17.0 WASTEWATER

17.1 SITE PLAN

The sewage disposal system for the Bingham Wind Project (project) will be sited near the Operations and Maintenance (O&M) building in a location with adequate soil drainage, a minimum of 100 feet from the water supply well. The proposed O&M Site Plan is shown on the civil design plans for the project in Exhibit 1, and is included as Figure 17-1 for reference.

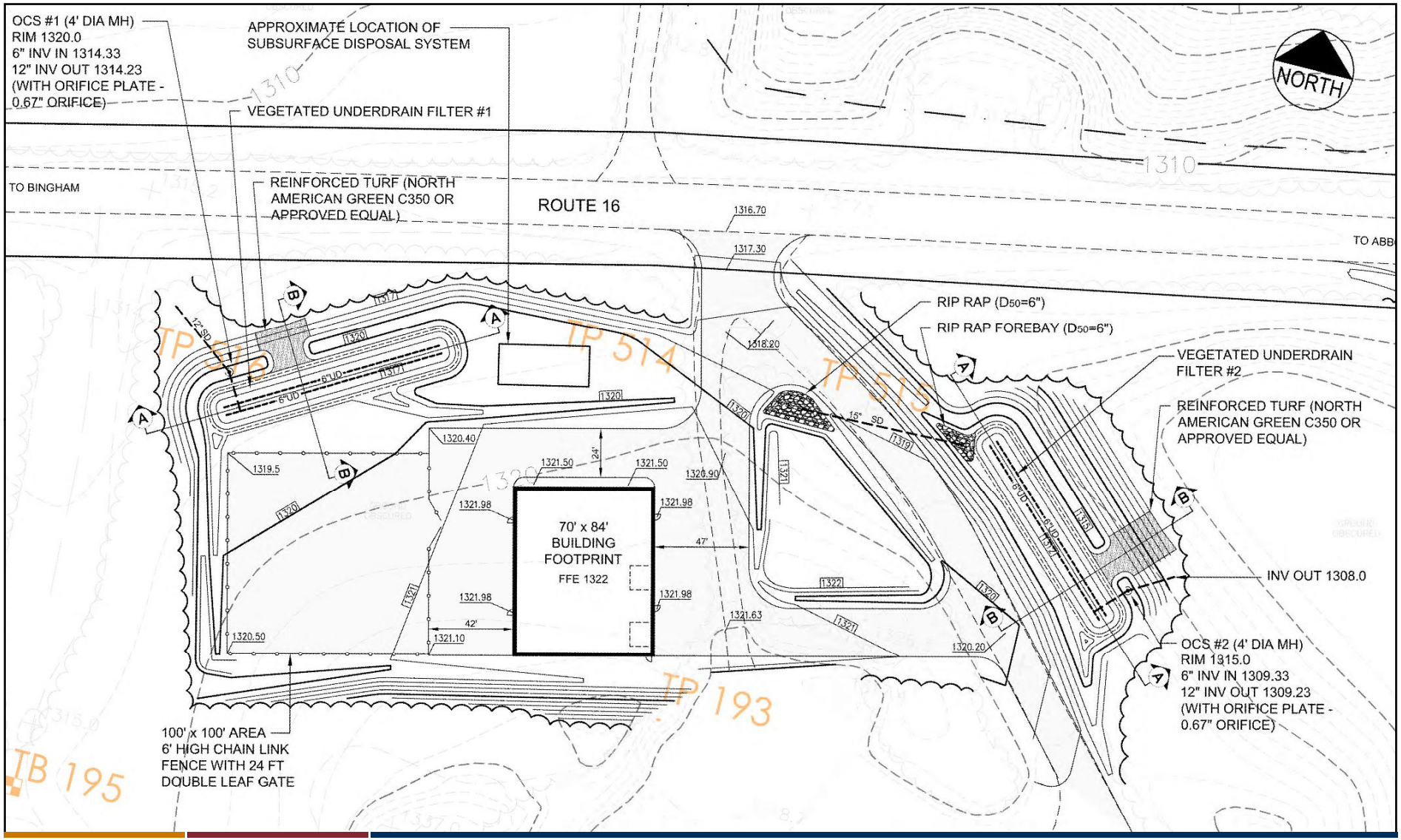
17.2 SUBSURFACE WASTEWATER DISPOSAL SYSTEM

The wind turbines and electrical collector system for the project produce no wastewater. During construction, temporary facilities will be used and serviced by a licensed wastewater transporter. The only potential wastewater generation during operation would be from the proposed O&M building located in the center of the project area within Bingham. It is assumed that the O&M building will service up to 23 staff and visitors per day (it is expected that 6-10 employees will be on-site daily), resulting in wastewater generation of no more than 345 gallons per day. Wastewater generation will be limited to domestic quality wastewater (i.e., toilet, sink, shower). There will be no commercial or industrial wastewater generation associated with this project. The proposed design includes a concrete septic tank with a standard stone bed septic system that meets the standards of the State of Maine Subsurface Wastewater Disposal Rules, 10-144A CMR 241. The proposed septic system is on suitable soils, as classified by the State of Maine Subsurface Wastewater Disposal Rules. An HHE-200 form and associated narrative is attached for the septic design (Exhibit 17A).

No concrete batch plants are proposed during construction; concrete for the turbine foundations will be supplied and delivered to the project site by local concrete plants, with washwater from the concrete delivery process disposed on the turbine pad site.

Figure 17-1

Operations and Maintenance Building Site Plan



195600539

Stantec Consulting Services Inc.
30 Park Drive
Topsham, ME USA
04086
Phone (207) 729-1199
Fax: (207) 729-2715
www.stantec.com

00539_17-1_OMSitePlan.mxd

0 70
Feet

Source: Deluca Hoffman O & M Building Site Plan and Water Quality Plan, Sheet C-SW3.0, 4/5/2013.

Client/Project
Bingham Wind Project

Figure No.
17-1

Title
O&M Building Site Plan
4/2/2013

Exhibit 17A: Subsurface Wastewater Disposal System Design (HHE-200) for Operations and Maintenance Building

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Dept. Health & Human Services
Div of Environmental Health , 11 SHS
(207) 287-5672 FAX (207) 287-3165

PROPERTY LOCATION

City, Town, or Plantation	MAYFIELD PLANTATION
Street or Road	ROUTE 16
Subdivision, Lot #	

>>CAUTION: LPI APPROVAL REQUIRED<<

Town/City _____ Permit # _____

Date Permit Issued __/__/__ Fee $ _____ Double Fee Charged [ ]

LPI # _____

Local Plumbing Inspector Signature

The Subsurface Wastewater Disposal System *shall not* be installed until a Permit is issued by the Local Plumbing Inspector. The 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 # _____

OWNER/APPLICANT INFORMATION

Name (last, first, MI): BLUE SKY WEST, LLC — ■ Owner ☐ Applicant

Mailing Address of [redacted] Applicant	c/o DALE KNAPP STANTEC CONSULTING 30 PARK DRIVE TOPSHAM, ME 04086
Daytime Tel. #	

OWNER OR APPLICANT STATEMENT

I state and acknowledge that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department and/or Local Plumbing Inspector to deny a permit.

Signature of Owner/Applicant _____ Date _____

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 _____

Local Plumbing Inspector Signature _____ (2nd) Date Approved _____

PERMIT INFORMATION

TYPE OF APPLICATION

■ 1. First Time System
☐ 2. Replacement System
Type Replaced: _____
Year Installed: _____
☐ 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 Approval
☐ 3.Replacement System Variance
☐ a. Local Plumbing Inspector Approval
☐ b. State & Local Plumbing Inspector Approval
☐ 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(2000gpd+)
☐ 9. Engineered Treatment Tank (only)
☐ 10. Engineered Disposal Field (only)
☐ 11. Pre-treatment, specify: _____
☐ 12. Miscellaneous components

SIZE OF PROPERTY

+/-15.5 ☐ SQ. FT. ■ ACRES

DISPOSAL SYSTEM TO SERVE

☐ 1. Single Family Dwelling Unit, No. of Bedrooms: ____
☐ 2. Multiple Family Dwelling, No of Units: _____
■ 3. Other: O & M BUILDING (specify)

Current Use ☐ Seasonal ☐ Year Round ■ Undeveloped

SHORELAND ZONING

☐ Yes ■ No

PROPOSED TYPE OF WATER SUPPLY

■ 1. Drilled Well ☐ 2. Dug Well ☐ 3. Private
☐ 4. Public ☐ 5. Other:

DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)

TREATMENT TANK

■ 1. Concrete
■ a. Regular
☐ b. Low Profile RATED H-20
☐ 2. Plastic
☐ 3. Other: _____
CAPACITY: 1000 GAL.
SEE NOTE ON PAGE 3

DISPOSAL FIELD TYPE & SIZE

■ 1. Stone Bed ☐ 2. Stone Trench
☐ 3. Proprietary Device
☐ a. Cluster array ☐ c. Linear
☐ b. Regular ☐ d. H-20 loaded
☐ 4. Other: _____
SIZE: 900 ■ 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

345 gallons per day
BASED ON:
☐ 1. Table 4A (dwelling unit(s))
■ 2. Table 4C (other facilities)
SHOW CALCULATIONS for other facilities

UP TO 23 STAFF & VISITORS AT 15 GALLONS PER DAY EACH

☐ 3. Section 4G (meter readings) ATTACH WATER-METER DATA

SOIL DATA & DESIGN CLASS

PROFILE 5 / CONDITION B
at Observation Hole # TP 514
Depth _____ "
of Most Limiting Soil Factor

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

LATITUDE AND LONGITUDE

at center of disposal area
Lat. N45 d 6 m 12.46 s
Lon. W69 d 45 m 43.23 s
if g.p.s., state margin of error

SITE EVALUATOR STATEMENT

I Certify that on 11/28/12 (date) I completed a site evaluation on this property and state that the data reported is accurate and that the proposed sytem is in compliance with the Subsurface Wastewater Disposal Rules (10-144A CMR 241).

Albert Frick — 163 — 11/30/2012

Site Evaluator Signature — SE # — Date

ALBERT FRICK — (207) 839-5563 — ALBERT@ALBERTFRICK.COM

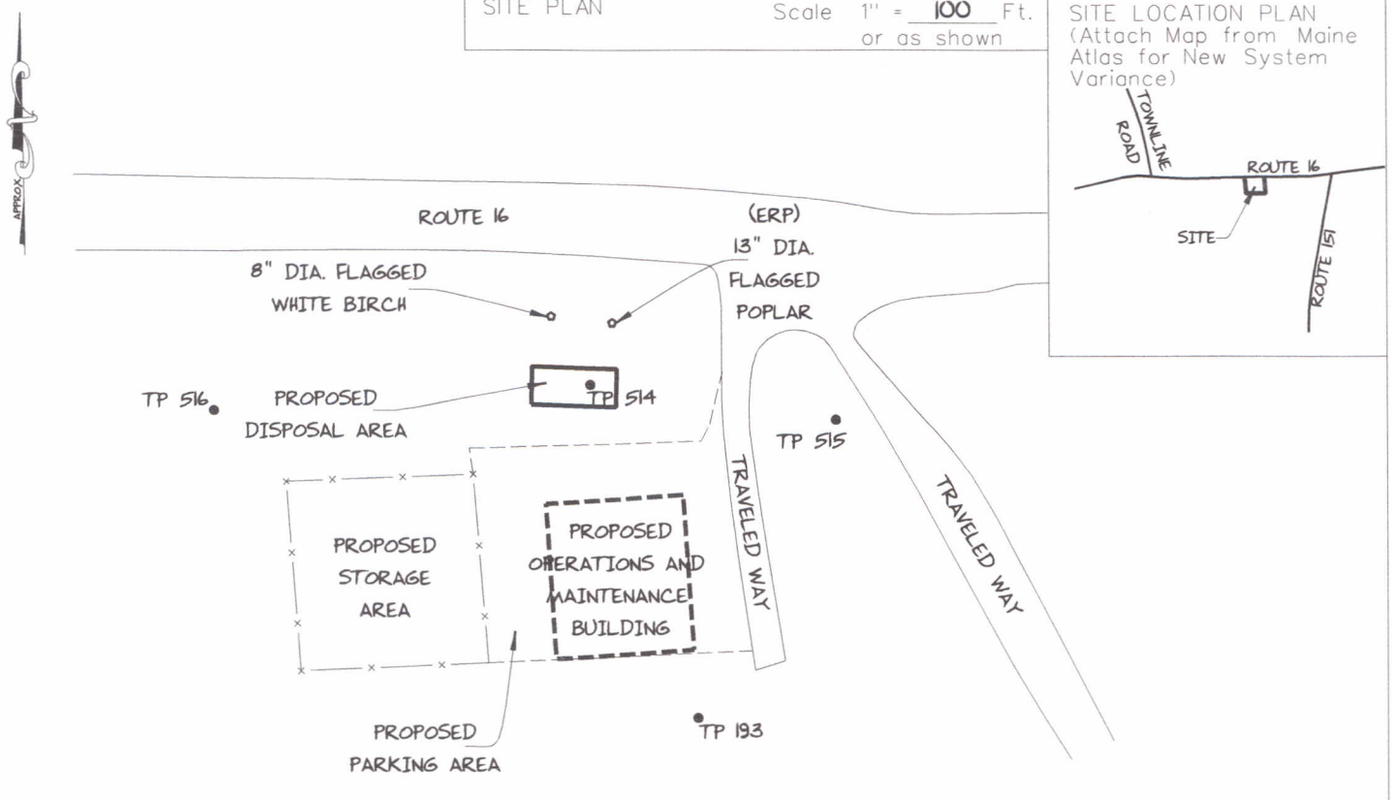
Site Evaluator Name Printed — Telephone Number — E-mail Address

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
Division of Health Engineering, Station 10 SHS
(207) 287-5672 FAX (207) 287-4172

Town, City, Plantation	Street, Road Subdivision	Owner's Name
MAYFIELD PLANTATION	ROUTE 16	BLUE SKY WEST, LLC

SITE PLAN Scale 1" = 100 Ft. or as shown



SITE LOCATION PLAN (Attach Map from Maine Atlas for New System Variance)

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

Observation Hole TP 514 ■ Test Pit ☐ Boring
_____" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Mottling
0	SANDY LOAM	FRIABLE	DARK BROWN (10YR 3/3)	
10			GRAY (10YR 6/1)	
			ALBIC	
20	LOAMY SAND		BROWN (7.5YR 4/4)	
			OLIVE BROWN (2.5Y 4/3)	
30	FINE SAND		OLIVE (5Y 4/3)	
40				
50	LIMIT OF EXCAVATION			

Soil Classification		Slope	Limiting Factor	
5	B	0-3 %	-	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
Profile	Condition			

Observation Hole TP 515 ■ Test Pit ☐ Boring
_____" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Mottling
0	LOAMY SAND			
			OLIVE (2.5Y 4/3)	
10	GRAVELLY FINE SAND	FRIABLE		
20			OLIVE (5Y 4/3)	
30				
			LIMIT OF EXCAVATION	
40				
50				

Soil Classification		Slope	Limiting Factor	
BORROW AREA C-HORIZON		____ %	-	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
Profile	Condition			

NOT TO BE UTILIZED FOR SEPTIC, IN DEPRESSIONAL AREA

Albert Frick
Site Evaluator Signature

163
SE *

11/30/2012
Date

ALBERT FRICK ASSOCIATES – 95A COUNTY ROAD ROAD GORHAM, MAINE 04038 – (207) 839-5563

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Department of Human Services
Division of Health Engineering

Town, City, Plantation	Street, Road Subdivision	Owner's Name
MAYFIELD PLANTATION	ROUTE 16	BLUE SKY WEST, LLC

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

Observation Hole TP 516 ■ Test Pit ☐ Boring
_____" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

	Texture	Consistency	Color	Mottling
0–10	SANDY LOAM	FRIABLE	DARK BROWN (10YR 3/3)	
10–20			LIGHT OLIVE BROWN (2.5Y 5/6)	
20–30				
30–50	FINE SAND		DARK OLIVE BROWN (2.5Y 3/3)	

Soil Classification	Slope	Limiting Factor	
Profile: 5 / Condition: B	____ %	-	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Observation Hole TP 193 ■ Test Pit ☐ Boring
_____" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

	Texture	Consistency	Color	Mottling
0–10	SANDY LOAM / LOAMY SAND	FRIABLE	DARK BROWN / BROWN (10YR 5/3)	
10–20	MEDIUM SAND		DARK OLIVE BROWN (5Y 3/2)	
20–30				
30–50				

Soil Classification	Slope	Limiting Factor	
Profile: 5 / Condition: B	____ %	-	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

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

Observation Hole _____ ☐ Test Pit ☐ Boring
_____" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

	Texture	Consistency	Color	Mottling
0–50				

Soil Classification	Slope	Limiting Factor	
Profile: ____ / Condition: ____	____ %	-	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Observation Hole _____ ☐ Test Pit ☐ Boring
_____" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

	Texture	Consistency	Color	Mottling
0–50				

Soil Classification	Slope	Limiting Factor	
Profile: ____ / Condition: ____	____ %	-	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Albert Frick
Site Evaluator Signature

163
SE #

11/30/2012
Date

ALBERT FRICK ASSOCIATES – 95A COUNTY ROAD ROAD GORHAM, MAINE 04038 – (207) 839-5563

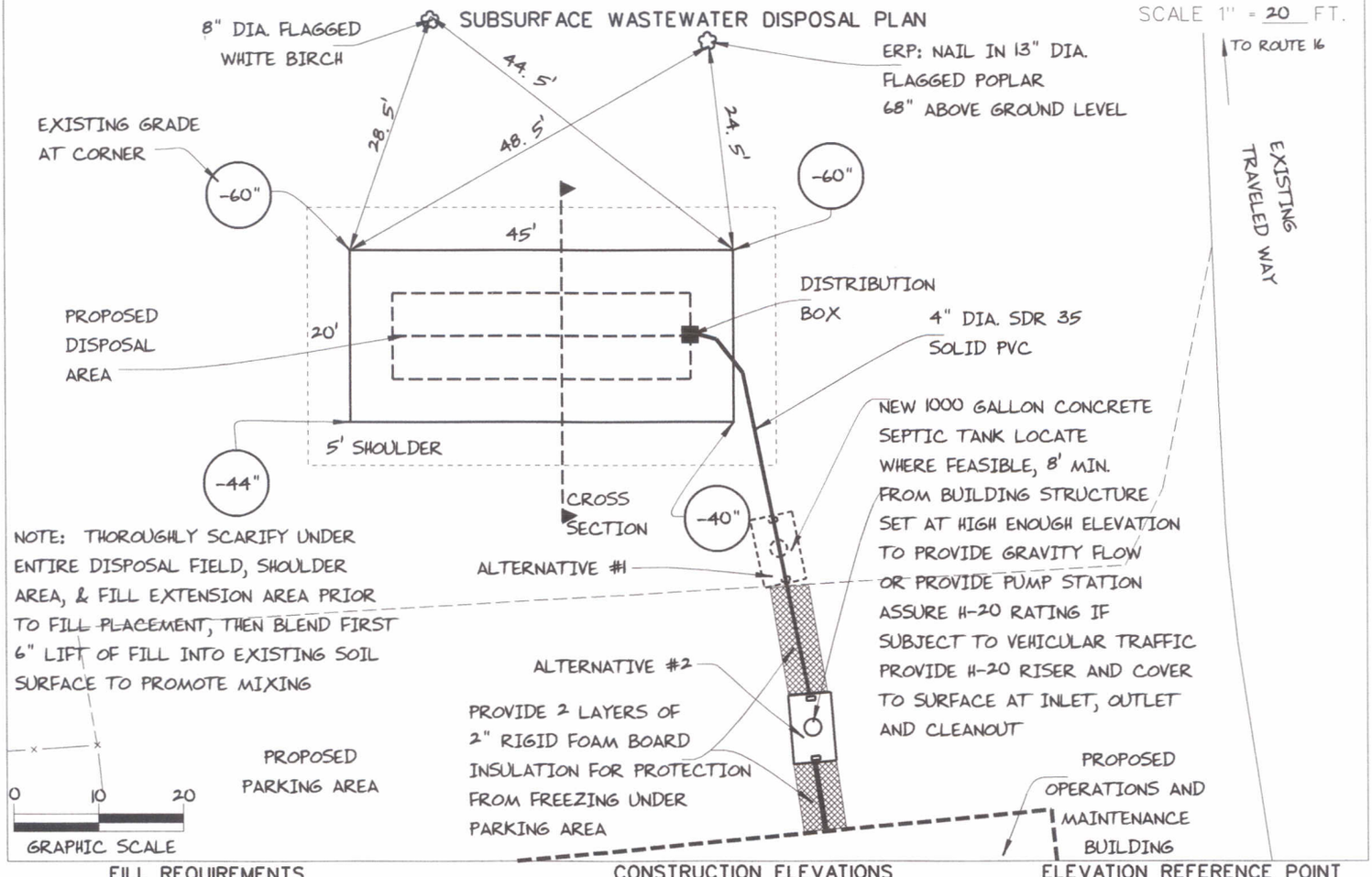
SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
Division of Health Engineering, Station 10 SHS
(207) 287-5672 FAX (207) 287-4172

Town, City, Plantation	Street, Road, Subdivision	Owner's Name
MAYFIELD PLANTATION	ROUTE 16	BLUE SKY WEST, LLC

SUBSURFACE WASTEWATER DISPOSAL PLAN

SCALE 1" = 20 FT.



NOTE: THOROUGHLY SCARIFY UNDER ENTIRE DISPOSAL FIELD, SHOULDER AREA, & FILL EXTENSION AREA PRIOR TO FILL PLACEMENT, THEN BLEND FIRST 6" LIFT OF FILL INTO EXISTING SOIL SURFACE TO PROMOTE MIXING

FILL REQUIREMENTS

Depth of Fill (Upslope) : 0"
Depth of Fill (Downslope) : 0"
DEPTHS AT CROSS-SECTION (shown below)

CONSTRUCTION ELEVATIONS

Finished Grade Elevation
Top of Distribution Pipe or Proprietary Device
Bottom of Disposal Area

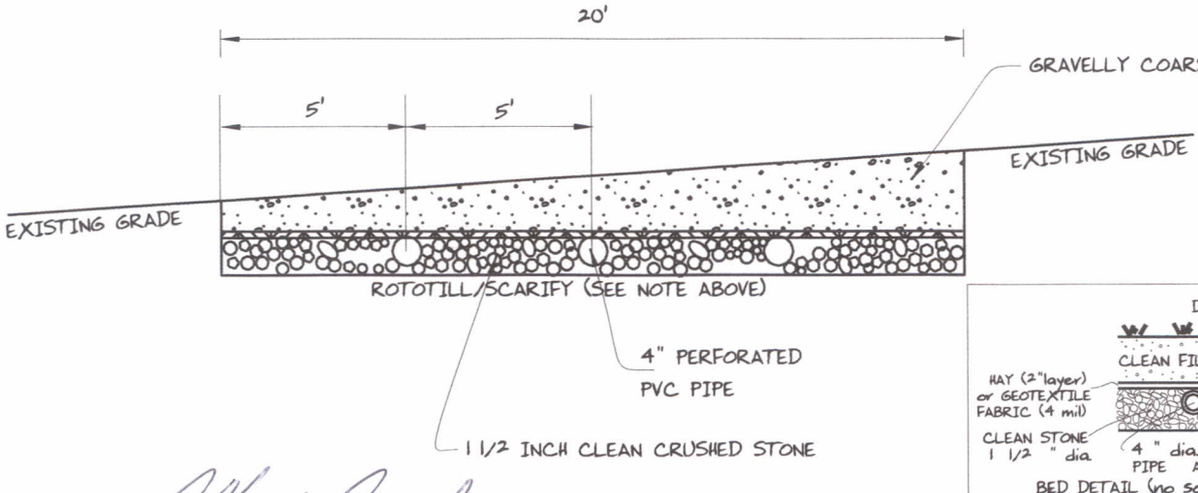
SEE DETAIL BELOW

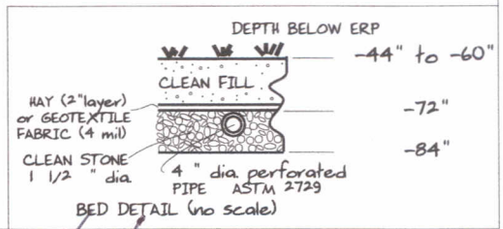
ELEVATION REFERENCE POINT

Location & Description 13" DIA. POPLAR NAIL 68" ABOVE BASE
Reference Elevation is: 0.0" or _____

DISPOSAL AREA CROSS SECTION

SCALE:
VERTICAL: 1" = 5 FT
HORIZONTAL: 1" = 5 FT





BED DETAIL (no scale)

Albert Frick
Site Evaluator Signature

163
SE #

11/30/2012
Date

ALBERT FRICK ASSOCIATES – 95A COUNTY ROAD ROAD GORHAM, MAINE 04038 – (207) 839-5563

Albert Frick Associates, Inc.
Soil Scientists & Site Evaluators
95A County Road Gorham, Maine 04038
(207) 839-5563

MAYFIELD PLANTATION	ROUTE 16	BLUE SKY WEST, LLC
TOWN	LOCATION	APPLICANT'S NAME

1) The Plumbing and Subsurface Wastewater Disposal Rules adopted by the State of Maine, Division of Health and Human Services pursuant to 22 M.R.S.A. § 42 (the "Rules") are incorporated herein by reference and made a part of this application and shall be consulted by the owner/applicant, the system installer and/or building contractor for further construction details and material specifications. The system Installer should contact Albert Frick Associates, Inc. 839-5563, if there are any questions concerning materials, procedures or designs. The system installer and/or building contractor installing the system shall be solely responsible for compliance with the Rules and with all state and municipal laws and ordinances pertaining to the permitting, inspection and construction of subsurface wastewater disposal systems.

2) This application is intended to represent facts pertinent to the Rules only. It shall be the responsibility of the owner/applicant, system Installer and/or building contractor to determine compliance with and to obtain permits under all applicable local, state and/or federal laws and regulations (including, without limitation, Natural Resources Protection Act, wetland regulations, zoning ordinances, subdivision regulations, Site Location of Development Act and Minimum Lot Size law) before installing this system or considering the property on which the system is to be installed a "buildable" lot. It is recommended that a wetland scientist be consulted regarding wetland regulations. Prior to the commencement of construction/installation, the local plumbing inspector or Code Enforcement Officer shall inform the owner/applicant and Albert Frick Associates, Inc of any local ordinances which are more restrictive than the Rules in order that the design may be amended. All designs are subject to review by local, state and/or federal authorities. Albert Frick Associates, Inc.'s liability shall be limited to revisions required by regulatory agencies pursuant to laws or regulations in effect at the time of preparation of this application.

3) All information shown on this application relating to property lines, well locations, subsurface structures and underground facilities (such as utility lines, drains, septic systems, water lines, etc.) are based upon information provided by the owner/applicant and has been relied upon by Albert Frick Associates, Inc. in preparing this application. The owner/applicant shall review this application prior to the start of construction and confirm this information. Well locations on abutting properties but not readily visible above grade should be confirmed by the owner/applicant prior to system installation to assure minimum setbacks.

4) Installation of a garbage (grinder) disposal is not recommended. If one is installed, an additional 1000 gallon septic tank or a septic tank filter shall be connected in series to the proposed septic tank. Risers and covers should be installed over the septic tank outlet per the "Rules" to allow for easy maintenance of filter.

5) The septic tank should be pumped within two years of installation and subsequently as recommended by the pump service, but in no event should the septic tank be pumped less often than every three years.

The system user shall avoid introducing kitchen grease or fats into this system. Chemicals such as septic tank cleaners and/or chlorine (such as from water treatment units) and controlled or hazardous substances shall not be disposed of in this system. Additives such as yeast or enzymes are discouraged, since they have not been proven to extend system life.

6) All septic tanks, pump stations and additional treatment tanks shall be installed to prevent ground water and surface water infiltration. Risers and covers should be properly installed to provide access while preventing surface water intrusion to within 6" of a finished ground surface.

Vehicular traffic over disposal system is prohibited unless specifically designed with H-20 rated components.

ATTACHMENT TO SUBSURFACE WASTEWATER DISPOSAL APPLICATION

MAYFIELD PLANTATION	ROUTE 16	BLUE SKY WEST, LLC
TOWN	LOCATION	APPLICANT'S NAME

7) The actual waste water flow or number of bedrooms shall not exceed the design criteria indicated on this application without a re-evaluation of the system as proposed

8) The general minimum setbacks between a well (public or private) and septic system serving a single family residence is 100-300 feet, unless the local municipality has a more stringent requirement. A well installed by an abutter within the minimum setback distances prior to the issuance of a permit for the proposed disposal system may void this design.

9) When a gravity system is proposed: BEFORE CONSTRUCTION/INSTALLATION BEGINS, the system installer or building contractor shall review the elevations of all points given in this application and the elevation of the existing and/or proposed building drain and septic tank inverts for compatibility to minimum pitch requirements. In gravity systems, the invert of the septic tank(s) outlet(s) should be at least 4 inches above the invert of the distribution box outlet at the disposal area.

10) When an effluent pump is required: Pump stations should be sized per manufacturer's specifications to meet lift requirements and friction loss. Provisions shall be made to make certain that surface and ground water does not enter the septic tank or pump station, by sealing/grouting all seams and connections, and by placement of a riser and lid at or above grade. An alarm device warning of a pump failure shall be installed. Also, when pumping is required of a chamber system, install a ' T' connection in the distribution box and place 3 inches of stone or a splash plate in the first chamber. Insulate gravity pipes, pump lines and the distribution box as necessary to prevent freezing.

11) On all systems, remove the vegetation, organic duff and old fill material from under the disposal area and any fill extension. Additional fill beyond indicated on plan may be necessary to replace organic matter. On sites where the proposed system is to be installed in natural soil, scarify the bottom and sides of the excavated disposal area with a rake. Do not use wheeled equipment on the scarified soil surface. For systems installed in fill, scarify the native soil by roto-tilling or scarifying with teeth of backhoe to a depth of at least 8 inches over the entire disposal and fill extension area to prevent glazing and to promote fill bonding. Place fill in loose layers no deeper than 8 inches and compact before placing more fill (this ensures that voids and loose pockets are eliminated to minimize the chance of leakage or differential settling). Do not use wheeled equipment on the scarified soil area until after 12 inches of fill is in place. Keep equipment off proprietary devices. Divert the surface water away from the disposal area by ditching or shallow landscape swales.

12) Unless noted otherwise, fill shall be gravelly coarse sand, which contains no more that 5% fines (silt and clay). Crushed stone shall be clean and free of any rock dust from the crushing process.

13) Do not install systems on loamy, silty, or clayey soils during wet periods since soil smearing/glazing may seal off the soil interface.

14) Seed all filled and disturbed surfaces with perennial grass seed, with 4" min. soil or soil amendment mix suitable for growing, then mulch with hay or equivalent material to prevent erosion. Alternatively, bark or permanent landscape mulch may be used to cover system. Woody trees or shrubs are not permitted on the disposal area or fill extensions.

15) If an advanced wastewater treatment unit is part of the design, the system shall be operated and maintained per manufacturer's specifications.

Albert Frick Associates, Inc.
Soil Scientists & Site Evaluators
95A County Road Gorham, Maine 04038
(207) 839-5563