PROPERTY INFORMATION
OWNER OF RECORD: JAWS REALTY TRUST, PETER SCOTT TRUSTEE
5 SCOTT ORAD
LITTLETON, MA 01460
LITTLETON ASSESSOR PARCEL ID U47 / 19
LOT AREA: 6.602 +/- SF (M)
MIDDLESEX SOUTH REGISTRY OF DEEDS BOOK 48151 PAGE 547
ZONING DISTRICT: R
THIS PROPERTY IS NOT LOCATED WITHIN A ZONE II
THIS PROPERTY IS NOT LOCATED WITHIN THE 100-YEAR FLOOD PLAIN
THIS PROPERTY IS NOT LOCATED WITHIN THE LITTLETON AQUIFER PROTECTION DISTRICT
THIS PROPERTY IS NOT LOCATED WITHIN THE WATER RESOURCES DISTRICT

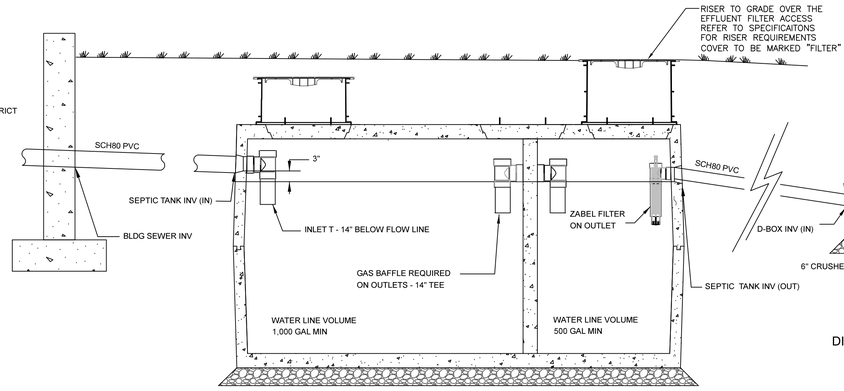
ABBREVIATIONS:

ASB	AS-BUILT
BW	BOTTOM OF WALL
BH	BULKHEAD
CB	CATCH BASIN
CF	CUBIC FEET
CONC	CONCRETE
DMH	DRAIN MANHOLE
DND	DO NOT DISTURB
EX	EXISTING
ESHGW	ESTIMATED SEASONAL HIGH GROUND WATER
EL	ELEVATION
FFE	FINISHED FLOOR ELEVATION
INV	INVERT
LF	LINEAR FEET
PROP	PROPOSED
TOF	TOP OF FOUDATION
TW	TOP OF WALL
TYP	TYPICAL
VIF	VERIFIY IN FIELD

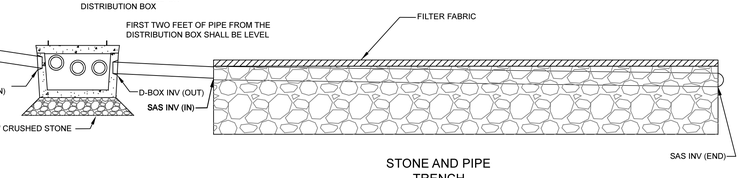
ELEVATION SCHEDULE	DESIGN
BLDG SWR INV	113.18
SEPTIC TANK INV (IN)	112.48
SEPTIC TANK INV (OUT)	112.23
D-BOX INV (IN)	112.13
D-BOX INV (OUT)	111.96

TRENCH	EX GRADE	ESHGW EL	GW OFFSET	BOTTOM TRENCH	INVERT END	INVERT IN	T.O.P./BREAKOUT	MIN FINAL GRADE	PROP GRADE
P1	113.00	99.73	8.94	109.67	111.86	112.19	113.19	115	
P2	111.00	99.73	8.94	108.67	110.67	110.86	111.19	112.19	114

EX GRADE - EXISTING GRADE, MOST CONSERVATIVE ELEVATION ALONG TRENCH TAKEN
INVERT IN - CALCULATED INVERT INTO THE TRENCH BASED ON 38' TRENCH AT 0.5%
MIN FINAL GRADE - THE MINIMUM FINAL GRADE BASED ON MINIMUM COVER OVER THE TRENCHES OF 12"
T.O.P. - TOP OF PIPE
ESHGW EL - ESTIMATED SEASONAL HIGH GROUND WATER ELEVATION

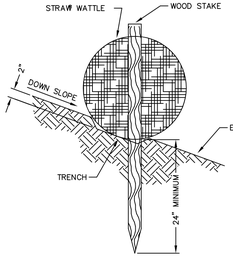


H10 1,500 GALLON TWO COMPARTMENT SEPTIC TANK



NEW H-20 DISTRIBUTION BOX

STONE AND PIPE TRENCH

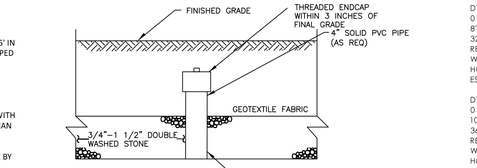


9" STRAW WATTLE DETAIL

NTS

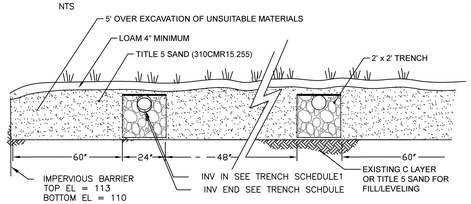
DRAINAGE/STORMWATER SPECIFICATIONS:
1. STRAW WATTLES SHALL BE HDPE PHOTODEGRADABLE NETTING FILLED WITH AN ORGANIC MEDIA CONSISTING OF AGRICULTURAL STRAW. EACH WATTLE SHALL BE 25' IN LENGTH AND SECURED OR TIED AT EACH END. FILL MATERIAL SHALL BE 100% CHOPPED AGRICULTURAL STRAW WEIGHING APPROXIMATELY 2 LBS/FOOT.
2. STRAW WATTLE DIMENSIONS:
DIAMETER 9"
LENGTH 25 feet
WEIGHT 50 pounds
3. STRAW WATTLE INSTALLATION: WATTLES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS. WATTLES WILL BE STAKED AT NO MORE THAN 5' INTERVALS (6 STAKES PER WATTLE) OR ADDITIONAL STAKES AS NECESSARY TO MAINTAIN INTIMATE CONTACT WITH THE GROUND.
4. STRAW WATTLES SHALL MEET THE ABOVE SPECIFICATIONS, BE 9" STRAW WATTLE BY NEW ENGLAND STRAW WATTLE OR APPROVED EQUAL.

WETLAND NOTES:
1. WETLAND DELINEATION BY LEAH BASBANES, OCTOBER 31, 2020
2. ALL WORK SHALL BE CONDUCTED IN COMPLIANCE WITH THE CONDITIONS ISSUED BY THE ACTON CONSERVATION COMMISSION
2. EROSION CONTROLS SHALL BE INSTALLED PRIOR TO THE COMMMENCEMENT OF ACTIVITIES ON THE PROPERTY AND SHALL SERVE AS A LIMIT OF WORK, NO MATERIALS ARE TO BE PLACED BEYOND THE LIMIT OF WORK.
3. FILL SHALL BE STORED OUTSIDE OF THE 100-FOOT BUFFER ZONE.
4. THERE SHALL BE NO DISPOSAL OR BURIAL OF CONSTRUCTION DEBRIS WITHIN 100 FEET OF THE WETLAND, ANY DEBRIS THAT ENTERS THE BUFFER ZONE OR RESOURCE AREA SHALL BE REMOVED BY HAND.
5. EQUIPMENT SHALL NOT BE FUELED WITHIN 100 FEET OF THE RESOURCE AREA.
6. THE SEQUENCE OF CONSTRUCTION SHALL BE AS FOLLOWS
INSTALL EROSION CONTROLS
EXCAVATE AND CONSTURCT FOUNDATION
BACKFILL THE FOUNDATON INCLUDING DRIP STRIP
CONSTRUCT THE HOME
INSTALL PROPOSED TANK AAND THE SOIL ABSORPTION SYSTEM
GRADE, SPREAD LOAM, SEED, PAVE DRIVEWAY
REMOVAL OF EROSION CONTROLS SHALL ONLY BE COMPLETED WHEN SUFFICIENT VEGETATION HAS GROWN TO PREVENT EROSION OF LOAM.



INSPECTION PORT DETAIL

NTS



TRENCH CROSS SECTION

NTS
NOTE: TWO TRENCHES REQUIRED
MINIMUM DEPTH OF COVER OVER THE TRENCHES SHALL BE 12" MIN

SOIL EVALUATION:
THE SOIL EVALUATION WAS CONDUCTED ON MARCH 19, 2020 BY TED P DOUCETTE, AND WAS WITNESSED BY JAMES GARREFFI, LITTLETON BOARD OF HEALTH AGENT, NASHOBA ASSOCIATED BOARDS OF HEALTH

DEEP TEST HOLE LOGS:

DTH 1 (EL = 108.9)
0 - 8" A SANDY LOAM (FRIABLE)
8" - 32" B SANDY LOAM (FRIABLE)
32" - 110" C MEDIUM SAND AND GRVEL (LOOSE)
REDOXIMORPHIC FEATURES INDICATING GROUNDWATER WERE NOT FOUND TO A DEPTH OF 110" BELOW GRADE AT TEST HOLE 1
ESHGW EL < 99.73

DTH 2 (EL = 109.1)
0 - 10" A LOAM (VERY FRIABLE)
10' - 36" B SANDY LOAM
36" - 108" C1 SANDY LOAM (FIRM)
REDOXIMORPHIC FEATURES INDICATING GROUNDWATER WERE NOT FOUND TO A DEPTH OF 108" BELOW GRADE AT TEST HOLE 2
ESHGW EL < 100.1

DESIGN NOTES:
1. DESIGN FLOW 3 BEDROOMS AT 110 GPD/BDRM
Fd = 330 GPD
2. LTAR = 0.74 GPD/SF
3. CONVENTIONAL SOIL ABSORPTION SYSTEM
AREA REQUIRED
Ar = (330 GPD)/ (0.74 GPD/sf)
Ar = 445 sf

LENGTH REQUIRED
Lr = (445 SF)/(6 SF/LF)
Lr = 74 LF
LAYOUT: 2 TRENCHES AT 38 '
AREA PROVIDED:
Ap = (2 TR)(38 LF/TR)(6 SF/LF)
Ap= 456 SF

5. CAPACITY PROVIDED
Cp = (456 SF)*(0.74 SF/GPD)
Cp = 337 GPD

6. SEPTIC TANK CAPACITY
COMPARTMENT 1 = 48 HR CAPACITY
REQUIRED 200% Fd
C1 = 1000 GAL MINIMUM PROVIDED

COMPARTMENT 2 = 24 HR CAPACITY
REQUIRED (100% Fd)
C2 = 500 GAL MINIMUM PROVIDED

PERCOLATION TEST		
DATE: 19 MAR2020	TIME: A.M.	
NUMBER:	P–1	
LOCATION	DTH–1	
DEPTH OF PERC	36"	
PRE SOAK: START	1033	
PRE SOAK: END	CNS	
12"		
9"		
6"		
TIME 9"–6" (MIN)		
PERC RATE (MIN/IN)	<2	

GENERAL NOTES:
1. ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH 310CMR 15, TITLE 5 OF THE STATE ENVIRONMENTAL CODE AND THE LITTLETON BOARD OF HEALTH REGULATIONS.
2. NO WORK SHALL BE CONDUCTED UNTIL ALL NECESSARY PERMITS ARE OBTAINED
3. THE SEPTIC SYSTEM SHALL BE INSTALLED BY A CONTRACTOR LICENSED IN THE TOWN OF LITTLETON/NABH
4. THIS PLAN IS INTENDED FOR THE INSTALLATION OF THE SEWAGE DISPOSAL SYSTEM ONLY; PROPERTY LINES SHALL BE CONSIDERED APPROXIMATE AND SHALL NOT BE USED FOR THE LOCATION OF STRUCTURES FENCES OR OTHER PROPERTY LINE OFFSETS
5. PROPERTY LINES ARE BASED UPON THE FOLLOWING PLAN: TOPOGRAPHIC PLAN IN LITTLETON, MA AT 107 MATAWANAKEE TRAIL, SUMMIT SURVEYING, CHUCK BRENNAN PLS.
6. NO CHANGES SHALL BE MADE TO THE APPROVED PLAN WITHOUT PRIOR APPROVAL OF THE BOARD OF HEALTH AND THE ENGINEER.
7. THIS SYSTEM IS NOT DESIGNED FOR THE USE OF A GARBAGE GRINDER.

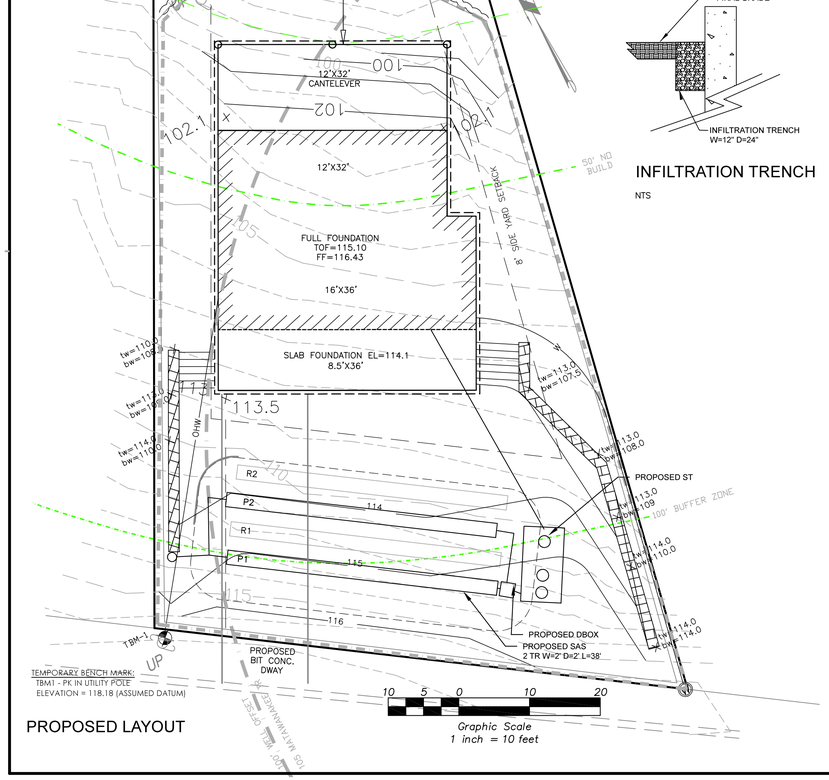
IMPLEMENTATION NOTES:
1. CONTRACTOR SHALL CONTACT DIG SAVE AT 811 OR WWW.DIGSAFE.COM, NO LESS THAN 72 HOURS PRIOR TO STARTING THEIR WORK
2. THE EXISTING SYSTEM INCLUDING THE TANK AND PIT SHALL BE PUMPED AND THEN REMOVED OR CRUSHED AND FILLED IN PLACE
3. CONTRACTOR SHALL MAINTAIN SERVICE TO THE RESIDENCE DURING CONSTRUCTION, SERVICEING SHALL BE PERFORMED AS NECESSARY.
4. CONTRACTOR SHALL COORDINATE THE INSPECTIONS WITH THE BOARD OF HEALTH AND THE ENGINEER, PROVIDE 24-HOURS NOTICE. MINIMUM INSPECTIONS SHALL INCLUDE:
- AFTER EXCAVATION - BOTTOM OF HOLE
- AFTER CONSTRUCTION IS COMPLETE, PRIOR TO BACKFILLING
- PUMP TEST, IF NECESSARY SHALL BE WITNESSED BY THE BOARD OF HEALTH
5. FINAL GRADES SHALL MEET EXISTING GRADES OR AS SHOWN ON THE PLAN. FINAL GRADING WILL BE VERIFIED BY AN AS-BUILT SURVEY
6. THE GRADING PLAN REQUIRES AT LEAST FOUR INCHES OF SCREENED LOAM OVER THE SEPTIC SYTEM AND STABILIZING DISTURBED AREA WITH NATIVE VEGETATION.
7. THE AREA UNDER THE CANTELEVER SHALL BE GRADED AND STABILIZED WITH NATURAL MATERIALS SUCH AS PEASTONE OR MULCH

SPECIFICATIONS:
GENERAL/ALL COMPONENTS
310.CMR15, AND THE REGULATIONS OF THE ASHBY BOARD OF HEALTH SHALL BE CONSIDERED PART OF THESE SPECIFICATION, ALL MATERIALS AND METHODS SHALL MEET THESE SPECIFICATIONS
ALL PIPING SHALL BE 4" MINIMUM SCH40 PVC - BUILDING SEWER AND PIPE FROM TANK TO DISTRIBUTION BOX SHALL BE SCH80 PVC.
BUILDING SEWER SHALL BE IN ACCORDANCE WITH THE PLUMBING CODE, 248CMR2.00
ALL JOINTS SHALL BE WATERTIGHT
ALL SEWAGE DISPOSAL ACCESS MANHOLES INCLUDING THE DISTRIBUTION BOX SHALL BE NO GREATER THAN NINE INCHES BELOW FINISHED GRADE.
IN ACCORDANCE WITH 310CMR15.221 ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE OR COMPARABLE MEANS IN ORDER TO LOCATE THEM ONCE BURIED
RISERS FITTED WITH CAST-IRON MANHOLE FRAMES AND COVERS OR APPROPRIATE EQUIVALENTS SHALL BE AFFIXED TO ANY SYSTEM COMPONENT WITH A DEPTH GREATER THAN 9", BRINGING ACCESS TO A POINT 6" OR LESS FROM FINAL GRADE ELEVATION.
RISERS MAYBE BE CONCRETE OR PLASTIC
ALL ACCESS COVERS AT THE SURFACE SHALL HAVE SUFFICIENT WEIGHT OR OTHERWISE BE SECURED TO PREVENT UNAUTHORIZED OPENING. RISERS MAY BE PLASTIC OR CONCRETE.
GRAVITY SEWER
ALL PIPING SHALL BE A MINIMUM OF SCH 40 PVC. STATE PLUMBING CODES SHALL SUPER SUPERSEDE THE REQUIREMENT AS NECESSARY.
SEPTIC TANK
THE SEPTIC TANK SHALL BE 1,500 GALLON TWO COMPARTMENT CONCRETE SEPTIC TANK, H10 LOADING REQUIRED, FIRST COMPARTMENT SHALL BE MINIMUM OF 1,000 GALLONS; SECOND COMPARTMENT SHALL BE MINIMUM OF 500 GALLONS
TEES SHALL BE IN ACCORDANCE WITH 310CMR15.227(6) - 14" BELOW FLOW LINE FOR 4' 4" OPERATING DEPTH.
AN EFFLUENT TEE FILTER SHALL BE INSTALLED ON THE OUTLET TEE, THE COVER OVER THE FILTER SHALL BE BROUGHT TO GRADE.
TANK SHALL BE EF SHEA TK15002C TWO COMPARTMENT SEPTIC TANK OR APPROVED EQUAL.
DISTRIBUTION BOX
THE DISTRIBUTION BOX SHALL BE CONCRETE. INVERT ELEVATIONS OF ALL OUTLETS SHALL BE EQUAL AND TWO INCHES BELOW THE INVERT OF THE INLET
OUTLET DISTRIBUTION LINES SHALL BE LEVEL FOR THE FIRST 2'.
THERE SHALL BE A MINIMUM SUMP OF 6" BELOW THE OUTLET INVERT.
DISTRIBUTION BOX ACCESS SHALL NOT BE MORE THAN 12 INCHES BUT NOT LESS THAN SIX INCHES BELOW GRADE.
SOIL ABSORPTION SYSTEM
SOIL ABSORPTION SYSTEM PIPE MAY BE SCH40 PERFORATED PVC GENERAL PURPOSE SEWER PIPE OR SDR35 PERFORATED GRAVITY SEWER PIPE
WHERE THE SOIL ABSORPTION SYSTEM IS NOT INSTALLED IN THE C -LAYER ALL UNSUITABLE MATERIAL INCLUDING THE A AND B HORIZONS, THE EXISTING SYSTEM AND ANY OTHER DELETERIOUS MATERIAL SHALL BE REMOVED FOR A DISTANCE OF FIVE FEET FROM THE LIMIT OF THE SOIL ABSORPTION SYSTEM.
THE MINIMUM COVER OVER THE SOIL ABSORPTION SYSTEM SHALL BE 12" AND FILL SHALL BE FREE OF STONES, BOULDERS GREATER THAN 6"
THE SOIL ABSORPTION SYSTEM SHALL HAVE ONE INSPECTION PORT CONSISTING OF A PERFORATED 4" PIPE PLACED VERTICALLY DOWN INTO THE NATURALLY OCCURRING SOIL OR OR SAND FILL BELOW THE SOIL ABSORPTION SYSTEM; INSPECTION PORT MUST BE ACCESSIBLE WITHIN 3 INCHES OF GRADE
THE SOIL ABSORPTION SYSTEM SHALL BE CONSTRUCTED OF THREE STONE TRENCHES. 2'X2' FOR LENGTH OF 47 FEET
STONE SHALL BE DOUBLE WASHED ¾ TO 1 ½ INCH STONE FREE OF IRON, FINES AND DUST. GEOTEXTILE SHALL BE USED IN PLACE OF THE TWO-INCH LAYER OF STONE OVER THE TRENCH IMPERVIOUS BARRIER SHALL BE 40 MIL PVC OR APPROVED EQUAL

VARIANCE REQUIRED:
TO CONSTRUCT THIS SYSTEM AS SHOWN THE LITTLETON BOARD OF HEALTH WOULD HAVE TO GRANT A VARAINCE ALLOWING A SOIL ABSORPTION SYSTEM WITHIN 100 FEET OF A WATER SUPPLY WELL.

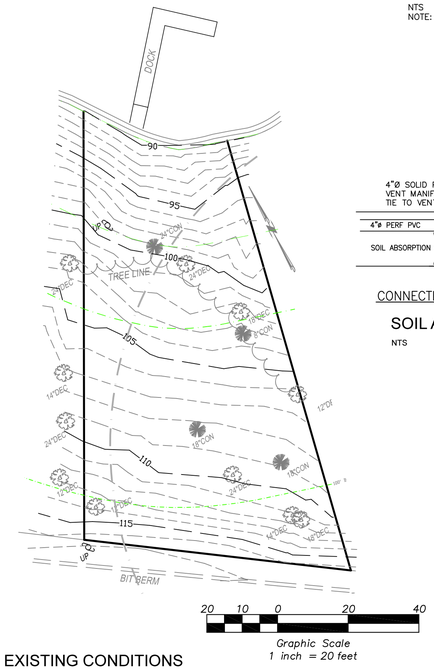
CERTIFICATION:
BY MY SIGNATURE AND STAMP BELOW, I CERTIFY THE FOLLOWING:

1. THE SYSTEM DESIGN CONFORMS WITH THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION REVISED GENERAL USE CERTIFICATION FOR ALTERNATIVE SOIL ABSORPTION SYSTEMS DATED MARCH 5, 2018, TO THE REMEDIAL USE APPROVAL COMPANY DESIGN GUIDANCE AND 310CMR15.
2. THAT ON 13NOV2003 I HAVE PASSED THE SOIL EVALUATOR EXAMINATION APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THAT THE ABOVE ANALYSIS WAS PERFORMED BY ME CONSISTENT WITH THE REQUIRED TRAINING, EXPERTISE DESCRIBED IN 310 CMR 15.017

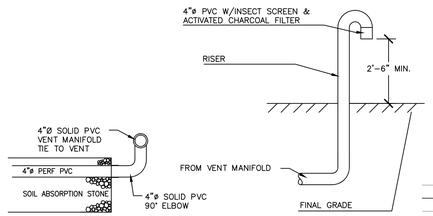


TEMPORARY BENCH MARK:
TBM1 - PK IN UTILITY POLE
ELEVATION = 118.18 (ASSUMED DATUM)

PROPOSED LAYOUT



EXISTING CONDITIONS



CONNECTION MANIFOLD RISER

SOIL ABSORPTION SYSTEM VENT

NTS

LOCUS

NTS
SOURCE: LITTLETON MAPS ONLINE

99	EXISTING CONTOUR
99	PROPOSED CONTOUR
E	BURIED ELECTRIC (EX)
E	BURIED ELECTRIC (PROP)
W	DOMESTIC WATER LINE (EX)
W	DOMESTIC WATER LINE (PROP)
G	GAS SERVICE (EX)
G	GAS SERVICE (PROP)
S	SEPTIC VENT
RD	ROOF DRAIN (PROP)
FM	FORCE MAIN
SP	SUMP PUMP DISCHARGE (PROP)
D	DRAIN (PROP)
V	VENT (PROP)
	SAW CUT
	BERM
	STONE WALL
	PROPERTY LINE (APPROX)
	EDGE OF PAVEMENT (EX)
	EDGE OF PAVEMENT (PROP)
	WOOD FENCE
	WIRE FENCE
	LIMIT OF WORK
	IMPERVIOUS BARRIER
	5' OVER EXCAVATION
	EROSION CONTROL/STRAW WATTLE
	DRAINAGE SWALE (FLOW DIRECTION
101.10 (101.10)	PROPOSED SPOT GRADE
	SPOT GRADE TO REMAIN
	DEEP TEST HOLE
	PERCOLATION TEST

LEGEND

Sewage Disposal System Design for
107 Matawanakee Road, Littleton, Massacchusetts.

DOUCETTE ENGINEERING
152 Whitcomb Avenue, Littleton, Massachusetts 01460
978.621.2138 ▪ doucette.engineering@comcast.net
www.doucetteengineering.com

Date: 02NOV2020
Scale: as noted
Sheet 1 of 1
Drawn by: TPD
Drawing number: 2020 -140
Revisions:

COMMONWEALTH OF MASSACHUSETTS
TED P. DOUCETTE
No. 45021
CIVIL
REGISTERED PROFESSIONAL ENGINEER