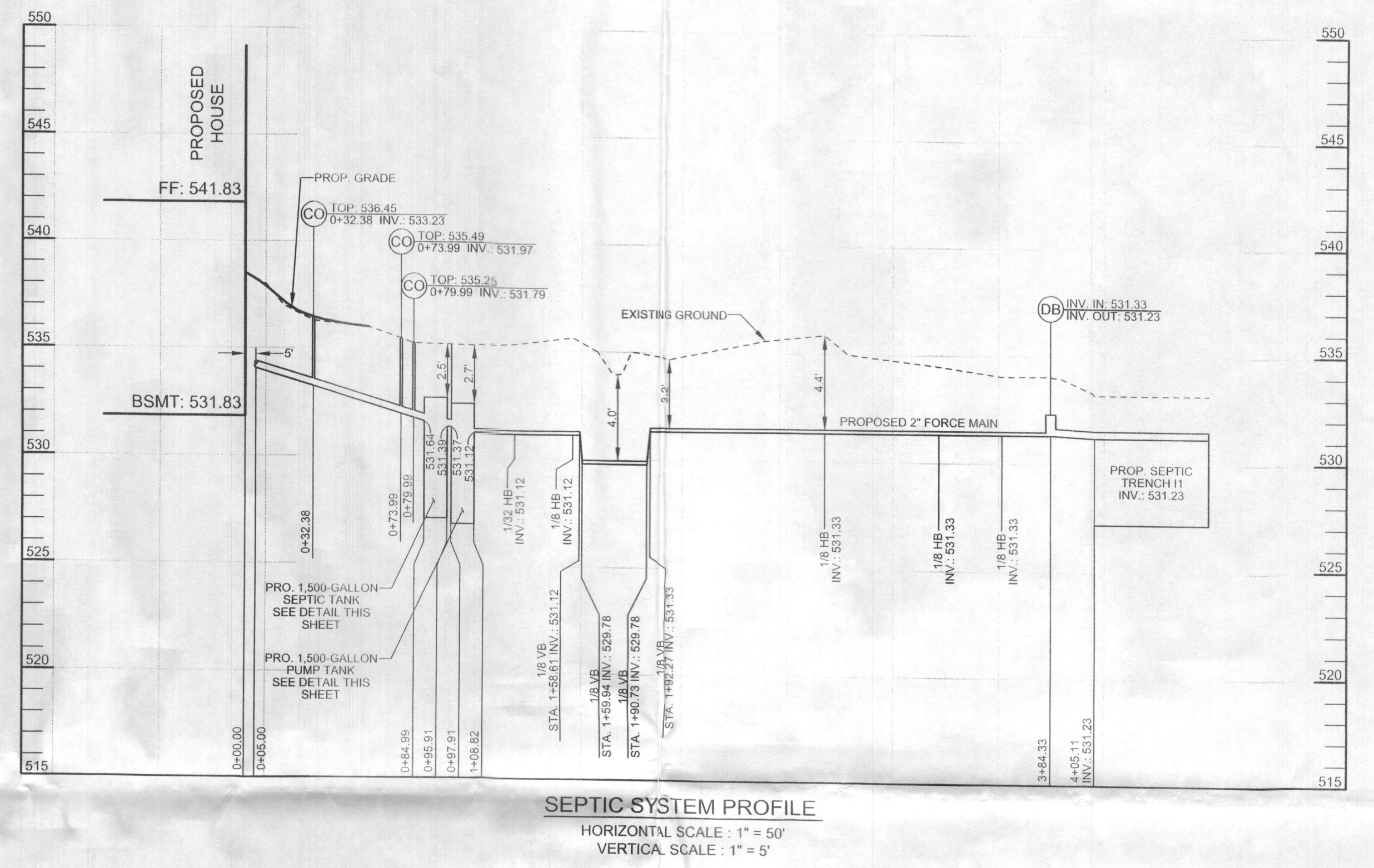
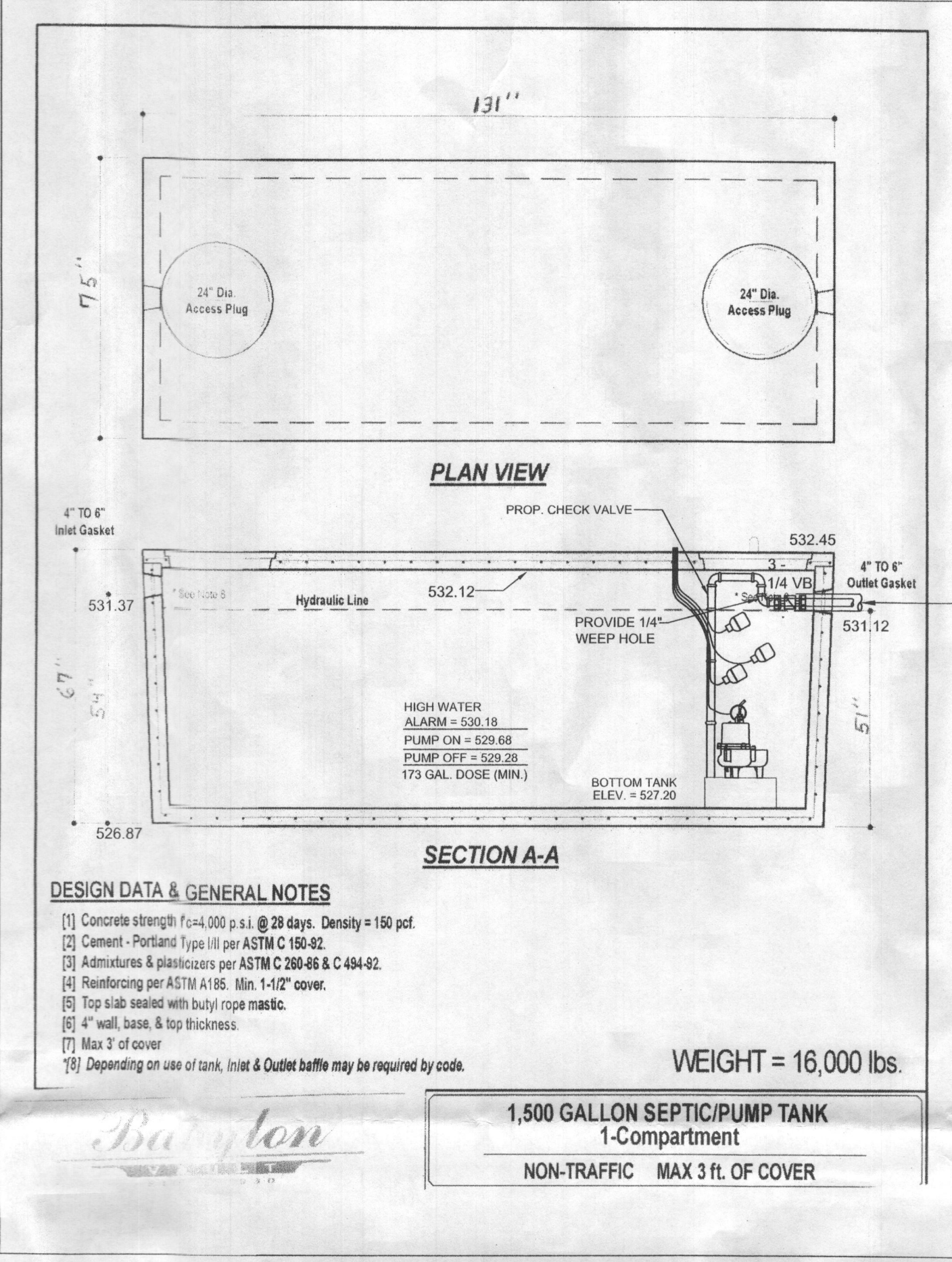
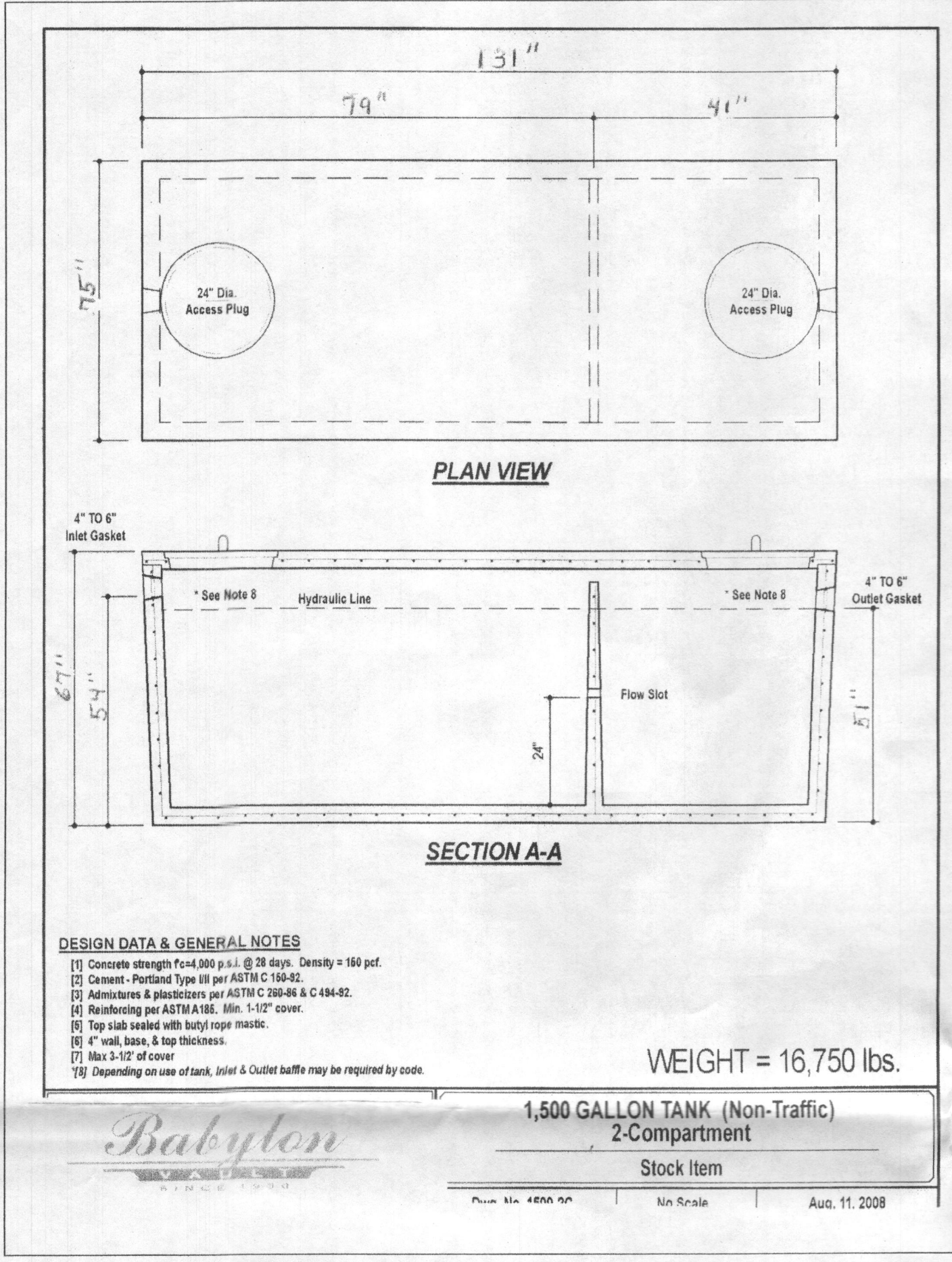


SOILS LEGEND			
SYMBOL	NAME / DESCRIPTION	GROUP	'K' FACTOR
GgB	GLENELG LOAM, 2 TO 8 PERCENT SLOPES	B	0.24
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C/D	0.37

NOTES:
 1) SOIL INFORMATION HAS BEEN TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, WEBB SOIL SURVEY.
 2) HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR 'K' GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT.



PROPOSED 1,500-GALLON SEPTIC TANK DETAIL
 NOT TO SCALE

PROPOSED 1,500-GALLON PUMP TANK DETAIL
 NOT TO SCALE

TOTAL EQUIVALENT LENGTH OF PIPE			
PIPE	2.0" FORCE MAIN	3.0" MANIFOLD	1.5" LATERAL
1/4 BEND (90°)	3 @ 7.0' = 21.0'	-	-
1/8 BEND (45°)	8 @ 4.0' = 32.0'	-	-
1/16 BEND (22.5°)	-	-	-
1/32 BEND (11.25°)	1 @ 1.0' = 1.0'	-	-
GATE VALVE	-	-	-
STANDARD TEE	-	-	-
RUN TEE	-	-	-
CROSS	-	-	-
REDUCER	-	-	-
COUPLINGS	14 @ 3.0' = 42.0'	-	-
QUICK CONNECT/DISCONNECT	1 @ 1.35' = 1.35'	-	-
TOTAL EQUIVALENT LENGTH OF PIPE	97.35'		

PUMPING SYSTEM DESIGN

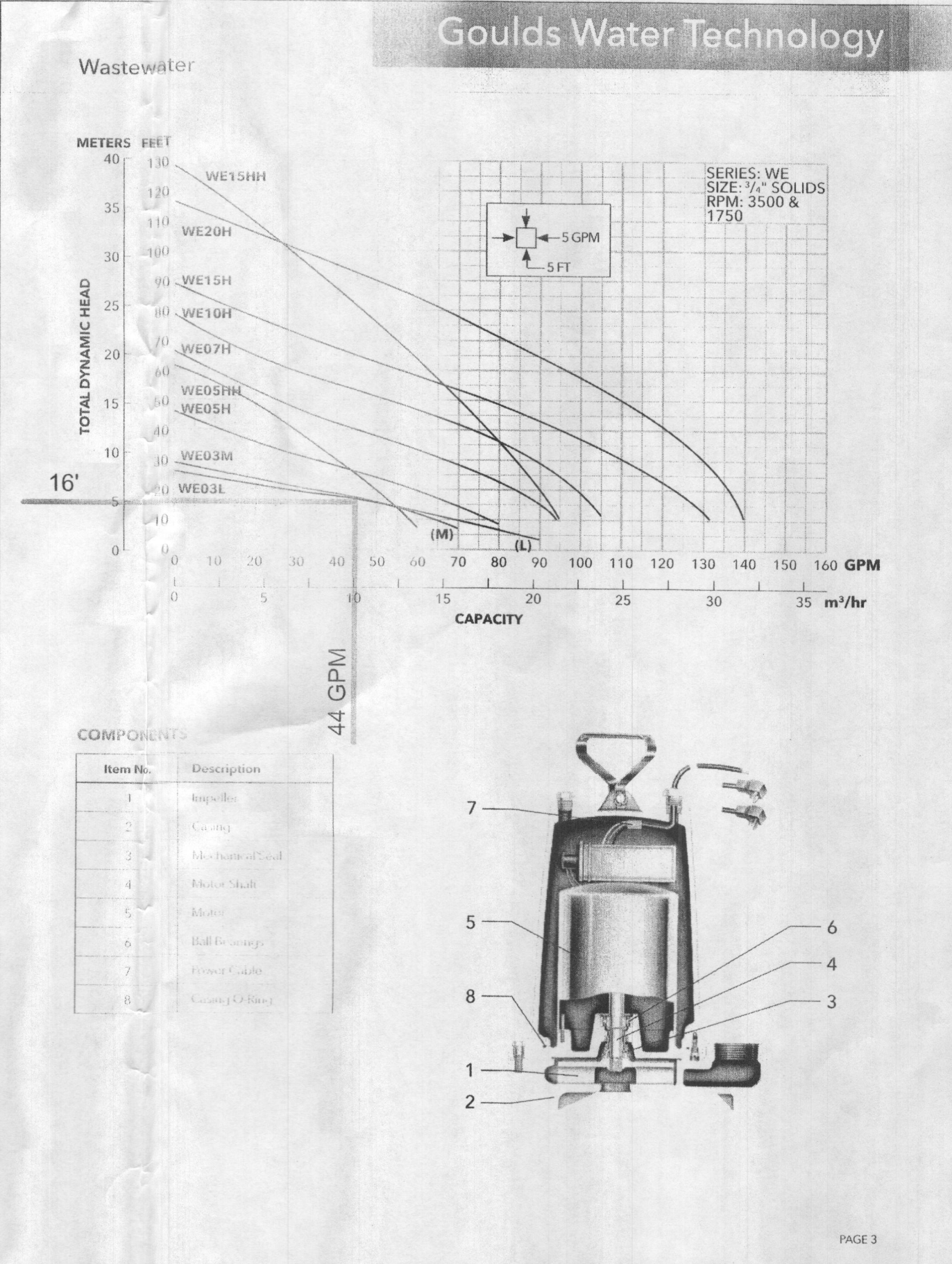
- DOSE CALCULATIONS:**
 - DESIGN FLOW: 750 GPD
 - FORCE MAIN: 275.51'
 - VOLUME OF 2.0" PIPE: 17.40 GALLONS PER 100'
 - DOSE TO BE THE LARGER OF:
 - 1/6TH THE DESIGN FLOW: 125.00 + 47.94 = 172.94 GALLONS
 - OR
 - VOLUME OF FORCE MAIN: 47.94 GALLONS
 - MINIMUM DOSE = 125.00 + 47.94 = 172.94 GALLONS. USE 173 GALLONS
- PUMP DESIGN:**
 - PUMP FLOW REQUIRED: 43.3 GPM. USE 44 GPM
 - DOSE AMOUNT: 173 GALLONS
 - PUMP RUN TIME: 4.0 MINUTES
 - STATIC HEAD (SEE PROFILE FOR DETAIL): 531.33 - 527.70 = 3.63'
- PIPE LENGTHS:**
 - 2.0" FORCE MAIN: 275.51'

FRICTION HEAD CALCULATION (TABLE 4.3)

- FLOW AT 2.0" PIPE (FORCE MAIN) = 44 GPM
- FRICTION LOSS PER 100' (TABLE 4.4) OF 2.0" SCHEDULE 40 PLASTIC PIPE: 3.14'
- TOTAL EQUIVALENT LENGTH OF 2.0" FM AND APPURTENANCES = 275.51' + 97.35' = 372.86/100 = 3.73' X 3.14 = 10.26'
- TOTAL FRICTION HEAD = 11.71'
- TOTAL DYNAMIC HEAD = STATIC HEAD + FRICTION HEAD = 3.63' + 11.71' = 15.34' (USE 16')

PUMP CHAMBER DESIGN

- FOR PUMP TANK DIMENSIONS AND DETAIL, SEE DETAIL THIS SHEET.
- CROSS SECTIONAL AREA OF TANK: 57.2288 CF PER ONE VERTICAL FOOT
- PUMP HEIGHT: 16"
- PUMP CHAMBER ELEVATIONS:
 - PROPOSED GRADE AT TOP OF TANK (AT INLET): 535.21
 - TOP OF PUMP TANK (INTERIOR): 532.12
 - PUMP CHAMBER INVERT IN: 531.37
 - HIGH WATER ALARM: 530.18
 - PUMP ON: 529.68
 - PUMP OFF: 529.28
 - BOTTOM INSIDE SLAB OF TANK: 527.20
- PUMP CHAMBER VOLUMES:
 - INVERT IN TO HIGH WATER ALARM: 68.1023 CF OR 509.441 GALLONS
 - PUMP ON TO PUMP OFF: 22.8915 CF OR 171.240 GALLONS
 - EXCESS VOLUME ABOVE HIGH WATER ALARM: 111.0239 CF OR 830.516 GALLONS
- DESIGN BASED ON:
 - GOULDS WE03L PUMP OR EQUIVALENT
 - BABYLON VAULT 1,500-GALLON SEPTIC TANK OR EQUIVALENT
 - BABYLON VAULT 1,500-GALLON PUMP TANK OR EQUIVALENT



OSDS NOTES

- ANY CHANGE TO THE LOCATIONS OR DEPTHS TO ANY COMPONENTS MUST BE APPROVED BY THE ENGINEER AND THE HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REVISED OSDS SITE PLAN MAY BE REQUIRED.
- DOSE TO BE 173 GALLONS ON A PUMP RUN TIME OF 4.25 MINUTES ON DEMAND
- PUMP TO BE A GOULDS WE03L OR EQUIVALENT.

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWAGE SYSTEMS IN ACCORDANCE WITH THE MASTER PLAN OF HOWARD COUNTY

COUNTY HEALTH OFFICER
 HOWARD COUNTY HEALTH DEPARTMENT

I CERTIFY THAT THE INFORMATION SHOWN HEREON IS BASED ON FIELD WORK PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION, AND IS CORRECT, TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Paul M. Sill
 PAUL M. SILL, PE, LEED AP
 LICENSED PROFESSIONAL ENGINEER #32025

DATE: 11/22/23

BUILDER
 MCS LLC
 CO. JOSEPH MAHA
 3009 BOONES LINE
 ELLICOTT CITY, MARYLAND 21042
 jmahala@mcsllc.com

OWNER
 BHIRUGESH N VYAS & UTPALA B VYAS
 7394 HOPKINS WAY
 CLARKSVILLE, MARYLAND 21029
 bhirugesh1956@verizon.net
 (301)982-9174

ON-SITE SEWAGE DISPOSAL SYSTEM PLAN
VYAS PROPERTY
 1734 WILLOW SPRINGS DRIVE

TAX MAP 15 GRID 4
 5TH ELECTION DISTRICT

PARCEL 145
 HOWARD COUNTY, MARYLAND

SILL ENGINEERING GROUP, LLC
 16005 Frederick Road, 2nd Floor
 Woodbine, Maryland 21797
 Phone: 443.325.5076
 Fax: 410.696.2022
 Email: info@sillengineering.com
 Civil Engineering for Land Development

DESIGN BY: PS
 DRAWN BY: ZS
 CHECKED BY: PS
 SCALE: AS SHOWN
 DATE: NOVEMBER 22, 2023
 PROJECT #: 22-048
 SHEET #: 2 of 2

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. 32025, EXPIRATION DATE: JUNE 20, 2025



RHINE JR.
1352/515

WILSON
PROPERTY
PLAT
3797

HEATHERWOOD
PLAT
4401

- NOTES:
1. NO PAVED PATHWAYS ARE PROPOSED WITHIN THE GOLF COURSE.
 2. DESIGN SPEED FOR PIPES LANE, HEATHERWOOD WAY, AND WILLOW SPRINGS DRIVE IS 30 M.P.H.

PRELIMINARILY APPROVED ON Dec. 8, 1987
DATE
OFFICE OF PLANNING AND ZONING OF
HOWARD COUNTY
U. H. ... 3.9.88
PLANNING DIRECTOR DATE COM

APPROVED:
FOR PRIVATE WATER & PRIVATE SEWER & SYSTEMS.
HOWARD COUNTY HEALTH DEPARTMENT.
James ...
COUNTY HEALTH OFFICER
1-28-88
DATE

SHANABERGER & LANE
8726 TOWN& COUNTRY BLVD.
SUITE 203
ELICOTT CITY, MARYLAND 21043
(301) 461-9563

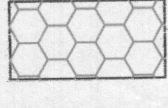

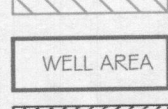
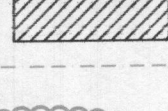
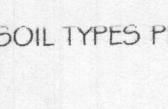

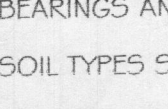
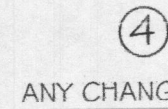


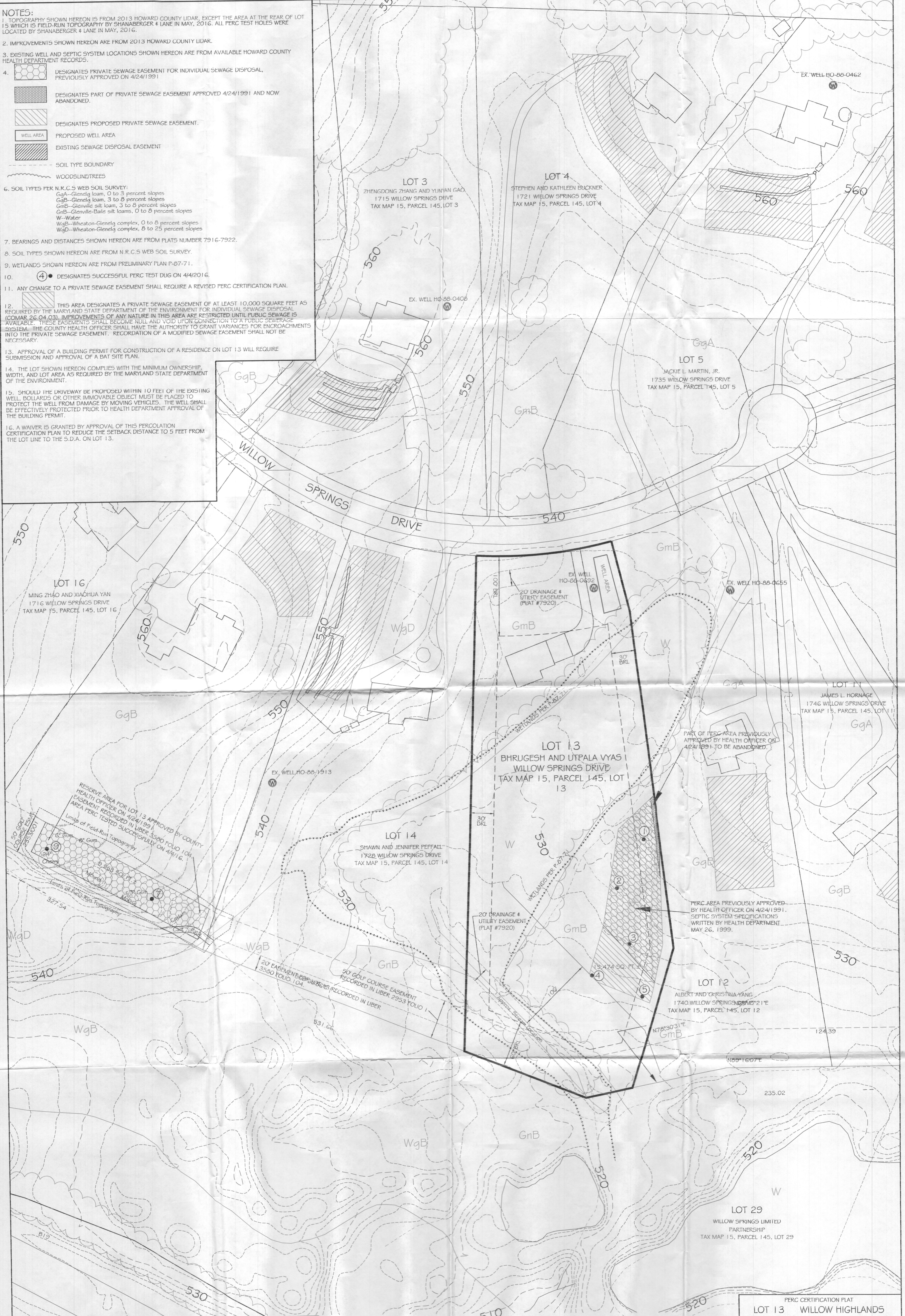
DESIGNED GSS	KS	① PER COUNTY COMMENTS	10/87
DRAWN TE	KS	△ PER COUNTY COMMENTS	11/14/87
CHECKED GSS			
DATE 6/2/87	BY NO.	REVISION	DATE

OWNER & DEVELOPER:
WILLOW SPRINGS I LIMITED
PARTNERSHIP
REG 16801 WEBLEY CHAPEL RD.
MONKTON, MD. 21111
(301) 341-8722

PRELIMINARY PLAN
WILLOW SPRINGS
TAX MAP 9, PARCEL 151; TAX MAP 15, PARCELS 11, 14, 5
ZONING MAP 9 & 15, SEE ELECTION DISTRICT
HOWARD COUNTY, MARYLAND, 5-5-87

SCALE: 1" = 100'
SHEET 3
OF 4

- NOTES:**
1. TOPOGRAPHY SHOWN HEREON IS FROM 2013 HOWARD COUNTY LIDAR, EXCEPT THE AREA AT THE REAR OF LOT 15 WHICH IS FIELD-RUN TOPOGRAPHY BY SHANABERGER & LANE IN MAY, 2016. ALL PERC TEST HOLES WERE LOCATED BY SHANABERGER & LANE IN MAY, 2016.
 2. IMPROVEMENTS SHOWN HEREON ARE FROM 2013 HOWARD COUNTY LIDAR.
 3. EXISTING WELL AND SEPTIC SYSTEM LOCATIONS SHOWN HEREON ARE FROM AVAILABLE HOWARD COUNTY HEALTH DEPARTMENT RECORDS.
 4.  DESIGNATES PRIVATE SEWAGE EASEMENT FOR INDIVIDUAL SEWAGE DISPOSAL, PREVIOUSLY APPROVED ON 4/24/1991.
 5.  DESIGNATES PART OF PRIVATE SEWAGE EASEMENT APPROVED 4/24/1991 AND NOW ABANDONED.
 6.  DESIGNATES PROPOSED PRIVATE SEWAGE EASEMENT.
 7.  PROPOSED WELL AREA.
 8.  EXISTING SEWAGE DISPOSAL EASEMENT.
 9.  SOIL TYPE BOUNDARY.
 10.  WOODS/LINE/TREES.
 11. SOIL TYPES PER N.R.C.S WEB SOIL SURVEY:
 GgA--Glenside loam, 0 to 3 percent slopes
 GgB--Glenside loam, 3 to 8 percent slopes
 GmB--Glenside silt loam, 3 to 8 percent slopes
 GnB--Glenside-Baile silt loams, 0 to 8 percent slopes
 W--Water
 WgB--Wheaton-Glenside complex, 0 to 8 percent slopes
 WgD--Wheaton-Glenside complex, 8 to 25 percent slopes
 12. BEARINGS AND DISTANCES SHOWN HEREON ARE FROM PLATS NUMBER 7916-7922.
 13. SOIL TYPES SHOWN HEREON ARE FROM N.R.C.S WEB SOIL SURVEY.
 14. WETLANDS SHOWN HEREON ARE FROM PRELIMINARY PLAN P-87-71.
 15.  DESIGNATES SUCCESSFUL PERC TEST DUG ON 4/4/2016.
 16. ANY CHANGE TO A PRIVATE SEWAGE EASEMENT SHALL REQUIRE A REVISED PERC CERTIFICATION PLAN.
 17. THIS AREA DESIGNATES A PRIVATE SEWAGE EASEMENT OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL (COMAR 26.04.03). IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWAGE IS AVAILABLE. THESE EASEMENTS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT VARIANCES FOR ENCROACHMENTS INTO THE PRIVATE SEWAGE EASEMENT. RECORDATION OF A MODIFIED SEWAGE EASEMENT SHALL NOT BE NECESSARY.
 18. APPROVAL OF A BUILDING PERMIT FOR CONSTRUCTION OF A RESIDENCE ON LOT 13 WILL REQUIRE SUBMISSION AND APPROVAL OF A BAT SITE PLAN.
 19. THE LOT SHOWN HEREON COMPLIES WITH THE MINIMUM OWNERSHIP, WIDTH, AND LOT AREA AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT.
 20. SHOULD THE DRIVEWAY BE PROPOSED WITHIN 10 FEET OF THE EXISTING WELL, BOLLARDS OR OTHER IMMOVABLE OBJECT MUST BE PLACED TO PROTECT THE WELL FROM DAMAGE BY MOVING VEHICLES. THE WELL SHALL BE EFFECTIVELY PROTECTED PRIOR TO HEALTH DEPARTMENT APPROVAL OF THE BUILDING PERMIT.
 21. A WAIVER IS GRANTED BY APPROVAL OF THIS PERCOLATION CERTIFICATION PLAN TO REDUCE THE SETBACK DISTANCE TO 5 FEET FROM THE LOT LINE TO THE S.D.A. ON LOT 13.



SHANABERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 201
 ELLICOTT CITY, MD 21043
 (410) 461-9563
 (410) 461-9693 fax
 home@shanaberg.com

I HEREBY CERTIFY THAT THE INFORMATION SUBMITTED ON REFLECTS WORK DONE BY ME OR UNDER MY DIRECT SUPERVISION USING AVAILABLE PUBLIC AND PRIVATE INFORMATION AND TO THE BEST OF MY PROFESSIONAL KNOWLEDGE AND BELIEF.

Scott Shanaberg
 SCOTT SHANABERGER
 PROFESSIONAL LAND SURVEYOR #1108
 LICENSE EXPIRATION DATE 4/2/2018

OWNERS
 BHRUGESH AND UTPALA VYAS
 7394 HOPKINS WAY
 CLARKSVILLE, MD. 21029
 (301) 385-8952

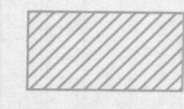
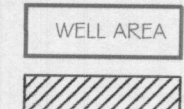


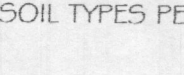
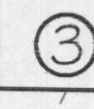
APPROVED:
 FOR PRIVATE WATER AND SEWERAGE SYSTEMS

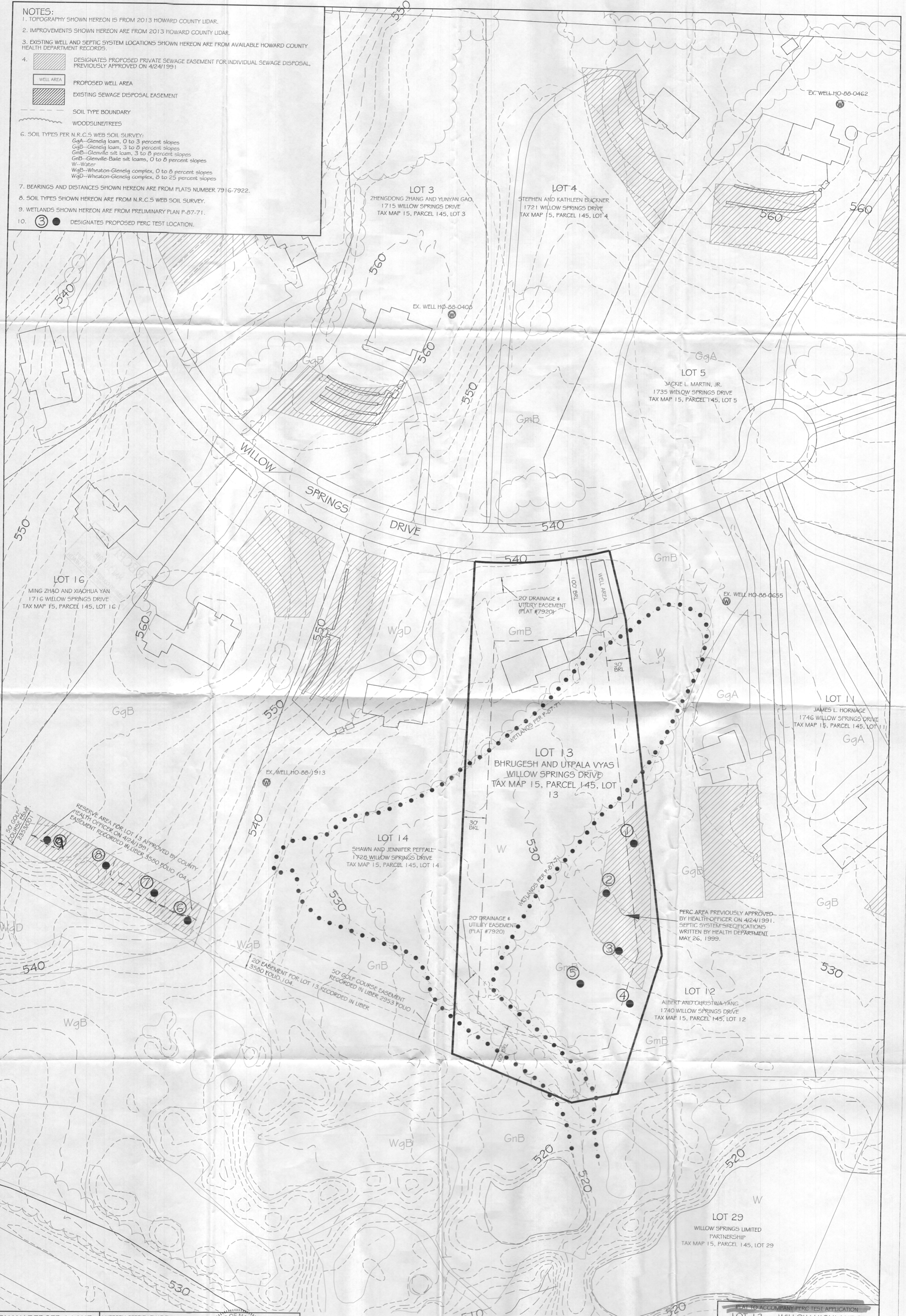
Wesley M. Rossman 8/4/2016
 COUNTY HEALTH OFFICER DATE

PERC CERTIFICATION PLAT
LOT 13 WILLOW HIGHLANDS
AT WILLOW SPRINGS GOLF COURSE

PLATS #7916-7922
 TITLE DEED: 4905/178
 TAX MAP 15, GRID 4, PARCEL 145
 3RD ELECTION DISTRICT, HOWARD COUNTY, MD.
 ZONED RC-DEO
 SCALE: 1" = 50' DATE: 5/25/16

PC555807

- NOTES:**
1. TOPOGRAPHY SHOWN HEREON IS FROM 2013 HOWARD COUNTY LIDAR.
 2. IMPROVEMENTS SHOWN HEREON ARE FROM 2013 HOWARD COUNTY LIDAR.
 3. EXISTING WELL AND SEPTIC SYSTEM LOCATIONS SHOWN HEREON ARE FROM AVAILABLE HOWARD COUNTY HEALTH DEPARTMENT RECORDS.
 4.  DESIGNATES PROPOSED PRIVATE SEWAGE EASEMENT FOR INDIVIDUAL SEWAGE DISPOSAL, PREVIOUSLY APPROVED ON 4/24/1991
 5.  WELL AREA
 6.  EXISTING SEWAGE DISPOSAL EASEMENT
 7.  SOIL TYPE BOUNDARY
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 W--Water
 WgB--Wheaton-Glenelg complex, 0 to 8 percent slopes
 WgD--Wheaton-Glenelg complex, 8 to 25 percent slopes
 10. BEARINGS AND DISTANCES SHOWN HEREON ARE FROM PLATS NUMBER 7916-7922.
 11. SOIL TYPES SHOWN HEREON ARE FROM N.R.C.S. WEB SOIL SURVEY.
 12. WETLANDS SHOWN HEREON ARE FROM PRELIMINARY PLAN P-87-71.
 13.  DESIGNATES PROPOSED PERC TEST LOCATION.



SHANABERGER & LANE
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 (410) 461-9693 fax
 home@shanlane.com

I HEREBY CERTIFY THAT THE INFORMATION SHOWN ON THIS PLAN REFLECTS WORK DONE BY ME OR UNDER MY DIRECT SUPERVISION USING AVAILABLE PUBLIC AND PRIVATE INFORMATION AND IS CORRECT TO THE BEST OF MY PROFESSIONAL KNOWLEDGE AND BELIEF.

Scott Shanaberger
 G. SCOTT SHANABERGER
 PROFESSIONAL LAND SURVEYOR #10849
 LICENSE EXPIRATION DATE 4/2/2016

OWNERS
 BHRUGESH AND UTPALA VYAS
 7394 HOPKINS WAY
 CLARKSVILLE, MD. 21029
 (301) 385-8952

PLAN TO ACCOMPANY PERC TEST APPLICATION
LOT 13 WILLOW HIGHLANDS
AT WILLOW SPRINGS GOLF COURSE
 PLATS #7916-7622
 TITLE DEED: 4905/178
 TAX MAP 15, GRID 4, PARCEL 145
 3RD ELECTION DISTRICT, HOWARD COUNTY, MD.
 ZONED RC-DEO
 SCALE: 1" = 50' DATE: 4/13/15 REV: 3/10/16