

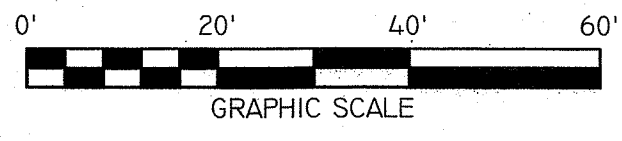
Environmental Management
 NOV 24 2021
 Office of Water Resources

Kindly be advised that this Permit is not equivalent to a verification of the type or extent of freshwater wetlands on site.

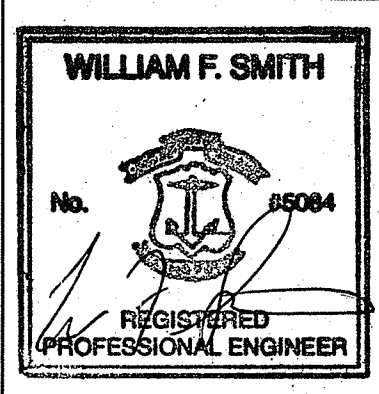
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
 APPROVED WITH CONDITIONS
 AS SPECIFIED IN THE LETTER OF APPROVAL
 DATED NOV 24 2021 FILE # 21-0222
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Martin D. Wenczek

LEGEND

- EXIST. CONTOUR
- PROP. CONTOUR
- STONE WALL
- E.P.
- UTILITY POLE
- EDGE OF VEGETATION
- PROPOSED COMPOST FILTER SOCK OR SILT FENCE = LIMITS OF DISTURBANCE
- DELINEATED WETLAND EDGE
- ADJUSTED WETLAND EDGE PER RIDEM STAFF ON 11/23/2021



NOTE:
 EXISTING CESSPOOL TO BE PUMPED AND COLLAPSED
 IN PLACE OR REMOVED IN ACCORDANCE WITH RI DEM
 AND RI DOH REQUIREMENTS



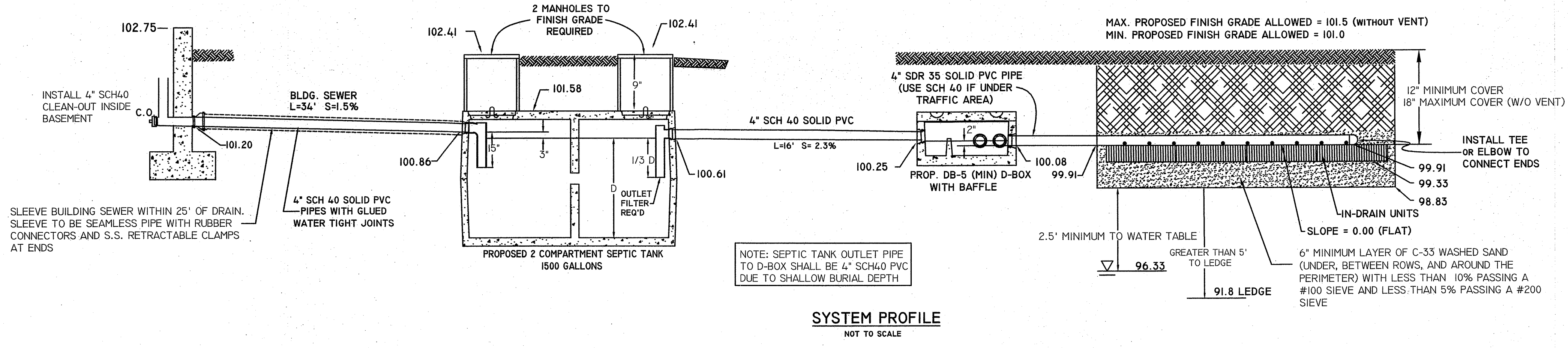
#3: 11/23/21: ADJ. HOUSE LOC., OWTS LOC., GRADING, LOD, WETLAND EDGE PER RIDEM SITE VISIT
#2: 11/10/21: ADJ. HOUSE LOCATION AND GRADING
#1: 11/03/21: REV. HOUSE FOOTPRINT, LOCATION & GRADING
REVISIONS:

PROPOSED OWTS REPAIR PLAN
 PREPARED FOR
ALEX TAVARES
 ASSESSOR'S PLAT 217 LOT III
 1103 BULGARMARSH ROAD
 TIVERTON, RHODE ISLAND

SCALE: 1" = 20' DATE: AUGUST 6, 2021

Civil Engineering Concepts, Inc.
 34A MAIN STREET P.O. BOX 5323
 LITTLE COMPTON, RI 02837 NEW BEDFORD, MA 02742
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SHEET 1 OF 2 JOB#: 18-020



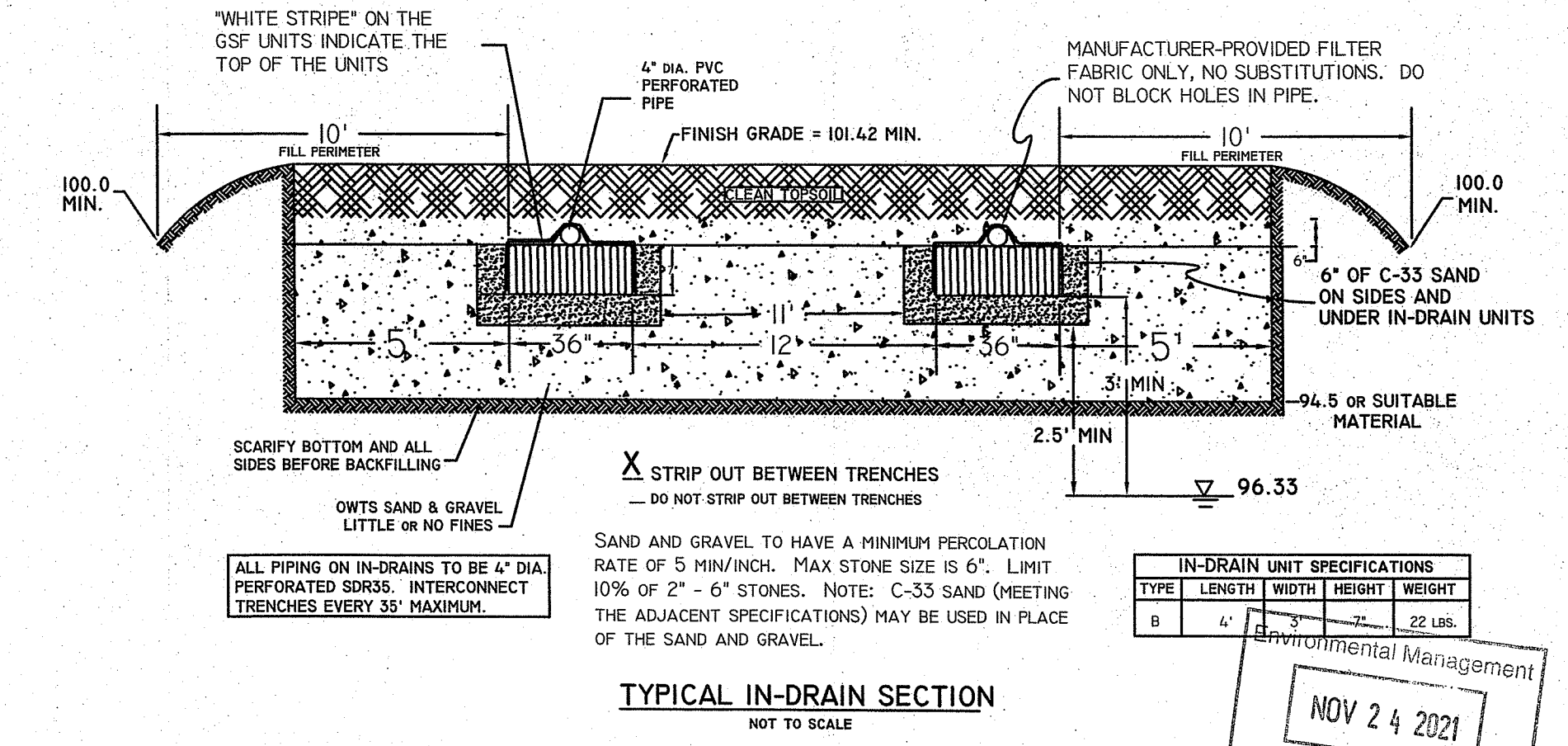
BASIS OF SANITARY DESIGN:
 NUMBER OF BEDROOMS: 4 (TWO 2-BEDROOM UNITS)
 GARBAGE GRINDER: NOT ALLOWED
 ESTIMATED SEWAGE FLOW: 460 GAL/DAY
 SIZE OF SEPTIC TANK: 1500 GALLONS (2-COMPARTMENT)
 SOIL CATEGORY: 7, L.R. = 0.52 GAL/SF/DAY

LEACHING AREA REQUIRED: 460 GPD
 = 884.7 S.F. REQUIRED
 0.52 L.R.

LEACHING AREA PROVIDED: 3 IN-DRAIN TRENCHES AT 33' LONG
 4' WIDE W/ 6" OF ASTM C-33 SAND ON SIDES AND UNDER

36 IN-DRAIN UNITS X 28 SF/UNIT = 1008 S.F. PROVIDED
 1008 S.F. X 0.52 L.R. = 524 GPD (SYSTEM CAPACITY)

PROP. INVERT AT FOUNDATION 101.53
INVERT INTO SEPTIC TANK 100.86
INVERT OUT OF SEPTIC TANK 100.61
INVERT INTO D-BOX 100.25
INVERT OUT OF D-BOX 100.08
INVERT AT BEGINNING OF TRENCH 99.91
INVERT AT END OF TRENCH 99.91
BOTTOM OF IN-DRAIN 99.33
BOTTOM OF C-33 SAND 98.83
BOTTOM OF OWTs SAND & GRAVEL 94.5 (OR SUITABLE MATERIAL)
ELEVATION OF WATER TABLE 96.33 (26")
ELEVATION OF LEDGE 91.8 (80")
AVERAGE EXIST. GRADE AT OWTs 98.5



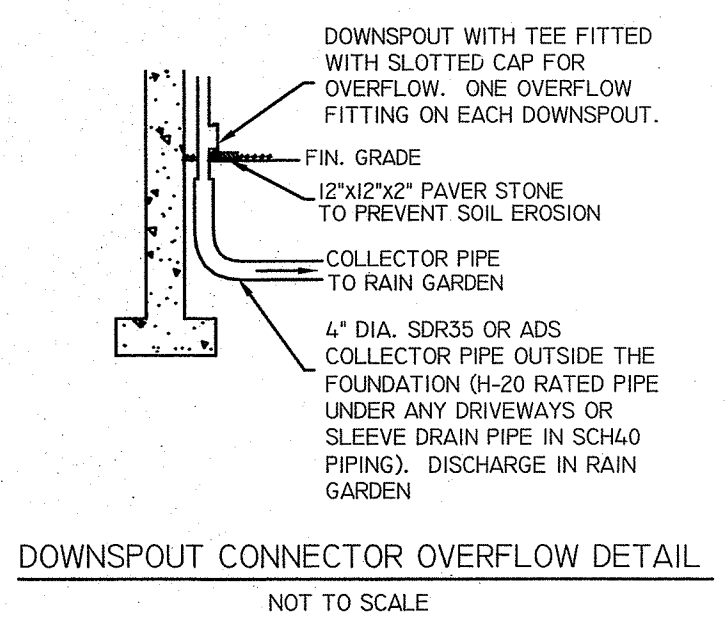
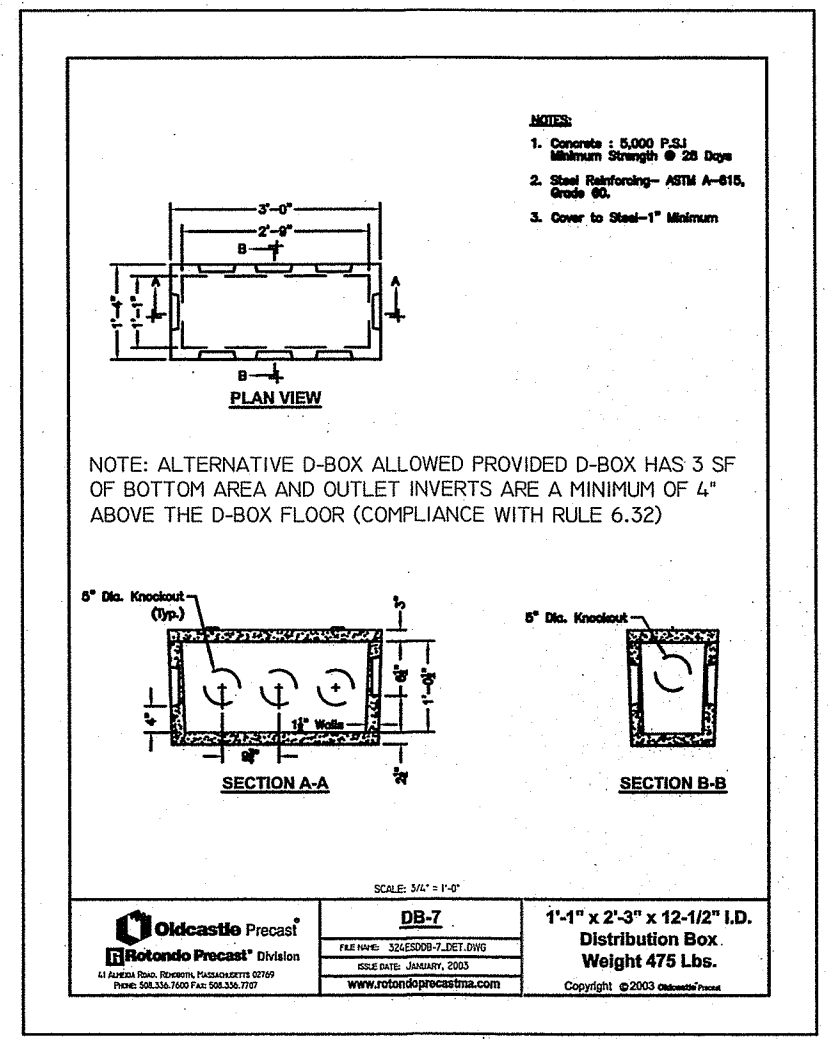
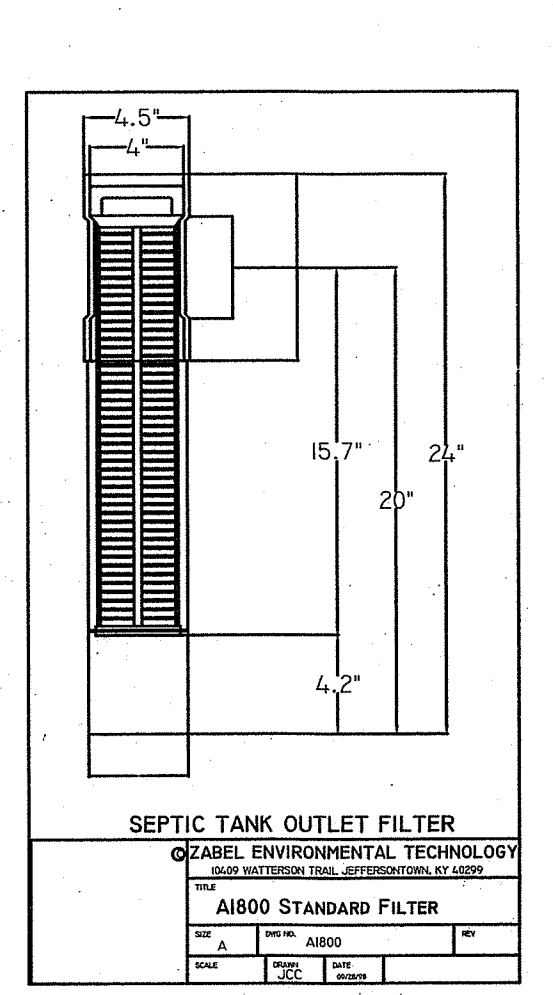
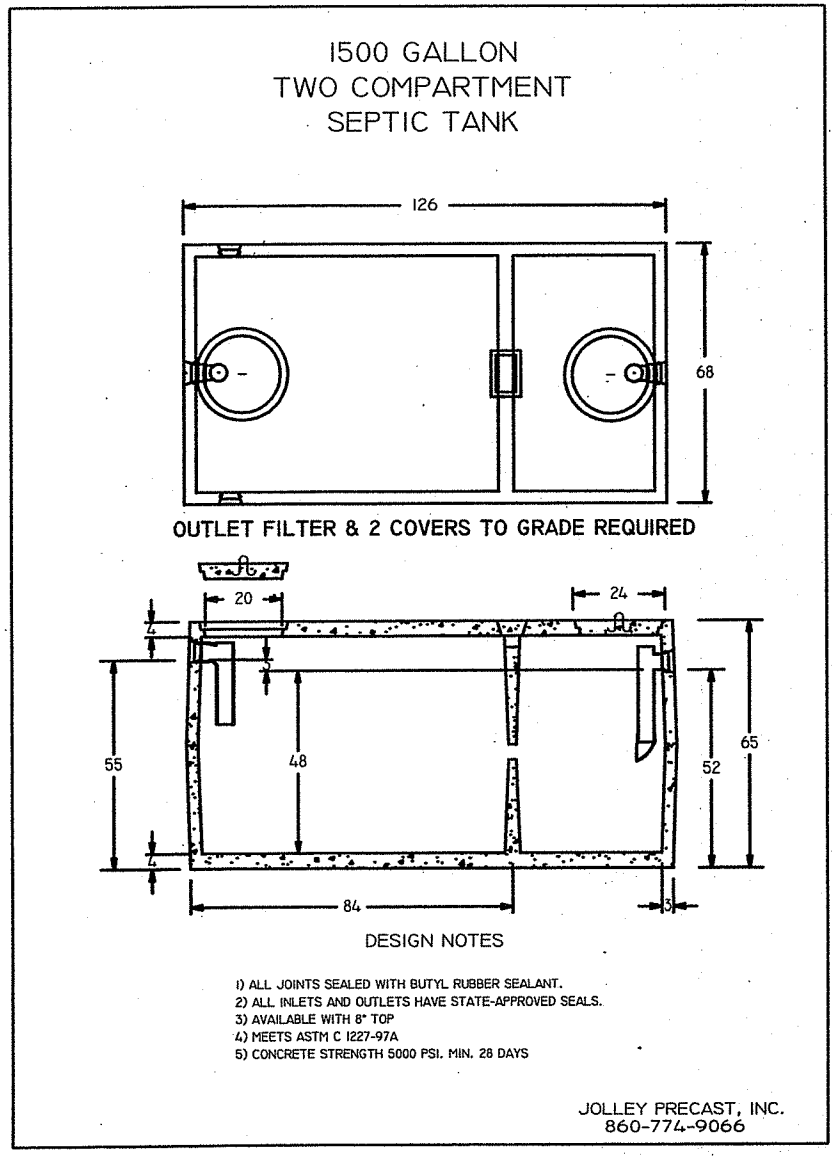
IN-DRAIN UNIT SPECIFICATIONS

TYPE	LENGTH	WIDTH	HEIGHT	WEIGHT
B	4'	2'	2'	22 lbs.

NOV 24 2021
 Office of Water Resources

- NOTES**
1. ALL CONSTRUCTION SHALL CONFORM TO THE STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS DEPARTMENT OF ENVIRONMENTAL MANAGEMENT - RULES AND REGULATIONS ESTABLISHING MINIMUM STANDARDS RELATING TO LOCATION, DESIGN, CONSTRUCTION AND MAINTENANCE OF ONSITE WASTEWATER TREATMENT SYSTEMS AS MOST RECENTLY AMENDED.
 2. ALL WORK SHALL BE DONE IN A WORKMANLIKE MANNER WITH LINES LAID AS STRAIGHT AS POSSIBLE AND JOINTS MADE WATERTIGHT. ALL WORK TO BE DONE BY AN INSTALLER LICENSED IN THE STATE OF RHODE ISLAND.
 3. SEPTIC TANK TO BE JOLLEY PRECAST 1500 GALLON TWO COMPARTMENT SEPTIC TANK. TWO SEPTIC TANK COVERS TO BE BROUGHT TO FINISH GRADE. OUTLET FILTER REQUIRED.
 4. DISTRIBUTION BOX TO BE JOLLEY PRECAST DB-5 (MIN.) D-BOX OR APPROVED EQUALS CONFORMING TO RULE 5. ALL DISTRIBUTION LINES EXTENDING ONE FOOT FROM D-BOX (TO START OF TRENCH) TO BE SOLID SDR35 OR SCH40. A DROP OF 2" IS REQUIRED FROM THE D-BOX TO THE START OF THE TRENCHES. BAFFLES OR INLET TEE REQUIRED IN D-BOX.
 5. INSTALLATION OF THE ELJEN IN-DRAIN (GSF) SYSTEM SHALL CONFORM TO THE "GEOTEXTILE SAND FILTER, RHODE ISLAND DESIGN 8, INSTALLATION MANUAL" AS MOST RECENTLY AMENDED.
 6. 6" MINIMUM LAYER OF C-33 WASHED SAND REQUIRED UNDER AND ON SIDES OF IN-DRAIN UNITS UP TO 2" ABOVE TOP OF PIPE. C-33 SAND SHALL HAVE LESS THAN 10% PASSING A #100 SIEVE AND LESS THAN 5% PASSING A #200 SIEVE.
 7. LEACHING AREA EXCAVATION SHALL BE LEVEL AND SCARIFIED. EXCAVATION SHALL BE STRIPPED OF ALL BRUSH, TREES, TOPSOIL, SUBSOIL, AND OTHER UNDESIRABLE MATERIAL AND BACKFILLED WITH CLEAN COARSE SAND, GRAVEL OR STONE, AS DESIGNATED ON THE PLAN. SAND AND GRAVEL TO HAVE A MINIMUM PERCOLATION RATE OF 5 MIN/INCH. MAX STONE SIZE IS 6". LIMIT 10% OF 2" - 6" STONES. NOTE: C-33 SAND (MEETING THE ABOVE SPECIFICATION) MAY BE USED IN PLACE OF THE SAND AND GRAVEL.
 8. ALL BACKFILL MATERIAL PLACED OVER THE SEPTIC SYSTEM SHALL BE FREE OF LARGE STONES, RUBBISH, OR OTHER DELETERIOUS MATERIALS. HEAVY EQUIPMENT SHALL NOT BE ALLOWED TO RUN OVER THE LEACHING AREA.
 9. THE SYSTEM IS NOT DESIGNED TO ACCOMMODATE A GARBAGE GRINDER, WATER SOFTENER, OR JACUZZI.
 10. FOR PROPER OPERATION, THE SEPTIC TANK SHALL BE INSPECTED ANNUALLY AND PUMPED AT NO GREATER THAN 2 YEAR INTERVALS. OUTLET FILTER TO BE INSPECTED AND CLEANED SEMI-ANNUALLY.
 11. NO PARKING IS PERMITTED IN THE VICINITY OF THE OWTs.
 12. DIG SAFE NOTIFICATION IS REQUIRED PRIOR TO ANY EXCAVATION.
 13. CONTRACTOR TO INSTALL 12" MINIMUM COVER OVER THE IN-DRAIN UNITS. CONTRACTOR IS TO INSURE 6" LOAM AND SEED OVER ALL DISTURBED AREAS UNLESS OTHER ARRANGEMENTS HAVE BEEN MADE FOR FINISH LANDSCAPING.
 14. PROPERTY LINES AS DEPICTED ON THIS PLAN ARE APPROXIMATE ONLY AND ARE NOT BASED ON A BOUNDARY SURVEY.
 15. CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL SAFETY AND BUILDING CODES ARE FOLLOWED.
 16. DESIGNER TO BE NOTIFIED 72 HOURS (3 WORKING DAYS) PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR IS TO INSURE THAT DESIGNER IS NOTIFIED 2 WORKING DAYS IN ADVANCE OF REQUIRED INSPECTION SO PROPER NOTIFICATION TO RIDEM CAN BE MADE. FAILURE TO PROVIDE ADVANCE NOTICE WILL RESULT IN DELAYS TO THE CONTRACTOR. WORK SHALL NOT CONTINUE UNTIL THE PREVIOUS STAGE IS APPROVED.

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 William F. Smith



SEPTIC TANK BUOYANCY CALCULATION:
 Tank type: 1500 Gallon H-10 Tank Wt.: 12,400 lbs.
 Weight of Earth Cover (min. of 9" of soil on tank): 4,230 lbs.
 Upward lift (neglecting soil friction):
 10.5' (length) x 5.66' (width) x 4.0' (max. submerged depth) x 62.4 lbs./c.f. = 14,834 lbs.

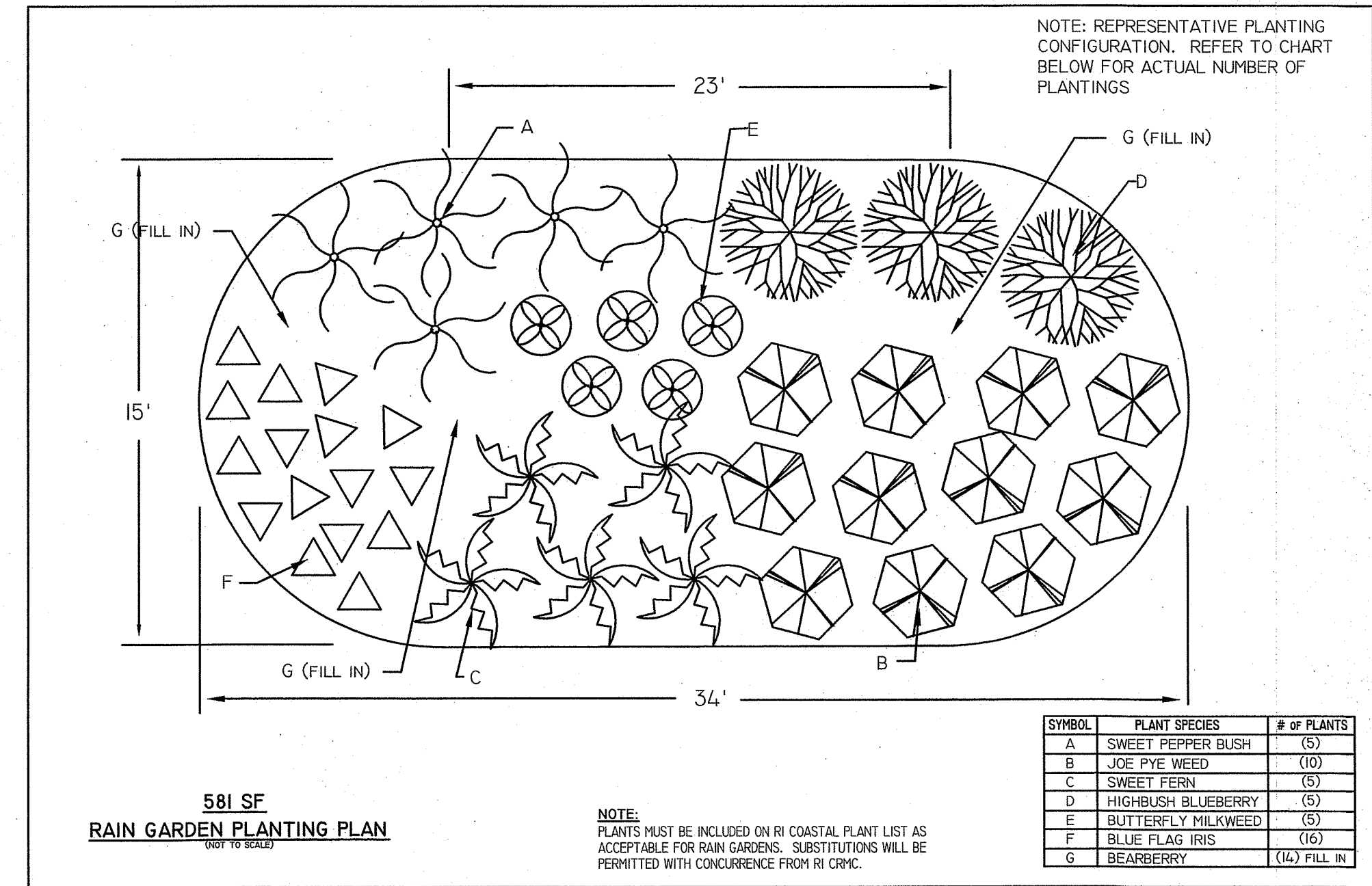
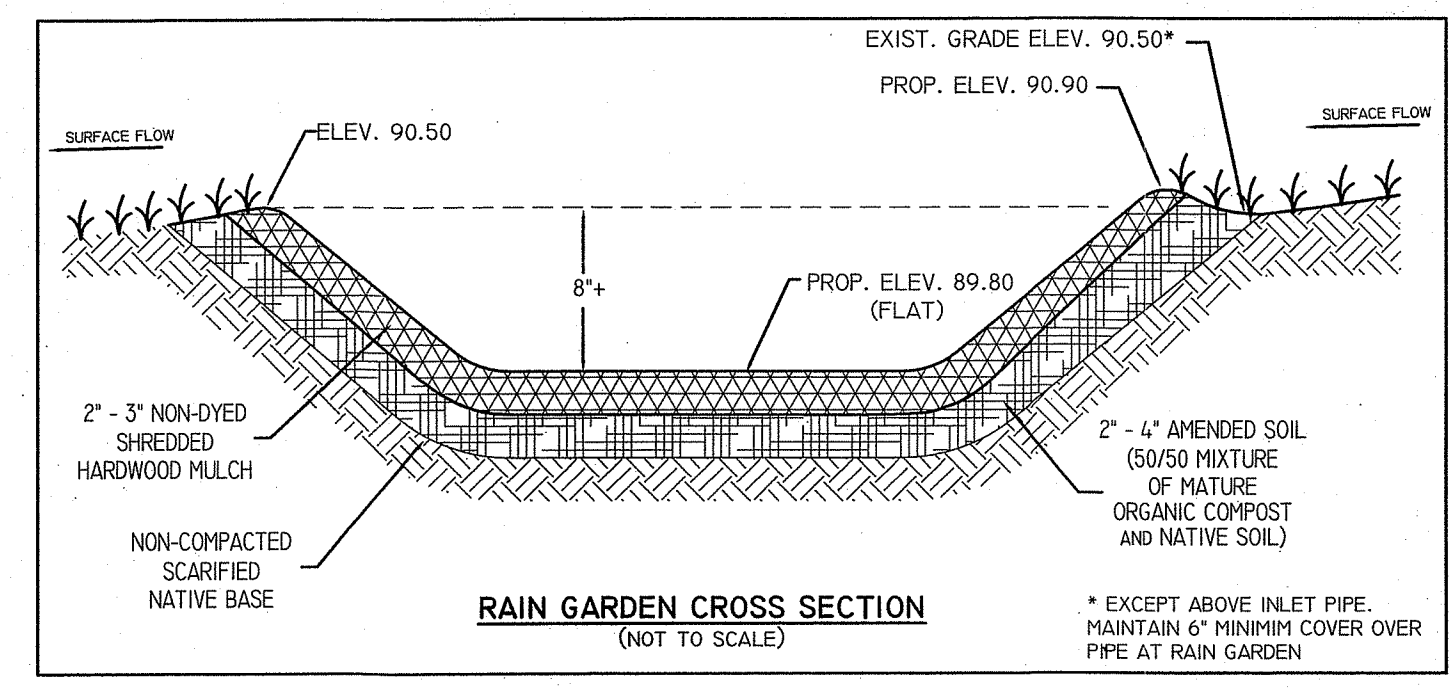
Safety factor:
 $\frac{12,400 + 4,230}{14,834} = 1.12$

PROPOSED IMPERVIOUS COVERAGE:
 2016 SF PROPOSED BUILDING (INCL. DECK & PORCH)
 2,016 SF TOTAL IMPERVIOUS COVERAGE PROPOSED
 (DRIVEWAY TO BE PERVIOUS GRAVEL)

PER RI STORMWATER MANAGEMENT GUIDELINES FOR INDIVIDUAL SINGLE FAMILY RESIDENTIAL LOT DEVELOPMENT, TABLES 7 AND 8, RAIN GARDEN SIZING;

2,016 SF OF DRAINAGE AREA IN SILTY SOILS REQUIRES 323 SF OF RAIN GARDEN AT 8" DEEP
 [160 SF/1000 SF] X 2016 = 323 SF REQ'D]

PROPOSED: 363 SF OF RAIN GARDEN, 8" DEEP (MINIMUM)



RAIN GARDEN DETAILS FOR ROOF RUNOFF
 NOT TO SCALE

WILLIAM F. SMITH
 REGISTERED PROFESSIONAL ENGINEER

PROPOSED OWTs REPAIR PLAN
 PREPARED FOR
ALEX TAVARES
 ASSESSOR'S PLAT 217 LOT III
 1103 BULGARMARSH ROAD
 TIVERTON, RHODE ISLAND

SCALE: NONE DATE: AUGUST 6, 2021

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REVISIONS:
 #3: 11/23/21: REVISE INVERT ELEVATIONS
 #2: 11/10/21: ADJ. HOUSE LOCATION AND GRADING
 #1: 11/03/21: ADJ. INVERTS, ADJ. RAIN GARDEN

SHEET 2 OF 2 JOB#: 18-020