GENERAL NOTES:

A.) NEITHER DRIVEWAYS NOR PARKING AREAS ARE ALLOWED OVER SEPTIC SYSTEM UNLESS H-20 COMPONENTS ARE USED.

B.) THE DESIGNER WILL NOT BE RESPONSIBLE FOR THE SYSTEM AS DESIGNED UNLESS CONSTRUCTED AS SHOWN. ANY CHANGES SHALL BE APPROVED IN WRITING.

C.) CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL UNDERGROUND AND OVERHEAD UTILITIES PRIOR TO COMMENCEMENT OF WORK.

CONSTRUCTION NOTES:

1.) ALL CONSTRUCTION SHALL CONFORM TO THE STATE ENVIRONMENTAL CODE, TITLE 5, AND THE REQUIREMENTS OF THE LOCAL BOARD OF HEALTH.

2.) SEPTIC TANK(S), GREASE TRAP(S), DOSING CHAMBERS(S) AND DISTRIBUTION BOX(ES) SHALL BE SET ON A LEVEL STABLE BASE WHICH HAS BEEN MECHANICALLY COMPACTED, OR ON A 6 INCH CRUSHED STONE BASE.

3.) SEPTIC TANK(S) SHALL MEET ASTM STANDARD C1127-93 AND SHALL HAVE AT LEAST THREE 20" DIAMETER MANHOLES. THE MINIMUM DEPTH FROM THE BOTTOM OF THE SEPTIC TANK TO THE FLOW LINE SHALL BE 48".

4.) SCHEDULE 40 PVC INLET AND OUTLET TEES SHALL EXTEND A MINIMUM OF 6" ABOVE THE FLOW LINE OF THE SEPTIC TANK AND SHALL BE INSTALLED ON THE CENTERLINE OF THE TANK DIRECTLY UNDER THE CLEANOUT MANHOLE.

5.) RAISE COVERS OF THE SEPTIC TANK AND DISTRIBUTION BOX WITH PRECAST CONCRETE WATER TIGHT RISERS OVER INLET AND OUTLET TEES TO WITHIN 6" OF FINISH GRADE.

6.) PIPING SHALL CONSIST OF 4" SCHEDULE 40 PVC OR EQUIVALENT. PIPE SHALL BE LAID ON A MINIMUM CONTINUOUS GRADE OF NOT LESS THAN 1%.

7.) DISTRIBUTION LINES FOR SOIL ABSORPTION SYSTEM (AS REQUIRED) SHALL BE 4" DIAMETER SCHEDULE 40 PVC LAID AT 0.005 FT/FT. LINE SHALL BE CAPPED AT END OR AS NOTED.

8.) OUTLET PIPES FROM DISTRIBUTION BOX SHALL REMAIN LEVEL FOR AT LEAST 2' BEFORE PITCHING TO SOIL ABSORPTION SYSTEM. WATER TEST DISTRIBUTION BOX TO ASSURE EVEN DISTRIBUTION.

9.) DISTRIBUTION BOX SHALL HAVE A MINIMUM SUMP OF 6" MEASURED BELOW THE OUTLET INVERT.

10.) BASE AGGREGATE FOR THE LEACHING FACILITY SHALL CONSIST OF 3/4" TO 1-1/2" DOUBLE WASHED STONE FREE OF IRON, FINES AND DUST AND SHALL BE INSTALLED BELOW THE CROWN OF THE DISTRIBTION LINE TO THE BOTTOM OF THE SOIL ABSORPTION SYSTEM. BASE AGGREGATE SHALL BE COVERED WITH A 2" LAYER OF 1/8" TO 1/2" DOUBLE WASHED STONE FREE OF IRON, FINES AND DUST.

11.) VENT SOIL ABSORPTION SYSTEM WHEN DISTRIBUTION LINES EXCEED 50 FEET; WHEN LOCATED EITHER IN WHOLE OR IN PART UNDER DRIVEWAYS, PARKING AREAS, TURNING AREAS OR OTHER IMPERVIOS MATERIAL; OR WHEN PRESSURE DOSED.

12.) SOIL ABSORPTION SYSTEM SHALL BE COVERED WITH A MINIMUM OF 9" OF CLEAN MEDIUM SAND (EXCLUDING TOPSOIL).

13.) FINISH GRADE SHALL BE A MAXIMUM OF 36" OVER THE TOP OF ALL SYSTEM COMPONENTS, INCLUDING THE SEPTIC TANK, DISTRIBUTION BOX, DOSING CHAMBER AND SOIL ABSORPTION SYSTEM. SEPTIC TANKS SHALL HAVE A MINIMUM COVER OF 9".

14.) FROM THE DATE OF INSTALLATION OF THE SOIL ABSORPTION SYSTEM UNTIL RECEIPT OF A CERTIFICATE OF COMPLIANCE, THE PERIMETER OF THE SOIL ABSORPTION SYSTEM SHALL BE STAKED AND FLAGGED TO PREVENT THE USE OF SUCH AREA FOR ALL ACTIVITIES THAT MIGHT DAMAGE THE SYSTEM.

15.) THE BOARD OF HEALTH SHALL REQUIRE INSPECTION OF ALL CONSTRUCTION BY AN AGENT OF THE BOARD OF HEALTH (OR THE DESIGNER IF THIS SYSTEM REQUIRES A VARIANCE) AND MAY REQUIRE SUCH PERSON TO CERTIFY IN WRITING THAT ALL WORK HAS BEEN COMPLETED IN ACCORDANCE WITH THE TERMS OF THE PERMIT AND APPROVED PLANS. 48 HOURS ADVANCE NOTICE IS REQUESTED.

BUOYANCY CALCULATIONS:

MICROFAST 0.5 UNIT

F_B = (10.3' X 6.1' X 3.3') 62.4 LB/CF
= 12,938 lbs
F_W = TANK WEIGHT
=13,632 lbs. (Per. Spec)
F_W = 13,632 lbs > F_B = 12,938 lbs

(Based On High Groundwater EL=3.49)

1000 GALLON MONO PUMP CHAMBER

F_B = (8.3' X 5.4' X 3.5') 62.4 LB/CF
= 9,789 lbs
F_W = TANK WEIGHT + SOIL COVER
=8,240 lbs. (Per. Spec) + (8.3' X 5.4' X 0.8') X 100 LB/CF
= 13,170 lbs
F_W = 13,170 lbs > F_B = 9,789 lbs

SOIL TEST LOGS (SEE NOTE #16):

TEST HOLE 1: EL=4.20±

DEPTH FROM SURFACE (INCHES)	SOIL HORIZON	SOIL TEXTURE (USDA)	SOIL COLOR (MUNSEL)	SOIL MOTTLING	OTHER
0.0'-1.0'	A (Fill)	Sandy Loam	10YR 2/1	NONE	Loose Fine Grain Sand with Roots
1.0'-2.0'	B (Fill)	Loamy Sand	10YR 5/6	NONE	Loose Fine Grain Sand
2.0'-6.0'	C	Sand	10YR 6/1	NONE	Loose Medium Grain and

TEST HOLE 2: EL=4.6±

DEPTH FROM SURFACE (INCHES)	SOIL HORIZON	SOIL TEXTURE (USDA)	SOIL COLOR (MUNSEL)	SOIL MOTTLING	OTHER
0.0'-0.83'	A (Fill)	Sandy Loam	10YR 2/1	NONE	Loose Fine Grain Sand with Roots
0.83'-1.75'	B (Fill)	Loamy Sand	10YR 4/2	NONE	Loose Fine Grain Sand
1.75'-6.5'	C	Sand	10YR 6/1	NONE	Loose Medium Grain and

DATE OF TESTING: 06/21/01
PERCOLATION RATE: LESS THAN 2 MIN/INCH IN "C" LAYERS.
WITNESSED BY: JANE EVANS RAASCH, R.S., BENNETT & O'REILLY, INC.
ROBERTA GOUGH, AGENT, CHATHAM HEALTH DEPARTMENT
USE A LOADING RATE OF 0.74 GPD/SF FOR SIZING OF SOIL ABSORPTION SYSTEM.
LOCATION OF PROPERTY IS WITHIN ZONE A9 EL=9
HIGH GROUNDWATER @ EL=3.5 PER MONITORING WELL DATA

CONSTRUCTION NOTES CONTINUED:

16.) SOIL REMOVAL: ALL TOPSOIL AND SUBSOIL SHALL BE REMOVED FROM BELOW PROPOSED SOIL ABSORPTION SYSTEM DOWN TO THE CLEAN SAND LAYER, LAYER C1 (PERC RITE DOES NOT REQUIRE SOIL REMOVAL TO BE 5' AROUND SAS. SOIL IS ONLY REQUIRED TO BE REMOVED FROM SAS FOOTPRINT). AREA TO BE BACKFILLED WITH TITLE 5 SAND (PER 310 CMR 15.255) AND COMPACTED TO MINIMIZE SETTLING.

17.) INSTALLER SHALL VERIFY INVERT ELEVATIONS PRIOR TO INSTALLATION OF ANY SEPTIC SYSTEM COMPONENTS.

18.) INSTALL A 40 mil HDPE LINER FROM EL 6.6 TO EL 4.0 AS SHOWN ON PLAN. (APPROX. 110 LINEAR FEET).

19.) EXISTING LEACHING FIELD TO BE REMOVED. ANY CONTAMINATED SOIL WITHIN 5' OF THE PROPOSED SOIL ABSORPTION SYSTEM SHALL BE REMOVED AND REPLACED WITH TITLE 5 SAND (PER 310 CMR 15.255) . AREA TO BE COMPACTED TO MINIMIZE SETTLING.

20.) EXISTING SEPTIC TANK TO BE PUMPED DRY CRUSHED, AREA TO BE FILLED WITH CLEAN SAND AND COMPACTED TO MINIMIZE SETTLING.

21.) FINISHED YARD/LANDSCAPING TO BE REVIEWED WITH BUYER PRIOR TO CONSTRUCTION.

22.) LOCATION OF BLOWER TO BE APPROVED BY HOMEOWNER PRIOR TO INSTALLATION.

23.) ENGINEER SHALL VERIFY SOILS TO 7' BELOW GRADE PRIOR TO INSTALLATION OF ANY SEPTIC SYSTEM COMPONENTS.

SYSTEM DESIGN CALCULATIONS:

SEWAGE DESIGN FLOW:
4 BEDROOM DWELLING @ 110 GPD = 440 GPD

LEACHING CAPACITY REQUIRED:
4 BEDROOMS (MAX.) @ 110 GPD = 440 GPD REQUIRED

SEPTIC TANK CAPACITY REQUIRED:
DAILY FLOW = 440 GPD @ 200% = 880 GAL. REQUIRED

SEPTIC TANK CAPACITY PROVIDED:
1500 GALLON SEPTIC TANK (MIN. ALLOWED)

LEACHING CAPACITY REQUIRED:
440 GPD / .74 GPD/SF = 595 S.F. / 2 = 298 LINEAR FEET REQUIRED

LEACHING CAPACITY PROVIDED:
ONE (1) PERC-RITE 30' X 18' LEACH FIELD:
10 RUNS @ 30' LONG, 2.0' O.C. = 10 X 30 = 300 LINEAR FEET PROVIDED
300 L.F.> 298 L.F. REQUIRED (PER GENERAL USE PERMIT)

NOTE: A GARBAGE DISPOSAL IS NOT PERMITTED WITH THIS DESIGN.

INSTALL:
ONE (1) - 0.5 TOP MOUNT FAST UNIT INCLUDING 1500 GALLON (MONO) SEPTIC TANK (BY SHOREY)
ONE (1) - 1000 GALLON MONO PUMP CHAMBER
ONE (1) - PERC RITE DISPERSAL FIELD W/ PUMP (300 LINEAR FEET, SEE SPECS PAGE 2 & FLOW PROFILE))

VARIANCES REQUESTED

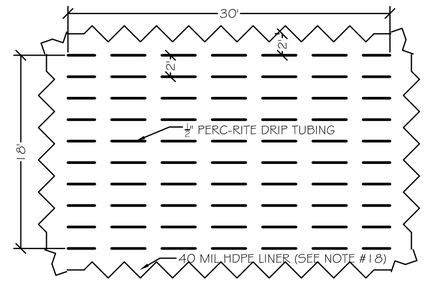
LOCAL UPGRADE APPROVALS: 310 CMR 15.403

VARIANCES: 310 CMR 15.212 (Depth To Groundwater)

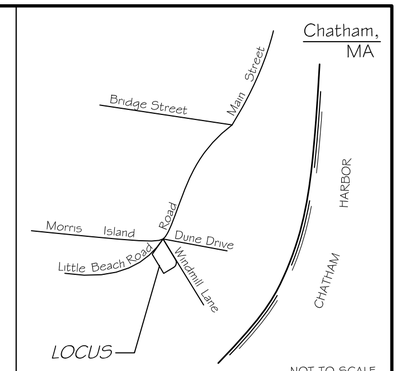
1.) Soil Absorption System not 5' above High Groundwater in soils with a recorded percolation rate of 2 min/inch or less
3' held 2' variance

Per Fast Modification of Approval for Remedial Use Transmittal # W 072367 Issued 6/16/2006, modified 1/23/2008

"The approving authority may allow a reduction in the required separation between the bottom of the SAS and the high groundwater elevation of up to two feet. This provides a minimum separation of two feet (in soils with a recorded percolation rate of more than two minutes per inch) or a three feet (in soils with a recorded percolation rate of two minutes or less per inch);



SAS DETAIL
SCALE 1" = 10'



LAND COURT PLAN 12208-B
CERTIFICATE OF TITLE 63986
ASSESSORS' MAP 16 A PARCEL H 9

LEGEND

32	EXISTING CONTOUR
32	PROPOSED CONTOUR
+ 95.3	EXISTING SPOT GRADE
24X5	PROPOSED SPOT GRADE
W	WATER SERVICE LINE
O	OVERHEAD UTILITY SERVICE
U	UNDERGROUND UTILITY SERVICE
G	GAS SERVICE LINE
TP	TEST HOLE / BORING LOCATION
	MONITORING WELL
ST	SEPTIC TANK
PC	PUMP CHAMBER
DB	DISTRIBUTION BOX
SAS	SOIL ABSORPTION SYSTEM
BH	BULKHEAD
Reserve	RESERVED FOR FUTURE
	UTILITY POLE
	CONCRETE BOUND, FOUND

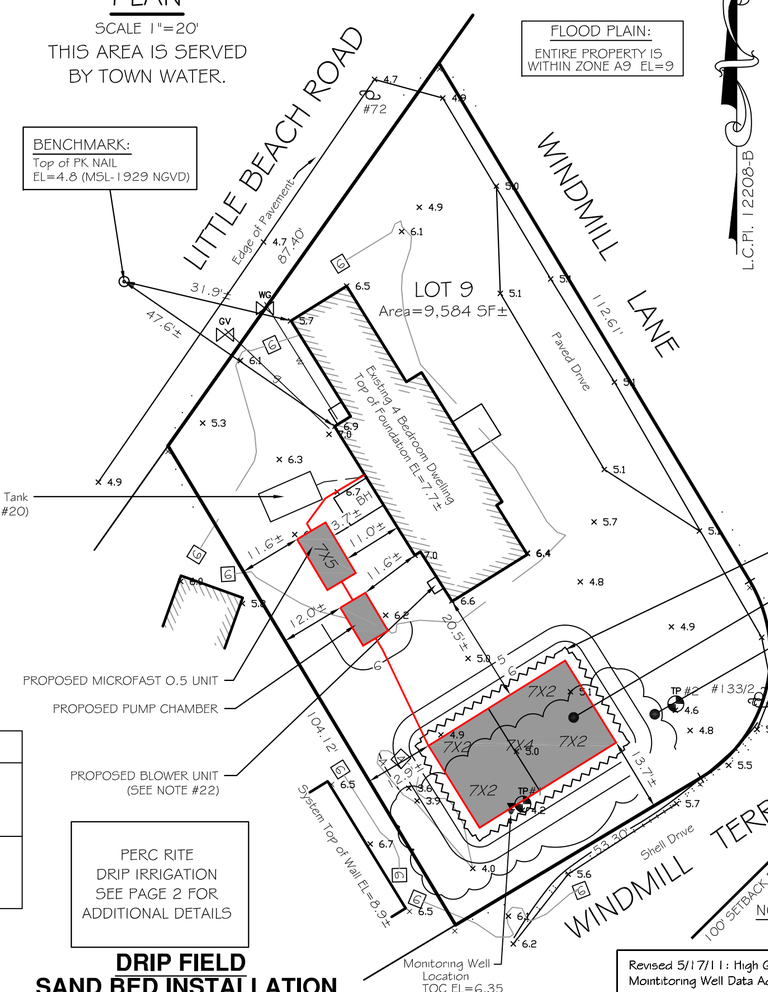
PLAN

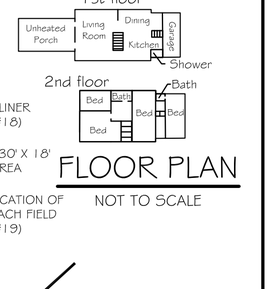
SCALE 1"=20'

THIS AREA IS SERVED BY TOWN WATER.

BENCHMARK:
Top of PK NAIL
EL=4.8 (MSL-1929 NGVD)

FLOOD PLAIN:
ENTIRE PROPERTY IS WITHIN ZONE A9 EL=9





FLOOR PLAN
NOT TO SCALE

PAGE 1 OF 2

MONITORING WELL LOG

11:07 - EL=3.49	11:44 - EL=3.49
*12:52 - EL=3.49	1:49 - EL=3.49
2:44 - EL=3.49	3:44 - EL=3.48
4:46 - EL=3.48	

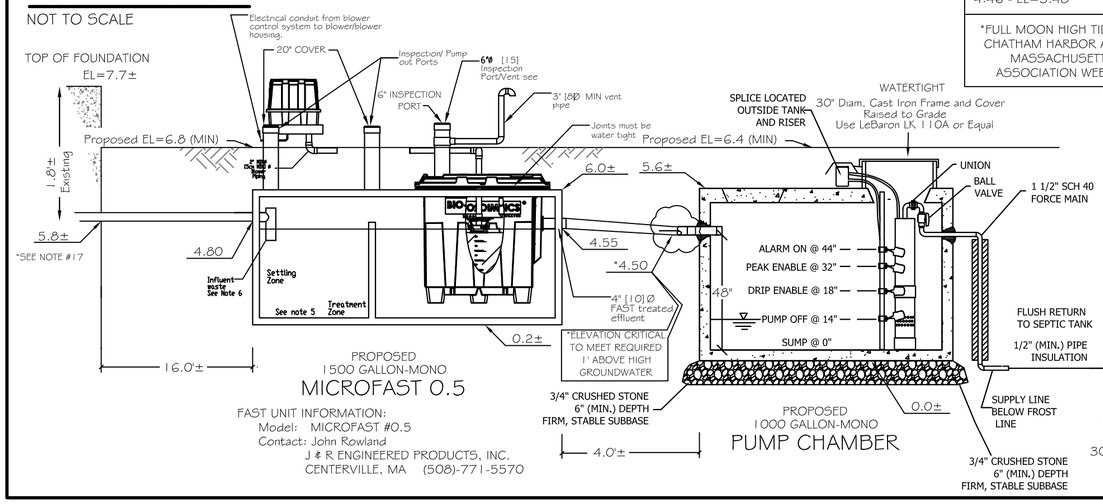
*FULL MOON HIGH TIDE PER TIDE CHART FOR CHATHAM HARBOR AUNT LYDIAS COVE PER MASSACHUSETTS MARINE TRADES ASSOCIATION WEBSITE - BOATMA.COM

PERC RITE DRIP IRRIGATION SEE PAGE 2 FOR ADDITIONAL DETAILS

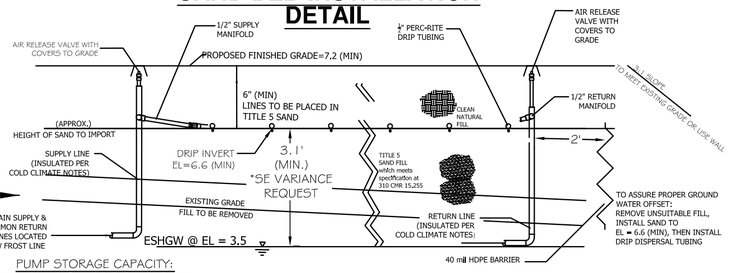
NOTE: A COPY OF THIS PLAN HAS BEEN SENT TO THE CHATHAM WATER DEPARTMENT

FLOW PROFILE:

NOT TO SCALE



DRIP FIELD SAND BED INSTALLATION DETAIL



PUMP STORAGE CAPACITY:
30" FROM PUMP ON (DRIP ENABLE) TO INLET INVERT PROVIDES 647 GALLONS OF STORAGE

Revised 5/17/11: High Groundwater Elevation Lowered, Flow Profile Elevations Adjusted, Monitoring Well Data Added. SAS Shifted to West

CLIENT

189 Aurora Street, Hudson, Ohio, 44236

SEWAGE DISPOSAL SYSTEM DESIGN
Windmill Lane, Chatham, MA

J.M. O'REILLY & ASSOCIATES, INC.
Professional Engineering & Land Surveying Services
1573 Main Street – Route 6A
P.O. Box 1773
(508)896-6601 Office Brewster, MA 02631 (508)896-6602 Fax

DATE:	SCALE:	BY:	CHECK:	JOB NUMBER:
5/16/11	As Noted	KEF	JMO	JMO-3102A

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