

SOIL EVALUATOR: RUSS WILSON
B.O.H. AGENT: EVAN CARLONI
TESTING DATE: JANUARY 24, 2016

| | |
|-----------|-----------------|
| DTH 116-1 | ELEV. = 206.8' |
| DEPTH | HORIZON TEXTURE |
| 0"-12" | A SL |
| 12"-18" | B LS |
| 18"-84" | C FS |

NO STANDING WATER
NO SEEPAGE
MOTTLES @ 48"
ESTIMATED HIGH G.W. @ 48" (202.8')

| | |
|----------|-----------------|
| DTH116-2 | ELEV. = 207.0' |
| DEPTH | HORIZON TEXTURE |
| 0"-30" | F --- |
| 30"-98" | C SL |

NO STANDING WATER
NO SEEPAGE
MOTTLES @ 48"
ESTIMATED HIGH G.W. @ 48" (203.0')

PERCOLATION TESTS: DATE: APRIL 12, 2002
PERC RATE USED FROM LOT 6 (#8 WEST RD.)
35" DEEP ~ 25 MIN/INCH

NOTES:
INLET AND OUTLET TEES SHALL BE OF CAST IRON, SCHEDULE 40 PVC OR CAST-IN-PLACE CONCRETE AND SHALL EXTEND A MINIMUM OF 6 INCHES ABOVE THE FLOW LINE OF THE SEPTIC TANK AND BE ON THE CENTER LINE OF THE SEPTIC TANK LOCATED DIRECTLY UNDER THE CLEAN-OUT MANHOLE. THERE SHALL BE AN AIR SPACE OF AT LEAST 3 INCHES BETWEEN THE TOPS OF THE TEES AND THE INSIDE OF THE TANK COVER, AND THE TOPS OF THE TEES SHALL BE LEFT OPEN TO PROVIDE VENTILATION OR SEPARATE VENTILATION SHALL BE PROVIDED.

A 1,000 GAL. PUMP CHAMBER IS TO BE INSTALLED IN THE LOCATION SHOWN. USE A 1,000 GAL. W-10 LOADING E.A. SHEA PRECAST TK-1000 SEPTIC TANK (OR APPROVED EQUIVALENT) AS A PUMP CHAMBER.

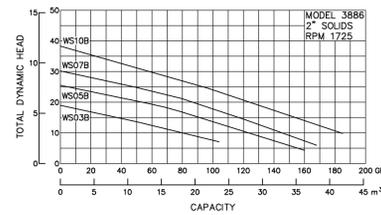
PUMPING IS TO BE ACCOMPLISHED BY ONE GOULDS 3886, WS03B, 1/3 HP, 230 VOLT PUMP OR EQUIVALENT WITH MERCURY SWITCH TILT-BLUE CONTROLS AND A NEUA 1" SIMPLEX CONTROL PANEL WHICH IS TO BE LOCATED WITHIN THE DWELLING.

PUMP MUST PASS 1-1/4" SOLIDS ACCORDING TO TITLE 5, [310 CMR 15.231(7)]
INSIDE DIMENSION = 4.67' W x 7.50' D x 1.00' H = 35.0 C.F./FT. DEPTH
35.0 C.F./FT. DEPTH X 7.48 GAL./C.F. = 262 GAL./FT. DEPTH
DOSE VOLUME = 440 GPD
DRAIN BACK VOLUME = 33 x PI(0.08") = 0.66 GAL
440 + 0.66 / 2 CYCLES = 220.3 GAL PER CYCLE
THE CONTROLS ARE TO BE FIELD ADJUSTED TO DISCHARGE 0.84 LIQUID FT. OR 220.3 GALLONS PER CYCLE.

ALL PUMPS MUST BE EQUIPPED WITH A HIGH WATER ALARM LOCATED IN THE BUILDING SERVED WHICH IS POWERED BY A CIRCUIT SEPARATE FROM THE CIRCUIT TO THE PUMP(S). [310 CMR 15.231(9)]

THE STORAGE AVAILABLE (500.4 GAL.) IN THE PUMP CHAMBER BETWEEN THE ELEVATION OF THE PUMP CHAMBER INLET AND THE HIGH WATER ALARM IS IN EXCESS OF THE 24 HOUR STORAGE (440 GAL.) REQUIRED.

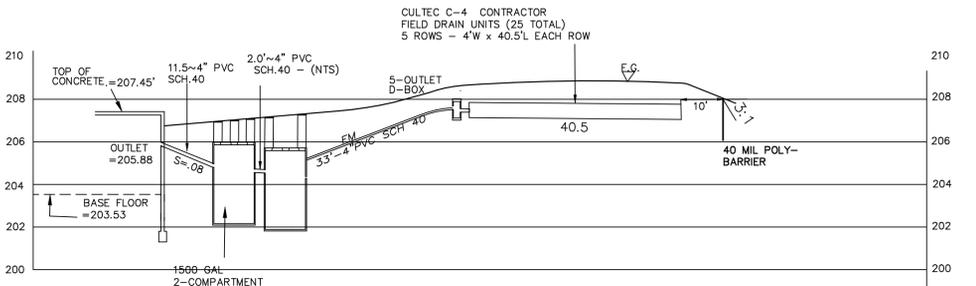
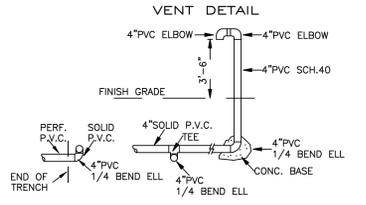
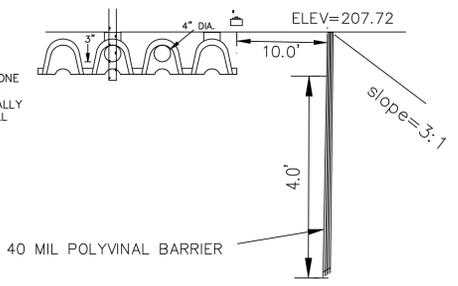
TOTAL HEAD
VERTICAL HEIGHT = 207.65 - 201.45 = 6.20'
FRICTION LOSS
33 FT. x 2" PVC SCH. 40 PIPE @ 50 GPM = 4.8' / 100' x 33' = 1.58'
FITTINGS AND VALVES = 5.00'
TOTAL PUMP HEAD = 12.78 FT.



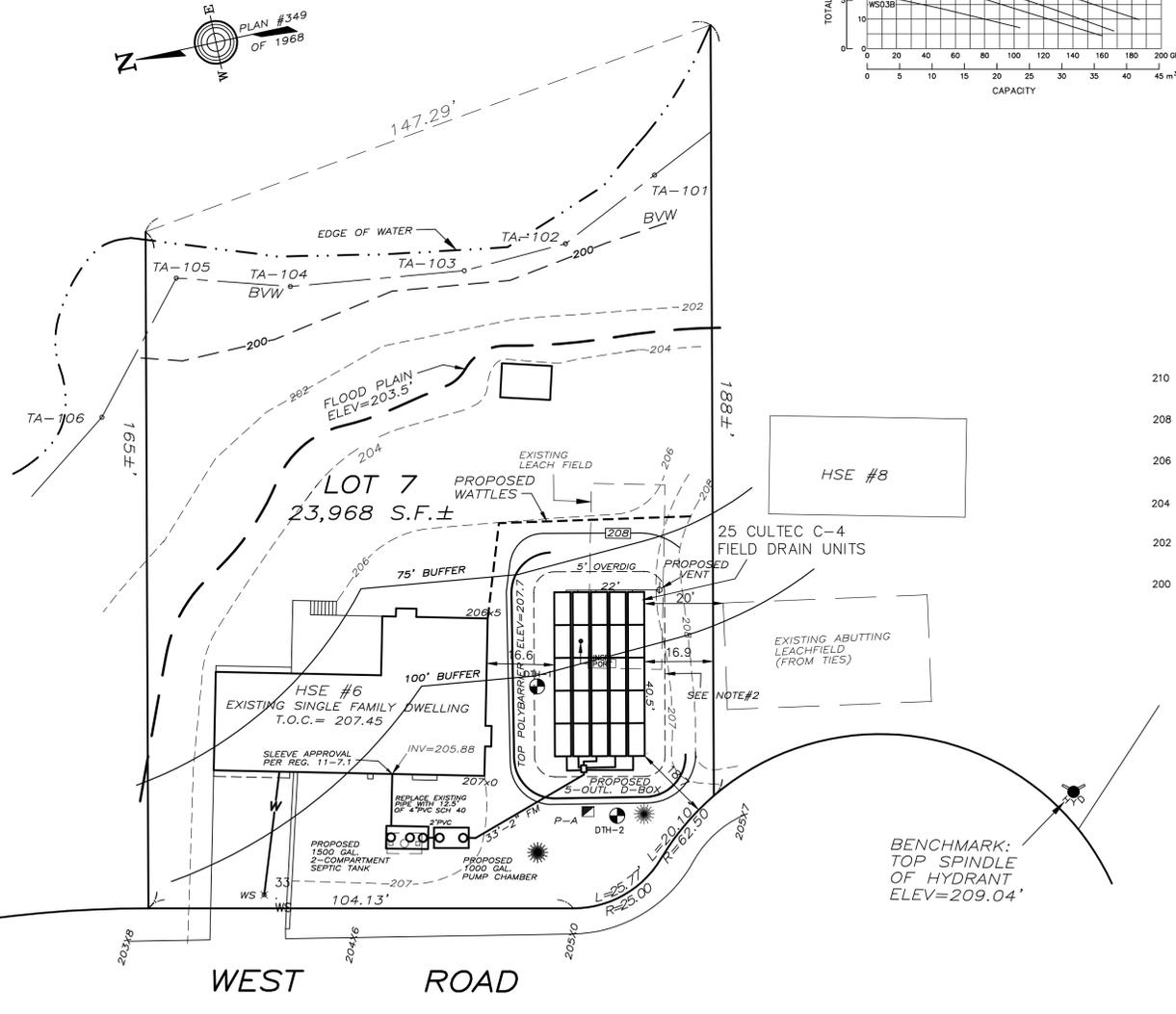
NOTE: ALL SOIL ABSORPTION SYSTEMS SHALL HAVE A MINIMUM OF ONE (1) INSPECTION PORT CONSISTING OF A PERFORATED FOUR (4) INCH PIPE PLACED VERTICALLY DOWN INTO THE CHAMBER TO THE NATURALLY OCCURRING SOIL OR SAND FILL BELOW THE CHAMBER. THE PIPE SHALL BE CAPPED WITH A SCREW TYPE CAP AND ACCESSIBLE TO WITHIN THREE (3) INCHES OF FINISH GRADE. [310 15.240(13)]

CULTEC FIELD DRAIN CONTACTOR C-4
1. DIMENSIONS: 8.5'H x 48'W x 8.0'L
2. LAYUP LENGTH ADJUSTMENT: 0.50'
3. DESIGN PER MODIFIED CERTIFICATION FOR GENERAL USE, REVISED NOV 2, 2007; FOR BED, FIELD CONFIGURATION,
4. MINIMUM LEACHING AREA = CALCULATED EFFECTIVE LEACHING AREA.

LEACHING FIELD DESIGN:
THIS SEPTIC SYSTEM IS DESIGNED FOR FOUR BEDROOMS.
PERCOLATION RATE: 25 MIN./INCH
SOIL CLASS: 2
LTAR: 0.4 GPD/S.F.
DESIGN FLOW REQUIRED = 440 GPD
USING CULTEC FIELD DRAIN CONTACTORS C4
PROPOSED: 25 C4s (5 ROWS, 5 C4s/ROW)
SURFACE AREA EACH ROW = 5 UNITS x 8 LF + 0.5 LF = 40.5 LF
40.5 LF x 6.7 SF/LF = 271.35 SF PER ROW
TOTAL SURFACE AREA = 5 ROWS x 271.35 SF = 1356.75 SF
CAPACITY = 1356.75 SF x 0.4 GPD/SF = 542.7 GPD PROVIDED



| PROPOSED ELEVATIONS | |
|---------------------|--------|
| TOP FOUNDATION | 207.45 |
| INV. AT FOUNDATION | 205.88 |
| SEPTIC TANK INLET | 205.00 |
| SEPTIC TANK OUTLET | 204.75 |
| P-CHAMBER INLET | 204.70 |
| P-CHAMBER OUTLET | 204.50 |
| D-BOX INLET | 207.65 |
| D-BOX OUTLET | 207.47 |
| TOP GEO-FABRIC | 207.72 |
| TOP CUL-TECS | 207.71 |
| INV. CUL-TECS | 207.37 |
| BOTTOM CUL-TECS | 207.00 |
| GROUND WATER ELEV. | 203.00 |
| EXISTING GROUND | 207.0 |



- GENERAL NOTES:
- THIS PLAN IS TO BE USED FOR THE INSTALLATION OF THE SUBSURFACE SEWAGE DISPOSAL SYSTEM, INCLUDING REQUIRED WETLAND RESOURCE PROTECTION, ONLY.
 - ALL TOPSOIL, PEAT OR OTHER UNSUITABLE IMPERVIOUS SOIL LAYERS SHALL BE REMOVED FROM BELOW AND 5 FT. AROUND THE LEACHING AREA AS SHOWN AND REPLACED WITH FILL MATERIAL PURSUANT TO TITLE 5 (310 CMR 15.255).
 - ANY DEVIATION FROM THE DESIGN OF THIS PLAN MUST FIRST BE APPROVED BY THE LOCAL BOARD OF HEALTH AND R. WILSON ASSOCIATES.
 - THE CONTRACTOR SHALL NOTIFY THE BOARD OF HEALTH AGENT AND/OR ENGINEER A MINIMUM OF 24 HOURS BEFORE EACH REQUIRED INSPECTION.
 - ALL STRUCTURES SHALL BE PRECAST CONCRETE (MINIMUM STRENGTH 4,000 PSI AFTER 28 DAYS)
 - ALL PIPES AND JOINTS SHALL BE WATER TIGHT AND SHALL BE 4" PVC SCH. 40 (OR APPROVED EQUAL) UNLESS OTHERWISE INDICATED.
 - ALL DISTURBED AREAS SHALL BE LOAMED AND SEEDED IN ORDER TO PREVENT EROSION.
 - THIS SEPTIC SYSTEM IS NOT DESIGNED FOR A GARBAGE DISPOSAL UNIT. OWNERS OF SYSTEM SHALL TAKE STEPS TO ENSURE THAT GARBAGE DISPOSAL UNITS ARE NOT INSTALLED.
 - THE APPLICANT AND CONTRACTOR SHALL BE AWARE OF THEIR OBLIGATION TO COMPLY WITH THE REQUIREMENTS OF THE WETLANDS PROTECTION ACT (M.G.L. CH.131 SECT.40).
 - THE LOCATION OF ALL WATER COURSES AND WETLANDS WITHIN 100 FT. OF THE PROPOSED SYSTEM LOCATION ARE SHOWN.
 - THE LOCATION OF ALL SOURCES OF WATER SUPPLY (PUBLIC AND PRIVATE) WITHIN 400 FT. OF THE PROPOSED SYSTEM LOCATION IN THE CASE OF SURFACE WATER SUPPLIES AND GRAVEL PACKED PUBLIC SUPPLY WELLS; WITHIN 250 FT. OF THE PROPOSED SYSTEM LOCATION IN THE CASE OF TUBULAR WATER SUPPLY WELLS; AND WITHIN 150 FT. OF THE PROPOSED SYSTEM LOCATION IN THE CASE OF PRIVATE WATER SUPPLY WELLS ARE SHOWN.
 - ANY WATER LINE CONNECTIONS MUST BE AT LEAST 10 FT. FROM THE PROPOSED SEPTIC SYSTEM.
 - THERE IS NO NEW FOUNDATION DRAIN PROPOSED FOR THE DWELLING SHOWN.
 - CONTRACTOR MUST VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION.
DIG-SAFE TELEPHONE NUMBER: 1-888-DIG-SAFE
 - ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE OR A COMPARABLE MEANS IN ORDER TO LOCATE THEM ONCE BURIED. [310 CMR 15.22 (12)]
 - FOR SEPTIC TANKS AND D-BOXES EQUIPPED WITH RISERS, THE RISERS SHALL BE NO DEEPER THAN 6 (6) INCHES BELOW GROUND SURFACE. [310 CMR 15.22 (13)]
 - ANY EXISTING WELL IS TO BE ABANDONED PER TITLE V REGULATIONS.
 - WETLANDS FLAGGED BY TOM TIDMAN, ACTON CONSERVATION-FEB18, 2016

SUBSURFACE SEWAGE DISPOSAL UPGRADE PLAN FOR 6 WEST ROAD IN ACTON, MASS.

OWNER: PAUL W. MAK AND DEBORAH RILEY
6 WEST ROAD, ACTON, MASS. 01720
SCALE: 1 INCH = 20 FEET DATE: FEBRUARY 10, 2016

R. WILSON AND ASSOCIATES
LAND SURVEYORS AND CIVIL ENGINEERS
360 MASSACHUSETTS AVE STE 202 ACTON, MA 01720
PHONE: 978-266-0203 FAX: 978-266-0202
FILE NO. 2096 DWG NO. 2096SDS SHEET NO. 1 OF 1

| No. | REVISIONS | DATE |
|-----|-------------|---------|
| 1 | WATTLE LINE | 2/25/16 |