - AREA B
RESERVE #1 - AREA A	* (1/2) RESERVE #2 - AREA A
USE 4 BEDROOM HOUSE (with 150 GPD per BEDROOM)	USE 4 BEDROOM HOUSE (with 150 GPD per BEDROOM)
600 gpd PER HOUSE 600 gpd/HOUSE X 8 HOUSES = 4,800 gpd 4,800 gpd/0.8 gpd/s.f./day = 6,000 s.f. EFFECTIVE AREA 6,000 s.f. / 3 (3 FT. WIDE TRENCH) = 2,000 L.F. 2,000 L.F. x 0.83 (% DECREASE FOR 1" SIDEWALL) = 1,660 L.F. 1,660 L.F. x 0.33 (1/3rd OF EACH SYSTEM) = 554 L.F.	600 gpd PER HOUSE 600 gpd/HOUSE X 8 HOUSES = 4,800 gpd 4,800 gpd/0.8 gpd/s.f./day = 6,000 s.f. EFFECTIVE AREA 6,000 s.f. / 3 (3 FT. WIDE TRENCH) = 2,000 L.F. NO SIDEWALL 2,000 L.F. x 0.33 (1/3rd OF EACH SYSTEM) = 660 L.F. * 660 L.F. / 2 (1/2 OF EACH 1/3 OF A SYSTEM) = 330 L.F.
INITIAL SYSTEM - AREA B & C	* (1/2) RESERVE #1 - AREA B
RESERVE #1 - AREA B	* (1/2) RESERVE #2 - AREA A
RESERVE #2 - AREA B & C	
USE 4 BEDROOM HOUSE (with 150 GPD per BEDROOM)	
600 gpd PER HOUSE 600 gpd/HOUSE X 8 HOUSES = 4,800 gpd 4,800 gpd/0.8 gpd/s.f./day = 6,000 s.f. EFFECTIVE AREA 6,000 s.f. / 3 (3 FT. WIDE TRENCH) = 2,000 L.F. 2,000 L.F. x 0.55 (% DECREASE FOR 2" SIDEWALL) = 1,100 L.F. 1,100 L.F. x 0.33 (1/3rd OF EACH SYSTEM) = 363 L.F. * 363 L.F. / 2 (1/2 OF EACH 1/3 OF A SYSTEM) = 182 L.F.	

PLAN VIEW
SCALE: 1" = 50'

OWNER/DEVELOPER:
TOLL BROTHERS, INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MARYLAND 21046

****MAXIMUM NUMBER OF BEDROOMS FOR EACH HOUSE ON LOTS 9 - 12 AND 19 - 22 SHALL BE FOUR (4).**
****ALL SEWAGE GRINDER PUMPS ARE TO BE PUBLICLY OWNED AND MAINTAINED**

- NOTES:**
- WELLS ON THE LOTS SURROUNDING THE COMMON SHARED SEPTIC AREAS SHALL BE TESTED FOR BACKGROUND LEVELS OF CONTAMINANTS TO BE SPECIFIED BY THE DEPARTMENT OF PUBLIC WORKS PRIOR TO PUTTING THE SHARED SEPTIC SYSTEM IN SERVICE.
 - THE BUILDER SHALL INSTALL 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.
 - INSTALLATION OF GRINDER PUMPS AND APPURTENANCES, AND THE 4" PVC SEWER HOUSE CONNECTIONS (SHO) SHALL BE THE RESPONSIBILITY OF THE DEVELOPER.
 - ALL PRESSURE SEWER SHALL BE SDR 21, PVC, SOLVENT WELDED EXCEPT PORTIONS WITHIN 50 FEET OF A WELL, IN THOSE INSTANCES THE SEWER SHALL BE HDPEP SDR 11, A 6 GAUGE TRACER WIRE SHALL BE WRAPPED AROUND OR ATTACHED TO THE PVC PIPE.
 - SEPTIC TANKS SHALL BE VACUUM OR WATER 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 ISSUANCE OF SHARED SEPTIC SYSTEM PERMIT.
 - ALL PRESSURE SEWER IS TO BE PRESSURE TESTED ACCORDING TO THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS STANDARDS AND SPECIFICATIONS.
 - THE CONTRACTOR SHALL NOTIFY HOWARD CO. HEALTH DEPARTMENT AT (410) 313-1771 AT LEAST FIVE (5) WORKING DAYS BEFORE ANY PRESSURE TEST OF PRESSURE SEWERS, AND ANY SEPTIC TANKS VACUUM OR WATER TESTING IS PERFORMED.
 - THE DEVELOPER SHALL BE RESPONSIBLE FOR THE REQUIREMENTS AND METHOD OF INSTALLATION OF GRINDER PUMP AND ITS APPURTENANCES.
 - OBSERVATION WELLS TO BE INSTALLED AFTER TRENCH INSTALLATION IS COMPLETED.
 - LOTS WITH "CELLAR NOT SERVICED VIA GRAVITY" IS INDICATED. EJECTOR PUMPS LOCATED IN THE CELLAR ARE REQUIRED IN ORDER TO SERVICED THE CELLAR.

GENERAL NOTES

- PART 1 - GENERAL**
- 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.
 - ALL HORIZONTAL CONTROLS ARE BASED ON MARYLAND STATE COORDINATES.
 - ALL VERTICAL CONTROLS ARE BASED ON U.S.G.S. DATA.
 - ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
 - CLEAR ALL UTILITIES BY A MINIMUM OF 12" CLEAR ALL POLES BY 2'-0" MINIMUM OR TUNNEL AS REQUIRED. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONEY OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
 - FOR DETAILS NOT SHOWN ON THE DRAWINGS, REFER TO 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 IN AREA A. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. CLEAR UTILITIES IN THE VICINITY OF THE PROPOSED WORK SHALL BE TESTED. UTILITIES HAVE NOT BEEN DUG SHALL BE LOCATED AND BRACED FOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE. CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS.
 - STATE HIGHWAY ADMINISTRATION.....410-531-5533
BGE CONTRACTOR SERVICES.....410-850-4620
BGE UNDERGROUND DAMAGE CONTR.....410-251-4807
MISS UTILITY.....800-237-7777
COLONIAL PIPELINE CO.....800-549-4129
HOWARD CO. DEPT. OF PUBLIC WORKS.....410-313-4900
BUREAU OF UTILITIES.....410-313-4900
BELL ATLANTIC.....1-800-446-5266
 - TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
 - CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
 - PLACE REGULATION "MEN WORKING" AND WARNING SIGNS AS REQUIRED TO COMPLY WITH MARYLAND STATE HIGHWAY ADMINISTRATION MANUAL OF TRAFFIC CONTROL FOR HIGHWAY MAINTENANCE OPERATIONS.
 - 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(c) OF THE HOWARD COUNTY CODE.

PART 3 - SEWER

- ALL PRESSURE SEWER MAINS SHALL BE 1.5" SDR 21 PVC OR 1.5" HDPEP SDR 11 UNLESS OTHERWISE NOTED.
- ALL MANHOLES SHALL BE 4' - 0" INSIDE DIAMETER UNLESS OTHERWISE NOTED.
- MANHOLES SHOWN WITH 12" AND 16" WALLS ARE FOR BRICK MANHOLES ONLY.
- MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATER-TIGHT FRAME AND COVERS, STANDARD DETAIL G5-52, WHERE WATER-TIGHT MANHOLE FRAME AND COVER IS USED, SET TOP OF FRAME 1'-6" ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- HOUSE(S) WITH THE SYMBOL "C.N.S." INDICATES THAT CELLAR CANNOT BE SERVICED.

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

[Signature]
COUNTY HEALTH OFFICER
DATE

HOWARD SOIL CONSERVATION DISTRICT:
REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT
AND MEETS TECHNICAL REQUIREMENTS

[Signature] 9/2/04
NATURAL RESOURCES CONSERVATION
DATE

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

[Signature] 9/2/04
HOWARD SOIL CONSERVATION DISTRICT
DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY, MARYLAND

BENCHMARK ENGINEERING, INC.
ENGINEERS & LAND SURVEYORS & PLANNERS
8480 BALTIMORE NATIONAL PIKE A SUITE 418
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

[Signature] 9-15-04
CHIEF, BUREAU OF UTILITIES
DATE

[Signature] 10/15/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE

DESIGN: DBT

DRAFT: DBT

CHK: DAM

DATE: 9-1-04

PLAN VIEW OF SHARED SEPTIC SYSTEM

600 SCALE MAP NO. 50

BLOCK 3

TRIADELPHIA CROSSING
LOTS 1 THRU 22 AND NON-BUILDABLE PRESERVATION PARCELS 'A' THRU 'H'
AND NON-BUILDABLE BULK PARCEL 'I'

FOURTH ELECTION DISTRICT

CONTRACT NO. 50-4207-D

SCALE: AS SHOWN

SHEET NO. 1 OF 4