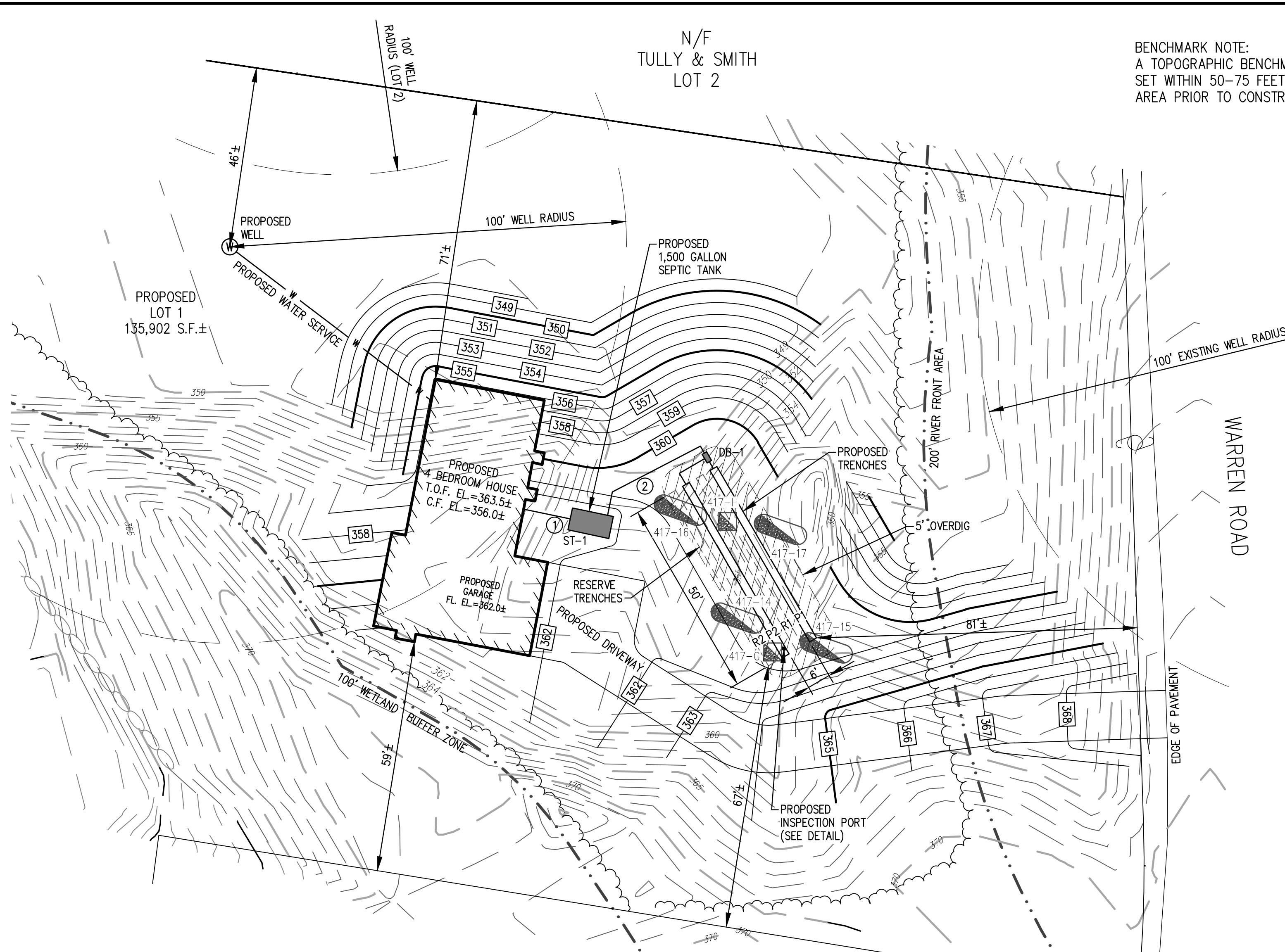


**LOCUS MAP**  
SCALE: 1" = 1,500'



**SITE PLAN**  
SCALE 1" = 20'  
N/F DREW #111 WARREN ROAD

**BENCHMARK NOTE:**  
A TOPOGRAPHIC BENCHMARK SHALL BE SET WITHIN 50-75 FEET OF THE SYSTEM AREA PRIOR TO CONSTRUCTION.

**CALCULATIONS:**

**HYDRAULIC LOADING:**  
FOUR (4) BEDROOMS AT 110 GALLONS PER DAY PER BEDROOM = 440 GALLONS PER DAY.

**SEPTIC TANK SIZE:**  
AVERAGE DAILY FLOW = 440 G.P.D.  
MINIMUM STORAGE REQUIRED:  
COMPARTMENT #1 = 440 G.P.D. X 200% = 880 GALLONS  
COMPARTMENT #2 = 440 G.P.D. X 100% = 440 GALLONS  
SEPTIC TANK PROVIDED = 1,500 GALLONS

**PRIMARY LEACHING AREA:**  
DESIGN PERCOLATION RATE = 2 M/I (SOIL CLASS I)  
EFFLUENT LOADING RATE = 0.74 GALLONS/S.F.  
LEACHING AREA REQUIRED = 440 GPD / 0.74 GPD/S.F. = 595 S.F.  
TOTAL LEACHING AREA PROVIDED = (2) 50' TRENCHES, 2' WIDE X 2' DEEP (2 X 50 X 6) = 600 S.F.  
TOTAL DESIGN FLOW = 600 S.F. X 0.74 GALLON/S.F. = 444 GALLONS

**RESERVE LEACHING AREA:**  
DESIGN PERCOLATION RATE = 2 M/I (SOIL CLASS I)  
EFFLUENT LOADING RATE = 0.74 GALLONS/S.F.  
LEACHING AREA REQUIRED = 440 GPD / 0.74 GPD/S.F. = 595 S.F.  
(2) TOTAL LEACHING AREA PROVIDED = 50' TRENCHES, 2' WIDE X 2' DEEP (2 X 50 X 6) = 600 S.F.  
TOTAL DESIGN FLOW = 600 S.F. X 0.74 GALLON/S.F. = 444 GALLONS

**SCHEDULE OF ELEVATIONS:**

SYSTEM ELEVATIONS:				RESERVE TRENCH ELEVATIONS:			
TOP EL. OF FOUNDATION WALL = 363.5±	PIPE DATA:			TRENCH NO.	EL. INV. BEG. OF TRENCH:	EL. INV. END OF TRENCH:	EL. OF BOT. OF TRENCH:
INV. EL. AT FOUNDATION WALL = 360.68	PIPE 1 GRAVITY SEWER			R1	358.25	358.75	356.50
	4" PVC (SCH. 40)			R2	357.75	357.50	355.50
	L = 12'						
	S = 0.02						
SEPTIC TANK (ST-1) - H-10	PIPE 2 GRAVITY SEWER						
4" INV. (IN) = 360.44	4" PVC (SCH. 40)						
4" INV. (OUT) = 360.19	L = 30'						
	S = 0.02						
DISTRIBUTION BOX (DB-1)							
4" INV. (IN) = 359.59							
4" INV. (OUT) = 359.42							

**GENERAL NOTES:**

- TOPOGRAPHIC INFORMATION IS THE RESULT OF AN ON-THE-GROUND SURVEY PERFORMED BY DUCHARME & DILLIS CIVIL DESIGN GROUP, INC. ELEVATIONS REFER TO ASSUMED DATUM (SEE BENCH MARK LOCATED ON PLOT PLAN).
- PROPERTY LINE INFORMATION TAKEN FROM AN "APPROVAL NOT REQUIRED" PLAN PREPARED BY THIS OFFICE AS DRAWING NUMBER 5478-AMR. SAID PLAN TO BE FILED WITH THE TOWNSEND PLANNING BOARD AND RECORDED AT THE REGISTRY OF DEEDS.
- PERCOLATION TESTS PERFORMED IN ACCORDANCE WITH 310 CMR (TITLE 3) REGULATIONS 15.104 AND 15.105.
- ANY DEVIATIONS FROM THE DESIGN PLAN MUST BE APPROVED IN WRITING BY DUCHARME & DILLIS CIVIL DESIGN GROUP, INC.
- NO PERMANENT STRUCTURES ARE TO BE CONSTRUCTED OVER THE RESERVE LEACHING AREA.
- THE BOARD OF HEALTH REQUIRES INSPECTION OF ALL CONSTRUCTION BY THE DESIGN ENGINEER OR BY AN AGENT OF THE BOARD OF HEALTH, AND THAT SUCH A PERSON CERTIFIES IN WRITING THAT ALL WORK HAS BEEN COMPLETED IN ACCORDANCE WITH THE TERMS OF THE PERMIT AND THE APPROVED PLANS.
- FOR PROPER PERFORMANCE, A SEPTIC TANK SHOULD BE INSPECTED AT LEAST EVERY YEAR AND WHEN THE TOTAL DEPTH OF SCUM AND SOLIDS EXCEEDS ONE THIRD OF LIQUID DEPTH OF THE TANK, THE TANK SHOULD BE PUMPED.
- THIS DESIGN DOES NOT ACCOMMODATE A GARBAGE DISPOSAL.
- CONSTRUCTION WITHIN 100 FEET OF A WETLAND RESOURCE AREA AS DEFINED IN THE MASSACHUSETTS WETLAND PROTECTION ACT AND REGULATIONS (310 CMR 10.00) SHALL NOT BE PERFORMED UNTIL AN ORDER OF CONDITIONS OR NEGATIVE DETERMINATION OF APPLICABILITY HAS BEEN OBTAINED FROM THE LOCAL CONSERVATION COMMISSION.
- EXISTING UTILITIES SHOWN ON THIS PLAN ARE FOR REFERENCE ONLY AND SHOULD NOT BE ASSUMED TO BE CORRECT NOR SHOULD IT BE ASSUMED THAT THE UTILITIES SHOWN ARE THE ONLY UTILITIES LOCATED ON OR NEAR THE SITE. THE CONTRACTOR SHALL CALL 800-SAFE-1-888-DIG-SAFE PRIOR TO CONSTRUCTION IN ACCORDANCE WITH STATE LAWS.

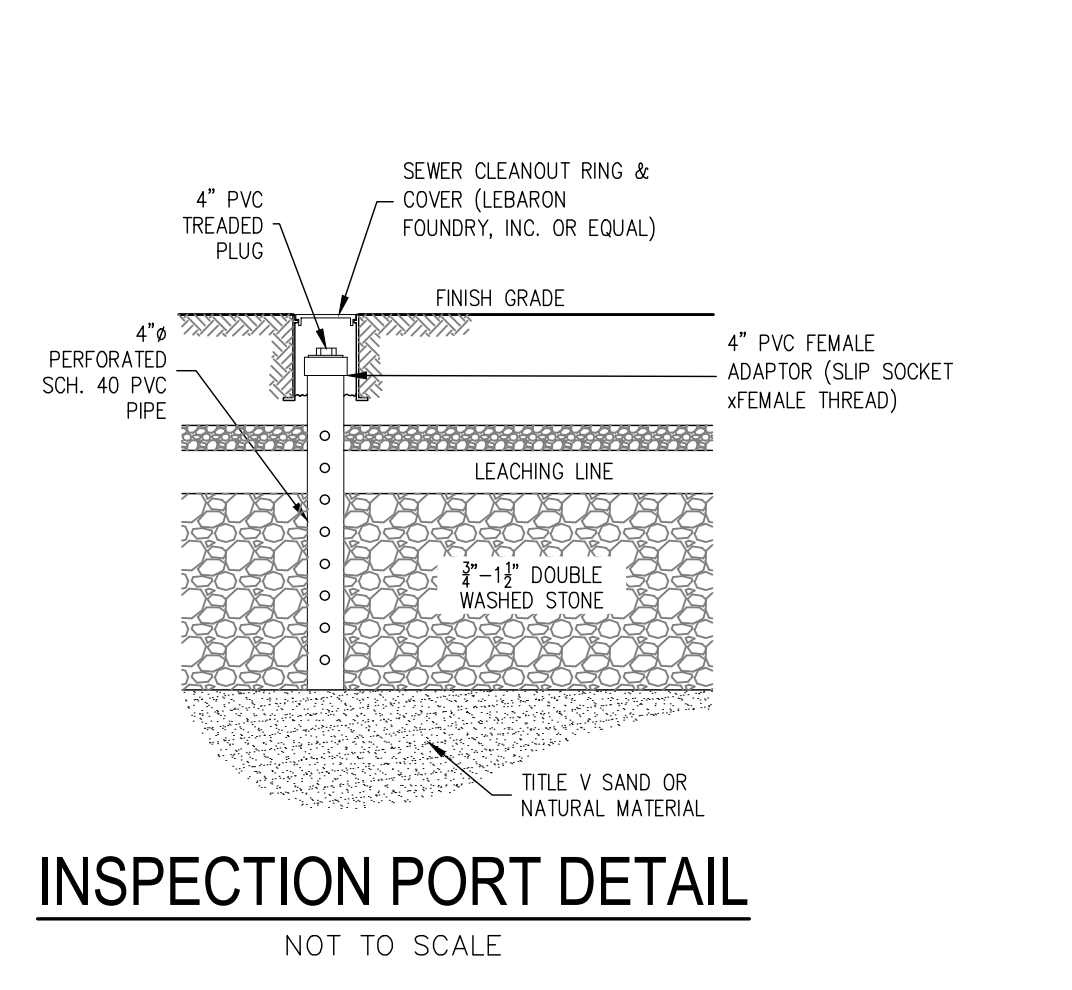
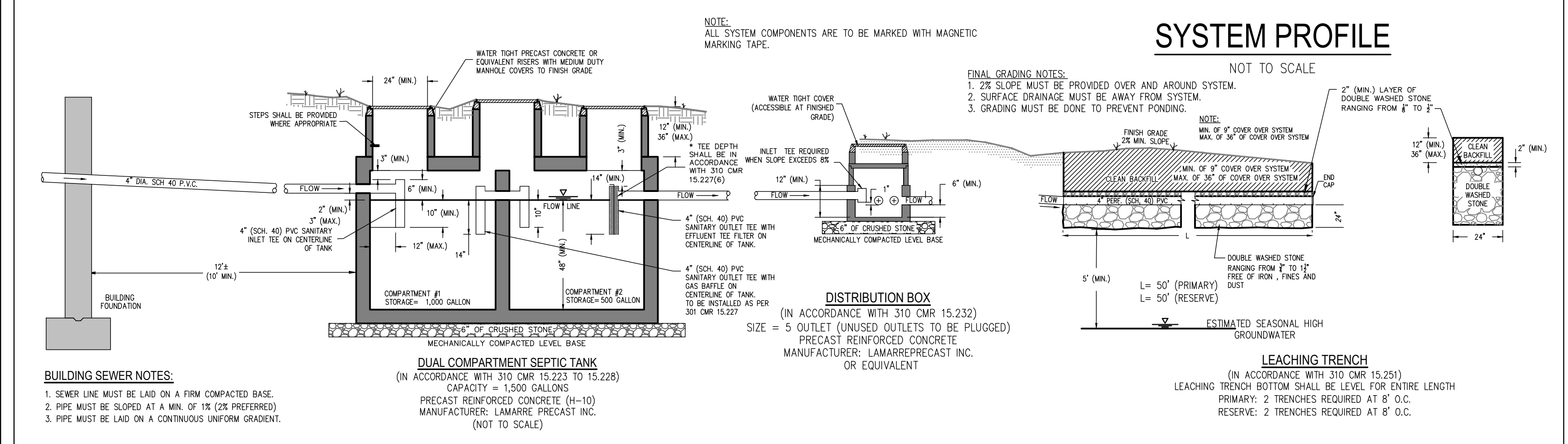
**CONSTRUCTION NOTES:**

- FINISH GRADING SHALL BE DONE IN ACCORDANCE WITH THE PLOT PLAN. ALL DISTURBED AREAS SHALL BE COVERED WITH A MINIMUM OF 4" OF LOAM AND SEEDED WITH A NATIVE GRASS MIXTURE.
- BACKFILL OVER THE SOIL ABSORPTION SYSTEM, SEPTIC TANK AND PUMP CHAMBER SHALL BE A MINIMUM OF 9 INCHES EXCLUDING TOPSOIL. PLACED IN LIFTS AND SUFFICIENTLY COMPACTED TO PREVENT DEPRESSIONS DUE TO SETTLING. BACKFILL OVER THE SOIL ABSORPTION SYSTEM SHALL BE FREE OF STONES AND BOULDERS GREATER THAN 6 INCHES IN SIZE.
- THE BUILDING SEWER SHALL BE LAID ON A COMPACTED FIRM BASE.
- ALL PIPING SHALL BE MINIMUM OF SCHEDULE 40 UNLESS OTHERWISE NOTED.
- ALL PIPE JOINTS AND CONNECTIONS TO SYSTEM COMPONENTS SHALL BE MECHANICALLY SOUND, WATER TIGHT AND PROTECTED AGAINST DAMAGE BY ROOTS.
- ALL BUILDING SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STATE PLUMBING CODE 24B CMR 2.00.
- FINAL COVER OVER THE SYSTEM SHALL BE GRADED TO REDUCE INFILTRATION OF SURFACE WATER AND MINIMIZE EROSION. FINISH GRADE SHALL HAVE A MINIMUM SLOPE OF 2%.
- EFFLUENT DISTRIBUTION LINES SHALL HAVE A SLOPE OF 0.5%.
- OUTLET DISTRIBUTION LINES FROM THE D-BOX SHALL BE LEVEL FOR A MINIMUM OF TWO FEET OF THEIR LENGTH.
- FILL MATERIAL FOR SYSTEMS CONSTRUCTED IN FILL SHALL CONSIST OF SELECT ON-SITE OR IMPORTED SOILS THAT MEET THE MINIMUM REQUIREMENTS STATED IN 310 CMR 15.255(3).
- WHERE FILL IS REQUIRED TO REPLACE UNSUITABLE OR IMPERMEABLE SOILS, THE EXCAVATION OF THE UNSUITABLE MATERIAL SHALL EXTEND A MINIMUM OF 3 FEET LATERALLY IN ALL DIRECTIONS BEYOND THE OUTER PERIMETER OF THE SOIL ABSORPTION SYSTEM TO THE DEPTH OF 3 INCHES INTO THE NATURALLY OCCURRING PERVIOUS MATERIAL.
- THE BOTTOM SURFACE OF THE EXCAVATION SHALL BE SCARPED AND RELATIVELY DRY. FILL SHALL NOT BE PLACED DURING RAIN OR SNOW STORMS. IF THE WATER TABLE ELEVATION IS ABOVE THE ELEVATION OF THE BOTTOM OF THE EXCAVATION, THE EXCAVATION SHALL BE Dewatered.
- SUBSURFACE COMPONENTS OF A SYSTEM SHALL NOT BE BACKFILLED OR OTHERWISE CONCEALED FROM NEW LINTL. A FINAL INSPECTION HAS BEEN CONDUCTED BY THE APPROVING AUTHORITY AND PERMISSION HAS BEEN GRANTED BY THE APPROVING AUTHORITY TO BACKFILL THE SYSTEM. THE DESIGNER SHALL INSPECT THE CONSTRUCTION AFTER THE INITIAL EXCAVATION, PRIOR TO BACKFILLING, AND DURING BACKFILLING. IN ADDITION, THE FINAL INSPECTION OF THE SYSTEM SHALL BE CONDUCTED BY THE APPROVING AUTHORITY. THE SYSTEM INSTALLER AND THE DESIGNER PRIOR TO THE ISSUANCE OF A CERTIFICATE OF COMPLIANCE PURSUANT TO 310 CMR 15.021(3). ANY COMPONENT OF THE SYSTEM WHICH HAS BEEN COVERED WITHOUT SUCH PERMISSION SHALL BE UNCOVERED UPON THE REQUEST OF THE APPROVING AUTHORITY OR THE DESIGNER.
- ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE OR A COMPARABLE MEANS IN ORDER TO LOCATE THEM ONCE BURIED.
- 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 STONE TO THE NATURALLY OCCURRING SOIL OR SAND FILL BELOW THE STONE. THE PIPE SHALL BE CAPPED WITH A SCREW TYPE CAP AND ACCESSIBLE TO WITHIN THREE (3) INCHES OF FINISH GRADE.

NAME OF APPROVING AUTHORITY:				NAME OF SOIL EVALUATOR:			
TOWNSEND BOARD OF HEALTH				DUCHARME AND DILLIS CIVIL DESIGN GROUP			
RICK METCALF, N.A.B.O.H. AGENT				WILLIAM J. "JACK" MALONEY, JR. (SE-13704)			
IN-SEASON GROUND WATER TESTING - (IF REQ'D)				PERCOLATION TEST DATA			
TEST PIT NO.	DATE	SURFACE ELEVATION	DEPTH TO OBSERVED GROUNDWATER	TEST PIT NO.	DATE	BOTTOM OF TEST HOLE DEPTH FROM SURFACE ELEVATION	RATE, MINUTES PER INCH
				417-G	4/7/2017	49'	358.0± 2 M/I
				417-H	4/7/2017	48'	356.0± 2 M/I
SOIL CLASSIFICATION: QUONSET SANDY LOAM							
GEOLOGICAL MATERIAL: CLASTIC/FLUVIAL DEPOSITS							
LAND FORM: ESCARP							
SOIL LIMITATIONS: NONE							
GENERAL NOTES: 262D							
DEEP TEST PIT: 417-14							
DATE OF TEST: 4/7/2017							
REFUSAL AT: NONE							
OBSERVED							
SURFACE ELEV. = 355.5±							
ESTIMATED SEASONAL HIGH GROUND WATER AT 116" (ELEVATION = 345.8±)							
DEEP TEST PIT: 417-15							
DATE OF TEST: 4/7/2017							
REFUSAL AT: NONE							
OBSERVED							
SURFACE ELEV. = 359.5±							
ESTIMATED SEASONAL HIGH GROUND WATER AT 116" (ELEVATION = 349.8±)							
DEEP TEST PIT: 417-16							
DATE OF TEST: 4/7/2017							
REFUSAL AT: NONE							
OBSERVED							
SURFACE ELEV. = 352.0±							
ESTIMATED SEASONAL HIGH GROUND WATER AT 84" (ELEVATION = 345.0±)							
DEEP TEST PIT: 417-17							
DATE OF TEST: 4/7/2017							
REFUSAL AT: NONE							
OBSERVED							
SURFACE ELEV. = 362.0±							
ESTIMATED SEASONAL HIGH GROUND WATER AT 84" (ELEVATION = 355.1±)							

I CERTIFY THAT I AM CURRENTLY APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION PURSUANT TO 310 CMR 15.07 TO CONDUCT SOIL EVALUATIONS AND THAT THE ABOVE ANALYSIS HAS BEEN PERFORMED BY ME CONSCIOUSLY WITH THE REQUIRED TRAINING, EXPERIENCE, AND EXPERTISE DESCRIBED IN 310 CMR 15.07. I FURTHER CERTIFY THAT THE RESULTS OF MY SOIL EVALUATION, AS INDICATED ON THE ATTACHED SOIL EVALUATION FORM, ARE ACCURATE IN ACCORDANCE WITH 310 CMR 15.100 THROUGH 15.107.

*Jack Maloney*  
LICENSED SOIL EVALUATOR  
WILLIAM J. "JACK" MALONEY, JR. (SE # 13704)



**PREPARED BY:**  
**DUCHARME & DILLIS**  
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www.DucharmeandDillis.com

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P.O. BOX 595  
DUNSTABLE, MASSACHUSETTS 01827

**APPLICANT:**  
KENNETH TULLY & KEVIN SMITH  
P.O. BOX 595  
DUNSTABLE, MASSACHUSETTS 01827

**SCALE:**  
20 0 10 20 40 80  
1 in. = 20 ft.

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**DATE:** 9/14/2020

**DESIGN BY:** CLM

**DRAWN BY:** CLM

**CHECKED BY:** WJM

**REGISTRATION:** GREGORY [Signature] 10/22/2020

**SEWAGE DISPOSAL SYSTEM DESIGN**  
LOT 1 WARREN ROAD (M: 32 P: 2)  
TOWNSEND, MASSACHUSETTS

NO.	DATE	DESCRIPTION	BY
1	10/22/2020	PER N.A.B.O.H. REVIEW COMMENTS	CLM

**JOB NO.:** 5478

**DRAWING NO.:** 5478-SDS1

**SHEET NO.:** 1 OF 1