

LIMITATIONS - MAINTENANCE
 1. These systems have not been designed to accommodate a garbage grinder or sewage ejector pump within the dwelling. The use of these devices will require modification of the system as proposed herein to include as a minimum, greater septic tank capacity and a larger disposal area.

2. Water softener backwash shall not be discharged to the septic disposal system. Dry wells or seepage pits authorized by NJAC 7:14A-8.5(b) and constructed according to NJAC 7:14A-8.18 are recommended.

3. Lawn irrigation piping shall not be placed over the septic disposal area.

4. Maintenance of septic disposal systems shall include as a minimum, pumping of the septic tank at 2 - 3 year intervals and cleaning of the effluent filter as needed. (typically on a 6 - 12 month frequency with adjustment based on solids accumulation)

GENERAL NOTES

- This wastewater disposal system has been designed in accordance with the requirements of N.J.A.C. 7:9A 'Standards for Individual Subsurface Sewage Disposal Systems'.
- Soil testing was conducted in conformance with N.J.A.C. 7:9A-Subchapter 5, Determination of Soil Suitability and observed by a representative of the Warren Township Board of Health.
- Existing conditions including topography based on referenced drawing.
- The Contractor shall be responsible for obtaining any and all necessary permits including but not limited to septic construction, electrical, plumbing, soil disturbance or other related permits prior to the start of construction.
- Prior to the disposal bed stake-out and any construction, the contractor shall have all underground utilities located by the appropriate utility companies. NJ One-Call 800-272-1000
- The following are code defined setback distances:
 Disposal field to be a minimum of 100' from all wells
 Wastewater tanks to be a minimum of 50' from all wells
 Disposal field to be a minimum of 50' from disposal fields on adjacent lots
 Disposal field to be a minimum of 15' from dwelling with crawl space or slab
 Disposal field to be a minimum of 10' from water line
 Septic tank to be a minimum of 10' from dwelling


- The Contractor shall have the responsibility to insure that all materials used are in accordance with N.J.A.C. 7:9A et seq. and meet the specifications of this plan.
- Field changes to the design shall not be permitted. The Engineer and Health Department shall review and approve any deviations from this design.
- Existing tanks and seepage pits to be abandoned shall be pumped by a licensed waste hauler, crushed in place and backfilled with native soil. Care shall be taken to completely fill all voids to prevent soil settlement. Retain a copy of the tank pumping receipt for the Health Department.
- Following construction an As-Built drawing shall be prepared by the Engineer and submitted to the Health Department along with the results of the testing performed on the imported sand utilized in construction.

REFERENCE DRAWING:
 Minor Subdivision, Oak Avenue, Block 12, Lot 20.01, Township of Warren, Somerset County, New Jersey as prepared by East Point Engineering, LLC dated 7/20/21

SITE PLAN
 SCALE 1"=100'

PROPOSED LOT B			
SEPTIC SYSTEM DESIGN			
OAK AVENUE			
BLOCK 12 LOT 21.02			
WARREN TOWNSHIP			
SOMERSET COUNTY NEW JERSEY			
REVISION	DATE	DESIGNED:	DATE:
		GB	8/14/21
		CAD:	SCALE:
		GB	SHOWN
		SHEET:	1 OF 5

G BARKLEY ENGINEERING, LLC
 Cert. No. 24GA28229400
 27 Bradley Drive
 Freehold, NJ 07728
 phone: 609-286-8794



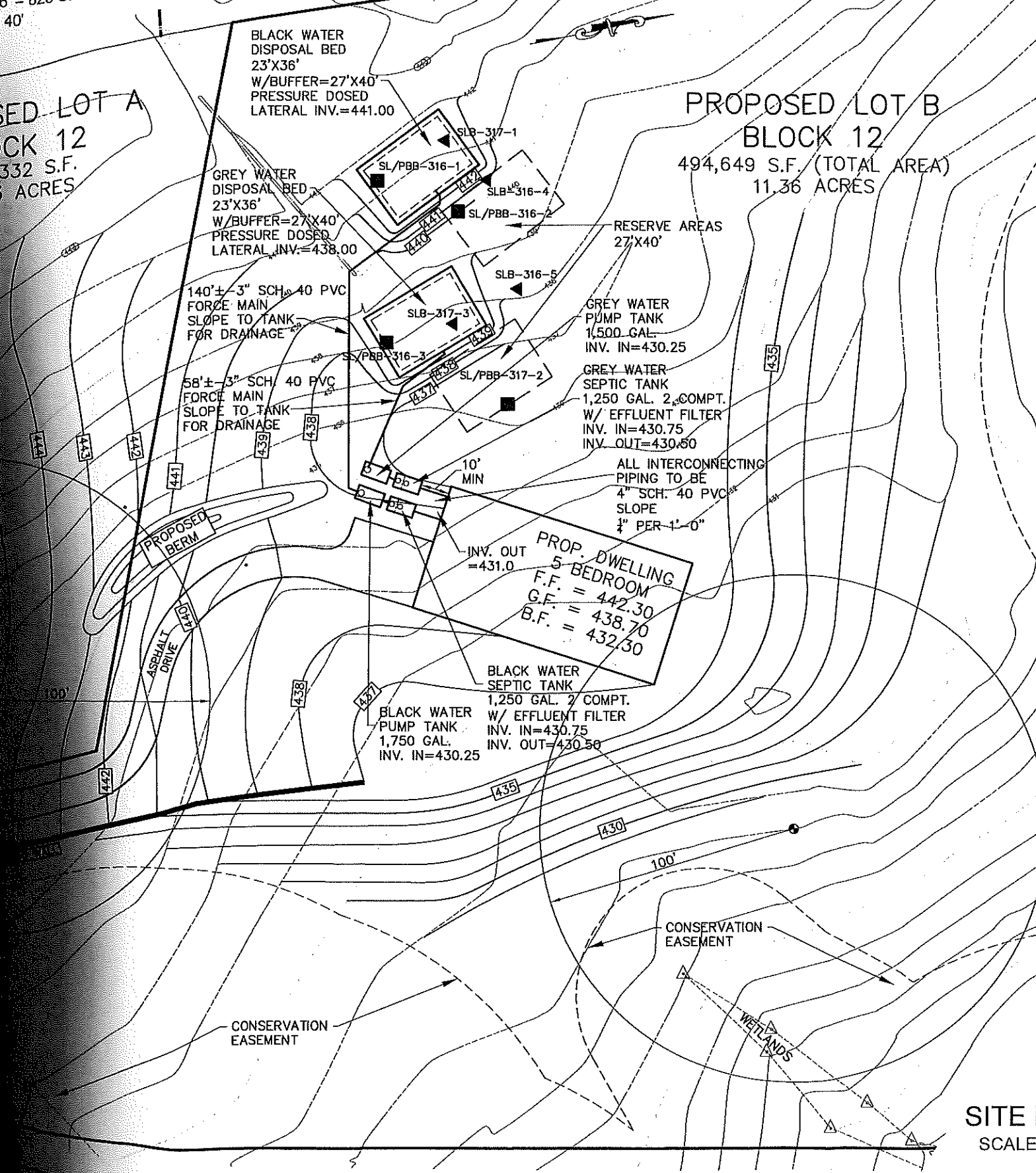
GREGG W. BARKLEY
 New Jersey Professional Engineer
 License No. GE34675

DESIGN NOTES

PROPOSED 5 BEDROOM DWELLING
 800 GPD X 1.33 SF/GPD = 1,064 SF
 SEPERATE GW/BW x 0.75
 AREA REQUIRED = 798 SF
 PROPOSE: 23' X 36' = 828 SF
 W/BUFFER = 27' X 40'

PROPOSED LOT A
 BLOCK 12
 132,332 S.F.
 3.03 ACRES

PROPOSED LOT B
 BLOCK 12
 494,649 S.F. (TOTAL AREA)
 11.36 ACRES



Soil Log #B-316-1 Performed 3/16/21
 0 - 10" 10YR 3/3 Dark brown silt loam topsoil, weak subangular blocky, moist, friable, Many roots.
 10 - 80" 10YR 6/6 Brownish yellow clay loam, moderate subangular blocky, moist, friable. 10% cobbles.
 80- 132" 7.5YR 4/3 Brown gritty loam, weak subangular blocky, wet, friable. 30-40% Coarse fragments and gravel.
 > 132" Stopped Test Groundwater entry at 96"
 Pitbail # B-316-1 was performed in Soil Log #B-316-1 at a depth of 132". Following a 12" rise in water over the 220 minute test period a permeability rate of 0.3 in/hr was calculated

Soil Log #B-316-2 Performed 3/16/21
 0 - 12" 10YR 3/3 Dark brown silt loam topsoil, weak subangular blocky, moist, friable, Many roots. 10% cobbles.
 12 - 84" 10YR 6/6 Brownish yellow clay loam, moderate subangular blocky, moist, friable. Common medium distinct mottles of 10YR 7/1 at 48".
 84- 132" 7.5YR 4/3 Brown gritty loam, weak subangular blocky, wet, friable. 30-40% Coarse fragments and gravel.
 > 132" Stopped Test Groundwater entry at 84"
 Pitbail # B-316-2 was performed in Soil Log #B-316-2 at a depth of 132". Following a 12" rise in water over the 90 minute test period a permeability rate of 0.7 in/hr was calculated

Soil Log #B-316-3 Performed 3/16/21
 0 - 12" 10YR 3/3 Dark brown silt loam topsoil, weak subangular blocky, moist, friable, Many roots. 30% gravel.
 12 - 72" 10YR 6/6 Brownish yellow clay loam, moderate subangular blocky, moist, friable. Common medium distinct mottles of 10YR 7/1 at 48". 30% gravel, 10% cobbles.
 72- 132" 7.5YR 4/3 Brown gritty loam, weak subangular blocky, wet, friable. 35-45% Coarse fragments and gravel.
 > 132" Stopped Test Groundwater entry at 84"
 Pitbail # B-316-3 was performed in Soil Log #B-316-3 at a depth of 132". Following a 12" rise in water over the 90 minute test period a permeability rate of 1.0 in/hr was calculated

Soil Log #B-316-4 Performed 3/16/21
 0 - 12" 10YR 3/3 Dark brown silt loam topsoil, weak subangular blocky, moist, friable, Many roots. 30% gravel.
 12 - 60" 10YR 6/6 Brownish yellow clay loam, moderate subangular blocky, moist, friable. 30% gravel, 10% cobbles.
 60 - 78" Non-soil, fractured rock. Hard and tight.
 > 78" Machine Refusal. Groundwater entry at 76"

Soil Log #B-316-5 Performed 3/17/21
 0 - 12" 10YR 3/3 Dark brown silt loam topsoil, weak subangular blocky, moist, friable, Many roots. 30% gravel.
 12 - 36" 10YR 6/6 Brownish yellow clay loam, moderate subangular blocky, moist, friable. 30% gravel, 10% cobbles.
 36 - 65" Non-soil, fractured rock. Hard and tight.
 > 65" Machine Refusal. Groundwater entry at 65"


Soil Log #B-317-1 Performed 3/17/21
 0 - 12" 10YR 3/3 Dark brown silt loam topsoil, weak subangular blocky, moist, friable, Many roots. 30% gravel.
 12 - 48" 10YR 6/6 Brownish yellow clay loam, moderate subangular blocky, moist, friable. Common medium distinct mottles of 10YR 7/1 at 48". 10% gravel, 20% cobbles.
 48- 132" 7.5YR 4/3 Brown gritty loam, weak subangular blocky, wet, friable. 35-45% Coarse fragments and gravel.
 > 132" Stopped Test Groundwater entry at 84"

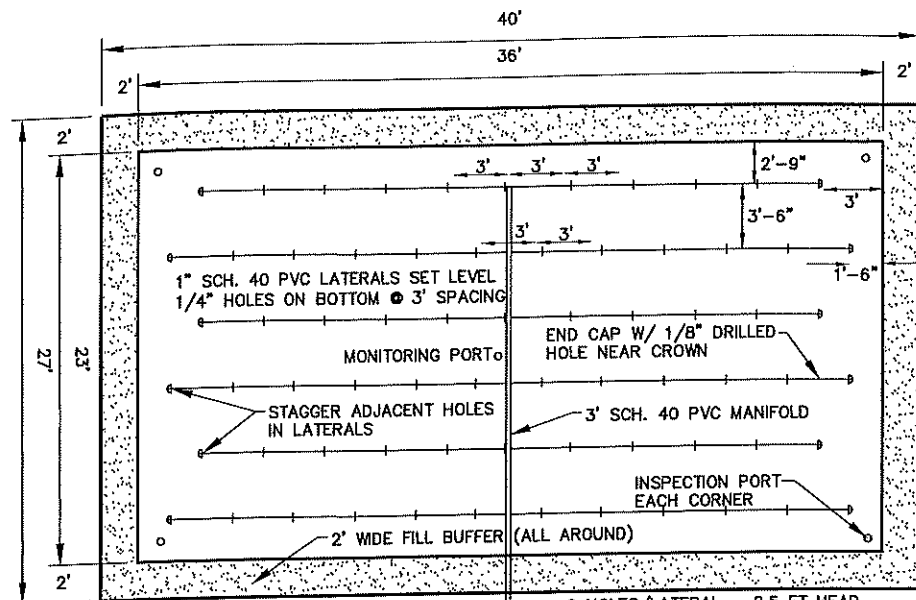
Soil Log #B-317-2 Performed 3/17/21
 0 - 12" 10YR 3/3 Dark brown silt loam topsoil, weak subangular blocky, moist, friable, Many roots. 30% gravel.
 12 - 48" 10YR 6/6 Brownish yellow clay loam, moderate subangular blocky, moist, friable. Common medium distinct mottles of 10YR 7/1 at 48". 10% gravel, 20% cobbles.
 48 - 84" 10YR 6/4 Lt. yellowish brown clay loam, moderate subangular blocky, moist, friable.
 84- 132" 7.5YR 4/3 Brown gritty loam, weak subangular blocky, wet, friable. 35-45% Coarse fragments and gravel.
 > 132" Stopped Test Groundwater entry at 90"

Pitbail #B-317-2 was performed in Soil Log #B-317-2 at a depth of 132". Following a 15" rise in water over the 180 minute test period a permeability rate of 0.7 in/hr was calculated

Soil Log #B-317-3 Performed 3/17/21
 0 - 12" 10YR 3/3 Dark brown silt loam topsoil, weak subangular blocky, moist, friable, Many roots. 30% gravel.
 12 - 48" 10YR 6/6 Brownish yellow clay loam, moderate subangular blocky, moist, friable. Common medium distinct mottles of 10YR 7/1 at 48". 10% gravel, 20% cobbles.
 48 - 84" 10YR 6/4 Lt. yellowish brown clay loam, moderate subangular blocky, moist, friable.
 84- 132" 7.5YR 4/3 Brown gritty loam, weak subangular blocky, wet, friable. 35-45% Coarse fragments and gravel.
 > 132" Stopped Test Groundwater entry at 96"

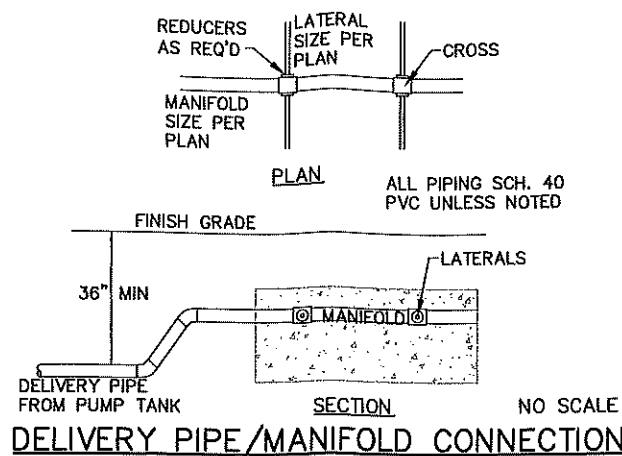
SITE PLAN
 SCALE 1"=50'

PROPOSED LOT B SEPTIC SYSTEM DESIGN OAK AVENUE BLOCK 12 LOT 21.02 WARREN TOWNSHIP SOMERSET COUNTY NEW JERSEY				G BARKLEY ENGINEERING, LLC Cert. No. 24GA28229400 27 Bradley Drive Freehold, NJ 07728 phone: 609-286-8794  GREGG W. BARKLEY New Jersey Professional Engineer License No. GE34675
REVISION	DATE	DESIGNED: GB	DATE: 8/14/21	
		CAD: GB	SCALE: SHOWN	
			SHEET: 2 OF 5	

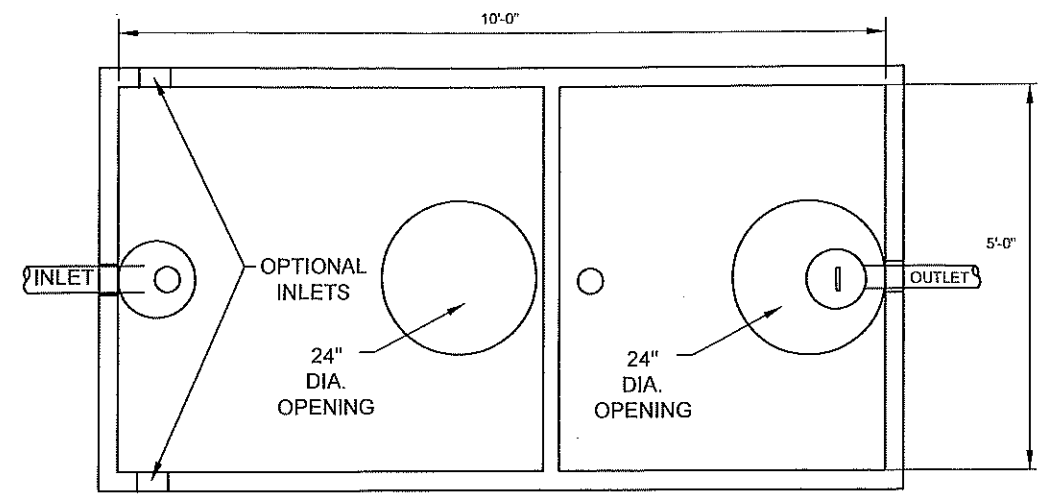


23' X 36' DISPOSAL BED W/ BUFFER NO SCALE

6 HOLES/LATERAL - 2.5 FT HEAD
 1.18 GPM/HOLE=7.1 GPM/LATERAL
 12 LATERALS = 85 GPM (MIN) FLOW



DELIVERY PIPE/MANIFOLD CONNECTION NO SCALE

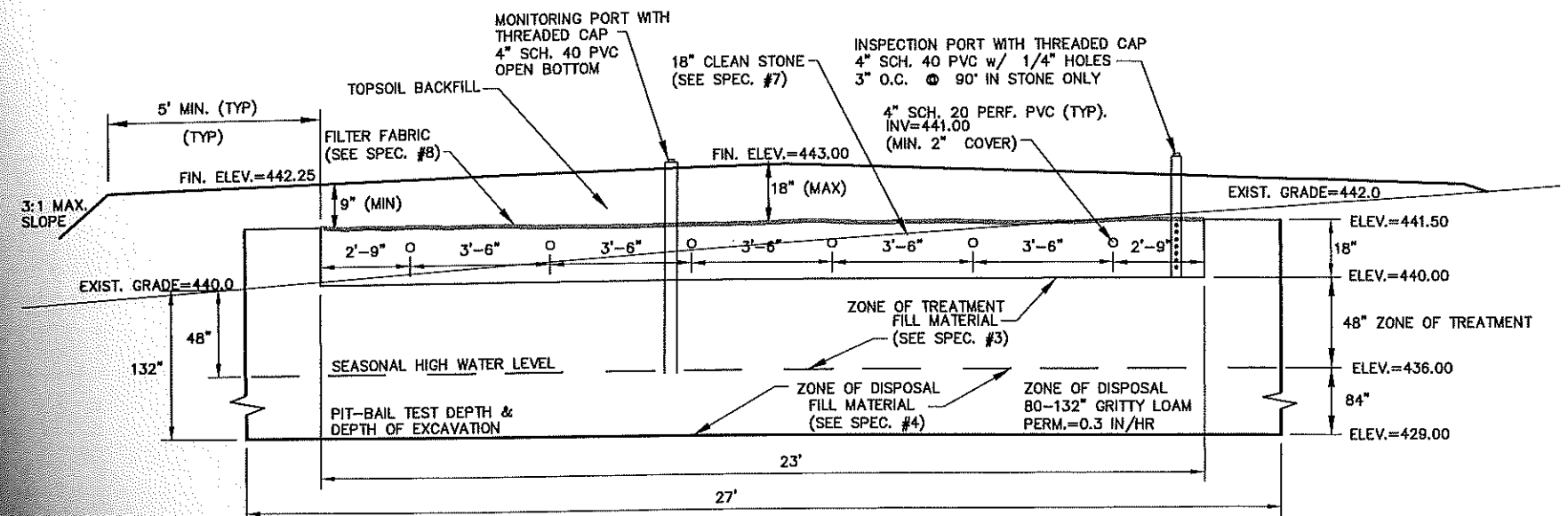


VERIFY TANK DIMENSIONS FROM MANUFACTURER PRIOR TO INSTALLATION

PLAN

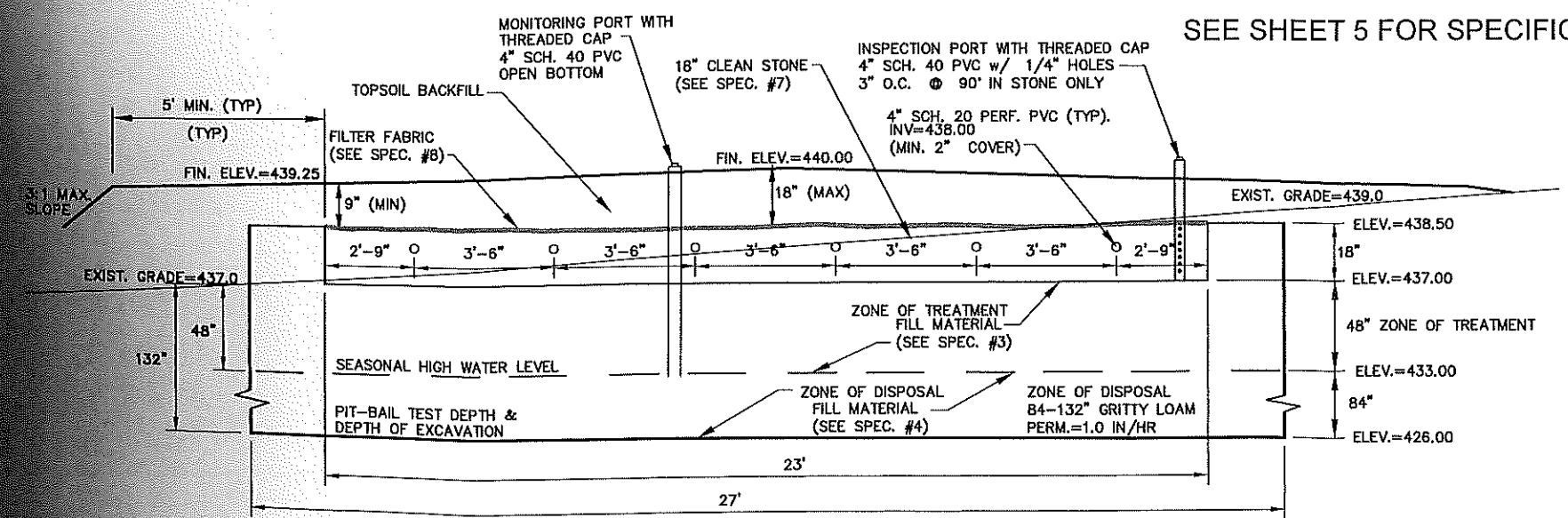
ATTACH PLACARD TO RISER OR COVER WITH THE FOLLOWING INFORMATION:
 1. WARREN TWP. HEALTH DEPT.
 2. PERMIT NUMBER
 3. DESIGN FLOW = 800 GPD
 4. SYSTEM TYPE = MSR
 5. MONTH & YEAR INSTALLED

TANK TO BE SUITABLE FOR UP TO 7 FT SOIL COVER

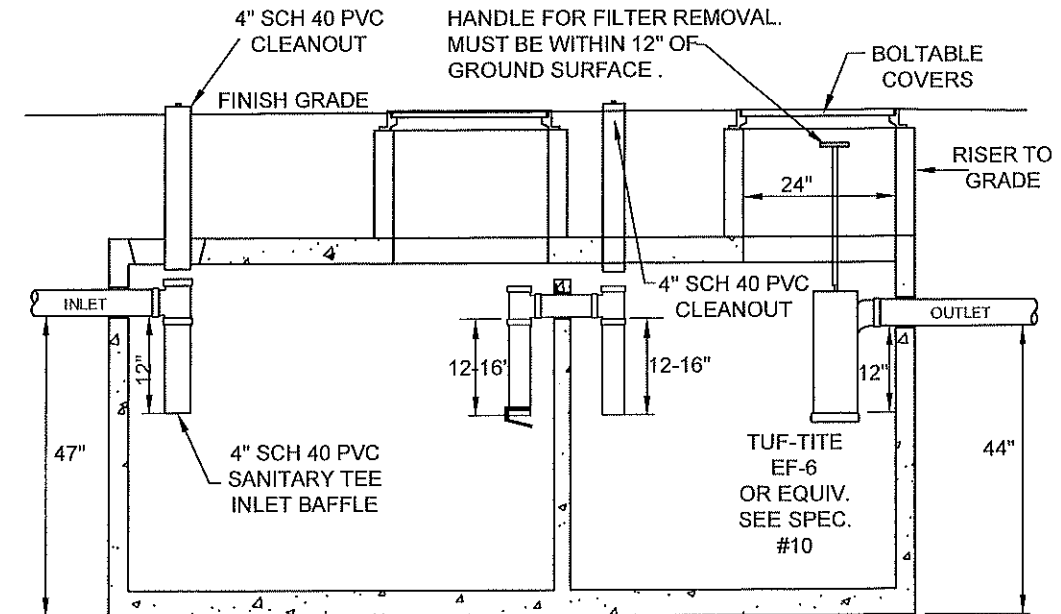


BLACKWATER DISPOSAL BED CROSS SECTION NO SCALE

SEE SHEET 5 FOR SPECIFICATIONS



GREYWATER DISPOSAL BED CROSS SECTION NO SCALE



Tank shown by:
 FLEMINGTON
 PRECAST
 (908) 782-3246

SECTION

1250 GALLON HEAVY DUTY SEPTIC TANK w/FILTER BLACKWATER & GREYWATER

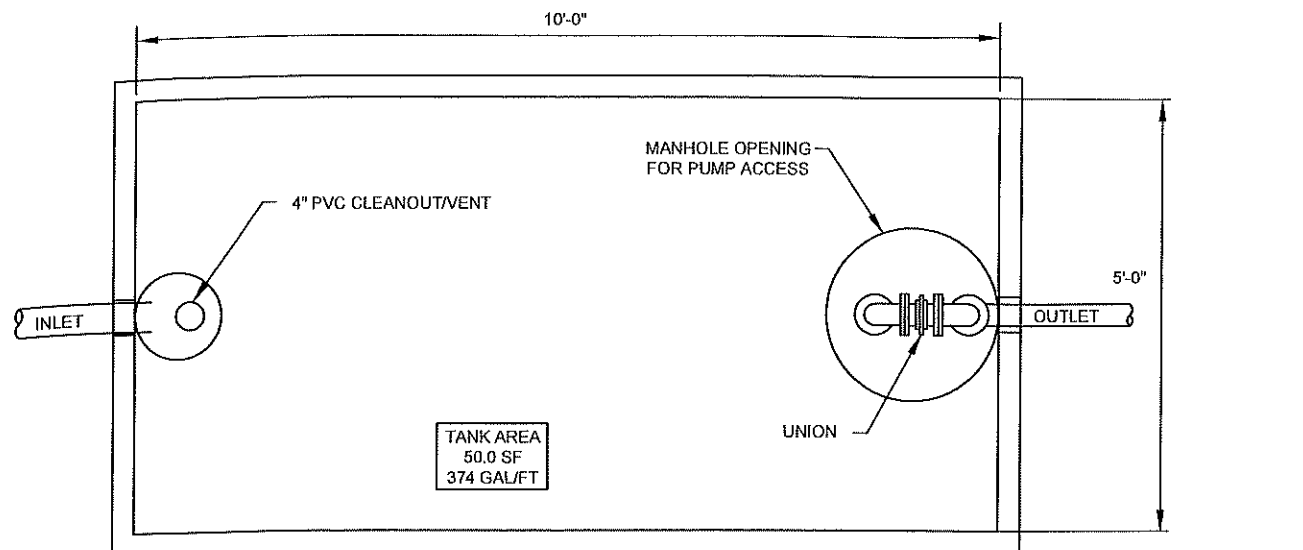
PROPOSED LOT B

SEPTIC SYSTEM DESIGN
 OAK AVENUE
 BLOCK 12 LOT 21.02
 WARREN TOWNSHIP
 SOMERSET COUNTY NEW JERSEY

G BARKLEY ENGINEERING, LLC
 Cert. No. 24GA28229400
 27 Bradley Drive
 Freehold, NJ 07728
 phone: 609-286-8794

REVISION	DATE	DESIGNED:	DATE:
		GB	8/14/21
		CAD:	SCALE:
		GB	SHOWN
			SHEET:
			3 OF 5

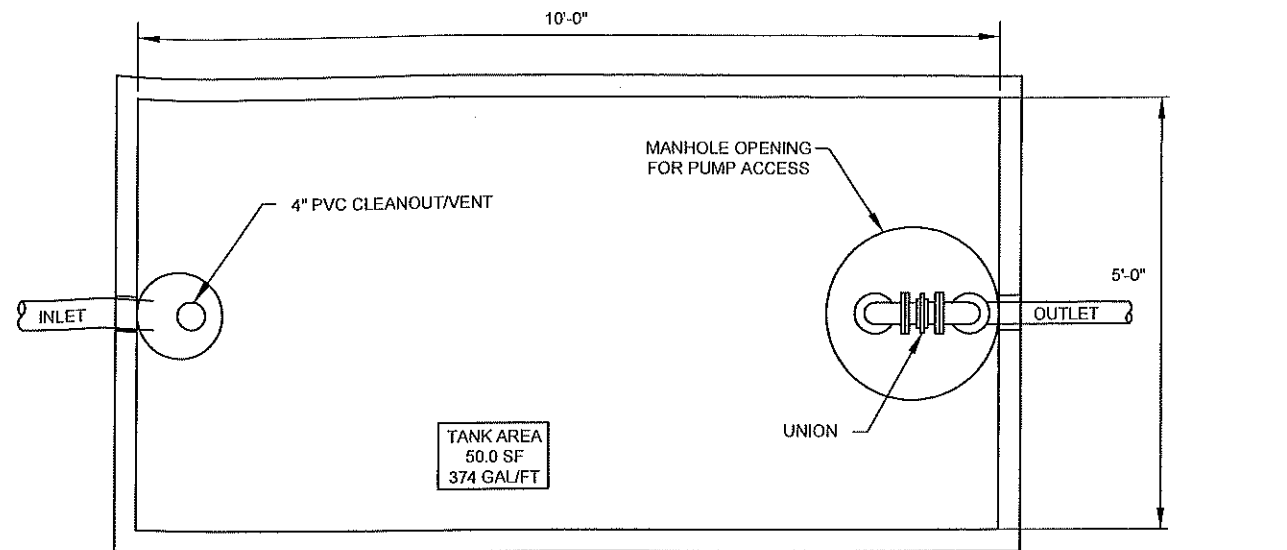
GREGG W. BARKLEY
 New Jersey Professional Engineer
 License No. GE34675



VERIFY TANK DIMENSIONS FROM MANUFACTURER PRIOR TO INSTALLATION

PLAN

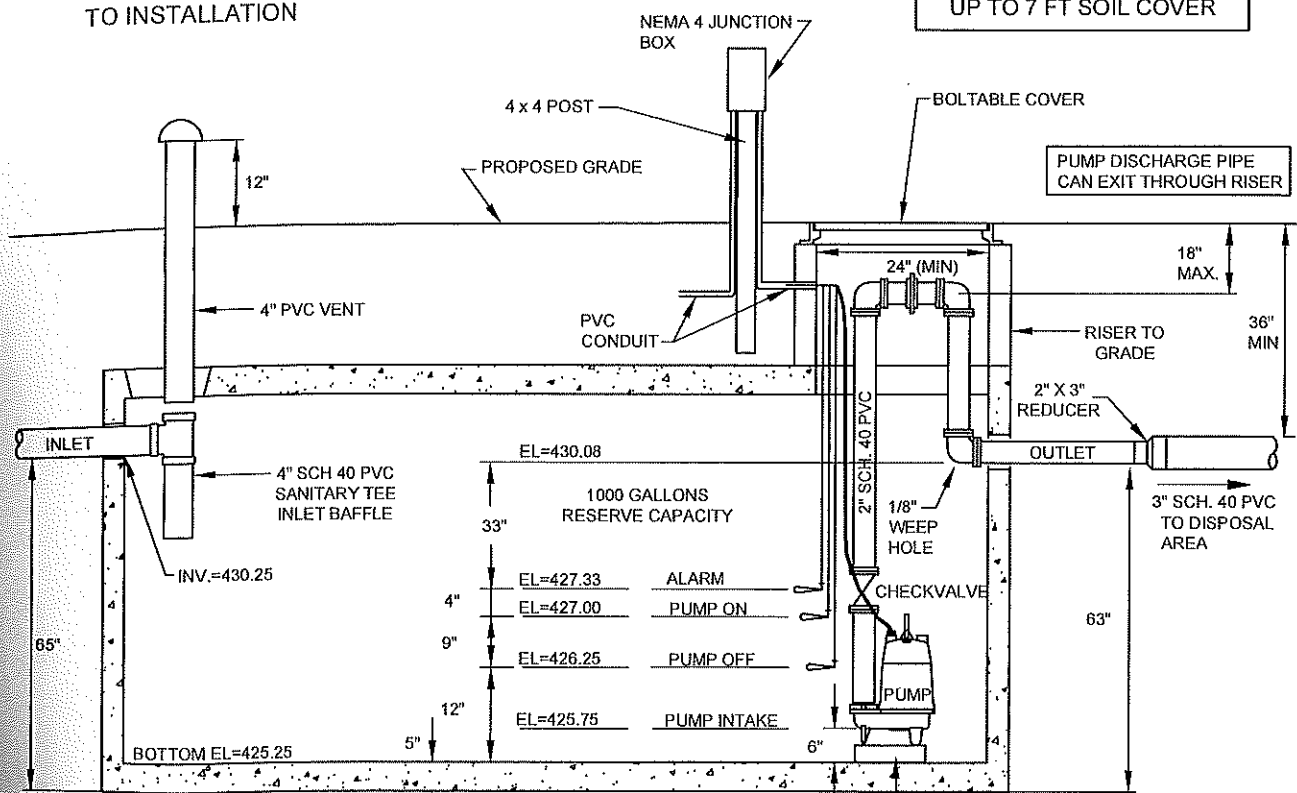
TANK TO BE SUITABLE FOR UP TO 7 FT SOIL COVER



VERIFY TANK DIMENSIONS FROM MANUFACTURER PRIOR TO INSTALLATION

PLAN

TANK TO BE SUITABLE FOR UP TO 7 FT SOIL COVER



Tank shown by:
FLEMINGTON
PRECAST
(908) 782-3246

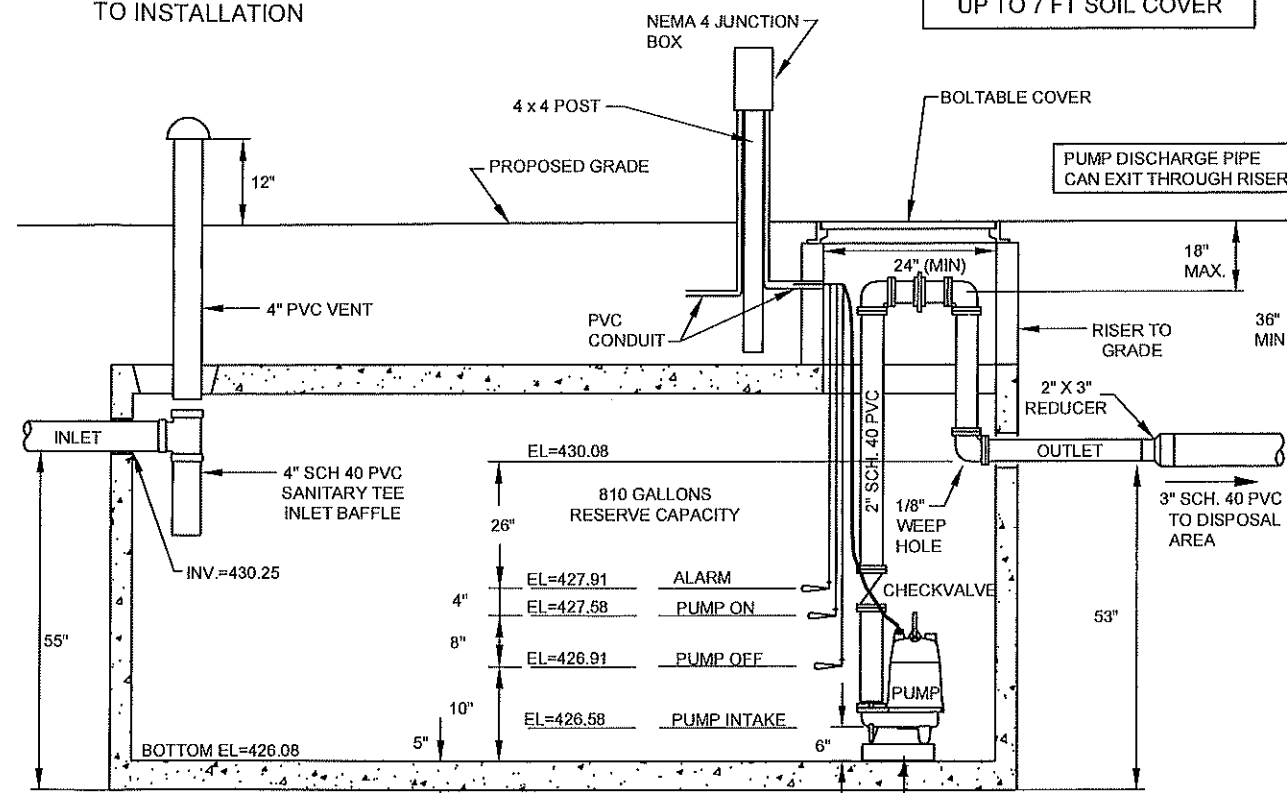
SECTION

NO SCALE

CONC. BLOCK

PUMP SPECIFICATION
Goulds Model 3885, WE10H
1.0 HP or equivalent
CAPABLE OF 94 gpm @ 26' tdh

**1,750 GALLON HEAVY DUTY PUMP TANK
BLACKWATER**



Tank shown by:
FLEMINGTON
PRECAST
(908) 782-3246

SECTION

NO SCALE

CONC. BLOCK

PUMP SPECIFICATION
Goulds Model 3885, WE10H
1.0 HP or equivalent
CAPABLE OF 97 gpm @ 21' tdh

**1,500 GALLON HEAVY DUTY PUMP TANK
GREYWATER**

PROPOSED LOT B

SEPTIC SYSTEM DESIGN
OAK AVENUE
BLOCK 12 LOT 21.02
WARREN TOWNSHIP
SOMERSET COUNTY NEW JERSEY

**G BARKLEY
ENGINEERING, LLC**

Cert. No. 24GA28229400
27 Bradley Drive
Freehold, NJ 07728
phone: 609-286-8794

REVISION	DATE	DESIGNED:	DATE:
		GB	8/14/21
		CAD:	SCALE:
		GB	SHOWN
		SHEET:	
		4 OF 5	

Gregg W. Barkley
New Jersey Professional Engineer
License No. GE34675

SPECIFICATIONS:

1. The contractor shall notify the Engineer and Health Department a minimum of 24 hours prior to construction so that required inspections may be coordinated. All phases of the construction shall be inspected by the Engineer and/or the Health Department prior to backfilling or covering. The following inspections are typical, but the requirements of the Health Department with jurisdiction shall be followed.

- a. Stake out and identification of the benchmark to be used throughout the construction.
- b. Open bed excavation.
- c. Select fill emplacement and compaction.
- d. Stone and laterals, construction of distribution system, distribution box if applicable.
- e. Tanks, risers, and connecting lines.
- f. Pumps, floats, alarm, if applicable.
- g. Final grading and seeding.

2. The Contractor shall supply the Engineer with a representative sample of the select fill and sand intended to be used for the system, prior to the delivery of the material to the site. The Engineer shall advise the Contractor of the suitability of the material relative to the specifications prior to the Contractor stockpiling the required volume of material at the site. Following delivery of all material to the site, a composite sample of the stockpiled material will be obtained by the Engineer for analysis and tested prior to the placement of the material in the disposal area. The Contractor may place the material directly into the disposal bed excavation at his own risk prior to the material being tested and determined to be in conformance with these specifications.

3. Fill Material for Zone of Treatment Ref: NJAC 7:9A-10.1(f)4

Coarse Fragment Content (greater than No. 8 sieve, 2.36 mm) less than 20 percent by weight.

Textural Analysis

Percent Passing 3/8" sieve	= 100%
Percent Passing No. 8 sieve (2.36 mm)	= 80 - 100%
Percent Passing No. 16 sieve (1.18 mm)	= 50 - 85%
Percent Passing No. 30 sieve (0.6 mm)	= 25 - 60%
Percent Passing No. 50 sieve (0.3 mm)	= 10 - 30%
Percent Passing No. 100 sieve (0.15 mm)	= 2 - 10%

4. Fill Material for Zone of Disposal Ref: NJAC 7:9A-10.1(f)5 w/modifications

Select fill shall have a coarse fragment content of less than 15% by volume or less than 25% by weight, a textural analysis (composition, by weight, of size fraction passing the 2 mm sieve) of 90% or more sand and an in-place permeability greater than 6 in/hr.

*The amount of fine + very fine sand shall not exceed 30% of the total sand fraction.

5. Select fill and clean fill shall be installed with a tracked machine in conformance with N.J.A.C. 7:9A 10.4(f)3. No wheeled vehicles are to be driven over any part of the disposal area.

6. Permeability tests are to be performed by a representative of the certifying Engineer within the fill material at the level of infiltration. Permeability tests may include undisturbed or disturbed core tube samples for the determination of the in place permeability.

7. Clean washed stone (commonly considered 1-1/2 inch) shall conform to size and gradation specified in the N.J.D.O.T. Specifications for Standard Sizes of Coarse Aggregate, size number 3, 4, or 24. Ref: NJAC 7:9A-10.3(e)2

8. Filter fabric is to be a nonwoven geotextile product (Mirafi 140N1, Amoco 4545 or equal).

9. Gravity distribution piping shall have 2 rows of holes, oriented at the 5 and 7 o'clock positions. Pressure distribution piping shall have a single row of holes oriented at the 6 o'clock position.

10. Effluent Filters: An effluent filter shall be provided on the outlet of the septic tank where shown. The filter shall bear the NSF Standard 46 certification.

11. Septic and Pump Tanks: Concrete used in the tank construction shall conform to the American Concrete Institute (ACI) standards for frost resistance (ACI 318-16-4.5.1) and water tightness (ACI 318-164.5.2.) Construction joints for two or more piece tanks shall be sealed with a Butyl sealant such as ConSeal CS-101 or equivalent. The inside surfaces of the tanks shall be sealed with two coats of an appropriate inert coating. Tank penetrations including those for access openings, piping, risers and electrical conduits shall maintain a water tight seal. Tanks including risers and inspection ports to the highest joint shall be tested for water tightness after installation and before backfilling using hydrostatic or vacuum tests as outlined in NJAC 7:9A (m).

12. Pumps (if shown): The pump control panel shall be compatible with the pumps provided. All electrical work shall be in conformance with the latest requirements of the National Electric Code (NEC). Separate circuits shall be provided for the pump power and alarm. Conduits entering the pump tanks shall be sealed to prevent gasses from entering the junction box and leakage of water into the tank. Municipal Construction Code permits for electrical work are required.

13. Alarm: High liquid level in the pump tank shall activate both audible and visual indicators.

14. Electric Service: A Licensed Electrician shall evaluate the existing electrical service to the residence to determine if it is capable of accommodating the pump and alarm. Upgrades to the electric service and distribution panel may be necessary.

15. Plumbing: Municipal Construction Code permits are necessary if any modification of the building interior plumbing is proposed.

16. Material used in the construction of the embankment surrounding mounded disposal beds to have a permeability less than that of the material within the zone of treatment.

17. Disposal area shall be graded so that surface runoff diverted away from the disposal area.

18. After completion of the backfilling and rough grading, topsoil shall spread over the entire disturbed area. The disturbed area shall then be fertilized, seeded and mulched according to the following:

- Fertilizer: (10-20-10) at a rate of 14 lbs per 1000 sf
- Seed: Perennial ryegrass 10 lbs/acre, Kentucky Bluegrass 25 lbs/acre, red fescue 15 lbs/acre, and spreading fescue 15 lbs/acre
- Mulch: unrotted small grain straw immediately after seeding at 90 lbs/ 1,000 sf

PROPOSED LOT B

SEPTIC SYSTEM DESIGN

OAK AVENUE
BLOCK 12 LOT 21.02
WARREN TOWNSHIP
SOMERSET COUNTY NEW JERSEY

REVISION	DATE	DESIGNED:	DATE:
		GB	8/14/21
		CAD:	SCALE:
		GB	SHOWN
			SHEET:
			5 OF 5

G BARKLEY ENGINEERING, LLC

Cert. No. 24GA28229400
27 Bradley Drive
Freehold, NJ 07728
phone: 609-286-8794



GREGG W. BARKLEY
New Jersey Professional Engineer
License No. GE34675