Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File Number
Document Transaction Number
City/Town

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

Note: Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

86 Sand Hill Rd (a. Street Address) | Shutesbury (b. City/Town) | 01072 (c. Zip Code)

Latitude and Longitude: 42.42192243922898 (d. Latitude), -72.44966718513909 (e. Longitude)

U (f. Assessors Map/Plat Number) | 41 (g. Parcel /Lot Number)

2. Applicant:

Hannah (a. First Name) | Kowalski (b. Last Name)

Dandelion Energy (c. Organization)

333 North Bedford Road, Suite 220 (d. Street Address)

Type text here (e. City/Town) | NY (f. State) | 10549 (g. Zip Code)

860-301-7100 (h. Phone Number) | (i. Fax Number) | hkowalski@dandelionenergy.com (j. Email Address)

3. Property owner (required if different from applicant): ☑ Check if more than one owner

Tom (a. First Name) | Kalt (b. Last Name)

(c. Organization)

86 Sand Hill Rd (d. Street Address)

Shutesbury (e. City/Town) | MA (f. State) | 01072 (g. Zip Code)

(413) 259-1717 (h. Phone Number) | (i. Fax Number) | tkalt@kaltfam.net (j. Email address)

4. Representative (if any):

(a. First Name) | (b. Last Name)

(c. Company)

(d. Street Address)

(e. City/Town) | (f. State) | (g. Zip Code)

(h. Phone Number) | (i. Fax Number) | (j. Email address)

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

165 (a. Total Fee Paid) | 70 (b. State Fee Paid) | 95 (c. City/Town Fee Paid)

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A. General Information (continued)

6. General Project Description:

Install one 4 ton geothermal heat pump, closed loop system.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

1. ☑ Single Family Home
2. ☐ Residential Subdivision
3. ☐ Commercial/Industrial
4. ☐ Dock/Pier
5. ☐ Utilities
6. ☐ Coastal engineering Structure
7. ☐ Agriculture (e.g., cranberries, forestry)
8. ☐ Transportation
9. ☑ Other Geothermal

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☐ Yes ☑ No

If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

a. County	b. Certificate # (if registered land)
Franklin County	
c. Book	d. Page Number
2579	0067

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

1. ☐ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
2. ☑ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Bank	1. linear feet	2. linear feet
b. ☐ Bordering Vegetated Wetland	1. square feet	2. square feet
c. ☐ Land Under Waterbodies and Waterways	1. square feet 3. cubic yards dredged	2. square feet

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. ☐ Bordering Land Subject to Flooding	1. square feet 3. cubic feet of flood storage lost	2. square feet 4. cubic feet replaced
e. ☐ Isolated Land Subject to Flooding	1. square feet 2. cubic feet of flood storage lost	3. cubic feet replaced
f. ☑ Riverfront Area	Dean Brook 1. Name of Waterway (if available) - **specify coastal or inland**	

2. Width of Riverfront Area (check one):

☐ 25 ft. - Designated Densely Developed Areas only

☐ 100 ft. - New agricultural projects only

☑ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: 100,200 square feet

4. Proposed alteration of the Riverfront Area:

a. total square feet	b. square feet within 100 ft.	c. square feet between 100 ft. and 200 ft.
200'	0	200'

5. Has an alternatives analysis been done and is it attached to this NOI? ☑ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☐ Yes ☐ No

3. ☐ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f**. above.

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Provided by MassDEP:

MassDEP File Number

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City/Town

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. ☐ Land Under the Ocean	1. square feet 2. cubic yards dredged	
c. ☐ Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. ☐ Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. ☐ Coastal Dunes	1. square feet	2. cubic yards dune nourishment

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
f. ☐ Coastal Banks	1. linear feet	
g. ☐ Rocky Intertidal Shores	1. square feet	
h. ☐ Salt Marshes	1. square feet	2. sq ft restoration, rehab., creation
i. ☐ Land Under Salt Ponds	1. square feet 2. cubic yards dredged	
j. ☐ Land Containing Shellfish	1. square feet	
k. ☐ Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above 1. cubic yards dredged	
l. ☐ Land Subject to Coastal Storm Flowage	1. square feet	

4. ☐ Restoration/Enhancement

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

a. square feet of BVW

b. square feet of Salt Marsh

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings

b. number of replacement stream crossings

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C. Other Applicable Standards and Requirements

☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

   a. ☐ Yes ☑ No

   If yes, include proof of mailing or hand delivery of NOI to:

   Natural Heritage and Endangered Species Program
   Division of Fisheries and Wildlife
   1 Rabbit Hill Road
   Westborough, MA 01581

   b. Date of map

   If *yes*, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

   c. Submit Supplemental Information for Endangered Species Review*

      1. ☐ Percentage/acreage of property to be altered:

         (a) within wetland Resource Area _____ percentage/acreage

         (b) outside Resource Area _____ percentage/acreage

      2. ☐ Assessor's Map or right-of-way plan of site

2. ☐ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

   (a) ☐ Project description (including description of impacts outside of wetland resource area & buffer zone)

   (b) ☐ Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see https://www.mass.gov/ma-endangered-species-act-mesa-regulatory-review).
Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.
** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.

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C. Other Applicable Standards and Requirements (cont'd)

(c) ☐ MESA filing fee (fee information available at https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review).
Make check payable to "Commonwealth of Massachusetts - NHESP" and ***mail to NHESP*** at above address

*Projects altering **10 or more acres** of land, also submit:*

(d) ☐ Vegetation cover type map of site

(e) ☐ Project plans showing Priority & Estimated Habitat boundaries

(f) OR Check One of the Following

1. ☐ Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. ☐ Separate MESA review ongoing. a. NHESP Tracking # b. Date submitted to NHESP

3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

a. ☑ Not applicable – project is in inland resource area only b. ☐ Yes ☐ No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Cohasset to Rhode Island border, and the Cape & Islands:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: dmf.envreview-south@mass.gov

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: dmf.envreview-north@mass.gov

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.

c. ☐ Is this an aquaculture project? d. ☐ Yes ☐ No

If yes, include a copy of the Division of Marine Fisheries Certification Letter (M.G.L. c. 130, § 57).

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Provided by MassDEP:

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C. Other Applicable Standards and Requirements (cont'd)

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

   a. ☐ Yes ☑ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.

   b. ACEC

5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?

   a. ☑ Yes ☐ No Public water supply

6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?

   a. ☐ Yes ☑ No

7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?

   a. ☐ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:

      1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)

      2. ☐ A portion of the site constitutes redevelopment

      3. ☐ Proprietary BMPs are included in the Stormwater Management System.

   b. ☑ No. Check why the project is exempt:

      1. ☑ Single-family house

      2. ☐ Emergency road repair

      3. ☐ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

D. Additional Information

☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. ☑ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)

2. ☑ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.

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D. Additional Information (cont'd)

3. ☑ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. ☑ List the titles and dates for all plans and other materials submitted with this NOI.

a. Plan Title

Ryan Carda, PE
b. Prepared By

Ryan Carda, PE
c. Signed and Stamped by

d. Final Revision Date

e. Scale

f. Additional Plan or Document Title

g. Date

5. ☑ If there is more than one property owner, please attach a list of these property owners not listed on this form.

6. ☐ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.

7. ☐ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.

8. ☑ Attach NOI Wetland Fee Transmittal Form

9. ☐ Attach Stormwater Report, if needed.

E. Fees

1. ☐ Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

2. Municipal Check Number

3. Check date

4. State Check Number

5. Check date

Dandelion Energy
6. Payor name on check: First Name

7. Payor name on check: Last Name

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Bureau of Resource Protection - Wetlands

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F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

Hannah Kowalski — 1. Signature of Applicant

9/6/2022 — 2. Date

Thomas F. Kalt — 3. Signature of Property Owner (if different)

Sept. 6, 2022 — 4. Date

5. Signature of Representative (if any)

6. Date

For Conservation Commission:
Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:
One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:
If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

200' 0 200'

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

A. Applicant Information

1. Location of Project:

a. Street Address	b. City/Town
86 Sand Hill Rd	Shutesbury
c. Check number	**d. Fee amount**

2. Applicant Mailing Address:

a. First Name	b. Last Name
Hannah	Kowalski

c. Organization: Dandelion Energy

d. Mailing Address: 333 North Bedford Road, Suite 220

e. City/Town	f. State	g. Zip Code
Mount Kisco	NY	10549

h. Phone Number	i. Fax Number	j. Email Address
860-301-7100		hkowalski@dandelionenergy.com

3. Property Owner (if different):

a. First Name	b. Last Name
Tom	Kalt

c. Organization: 86 Sand Hill Rd

d. Mailing Address: Shutesbury

e. City/Town	f. State	g. Zip Code
	MA	01072

h. Phone Number	i. Fax Number	j. Email Address
(413) 259-1717		tkalt@kaltfam.net

B. Fees

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).

Fee should be calculated using the following process & worksheet. ***Please see Instructions before filling out worksheet.***

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract $12.50. To calculate the city/town share of the fee, divide the total fee in half and add $12.50.

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NOI Wetland Fee Transmittal Form

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B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Work on Single Family Home (geothermal)	1	$110	$165

Step 5/Total Project Fee: $165

Step 6/Fee Payments:

Total Project Fee:	$165 (a. Total Fee from Step 5)
State share of filing Fee:	$70 (b. 1/2 Total Fee **less $**12.50)
City/Town share of filling Fee:	$ 95 (c. 1/2 Total Fee **plus** $12.50)

C. Submittal Requirements

a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
Box 4062
Boston, MA 02211

b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

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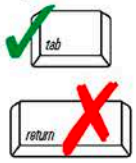


Note: Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

a. Street Address	b. City/Town	c. Zip Code
86 Sand Hill Rd	Shutesbury	01072

Latitude and Longitude:

d. Latitude	e. Longitude
42.42192243922898	-72.44966718513909

f. Assessors Map/Plat Number	g. Parcel /Lot Number
U	41

2. Applicant:

a. First Name	b. Last Name
Hannah	Kowalski

c. Organization: Dandelion Energy

d. Street Address: 333 North Bedford Road, Suite 220

e. City/Town	f. State	g. Zip Code
Mount Kisco	NY	10549

h. Phone Number	i. Fax Number	j. Email Address
860-301-7100		hkowalski@dandelionenergy.com

3. Property owner (required if different from applicant): ☑ Check if more than one owner

a. First Name	b. Last Name
Ellen	Kalt

c. Organization

d. Street Address: 86 Sand Hill Rd

e. City/Town	f. State	g. Zip Code
Shutesbury	MA	01072

h. Phone Number	i. Fax Number	j. Email address
(413) 259-1717		tkalt@kaltfam.net

4. Representative (if any):

a. First Name	b. Last Name

c. Company

d. Street Address

e. City/Town	f. State	g. Zip Code

h. Phone Number	i. Fax Number	j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

a. Total Fee Paid	b. State Fee Paid	c. City/Town Fee Paid
$110	$42.50	$67.50

DANDELION

86 Sand Hill Road Project Narrative

The site is located to the south of Sand Hill Road, and contains an existing single family home. The proposed ground source heat pump will be located to the north of the existing home.

There is a wooded swamp wetland that is located on a bench in the slope to the west of the existing home. This wetland is vegetated by hemlock (Tsuga canadensis) and cinnamon fern (Osmundastrum cinnamomeum). The wetland continues off the site, however, it appears that the wetland continues all the way to Dean Brook. Flags A-1 to A-18 mark the boundary of this wetland in the project vicinity.

To the east, a steep slope contains a wetland that has formed in a groundwater seep that runs almost all the way up to Sand Hill Road. This wetland is also dominated by hemlock and cinnamon fern. The lower portion of the wetland follows along an old meander scar, with additional, smaller side slope seeps extending uphill towards the project area. Flags B-1 to B-24 mark the wetland boundary in the project vicinity.

Dean Brook is shown as a dark blue, perennial waterway on the most recent USGS quadrangle. Therefore, the Mean Annual High Water Line (MAHWL) of the Brook was delineated in the project vicinity in accordance with the Regulations for the Riverfront Area (310 CMR 10.58). On this site, since the Brook flows within well-defined banks, the MAHWL was the same as the top of the “bank” resource area (the “first observable break in the slope.”)

Project Planning

Per 310 CMR 10.58 (4) and (5):
(4) General Performance Standard
(a) Protection of other Resource Areas.
The proposed work is intended to meet all performance standards for other resource areas associated with the riverfront area. The project risk to the riverfront area stems from the digging of a trench from the home to the location of one borehole. All disruptions will be temporary. No permanent alterations are proposed for this project.

Excavated material from trench digging is typically returned to the trench on the same day. The trench will go to a depth of two feet but could go to as deep as four feet in some places. The width is two feet.

The contractor typically deposits dirt on one side but on occasion dirt is deposited on both sides. Trenching usually lasts two days.

The area calculation for NOI B.f.4. Proposed alteration of Riverfront Area on the site of the proposed project" incorporated four feet on both sides of the trench line and generous buffers to the container and drill rig access point.

Disturbed land will recover to its pre-installation state, the groundcover of which is mosses and other vegetation typical of the woodland floor. Trench digging typically takes two days and involves no water.

Borehole drilling generates some water and tailings. Bore hole tailing (water and detritus) are directed towards and contained in a silt fence container on site. There is no significant standing water, mud, or runoff resulting from this project component. Due to the slope of the property, the installers will also set up silt fences to prevent any inadvertent runoff from reaching Dean Brook and the wetland. Borehole remains will stay onsite in the silt container and will be reincorporated during trenching.

After trenching is completed efforts will be made to return the site to its original state. The existing silt fence will remain to prevent any slope failures during the growing season. The majority of the trenched area will be in the existing gravel driveway and will be restored by adding additional gravel to the driveway when trenching is complete. Per 310 CMR 10.58(5) (f) the restored trenching area will be returned to the previous grade.

This project does not involve the removal of any trees.

(b) Protection of rare species.
The site is not shown within the Estimated Habitats of Rare Wildlife or Priority Habitats of Rare Species according to the most recent online mapping. Therefore, unless new information becomes available, no filing with the Natural Heritage and Endangered Species Program should be required.

(c) Practicable and Substantially Equivalent Economic Alternatives

Costs
Replacing the home's oil furnace is necessary to contribute towards the state's net zero greenhouse gas emissions target. There are fossil fuel-free home heating alternatives to a ground source heat pump. However, although geothermal presents a higher up-front cost compared to air source heat pumps, the projected total cost of the ground source heat pump is substantially lower over the life of the system.

Existing technology
Dandelion Energy has extensive experience installing ground source heat pumps in residential areas where built structures can be close together.

Dandelion specializes in maneuvering drilling and trenching equipment in tight spaces which, for this project, will allow the placement of a trench and boreholes without tree removal. Retaining existing trees will greatly reduce the amount of disturbed land near the riverfront area.

Proposed Use
The proposed use and project purpose are virtually identical. The homeowner's purpose is to heat the home without the use of fossil fuels. The use of the ground source heat pump will support this purpose.

Logistics
There are no special logistical challenges to the plan.

No Significant Adverse Impact
The work will have no significant adverse impact on the riverfront area. Existing vegetative cover shall be preserved to the maximum extent feasible and disturbed land is expected to return to its pre-installation, natural, state. The project will incorporate erosion and sedimentation controls in the form of silt fencing so as not to impair groundwater or surface water quality. The project will completely preserve the capacity of the riverfront area to provide important wildlife habitat functions.

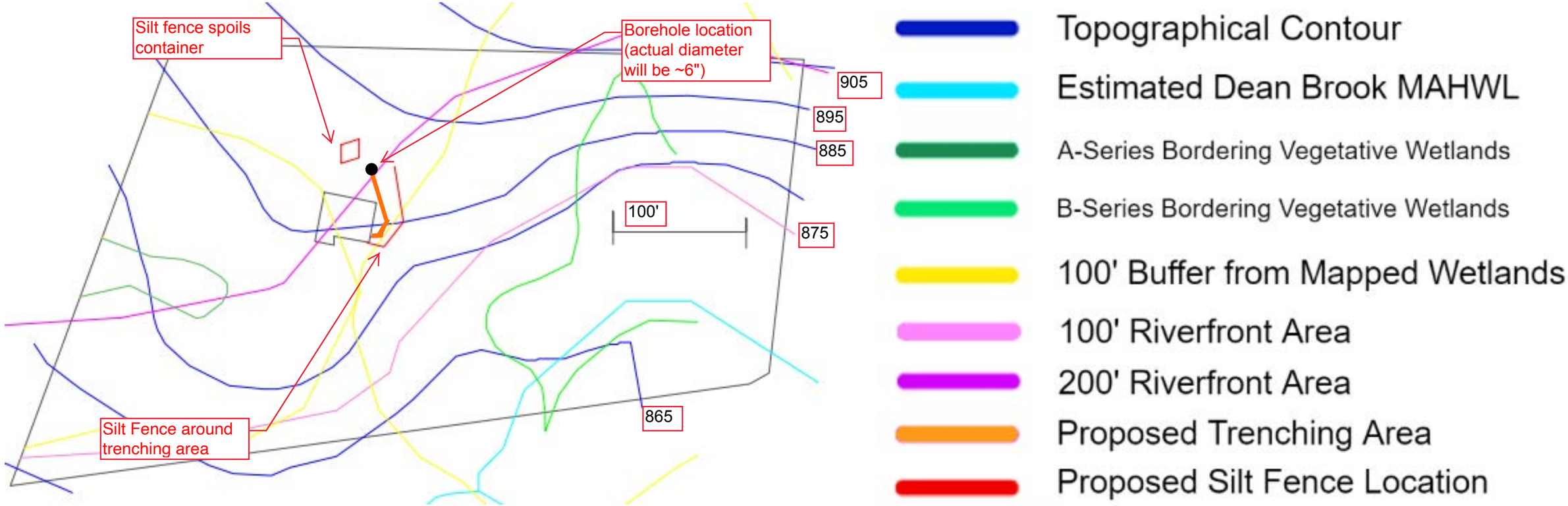
Evaluation of Alternatives
Ground source heat pumps are considered the gold standard for zero-carbon heating systems in cold climates.

Alternative project design or location
Dandelion Energy utilizes a smaller borehole drilling machine than is the industry standard. The machine supports the installation of ground source heat pumps in tight residential areas that might otherwise be inaccessible and for the purposes of this project, allows borehole drilling with minimal disruption to the natural environment.

The trench and boreholes should be located on the southeast side of the house as that is the optimal access pathway to the basement where the heat pump will be located and therefore the least disruptive path. Additionally the trenching path is located along the home's existing gravel driveway. Alternatives to the location of the trench and borehole locations would potentially result in a longer trench and greater disturbance of native flora.

Per (310 CMR 10.58(4d)) the current site plan alters significantly less than the allowed 5000 square feet or 10% of the riverfront area within the lot (whichever is greater), and provides a minimum of a 100 foot wide area of undisturbed vegetation between the trenching activities and the riverfront.

This project is optimized to dramatically lower the carbon emissions output of the home while preserving the trees, habitat, and water quality of the ecosystem. The engineers at Dandelion Energy do not believe there are practicable and substantially equivalent economic alternatives.



The Mean Annual High Water Line (MAHWL) of the Brook was delineated in the project vicinity in accordance with the Regulations for the Riverfront Area (310 CMR 10.58). On this site, since the Brook flows within well-defined banks, the MAHWL was the same as the top of the "bank" resource area (the "first observable break in the slope.")

Wetlands flags for both A1-A18 and B1-B24 were delineated on site by a wetlands surveyor

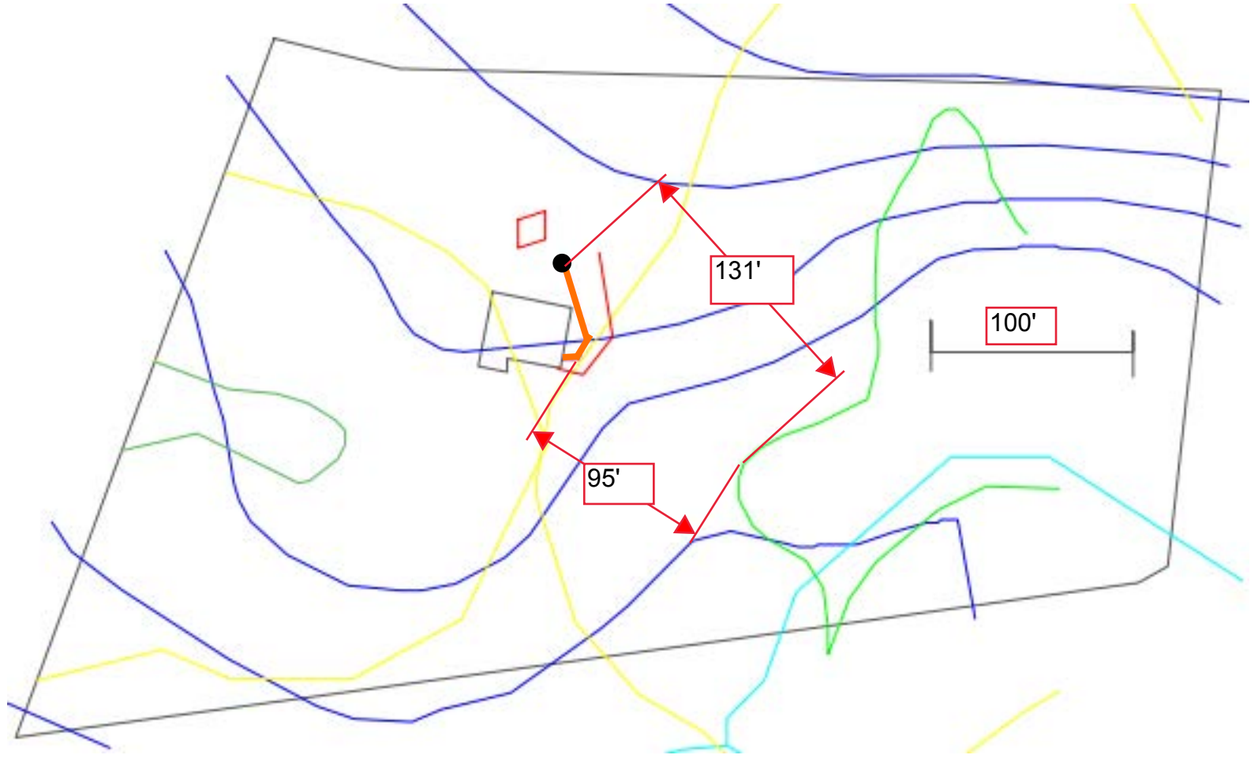
The 100 and 200' Dean Brook Buffer Zone contours were not delineated in the field. These locations were generated using CAD software measurements from the delineated MAHWL for Dean Brook.

The 100' Wetlands Buffer Zone contours were not delineated in the field. These locations were generated using CAD software measurements from the delineated Wetlands flags.

The Topographic lines were sourced from the MassGIS 3m Topographic map

COMMONWEALTH OF MASSACHUSETTS
RYAN J. CARDA
No. 55865
REGISTERED PROFESSIONAL ENGINEER

PROJECT NAME: Tom Kalt	PROJECT ADDRESS: 86 Sand Hill Rd, Shutesbury, MA 01072, USA	DESCRIPTION: CONSERVATION DIAGRAMS	
PROJECT ID: 19-010-0004	DATE: 8/31/2022	SCALE: NTS	SIZE: 8,5" X 11"



- Topographical Contour
- Estimated Dean Brook MAHWL
- A-Series Bordering Vegetative Wetlands
- B-Series Bordering Vegetative Wetlands
- 100' Buffer from Mapped Wetlands
- 100' Riverfront Area
- 200' Riverfront Area
- Proposed Trenching Area
- Proposed Silt Fence Location

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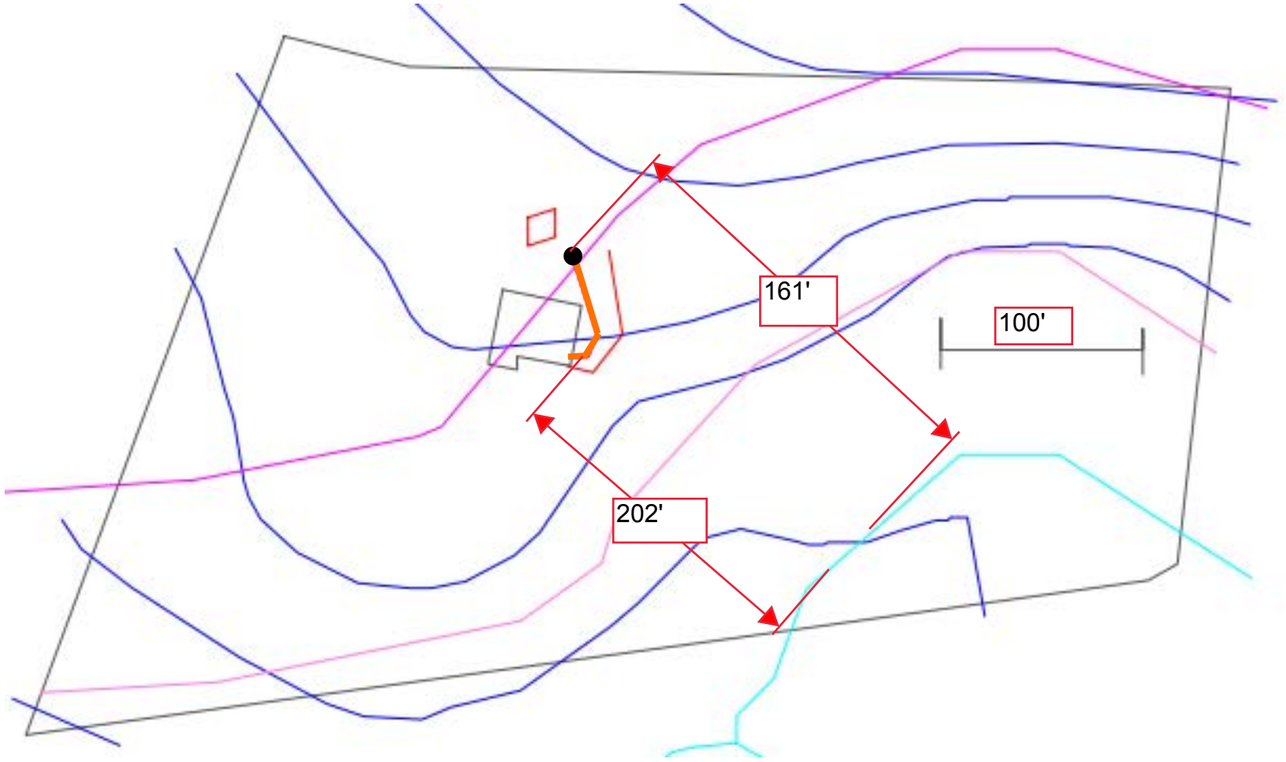

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PROJECT ID: 19-010-0004	DATE: 8/31/2022	SCALE: NTS	SIZE: 8,5" X 11"

Receipt

Forms → Attach Files → Signature → Payment → Receipt

Summary/Receipt

print receipt Exit

Your submission is complete. Thank you for using DEP's online reporting system. You can select "My eDEP" to see a list of your transactions.

DEP Transaction ID: 1425953
Date and Time Submitted: 9/4/2022 9:47:30 PM
Other Email :

Form Name: WPA Form 3 - NOI

Project Location
City/Town Name: SHUTESBURY
location: 86 SAND HILL RD
General Description: INSTALL ONE 4 TON GEOTHERMAL HEAT PUMP, CLOSED LOOP SYSTEM. THIS WORK WILL REQUIRE THE INSTALLATION OF ONE ~440' GEOTHERMAL WELL. THE WELL WILL BE DRILLED USING A TRACKED SONIC DRILL RIG THAT WILL ADVANCE METAL CASING TO THE FULL DEPTH OF THE WELL. ONCE THE DEPTH IS REACHED A FUSED GEOTHERMAL LOOP WILL BE INSERTED IN THE WELL AND THEN THE BOREHOLE WILL BE GROUTED TO FURTHER PREVENT FLUID EXCHANGE BETWEEN THE CLOSED LOOP AND THE SOIL/WATER TABLE. AFTER THE WELL IS INSTALLED A SHALLOW (~4') TRENCH WILL BE DUG FROM THE WELL LOCATION TO THE FOUNDATION OF THE HOME. THE GEOTHERMAL TUBING WILL BE ADVANCED IN THIS TRENCH AND WILL BE BACK FILLED WITH THE EXCAVATED MATERIALS AND DRILL SPOILS AND RETURNED TO THE EXISTING GRADE. DURING DRILLING THE DRILL SPOILS WILL BE STOCKPILED WITHIN A SILT FENCE CONTAINER. SILT FENCE WILL ALSO BE CONSTRUCTED AROUND THE SOUTH EASTERN SIDE OF WORK ACTIVITIES TO PREVENT SOIL FROM MIGRATING INTO WETLAND AREAS.

Applicant Information
Name: HANNAH KOWALSKI
Company: DANDELION ENERGY
Address: 333 NORTH BEDFORD RD, SUITE 220, MOUNT KISCO, NY, 10549

Payment Information
Your fee for the state share is $: 70.00
If you have paid by credit card or ACH, thank you for your payment. If you are paying by check or money order, please send your check (payable to the Commonwealth of Massachusetts) to MassDEP, Box 4062, Boston, MA 02211

Additional Forms Submitted
WPA Form 3 - NOI (Fee Transmittal)(ONLINE ONLY)

Ancillary Document Uploaded/Mailed
Additional Owner Information
Conservation Map;
Notice doc
Project Narrative
Supporting documents
Wetlands report

My eDEP

MassDEP Home | Contact | Privacy Policy

Transaction Overview Trans# 1425953 ID# WPA Form 3 - NOI

Forms | Attach Files | Signature | Payment | Submit

Payment

print Exit

Payment Confirmation

Thank you. Your payment has been received and payment reciept has been emailed.

DEP TRANS # 1425953

Payment Amount: $70

Payment Date: 9/4/2022 9:47:03 PM

DEP Payment Confirmation ID: 1e0a8857-19a0-4138-8adb-ed74d47b473c

Note: Payment received after 3:30pm will not be posted until the next business day.

Next

PARCEL: T 118

ZADORA TATIANA
MOHARRERI SAEED S
1001 FRANKLIN RD
BRENTWOOD TN 3702

PARCEL: T 119

KEEFFE CAROLYN P
81 SAND HILL RD
SHUTESBURY MA 01072

PARCELS: T 98, U 15

KITCHEN DENIS
KITCHEN STACEY A
62 SAND HILL RD
SHUTESBURY MA 01072

PARCEL: T 162

STEINWAY FREDERICK E
99 SAND HILL RD
SHUTESBURY MA 01072

PARCEL: U 42

SYLVESTER CLARK L
SYLVESTER LAURA E
102 SAND HILL ROAD
SHUTESBURY MA 01072

PARCEL: ZU 13

TOWN OF AMHERST
4 BOLTWOOD AVENUE
AMHERST MA 01002

PARCEL: U 41

KALT THOMAS F
KALT ELLEN W
86 SAND HILL RD
SHUTESBURY MA 01072

220822 U 41 KALT 86 SAND HILL 100 FT ABUTTERS

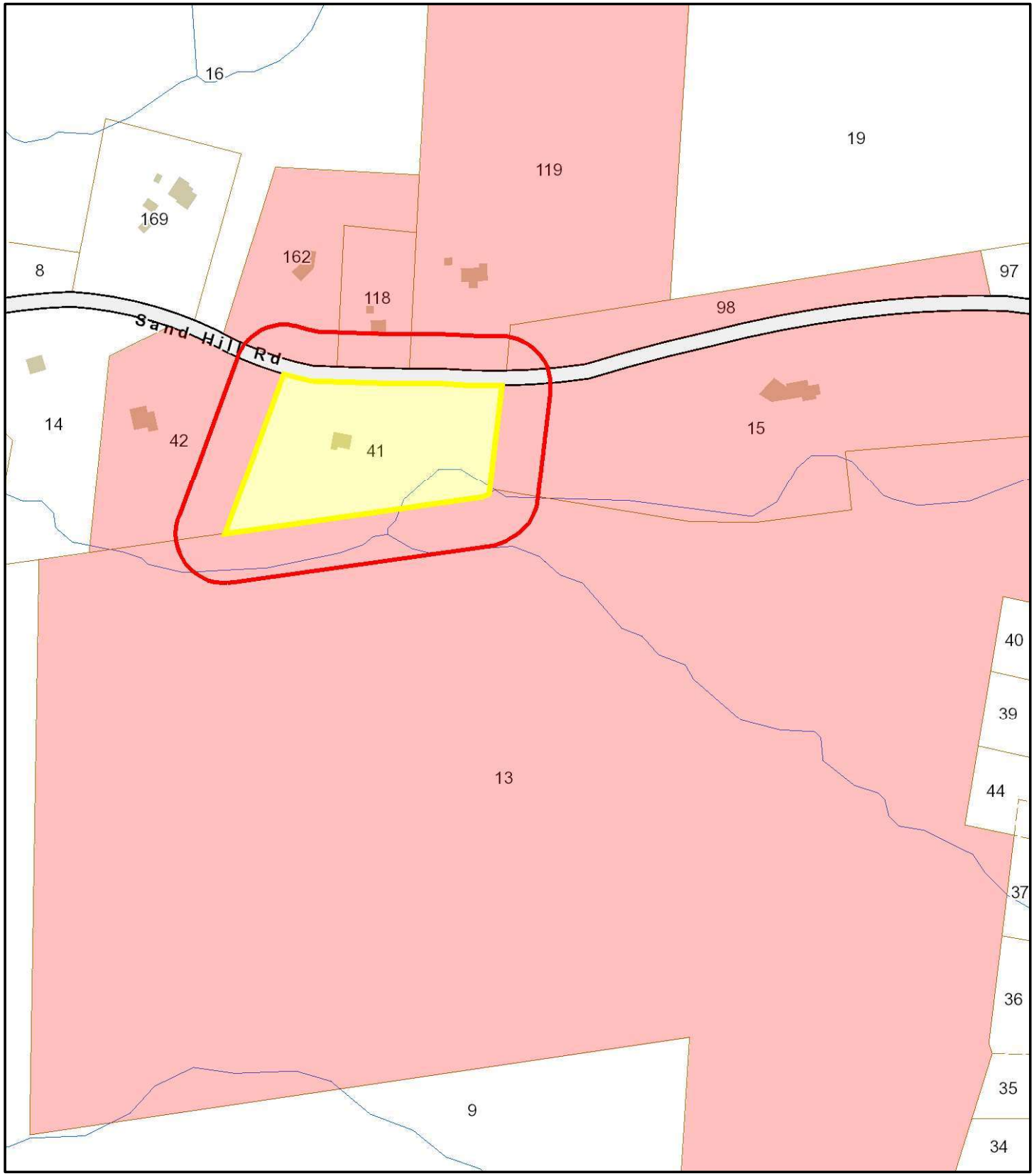
Shutesbury, MA

1 inch = 278 Feet

August 22, 2022

0 278 556 834

www.cai-tech.com



SHUTESBURY CONSERVATION COMMISSION
NOTIFICATION TO ABUTTERS

In accordance with the second paragraph of the Massachusetts Wetlands Protection Act (G.L. Ch. 131 §40), §10.05(4)(a) of 310 CMR 10.00 of the Wetlands Regulations, and the Shutesbury General Wetlands Protection Bylaw and Regulations, you are hereby notified as the owner of land abutting another parcel for which certain activities are proposed. A Public Hearing on the matter is described below.

A. A Notice of Intent was filed with the Shutesbury Conservation Commission on (date) 7/28/2022 seeking permission to remove, fill, dredge or alter an area subject to protection (wetland resource area and/or buffer zone) under the Massachusetts Wetlands Protection Act (General Laws Ch. 131 §40) and the Shutesbury General Wetlands Protection Bylaw.

B. Name of the applicant(s): Hannah Kowalski of Dandelion Energy representing Tom Kalt

C. Address/Parcel Number of the project site: 86 Sand Hill Rd, Shutesbury, MA 01072, USA

D. The proposed activity is: Installation of one 4-ton geothermal heat pump, Closed loop system.

E. A Public Hearing regarding this Notice of Intent will be held on: September 8, 7:30 pm

F. **Public Participation will be via Virtual Means Only:** On June 16, 2021, Governor Baker signed into law An Act Extending Certain COVID-19 Measures Adopted During the State of Emergency. This Act includes an extension, until April 1, 2022, of the remote meeting provisions of his March 12, 2020, Executive Order Suspending Certain Provisions of the Open Meeting Law. This meeting of the Shutesbury Conservation Commission will be conducted via remote participation. Instructions for participating in the virtual Public Hearing will be listed on the meeting agenda posted on the Town calendar at least 48 hours in advance of the meeting. The Public Hearing may be rescheduled due to unforeseen circumstances. Remote access information will be published on the Shutesbury meeting calendar: www.shutesbury.org/node/2. Click on the agenda for the meeting you wish to attend.

G. The Notice of Intent may be examined on the Shutesbury Conservation Commission website: shutesbury.org/concom. A paper copy may be obtained, for a fee, from the Shutesbury Town Clerk: townclerk@shutesbury.org or 413-259-1204. Copies may also be obtained from the applicant or the applicant's representative.

H. Notice of the Public Hearing, including date, time, and place will be published at least five business days in advance in The Daily Hampshire Gazette (newspaper).

For more information, contact the Shutesbury Conservation Commission (concom@shutesbury.org or 413-259-3792) or the Massachusetts Department of Environmental Protection (MassDEP) Western Region Office at (413-784-1100).

SHUTESBURY CONSERVATION COMMISSION PUBLIC LEGAL NOTICE
Notice of Intent

The Shutesbury Conservation Commission has scheduled a Public Hearing for your Notice of Intent for September 8, at 7:30 pm p.m. by **remote participation only**.

You are required to place a legal notice in a local daily newspaper (The Daily Hampshire Gazette or Greenfield Recorder) informing the public of the Hearing. The notice must appear one time at least five business days before your hearing. You are responsible for paying the cost of the notice. The text of the legal notice should be approximately as follows:

SHUTESBURY CONSERVATION COMMISSION

In accordance with the Wetlands Protection Act, MGL Ch. 131, §40 and/or the Town of Shutesbury Wetlands Protection Bylaw, the Conservation Commission will hold a Public Hearing on Thursday, September 8 **(day, date) 20**22 **at** 7:30 **p.m. by remote participation only, for a Notice of Intent filed by**
Hannah Kowalski of Dandelion Energy **(applicant) for**
Install one 4 ton geothermal heat pump, closed loop system. **(type of project) at**
86 Sand Hill Rd, Shutesbury, MA 01072, USA **(address of work site).**
The application may be viewed at shutesbury.org/concom

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Instructions: Please email a copy of the published legal notice to the Commission. You will also need to notify all 100-foot abutters (including those across public rights of way, town lines, and waterways) of the time and place of the hearing in writing by Certificate of Mailing. You may email concom@shutesbury.org or call Shutesbury Conservation Commission at 413.259.3792.

The Daily Hampshire Gazette 584.5000 legals@gazettenet.com (due date: 10 am two days prior to publication).
The Greenfield Recorder 772.0261 www. recorder.com

7021 2720 0000 9233 2622

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OFFICIAL USE

Certified Mail Fee $ 4.00
Extra Services & Fees (check box, add fee as appropriate)
- [x] Return Receipt (hardcopy) $ 3.05
- [ ] Return Receipt (electronic) $
- [ ] Certified Mail Restricted Delivery $
- [ ] Adult Signature Required $
- [ ] Adult Signature Restricted Delivery $

Postage $ 8.95
Total Postage and Fees $ 16.20

Postmark Here
AUG 25 2022
CPO SHIPWRECK TAVERN 06419
KILLINGWORTH, CT

Sent To: Kitchen Denis Kitchen Stacy
Street and Apt. No., or PO Box No.: 62 Sand hill Rd
City, State, ZIP+4®: Shutesbury MA 01072 T08 U15

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7021 2720 0000 9233 2639

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- [ ] Adult Signature Required $
- [ ] Adult Signature Restricted Delivery $

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Total Postage and Fees $ 16.20

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AUG 25 2022
CPO SHIPWRECK TAVERN 06419
KILLINGWORTH, CT

Sent To: Town of Amherst
Street and Apt. No., or PO Box No.: 4 Boltwood Avenue
City, State, ZIP+4®: Amherst MA 01002 ZU 13

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7021 2720 0000 9233 2792

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- [ ] Return Receipt (electronic) $
- [ ] Certified Mail Restricted Delivery $
- [ ] Adult Signature Required $
- [ ] Adult Signature Restricted Delivery $

Postage $ 8.95
Total Postage and Fees $ 16.20

Postmark Here
AUG 25 2022
CPO SHIPWRECK TAVERN 06419
KILLINGWORTH, CT

Sent To: Kalt Thomas F Kalt Eilen W
Street and Apt. No., or PO Box No.: 86 Sand hill Rd
City, State, ZIP+4®: Shutesbury MA 01072 U41

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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- [ ] Return Receipt (electronic) $
- [ ] Certified Mail Restricted Delivery $
- [ ] Adult Signature Required $
- [ ] Adult Signature Restricted Delivery $

Postage $ 8.95
Total Postage and Fees $ 16.20

Postmark Here
AUG 25 2022
CPO SHIPWRECK TAVERN 06419
KILLINGWORTH, CT

Sent To: Keeffe Carolyn P
Street and Apt. No., or PO Box No.: 31 Sand h.ll Rd
City, State, ZIP+4®: Shutesbury MA 01072 T119

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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- [ ] Adult Signature Required $
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Total Postage and Fees $ 16.20

Postmark Here
AUG 25 2022
CPO SHIPWRECK TAVERN 06419
KILLINGWORTH, CT

Sent To: Sylvester Clark Sylvester Lavia
Street and Apt. No., or PO Box No.: 102 Sand hill Road
City, State, ZIP+4®: Shutesbury MA 01072 U42

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7021 2720 0000 9233 2778

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Extra Services & Fees (check box, add fee as appropriate)
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- [ ] Return Receipt (electronic) $
- [ ] Certified Mail Restricted Delivery $
- [ ] Adult Signature Required $
- [ ] Adult Signature Restricted Delivery $

Postage $ 8.95
Total Postage and Fees $ 16.20

Postmark Here
AUG 25 2022
CPO SHIPWRECK TAVERN 06419
KILLINGWORTH, CT

Sent To: Zadora Tatiana, Michael
Street and Apt. No., or PO Box No.: 1001 Franklin Rd Apt 6
City, State, ZIP+4®: Brentwood TN 37027 T118

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7021 2720 0000 9233 2785

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- [ ] Adult Signature Restricted Delivery $

Postage $ 8.95
Total Postage and Fees $ 16.20

Postmark Here
AUG 25 2022
CPO SHIPWRECK TAVERN 06419
KILLINGWORTH, CT

Sent To: Steinway Frederick E
Street and Apt. No., or PO Box No.: 99 Sand hill Rd
City, State, ZIP+4®: Shutesbury MA 01072 T162

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

PLEASE COME AGAIN
HAVE A NICE DAY

PM10-23 0732

CASH $13.20
TOTAL $13.20

Pv1 $13.20

08-24-2022 MC #:0100

****
* *
* THANK YOU *
* YOUR RECEIPT *
* *
****

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Town of Amherst
4 Boltwood Ave
Amherst MA 01002

9590 9402 7178 1284 0895 42

2. Article Number (Transfer from service label)

7021 2720 0000 9233 2839

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Cindy Cary ☐ Agent ☐ Addressee

B. Received by (Printed Name) Cindy Cary | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery
Mail
Mail Restricted Delivery
500)

PS Form 3811, July 2020 PSN 7530-02-000-9053 Domestic Return Receipt

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- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Denis Kitchen
Stacey Kitchen
67 Sand Hill Rd
Shutesbury MA 01072

9590 9402 7178 1284 0895 35

2. Article Number (Transfer from service label)

7021 2720 0000 9233 2822

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by (Printed Name) | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery
ail Restricted Delivery
(over $500)

PS Form 3811, July 2020 PSN 7530-02-000-9053 Domestic Return Receipt

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SENDER: COMPLETE THIS SECTION

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- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Steinway Frederick
99 Sand Hill Rd
Shutesbury MA 01072

9590 9402 7178 1284 0894 98

2. Article Number (Transfer from service label)

7021 2720 0000 9233 2785

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by (Printed Name) | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery
ail Restricted Delivery
(over $500)

PS Form 3811, July 2020 PSN 7530-02-000-9053 Domestic Return Receipt

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SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Thomas Kalt
Keller Kalt
86 Sand Hill Rd
Shutesbury MA 01072

9590 9402 7178 1284 0895 04

2. Article Number (Transfer from service label)

7021 2720 0000 9233 2792

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by (Printed Name) | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery
ail Restricted Delivery
(over $500)

PS Form 3811, July 2020 PSN 7530-02-000-9053 Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Keeffe Carolyn
81 Sand Hill Rd
Shelesbury MA 01072

9590 9402 7178 1284 0895 11

2. Article Number (Transfer from service label)
7021 2720 0000 9233 2808

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☑ Addressee

B. Received by (Printed Name): Carolyn Keeffe
C. Date of Delivery: 8/29/22

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No
81 Sand Hill Rd
Shelesbury Ma
01072

3. Service Type
- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☑ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

Restricted Delivery

PS Form 3811, July 2020 PSN 7530-02-000-9053 Domestic Return Receipt

Valley Bounty

FROM C1

"It took off faster than I thought," Stillman says.

The team at Stillman Quality Meats consists of six to 10 people, including family members.

"Animals don't take a hurricane off, or they get up at night and have babies. It's 24/7," she says with a laugh. "We never caught up from the pandemic on staffing. The way I've dealt with it is we've upgraded as much as we can with technology and equipment to meet the demand."

The butchery is Stillman's highest labor demand, so since the pandemic, she bought an extra grinder and an extra slicer; on the animal side, Stillman automated as much as possible with automatic feeders and waterers. One person can do the job of two people by using these tools.

In both of her roles as boss and farmer, Stillman offers tools and technology to support her highly skilled team members. "Technology is not meant to replace labor — it's to respect and save the labor that you have," Stillman says.

In her farm newsletters, Stillman signs off as "Farmher Kate." She is thoughtful about the contributions of women to farming, including butchery. Stillman's grandmother and great aunt ran their farms. "The tractor was the cool masculine thing that got all the attention," she says with a laugh.

"Women have always been prominent in farming, and they do a damned good job farming, and what really changed it, was we have a tool — the cellphone — that allows us to get our personal stories out," says Stillman, speaking of the biggest changes to farming. "This can be a tough business with a lot of guts and no glory — quite literally."

COURTESY STILLMAN QUALITY MEATS

A pig at Stillman's farm. Tending to the animals is an around-the-clock job. "Animals don't take a hurricane off," Stillman says, "or they get up at night and have babies. It's 24/7."

Although female in a male-dominated field, the bigger challenge was starting as a 27-year-old and employing people twice her age.

Over 14 years, Stillman grew into her role and business. "You have to be a boss in this industry. Producing food is serious business because there's a lot on the line. In cutting meat, there are a lot of regulations and paperwork. It's high stress."

Stillman is grateful to have a team that allowed her to get started and let her learn as a young woman. "It's been a good experience, and I've learned a lot," she says.

Reaching for customers who are accustomed to shopping in grocery stores gave Stillman a challenge.

"Most farm-raised meat ... looks different and tastes different. It's expensive because you're paying the real cost of the product," she says.

"You have to find special customers who are willing to drive to your farm, have faith in your product, and try it. At the end of the day, this meat is higher quality, and it tastes better. That's the starting point to all of this."

Education has been key. "It wasn't easy to learn how to make sausages that taste great or to learn how to cut fresh steaks, merchandise them, and get them out the door to people. That's probably been the biggest victory," she says.

"People like the taste and flavors. That's important to me because I really want to deliver the goods to people," she says.

To taste Stillman Quality Meats, come to CISA's Local Loves Local event on Thursday, Sept. 8 at Four Star Farms Brewery in Northfield from 5:30 p.m. to 7:30 p.m. Stillman burgers, local corn, and local beer will be on tap. Tickets online at buylocalfood.org/LLL.

To buy Stillman Quality Meats, customers can order on their website for pickup at their Farmstead at 3674 Greenwich Road in Hardwick or opt for home delivery. Orders are packed in a cardboard box with insulation using dry ice and ice packs for two-day ground shipping.

In October, Stillman Quality Meats plans a full-service butcher shop, where customers can visit the farm, buy fresh meats, and request custom meat cutting from the pros. Watch their website for details: www.stillmanqualitymeats.com

Lisa Goodrich is communications coordinator for CISA (Community Involved in Sustaining Agriculture). To learn more about local farms, what's in season, and where to find it, visit buylocalfood.org/find-it-locally.

Arts & Culture

FROM C1

composing in his 44th year at UMass.

Tackling climate change through art and performance

AMHERST — The Hitchcock Center for the Environment and the theater ensemble Rainbow Players have teamed up to present the "Home Sweet Home Climate Action Community Festival and Obstacle Course" on Aug. 27 from 1:30 to 5:30 p.m.

This all-ages event includes a range of performances including theater, music, and various workshops and interactive events, including guidance through a "participatory obstacle course," in which attendees can explore how climate change is affecting our world and what the future might bring.

"Each person (will have) opportunities to contribute thoughts and art as solutions," according to program notes. The Rainbow Players are part of the larger organization ETTA International (Empowerment Through the Arts).

A range of artists and activists will be on hand, including youth from Sunrise Youth & Climate Action Now; Mothers Out Front; Climate Action Now Western MA; Tom Sullivan of Pollinators Welcome;

AUGUSTA SAVAGE GALLERY

Detail from "Red, White, and Baldwin," a quilt by Maureen Kelleher and Kenya, at the Augusta Savage Gallery starting Sept. 12.

and Anna Sobel and Talking Hands Theatre.

The event is free but donations for climate groups and indigenous lands are encouraged. More information is available at www.etta-international.org/news.html.

Social justice at Amherst's Augusta Savage Gallery

AMHERST — The Augusta Savage Gallery at UMass Amherst opens a new exhibit Sept. 12 that will highlight quilts made by the founders of a group that formed to support a prisoners' hospice program and incarcerated artists.

"STITCHING TIME: The Social Justice Collaboration Quilts Project" showcases colorful quilts made by the founders of an effort that dates back to 1997, in which inmates from Louisiana State Penitentiary, known as "Angola" after a plantation that once existed there, made that art to raise money to help care for the dying among them.

The work later extended to raising money for supplies for other artists behind bars.

The quilts, according to exhibit notes, address racial injustice in American history and celebrate Black creativity, thought, and political activism. The work has since spread beyond "Angola" prison, and the UMass exhibit includes work by some well-known incarcerated people such as Leonard Peltier.

An opening reception takes place Sept. 12 from 5 to 7 p.m., and an artists' talk will be held Sept. 13 from 11 a.m to noon.

Hosmer Gallery features three artists next month

NORTHAMPTON — Paintings, ceramics, and Japanese pop art will all be on display at Hosmer Gallery in Forbes Library next month, in an exhibit that runs Sept. 2 through 29.

Painter Kimiko Donohoe, a native of Japan, says she's inspired by "the small details of life" as well as Ukiyo-e, a style of painting and woodblock printing that flourished in Japan from the 17th through 19th centuries. Her pieces integrate pop art with the colors and styles common in Ukiyo-e.

Dale Rogers is a painter and potter who makes art "to honor and cherish ordinary daily life," as program notes put it, while Maggie Hodges, a former graphic designer, is now a painter who draws inspiration from the outdoors. She is member of the Amherst Plein Air Society.

— Compiled by Steve Pfarrer

Friday's Puzzle Answer 8/26

3	5	9	4	6	8	7	1	2
6	8	1	5	2	7	3	9	4
7	2	4	3	9	1	8	6	5
5	6	3	1	7	4	9	2	8
4	7	2	8	5	9	6	3	1
9	1	8	6	3	2	5	4	7
8	9	7	2	4	3	1	5	6
2	3	5	7	1	6	4	8	9
1	4	6	9	8	5	2	7	3

Sudoku

Complete the grid so that every row, column and 3x3 box contains every digit from 1 to 9 inclusively.

	6			7	5			8
			1			5		3
		5	3					
		9		3				5
8		2		5		1		7
5				9		3		
					7	9		
1		8			9			
2			8	4			5	

8/27 DIFFICULTY RATING: ★★★★★

WONDERWORD® By DAVID OUELLET

HOW TO PLAY: All the words listed below appear in the puzzle — horizontally, vertically, diagonally and even backward. Find them, circle each letter of the word and strike it off the list. The leftover letters spell the **WONDERWORD.**

EXOTIC STEAK SAUCES Solution: 9 letters

W	H	M	O	T	A	M	O	T	I	U	R	F	P	N
H	O	A	S	T	U	N	O	N	U	J	A	C	O	O
I	R	R	E	Y	O	L	I	L	O	I	A	B	B	I
S	S	S	C	M	R	A	G	U	S	N	R	B	L	N
K	E	A	E	E	E	R	F	E	G	U	E	G	A	O
E	R	L	M	T	S	R	E	O	O	A	P	I	N	R
Y	A	A	O	U	T	T	C	B	I	R	A	N	O	A
E	D	D	M	B	S	A	E	O	E	E	C	G	N	N
N	I	R	O	U	S	H	L	R	C	U	G	E	O	G
T	S	A	R	T	A	T	R	E	S	O	L	R	C	E
U	H	T	O	T	L	I	E	O	C	H	N	B	A	O
H	I	S	C	E	S	L	N	R	O	L	I	U	B	S
C	A	U	C	R	A	I	E	L	O	M	O	R	T	I
I	S	M	A	N	C	H	O	V	I	E	S	D	E	M
B	R	A	N	D	Y	C	I	L	A	N	T	R	O	E

 8/27

Aioli, Anchovies, Bacon, Blueberry, Bourbon, Brandy, Butter, Cajun, Caper, Chili, Chutney, Cilantro, Citrus, Coconut, Cognac, Creme, Dolcelatte, Foie Gras, Fruit, Ginger, Horseradish, Lemon, Lobster, Marsala, Merlot, Miso, Mole, Moroccan, Mushroom, Mustard, Nuts, Onion, Orange, Poblano, Salsa, Sugar, Tomato, Whiskey, Worcestershire

Yesterday's Answer: Catholic

LEGAL NOTICES

Legals

Trial Court of Massachusetts
The Superior Court
Hampshire Superior Court
15 Gothic Street
P.O. Box 1119
Northampton, MA 01060
ORDER OF NOTICE BY PUBLICATION
Docket No. 2280CV00098

CASE NAME:

Freedom Credit Union as Servicer for Federal Home Loan Bank of Boston
vs
Linda L. Gebo

TO: Linda L. Gebo, all in said Commonwealth; and to all persons entitled to the benefit of the Servicemembers Civil Relief Act, 50 U.S.C. App. §501 et seq.:

Freedom Credit Union as Servicer for Federal Home Loan Bank of Boston, 1976 Main Street, Springfield, Massachusetts 01103 claiming to have an interest in a Mortgage covering real property in Easthampton, Hampshire County, Massachusetts known as 65 Phelps Street given by **Charles S. Gebo ("Mortgagor Charles") and Linda L. Gebo to Freedom Credit Union as Servicer for Federal Home Loan Bank of Boston** dated 03/19/2020, and recorded in Hampshire County District Registry of Deeds, in Book 13572, Page 297 has/have filed with this court a Complaint for determination of Defendant 's/Defendants' Servicemember status.

If you now are, or recently have been, in active military service of the United States of America, then you may be entitled to the benefits of the Servicemembers Civil Relief Act. If you object to a foreclosure of the above-mentioned property on that basis, then you or your attorney must file a written appearance and answer in this court at Northampton, Hampshire County on or before 09/26/2022 or you may lose the opportunity to challenge the foreclosure on the ground of noncompliance with the Act.

Witness, Heidi E. Brieger, Esquire, Chief Justice of the Superior Court, at Northampton, Massachusetts, this 26 day of July, 2022.

Harry Jekanowski, Jr.
Clerk of Courts
August 27

350256

REDUCE REUSE RECYCLE

Legals

PUBLIC NOTICE

Notice is hereby given that the Easthampton City Council will hold a public hearing on Sept. 7, 2022 at 6:15 p.m. at 50 Payson Ave., 2ndflr, Easthampton and remotely by Google Meet on the application of River Valley LLC, 40 Main St., Florence, MA for permission to amend an existing fuel storage license at 228 Northampton St., Easthampton to allow for a total of 5,000 gallons of liquid propane.

For remote connection information go to www.easthamptonma.gov under Agendas & Minutes, City Council meeting of Sept. 7, 2022.

Homar Gomez, President
Easthampton City Council
August 27

345924

Legals

PUBLIC HEARING

Notice is hereby given that the Easthampton City Council will hold the following public hearing on Sept. 7, 2022 starting at 6:15 p.m. at 50 Payson Ave., 2ndflr, Easthampton and remotely by Google Meet. For remote connection see the Sept. 7th City Council meeting agenda on https://easthamptonma.gov/AgendaCenter

CPA Borrowing/Financing - Old Town Hall/Cityspace - Pursuant to the recommendation of the Community Preservation Committee, $3,250,000 is hereby appropriated from the Community Preservation Fund to pay costs of rehabilitating and restoring the Old Town Hall in order to make it more functional for its intended use, which is for performing arts and other community purposes as contemplated by Chapter 83 of the Acts of 2018 of the Commonwealth of Massachusetts and the Lease Agreement between the City and Cityspace, Inc. effective January 1, 2019 relating to the Old Town Hall, and to pay any other costs incidental or related thereto (the "Old Town Hall Project"); that this appropriation from the Community Preservation Fund shall be in addition to any state grants and private donations raised by Cityspace, Inc. to fund the Old Town Hall Project; that to meet this appropriation for the Old Town Hall Project: a) $1,250,000 shall be transferred from the Community Preservation Fund; and b) the Treasurer, with the approval of the Mayor, is authorized to borrow $2,000,000 under and pursuant to Chapter 44B, Section 11 of the General Laws, or pursuant to any other enabling authority; and that the Mayor is authorized to take any action necessary to carry out the Old Town Hall Project.

Homar Gomez, President,
Easthampton City Council
August 27

345449

Legals

SHUTESBURY CONSERVATION COMMISSION

In accordance with the Wetlands Protection Act, MGL Ch. 131, §40 and/or the Town of Shutesbury Wetlands Protection Bylaw, the Conservation Commission will hold a Public Hearing on Thursday, September 8th 2022 at 7:30 p.m. by remote participation only, for a Notice of Intent filed by Hannah Kowalski of Dandelion Energy for the installation of one 4-ton geothermal heat pump, closed loop system at 86 Sand Hill Rd, Shutesbury, MA 01072, USA. The application may be viewed at shutesbury.org/concom

On June 16, 2021, Governor Baker signed into law An Act Extending Certain COVID-19 Measures Adopted During the State of Emergency. This Act includes an extension, until April 1, 2022, of the remote meeting provisions of his March 12, 2020, Executive Order Suspending Certain Provisions of the Open Meeting Law. This meeting of the Shutesbury Conservation Commission will be conducted via remote participation.
Instructions for participating in the virtual Public Hearing will be listed on the meeting agenda posted on the Town calendar at least 48 hours in advance of the meeting. The public hearing may be rescheduled due to unforeseen circumstances. Remote access information will be published on the Shutesbury meeting calendar: www.shutesbury.org/node/2. Click on the agenda for the meeting you wish to attend. The public hearing may be rescheduled due to unforeseen circumstances.

August 27

350268

Do you have a Legal Notice to publish?

Publishing a notice is easy! Email your notice to **legals@gazettenet.com** with your contact information and date of publication. With legal notices, sooner is always better. 72 hours ahead of publication is ideal, but the absolute last minute deadlines are:

Monday's paper ..... Friday at 9am
Tuesday's paper ..... Friday at 3pm
Wednesday's paper ..... Monday at Noon
Thursday's paper ..... Tuesday at Noon
Friday's paper ..... Wednesday at Noon
Saturday's paper ..... Thursday at Noon

Please note that with the exception of certain standard notices such as informal probate notices, name changes, conservator/guardian notices and citations on petitions of formal adjudication, all legal notices must be typed and sent to **legals@gazettenet.com**.

We do not have a typesetter and cannot accept hard copies of zoning hearings, ordinance, public meeting notices, requests for bids, etc. These must be sent in a Word doc or in the body of the email.

Please call **Pam** at **413-584-5000** with any questions about placing legal notices in the Gazette.

Wendell Wetland Services

105 Montague Road
Wendell, MA 01379
(978) 544-5607
ward.ves@gmail.com

June 29, 2022

Ms. Hannah Kowalski
Dandelion
33 North Bedford Road, Suite 220
Mount Kisco, NY 10549
Via electronic mail

Re: Wetland Delineation, 86 Sand Hill Road, Shutesbury

Dear Ms. Kowalski:

As requested, I visited the above referenced site today in order to delineate the outer boundary of all wetlands that are protectable under the Massachusetts Wetlands Protection Act (M.G.L. chapter 131, section 40) and Regulations (310 CMR 10.00), as well as the Shutesbury Wetlands Bylaw, in the vicinity of a proposed ground source heat pump. The wetland boundaries have been marked in the field with consecutively numbered pink "wetland delineation" flagging tape and pink stake-flags. While the wetland boundaries have been accurately identified, only the Shutesbury Conservation Commission, or the Massachusetts Department of Environmental Protection (DEP) on appeal, can make the final determination of the extent of the wetland resource areas on the site. The Shutesbury Conservation Commission alone makes the determination of the extent of wetlands under their Bylaw.

Delineation Methodology

The methodology employed in my delineation utilized both vegetation and hydrology as outlined in the Regulations at 310 CMR 10.55 and in the DEP handbook *Delineating Bordering Vegetated Wetlands under the Massachusetts Wetlands Protection Act* (1995). Hydrophytic Vegetation was based upon the US Fish and Wildlife Service's *National List of Plant Species that Occur in Wetlands* (1988), as well as all plant species listed in the Act. Wetland hydrology includes a high water table, water-stained leaves, and hydric soils. Hydric soils were determined based upon the interagency document *Field Indicators for Identifying Hydric Soils in New England, Version 4* (2016).

Site Description

The site is located to the south of Sand Hill Road, and contains an existing single family home. The proposed ground source heat pump will be located to the north of the existing home.

There is a wooded swamp wetland that is located on a bench in the slope to the west of the existing home. This wetland is vegetated by hemlock (*Tsuga canadensis*) and

cinnamon fern (*Osmundastrum cinnamomeum*). The wetland continues off the site, and I did not have permission to view the off-site portion in order to determine definitively if it "borders" on any waterway. However, it appears that the wetland continues all the way to Dean Brook. Flags A-1 to A-18 mark the boundary of this wetland in the project vicinity.

To the east, a steep slope contains a wetland that has formed in a groundwater seep that runs almost all the way up to Sand Hill Road. This wetland is also dominated by hemlock and cinnamon fern. The lower portion of the wetland follows along an old meander scar, with additional, smaller side slope seeps extending uphill towards the project area. Flags B-1 to B-24 mark the wetland boundary in the project vicinity.

Dean Brook is shown as a dark blue, perennial waterway on the most recent USGS quadrangle. Therefore, the Mean Annual High Water Line (MAHWL) of the Brook was delineated in the project vicinity in accordance with the Regulations for the Riverfront Area (310 CMR 10.58). On this site, since the Brook flows within well-defined banks, the MAHWL was the same as the top of the "bank" resource area (the "first observable break in the slope.")

Wetland Resource Areas

Under the state Regulations (310 CMR 10.00), wetlands are broken up into different "resource areas," each of which is regulated in a slightly different manner. The wetlands contain the following resource areas, to which there is a 100 foot buffer zone:

* Bank (10.54)
* Bordering Vegetated Wetland (10.55)
* Land Under a Waterway (10.56)

The following resource area is not field delineated, and does not have any additional "buffer zone:"

* Riverfront Area (10.58) – all land within 200 feet of the HW line

Shutesbury Wetlands Bylaw

Shutesbury is one of the many town and cities throughout Massachusetts that has adopted a home-rule wetland Bylaw or Ordinance. While decisions made by the Conservation Commission under the State Act and Regulations may be appealed to the DEP, decisions made under the Bylaw are appealed to Superior Court. The delineated wetlands are subject to the Bylaw as well as the Act, and also have a 100 foot buffer zone.

Project Planning

The wetland boundaries should be surveyed onto a site plan. This plan should also show all proposed work, as well as sediment and erosion control that will be installed prior to construction in order to protect the wetlands.

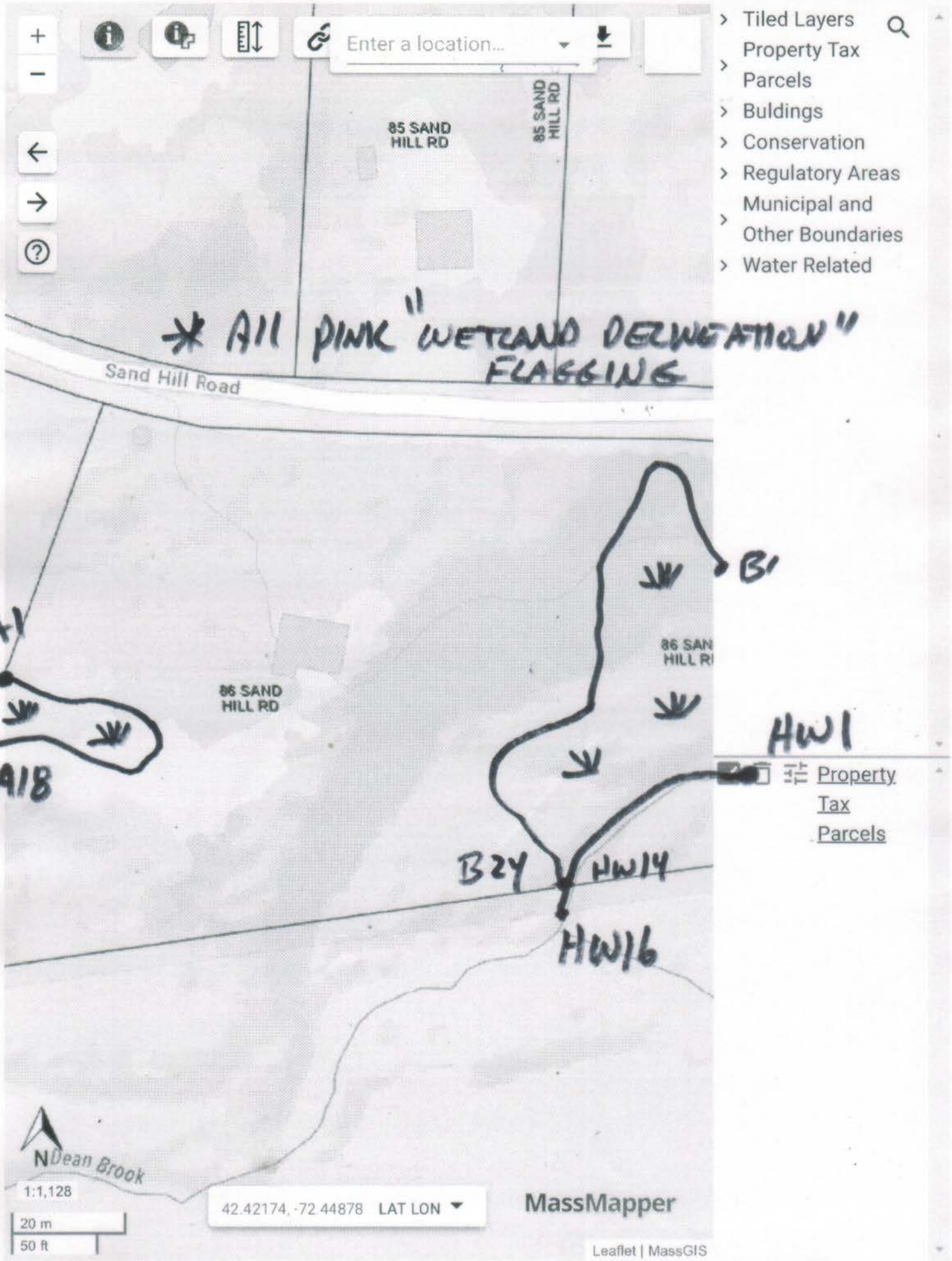
Limited work in the buffer zone may, at the Commission's discretion, be approved after the filing of a *Request for Determination of Applicability* (WPA form 1). Extensive work in the buffer zone, or any work that will "alter" resource areas (including the "Riverfront Area") will require the filing of a *Notice of Intent* (WPA form 3) with the Shutesbury Conservation Commission.

The site is not shown within the *Estimated Habitats of Rare Wildlife* or *Priority Habitats of Rare Species* according to the most recent online mapping. Therefore, unless new information becomes available, no filing with the Natural Heritage and Endangered Species Program should be required.

Sincerely,
Wendell Wetland Services

Ward Smith, SPWS
Senior Professional Wetland Scientist

Encl: MA DEP data forms (by electronic mail)


Enter a location...
85 SAND HILL RD
85 SAND HILL RD
* All PINK "WETLAND DELINEATION" FLAGGING
Sand Hill Road
A1
A1B
B1
86 SAND HILL RD
86 SAN HILL R
HW1
B24
HW14
HW16
Dean Brook
N
1:1,128
20 m
50 ft
42.42174, -72.44878 LAT LON
MassMapper
Leaflet | MassGIS
Tiled Layers
Property Tax Parcels
Buldings
Conservation
Regulatory Areas
Municipal and Other Boundaries
Water Related
Property Tax Parcels

WETLAND

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: _____ Prepared by: WARD SMITH, SPELS Project location: 86 SAND HILL ROAD SALISBURY DEP File #: _____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation

Observation Plot Number: A-9 Transect Number: 1 Date of Delineation: 6/29/22

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees:				
Red Maple (Acer rubrum)	20/30	67%	YES	FAC*
Hemlock (Tsuga canadensis)	10/30	33%	YES	FACU*
Saplings/Shrubs:				
Hemlock (Tsuga canadensis)	10/15	67%	YES	FACU*
Mountain Laurel (Kalmia latifolia)	5/15	33%	YES	FACU
Witch Hazel (Hamelis virginiana) seedlings	<1	—	NO	FACU
Wild Raisin (Viburnum nudum) seedlings	<1	—	NO	FACW
Herbs:				
Cinnamon Fern (Osmundastrum cinnamomeum)	20/25	80%	YES	FACW*
Partridge berry (Mitchella repens)	5/25	20%	YES	FACU
Starflower (Trientalis borealis)	<1	—	NO	FAC*

* Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

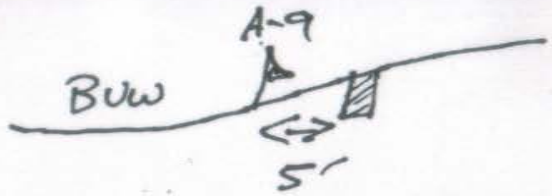
Vegetation conclusion:

Number of dominant wetland indicator plants: 4 Number of dominant non-wetland indicator plants: 1

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? (yes) no

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

MA DEP; 3/95



UPLAND

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? (yes) no

title/date: Web soil Survey (NRCS)

map number:

soil type mapped: Hinckley loamy sand (Excessively Drained)

hydric soil inclusions: No

Are field observations consistent with soil survey? yes (no)

Remarks: None of the Horizons are gravelly

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	0-2"	10YR2/2 fsl	none
E	trace	2.5Y 4/1	none
Bsh	2-5"	10YR 3/3 fsl	none
Bw	5-20+"	10YR 4/4 fsl	none

Remarks: No redoximorphic features to 20"

3. Other:

Conclusion: Is soil hydric? yes (no)

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated:
- ☐ Depth to free water in observation hole: >20"
- ☐ Depth to soil saturation in observation hole: >20"
- ☐ Water marks:
- ☐ Drift lines:
- ☐ Sediment deposits:
- ☐ Drainage patterns in BVW:
- ☐ Oxidized rhizospheres:
- ☐ Water-stained leaves:
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other):
- ☐ Other: No evidence of wetland hydrology

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants ≥ number of non-wetland indicator plants	☒	☐
Wetland hydrology present:		
hydric soil present	☐	☒
other indicators of hydrology present	☐	☒
Sample location is in a BVW	☐	☒

Submit this form with the Request for Determination of Applicability or Notice of Intent.

UPLAND

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant:_____ Prepared by: WARD SMITH, SPLS Project location: 86 SAND HILL ROAD SHREWSBURY DEP File #:_____

Check all that apply:

- ☐ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☒ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ☐ Method other than dominance test used (attach additional information)

Section I. Vegetation

Observation Plot Number: A-9 Transect Number: 1 Date of Delineation: 6/29/22

A. Sample Layer and Plant Species (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Trees:				
Hemlock (Tsuga canadensis)	70/90	78%	YES	FACU*
White Birch (Betula populifolia)	10/90	11%	NO	FACU
Red Maple (Acer rubrum)	10/90	11%	NO	FAC+
SAPLINGS/SHRUBS:				
Hemlock (Tsuga canadensis)	10/15	67%	YES	FACU*
Witch Hazel (Hamamelis virginiana)	3/15	20%	YES	FACU
Wild Raisin (Viburnum nudum) seedlings	2/15	13%	NO	FACU
Mountain Laurel (Kalmia latifolia) seedlings	<1/15	—	NO	FACU
Striped Maple (Acer pensylvanicum) seedling	<1/15	—	NO	FACU

NO HERBACEOUS PLANTS

* Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus *Sphagnum*; plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

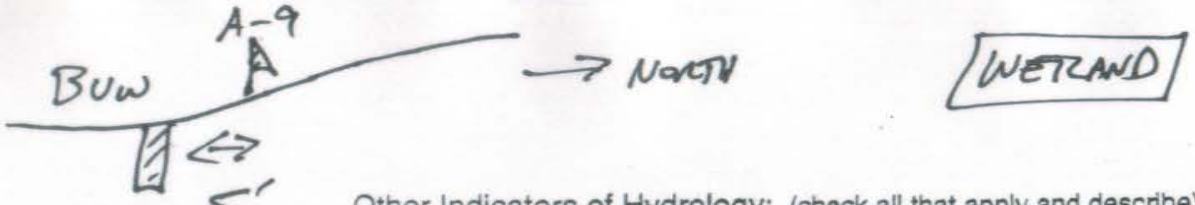
Vegetation conclusion:

Number of dominant wetland indicator plants: 2 Number of dominant non-wetland indicator plants: 1

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? (yes)* no

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent. MA DEP; 3/95

* Hemlock is FACU but listed in the Act



Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? (yes) no

title/date: Websoil Survey (NRCS)
map number:
soil type mapped: Hinckley Loamy Sand (Excessively Drained)
hydric soil inclusions: No

Are field observations consistent with soil survey? yes (no)

Remarks: Plot is within Hydric soil area; Also Spodosol, not Hinckley

2. Soil Description

Horizon	Depth	Matrix Color.	Mottles Color
Oi	+4-0"	7.5YR 2.5/1 Organic	none
A	0-2	2.5Y 2.5/1 fsl	none
E	2-4	2.5Y 4/1 fsl	none
Bsh1	4-7	7.5YR 3/4 fsl	none
Bsh2	7-14	7.5YR 4/2 fsl	7.5YR 4/2 30%
Bg	14-20+	2.5Y 4/2 fsl	7.5YR 4/4 20%

3. Other: Hydric Spodosol

Conclusion: Is soil hydric? (yes) no

Other Indicators of Hydrology: (check all that apply and describe)

- ☐ Site inundated: _____
- ☐ Depth to free water in observation hole: >20"
- ☒ Depth to soil saturation in observation hole: 14"
- ☐ Water marks: _____
- ☐ Drift lines: _____
- ☐ Sediment deposits: _____
- ☐ Drainage patterns in BVW: _____
- ☐ Oxidized rhizospheres: _____
- ☐ Water-stained leaves: _____
- ☐ Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- ☒ Other: Moderate Drought yet saturated @ 14"

Vegetation and Hydrology Conclusion

	yes	no
Number of wetland indicator plants ≥ number of non-wetland indicator plants	☒	☐
Wetland hydrology present: hydric soil present	☒	☐
other indicators of hydrology present	☒	☐
Sample location is in a BVW	☒	☐

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DANDELION

Date: 10/31/2021

ATTN: Building Department:

Subject Property: 86 Sand Hill Rd, Shutesbury, MA 01072, USA

I, Tom Kalt, as Owner of the subject property hereby authorize Dandelion Energy, and its representatives, to act on my behalf in all matters relative to work authorized by the enclosed building permit application.

DocuSigned by:
X Tom Kalt
42A1B3E77E1C4E1...
(Signature of Property Owner(s))

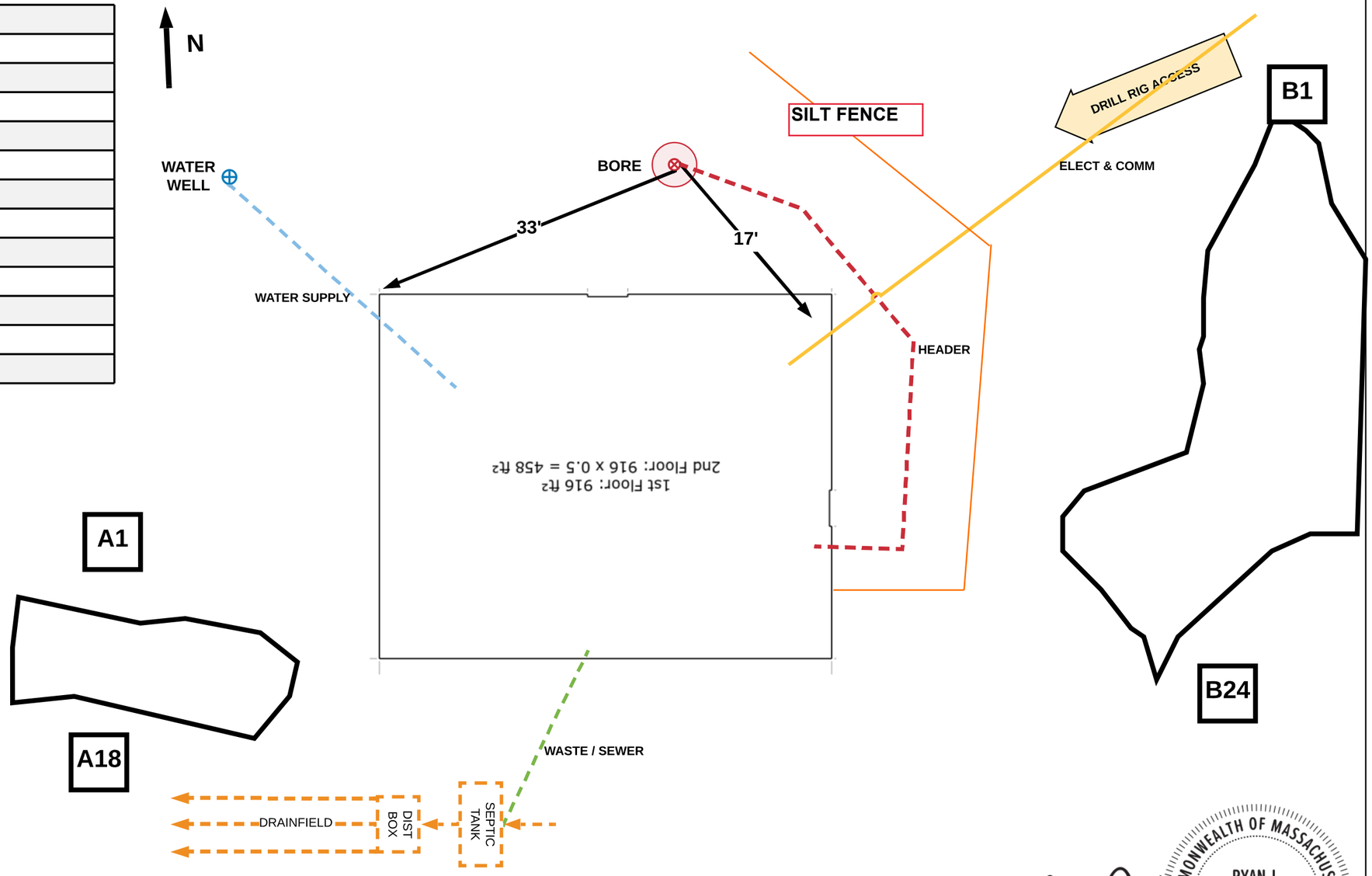
CONTRACTOR NAME: DANDELION	PROJECT NAME: KALT, TOM	PROJECT ADDRESS: 86 SAND HILL RD SHUTESBURY, MA 01072		DESCRIPTION: SITE PLAN	PAGE: 1 of 5
VERSION V2021.11 / DRAWN BY: AA	PROJECT ID: 19-010-0004	DATE: 2022-03-11	IN ACCORDANCE WITH ARTICLE 145, PROFESSIONAL ENGINEERING AND LAND SURVEYING 7209 (2), IT IS A VIOLATION FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR, TO ALTER THIS DRAWING IN ANY WAY.	SCALE: SEE NTS	SIZE: ISO_B_11X17

ID	LOOP 1
TYPE	VERTICAL BORE
NO. OF BORES	1
BORE DEPTH	441 FT
BORE SPACING	18 FT
EST. DEPTH TO BEDROCK	25.47 FT
U-BEND DIAMETER	1-1/4 IN
U-BEND MATERIAL	HDPE 4710 DR-11
GROUT CONDUCTIVITY	1.2 BTU/HR-FT-F
HEADER DIAMETER	1-1/2 IN
HEADER MATERIAL	HDPE 4710 DR-11
EST. TRENCH LENGTH	45 FT
TIE-IN TYPE	BELOW GROUND

HOMEOWNER OBLIGATIONS & EXCLUSIONS
- Trim trees

DESIGN NOTES FOR DRILLING:
- None

DESIGN NOTES FOR TRENCHING:
- None



COMMONWEALTH OF MASSACHUSETTS
RYAN J. CARDA
No. 55865
REGISTERED PROFESSIONAL ENGINEER

CONTRACTOR NAME:	PROJECT NAME:	PROJECT ADDRESS:	DESCRIPTION:	PAGE:
DANDELION	KALT, TOM	86 SAND HILL RD SHUTESBURY, MA 01072	DETAILED SITE PLAN	2 of 5

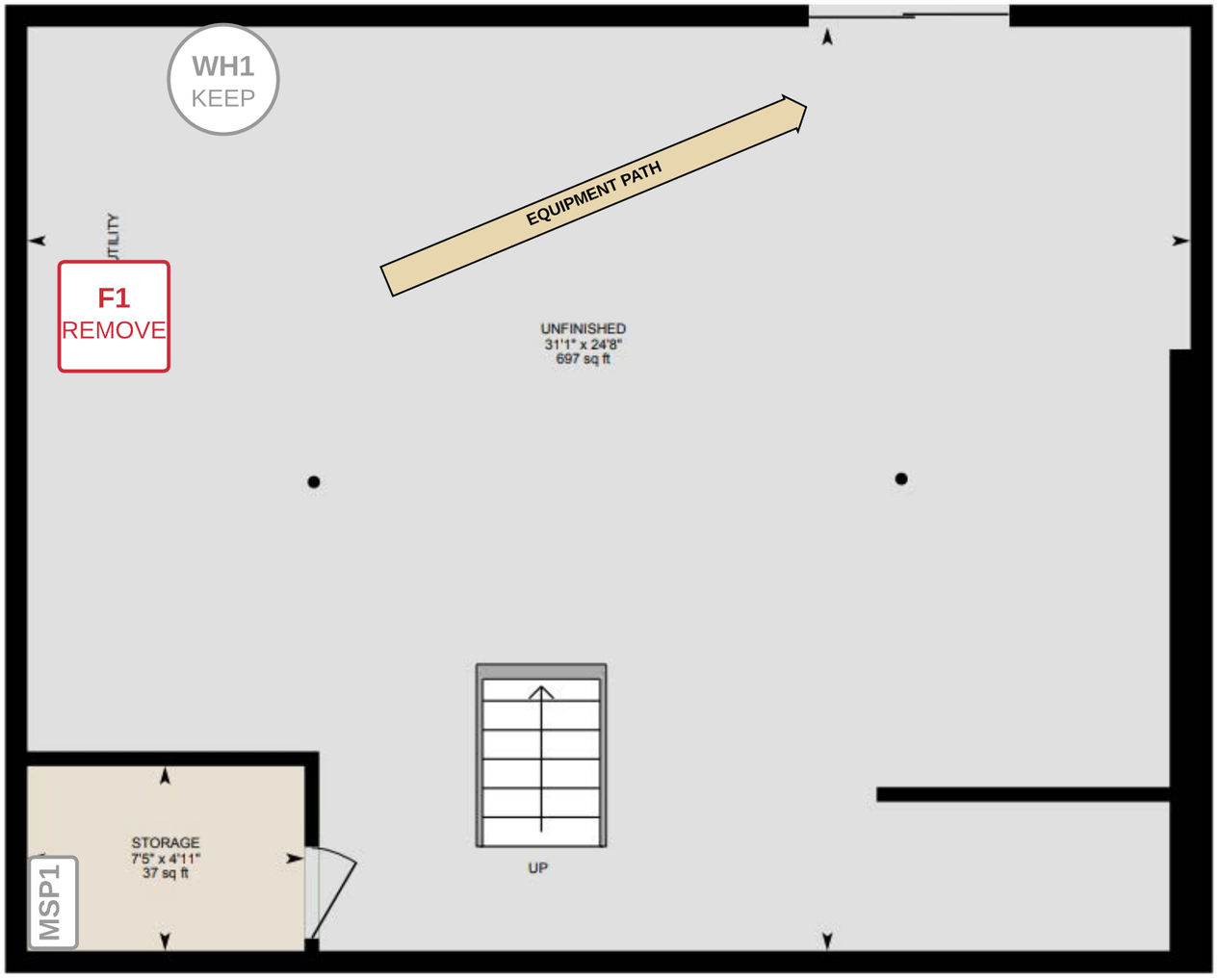
VERSION V2021.11	DRAWN BY: AA	PROJECT ID: 19-010-0004	DATE: 2022-03-11	IN ACCORDANCE WITH ARTICLE 145, PROFESSIONAL ENGINEERING AND LAND SURVEYING 7209 (2), IT IS A VIOLATION FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR, TO ALTER THIS DRAWING IN ANY WAY.	SCALE: SEE NTS	SIZE: ISO_B_11X17

EXISTING EQUIPMENT TO BE REMOVED:

F1 - FURNACE	
FUEL TYPE:	PROPANE

EXISTING EQUIPMENT TO BE REMAIN IN PLACE:

WH1 - HOT WATER HEATER	
FUEL TYPE:	PROPANE
VOLUME:	UNKNOWN
MSP1 - MAIN SERVICE PANEL	
SERVICE RATING	200A
BRAND	UNKNOWN



PROPOSED BREAKERS TO REMOVE:
- Unknown

HOMEOWNER OBLIGATIONS & EXCLUSIONS:
- None

DESIGN NOTES FOR INSTALLERS:
- None

BASEMENT

COMMONWEALTH OF MASSACHUSETTS
RYAN J. CARDA
No. 55865
REGISTERED PROFESSIONAL ENGINEER

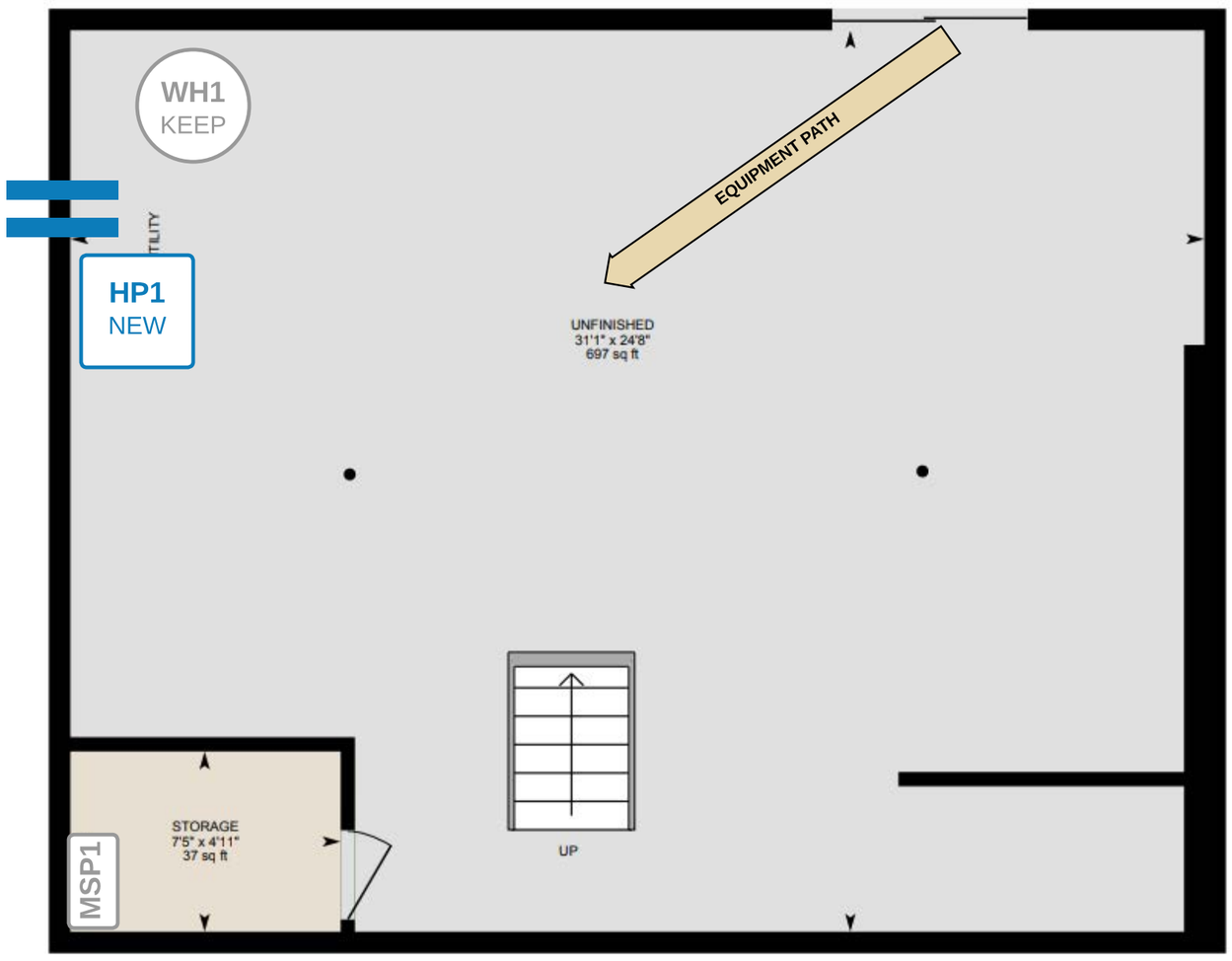
CONTRACTOR NAME:	PROJECT NAME:	PROJECT ADDRESS:	DESCRIPTION:	PAGE:
DANDELION	KALT, TOM	86 SAND HILL RD SHUTESBURY, MA 01072	EQUIPMENT REMOVAL PLAN	3 of 5

VERSION V2021.11	DRAWN BY: AA	PROJECT ID: 19-010-0004	DATE: 2022-03-11	SCALE: SEE NTS	SIZE: ISO_B_11X17

NEW EQUIPMENT TO BE INSTALLED:

ID	HP1
EQUIPMENT	PACKAGE HEAT PUMP
BRAND	ENERTECH YT
SIZE	4 TON
DISTRIBUTION	FORCED AIR
AIRFLOW: HTG/CLG	1,790 CFM / 1,710 CFM
SUPPLY	VERTICAL
RETURN	MULTIPOSITION
ELECTRICAL	40A - 240VAC
AUX HEAT	YES, 60A - 240VAC
ELECT DISCO REQD	YES
DESUPERHEATER	NO
THERMOSTAT	ECOBEE
TSTAT WIRES	EXISTING 2 WIRE
CONDITIONED AREA	WHOLE HOUSE
DUCT ZONING	NO
AEROSEAL Y/N	YES
GROUND LOOP	LOOP 1

N



LOOP 1 GROUND LOOP TIE-IN
8 FT FROM SE CORNER
1-1/2 IN HDPE
20 GAL OF GLYCOL

DUCTWORK MODIFICATION DETAILED INSTRUCTIONS:
- Add two 8" flex supplies
- Add one 14" flex return

HOMEOWNER OBLIGATIONS & EXCLUSIONS:
- None

DESIGN NOTES FOR INSTALLERS:
- None

BASEMENT

COMMONWEALTH OF MASSACHUSETTS
RYAN J. CARDA
No. 55865
REGISTERED PROFESSIONAL ENGINEER

CONTRACTOR NAME:	PROJECT NAME:	PROJECT ADDRESS:	DESCRIPTION:	PAGE:
DANDELION	KALT, TOM	86 SAND HILL RD SHUTESBURY, MA 01072	NEW EQUIPMENT PLAN	4 of 5

VERSION V2021.11	DRAWN BY: AA	PROJECT ID: 19-010-0004	DATE: 2022-03-11	SCALE: SEE NTS	SIZE: ISO_B_11X17

Dandelion Heat Pump

Packaged Unit

Performance

- Two-stage Copeland® UltraTech® compressor with efficiency values up to 4.5/20.9 (COP/EER)
- Unique compressor isolation technology and high-density foam cabinet insulation for ultra-quiet operation
- EnergyStar certified and made in the USA
- Qualifies for the federal tax credit and other state/local incentives

Ease of Maintenance

- Real-time performance monitoring and advanced diagnostic capabilities with home wifi connection. Comes standard with every unit.
- Removable cabinet panels and removable control box providing easy access to internal components.
- Aluminum microchannel air coil which eliminates the potential for failure due to corrosion, enhancing reliability and efficiency
- Corrosion-proof plastic drain pan and condensate overflow sensor to protect against potential overflows due to clogged condensate drains
- 3-year workmanship warranty and 10-year limited parts warranty

Simple Installation

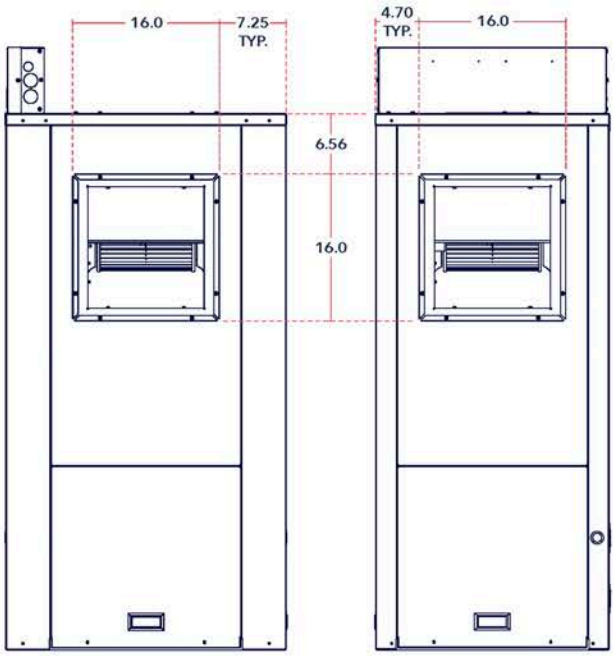
- Vertical air supply with multi-position, field-selectable left or right side return
- Universal connection sizes for ground loop, desuperheater and condensate connections
- Variable speed, constant cfm ECM blower designed to adapt to connected ductwork and operate at a fraction of the cost of a conventional blower motor
- Digital controls which provide a variety of field selectable settings for each installation, and advanced safety controls to protect the equipment
- Factory-installed soft start which reduces the start-up power of the heat pump by 70%.
- Optional field-installed internal auxiliary heating

Performance Ratings

			Heating		Cooling		
MODEL	LOAD	SIZE	CAPACITY (BTU/HR)	COP	CAPACITY (BTU/HR)	EER	BREAKER SIZE (AMPS)
YT-024	Full Part	2 Ton	19,000 15,200	4.3 4.8	27,100 21,400	19.9 28.2	30
YT-036	Full Part	3 Ton	29,100 23,300	4.5 5.1	41,200 31,500	20.9 31.3	40
YT-048	Full Part	4 Ton	39,900 32,000	4.3 4.9	53,300 42,600	20.2 29.6	40
YT-060	Full Part	5 Ton	49,200 37,700	4.1 4.6	64,300 50,000	19.3 28.0	50
YT-072	Full Part	6 Ton	56,200 45,800	3.8 4.4	71,900 58,500	18.0 24.8	60

Rated in accordance with AHRI/ISO standard 13256-1, which includes pump penalties

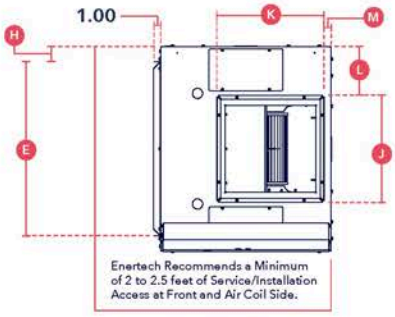
Dimensions



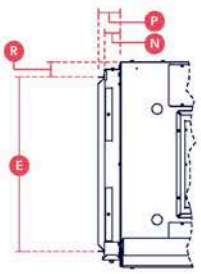
CONFIGURED AS SIDE DISCHARGE

CONFIGURED AS BACK DISCHARGE

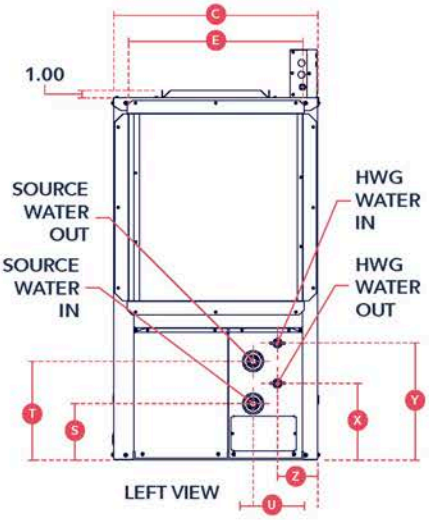
Note: Side and Back Discharge configurations are only available in 036 through 072 models.



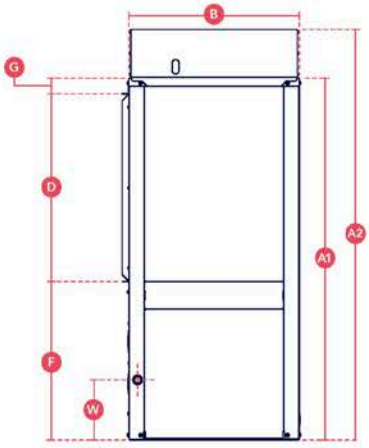
TOP VIEW



TOP VIEW
Showing Optional Filter Rack



LEFT VIEW



FRONT VIEW

Unit Dimensional Data

MODEL	WITHOUT CONTROL BOX			WITH CONTROL BOX	RETURN AIR FLANGE					SUPPLY AIR FLANGE				OPTIONAL FILTER RACK		
	A1	*B	C	A2	D	E	F	G	H	J	K	L	M	N	P	R
024	46.0	23.0	26.5	53.25	25.0	20.0	19.1	1.92	3.63	11.62	12.5	7.44	1.05	2.34	3.00	3.63
036-048	54.0	25.4	30.5	61.2	28.0	26.0	23.7	2.34	2.25	16.0	16.0	7.26	1.60	2.34	3.29	2.25
060-072	58.4	25.4	30.5	65.6	32.0	26.0	24.0	2.34	2.25	16.0	16.0	7.26	1.60	2.34	3.29	2.25

Notes:

All measurements are in inches.

Electrical connect. are 1" for high voltage, 1/2" for low voltage.

*B (Unit Width) excludes field installed factory supplied flanges.

Performance Monitoring

Heat pump comes standard with real-time monitoring to provide the installer and homeowner with remote insight into system performance. This includes real-time efficiency, energy usage, and status of the refrigerant, air, and ground loop circuits.

DANDELION

April 23, 2021

RE: Insulation requirements for shallow header trench installations

To whom it may concern:

Dandelion requires excavation and header pipe installation to a minimum depth of 4 ft. below grade, and that depth be maintained from the ground loop location to the building entry point. This requirement is consistent with industry-accepted best practices.

However, there are cases where the minimum trench depth cannot be achieved without excessive complication, labor or cost. Dandelion has developed an alternative procedure for such cases, which is outlined in our Design & Installation Standards:

> *When the site conditions prevent the header trench from being excavated to the minimum 4 ft. depth, the exterior header piping shall be insulated with closed-cell pipe insulation. Additionally, foam board insulation (min. R10) shall be installed directly above and along the outer edges of the piping in the bottom of the trench for additional freeze protection. The width of the foam board insulation shall be sufficient to completely cover the header piping so that it cannot be seen from above prior to backfill.*

The thermal conductivity of subsoil is typically on the order of 0.50-1.00 Btu/hr-ft-°F, depending on composition, density and moisture content. The thermal resistance of foam board insulation is R=5 hr-ft^2-°F/Btu (per inch of thickness). Using the steady-state conduction equation to calculate thermal equivalence (R = L/kA), it can be shown that adding 2 inch (R10) foam board insulation is comparable to adding 60 inches of soil depth, at minimum.

Although it is not ideal to install header piping at depths less than 4 ft. from the surface, the installation of foam board insulation in accordance with our Design & Installation Standards will compensate for the deficiency from a thermal performance and more importantly, from a freeze protection standpoint.
If you have any questions, feel free to contact me at rcarda@dandelionenergy.com.

Sincerely,

Ryan Carda, P.E.
Principal Engineer
Dandelion Energy, Inc.

April 23, 2021

335 Madison Ave, 4th Floor
New York, NY 10017

DANDELION

September 15, 2020

RE: Compliance with applicable codes and regulations

To whom it may concern:

Dandelion requires that all design and installation methods and materials comply with all applicable codes and standards, including ANSI/CSA/IGSHPA C448 Series-16 (*Design and installation of ground source hear pump systems for commercial and residential buildings*) and Massachusetts State Building Code and State Energy Code.

We provide a set of internal Design & Installation Standards, Permit Drawings, and Master Service Agreements to enforce this requirement with third party contractors and internal installation crews alike.

Therefore, to the best of my knowledge, belief and personal judgment, our permit drawings, design and installation requirements and scope of work comply with Massachusetts State Building Code and State Energy Code.

If you have any questions, feel free to contact me at rcarda@dandelionenergy.com.

Sincerely,

Ryan Carda, P.E
Principal Engineer
Dandelion Energy, Inc

335 Madison Ave, 4th Floor
New York, NY 10017

DANDELION

Re: Sediment control practices for permit application to install a ground loop as part of a geothermal heating and cooling system installation

To whom it may concern:

This letter summarizes Dandelion Energy's sediment control practices as part of our permit application for geothermal heating and cooling system installation. Dandelion implements industry accepted sediment control methods during drilling and trenching activities in general accordance with New York State Department of Conservation Standard Specifications for Erosion and Sediment Control.

The sediment control method(s) implemented on each project vary depending on site-specific conditions, but include one or more of the following measures:

- Mud Processor - Equipment used to manage and process drilling spoils by separating solid and fluid materials removed from the borehole.
- Containers - Drilling spoils are typically discharged directly into containers such as heavy-duty woven polypropylene sacks, impermeable 3-ply plastic pools, geotextile filter bags or lined roll-off containers during drilling.
- Stockpile Methods - In some instances, drilling spoils or excavated materials from trenching may be temporarily stockpiled and contained using silt fences and/or straw bale dikes to prevent runoff. Excavated material is typically returned to the trench on the same day.
- Dust Control - Water is sprayed to wet drilling spoils or excavated materials for dust control as needed.

These practices have been developed and are employed to ensure that the highest level of environmental protection is achieved as a normal part of system installation.

Thanks in advance for your consideration.

Sincerely,

Ryan Carda, P.E
Principal Engineer
Dandelion Energy, Inc

335 Madison Ave, 4th Floor
New York, NY 10017

DEPARTMENT OF ENVIRONMENTAL PROTECTION

MASSACHUSETTS WELL DRILLERS CERTIFICATE

Pursuant to the provisions of
Massachusetts General Laws Chapter 21G Section 20

Mark Schock #728

is authorized to dig or drill monitoring wells
in the Commonwealth of Massachusetts during the period

01/01/2022 to 12/31/2022

Commissioner / Designee

DETACH CERTIFICATE ABOVE ALONG PERFORATION

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

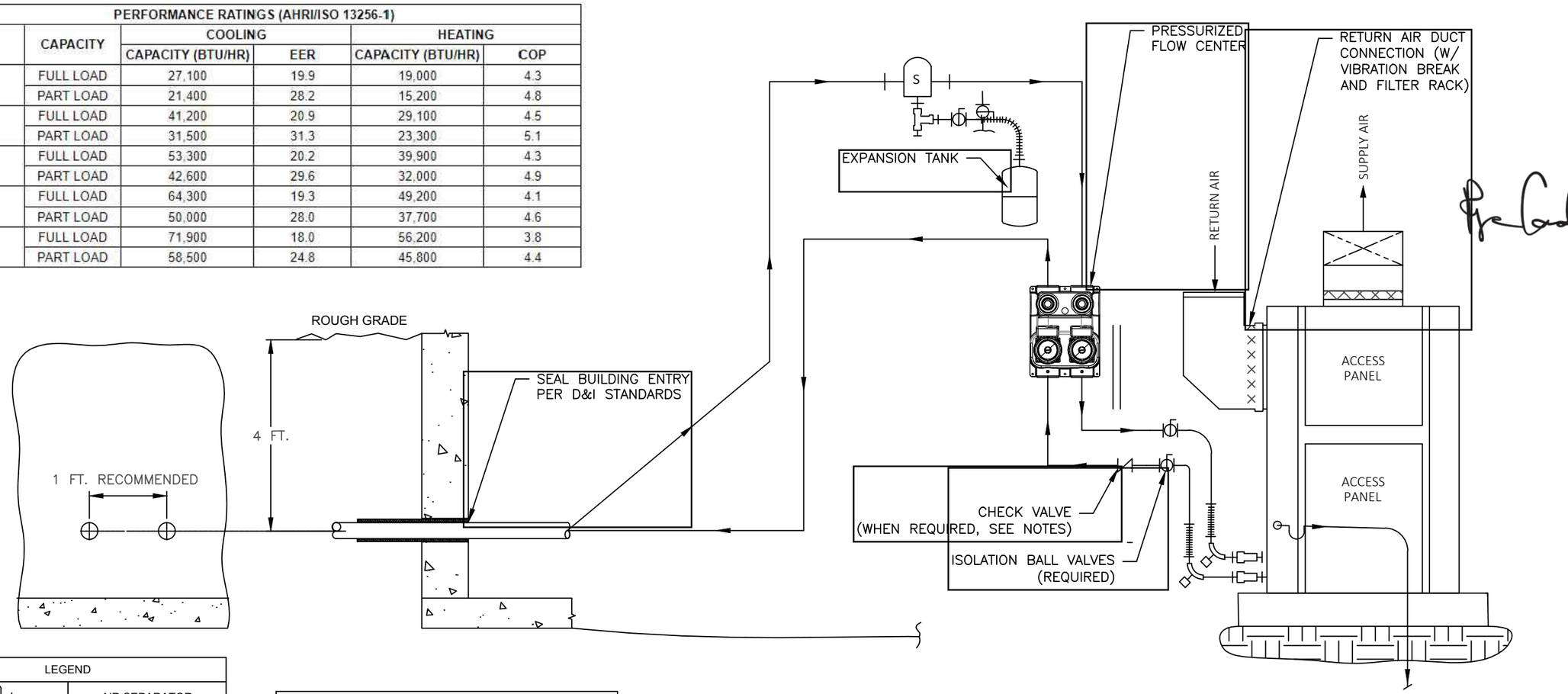
WELL DRILLERS CERTIFICATION PROGRAM

Issue this license to
Mark Schock

CERT. NO.	EFFECTIVE	EXPIRES
728M	01/01/2022	12/31/2022

SIGNED:

PERFORMANCE RATINGS (AHRI/ISO 13256-1)					
MODEL	CAPACITY	COOLING		HEATING	
		CAPACITY (BTU/HR)	EER	CAPACITY (BTU/HR)	COP
YT-024	FULL LOAD	27,100	19.9	19,000	4.3
	PART LOAD	21,400	28.2	15,200	4.8
YT-036	FULL LOAD	41,200	20.9	29,100	4.5
	PART LOAD	31,500	31.3	23,300	5.1
YT-048	FULL LOAD	53,300	20.2	39,900	4.3
	PART LOAD	42,600	29.6	32,000	4.9
YT-060	FULL LOAD	64,300	19.3	49,200	4.1
	PART LOAD	50,000	28.0	37,700	4.6
YT-072	FULL LOAD	71,900	18.0	56,200	3.8
	PART LOAD	58,500	24.8	45,800	4.4



LEGEND	
S	AIR SEPARATOR
	BALL VALVE-MANUAL
	DRAIN VALVE-MANUAL
	FLEXIBLE PIPING CONNECTION
	90° ELBOW WITH PT/SENSOR PORT
	TEE CONNECTION-GENERAL PIPING
	PIPING, TUBING, HOSE-GENERAL
	COUPLING-MALE x FEMALE
	EXPANSION TANK

SYSTEM PRESSURIZATION DETAILS		
RANGE	MIN.	MAX.
START-UP PRESSURE	30 PSI	60 PSI

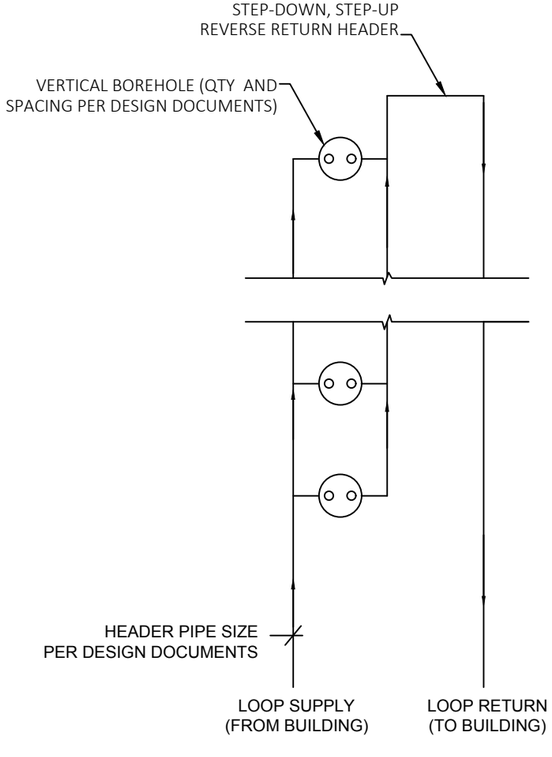
DANDELION AIR OPERATION LIMITS		
PARAMETER	COOLING	HEATING
MIN EAT	60°F	45°F
MAX EAT	100°F	80°F
MIN EWT	30°F	20°F
MAX EWT	110°F	90°F
MIN WATER FLOW	2.5 GPM/TON	
MAX WATER FLOW	3.5 GPM/TON	
MIN AIR FLOW	300 CFM/TON	

NOTES:

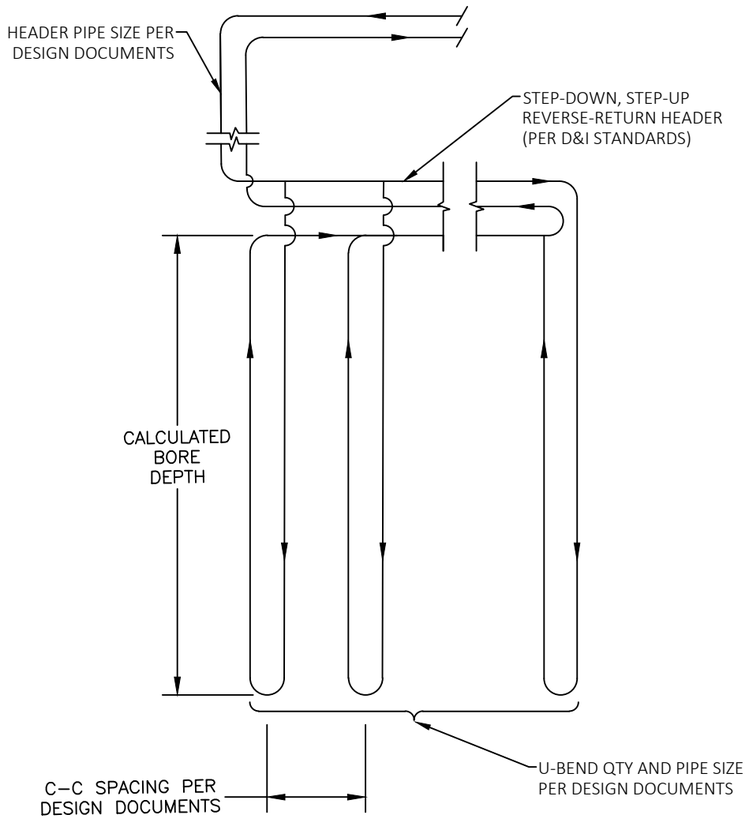
- LEFT SIDE RETURN SHOWN. UNIT CAN BE CONFIGURED FOR EITHER LEFT- OR RIGHT-HAND RETURN. CONNECTIONS MIRRORED FOR RIGHT HAND CONFIGURATION.
- APPROVED INTERIOR PIPING MATERIALS: HDPE, PEX AND/OR RUBBER HEATER HOSE. REFER TO DANDELION'S DESIGN & INSTALLATION STANDARDS FOR SIZING REQUIREMENTS.
- SUPPLY-RETURN LINE SIZES SELECTED PER DANDELION'S DESIGN AND INSTALLATION STANDARDS.
- ALL INTERIOR PIPING INSULATED WITH CLOSED-CELL INSULATION ($\frac{1}{2}$ MIN. THICKNESS).
- TARGET DEPTH FOR BUILDING ENTRY POINT IS 4 FT BELOW GRADE. REFER TO DANDELION'S DESIGN AND INSTALLATION STANDARDS FOR PROVISIONS WHEN EXCEPTIONS OCCUR.
- THE USE OF CHECK VALVES IS REQUIRED WHEN MULTIPLE HEAT PUMPS ARE CONNECTED TO A COMMON (SHARED) GROUND LOOP.
- SEE SHEETS 2, 3, AND 4 (OF 4) FOR ADDITIONAL DANDELION SYSTEM REQUIREMENTS.

COMMONWEALTH OF MASSACHUSETTS
RYAN J. CARDA
No. 55865
REGISTERED PROFESSIONAL ENGINEER

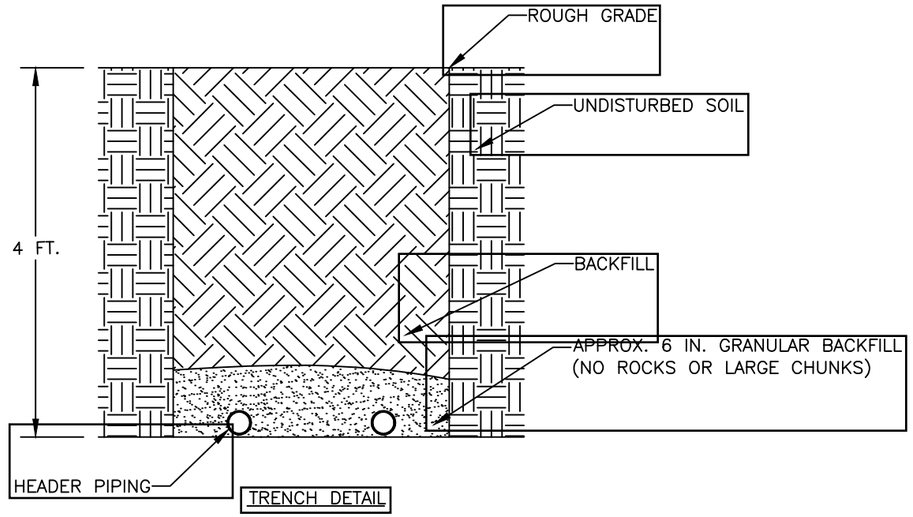
CONTRACTOR NAME: DANDELION	PROJECT NAME:	PROJECT ADDRESS:	DESCRIPTION: INTERIOR PIPING (DANDELION YT) MULTI-POSITION VERTICAL PACKAGED	PAGE: 1 OF 4
VERSION V2021.08	PROJECT ID:	DATE:	SCALE: NTS	SIZE: ISO_B_11 X 17



HEADER PIPING DETAIL



GROUND LOOP LAYOUT DETAIL



TRENCH DETAIL

TRENCHING NOTES:

WHEN SITE CONDITIONS DO NOT ALLOW EXCAVATION TO THE REQUIRED 4 FT. DEPTH, INSULATE THE HEADER PIPING WITH R10 INSULATION (MUST BE RATED FOR DIRECT BURIAL). INSTALL THE INSULATION DIRECTLY ABOVE AND ALONG THE OUTER EDGES OF THE PIPING AT THE BOTTOM OF THE TRENCH FOR FREEZE PROTECTION.

GENERAL NOTES:

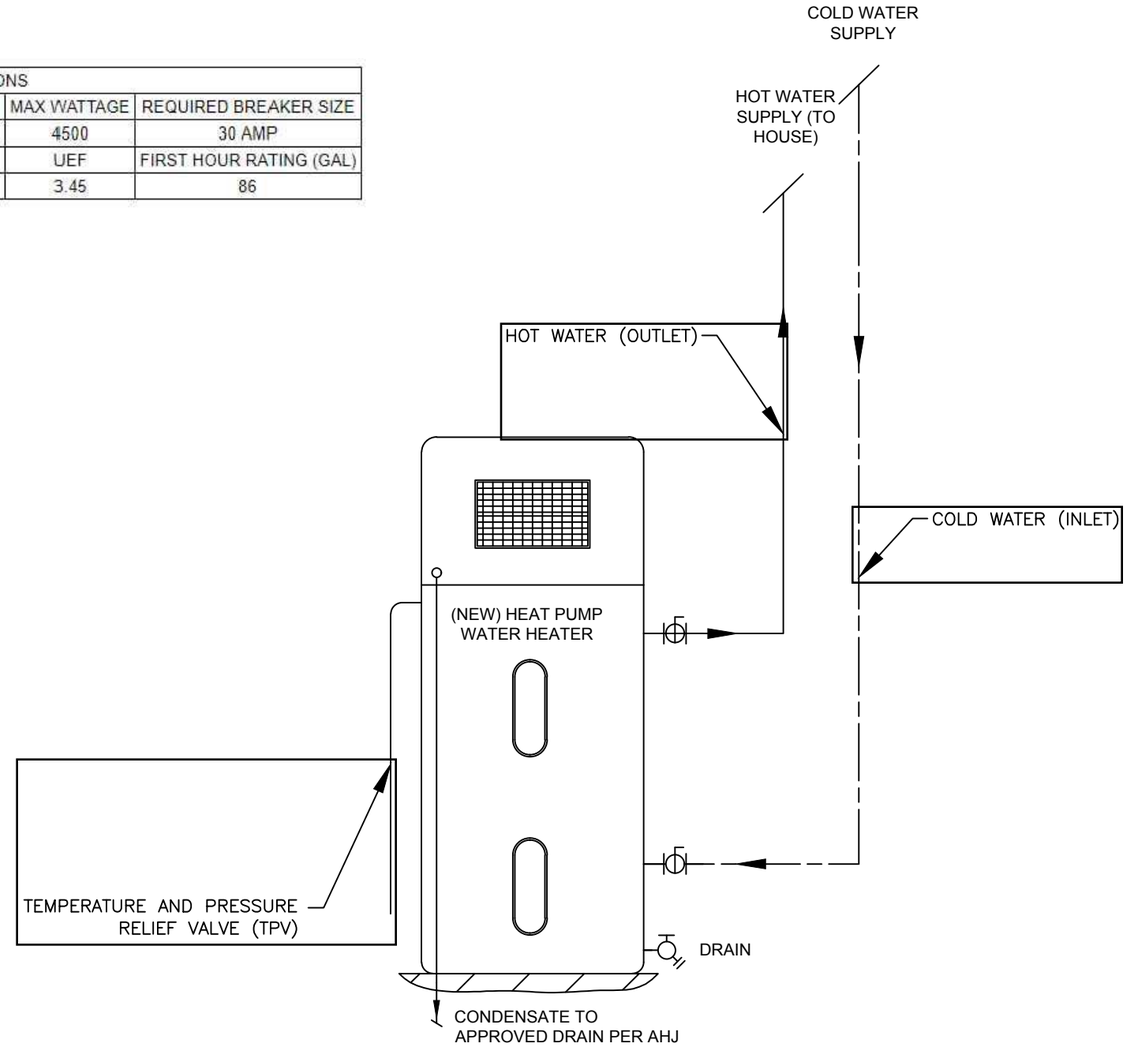
- ALL UNDERGROUND PIPE FITTINGS/CONNECTIONS MADE VIA HEAT FUSION PER ANSI/CSA/IGSHPA C448.0–16, SECTION 5.4.2
- ALL GROUND LOOP PIPING HDPE, MIN. 160 PSI RATING (PE 3608 OR 4710, DR11) PER ANSI/CSA/IGSHPA C448.0–16, SECTION 5.4.2
- MINIMUM BORE SPACING AND CALCULATED BORE DEPTH PER LOOPLINK RLC
- MIN. SEPARATION DISTANCE FROM ALL STRUCTURES AND UTILITIES (FOUNDATION, GAS, SEWER, SEPTIC, PROPERTY LINES, ETC.) IS 10 FT., UNLESS OTHERWISE SPECIFIED BY THE AHJ.
- INSTALL R2 (MIN.) PIPE INSULATION ON HEADER PIPING WHEN CROSSING A WATER/SEWER LINE
- FULL LENGTH GROUTING REQUIRED, 1.20 BTU/HR–FT–F GROUT THERMAL CONDUCTIVITY VALUE
- HEADER PIPING MUST BE LAID OUT IN REVERSE–RETURN FASHION AS INDICATED IN THE HEADER DETAIL DRAWING.
- ALTERNATIVE PIPING LAYOUT/DESIGN MUST BE PRE–APPROVED BY DANDELION.
- SEE SHEETS 1, 3, AND 4 (OF 4) FOR ADDITIONAL DANDELION SYSTEM REQUIREMENTS.
- PRIOR TO STARTUP, THE GROUND LOOP SHALL BE FLUSHED AT 2 FPS TO REMOVE AIR/DEBRIS USING A 1.5 HP PURGE PUMP

SYSTEM ANTIFREEZE MUST MEET OR EXCEED AHJ BUILDING CODES				
CORRESPOND WITH FREEZE POINT 12-13°F BELOW MIN EWT				
ANTIFREEZE CONCENTRATION % BY VOLUME				
ANTIFREEZE TYPE	MIN EWT (°F)			
	25°F	30°F	35°F - 45°F	> 45°F
PROPYLENE GLYCOL	28%	22%	20%	0%
ETHANOL	25%	20%	15%	0%
METHANOL	DO NOT USE	15%	10%	0%
HEAT TRANSFER FLUID MUST COMPLY WITH ANSI/CSA/IGSHPA C448.0-16, SECTION 5.7				

COMMONWEALTH OF MASSACHUSETTS
RYAN J. CARDA
No. 55865
REGISTERED PROFESSIONAL ENGINEER

CONTRACTOR NAME: DANDELION	PROJECT NAME:	PROJECT ADDRESS:	DESCRIPTION: GROUND LOOP AND HEADER PIPING	PAGE: 2 OF 4
VERSION V2021.08	PROJECT ID:	DATE:	SCALE: NTS	SIZE: ISO_B_11 X 17

HEAT PUMP WATER HEATER SPECIFICATIONS				
ELECTRICAL SPECS	VOLTAGE/PHASE/HZ	UPPER/LOWER ELEMENT WATTAGE	MAX WATTAGE	REQUIRED BREAKER SIZE
	230/1/60	4500	4500	30 AMP
PERFORMANCE RATINGS	NOMINAL CAPACITY (GAL)	RATED STORAGE VOLUME (82)	UEF	FIRST HOUR RATING (GAL)
	80	82	3.45	86



LEGEND	
	BALL VALVE-MANUAL
	DRAIN VALVE-MANUAL
	HOT WATER LINE
	COLD WATER LINE
	PIPING, TUBING, HOSE-GENERAL

NOTES:

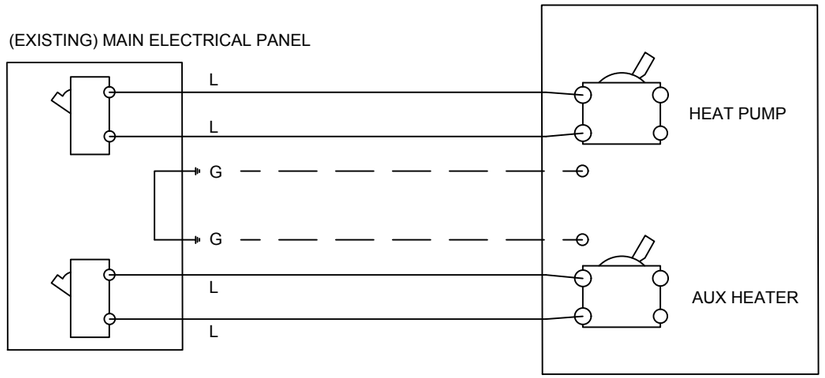
- DOMESTIC HOT WATER CONNECTIONS SHALL MEET OR EXCEED ALL APPLICABLE BUILDING CODES.
- TEMPERATURE AND PRESSURE RELIEF VALVE (TPV) SHALL BE FACTORY INSTALLED AND TERMINATED ACCORDING TO APPLICABLE BUILDING CODES
- ALL NEW PLUMBING Ø¾ IN. (MIN.), PEX OR COPPER
- THE NEW WATER HEATER SHALL TIE-INTO THE EXISTING DOMESTIC WATER PLUMBING.
- SEE SHEETS 1, 2, AND 4 (OF 4) FOR ADDITIONAL DANDELION SYSTEM REQUIREMENTS.

COMMONWEALTH OF MASSACHUSETTS
RYAN J. CARDA
No. 55865
REGISTERED PROFESSIONAL ENGINEER

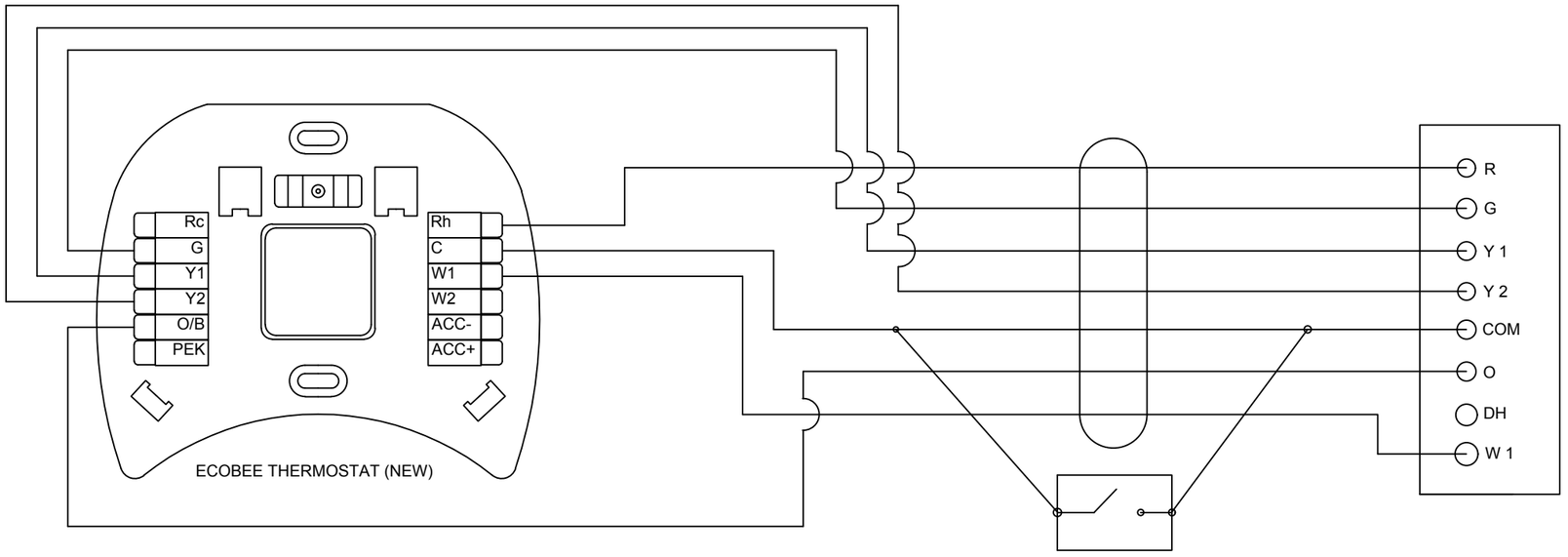
CONTRACTOR NAME: DANDELION	PROJECT NAME:	PROJECT ADDRESS:	DESCRIPTION: HEAT PUMP WATER HEATER INSTALLATION DETAILS (ALL MODELS)	PAGE: 3 OF 4
VERSION V2021.08	PROJECT ID:	DATE:	SCALE: NTS / SIZE: ISO_B_11 X 17	

NOTES:

- ELECTRICAL WORK MUST MEET OR EXCEED ALL APPLICABLE BUILDING & ELECTRICAL CODES
- WHEN THE DISTANCE FROM THE SERVICE PANEL TO THE HEAT PUMP IS GREATER THAN 100 FT, CONSULT WITH THE ENGINEERING TEAM FOR FURTHER REVIEW.
- SEE SHEETS 1, 2, AND 3 (OF 4) FOR ADDITIONAL DANDELION SYSTEM REQUIREMENTS.



(NEW) HEAT PUMP ELECTRICAL PANEL
REFER TO TABLE FOR BREAKER REQUIREMENTS



HEAT PUMP ELECTRICAL SPECIFICATIONS						
MODEL	VOLTAGE/ PHASE/HZ	FLA (AMP)	LRA (A)	LRA W/ SOFT START (A)	MCA (A)	MOP (A)
YT-024	230/1/60	20.9	58.3	17.5	23.8	35
YT-036	230/1/60	24.8	83.0	24.9	28.7	40
YT-048	230/1/60	31.9	104.0	31.2	37.2	50
YT-060	230/1/60	39.5	152.9	45.9	46.3	70
YT-072	230/1/60	42.1	172.9	53.8	49.5	70

AUX HEAT ELECTRICAL SPECIFICATIONS (WHEN APPLICABLE)					
MODEL	VOLTAGE/ PHASE/HZ	AUX HEAT KW (240V)	AUX HEAT AMPS 240V)	AUX HEAT MCA (A)	AUX HEAT MOP
YT-024	230/1/60	5	20.8	26.0	30
YT-036	230/1/60	10	41.7	52.1	60
YT-048	230/1/60	10	41.7	52.1	60
YT-060	230/1/60	10	41.7	52.1	60
YT-072	230/1/60	10	41.7	52.1	60

CONTRACTOR NAME: DANDELION	PROJECT NAME:	PROJECT ADDRESS:	DESCRIPTION: ELECTRICAL/THERMOSTAT/CONDENSATE PUMP WIRING (DANDELION YT) MULTI-POSITION VERTICAL PACKAGED	PAGE: 4 OF 4
VERSION V2021.08	PROJECT ID:	DATE:	SCALE: NTS	SIZE: ISO_B_11 X 17

GSHP Design Report

Project: Tom Kalt 19-010-0004 (Project ID:28402)
Prepared: 11-Mar-2022

Prepared By: Ameed Azar

Designed with loopLink by Geo-Connections, Inc.

System Loads

System Loads or Peak Loads are calculated based on a variety of details for an individual residence. Assumed occupancy levels, the number of appliances operating, the number of doors & windows and the tightness of the construction all contribute to the amount of energy required to maintain the thermostat set points given the historical extreme weather conditions in your area.

The peak loads used in this report were provided as listed in the following table.

1 kBtu/hr = 1,000 Btu/hr

Zone	Total Heating Load (kBtu/hr)	Total Cooling Load (kBtu/hr)	Zone SHF
Whole house	41.03	19.71	0.890
Total	41.03	19.71	

Equipment Schedule

Based on the provided loads, the recommended heat pump schedule for this system is as follows:

High Cap.
Low Cap.

1 kBtu/hr = 1,000 Btu/hr

Zone	GSHP	QTY	Heat [1] Cap. (kBtu/hr)	Cool [1] Cap. (kBtu/hr)	Water [2] Flow (GPM)	Air [3] Flow (CFM)
Whole house	Dandelion Energy - Enertech Multi-Position Vertical YT-048	1	40.50	48.20	12.0	1,790
			33.80	40.28		
High Capacity Totals			40.50	48.20	12.0	
Low Capacity Totals			33.80	40.28	-	

1. All capacities shown are total.
2. When applicable, hydronic source and load water flows are assumed equal.
3. Air flow rates are reported on a per heat pump basis. For total air flow in a zone, multiply the reported air flow by quantity.

Whole house

Zone Details

The peak loads for each individual zone are used to calculate the total amount of heating & cooling capacity required for a space based on the set points and the climate data for your area.

Peak Heating Load	41,032 Btu/hr	Peak Cooling Load	19,708 Btu/hr
Heating Set Point	72 °F	Cooling Set Point	72 °F
Heating Offset	0 Btu/hr	Space SHF	0.890

GSHP Selection

The ground source heat pump below has been selected to maintain comfortable heating & cooling for this zone.

Manufacturer	Dandelion Energy
Model	Enertech Multi-Position Vertical YT-048

Heat Pump Type	Water to Air	Capacity	Dual Capacity	# Heat Pumps	1

Installed Capacity Check

The installed capacity check describes the efficiency and total heating/cooling capacity of the selected ground source heat pump system. This information is used to ensure proper sizing of equipment based on the load represented by this zone.

Heating (High Capacity)

Heating Capacity	40,500 Btu/hr
% Sizing	98.7%
% Energy From Geo	99.8%
Installed COP	3.89
Balance Point Temp.	0.6 °F

Heating (Low Capacity)

Heating Capacity	33,800 Btu/hr
% Sizing	82.4%
Installed COP	4.25

Cooling (High Capacity)

Total Cooling Capacity	48,200 Btu/hr
Sensible Cooling Capacity	36,150 Btu/hr
% Oversizing	106.1%
Installed EER	14.39

Cooling (Low Capacity)

Total Cooling Capacity	40,277 Btu/hr
Sensible Cooling Capacity	30,208 Btu/hr
% Oversizing	72.2%
Installed EER	20.96

Whole house

Zone Operating Summary

The Zone Operating Summary describes equipment runtime and the total annual power consumption for the GSHP operating in this zone.

Heating

High Capacity Runtime	265 hrs
Low Capacity Runtime	2,100 hrs
Supplemental Bin Hours	32 hrs
Dual Fuel Bin Hours	0 hrs
Heat Pump Energy Use	5,714 kWh
Pumping Energy Use	476 kWh
Supplemental Energy Use	44 kWh
Dual Fuel Energy Use	0 kWh

Cooling

High Capacity Runtime	0 hrs
Low Capacity Runtime	493 hrs
Heat Pump Energy Use	1,035 kWh
Pumping Energy Use	99 kWh

GSHP Operating Cost Breakdown for Zone Name

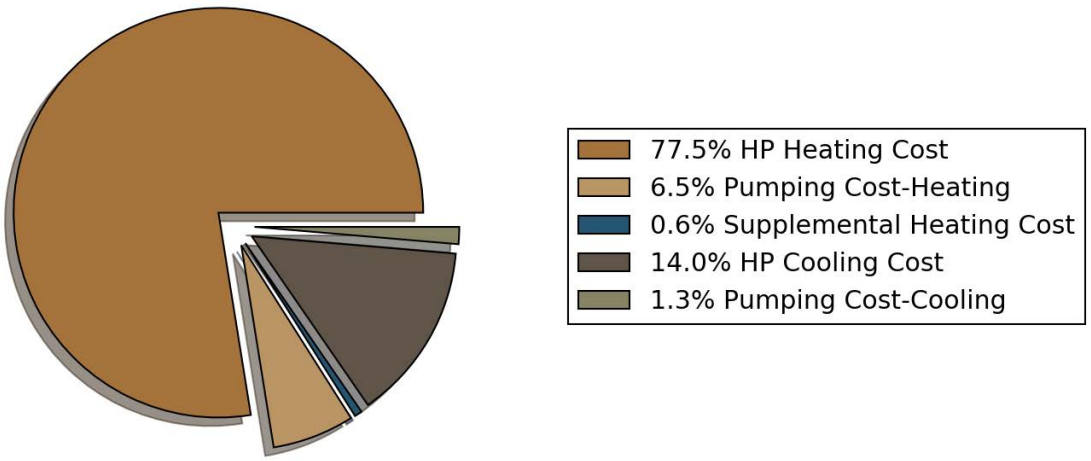
Based on the annual power consumption of the system and the price per kilowatt hour in your area the estimated cost to maintain the set points for this zone are as follows:

Heating

HP Cost	$1,371.43
Supplemental Cost	$10.62
Dual Fuel Cost	$0.00
Pumping Cost	$114.46
Total Cost	$1,496.50

Cooling

HP Cost	$248.50
Pumping Cost	$23.86
Total Cost	$272.36

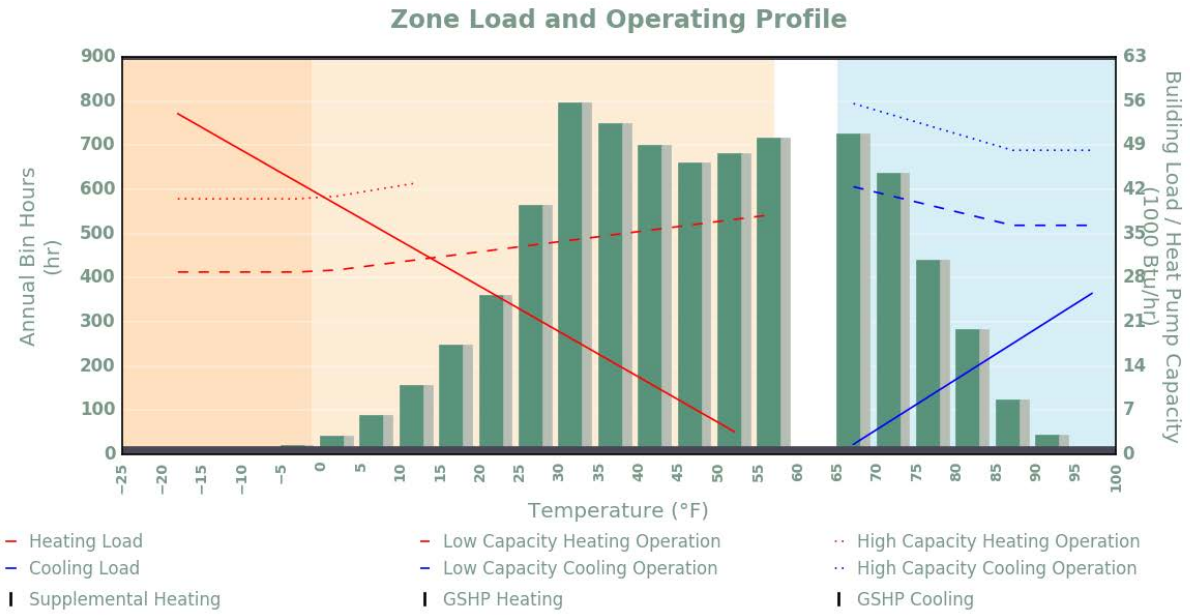


Back-Up System Details

Supplemental System Details

Supplemental systems operate at the same time as the geothermal heat pump and provide additional heat when the space load is greater than the system capacity.

Supplemental System Type Electric Resistance COP 1.0



Heating

Heating Start OAT	57.0 °F
High Capacity Runtime	265 hr
Low Capacity Runtime	2,100 hr
Supplemental Bin Hours	32 hr

Cooling

Cooling Start OAT	65.0 °F
High Capacity Runtime	0 hr
Low Capacity Runtime	493 hr

Vertical Bore 15 ft cc

Earth Temperature Data Location

Deep earth (below 20ft) temperature is a function of the average annual air temperature in your region and remains relatively constant regardless of season.

Deep Earth Temp (T_G) 53.0 °F

Formation Details

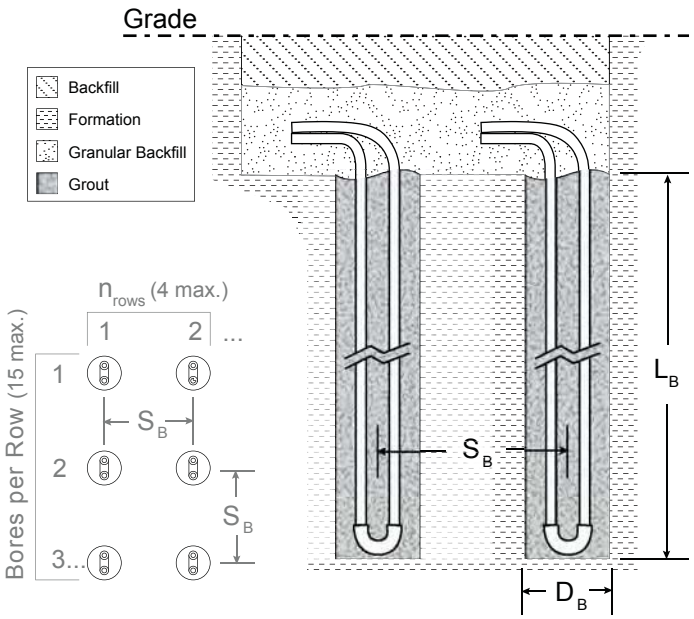
The thermal properties of your formation are based on the formation's composition and have a direct impact on the scale of your loopfield.

Thermal Conductivity 1.59 Btu/hr ft °F

GHEX Summary

Heating is dominant.

Grout is used inside of all bores in order to protect the deep earth environment from surface contaminants and to provide a more effective contact surface with GHEX piping that optimizes heat transfer between the fluid pumped through your GSHP and the earth.



TOP VIEW (GENERIC)

DETAIL (GENERIC)

Grout T.C.	1.20 Btu/hr ft °F
EWT_{MIN}	30.0 °F
EWT_{MAX}	90.0 °F
Bore Diameter (D_B)	5.00 in
GHEX Pipe	1.25" DR 11.0 HDPE 4710
Bores in Series (N_{BIS})	1
Layout Rows (n_{rows})	1
Bores per Row	1
Number of Bores	1
Bore Spacing (S_B)	15.0 ft
Design Depth (L_B)	441 ft
Header Pipe	1.50" DR 11.0 HDPE 4710

Vertical Bore 18 ft cc

Earth Temperature Data Location

Deep earth (below 20ft) temperature is a function of the average annual air temperature in your region and remains relatively constant regardless of season.

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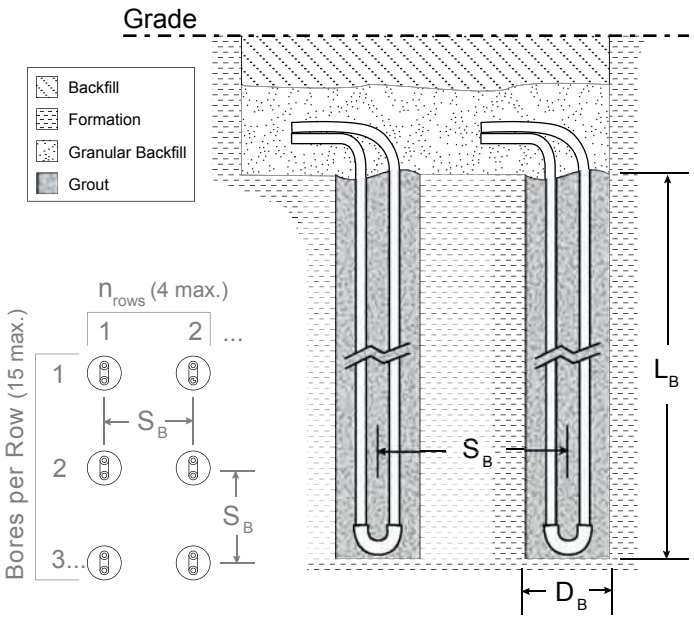


TOP VIEW (GENERIC)

DETAIL (GENERIC)

Grout T.C.	1.20 Btu/hr ft °F
EWT_{MIN}	30.0 °F
EWT_{MAX}	90.0 °F
Bore Diameter (D_B)	5.00 in
GHEX Pipe	1.25" DR 11.0 HDPE 4710
Bores in Series (N_{BIS})	1
Layout Rows (n_{rows})	1
Bores per Row	1
Number of Bores	1
Bore Spacing (S_B)	18.0 ft
Design Depth (L_B)	441 ft
Header Pipe	1.50" DR 11.0 HDPE 4710

DANDENE-01 EPRZEBIEGLEC

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 9/10/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:	
York International Agency, LLC 500 Mamaroneck Avenue Suite 220 Harrison, NY 10528	PHONE (A/C, No, Ext): (914) 376-2200	FAX (A/C, No): (914) 376-2891
	E-MAIL ADDRESS: certificate@yorkintl.com	
	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A : Hamilton Insurance Designated Activity Company	
INSURED	INSURER B : Merchants Mutual Ins. Co.	23329
Dandelion Energy, Inc. 333 North Bedford Road, Suite 220 Mount Kisco, NY 10549	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY			ENVPKGHI803226	9/8/2021	9/8/2022	EACH OCCURRENCE	$ 1,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 50,000
							MED EXP (Any one person)	$ 5,000
							PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	X POLICY PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$ 2,000,000
	OTHER:							$
B	AUTOMOBILE LIABILITY			CAPI079447	7/5/2021	7/5/2022	COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	X HIRED AUTOS ONLY / X NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
	UMBRELLA LIAB OCCUR						EACH OCCURRENCE	$
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$
	DED RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N	N / A					PER STATUTE / OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)						E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

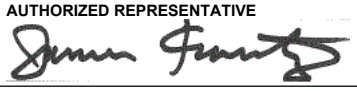
CERTIFICATE HOLDER

Dandelion Energy, Inc.
333 North Bedford Road, Suite 220
Mount Kisco, NY 10549

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 11/23/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Aon Risk Services, Inc of Florida 1001 Brickell Bay Drive, Suite #1100 Miami, FL 33131-4937	**CONTACT NAME:** Aon Risk Services, Inc of Florida **PHONE (A/C, No, Ext):** 800-743-8130 **FAX (A/C, No):** 800-522-7514 **EMAIL ADDRESS:** ADP.COI.Center@Aon.com
	INSURER(S) AFFORDING COVERAGE — **NAIC #**
INSURED ADP TotalSource CO XXIII, Inc 10200 Sunset Drive Miami, FL 33173 L/C/F Dandelion Energy Inc DBA 333 N Bedford Rd, Mt Kisco, NY 10549	**INSURER A :** New Hampshire Ins Co — 23841 **INSURER B :** **INSURER C :** **INSURER D :** **INSURER E :** **INSURER F :**

COVERAGES **CERTIFICATE NUMBER:** 3770023 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS. LIMITS SHOWN ARE AS REQUESTED.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	$
	☐ CLAIMS-MADE ☐ OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$
	☐ POLICY ☐ PROJECT ☐ LOC						PRODUCTS - COMP/OP AGG	$
	☐ OTHER							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	☐ ANY AUTO						BODILY INJURY (Per person)	$
	☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
	☐ **UMBRELLA LIAB** ☐ OCCUR						EACH OCCURRENCE	$
	☐ **EXCESS LIAB** ☐ CLAIMS-MADE						AGGREGATE	$
	☐ DEC ☐ RETENTION $							
A	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** Y / N ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐ **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		WC 038394824 NY	01/01/2022	07/01/2022	X PER STATUTE ☐ OTH-ER	
							E.L. EACH ACCIDENT	$ Unlimited
							E.L. DISEASE - EA EMPLOYEE	$ Unlimited
							E.L. DISEASE - POLICY LIMIT	$ Unlimited

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
All worksite employees working for DANDELION ENERGY INC DBA , paid under ADP TOTALSOURCE, INC's payroll, are covered under the above stated policy.

CERTIFICATE HOLDER

Dandelion Energy Inc
333 N Bedford Rd
Mt Kisco, NY 10549

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Aon Risk Services, Inc of Florida