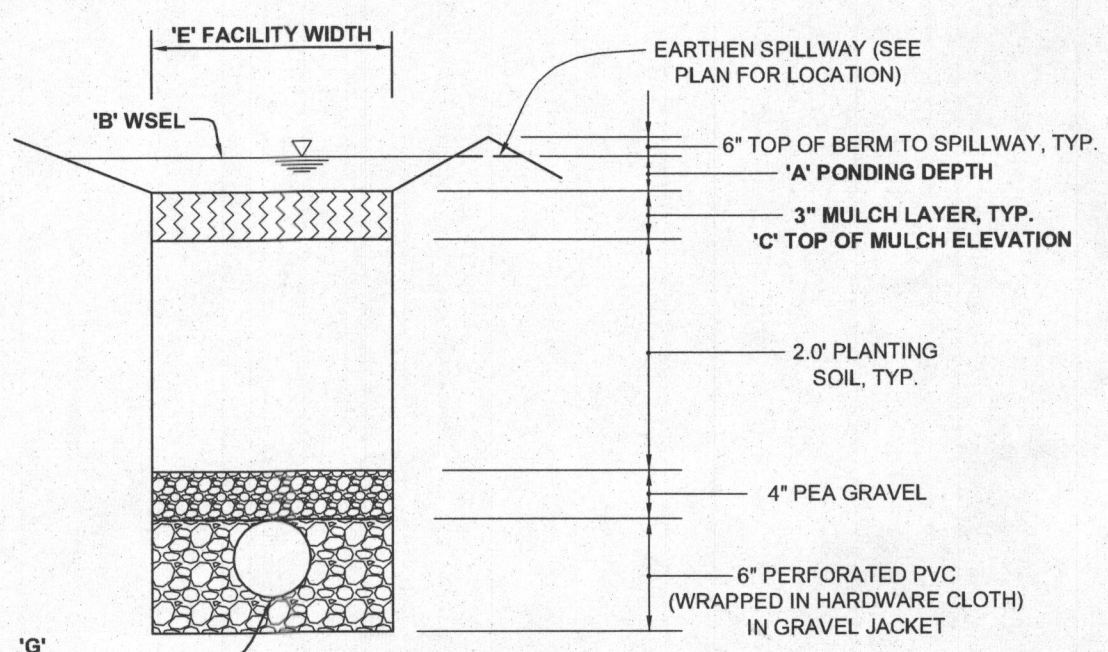


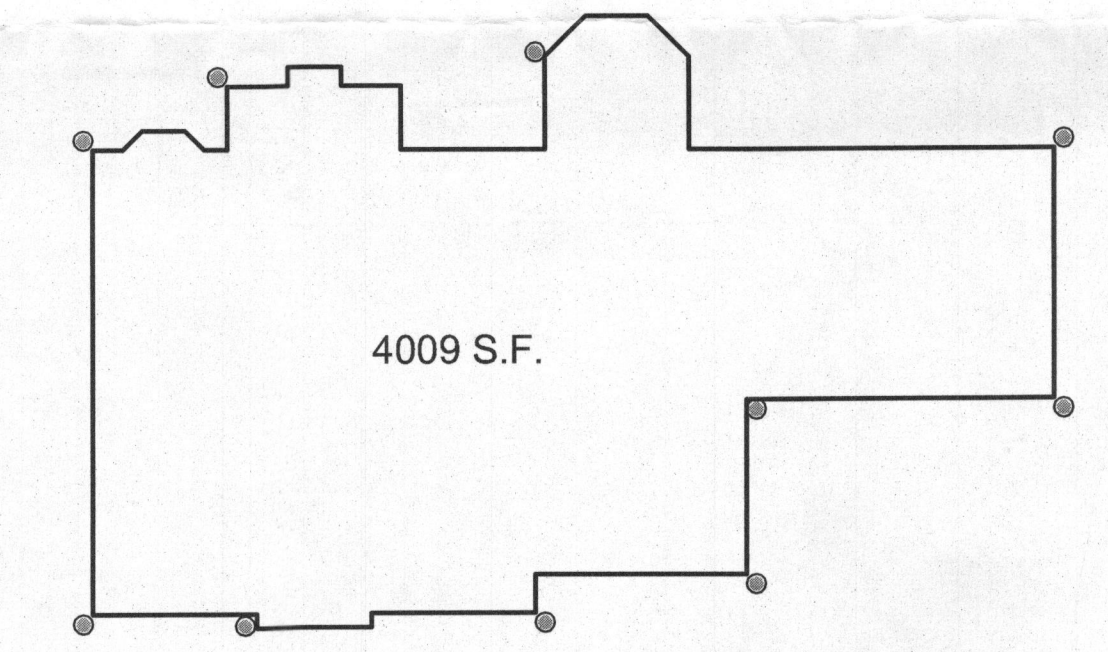
**BIORETENTION FACILITY TYPICAL PROFILE**  
NOT TO SCALE

- NOTES:
- FOR ADDITIONAL INFORMATION, SEE THE 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUMES I AND II.
  - SEE CHART, THIS SHEET, FOR ELEVATIONS AND DISTANCES.
  - FILTER FABRIC IS TO BE USED ON THE SIDES OF THE FACILITY.



**BIORETENTION FACILITY TYPICAL SECTION**  
NOT TO SCALE

NOTE: FILTER FABRIC IS TO BE USED ON THE SIDES OF THE FACILITY.



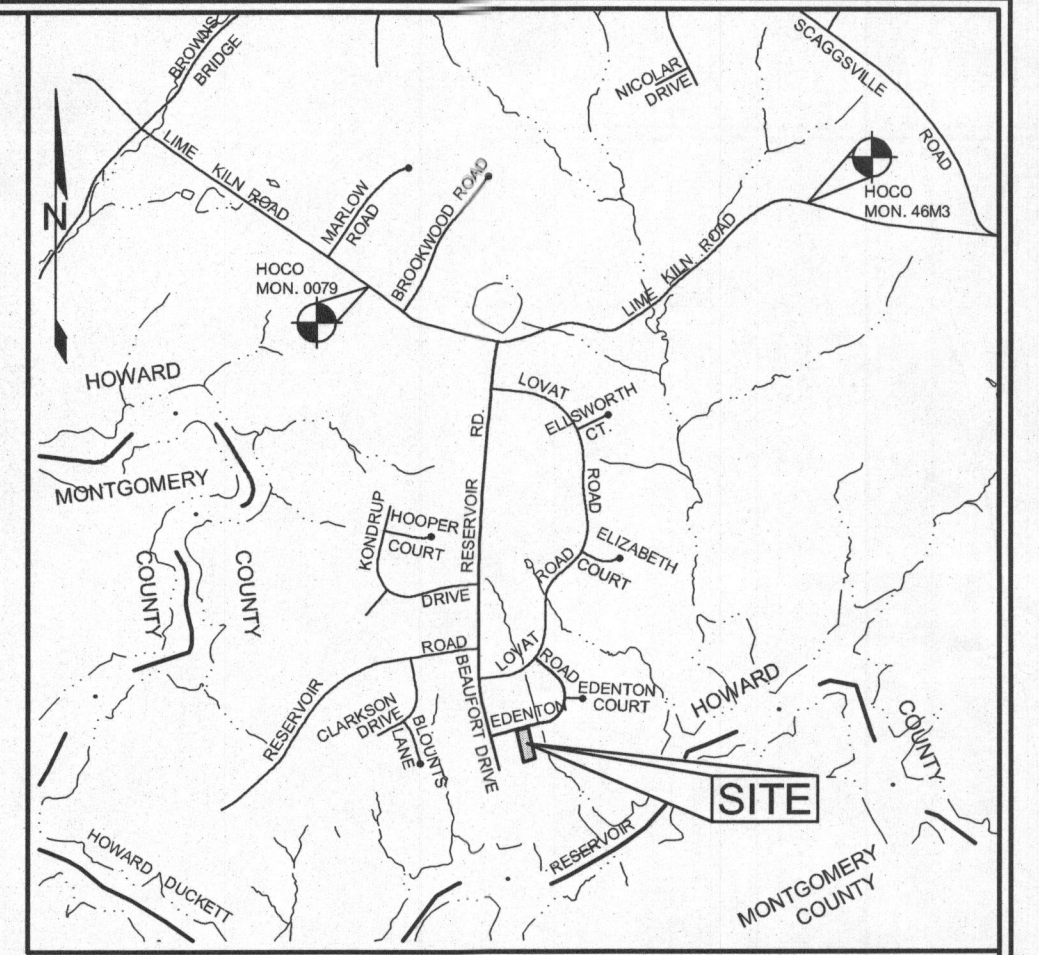
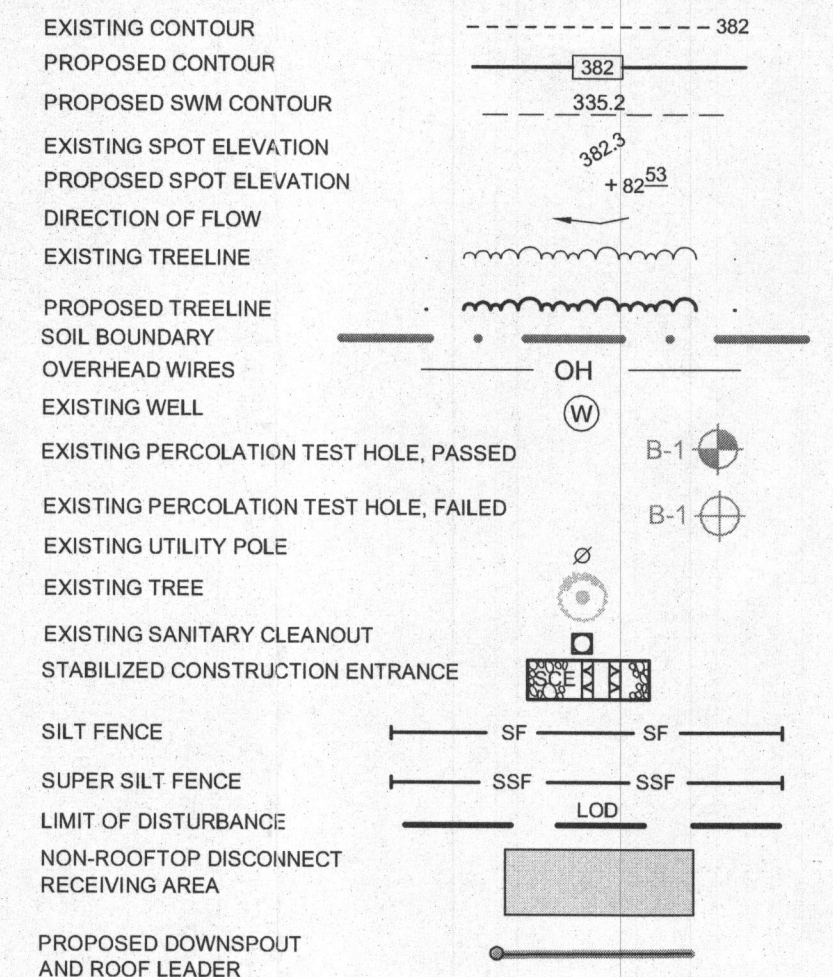
**ROOF LEADER LAYOUT**  
SCALE: 1"=20'

| BIORETENTION PLANT LIST |                 |                  |               |         |     |  |
|-------------------------|-----------------|------------------|---------------|---------|-----|--|
| HERBACEOUS SPECIES      |                 |                  |               |         |     |  |
| BOTANICAL NAME          | COMMON NAME     | SPACING          | SIZE          | REMARKS | QTY |  |
| EUPATORIUM FISTULOSUM   | JOE-PYE WEED    | * (MIN. 4' O.C.) | 1 QT./12" HT. | CONT.   | 7   |  |
| RUDEBECKIA LACINIATA    | TALL CONEFLOWER | * (MIN. 3' O.C.) | 1 QT.         | CONT.   | 3   |  |
| MONARDA LAMACEAE        | BEE BALM        | * (MIN. 3' O.C.) | 1 QT.         | CONT.   | 3   |  |

NOTE: PLANT MATERIAL MUST COVER 50% OF THE MULCH AREA AT MATURE GROWTH. INTERPERSE PLANTINGS THROUGHOUT BIORETENTION FILTER/MULCH AREA.

| BIORETENTION ELEVATIONS AND DIMENSIONS |        |
|--|--------|
| DESCRIPTION                            | BIO 1  |
| 'A' PONDING DEPTH                      | 1.0'   |
| 'B' WSEL                               | 322.20 |
| 'C' TOP OF MULCH                       | 321.20 |
| 'D' FACILITY LENGTH                    | 26.0'  |
| 'E' FACILITY WIDTH                     | 13.0'  |
| 'F' PERF. UNDERDRAIN DIMENSION         | 17.1'  |
| 'G' UNDERDRAIN INVERT                  | 318.12 |
| 'H' SOLID UNDERDRAIN DIMENSION         | 30.0'  |
| 'I' OUTFALL INVERT                     | 317.8' |

**LEGEND**



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

**STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION**

- TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.
- PURPOSE:
- TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS.
- CONDITIONS WHERE PRACTICE APPLIES:
- EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.
- CRITERIA:
- SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.1 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3) AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE B.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.
  - FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.
  - WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-A.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

**STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION**

- TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.
- PURPOSE:
- TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS.
- CONDITIONS WHERE PRACTICE APPLIES:
- EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.
- CRITERIA:
- GENERAL USE
    - SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.2. ENTER SELECTED MIXTURES, APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
    - ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USE-ARCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING.
    - FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY.
    - FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3 1/2 POUNDS PER 1000 SQUARE FEET 150 DAYS BEFORE AGRICULTURE AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY.
  - TURFGRASS MIXTURES
    - AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
    - SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
      - KENTUCKY BLUEGRASS: FULL SUN MIXTURE. FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
      - KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE. FOR USE IN FULL SUN AREAS WHERE B.2.2 RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. RECOMMENDED PERENNIAL RYEGRASS CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
      - TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE. FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT. RECOMMENDED MIXTURE INCLUDES: CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT CERTIFIED KENTUCKY BLUEGRASS CULTIVARS TO 5 PERCENT. SEEDING RATE: 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.
      - KENTUCKY BLUEGRASS/FINE FESCUE: SHADE MIXTURE. FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREAS INCLUDES: CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE: 1 1/2 TO 3 POUNDS PER 1000 SQUARE FEET.

- NOTES:
- SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND" CHOOSE CERTIFIED MATERIAL. THE CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY. THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE.
  - IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES:
    - WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDNESS ZONES: 5B, 6A)
    - CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDNESS ZONES: 6B)
    - SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDNESS ZONES: 7A, 7B)
  - D. TILL AREAS TO RECEIVE SEED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES. LEVEL AND RAKE THE AREAS TO PREPARE A PROPER SEEDBED. REMOVE STONES AND DEBRIS OVER 1/4 INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL BE POSITIVE.
  - IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH (1/4 TO 1 INCH EVERY 3 TO 4 DAYS DEPENDING ON SOIL TEXTURE) UNTIL THEY ARE FIRMLY ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON. IN ABNORMAL DRY OR HOT SEASONS, SOIL OR ADVERSE WEATHER MAY CAUSE SEEDINGS TO FAIL.
  - SOIL MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 1/4 INCH PLUS OR MINUS 1/8 INCH. AT THE TIME OF CUTTING MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.
  - STANDARD SIZE SECTIONS OF SOIL MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.
  - SOIL MUST NOT BE HARD.
  - SOIL MUST BE HARDED.
  - SOIL MUST BE HARDED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOIL NOT TRANSPORTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.
  - SOIL INSTALLATION:
    - DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOIL.
    - LAY THE FIRST ROW OF SOIL IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOIL IS NOT STRETTED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.
    - WHEREVER POSSIBLE, LAY THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOIL TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOIL ROOTS AND THE UNDERLYING SOIL SURFACE.
    - WATER THE SOIL IMMEDIATELY AFTER LAYING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW SOIL PAD AND SOIL SURFACE BELOW THE SOIL ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOIL WITHIN EIGHT HOURS.
  - SOIL MAINTENANCE:
    - IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SOIL DURING THE HEAT OF THE DAY TO PREVENT WILTING.
    - AFTER THE FIRST WEEK, SOIL WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT. DURING GRASSING AND AFTER EACH RAINFALL, CONTRACTOR WILL INSPECT AND PROVIDE NECESSARY MAINTENANCE TO THE SEEDMENT CONTROL MEASURES ON THIS PLAN.

**STANDARD STABILIZATION NOTE**

FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

- THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND
- SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

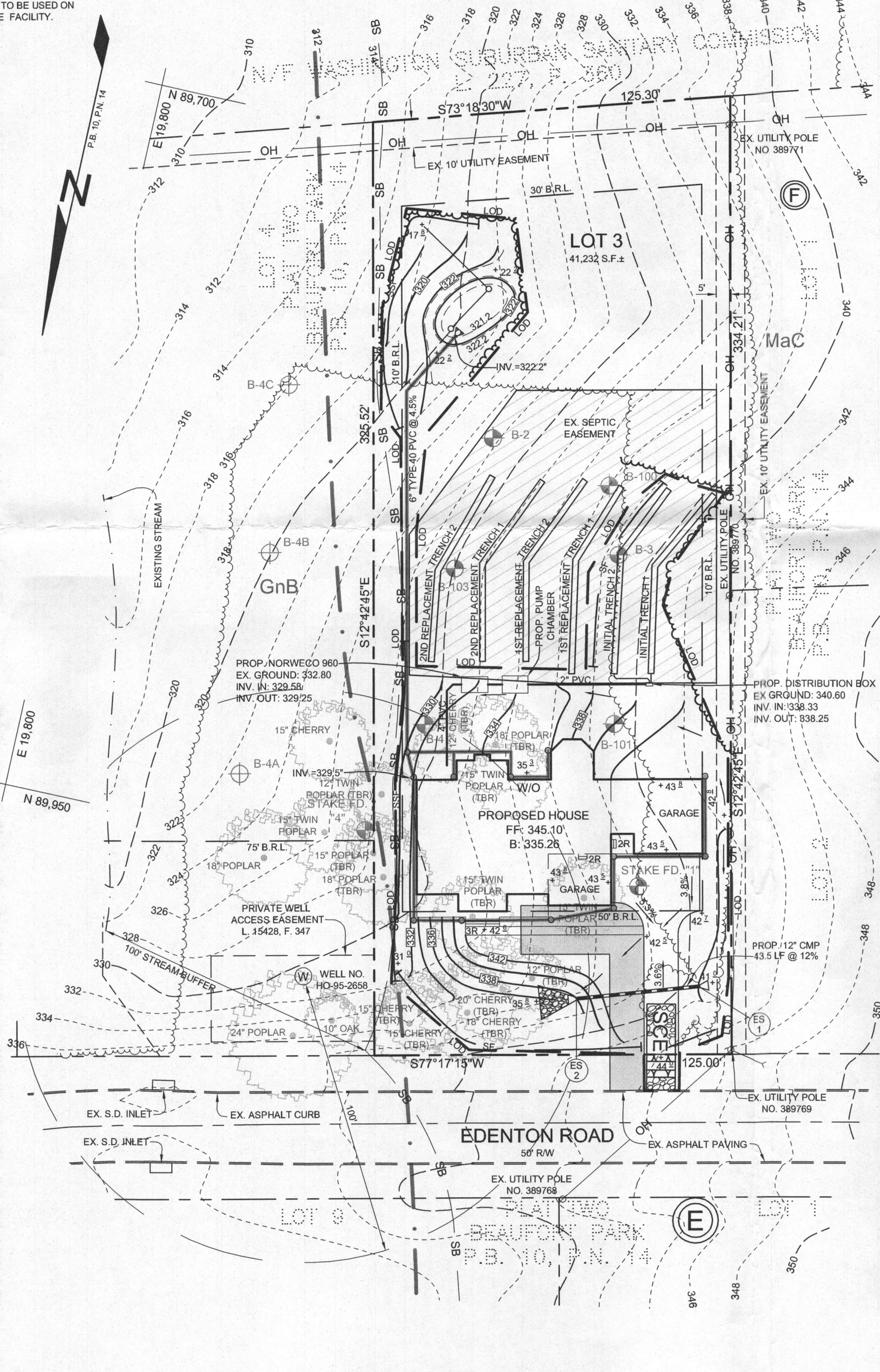
DURING GRADING AND AFTER EACH RAINFALL, CONTRACTOR WILL INSPECT AND PROVIDE NECESSARY MAINTENANCE TO THE SEEDMENT CONTROL MEASURES ON THIS PLAN.

**HOWARD SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES**

- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY.
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERE TO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. B-4.5), TEMPORARY SEEDING (SEC. B-4.4) AND MULCHING (SEC. B-4.3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE ANALYSIS:
 

|                                     |                 |
|-------------------------------------|-----------------|
| TOTAL AREA OF SITE:                 | 0.06 ACRES(±)   |
| AREA TO BE ROOFED OR PAVED:         | 0.47 ACRES(±)   |
| AREA TO BE VEGETATIVELY STABILIZED: | 0.14 ACRES(±)   |
| TOTAL CUT:                          | 0.53 ACRES(±)   |
| TOTAL FILL:                         | 1.56 CU. YDS. ± |
| OFFSITE WASTE/BORROW AREA LOCATION: | 1.56 CU. YDS. ± |
- ANY SEDIMENT CONTROL PRACTICE THAT IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF RELATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES SHALL BE LIMITED TO THOSE PRELIMINARY TRENCHES WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.
- ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCEEDING WITH CONSTRUCTION.
- A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACRES OF 20 AC PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE ENFORCEMENT AUTHORITY, UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE APPROVAL AUTHORITY, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.

\* EARTHWORK QUANTITIES ARE SOLELY FOR THE PURPOSE OF CALCULATING FEES. CONTRACTOR TO VERIFY ALL QUANTITIES PRIOR TO THE START OF CONSTRUCTION.  
\*\* TO BE DETERMINED BY CONTRACTOR, WITH PRE-APPROVAL OF THE SEDIMENT CONTROL INSPECTOR WITH AN APPROVED AND ACTIVE GRADING PERMIT.



**PLAN VIEW**  
SCALE: 1"=30'

**GENERAL NOTES**

- PROPERTY ADDRESS: 8535 EDENTON ROAD, FULTON, MARYLAND 20759
- PLAT REFERENCE: "PLAT TWO, BEAUFORT PARK" RECORDED IN PLAT BOOK 10 AT PLAT 14
- TOTAL AREA OF PROPERTY = 41,232 S.F. OR 0.9466 AC. ±
- SUBJECT PROPERTY ZONED RR-OEO PER 07/28/06 COMPREHENSIVE ZONING PLAN.
- THE SETBACK SHOWN HEREON ARE BASED ON THE CURRENT HOWARD COUNTY ZONING REQUIREMENTS.
- PRIVATE WATER AND PRIVATE SEWER WILL BE USED WITHIN THIS SITE.
- THIS AREA DESIGNATES A PRIVATE SEWAGE EASEMENT OF AT LEAST 10,000 SF AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL (COMAR 26.04.03). IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWERAGE IS AVAILABLE. THESE EASEMENTS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE EASEMENT. RECDATION OF A MODIFIED SEWAGE EASEMENT SHALL NOT BE NECESSARY.
- THE PROPERTY BOUNDARY IS BASED ON THE RECORDED SUBDIVISION PLAT.
- THE TOPOGRAPHY OF THIS PLAT IS AT TWO FOOT INTERVALS AND IS BASED UPON A FIELD RUN TOPOGRAPHIC SURVEY PERFORMED BY SILL, ADCOCK & ASSOCIATES, LLC. ON OR ABOUT OCTOBER 9, 2013, SUPPLEMENTAL TOPOGRAPHY OUTSIDE THE SITE IS BASED ON HOWARD COUNTY AERIAL TOPOGRAPHY FLOWN IN 2004, AND IS VERIFIED TO ACCURATELY REPRESENT THE RELATIVE CHANGES ON THE SUBJECT PROPERTY.
- DEED REFERENCE: LIBER 3165, FOLIO 370.
- DEED HISTORY:
  - 1927 TO 1956 - NORMAN L. WILSON AND RUTH WILSON
  - 1956 TO 1969 - ANNE K. GRAY, SUSIE H. KONDUP
  - 1969 TO 1993 - COYE S. CANDLER, FRANCES C. CANDLER
  - 1993 TO PRESENT - ODELL H. CANDLER REVOCABLE TRUST
- ANY CHANGES TO A PRIVATE SEWAGE EASEMENT SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
- ALL EXISTING WELLS, SEPTIC SYSTEMS AND SEWAGE DISPOSAL EASEMENTS WITHIN 100 FEET OF THE PROPERTY BOUNDARIES AND ALL EXISTING AND PROPOSED WELLS THAT ARE LOCATED WITHIN 200 FEET DOWN-GRADE OF EXISTING OR PROPOSED SEPTIC SYSTEMS AND SEWAGE DISPOSAL EASEMENTS HAVE BEEN SHOWN.
- THE LOT SHOWN HEREON COMPLIES WITH THE MINIMUM OWNERSHIP WIDTH AND LOT AREA AS REQUIRED BY THE MARYLAND DEPARTMENT OF ENVIRONMENT.
- AN EASEMENT AGREEMENT HAS BEEN RECORDED IN THE LAND RECORDS FOR BOTH LOTS ALLOWING THE WELL SERVING LOT 3 TO BE DRILLED ON LOT 4 WITHIN THE APPROVED WELL AREA. THE WELL EASEMENT AREA MUST BE PRESERVED FOR WELL CONSTRUCTION AND MAINTENANCE IN SUPPORT OF WATER SERVICE FOR THE DWELLING ON LOT 3.
- THE MARYLAND DEPARTMENT OF ENVIRONMENT HAS APPROVED A VARIANCE TO ALLOW THE WELL SERVING LOT 3 TO BE LOCATED DOWNGRADIENT OF THE ONSITE SEWAGE DISPOSAL SYSTEM ON LOT 2 WITH THE FOLLOWING CONDITION:
  - THE LOT SERVING LOT 3 MUST BE CONSTRUCTED USING STEEL CASING EXTENDING 60 FEET BELOW GRADE OR 10 FEET INTO COMPETENT BEDROCK, WHICHEVER IS DEEPER.
- SEPTIC SYSTEM INFORMATION FOR LOT 2 IS FROM HOWARD COUNTY HEALTH DEPARTMENT RECORDS DATED OCTOBER 9, 1984.
- SEPTIC SYSTEM INFORMATION FOR BEAUFORT PARK, LOT 1, BLOCK F IS FROM HOWARD COUNTY HEALTH DEPARTMENT RECORDS DATED APRIL 10, 1974.
- SEPTIC SYSTEM INFORMATION FOR BEAUFORT PARK, LOT 2, BLOCK F IS FROM HOWARD COUNTY HEALTH DEPARTMENT RECORDS DATED OCTOBER 26, 1984.
- SEPTIC SYSTEM INFORMATION FOR BEAUFORT PARK, LOT 1, BLOCK F IS FROM HOWARD COUNTY HEALTH DEPARTMENT RECORDS DATED OCTOBER 10, 1986.
- ALL DOWNSPOUTS ARE TO MAINTAIN A POSITIVE SLOPE AT ALL TIMES IN ORDER TO SUSTAIN THEIR FLOW TO THE MICRO-BIORETENTION FACILITY IN THE REAR OF THE LOT.
- LIMIT OF DISTURBANCE (LOD): 20,447.39 S.F. ±
- ALL ON SITE FIELD LOCATED TREES ARE TO BE REMOVED.
- THIS PROJECT IS CONDITIONALLY EXEMPT FROM THE REQUIREMENT OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION WITH THE FILING OF A DECLARATION OF INTENT FOR A SINGLE LOT CLEARING LESS THAN 20,000 SQUARE FEET OF FOREST PER SECTION 16.202(d)(2)(i).
- STORMWATER MANAGEMENT FOR THIS PROPERTY HAS BEEN PROVIDED FOR BY NON-ROOFTOP DISCONNECT, A CULVERT AND, A MICRO-BIORETENTION FACILITY, IN ACCORDANCE WITH THE 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUMES I AND II, AS AMENDED BY THE MARYLAND STORMWATER ACT OF 2007.

**SOILS LEGEND**

| SYMBOL | NAME / DESCRIPTION                                | GROUP |
|--------|---|-------|
| Mac    | MAJOR LOAM, 8 TO 15 PERCENT SLOPES                | B     |
| GnB    | GLENVILLE-BAILE SILT LOAMS, 0 TO 8 PERCENT SLOPES | B     |

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

**OWNER**

DAVID E. CANDLER, TRUSTEE  
OF THE ODELL H. CANDLER REVOCABLE TRUST  
45 NE LOU 410, SUITE 600  
PHOENIX, ARIZONA 85018  
SAN ANTONIO, TEXAS 78216-3670

**PLOT PLAN  
PLAT TWO  
BEAUFORT PARK  
LOT 3, BLOCK F**

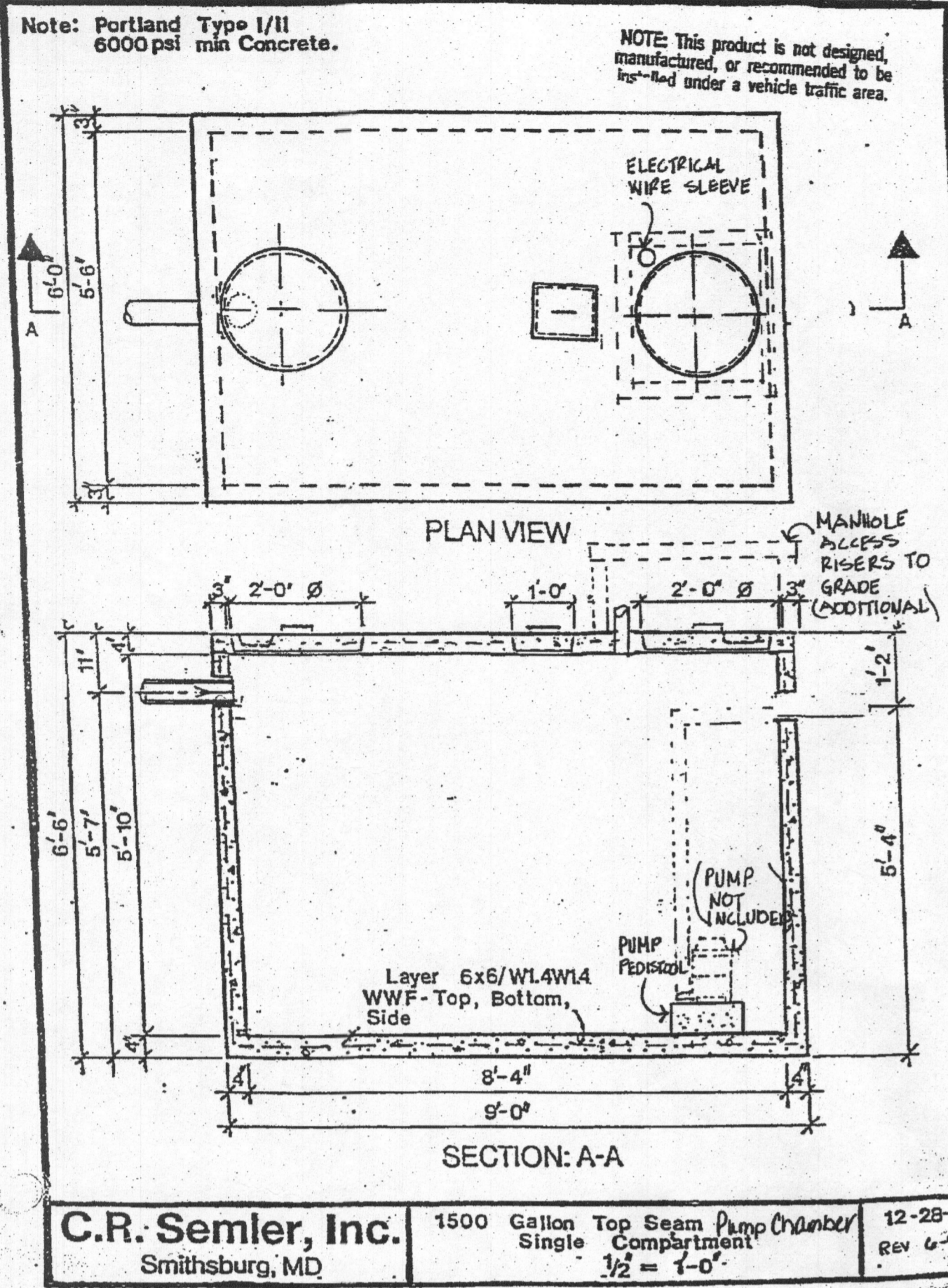
TAX MAP 45 GRID 12 PARCEL 27  
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**Adcock & Associates · LLC**  
Engineers · Surveyors · Planners

3300 North Ridge Road, Suite 160  
Ellicott City, Maryland 21043  
Phone: 443.325.7682 Fax: 443.325.7685  
Email: info@adcoand.com

DESIGN BY: AEM, JTS  
DRAWN BY: AEM, JTS  
CHECKED BY: PS  
SCALE: 1"=30'  
DATE: FEBRUARY 12, 2015  
PROJECT #: 13-098  
SHEET #: 1 of 1

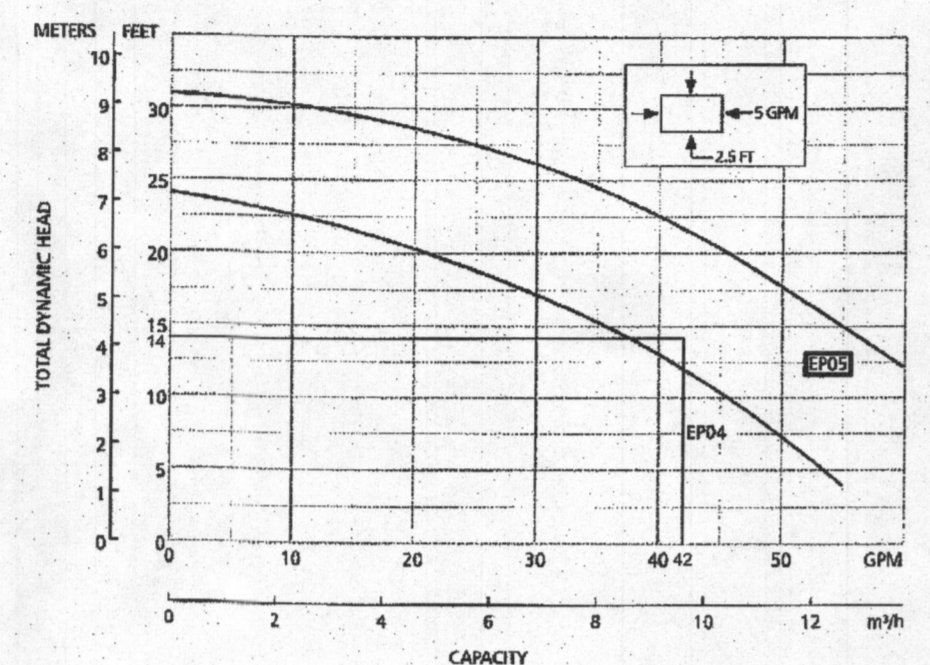
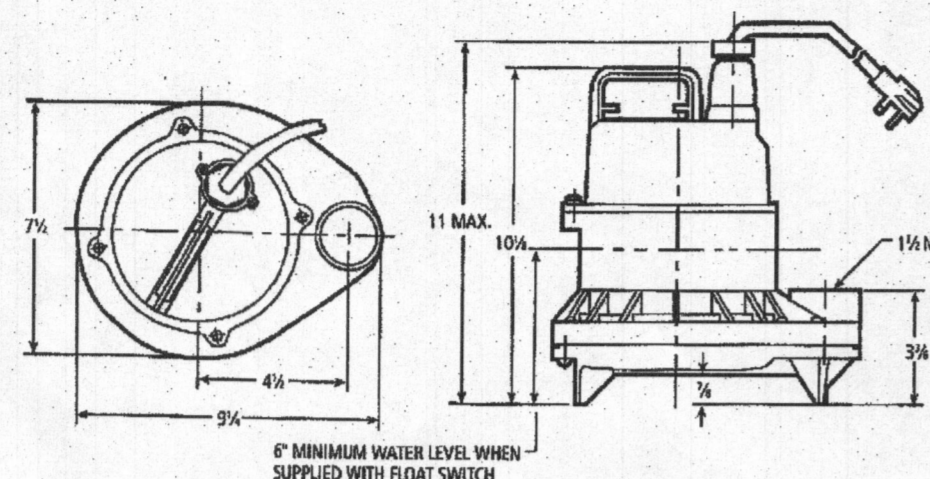
PROFESSIONAL CERTIFICATION: HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21257, EXPIRATION DATE 06-16-2015



## Goolds Pumps

### EP04 & EP05 Series Model 3871

Submersible Effluent Pumps



| SOILS LEGEND |   |       |            |
|--------------|---|-------|------------|
| SYMBOL       | NAME / DESCRIPTION                                | GROUP | 'K' FACTOR |
| Mac          | MANOR LOAM, 8 TO 15 PERCENT SLOPES                | B     | 0.20       |
| GnB          | GLENVILLE-BAILE SILT LOAMS, 0 TO 8 PERCENT SLOPES | B     | 0.37       |

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

### HEAD CALCULATION

STATIC HEAD = 12.77 USE 13.0'  
FRICTION HEAD CALCULATION:  
2" PIPE  
1 COUPLINGS @ 2 PER COUPLING = 6.0'  
TOTAL EQUIV. LENGTH OF PIPE = 14.0'  
FRICTION LOSS PER 100' = 1.10'  
50.0' @ 2" @ PIPE = 2.0' @ 1.10' PER 100' = 0.57'  
FRICTION HEAD = 0.57'  
TOTAL DYNAMIC HEAD = 13.57' USE 14'

### PERFORMANCE RATINGS

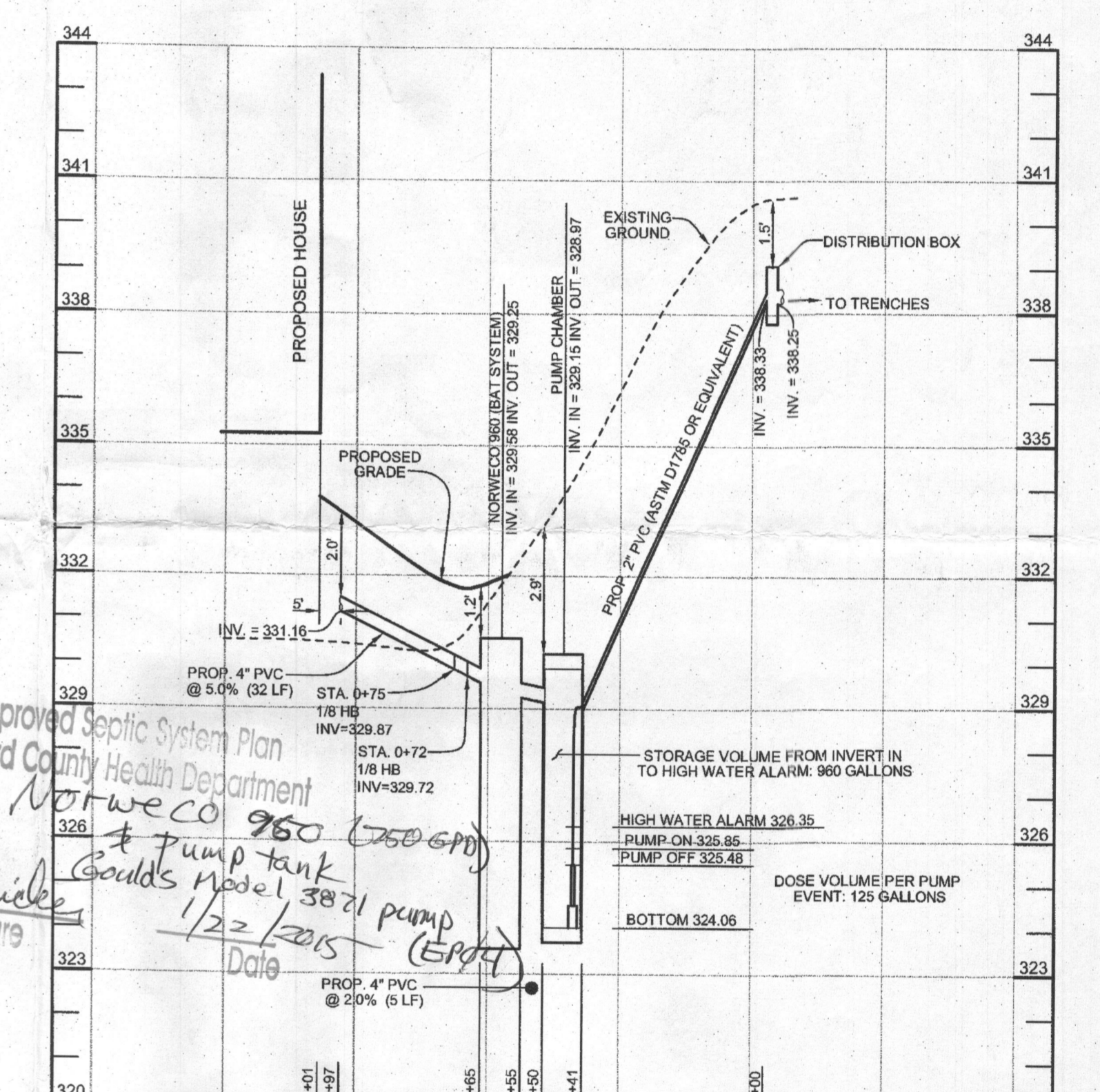
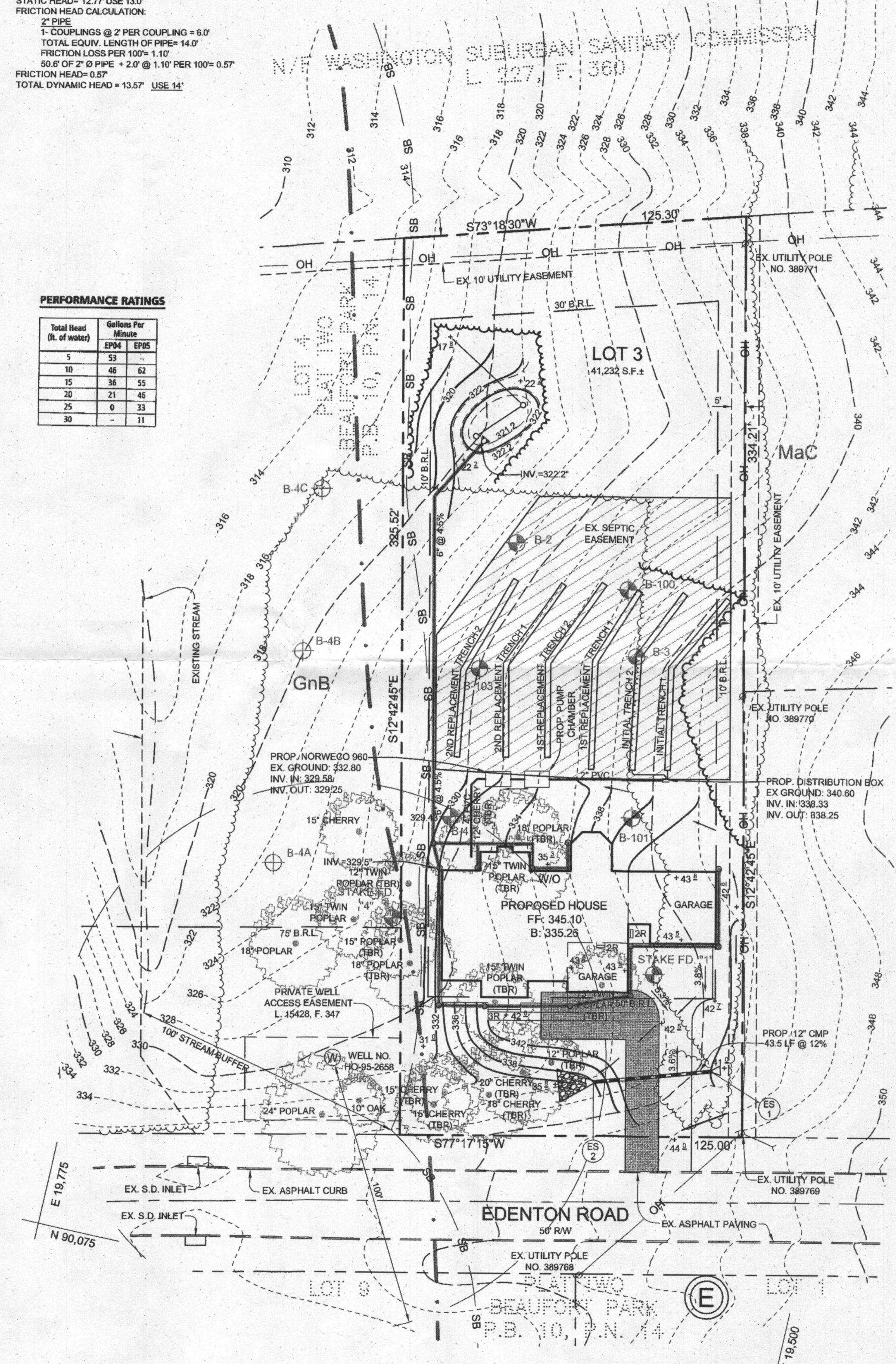
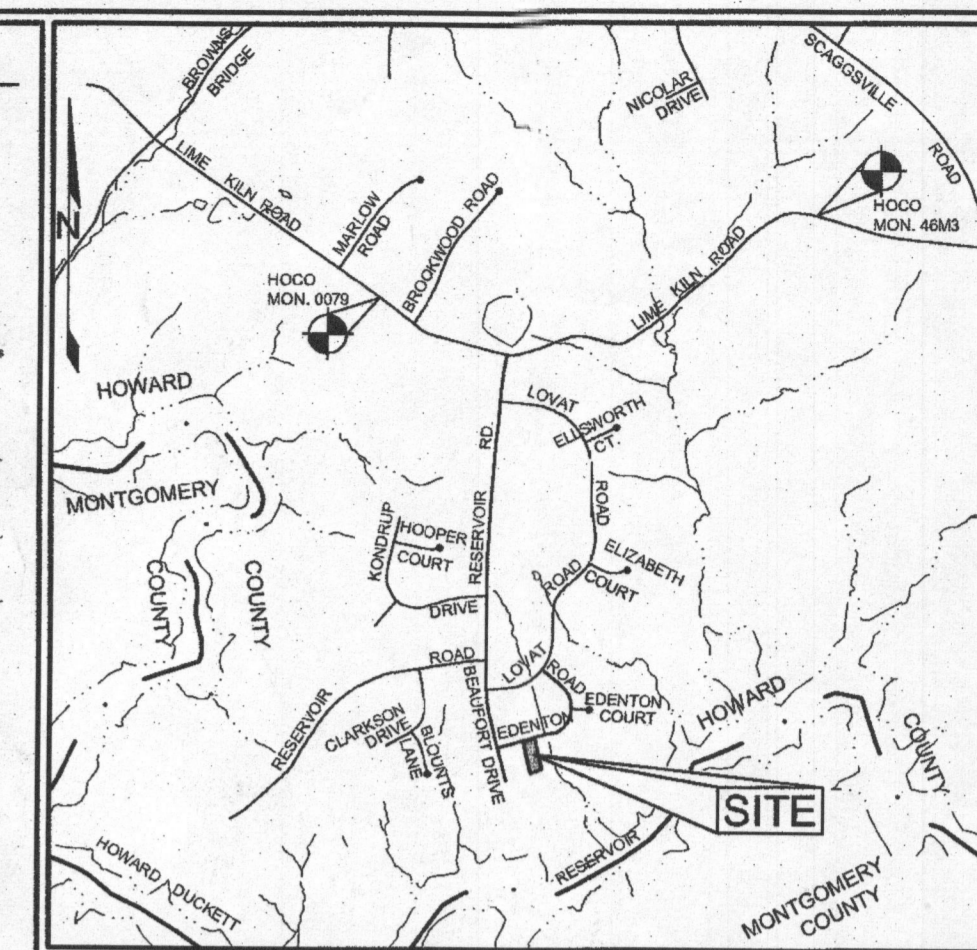
| Total Head (ft. of water) | Gallons Per Minute |
|---------------------------|--------------------|
| 5                         | 53                 |
| 10                        | 46                 |
| 15                        | 36                 |
| 20                        | 21                 |
| 25                        | 0                  |
| 30                        | -                  |

### BAT 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 SITE PLAN MAY BE REQUIRED.
- THE MAXIMUM COVER OF THE BAT PER THE MANUFACTURER'S SPECIFICATION IS 2'.
- THE BLOWER MAY NOT BE LOCATED MORE THAN 50' FROM THE TANK BASED ON THE MANUFACTURER'S SPECIFICATIONS.
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- THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
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- THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.

### LEGEND

- EXISTING CONTOUR
- PROPOSED SWM CONTOUR
- EXISTING SPOT ELEVATION
- DIRECTION OF FLOW
- EXISTING TRENCH
- PROPOSED TRENCH
- SOIL BOUNDARY
- OVERHEAD WIRES
- EXISTING WELL
- EXISTING PERCOLATION TEST HOLE, PASSED (5/28/11)
- EXISTING PERCOLATION TEST HOLE, FAILED (5/28/11)
- EXISTING UTILITY POLE
- EXISTING TREE
- EXISTING SANITARY CLEANOUT
- PROPOSED SEPTIC AREA
- NON-ROOFTOP DISCONNECT RECEIVING AREA



### BAT PROFILE VIEW

HORIZONTAL SCALE: 1"=30'  
VERTICAL SCALE: 1"=3'

OWNER  
DAVID E. CANDLER, TRUSTEE  
OF THE ODELLE H. CANDLER REVOCABLE TRUST  
45 NE LOOP 410, SUITE 560  
SAN ANTONIO, TEXAS 78216-5870

SITE PLAN FOR BAT INSTALLATION  
PLAT TWO  
BEAUFORT PARK  
LOT 3, BLOCK F

TAX MAP 45 GRID 12  
5TH ELECTION DISTRICT

PARCEL 27  
HOWARD COUNTY, MARYLAND

Adcock & Associates - LLC  
Engineers - Surveyors - Planners  
3300 North Ridge Road, Suite 160  
Baltimore City, Maryland 21043  
Phone: 443.325.7682 Fax: 443.325.7685  
Email: info@saaland.com

DESIGN BY: PS  
DRAWN BY: AEM/JIT  
CHECKED BY: PS  
SCALE: 1"=30'  
DATE: JANUARY 12, 2015  
PROJECT #: 13-098  
SHEET #: 1 of 1

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 26, 2015

### SEPTIC TRENCH DESIGN (INITIAL SYSTEM & 1ST REPLACEMENT SYSTEM)

- INITIAL SYSTEM & 1ST REPLACEMENT SYSTEM:
  - APPLICATION RATE: 1.2
  - EFFECTIVE AREA BEGINNING DEPTH: 3.5'
  - BOTTOM MAXIMUM DEPTH: 7'
  - DISTANCE BETWEEN TRENCHES: 3.5'
- DESIGN FLOW:
  - 5 BEDROOMS AT 150 GPD
  - 5x150 GPD = 750 GPD
- SQUARE FOOTAGE OF DRAINFIELD REQUIRED:
  - DESIGN FLOW (750 GPD) / APPLICATION RATE (1.2) = 625
- SIDEWALL REDUCTION CREDIT:
  - TRENCH WIDTH (W) = 2'
  - TRENCH DEPTH (D) = 3.5'
  - (W+2) / (W+1+2D) x 100 = 40%
- LINEAR LENGTH OF TRENCH REQUIRED:
  - DRAINFIELD SQUARE FOOTAGE (625) x SIDEWALL REDUCTION PERCENTAGE (40%) / TRENCH WIDTH (2') = 125.0'
- LINEAR LENGTH OF TRENCH PROVIDED = 140'

| INITIAL SEPTIC TRENCH CHART |                |        |               |        |       |
|-----------------------------|----------------|--------|---------------|--------|-------|
| TRENCH NUMBER               | EXISTING GRADE | INVERT | TRENCH BOTTOM | LENGTH | WIDTH |
| 1                           | 340.5          | 337.0  | 333.5         | 70'    | 2'    |
| 2                           | 339.0          | 335.5  | 332.0         | 70'    | 2'    |

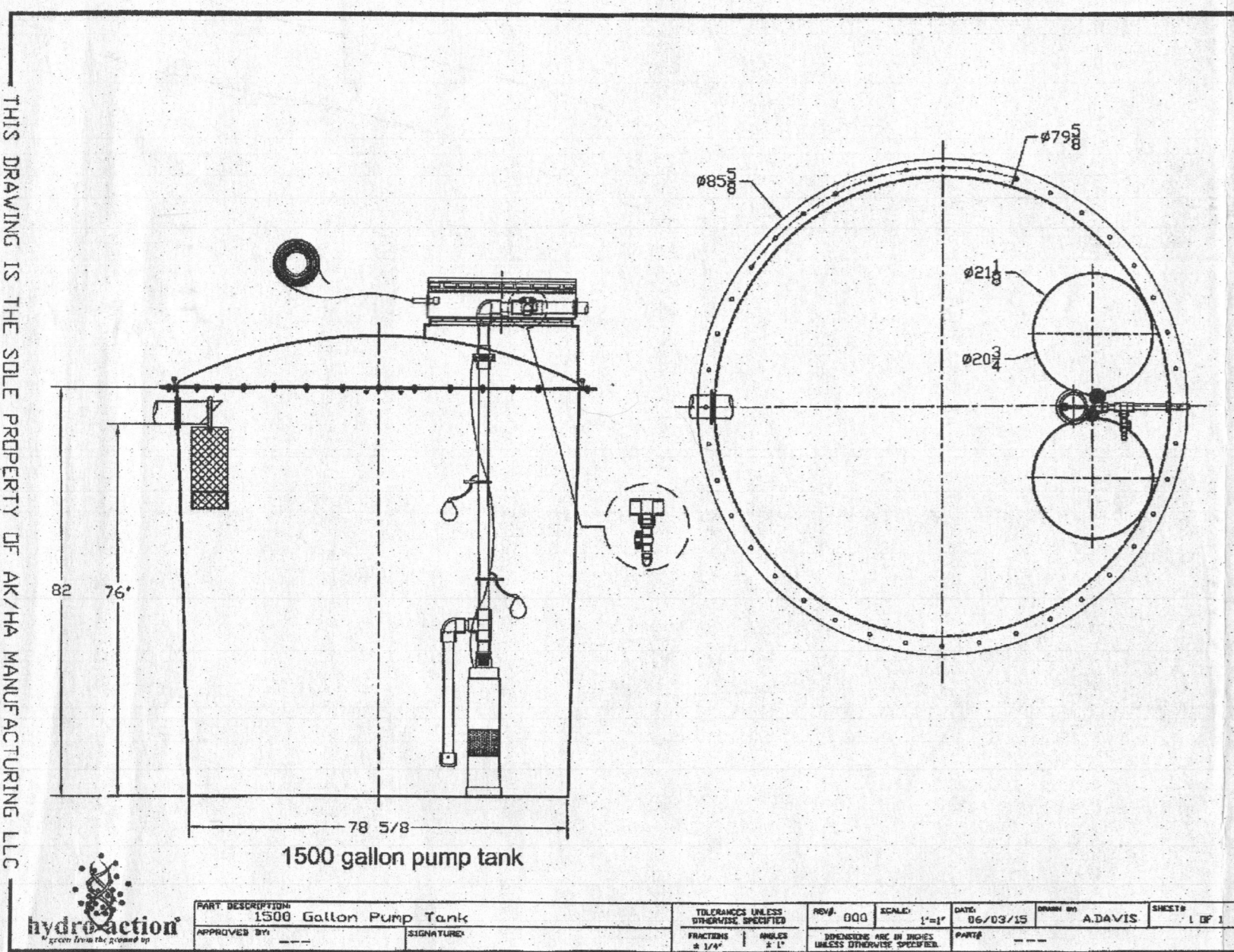
### SEPTIC TRENCH DESIGN (2ND REPLACEMENT SYSTEM)

- REPLACEMENT SYSTEM:
  - APPLICATION RATE: 1.2
  - EFFECTIVE AREA BEGINNING DEPTH: 4'
  - BOTTOM MAXIMUM DEPTH: 7'
  - DISTANCE BETWEEN TRENCHES: 3'
- DESIGN FLOW:
  - 5 BEDROOMS AT 150 GPD
  - 5x150 GPD = 750 GPD
- SQUARE FOOTAGE OF DRAINFIELD REQUIRED:
  - DESIGN FLOW (750 GPD) / APPLICATION RATE (1.2) = 625
- SIDEWALL REDUCTION CREDIT:
  - TRENCH WIDTH (W) = 2'
  - TRENCH DEPTH (D) = 4'
  - (W+2) / (W+1+2D) x 100 = 44%
- LINEAR LENGTH OF TRENCH REQUIRED:
  - DRAINFIELD SQUARE FOOTAGE (625) x SIDEWALL REDUCTION PERCENTAGE (44%) / TRENCH WIDTH (2') = 137.50'
- LINEAR LENGTH OF TRENCH PROVIDED = 140'

| 1ST REPLACEMENT SEPTIC TRENCH CHART |                |        |               |        |       |
|-------------------------------------|----------------|--------|---------------|--------|-------|
| TRENCH NUMBER                       | EXISTING GRADE | INVERT | TRENCH BOTTOM | LENGTH | WIDTH |
| 1                                   | 336.7          | 333.2  | 329.7         | 70'    | 2'    |
| 2                                   | 334.5          | 331.0  | 327.5         | 70'    | 2'    |

| 2ND REPLACEMENT SEPTIC TRENCH CHART |                |        |               |        |       |
|-------------------------------------|----------------|--------|---------------|--------|-------|
| TRENCH NUMBER                       | EXISTING GRADE | INVERT | TRENCH BOTTOM | LENGTH | WIDTH |
| 1                                   | 332.0          | 328.0  | 325.0         | 70'    | 2'    |
| 2                                   | 329.5          | 325.5  | 322.5         | 70'    | 2'    |

THIS DRAWING IS THE SOLE PROPERTY OF AK/HA MANUFACTURING LLC



|                         |                       |         |      |    |      |
|-------------------------|-----------------------|---------|------|----|------|
| AK/HA MANUFACTURING LLC | 1500 Gallon Pump Tank | REVISED | DATE | BY | CHKD |
| APPROVED BY             | DATE                  | REVISED | DATE | BY | CHKD |

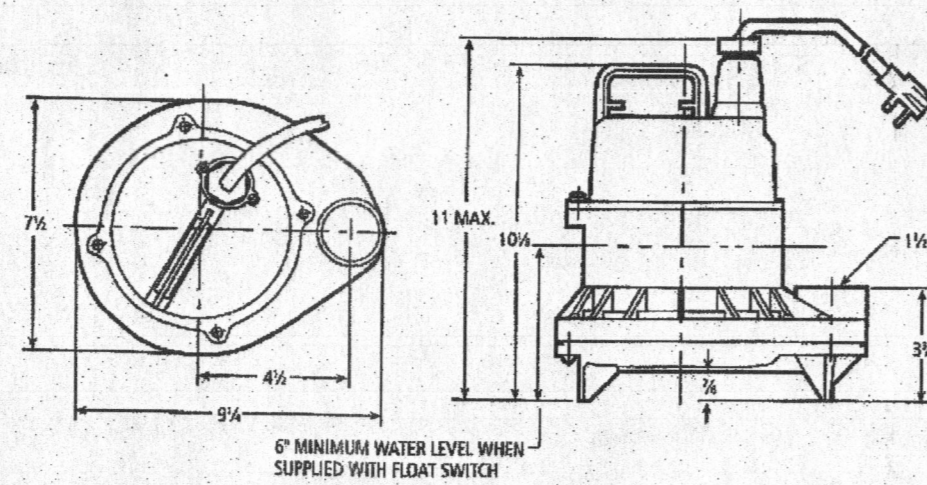
| SOILS LEGEND |   |       |            |
|--------------|---|-------|------------|
| SYMBOL       | NAME / DESCRIPTION                                | GROUP | 'K' FACTOR |
| MacC         | MANOR LOAM, 8 TO 15 PERCENT SLOPES                | B     | 0.20       |
| GnB          | GLENVILLE-BAILE SILT LOAMS, 0 TO 8 PERCENT SLOPES | B     | 0.37       |

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## Goulds Pumps

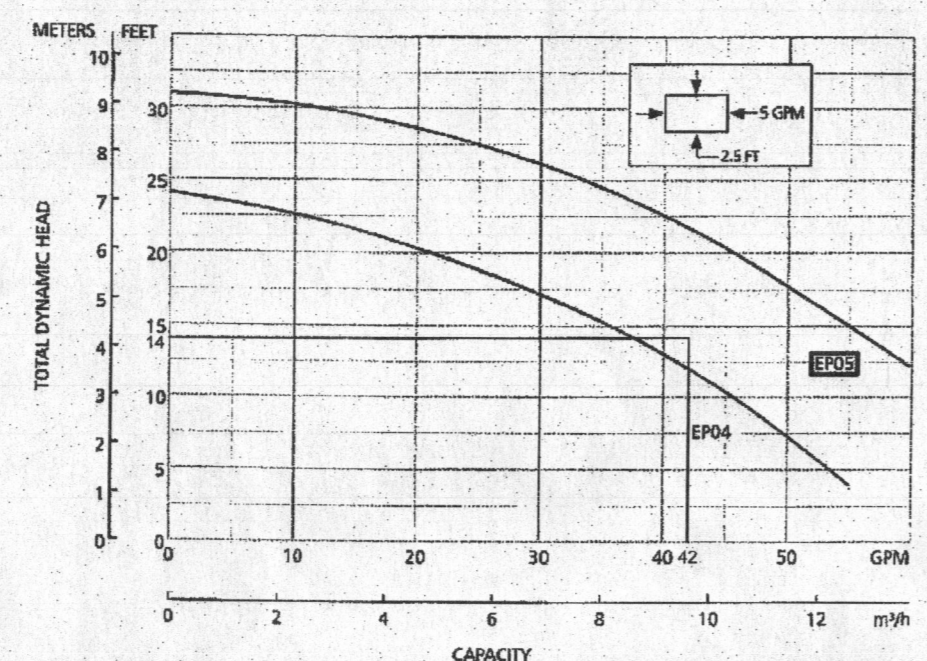
### EP04 & EP05 Series Model 3871

Submersible Effluent Pumps



### HEAD CALCULATION

STATIC HEAD = 12.77 USE 13.0'  
 FRICTION HEAD CALCULATION:  
 2" PIPE  
 1" COUPLINGS @ 2' PER COUPLING = 6.0'  
 TOTAL EQUIV. LENGTH OF PIPE = 14.0'  
 FRICTION LOSS PER 100' = 1.10  
 60.0' OF 2" PIPE = 2.0' @ 1.10' PER 100' = 0.57'  
 FRICTION HEAD = 0.57'  
 TOTAL DYNAMIC HEAD = 13.57' USE 14'



### PERFORMANCE RATINGS

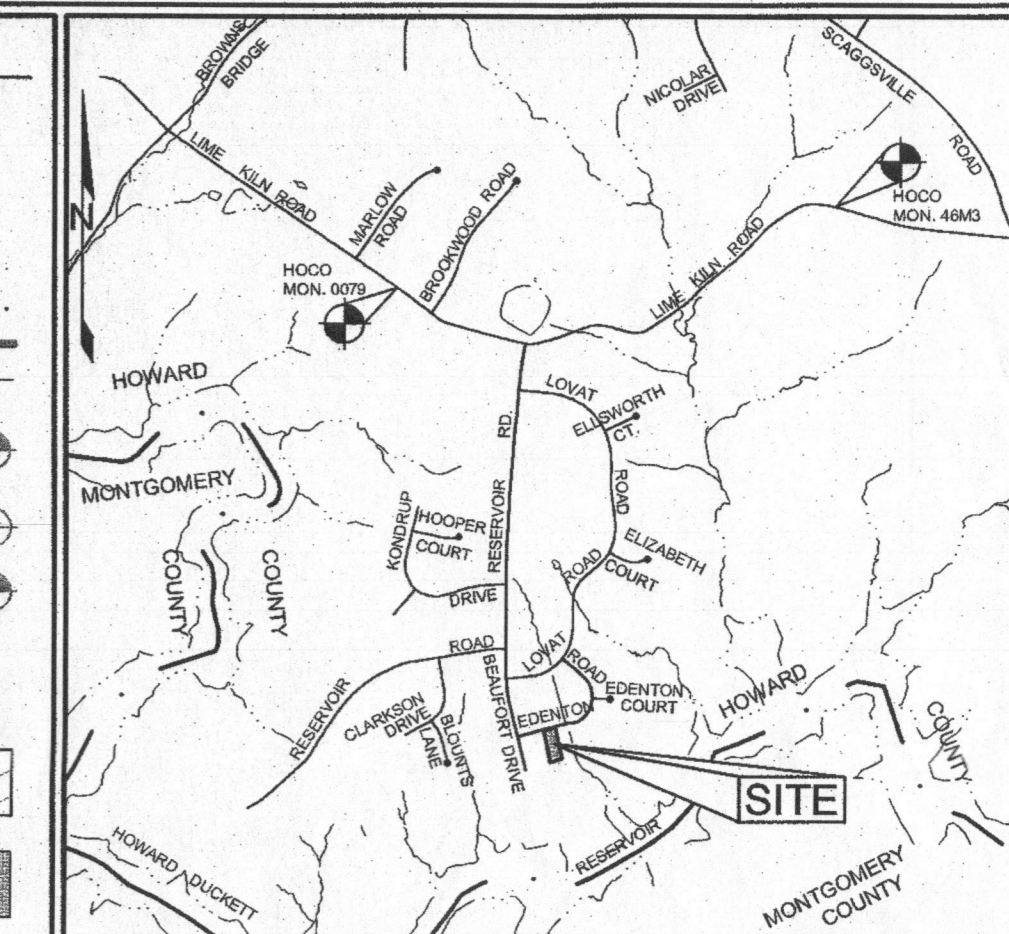
| Total Head (ft. of water) | Gallons Per Minute (GPM) | EP04 | EP05 |
|---------------------------|--------------------------|------|------|
| 5                         | 53                       | —    | —    |
| 10                        | 46                       | 62   | —    |
| 15                        | 36                       | 55   | —    |
| 20                        | 21                       | 46   | —    |
| 25                        | 0                        | 33   | —    |
| 30                        | —                        | 11   | —    |

### BAT NOTES

1. 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 SITE PLAN MAY BE REQUIRED.
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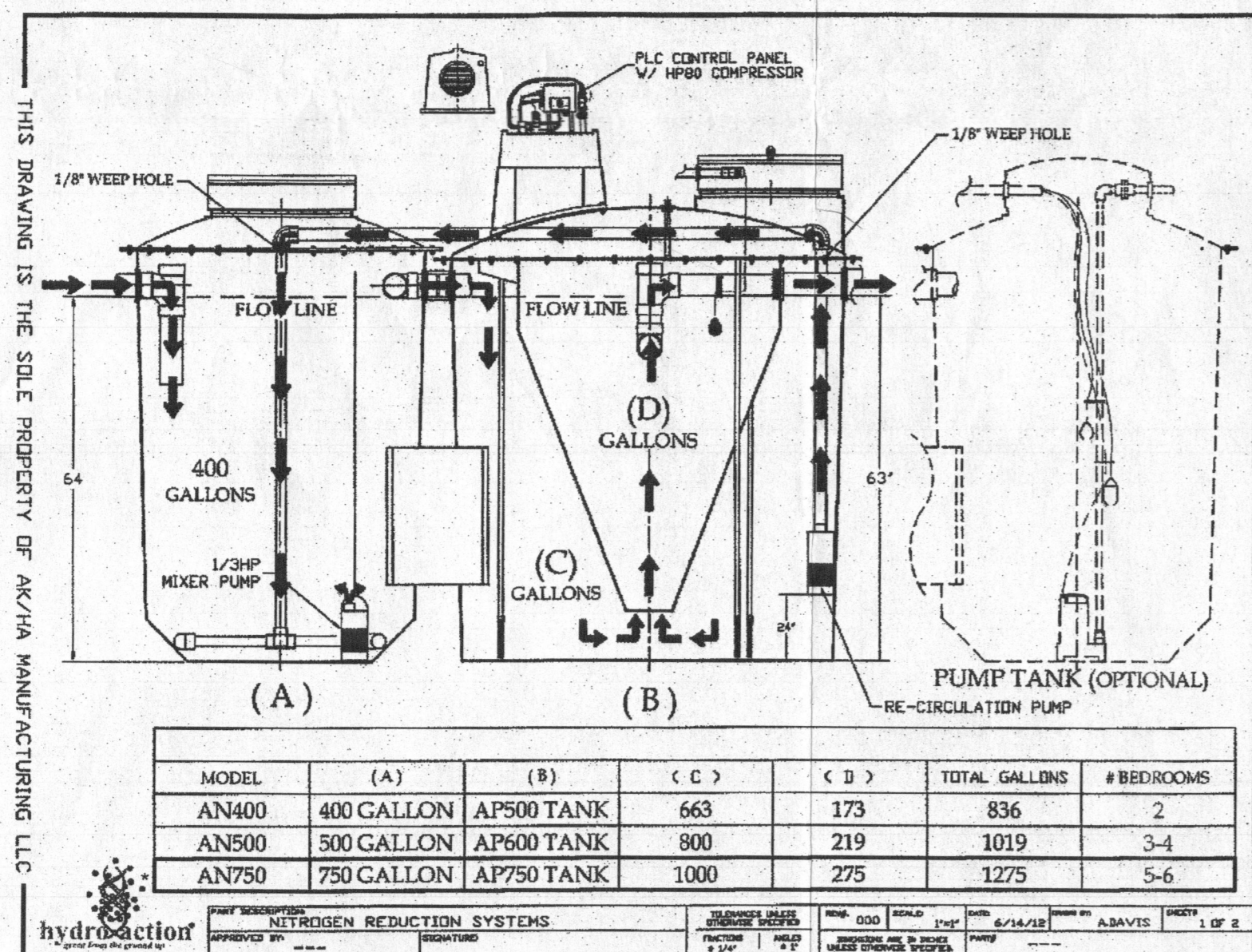
### LEGEND

- EXISTING CONTOUR
- PROPOSED SWM CONTOUR
- EXISTING SPOT ELEVATION
- DIRECTION OF FLOW
- EXISTING TREELINE
- PROPOSED TREELINE
- SOIL BOUNDARY
- OVERHEAD WIRES
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- EXISTING UTILITY POLE
- EXISTING TREE
- EXISTING SANITARY CLEANOUT
- PROPOSED SEPTIC AREA
- NON-ROOFTOP DISCONNECT RECEIVING AREA



HOWARD COUNTY, MARYLAND ADC MAP 38 GRID D4  
**VICINITY MAP**  
 SCALE: 1"=2000'

### Appendix 5: Drawings



| MODEL | (A)        | (B)        | (C)  | (D) | TOTAL GALLONS | # BEDROOMS |
|-------|------------|------------|------|-----|---------------|------------|
| AN400 | 400 GALLON | AP500 TANK | 663  | 173 | 836           | 2          |
| AN500 | 500 GALLON | AP600 TANK | 800  | 219 | 1019          | 3-4        |
| AN750 | 750 GALLON | AP750 TANK | 1000 | 275 | 1275          | 5-6        |

### SEPTIC TRENCH DESIGN (INITIAL SYSTEM & 1ST REPLACEMENT SYSTEM)

1. INITIAL SYSTEM & 1ST REPLACEMENT SYSTEM:
  - APPLICATION RATE: 1.2
  - EFFECTIVE AREA BEGINNING DEPTH: 3.5'
  - BOTTOM MAXIMUM DEPTH: 7'
  - DISTANCE BETWEEN TRENCHES: 10'
2. DESIGN FLOW:
  - 5 BEDROOMS AT 150 GPD
  - 5x150 GPD = 750 GPD
3. SQUARE FOOTAGE OF DRAINFIELD REQUIRED:
  - DESIGN FLOW (750 GPD) / APPLICATION RATE (1.2) = 625
4. SIDEWALL REDUCTION CREDIT:
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5. LINEAR LENGTH OF TRENCH REQUIRED:
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6. LINEAR LENGTH OF TRENCH PROVIDED = 140'

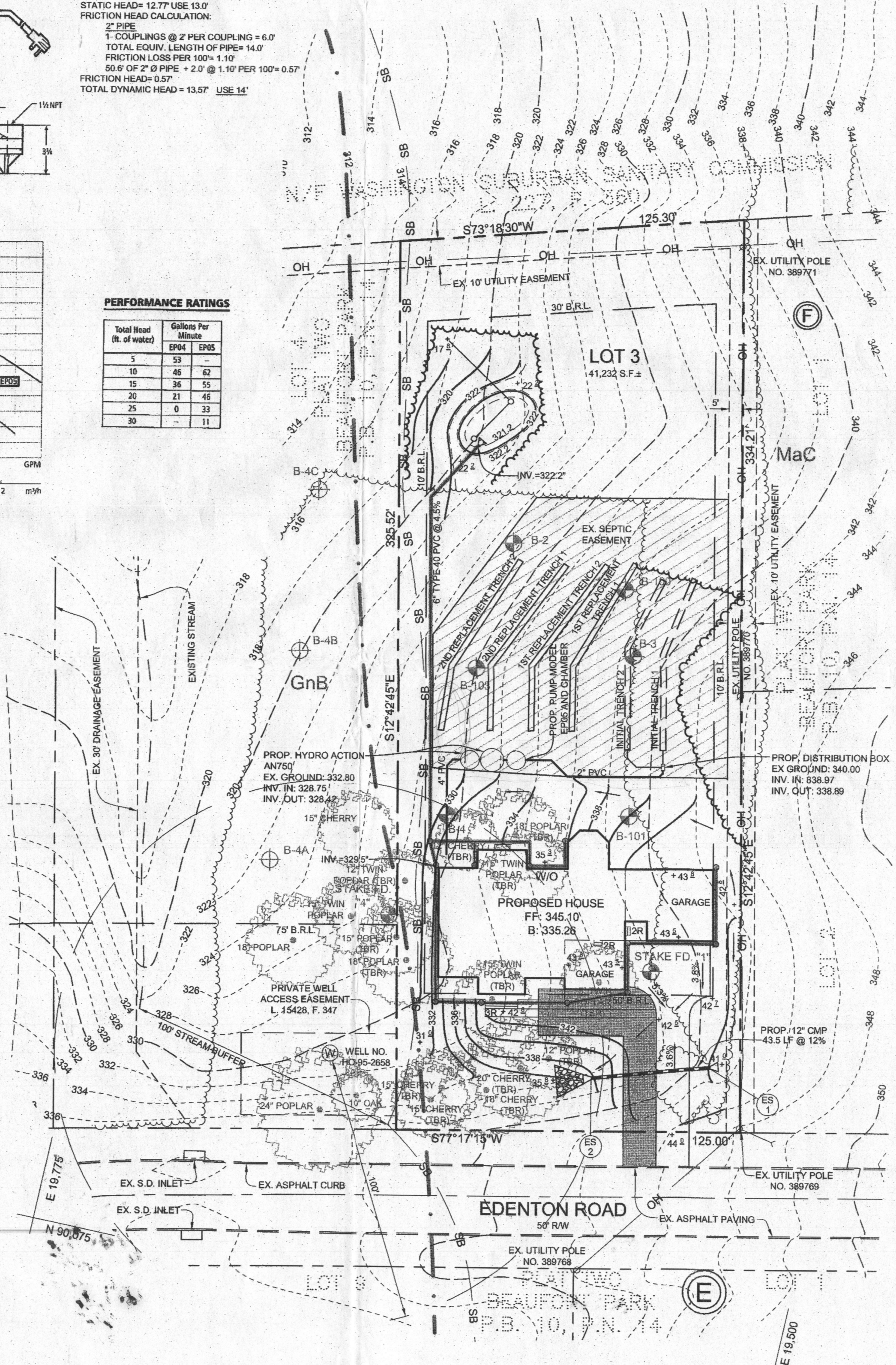
| INITIAL SEPTIC TRENCH CHART |                |        |               |        |       |
|-----------------------------|----------------|--------|---------------|--------|-------|
| TRENCH NUMBER               | EXISTING GRADE | INVERT | TRENCH BOTTOM | LENGTH | WIDTH |
| 1                           | 340.5          | 337.0  | 333.5         | 70'    | 2'    |
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### SEPTIC TRENCH DESIGN (2ND REPLACEMENT SYSTEM)

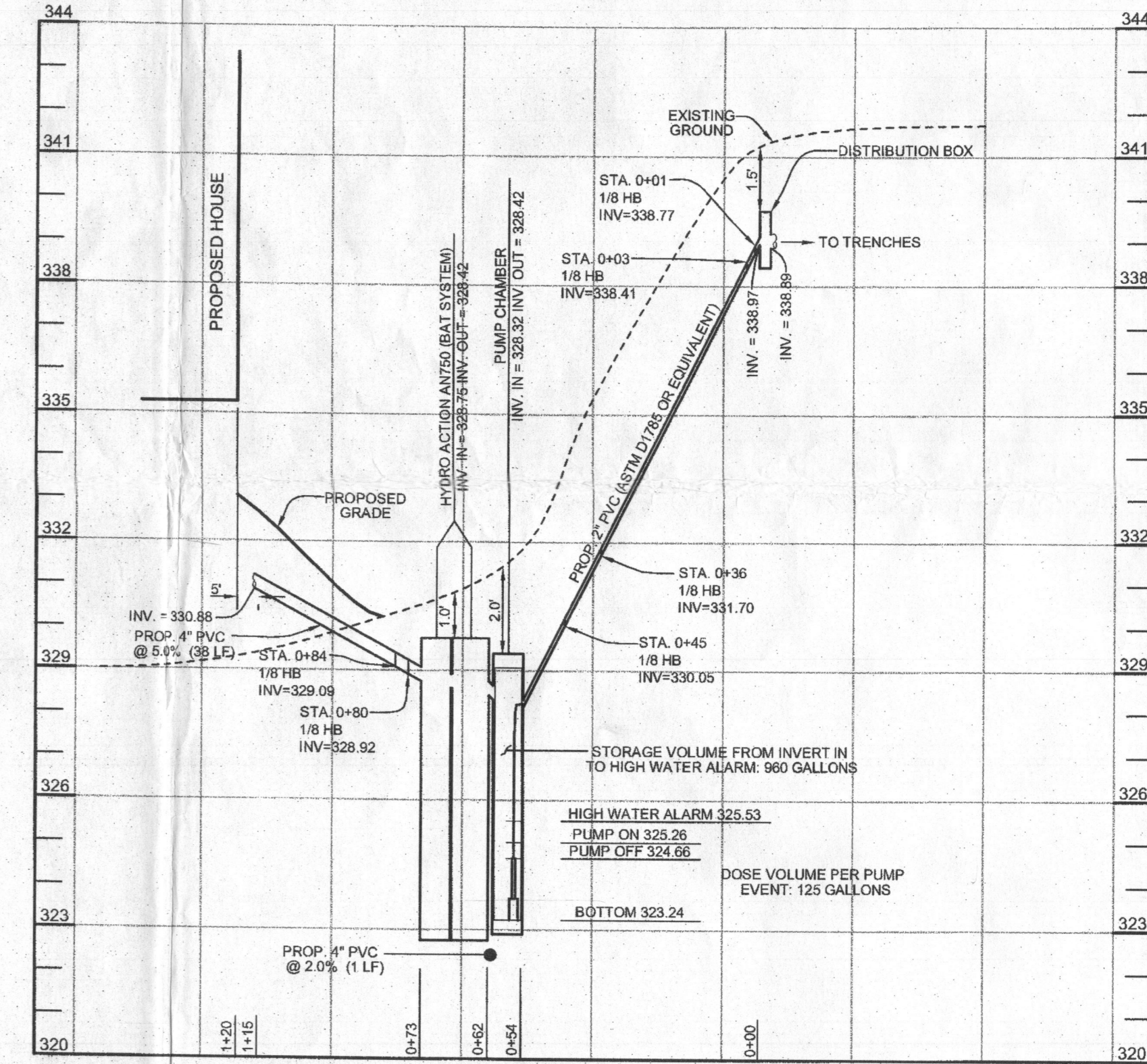
1. REPLACEMENT SYSTEM:
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  - EFFECTIVE AREA BEGINNING DEPTH: 4'
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| 1                                   | 336.7          | 333.2  | 329.7         | 70'    | 2'    |
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| 1                                   | 332.0          | 328.0  | 325.0         | 70'    | 2'    |
| 2                                   | 329.5          | 325.5  | 322.5         | 70'    | 2'    |



**PLAN VIEW**  
 SCALE: 1"=30'



**BAT PROFILE VIEW**  
 HORIZONTAL SCALE: 1"=30'  
 VERTICAL SCALE: 1"=3'

### DOSE CALCULATION

- DESIGN FLOW = 750 GPD
- LENGTH OF FORCE MAIN = 50.6'
- VOLUME OF FORCE MAIN:
  - 50.6' x 17.4 GALLONS PER 100' = 8.80 GALLONS
- MINIMUM DOSE IS GREATER OF:
  - VOLUME OF FORCE MAIN = 8.80
  - OR
  - 1/8 THE DESIGN FLOW = 125.0
- USE 125.0 GALLONS PER DOSE

Approved Septic System Plan  
 Howard County Health Department  
 Hank Oswald 5/25/16  
 Signature Date

### OWNER

DAVID E. CANDLER, TRUSTEE  
 OF THE ODELLIE H. CANDLER REVOCABLE TRUST  
 45 N. LOOP, SUITE 500  
 SAN ANTONIO, TEXAS 78216-5870

**SITE PLAN FOR BAT INSTALLATION**  
**PLAT TWO**  
**BEAUFORT PARK**  
 8535 EDENTON ROAD  
 LOT 3, BLOCK F  
 TAX MAP 45 GRID 12  
 5TH ELECTION DISTRICT  
 PARCEL 27  
 HOWARD COUNTY, MARYLAND

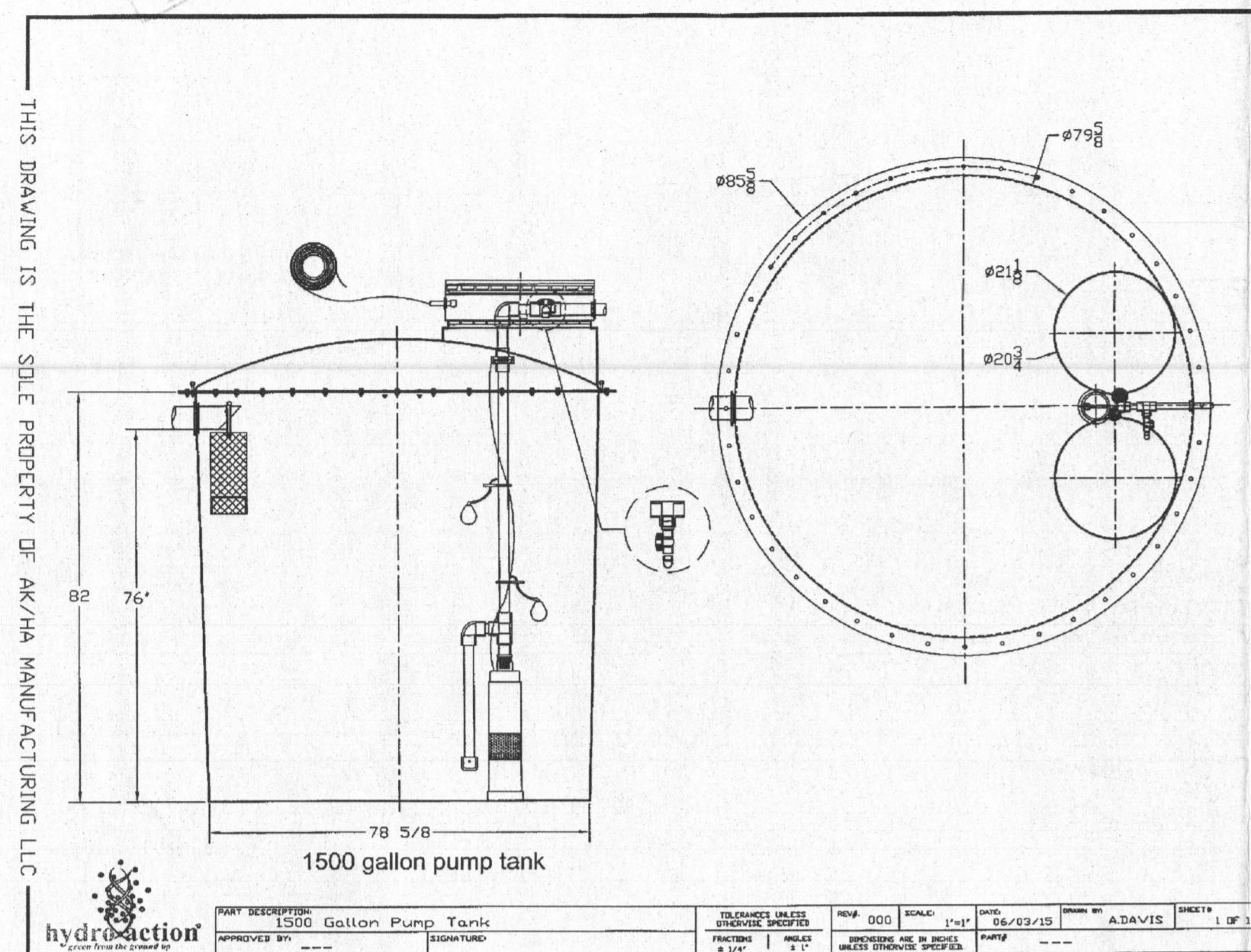
**Adcock & Associates · LLC**  
 Engineers · Surveyors · Planners  
 3300 North Ridge Road, Suite 160  
 Ellicott City, Maryland 21043  
 Phone: 443.325.7682 Fax: 443.325.7685  
 Email: info@adcockandassociates.com

DESIGN BY: PS  
 DRAWN BY: AEM, JLT  
 CHECKED BY: PS, MA  
 SCALE: 1"=30'  
 DATE: MAY 16, 2016  
 PROJECT #: 13-008  
 SHEET #: 1 of 1

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR, UNDER THE LAWS OF THE STATE OF MARYLAND, REG. NO. 21297, EXPIRATION DATE: 08-16-2017

PERMITTED SEWAGE TREATMENT SYSTEM  
 HANNOCK COUNTY HEALTH DEPT.  
 MAY 13 2016  
**RECEIVED**

THIS DRAWING IS THE SOLE PROPERTY OF AK/HA MANUFACTURING, LLC



|                                      |                    |                 |                 |
|--------------------------------------|--------------------|-----------------|-----------------|
| HYDROACTION<br>1500 Gallon Pump Tank | DESIGNER: J. DAVIS | DATE: 06/23/15  | PROJECT: 13-098 |
| APPROVED BY: [Signature]             | DATE: 06/23/15     | PROJECT: 13-098 |                 |

### SOILS LEGEND

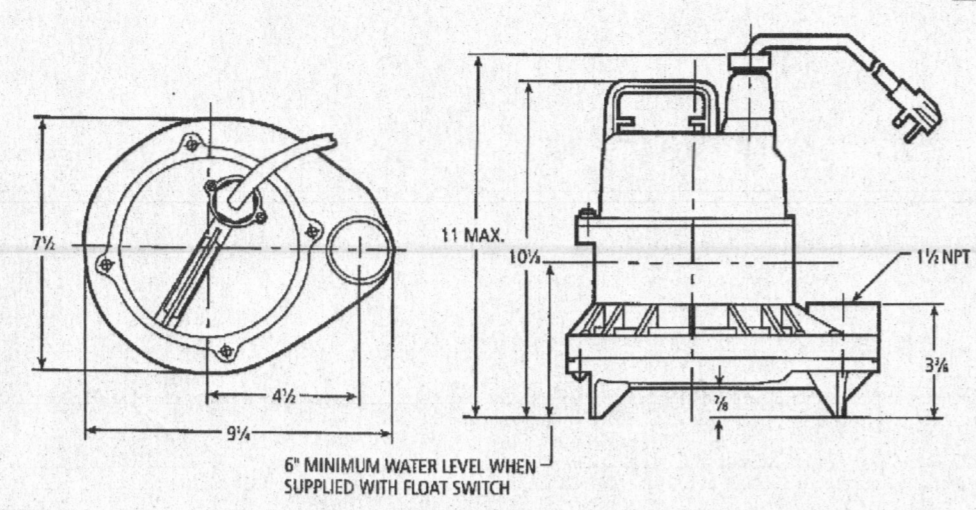
| SYMBOL | NAME / DESCRIPTION                                | GROUP | 'K' FACTOR |
|--------|---|-------|------------|
| MaC    | MANOR LOAM, 8 TO 15 PERCENT SLOPES                | B     | 0.20       |
| GnB    | GLENVILLE-BAILE SILT LOAMS, 0 TO 8 PERCENT SLOPES | B     | 0.37       |

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## Goulds Pumps

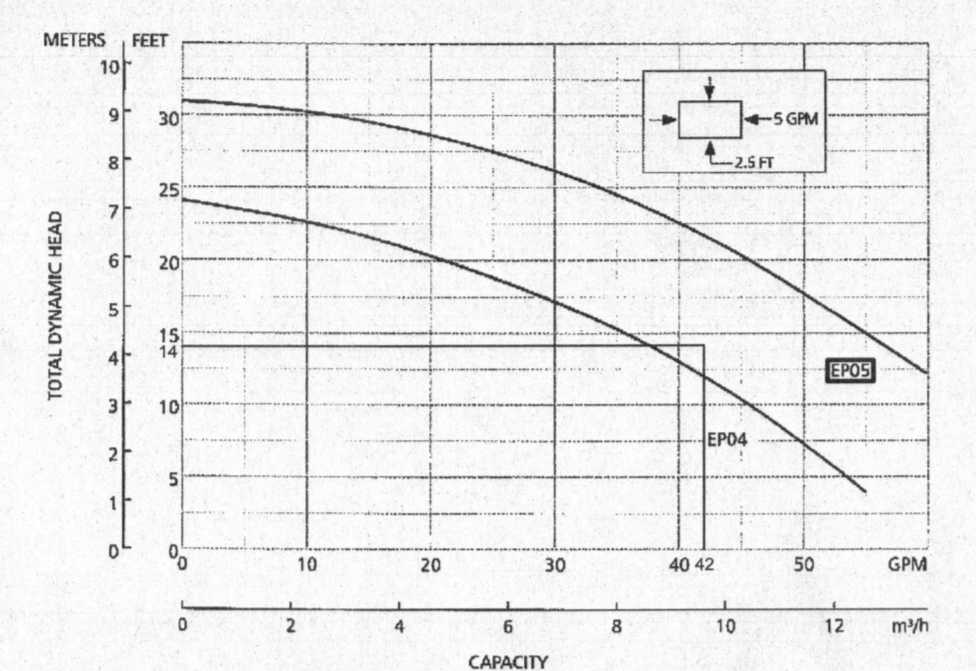
### EP04 & EP05 Series Model 3871

Submersible Effluent Pumps



### HEAD CALCULATION

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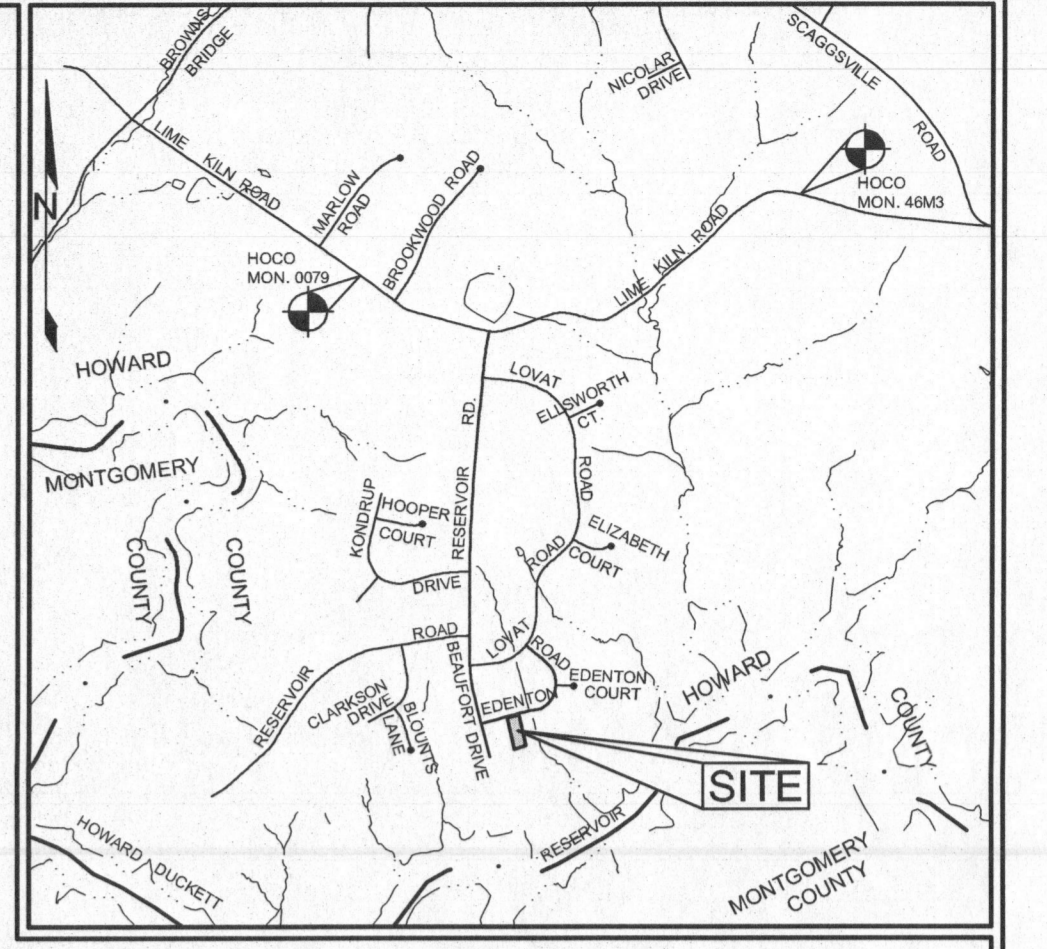
| Total Head (ft. of water) | Gallons Per Minute | EP04 | EP05 |
|---------------------------|--------------------|------|------|
| 3                         | 59                 | -    | -    |
| 5                         | 46                 | 62   | -    |
| 15                        | 36                 | 55   | -    |
| 20                        | 21                 | 48   | -    |
| 25                        | 0                  | 33   | -    |
| 30                        | -                  | 11   | -    |

### BAT NOTES

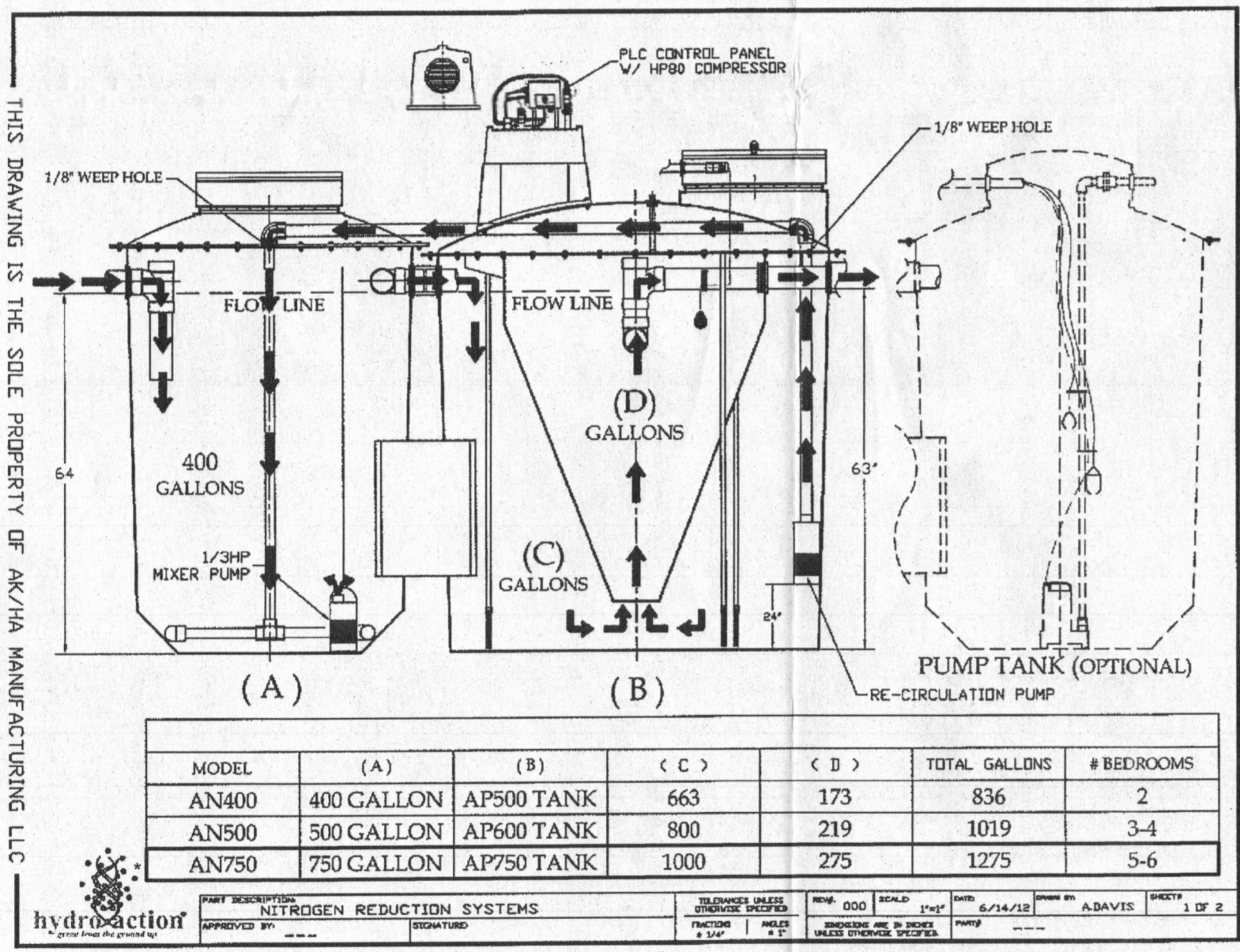
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- PROPOSED SWM CONTOUR
- EXISTING SPOT ELEVATION
- DIRECTION OF FLOW
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- NON-ROOFTOP DISCONNECT RECEIVING AREA



Appendix 5: Drawings



| MODEL | (A)        | (B)        | (C)  | (D) | TOTAL GALLONS | # BEDROOMS |
|-------|------------|------------|------|-----|---------------|------------|
| AN400 | 400 GALLON | AP500 TANK | 663  | 173 | 836           | 2          |
| AN500 | 500 GALLON | AP600 TANK | 800  | 219 | 1019          | 3-4        |
| AN750 | 750 GALLON | AP750 TANK | 1000 | 275 | 1275          | 5-6        |

### SEPTIC TRENCH DESIGN (INITIAL SYSTEM & 1ST REPLACEMENT SYSTEM)

1. INITIAL SYSTEM & 1ST REPLACEMENT SYSTEM:
  - APPLICATION RATE: 1.2
  - EFFECTIVE AREA BEGINNING DEPTH: 3.5'
  - BOTTOM MAXIMUM DEPTH: 7'
  - DISTANCE BETWEEN TRENCHES: 10'
2. DESIGN FLOW:
  - 5 BEDROOMS AT 150 GPD
  - 5x150 GPD = 750 GPD
3. SQUARE FOOTAGE OF DRAINFIELD REQUIRED:
  - DESIGN FLOW (750 GPD) / APPLICATION RATE (1.2) = 625
4. SIDEWALL REDUCTION CREDIT:
  - TRENCH WIDTH (W) = 2'
  - TRENCH DEPTH (D) = 3.5'
  - (W+2) / (W+1+2D) x 100 = 40%
5. LINEAR LENGTH OF TRENCH REQUIRED:
  - DRAINFIELD SQUARE FOOTAGE (625) x SIDEWALL REDUCTION PERCENTAGE (40%) / TRENCH WIDTH (2) = 125.0'
6. LINEAR LENGTH OF TRENCH PROVIDED = 140'

#### INITIAL SEPTIC TRENCH CHART

| TRENCH NUMBER | EXISTING GRADE | INVERT | TRENCH BOTTOM | LENGTH | WIDTH |
|---------------|----------------|--------|---------------|--------|-------|
| 1             | 340.5          | 337.0  | 333.5         | 70'    | 2'    |
| 2             | 340.0          | 335.5  | 332.0         | 70'    | 2'    |

### SEPTIC TRENCH DESIGN (2ND REPLACEMENT SYSTEM)

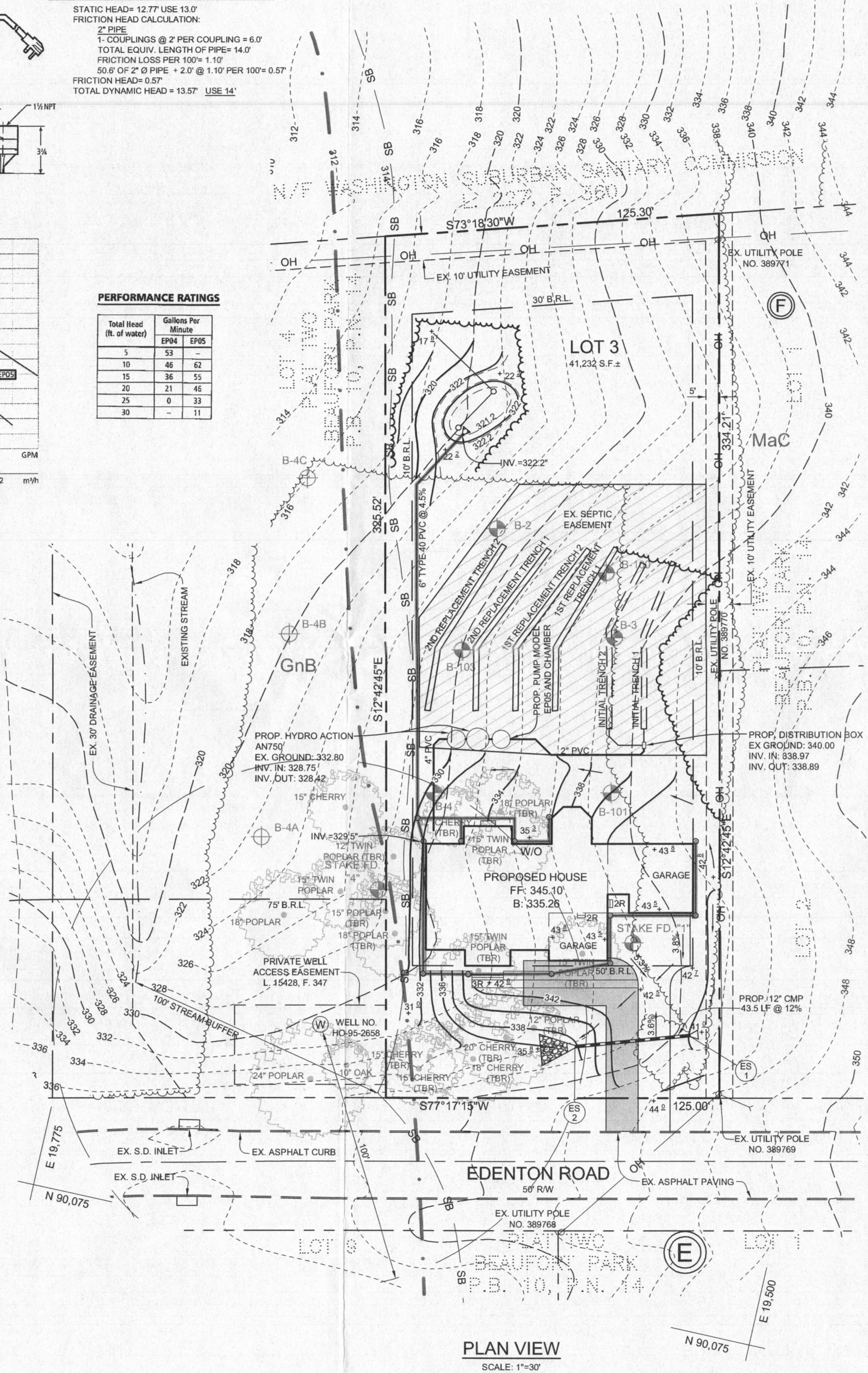
1. REPLACEMENT SYSTEM:
  - APPLICATION RATE: 1.2
  - EFFECTIVE AREA BEGINNING DEPTH: 4'
  - BOTTOM MAXIMUM DEPTH: 7'
  - DISTANCE BETWEEN TRENCHES: 10'
2. DESIGN FLOW:
  - 5 BEDROOMS AT 150 GPD
  - 5x150 GPD = 750 GPD
3. SQUARE FOOTAGE OF DRAINFIELD REQUIRED:
  - DESIGN FLOW (750 GPD) / APPLICATION RATE (1.2) = 625
4. SIDEWALL REDUCTION CREDIT:
  - TRENCH WIDTH (W) = 2'
  - TRENCH DEPTH (D) = 4'
  - (W+2) / (W+1+2D) x 100 = 44%
5. LINEAR LENGTH OF TRENCH REQUIRED:
  - DRAINFIELD SQUARE FOOTAGE (625) x SIDEWALL REDUCTION PERCENTAGE (44%) / TRENCH WIDTH (2) = 137.50'
6. LINEAR LENGTH OF TRENCH PROVIDED = 140'

#### 1ST REPLACEMENT SEPTIC TRENCH CHART

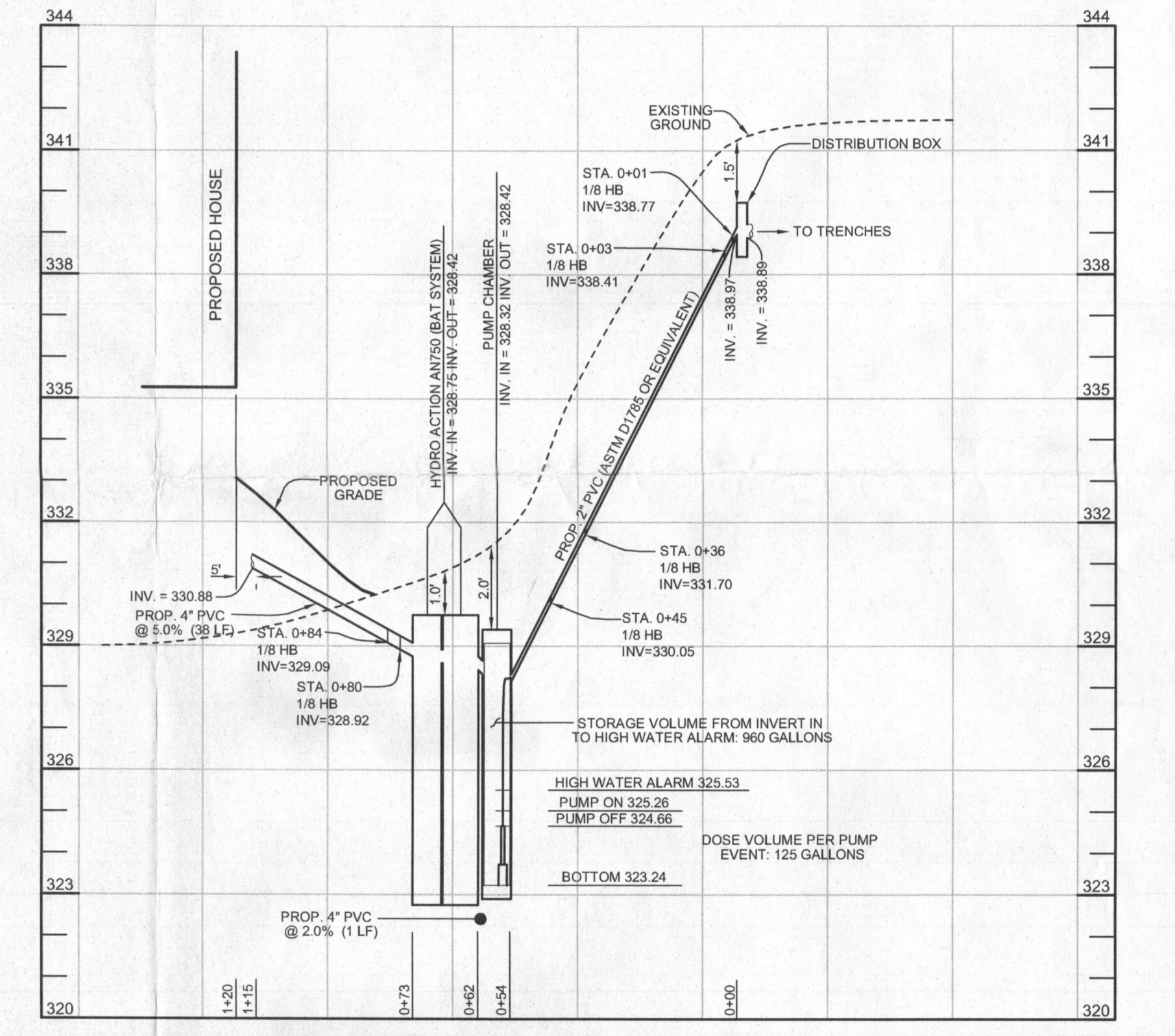
| TRENCH NUMBER | EXISTING GRADE | INVERT | TRENCH BOTTOM | LENGTH | WIDTH |
|---------------|----------------|--------|---------------|--------|-------|
| 1             | 336.7          | 332.2  | 329.7         | 70'    | 2'    |
| 2             | 334.5          | 331.0  | 327.5         | 70'    | 2'    |

#### 2ND REPLACEMENT SEPTIC TRENCH CHART

| TRENCH NUMBER | EXISTING GRADE | INVERT | TRENCH BOTTOM | LENGTH | WIDTH |
|---------------|----------------|--------|---------------|--------|-------|
| 1             | 332.0          | 328.0  | 325.0         | 70'    | 2'    |
| 2             | 329.5          | 325.5  | 322.5         | 70'    | 2'    |



**PLAN VIEW**  
 SCALE: 1"=30'



**BAT PROFILE VIEW**  
 HORIZONTAL SCALE: 1"=30'  
 VERTICAL SCALE: 1"=3'

### DOSE CALCULATION

- DESIGN FLOW = 750 GPD
- LENGTH OF 2" FORCE MAIN = 50.6'
- VOLUME OF FORCE MAIN:
  - 50.6' x 17.4 GALLONS PER 100' = 8.80 GALLONS
- MINIMUM DOSE IS GREATER OF:
  - VOLUME OF FORCE MAIN = 8.80 OR
  - 1/8 THE DESIGN FLOW = 125.0'
- USE 125.0 GALLONS FOR DOSE

Approved Septic System Plan  
 Howard County Health Dept  
 Hank Oswald  
 Signature Date

### OWNER

DAVID E. CANDLER, TRUSTEE  
 OF THE ODELL H. CANDLER REVOCABLE TRUST  
 45 NE LOOP 410, SUITE 590  
 SAN ANTONIO, TEXAS 78216-9870

**SITE PLAN FOR BAT INSTALLATION**  
 PLAT TWO  
**BEAUFORT PARK**  
 8535 EDENTON ROAD  
 LOT 3, BLOCK F

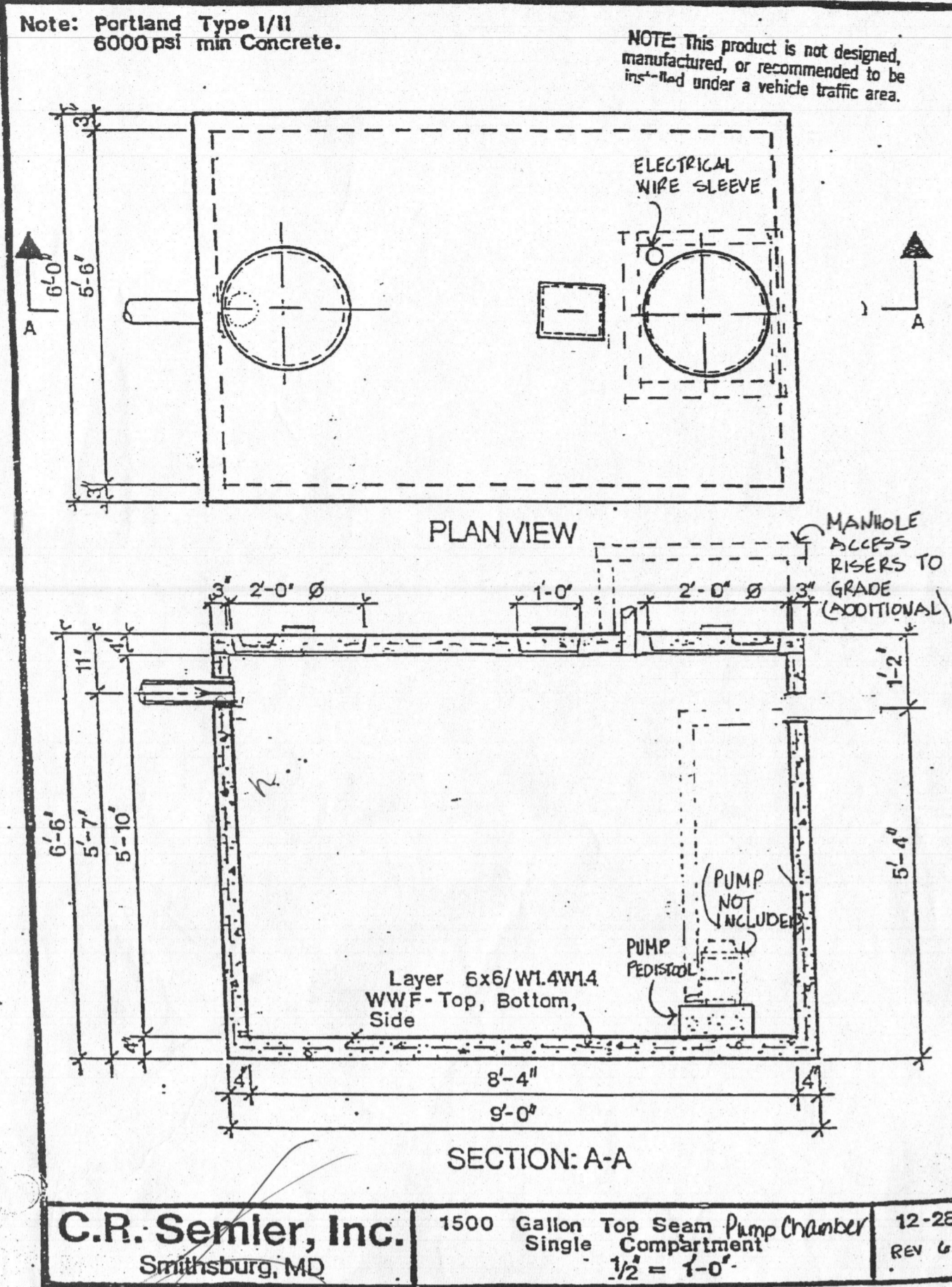
TAX MAP 45 GRID 12  
 5TH ELECTION DISTRICT

PARCEL 27  
 HOWARD COUNTY, MARYLAND

**Adcock & Associates · LLC**  
 Engineers · Surveyors · Planners  
 3300 North Ridge Road, Suite 160  
 Ellicott City, Maryland 21043  
 Phone: 443.325.7682 Fax: 443.325.7685  
 Email: info@adcock.com

DESIGN BY: PS  
 DRAWN BY: AEM/JJT  
 CHECKED BY: PS/MA  
 SCALE: 1"=30'  
 DATE: MAY 16, 2016  
 PROJECT #: 13-098  
 SHEET #: 1 of 1

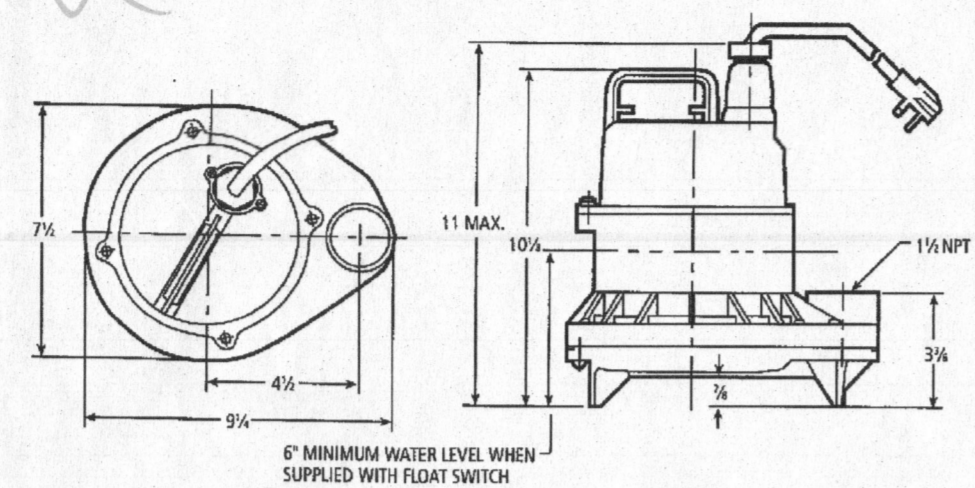
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL LAND SURVEYOR, UNDER THE LAWS OF THE STATE OF MARYLAND, REG. NO. 21257, EXPIRATION DATE: 06-18-2017.



### Goulds Pumps

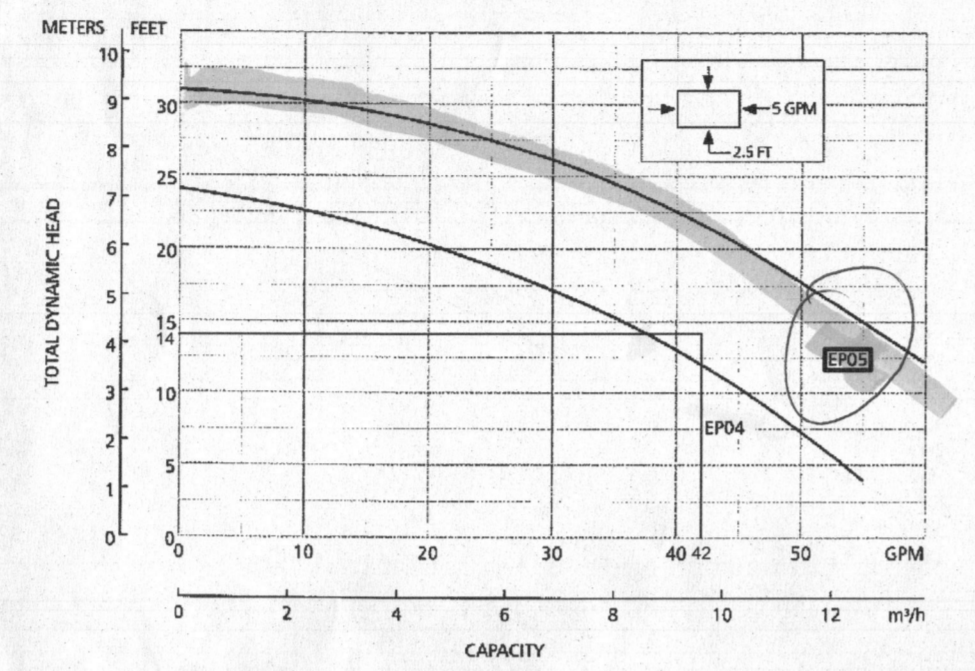
#### EPO4 & EPO5 Series Model 3871

##### Submersible Effluent Pumps



#### HEAD CALCULATION

STATIC HEAD = 12.77 USE 13.0'  
 FRICTION HEAD CALCULATION:  
 2" PIPE  
 1 COUPLING @ 2 PER COUPLING = 6.0'  
 TOTAL EQUIV. LENGTH OF PIPE = 14.0'  
 FRICTION LOSS PER 100' = 1.10'  
 60.6 GPM @ 2" PIPE + 2.0' @ 1.10' PER 100' = 0.57'  
 FRICTION HEAD @ 0.57'  
 TOTAL DYNAMIC HEAD = 13.57' USE 14'



#### SOILS LEGEND

| SYMBOL | NAME / DESCRIPTION                                | GROUP | 'K' FACTOR |
|--------|---|-------|------------|
| Mac    | MANOR LOAM, 8 TO 15 PERCENT SLOPES                | B     | 0.20       |
| GnB    | GLENVILLE-BAILE SILT LOAMS, 0 TO 8 PERCENT SLOPES | B     | 0.37       |

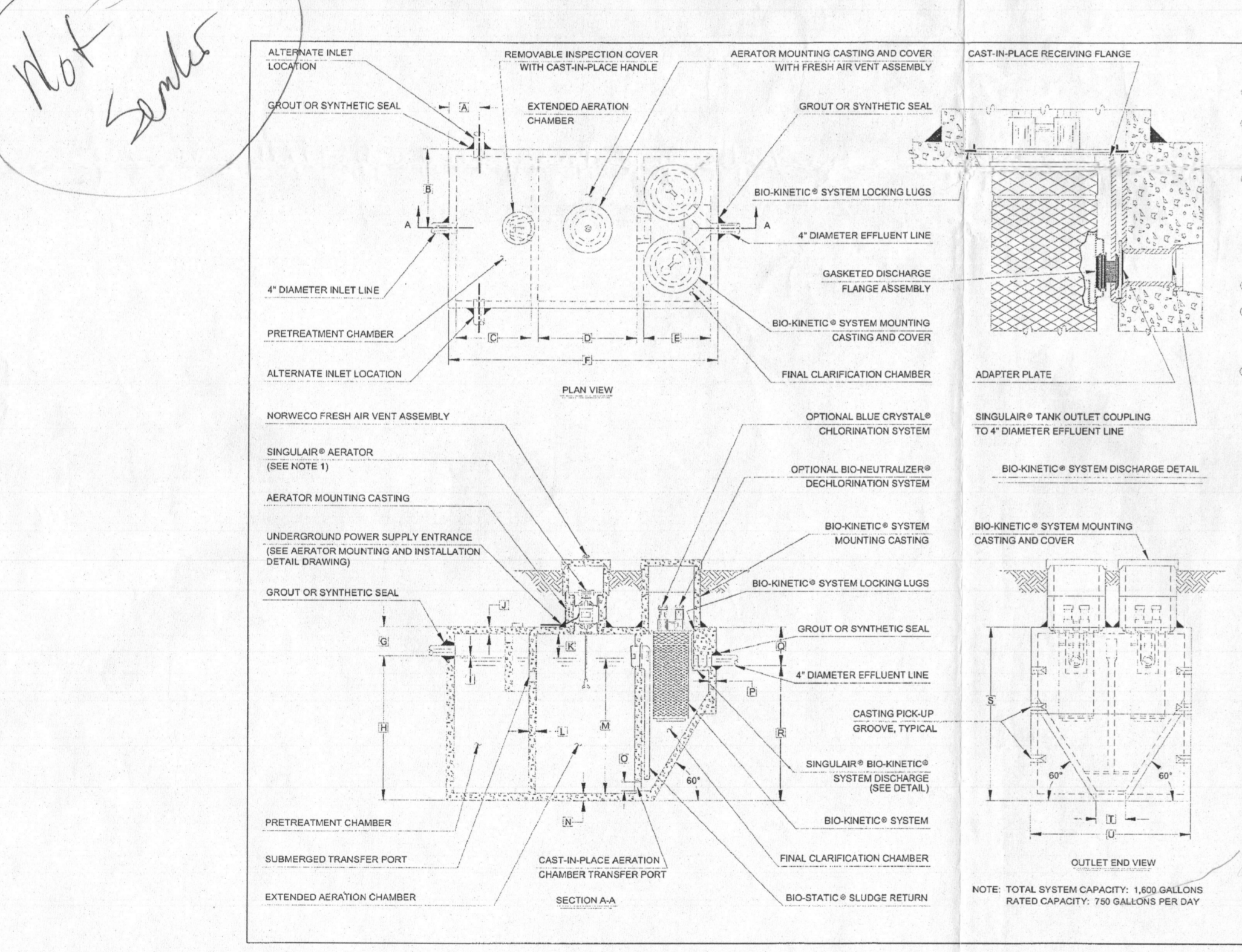
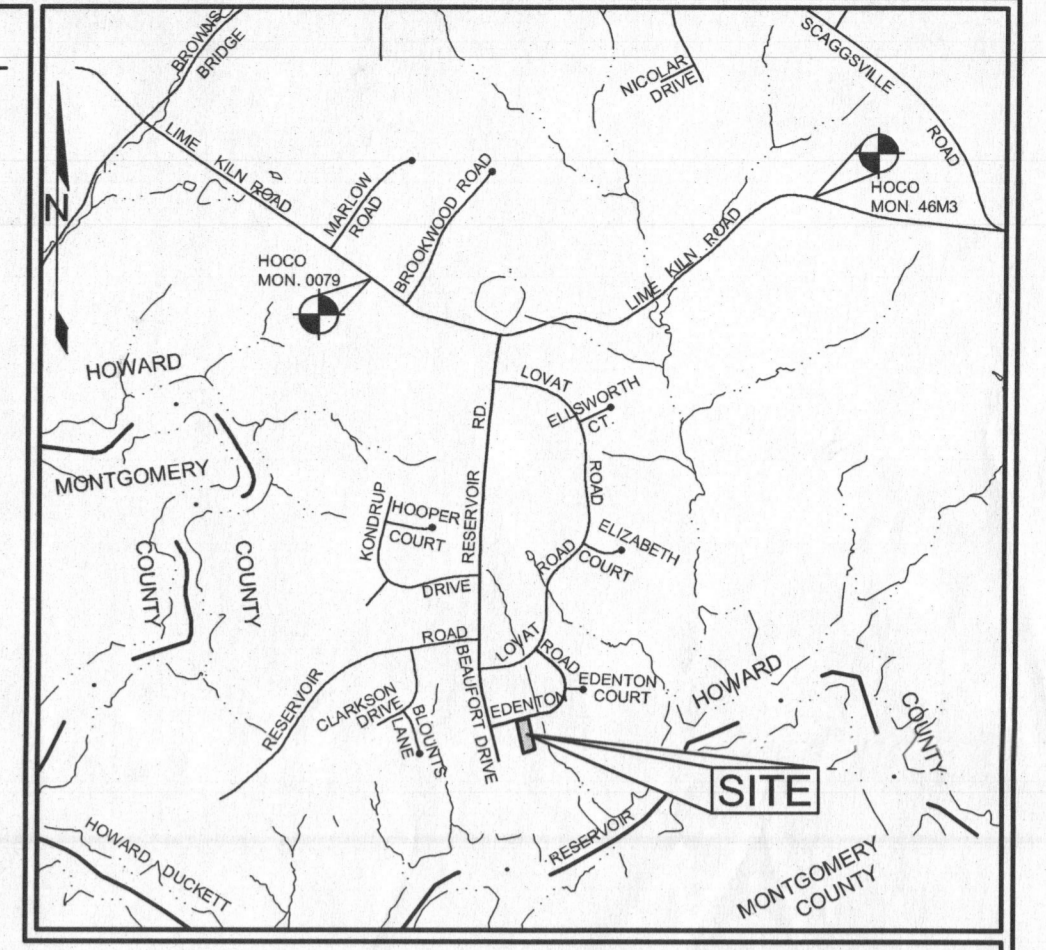
NOTES:  
 1) SOIL INFORMATION HAS BEEN TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, WEB SOIL SURVEY.  
 2) HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR 'K' GREATER THAN 0.35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

#### BAT 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 SITE PLAN MAY BE REQUIRED.
- THE MAXIMUM COVER OF THE BAT PER THE MANUFACTURER'S SPECIFICATION IS 2'.
- THE BLOWER MAY NOT BE LOCATED MORE THAN 50' FROM THE TANK BASED ON THE MANUFACTURER'S SPECIFICATIONS.
- THE BAT SYSTEM SHALL BE MAINTAINED AND OPERATED FOR THE LIFE OF THE SYSTEM.
- THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
- WITHIN ONE MONTH OF INSTALLATION, A PERSON INSTALLING THE BAT SYSTEM SHALL REPORT TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) IN A MANNER ACCEPTABLE TO MDE, THE ADDRESS AND DATE OF COMPLETION OF THE BAT INSTALLATION AND THE TYPE OF SYSTEM INSTALLED.
- ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN. AN AGREEMENT AND EASEMENT MUST BE COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN THE LAND RECORDS OF HOWARD COUNTY.
- THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.

#### LEGEND

- EXISTING CONTOUR
- PROPOSED SWM CONTOUR
- EXISTING SPOT ELEVATION
- DIRECTION OF FLOW
- EXISTING TREELINE
- PROPOSED TREELINE
- SOIL BOUNDARY
- OVERHEAD WIRES
- EXISTING WELL
- EXISTING PERCOLATION TEST HOLE, PASSED (5/28/11)
- EXISTING PERCOLATION TEST HOLE, FAILED (5/28/11)
- EXISTING PERCOLATION TEST HOLE (12/5/13)
- EXISTING UTILITY POLE
- EXISTING TREE
- EXISTING SANITARY CLEANOUT
- PROPOSED SEPTIC AREA
- NON-ROOFTOP DISCONNECT RECEIVING AREA



GENERAL NOTES:  
 1) SHOULDER # ADJUSTOR, AS TESTED AND ACCEPTED BY NSF.  
 2) FALL THROUGH SINGULAR # PLANT FROM INLET INVERT TO OUTLET INVERT IS FOUR INCHES. INLET INVERT IS TWELVE INCHES BELOW TANK TOP.  
 3) ON DEEPER INSTALLATIONS, PRECAST RISERS MUST BE USED TO EXTEND AERATOR MOUNTING CASTING AND BIO-KINETIC # SYSTEM MOUNTING CASTING TO GRADE. INSPECTION COVER ON PRE-TREATMENT CHAMBER MUST BE DEVELOPED TO WITHIN TWELVE INCHES OF GRADE.  
 4) TANK REINFORCED PER ACI STD. 318-99.  
 5) REMOVABLE COVERS ON RISERS WEIGH IN EXCESS OF SEVENTY-FIVE POUNDS EACH TO PREVENT UNAUTHORIZED ACCESS.  
 6) CONTACT THE LOCAL LICENSED SINGULAR # DISTRIBUTOR FOR ELECTRICAL REQUIREMENTS.

PROJECT ENGINEER'S APPROVAL:  
 I HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.  
 DATE: \_\_\_\_\_  
 NAME: \_\_\_\_\_

CONTRACTOR'S CERTIFICATION:  
 I HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.  
 DATE: \_\_\_\_\_  
 NAME: \_\_\_\_\_

CRITICAL DIMENSIONS

|   |       |   |           |
|---|-------|---|-----------|
| A | 1'-0" | R | 0'-3"     |
| B | 2'-9" | R | 0'-6"     |
| C | 2'-9" | R | 0'-3 1/2" |
| D | 1'-9" | R | 1'-4"     |
| E | 2'-3" | R | 0'-8"     |
| F | 1'-9" | R | 1'-0"     |
| G | 1'-9" | R | 1'-0"     |
| H | 0'-8" | R | 0'-8"     |
| I | 1'-9" | R | 1'-0"     |
| J | 1'-9" | R | 1'-0"     |
| K | 1'-9" | R | 1'-0"     |
| L | 1'-9" | R | 1'-0"     |
| M | 1'-9" | R | 1'-0"     |
| N | 1'-9" | R | 1'-0"     |

NOTE: TOTAL SYSTEM CAPACITY: 1500 GALLONS  
 RATED CAPACITY: 750 GALLONS PER DAY

#### SEPTIC TRENCH DESIGN (INITIAL SYSTEM & 1ST REPLACEMENT SYSTEM)

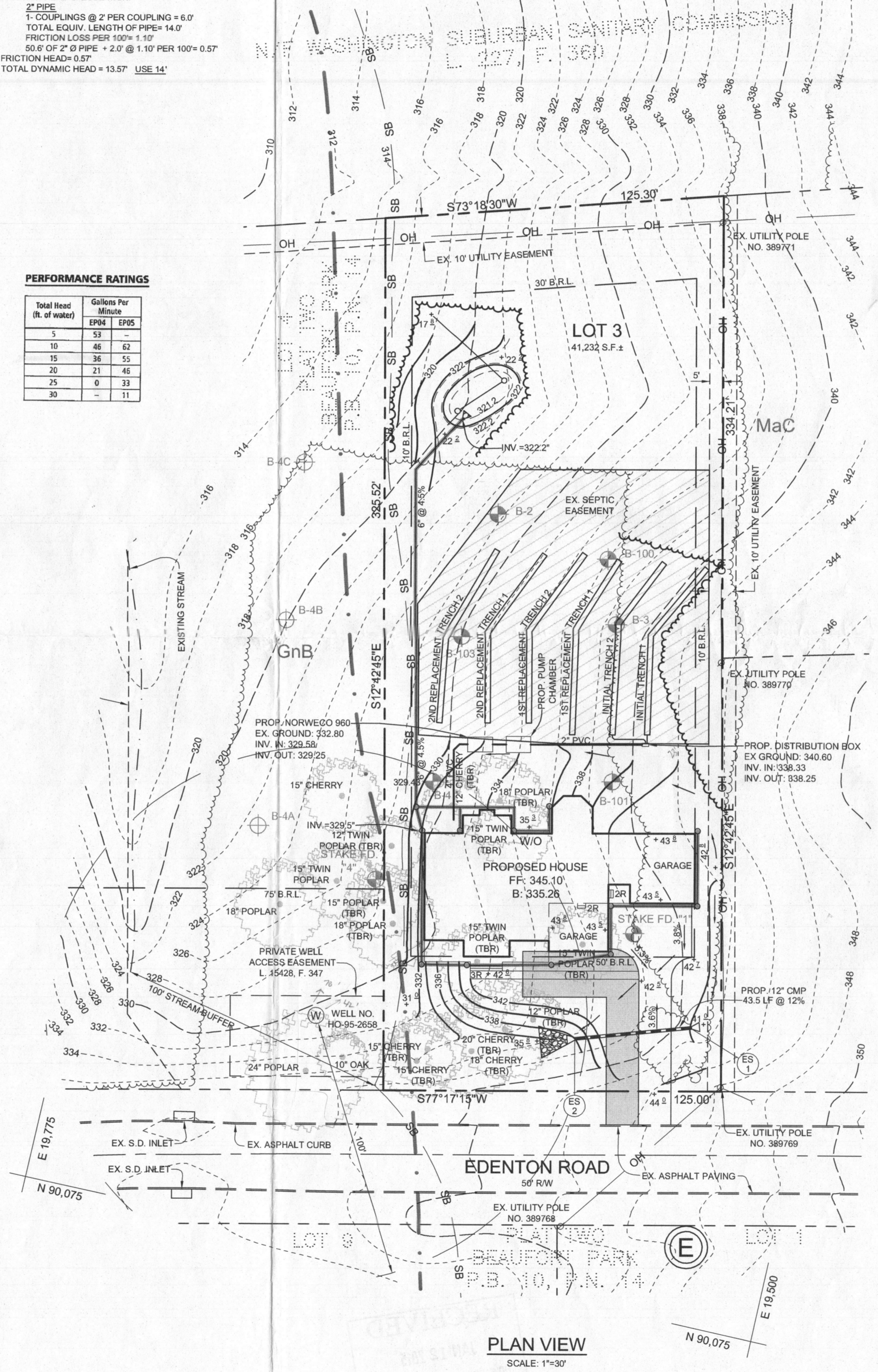
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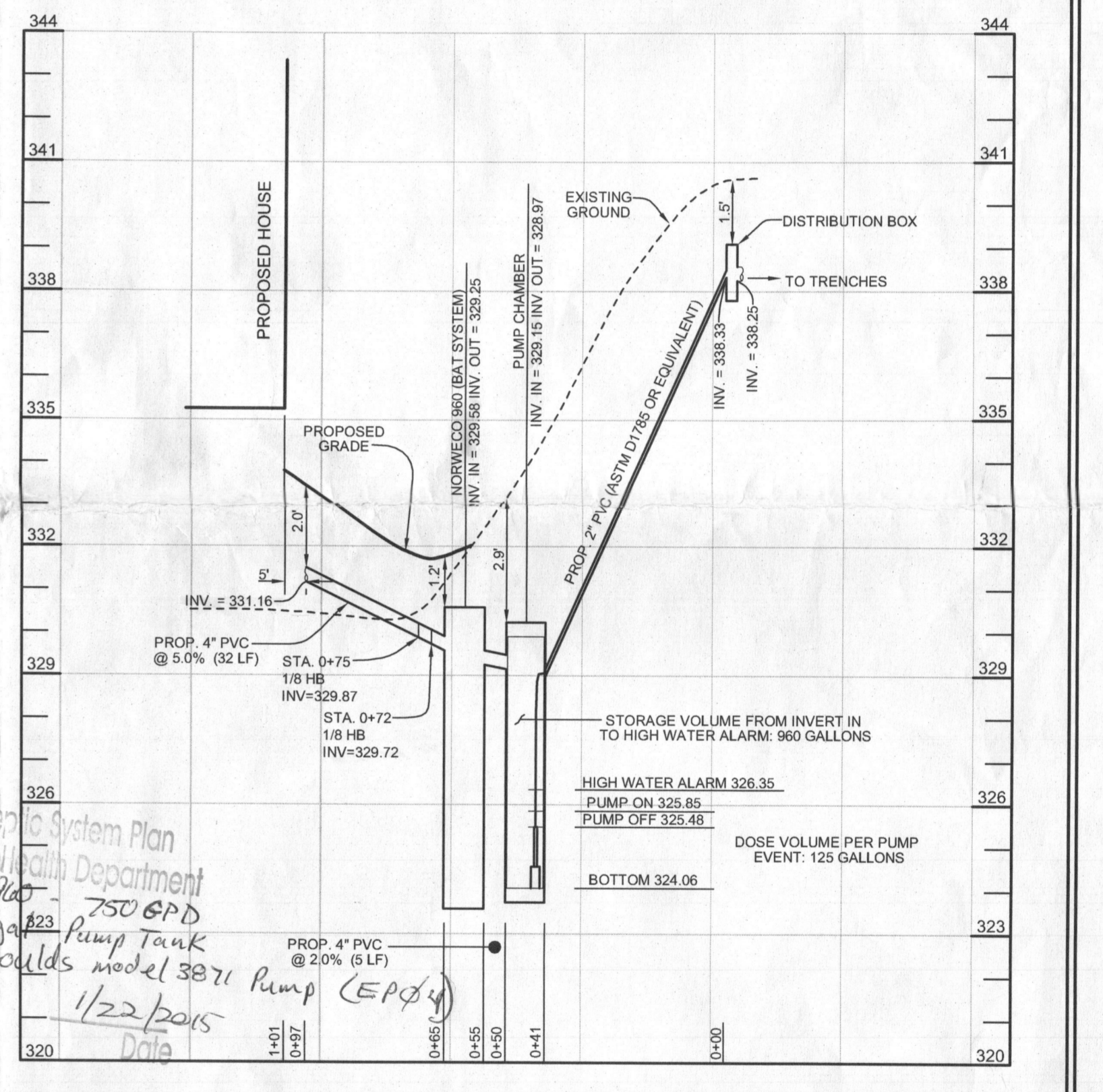
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#### PLAN VIEW

SCALE: 1"=30'



#### BAT PROFILE VIEW

HORIZONTAL SCALE: 1"=30'  
 VERTICAL SCALE: 1"=3'

Approved Septic System Plan  
 Howard County Health Department  
 NORWELCO 410-750-8923  
 w/ 1500 Gallon Pump Tank  
 Goulds model 3871 Pump (EPO4)  
 1/22/2015  
 Date

Signature: \_\_\_\_\_  
 Date: \_\_\_\_\_

OWNER  
 DAVID E. CANDLER, TRUSTEE  
 OF THE ODELL H. CANDLER REVOCABLE TRUST  
 45 NE LOOP 410, SUITE 560  
 SAN ANTONIO, TEXAS 78216-5870

**SITE PLAN FOR BAT INSTALLATION**  
 PLAT TWO  
**BEAUFORT PARK**  
 LOT 3, BLOCK F

TAX MAP 45 GRID 12  
 5TH ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

DESIGN BY: \_\_\_\_\_ PS  
 DRAWN BY: AEM/JT  
 CHECKED BY: \_\_\_\_\_ PS  
 SCALE: 1"=30'  
 DATE: JANUARY 12, 2015  
 PROJECT #: 13-098  
 SHEET #: 1 of 1

**Adcock & Associates - LLC**  
 Engineers - Surveyors - Planners  
 3300 North Ridge Road, Suite 160  
 Ellicott City, Maryland 21043  
 Phone: 443.325.7682 Fax: 443.325.7685  
 Email: info@saalnd.com

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 26, 2015