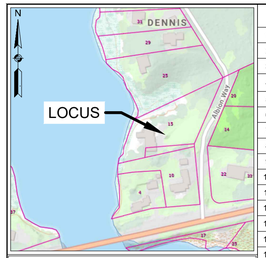


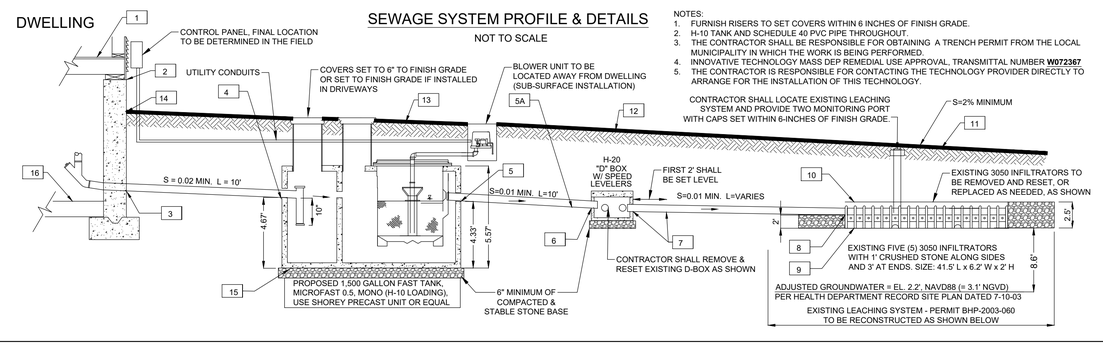
LOCUS MAP NOT TO SCALE

SCHEDULE OF ELEVATIONS

1	FIRST FLOOR =	18.0
2	TOP OF FOUNDATION =	17.0
3	PIPE INV. AT FOUNDATION =	13.92
4	INV. OF PIPE AT FAST TANK INLET =	13.67
5	INV. OF PIPE AT FAST TANK OUTLET =	13.42
6	INV. OF PIPE AT D-BOX INLET =	13.17
7	INV. OF PIPE AT D-BOX OUTLET =	13.00
8	INV. OF PIPE AT LEACHING FIELD =	12.75
9	BOTTOM OF LEACHING FIELD =	10.75
10	TOP OF LEACHING FIELD (TOP OF STONE) =	13.25
11	FINISHED GRADE OVER LEACHING FACILITY =	15.0 - 16.3
12	FINISHED GRADE OVER D-BOX =	16.5
13	FINISHED GRADE OVER FAST TANK =	16.5
14	FINISHED GRADE AT FOUNDATION =	16.5
15	BOTTOM OF FAST TANK =	9.09
16	LOWER LEVEL SLAB =	10.5

SEWAGE SYSTEM PROFILE & DETAILS

NOT TO SCALE



NOTES:
1. FURNISH RISERS TO SET COVERS WITHIN 6 INCHES OF FINISH GRADE.
2. H-10 TANK AND SCHEDULE 40 PVC PIPE THROUGHOUT.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A TRENCH PERMIT FROM THE LOCAL MUNICIPALITY IN WHICH THE WORK IS BEING PERFORMED.
4. INNOVATIVE TECHNOLOGY MASS DEP REMEDIAL USE APPROVAL, TRANSMITTAL NUMBER **W072367**
5. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE TECHNOLOGY PROVIDER DIRECTLY TO ARRANGE FOR THE INSTALLATION OF THIS TECHNOLOGY.

SOIL EVALUATOR'S LOG

Depth from surface in inches		Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottles and Depth
TP#1	TP#2	TEST HOLES TP#1 EL. 18' NGVD (=EL. 16.9' NAVD)			
0 - 6		A	LOAMY SAND	10 YR 4/3	
6 - 20		B	LOAMY SAND	10 YR 6/8	
20 - 144		C	MEDIUM SAND	2.5 Y 8/3	

PERCOLATION RATE MEASURE IN 60" DEPTH = < 2 MINUTES / INCH
DEPTH TO GROUNDWATER = NON ENCOUNTERED
ADJUSTED HIGH GROUNDWATER = ELEV. 3.1' NGVD (EQUAL TO ELEV. 2.0' NAVD)
OBSERVATIONS BY: THOMAS MCLELLAN, P.E.
WITNESSED BY: MEAGEN ELDRIDGE, R.F.
DATE TESTED: MAY 23, 2003

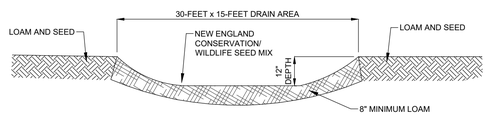
DESIGN DATA

1. TYPE OF ESTABLISHMENT: 3-BEDROOM DWELLING (SAME AS EXISTING)
2. SEWAGE SYSTEM DESIGN FLOW: 110 GALLONS PER BEDROOM = 110 x 3 = 330 GPD
3. WILL THERE BE A GARBAGE GRINDER: NO
4. SEPTIC TANK CAPACITY REQUIRED, DESIGN FLOW TIMES A FACTOR OF 4.5 OR 1,500 GAL. = 4.5 x 330 GALLON = 1,485 GALLON (USE 1,500 GAL. FAST TANK)
5. EXISTING SOIL ABSORPTION SYSTEM TYPE: INFLTRATOR SYSTEM (PERMIT BHP-2003-060)
6. RECONSTRCUTED LEACHING SYSTEM SIZE: 41.5' L x 6.2' W x 2' H
   EXISTING TOTAL AREA = 41.5' x 6.2' + (41.5' + 6.2') x 4 = 448 S.F.
7. EXISTING LEACHING SYSTEM CAPACITY = 448 S.F. x 0.74 GPD/S.F. = 331.5 GPD

NOTE: THE EXISTING SEPTIC SYSTEM IS NOT DESIGNED FOR A GARBAGE GRINDER.

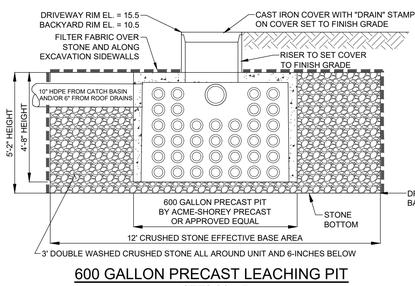
SEPTIC SYSTEM NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE STATE ENVIRONMENTAL CODE, TITLE 5 (310 CMR 15.00), AND THE LOCAL BOARD OF HEALTH.
2. THERE SHALL BE NO CHANGES MADE IN THIS PLAN WITHOUT THE WRITTEN PERMISSION OF THE ENGINEER AND LOCAL BOARD OF HEALTH.
3. ALL ERRORS, OMISSIONS, AND CHANGE OF CONDITIONS AT THE SITE SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO PERFORMING THE RELATED WORK.
4. ALL DISTURBED AREAS ARE TO BE LOAMED, SEEDED AND MAINTAINED TO PREVENT EROSION.
5. FOR PROPER PERFORMANCE, SEPTIC TANK SHOULD BE INSPECTED AT LEAST ONCE A YEAR AND WHEN THE TOTAL DEPTH OF SCUM AND SOLIDS EXCEEDS 1/3 THE LIQUID DEPTH OF THE TANK, THE TANK SHOULD BE PUMPED.
6. THIS SYSTEM HAS BEEN DESIGNED FROM DATA REVIEWED AND ACKNOWLEDGED BY THE MASS. D.E.P. AND THE LOCAL BOARD OF HEALTH; AND CONFORMS WITH THE REQUIREMENTS OF THE STATE ENVIRONMENTAL CODE, TITLE 5. NO GUARANTEE OF PERFORMANCE IS EXPRESSED OR IMPLIED.
7. TEST HOLE INFORMATION SHOWN HEREON IS LIMITED TO SOIL CONDITIONS FOUND AT THAT PARTICULAR TEST HOLE LOCATIONS AND IS NOT CONSIDERED AN IMPLIED OR EXPRESSED WARRANTY OF SOIL CONDITIONS BEYOND LIMITS OF SUCH TEST HOLES.
8. ALL ORGANIC AND UNSUITABLE MATERIAL MUST BE REMOVED FROM THE AREA DIRECTLY UNDER AND 5 FEET BEYOND THE PROPOSED LEACHING FACILITY. THIS AREA MUST BE BACKFILLED TO THE ELEVATIONS INDICATED ON THESE PLANS WITH SELECT ON-SITE OR IMPORTED SOIL MATERIAL, CONSISTING OF CLEAN GRANULAR SAND OR OTHER GRANULAR MATERIAL, FREE FROM ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES. MIXTURES AND LAYERS SHALL NOT BE USED. THE FILL MATERIAL SHALL CONFORM TO THE STATE ENVIRONMENTAL CODE, TITLE 5 - 310 CMR SECTION 15.255 (3) AND SHALL HAVE PERCOLATION RATE OF BETWEEN TWO AND FIVE MINUTES PER INCH, BEFORE AND AFTER PLACEMENT.
9. ALL STONE MUST BE DOUBLE WASHED AND FREE FROM FINES AND ANY ORGANIC MATERIAL AND MUST HAVE LESS THAN 0.2 PERCENT MATERIAL FINER THAN A NUMBER 200 SIEVE.
10. THE DESIGNER HAS NOT BEEN RETAINED BY THE CLIENT TO CONSTRUCT OR SUPERVISE THE CONSTRUCTION OF THE SYSTEM. THE CONTRACTOR IS RESPONSIBLE FOR MAKING ARRANGEMENTS FOR INSPECTION OF INSTALLATION OF THE SYSTEM WITH THE LOCAL BOARD OF HEALTH.
11. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL HORIZONTAL AND VERTICAL CONTROL OF ALL SYSTEM COMPONENTS.
12. TIGHT JOINT PIPING MATERIAL TO CONSIST OF POLYVINYL CHLORIDE (P.V.C.) SCHEDULE 40, UNLESS OTHERWISE NOTED.
13. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER FOR CONSTRUCTION INSPECTION AFTER EXCAVATION FOR THE LEACHING BED (PRIOR TO THE PLACEMENT OF STONE) AND ALSO AFTER PLACEMENT OF PIPE & STONE PRIOR TO BACKFILLING.
14. DESIGN ENGINEER SHALL CERTIFY CONSTRUCTION OF SYSTEM AND MATERIALS INSTALLED. THE CONTRACTOR SHALL PROVIDE A SIEVE ANALYSIS OF THE FILL MATERIAL REQUIRED. AN AS-BUILT PLAN SHALL BE SUBMITTED TO THE LOCAL BOARD OF HEALTH UPON COMPLETION.
15. NO RUBBER TIRE CONSTRUCTION MACHINERY SHALL DRIVE OVER THE PROPOSED SEPTIC BED EXCAVATION DURING CONSTRUCTION.
16. DIG-SAFE AND ALL OTHER NECESSARY AUTHORITIES SHALL BE NOTIFIED FOR THE PROPER LOCATION OF EXISTING UTILITIES PRIOR TO ANY EXCAVATION.
17. WATER SERVICE LINE SHALL BE LOCATED AND MARKED PRIOR TO ANY EXCAVATING AND 10' MIN. SETBACK DISTANCE FROM SAID SERVICE TO THE SEPTIC SYSTEM SHALL BE MAINTAINED.
18. ALL WATER LINES WITHIN 10' OF SEPTIC SYSTEM COMPONENTS SHALL BE SLEEVED WITHIN 4" PVC SCHEDULE 40 PIPE.



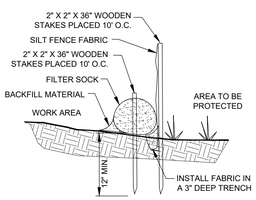
RESIDENTIAL YARD DRAINAGE - CROSS SECTION

NOT TO SCALE



600 GALLON PRECAST LEACHING PIT

NOT TO SCALE

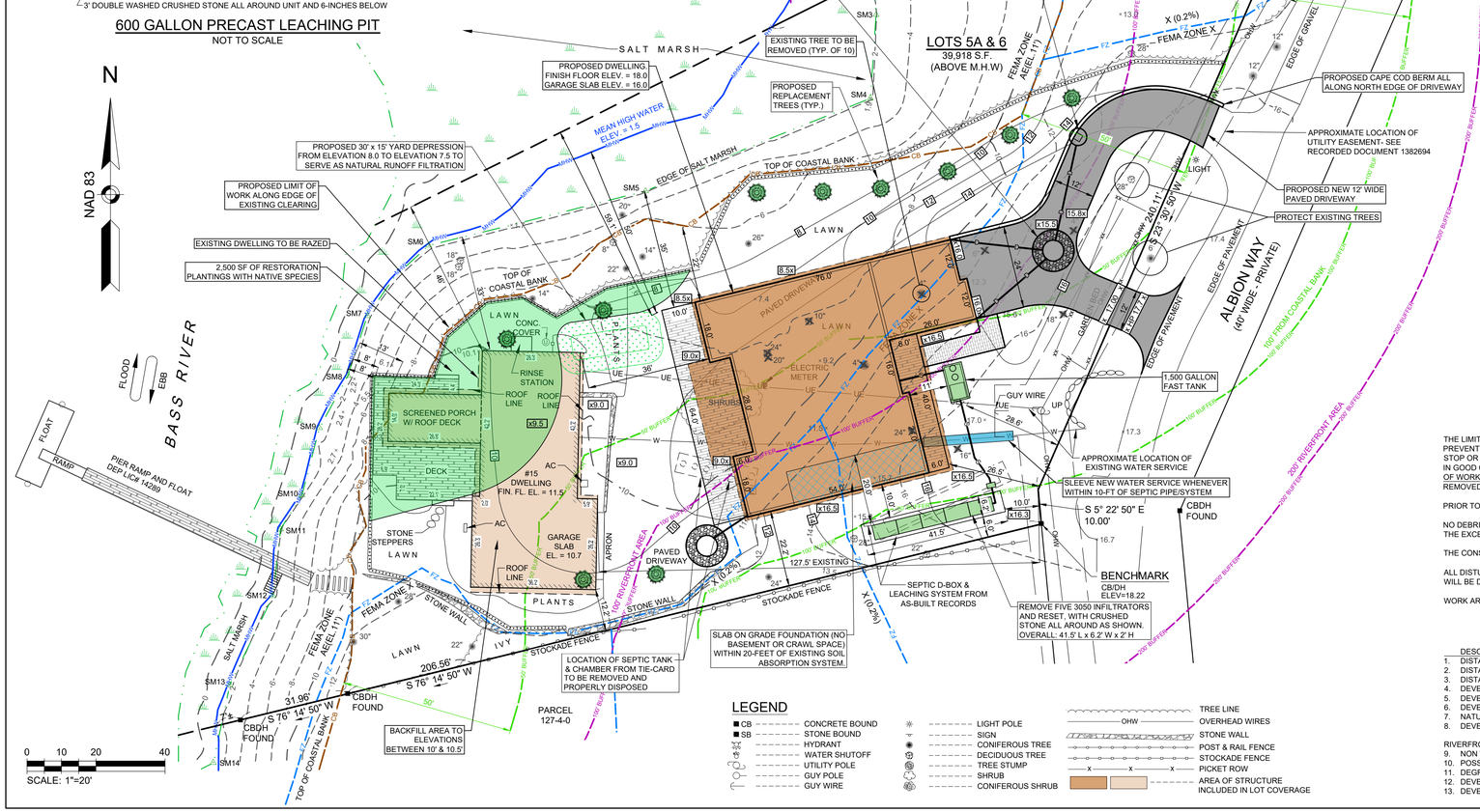


LIMIT OF WORK - FILTER SOCK

NOT TO SCALE

EROSION & LIMIT OF WORK NOTES

1. THE LIMIT OF WORK WILL BE INSTALLED PRIOR TO ANY WORK, EXCAVATION, CONSTRUCTION OR CLEARING OF VEGETATION, IN ORDER TO PREVENT DAMAGE TO THE SITE AND ADJACENT LAND.
2. THE LIMIT OF WORK WILL CONSIST OF A STAKED ROW OF SEDIMENT STOP OR COMPOST ROLL WITH SILTATION FENCE BACKING. THE SEDIMENT STOP ROLL WILL BE REPLACED AS NECESSARY TO BE MAINTAINED IN GOOD CONDITION THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD. NO FILL WILL BE ALLOWED TO BE PLACED AGAINST THE LIMIT OF WORK AT ANY TIME.
3. UPON COMPLETION OF ALL CONSTRUCTION AND STABILIZATION OF THE SITE, SEDIMENT STOP ROLL WILL BE REMOVED AND PROPERLY DISPOSED OF.



ENVIRONMENTALLY SENSITIVE AREA

THE SUBJECT PROPERTY IS LOCATED WITHIN AN ENVIRONMENTALLY SENSITIVE AREA AS DEFINED BY THE TOWN OF DENNIS BOARD OF HEALTH REGULATIONS 9.3A.

THE FOLLOWING SHALL BE CONSIDERED ENVIRONMENTALLY SENSITIVE AREAS BY THE BOARD OF HEALTH:

9.3A a. LAND AREA(WHETHER DEVELOPED OR NOT) THAT BORDERS ON AND IS WITHIN ONE HUNDRED FEET (100') OF MARSHLAND, TIDAL FLATS, COASTAL DUNES, BARRIER BEACHES, COASTAL BANKS, COASTAL BEACHES, SURFACE WATERS;

BOARD OF HEALTH VARIANCE REQUEST

PREVIOUSLY APPROVED HEALTH VARIANCE: 310 CMR 15.211(1) & 15.248(1) AND LOCAL REGULATION 9.0 & 15.0
- A 4-FOOT VARIANCE GRANTED FROM LEACHING FACILITY TO THE PROPERTY LINE.
- NO RESERVE AREA PROVIDED.

REGULATION 16B STANDARDS FOR ENVIRONMENTALLY SENSITIVE AREAS:
A VARIANCE IS REQUIRED FROM THE BOARD OF HEALTH WHEN NEW CONSTRUCTION OR ADDITIONS/ ALTERATIONS OF HABITABLE SPACE IS PROPOSED IN AN ENVIRONMENTALLY SENSITIVE AREA, AS DEFINED BY REGULATION 9.3A.

THE PROJECT PROPOSED TO PROTECT AND REUSE THE EXISTING SOIL ABSORPTION SYSTEM.

A MICROFAST SEPTIC TANK IS PROPOSED AS THE ALTERNATIVE TECHNOLOGY FOR ENHANCED NITROGEN REMOVAL FOR THIS SEPTIC SYSTEM.

GENERAL NOTES

LOCATIONS ARE BASED ON AN "ON THE GROUND" INSTRUMENT SURVEY AND ELEVATIONS BASED ON THE NAVD 1988 DATUM. COORDINATE SYSTEM USED IS THE MA-MAINLAND COORDINATE SYSTEM, DATUM: NAD 83, UNITS: U.S. SURVEY FEET.

DIMENSIONS OF EXISTING BUILDINGS AND BUILDING OFFSETS SHOWN HEREON ARE TO CORNER BOARDS OR SIDING EXTENTS AND ARE DISPLAYED IN ENGINEERING UNITS WITH A PRECISION OF ONE TENTH (0.1') OF A FOOT.

THE FINISHED FLOOR ELEVATION (FIN. FL. EL.) SHOWN HEREON IS BASED ON AN ASSUMED 1" LOWER THAN THE SURVEYED THRESHOLD ELEVATION. AN INTERIOR INSPECTION OF BUILDINGS WAS NOT PERFORMED.

PROPERTY IS LOCATED WITHIN AN AREA HAVING A ZONE DESIGNATION OF AE (ELEV 11), ANNUAL FLOOD CHANCE ZONE 0.2%, MINIMAL HAZARD ZONE X BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), ON FLOOD INSURANCE RATE MAP NO. 25001C0591J, WITH A MAP EFFECTIVE DATE OF JULY 16, 2014.

THIS LOT IS NOT LOCATED WITHIN A DEP APPROVED ZONE II WELLHEAD PROTECTION AREA.
THIS LOT IS NOT MAPPED WITHIN A MESA NATURAL HERITAGE AND ENDANGERED SPECIES AREA.
THIS LOT IS LOCATED WITHIN THE SOUTH DENNIS HISTORIC DISTRICT.
WIND EXPOSURE CATEGORY: ZONE C

DEED REFERENCE: CERTIFICATE 237235 PLAN REFERENCE: LC PLAN 20670-D, PLAN BOOK 141, PAGE 77.

OWNER: THOMAS F. AHRENSFELD
236 SOUTH STREET, HARWICH, MA 02645

ZONING COMPLIANCE TABLE:

ZONING DISTRICT: RESIDENTIAL - 40

CRITERIA	REQUIRED	EXISTING	PROPOSED
MINIMUM LOT FRONTAGE (L.F.)	50	250.11	250.11
FRONT YARD SETBACK (FT.)	25	127.5	26.5
SIDE YARD SETBACK (FT.)	15	12.2 & 46	22.2 & 59.1
REAR YARD SETBACK - TO MHW (FT.)	25	8	50
MINIMUM LOT AREA (S.F.)	40,000	39,918	39,918
LOT WIDTH (FT.)	100	130	130
ROOF-LINE FOOTPRINT SIZE (S.F.)		2,760	4,670
TOTAL SITE COVERAGE (% OF LOT)	15%	6.9%	12%
MAXIMUM NUMBER OF STORIES - (3)	2 1/2	1 1/2	2

MITIGATION PLANTING NOTES

PROPOSED PLANTINGS INCLUDE:
TREES: A COMBINATION OF RED MAPLE (ACER RUBRUM), TUPELO (NYSSA SYLVATICA), WHITE OAK (QUERCUS ALBA), AND PITCH PINE (PINUS RIGIDA). TEN (10) TOTAL TREES PROPOSED TO REPLACE REMOVAL OF TEN (10) EXISTING TREES.

SHRUBS: A COMBINATION OF BAYBERRY (Myrica pensylvanica), ARROWWOOD (Viburnum dentatum), WILD RAISIN (Viburnum nudum cassinoides), SWEET PEPPERBUSH (Clethra alnifolia), INKBERRY (Ilex glabra compacta), BLACK CHOKEBERRY (Aronia melanocarpa), AND WINTERBERRY (Ilex verticillata). AN AREA OF 2,500 SF TO BE PLANTED WITH NATIVE SPECIES.

APPLICANT OR APPLICANT'S REPRESENTATIVE SHALL HAVE AN ONSITE MEETING WITH CONSERVATION AGENT PRIOR TO INSTALLING PLANTS TO REVIEW LOCATION OF SPECIFIC PLANT SPECIES. ANY CHANGES IN PLANT SPECIES TO BE APPROVED BY CONSERVATION AGENT PRIOR TO INSTALLATION.

SHRUBS SHALL BE PLANTED AT 5'-O.C. AND TREES PLANTED 20' O.C. PLANTINGS SHALL BE MAINTAINED IN GOOD HEALTH AND SHALL BE REPLACED IN KIND AS NECESSARY TO PROPERLY ESTABLISH VEGETATION FOR 3 GROWING SEASONS.

PLANTINGS SHALL BE INSTALLED PRIOR TO COMPLETION OF CONSTRUCTION ACTIVITIES. OWNER SHALL NOTIFY CONSERVATION AGENT FOR FINAL INSPECTION WITHIN 30 DAYS AFTER ALL PLANTINGS HAVE BEEN INSTALLED.

CONSERVATION NOTES

THE LIMIT OF WORK WILL BE INSTALLED PRIOR TO ANY WORK, EXCAVATION, CONSTRUCTION OR CLEARING OF VEGETATION, IN ORDER TO PREVENT DAMAGE TO THE INTERESTS OF THE ACT AND BYLAW. THE LIMIT OF WORK WILL CONSIST OF A ROW OF STAKED SEDIMENT STOP OR COMPOST ROLL WITH SILT FENCE BACKING. THE SEDIMENT STOP ROLL WILL BE REPLACED AS NECESSARY TO BE MAINTAINED IN GOOD CONDITION THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD. NO FILL WILL BE ALLOWED TO BE PLACED AGAINST THE LIMIT OF WORK AT ANY TIME. UPON COMPLETION OF ALL CONSTRUCTION AND STABILIZATION OF THE SITE, SEDIMENT STOP ROLL WILL BE REMOVED AND PROPERLY DISPOSED OF.

PRIOR TO ANY WORK COMMENCING, ADVANCE WRITTEN NOTIFICATION WILL BE PROVIDED TO THE LOCAL CONSERVATION COMMISSION.

NO DEBRIS, EQUIPMENT OR MATERIALS WILL BE STORED, EVEN TEMPORARILY, OUTSIDE THE DESIGNATED LIMIT OF WORK AREA WITH THE EXCEPTION OF EQUIPMENT AND MATERIALS RELATED TO THE PLANTINGS FOR THE REQUIRED MITIGATION.

THE CONSTRUCTION SITE WILL BE CLEANED DAILY TO REMOVE ANY LOOSE DEBRIS.

ALL DISTURBED AREAS WITHIN THE LIMIT OF WORK REQUIRING RESTORATION WILL BE STABILIZED TO PREVENT EROSION. STABILIZATION WILL BE DONE IMMEDIATELY FOLLOWING COMPLETION OF CONSTRUCTION.

WORK AREA LIES COMPLETELY WITHIN PREVIOUSLY DISTURBED BUFFER ZONE AREAS.

PROJECT STATISTICS

	DESCRIPTION	EXISTING	PROPOSED	NET CHANGE
1.	DISTANCE FROM SALT MARSH TO STRUCTURE:	8 FEET	30 FEET	+22 FEET
2.	DISTANCE FROM MEAN HIGH WATER (RIVER'S EDGE) TO STRUCTURE:	8 FEET	46 FEET	+38 FEET
3.	DISTANCE FROM COASTAL BANK TO STRUCTURE:	0 FEET	18 FEET	+18 FEET
4.	DEVELOPMENT WITHIN COASTAL BANK & WITHIN 50' BUFFER ZONE:	5,655 S.F.	3,924 S.F.	- 1,731 S.F.
5.	DEVELOPMENT WITHIN 50' - 100' BUFFER ZONE:	2,055 S.F.	3,186 S.F.	+ 1,131 S.F.
6.	DEVELOPMENT WITHIN FEMA FLOOD ZONE:	7,000 S.F.	3,355 S.F.	- 3,645 S.F.
7.	NATURALLY VEGETATED AREAS:	15,242 S.F.	17,492 S.F.	+ 2,500 S.F.
8.	DEVELOPMENT WITHIN COASTAL BANK:	145 S.F./30-FEET	0 S.F.	- 145 S.F.
	RIVERFRONT AREA (RFA) NOTES:			
9.	NON WETLAND RESOURCE AREA OF PROPERTY WITHIN RIVERFRONT AREA:	39,918 S.F.		
10.	POSSIBLE RIVERFRONT ALTERATION, GREATER 10% OR 5,000 S.F. [310 CMR 10.58 (4)(d)]:	5,000 S.F.		
11.	DEGRADED AREAS WITHIN ENTIRE RIVERFRONT AREA	7,710 S.F.	7,110 S.F.	- 600 S.F.
12.	DEVELOPMENT (DEGRADED) WITHIN THE INNER 100' RIPARIAN RFA ZONE:	6,734 S.F.	4,743 S.F.	- 1,991 S.F.
13.	DEVELOPMENT WITHIN THE OUTER 100' - 200' RFA ZONE:	976 S.F.	2,367 S.F.	+ 1,391 S.F.

COMMONWEALTH OF MASSACHUSETTS — J. JACOB FRICKE — No. 56305 — REGISTERED PROFESSIONAL LAND SURVEYOR — 2025-04-10

COMMONWEALTH OF MASSACHUSETTS — RAUL LIZARDI-RIVERA — CIVIL — No. 40845 — REGISTERED PROFESSIONAL ENGINEER — 2025-04-10

NOTICE
THIS PLAN MAY NOT BE ADDED TO, DELETED FROM, OR ALTERED IN ANY WAY BY ANYONE OTHER THAN CAPE & ISLANDS ENGINEERING, INC.

UNLESS AND UNTIL SUCH TIME AS AN ORIGINAL (RED) STAMP APPEARS ON THIS PLAN NO PERSON OR PERSONS, MUNICIPAL OR PUBLIC OFFICIAL MAY RELY UPON THE INFORMATION CONTAINED HEREIN; AND THIS PLAN REMAINS THE PROPERTY OF CAPE AND ISLANDS ENGINEERING, INC.

COPYRIGHT (C) BY CAPE & ISLANDS ENGINEERING, INC. ALL RIGHTS RESERVED

DATE	DESCRIPTION	BY	CHK
-			

PREPARED FOR:
THOMAS & REBECCA AHRENSFELD
236 SOUTH STREET, 2ND FLOOR
HARWICH, MA 02645

PROJECT:
15 ALBION WAY
DENNIS, MASSACHUSETTS

SHEET NO.: 1 OF 1 DATE: APRIL 10, 2025
DRAWN BY: JJF, RLR CHECKED BY: JJF, RLR

PREPARED BY:
CAPE & ISLANDS ENGINEERING
SUMMERFIELD PARK
800 FALMOUTH ROAD SUITE 301C
MASHPEE, MA 02649
508.477.7272 PHONE
508.477.9072 FAX
www.CapeEng.com

DRAWING TITLE:
SITE & SEPTIC DESIGN PLAN

ASSESSORS INFORMATION: MAP 127-2 & 127-3

ALBION_15_LEWIS_SP