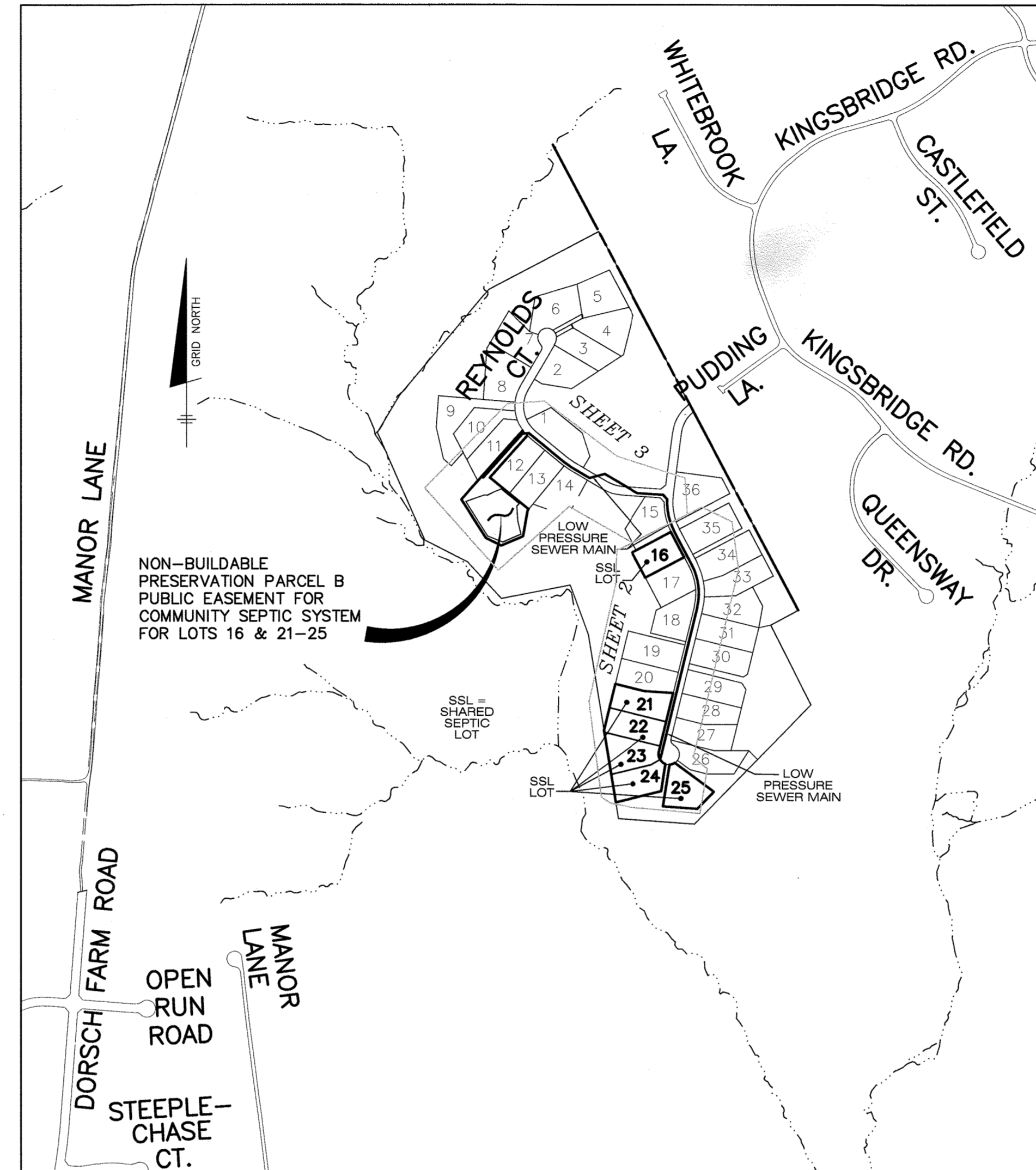
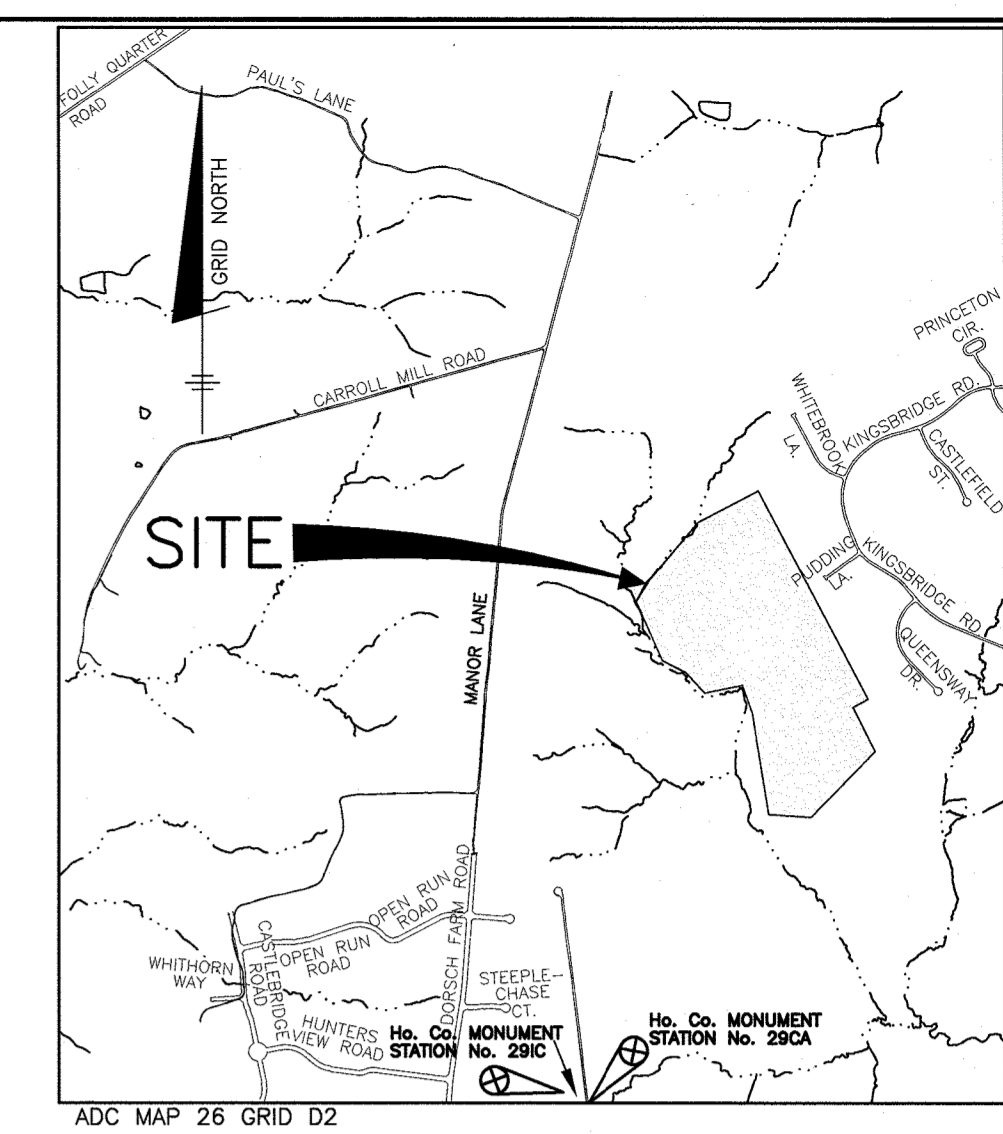


# KINGS FOREST

## FINAL PUBLIC SHARED SEPTIC PLANS

### CONTRACT NO. 50-4866-D

QUANTITIES				
ITEMS	QUANTITIES ESTIMATED	AS-BUILT		
		QUANTITIES	TYPE	MANUF./SUPPLIER
FLUSHING CONNECTIONS	7			
3.00" LOW PRESSURE LATERAL PIPE	1,003			
2.0" LOW PRESSURE SEWER SEWER	4,332			
4" PVC SEWER	1,366			
MANHOLE	2			
3000 GALLON SEPTIC TANK	1			
SIMPLEX GRINDER PUMP	2			
DUPLEX GRINDER PUMP	2			
1/16 HB	1			
1/8 HB	7			
MONITORING WELL	4			
CONC. VAULT w/CONDUCTING ROD	4			
6700 GALLON DOSE TANK	1			
DOSE PUMPS	3			
AIR RELEASE VALVE	1			
4500 GALLON BIO-MICROBICS TANK	1			
3' WIDE TRENCH	1824			
NAME OF UTILITY CONTRACTOR:				
SURVEY AND DRAFTING DIVISION AS-BUILT DATE:				



- SHARED SEPTIC SYSTEM 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 26 PVC OR HDPE EQUIVALENT. SDR 26 PVC PIPE SHALL BE SOLVENT WELDED EXCEPT PORTIONS WITHIN 50 FEET OF A WELL. IN THOSE INSTANCES THE SEWER SHALL BE HDPE 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.
  - 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. FIRST FLOOR SERVICE IS PROVIDED BY GRAVITY.
  - TRENCH REQUIREMENTS, SEPTIC PRETREATMENT, AND TANK CAPACITY IS OUTLINED ON HYDRO-TERRA DESIGN ON SHEETS 9-14.

**VICINITY MAP**  
SCALE: 1" = 2000'

NOTE: ALL JOINTS AND CONNECTIONS LOCATED WITHIN STRUCTURAL FILL AREAS SHALL BE MECHANICALLY RESTRAINED IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION)

**LEGEND**

- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- SEWAGE DISPOSAL AREA
- PROPOSED WELL BOX
- STREAM
- LOW PRESSURE SEWER (LPS)
- SEPTIC TANK
- DRAINFIELD DIVIDE
- SEPTIC TRENCH
- CONTINUITY TEST STATION (C.T.S.)
- FOREST CONSERVATION EASEMENT
- 20% AND GREATER SLOPES
- 25% AND GREATER SLOPES
- FENCE LINE

SHEET INDEX	
NO.	TITLE
1	TITLE SHEET
2	PLAN & PROFILE VIEW
3	PLAN & PROFILE VIEW
4	PLAN & PROFILE VIEW
5	PLAN & PROFILE VIEW
6	PERCOLATION TEST RESULTS
7	CONSTRUCTION DETAILS, AND NOTES
8	SITE PLAN AND PFD
9	DRAINFIELD PLAN
10	TREATMENT SYSTEM DETAIL
11	DISTRIBUTION DETAILS

**LOCATION MAP**

SCALE: 1" = 600'  
ADC MAP PAGE: 26,  
GRID: D2

TYPE OF BUILDING:	SFD
NO. OF LOTS/PARCELS/UNITS:	6
NUMBER OF SHO'S:	6
NUMBER OF WHC'S:	NA
DRAINAGE AREA:	LITTLE PATUXENT
WATER ZONE:	NA
TEST GRADIENT:	NA

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

*[Signature]* 3/14/20  
DATE

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE HOWARD COUNTY STANDARD SPECIFICATIONS AND AS PER F-19-014.

APPROVED:  
APPROVED FOR PRIVATE WATER AND SHARED SEPTIC SYSTEM FOR LOTS 16, 21-25, & NON-BUILDABLE PRESERVATION PARCEL B, AND PRIVATE WATER & SEWER FOR LOTS 1-15, 17-20 & 26-36, BUILDABLE PRESERVATION PARCEL D, NON-BUILDABLE PRESERVATION PARCELS A, B, C & E-1

*[Signature]* 4/24/20  
DATE

**\*\*MAXIMUM NUMBER OF BEDROOMS FOR EACH HOUSE ON LOTS 16, 21-25 SHALL BE FIVE (5).  
\*\*ALL SEWAGE GRINDER PUMPS ARE TO BE PUBLICLY OWNED AND MAINTAINED**

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. 45577, Expiration Date: 06/08/2020.

OWNERS: NATALIE ZIEGLER, 4288 MANOR LANE, ELLICOTT CITY, MARYLAND 21042  
JONATHAN IAN SCHWARTZ, JESSICA AND SOPHIE ZIEGLER C/O SOPHIE ZIEGLER, 730 DOLORES STREET, SAN FRANCISCO, CA 94110, 212-877-8697  
DEVELOPER: TOLL BROS., INC., 7164 COLUMBIA GATEWAY DRIVE, SUITE 230, COLUMBIA, MD 21046, 410-381-3263

**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 IN MAY, 2007 BY SILL, ADCOCK & ASSOCIATES AND IN FEBRUARY, 2003 BY BENCHMARK ENGINEERING, INC.
- HORIZONTAL AND VERTICAL SURVEY CONTROLS: 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. 508A AND NO. 0015.
- ALL VERTICAL CONTROLS ARE BASED ON NAVD '88. VERTICAL CONTROLS PROVIDED ON THE DRAWINGS ARE 508A AND 0015.
- 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 TO 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 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.
- 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  
BCE (CONTRACTOR SERVICES).....410-637-8713  
BCE (EMERGENCY).....410-685-0123  
BUREAU OF UTILITIES.....410-313-4900  
COLONIAL PIPELINE CO.....410-795-1390  
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 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(g) OF THE HOWARD COUNTY CODE.

**PART III SEWER**

- 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.
- LOW PRESSURE SEWERS SHALL BE SDR 21 OR HDPE EQUIVALENT.
- MANHOLES SHOWN WITH 12" AND 16" WALLS ARE FOR BRICK MANHOLES ONLY.
- MANHOLES DESIGNATED W.T. IN PLAN AND PROFILE SHALL HAVE WATERTIGHT FRAME AND COVER, STANDARD DETAIL 05.52, WHERE WATERTIGHT MANHOLE FRAMES AND COVERS ARE 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 SERVED.
- THE DEVELOPER SHALL PROVIDE ONE SPARE GRINDER PUMP TO THE BUREAU OF UTILITIES UPON DEDICATION OF THE SHARED SEPTIC SYSTEM TO THE COUNTY.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*[Signature]* 2-12-2020  
DATE

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND

*[Signature]* 8.4.20  
DATE

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
**ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE • SUITE 315  
ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6844

*[Signature]*  
DATE

DESIGN: JC				
DRAFT: JC				
CHK: -				
DATE: 11-26-19				
BY	NO.	REVISIONS	DATE	

**FINAL PUBLIC SHARED SEPTIC SYSTEM PLANS**  
**TITLE SHEET**

600 SCALE MAP No.: 23 BLOCK: 23 200 SCALE MAP No.:

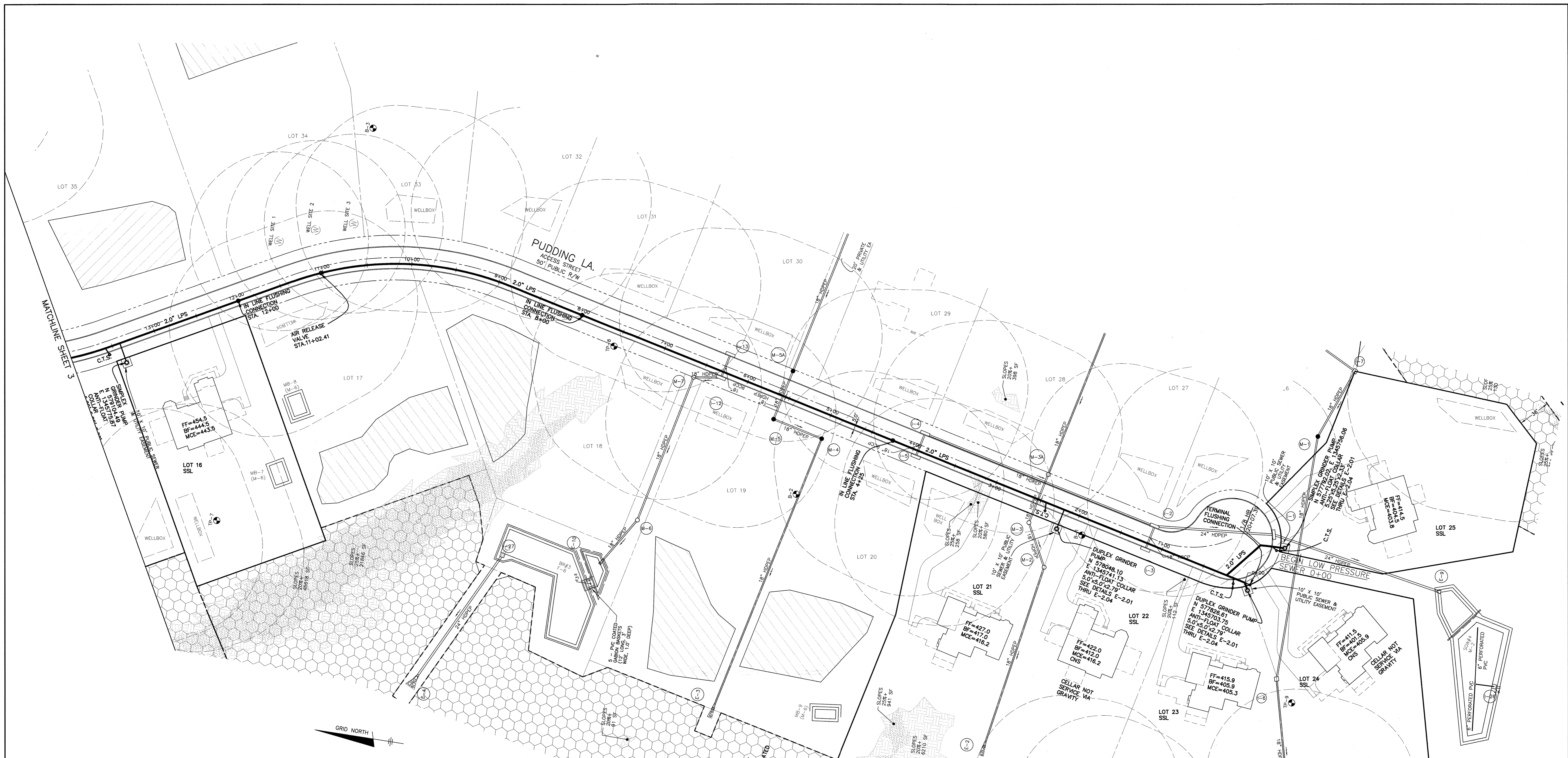
**KINGS FOREST**  
LOTS 16, 21 thru 25 and  
NON-BUILDABLE PRESERVATION PARCEL 'B'

TAX MAP: 23 - BLOCK: 23 - PARCEL: 148 - ZONED: RG-DEO - ELECTION DISTRICT: 2

**CONTRACT NO. 50-4866-D**

SCALE: AS SHOWN  
SHEET NO. 1 OF 11

1/25/21 Carroll-Ziegler Parcel Pfd.dwg/6000 revision in process.dwg, 11/26/2019 8:22:27 AM



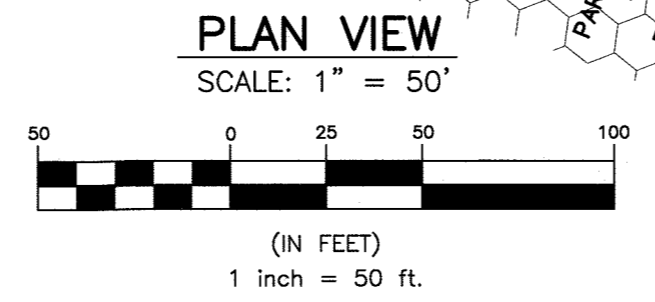
THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

*John R. [Signature]* 3/14/20  
 HOWARD SOIL CONSERVATION DISTRICT DATE

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION JOB OF THE HOWARD COUNTY STANDARD SPECIFICATIONS AND AS PER F-19-014.

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*[Signature]* 4/24/20  
 COUNTY HEALTH OFFICER DATE

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



NON-BUILDABLE PRESERVATION PARCEL A TO HOWARD COUNTY, EASEMENT HELD BY HOWARD COUNTY, 37-00 AC. TOTAL

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. 45577. Expiration Date: 06-08-2020.

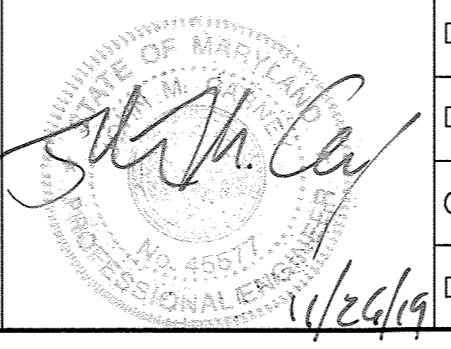
OWNERS:  
 NATALIE ZIEGLER  
 4288 MANOR LANE  
 ELLICOTT CITY, MARYLAND 21042

DEVELOPER:  
 TOLL BROS., INC.  
 7164 COLUMBIA GATEWAY DRIVE  
 SUITE 230  
 COLUMBIA, MD 21046  
 410-381-3263

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND  
*[Signature]* 2-12-2020  
 CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING  
 HOWARD COUNTY, MARYLAND  
*[Signature]* 8-4-20  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

**BENCHMARK**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
**ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE • SUITE 315  
 ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-485-6105 FAX: 410-485-6844

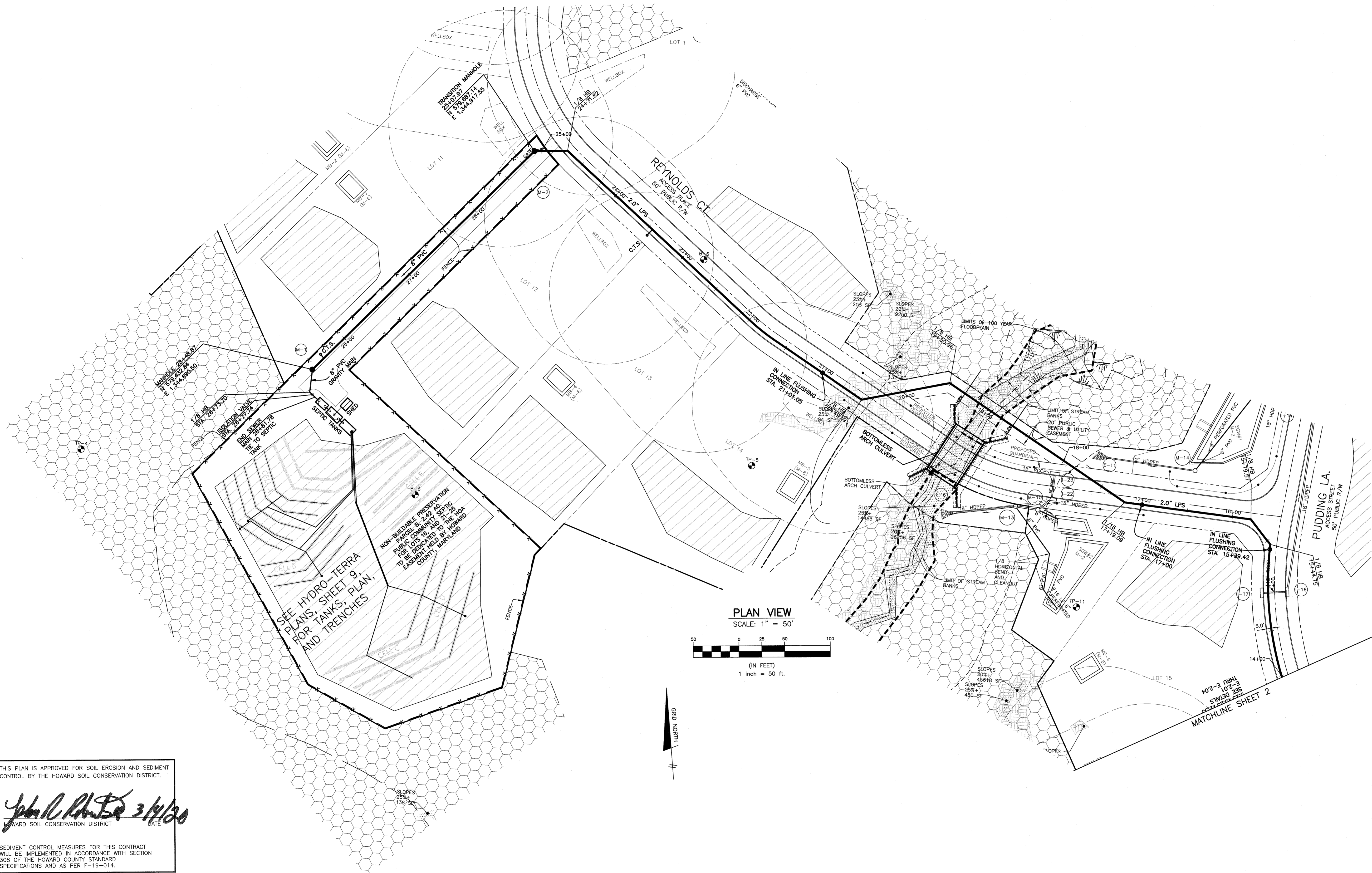


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CHK:	-				
DATE:	11-26-19				
BY:	NO.				
REVISIONS:					
DATE:					

**FINAL PUBLIC SHARED SEPTIC SYSTEM PLANS  
 PLAN & PROFILE**

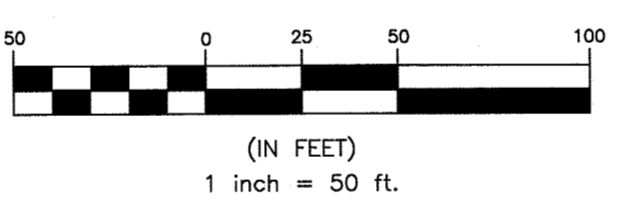
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 LOTS 16, 21 thru 25 and  
 NON-BUILDABLE PRESERVATION PARCEL 'B'  
 TAX MAP: 23 - BLOCK: 23 - PARCEL: 148 - ZONED: RC-DEO - ELECTION DISTRICT: 2  
**CONTRACT NO. 50-4866-D**

SCALE:  
 AS SHOWN  
 SHEET NO.  
 2 OF 11



SEE HYDRO-TERRA PLANS, SHEET 9, FOR TANKS, PLAN, AND TRENCHES

PLAN VIEW  
SCALE: 1" = 50'



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

*John A. Roberts* 3/14/20  
HOWARD SOIL CONSERVATION DISTRICT DATE

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*David J. Davis* 4/24/20  
COUNTY HEALTH OFFICER DATE

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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. 45577, Expiration Date: 06/08-2020.

OWNERS: NATALIE ZIEGLER, 4288 MANOR LANE, ELLICOTT CITY, MARYLAND 21042  
DEVELOPER: TOLL BROS., INC., 7164 COLUMBIA GATEWAY DRIVE, SUITE 230, COLUMBIA, MD 21046, 410-381-3263  
OTHER OWNERS: JONATHAN IAN SCHWARTZ, JESSICA AND SOPHIE ZIEGLER C/O SOPHIE ZIEGLER, 730 DOLORES STREET, SAN FRANCISCO, CA 94110, 212-877-3697

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND  
*Chris* 2-12-2020  
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND  
*Al* 8-4-20  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
8480 BALTIMORE NATIONAL PIKE • SUITE 315  
ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644

*John A. Roberts*  
PROFESSIONAL ENGINEER  
4/24/19

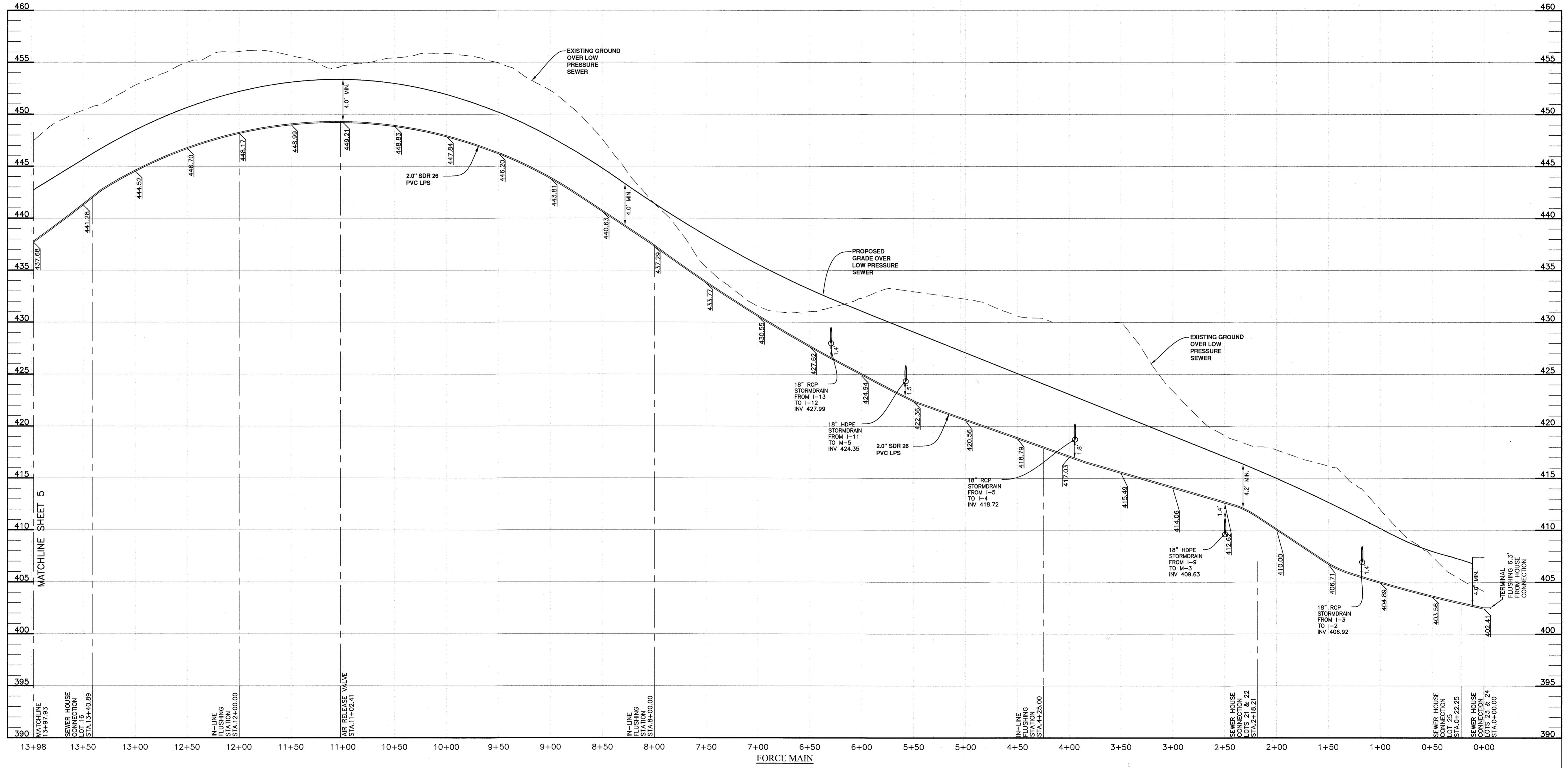
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DRAFT:	JC				
CHK:	-				
DATE:	11-26-19				
BY:	NO.				
		REVISIONS		DATE	

**FINAL PUBLIC SHARED SEPTIC SYSTEM PLANS  
PLAN & PROFILE**  
600 SCALE MAP No.: 23 BLOCK: 23 200 SCALE MAP No.:

**KINGS FOREST**  
LOTS 16, 21 thru 25 and  
NON-BUILDABLE PRESERVATION PARCEL 'B'  
TAX MAP: 23 - BLOCK: 23 - PARCEL: 148 - ZONED: RC-DEO - ELECTION DISTRICT: 2  
**CONTRACT NO. 50-4866-D**

SCALE:  
AS SHOWN  
SHEET NO.  
3 OF 11

11/26/2019 Carol Ziegler Parcel King16000 revision in process.dwg, 11/26/2019 12:06:27 PM



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

*John R. Roberts* 3/14/20  
 HOWARD SOIL CONSERVATION DISTRICT DATE

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*Paul J. Davis* 4/24/20  
 COUNTY HEALTH OFFICER DATE

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 JONATHAN IAN SCHWARTZ, JESSICA AND SOPHIE ZIEGLER, C/O SOPHIE ZIEGLER, 730 DOLORES STREET, SAN FRANCISCO, CA 94110, 212-677-8697

**PROFILE**  
 HORIZONTAL SCALE: 1" = 50'  
 VERTICAL SCALE: 1" = 5'

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND  
*Paul J. Davis* 2-12-2020  
 CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING  
 HOWARD COUNTY, MARYLAND  
*Paul J. Davis* 2-12-2020  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

**BENCHMARK ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE SUITE 315, ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-485-6105 FAX: 410-485-6644

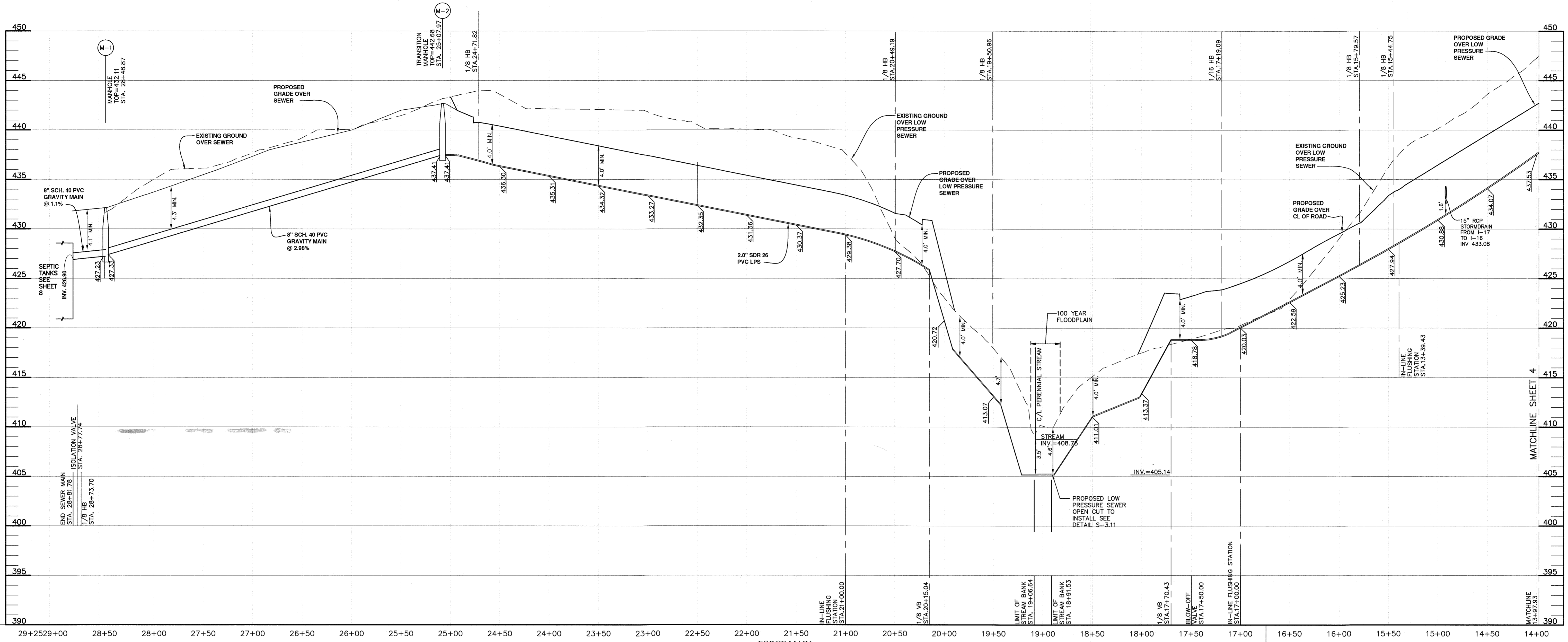
Professional Engineer Seal for *Sh. M. Co.*  
 DATE: 11-26-19

DESIGN: JC			
DRAFT: JC			
CHK: -			
DATE: 11-26-19	BY	NO.	REVISIONS

**FINAL PUBLIC SHARED SEPTIC SYSTEM PLANS  
 PLAN & PROFILE**  
 600 SCALE MAP No.: 23 BLOCK: 23 200 SCALE MAP No.:

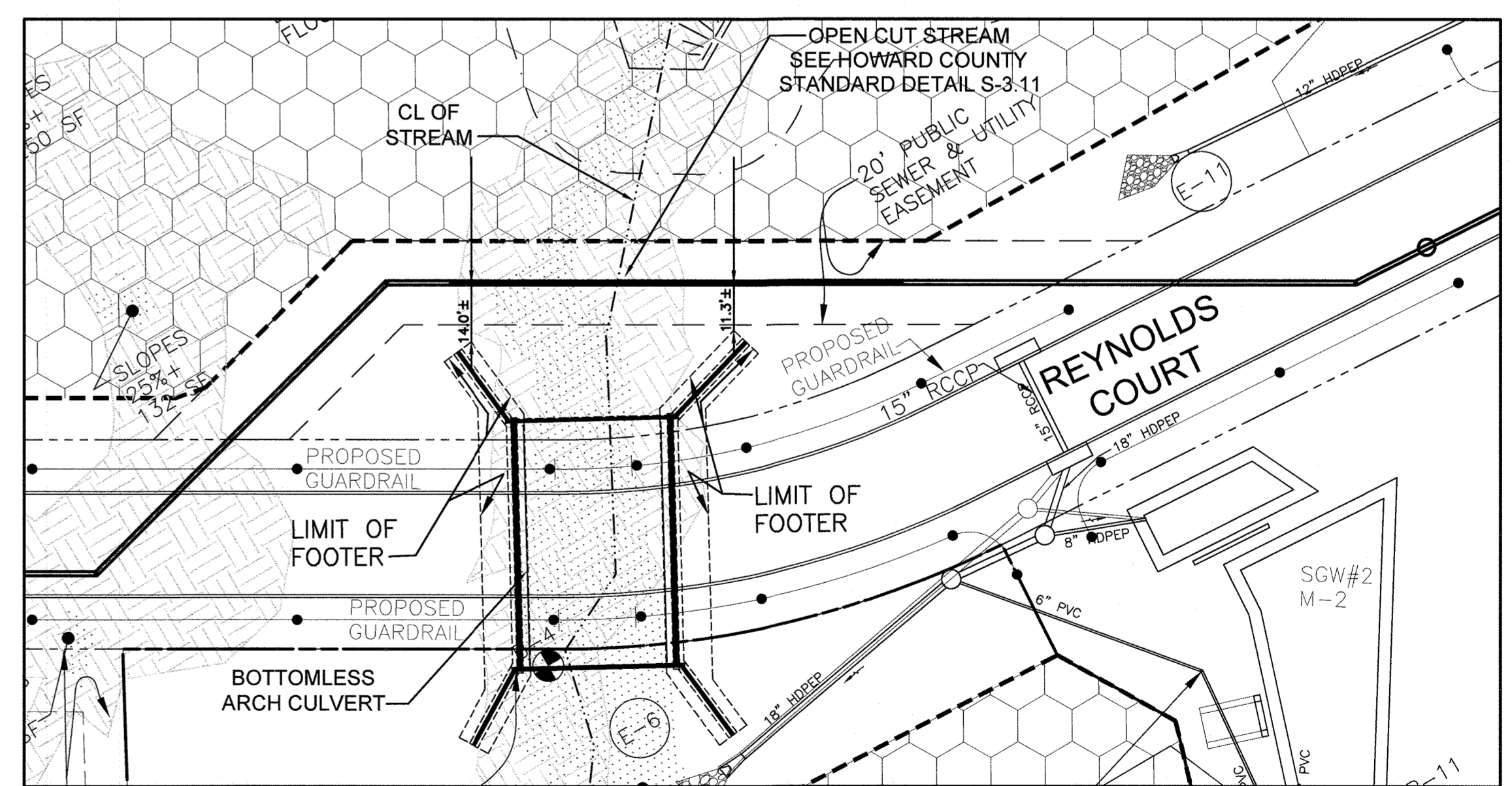
**KINGS FOREST**  
 LOTS 16, 21 thru 25 and NON-BUILDABLE PRESERVATION PARCEL 'B'  
 TAX MAP: 23 - BLOCK: 23 - PARCEL: 148 - ZONED: RC-DEO - ELECTION DISTRICT: 2  
**CONTRACT NO. 50-4866-D**

SCALE: AS SHOWN  
 SHEET NO. 4 OF 11



**FORCE MAIN PROFILE**  
 HORIZONTAL SCALE: 1" = 50'  
 VERTICAL SCALE: 1" = 5'

- NOTES:
1. CONTRACTOR SHALL EXERCISE CAUTION WHEN INSTALLING FORCE MAIN IN THE EXISTING PERENNIAL STREAM. THE TRENCH IS TO BE BACKFILLED WITH NATIVE MATERIAL SALVAGED FROM THE EXCAVATION IF POSSIBLE.
  2. CONTRACTOR SHOULD PRESERVE EXISTING TREES AND NATURAL AREAS IN AND AROUND WETLANDS AS MUCH AS POSSIBLE.
  3. WHERE WETLAND VEGETATION CANNOT BE AVOIDED, COMPLETE THE WORK BY HAND OR CHAIN SAW INSTEAD OF USING LARGE EQUIPMENT.



**STREAM CROSSING DETAIL**  
 SCALE: 1" = 30'

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

*John P. Davis* 3/1/20  
 HOWARD SOIL CONSERVATION DISTRICT DATE

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*Ms. Tracy J. Davis* 4/29/20  
 COUNTY HEALTH OFFICER DATE

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 4288 MANOR LANE  
 ELLICOTT CITY, MARYLAND 21042

DEVELOPER:  
 JONATHAN IAN SCHWARTZ,  
 JESSICA AND SOPHIE ZIEGLER  
 C/O SOPHIE ZIEGLER  
 730 DOLORES STREET  
 SAN FRANCISCO, CA 94110  
 212-677-8697

DEVELOPER:  
 TOLL BROS., INC.  
 7164 COLUMBIA GATEWAY DRIVE  
 SUITE 230  
 COLUMBIA, MD 21046  
 410-381-3263

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND  
*Christy* 2-12-2020  
 CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING  
 HOWARD COUNTY, MARYLAND  
*W. J. Davis* 8.4.20  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
 8480 BALTIMORE NATIONAL PIKE • SUITE 315  
 ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6644

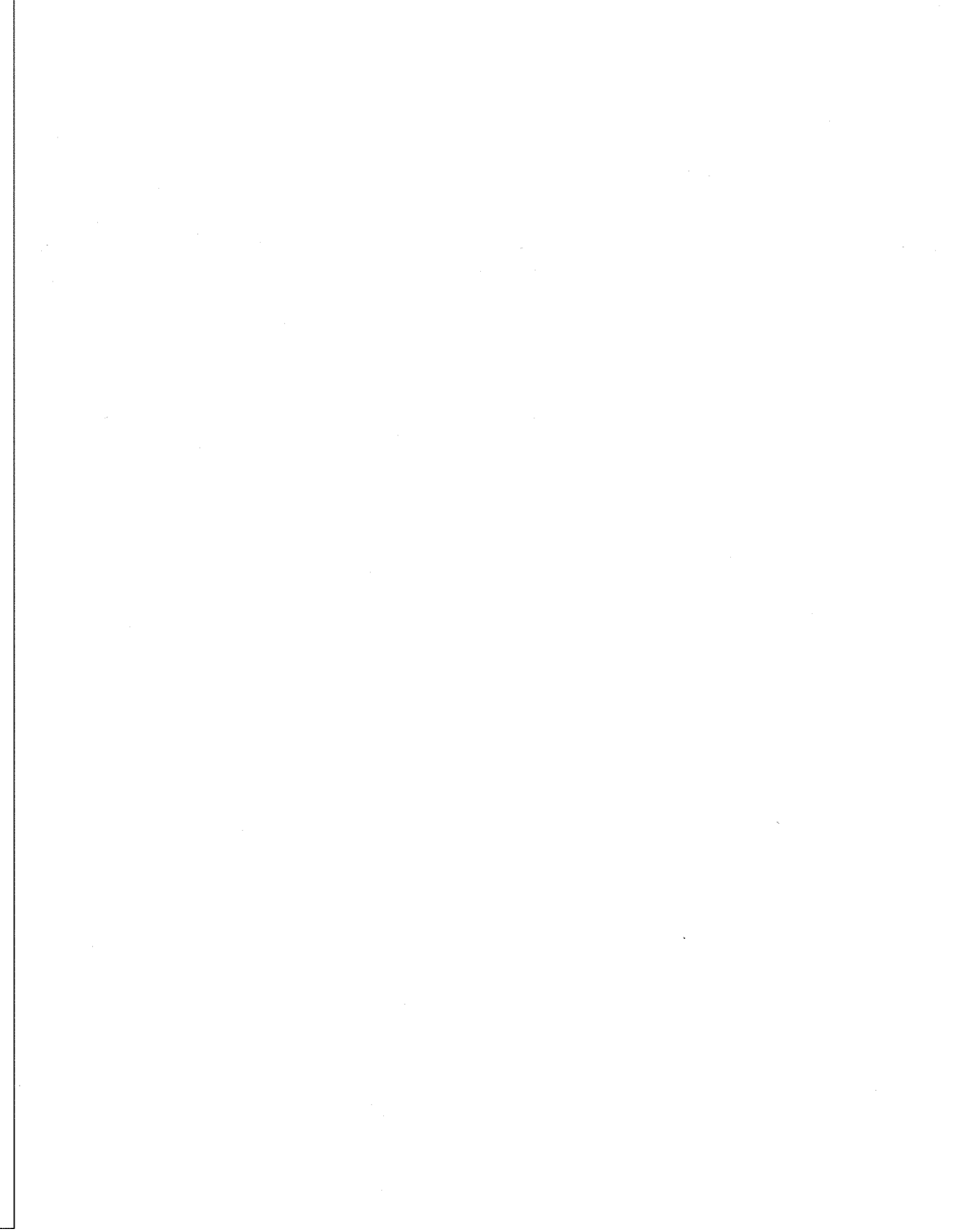
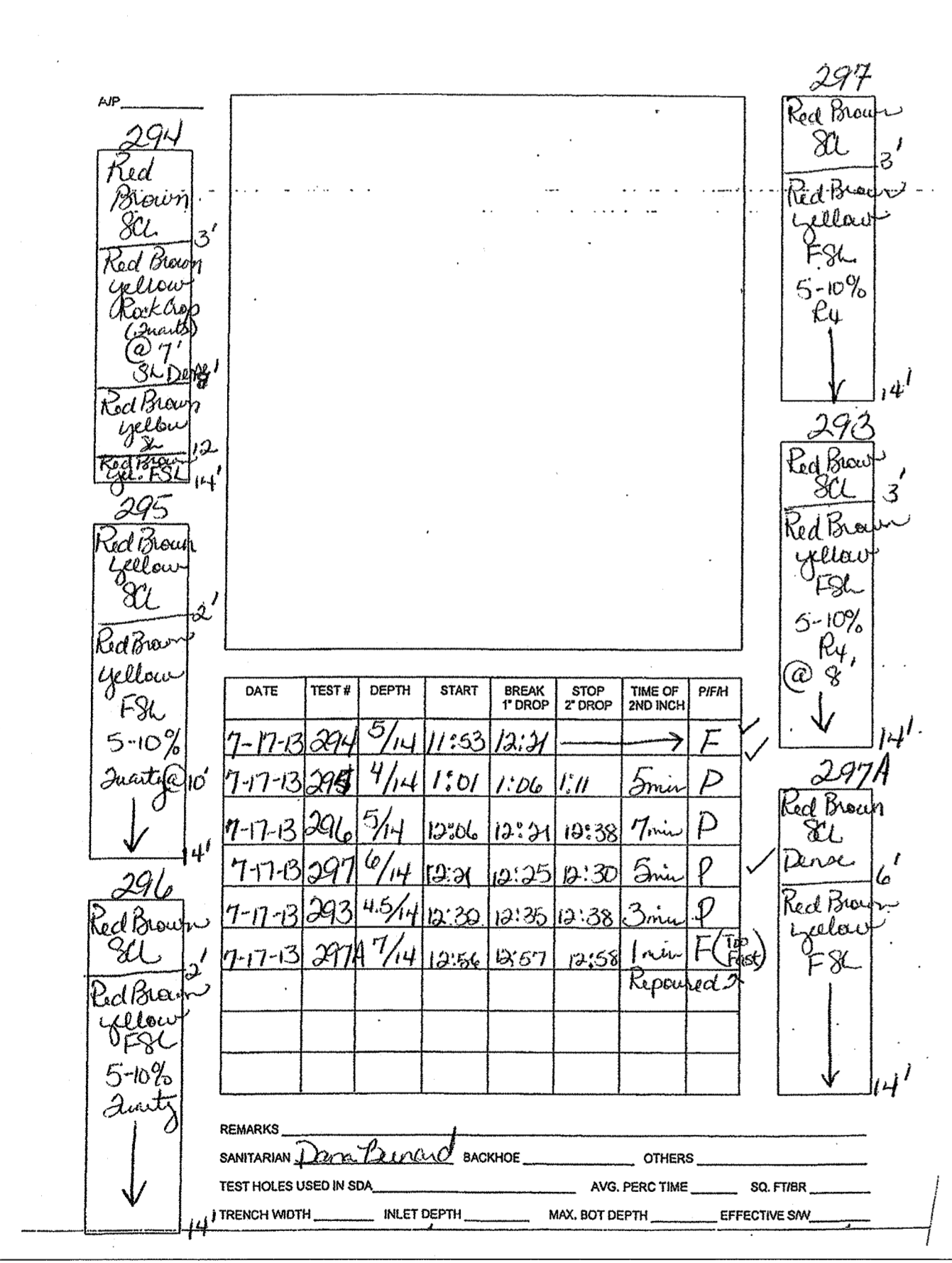
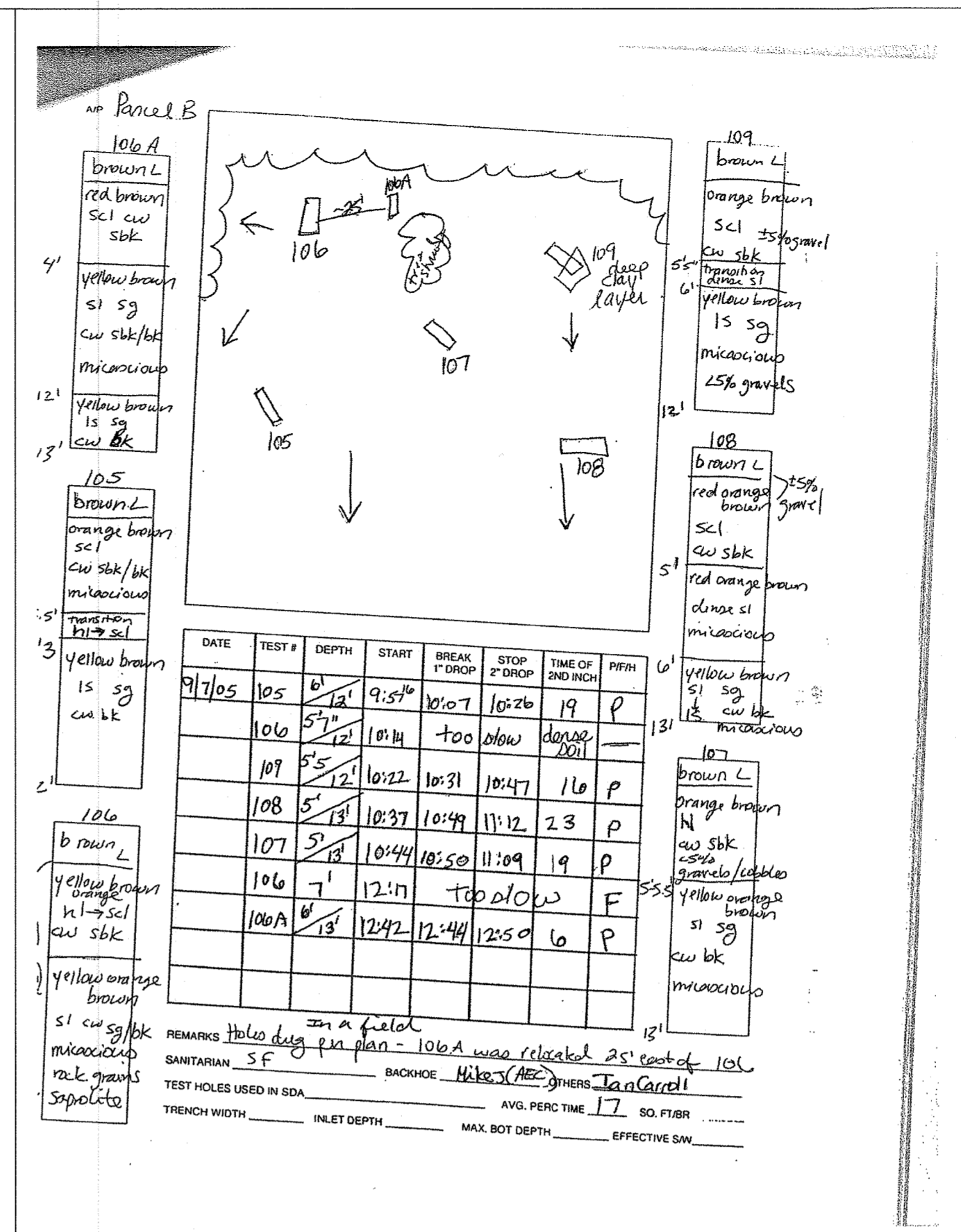
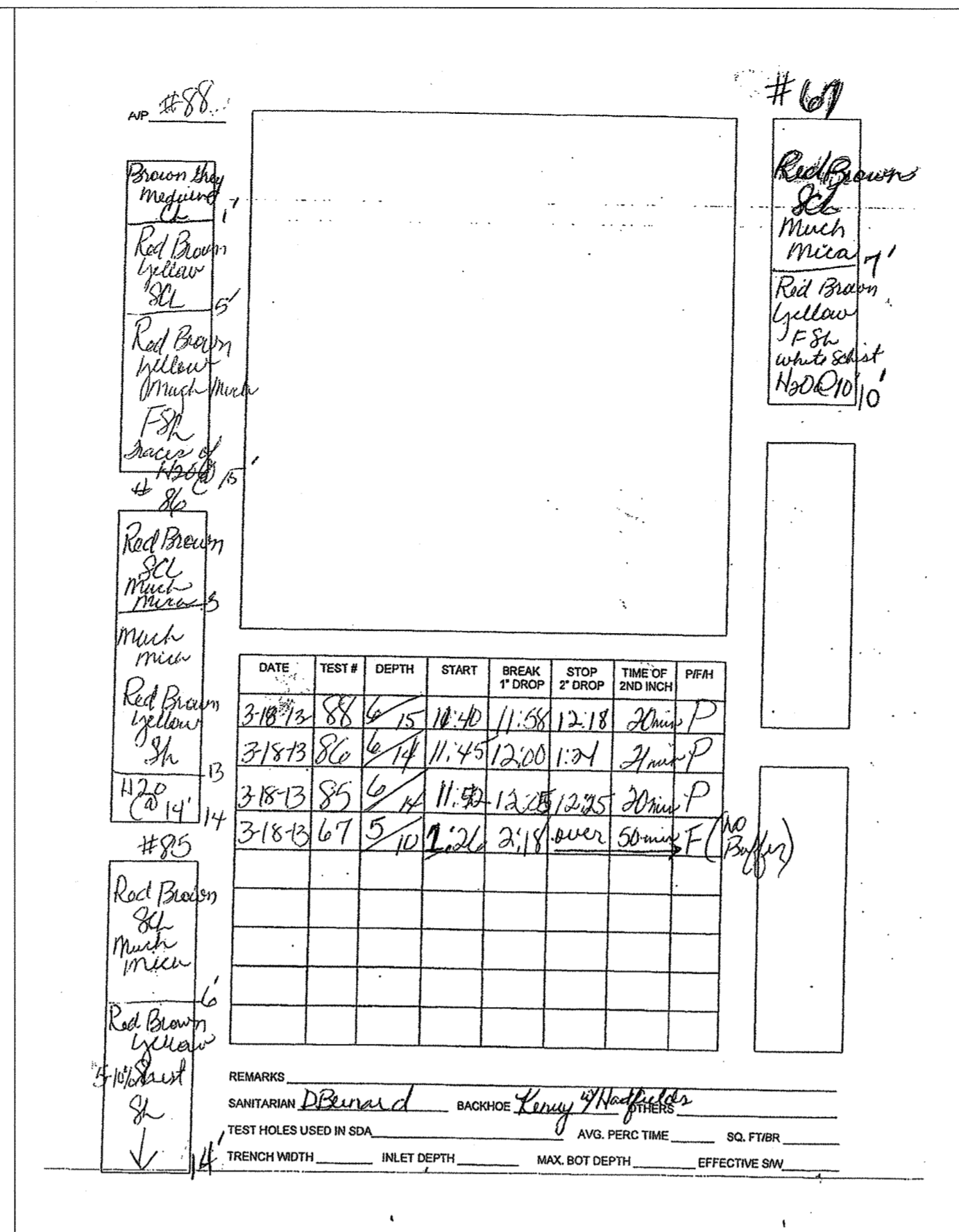
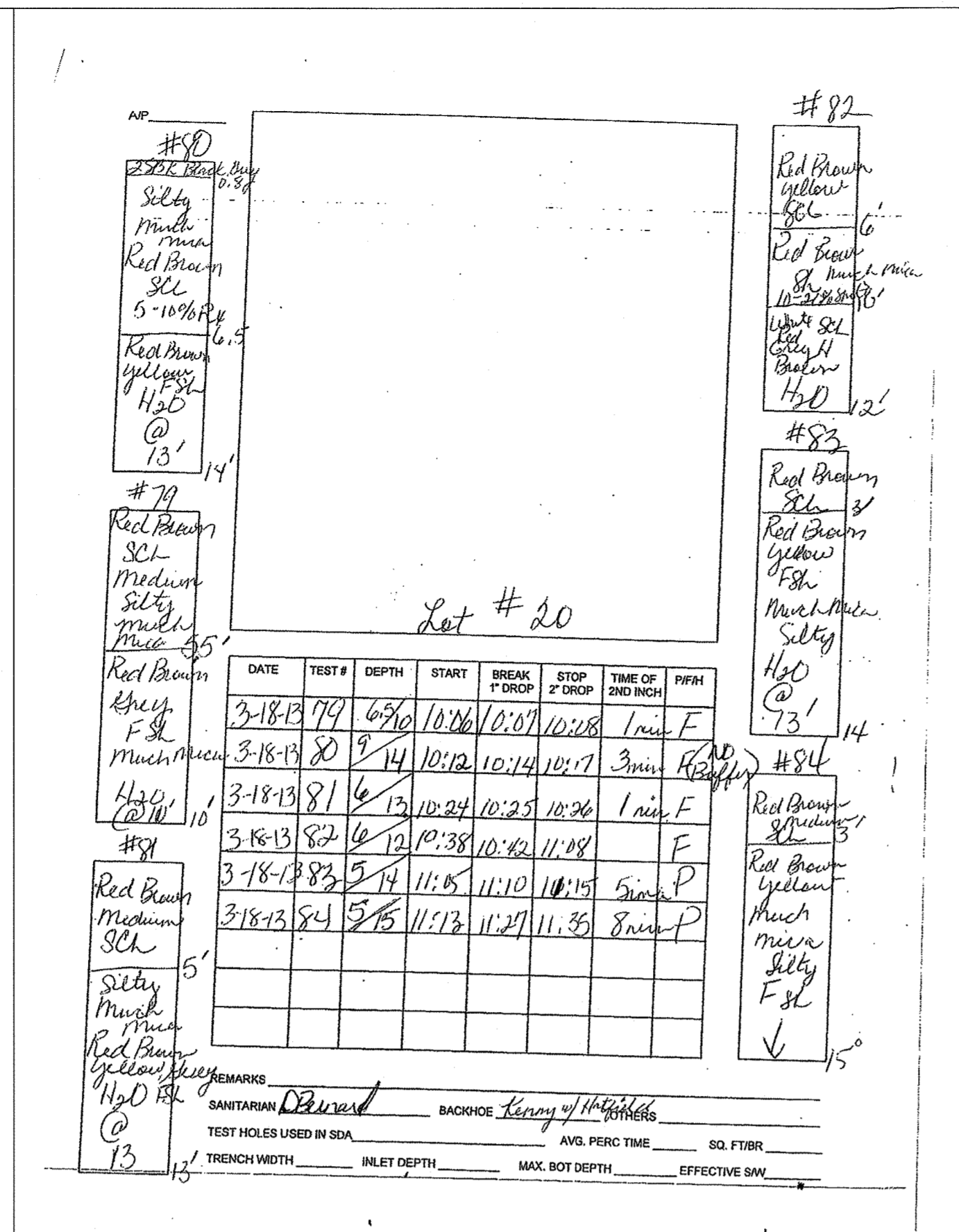
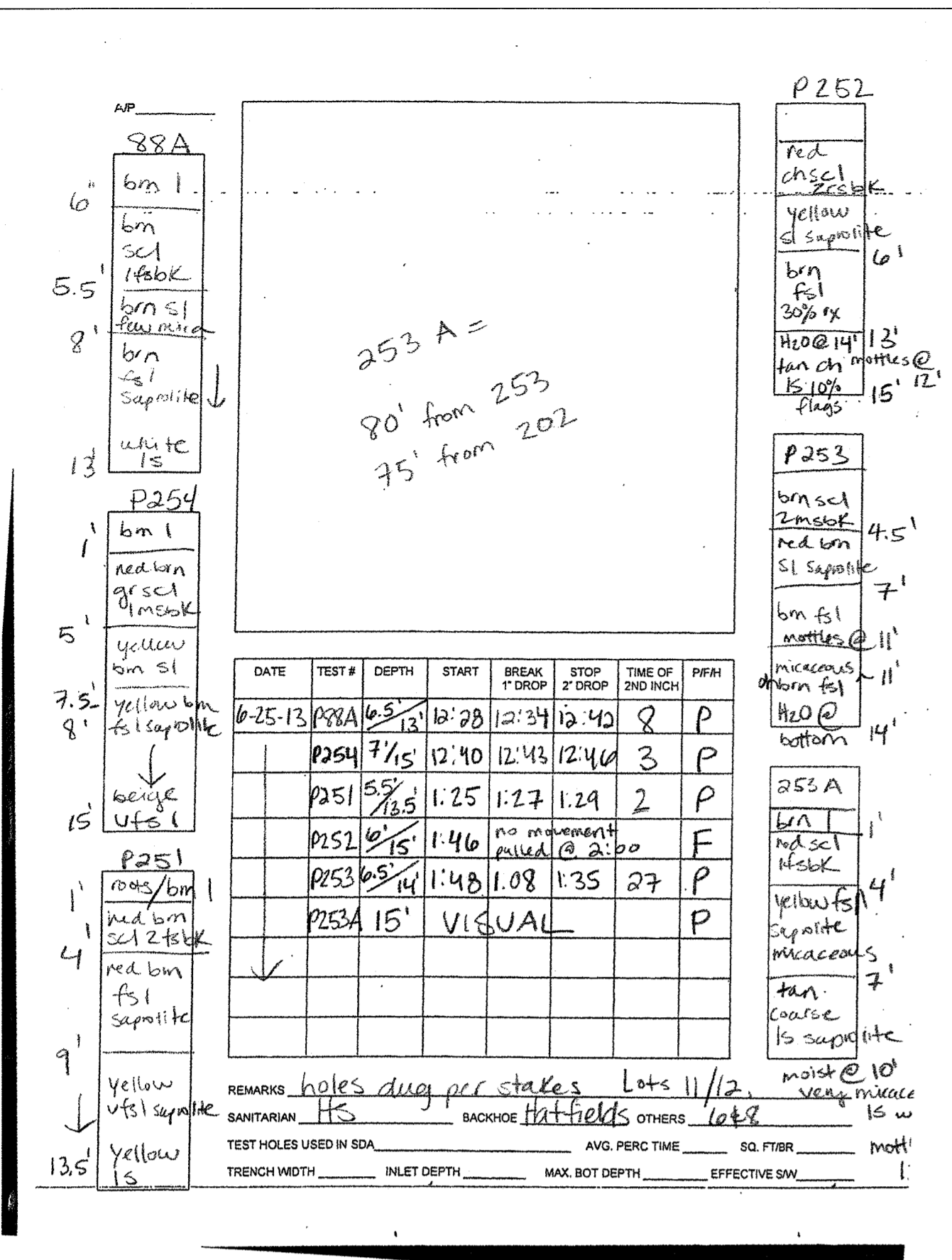
*Dr. M. Coyle*  
 PROFESSIONAL ENGINEER  
 4/29/19

DESIGN:	JC				
DRAFT:	JC				
CHK:	-				
DATE:	11-26-19				
BY:	NO.				
REVISIONS:					
DATE:					

**FINAL PUBLIC SHARED SEPTIC SYSTEM PLANS  
 PLAN & PROFILE**  
 600 SCALE MAP No.: 23 BLOCK: 23 200 SCALE MAP No.:

**KINGS FOREST**  
 LOTS 16, 21 thru 25 and  
 NON-BUILDABLE PRESERVATION PARCEL 'B'  
 TAX MAP: 23 - BLOCK: 23 - PARCEL: 148 - ZONED: RC-DEO - ELECTION DISTRICT: 2  
**CONTRACT NO. 50-4866-D**

SCALE:  
 AS SHOWN  
 SHEET NO.  
 5 OF 11



APPROVED:  
 APPROVED FOR PRIVATE WATER AND SHARED SEPTIC SYSTEM FOR LOTS 16, 21-25, & NON-BUILDABLE PRESERVATION PARCEL B, AND PRIVATE WATER & SEWER FOR LOTS 1-15, 17-20 & 28-36, BUILDABLE PRESERVATION PARCEL D, NON-BUILDABLE PRESERVATION PARCELS A, B, C & E-1

*[Signature]* 4/24/14  
 COUNTY HEALTH OFFICER DATE

**\*\*MAXIMUM NUMBER OF BEDROOMS FOR EACH HOUSE ON LOTS 16, 21-25 SHALL BE FIVE (5). \*\*ALL SEWAGE GRINDER PUMPS ARE TO BE PUBLICLY OWNED AND MAINTAINED**

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. 45577, Expiration Date: 06-06-2020.

OWNERS: NATALIE ZIEGLER, 4288 MANOR LANE, ELLICOTT CITY, MARYLAND 21042

JONATHAN IAN SCHWARTZ, JESSICA AND SOPHIE ZIEGLER, C/O SOPHIE ZIEGLER, 730 DOLORES STREET, SAN FRANCISCO, CA 94110, 212-877-8697

DEVELOPER: TOLL BROS., INC., 7164 COLUMBIA GATEWAY DRIVE, SUITE 230, COLUMBIA, MD 21046, 410-381-3263

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

HOWARD SOIL CONSERVATION DISTRICT DATE

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE HOWARD COUNTY STANDARD SPECIFICATIONS AND AS PER F-19-014.

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

*[Signature]* 2-12-2020  
 CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING  
 HOWARD COUNTY, MARYLAND

*[Signature]* 8.4.20  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

**BENCHMARK**  
 ENGINEERS • LAND SURVEYORS • PLANNERS

8480 BALTIMORE NATIONAL PIKE • SUITE 315  
 ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-8105 FAX: 410-465-8644

DESIGN: JC  
 DRAFT: JC  
 CHK: -  
 DATE: 11-26-19

BY	NO.	REVISIONS	DATE

**FINAL PUBLIC SHARED SEPTIC SYSTEM PLANS PERCOLATION TEST RESULTS**

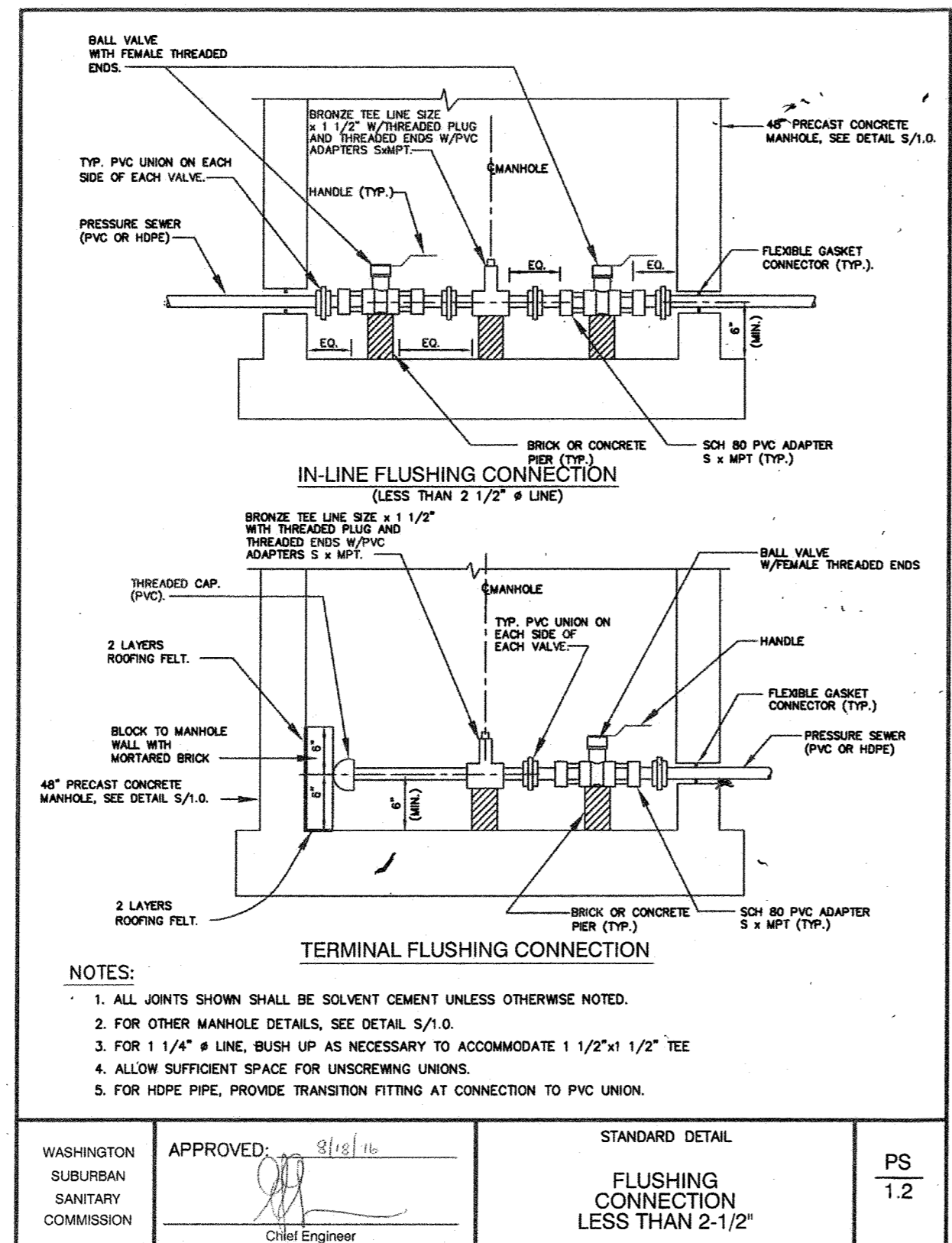
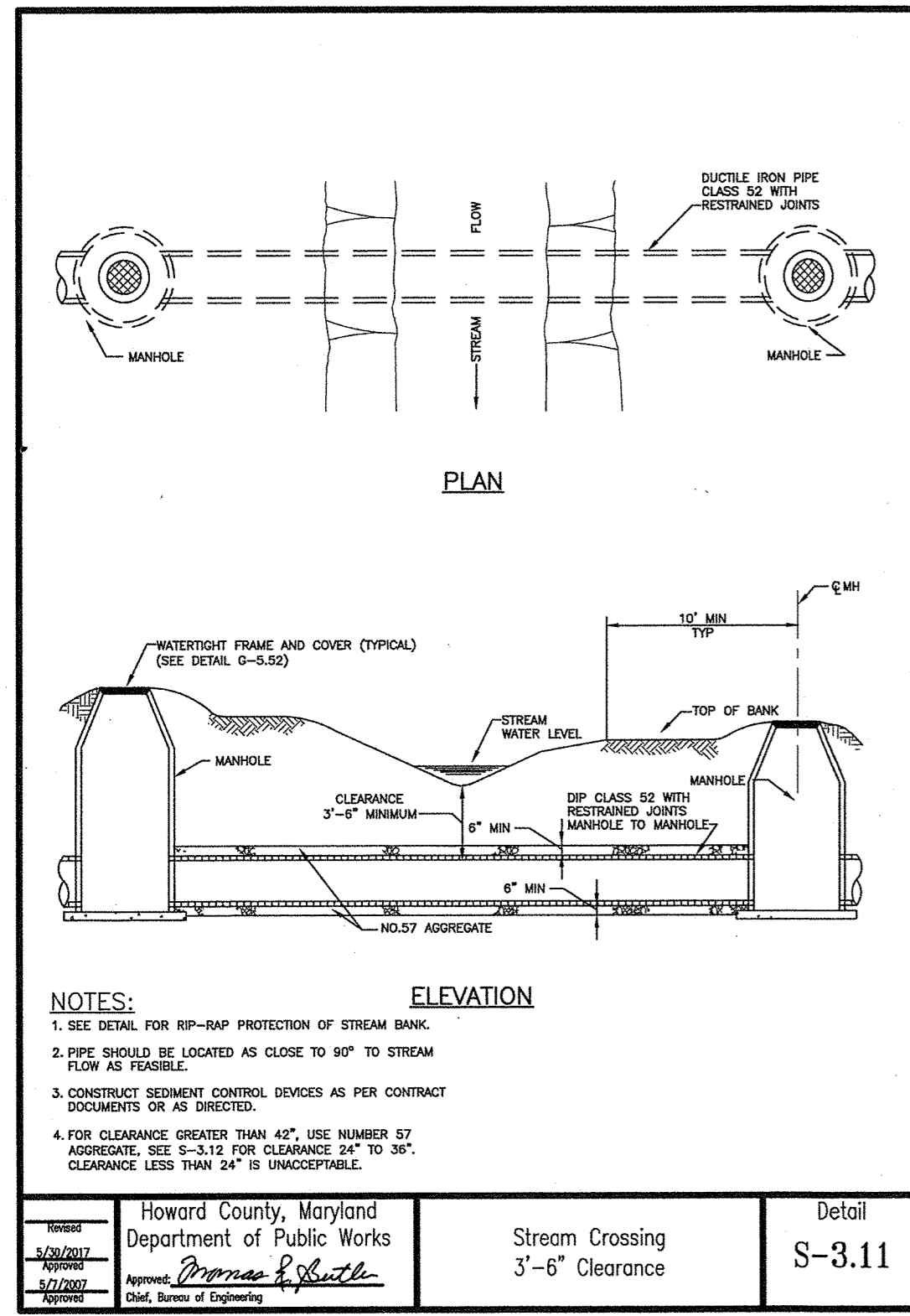
600 SCALE MAP No.: 23 BLOCK: 23 200 SCALE MAP No.:

**KINGS FOREST**  
 LOTS 16, 21 thru 25 and NON-BUILDABLE PRESERVATION PARCEL 'B'

TAX MAP: 23 - BLOCK: 23 - PARCEL: 148 - ZONED: RC-DEO - ELECTION DISTRICT: 2

**CONTRACT NO. 50-4866-D**

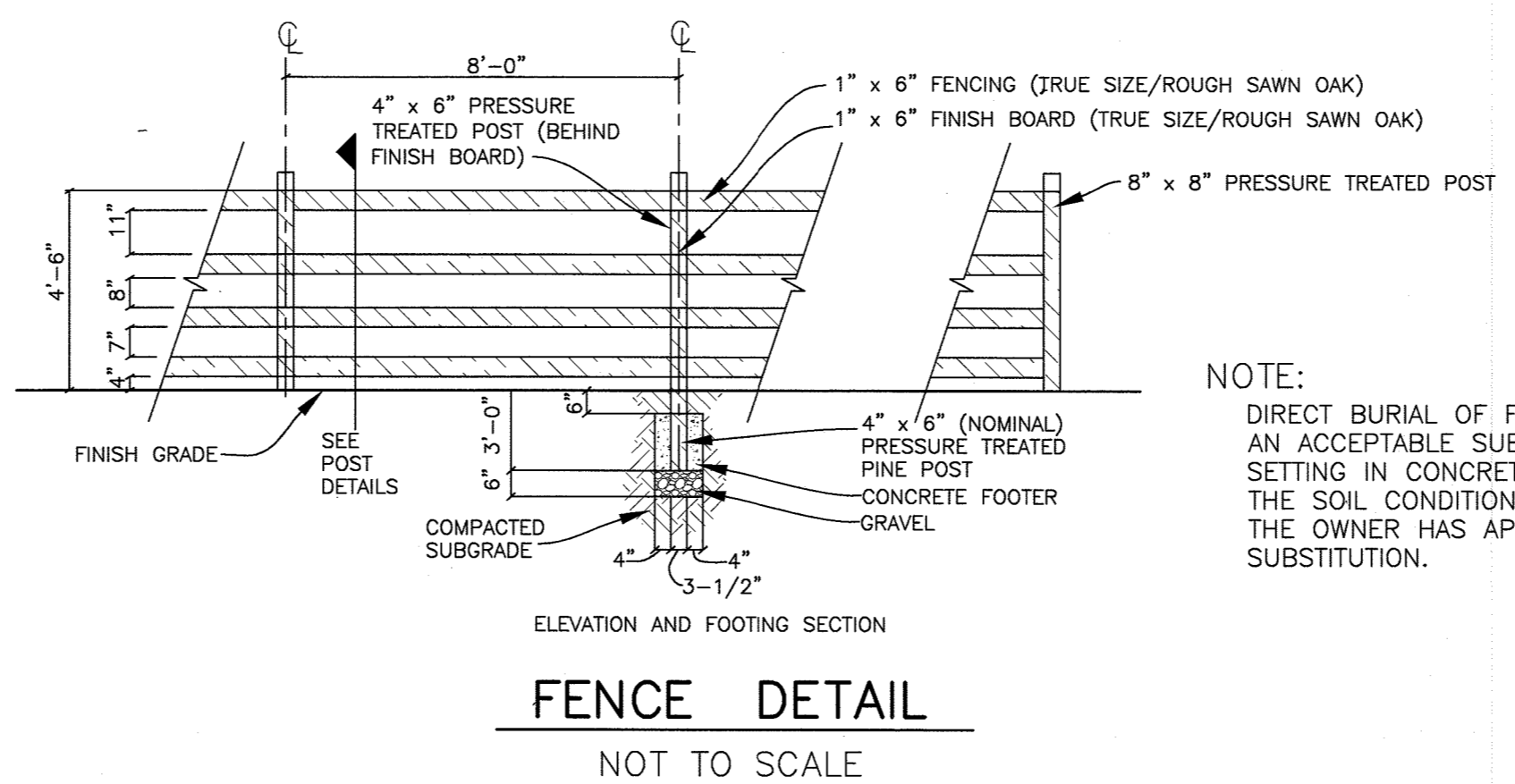
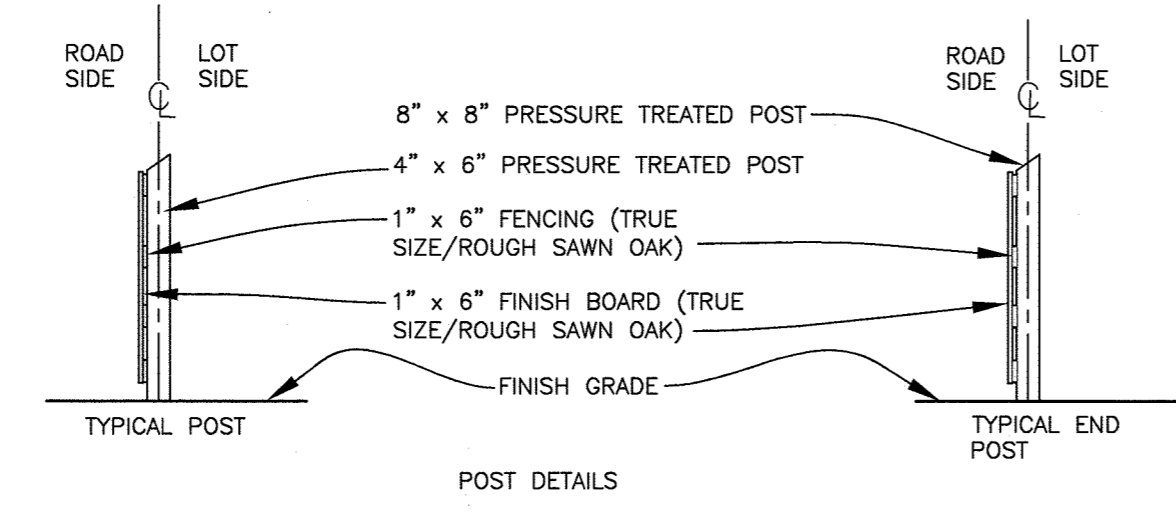
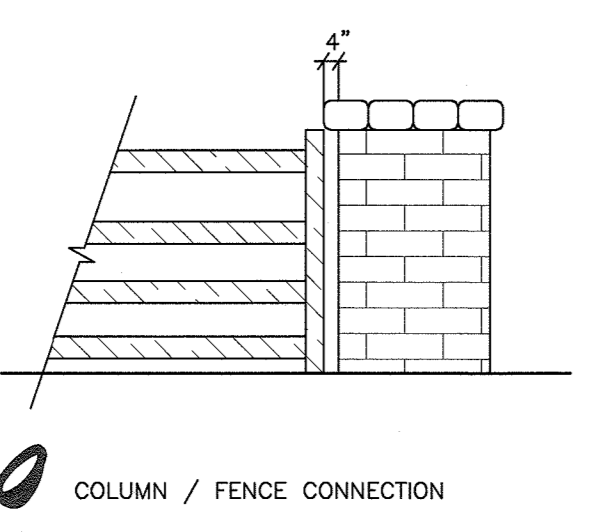
SCALE: AS SHOWN  
 SHEET NO. 6 OF 11



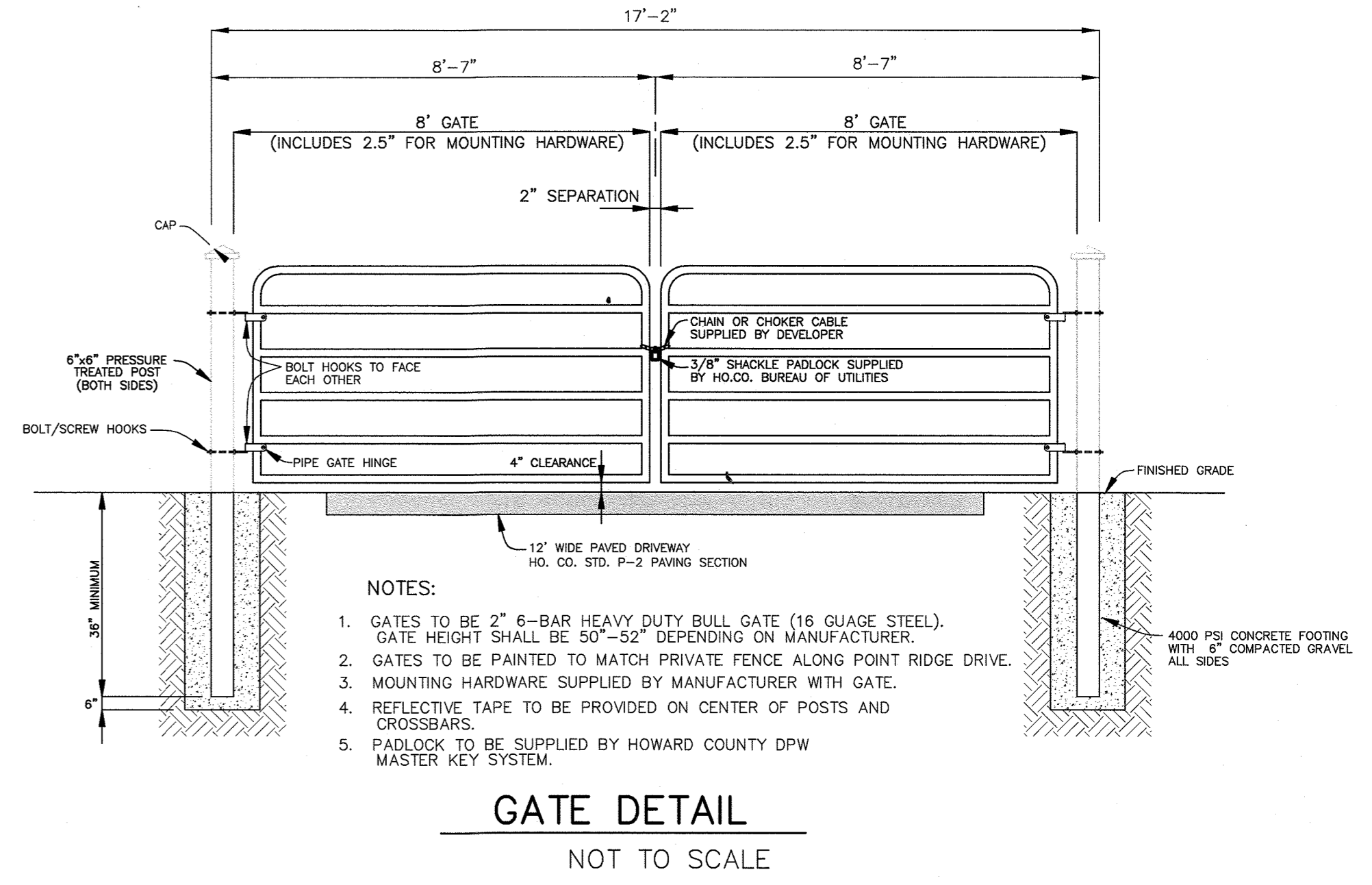
**ENVIRONMENT ONE GRINDER PUMP DATA TABLE**

LOTS	TOP ELEV.	GRINDER PUMP BASIN BOTTOM ELEV.	DEPTH	INLET ELEV.	DISCHARGE ELEV.	ANTI-FLOAT VOLUME	ANTI-FLOAT DIMENSIONS	REMARKS
16	446.8	436.8	10.00' (120")	440.9	444.3	44.27 C.F.	5.25'x5.25'x2.33'	HO. CO. STANDARD SIMPLEX
21 & 22	418.1	408.1	10.00' (120")	412.0	415.6	45.34 C.F.	5.0'x5.0'x2.79'	HO. CO. STANDARD DUPLEX
23 & 24	408.0	398.0	10.00' (120")	402.0	405.5	45.34 C.F.	5.0'x5.0'x2.79'	HO. CO. STANDARD DUPLEX
25	406.5	396.5	10.00' (120")	400.0	404.0	44.27 C.F.	5.25'x5.25'x2.33'	HO. CO. STANDARD SIMPLEX

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



**NOTE:**  
DIRECT BURIAL OF FENCE POST IS AN ACCEPTABLE SUBSTITUTION TO SETTING IN CONCRETE PROVIDED THE SOIL CONDITIONS PERMIT AND THE OWNER HAS APPROVED THE SUBSTITUTION.



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

*[Signature]* 3/14/20  
HOWARD SOIL CONSERVATION DISTRICT DATE

SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE HOWARD COUNTY STANDARD SPECIFICATIONS AND AS PER F-19-014.

APPROVED:  
APPROVED FOR PRIVATE WATER AND SHARED SEPTIC SYSTEM FOR LOTS 16, 21-25, & NON-BUILDABLE PRESERVATION PARCEL B, AND PRIVATE WATER & SEWER FOR LOTS 1-15, 17-20 & 26-36, BUILDABLE PRESERVATION PARCEL D, NON-BUILDABLE PRESERVATION PARCELS A, B, C & E-1

*[Signature]* 4/24/20  
COUNTY HEALTH OFFICER DATE

**\*\*MAXIMUM NUMBER OF BEDROOMS FOR EACH HOUSE ON LOTS 16, 21-25 SHALL BE FIVE (5).  
\*\*ALL SEWAGE GRINDER PUMPS ARE TO BE PUBLICLY OWNED AND MAINTAINED**

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. 45577, Expiration Date: 06-09-2020.

**OWNERS:**  
NATALIE ZIEGLER  
4288 MANOR LANE  
ELLCOTT CITY, MARYLAND 21042

**DEVELOPER:**  
TOLL BROS., INC.  
7164 COLUMBIA GATEWAY DRIVE  
SUITE 230  
COLUMBIA, MD 21046  
410-381-3263

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*[Signature]* 2-2-2020  
CHIEF, BUREAU OF UTILITIES DATE

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND

*[Signature]* 3/4/20  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

**BENCHMARK ENGINEERING, INC.**  
8480 BALTIMORE NATIONAL PIKE SUITE 315  
ELLCOTT CITY, MARYLAND 21043  
PHONE: 410-465-8105 FAX: 410-465-6644

*[Signature]*  
Professional Engineer  
4/26/19

DESIGN: JC				
DRAFT: JC				
CHK: -				
DATE: 11-26-19				
BY	NO.	REVISIONS	DATE	

**FINAL PUBLIC SHARED SEPTIC SYSTEM PLANS CONSTRUCTION DETAILS, AND NOTES**

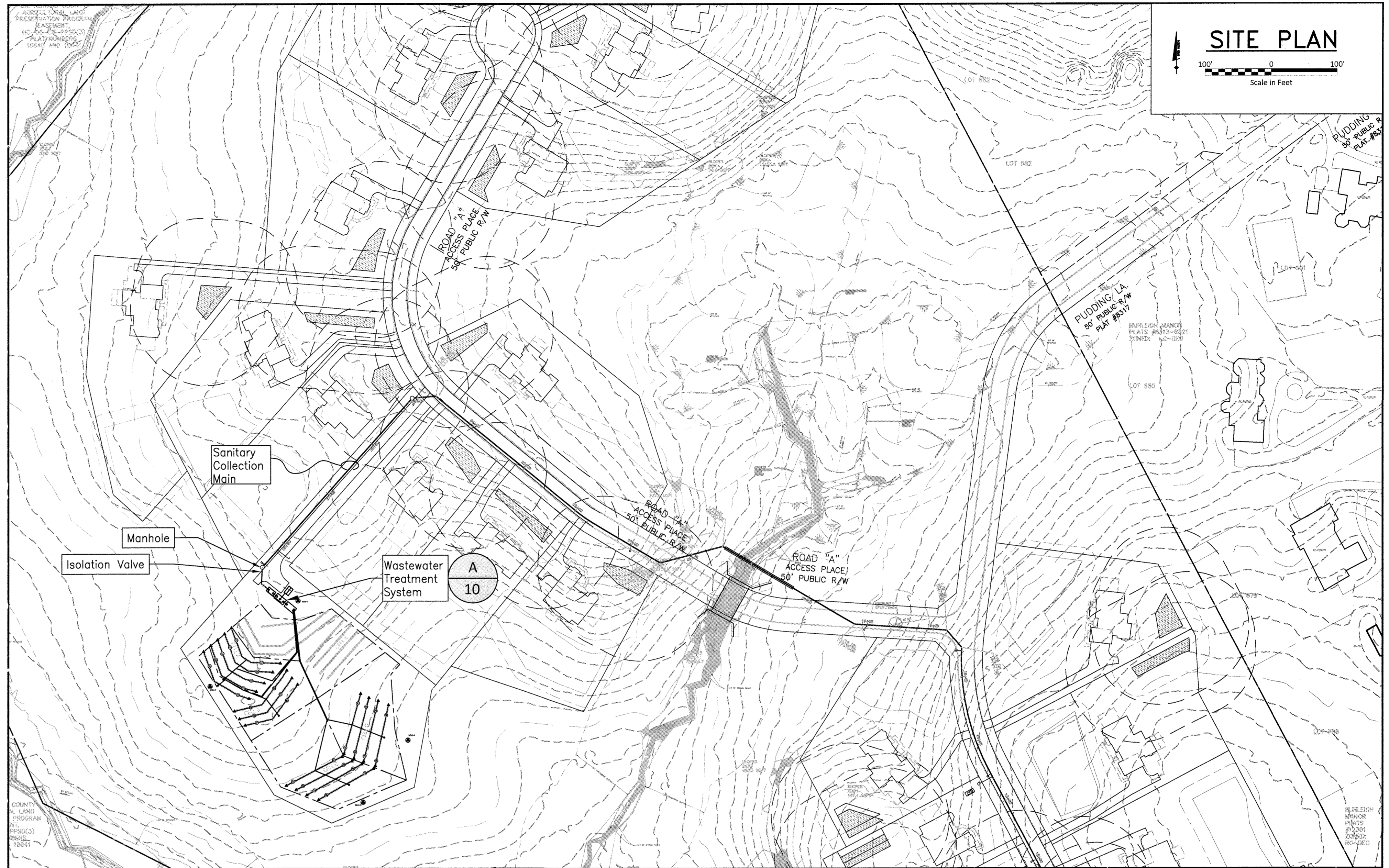
600 SCALE MAP No.: 23 BLOCK: 23 200 SCALE MAP No.:

**KINGS FOREST**  
LOTS 16, 21 thru 25 and  
NON-BUILDABLE PRESERVATION PARCEL 'B'  
TAX MAP: 23 - BLOCK: 23 - PARCEL: 148 - ZONED: RC-DEO - ELECTION DISTRICT: 2  
**CONTRACT NO. 50-4866-D**

SCALE: AS SHOWN  
SHEET NO. 7 OF 11

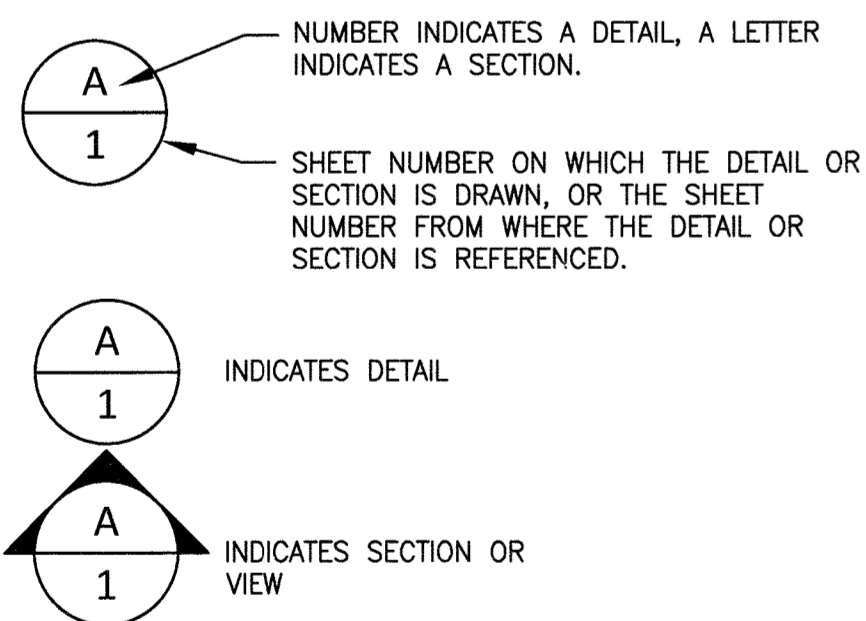
**GENERAL NOTES:**

- CONSTRUCTION SHALL CONFORM TO ALL LOCAL, COUNTY, AND STATE GUIDELINES, INCLUDING HOWARD COUNTY BUILDING CODES AND RECOMMENDED STANDARDS FOR WASTEWATER SYSTEMS; DISCREPANCIES SHALL BE REFERRED TO ENGINEER.
- CONTRACTOR SHALL NOTIFY MISS UTILITY OF MARYLAND (800-257-7777) AT LEAST 7 DAYS PRIOR TO STARTING WORK.
- SITE MAPPING AND TOPOGRAPHY IS BASED UPON DRAWINGS RECEIVED FROM BENCHMARK ENGINEERING (PROJECT# 2501; SENT 6/26/2018).
- ALL PIPE ELEVATIONS ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED.
- ALL HOME WATER TREATMENT UNIT BACKWASH SYSTEMS SHALL BE DEMAND-BASED.
- APPROXIMATE LOCATIONS OF EXISTING UTILITIES ARE SHOWN; CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS FOR PROTECTION; ANY DAMAGES SHALL BE REPAIRED IMMEDIATELY.
- ALL TREES, STUMPS, AND ROOTS SHALL BE REMOVED IN FILL AND EXCAVATION AREAS. NO HEAVY TRAFFIC SHALL BE ALLOWED ON 60,000 SQ.FT. SEPTIC RESERVE AREA EXCEPT FOR TRENCH EXCAVATION AND CONSTRUCTION EQUIPMENT. TRACKED EQUIPMENT WHICH DISPERSES VEHICLE LOAD IS PREFERRED.
- A COPY OF THE SEPTIC PERMIT APPROVAL SHALL BE KEPT WITH THE O&M MANUAL. OPERATION AND MAINTENANCE SHALL BE CONDUCTED IN ACCORDANCE WITH THE O&M MANUALS PROVIDED BY THE ENGINEER AND THE TREATMENT SYSTEM MANUFACTURER.
- A PRE-CONSTRUCTION MEETING SHALL BE HELD WITH CONTRACTOR, HTG, MDE (410-537-3680), HOWARD COUNTY HEALTH DEPARTMENT AND BUREAU OF UTILITIES & CONSTRUCTION INSPECTIONS REPRESENTATIVES PRIOR TO STARTING WORK TO REVIEW DESIGN DOCUMENTS AND CONSTRUCTION REQUIREMENTS.
- AN OPEN TRENCH INSPECTION SHALL BE CONDUCTED PRIOR TO FILLING WITH GRAVEL.
- THE DEVELOPER SHALL REFER TO COUNTY AND STATE GUIDELINES FOR TREATMENT PLANT AND MONITORING WELL SAMPLING AND REPORTING REQUIREMENTS.
- SAMPLING OF WASTEWATER (INFLUENT TO AND EFFLUENT FROM THE TREATMENT SYSTEM) SHALL BE CONDUCTED QUARTERLY FOR THE FIRST YEAR AFTER THE SYSTEM HAS REACHED 80% BUILD-OUT WITH RESULTS REPORTING TO MDE, HOWARD COUNTY HEALTH DEPARTMENT, AND HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS. THE SAMPLING PARAMETERS SHALL BE NITRATE, 5-DAY BIOCHEMICAL OXYGEN DEMAND (BOD5), TOTAL SUSPENDED SOLIDS (TSS), ALKALINITY, AND FATS, OILS AND GREASE (FOG).
- LOT SALE AGREEMENT(S) SHALL SPECIFICALLY DISALLOW USE OF QUATERNARY AMMONIUM DISINFECTION AND CLEANING PRODUCTS ON THE PREMISES, IN ADDITION TO ANY RESTRICTIONS DETAILED IN THE TREATMENT SYSTEM MANUFACTURER'S OPERATION AND MAINTENANCE MANUAL. SALE AGREEMENTS SHALL ALSO DISALLOW THE UTILIZATION OF GARBAGE DISPOSALS/GRINDERS ON ALL SINKS DRAINING TO THE SHARED SEPTIC SYSTEM.
- BASELINE GROUNDWATER QUALITY SHALL BE COMPLETED BY SAMPLING THE ON-SITE MONITORING WELLS PRIOR TO USE OF THE ON-SITE WASTEWATER SYSTEM, WITH LABORATORY ANALYSES FOR TOTAL AND FECAL COLIFORM, E. COLI, CHLORIDE, TOTAL DISSOLVED SOLIDS, NITRATE, PHOSPHORUS, AND FIELD pH.
- THE DEVELOPER SHALL CONDUCT QUARTERLY MONITORING OF THE TREATED EFFLUENT DURING THE 12-MONTH PERIOD FOLLOWING 80% OCCUPANCY OF THE LOTS CONNECTED TO THE SHARED SYSTEM WITH RESULTS SUBMITTED TO HCHD, MDE, AND DPW. THE SAMPLING AND ANALYSES SHALL BE IN ACCORDANCE WITH MDE GUIDANCE FOR PRE-TREATMENT SYSTEMS WITH GREATER THAN 1500 GPD CAPACITY. THIS INCLUDES GRAB SAMPLING EFFLUENT IN THE PUMP TANK WITH LABORATORY ANALYSES OF BOD, TSS, TOTAL NITROGEN (TKN, NITRATE, NITRITE), ALKALINITY, AND FOG. DO, PH, AND TEMPERATURE SHOULD BE FIELD TESTED AS CLOSE TO THE TREATMENT PLANT EFFLUENT PIPE AS POSSIBLE. IF THE EFFLUENT CONSISTENTLY EXCEEDS THE APPROVED DESIGN CRITERIA OR APPLICABLE REGULATORY LIMITS, THE DEVELOPER WILL NOTIFY HCHD, MDE, AND HCBU AND WILL MAKE THE NECESSARY ADJUSTMENTS OR REPAIRS TO THE SYSTEM WITH AGENCY OVERSIGHT FOLLOWED BY SUCCESSFUL QUARTERLY SAMPLING FOR THE SUBSEQUENT 12-MONTH PERIOD PRIOR TO DEDICATION OF THE SYSTEM TO HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.



P&ID Key Notes					
part symbol	component	size	notes	material	#
ST	settling tank	3000 gal	(2) 30" dia PE manholes	concrete	1
TT	treatment tank	4240 gal	Biometrics MicroFAST 4.5	concrete	1
PT	dose tank	6700 gal	(3) 30" dia PE manholes	concrete	1
B1-B2	blower	2"	Spencer turbine, per TSM		2
P1-P5	dose pump	2"	Goulds pump WS10BHF	coated steel	5
T1-T12	trenches per plan	3' wide	varying lengths and depths		12

**SYMBOLS**



**P&ID KEY NOTES**

Use Projections			
properties served	6		
bedrooms per property	5		
flow per bedroom (gpd)	150		
MDF (gpd)	4,500		
ADF (gpd)	2,250		

Design Wastewater Strength			
	Influent	Effluent	
BOD (mg/L)	220	30	
TSS (mg/L)	220	30	
Total Nitrogen (mg/L as N)	60	30	

**Notes**  
*calculated values in italics*  
 ADF = average daily flow  
 MDF = maximum daily flow  
 unit rates from Howard County Well and Septic memo Nov 2014  
 Treatment system performance is contingent upon influent wastewater strength detailed here, in addition to adequate alkalinity, typical water temperature, pH and toxicity, and that no more than 10% of the MDF is dosed to the treatment system per hour for 10 hours within a 24-hour period.

**\*\*MAXIMUM NUMBER OF BEDROOMS FOR EACH HOUSE ON LOTS 16, 21-25 SHALL BE FIVE (5).  
 \*\*ALL SEWAGE GRINDER PUMPS ARE TO BE PUBLICLY OWNED AND MAINTAINED**

**APPROVED:**  
 APPROVED FOR PRIVATE WATER AND SHARED SEPTIC SYSTEM FOR LOTS 16, 21-25, & NON-BUILDABLE PRESERVATION PARCEL B, AND PRIVATE WATER & SEWER FOR LOTS 1-15, & 28-36, BUILDABLE PRESERVATION PARCEL D, NON-BUILDABLE PRESERVATION PARCELS A, C & E-1  
 17-20  
 DATE: 4/24/20  
 COUNTY HEALTH OFFICER

**USE PROJECTIONS**

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND  
 DATE: 3-12-2020  
 CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING AND ZONING  
 HOWARD COUNTY, MARYLAND  
 DATE: 3-4-20  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Hydro-Terra Group  
 1106 Business Parkway South  
 Suite E  
 Westminster, Maryland 21157  
 (410) 861-5376 (phone)  
 (410) 861-5467 (fax)  
 www.hydro-terra.com

**PROFESSIONAL ENGINEER**  
 MARYLAND LICENSE NO. 10293  
 PROFESSIONAL CERTIFICATION  
 I, NATALIE ZIEGLER, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 LICENSE NO. 10293, EXPIRATION DATE: 10/31/20

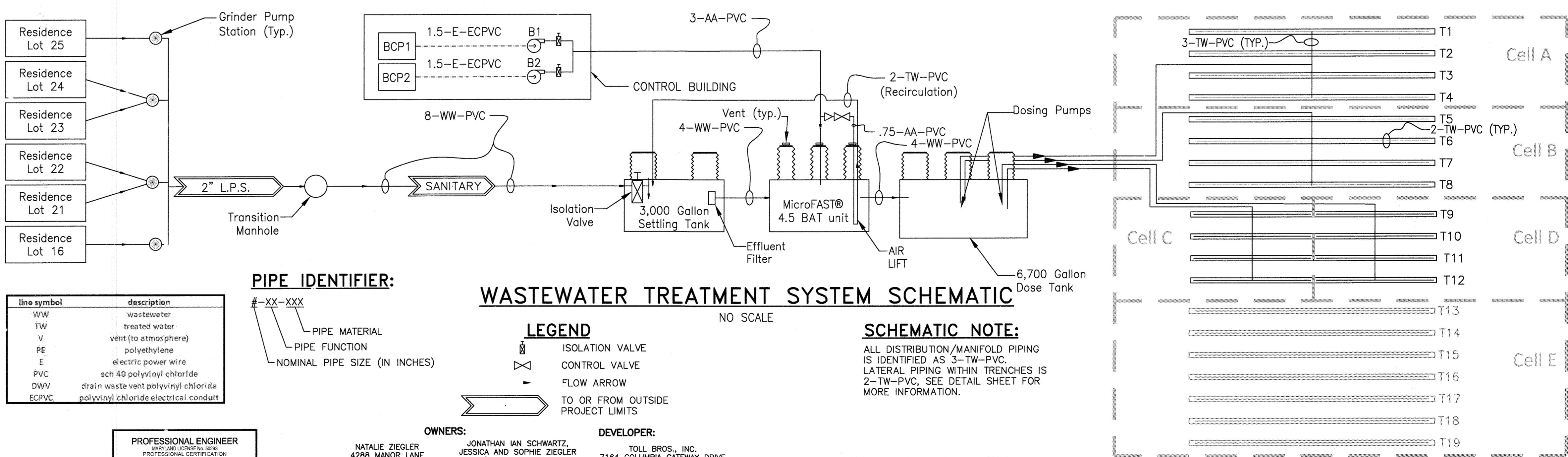
**OWNERS:**  
 NATALIE ZIEGLER  
 4288 MANOR LANE  
 ELLICOTT CITY, MARYLAND 21042

**DEVELOPER:**  
 TOLL BROS., INC.  
 7164 COLUMBIA GATEWAY DRIVE  
 SUITE 230  
 COLUMBIA, MD 21046  
 410-381-3263

**PIPE IDENTIFIER:**

line symbol	description
WW	wastewater
TW	treated water
V	vent (to atmosphere)
PE	polyethylene
E	electric power wire
PVC	sch 40 polyvinyl chloride
DWV	drain waste vent polyvinyl chloride
ECPVC	polyvinyl chloride electrical conduit

**WASTEWATER TREATMENT SYSTEM SCHEMATIC**



**LEGEND**

- ISOLATION VALVE
- CONTROL VALVE
- FLOW ARROW
- TO OR FROM OUTSIDE PROJECT LIMITS

**SCHEMATIC NOTE:**

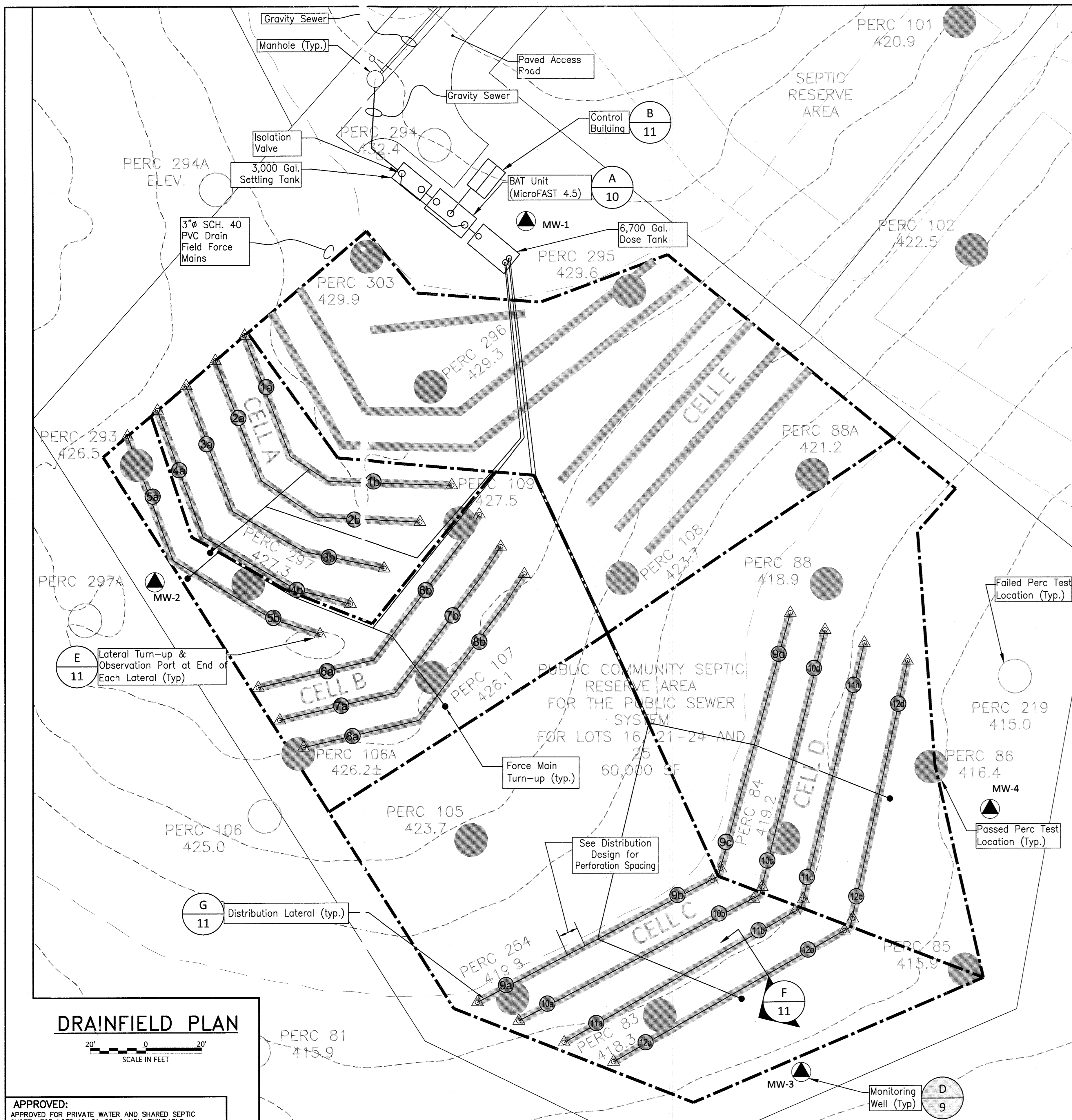
ALL DISTRIBUTION/MANIFOLD PIPING IS IDENTIFIED AS 3-TW-PVC. LATERAL PIPING WITHIN TRENCHES IS 2-TW-PVC. SEE DETAIL SHEET FOR MORE INFORMATION.

DESIGN: MJM			
DRAFT: MDS			
CHK: MDH			
DATE: NOVEMBER 2019	BY: NO.	REVISIONS	DATE

**FINAL PUBLIC SHARED SEPTIC SYSTEM PLANS**  
**SITE PLAN & PFD**  
 600 SCALE MAP No.: 23 BLOCK: 23 200 SCALE MAP No.:

**KINGS FOREST**  
 LOTS 16, 21 thru 25 and  
 NON-BUILDABLE PRESERVATION PARCEL 'B'  
 TAX MAP: 23 - BLOCK: 23 - PARCEL: 148 - ZONED: RC-DEO - ELECTION DISTRICT: 2  
**CONTRACT NO. 50-4866-D**  
 SCALE: AS SHOWN  
 SHEET NO. 8 OF 11



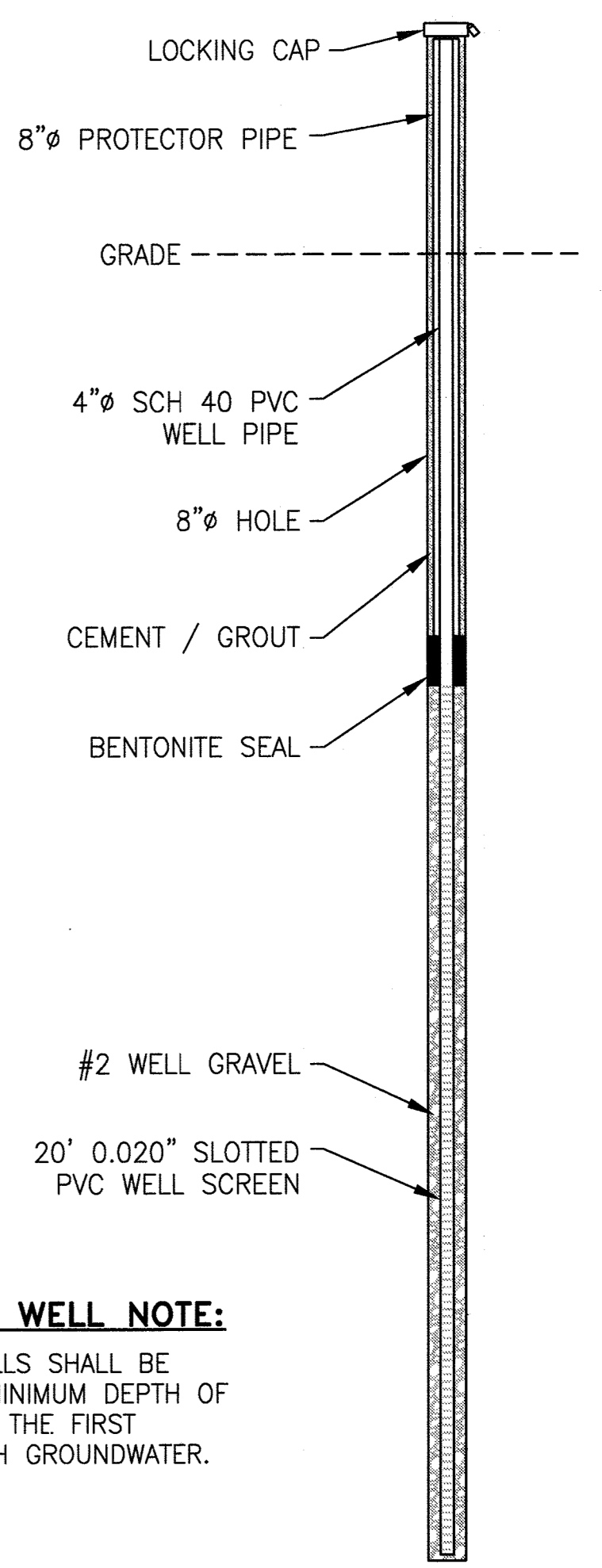


**200% capacity build-out with low pressure distribution system**

Cell	Trench	Existing Ground Elevation (feet msl)	perc ID's	Sidewall Top Elevation (feet msl)	Perc Rate (min/inch)	Sidewall Bottom Elevation (feet msl)	Trench Bottom Depth (feet)	Trench Length (feet)	Sidewall Height (ft)	Application Rate (gpd/ft <sup>2</sup> )	Capacity (gpd, L*W*AppR/ft <sup>3</sup> )
A	1	427.8	293, 297, 109, 107, 106A	424.25	2-5	420.8	7.0	107	3.5	0.8	562
	2	427.5		424.00		420.5	7.0	107	3.5	0.8	562
	3	427.5		424.00		420.5	7.0	107	3.5	0.8	562
	4	427.3		423.75		420.3	7.0	107	3.5	0.8	562
B	5	427.0	293, 297, 109, 107, 106A	423.50	2-5	420.0	7.0	107	3.5	0.8	562
	6	426.5		423.00		419.5	7.0	107	3.5	0.8	562
	7	426.5		423.00		419.5	7.0	107	3.5	0.8	562
	8	426.0		422.50		419.0	7.0	107	3.5	0.8	562
C	9ab	419.5	254, 83	415.50	2-5	411.5	8.0	98	4	0.8	562
	10ab	418.5		414.50		410.5	8.0	98	4	0.8	562
	11ab	417.8		413.75		409.8	8.0	98	4	0.8	562
	12ab	417.0		413.00		409.0	8.0	98	4	0.8	562
D	9cd	419.5	254, 83	415.50	2-5	411.5	8.0	98	4	0.8	562
	10cd	418.5		414.50		410.5	8.0	98	4	0.8	562
	11cd	417.8		413.75		409.8	8.0	98	4	0.8	562
	12cd	417.0		413.00		409.0	8.0	98	4	0.8	562
13	429.8			425.75		421.8	8.0	56	4	0.8	324
14	429.5			425.50		421.5	8.0	175	4	0.8	1,008
15	428.5			424.50		420.5	8.0	200	4	0.8	1,152
E	16	426.5	295, 296	422.50	6-15	418.5	8.0	88	4	0.8	504
	17	425.5		421.50		417.5	8.0	88	4	0.8	504
	18	424.0		420.00		416.0	8.0	88	4	0.8	504
	19	423.0		419.00		415.0	8.0	88	4	0.8	504

Trench width = 3 ft      300% total capacity (gpd) 13,500  
 100% capacity (gpd) 4,500  
 primary capacity, 200% (gpd) 9,000  
 reserve capacity, 100% (gpd) 4,500

calculated values in *italics*      msl = mean sea level in feet  
 gpd = gallons per day      laterals in each trench are at same elevation



**MONITORING WELL NOTE:**  
 MONITORING WELLS SHALL BE DRILLED TO A MINIMUM DEPTH OF 15 FEET BELOW THE FIRST ENCOUNTER WITH GROUNDWATER.

**TRENCH FIELD DESIGN**

Center feed all trenches with 50/50/50 design (200% service)

Cell	Trench	Lateral	Sidewall Top Elevation (feet msl)	Lateral Elevation (feet msl)	Trench Length (feet)	# Holes - Each Lateral	Perc Spacing (feet)	Lateral Length (feet)	Lateral Depth from Existing Grade (feet)	Height of Stone in Trench (ft)	Perc Dia (inches)	Perc Flow (gpm)	Lateral Flow (gpm)	Dose Rate (gpm/ft of trench)	Lateral Friction Loss (feet)	Lateral Velocity (feet/second)	Cell flow (gpm)
A	1	a	424.25	424.25	107	8	6.66	49.9	3.25	3.75	5/16	2.00	16.0	0.32	0.13	1.5	1.5
	1	b	424.25	424.25	107	8	6.66	49.9	3.25	3.75	5/16	2.00	16.0	0.32	0.13	1.5	1.5
	2	a	424.00	424.00	107	8	6.66	49.9	3.00	4.00	5/16	2.00	16.0	0.32	0.13	1.5	1.5
	2	b	424.00	424.00	107	8	6.66	49.9	3.00	4.00	5/16	2.00	16.0	0.32	0.13	1.5	1.5
B	5	a	423.00	423.00	107	8	6.66	49.9	2.50	4.50	5/16	2.00	16.0	0.32	0.13	1.5	1.5
	5	b	423.00	423.00	107	8	6.66	49.9	2.50	4.50	5/16	2.00	16.0	0.32	0.13	1.5	1.5
	6	a	423.00	423.00	107	8	6.66	49.9	2.00	5.00	5/16	2.00	16.0	0.32	0.13	1.5	1.5
	6	b	423.00	423.00	107	8	6.66	49.9	2.00	5.00	5/16	2.00	16.0	0.32	0.13	1.5	1.5
C	9	a	415.50	415.50	98	8	6.10	45.8	4.00	4.00	5/16	2.00	16.0	0.35	0.12	1.5	1.5
	9	b	415.50	415.50	98	8	6.10	45.8	4.00	4.00	5/16	2.00	16.0	0.35	0.12	1.5	1.5
	10	a	414.50	414.50	98	8	6.10	45.8	3.00	5.00	5/16	2.00	16.0	0.35	0.12	1.5	1.5
	10	b	414.50	414.50	98	8	6.10	45.8	3.00	5.00	5/16	2.00	16.0	0.35	0.12	1.5	1.5
D	9	c	415.50	415.50	98	8	6.10	45.8	4.00	4.00	5/16	2.00	16.0	0.35	0.12	1.5	1.5
	9	d	415.50	415.50	98	8	6.10	45.8	4.00	4.00	5/16	2.00	16.0	0.35	0.12	1.5	1.5
	10	c	414.50	414.50	98	8	6.10	45.8	3.00	5.00	5/16	2.00	16.0	0.35	0.12	1.5	1.5
	10	d	414.50	414.50	98	8	6.10	45.8	3.00	5.00	5/16	2.00	16.0	0.35	0.12	1.5	1.5
E	16	a	426.5	426.5	88	8	6.10	45.8	1.50	6.50	5/16	2.00	16.0	0.35	0.12	1.5	1.5
	16	b	426.5	426.5	88	8	6.10	45.8	1.50	6.50	5/16	2.00	16.0	0.35	0.12	1.5	1.5
	17	a	425.5	425.5	88	8	6.10	45.8	1.50	6.50	5/16	2.00	16.0	0.35	0.12	1.5	1.5
	17	b	425.5	425.5	88	8	6.10	45.8	1.50	6.50	5/16	2.00	16.0	0.35	0.12	1.5	1.5

Notes:  
 calculated values in *italics*      design distal head (feet)= 3.0  
 gpm = gallons per minute      friction C factor for plastic pipe= 130  
 msl = mean sea level in feet      lateral inside diameter (2" dia sch40PVC, in)= 2.067  
 Minimum cover over laterals shall be 18" to existing grade  
 All laterals within a cell shall be at the same elevation.

**MONITORING WELL**  
 NOT TO SCALE

\*All results recorded here are for passed perc testing locations within the septic reserve area

Test #	Perc Test Depth (feet)	Test Pit Depth (feet)	Limiting Zone Depth (ft)	Perc Rates (min/inch)	Approx. Ground Surface Elevation (feet msl)	Perc Test Depth Elevation (feet msl)	Lowest Sidewall Bottom Elevation (feet msl)	Application Rate (gpd/ft <sup>2</sup> )
83	5.0	13.0	3	5	418.3	413.3	409.3	1.2
84	5.0	15.0	3	8	419.2	414.2	408.2	0.8
85	6.0	14.0	6	20	415.9	409.9	405.9	0.6
86	6.0	14.0	3	21	416.4	410.4	406.4	0.6
88	6.0	15.0	5	20	418.9	412.9	407.9	0.6
88A	6.5	13.0	5.5	8	421.2	414.7	412.2	0.8
105	5.0	12.0	4.5	19	423.7	418.7	415.7	0.6
106A	6.0	13.0	4	6	426.2	420.2	417.2	0.8
107	5.0	13.0	3	19	426.1	421.1	417.1	0.6
108	5.0	13.0	5	23	423.7	418.7	414.7	0.6
109	5.5	12.0	5.5	16	427.5	422.0	419.5	0.6
254	7.0	15.0	5	3	419.8	412.8	408.8	1.2
293	4.5	14.0	3	3	426.5	422.0	416.5	1.2
295	4.0	14.0	2	5	429.6	425.6	419.6	1.2
296	5.0	14.0	2	7	429.3	424.3	419.3	0.8
297	6.0	14.0	3	5	427.3	421.3	417.3	1.2
303	4.5	14.0	0.5	23	429.9	425.4	419.9	0.6

**PERC TEST RESULTS**

**DISTRIBUTION DESIGN**

APPROVED:  
 APPROVED FOR PRIVATE WATER AND SHARED SEPTIC SYSTEM FOR LOTS 16, 21-25, & NON-BUILDABLE PRESERVATION PARCEL B, AND PRIVATE WATER & SEWER FOR LOTS 1-15 & 26-36, BUILDABLE PRESERVATION PARCEL D, NON-BUILDABLE PRESERVATION PARCELS A, C & G-1  
 4/24/20  
 COUNTY HEALTH OFFICER

\*\*MAXIMUM NUMBER OF BEDROOMS FOR EACH HOUSE ON LOTS 16, 21-25 SHALL BE FIVE (5).  
 \*\*ALL SEWAGE GRINDER PUMPS ARE TO BE PUBLICLY OWNED AND MAINTAINED

PROFESSIONAL ENGINEER  
 NATALIE ZIEGLER  
 4288 MANOR LANE  
 ELLICOTT CITY, MARYLAND 21042

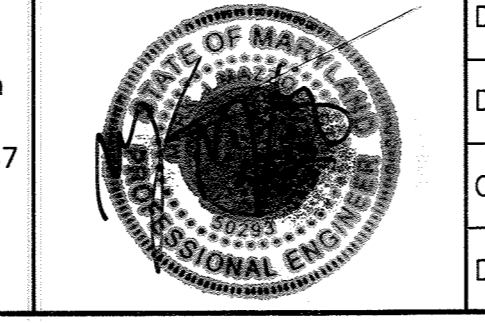
OWNERS: JONATHAN IAN SCHWARTZ, JESSICA AND SOPHIE ZIEGLER  
 C/O SOPHIE ZIEGLER  
 730 DOLORES STREET  
 SAN FRANCISCO, CA 94110  
 212-877-8697

DEVELOPER: TOLL BROS., INC.  
 COLUMBIA GATEWAY DRIVE  
 SUITE 230  
 COLUMBIA, MD 21046  
 410-381-3263

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND  
 2-12-2020  
 CHIEF, BUREAU OF UTILITIES

DEPARTMENT OF PLANNING AND ZONING  
 HOWARD COUNTY, MARYLAND  
 8/4/20  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Hydro-Terra Group  
 1106 Business Parkway South  
 Suite E  
 Westminster, Maryland 21157  
 (410) 861-5376 (phone)  
 (410) 861-5467 (fax)



DESIGN: MJM	
DRAFT: MDS	
CHK: MDH	
DATE: NOVEMBER 2019	
BY: NO.	
REVISIONS	
DATE	

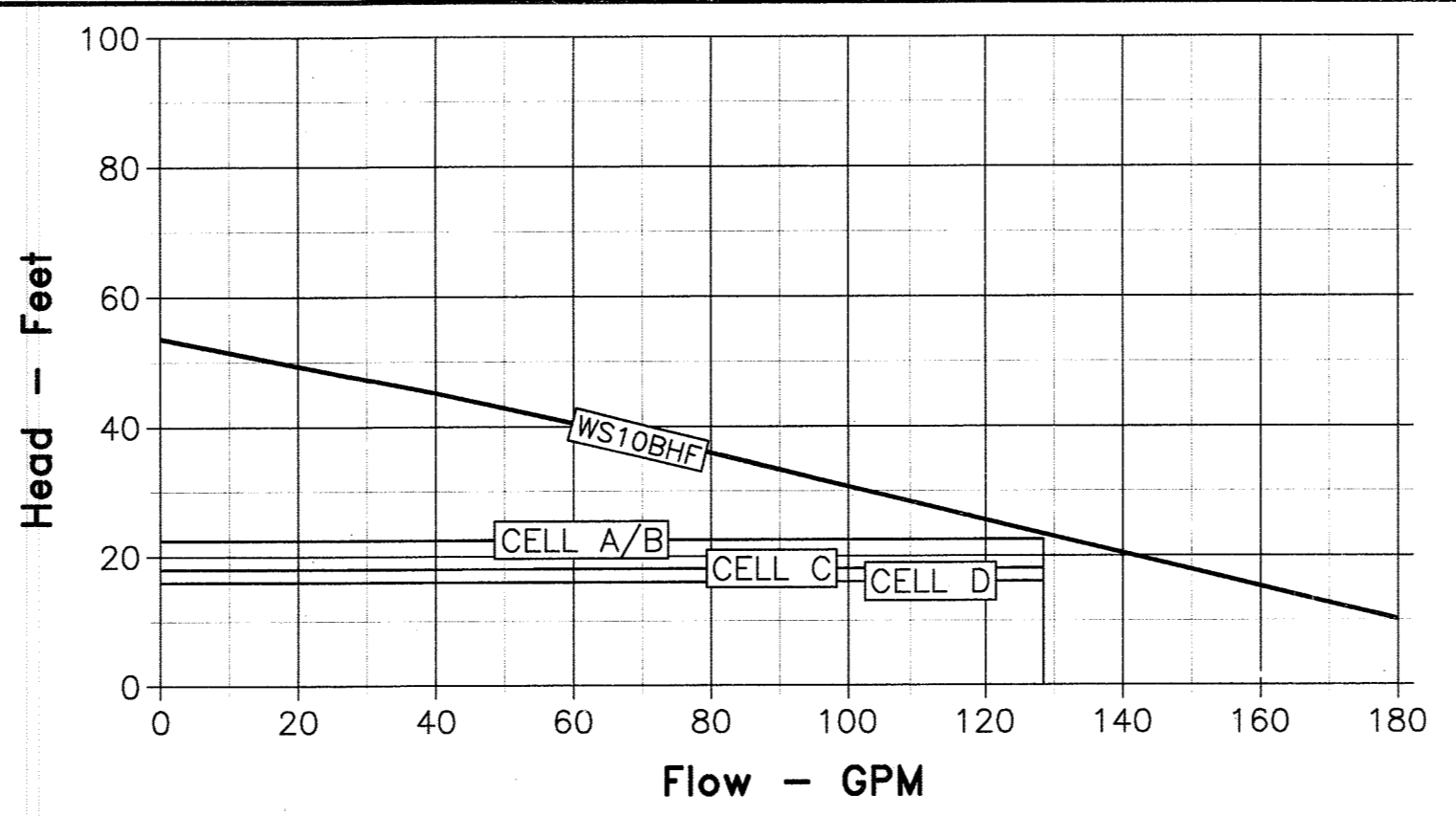
FINAL PUBLIC SHARED SEPTIC SYSTEM PLANS  
 DRAINFIELD PLAN  
 600 SCALE MAP No.: 23    BLOCK: 23    200 SCALE MAP No.:

KINGS FOREST  
 LOTS 16, 21 thru 25 and  
 NON-BUILDABLE PRESERVATION PARCEL 'B'  
 TAX MAP: 23 - BLOCK: 23 - PARCEL: 148 - ZONED: RC-DEO - ELECTION DISTRICT: 2  
 CONTRACT NO. 50-4866-D  
 SHEET NO. 9 OF 11

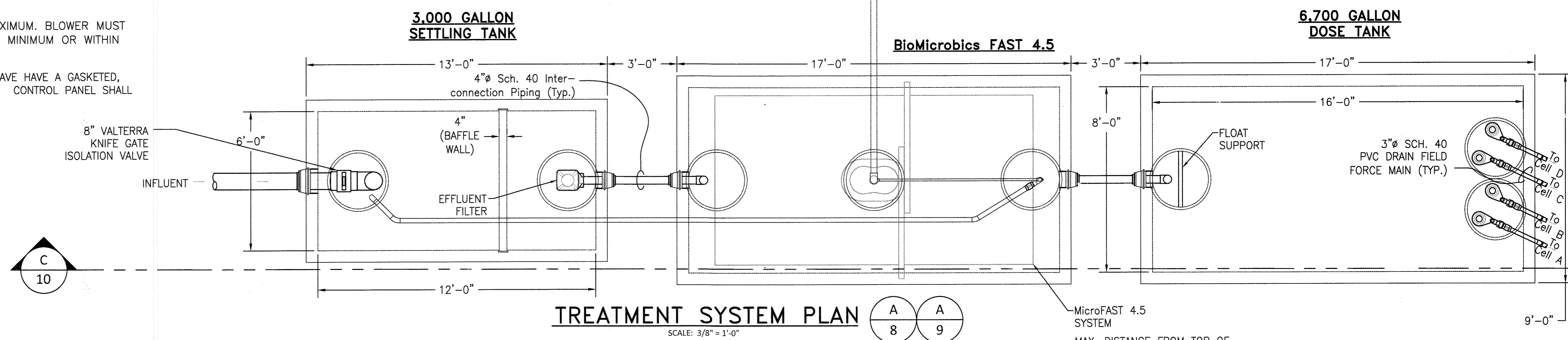
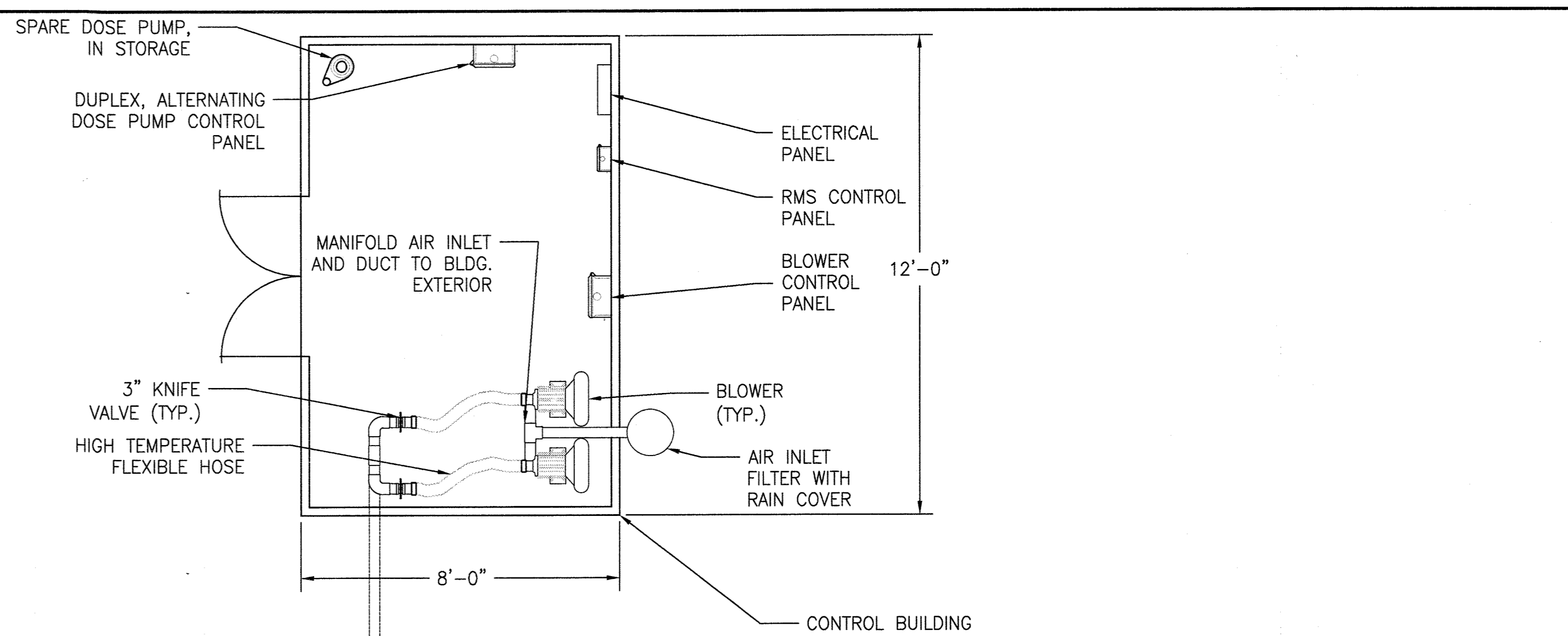
**NOTES**

- ALL INSPECTION, VIEWING AND PUMP OUT PORTS MUST BE SECURED TO PREVENT ACCIDENTAL OR UNAUTHORIZED ACCESS.
- TANK, ANCHORS, PIPING, AND CONDUIT ARE PROVIDED BY OTHERS.
- NO MORE THAN 3' OF FILL SHALL BE PLACED OVER ANY TANK LID.
- TANK MEASUREMENTS AND ELEVATIONS ARE BASED ON SEPTIC TANKS AND PUMP CHAMBERS AS MANUFACTURED BY GILLESPIE PRECAST, LLC (1-800-638-6884). TANKS FROM ALTERNATIVE MANUFACTURERS MAY BE USED WITH SHOP DRAWING SUBMITTAL AND ENGINEER'S APPROVAL.
- ALL NEW TANKS SHALL BE TESTED FOR WATER TIGHTNESS PRIOR TO SERVICE.
- ALL TANKS SHALL BE SET UPON 6"-8" OF GRAVEL BEDDING. CONCRETE SHALL BE 5,000 P.S.I.
- VENT TO BE LOCATED ABOVE FINISHED GRADE TO AVOID INFILTRATION. VENTILATION AREA SHALL BE PROVIDED PER MANUFACTURER'S SPECIFICATION. SECURE WITH STAINLESS STEEL SCREWS.
- ALL APPURTENANCES TO FAST UNIT SHALL CONFORM TO ALL PLUMBING AND ELECTRICAL CODES.
- ALL VALVES AND QUICK CONNECTS WITHIN PORTS SHALL BE ACCESSIBLE FROM FINISHED GRADE AND SHALL NOT REQUIRE TANK ENTRY FOR SERVICE.
- REMOTE MONITORING SYSTEM (RMS) SHALL AUTOMATICALLY NOTIFY THE COUNTY REMOTELY IN THE EVENT OF A PUMP FAILURE OR HIGH WATER ALARM. REMOTE NOTIFICATION SHALL BE ROUTINELY TESTED AS PART OF REGULAR O&M.
- TWO BLOWERS SHALL BE PROVIDED BY THE TREATMENT SYSTEM MANUFACTURER AND SHALL EACH BE CAPABLE OF CONTINUOUS DUTY AT THE DESIGN VALUES, WITH ONE BLOWER SERVING AS AN INSTALLED SPARE. BLOWER SHALL BE BY SPENCER TURBINE, INC.
- BLOWER PIPING TO FAST MAY NOT EXCEED 100 FT TOTAL LENGTH AND USE 45° ELBOWS MAXIMUM. BLOWER MUST BE LOCATED ABOVE FLOOD/STANDING WATER LEVELS ON A CONCRETE BASE 28" X 42" X 2" MINIMUM OR WITHIN CONTROL SHED.
- ONE CONTROL PANEL SHALL BE PROVIDED FOR BLOWER CONTROL. BLOWER CONTROL PANEL SHALL HAVE A GASKETED, HINGED, LOCKABLE DOOR; DOOR-MOUNTED BLOWER ON-OFF SWITCHES; AND ALARM LIGHTS/SILENCERS. CONTROL PANEL SHALL BE BY SJE RHOMBUS OR APPROVED EQUAL.

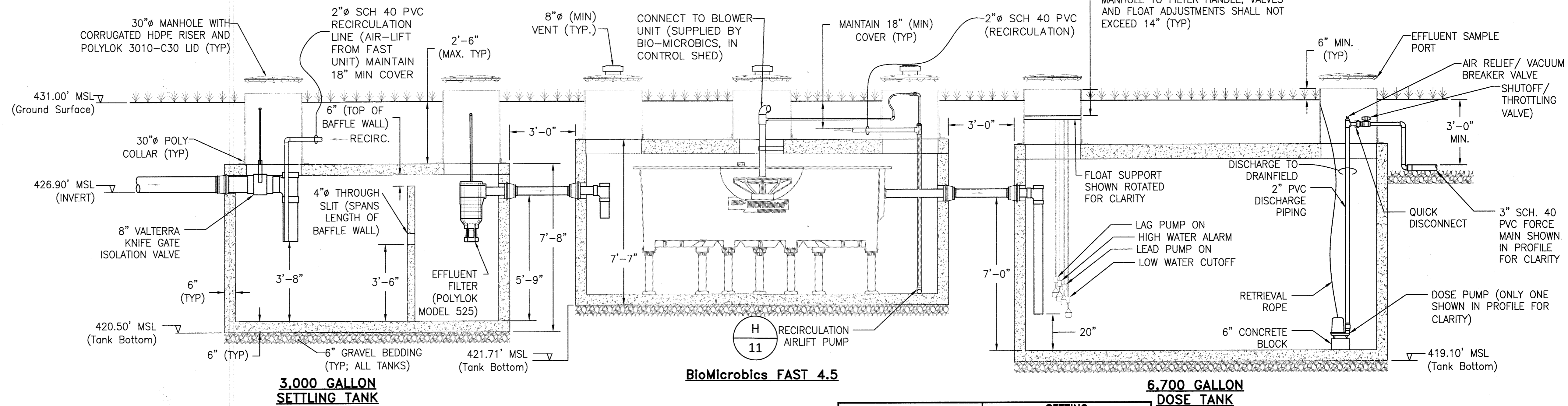
Design Input		Calculations	
<b>Primary and Secondary Treatment and Equalization</b>			
settling tank capacity (gallons per inch)	44.9	maximum daily flow (MDF) (gpd)	4,500
normal settling tank fluid level (inches)	68	average daily flow (ADF) (gpd)	2,250
		recommended minimum settling tank volume (gal)	2,250
		normal settling tank volume (gal)	3,052
<b>Static Hydraulic Profile (with invert elevations)</b>			
inflow invert elev. (feet msl)	426.90	Elevation provided by Benchmark Engineering	
dose tank inflow invert elev. (feet msl)	426.23	2" drops	
dose tank floor elev. (feet msl)	419.23		
Cell A lateral elev. (feet msl)	424.50	Cell A in-service static l <sub>i</sub> (feet)	5.3
Cell B lateral elev. (feet msl)	424.00	Cell B in-service static l <sub>i</sub> (feet)	4.8
Cell C lateral elev. (feet msl)	415.50	Cell C in-service static l <sub>i</sub> (feet)	-3.7
Cell D lateral elev. (feet msl)	415.50	Cell D in-service static l <sub>i</sub> (feet)	-3.7
<b>Drainfield Dosing</b>			
cell A flow (gpm)	128	force main velocity (feet/second)	5.6
Cell A force main length (feet)	206	Cell A force main friction loss (feet)	14.2
Cell A minor loss equivalent lengths (feet)	120.8	Cell A max. total dynamic head (feet)	22.6
		Cell A main volume (gal)	79
		Cell A total lateral volume (gal)	70
		Cell A dose vol. @ main + 5x lateral (gal)	427
cell B flow (gpm)	128	force main velocity (feet/second)	5.6
Cell B force main length (feet)	228	Cell B force main friction loss (feet)	15.1
Cell B minor loss equivalent lengths (feet)	120.8	Cell B max. total dynamic head (feet)	23.0
		Cell B main volume (gal)	88
		Cell B total lateral volume (gal)	70
		Cell B dose vol. @ main + 5x lateral (gal)	436
cell C flow (gpm)	128	force main velocity (feet/second)	5.6
Cell C force main length (feet)	307	Cell C force main friction loss (feet)	18.6
Cell C minor loss equivalent lengths (feet)	120.8	Cell C max. total dynamic head (feet)	17.9
		Cell C main volume (gal)	118
		Cell C total lateral volume (gal)	64
		Cell C dose vol. @ main + 5x lateral (gal)	437
cell D flow (gpm)	128	force main velocity (feet/second)	5.6
Cell D force main length (feet)	262	Cell D force main friction loss (feet)	16.6
Cell D minor loss equivalent lengths (feet)	120.8	Cell D max. total dynamic head (feet)	16.0
		Cell D main volume (gal)	101
		Cell D total lateral volume (gal)	64
		Cell D dose vol. @ main + 5x lateral (gal)	420
dose tank length (inches)	192	dose tank capacity (gal)	6,702
dose tank width (inches)	96	dose tank capacity (gals per inch)	79.8
dose tank height to invert (inches)	84	design minimum dose volume (gals)/Cell B	436
# cells in service	2	effective dose volume (gals)	479
lag pump on (inches)	28	min # daily doses @ ADF	4.7
high water alarm height (inches)	26	average dose time (minutes)	3.7
lead pump on (inches)	24	dose off time setting (hours)	5.0
low water cutoff (inches)	18	residual settling volume (gal)	1,436
Goulds pump model	WS10BHF	volume above high water alarm (gal)	4,628
<b>Notes</b>		design distal head (feet)= 3.0	
gpd = gallons per day		friction C factor for plastic pipe= 130	
gpm = gallons per minute		force main ID (3" dia sch40PVC, in)= 3.068	
msl = mean sea level in feet		lateral inside diameter (2" dia sch40PVC, in)= 2.067	
calculated values in italics			
set floats based on weight +/- 3"			
two cells shall be always in service, with the other two resting			



**DOSE PUMP CURVE  
GOULDS MODEL WS10BHF**



**TREATMENT SYSTEM PLAN**



**TREATMENT SYSTEM SECTION**

FLOAT	SETTING (Inches from Tank Bottom)
LAG PUMP ON	28
HIGH WATER ALARM	26
LEAD PUMP ON	24
LOW WATER CUTOFF	18

**DESIGN INPUT**

**\*\*MAXIMUM NUMBER OF BEDROOMS FOR EACH HOUSE ON LOTS 16, 21-25 SHALL BE FIVE (5). \*\*ALL SEWAGE GRINDER PUMPS ARE TO BE PUBLICLY OWNED AND MAINTAINED**

**PROFESSIONAL ENGINEER**  
NATALIE ZIEGLER  
4288 MANOR LANE  
ELLCOTT CITY, MARYLAND 21042

**OWNERS:**  
JONATHAN IAN SCHWARTZ, JESSICA AND SOPHIE ZIEGLER  
C/O SOPHIE ZIEGLER  
730 DOLORES STREET  
SAN FRANCISCO, CA 94110  
212-877-8687

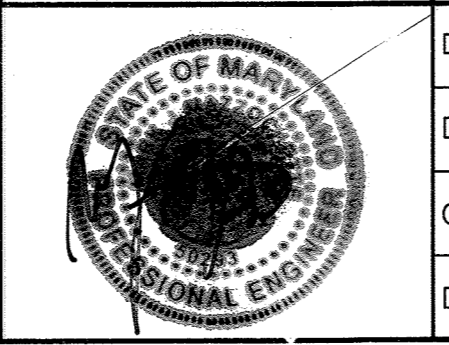
**DEVELOPER:**  
TOLL BROS., INC.  
4288 MANOR LANE  
SUITE 230  
COLUMBIA, MD 21046  
410-381-3263

APPROVED:  
DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND  
DATE: 4/29/20

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND  
DATE: 2-12-2020

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND  
DATE: 8-4-20

Hydro-Terra Group  
1106 Business Parkway South  
Suite E  
Westminster, Maryland 21157  
(410) 861-5376 (phone)  
(410) 861-5467 (fax)



DESIGN:	DRAFT:	CHK:	DATE:	BY:	NO.	REVISIONS	DATE:
MJM	MDS	MDH	NOVEMBER 2019				

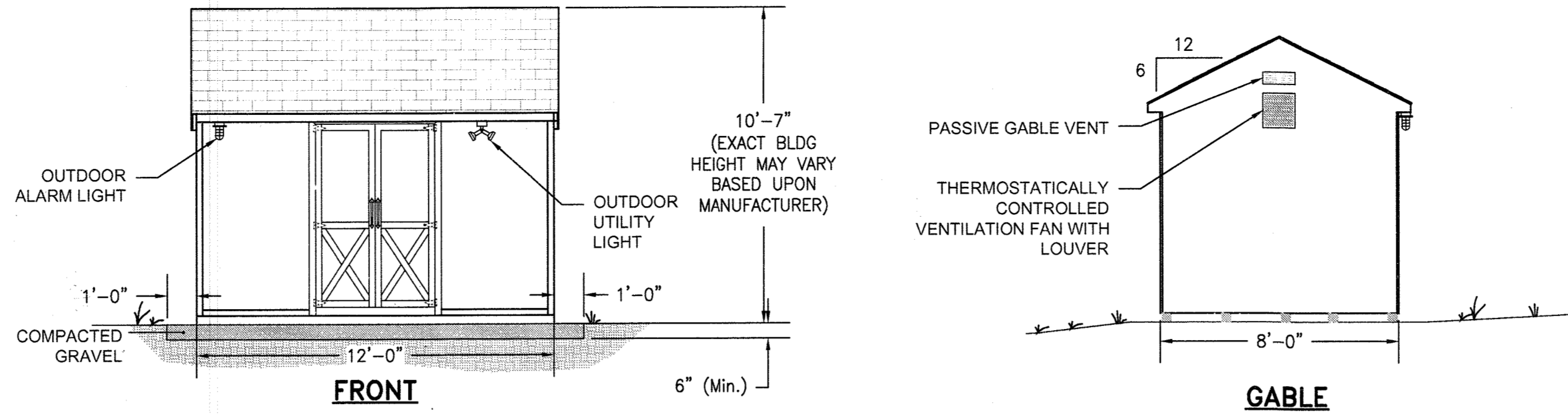
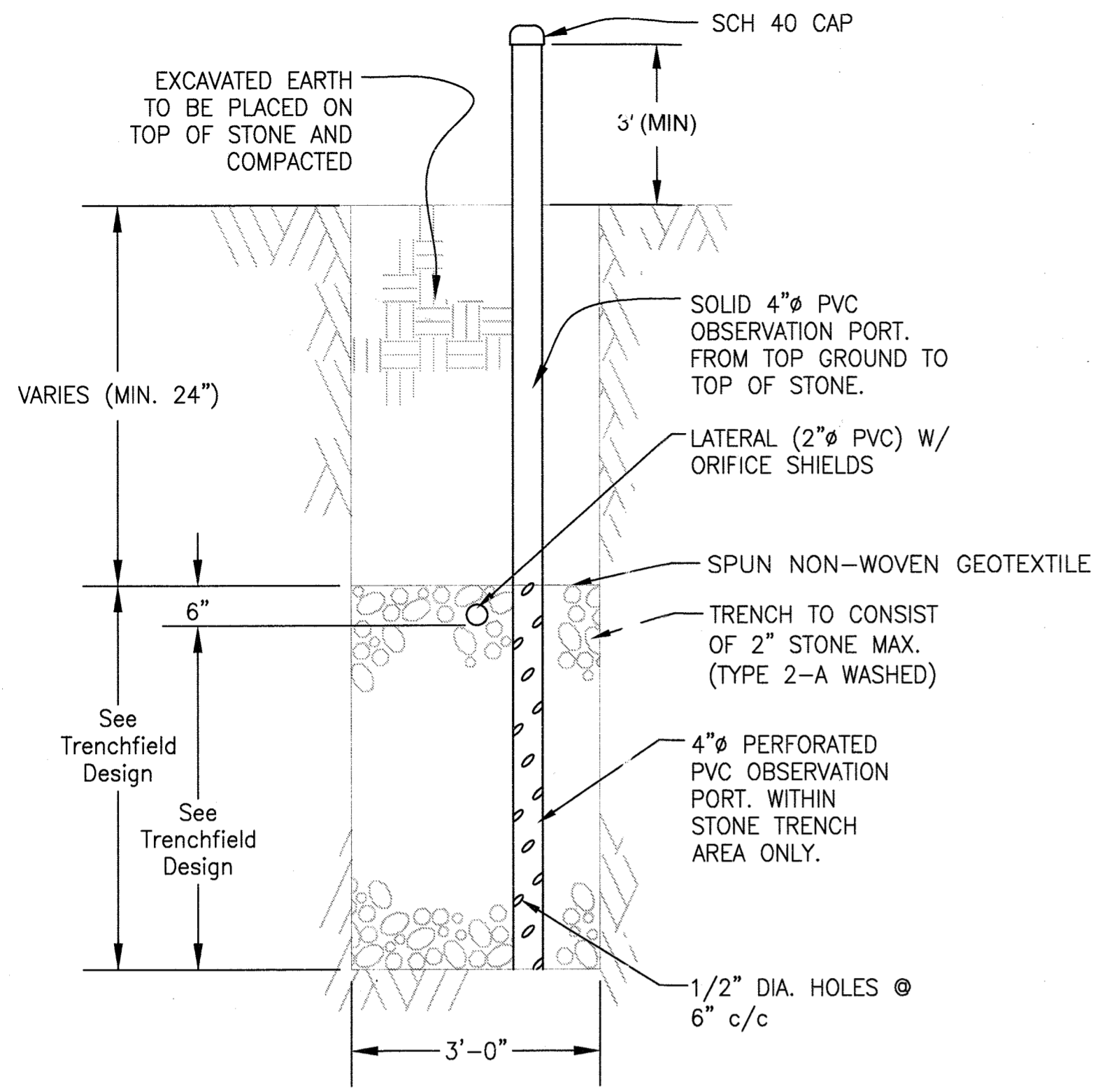
**FINAL PUBLIC SHARED SEPTIC SYSTEM PLANS**  
**TREATMENT SYSTEM DETAILS**

**KINGS FOREST**  
LOTS 16, 21 thru 25 and  
NON-BUILDABLE PRESERVATION PARCEL 'B'  
TAX MAP: 23 - BLOCK: 23 - PARCEL: 148 - ZONED: RC-DEO - ELECTION DISTRICT: 2  
**CONTRACT NO. 50-4866-D**

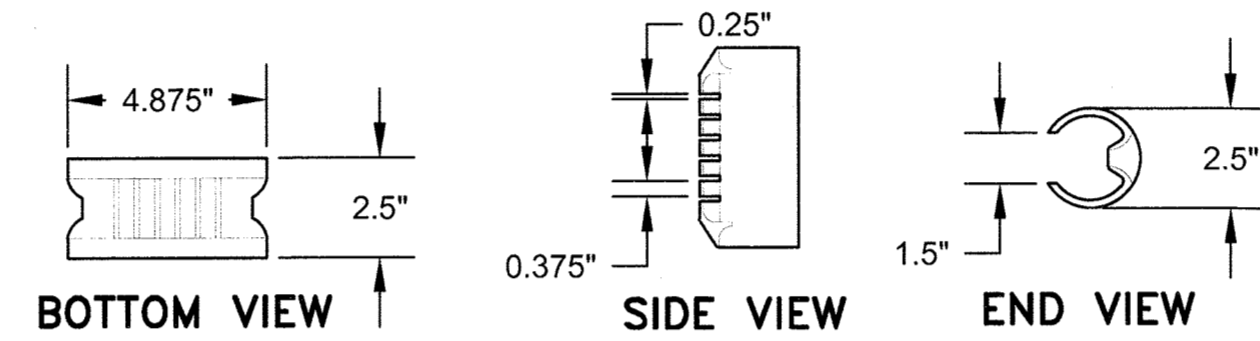
SCALE: AS SHOWN  
SHEET NO. 10 OF 11

**CONTROL BUILDING NOTES:**

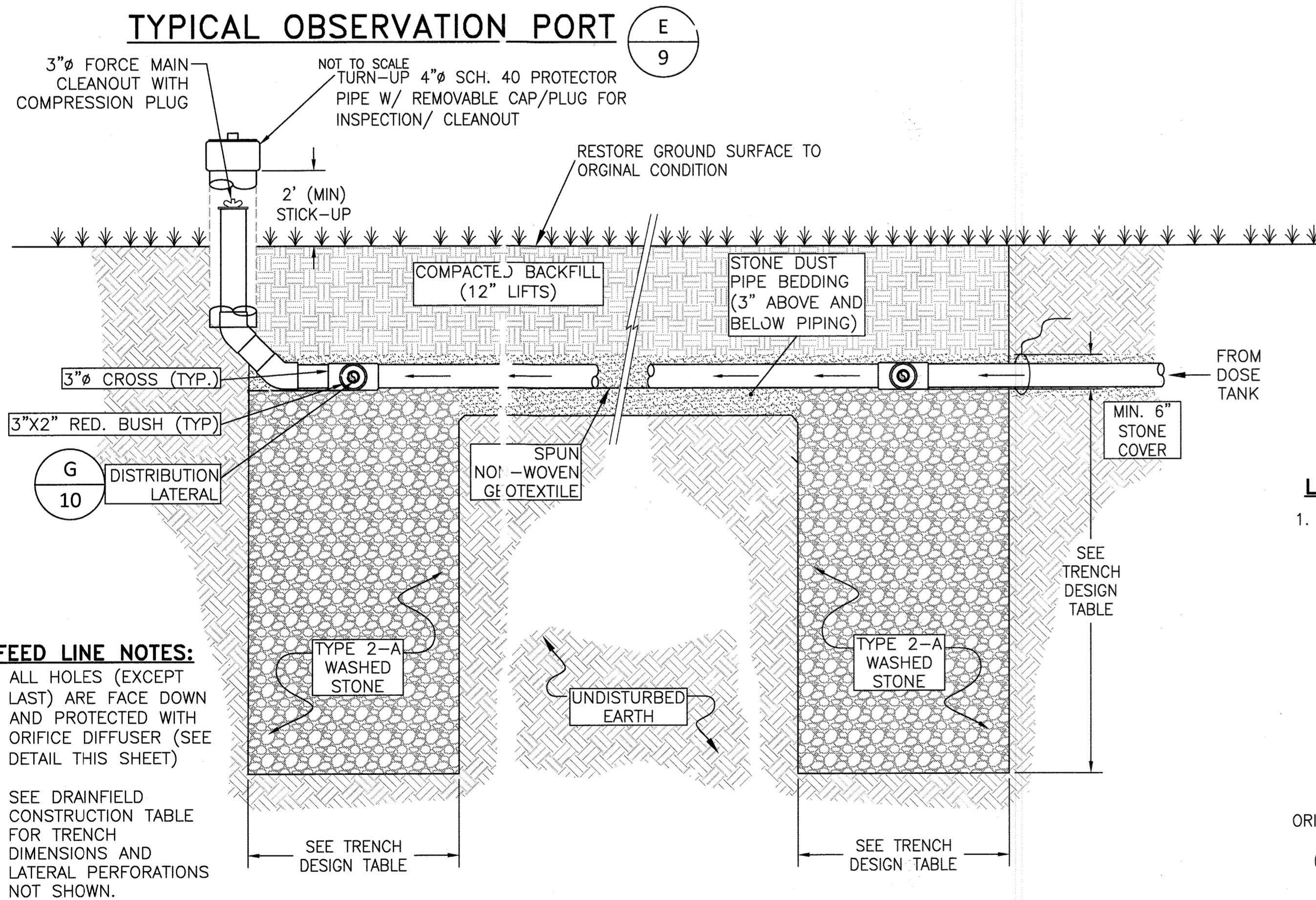
- CONTROL BUILDING SHALL BE PROVIDED WITHIN 100' OF WASTE WATER TREATMENT SYSTEM WITH CONTROL PANELS MOUNTED INSIDE.
- BUILDING SHALL BE RIDGE CABINET COMPANY "COTTAGE A-FRAME" STYLE STORAGE BUILDING. 8' X 12', VINYL SIDED WITH NOMINAL 7" SIDE WALLS AND NO WINDOWS, WITH ONE DOUBLE DOOR CENTERED ON 12' SIDE OF BUILDING. BUILDING SHALL HAVE 10" RIDGE VENT, 4"x4" PRESSURE TREATED SKIDS, 2"x4" FLOOR JOISTS (16" ON CENTER), 5/8" PLYWOOD FLOOR SHEATHING, 2"x4' VENT, ALL WALLS TO BE PLATED AT BOTTOM AND DOUBLE PLATED AT THE TOP, 1/2" ROOF SHEATHING, ARCHITECTURAL SHINGLES, DOORS AND FRAME TO BE REINFORCED, DOOR HINGES MUST BE "T" TYPE OR STRAP TYPE, 3 HINGES PER DOOR SIDE (PIANO HINGES ARE NOT ACCEPTABLE), LOCKS ARE TO BE KEYED ALIKE WITH BAUER CH751 LOCK.
- VINYL SIDING SHALL BE ALMOND COLOR AND SHINGLES SHALL BE BROWN COLOR.
- A RED ALARM BEACON SHALL BE MOUNTED ON THE OUTSIDE OF THE BUILDING.
- BUILDING SHALL BE PLACED ON TOP OF 6" (MIN.) COMPACTED STONE.
- GRADING TO BE LEVEL AND COMPACTED PRIOR TO PLACEMENT OF BUILDING.
- FIELD PLACEMENT OF PANELS, PIPING, BLOWERS, AND TANKS SHALL BE APPROVED BY SITE ENGINEER.
- BUILDING SHALL HAVE A 230 VAC LOAD CENTER WITH APPROPRIATE CIRCUIT BREAKERS.
- BUILDING SHALL HAVE AT LEAST 3 DOUBLE-DUPLEX CONVENIENCE OUTLETS, A CEILING LIGHT, OUTDOOR FLOODLIGHTS, AND AN OUTDOOR ALARM LIGHT.
- A REMOTE MONITORING SYSTEM (RMS) SHALL BE INSTALLED THAT SHALL REMOTELY NOTIFY THE COUNTY IN THE EVENT OF A PUMP FAILURE OR A HIGH WATER ALARM. THE RMS SHALL BE COMPATIBLE WITH THE COUNTY'S EXISTING REMOTE MONITORING NETWORK AND INFRASTRUCTURE. RMS ALERT SYSTEM TESTING SHALL BE PART OF REGULAR O&M.
- ADEQUATE VENTILATION SHALL BE PROVIDED FOR SHED TO AVOID EQUIPMENT WEAR DUE TO EXTREME HEAT. (MAX INTERIOR TEMP IS 105°F).
- HOWARD COUNTY ISSUED LOCKS SHALL BE PROVIDED TO SECURE UTILITY SHED AND ANY OTHER APPROPRIATE SYSTEM APPURTENANCES (E.G. MANHOLE COVERS AND EXTERIOR MOUNTED CONTROL BOXES).



**CONTROL BUILDING (B 9)**  
1/4" = 1'-0"



**SIM TECH ORIFICE SHIELD 2" (STF-106-2.0)**  
NOT TO SCALE

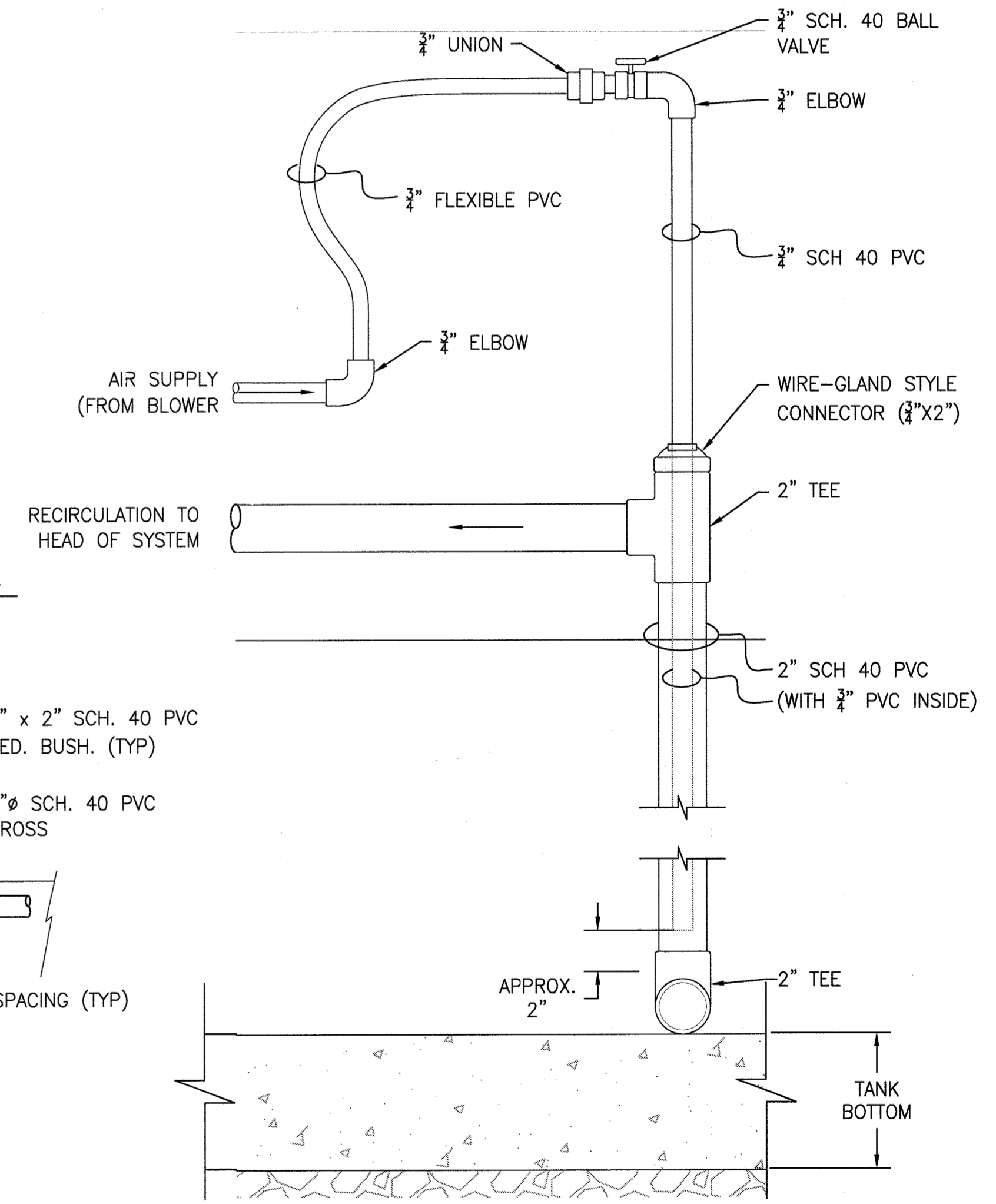


- FEED LINE NOTES:**
- ALL HOLES (EXCEPT LAST) ARE FACE DOWN AND PROTECTED WITH ORIFICE DIFFUSER (SEE DETAIL THIS SHEET)
  - SEE DRAINFIELD CONSTRUCTION TABLE FOR TRENCH DIMENSIONS AND LATERAL PERFORATIONS NOT SHOWN.

**LATERAL LINE NOTE:**

- LATERALS SHALL END 1/2 HOLE SPACING FROM END OF TRENCH.

**DISTRIBUTION LATERAL DETAIL (G 11)**  
NOT TO SCALE



**AIR LIFT RECIRCULATION PUMP (H 10)**  
NOT TO SCALE

APPROVED:  
APPROVED FOR PRIVATE WATER AND SHARED SEPTIC SYSTEM FOR LOTS 16, 21-25, & NON-BUILDABLE PRESERVATION PARCEL B, AND PRIVATE WATER & SEWER FOR LOTS 1-15, & 26-36, BUILDABLE PRESERVATION PARCEL D, NON-BUILDABLE PRESERVATION PARCELS A, C & E-1  
DATE: 4/24/20

**FEED LINE/DEEP TRENCH DETAIL (TYP) (F 9)**

**\*\*MAXIMUM NUMBER OF BEDROOMS FOR EACH HOUSE ON LOTS 16, 21-25 SHALL BE FIVE (5). \*\*ALL SEWAGE GRINDER PUMPS ARE TO BE PUBLICLY OWNED AND MAINTAINED**

**PROFESSIONAL ENGINEER**  
NATALIE ZIEGLER  
4288 MANOR LANE  
ELLICOTT CITY, MARYLAND 21042

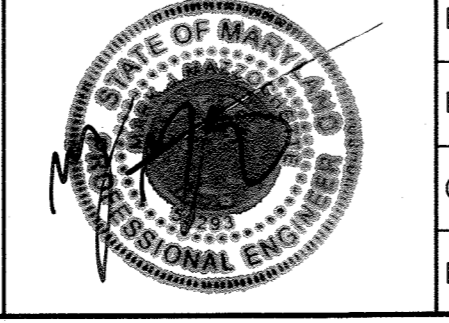
**OWNERS:**  
JONATHAN IAN SCHWARTZ, JESSICA AND SOPHIE ZIEGLER  
C/O SOPHIE ZIEGLER  
730 DOLORES STREET  
SAN FRANCISCO, CA 94110  
212-877-8697

**DEVELOPER:**  
TOLL BROS., INC.  
7164 COLUMBIA GATEWAY DRIVE  
SUITE 230  
COLUMBIA, MD 21046  
410-381-3263

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND  
DATE: 2-12-2020

DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY, MARYLAND  
DATE: 8-4-20

Hydro-Terra Group  
1106 Business Parkway South  
Suite E  
Westminster, Maryland 21157  
(410) 861-5376 (phone)  
(410) 861-5467 (fax)



DESIGN: MJM			
DRAFT: MDS			
CHK: MDH			
DATE: NOVEMBER 2019	BY: NO.	REVISIONS	DATE

**FINAL PUBLIC SHARED SEPTIC SYSTEM PLANS**  
**DISTRIBUTION DETAILS**  
800 SCALE MAP No.: 23 BLOCK: 23 200 SCALE MAP No.:

**KINGS FOREST**  
LOTS 16, 21 thru 25 and  
NON-BUILDABLE PRESERVATION PARCEL 'B'  
TAX MAP: 23 - BLOCK: 23 - PARCEL: 148 - ZONED: RC-DEO - ELECTION DISTRICT: 2  
**CONTRACT NO. 50-4866-D**  
SCALE: AS SHOWN  
SHEET NO. 11 OF 11