NOTES:

1. THERE ARE NO WETLAND RESOURCE AREAS WITHIN 100 FEET OF THE PROPOSED LEACHING AREA. PLEASE REFER TO THE ORDER OF RESOURCE AREA DELINEATION ISSUED BY THE MIDDLETON CONSERVATION COMMISSION ON MAY 22, 2003 (DEP FILE #222-0455).

2. THIS LOT DOES NOT LIE WITHIN A NITROGEN SENSITIVE AREA. HOWEVER, THE PROJECT INVOLVES NEW RESIDENTIAL CONSTRUCTION WITH THE USE OF BOTH ON-SITE SEWAGE DISPOSAL AND A DRINKING WATER SUPPLY WELL. AS SUCH, LOT 10 IS SUBJECT TO THE NITROGEN LOADING LIMITATIONS AS OUTLINED IN SECTION 310 CMR 15.214. THIS LIMITS THE DESIGN FLOW OF THE SYSTEM TO 440 GALLONS PER DAY PER ACRE (40,000 SF IN TITLE 5). SINCE THE SUBJECT PROPERTY CONTAINS APPROXIMATELY 3.90 ACRES, THIS WOULD TRANSLATE TO A MAXIMUM DAILY DESIGN FLOW OF APPROXIMATELY 1,716 GALLONS PER DAY. AT PRESENT, THE PROPOSED SYSTEM IS DESIGNED FOR A DAILY FLOW OF 750 GALLONS PER DAY, WHICH IS MUCH LESS THAN 1,716.

3. ELEVATIONS BASED ON NGVD OF 1929.

4. TOTAL NUMBER OF HABITABLE ROOMS NOT TO EXCEED ELEVEN ROOMS WITHOUT DEED RESTRICTION IN ACCORDANCE WITH 310 CMR 15.002.

5. A NO-DISTURB LINE SHALL BE DEMARCATED WITH 2-FOOT DIAMETER ROCKS PLACED APPROXIMATELY EVERY 15 FEET ALONG SAID LINE. REFER TO ORDER OF CONDITIONS FOR DEP FILE NO. 222-540.

6. THE NO-DISTURB LINE FROM WETLAND FLAG E-9 TO WETLAND FLAG E-19 HAS BEEN EXTENDED FURTHER UP THE SLOPE TO THE SILT FENCE LINE. ALONG THIS SECTION OF NO-DISTURB THE LINE SHALL BE DEMARCATED WITH 2-FOOT DIAMETER ROCKS PLACED APPROXIMATELY EVERY 4 FEET ALONG SAID LINE OR WITH A SHORT STONE WALL.

I CERTIFY THAT IN NOVEMBER 1994, I PASSED THE SOIL EVALUATOR EXAMINATION APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THAT THE SOIL LOGGING WAS PERFORMED BY ME CONSISTENT WITH THE REQUIRED TRAINING, EXPERTISE AND EXPERIENCE DESCRIBED IN 310 CMR 15.017.

SIGNATURE: for: WGK DATE: 11-10-2009

OWNER/APPLICANT:
DARLENE L. BUONOPANE
127 EAST STREET
MIDDLETON, MA 10949

ZONE: RA

MINIMUM SETBACKS:
FRONT = 25'
SIDE = 30'
REAR = 30'

MIN. FRONTAGE=150'
MIN. LOT AREA= 2 ACRES (87,120 S.F.)

LOT WIDTH = 200' AT THE BUILDING
LOT WIDTH = 112.5' TO THE BUILDING
CONSERVANCY DISTRICT ELEVATION 50

LOT 8A
169,966 S.F.
3.90 AC

LOT 9A

ROSS LANE

SYSTEM PLOT PLAN
SCALE: 1"=20'

NOVEMBER 6, 2009-LOWER SEPTIC SYSTEM 1-FT
APRIL 8, 2008-INCREASE NO-DISTURB AREA
MARCH 31, 2008-ADDED SPORTS COURT

REVISION DATES:
MARCH 3, 2005
JUNE 30, 2005
MARCH 31, 2008
APRIL 8, 2008
NOVEMBER 6, 2009

SHEET 1 OF 2

DESIGN: E. STEARNS
DRAWN: P. YETMAN
CHECKED: C. SPARAGES
SCALE: AS NOTED
DATE: FEB. 15, 2005

REGISTERED PROFESSIONAL ENGINEER
DATE: 11-10-2009

603 SALEM STREET
WAKEFIELD, MASS. 01880
TEL. (781) 246-2800

HAYES ENGINEERING, INC.
CIVIL ENGINEERS &
LAND SURVEYORS

#19 ROSS LANE
LOT #8A
169,966 S.F.
ASSESSORS MAP 7 PARCEL 11G

TOWN OF MIDDLETON, MASSACHUSETTS

SANITARY DISPOSAL
SYSTEM PLAN

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P139-F2-P57A

DESCRIPTION OF HORIZONS

TEXTURE:

gravel	-g	gravelly sandy loam	-gsl
very coarse sand	-vcos	loam	-l
coarse sand	-cos	gravelly loam	-gl
sand	-s	stony loam	-stl
fine sand	-fs	silt	-si
very fine sand	-vfs	silt loam	-sil
loamy coarse sand	-lcos	clay loam	-cl
loamy sand	-ls	silty clay loam	-sicl
loamy fine sand	-fs	sandy clay loam	-scl
sandy loam	-sl	stony clay loam	-stcl
fine sandy loam	-fsl	silty clay	-sic
very fine sandy loam	-vfsl	clay	-c

CONSISTENCE:

Wet soil:		Moist soil:		Dry soil:	
nonsticky	-wso	loose	-ml	loose	-dl
slightly sticky	-wss	very friable	-mvfr	soft	-ds
sticky	-ws	friable	-mfr	slightly hard	-dsh
very sticky	-wvs	firm	-mfi	hard	-dh
nonplastic	-wpo	very firm	-mvfi	very hard	-dvh
slightly plastic	-wps	extremely firm	-mefi	extremely hard	-deh
plastic	-wp				
very plastic	-wvp				

STRUCTURE:

Grade:		Form or Type:	
structureless	-0	platy	-pl
weak	-1	prismatic	-pr
moderate	-2	columnar	-cpr
strong	-3	blocky	-bk
		angular blocky	-abk
Size:		subangular blocky	-sbk
very fine	-vf	granular	-gr
fine	-f	single grain	-sg
medium	-m	massive	-m
coarse	-c	loose	-l
very coarse	-vc		

MOTTLING:

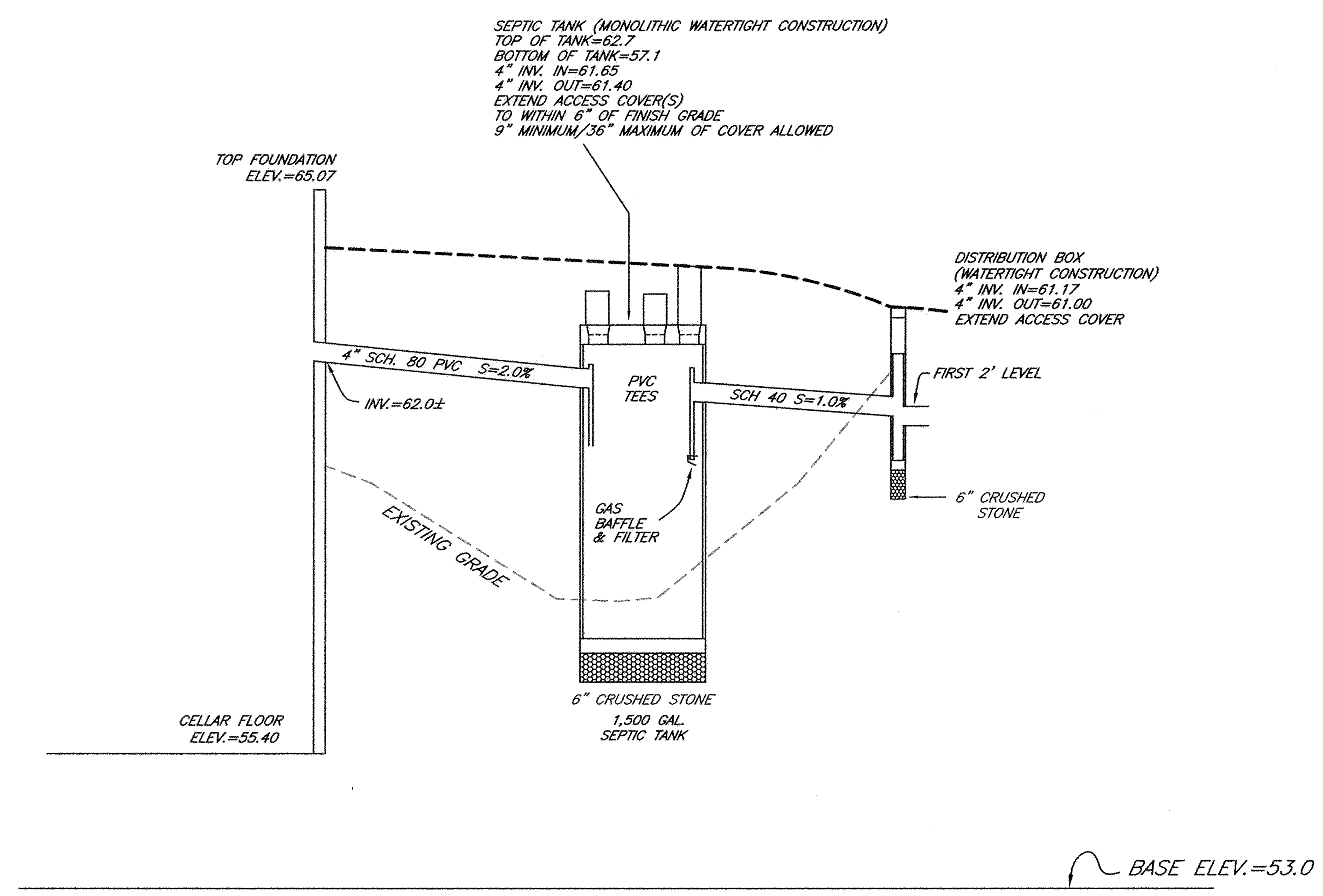
Abundance:			Contrast:	
few	-f	(0-2%)	faint	-f
common	-c	(2-20%)	distinct	-d
many	-m	(20-100%)	prominent	-p

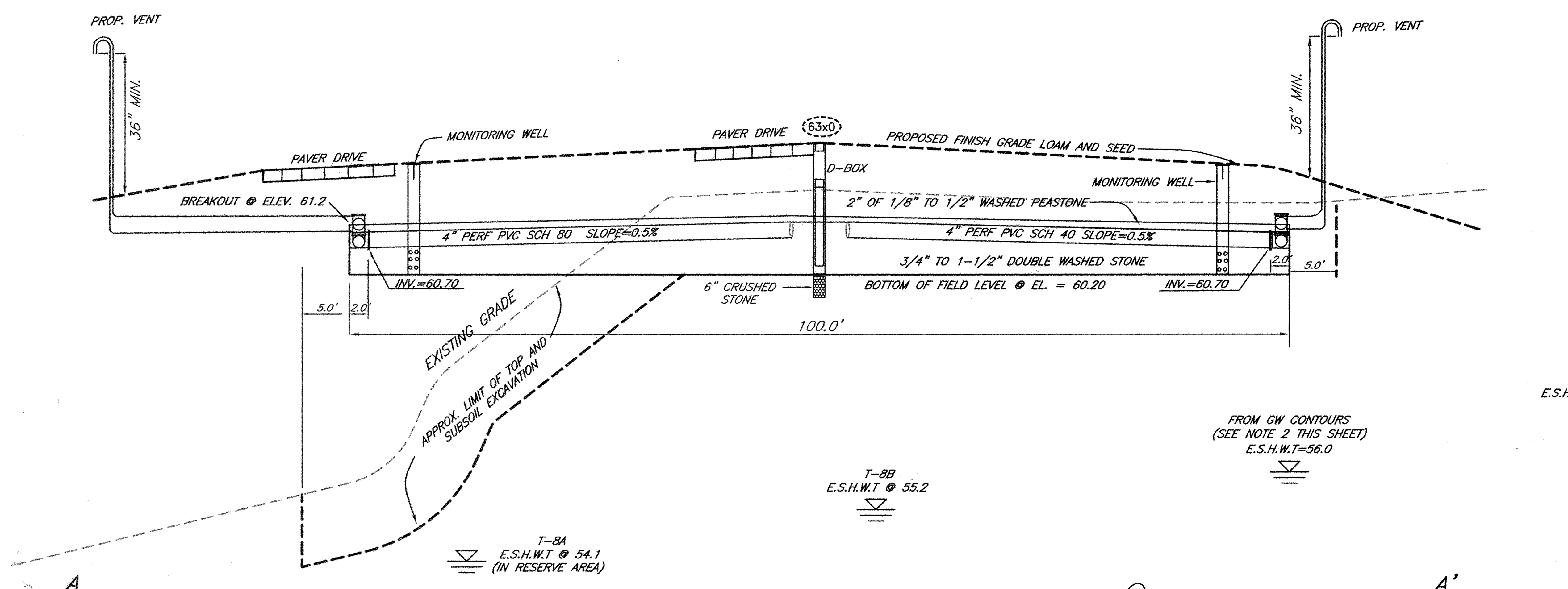
Size:	
fine	-1
medium	-2
coarse	-3

NOTES:

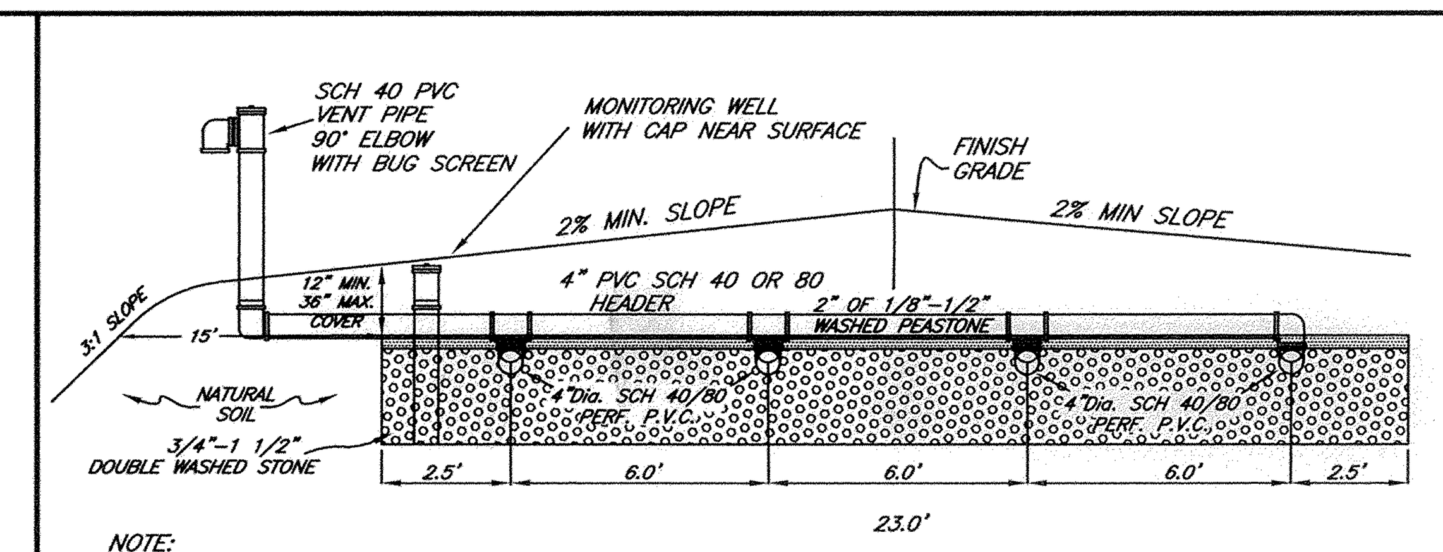
1. CONTRACTOR TO USE SCHEDULE 80 PVC PIPING FOR SEPTIC SYSTEM COMPONENTS UNDER PAVEMENT PER LOCAL MIDDLETON BOARD OF HEALTH REGULATIONS.

2. SEE ALSO ESHGWT GROUNDWATER MAP, FIGURE 1, BY HAYES ENGINEERING, INC., DATED 11/9/2009.



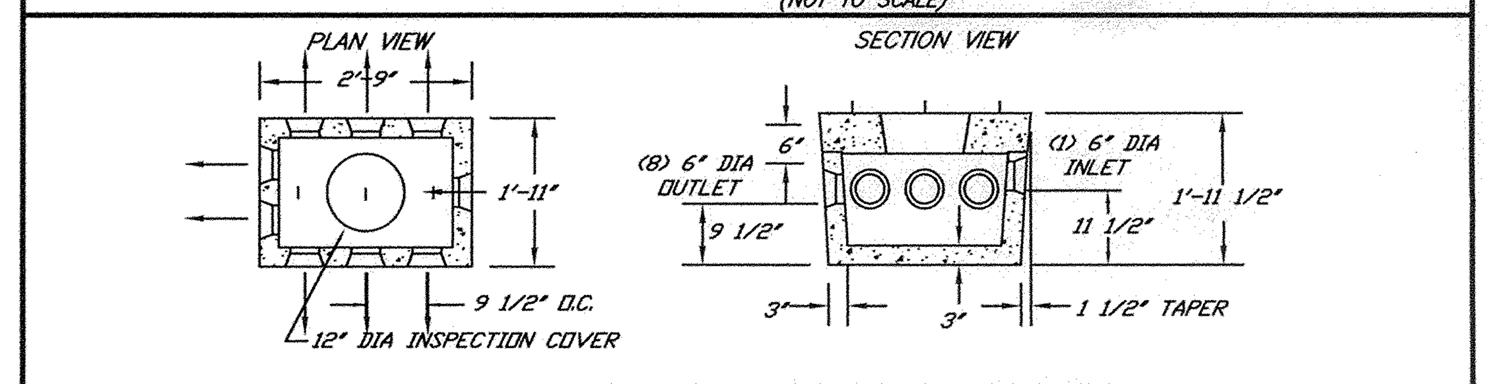


LEACHING FIELD PROFILE A - A'
1"=10' (HOR)
1"=2' (VERT)



NOTE:
ALL PIPE UNDER DRIVEWAY
SHALL BE 4" PVC SCH 80

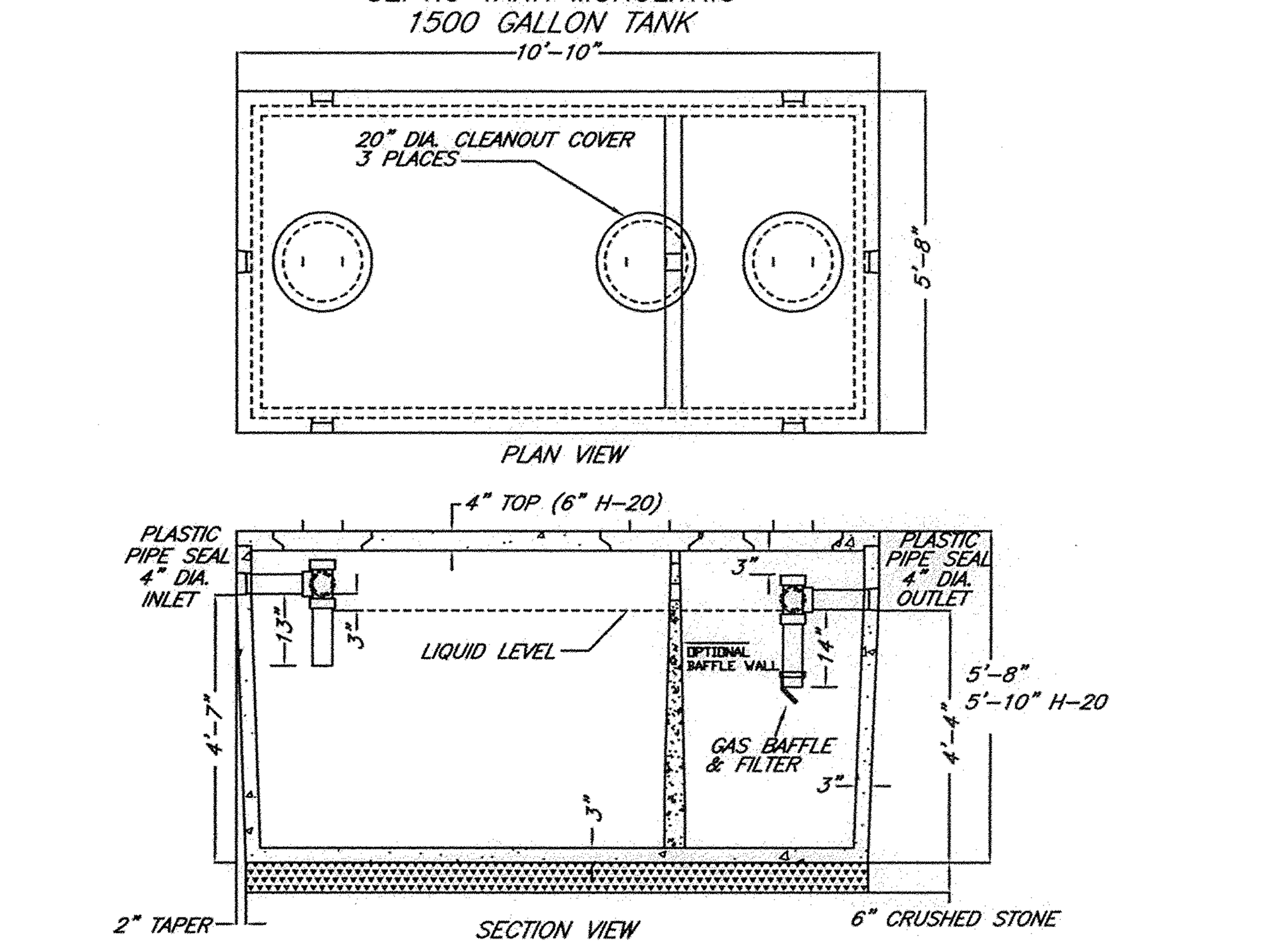
LEACHING FIELD END SECTION DETAIL
(NOT TO SCALE)



NOTE: SHEA B-8DBH SHOWN, AN EQUIVALENT MAY BE SUBSTITUTED.

PRECAST DISTRIBUTION BOX DETAIL
H-20 LOADING
NOT TO SCALE

SEPTIC TANK MONOLITHIC
1500 GALLON TANK



NOTES:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. DESIGN CONFORMS WITH 310 CMR 15.00, DEP TITLE 5 REGS.
3. ALL REINFORCEMENT PER ASTM C1227-93.
4. BAFFLE WALL OPTIONAL FOR TWO COMPARTMENT TANKS.
4. TEES AND GAS BAFFLE SOLD SEPARATELY.
5. TONGUE & GROOVE JOINT SEALED WITH BUTYL RESIN.
6. ALSO AVAILABLE IN H-20 LOADING
7. TANK TO BE SET UPON 6" OF 3/4" TO 1-1/2" CRUSHED STONE.
8. TANK SHOWN IS SHEA TKM1500, AN EQUIVALENT MAY BE SUBSTITUTED.

DESIGN DATA:

NUMBER OF BEDROOMS: 5
DESIGN FLOW: 150 G.P.D. / B.R.
DAILY FLOW: 5 x 150 G/BR = 750 GPD
SEPTIC TANK REQUIRED:750x2= 1,500 GAL
SEPTIC TANK USED: 1,500 GALLON
LEACH AREA REQUIRED: 2,273 S.F.
LEACH AREA USED: 2,300 S.F.
NO GARBAGE DISPOSALS ALLOWED

REQUIRED: 5 BR @CLASS II SOILS(0.33 G/SF)
750 GPD/ 0.33 G/SF= 2,273 S.F.

PROVIDED:
23' x 100' FIELD
TOTAL LEACH AREA = 2,300 S.F.
NO GARBAGE DISPOSALS ALLOWED

SOIL LOGS:

DATE OF TESTS: 3-24-03 OBS.HOLE
3-25-03 PERC 8-B
3-26-03 PERC 8-A II

PRESENT AT TESTS:
SOIL EVALUATOR: CHRIS SPARAGES
GORDON ROGERSON
BOARD OF HEALTH: LEO F. CORMIER
ALEX PARKER 6-16-03

PERCOLATION RATE: P8AII-28 M/I@56" DN
P8A-5 M/I@57"DN.

SOIL LOGS

DEPTH	HORIZON	TEXTURE	COLOR	MOTTLING	STRUCTURE	CONSIST.	% GRAVEL
TESTHOLE: T-8A						ELEVATION=58.6'	
00"-06"	A	fsl	10YR 3/4	-	gr	mfr	0/0/0
06"-16"	Bw	fsl	7.5YR 5/6	-	gr	mfr	0/5/5/0
16"-52"	C1	st. sl	2.5Y 5/4	-	gr	mfr	5/5/15/5
52"-102"	C2	gr ls	2.5Y 5/3	7.5YR 5/6 2.5Y 6/4	m	mvfr	15/5/10/0 ROOTS TO 54"
NO REFUSAL; STATIC WATER 84" DN.; WEEPING 74" DN. ESTIMATED SEASONAL HIGH WATER TABLE DOWN 54" AT ELEVATION=54.1'							
TESTHOLE: T-8B						ELEVATION=62.0'	
00"-06"	A	fsl	10YR 3/4	-	gr	mfr	0/0/0
06"-16"	Bw	fsl	7.5YR 5/6	-	gr	mfr	0/0/5/0
16"-37"	C1	fsl	2.5Y 5/6	7.5YR 4/6	m	mfr	5/5/5/0
37"-98"	C2	gr ls	2.5Y 5/3	2.5Y 6/3	m	mvfr	15/5/10/0
98"-118"	C3	f/m s	2.5Y 5/4	7.5YR 4/4 m3p	l sg	mvfr	
NO REFUSAL; STATIC WATER 106" DN.; NO WEEPING ESTIMATED SEASONAL HIGH WATER TABLE DOWN 82" AT ELEVATION=55.2							
TESTHOLE: T9-3-05						ELEVATION=65.0'	
00"-06"	Ap	fsl	10YR 3/3	-	gr	fr	0/0/0
06"-28"	Bw	fsl	10YR 5/6	-	gr	fr	0/0/0
28"-94"	C1	gr ls	2.5Y 5/4	-	m	vfr	25/20/20/0
94"-144"	C2	gr sl	2.5Y 6/3	10YR 6/8 5Y 7/2	pl	fr	10/10/10/5
NO REFUSAL; STATIC WATER 131" DN.; WEEPING @ 94" ESTIMATED SEASONAL HIGH WATER TABLE DOWN 94" AT ELEVATION=57.2							
TESTHOLE: T9-2-05						ELEVATION=67.7'	
00"-07"	A	fsl	10YR 3/3	-	gr	fr	0/0/0
07"-24"	Bw	fsl	10YR 5/6	-	gr	fr	0/0/0
24"-113"	C1	gr ls	2.5Y 5/4	-	m	vfr	15/20/20/10
113"-125"	C2	sl	2.5Y 6/4	-	pl	fr	0/0/0
	R						
REFUSAL 125" DN; NO STATIC WATER; NO WEEPING ESTIMATED SEASONAL HIGH WATER TABLE DOWN 113" AT ELEVATION=58.3							
TESTHOLE: T9-1-05						ELEVATION=66.7'	
00"-08"	A	fsl	10YR 3/3	-	gr	fr	0/0/0
08"-29"	Bw	fsl	10YR 5/6	-	gr	fr	0/0/0
29"-132"	C	gr ls	2.5Y 5/4	-	m	fr	15/20/20/10
NO REFUSAL ; NO STATIC WATER; WEEPING @ 120" DN ESTIMATED SEASONAL HIGH WATER TABLE DOWN 102" AT ELEVATION=58.2							

Hayes Engineering, Inc. has been retained to furnish a septic system design plan to the client but has not been retained to construct or supervise construction of the system.

In view of same, no guarantee or warranty, express or implied, is made to the client or to the ultimate user relative to any system installed pursuant to the plan.

Hayes does represent that the plan meets the requirements of the State Code, Title 5, except where variances are noted.

1. THE GENERAL CONTRACTOR IS TO BE RESPONSIBLE FOR HORIZONTAL AND VERTICAL CONTROL OF ALL SYSTEM COMPONENTS.
2. THIS PLAN IS TO SHOW THE DESIGN OF THE SUBSURFACE SEWAGE DISPOSAL SYSTEM ONLY. THE SYSTEM IS DESIGNED FOR FLOWS ESTIMATED UNDER DESIGN CRITERIA.
3. SYSTEM IS DESIGNED ONLY TO ACCOMMODATE SANITARY SEWAGE ASSOCIATED WITH NORMAL DOMESTIC USAGE AND CONSISTING OF WATER-CARRIED PUTRESCIBLE WASTE.
4. THE SYSTEM IS NOT DESIGNED FOR GARBAGE GRINDERS.
5. THE SYSTEM SHALL BE VENTED THROUGH BUILDING PLUMBING AS REQUIRED BY BUILDING CODE.
6. PROPERTY LINES AND BUILDING LOCATIONS ARE GRAPHIC ONLY, PROPERTY LINES NOT HAVING BEEN VERIFIED, NO REPRESENTATION AS TO THE ACCURACY OR CERTIFICATION OF THOSE SHOWN IS IMPLIED OR INTENDED.
7. APPLICABLE ZONING REGULATIONS SHALL BE CONFIRMED BY THE OWNER PRIOR TO CONSTRUCTION.
8. THE PLAN SHOWS ONLY THOSE FEATURES THAT WERE VISUALLY APPARENT ON THE DATE OF TOPOGRAPHY AND THE ABSENCE OF SUBSURFACE STRUCTURES, UTILITIES, ETC. DOES NOT MEAN THAT THEY DO NOT EXIST..
9. THE INSTALLER OF THIS SYSTEM MUST BE LICENSED BY THE LOCAL BOARD OF HEALTH.
10. THERE ARE NO EXISTING WELLS WITHIN 100 FEET OF THE PROPOSED SEWAGE DISPOSAL SYSTEM, TO THE BEST OF OUR KNOWLEDGE.
11. DISPOSAL SYSTEM AREAS ARE TO BE RAKED (SCARIFIED) BEFORE INSTALLATION OF STONE. ALL STONES EXCEEDING 2 INCHES IN DIAMETER AND ALL FOREIGN MATERIAL ENCOUNTERED DURING EXCAVATION ARE TO BE REMOVED FROM THE LEACHING AREA BED SURFACE.
12. FINISHED SURFACE OF THE LEACHING AREA SHALL BE GRADED TO ASSURE WATER RUNOFF (2 % MINIMUM SLOPE).
13. ALL DISTURBED AREAS TO BE LOAMED, SEEDED, AND MAINTAINED TO PREVENT EROSION.
14. THE SEPTIC TANK SHALL BE PERIODICALLY INSPECTED AND MAINTAINED AND SHOULD BE PUMPED WHEN SLUDGE IN THE BOTTOM EXCEEDS 1/4 OF THE DEPTH.
15. ALTERNATE MANUFACTURERS FOR CONCRETE STRUCTURES AND EQUIPMENT SHOWN ON THESE PLANS MAY BE USED UPON THE WRITTEN APPROVAL OF THE DESIGN ENGINEER. ALTERNATE MANUFACTURERS WILL NOT BE USED IF THE USE OF THEIR EQUIPMENT REQUIRES DESIGN CHANGES.
16. IF ANY PART OF THIS DESIGN IS TO BE ALTERED IN ANY WAY, THE DESIGN ENGINEER AS WELL AS THE APPROVING AUTHORITIES SHALL BE NOTIFIED IN WRITING BEFORE CONSTRUCTION.
17. ALL WORK IS TO COMPLY WITH THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION STATE SANITARY CODE, TITLE 5 AND ANY LOCAL BOARD OF HEALTH SUPPLEMENTARY REGULATIONS.
18. THE LOCAL BOARD OF HEALTH AGENT WILL CONDUCT PERIODIC INSPECTIONS AS NEEDED.
19. THESE PLANS AND SPECIFICATIONS ARE INTENDED TO BE EXPLANATORY OF THE WORK TO BE DONE AND OF EACH OTHER, BUT SHOULD ANY OMISSION, ERRORS, OR DISCREPANCIES APPEAR, THEY SHALL BE SUBJECT TO CORRECTION AND INTERPRETATION BY THE DESIGN ENGINEER THEREBY DEFINING AND FULFILLING THE INTENT OF THE PLANS.
20. CONTRACTOR TO NOTIFY ENGINEER OF ANY SITE CONDITION DIFFERING FROM THOSE INDICATED.
21. ALL WORK AND MATERIALS SHALL CONFORM TO THE APPLICABLE SECTIONS OF TITLE 5 OF THE STATE ENVIRONMENTAL CODE.
22. DESIGNER TO SUBMIT AN AS-BUILT PLAN OF SYSTEM WITHIN TWO WEEKS FROM FINAL INSPECTION.
23. GENERAL CONTRACTOR TO CHECK BETWEEN BENCHMARKS SHOWN ON THIS PLAN.

MATERIAL NOTES:

LEACH BEDDING:

A. CLEAN DOUBLE WASHED STONE SHALL BE FREE OF IRONS, FINES, DUST AND ORGANIC MATTER AS LAID.
B. BOTTOM STONE IN LEACH BED SHALL BE 3/4" TO 1-1/2" DOUBLE WASHED STONE AS INDICATED IN NOTE "A." ABOVE.
C. TOP STONE IN LEACH BED SHALL BE 1/8" TO 1/2" DOUBLE WASHED PEASTONE AS INDICATED IN NOTE "A." ABOVE.

CONSTRUCTION NOTES:

EXCAVATE ALL TOPSOIL, SUBSOIL, AND ANY OTHER UNSUITABLE MATERIAL WITHIN THE LIMITS OF EXCAVATION AND REPLACE TO TOP OF PEASTONE ELEVATION WITH SELECT ON-SITE OR IMPORTED SOIL MATERIAL, CONSISTING OF CLEAN GRANULAR SAND, FREE FROM ORGANIC MATTER AND DELETERIOUS SUBSTANCES.

FILL MATERIAL SHALL NOT CONTAIN ANY MATERIAL LARGER THAN TWO (2) INCHES. THE FILL MATERIAL SHALL COMPLY WITH TITLE 5, STATE ENVIRONMENTAL CODE 310 CMR 15.255 (3) AS REVISED. REPLACEMENT MATERIAL TO BE TESTED BY BOARD OF HEALTH AGENT OR DESIGN ENGINEER. DESIGN ENGINEER TO VERIFY BOTTOM OF TRENCH ELEVATION PRIOR TO INSTALLING STONE. DESIGN ENGINEER TO INSPECT TOPSOIL AND SUBSOIL REMOVAL. DESIGN ENGINEER TO INSPECT EXCAVATION WITH FILL IN PLACE. DESIGN ENGINEER TO INSPECT AND CERTIFY THE AS-BUILT INFORMATION. CONTRACTOR TO SUPPLY TO THE TOWN A CURRENT SIEVE TEST ANALYSES REPORT AT THEIR OWN EXPENSE IF REQUIRED.

LEGEND OF SYMBOLS & ABBREVIATIONS

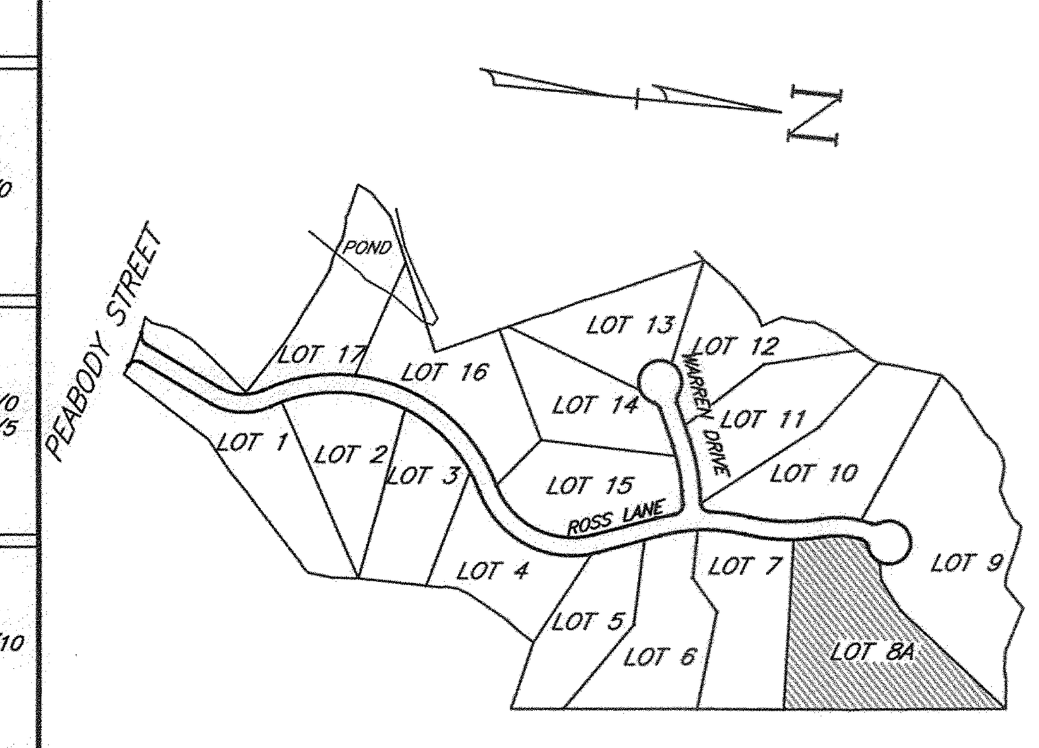
125.2 × — EXISTING SPOT ELEVATIONS
120 — EXISTING CONTOURS
(125x0) — PROPOSED SPOT ELEVATIONS
126 — PROPOSED CONTOURS
W — WATER SUPPLY LINE
TP — TEST HOLE
— PERC TEST
— DRAIN MANHOLE
— CATCH BASIN

BENCHMARK REFERENCE:

*SEE PLAN VIEW

SPIKE IN 24" PINE
ELEV=60.52

SPIKE IN 12"OAK
ELEV=70.33



VICINITY MAP
SCALE: 1"=2000'±

REVISION DATES:
MARCH 3, 2005
JUNE 30, 2005
APRIL 8, 2008
NOVEMBER 6, 2009

SHEET 2 OF 2

DESIGN: E. STEARNS
DRAWN: P. YETMAN
CHECKED: C. SPARAGES
SCALE: AS NOTED
DATE: FEB. 15, 2005

REGISTERED PROFESSIONAL ENGINEER
DATE: 11-10-2009

COMMONWEALTH OF MASSACHUSETTS
CHRISTP. SPARAGES
CIVIL
No. 40174
REGISTERED PROFESSIONAL ENGINEER

HAYES ENGINEERING, INC.
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169,966 S.F.
ASSESSORS MAP 7 PARCEL 11G

TOWN OF MIDDLETON, MASSACHUSETTS

SANITARY DISPOSAL SYSTEM PLAN

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