EDR

# Memorandum

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| **To:** | New York State Office of Renewable Energy Siting (ORES) |
| **From:** | Hoffman Falls Wind LLC (Applicant)<br>Environmental Design and Research, Landscape Architecture, Engineering & Environmental Services, D.P.C (EDR)<br>Westwood Professional Services (Westwood) |
| **Date:** | January 31, 2024 |
| **Reference:** | Hoffman Falls Wind Facility<br>Case No. 23-00038<br>Magnetometer Survey Memorandum |

## Introduction

This memorandum describes the aerial magnetometer survey that was carried out by Westwood Professional Services (Westwood) on behalf of Hoffman Falls Wind LLC (the Applicant) for the Hoffman Falls Wind Facility (Facility) in the fall of 2023. The Facility is an approximately 100-megawatt (MW) wind energy generating facility located in the Towns of Fenner, Eaton, Smithfield, and Nelson in Madison County, New York.

The magnetometer survey was completed in accordance with 19 New York Codes Rules and Regulations (NYCRR) §900-2.4(u)(1) requirements and the Magnetometer Survey Study Area (the Study Area) included all within 500 feet of the limits of disturbance (LOD) that are located within the Facility Site.[1] Residential and commercial areas within the Study Area with the potential to pose health and human safety concerns were not surveyed (i.e., unmanned aircraft systems [UASs] were not flown over private residences or commercial structures). The goal of the magnetometer survey was to identify and locate potential New York State Department of Environmental Conservation (NYSDEC) regulated oil and gas (O&G) wells located within the Study Area.

## Methods

The aerial magnetometer survey called for a multi-phase approach to collect, process, interpret, and confirm magnetic data to locate potential NYSDEC regulated O&G wells in the Survey Area. These primary phases were Flight Operations, Data Processing, and Interpretation.

[1] The Facility Site includes those parcels or portions of parcels that are proposed to host Facility components and which the Applicant has secured rights of access to.

*Flight Operations*

Daily survey procedures started with safety, weather, and survey plan meetings, as needed. The Study Area was divided into sub-sections that allowed the UAS crew to perform the aerial Magnetometer survey while complying with Federal Aviation Administration (FAA) requirements and standard operating procedures. UAS flights were operated within FAR Part 107 guidelines by an FAA certified pilot holding a valid commercial UAS pilot certificate.

Westwood flight crews deployed a Harris Aerial Carrier H6 coupled with a Geometrics MagArrow II magnetometer. A high definition 360 video was also collected in conjunction with the magnetometer data to support analysis and validation of the magnetometer data. The UAV missions were planned at 8m/s with the sensor recording readings at 1000Hz. Target height above ground level (AGL) of the UAV flight was 20 meters, with 20-meter flight line spacing. For optimal results, speed, and AGL were altered as needed for weather, terrain, and vegetation to ensure safe flight.

*Data Processing and Interpretation*

At the conclusion of flight operations, magnetometer and co-located 360 video files were subjected to a quality control process to verify the integrity and coverage of the data. Technicians then trimmed the raw data to remove launch/landings or undesired transitional transects and then subjected the data to decimation filtering, compass corrections, and line level compensation to remove noise and bias, as needed.

Following initial data processing, magnetic anomalies were flagged for follow up cross verification with flight crew field notes and the 360 video. As the Study Area contains numerous historic and extant residential and agricultural structures, above and below ground power transmission and communications infrastructure, abandoned vehicles, and equipment and other ferrous non-O&G objects, an extensive analysis of the processed data was required. In interpreting the processed data, anomalies were analyzed based on their magnetic signatures,[2] the flight crew field notes, and the 360 video. Anomalies attributable to above ground objects were identified and dismissed, and a list of anomalies of interest with the potential to be oil or gas wells was generated.

## Results

The magnetometer survey results are shown in Figure 1 and summarized in Table 1. Figure 1 identifies the location of anomalies, the Facility boundaries, the LOD, and proposed Facility

[2] Most O&G wells have a pronounced magnetic signature.

components. As no O&G wells were identified in the course of the Magnetometer Survey, the setbacks identified in 19 NYCRR §900-2.4(u)(2) are not applicable.

As shown in Table 1 and Figure 1, Westwood identified three anomalies of interest with the potential to be oil or gas wells within the Study Area. Following coordination with the applicable landowners, Anomaly 1 was identified as the location of a historic structure, Anomaly 2 was determined to be associated with buried farm debris, and Anomaly 3 was identified by the landowner as the location of a debris pile associated with failed agricultural drainage. See Table 1 for a further discussion of these anomalies.

**Table 1. Anomalies of Interest within the Study Area.**

| Anomaly | Lat/Long | Distance to LOD | Nearest Proposed Structure | Discussion | Conclusion |
|---|---|---|---|---|---|
| AI-1 | 42°57'51.35"N 75°44'0.64"W | 155 feet | Turbine T-9 (2,349 feet) | Anomaly identified by the landowner as the location of a historic structure. The structure is also evident in historic aerial imagery. | Not O&G Well |
| AI-2 | 42°56'53.09"N 75°43'43.34"W | 2 feet | Turbine T-10 (1,721 feet) | Anomaly identified by the landowner as the location where the remains of a demolished barn were buried. | Not O&G Well |
| AI-3 | 42°56'16.64"N 75°41'46.65"W | 184 feet | Turbine T-14 (1,467 feet) | Anomaly identified by the landowner as the location of a debris pile associated with failed agricultural drainage. | Not O&G Well |

[1] The remains of the demolished barn were transported to this area, i.e., this anomaly does not correspond with the location of a mapped documented historic structure.

## Conclusions

In conformance with 19 NYCRR §900-2.4(u), Westwood completed an aerial magnetometer survey of the Study Area in the fall of 2023. Based on the results of the survey and additional diligence completed by the Applicant, three anomalies of interest were identified 500 feet of the LOD and within the Facility Site. However, these anomalies of interest were determined to be associated with structures or farm debris. No O&G wells were identified within 500 feet of the LOD and within the Facility Site, therefore the setback requirements established in 19 NYCRR §900-2.4(u) are not applicable.

# Magnetometer Survey Anomalies

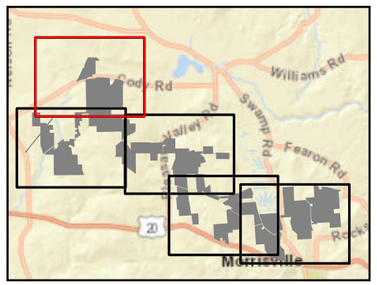



## Hoffman Falls Wind

Towns of Eaton, Fenner, Nelson, and Smithfield, Madison County, New York

Anomaly
- Confirmed - Not Oil/Gas Well

Facility Component
- Wind Turbine
- ADLS Tower
- Access Road
- Collection Line
- Collection Substation
- POI Substation
- Laydown Yard
- Limit of Disturbance
- Magnetometer Survey Study Area
- Facility Site

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US Feet

Prepared January 31, 2024
Basemap: USDA NAIP "2022 New York 60cm" orthoimagery map service

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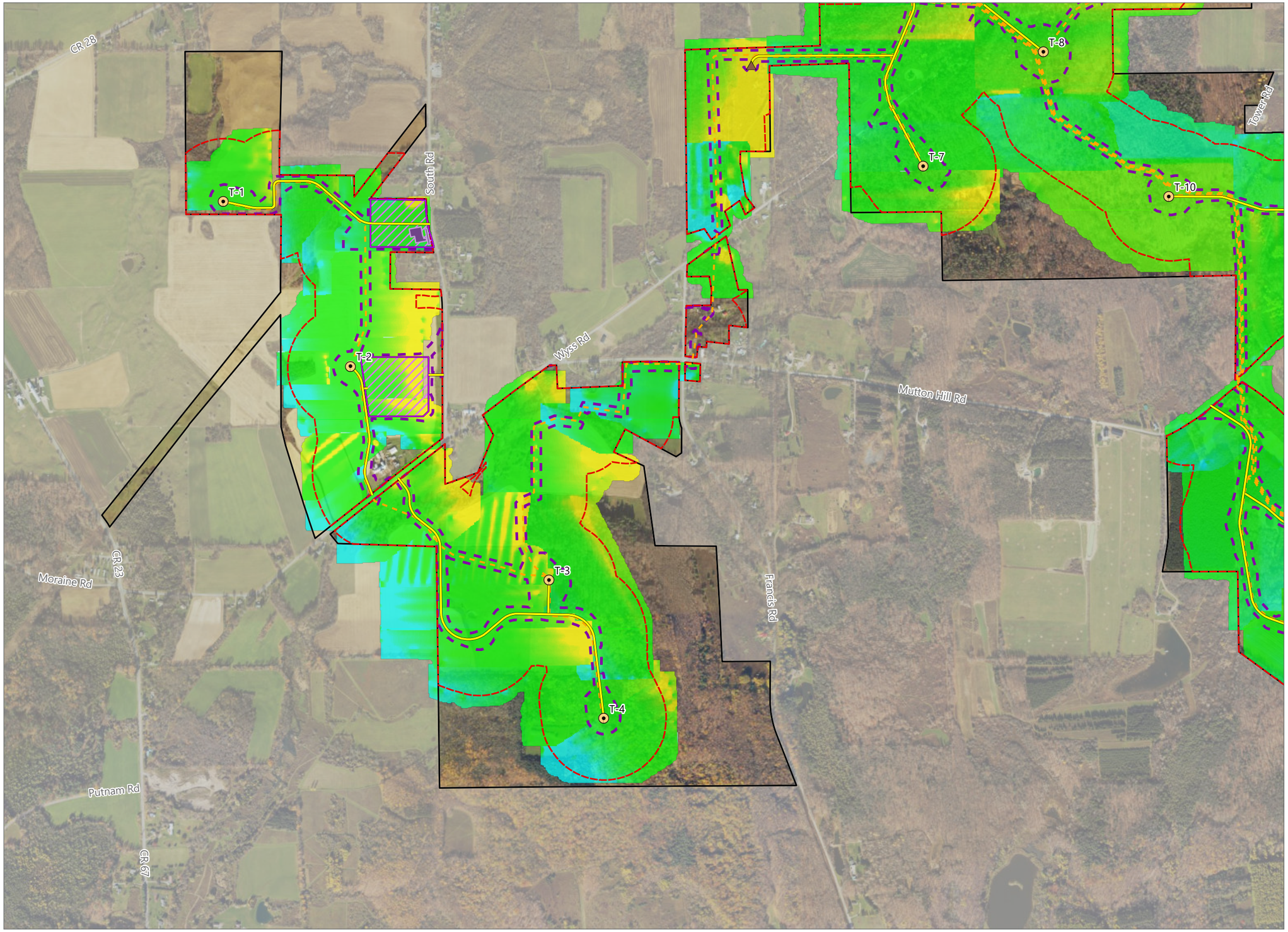
# Magnetometer Survey Anomalies



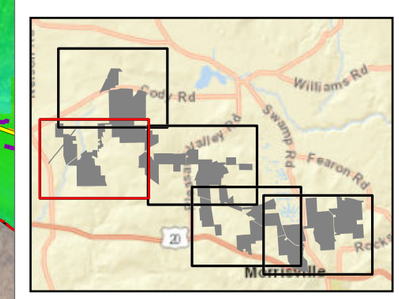



## Hoffman Falls Wind

Towns of Eaton, Fenner, Nelson, and Smithfield, Madison County, New York

Facility Component

- Wind Turbine
- ADLS Tower
- Access Road
- Collection Line
- O&M Building
- Laydown Yard
- Limit of Disturbance
- Magnetometer Survey Study Area
- Facility Site

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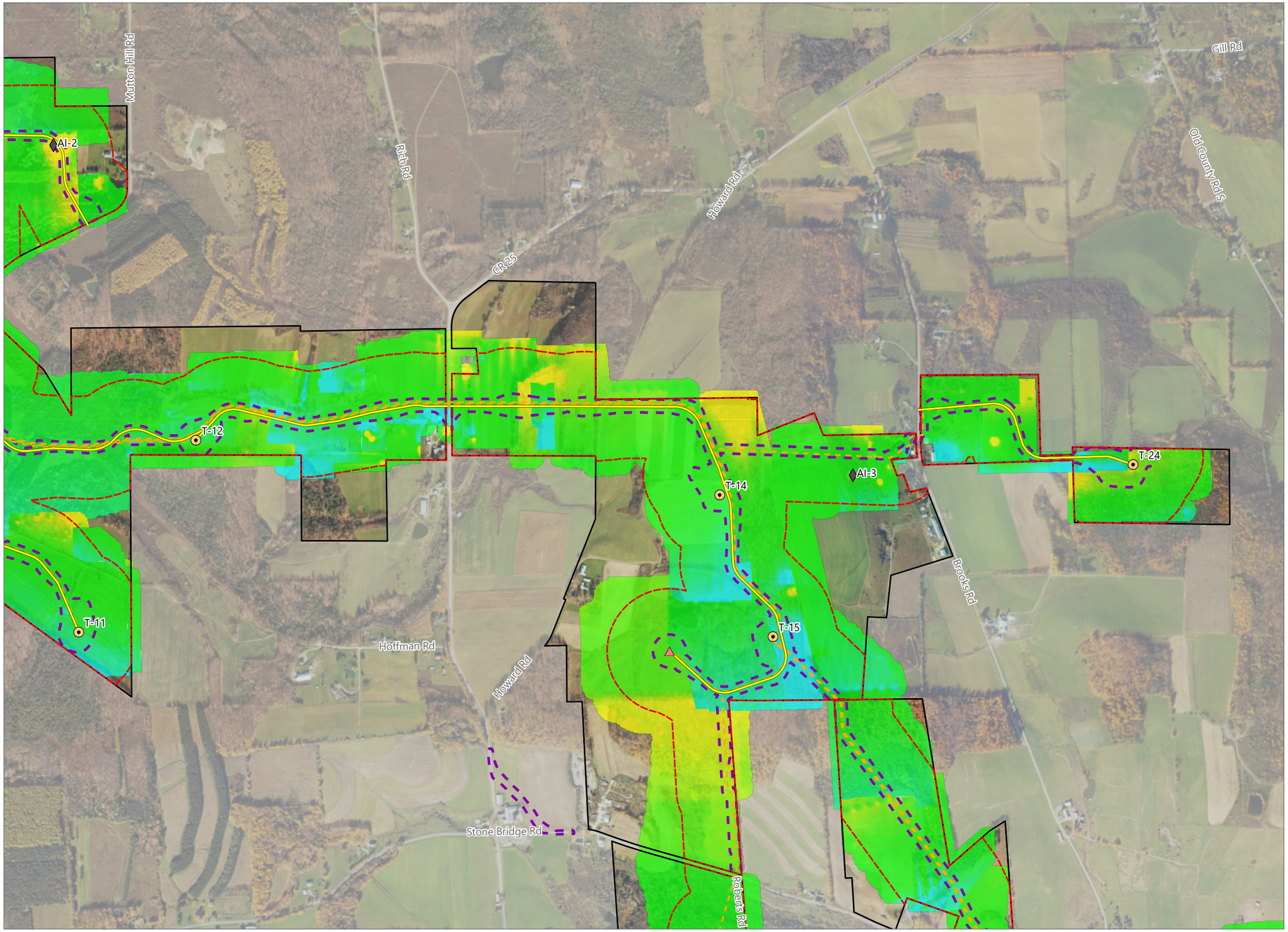



## Hoffman Falls Wind

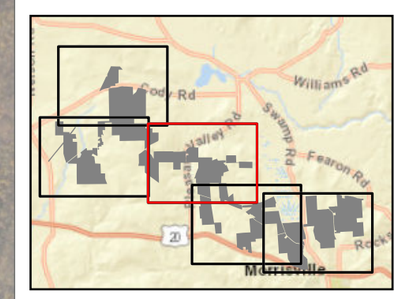
Towns of Eaton, Fenner, Nelson, and Smithfield, Madison County, New York

Anomaly

- Confirmed - Not Oil/Gas Well

Facility Component

- Wind Turbine
- Permanent MET Tower
- Access Road
- Collection Line
- Limit of Disturbance
- Magnetometer Survey Study Area
- Facility Site

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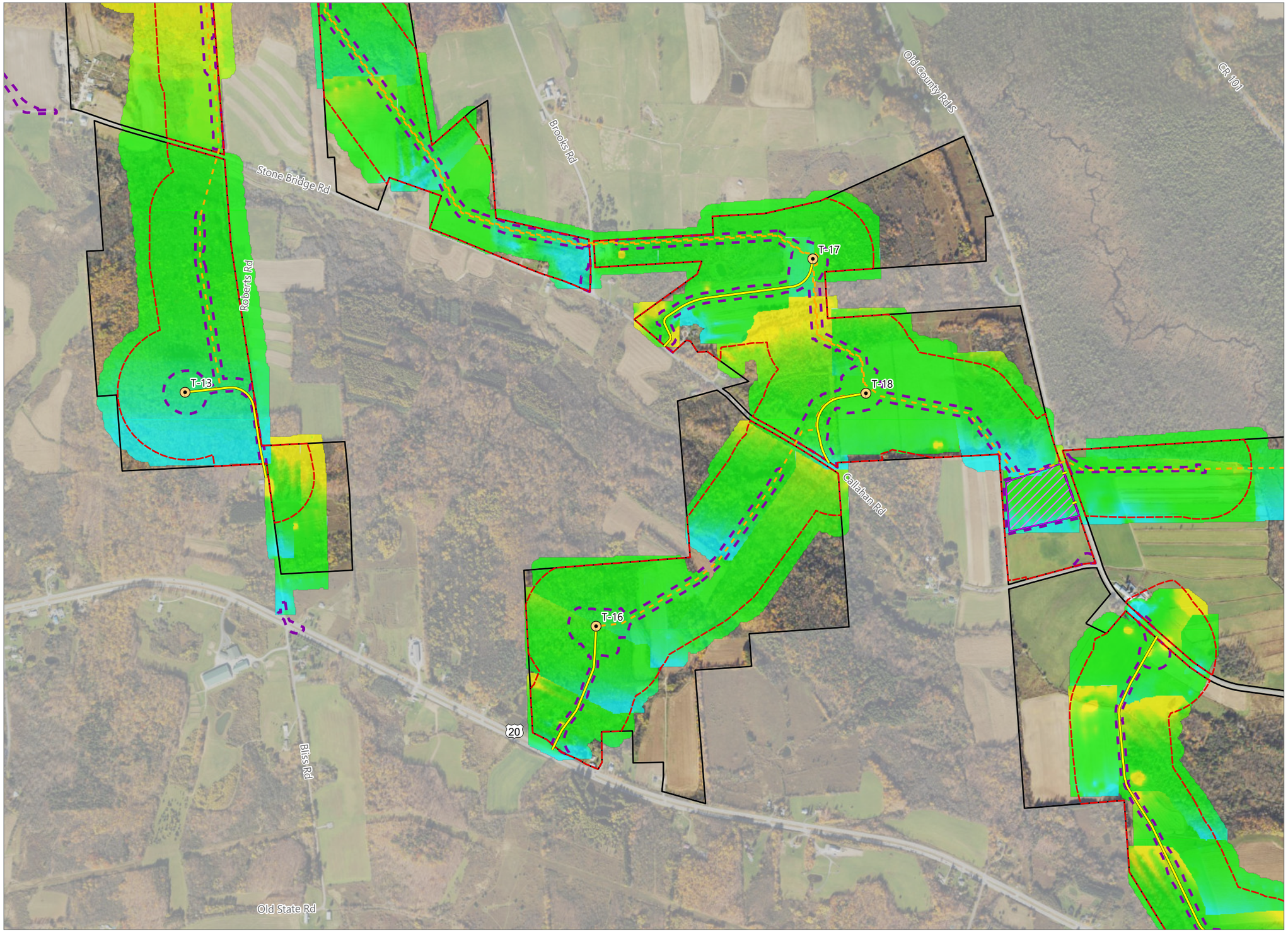
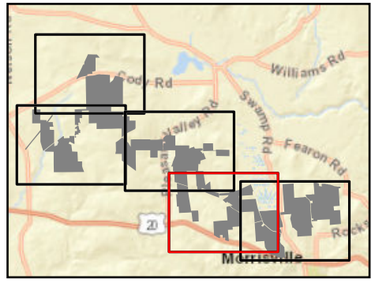



## Hoffman Falls Wind

Towns of Eaton, Fenner, Nelson, and Smithfield, Madison County, New York

Facility Component

- Wind Turbine
- Access Road
- Collection Line
- Laydown Yard
- Limit of Disturbance
- Magnetometer Survey Study Area
- Facility Site

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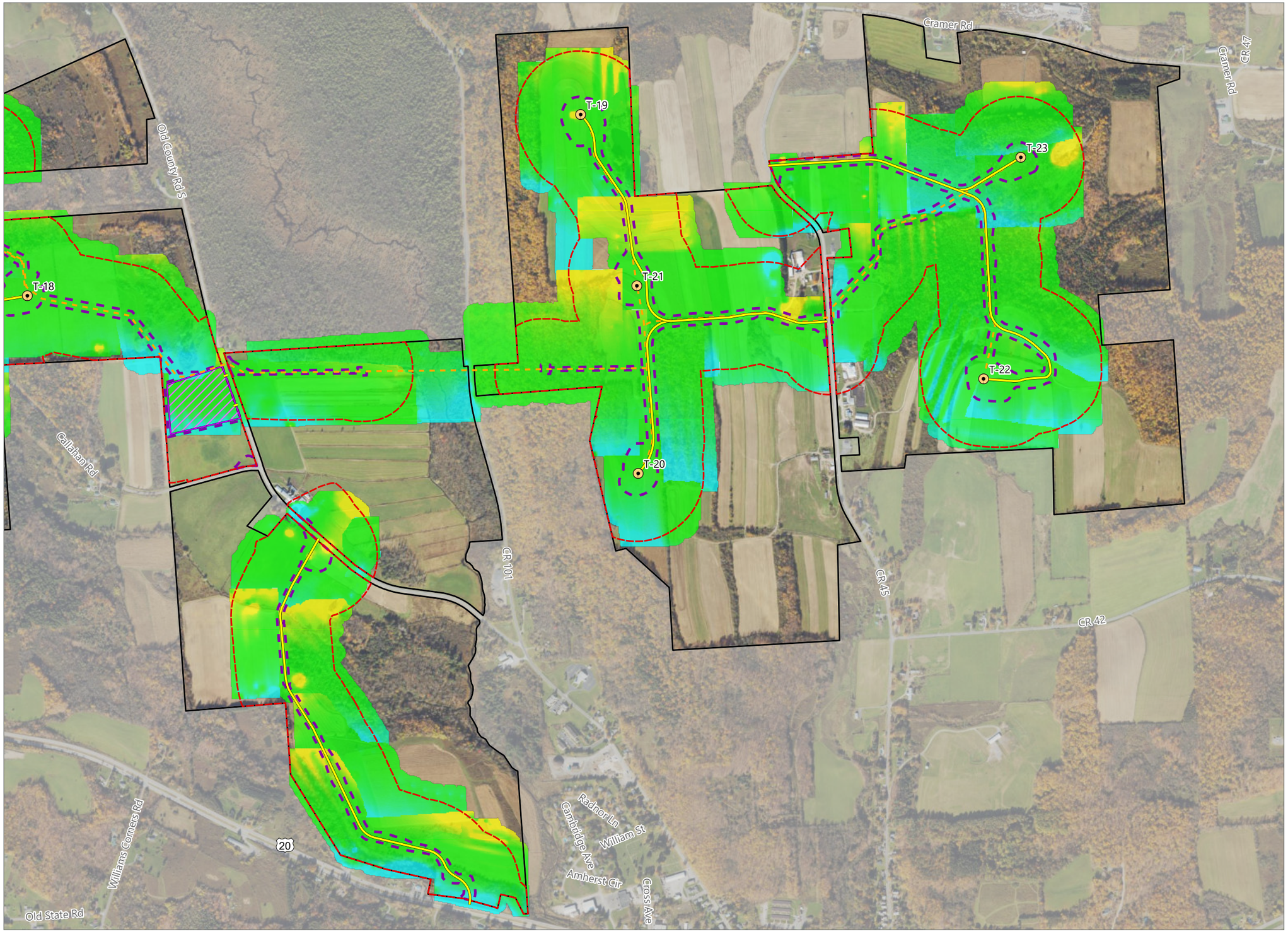


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Towns of Eaton, Fenner, Nelson, and Smithfield, Madison County, New York

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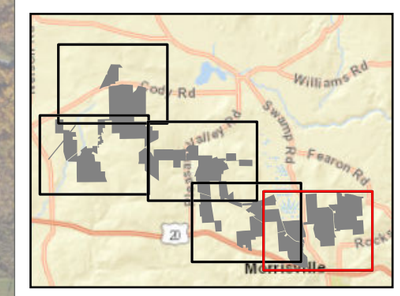


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