

Penobscot Nation Health Department

Ruth Attean Davis Building

23 Wabanaki Way

Indian Island, ME 04468

(207) 817-0000

(207) 817-7459 (Fax)

Request for bids: Septic system

Location: 84 Fuller Road, Carmel, ME 04419

Issue Date: Thursday, September 10, 2026

Submissions must be received by 4:30 P.M. on Thursday, September 24, 2026

Submissions of documents can be completed by:

- A. Emailing to carissa.caruso-dipaolo@penobscottribalhealth.gov; or
- B. Hand Delivered to Penobscot Nation Health Department Front Desk, 23 Wabanaki Way, Indian Island, ME
- C. US Post Office addressed to Carissa Caruso-DiPaolo, 23 Wabanaki Way, Indian Island ME 04468

THIS PAGE IS INTIONALLY LEFT BLANK

BID FORM

ARTICLE 1 – BID RECIPIENT

- 1.01 This Bid is submitted to:

Penobscot Indian Nation

23 Wabanaki Way

Penobscot Indian Nation Health Clinic

Indian Island, ME 04468 ATTN: Carissa Caruso-DiPaolo (207) 817-7448

Project Address:

84 Fuller Road

Carmel, ME 04419

- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with the Penobscot Indian Nation (referred herein as Owner) in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

- 2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BASIS OF BID

- 3.01 Bidder will complete the Work as per the Contract Documents for the following price(s):

LS- Lump Sum

LF- Linear Foot

EA- Each

CY- Cubic Yard

BID FORM

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
1	Clearing and Grubbing	LS	1		
2	1000 Gal Pump Tank (including excavation, backfill, risers, access lid, D-Box, bedding material, and insulation)	LS	1		
3	4-inch Sch. 40 PVC – Solid Sewer Pipe (including excavation, backfill, bedding, insulation, warning tape, all joints and connectors)	LF	100		
4	4-inch Sch. 40 2-way Cleanout with cover	EA	1		
5	Drain field consisting of 21 Eljen GSF Geotextile Sand Filter units, 3 rows x 7 units long (11'x28') Pipes installed with specified stone, sand, fill, and any geotextile as per the accompanying HHE-200	LS	1		
6	Final Grading, Topsoil, Seed and Restoration (including lawn and driveway)	LS	1		
7	Submersible Effluent Pump (including floats, fittings, brackets, control panel, breakers, electrical work, conduit, mounting, and other appurtenances)	LS	1		
8	2-inch Sch. 80 PVC – force main (including excavation, backfill, bedding, insulation, warning tape, all joints and connectors)	LF	100		
Total of All Unit Price Bid Items					\$

Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents. Items not included in bid shall be considered incidental and shall be included as part of the line items to furnish a complete and working system.

Total of Unit Price Bids

\$ _____

BID FORM

TIME OF COMPLETION

- 3.02 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

ARTICLE 4 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

By:

[Signature]

[Printed name]

Address for giving notices:

Telephone Number:

SECTION 01010
SUMMARY OF WORK

PART 1 - GENERAL

1.01 REQUIREMENT INCLUDED

- A. The work to be performed under this Contract shall consist of furnishing all tools, equipment, materials, supplies, and manufactured articles and for furnishing all transportation and services, including fuel, power, and essential communications, and for fulfillment of all labor, work, or other operations required for fulfillment of the Contract in strict accordance with the specifications, drawings, and other Contract Documents as herein before defined, all of which are made a part hereof, and including such detail sketches as may be furnished by the Owner from time to time during construction in explanation of said Contract Documents. The work shall be complete, and all work materials, and services not expressly shown or called for in the Contract Documents that may be necessary for the complete and proper construction of the work in good faith shall be performed furnished and installed by the CONTRACTOR as though originally specified or shown, at no increase or cost to the Owner.

1.02 WORK COVERED BY CONTRACT DOCUMENTS

- A. Installation of 1000-gallon septic tank, D-Box, drain field consisting of 21 Eljen GSF Geotextile Sand Filter units, 3 rows x 7 units long (11'x28') pipes installed with specified stone, sand, fill, and any geotextile as per the accompanying HHE-200. Approximately 100 feet of 4" Sch. 40 PVC building sewer line from the main house, one two-way cleanout, and all other appurtenances to make a complete and working system as presented in the accompanying HHE-200. A pump is determined to be needed, the septic tank must be fitted with pump chamber, pump, and controls and approximately 100 feet of 2" Sch. 80 forcemain will replace the same distance of 4-inch PVC to connect to the drainfield.

1.03 CONTRACT PERIOD

- A. The work hereunder will be constructed under the bid price tendered by the CONTRACTOR.
- B. The CONTRACTOR shall complete the WORK within the time specified in the agreement.
- C. Construction work shall not be normally permitted on Saturdays, Sundays, or Federal and/or Tribal holidays. The CONTRACTOR may submit a written request to the Owner at least 72 hours in advance, for permission to work on any Saturday, Sunday, or Federal holiday. Written approval must be obtained before the CONTRACTOR may work on any such day.

1.04 CONTRACTOR USE OF PROJECT SITE

- A. The CONTRACTOR's use of the project sites shall be limited to construction operations, including on-site storage of materials and equipment. Further use of the owners' facilities and storage areas must be approved by the OWNER.

END OF SECTION

SECTION 01270
MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 SUMMARY

- A. Work covered by this section includes method of measurement and basis of payment for all divisions included.
- B. Payment for the various items of the Bid Schedules, as further specified herein, shall include all compensation to be received by the contractor for furnishing all tools, equipment, materials, labor, supplies, manufactured articles, transportation, and temporary facilities required to complete the work in accordance with contract documents including incidentals.
- C. Respective prices and payment shall constitute full compensation for all work completed including incidentals.
- D. All items not expressly listed as being provided by others that are necessary for the completion of work shall be furnished and installed by the contractor.
- E. No payment shall be made for mobilization and demobilization of equipment.
- F. The CONTRACTOR, in case of unit-price items measured for payment, shall be paid for the actual amount of Work accepted and for the actual amount of materials in place, as shown by final measurement. Plan quantity items shall be paid for at the unit price for the quantities shown on the plans and tabulated in the bid form.
- G. The CONTRACTOR, in case of lump sum amounts, or by plan quantities, shall be paid for the percentage of the work item completed as determined by the Engineer or Representative.
- H. 10% Payment will be held until work is complete, final inspection has been made and approved by Engineer or Representative, and copy of As-Built has been received. No final payment will be approved until all deficiencies have been satisfied.

1.02 QUANTITIES

- A. All quantities stipulated in the bid schedule or other contract documents are approximate and are to be used:
 - 1. As a basis for estimating the probable cost of the work.
 - 2. For the purpose of comparing the bids submitted.
- B. The Contractor shall be paid for actual quantities installed based on the quantities measured in the field. The actual amounts of work completed and materials furnished may differ from estimated quantities. The Contractor shall make no claim for damages, anticipated profits, or otherwise, on account of differences between the estimated amounts and the actual amount of work performed and materials furnished.

1.03 SURVEY AND MEASUREMENTS

- A. All quantity measurements shall be the responsibility of the Contractor and will be verified by the project engineer or representative.
- B. All measurements and subsequent payments will be based on completed and accepted work performed in strict accordance with the drawings, specifications, and other contract documents.

1.04 PAYMENT FOR INCREASED OR DECREASED QUANTITIES

- A. When alterations in the quantities of work are ordered and performed, the CONTRACTOR shall accept payment in full at the Contract price for the actual quantities of Work done. No allowance will be made for anticipated profits.
- B. If the Contractor encounters an unforeseen condition that may require additional work or affect the Contract Price or Contract Time, the Contractor shall promptly notify the Owner before proceeding with the affected work. Both the Owner and Contractor shall approve and execute Change Orders before the associated work proceeds whenever reasonably practicable.

1.05 INCIDENTAL WORK

- A. Incidental work items for which separate payment will not be made includes the following items, unless explicitly included as a bid item:
 - 1. Mobilization and Demobilization
 - 2. Project record documents
 - 3. Clean up and restoration of property.
 - 4. Restoration of fences and other structures.
 - 5. Cooperation and coordination with other Contractors and utility companies.
 - 6. Repair and replacement of utility lines, culverts, under-drains, drainage ditches, pavement or stone driveways or streets, sidewalks, landscaping and other site specific items damaged by construction activities and corresponding proper disposal of removed materials unless otherwise paid for.
 - 7. Dust and Erosion Control.
 - 8. Contract administration and insurance.
 - 9. Pipe Markings.
 - 10. Any other incidental items not specifically listed on bid schedule to make a complete and working system.

PART 2 - BID SCHEDULE ITEMS

2.01 DESCRIPTION OF PAY ITEMS

- A. The following sections describe the measurement of and payment for the Work to be done under the respective items listed in the Bid Form.
- B. Each unit or lump sum price stated in the Bid Form shall constitute full compensation, as herein specified, for each item of the Work completed.

2.02 1000-GALLON PUMP TNAK

- A. Measurement: Lump sum basis.
- B. Basis for payment: Lump sum performed at the Contract Price. Includes all labor, materials, tools and equipment necessary to complete this work including excavation, bedding, furnishing and installing precast concrete pump tank of size specified in engineered drawings, risers, lockable lids, sewer piping, fittings, backfilling, grading, loam and seed and all other work as shown on the drawings and all else incidental thereto for which payment is not provided under other items.

2.03 4-INCH PVC SEWER PIPE – SOLID, NON-PERFORATED

- A. Measurement: Linear feet of pipe installed measured horizontally over the centerline of the pipe.
- B. Basis for payment: Per linear foot installed at the Contract Unit Price for the diameter, type, and class of pipe listed in Section 02545 and as shown per included drawings that accompany this package. Compensation shall include payment for all excavation, trenching, and backfilling, fittings, tee's, couplings, insulation, detectable warning tape, connections to existing lines, repair of leaks, and all other necessary items for a complete and operational installation.

2.04 4-INCH PVC 2-WAY CLEANOUT

- A. Measurement: Unit Basis, per each unit installed.
- B. Basis for payment: Per unit installed at the Contract Unit Price for the diameter, type and class of pipe specified per the included drawings that accompany this package and listed in Section 02545. Compensation shall include payment for all excavation, trenching, backfilling, fittings, detectable warning tape and all other necessary items for a complete and operational installation.

2.05 ELIEN DRAINFIELD- 21 GSF GEOTEXTILE SAND FILTER UNITS

- A. Measurement: Lump sum basis.
- B. Basis for payment: Lump sum payment at the Contract Unit Price for the system listed and as shown per included HHE-200 drawings that accompany this package. Compensation shall include payment for all excavation, trenching, and backfilling, fittings, tee's, couplings, detectable warning tape, connections to existing lines, repair of leaks, and all other necessary items for a complete and operational installation.

2.06 FINAL GRADING, TOPSOIL, SEED, AND RESTORATION

- A. Measurement: Lump sum basis.
- B. Basis for payment: Lump sum payment at the Contract Unit Price for restoration of all disturbed areas. All disturbed open areas to be topsoiled, seeded and mulched as specified in Section 02920. All disturbed driveway or sidewalk areas to be restored to original conditions. Includes all labor, materials, tools and equipment necessary to complete this work including any topsoil, seed, mulch, raking, final grading, plantings, watering, gravel and binder, and all else incidental thereto for which payment is not provided under other items.

2.07 SUBMERSIBLE EFFLUENT PUMP

- A. Measurement: Unit Basis, lump sum installed unit.
- B. Basis for payment: Per unit installed at the Contract Unit Price for the type specified in the engineered drawings. Compensation shall include payment for all labor, materials, tools, and equipment necessary to complete this work including installation, excavation, trenching, backfilling, electrical work, conduit, control panel, floats, float tree, fittings, brackets, mounting, additional breakers, testing and all other work as shown on the drawings and all else incidental thereto for which payment is not provided under other items.

2.08 2-INCH SCH. 80 PVC FORCE MAIN

- A. Measurement: Linear feet of pipe installed measured horizontally over the centerline of the pipe.
- B. Basis for payment: Per linear foot installed at the Contract Unit Price for the diameter, type, and class of pipe listed in Section 02545 and as shown per included drawings that accompany this package. Compensation shall include payment for all excavation, trenching, and backfilling, fittings, tee's, couplings, detectable warning tape, connections to existing lines, repair of leaks, and all other necessary items for a complete and operational installation.

END OF SECTION

SECTION 01430
QUALITY ASSURANCE

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes prerequisites and procedures to assure the quality of construction.

1.02 SUBMITTALS

- A. Contractor Name and License Number

1.03 INSTALLER QUALIFICATIONS

- A. Work shall be performed under the direction of personnel licensed in the state/reservation where the project is proposed and where licensing of the trade is regulated by the state/reservation including, but not limited to, plumbing, well drilling, septic system installation, HVAC, and electrical work.

1.04 CONTROL OF INSTALLATION

- A. Review materials for acceptability when delivered to the site.
- B. Store and handle materials to prevent damage.
- C. Review materials, services, and workmanship to ensure that work is performed in accordance with the specifications.
- D. Comply fully with manufacturers' instructions.
- E. Should manufacturers' instructions conflict with contract documents, request clarification from Engineer before proceeding.
- F. Correct defective work to the satisfaction of the Engineer.

1.05 MANUFACTURER'S FIELD SERVICES

- A. Provide reports on observations and documentation of workmanship to the Engineer within 30 days of visit for review where manufacturers' field services are provided.

1.06 WARRANTY

- A. Provide a minimum one (1) year warranty for all materials and labor, covering defects in the materials or deficiencies resulting from Contractor installation.
- B. Provide additional warranties as required under other sections.

END OF SECTION

**SECTION 02230
CLEARING AND GRUBBING**

PART 1 - GENERAL

1.01 SUMMARY

- A. This section covers clearing and grubbing within the proposed areas of construction.

1.02 RELATED WORK (as applicable)

- A. Section 02315 - Excavation, Trenching, and Backfill

PART 2 – PRODUCTS (N/A)

PART 3 - EXECUTION

3.01 CLEARING AND GRUBBING

- A. Obtain necessary permit prior to cutting any trees or brush (if applicable).
- B. Remove and dispose of all trees, stumps, root balls, rock, stones larger than 6 inches, brush, debris, and all other obstructions as needed to complete construction as specified.
- C. Tree removal shall include stump grinding to a depth of 12 inches below proposed subgrade elevation or bottom of pipe, providing tree stump is not already removed by heavy equipment.
- D. All asphalt and concrete pavements shall be saw-cut on a neat line at right angles to the curb, concrete face, or edge of pavement.
- E. Where existing utilities interfere with the prosecution of the work, the Contractor shall notify the Project Engineer and Utility Company/Owner before proceeding with any changes.
- F. If possible within right-of-way and property lines, extend clearing and grubbing a minimum of 10 feet beyond all proposed structures unless otherwise directed by the project engineer.
- G. The contractor shall not burn, bury, and/or leave materials in construction areas unless approved by the Project Engineer or Representative.
- H. The contractor shall haul the grubbed material away from the site and disposed of in a legal manner unless otherwise directed.
- I. Upon completion of clearing and grubbing, the area shall be left in a neat and clean condition ready to receive subsequent work.

END OF SECTION

SECTION 02315 EXCAVATION, TRENCHING AND BACKFILL

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes excavation, trenching and backfill necessary for the construction of the facilities as indicated on the plans including, but not limited to: water mains and service lines, sewer mains and service lines, concrete manholes, septic tanks, and other structures.

1.02 RELATED WORK (as applicable)

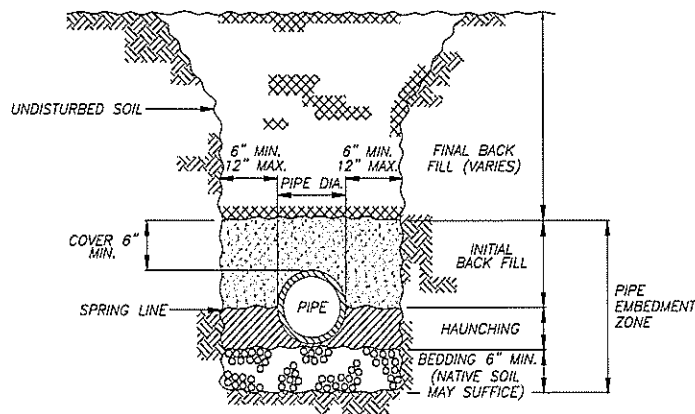
- A. Section 02310- Grading
- B. Section 02540- Drainfields
- C. Section 02545- Septic Tanks and Piping
- D. Section 02920- Topsoiling, Seeding, Fertilization and Mulching

1.03 REFERENCES

- A. ASTM D698 – Test Methods for Moisture Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5 lb. Rammer and 12-in. Drop [Standard Proctor Test].
- B. ASTM C33 – Standard Specification for Concrete Aggregates
- C. ASTM D2487 – Classification of Soils for Engineering Purposes [Unified Soil Classification System].
- D. ASTM F1668 – Standard Guide for Construction Procedures for Buried Plastic Pipe
- E. ASTM D2321 – Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
- F. ASTM D2774 – Standard Practice for Underground Installation of Thermoplastic Pressure Pipe
- G. OSHA Regulations

1.05 DEFINITIONS

- A. Bedding, Haunching and Initial Backfill zones as defined herein and on the standard thermoplastic pipe trench detailed drawing below.



THERMOPLASTIC PIPE TRENCH DETAIL

B. Soil Materials as summarized in the table below and defined in ASTM D2487

Description and Comparison of Soil Material Classifications

<i>Class</i>	<i>Type</i>	<i>USCS Group Symbol</i>	<i>Description</i>
IA	Manufactured aggregates: ¾ to 1 ½ inch open graded, clean.	* None	Closest to "Poorly graded gravel (GP)"
IB	Manufactured aggregates: ¾ to 1 ½ inch dense graded, clean.	* None	Closest to "Poorly graded gravel with sand (GP)"
II	Coarse sands and gravels with maximum particle size of 1 ½ inch, clean.	GW	Well-graded gravels and gravel-sand mixtures; little or no fines.
		GP	Poorly graded gravels and gravel sand mixtures; little or no fines.
		SW	Well-graded sands and gravelly sands; little or no fines.
		SP	Poorly graded sands and gravelly sands; little or no fines
	Coarse sands and gravels with maximum particle size of 1 ½ inch, borderline clean.	GW-GC SP-SM Etc.	Sands and gravels which are borderline between clean and with fines
III	Fine sand and clayey gravels.	GM	Silty gravels, gravel-sand-silt mixtures.
		GC	Clayey gravels, gravel-sand-clay mixtures
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
IV	Fine grained soils (inorganic)	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, silts with slight plasticity.
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
		CH	Inorganic clays of high plasticity, fat clays.
V	Organic soils	OL	Organic silts and organic silty clays of low plasticity.
		OH	Organic clays of medium to high plasticity, organic silts.
		PT	Peat and other high organic soils.

* USCS system is limited to naturally occurring soils. Manufactured aggregates not covered.

PART 2 – PRODUCTS

2.01 BEDDING, HAUNCHING AND INITIAL BACKFILL MATERIAL

- A. Class I, Class II or Class III, utilized in accordance with restrictions described in Part 3 - Execution.

PART 3 - EXECUTION

3.01 GENERAL

- A. Trenching and excavation work shall be done in accordance with proper emphasis on safety as determined by the CONTRACTOR, ENGINEER, and/or REPRESENTATIVE, to conform to local, state, federal and OSHA regulations.
- B. Obtain all permits from appropriate agency prior to start of construction.
- C. Repair damage resulting from settlement, slides, cave-ins, water pressure, and other causes.
- D. Provide adequate signs, barricades, fences and/or amber lights and take all necessary precautions to protect the work and the safety of the public in all construction areas.
 - 1. Any excavation opening shall be properly fenced or barricaded when left open overnight.
 - 2. When work is near or within roadway - placement of construction signs and barricades shall conform to the "Manual on Uniform Traffic Control Devices."
 - 3. Protect barricades and obstructions at night by amber signal lights that burn from sunset to sunrise. Barricades shall also be of substantial construction, painted white or with reflective paint to increase their visibility at night.
 - 4. Perform work without obstruction to traffic or inconvenience to the general public and the residents in the vicinity of the work.

3.02 EXCAVATION

- A. Remove trees and stumps from excavation and site.
- B. Remove and stockpile existing topsoil.
- C. Install facilities as staked unless otherwise approved by PROJECT ENGINEER.
- D. Maintain surface drainage away from trenching or excavation.
- E. Remove unsuitable foundation materials from excavation as shown on the plans or as authorized by the PROJECT ENGINEER.
- F. Maintain a minimum 6" clearance between outer surface of structure being installed and wall of excavation.

3.03 TRENCHING

- A. Bottom width: No less than 12 inches or more than 24 inches wider than the outside diameter of the pipe.
- B. Depth: Provide minimum cover as specified, or depths shown on plans.

3.04 BEDDING

- A. Excavate and provide bedding as shown on plans or as directed by ENGINEER or REPRESENTATIVE.
- B. If existing soil cannot provide uniform, stable bearing support, over-excavate 6 inches below bottom of pipe or structure and provide bedding material.
- C. Utilize Class I, II or III materials as appropriate for bedding as listed in Table below.

Use of Soils and Aggregate for Bedding

	<i>Class IA</i>	<i>Class IB</i>	<i>Class II</i>	<i>Class III</i>
General	Excellent pipe support. Excellent drainage.	Excellent pipe support. Good drainage. Minimizes migration of adjacent material.	Good pipe support. Fair drainage.	Reasonable pipe support. Poor drainage
Compaction	Not required	Not required	Required 90% of Standard Proctor.	Required 90% of Standard Proctor.
Wet Conditions (below current or future water table). Rock Cuts	Acceptable. Must use same material for Haunching.	Acceptable. Must use same material for Haunching.	Acceptable. Clean groups only suitable for drainage blanket.	Not- Acceptable
Dry Conditions	Acceptable	Acceptable	Acceptable	Acceptable

3.05 HAUNCHING AND INITIAL BACKFILL

- A. General:
 1. Provide complete and uniform bearing and support for the pipe, including allowance for bell holes, or structure.
 2. Work material under and around the pipe to ensure full pipe support.
 3. Prevent movement of the pipe during placement of material.
 4. Avoid contact between the pipe and mechanical compaction equipment.
- B. Utilize Class I, II or III materials as appropriate for haunching and initial backfill as listed in Table below. No frozen materials or frozen clods.

Use of Soils and Aggregate for Haunching and Initial Backfill

	<i>Class IA</i>	<i>Class IB</i>	<i>Class II</i>	<i>Class III</i>
General	Excellent pipe support. Excellent drainage. Install to a minimum of 6" above the pipe crown.	Excellent pipe support. Good drainage. Minimizes migration of adjacent material. Install to a minimum of 6" above the pipe crown.	Good pipe support. Fair drainage. Install and compact to a minimum of 6" above the pipe crown.	Reasonable pipe support. Poor drainage. Install and compact to a minimum of 6" above the pipe crown.
Compaction	Not required	Not required	Required 85% of Standard Proctor. 6 inch maximum lifts.	Required 90% of Standard Proctor. 6 inch maximum lifts.

Wet Conditions (below current or future water table). Rock Cuts	Acceptable. Must use same material for Bedding. Extend Haunching to the top crown of the pipe.	Acceptable. Must use same material for Bedding. Extend Haunching to the top crown of the pipe.	Acceptable. Clean groups only suitable for drainage.	Not- Acceptable
Dry Conditions	Acceptable	Acceptable	Acceptable	Acceptable

3.06 FINAL BACKFILL

- A. Backfill remainder of excavation with native material, free from large clods, large stones, organic material or frost chunks unless otherwise directed.
- B. Compact in 12-inch lifts to a density not less than the density of the surrounding undisturbed soil.
 - 1. Compact with a mechanical tamper to a density not less than 90% of the maximum dry density, determined by ASTM D 698.
 - 2. Provide 4 feet minimum cover over the top of the pipe before utilization of hydrohammer compaction equipment.
 - 3. Provide 3 feet minimum of backfill over the pipe before wheel loading the trench.
- C. Conform to Section 02705 – Road Restoration for backfill requirements under roadways.
- D. Backfill and compact around tanks, manholes, boxes, and other appurtenances in 12-inch lifts unless otherwise directed.
 - 1. Compact with a mechanical tamper to a density not less than 90% of the maximum dry density, determined by ASTM D 698.
- F. Repair any trenches improperly backfilled or where settlement occurs, then refill and compact.
- G. Restore surface to the required grade and compaction. Conform to Section 02310 – Grading for rough grading, finish grading and site surface drainage.
- H. Remove all surplus backfill materials to a location approved by the ENGINEER or REPRESENTATIVE.

3.07 REMOVAL OF NUISANCE WATER

- A. Remove nuisance water entering the trenches. Nuisance water that can be removed through the use of sump or trash pumps is not considered dewatering.
- B. Keep trenches free from water until the facilities are in place, sealed against the entrance of water, and backfill has been placed and compacted above the water level.

3.08 LOCATE EXISTING UTILITIES

- A. Field locate all existing underground utilities.
 - 1. Utilize state “dig-safe” or “one-call” hotlines.
 - 2. Contact all other utility owners not covered by the state “dig safe” hotlines.
 - 3. Mark locations of all previously unmarked existing utilities where encountered.

3.09 UTILITY CONFLICTS

- A. Protect existing utilities from damage during excavation and backfilling operations.
- B. Provide temporary support for existing water, gas, telephone, power, or other utility services that cross the trench until backfilling of trench is complete.
 - 1. Compact backfill to 95% of Standard Proctor Density under disturbed utilities.
 - 2. Repair or replace any damaged existing utilities, at no additional cost to the project.
- C. Water and sewer main crossing and parallel installation.
- D. Maintain a 10-foot horizontal separation (O.D. to O.D.) for parallel mains.
- E. Upon approval by the ENGINEER, water and sewer mains may be installed closer than 10 feet, provided all of the following conditions;
 - 1. Vertical separation is 18 inches (O.D. to O.D.)
 - 2. Water main is above the sewer main.
 - 3. Separate trenches are maintained.
 - 4. Maintain a minimum 18-inch vertical separation (O.D. to O.D.) for crossing mains.
 - 5. Lay pipe with joints equidistant from the point of crossing.
 - 6. If it is impossible to meet any of the above separation distances and deviations, one of the following methods shall be adhered to.
 - 7. Sewer main shall be constructed to water main pressure pipe standards, and successfully pass a 150-psi pressure test prior to backfilling.
 - 8. Either the water main or the sewer main may be encased in a watertight carrier pipe that extends 10 feet on both sides of the crossing. The carrier pipe shall be of materials approved by the regulatory agency for use in water main construction.
- D. Water and sewer service crossing and parallel installation.
 - 1. Maintain a 10-foot horizontal separation from water and sewer services for parallel lines.
 - 2. Maintain an 18-inch vertical separation for crossing water and sewer services.
 - 3. Water service line splices or joints will not be permitted within 10 feet of a sewer line crossing.

3.10 MOVING FENCES AND MINOR STRUCTURES

- A. Remove and reset culverts, drainage pipes or other minor structures that fall within the alignment of the new construction, to their original location and grade.
- B. Visit the project site and determine actual conditions with regard to the existence of old car bodies, abandoned houses, fences, driveways, trees, stumps, brush, sidewalks, approaches, and other miscellaneous obstacles to construction.
 - 1. Unless specifically referenced in a bid item, no separate payment will be made for the removal or replacement of these items.

3.11 RECORDS

- A. Provide as-builts for all installations, relocations, crossings as per closeout procedures or as directed by the ENGINEER.

END OF SECTION

SECTION 02545
CONCRETE SEPTIC TANK AND PIPING

PART 1 - GENERAL

1.01 SUMMARY

- A. This section covers single and multiple compartment, rectangular and cylindrical precast septic tanks and distribution box. Also included is the piping from the home to the septic tanks and from tank to drainfield along with two-way cleanouts and septic tank abandonment.

1.02 RELATED WORK

- A. Section 02315 – Excavation, Trenching and Backfill
- B. Section 02540 – Drainfields

1.03 REFERENCES

- A. ASTM D1785 – Polyvinyl Chloride (PVC) Plastic Pipe Schedule 40, 80 and 120.
- B. ASTM D3034 – Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings.
- C. ASTM C1227-13 – Standard Specification for Precast Concrete Septic Tanks
- D. Residential Onsite Wastewater Treatment Systems Design Handbook – New York State Dept. of Health Bureau of Water Supply Protection, 2012

1.04 SUBMITTALS

- A. Septic tank (including wire mesh detail or manufacturers literature on fibers)
- B. Septic tank risers and covers.
- C. Solid sewer pipe
- D. Cleanout and Threaded Cap or Vent Cap (as specified in plans)
- E. Distribution Box
- F. Locator Tape
- G. Installer's License (where applicable)

1.05 QUALITY ASSURANCE

- A. Septic tanks and other materials shall meet minimum requirements of the appropriate state agency regulating onsite septic systems.

PART 2 - PRODUCTS

2.01 SEPTIC TANKS

- A. Septic Tank Requirements
 - 1. All tanks shall be two-compartment precast monolithic construction unless otherwise approved by Project Engineer.
 - a. Tanks shall be certified vacuum tested or must be tested in field for watertight seal for minimum of 24 hours.
 - 2. Precast Concrete Septic Tanks shall meet Standard ASTM C1227
 - 3. Minimum wall thickness shall be 3"
 - 4. Minimum top and bottom thickness shall be 4"
 - 5. Minimum capacity below outlet shall be 1000 gallons, or as specified on the bid schedule
- B. Rectangular tanks shall have a minimum of 25 square feet of surface liquid area with a length no less than 6 feet between inlet wall and outlet wall. The depth of the tank below the flow line shall not be less than 39 inches or more than 8 feet. There shall be 9 inches of air space between surface of liquid and interior roof of septic tank.
- C. Reinforce throughout with 6-inch x 6-inch – 10/10 wire mesh or fiber mesh.
- D. Cylindrical tanks shall not be approved for use as septic tanks unless otherwise approved by Project Engineer.
- E. Joints below the liquid level shall be of monolithic construction or have interlocking V-notch, shiplap or tongue and groove joints and shall be properly sealed for water tightness.
- F. Inlet and Outlet
 - 1. Provide tanks with inlet and outlet connections for 4-inch Schedule 40 PVC.
 - 2. Provide sanitary tees or baffles made of approved materials at the inlet and outlet.
 - 3. Tees or baffles shall extend at least 6 inches above and 9 inches below the liquid level, but not exceed 1/3 of the liquid depth.
 - 4. Provide at least 3 inches of clear space over the top of tees or baffles.
 - 5. Outlet tee shall be equipped with an effluent screen.
- G. Manhole Risers and Covers
 - 1. Provide at least two manhole openings, no less than 24 inches square or 24 inches in diameter for each multiple compartment tank, situated over the inlet and outlet pipe.
 - 2. Manhole riser shall be cast in place polyethylene with gasketed connections or other approved water-tight material, as approved by the Engineer.
 - 3. Covers shall be of the same material as the riser, with a warning label, printed with information regarding the hazards present when entering a septic tank affixed or supplied by the manufacturer.

2.02 DISTRIBUTION BOX

A. Distribution Box Requirements

1. D-Box shall be constructed of concrete and shall have a top load carrying capacity of 300 lbs/sf with minimal sidewall deflection.
2. Minimum bottom area of 3 square feet.
3. D-Box shall have at minimum one outlet for each distribution line plus one for inlet pipe.
4. D-Box shall have inlet tee or suitable baffle and inlet shall be no less than two inches above invert of outlet pipes.
5. Outlet elevations shall be a minimum of four inches above bottom of D-Box.
6. Cover for the D-Box will be readily removable concrete cover.

2.03 SOLID SEWER PIPE, CLEANOUT AND FITTINGS

- A. Schedule 40 PVC riser pipe shall conform to ASTM D 1785.
- B. SDR 35 PVC pipe and fittings shall conform to ASTM D 3034.

2.04 LOCATOR TAPE

- A. Tape shall be reinforced
- B. Tape shall be 3 inch wide with a minimum thickness of 0.2 millimeters
- C. Tape shall have a minimum of 0.008 millimeter metal foil core.
- D. Tape shall be resistant to alkalis, acids and other chemicals.
- E. Tape color and warning printing shall be as selected as appropriate:
 1. Water lines shall have blue tape and be marked "CAUTION BURIED WATER LINE BELOW"
 2. Sewer lines shall have green tape and be marked "CAUTION BURIED SEWER LINE BELOW"
 3. Control cable and power lines shall be marked with yellow tape and be marked "CAUTION BURIED ELECTRIC LINE BELOW"

PART 3 - EXECUTION

3.01 SOLID SEWER PIPE and CLEANOUTS

- A. All solid sewer piping shall be Sch. 40 unless otherwise specified.
- B. Install solid sewer pipe from the house to the septic tank.
 1. Connect to the existing home sewer stub out if present underground outside the home.
 2. Cap sewer service, and stake if no connection is made.
- C. Minimum cover over solid sewer pipe is 12-inches.
- D. Minimum slope between the house and the septic tank is 1/4-inch per foot or 6 inches, which ever is greater.
- E. There shall be no 90-degree bends in the pipe between the house and the septic tank.

- F. Install two-way cleanout approximately 5 feet from the outside wall of each home or mobile home.
 - 1. Cleanout shall allow rodding the sewer line both towards the home and towards the septic tank.
 - 2. Fit cleanout with a threaded plug unless otherwise specified.
 - 3. Install cleanout so the top is set 2" below grade and install underground valve box over cleanout.
 - 4. Underground valve box cover shall be min. 6" plastic with lid set at grade to facilitate access.
- G. Properly seal pipe connections to tanks to prevent groundwater infiltration per local or State Regulations or as directed by Engineer.
- H. Solvent weld all joint connections.
- I. Install insulation in traveled areas as specified by the Project Engineer in accordance with Section 02315 – Excavation, Trenching and Backfill.

3.02 TANK INSTALLATION

- A. Place tanks in excavations at the locations and elevations designated on the plans or by the Project Engineer.
- B. Refer to Section 02315 for excavation, backfill, and grading requirements.
- C. Place tanks level.
- D. Install tanks in accordance with manufacturer recommendations.
- E. Seal joints when the tank is set with an epoxy based sealing compound or Rub-R-Nek flexible gasket, as manufactured by the Henry Group (formerly K.T. Snyder Company Inc.), Houston, Texas, or equal.
- F. Seal inlet and outlet with temporary plugs until connections are made to the inlet and outlet lines.
- G. Set the top of the tank a minimum of 6-inches below finished grade. Do not exceed 24-inch cover depth unless tank is designed for deeper bury depth and Project Engineer approves.
 - 1. Access openings shall be brought to finished grade unless otherwise approved by Engineer or Representative.
 - 2. Install manhole risers and terminate access cover flush with the ground. Provide suitable locking screws or locking device that meets with Project Engineer's approval, or
 - 3. Where manhole risers are required more than 24 inches in height, risers and manhole shall be made of concrete with approved watertight seals.
- H. Do not drive over the tank during and after construction.

3.03 DISTRIBUTION BOX INSTALLATION

- A. Distribution Box shall be installed on a level stable base that will not settle.
- B. Distribution pipes shall extend into distribution box one (1) inch.
- C. Inlet and outlet pipes shall be jointed to D-Box with non-shrinking gasket materials which shall maintain a watertight seal.
- D. All outlets shall be outfitted with speed levelers for even distribution of flow.

3.04 LOCATOR TAPE

- A. Locator tape shall be installed in such a way to help facilitate in location and protection of pipe.
- B. Tape shall be placed 18 inches below finished grade, centered above pipeline or cable with printed side up.
- C. Tape shall skirt exterior of manholes, valve boxes, and other appurtenances and be continuous.
- D. When necessary to splice tape, at least two (2) feet of each length shall be rolled tightly together and secured with electrical tape.

3.05 EXISTING SEPTIC TANK ABANDONMENT

- A. Abandon existing septic tanks and/or wet wells where directed by the Project Engineer.
- B. Pump tanks prior to abandonment. Wash off and remove as much residuals as possible from walls and bottom of tank if tank is being left in place. Dispose the contents in accordance with state and federal requirements.
- C. Remove and dispose of any interior pipes, plumbing, or pumps.
- D. Remove and dispose of concrete tank cover, risers, and inspection pipes.
- E. Collapse/crush top of tank for bury with tank. Puncture bottom of tank to allow for flow of rain, surface water or drainage. If block or brick wall, collapse walls as necessary for bury or removal and disposal.
- F. Backfill interior of the tank with suitable, compactable soil material, or remove tank and dispose of in accordance with local, state and federal requirements.
- G. Conform to section 02310 – Grading, and section 02920 – Topsoiling, Seeding, Fertilizing and Mulching.
- H. Locate abandoned septic tanks on the as-built drawing.

3.06 AS-BUILTS

- A. Provide as-built information on each system in accordance with Contract requirements or as directed by Engineer.

END OF SECTION

SECTION 02540 DRAINFIELDS

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes construction of drainfield and drainbed systems including gravel and perforated pipe drainbeds, gravelless chambers, proprietary devices and concrete chambers.

1.02 RELATED WORK

- A. Section 02315 – Excavation, Trenching & Backfilling
- B. Section 02545 – Concrete Septic Tank and Piping

1.03 REFERENCES

- A. ASTM D 1785-12 – Polyvinyl Chloride (PVC) Plastic Pipe Schedule 40, 80 and 120
- B. ASTM D 2729-11 – Polyvinyl Chloride (PVC) Sewer Pipe and Fittings
- C. ASTM D 3034-14a – Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings
- D. ASTM D 2321 – Underground Installation of Thermoplastic Pipe (non-pressure applications)

1.04 SUBMITTALS

- A. Solid Pipe (if required)
- B. Perforated Pipe (if required)
- C. Sieve Analysis (if required)
- D. Geotextile Fabric (if required)
- E. Leaching Chamber (if specified)
- F. Percolation Test (if required)

1.05 QUALITY ASSURANCE

- A. Excavation or construction of drainfields will not be allowed when the moisture content of the soil is greater than the plastic limit or when the occurrence of rain, snow or frost is such that the quality of construction may be impaired.
- B. Drainfield materials shall meet minimum requirements of the appropriate local or state agency regulating onsite septic systems.

PART 2 - PRODUCTS

2.01 SOLID SEWER PIPE AND FITTINGS

- A. Schedule 40 PVC pipe shall conform to ASTM D 1785.
- B. SDR 35 PVC pipe and fittings shall conform to ASTM D 3034.

2.02 PERFORATED PIPE

- A. Perforated pipe shall be minimum PVC SDR-35 or equal meeting ASTM D 2665 and must meet all local and state regulations.
- B. Strength reduction is allowed for perforations.

2.03 GEOTEXTILE FABRIC

- A. Synthetic material shall be TYPAR Style 3151 or approved equal or

2.04 GRAVEL/STONE

- A. Gravel shall be clean, free of organic matter and foreign substances.
- B. All gravel shall meet local or state regulations for sieve analysis. In no case shall gravel contain any material larger than 3 inches unless otherwise specified.
- C. Stone shall be clean, $\frac{3}{4}$ " to 2-1/2" diameter, and uniform in size.

2.05 CONCRETE SAND

- A. Sand must be clean, washed and free of all organic or foreign matter.
- B. Sand shall meet gradation requirements for ASTM C33 Concrete Sand with less than 10% passing a #100 sieve and less than 5% passing a #200 sieve.

2.06 DROP BOX

- A. Construct drop boxes and drop box lids of concrete or injection molded HDPE.
- B. Box shall be supplied with a 4-inch inlet, outlet and two outlets for trenches.
- C. All outlets shall be one inch lower than the inlet.
- D. Provide a rotating elbow on the outlet.

2.07 GRAVELLESS DRAINFIELD CHAMBER

- A. General
 1. High Density Polyethylene or Concrete
 2. Approved by the appropriate State regulatory agency.
 3. As specified per engineered drawings or approved equal.
- B. Concrete splash pad: 2 inches x 8 inches x 16 inches. Manufacture of Chambers splash pad may be substituted as alternative to concrete where applicable.

2.08 OBSERVATION PIPE

- A. Observation pipe material shall be either cast iron pipe or Schedule 40 PVC.

2.09 ENGINEERED FILL

- A. Fill must be free of all roots, debris, large stones, organic or foreign matter.
- B. Engineered fill must comply with requirements per engineer or as specified on plans.
- C. Sieve analysis and sample must be submitted prior to acceptance for use.
- D. Engineer shall provide certification of in place percolation rate of fill to health department where required.

PART 3 - EXECUTION

3.01 GENERAL

- A. Construct drainfield/drainbed in accordance with HHE 200.
- B. Drainfield shall be installed in accordance with all local, state and federal regulations.

3.02 SOLID SEWER PIPE

- A. Install Schedule 40 PVC for all septic sewer gravity pipe.
- B. Minimum cover over solid sewer pipe is 12 inches.
- C. Solid sewer pipe from septic tank outlet to distribution box or pump tank shall have a minimum of 1/8-inch drop per linear foot. Solid sewer pipe from house to septic tank shall have a minimum of 1/4-inch drop per linear foot.
- D. Solvent weld all joint connections.
- E. Insulation will be required in traveled areas as specified by the Project Engineer.

3.03 DRAINFIELD AND DRAINBED

- A. Rake to a depth of 1-inch all smeared or compacted surfaces of bottom and sidewalls and remove loose material before gravel is placed. Refer to HHE-200 form for transition zone preparation.
- B. Place stone the full width of the trench or bed and lay perforated pipe level.
- C. Stone shall be 1 inches above the pipe and 7 inches below the pipe.
- D. Cover the top of the stone with synthetic material.
- E. Backfill trench or bed to a depth of 3 to 6 inches above existing grade or as specified on HHE-200 form.
- F. Install vertically a piece of No. 3 rebar, 1-foot in length, above the piping at the four corners of the drainfield. Bury rebar 6 inches below ground surface.
- G. Leave each premise in a neat and orderly condition, restoring it as near as possible to its original condition and to the approval of the Project Engineer.

3.04 Eljen GSF

- A. Excavate to the width of the row as per HHE-200.
- B. Level trench to specified elevation.
- C. Remove the sod and grass under bed and fill extensions and then scarify the area. Do NOT compact or smear this area. Mix in code backfill to create transitional horizon and bring to subgrade prior to placing new field and system sand. (See HHE-200)

3.05 Concrete Chamber

- A. Excavate to the width of the row as per HHE-200.
- B. Level trench to specified elevation.
- C. Remove the sod and grass under bed and fill extensions and then scarify the area. Do NOT compact or smear this area. Mix in code backfill to create transitional horizon and bring to subgrade prior to placing new field and system sand. (See HHE-200)

- D. Place stone along sidewalls of chamber units.
- E. Cover top of units and stone with synthetic material.
- F. Backfill as specified on plans.

3.06 OBSERVATION PIPE

- A. Install any observation pipes as shown on plans.
- B. Observation pipe shall be set 4 inches below finished grade or as directed by project engineer.
- C. Observation pipes shall be fitted with threaded cap.

3.07 DROP BOXES

- A. Install drop boxes in locations where steep slopes require that the drainfield laterals be terraced and as directed by the Project Engineer.

3.08 AS-BUILTS

- A. Provide as-built information on installed system including location of all underground structures and corners of drainbed. Use forms (if supplied).
- B. Final Payment will not be made until as-built information has been received.

END OF SECTION

SECTION 02310 GRADING

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes rough and finished site grading of all areas disturbed during construction.

1.02 RELATED WORK

- A. Section 02315 – Excavation, Trenching and Backfill
- B. Section 02540 - Drainfields
- C. Section 02920 – Topsoiling, Seeding, Fertilizing and Mulching

PART 2 – PRODUCTS (Not applicable)

PART 3 - EXECUTION

3.01 ROUGH GRADING

- A. Grade the area in the vicinity of the excavation to prevent surface water from flowing into the excavation.
- B. Maintain existing drainage.

3.02 FINISH GRADING

- A. Grade site to true grades as specified on the plans after all structures and piping have been installed.
- B. Grade sites for effective drainage away from structures.
- C. Dress and trim all slopes.
- D. Round off the tops of slopes and toes of slopes.
- E. Grade all drainfields so as to ensure proper drainage of water away from field.
- F. Place topsoil on all disturbed areas and reseed or sod as soon as possible in accordance with Section 02920 – Topsoiling, Seeding, Fertilizing and Mulching.

END OF SECTION

SECTION 02920
TOPSOILING, SEEDING, FERTILIZING, AND MULCHING

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes topsoiling, seeding, fertilizing, and mulching areas disturbed by construction activities.

1.02 RELATED WORK (as applicable)

- A. Section 02310 – Grading
- B. Section 02315 – Excavation, Trenching & Backfilling

1.03 SUBMITTALS

- A. Topsoil
- B. Fertilizer (if applicable)
- C. Seed Mixture and Application Rate Data
- D. Mulch and Seed Stabilizer Material

PART 2 - PRODUCTS

2.01 TOPSOIL

- A. Material shall be screened loose friable loam, sandy loam, fine sandy loam, free of subsoil, refuse, stumps, roots, rocks, cobbles, stones, brush, weeds, litter and/or other materials larger than ½ inch in any dimension.
- B. Neither excessively acid nor excessively alkaline.
- C. Organic matter shall constitute not less than 5% nor more than 20% of loam.
- D. Use of stockpiled topsoil may be acceptable but must be free of refuse, stumps, roots, rocks, cobbles, stones, brush, litter and/or other materials larger than ½ inch in any dimension with approval of Engineer or Representative.

2.02 FERTILIZER

- A. Fertilizer shall meet specifications complying with Maine Erosion and Sediment Control Handbook for Construction.
 - 1. A soil analysis is required to determine fertilizer and limestone application rates. Selection of nutrients may be made based on experience and past success with the approval of the ENGINEER.

2.03 SEED

- A. Seed shall meet material specifications complying with Maine DOT Specification Seeds
- B. Seed mixture shall be selected based on Maine Standards and Specifications for Erosion and Sediment Control.

2.04 MULCH AND SEED STABILIZERS

- A. Mulch shall meet requirements of Maine Erosion and Sediment Control Handbook for Construction.
- B. Select mulch material and application rate based on site conditions and/or engineer recommendations.

2.05 SLOPE STABILIZATION

- A. All grade shall be at 4H:1V or less to prevent need of additional slope stabilization and ensure mow-able grade.
- B. If unable to achieve slope of 4H:1V or less, use of turf reinforcement mat, erosion control blanket, or sod shall be used for slope stabilization.
 - 1. Install turf reinforcement mat or erosion control blanket per manufacturer's instructions.

PART 3 - EXECUTION

3.01 TOPSOIL

- A. Grade surface and prepare for placement of topsoil by removing all sticks, debris, litter, wire, cable, cobbles, and stones any larger than 1/2 inch.
- B. Spread stockpiled topsoil and/or loam over all disturbed areas, excluding those where another type of finished surface is being provided to a depth of no less than 4 inches.
- C. Fine grade topsoil/loam surface to finished grade as shown on plans or directed by Engineer.

3.02 LIME AND FERTILIZER

- A. Lime shall be applied to area using appropriate application rates as needed.
- B. Fertilize all topsoil/loam areas using appropriate fertilizer and application rates as needed.
- C. After application of fertilizer and lime, hand rake soils to finished grade and remove all stones, stumps, sticks, weeds, and debris larger than 1/2 inch in any dimension.
- D. If seed bed has become compacted, scarify to a depth of 5 inches prior to fine raking. No seeding shall be permitted on areas where seed bed has not been properly prepared or where soil has been compacted.

3.03 SEEDING

- A. Sow seed within 24 hours of application and preparation of seedbed. Uniformly sow seed, at rate specified by use of approved mechanical seed drills, rotary hand seeders, hydraulic equipment or hydroseed to produce a uniform seed and nutrient application.
 - 1. Seed shall be applied in the appropriate mixture and at the rate specified per Maine Erosion and Sediment Control Handbook for Construction.
- B. Hand rake and/or rolling with light roller may be used in lieu of Mulch unless otherwise directed by Engineer.
- C. All seeded areas shall be watered within 72 hours of seeding. Watering of seeded areas shall be such that it shall not cause flooding, erode soils, or damage to seeded areas.
- D. Areas will not be accepted as complete until generally weed-free, 3-inch stand of grass is established.
- E. Areas that fail to establish growth for any reason whatsoever shall be reseeded until the areas are covered with a satisfactory growth of grass as approved by Engineer or Representative.
- F. Hydroseeding shall be the preferred application method for all sites.

3.04 MULCHING

- A. All areas shall be mulched with suitable mulch at time of seed application unless otherwise specified.
- B. Straw mulch applied at 2 ton/acre and anchored with wood fiber mulch (hydromulch) at 500-750 lbs./acre shall be the preferred method.

END OF SECTION

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION		Maine Department of Human Services Division of Health Engineering, 10 SHS (207) 287-5672 Fax: (207) 287-3165	
PROPERTY LOCATION		>> CAUTION: LPI APPROVAL REQUIRED <<	
City, Town, or Plantation	<u>Carmel</u>	Town/City _____	Permit # _____
Street or Road	<u>84 Fuller Rd</u>	Date Permit Issued ____/____/____	Fee: \$ _____ Double Fee Charged ☐
Subdivision, Lot #		Local Plumbing Inspector Signature _____	L.P.I. # _____
OWNER/APPLICANT INFORMATION		☐ Owner ☐ Town ☐ State The Subsurface Wastewater Disposal System shall not be installed until a Permit is issued by the Local Plumbing Inspector. This Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules.	
		Municipal Tax Map # _____ Lot # _____	
		CAUTION: INSPECTION REQUIRED I have inspected the installation authorized above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application. _____ (1st) date approved _____ (2nd) date approved Local Plumbing Inspector Signature	
PERMIT INFORMATION			
TYPE OF APPLICATION ☐ 1 First Time System ☒ 2 Replacement System Type replaced: <u>UNKN</u> Year installed: <u>UNKN</u> ☐ 3 Expanded System ☐ a. <25% Expansion ☐ b. >= 25% Expansion ☐ 4 Experimental System ☐ 5 Seasonal Conversion	THIS APPLICATION REQUIRES ☒ 1. No Rule Variance ☐ 2. First Time System Variance ☐ a. Local Plumbing Inspector Approval ☐ b. State & Local Plumbing Inspector ☐ 3. Replacement System Variance ☐ a. Local Plumbing Inspector Approval ☐ b. State & Local Plumbing Inspector ☐ 4. Minimum Lot Size Variance ☐ 5. Seasonal Conversion Permit	DISPOSAL SYSTEM COMPONENTS ☒ 1 Complete Non-engineered System ☐ 2 Primitive System (graywater & alt toilet) ☐ 3 Alternative Toilet, specify: _____ ☐ 4 Non-engineered Treatment Tank (only) ☐ 5 Holding Tank, _____ gallons ☐ 6 Non-engineered Disposal Field (only) ☐ 7 Separated Laundry System ☐ 8 Complete Engineered System (2000 gpd or more) ☐ 9 Engineered Treatment Tank (only) ☐ 10 Engineered Disposal Field (only) ☐ 11 Pre-treatment, specify: _____ ☐ 12 Miscellaneous Components	
SIZE OF PROPERTY <u>1.74</u> ☐ SQ. FT. ☒ ACRES	DISPOSAL SYSTEM TO SERVE ☒ 1 Single Family Dwelling Unit, No. of Bedrooms: <u>3</u> ☐ 2 Multiple Family Dwelling, No. of Units: _____ ☐ 3 Other: _____ (specify) Current Use ☐ Seasonal ☒ Year Round ☐ Undeveloped		
SHORELAND ZONING ☐ Yes ☒ No	TYPE OF WATER SUPPLY ☒ 1 Drilled Well ☐ 2 Dug Well ☐ 3 Private ☐ 4 Public ☐ 5 Other Private		
DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)			
TREATMENT TANK ☒ 1 Concrete ☒ a Regular ☐ b Low Profile ☐ 2 Plastic ☐ 3 Other _____ CAPACITY: <u>1000</u> GAL	DISPOSAL FIELD TYPE & SIZE ☐ 1 Stone Bed ☐ 2 Stone Trench ☒ 3. Proprietary Device ☐ a cluster array ☐ c. Linear ☒ b regular load ☐ d. H-20 load ☐ 4. Other _____ SIZE: <u>1008</u> ☒ sq. ft. ☐ lin. ft	GARBAGE DISPOSAL UNIT ☐ 1. No ☐ 2. Yes ☒ 3. Maybe If Yes or Maybe, specify one below: ☐ a multi-compartment tank ☐ b. _____ tanks in series ☐ c increase in tank capacity ☐ d. Filter on Tank Outlet	DESIGN FLOW <u>270</u> gallons per day BASED ON ☒ 1. Table 4A (dwelling unit(s)) ☐ 2. Table 4C (other facilities) SHOW CALCULATIONS _____ for other facilities _____
SOIL DATA PROFILE <u>12</u> CONDITION <u>C</u> at Observation Hole # <u>TP-1</u> Depth <u>16</u> " of Most Limiting Soil Factor <u>Restrictive</u>	DISPOSAL FIELD SIZING ☐ 1 Medium---2.6 sq. ft. / gpd ☒ 2. Medium---Large 3.3 sq. ft. / gpd ☐ 3. Large---4.1 sq. ft. / gpd ☐ 4. Extra Large---5.0 sq. ft. / gpd	EFFLUENT/EJECTOR PUMP ☐ 1. Not Required ☐ 2. May Be Required ☒ 3. Required Specify only for engineered systems: DOSE: _____ gallons	
SITE EVALUATOR STATEMENT			
I certify that on <u>8/4/26</u> (date) I completed a site evaluation on this property and state that the data reported are accurate and that the proposed system is in compliance with the State of Maine Subsurface Wastewater Disposal Rules (10-144A CMR 241).			
_____ Site Evaluator Signature		<u>SE00429</u> SE #	<u>8/23/26</u> Date
<u>Samuel Altvater</u> Site Evaluator Name Printed		<u>(207)478-7105</u> Telephone Number	<u>samaltvater@gmail.com</u> Email Address
Designed with SeptiCAD v5 Note: Changes to or deviations from the design should be confirmed with the Site Evaluator.			

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

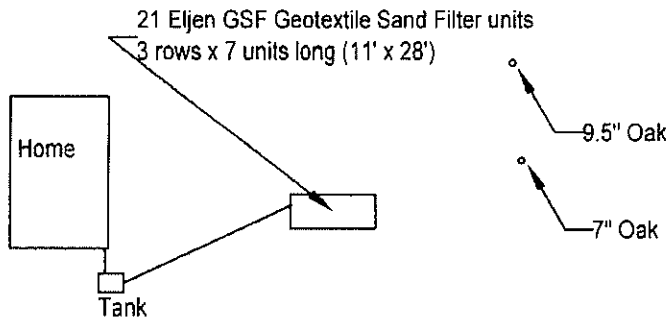
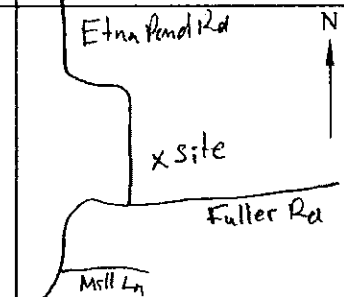
Maine Department of Human Services
Division of Health Engineering, Stando 10
(207) 287-5672 Fax: (207) 287-5165

Town, City, Plantation
Carmel

Street, Road, Subdivision
84 Fuller Rd

SITE PLAN Scale 1" = 60 ft.

SITE LOCATION PLAN



NOTES:

1. This is not a survey. All property lines, building locations and site features have been approximately located, unless otherwise shown.
2. Proposed well must be located at least 50' from septic tank(s) and 100' from disposal field(s).
3. Review the Eljen Geotextile Sand Filter (GSF) Design and Installation Manual before installing this system.



SOIL PROFILE DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole # <u>TP-1</u> ☒ Test Pit ☐ Boring				Observation Hole # <u> </u> ☐ Test Pit ☐ Boring			
<u><1</u> " Depth of organic horizon above mineral soil				<u> </u> " Depth of organic horizon above mineral soil			
Texture	Consistency	Color	Mottling	Texture	Consistency	Color	Mottling
0				0			
6	Sandy Loam	Friable	Yellowish Brown	6			
12				12			
18	Sandy Loam	Friable to Firm	Light Olive Brown	18			
24			Few & Prominent	24			
30				30			
36				36			
42				42			
48				48			
Refusal (Firm) at 22 inches							
Soil	Classification	Slope	Limiting Factor	Soil	Classification	Slope	Limiting Factor
12	C	9	16"				
Profile	Condition	Percent	Depth	Profile	Condition	Percent	Depth
☐ Groundwater ☒ Restrictive Layer ☐ Bedrock				☐ Groundwater ☐ Restrictive Layer ☐ Bedrock			

Site Evaluator Signature

SE00429
SF #

8/23/26
Date

Page 2 of 3
HHE-200 Rev. 10/02

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
Division of Health Engineering, Station 114
(207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation
Carmel

Street, Road, Subdivision
84 Fuller Rd

SUBSURFACE WASTEWATER DISPOSAL PLAN

Scale: 1" = 20' ft

Shoulder of Gravelly Coarse Sand Fill

21 Eljen GSF Geotextile Sand Filter units
3 rows x 7 units long (11' x 28')

9.5" Oak

D-Box (Insulate)

Toe of Fill Extension

Cap End of Perforated Pipe

NOTES:

- 1 Scarify all ground to be filled. Remove vegetation and organic loam topsoil. Scarify soil to a depth of 6 to 8 inches by mixing gravelly coarse sand with native soil using a rototiller or a backhoe bucket with teeth. Do not use a backhoe bucket without teeth because it can compact and smear the underlying soil.
- 2 If a pump station is required then a 2" dia. pressure line shall connect the distribution box and the septic tank.
- 3 Force main to pitch towards pump station, such that it will completely drain following each pump cycle. Drill 1/4" hole in bottom of force main between the inside of the pump chamber and the check valve to allow force main to drain following each dosing cycle. Force main to enter into bottom of distribution box (D-box).



*Original Corner Elevations

BACKFILL REQUIREMENTS

Depth of Backfill (upslope) 17" to 21"
Depth of Backfill (downslope) 29" to 30"

CONSTRUCTION ELEVATIONS

Finished Grade Elevation (at Row 1) -42"
Top of Perforated Pipe (at Row 1) -52"
Bottom of Eljen Unit (at Row 1) -63"
Bottom of System Sand (at Row 1) -69"

ELEVATION REFERENCE POINT

Location & Description: Nail in 7" Oak

30" UP

Reference Elevation: 0.0"

NOTE: DISPOSAL FIELD BACKFILL MATERIAL PLACED BELOW OR WITHIN 3' OF THE SYSTEM SAND MUST BE GRAVELLY COARSE SAND MEETING SECTION 11(E)(2) OF THE RULES. REMAINING FILL LOAMY SAND (NO CLAY).

DISPOSAL FIELD CROSS SECTION

Scales:

Vertical: 1" = 5'
Horizontal: 1" = 5'

A

B

Eljen GSF Geotextile Sand Filter with
Geotextile filter fabric and 4" Perforated Pipe
4' Long x 3' Wide x 7" Tall (B43 Module)

Minimum 10" Fill Above Perforated Pipe
4" Loam/Seed/Mulch Overlaying Clean Sand

4:1 Grade

3' Shoulder

3% Crown

3' Shoulder

4:1 Grade

9.1 % Existing Grade

Medium to Coarse Sand 6" directly beneath & 9" beside Eljens
Sand must be ASTM Standard C-33 (concrete sand) or equivalent
For more information see the Maine Installation and Design Manual

6'

11'

19'

Site Evaluator Signature

SE00429
SE #

8/23/26
Date

Page 3 of 3
HHE-200 Rev. 10/02

