

SCHEDULE OF ELEVATIONS

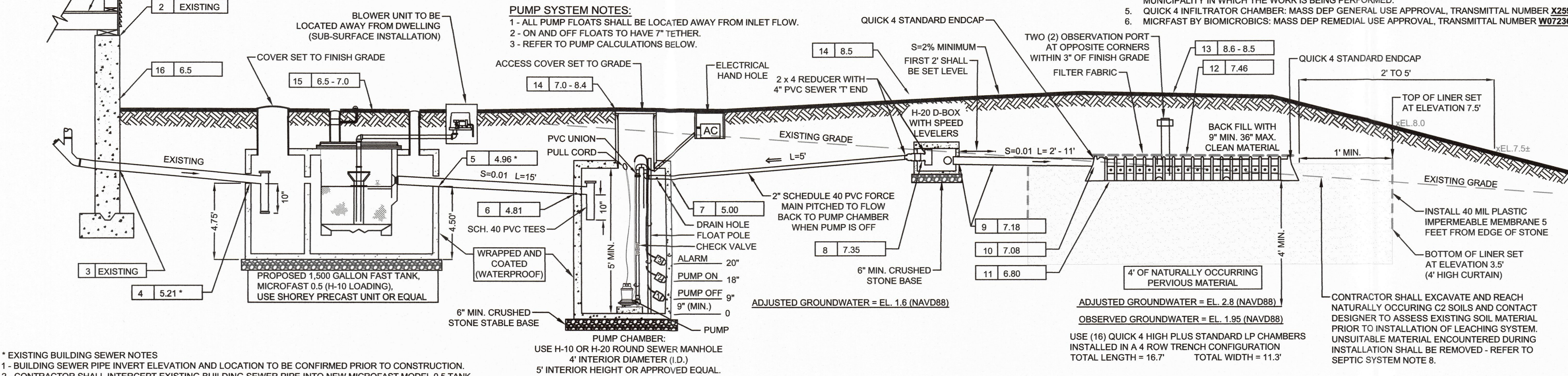
1	FIRST FLOOR =
2	TOP OF FOUNDATION =
3	PIPE INV. AT FOUNDATION =
4	INV. OF PIPE AT SEPTIC TANK INLET =
5	INV. OF PIPE AT SEPTIC TANK OUTLET =
6	INV. OF PIPE AT PUMP CHAMBER INLET =
7	INV. OF PIPE AT PUMP CHAMBER OUTLET =
8	INV. OF PIPE AT D-BOX INLET =
9	INV. OF PIPE AT D-BOX OUTLET =
10	INV. OF PIPE AT LEACHING FIELD INLET =
11	BOTTOM OF LEACHING FIELD =
12	TOP OF INFILTRATOR UNITS (FILTER FABRIC) =
13	FINISHED GRADE OVER LEACHING FACILITY =
14	FINISHED GRADE OVER D-BOX =
15	FINISH GRADE OVER SEPTIC TANK =
16	FINISH GRADE AT FOUNDATION =

HOUSE

1. EXISTING BUILDING SEWER NOTES
1. BUILDING SEWER PIPE INVERT ELEVATION AND LOCATION TO BE CONFIRMED PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL INTERCEPT EXISTING BUILDING SEWER PIPE INTO NEW MICROFAST MODEL 0.5 TANK.
3. THE CONTRACTOR SHALL CONTACT THE DESIGNER IF HE ENCOUNTERS EXISTING CONDITIONS IN CONFLICT WITH THE DESIGN.

SEWAGE SYSTEM PROFILE & DETAILS

NOT TO SCALE



NOTES:

- FURNISH RISERS TO SET COVERS WITHIN 6 INCHES OF FINISH GRADE EXCEPT AS NOTED.
- H-10 MICRO FAST TANK, PUMP CHAMBER MANHOLE AND H-20 DISTRIBUTION BOX (D-BOX)
- USE SCHEDULE 40 PVC PIPE THROUGHOUT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A TRENCH PERMIT FROM THE LOCAL MUNICIPALITY IN WHICH THE WORK IS BEING PERFORMED.
- QUICK 4 INFILTRATOR CHAMBER, MASS DEP GENERAL USE APPROVAL, TRANSMITTAL NUMBER **X259183**
- MICROFAST BY BIOMICROBICS, MASS DEP REMEDIAL USE APPROVAL, TRANSMITTAL NUMBER **W02367**

DESIGN DATA

- TYPE OF ESTABLISHMENT: 2-BEDROOM RESIDENCE
- SEWAGE SYSTEM DESIGN FLOW: 110 GALLONS PER BEDROOM = 110 x 2 = 220 GPD
- NOTE: THIS SEPTIC SYSTEM IS NOT DESIGNED FOR A GARBAGE GRINDER
- KEEP EXISTING 1,000 GALLON SEPTIC TANK
- DESIGN PERCOLATION RATE: ASSIGNED LESS THAN 5 MINUTES PER INCH
- SOIL ABSORPTION SYSTEM TYPE: INFILTRATOR CHAMBER BED SYSTEM
- LEACHING AREA REQUIRED: MINIMUM 220 GPD / (0.74 GPD/S.F., CLASS 1 SOIL) = 297 S.F.
- LEACHING SYSTEM PROPOSED: 4 ROWS OF 4 INFILTRATOR CHAMBERS FOR A TOTAL OF 64 L.F. ADDITIONAL LENGTH BY STANDARD ENDCAP = 1.1 FEET PER PAIR OF ENDCAP (4 TOTAL) = 4.4 L.F. EFFECTIVE LEACHING AREA PER LINEAL FEET = 4.73 S.F. / L.F. OF CHAMBER TOTAL AREA PROPOSED = (64 L.F. x 3.3 L.F.) x 4.73 S.F. / L.F. = 323.5 S.F.
- LEACHING SYSTEM CAPACITY PROPOSED = 323.5 S.F. x 0.74 GPD/S.F. = 239 GPD

PUMP CHAMBER NOTES AND DOSING CALCULATIONS

PROPOSED PUMP DISCHARGE RATE = 47 GALLONS PER MINUTE (GPM) @ 8.5 TDH
PROPOSED DOSE PER CYCLE = 220 GALLONS / 3 = 73 GALLONS

PUMP CHAMBER SIZE: 4' INTERIOR DIAMETER x 5' INTERIOR HEIGHT MINIMUM
DEPTH OF DOSE = (73 GAL./7.48 GAL./CU.FT.) / (2 FT. x 2 FT. x 3.14 FT.) = 0.75 FT.
DEPTH OF DAILY FLOW = (220 GAL./7.48 GAL./CU.FT.) / (2 FT. x 2 FT. x 3.14 FT.) = 2.34 FT.

FRICTION LOSS CALCULATIONS:

- VERTICAL HEAD LOSS:
EL. 7.70 (D-BOX INLET CROWN) - EL. 1.00 (PUMP CHAMBER BOTTOM) = 6.7 FT.
- FRICTION HEAD LOSS:
5 FT. OF 2" PVC PIPE x 5.87/100 FT. @ 45 GAL./MIN = 0.29 FT.
3 FT. MINOR HEAD LOSS FROM FITTINGS (EQUIVALENT LENGTH OF 41 FT.) = 41 FT. OF 2" PVC PIPE x 5.87/100 FT. @ 45 GAL./MIN = 2.40 FT.

TOTAL HEAD LOSS = 6.7 FT. + 0.29 FT. + 2.40 FT. = 9.4 FT. AT 45 GALLONS PER MINUTE

USE LIBERTY MODEL FL-30 SERIES 1/3 H.P. RATED AT 45 G.P.M. FOR 9.4 FT. OF HEAD (OR EQUAL)
ESTIMATED PUMP RUN TIME PER DOSE = 1.6 MINUTES

INSTALL THREE MERCURY FLOAT SWITCHES: OFF, ON AND ALARM.
ALARM ACTIVATION WILL INDICATE PUMP FAILURE.
A MINIMUM OF 24 HOUR RESERVE CAPACITY IS PROVIDED ABOVE ALARM ACTIVATION.
220 GALLONS OF RESERVE CAPACITY IS PROVIDED PER MINIMUM REQUIREMENTS.

ELECTRICIAN SHALL INSTALL A SIMPLEX CONTROL PANEL TO BE LOCATED IN AN ACCESSIBLE AREA.
AN ELECTRICAL PERMIT IS REQUIRED FOR ALARM AND PUMP INSTALLATION.

BUOYANCY CALCULATIONS FOR PUMP CHAMBER:
STRUCTURE DEAD WEIGHT = 7,300 LBS (DOWNWARD WHEN STRUCTURE IS EMPTY)
BUOYANCY FORCE = 2,231 LBS (UPWARD - GROUNDWATER AT EL. 2.8 NAVD88)
NO COUNTER-BUOYANT MEASURE NEEDED

LOCAL UPGRADE APPROVAL REQUEST

NO	DESCRIPTION	BYLAW REQUIRED	TITLE 5 REQUIRED	PROPOSED	WAIVER
1	SOIL ABSORPTION SYSTEM TO GROUNDWATER	5 FT.	5 FT.	4 FT.	1 FT.
2	SOIL ABSORPTION SYSTEM TO PROPERTY LINE	10 FT.	5 FT.	5 FT.	5 FT.
3	SOIL ABSORPTION SYSTEM TO STREET	10 FT.	10 FT.	3 FT.	7 FT.
4	PUMP CHAMBER TO FOUNDATION	10 FT.	10 FT.	6 FT.	4 FT.
5	MICROFAST TANK TO FOUNDATION	10 FT.	10 FT.	6 FT.	4 FT.
6	MICROFAST TANK TO PROPERTY LINE	10 FT.	10 FT.	4 FT.	6 FT.
7	SOIL ABSORPTION SYSTEM TO WETLAND	150 FT.	50 FT.	64 FT.	86 FT.
8	EXTENT OF UNSUITABLE SOIL STRIPOUT	5 FT.	5 FT.	2 FT.	3 FT.

A 40 MIL POLY-LINER IS PROPOSED AROUND THE PERIMETER OF THE SOIL ABSORPTION SYSTEM TO PROVIDE THE SAME PROTECTION AS THE REQUIRED 15 MINIMUM BREAKOUT SETBACK.

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.

ZONING DISTRICT: R-40

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

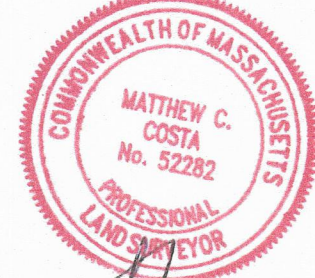
THIS LOT IS NOT LOCATED WITHIN A DEP APPROVED ZONE II WELLHEAD PROTECTION AREA.

DEED REFERENCE: CERTIFICATE 201084 PLAN REFERENCE: LC PLAN 11468-B (SH 2)

OWNER: THOMAS TABORELLI
PO BOX 3025, BUZZARDS BAY, MA 02532-3025

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 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.
- 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" PVC SCHEDULE 40 PIPE.



NOTICE

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DATE	DESCRIPTION	BY	CHK
2/3/21	REVISE SEPTIC DESIGN TO INCLUDE A MICROFAST TANK	RLR	RLR
12/18/20	ADD SOIL TEST INFO, REVISE SEPTIC DESIGN ELEVATIONS & CALCULATIONS	RLR	RLR

PREPARED FOR:

THOMAS TABORELLI
PO BOX 3025
BUZZARDS BAY, MA 02532-3025

PROJECT:

24 NORTH BEACH AVENUE
BOURNE, MASSACHUSETTS

SHEET NO.: 1 OF 1

DATE: OCTOBER 21, 2020

DRAWN BY: MPR

CHECKED BY: MC

PREPARED BY:



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DRAWING TITLE:

SEPTIC DESIGN PLAN
(NO INCREASE IN FLOW)

ASSESSORS INFORMATION: MAP 30.2 PARCEL 87

RECEIVED

FEB 03 2021

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Bourne, MA 02532