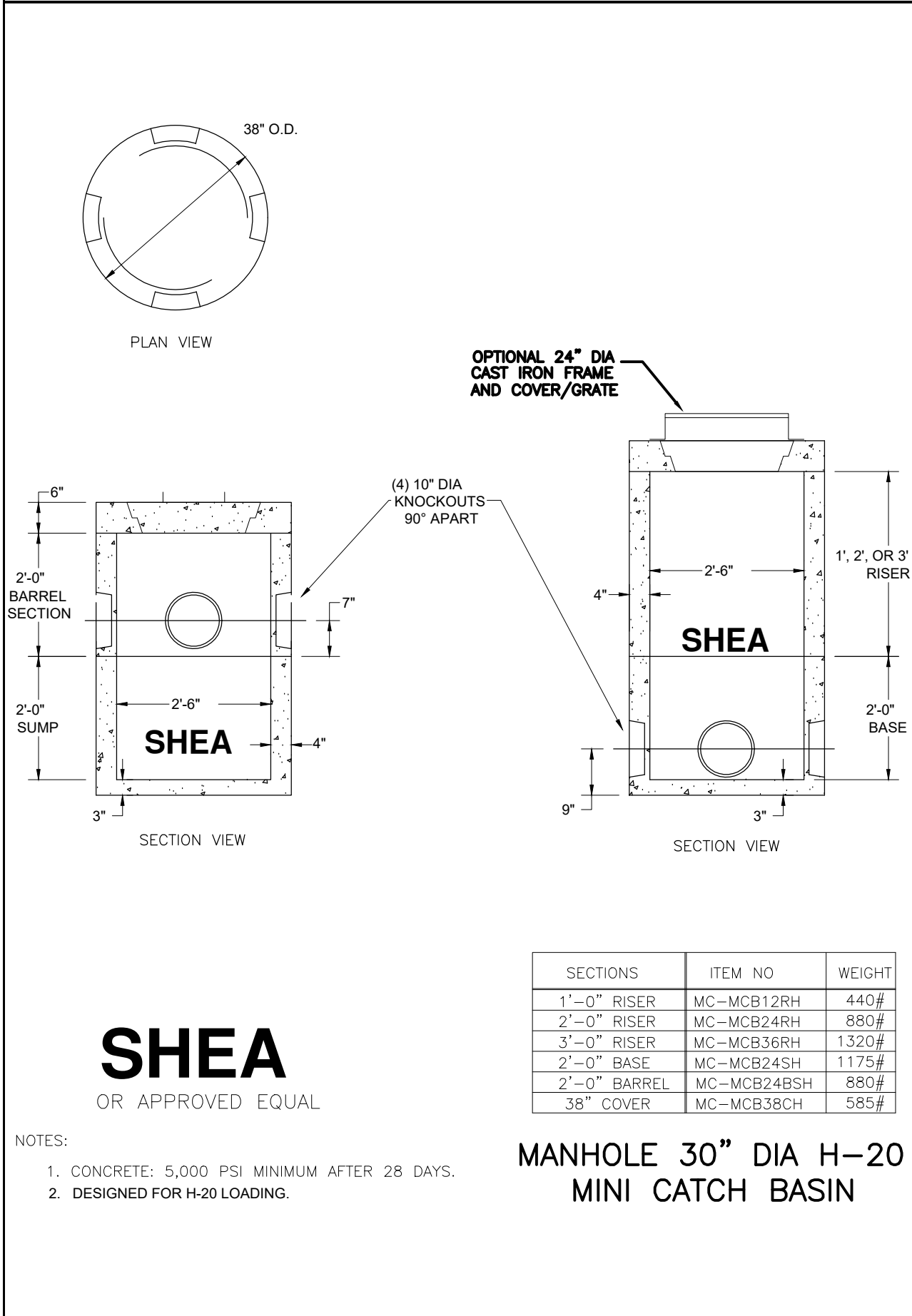


**SHEA**  
OR APPROVED EQUAL  
**1500 GALLON SEPTIC TANK MONOLITHIC 3\"/>**

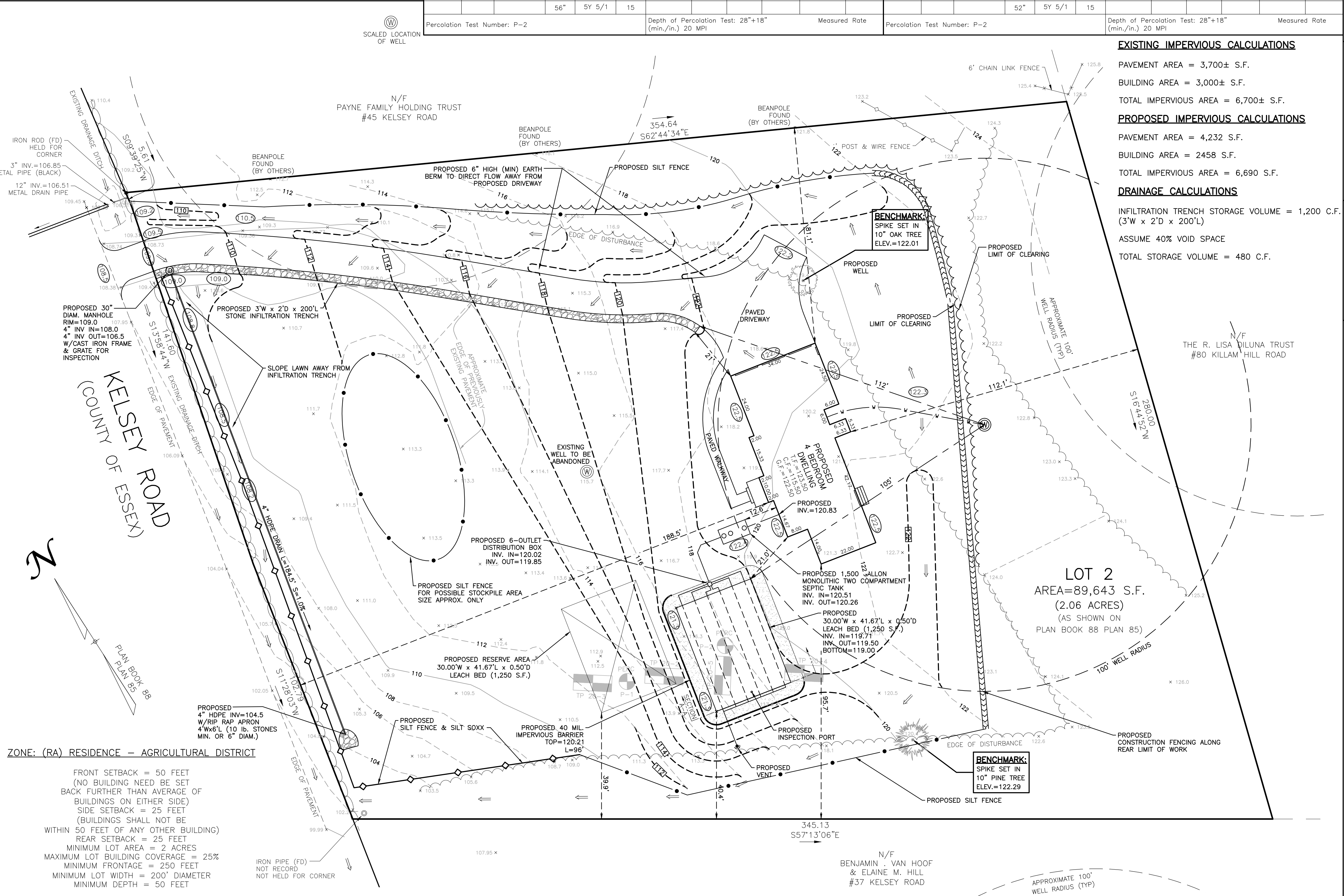
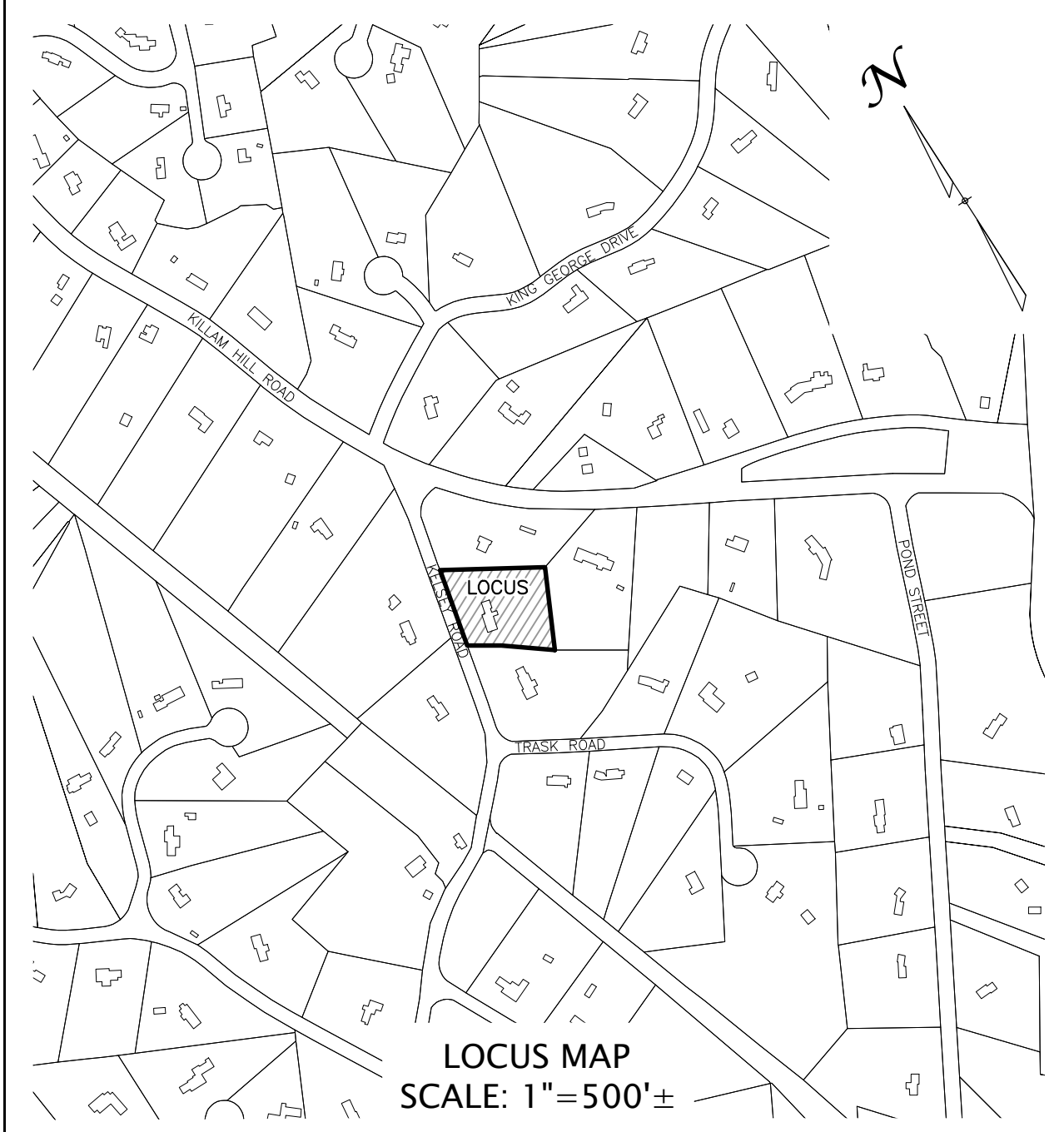
- NOTES:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
  2. DESIGN CONFORMS WITH 310 CMR 15.00, DEP TITLE 5 REGS, FOR SEPTIC TANKS.
  3. ALL REINFORCEMENT PER ASTM C1227-93.
  4. TEES AND GAS BAFFLE SOLD SEPARATELY.
  5. TONGUE & GROOVE JOINT SEALED WITH BUTYL RESIN.

Deep Observation Hole Number: TP 20-2 Date of Testing: January 14, 2020 Soil Evaluator: Thorsen Akerley/SE14016 Board of Health: Kendall Longo										Ground Surface Elevation = 114.5 ESHWGT down 46\"/>														
Depth (in.)	Soil Horizon /Layer	Soil Matrix: Color-Moist (munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other	Depth (in.)	Soil Horizon /Layer	Soil Matrix: Color-Moist (munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other	
			Depth	Color	Percent		Gravel	Cobbles & Stones							Gravel	Cobbles & Stones								
0-10	A	10YR 3/2				FSL						0-20	A	10YR 3/2				FSL						
10-30	Bw	7.5YR 5/8				SL						20-35	Bw	7.5YR 5/8				SL						
30-118	C	5Y 6/4	46"	10YR 6/8	>15	gSL						35-108	C	5Y 6/4	54"	10YR 6/8	>15	gSL						
Percolation Test Number: P-1										Depth of Percolation Test: 36"+18" Measured Rate (min./in.) 17 MPI														
Deep Observation Hole Number: TP 20-4 Date of Testing: January 14, 2020 Soil Evaluator: Thorsen Akerley/SE14016 Board of Health: Kendall Longo										Ground Surface Elevation = 119.5 ESHWGT down 56\"/>														
0-9	A	10YR 3/2				FSL					0-12	A	10YR 3/2				FSL							
9-26	Bw	7.5YR 5/8				SL					12-28	Bw	7.5YR 5/8				SL							
26-112	C	5Y 6/4	56"	10YR 6/8	>15	gSL					28-108	C	5Y 6/4	52"	10YR 6/8	>15	gSL							
Percolation Test Number: P-2										Depth of Percolation Test: 28"+18" Measured Rate (min./in.) 20 MPI														
Deep Observation Hole Number: TP 20-3 Date of Testing: January 14, 2020 Soil Evaluator: Thorsen Akerley/SE14016 Board of Health: Kendall Longo										Ground Surface Elevation = 112.3 ESHWGT down 54\"/>														
0-20	A	10YR 3/2				FSL					0-20	A	10YR 3/2				FSL							
20-35	Bw	7.5YR 5/8				SL					20-35	Bw	7.5YR 5/8				SL							
35-108	C	5Y 6/4	54"	10YR 6/8	>15	gSL					35-108	C	5Y 6/4	54"	10YR 6/8	>15	gSL							
Percolation Test Number: P-1										Depth of Percolation Test: 36"+18" Measured Rate (min./in.) 17 MPI														
Deep Observation Hole Number: TP 20-5 Date of Testing: January 14, 2020 Soil Evaluator: Thorsen Akerley/SE14016 Board of Health: Kendall Longo										Ground Surface Elevation = 116.8 ESHWGT down 52\"/>														
0-12	A	10YR 3/2				FSL					0-12	A	10YR 3/2				FSL							
12-28	Bw	7.5YR 5/8				SL					12-28	Bw	7.5YR 5/8				SL							
28-108	C	5Y 6/4	52"	10YR 6/8	>15	gSL					28-108	C	5Y 6/4	52"	10YR 6/8	>15	gSL							
Percolation Test Number: P-2										Depth of Percolation Test: 28"+18" Measured Rate (min./in.) 20 MPI														



**SHEA**  
OR APPROVED EQUAL  
**MANHOLE 30\"/>**

- NOTES:
1. CONCRETE: 5,000 PSI MINIMUM AFTER 28 DAYS.
  2. DESIGNED FOR H-20 LOADING.



ZONE: (RA) RESIDENCE -- AGRICULTURAL DISTRICT

- FRONT SETBACK = 50 FEET  
(NO BUILDING NEED BE SET BACK FURTHER THAN AVERAGE OF BUILDINGS ON EITHER SIDE)  
SIDE SETBACK = 25 FEET  
(BUILDINGS SHALL NOT BE WITHIN 50 FEET OF ANY OTHER BUILDING)  
REAR SETBACK = 25 FEET  
MINIMUM LOT AREA = 2 ACRES  
MAXIMUM LOT BUILDING COVERAGE = 25%  
MINIMUM FRONTAGE = 250 FEET  
MINIMUM LOT WIDTH = 200' DIAMETER  
MINIMUM DEPTH = 50 FEET

**EXISTING IMPERVIOUS CALCULATIONS**  
PAVEMENT AREA = 3,700± S.F.  
BUILDING AREA = 3,000± S.F.  
TOTAL IMPERVIOUS AREA = 6,700± S.F.

**PROPOSED IMPERVIOUS CALCULATIONS**  
PAVEMENT AREA = 4,232 S.F.  
BUILDING AREA = 2458 S.F.  
TOTAL IMPERVIOUS AREA = 6,690 S.F.

**DRAINAGE CALCULATIONS**  
INFILTRATION TRENCH STORAGE VOLUME = 1,200 C.F.  
(3'W x 2'D x 200'L)  
ASSUME 40% VOID SPACE  
TOTAL STORAGE VOLUME = 480 C.F.

**WILLIAMS & SPARAGES**  
150 NORTH MAIN STREET  
MIDDLETON, MA 01949  
PHONE: (978) 339-8088  
WWW.WSENGINEERS.COM

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Owner: ADVA Construction/Design, LLC  
9 Kenney Road  
Middleton, MA 01949

Applicant: Tim McManus  
9 Kenney Road  
Middleton, MA 01949  
617-417-8389

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Designed By: SML  
Drawn By: SML  
Reviewed By: PMB  
Project Manager: PMB  
Job File Number: BOXF-0074  
Drawing File Folder: BOXF74

Drawing Issued for Review Only  
 Drawing Issued for Permit  
 Drawing Issued for Construction

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SEAL

**SANITARY DISPOSAL SYSTEM DESIGN PLAN**  
41 KELSEY ROAD, BOXFORD, MA

DRAWING: S-1  
SHEET 1 OF 2

DATE: FEBRUARY 6, 2020

SCALE: 1"=20'  
DRAINAGE DESIGN  
DPW COMMENTS