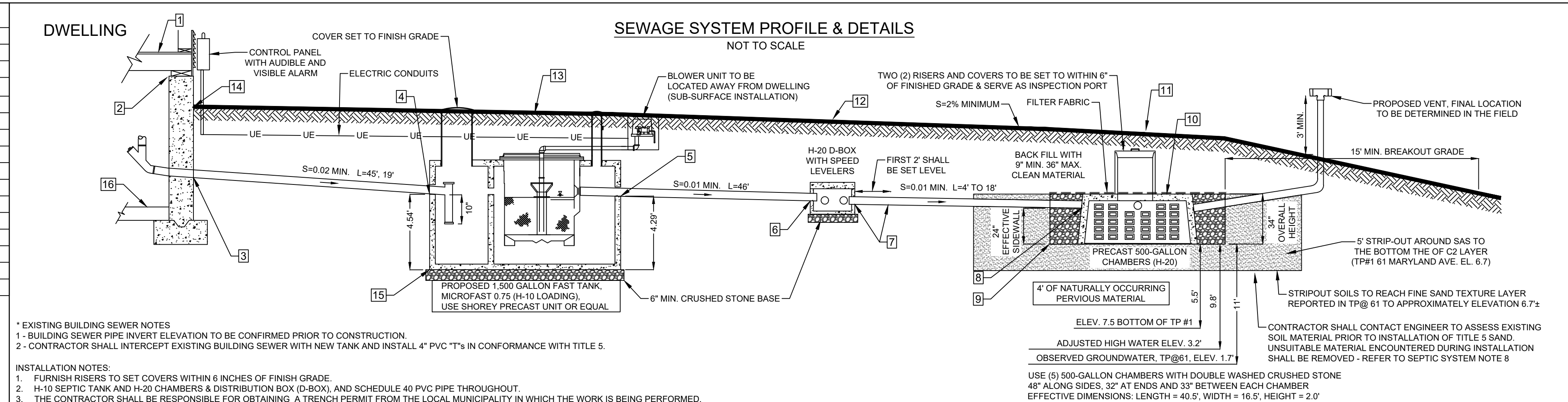


SCHEDULE OF ELEVATIONS

1	FIRST FLOOR =	22.8
2	TOP OF FOUNDATION =	EXISTING
3	PIPE INV. AT FOUNDATION =	*EXISTING, 18.2
4	INV. OF PIPE AT TANK INLET =	16.25
5	INV. OF PIPE AT TANK OUTLET =	16.00
6	INV. OF PIPE AT D-BOX INLET =	15.68
7	INV. OF PIPE AT D-BOX OUTLET =	15.50
8	INV. OF PIPE AT LEACHING FIELD INLET =	15.00
9	BOTTOM OF LEACHING FIELD =	13.00
10	TOP OF SAS CHAMBERS	16.00
11	FINISHED GRADE OVER LEACHING FACILITY =	17.8 - 19.0
12	FINISHED GRADE OVER D-BOX =	18.8
13	FINISH GRADE OVER TANK =	18.5 - 19.6
14	FINISHED GRADE AT FOUNDATION =	20.5
15	BOTTOM OF TANK =	11.71
16	BASEMENT ELEVATION	14.1



SEPTIC SYSTEM NOTES

- ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE STATE ENVIRONMENTAL CODE, TITLE 5 (310 CMR 15.00), AND THE LOCAL BOARD OF HEALTH.
- THERE SHALL BE NO CHANGES MADE IN THIS PLAN WITHOUT THE WRITTEN PERMISSION OF THE ENGINEER AND LOCAL BOARD OF HEALTH.
- 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.
- ALL DISTURBED AREAS ARE TO BE LOAMED, SEEDED AND MAINTAINED TO PREVENT EROSION.
- 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.
- 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.
- 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.
- ALL ORGANIC AND UNSUITABLE MATERIAL SHALL 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.
- 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.
- 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.
- THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL HORIZONTAL AND VERTICAL CONTROL OF ALL SYSTEM COMPONENTS.
- TIGHT JOINT PIPING MATERIAL TO CONSIST OF POLYVINYL CHLORIDE (P.V.C.) SCHEDULE 40, UNLESS OTHERWISE NOTED.
- 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.
- 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.
- NO RUBBER TIRE CONSTRUCTION MACHINERY SHALL DRIVE OVER THE PROPOSED SEPTIC BED EXCAVATION DURING CONSTRUCTION.
- DIG-SAFE AND ALL OTHER NECESSARY AUTHORITIES SHALL BE NOTIFIED FOR THE PROPER LOCATION OF EXISTING UTILITIES PRIOR TO ANY EXCAVATION.
- 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.
- ALL WATER LINES WITHIN 10' OF SEPTIC SYSTEM COMPONENTS SHALL BE SLEEVED WITHIN 4\" P.V.C. SCHEDULE 40 PIPE.

* EXISTING BUILDING SEWER NOTES
 1. BUILDING SEWER PIPE INVERT ELEVATION TO BE CONFIRMED PRIOR TO CONSTRUCTION.
 2. CONTRACTOR SHALL INTERCEPT EXISTING BUILDING SEWER WITH NEW TANK AND INSTALL 4\" P.V.C. T'S IN CONFORMANCE WITH TITLE 5.

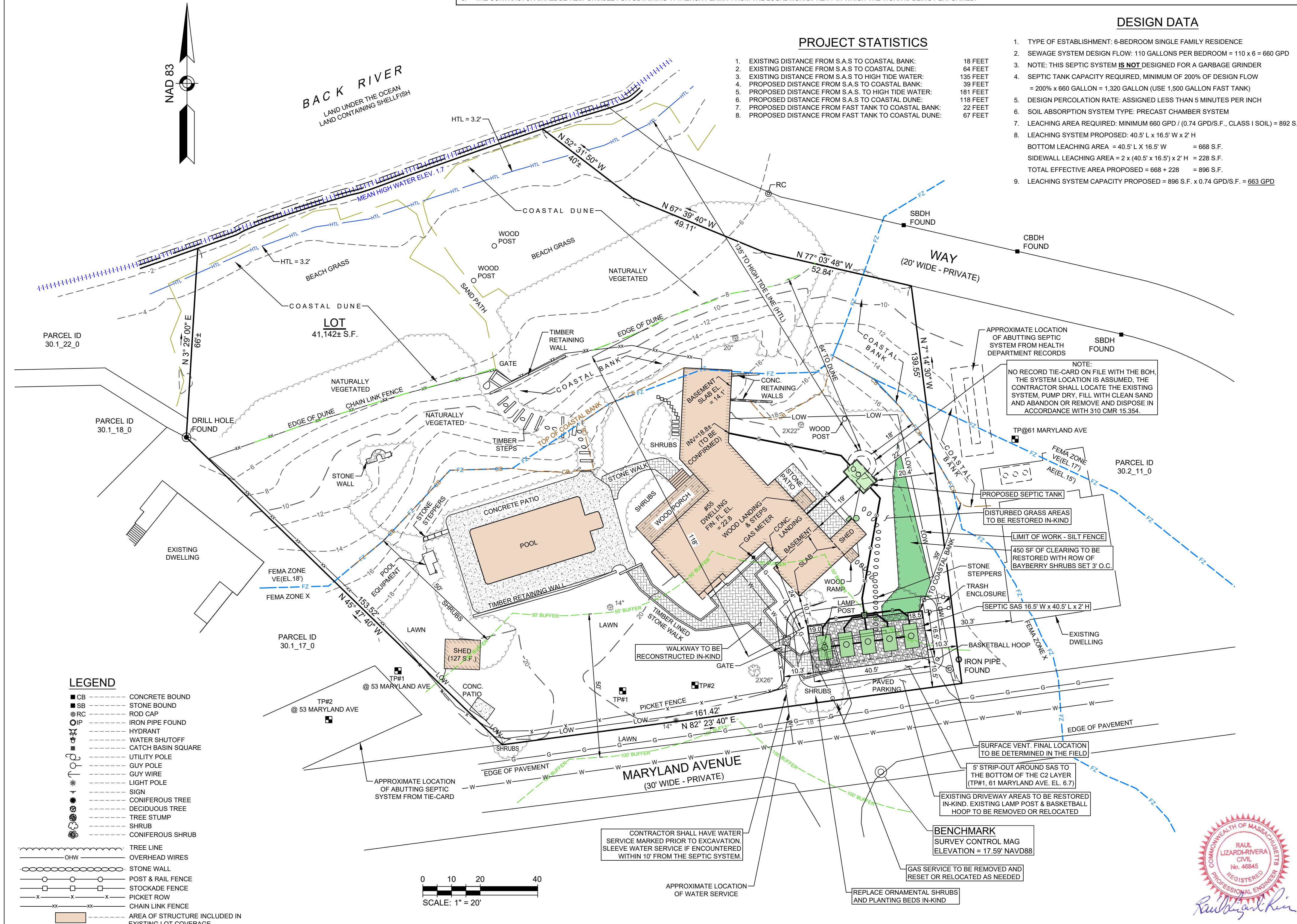
INSTALLATION NOTES:
 1. FURNISH RISERS TO SET COVERS WITHIN 6 INCHES OF FINISH GRADE.
 2. H-10 SEPTIC TANK AND H-20 CHAMBERS & DISTRIBUTION BOX (D-BOX), AND SCHEDULE 40 P.V.C. PIPE THROUGHOUT.
 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A TRENCH PERMIT FROM THE LOCAL MUNICIPALITY IN WHICH THE WORK IS BEING PERFORMED.

DESIGN DATA

- TYPE OF ESTABLISHMENT: 6-BEDROOM SINGLE FAMILY RESIDENCE
- SEWAGE SYSTEM DESIGN FLOW: 110 GALLONS PER BEDROOM = 110 x 6 = 660 GPD
- NOTE: THIS SEPTIC SYSTEM IS NOT DESIGNED FOR A GARBAGE GRINDER
- SEPTIC TANK CAPACITY REQUIRED, MINIMUM OF 200% OF DESIGN FLOW = 200% x 660 GALLON = 1,320 GALLON (USE 1,500 GALLON FAST TANK)
- DESIGN PERCOLATION RATE: ASSIGNED LESS THAN 5 MINUTES PER INCH
- SOIL ABSORPTION SYSTEM TYPE: PRECAST CHAMBER SYSTEM
- LEACHING AREA REQUIRED: MINIMUM 660 GPD / (0.74 GPD/S.F., CLASS I SOIL) = 892 S.F.
- LEACHING SYSTEM PROPOSED: 40.5' L x 16.5' W x 2' H
 BOTTOM LEACHING AREA = 40.5' L x 16.5' W = 668 S.F.
 SIDEWALL LEACHING AREA = 2 x (40.5' x 16.5') x 2' H = 228 S.F.
 TOTAL EFFECTIVE AREA PROPOSED = 668 + 228 = 896 S.F.
- LEACHING SYSTEM CAPACITY PROPOSED = 896 S.F. x 0.74 GPD/S.F. = 663 GPD

SOIL EVALUATOR'S LOG

TP#1	TP#2	DEEP OBSERVATION HOLES TP#1 EL. 20.0 & TP#2 EL. 20.5
0-23	0-11	FILL
23-33	11-22	A LOAMY SAND 10 YR 3/3
33-48	22-33	B LOAMY SAND 10 YR 5/6
48-82	33-90	C1 COARSE SAND 10 YR 6/4
82-106	90-120	C2 SANDY LOAM 10 YR 6/6
106-132	--	C3 MEDIUM SAND 10 YR 7/4



PERCOLATION RATE = < 2 MINUTES / INCH IN B LAYERS
 DEPTH TO GROUNDWATER - ENCOUNTERED AT 11' DEPTH (ELEV. 1.7)
 OBSERVATIONS BY: MARK DIBB, P.E.
 WITNESSED BY: KAITLYN SHEA
 DATE TESTED: APRIL 13, 2023

SOIL EVALUATOR'S LOG (FOR ABUTTER, 61 MARYLAND AVE.)

Depth from surface in inches	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottles and Depth	Other Relative Factors
DEEP OBSERVATION HOLE TP#61, ELEVATION 12.7					
0-12	A	SANDY LOAM	10 YR 3/2		
12-24	B	LOAMY SAND	10 YR 5/6		
24-60	C1	COARSE SAND	10 YR 5/6		
60-72	C2	SANDY LOAM	2.5 YR 6/3		
72-144	C3	FINE SAND	2.5 YR 5/3		WATER @ 132"

PERCOLATION RATE = < 5 MINUTES / INCH IN B LAYERS
 DEPTH TO GROUNDWATER - ENCOUNTERED AT 11' DEPTH (ELEV. 1.7)
 OBSERVATIONS BY: AMY VON HONE, R.S.
 WITNESSED BY: CYNTHIA COFFIN B.O.H.
 DATE TESTED: AUGUST 4, 1997

SOIL EVALUATOR'S LOG (FOR ABUTTER, 53 MARYLAND AVE.)

Depth from surface in inches	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottles and Depth	Other Relative Factors
DEEP OBSERVATION HOLE TP#1, ELEVATION 18.5					
0-10	A	SANDY LOAM	7.5 YR 4/4		
10-32	B	LOAMY SAND	7.5 YR 5/6		20% G. COBBLES
32-58	C1	LOAMY SAND	10 YR 5/6		SINGLE GRAIN
58-124	C2	MEDIUM SAND	10 YR 7/4	NO	SINGLE GRAIN
124-137.5	C3	SILT LOAM / FINE SAND	7.5 YR 5/6 / 7.5 YR 6/4	NO	STRATIFIED THIN LAYERS
DEEP OBSERVATION HOLE TP#2, ELEVATION 18.5					
0-8	A	SANDY LOAM	7.5 YR 4/4		
8-14	B	LOAMY SAND	7.5 YR 5/6		20% G. COBBLES
14-102	C1	MEDIUM SAND	10 YR 7/4	NO	SINGLE GRAIN
102-124	C2	SILT LOAM / FINE SAND	7.5 YR 5/6 / 7.5 YR 6/4	NO	STRATIFIED THIN LAYERS

PERCOLATION RATE = < 2 MINUTES / INCH MEASURED IN B & C1 LAYERS
 DEPTH TO GROUNDWATER - NONE ENCOUNTERED AT 11.5' DEPTH (ELEV. 7.0)
 ADJUSTED HIGH GROUNDWATER = ESTIMATED AT ELEVATION 3.2 FEET (NAVD83) = HTL ELEVATION
 OBSERVATIONS BY: RAUL LIZARDI-RIVERA, P.E.
 WITNESSED BY: KAITLYN SHEA
 DATE TESTED: JUNE 28, 2021

LOCAL UPGRADE APPROVAL REQUEST

NO	DESCRIPTION	BYLAW REQUIRED	TITLE 5 REQUIRED	PROPOSED	WAIVER
1	SOIL ABSORPTION SYSTEM TO COASTAL BANK	150 FT.	50 FT.	39 FT.	111 FT.
2	SOIL ABSORPTION SYSTEM TO COASTAL DUNE	150 FT.		118 FT.	32 FT.
3	FAST TANK TO COASTAL BANK		25 FT.	22 FT.	3 FT.

THE PROPOSED SEPTIC SYSTEM UPGRADE IS VOLUNTARY AND REPLACES A SUBSTANDARD CESSPOOL LOCATED APPROXIMATELY 18-FT. FROM THE COASTAL BANK, 64-FT FROM THE COASTAL DUNE AND APPROXIMATELY 135' FROM THE HIGH TIDE LINE AT THE BEACH.

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.

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.

LOCATION OF SEPTIC SYSTEM IS NOT DETERMINABLE FROM PUBLICLY AVAILABLE INFORMATION.

ZONING DISTRICT: R-40

PROPERTY IS LOCATED WITHIN AN AREA HAVING A ZONE DESIGNATION OF VE (ELEV 18), VE (ELEV 17), AE (ELEV 15) AND MINIMAL FLOOD HAZARD ZONE X BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), ON FLOOD INSURANCE RATE MAP NO. 25001C0501J, WITH A MAP EFFECTIVE DATE OF JULY 16, 2014.

THIS LOT IS LOCATED WITHIN THE BOURNE BACK RIVER ACEC.
 THIS LOT IS NOT LOCATED WITHIN A DEP APPROVED ZONE II WELLSHEAD PROTECTION AREA.
 THIS LOT IS NOT MAPPED WITHIN A MESA NATURAL HERITAGE AND ENDANGERED SPECIES AREA.

DEED REFERENCE: CERTIFICATE 231961 PLAN REFERENCE: LC PLAN 22485-8

OWNER: BRUCE TOFIAS
 76 PLAIN ROAD, WAYLAND, MA 01778

CONSERVATION NOTES

PRIOR TO ANY WORK COMMENCING, THE DEP FILE NUMBER SHALL BE POSTED ON A SIGN ON THE STREET SIDE OF THE LOT AND MAINTAINED IN A VISIBLE CONDITION THROUGHOUT THE PROJECT.

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 OR 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.

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.

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DATE	DESCRIPTION	BY	CHK

PREPARED FOR:
 BRUCE TOFIAS
 76 PLAIN ROAD
 WAYLAND, MA 01778

PROJECT:
 55 MARYLAND AVENUE
 BOURNE, MASSACHUSETTS

SHEET NO.: 1 OF 1 DATE: SEPTEMBER 11, 2023

DRAWN BY: LAC CHECKED BY: RLR

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

DRAWING TITLE:
**SEPTIC REPAIR DESIGN PLAN
 (NO INCREASE IN DESIGN FLOW)**

ASSESSORS INFORMATION: MAP 30.2-10-0

