Terramor Outdoor Luxury Campground
Expanded EAF Narrative
Town of Saugerties, New York
December 6, 2022

List of Exhibits

Exhibit A:	Updated Environmental Assessment Form;
Exhibit B:	Aerial Image of Project Site;
Exhibit C:	Cut/Fill Diagram, dated December 1, 2022;
Exhibit D:	Geotechnical Engineering Report, prepared by Terracon, dated December 5, 2022;
Exhibit E:	Wastewater Collection and Disposal Memorandum, prepared by C.T. Male, dated November 30, 2022;
Exhibit F:	Water Supply, Treatment and Distribution Memorandum, prepared by CT Male, dated November 30, 2022;
Exhibit G:	Air Quality Report, prepared by Ramboll Environmental and Health, dated December 2, 2022; ,
Exhibit H:	Indiana Bat and Northern Long Eared Bat Habitat and Acoustical Survey, dated October 5, 2022;
Exhibit I:	NYSDEC Email from Frank Benedetto, NYSDEC Environmental Analyst 1, Division of Environmental Permits, dated November 2, 2022; US Fish & Wildlife Correspondence, dated November 15, 2022;
Exhibit J:	Visual Impact Assessment, prepared by The LA Group, dated November 2022;
Exhibit K:	NYSOPRHP Correspondence, dated February 10, 2022;
Exhibit L:	GPI Technical Memorandum, Summer Traffic Counts, dated August 30, 2022;
Exhibit M:	Central Hudson Will Serve Letter, dated September 15, 2022;
Exhibit N:	Noise Assessment Report, prepared by Alliance Technical Group, dated November 11, 2022;

Please also find enclosed:

1) Terramor Catskills, Site Plans, prepared by The LA Group, dated last revised December 2, 2022 (the “Site Plans”); and
2) Stormwater Pollution Prevention Plan (“SWPPP”), prepared by The LA Group, dated last revised on December 2, 2022 (one copy has been provided).

Evaluation of Potential Environmental Impacts

PROPOSED ACTION

Terramor, an affiliate of Kampgrounds of America, ("Applicant" or "Terramor"), is the owner of property located at Route 212, in the Town of Saugerties, New York (Tax IDs: 27.2-8-32.110 and 27.2-8-28) (collectively the "Project Site"), proposes to develop the Project Site into a state of the art campground and with accessory amenities and structures (the "Project"). The Project Site is approximately 77.5-acres. The Project includes 75 camping sites, lodge, welcome center, pool with cabana, wellness tent, and employee housing. The Project will utilize private on-site wells and a proposed wastewater treatment plant ("WWTP"). The Project will be accessed from New York Route 212, with emergency access from Cottontail Lane. The Project Site is located in the Medium Density Residential "MDR" and Gateway Overlay District "GOD" zoning districts. The Project is fully compliant with the Town of Saugerties Zoning Code ("Zoning Code") and does not require any area variances. On June 2, 2022 the Town of Saugerties Building Inspector ("Building Inspector") determined that the proposed use is a "campground" which is permitted by site plan approval and special use permit in the MDR zoning district. The Project also includes a lot consolidation application.

The Project advances the Town of Saugerties's goal to promote economic and cultural vitality by building on available natural resources as recreational opportunities. The Project will promote tourism and economic development in the Town's NYS Route 212 GOD district and develop the vacant Project Site into an outdoor recreational opportunity that will increase tourism and economic development in the region.

The Project Sponsor offers the following occupancy data for the Board's considerations, which provides total maximum occupancy of the campground. Further, to assess the realistic occupancy at the proposed campground, the Project Sponsor has used occupancy data for its existing operations at its Bar Harbor, Maine location considering that full occupancy is unlikely to be reached because guests typically rent out larger units without intending full occupancy of the unit.

The Bar Harbor location has 65 operating campsites with an average length of stay of 3 nights and an average of 3.75 guests within a 5-person campsite and 1.91 guests in a 2-person campsite. The proposed Project will have 75 operating campsites with a maximum occupancy of 240 guests. Based on the occupancy data from Bar Harbor, the Project can expect the following realistic daily occupancy:

Catskills Occupancy Estimate

May	40% Occupancy	79 guests
June	70% Occupancy	139 guests
July	82% Occupancy	163 guests
August	80% Occupancy	159 guests
September	75% Occupancy	149 guests
October	68% Occupancy	135 guests

	Yearly Total	824 guests

As demonstrated above, at its busiest time, the Project would likely not reach its 240 guest maximum daily occupancy. That said, all reports and studies have been prepared under a worst case scenario circumstance of full occupancy.

This document, referred to as the "Expanded EAF," is designed to facilitate the Town of Saugerties Planning Board's review of potential environmental impacts pursuant to the New York State Environmental Quality Review Act ("SEQRA"). *See* **Exhibit A** [EAF]. This Expanded EAF will reference prior environmental reports and studies submitted by Terramor and has enclosed recent and revised environmental reports for the Planning Board's review. As detailed below, the proposed project will not result in any potential significant adverse environmental impacts.

SEQRA COMPLIANCE AND INVOLVED AND INTERESTED AGENCIES

The Project's potential environmental impacts must be reviewed pursuant to SEQRA and its implementing regulations in 6 NYCRR Part 617 (collectively, "SEQRA"). The Project is a Type I action pursuant to 6 NYCRR § 617. The Planning Board has declared its intent to be lead agency pursuant to SEQRA and will conduct a coordinated environmental review. As such, on July 18, 2022, notice of the Planning Board's intent to serve as lead agency for the Project's SEQRA review has been circulated to all Involved and Interested agencies, including the following:

- Town of Saugerties Building Inspector;
- Town of Saugerties Highway Department;
- Town of Saugerties Water and Sewer Department;
- Town of Saugerties Conservation Advisory Commission;
- Ulster County Planning Department;
- Ulster County Health Department;
- New York State Department of Environmental Conservation;
- New York State Department of Transportation;
- New York State Office of Parks, Recreation and Historic Preservation;
- New York State Department of Health;
- Woodstock Ambulance;
- Woodstock Fire Company No. 5;
- Centerville Fire Company;
- Diaz Memorial Ambulance Services; and
- United States Army Corp. of Engineers.

EVALUATION OF POTENTIAL ENVIRONMENTAL IMPACTS

The lead agency must consider the criteria for determining the significance of potential environmental impacts from the Project as set forth in the SEQRA regulations at 6 NYCRR § 617.7(c). To do this, the lead agency reviews all relevant information and completes Parts 2 and 3 of the FEAF to provide the basis for its SEQRA determination. As demonstrated below, we respectfully submit that the Project will not result in any significant adverse environmental impact and therefore a SEQRA Negative Declaration is warranted.

1. <u>Impact on Land</u>

The Project will develop the approximately 77.5-acre Project Site into a campground. Of the 77.5-acres, only 23.66 acres will be physically disturbed, leaving approximately 53.84 acres undeveloped. The Project Site is nearby both residential and commercial uses at the corner of Route 212 and Glasco Turnpike. The Project Site is nearby the Red Onion, Peace Love Havanese, Cutting Edge Spray Foam Services, South Peak Veterinary Hospital, and Lang Media Graphics. *See* **Exhibit B** [Aerial Image]. The Project will use three out of six existing on-site wells constructed for a previously approved, abandoned residential subdivision.

The Project Site will include limited excavation in the areas of the proposed structures. As noted in the FEAF 55% of disturbed area will be on slopes 0-10%, 35% on slopes 10-15%, and 10% on slopes greater than 15%. The average depth to the water table is greater than 6 feet. The average depth to bedrock on the Project Site is approximately 1-2 feet. The Project does not include any mining or dredging. The Project Sponsor does not require any blasting at this time. It is anticipated that limited rock hammering may be required for the pool area and utility trenches where bedrock is shallow. To the extent that any blasting is required, which is not anticipated, it will be done in accordance with all local, State and federal regulations. Noise impacts from the potential limited rock hammering will be temporary in nature and conducted during approved construction hours.

The Project Sponsor has prepared a "Cut/Fill Diagram" dated December 1, 2022, which was generated using the current grading and drainage plan estimates. *See* **Exhibit C** [Cut/Fill Diagram]. As noted in the Cut/Fill Diagram, the Project will require approximately 13, 866 cubic yards of "fill" material to achieve finished grades. This would include general fill, stone sub-base materials and pavement materials. All fill be will sourced in compliance with all local, State and Federal regulations.

The Project Sponsor has also retained Terracon who has prepared a Geotechnical Engineering Report, dated December 5, 2022. *See* **Exhibit D** [Geotechnical Engineering Report]. The Geotechnical Engineering Report presents the findings of the subsurface exploration program and provides geotechnical recommendations concerning earthwork and the design and construction of foundations, floor slabs, and pavements for the proposed project. Based on the subsurface conditions found in the Geotechnical Engineering Report investigations, the following general conclusions have been prepared and will serve as Project mitigation:

1) New foundations and floor slabs may be supported upon undisturbed native soils, weathered rock, or on imported Structural Fill which is placed over the native soils/rock;
2) Based on the results of limited laboratory testing performed and our observation of the soil samples collected, it should be assumed that portions of the coarse-grained soils may be suitable for re-use as Structural Fill on site. Additional laboratory testing of bulk samples should be performed prior to the start of construction to confirm the suitability of the on-site soils for use as Structural Fill; and
3) The static groundwater level at the time of our investigations appears to be below the planned foundation excavation levels. If perched water is encountered during construction, it is expected that standard sump and pump methods should be sufficient for its removal. Dewatering is a means and methods consideration for the contractor.

See **Exhibit D** [Geotechnical Engineering Report]. All construction will be done in accordance with the Geotechnical Engineering Report and its specific findings.

The Project's land disturbance is more than one acre and therefore a Stormwater Pollution Prevention Plan("SWPPP") has been prepared in accordance with requirements under the NYSDEC SPDES General Permit for Stormwater Discharges. *See* **Enclosed**, Stormwater Pollution Prevention Plan, prepared by The LA Group, dated July 1, 2022 and revised December 2, 2022. Erosion and Sediment Control plans prepared for the project provide measures designed in accordance with the NYSDEC Standards and Specifications for Erosion and Sediment Control in order to mitigate potential impacts associated with erosion. The Project will also create 4.94 acres of new impervious surfaces on the Project Site. The Project Sponsor has provided grading and drainage plans including stormwater management devices designed in accordance with the NYS Stormwater Management Design Manual to mitigate potential impacts related to stormwater runoff from new impervious surfaces. Together, the plans and the SWPPP demonstrate that all erosion and stormwater management controls are consistent with the NYSDEC SPDES General Permit for Stormwater Discharges and therefore will mitigate potential impacts to land during construction and operations. *See* Site Plans, Erosion and Sediment Control Plans (sheets L-3.1 through L-3.9), Grading and Drainage Plans (sheets L-4.1 through L-4.9). These measures shall be followed to mitigate any potential significant environmental impacts related to land.

Based on the above, the Project will not result in any significant adverse impacts on land.

2. Impact of Geological Features

There are no unique landforms on the Project Site that will be impacted by the Project. Accordingly, the Project is not anticipated to have any significant adverse impact on geological features.

3. Impact on Surface Water

The SWPPP sets forth all stormwater management practices and demonstrates that no significant adverse environmental impacts will result from the Project. Mitigation measures provided in the Project SWPPP shall be followed to avoid any potential environmental impact related to stormwater.

During and after construction of the Project, stormwater will be managed, treated and discharged in accordance with the requirements set forth in NYSDEC State Pollution Discharge Elimination System ("SPDES") general stormwater permit and the Project's SWPPP. In addition to the SWPPP, the Site Plans demonstrate that drainage and erosion control measures will be implemented during and after construction to mitigate any potential impacts. *See* Site Plans, Sheets L-4.1 through L-4.9 and associated construction details reference on those plans. The Project's Site Plans and SWPPP are designed to comply with all applicable NYSDEC and Town of Saugerties requirements for managing stormwater during and after construction.

During Project construction, erosion and sediment control, soil stabilization, dewatering and pollution prevention measures will be installed, implemented, and maintained on the Project Site as set forth in the SWPPP to minimize the discharge of erosion of sediment and prevent a violation of the State's water quality standards. These measures are designed to limit erosion of land by controlling the flow of water until permanent stormwater control measures are installed and pervious surfaces are stabilized with vegetation and/or buildings and parking areas. Measures will include, but not be limited to installation of silt-fencing to control movement of disturbed soils; stockpiling soils and vegetative soil stabilization; seeding and mulching of all disturbed surfaces; dust control (as necessary); and ongoing inspection and maintenance of erosion control measures to ensure their effectiveness until all disturbed surfaces are stabilized. All erosion and sediment control measures are designed to comply with the New York State

Standards and Specifications for Erosion and Sediment Control, dated November 2016.

Post-construction stormwater management practices for the Project as set forth in the SWPPP are designed to conform to applicable requirements in the NYSDEC general stormwater permit and the standards provided by the New York State Stormwater Management Design Manual ("Design Manual") (dated January 2015). The Project is designed, through the SWPPP, to provide for the installation, implementation, and maintenance of permanent stormwater management practices to meet the standards in the Design Manual so that discharges comply with the State's water quality and quantity standards.

Specifically, post-construction, the Project's stormwater management system will collect stormwater run-off from the Project Site through a series of open swales and convey the water to the proposed stormwater management practices depicted on the Site Plans. Sediments and other contaminants in the run-off will be treated as described in the SWPPP to ensure the stormwater discharges meet applicable water quality standards and have minimal impacts on the downstream jurisdictional tributary and wetlands. Stormwater management practices, including stormwater management pocket ponds and an infiltration basin, have been located mostly in the interior of the Project Site, as depicted on the Site Plans. As required by the NYSDEC stormwater regulations, the peak rate of run-off from the Project Site will be the same or less than peak rate of run-off under the existing conditions.

The Project Site does include federal wetlands regulated by the US Army Corps of Engineers ("ACOE"). The Project will disturb 0.39 acres of ACOE regulated wetlands, which will require a Nationwide permit from the ACOE. The wetland disturbances are the result of the proposed access drives (including emergency access). Because the proposed federal wetland disturbance is over .10 of an acre, Terramor will be required to mitigate wetland impacts. Impacts to wetlands will be mitigated through purchase of credits in Ducks Unlimited's Mid-Hudson in-lieu fee mitigation bank. According to Dr. Patrick Raney, Manager of Conservation Services for Ducks Unlimited, this new in-lieu fee mitigation bank has been approved by the review committee staff. *See* Terramor August 2, 2022 Planning Board Submission, ACOE/Ducks Unlimited Correspondence.

Terramor has also requested a Jurisdictional Determination from the ACOE on July 8, 2022, and a Nationwide permit application for the Project will be filed with the Army Corps shortly.

Because the Project Site does not have a connection to municipal sewer, all wastewater generated by the Project will be handled through an Amphidrome system. *See* **Exhibit E** [Wastewater Collection and Disposal Memorandum, prepared by C.T. Male, dated November 30, 2022 ("WWTP Engineering Report")]. The WWTP Engineering report confirms an average wastewater flow of 14,895 GPD. Please note that the reduction in wastewater flow is the result of an analysis of actual water use at another Terramor Resort as recorded in the summer of 2022, which results in unit water use per guest of 36 gallons per day. The 36 gallons per day per guest water use includes all amenities including employees/employee housing, a lodge and a pool. To be conservative, design flows for the amenities at this location are calculated in addition to the guest unit water use. *See* **Exhibit E** [WWTP Engineering Report]. This revision has been preliminarily reviewed by the Ulster County Department of Health ("UCDOH") and provides a more realistic use of water for the Project.

Due to the shallow bedrock, the proposed method of treating and disposing of wastewater from the development is with a packaged WWTP. This basis of design technical memo uses the Amphidrome System Packaged WWTP which is a growth biologically active filter (BAF) which can provide BOD reduction, nitrification, denitrification, phosphorus reduction and filtration of suspended solids in a single reactor. The wastewater from the lodge is conveyed to a grease trap prior to flowing by gravity to a pump station to reduce the levels of fats, oils, and grease at the WWTP. Please note that the Amphidrome System Packaged WWTP may be placed above or below ground. The details of whether the system will be submerged is pending.

The Project Sponsor has had pre-application conference with the NYSDEC related to the required SDPES permit to discharge treated effluent to the intermittent stream located on the interior of the Project Site. The preliminary design of the Amphidrome System assumes typical effluent limits for discharging to an intermittent stream from the NYSDEC Manual for Design for Intermediate Sized Wastewater Treatment Systems, which have been provided in the WWTP Engineering Report. *See* **Exhibit E**, [WWTP Engineering Report]. Final effluent limitations will be provided upon receiving the Project's SPDES permit and will ensure that no significant environmental impacts will result from the Project's WWTP. The proposed WWTP will comply with all NYSDEC regulations and effluent limitations and will also comply with all required Ulster County Health Department ("UCHD") regulations.

Based on the above, with the above proposed mitigation, the Project will not result in any significant environmental impacts related to surface water.

4. Impact on Groundwater

The Project Site is not serviced by municipal sewer or water. Therefore, the Project will include private on-site WWTP and wells. Related to potential impacts to groundwater from the proposed WWTP, please refer to the above Section (3) related to impacts on surface water, which demonstrates that all wastewater will be collected and treated for discharge into an onsite intermittent stream in accordance with NYSDEC effluent limitations.

The Project will be serviced by 3 of the six existing wells for potable water. The anticipated water demand for the Project is 14,895 gallons per day. *See* **Exhibit F** [Water Supply, Treatment and Distribution Memo, prepared by CT Male, dated November 30, 2022 ("Well Report")]. Please note that the reduction in water usage is the result of an analysis of actual water use at another Terramor campground in Bar Harbor as recorded in the summer of 2022, which results in unit water use per guest of 36 gallons per day. The 36 gallons per day per guest water use includes all amenities including employees/employee housing, a lodge and a pool. To be conservative, design flows for the amenities at this location (shown above) are calculated in addition to the guest unit water use.

Step testing and stabilized drawdown testing completed in October and November of 2022 suggests that the 3 wells have capacities of 4 GPM (5,760 GPD), 7 GPM (10,080 GPD), and 8 GPM (11,520 GPM). Based on the initial results of the yield testing, these three wells have the capacity to serve the proposed development according to the calculated average daily design flows. *See* **Exhibit F** [Well Report].

Impact of Well Use on Neighboring Wells

During yield testing, the water level in four (4) neighboring wells was monitored to determine if water use on the Terramor site will impact water levels in the wells on the neighboring properties. Results of the well tests on neighboring properties, which was done in consultation with the UCDOH, indicates that the neighboring wells will not be impacted by the water usage resulting from the Project. *See* **Exhibit F** [Well Report].

Well Treatment

Well water was collected and sampled per the Ulster County DOH/NYSDOH requirements during the well yield testing to determine the raw water quality. Results of the sampling and water quality testing per NYSDOH requirements determine the final treatment requirements. Analytical results from two of the three wells are attached to the Well Report. **Exhibit F** [Well Report]. Analytical results from the third well have not been finalized and will be provided upon the Project Sponsor obtaining the results.

Results of the testing available at two wells indicate that various forms of filtration will be required to address turbidity, iron, and manganese. The filtered water will be disinfected per the requirements of the NYSDOH/UCDOH. Analytical results for PFOA and PFOS showed detections of the compounds, but at concentrations below the New York State maximum contaminant level. **Exhibit F** [Well Report]. The design for the source, treatment and distribution systems will be submitted to the UCDOH for review and approval and designed to ensure that no significant environmental impacts result of the proposed on-site private wells.

Based on the above, the Project will not result in any significant adverse impacts related to groundwater.

5. Impact on Flooding

The Project will not have any significant adverse impacts on flooding. No portion of the project site falls within a designated floodway, 500-year of 100-year floodplain. *See* **Exhibit A** [EAF].

Based on the above, the Project will not result in any adverse impacts related to flooding.

6. Impacts on Air

The Project will not result in any significant adverse impacts on air quality. The Project does not include any regulated air emissions sources. Terramor has retained Ramboll Environmental and Health to prepare an air quality report. Ramboll has prepared an air quality report dated, November 30, 2022 (the "Air Quality Report"), which demonstrates that no significant environmental impacts will result from the Project and that the Project meets the requirement in Zoning Code 245-34(D)(2) related to smoke emissions and air pollution. *See* **Exhibit G** [Air Quality Report].

The Air Quality Report specifically addresses the following special use permit standards in Zoning Code 245-34(D)(2):

- (g) Smoke. No emission shall be permitted of a shade equal to or darker than Ringelmann Smoke Chart No. 2.

- (h) Odors. No emission of odorous gases or other matter shall be permitted in a quantity or of a type that permits it to be detectable, other than by instrument, at the property line.

- (i) Other forms of air pollution. No emission of fly ash, dust, smoke, vapors, gases or other forms of air pollution shall be permitted which can jeopardize human health, animal or vegetable life or which otherwise contributes to the deterioration of or detracts from adjacent properties. This includes construction-related dust and odors.

- (s) Nuisances. The proposed use shall not be more objectionable to nearby property owners or occupants by reason of noise, fumes, vibration or lighting than would be the operations of a permitted use.

The Air Quality Report assessed the potential for air quality impacts and compliance with the special use permit standards noted above in relation to all operations of the Project, including the proposed campfires.

In short, the Air Quality Report found that the Project will achieve compliance with the special use permit standards and that no potential significant environmental impact will result. Specifically, the Air Quality Report finds that:

- Campfires at the proposed facility will only be allowed to use untreated wood as fuel and each campfire will be attended. We note that the Zoning Code does not reference how Ringelmann determinations will be made (e.g., methodology, certified readers, newer opacity techniques) and our experience suggests that regulatory opacity readings on campfire smoke on the property may not be possible. Regardless, it is not anticipated that project campfires would result in Ringelmann Smoke Chart No. 2 (i.e., 40% opacity) or greater levels because the campfires will only be using untreated wood as fuel, which would minimize dense and/or darker smoke associated with incomplete diesel combustion and larger-scale mixed-fuel open burning.

- Ulster County is an attainment area for primary and secondary federal PM10 and PM2.5 standards and there are no specific Clean Air Act requirements for PM control measures on campfires to attain or maintain these health standards in this area. Thus, it would not be expected that the campfire wood smoke from the project would jeopardize human health (i.e., no exceedances of the primary PM standards) or animal / vegetable life or decreased visibility (i.e., no exceedances of the secondary PM standards). 6 NYCRR 215.3(c) exempts wood-only campfires from open burning regulatory requirements. In addition, the project campfires are located in a wooded area. Vegetation is a known mitigation of PM concentrations. For example, reductions of fine particulate concentrations of 55-88% have been reported, particularly at lower windspeeds when concentrations are expected to be higher (e.g., not dispersed to lower concentrations by the wind).

- It is not anticipated that wood smoke fumes from the project would be a nuisance because they are dispersed over the project area, vegetation in the project area would reduce wood smoke compound concentrations, the campfires are only fueled by untreated wood (eliminating potential nuisance compounds), and distances to all but five of the fire pits are over 100’ from the property line (two of which are at least 50’ and three are at least 75’ from the property line).

- Ramboll’s analysis is confined to the potential fume impacts from the campfire woodsmoke. Campfires at the proposed facility will only be allowed to use untreated wood as fuel, minimizing or eliminating certain odorous emissions. In addition, the project campfires are located in a wooded area. Vegetation is a known mitigation of PM concentrations, including organic aerosol compounds.11 For example, reductions of fine particulate concentrations of 55-88% have been reported, particularly at lower windspeeds when concentrations are expected to be higher (e.g., not dispersed to lower concentrations by the wind).12 This should also reduce any potential fumes. We note that fireplace and residential outdoor fire pits are not restricted in Saugerties.

Thus, similar wood smoke odors are likely already in the area. It is not anticipated that wood smoke fumes from the project would be a nuisance because they are dispersed over the project area, vegetation in the project area would reduce wood smoke compound concentrations, the campfires are only fueled by wood (eliminating potential nuisance compounds), and distances to all but five of the fire pits are over 100' from the property line (two of which are at least 50' and three are at least 75' from the property line).

Based on the above assessment, we find that project's use of campfires would not have appreciable impacts on air quality or odor, in part because the project design includes multiple mitigating effects ((e.g., use of untreated wood only for campfires, vegetation around camping spaces, setbacks between camping spaces and the property boundary, etc.).

Based on the above, the Project will not result in any significant adverse impacts related to air quality.

7. Impact on Plants and Animals

The Project will not have any significant adverse impact on plants or animals. There is no rare vegetation on the Project Site according to NYSDEC and U.S. Fish and Wildlife Services (FWS). As noted in the EAF, **Exhibit A,** the Project Site has several pockets of bat habitat areas where Terramor has minimized development sufficiently to protect the bats' habitat.

Terramor has retained Edgewood Environmental Consulting, LLC ("Edgewood") to review potential impacts to the Indiana Bat and Northern Long-Eared Bat. Edgewood has prepared an Indiana Bat and Northern Long Eared Bat Habitat and Acoustical Survey, dated October 5, 2022 and annexed hereto as **Exhibit H** (the "Habitat and Acoustical Survey"). Importantly, the Habitat and Acoustical Survey found that the Project "may actually open up more habitat for bats by creating new access roads, paths, and openings in which bats may forage or traverse current non-habitat areas." *See* **Exhibit H** [Habitat and Acoustical Survey, p. 15].

The Habitat and Acoustical Survey made the following findings:

- **Bat Habitat Suitability:** Edgewood's bat habitat assessment revealed that most of the Terramor Catskills Site was dominated by a hemlock-northern hardwoods ecological community with a dense understory that was not suited to bat flight, foraging, or roosting. However, there were 6 distinct patches of ecological communities including successional northern hardwoods, red maple-hardwood swamp, and hemlock-hardwood swamp, that were connected by unpaved roads and by offsite habitats that provided about 16.3 acres of potential roost, foraging, and transit habitat, with another 1.2 acres of potential transit habitat in the unpaved roads, for a total of 17.5 acres of potential bat habitat. Water resources were potentially available to bats in the hemlock-hardwood swamp and red maple-hardwood swamp wetlands along the western side of the Site and in the small headwater stream that is located near the entrance to the site from Saugerties-Woodstock Road. Other water resources exist on the Site, but are inaccessible to bats, as they are surrounded by dense understory brush

- **Presence of Listed Species:** Multiple calls of northern long-eared bat, a threatened species, and Indiana bat, an endangered species, were auto-classified by Kaleidoscope Pro at multiple sampling sites and nights, with MLE p-values <0.05. Per Federal Protocol requirements, all bat call sonograms for the sampling site and sampling night by which such calls were classified were manually/visually reviewed by an experienced bat call identifier to either confirm or refute the software-based species classification to avoid mis-classifications. Visual vetting refuted the classification of all Northern Long-eared Bat calls, but confirmed 5 Indiana Bat calls from Bat Detector 5, which was located at an edge between mature successional northern hardwood forest and red maple-hardwood swamp at the north end of the Site. The indicators used to manually classify Indiana Bat calls all have ranges that overlap with those of the Little Brown Bat, but the ranges of the calls that were manually vetted from this Site were well within the metrics indicating Indiana Bat, so the manual identifications were considered accurate. It was therefore considered probable that Indiana Bat was present in the north end of this Site. Northern Long-eared Bat occurrence was determined to be unlikely as no calls identified as Northern Long-eared Bat were manually confirmed.

- **Mitigation**: Given the above, Edgewood has proposed the following mitigation to avoid any significant impact related to the Indiana and Norther Long Eared Bat:

  1) Tree clearing should be minimized and should only be conducted during the bat hibernation season (November through March) to avoid direct take of roosting bats.
  2) Outdoor lighting should be at low level (e.g., bollard lighting, rather than overhead lights).
  3) Outdoor lighting near edges between cleared areas and remaining forest stands should be motion-sensor lights that do not stay illuminated all night.
  4) Chemical pesticides must not be used onsite, especially in water bodies.
  5) Noise should be minimized at night to avoid changing bat behavior within the Site (e.g., night-time quiet hours may be implemented at the campsite at reasonable hours).
  6) Pets should be kept on leashes when outdoors and not allowed to run free.
  7) Campfire rings should be spaced away from wooded areas to keep smoke from campfires away from potential roost areas.

Terramor and Edgewood have had meetings with the NYSDEC and the United State Fish & Wildlife and discussed the Habitat and Acoustical Survey. The NYSDEC confirmed by email that the limited development of the areas concurrent with bat habitats is sufficient to address Article 11 permit and that "[t]he Department supports the management recommendations found in the report to avoid any potential impacts." **Exhibit I** [NYSDEC Email from Frank Benedetto, NYSDEC Environmental Analyst 1, Division of Environmental Permits, dated November 2, 2022].

Similarly, November 9, 2022 Edgewood met with regulators at the US Fish & Wildlife for discussion of the Habitat and Acoustical Report and the proposed bat mitigation. Based on the meeting, supplemental information was provided to the US Fish & Wildlife dated November 15, 2022. **Exhibit I** [US Fish & Wildlife Correspondence, dated November 15, 2022]. The US Fish & Wildlife Correspondence outlines the following proposed mitigation to avoid any potential environmental impact:

- Disturbance and tree clearing within potential bat habitat areas and near the acoustic detection of Indiana bat has been minimized. This will minimize human activity and disturbance in occupied and potential bat habitat areas.

- All necessary tree clearing will occur between November 1 and March 31, when bats are hibernating offsite. This will avoid incidental direct take of roosting bats from tree cutting during summer roosting season.

- Outdoor lighting will either be shielded to cast light below the horizontal plane, or will be low level (bollard) lighting to keep light near ground level.
- Outdoor lighting adjacent to wooded potential bat habitat areas will be motion-sensor lights to avoid illuminating forest edges all night.
- Chemical pesticides will not be used onsite, especially in or near water bodies.
- Quiet hours in the campsite will be enforced between 10 pm and 7 am, minimizing human disturbance of the area even when it is occupied.
- Outside fenced designated areas, pets will be required to be kept on leashes when outdoors and will not be allowed to run free.
- Campfire rings will be confined to developed areas of the site, away from wooded potential bat habitat. This will prevent smoke from disturbing roosting and foraging bats at night.

We will inform the Town once a response from US Fish & Wildlife is obtained.

Based on the above, with proposed mitigation, the Project will not result in any significant adverse impacts related to plants or animals.

8. Impact on Agricultural Resources

The Project Site is not within an Agricultural District. There are no active farm operations on the Project Site or within 500 feet of the Project Site.

Based on the above, the Project will not result in any significant adverse environmental impacts related to agricultural resources.

9. Impact on Aesthetic Resources

The LA Group has prepared a Visual Impact Assessment dated November 2022. *See* **Exhibit J** [Visual Impact Assessment]. The Visual Impact Assessment considers existing conditions, viewshed analyses, identification of sensitive receptors within the surrounding area from which the Project may be visible, and impact assessments for representative viewpoints. A field study utilizing weather balloons to mark the location of the project site was conducted on October 7, 2022. Additional potential receptors were examined on October 21, November 2 and November 3, 2022. The "study area" consists of lands in the Towns of Saugerties, Woodstock, Hunter, Hurley, Kingston, and Ulster within a five-mile radius surrounding the Project Site. The methodology used for the evaluation of potential visual impacts generally follows NYS DEC's Assessing and Mitigating Visual Impacts (NYSDEC Program Policy DEP-00-2) And NYS APA's Visual Analysis Methodology policy with a few adjustments.

The Visual Impact Assessment explicitly investigates the potential impact of the Project on all sensitive receptors (including scenic, aesthetic, historic, recreational, residences and natural resources) identified as having potential views into the Project Site. Visual Impact Assessment demonstrates that the Project will not cause a significant undue adverse visual impact.

Visual impact is assessed in terms of the anticipated change in visual resources, including whether there would be a change in character or quality of the view with respect to significant scenic and aesthetic resources. The zone of potential visibility map based on both topography and existing vegetation (Figure

6) showed that potential views into the Project would be very limited. Field reconnaissance and digital simulations verified that the proposed project will be minimally visible from the surrounding area.

Of the viewpoints studied, only those related to the State-designated Overlook Mountain Trail are considered significant aesthetic resources according to the NYSDEC Visual Policy. The neighboring properties (Isaacs, Buck and Monchik Properties) and public roads (NYS Route 212 and Cottontail Lane) were investigated in this report as local concerns. This goes above and beyond the NYSDEC requirements for Visual Impact Assessment, but was appropriate to include in order to provide a complete assessment of the Project.

The only viewpoints from which any component of the proposed Project may be visible are:

1) VP-T1 (filtered views of tents from the Isaacs Property);
2) VP-T2 (filtered views of tents from the Buck Property);
3) VP-T3 (filtered views of tents from the Monchik Property);
4) VP-L2, VP-L3, and VP-L4 (views of the Entry Drive from NYS Route 212);
5) VP-L5 and VP-L6 (views of the emergency access drive from Cottontail Lane); and
6) VP-OM1, VP-OM2, VP-OM3, VP-OM4, VP-OM5, and VP-OM6 (filtered views of the Lodge, Pavilion, Welcome Center, General Manager's House, ground plane, and roadway from the Overlook Mountain Fire Tower and scenic overlooks).

The results of this analysis indicate that the Project will not result in any significant undue adverse impacts to visual resources within the 5-mile radius study area.

Campsites will be visible to varying degrees from neighboring private properties on Raybrook Drive. While views of tents from the Buck property will be nearly entirely screened, there will be views that include tents from the Isaacs and Monchik properties. However, intervening vegetation to remain, along with proposed screen plantings, while not totally blocking views into tents from the Isaacs and Monchik property lines, provide views that are in general harmony with the character and appearance of the surrounding neighborhood and of the Town of Saugerties and will not adversely affect the general welfare of the inhabitants of the Town.

Based on the above, the Project will not result in any significant adverse impacts to aesthetic resources.

<u>10. Impact on Historic and Archeological Resources</u>

The Project was submitted to the New York State Office of Parks, Recreation & Historic Preservation ("NYSOPRHP") for review of potential impacts to historic and archaeological impacts. On February 10, 2022, after a review of the Project, NYSOPRHP determined that "no properties, including archaeological and/or historic resources, listed in or eligible for New York State and National Registers of Historic Places will be impacted by this project." **Exhibit K** [NYSOPRHP Correspondence].

Based on the above, the Project will not result in any significant adverse impacts to historic or archaeological resources.

<u>11. Impact on Open Space and Recreation</u>

The Project will not result in any loss of recreational opportunities, or any reduction of an open space resource designated in a governmental open space plan. The Project Site is in a zoning district intended for commercial development such as the Project. Campgrounds are a permitted use in the MDR zoning district. In fact, the Project meets Goals #5, #9 and #13 of the Comprehensive Plan to draw tourism built on the availability of natural resources in the community, such as the nearby Catskill Forest Preserve and associated trails.

The Project Site is currently privately owned and has never been used for lawful public recreation. The Project Site is not designated open space.

Based on the above, the Project will not result in any significant adverse impact on open space and recreational resources.

12. Impact on Critical Environmental Areas

The Project Site does not contain any listed CEAs. Nor are any CEAs located adjacent to the Project Site.

Based on the above, the Project will not result in any significant adverse impact on CEAs.

13. Impact on Transportation

The Applicant retained Greenman-Pedersen, Inc. ("GPI") to perform a Traffic Impact Study, dated June 2022, (the "TIS"), which demonstrated that the Project will not have a significant adverse impact on local traffic in the Town of Saugerties. *See* GPI, Traffic Impact Study, Terramor Catskills Campground, June 2022. The study area for the TIS was determined by GPI, based on anticipated traffic volumes and directionality, and includes the following intersections:

1) NY Route 212 at Glasco Turnpike (CR 32) (4-leg intersection with two-way stop control on minor approaches); and
2) NY Route 212 at the proposed campground entrance (3-leg intersection with minor street stop control only)

The TIS made the following findings:

1) Trip Generation was conducted assuming 85 occupied campsites to estimate the trip generation potential of the 75-campsites plus on-site staff lodging. Trip generation is estimated to be 17 vehicles in the AM peak hour and 22 vehicles in the PM peak hour.

2) Measured travel speeds indicate that the 85th percentile operating speed along NY Route 212 is 52.7 mph southbound and 59.0 mph northbound. Based on these speeds, the design speeds assumed for sight distance purposes were 55 mph southbound and 60 mph northbound.

3) The crash rate at NY Route 212 and Glasco Turnpike was found to be five and a half times higher than the state-wide average for comparable intersections, and the NY Route 212 road segment adjacent to the proposed site is about twice the statewide average. In both cases, reducing northbound travel speeds would likely help to reduce the crash rate, as would tree trimming and clearing on the east side of the intersection.

   Related to the above, the TIS concluded that a reduction in northbound speed would be beneficial but is not required to avoid a significant environmental impact. The traffic generated by the proposed site will not noticeably change the crash rate within the area. The TIS will be under review by the NYSDOT for a final determination as speed limits are within the sole discretion of the NYSDOT.

4) Sight distance measurements were taken at the proposed driveway location and it was found that intersection sight distance guidelines were fully met looking north, but there were some limitations looking south. Recommendations to improve this condition include tree trimming and clearing south of the proposed site, shifting the 45-mph speed zone transition located near the site to a point 1,500 feet south of the site, and the installation of a radar speed feedback sign northbound in advance of the site.

   Related to the above, the TIS finds that while this would be beneficial it is not required to avoid a significant environmental impact and thus not required mitigation. The TIS concludes that, even without the above, "stopping sight distance requirements are still met looking south, which should still produce reasonably safe traffic operations." *See* TIS at 8-9. The TIS will be reviewed by the NYSDOT and final mitigation determined by the NYSDOT, the agency with sole discretion over the State highways.

5) Per guidelines from NYSDOT and the Institute of Traffic Engineers, trip generation of less than 100 vehicles is typically not sufficient to impact level of service and generally does not require a traffic study.

6) Highway capacity analysis confirmed that NY Route 212 and Glasco Turnpike in the build condition operates at the same level of service as in the no-build condition. In both cases, no movement operates worse than LOS C.

7) For the proposed driveway along NY Route 212, a single entering lane and a single exiting lane will result in LOS B or better operations for all traffic movements.

8) Turn Lane warrants were conducted to determine the need for either a left turn lane or a right turn lane at the site driveway. In both cases, warrants were not met and neither type turn lane is justified.

The TIS concluded that, based on the analysis, the proposed Terramor campground will not significantly impact traffic operations within the study area. Levels of service are not expected to change, and queuing will not be significant. Further review by the NYSDOT will be required and will confirm required mitigation to ensure that no significant impact to traffic will result from the Project.

Importantly, even though the original traffic volume information was based on a winter traffic count (February 2022), a second traffic count was conducted in the summer (August 2022) to ensure the analyzed traffic volumes were reasonable for all seasons. *See* **Exhibit L** [GPI Technical Memorandum, Summer Traffic Counts, dated August 30, 2022]. The summer count showed a maximum of 574 vehicles at the NYS Route 212 and Glasco Turnpike intersection and an analysis of 779 vehicles at the intersection was used in the Study. As such, the study represents a conservative estimate of traffic operations for both the winter and summer conditions.

Based on the above, with proposed mitigation, the Project will not result in any significant adverse impacts on transportation or parking.

14. Impact on Energy

While a new demand for energy will result from the Project it will not be significant. The Project will require the use of energy—specifically 400,000 kW—for heating, cooling, lighting, and other purposes. This energy usage will be similar in amount to the energy used for other commercial and residential development in the Town, County, and across the State. The required electric will be serviced by Central Hudson. Central Hudson have provided a will serve letter, dated September 15, 2022, that they are committed to serving the Project's electric supply. *See* **Exhibit M** [Central Hudson Will Serve Letter]. Please note that there is no gas service in this area.

The Project will not require a new, or an upgrade to the existing, service lines or substation.

Based on the above, the Project will not result in any significant adverse impacts on energy.

15. Impact on Noise, Odor and Light

No significant adverse light, noise or odor impacts are expected from the Project. The Project is not a manufacturing or industrial facility and will not produce any odors. During construction, any noise and odor impacts from construction equipment will be temporary, of short duration, and non-significant.

Odor

Related to odor, the Air Quality Report from Ramboll specifically analyzed whether the Project, inclusive of the campfires would result in a potential odor impact. *See* **Exhibit G** [Air Quality Report]. Specifically, the Air Quality Report noted compliance with Zoning Code 245-34D(h), which requires that "[n]o emission of odorous gases or other matter shall be permitted in a quantity or of a type that permits it to be detectable, other than by instrument, at the property line." The Air Quality Report states that "[i]t is not anticipated that wood smoke fumes from the project would be a nuisance because they are dispersed over the project area, vegetation in the project area would reduce wood smoke compound concentrations, the campfires are only fueled by untreated wood (eliminating potential nuisance compounds), and distances to all but five of the fire pits are over 100' from the property line (two of which are at least 50' and three are at least 75' from the property line)." *See* **Exhibit G** [Air Quality Report]. As such, the proposed camp fires resulting from the Project are in compliance with the special use permit standards related to campgrounds.

Further, the Project does not include a State regulated air emission source or involve any activity that will have more than a minimal impact on air quality. Similarly, the Project will not require any deliveries or use of large semi trailer trucks. The Project will only utilize delivery box trucks for any deliveries needed for the Project. All vehicles will be subject to NYSDEC regulations governing vehicle idling which prohibits vehicle idling for longer than 5 minutes. The idling regulations may be enforced by the NYSDEC Environmental Conservation Officers and other state and local police. Further, as noted in the Impact on Transportation discussion, all studied intersections will continue to operate at overall acceptable levels of service and efficiency so there will not be unnecessary idling due to traffic delays while exiting the Property. The Project is not a manufacturing or industrial facility.

All solid waste will be collected by a private waste hauling company and disposed of in accordance with all applicable rules and regulations. The Project will recycle applicable solid waste.

All ventilation related to the restaurant will be compliant with all New York State regulations and the building will be well ventilated. The Red Onion Restaurant abuts three of the residential properties and is within the 200’ buffer of the Project site. The 350’ distance between the existing residential property lines and Lodge dining facility on the Project Site, as well as the treelined buffer, will mitigate any odors.

Lighting

Terramor has proposed minimal lighting on the Project Site which is set forth in the lighting plan submitted within the Site Plan. New energy-efficient lighting will be utilized throughout the Project Site. Exterior site lighting will be designed to comply with the Zoning Code and to be the minimum necessary while ensuring safe and secure commercial uses. All proposed lighting will be downward facing and will minimize sky glow and light pollution from the Project Site. Where appropriate, lighting fixtures will be of a full cutoff type or provided with shields to reduce glare and light pollution. The lighting is consistent with the Project Site’s rural setting. As with odor, the intervening vegetation will prevent any stray lighting from entering neighboring properties. Based on the photometric data shown on Site Plan sheets L7.1-L7.3, illumination from light fixtures will not exceed 0.0 footcandles at the property lines.

As noted in the Habitat and Acoustical Survey and the US Fish & Wildlife correspondence, the following lighting mitigation is proposed:

- Outdoor lighting will either be shielded to cast light below the horizontal plane, or will be low level (bollard) lighting to keep light near ground level.
- Outdoor lighting adjacent to wooded potential bat habitat areas will be motion-sensor lights to avoid illuminating forest edges all night.

See **Exhibit H and I** [Habitat and Acoustical Survey and the US Fish & Wildlife Correspondence].

Noise

Related to noise, the Planning Board and members of the public expressed concern over the noise related to the proposed campsite. Terramor enlisted the services of Alliance Source Testing to prepare a Noise Assessment Report to demonstrate that the project will comply with the Zoning Code requirement that the Project not result in sound levels greater than 70 dBA at Project Site boundaries. *See* **Exhibit N** [Alliance Technical Group, Noise Assessment Report, dated November 11, 2022].

The Noise Assessment Report found that the Project will comply with the noise requirements in Zoning Code § 245-11(I) and 245-34(D)(2)(d), which limits noise to 70 dba at the property line.

The Noise Assessment Report also analyzed the potential impact of noise utilizing the NYSDEC’s program policy document “Assessing and Mitigating Noise Impacts.” In addition to the Town’s Zoning Requirements, the NYSDEC policy states that predicted increases in the ambient sound level over 6 dBA at a noise-sensitive receptor due to Project operations would indicate a potential significant adverse noise impact and recommendation for mitigation. On the other hand, predicted increases in the ambient sound level of 6 dBA or lower would indicate no significant adverse noise impact or need for mitigation.

Here, the Noise Assessment Report determined that “the predicted increase in ambient sound levels was 3 dBA or less at all receptors, which is well within the noise impact significance criteria of 6 dBA. Therefore, Project operations are predicted to result in no significant adverse noise impact on the community and no mitigation is needed.” *See* **Exhibit N** [Noise Assessment Report].

Nevertheless, noise mitigation has been installed to eliminate potential impacts to endangered bats, which includes that the Project’s quiet hours will be enforced between 10 pm and 7 am.

Based on the above, the Project will not result in any significant adverse impacts involving noise, odor, or light.

16. Impact on Human Health

No significant impacts to human health are anticipated from the Project because all construction and operational activities will be undertaken in accordance with and in compliance with all pertinent environmental and land development regulations and related permit and approval procedures and requirements.

Based on the above, the Project will not result in any significant adverse impacts on human health.

17. Consistency with Community Plans

The Project will facilitate development goals in the GOD zoning district for Route 212 in compliance with the Town of Saugerties Comprehensive Plan and is a permitted use in the MDR zoning district. The Comprehensive Plan calls for commercial development that incorporates the following principles, which are furthered by this Project:

- Promote high standards of design and construction for both public and private facilities. *See* Town of Saugerties Comprehensive Plan, Goal #5 Recommendation 5.3.

- Diversify the economic base by encouraging businesses to locate in the area. *See* Town of Saugerties Comprehensive Plan, Goal #9 Recommendation 9.2.

- Encourage tourist activities that highlight Saugerties’ rich history and cultural vitality such as Artist Studio Tour and Shout Out Saugerties. Goal #13 Recommendation 13.7.

- Promote visitor friendly business practices to enhance attractiveness of Saugerties as a tourist destination. *See* Town of Saugerties Comprehensive Plan, Goal #13 Recommendation 13.8.

- Tourism in the area should build upon the assets of Saugerties and the Catskill Region including the mountains, the Hudson River, and the history of the area. *See* Town of Saugerties Comprehensive Plan, Goal 13 Recommendation 13.1.

As evidenced by Project plans and architectural designs, the Project will be a state-of-the-art campground facility and is not your typical RV park. Most importantly, the Campground will bring approximately 996 tourists (at estimated capacity) yearly to the Town of Saugerties and the Catskill region, which will diversity the Town’s tax base and bring recreational economic opportunities to the Town.

Based on the above, the Project will not have a significant adverse impact on the Town of Saugerties's community plans.

<u>18. Consistency with Community Character</u>

The Project Site is nearby both residential and commercial uses at the corner of Route 212 and Glasco Turnpike. The Project Site is nearby the Red Onion, Peace Love Havanese, Cutting Edge Spray Foam Service, South Peak Veterinary Hospital, and Lang Media Graphics. *See* **Exhibit B** [Aerial Image].

The Project is in the MDR zoning district that permits the proposed campground with amenities. Per the Zoning Code, the MDR district "is intended to extend the benefit of rural environment while living relatively close to educational, cultural, recreational, business, employment, transportation, and other compatible and interdependent land uses where county and state highways are easily accessible." Zoning Code 245-6(B). The Project seeks to develop 75 camping units on the 77.5 acres Project Site in compliance with the MDR's intent to provision for recreational uses in the MDR zone.

A portion of the Project Site is within the GOD overlay district, which intent is to "enhance the attractiveness of gateway areas in Saugerties for visitors and residents. To further this purpose, these regulations establish a design context to be followed by applicants in the design of projects and to be followed by the Planning Board as part of the special use permit and site plan approval processes." Zoning Code 245-6(L). Here, the Project's architecture has been designed to be both rustic and compatible with the surrounding area and surrounding commercial and residential uses. The Proposed structures and signage related to the Project meet the design goals of the GOD district and therefore the Project is responsible commercial development, compliant with the intent to the MDR and GOD zoning districts, as well as the Comprehensive Plan.

Based on the above, the Project will not result in a significant adverse impact on the community character of the Town of Saugerties.

<u>Conclusion</u>

Based on the above, the Project has been designed to avoid all potential environmental impacts and therefore a SEQRA Negative declaration is warranted. We look forward to working with the Town of Saugerties on this exciting new Project that will increase economic development and promote a vibrant Saugerties by building on the natural resources in the community.

A

Full Environmental Assessment Form
Part 1 - Project and Setting

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project:
Terramor Catskills

Project Location (describe, and attach a general location map):
NY Route 212 near Osnas Lane, and Glasco Turnpike near Cottontail Lane

Brief Description of Proposed Action (include purpose or need):

Kampgrounds of America Inc. d/b/a Terramor Outdoor Resort proposes to construct a 75-tent glamping campground. In addition to the 75 tents with their individual bathroom facilities, the campground will also include a lodge building with food and beverage services for resort guests, a swimming pool area, event lawn pavilion and a wellness tent. Maintenance and operations facilities to support the resort will consist of a maintenance and laundry building, covered golf cart storage, employee housing for 32 employees (30 occupied & 2 for extra capacity if needed) and a manager's residence.

Primary vehicular access will be via NY Route 212 with a welcome center building proposed along the access drive before reaching the Lodge. Secondary golf cart access will be available for employees and employee accompanied guests. Pedestrian hiking trails are also proposed within the property. Secondary road access for emergency vehicles will be provided via a gated drive off of the end of Cottontail Lane. Separate parking areas will be provided for each cluster of tents, at the Lodge, at the welcome center, and in the maintenance area.

Utilities will include on-site potable water wells, centralized wastewater collection and disposal, and NYSDEC-compliant stormwater management devices. Site landscaping and and limited exterior lighting are also proposed.

Name of Applicant/Sponsor: Kampgrounds of America Inc. d/b/a Terramor Outdoor Resort (Ahmed Helmi & Kim White)	Telephone: (202) 689-7771 E-Mail: ahelmi@terramoroutdoorresort.com	
Address: 550 North 31st Sreet		
City/PO: Billings	State: MT	Zip Code: 59101
Project Contact (if not same as sponsor; give name and title/role): Whiteman Osterman & Hanna, attn. Charles Gotlieb, Esq.	Telephone: 518-487-7600 E-Mail: cgotlieb@woh.com	
Address: One Commerce Plaza		
City/PO: Albany	State: NY	Zip Code: 12260
Property Owner (if not same as sponsor): same as applicant/sponsor	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)		
Government Entity	**If Yes: Identify Agency and Approval(s) Required**	**Application Date (Actual or projected)**
a. City Counsel, Town Board, or Village Board of Trustees ☐Yes ☑No		
b. City, Town or Village Planning Board or Commission ☑Yes ☐No	Town Planning Board Special Use Permit, Site Plan Approval, Lot Consolidation	Sketch Plan Conference March 15, 2022; Applications filed July 5, 2022
c. City, Town or Village Zoning Board of Appeals ☐Yes ☑No		
d. Other local agencies ☐Yes ☑No		
e. County agencies ☐Yes ☑No	County Planning Section 439 Advisory Opinion, Ulster County Health Department	Town referred to UCPB 7/22/22 UC DOH Pre-Ap meeting 5/19/22
f. Regional agencies ☐Yes ☑No		
g. State agencies ☑Yes ☐No	NYSDOT, NYSDEC	NYSDEC Pre-Aps 7/29/22 & 8/1/22, NYSDOT 7/7/22
h. Federal agencies ☑Yes ☐No	US Army Corps of Engineers	Approved Jurisdictional Determination request submitted 7/8/22

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐Yes ☑No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes ☑No*

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

*The Town of Saugerties does not have an approved LWRP. The Village of Saugerties has a 1985 approved LWRP.

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes ☐No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☐Yes ☑No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☐Yes ☑No

If Yes, identify the plan(s):

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☑Yes ☐No

If Yes, identify the plan(s):

The Town's municipal Open Space Plan was adopted in 2010 and includes mapping of the entire Town, including the project site. The project site is located within the Catskill Mountain Physiographic Area and a designated Important Natural Area in the 2010 Plan. No specific reference to the project site itself was found in this Plan.

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
Moderate Density Residential (MDR) zoning district, and the southern portion of the site that includes frontage on NYS Route 212 is within a Gateway Overlay Zone.

b. Is the use permitted or allowed by a special or conditional use permit? ☑ Yes ☐ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site? __________

C.4. Existing community services.

a. In what school district is the project site located? Saugerties Central School District

b. What police or other public protection forces serve the project site?
Saugerties Police Department, Ulster County Sheriff's Office, NYS Police

c. Which fire protection and emergency medical services serve the project site?
Centerville File Department, Diaz Memorial Ambulance Service

d. What parks serve the project site?
Cantine Field, Kiwanis Ice Arena, Saugerties Village Beach, Overlook Mountain, Catskill Park Forest Preserve lands

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? commercial glamping campground

b. a. Total acreage of the site of the proposed action? 77.51 acres
b. Total acreage to be physically disturbed? 23.66 acres (includes 5.94 acres of possible selective tree removal for siting tents and trails)
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 77.51 acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % __________ Units: __________

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☑ No
If Yes, includes consolidation of 2 lots into single lot
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? ________
iv. Minimum and maximum proposed lot sizes? Minimum ________ Maximum ________

e. Will the proposed action be constructed in multiple phases? ☐ Yes ☑ No
i. If No, anticipated period of construction: 14 months
ii. If Yes:
- Total number of phases anticipated _____
- Anticipated commencement date of phase 1 (including demolition) _____ month _____ year
- Anticipated completion date of final phase _____ month _____ year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases: __________

f. Does the project include new residential uses? ☑Yes☐No

If Yes, show numbers of units proposed. Employee Housing (accessory use)

	One Family	Two Family	Three Family	Multiple Family (4 or more)
Initial Phase	1 mgr. res.			4 @ 6 each & 2 @ 4 each; (32)
At completion of all phases	same			same

g. Does the proposed action include new non-residential construction (incl~~uding expansions)?~~ ☑Yes☐No

If Yes,

i. Total number of structures 89, incl. tents

ii. Dimensions (in feet) of largest proposed structure: 30'3" height; 66'0" width; and 111'0" length

iii. Approximate extent of building space to be heated or cooled: 15090 square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐Yes☑No

If Yes,

i. Purpose of the impoundment: ____

ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☐ Other specify: ____

iii. If other than water, identify the type of impounded/contained liquids and their source. ____

iv. Approximate size of the proposed impoundment. Volume: ____ million gallons; surface area: ____ acres

v. Dimensions of the proposed dam or impounding structure: ____ height; ____ length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete): ____

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? ☐Yes☑No
(Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite)

If Yes:

i. What is the purpose of the excavation or dredging? ____

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

- Volume (specify tons or cubic yards): ____
- Over what duration of time? ____

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them. ____

iv. Will there be onsite dewatering or processing of excavated materials? ☐Yes☐No
If yes, describe. ____

v. What is the total area to be dredged or excavated? ____ acres

vi. What is the maximum area to be worked at any one time? ____ acres

vii. What would be the maximum depth of excavation or dredging? ____ feet

viii. Will the excavation require blasting? ☐Yes☐No

ix. Summarize site reclamation goals and plan: ____

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☑Yes☐No

If Yes:

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): A total of 0.39 acres of impacts to federal wetlands near Route 212, the wetland near Cottontail Lane, and for an internal road crossing. No State (DEC) regulated wetlands will be impacted as there are none on the site.
Terramor will purchase wetland mitigation credits through Ducks Unlimited for their in-lieu fee Mid Hudson mitigation bank.

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:
For surface waters, a bottomless arch culvert will be installed over the Class B stream near Route 212. Footings and headwaills will be located outside of the stream channel. The arch culvert will span 42 feet of stream channel. Two 30 inch HDPE culverts will be installed at the driveway crossing on the way to maintenance. The culverts will occupy 45 feet of intermittent stream bottom.

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☑Yes ☐No
If Yes, describe: Bottom sediments may be temporarily disturbed during installation of the culverted road crossing

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐Yes ☑No
If Yes:
- acres of aquatic vegetation proposed to be removed: ______
- expected acreage of aquatic vegetation remaining after project completion: ______
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access): ______
- proposed method of plant removal: ______
- if chemical/herbicide treatment will be used, specify product(s): ______

v. Describe any proposed reclamation/mitigation following disturbance:
All areas of disturbance outside of the footprint of the crossing will be stabilized with vegetation following culvert installation. Also, DU in-lieu fee mitigation.

c. Will the proposed action use, or create a new demand for water? ☑Yes ☐No
If Yes:
i. Total anticipated water usage/demand per day: 14,895 gallons/day
ii. Will the proposed action obtain water from an existing public water supply? ☐Yes ☑No
If Yes:
- Name of district or service area: ______
- Does the existing public water supply have capacity to serve the proposal? ☐Yes ☐No
- Is the project site in the existing district? ☐Yes ☐No
- Is expansion of the district needed? ☐Yes ☐No
- Do existing lines serve the project site? ☐Yes ☐No

iii. Will line extension within an existing district be necessary to supply the project? ☐Yes ☑No
If Yes:
- Describe extensions or capacity expansions proposed to serve this project: ______
- Source(s) of supply for the district: ______

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☑ Yes ☐No
If, Yes:
- Applicant/sponsor for new district: KOA d/b/a Terramor
- Date application submitted or anticipated: anticipated spring 2023
- Proposed source(s) of supply for new district: groundwater

v. If a public water supply will not be used, describe plans to provide water supply for the project:
on-site wells

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: 20 gallons/minute.

d. Will the proposed action generate liquid wastes? ☑ Yes ☐No
If Yes:
i. Total anticipated liquid waste generation per day: 14,895 gallons/day
ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each):
sanitary wastewater

iii. Will the proposed action use any existing public wastewater treatment facilities? ☐Yes ☑No
If Yes:
- Name of wastewater treatment plant to be used: ______
- Name of district: ______
- Does the existing wastewater treatment plant have capacity to serve the project? ☐Yes ☐No
- Is the project site in the existing district? ☐Yes ☐No
- Is expansion of the district needed? ☐Yes ☐No

- Do existing sewer lines serve the project site? ☐Yes ☑No
- Will a line extension within an existing district be necessary to serve the project? ☐Yes ☑No

  If Yes:
  - Describe extensions or capacity expansions proposed to serve this project: ____________________

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☑Yes ☐No

If Yes:
- Applicant/sponsor for new district: KOA d/b/a Terramor
- Date application submitted or anticipated: anticipate early 2023
- What is the receiving water for the wastewater discharge? currently unclassified tributary, possibly Class B stream

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

The WWTP effluent outfall was relocated from the stream near Route 212 to the stream in the center of the property that leaves the site via a culvert under Cottontail Lane. This is an intermittent, currently unclassified stream that is tributary to Plattekill Creek. DEC will classify when permit application is made.

vi. Describe any plans or designs to capture, recycle or reuse liquid waste:

none proposed

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e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑Yes ☐No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 4.94 acres (impervious surface)

_____ Square feet or 77.51 acres (parcel size)

ii. Describe types of new point sources. no uncontrolled point sources

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

Developed areas of the site will be directed to proposed stormwater management practices including pocket ponds, porous asphalt, and an infiltration basin

- If to surface waters, identify receiving water bodies or wetlands:

  Existing on-site wetlands

- Will stormwater runoff flow to adjacent properties? All developed areas will flow to management practices ☐Yes ☑No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☑Yes ☐No

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f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☑Yes ☐No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

Construction equipment, construction materials deliveries,

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

none identified

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

none identified other then wood campfires

---

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐Yes ☑No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes ☐No

ii. In addition to emissions as calculated in the application, the project will generate:
- ________Tons/year (short tons) of Carbon Dioxide (CO_2)
- ________Tons/year (short tons) of Nitrous Oxide (N_2O)
- ________Tons/year (short tons) of Perfluorocarbons (PFCs)
- ________Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- ________Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- ________Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

Package plant manufacturer confirmed aerobic process without methane production/emissions.

If Yes:

i. Estimate methane generation in tons/year (metric): ______

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): ______

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust): ______

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☑No

If Yes:

PM Peak = 22 trips/hour

i. When is the peak traffic expected (Check all that apply): ☐ Morning ☑ Evening ☐Weekend ☐ Randomly between hours of ______ to ______.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): Deliveries will not involve large trucks. It is anticipated that up to 2 to 3 box truck type deliveries could occur per day.

iii. Parking spaces: Existing 0 Proposed 166 Net increase/decrease +166

iv. Does the proposed action include any shared use parking? ☐Yes ☑No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe: An entrance drive will be constructed using the Route 212 frontage. A secondary, emergency access will be constructed from Cottontail Drive.

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☑No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☑Yes ☐No EV charging stations will be installed at parking areas.

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☑No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☑Yes ☐No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: 400,000 kWh

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other): grid/local utility

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐Yes ☑No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 8:00 AM to 5:00 PM
- Saturday: 9:00 AM to 4:00 PM
- Sunday: none
- Holidays: none

ii. During Operations:

- Monday - Friday: 7:00 AM - 10:00 PM
- Saturday: 7:00 AM - 10:00 PM
- Sunday: 7:00 AM - 10:00 PM
- Holidays: 7:00 AM to 10:00 PM

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

Construction vehicles, constrcution equipment, power tools, etc. operating during weekday work days, generally 8:00 AM to 5:00 PM. Sound sources expected during operations will include campers, cars and golf carts. There will be enforced quiet hours between 10 PM and 7 AM.

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☑ Yes ☐ No

Describe: Some currently treed areas will be cut for such things as the lodge area, activity lawns, wellness pavilion, maintenance and operations area and for the access drive. Ample perimeter vegetation will remain and provide sound attenuation. See project noise study.

n. Will the proposed action have outdoor lighting? ☑ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

along roads 25' tall light pole with hooded fixtures, wooden bollard with hooded fixture 3' tall mounting height, tree mounted downlights in select areas (grill areas, open lawns) the nearest tent to nearby residences is 204 feet with an intervening wooded area. See project lighting plans.

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☑ Yes ☐ No

Describe: See the response above regarding tree removal and sound. Vegetation to remain will screen project lighting.

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☑ Yes ☐ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures:

Wood campfires can happen at all hours. Typically the peak time is between 6:00 and 9:00 PM and some during 8:00 to 10:00 AM. The shortest distance between the proposed tents and the nearest residence (Monchik residence) is +/- 204 feet. At the Bar Harbor Terramor facility, approximately 25% of guests have campfires at their tents.

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☑ Yes ☐ No

If Yes:

i. Product(s) to be stored liquid propane

ii. Volume(s) 30,000 gal per unit time year (e.g., month, year) 3,000 gallons of storage refilled 10 times per year

iii. Generally, describe the proposed storage facilities:

three (3) aboveground 1,000 gallon LP gas storage tanks - 1 each for the Lodge, pool and maintenance areas

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☑ Yes ☐ No

If Yes:

i. Describe proposed treatment(s):

Treatments will be made for mosquito and tick control 2 to 3 times a year. Non-chemical pesticides will be used.

ii. Will the proposed action use Integrated Pest Management Practices? ☑ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☑ Yes ☐ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: 192 tons per year (unit of time)
- Operation : 160 tons per year (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: dedicated dumpster for recycling scrap, ordering proper sizes and quantities of construction materials
- Operation: cardboard, glass and metals recycling

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: approved C&D facility, approved transfer station
- Operation: approved transfer facility or landfill utilized by commercial hauler

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): ______

ii. Anticipated rate of disposal/processing:

- ______ Tons/month, if transfer or other non-combustion/thermal treatment, or
- ______ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: ______ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: ______

ii. Generally describe processes or activities involving hazardous wastes or constituents: ______

iii. Specify amount to be handled or generated ______ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: ______

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: ______

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility: ______

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☐ Industrial ☑ Commercial ☑ Residential (suburban) ☐ Rural (non-farm)

☑ Forest ☐ Agriculture ☐ Aquatic ☐ Other (specify): ______

ii. If mix of uses, generally describe:

The site itself is wooded with existing woods roads and potable water wells installed by a previously approved subdivision. Residential areas are to the north and east, there is a home occupation business adjacent to the site (south) and South Peak Veterinary Hospital is north of the site on NY Route 212.

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	0	4.94	+4.94
• Forested	67.47	50.13	-17.34
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	0	9.98	+9.98
• Agricultural (includes active orchards, field, greenhouse etc.)	0	0	0
• Surface water features (lakes, ponds, streams, rivers, etc.)	2.04*	2.04*	0
• Wetlands (freshwater or tidal)	10.04	9.65	-0.39
• Non-vegetated (bare rock, earth or fill)			
• Other Describe: Lawn	0	1.27	+1.27
Other: Permeable Paving	0	1.54	+1.54

* Areas of surface water are within the wetlands covertype and should not be counted separately towards overall site size.

c. Is the project site presently used by members of the community for public recreation? ☑ Yes ☐ No

i. If Yes: explain: some neighbors have stated that they use the private property for walking, etc.

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☐ Yes ☑ No

If Yes,

i. Identify Facilities:

Woodstock Day School is approximately 3,200 feet to the east. No such facilities within 1,500 feet of the site.

e. Does the project site contain an existing dam? ☐ Yes ☑ No

If Yes:

i. Dimensions of the dam and impoundment:

- Dam height: ____________ feet
- Dam length: ____________ feet
- Surface area: ____________ acres
- Volume impounded: ____________ gallons OR acre-feet

ii. Dam's existing hazard classification: ____________

iii. Provide date and summarize results of last inspection:

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Has the facility been formally closed? ☐ Yes ☐ No

- If yes, cite sources/documentation: ____________

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:

iii. Describe any development constraints due to the prior solid waste activities: ____________

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐ Yes ☑ No

If Yes:

i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐ Yes ☐ No

☐ Yes – Spills Incidents database — Provide DEC ID number(s): ____________

☐ Yes – Environmental Site Remediation database — Provide DEC ID number(s): ____________

☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures: ____________

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☑ Yes ☐ No

If yes, provide DEC ID number(s): 356003

iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):

PFAS and 1,4 dioxane are present above MCL levels in groundwater and sediment at the former Town of Saugerties landfill approximately 1/4 SSW of the Terramor site. According to NYSDEC's website accessed 6/20/22, the nature and extend of the contamination have not yet been determined. Testing of project site wells showed trace levels of PFOA and PFOS below NYS drinking water MCL levels at one of the wells.

v. Is the project site subject to an institutional control limiting property uses? ☐Yes ☑No

- If yes, DEC site ID number: ______
- Describe the type of institutional control (e.g., deed restriction or easement): ______
- Describe any use limitations: ______
- Describe any engineering controls: ______
- Will the project affect the institutional or engineering controls in place? ☐Yes ☐No
- Explain: ______

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? 1-2 feet

b. Are there bedrock outcroppings on the project site? ☑Yes ☐No
If Yes, what proportion of the site is comprised of bedrock outcroppings? +/- 5 %

c. Predominant soil type(s) present on project site:

(AcB) Arnot Channery Silt Loam	33 %
(ORC) Oquaga-Arnot-Rock Outcrop	40 %
(ARF) Arnot-Oquaga-Rock Outcrop	10 %

d. What is the average depth to the water table on the project site? Average: >6 feet

e. Drainage status of project site soils:
☑ Well Drained: 85 % of site
☑ Moderately Well Drained: 5 % of site
☑ Poorly Drained 10 % of site

f. Approximate proportion of proposed action site with slopes:
☑ 0-10%: 55 % of site
☑ 10-15%: 35 % of site
☑ 15% or greater: 10 % of site

g. Are there any unique geologic features on the project site? ☐Yes ☑No
If Yes, describe: ______

h. Surface water features.
i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☑Yes ☐No
ii. Do any wetlands or other waterbodies adjoin the project site? ☑Yes ☐No
If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.
iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☑Yes ☐No
iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name 861-23, 861-29 Classification B
- Lakes or Ponds: Name ______ Classification ______
- Wetlands: Name Federal Waters, Federal Waters, Federal Waters,... Approximate Size 10.04 total
- Wetland No. (if regulated by DEC) none

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐Yes ☑No
If yes, name of impaired water body/bodies and basis for listing as impaired: ______

i. Is the project site in a designated Floodway? ☐Yes ☑No

j. Is the project site in the 100-year Floodplain? ☐Yes ☑No

k. Is the project site in the 500-year Floodplain? ☐Yes ☑No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☑Yes ☐No
If Yes:
i. Name of aquifer: Principal Aquifer

m. Identify the predominant wildlife species that occupy or use the project site:

Whitetail Deer	Wild Turkey	Red Spotted Newt
Eastern Gray Squirrel	American Crow	Wood Frog
White Footed Mouse	Common Grackle	Common Garter Snake

n. Does the project site contain a designated significant natural community? ☐Yes ☑No
If Yes:
i. Describe the habitat/community (composition, function, and basis for designation): ______

ii. Source(s) of description or evaluation: ______
iii. Extent of community/habitat:
- Currently: ______ acres
- Following completion of project as proposed: ______ acres
- Gain or loss (indicate + or -): ______ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? XX☐XXXX☑XXX YES
If Yes:
i. Species and listing (endangered or threatened): ______
Indiana bat, endangered

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☐Yes ☑No
If Yes:
i. Species and listing: ______

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐Yes ☑No
If yes, give a brief description of how the proposed action may affect that use: ______

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐Yes ☑No
If Yes, provide county plus district name/number: ______

b. Are agricultural lands consisting of highly productive soils present? ☑Yes ☐No
i. If Yes: acreage(s) on project site? 36
ii. Source(s) of soil rating(s): USDA NRCS Custom Soils Report

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐Yes ☑No
If Yes:
i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature
ii. Provide brief description of landmark, including values behind designation and approximate size/extent: ______

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐Yes ☑No
If Yes:
i. CEA name: ______
ii. Basis for designation: ______
iii. Designating agency and date: ______

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? If Yes: *i.* Nature of historic/archaeological resource: ☐ Archaeological Site ☐ Historic Building or District *ii.* Name: *iii.* Brief description of attributes on which listing is based:	☐ Yes ☑ No
f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	☑ Yes ☐ No
g. Have additional archaeological or historic site(s) or resources been identified on the project site? If Yes: *i.* Describe possible resource(s): None, NYSOPRHP SHPO has issued a no-impacts determination. *ii.* Basis for identification:	☐ Yes ☑ No
h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? If Yes: *i.* Identify resource: Catskill Park forest preserve lands, specifically Overlook Mountain fire tower and overlooks along trail to tower *ii.* Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): NYSDEC Program Policy for Assessing and Mitigating Visual Impacts *iii.* Distance between project and resource: 3.5 miles.	☑ Yes ☐ No
i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? If Yes: *i.* Identify the name of the river and its designation: *ii.* Is the activity consistent with development restrictions contained in 6NYCRR Part 666?	☐ Yes ☑ No ☐ Yes ☐ No

F. Additional Information
Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification
I certify that the information provided is true to the best of my knowledge.

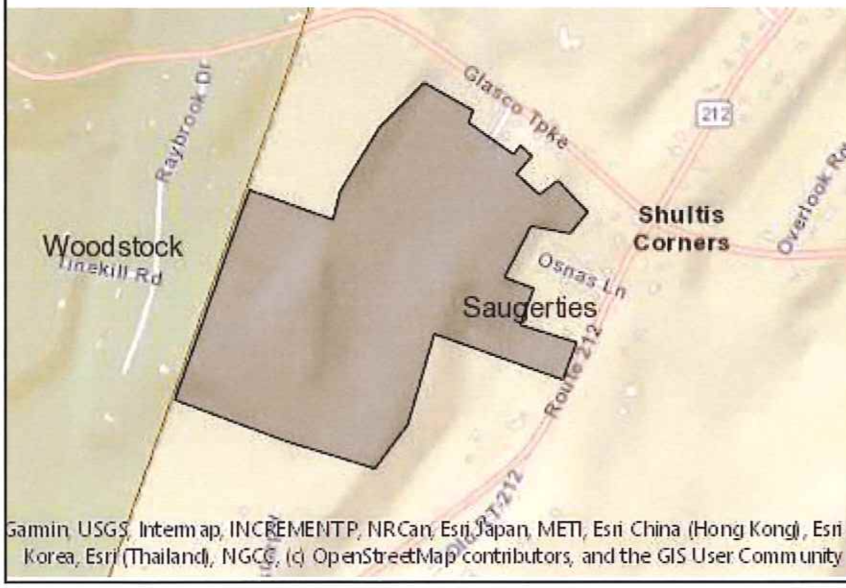
Applicant/Sponsor Name Kimberly White for Terramor Outdoor Resort Date December 1, 2023

Signature *Kim White* Title Project Manager

PRINT FORM

EAF Mapper Summary Report

Thursday, April 21, 2022 2:04 PM



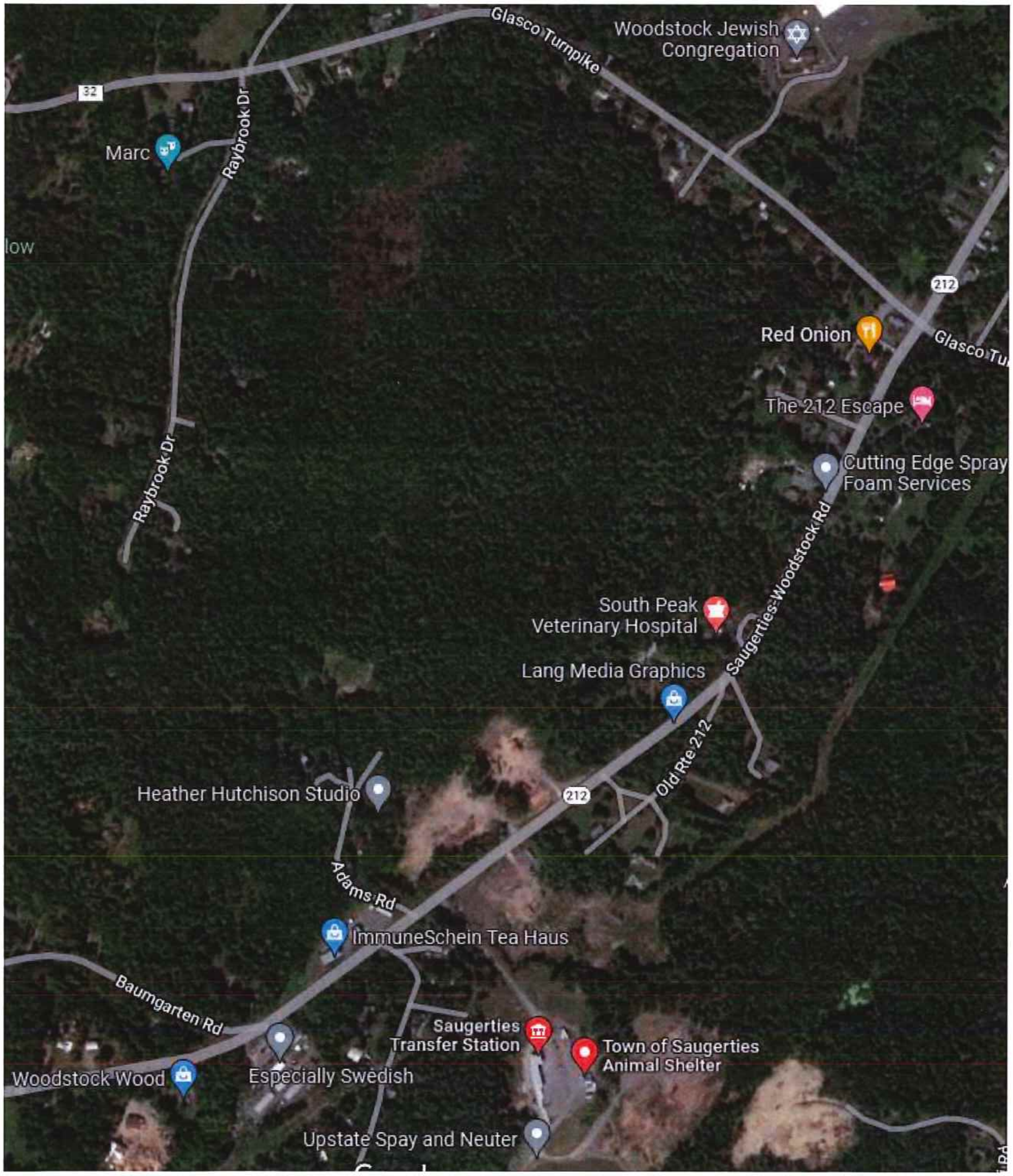
Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.

B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	Yes
E.1.h.iii [Within 2,000' of DEC Remediation Site - DEC ID]	356003
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Stream Name]	861-23, 861-29
E.2.h.iv [Surface Water Features - Stream Classification]	B
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No

E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	No
E.2.l. [Aquifers]	Yes
E.2.l. [Aquifer Names]	Principal Aquifer
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	No
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

B

Aerial Image
Terramor Project Site



C

Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
Cut Fill	1.000	1.000	603330.48 Sq. Ft.	10436.44 Cu. Yd.	24302.69 Cu. Yd.	13866.25 Cu. Yd.<Fill>
Totals			603330.48 Sq. Ft.	10436.44 Cu. Yd.	24302.69 Cu. Yd.	13866.25 Cu. Yd.<Fill>

LEGEND

- CUT 4'-8'
- CUT 0'-4'
- FILL 0'-4'
- FILL 4'-8'
- FILL 8'-12'

TERRAMOR. Saugerties, New York

Cut / Fill Diagram | Dec. 1, 2022

0' 125' 250' 500'

SCALE: 1" = 250' @11X17

The LA GROUP
Landscape Architecture & Engineering P.C.

D

Geotechnical Engineering Report

Terramor Catskills
Saugerties, NY
December 5, 2022
Terracon Project No. JB225043 Rev 1

Prepared for:
Terramor Outdoor Resorts
Billings, MO

Prepared by:
Terracon Consultants-NY, Inc.
Albany, New York

December 5, 2022

Terramor Outdoor Resorts
550 B 31st Street
Billings, MO 59101

Attn: Mr. Ahmed Helmi
P: (202) 689-7771
E: ahelmi@koa.net

Re: Geotechnical Engineering Report
Terramor Catskills
NY Route 212
Saugerties, NY
Terracon Project No. JB225043 Rev 1

Dear Mr. Helmi:

We have completed the Geotechnical Engineering services for the above-referenced project. This study was performed in general accordance with Terracon Proposal No. PJB225043, last revised on June 27, 2022. This report presents the findings of the subsurface exploration program and provides geotechnical recommendations concerning earthwork and the design and construction of foundations, floor slabs, and pavements for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants-NY, Inc.

John T. Odorisio, P.E.
Sr. Geotechnical Engineer

Joseph Robichaud, Jr., P.E.
Principal / Office Manager

REPORT TOPICS

Note: This report was originally delivered in a web-based format. **Orange Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the ***GeoReport*** logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

Note: Refer to each individual Attachment for a listing of contents.

Geotechnical Engineering Report

Terramor Catskills
NY Route 212
Saugerties, NY
Terracon Project No. JB225043 Rev 1
December 5, 2022

INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed Terramor Outdoor Resort to be constructed on NY Route 12 in Saugerties, NY. The purpose of these services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil and rock conditions
- Groundwater conditions
- Site preparation and earthwork
- Excavation considerations
- Foundation design and construction
- Floor slab design and construction
- Lateral earth pressures
- Seismic site classification per NYSBC
- Pavement design and construction
- Frost considerations

The geotechnical engineering Scope of Services for this project included the advancement of 16 Test Pits (TP-1 through TP-6 and INF-1 through INF-10) to depths ranging from approximately 1.3 to 8 feet below existing site grades, field infiltration testing, limited laboratory testing of recovered samples, and the preparation of this report.

Maps showing the site and test pit locations are presented in the **Site Location** and **Exploration Plan** sections, respectively.

SITE CONDITIONS

Item	Description
Parcel Information	The project is situated within two adjoining parcels located at the southwest corner of the intersection of NYS Route 212 and Glasco Turnpike in the town of Saugerties, New York. The two parcels are estimated to total about 77.5 acres in size. The approximate center of the combined parcels is located at: o Latitude: 42.0496° N o Longitude: 74.0746° W **See Site Location**
Existing Improvements	None. The site appears to have been historically undeveloped based on available aerial imagery and USGS topographic mapping.
Current Ground Cover	Heavily wooded
Existing Topography (from "Overall Site Plan")	The site consists of hilly terrain intersected by a series of valleys. Wetlands are mapped in low-lying areas within the project area. Site grades vary from a topographic high of about elevation 520 feet about the central southern portion of the site, and generally slope down away from this point in all directions.

PROJECT DESCRIPTION

Our understanding of the project is tabulated below.

Item	Description
Information Provided	■ "Overall Site Plan" dated June 7, 2022 prepared by The LA Group ■ Our initial site visit to observe site access and subsequent visit to perform test observations ■ Multiple phone calls and emails with Mr. Mark Taber of The LA Group
Project Description	Terramor Outdoor Resorts outdoor recreation facility

Item	Description
Building Construction	■ Tent sites: Wooden platform structures with canvas cladding and roofing ■ Lodge: Wood framed platform structure with glass cladding and metal roofing ■ Maintenance and Employee Housing Structures: Assumed to be slab on grade, wood framed structures ■ Several wooden sheds are also planned to be constructed at select locations about the site ■ A swimming pool is also planned for the site
Finished Floor Elevations	Assumed to closely match existing grades
Maximum Loads (Assumed)	**Maintenance/Housing Buildings:** ■ Columns: 50 kips ■ Walls: 3 kips per linear foot (klf) ■ Slabs: 150 pounds per square foot (psf) **Tent Structures:** ■ Columns: 2 kips
Grading/Slopes	Minimal cuts and fills, on the order of 1 to 2 feet, are anticipated.
Below-Grade Structures	The swimming pool is planned to be below grade.
Free-Standing Retaining Walls	None anticipated
Pavements	Asphalt roads and parking lots are planned for the site. We have assumed that both light and heavy-duty pavement sections are required.
Estimated Start of Construction	Not provided

GEOTECHNICAL CHARACTERIZATION

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, laboratory data, geologic setting, and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of site preparation and foundation options. Conditions encountered at each exploration point are indicated on the individual logs. The individual logs can be found in the **Exploration Results** section and the GeoModel can be found in the **Figures** section of this report.

Subsurface Profile

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each test pit location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	**Native Coarse-Grained Soils**	Sand with varying amounts of Silt and Gravel, roots and rootlets noted
2	**Glacial Till**	Silt, Sandy Silt and Silty Sand with Gravel, containing cobbles and boulders
3	**Weathered Rock**	Highly Weathered to Completely Weathered rock

The site was mantled by between about 4 and 10 inches of forest floor. The forest floor was underlain by native coarse-grained soils, glacial till, or weathered rock. The native coarse-grained soils consisted of sand with varying amounts of silt and gravel which were encountered below the surficial material at the locations of test pits TP-1, TP-4, INF-1, INF-2, INF-6, and INF-10, extending to depths on the order of about 1.4 to 8 feet below existing grades. Test pits INF-1 and INF-2 terminated at depths of 8 feet in the coarse-grained soils. Glacial Till soils consisting of silt, sandy silt and silty sand with gravel, containing cobbles and boulders, were encountered beneath the coarse-grained soils or directly below the surficial materials at the locations of test pits TP-1, TP-4, TP-5, INF-3, INF-6, and INF-10, extending to depths on the order of about 2.4 to 7 feet below existing grades and forming the terminating stratum of these test pits.

Highly to completely weathered bedrock was encountered below the surficial material at the locations of test pits TP-2, TP-3, TP-6, INF-4, INF-5, INF-7, INF-8, and INF-9. The weathered bedrock was able to be excavated to depths ranging from about 1.3 to 3 feet below existing grades. Based upon available USGS mapping, the bedrock underlying this site is mapped as Shale or Sandstone of the Plattekill formation.

Refusal on bedrock was encountered at all test pit locations with the exception of test pits TP-4 and INF-10, where refusal on a probable boulders was encountered, and test pits INF-1 and INF-2 where the native coarse-grained soils were encountered through the termination depth of the test pits.

Groundwater Conditions

Groundwater observations and measurements were made as the test pits were completed. It should be understood that these measurements may not reflect actual groundwater levels as adequate time did not pass upon completion of the excavation for groundwater to achieve a static level in the test pits.

While groundwater was not encountered in any of the explorations performed, perched water may be encountered at various locations throughout the site. Perched water levels develop when surface water (i.e. precipitation or runoff) enters the subsurface through loose surficial soils and becomes trapped, or perched, on top of less permeable soils such as the glacial till soils or weathered bedrock/bedrock, or in areas of the site where wetlands have been delineated.

Fluctuations in groundwater level and the extent of any perched water should be expected due to seasonal variations in the amount of rainfall, runoff, and other factors that may differ from those present at the time the explorations were performed. Additionally, grade adjustments on and around the site, as well as surrounding drainage improvements, may affect the water table. The possibility of groundwater level fluctuations should be considered when developing the design construction and stormwater management plans for the project.

Infiltration Testing

Infiltration tests were performed adjacent to test pits INF-1 INF-2 and INF-10 and numbered correspondingly. At the remaining planned infiltration test locations, bedrock was encountered at depths on the order of 3.3 feet or shallower. Based on discussions with The L.A. Group during the field investigation it was determined that infiltration would not be feasible at these depths, and testing was not performed. The testing, where performed, was conducted in general accordance with the guidelines in Appendix D of the NYS Stormwater Management Design Manual. Results of this testing are presented for your use in the **Exploration Results** section of this report and are tabulated below.

Test No.	Approx. Test Depth (ft)	Soil Classification	Infiltration Rate (in/hr) [1]
INF-1	5.5	Silty Sand (SM)	8
INF-2	5.5	Well Graded Sand with Gravel (SW)	>24”
INF-10	6	Silty Sand with Gravel (SM)	>24”[2]

1. Based on the final infiltration test trial. See attached for additional information.
2. This infiltration rate is not typical of the subsurface conditions encountered. Lower rates should be anticipated.

GEOTECHNICAL OVERVIEW

The project site is considered suitable for support of the proposed structures using conventional shallow spread foundations. Based on the subsurface conditions disclosed by our investigation, we offer the following general conclusions.

- New foundations and floor slabs may be supported upon undisturbed native soils, weathered rock, or on imported Structural Fill which is placed over the native soils/rock.

- Based on the results of limited laboratory testing performed and our observation of the soil samples collected, it should be assumed that portions of the coarse-grained soils may be suitable for re-use as Structural Fill on site. Additional laboratory testing of bulk samples should be performed prior to the start of construction to confirm the suitability of the on-site soils for use as Structural Fill.

- The static groundwater level at the time of our investigations appears to be below the planned foundation excavation levels. If perched water is encountered during construction, it is expected that standard sump and pump methods should be sufficient for its removal. Dewatering is a means and methods consideration for the contractor.

The following sections of this report provide more detailed recommendations to assist in planning for the geotechnical aspects of the project. We should be provided with the opportunity to review plans and specifications prior to their release for bidding to confirm that our recommendations were properly understood and implemented, and to allow us to refine our recommendations, if warranted, based upon the final design.

The **General Comments** section provides an understanding of the report limitations.

SEISMIC CONSIDERATIONS

The seismic design requirements for buildings and other structures are based on Seismic Design Category. Site Classification is required to determine the Seismic Design Category for a structure. The Site Classification is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7 and the International Building Code (IBC).

Seismic Site Classification

Based on the soil properties encountered at the site and as described on the exploration logs, it is our professional opinion that the **Seismic Site Classification is C.** Subsurface explorations at this site were extended to a maximum depth of 8 feet. The site properties below the exploration depth to 100 feet were estimated based on our experience and knowledge of geologic conditions of the general area. Additional deeper explorations or geophysical testing may be performed to confirm the conditions below the current exploration depth.

LIQUEFACTION

Based upon the composition, relative density and groundwater conditions encountered in the test pits, it is our professional opinion that the site is not susceptible to liquefaction in response to published design earthquake motions for this region.

EARTHWORK

Earthwork is anticipated to include clearing, associated site grading and foundation excavations. The following sections provide recommendations for use in the preparation of specifications for the work. Recommendations include critical quality criteria, as necessary, to render the site in the state considered suitable in our geotechnical engineering evaluation for foundations, floor slabs and pavements.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety or the contractor's activities; such responsibility is neither implied nor shall it be inferred.

Site Preparation

Site preparation should begin with stripping of topsoil and surficial organic matter as applicable from the building and pavement areas. Prior to placing Structural Fill to raise site grades, the excavated subgrades should be proof-rolled using a steel drum roller with a static weight of at least 7 tons. The roller should operate in its vibratory mode, unless requested otherwise by the Geotechnical Engineer observing the work, and travel at a speed not exceeding three feet per second (two miles per hour). The roller should complete at least two passes over all subgrade surfaces. Areas found to be excessively deflecting under the proofroll should be delineated and subsequently addressed by the Geotechnical Engineer. Excessively wet or dry material should either be removed, or moisture conditioned and recompacted as required to achieve its satisfactory compaction. The method of proof-rolling may be modified by the Geotechnical Engineer based upon the conditions disclosed at the time of construction.

Rock Excavation

Depending upon the planned finished floor elevations, it is possible that weathered bedrock or bedrock could be encountered in the excavations for the proposed structures, swimming pool or the installation of deep utilities. In general, the bedrock was weathered at its surface, and it should be possible to excavate a few feet into the rock using a large track mounted excavator equipped with ripper teeth. However, pinnacles of harder rock may be encountered, and the rock will become more excavation resistant with depth. Depending on the depth and extent of the removal required, the selective use of a hoe ram, chemical expansive agents, or controlled blasting may be required for economical removal of the rock.

If blasting is required for the rock excavations, it should be conducted in a controlled manner by experienced personnel to limit over-blast and vibrations transmitted to adjoining areas. The vibrations induced by the blasting should be monitored and limited to less than two inches per second at the site property lines and at the nearest existing structures and recently cast concrete.

All over-blast should be removed from beneath the buildings and pavements and replaced with imported Structural Fill. In planning for the rock removal, the foundation bearing grade preparation recommendations in the **Foundation Construction Considerations** section of this report should be considered.

Fill Material Types

Based on the results of limited laboratory testing performed and our observation of the soil samples collected, it should be assumed that portions of the native coarse-grained soils may be suitable for re-use as Structural Fill. Additional laboratory testing of bulk samples of the coarse-grained soil materials should be performed prior to the start of construction to confirm their suitability for reuse as Structural Fill.

If the quantity of reusable on site material is not adequate for the proposed site improvements, imported Structural Fill should be used as fill and backfill. The imported Structural Fill should consist of sand and gravel which meets the limits of gradation given below. Any imported materials should be free of recycled concrete, asphalt, bricks, glass, and pyritic shale rock.

IMPORTED STRUCTURAL FILL

Sieve Size	Percent Finer
3”	100
¼”	30 to 75
No. 40	5 to 40
No. 200	0 to 10

Fill Compaction Requirements

The Structural Fill should be placed in uniform loose layers no more than about one-foot thick, where heavy vibratory compaction equipment is used. Smaller lifts should be used where hand operated equipment is required for compaction. Each lift should be compacted to no less than 95 percent of the maximum dry density for the soil which is established by the Modified Proctor Compaction Test, ASTM D1557. In landscape areas, the compaction may be reduced to 90 percent of maximum dry density.

Grading and Drainage

All grades must provide effective drainage away from the structures during and after construction and should be maintained throughout the life of the structure. Water retained next to the structures can result in soil movements greater than those discussed in this report. Greater movements can result in unacceptable differential floor slab and/or foundation movements, cracked slabs and walls, and roof leaks.

Earthwork Construction Considerations

Shallow excavations for the proposed construction are anticipated to be accomplished with conventional construction equipment. Upon completion of filling and grading, care should be taken to maintain the subgrade water content prior to construction of foundations. Construction traffic over the completed subgrades should be avoided. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. Water collecting over or adjacent to construction areas should be removed. If the subgrade freezes, desiccates, saturates, or is disturbed, the affected material should be removed, or the materials should be scarified, moisture conditioned, and recompacted prior to foundation or floor slab construction.

Temporary Excavations

Excavations must be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P and its appendices, along with any state and local codes, as applicable. The contractor should be aware that slope height, slope inclination, and excavation depth should in no instance exceed OSHA regulations. Flatter slopes than those stipulated by the regulations or temporary shoring may be required depending upon the soil/groundwater conditions encountered and other external factors. OSHA regulations are strictly enforced and if they are not followed, the owner, contractor, and/or earthwork and utility subcontractor could be liable and subject to substantial penalties.

Construction Observation and Testing

The earthwork efforts should be monitored under the direction of the Geotechnical Engineer. Monitoring should include documentation of proofrolling, and mitigation of areas delineated by the proofroll to require mitigation.

In areas of foundation excavations, the bearing subgrade should be evaluated under the direction of the Geotechnical Engineer. If unanticipated conditions are encountered, the Geotechnical Engineer should prescribe mitigation options.

It should be understood the actual subsurface conditions that exist will only be known when the site is excavated. The continuation of the Geotechnical Engineer into the construction phase of the project will allow for validation of the subsurface conditions assumed to exist for this study and the design recommended in this report, including assessing variations, providing recommendations and reviewing associated design changes.

SHALLOW FOUNDATIONS

If the site has been prepared in accordance with the requirements noted in **Earthwork** and **Foundation Construction Considerations** sections of this report, the following design parameters and construction procedures are applicable for shallow foundations.

Design Parameters – Compressive Loads

Item	Description
Maximum Net Allowable Bearing Pressure [1, 2]	3,000 psf
Required Bearing Stratum [3]	Natural soils, weathered bedrock, bedrock or Structural Fill over natural soils/rock
Minimum Foundation Dimensions	Columns: 30 inches Continuous: 24 inches
Ultimate Coefficient of Sliding Friction [4]	0.45 (Structural Fill or native soils) 0.55 (weathered rock/bedrock)
Minimum Embedment below Finished Grade [5]	Exterior footings in heated/unheated areas: 48 inches Interior footings in unheated areas: 48 inches Interior footings in heated areas: 24 inches
Estimated Total Settlement from Structural Loads [2]	Less than about 1 inch
Estimated Differential Settlement [2, 6]	About 1/2 of total settlement

1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. An appropriate factor of safety has been applied. Values assume that exterior grades are no steeper than 20% within 10 feet of structure.
2. Values provided are for maximum loads noted in **Project Description**.
3. The bearing grades should be prepared per the recommendations presented below in the **Foundation Construction Considerations**.
4. Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. Should be neglected for foundations subject to net uplift conditions.
5. Embedment necessary to minimize the effects of frost and/or seasonal water content variations. For sloping ground, maintain depth below the lowest adjacent exterior grade within 5 horizontal feet of the structure. Interior footings in heated area may be seated at the 24-inch depth if allowed by local building codes. In the case of haunched floor slab support for interior partition walls, the minimum depth requirement may be waived (again, if permitted by local building codes).
6. Differential settlements are as measured over a span of 50 feet.

Foundation Construction Considerations

The foundations may be seated directly upon undisturbed native soils, weathered bedrock, bedrock or on imported Structural Fill placed as part of the site grading. The surface of foundation bearing grades should be recompacted to densify the soils loosened by the excavation process where comprised of coarse-grained soils or Structural Fill.

All final bearing grades should be relatively firm, stable, and free of loose soil, mud, water and frost. The Geotechnical Engineer should approve the condition of the foundation bearing grades immediately prior to placement of reinforcing steel and concrete.

Where foundations will bear on weathered rock or rock, the excavated rock surface should be made generally level and free of loose soil, mud and rock fragments. Where proposed foundation bearing grades for any individual foundation element are comprised partly of native soil or Structural Fill and partly of bedrock, the bedrock should be over-excavated by a depth of 12 inches and replaced with a Structural Fill "cushion". This is intended to provide a more uniform bearing surface and to limit the potential for differential settlement. For continuous wall footings, were the bearing surface transitions from bedrock to soil, the rock should be over-excavated a distance of at least ten feet from the transition to soil and backfilled as indicated above.

FLOOR SLABS

Design parameters for floor slabs assume the requirements in the **Earthwork** and **Floor Slab Construction Considerations** sections of this report have been followed. Specific attention should be given to positive drainage away from the structure and positive drainage of the aggregate base beneath the floor slab.

Floor Slab Design Parameters

The floor slabs should be constructed upon a minimum six-inch thick subbase course which conforms to the requirements for NYSDOT Type 2 Subbase or ASTM C33 Blend 57 aggregate. Consideration should be given to using a thicker subbase course in areas subject to heavier loads and/or use, or those exposed to freezing temperatures.

The use of a vapor retarder along with a base course of ASTM C33 Blend 57 aggregate should be considered beneath concrete slabs-on-grade to be covered with wood, tile, carpet, or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding its use and placement.

Saw-cut control joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations refer to the ACI Design Manual.

Floor slab subgrades should be prepared as outlined in the Earthwork section herein. Under these conditions, a modulus of subgrade reaction equal to 150 pounds per cubic inch (psi/in) may be assumed at the top of the stone base layer for slab design purposes.

Floor Slab Construction Considerations

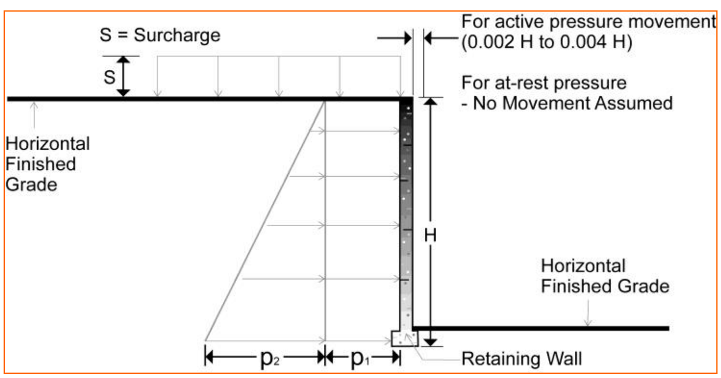
Even with the base course recommended above, we caution that the subgrades may not support repeated heavy construction traffic or telehandlers without suffering rutting and weaving that may be especially severe during wet seasons. If the grades are to be repeatedly traversed by these types of equipment, they should be reinforced as necessary to support them. Areas which become disturbed should be excavated and stabilized accordingly.

The Geotechnical Engineer should approve the condition of the floor slab subgrades immediately prior to placement of the floor slab subbase course. Attention should be paid to high traffic areas that were rutted and disturbed earlier, and to areas where backfilled trenches are located.

LATERAL EARTH PRESSURES

Design Parameters

Permanent building or site walls that retain earth should be designed to resist lateral pressures, with applicable surcharge loads, assuming the parameters listed below. Active earth pressures may be assumed for walls that are free to deflect as the backfill is placed. At-rest earth pressures should be assumed for all walls that are braced prior to backfilling or applying surcharge loads. The figure below can be referenced to determine the applicability of Active vs. At-Rest earth pressures.



The recommended design parameters, as applicable, are tabulated below;

Design Parameter	Value
Soil Angle of Internal Friction	30 degrees
Coefficient of At-Rest Earth Pressure (Ko)	0.50
Coefficient of Active Earth Pressure (Ka)	0.33
Coefficient of Passive Earth Pressure (Kp)	3.00

Total Unit Weight of Compacted Soil	120 pcf
Coefficient of Sliding Friction	0.45 (native coarse-grained soils or Structural Fill) 0.55 (weathered rock or bedrock)

1. For the tabulated values to be valid, the wall must be backfilled with Structural Fill as specified in the **Earthwork** section of this report. The Structural Fill must extend out and up from the base of the wall at an angle of at least 45 degrees from vertical for the active and at-rest cases.
2. The tabulated values do not include a safety factor.

Subsurface Drainage for Below-Grade/Retaining Walls

Foundation drains and/or weep holes should be installed as required to prevent surface infiltration from becoming trapped in the wall backfill soils. The drain may consist of a nominal four (4) inch diameter perforated PVC or slotted HDPE pipe embedded at the base of a minimum twelve (12) inch wide column of clean crushed stone (Blend 57 aggregate). The stone should be wrapped in a filter fabric meeting NYSDOT Specification #207.21 or approved equivalent. The drain should connect to a drainage structure or outlet to daylight.

PAVEMENTS

Flexible Pavement Design

The pavement sections presented below were developed in general accord with AASHTO procedures using a reduced subgrade strength and local experience to account for frost, and to keep the anticipated pavement heave and cracking within generally tolerable limits. A subgrade resilient modulus (M_r) equal to 4,000 psi has been assumed for design purposes.

Two conventional pavement sections were developed, a Light Duty section for automobile parking areas and a Heavy Duty section for entrance drives or areas subject to occasional truck traffic. For design purposes, it has been assumed that the pavement design life is 20 years, and that daily equivalent single axle loads (ESALs) are equal to 1 for the Light Duty section and 20 for the Heavy Duty section. If the traffic loads vary from these, we should be provided the opportunity to refine the pavement section accordingly.

All materials should meet the requirements specified in the latest edition of the New York State Department of Transportation (NYSDOT) Standard Specifications for Construction and Materials.

Flexible Pavement Design				
Layer	Material Description	NYSDOT Reference	Thickness (inches)	
			Light Duty	Heavy Duty
Top	Asphaltic Concrete	Item 402.127303	1.5	1.5
Binder	Asphaltic Concrete	Item 402.257903	2.0	3.0
Stone Subbase	Crusher-Run Stone	Section 733-04, Type 2	8	12
Geotextile	Stabilization Geotextile	Table 737-01E	Single Ply	Single Ply

Rigid pavements should be provided with a minimum six-inch thick base of crusher-run stone (NYSDOT section 733-04, Type 2 material) placed over a stabilization geotextile. The pavements may be designed assuming a modulus of subgrade reaction equal to 150 pounds per cubic inch at the top of the base layer.

Temporary Construction Access Roadways

The recommended pavement sections are not designed to support heavy construction traffic which may require thicker sections. The contractor should construct temporary haul routes and construction roadways on site as appropriate for the weather conditions and the equipment in use, with consideration to the soil conditions encountered in specific areas.

Pavement Drainage

Accumulation of water on pavement subgrades should be avoided by grading the subgrade to a slope of at least two percent, and/or by providing underdrains. Failure to provide adequate drainage will shorten pavement life.

Pavement Maintenance

All pavements require periodic care, and preventive maintenance should be planned and provided for through an on-going pavement management program. Maintenance activities are intended to slow the rate of pavement deterioration and to preserve the pavement investment. Maintenance consists of both localized maintenance (e.g., crack and joint sealing and patching) and global maintenance (e.g., surface sealing).

Frost Considerations

Frost may penetrate beneath sidewalks and pavements and cause them to heave, and resulting displacements may be differential, particularly where sidewalks and pavements meet building doorways and along curbs. To limit the magnitude of heave and creation of such uneven joints to generally tolerable magnitudes for most winters, an 18-inch thick base of ASTM C33 Blend 57 crushed stone should be placed beneath sensitive sidewalk or pavement areas, along with an underdrain to relieve any collected waters. The crushed stone should be separated from the surrounding granular soils with a non-woven synthetic filter fabric meeting the requirements of NYSDOT standard specifications table 737-01C for drainage geotextile.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

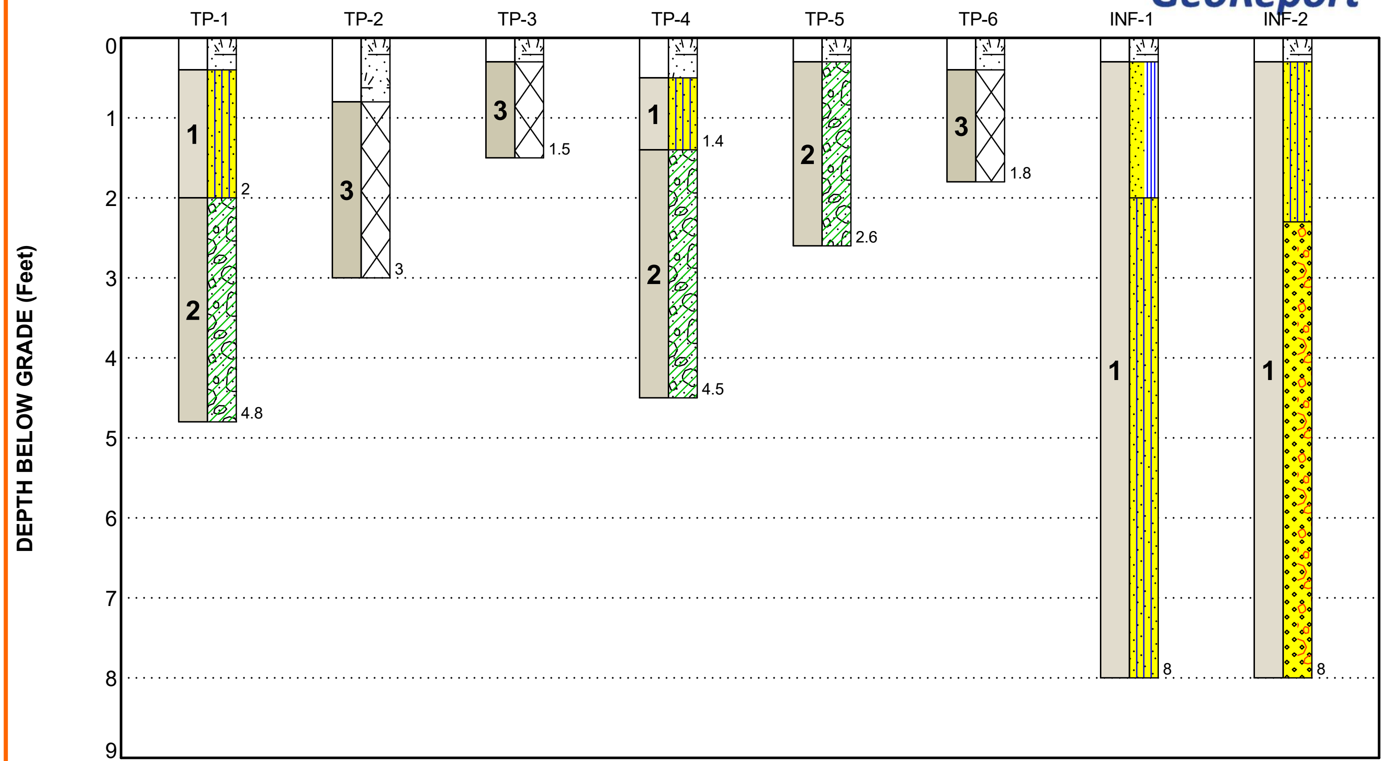
Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

FIGURES

Contents:

GEOMODEL

Terramor Catskills ■ Saugerties, NY
Terracon Project No. JB225043



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Native Coarse-Grained Soils	Sand with varying amounts of Silt and Gravel, roots and rootlets noted
2	Glacial Till	Silt, Sandy Silt and Silty Sand with Gravel, containing cobbles and boulders
3	Weathered Rock	Highly Weathered to Completely Weathered Bedrock

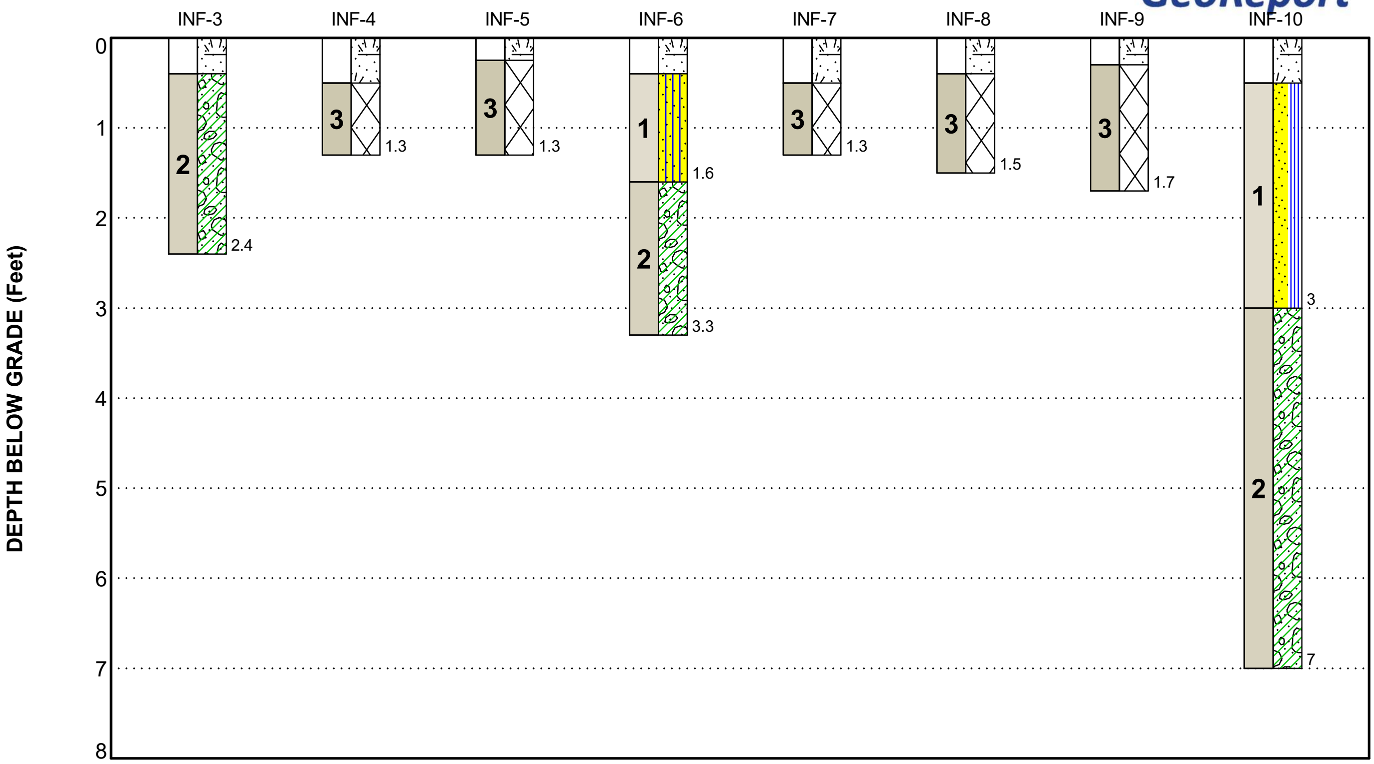
LEGEND

- Topsoil
- Silty Sand
- Glacial Till
- Weathered Rock
- Poorly-graded Sand with Silt
- Well-graded Sand with Gravel

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

GEOMODEL

Terramor Catskills ■ Saugerties, NY
Terracon Project No. JB225043



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Native Coarse-Grained Soils	Sand with varying amounts of Silt and Gravel, roots and rootlets noted
2	Glacial Till	Silt, Sandy Silt and Silty Sand with Gravel, containing cobbles and boulders
3	Weathered Rock	Highly Weathered to Completely Weathered Bedrock

LEGEND

- Topsoil
- Glacial Till
- Weathered Rock
- Silty Sand
- Poorly-graded Sand with Silt

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Number of Test Pits	Test Pit Depth (feet)	Location
6	1.5 to 4.5	Planned Building and Pavement Areas
10	1.3 to 8	Proposed Stormwater Areas

Test Pit Layout and Elevations: The test locations were selected by The L.A. Group and Terracon and were established in the field using a hand-held GPS unit (estimated horizontal accuracy of about ±10 feet). Approximate ground surface elevations were obtained by interpolation from the drawing titled "Overall Site Plan" dated June 7, 2022, prepared by The LA Group. If elevations and a more precise test pit layout are desired, we recommend test pits be surveyed following completion of fieldwork.

Subsurface Exploration Procedures: The test pits were excavated by our subcontractor using a track mounted mini excavator. The excavations were observed and logged by a Geotechnical Engineer from our office. Upon completion, the excavations were backfilled using the excavated materials in compacted lifts using the excavation equipment. Compaction testing was not performed.

Laboratory Testing

Selected samples recovered from the test pits were submitted for laboratory testing as part of the subsurface investigation, to confirm the visual classifications and to provide quantitative index properties for use in the geotechnical evaluation. This testing was performed in general accordance with the following standard methods:

- ASTM D2216 - Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil - and Rock by Mass
- ASTM D422 (without hydrometer) - Standard Test Method for Particle-Size Analysis of Soils

SITE LOCATION AND EXPLORATION PLANS

Contents:

Note: All attachments are one page unless noted above.

SITE LOCATION

Terramor Catskills ■ Saugerties, NY

December 5, 2022 ■ Terracon Project No. JB225043 Rev 1

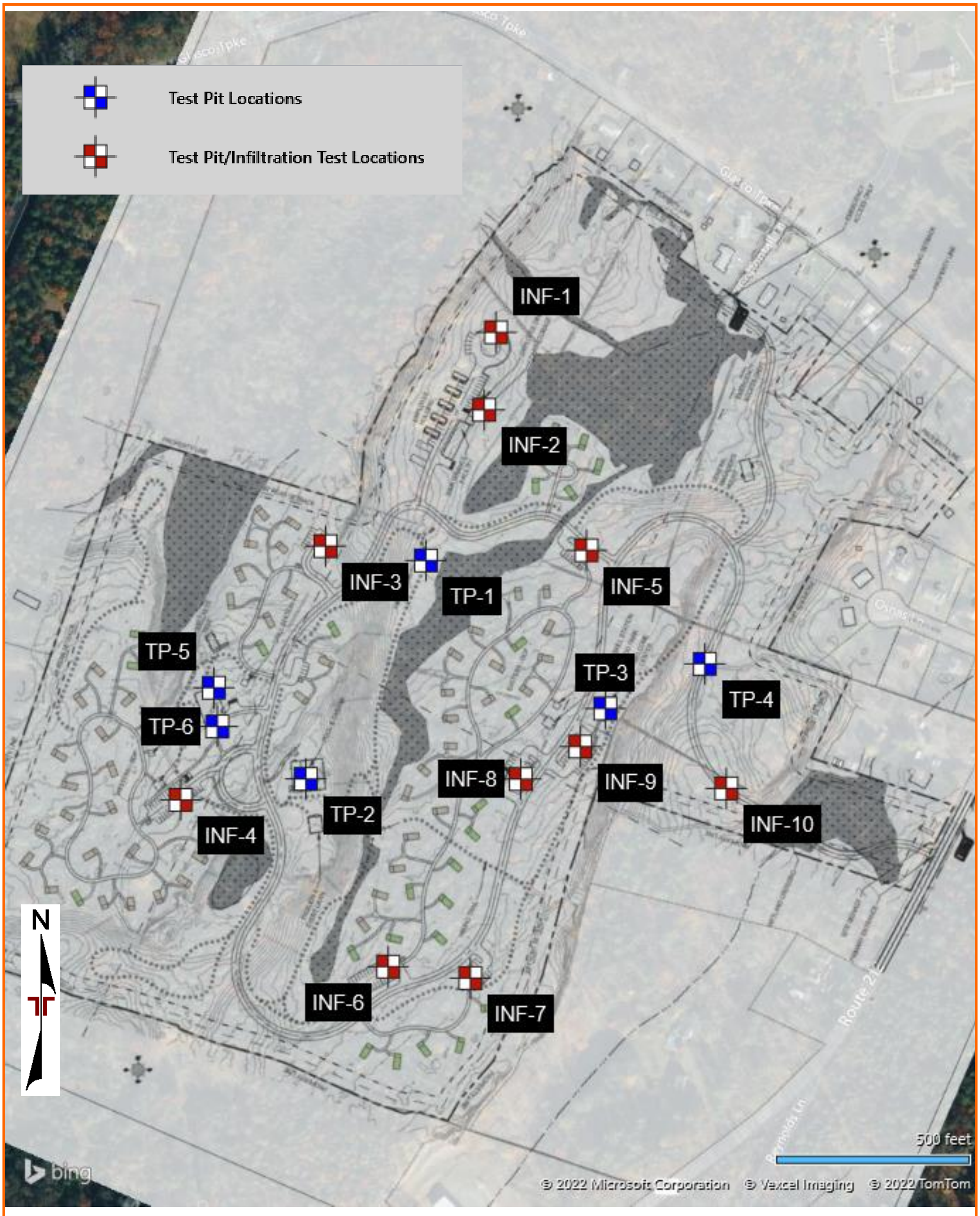
DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN

Terramor Catskills ■ Saugerties, NY

December 5, 2022 ■ Terracon Project No. JB225043 Rev 1



EXPLORATION RESULTS

Contents:

Note: All attachments are one page unless noted above.

TEST PIT LOG NO. TP-1

PROJECT: Terramor Catskills

CLIENT: Kampgrounds of America Inc
Billings, MT

SITE: NY 212
Saugerties, NY

LOCATION See Exploration Plan

Latitude: 42.0500° Longitude: -74.0751°

Approximate Surface Elev.: 460 (Ft.) +/-

MODEL LAYER	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	WATER CONTENT (%)
	0.4	**FOREST MAT**	459.6+/-				
1	2.0	**SILTY SAND (SM)**, roots and rootlets noted, orange to brown	458+/-	1, 2			
2	4.8	**SANDY SILT (ML)**, containing cobbles and boulders, orange to brown, (GLACIAL TILL) **Mottling noted 4.5'**	455.2+/-	3, 4		Grab	18.0
		Refusal on Bedrock at 4.8 Feet					

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Mini excavator w. ~10' reach

Abandonment Method:
Test pit backfilled with spoils after completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:
Test pit logged by: JCH

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
30 Corporate Cir Ste 201
Albany, NY

Test Pit Started: 09-20-2022	Test Pit Completed: 09-20-2022
Excavator: Kubota KX057-4	Operator: P.K. Freuh
Project No.: JB225043	

TEST PIT LOG NO. TP-2

PROJECT: Terramor Catskills

CLIENT: Kampgrounds of America Inc
Billings, MT

SITE: NY 212
Saugerties, NY

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 42.0483° Longitude: -74.0762° Approximate Surface Elev.: 520 (Ft.) +/- DEPTH / ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	WATER CONTENT (%)
		FOREST MAT 0.8 / 519.2+/-				
3		**HIGHLY WEATHERED ROCK**, gray to brown 3.0 / 517+/-	1 2 3			
		Refusal on Bedrock at 3 Feet				

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Mini excavator w. ~10' reach

Abandonment Method:
Test pit backfilled with spoils after completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:
Test pit logged by: JCH

WATER LEVEL OBSERVATIONS
No free water observed

Terracon
30 Corporate Cir Ste 201
Albany, NY

Test Pit Started: 09-20-2022	Test Pit Completed: 09-20-2022
Excavator: Kubota KX057-4	Operator: P.K. Freuh
Project No.: JB225043	

TEST PIT LOG NO. TP-3

PROJECT: Terramor Catskills

CLIENT: Kampgrounds of America Inc
Billings, MT

SITE: NY 212
Saugerties, NY

LOCATION See Exploration Plan

Latitude: 42.0489° Longitude: -74.0734°

Approximate Surface Elev.: 480 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH		ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	WATER CONTENT (%)
		0.3	**FOREST MAT**	479.7+/-				
3		1.5	**COMPLETELY WEATHERED ROCK**, orange to gray	478.5+/-	1			
			Refusal on Bedrock at 1.5 Feet					

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Mini excavator w. ~10' reach

Abandonment Method:
Test pit backfilled with spoils after completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

Test pit logged by: JCH

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
30 Corporate Cir Ste 201
Albany, NY

Test Pit Started: 09-19-2022	Test Pit Completed: 09-19-2022
Excavator: Kubota KX057-4	Operator: P.K. Freuh
Project No.: JB225043	

TEST PIT LOG NO. TP-4

PROJECT: Terramor Catskills

CLIENT: Kampgrounds of America Inc
Billings, MT

SITE: NY 212
Saugerties, NY

LOCATION See Exploration Plan

Latitude: 42.0492° Longitude: -74.0723°

Approximate Surface Elev.: 450 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	WATER CONTENT (%)
		0.5	**FOREST MAT**	449.5+/-				
1		1.4	**SILTY SAND (SM)**, roots and rootlets noted, orange to brown	448.6+/-	1			
2		4.5	**SILTY SAND WITH GRAVEL (SM)**, containing cobbles and boulders, orange to brown, (GLACIAL TILL) **Significant excavation effort noted 4-4.5', probable boulder**	445.5+/-	2 3 4			
			Refusal on Probable Boulders at 4.5 Feet					

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Mini excavator w. ~10' reach

Abandonment Method:
Test pit backfilled with spoils after completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

Test pit logged by: JCH

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
30 Corporate Cir Ste 201
Albany, NY

Test Pit Started: 09-19-2022	Test Pit Completed: 09-19-2022
Excavator: Kubota KX057-4	Operator: P.K. Freuh
Project No.: JB225043	

TEST PIT LOG NO. TP-5

PROJECT: Terramor Catskills

CLIENT: Kampgrounds of America Inc
Billings, MT

SITE: NY 212
Saugerties, NY

LOCATION See Exploration Plan

Latitude: 42.0491° Longitude: -74.0771°

Approximate Surface Elev.: 524 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	WATER CONTENT (%)
		0.3	**FOREST MAT**	523.7+/-				
2		2.6	**SILTY SAND WITH GRAVEL (SM)**, containing cobbles and boulders, (GLACIAL TILL)	521.4+/-	1, 2			
			Refusal on Bedrock at 2.6 Feet					

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Mini excavator w. ~10' reach

Abandonment Method:
Test pit backfilled with spoils after completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

Test pit logged by: JCH

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
30 Corporate Cir Ste 201
Albany, NY

Test Pit Started: 09-20-2022	Test Pit Completed: 09-20-2022
Excavator: Kubota KX057-4	Operator: P.K. Freuh
Project No.: JB225043	

TEST PIT LOG NO. TP-6

PROJECT: Terramor Catskills

CLIENT: Kampgrounds of America Inc
Billings, MT

SITE: NY 212
Saugerties, NY

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 42.0488° Longitude: -74.0771° Approximate Surface Elev.: 524 (Ft.) +/- DEPTH / ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	WATER CONTENT (%)
		FOREST MAT 0.4 — 523.6+/-				
3		**COMPLETELY WEATHERED ROCK**, orange to gray 1.8 — 522.2+/-	1			
		Refusal on Bedrock at 1.8 Feet				

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Mini excavator w. ~10' reach

Abandonment Method:
Test pit backfilled with spoils after completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

Test pit logged by: JCH

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
30 Corporate Cir Ste 201
Albany, NY

Test Pit Started: 09-20-2022	Test Pit Completed: 09-20-2022
Excavator: Kubota KX057-4	Operator: P.K. Freuh
Project No.: JB225043	

TEST PIT LOG NO. INF-1

PROJECT: Terramor Catskills

CLIENT: Kampgrounds of America Inc
Billings, MT

SITE: NY 212
Saugerties, NY

LOCATION See Exploration Plan

Latitude: 42.0516° Longitude: -74.0744°

Approximate Surface Elev.: 460 (Ft.) +/-

MODEL LAYER	DEPTH	DESCRIPTION	ELEVATION (Ft.)	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	WATER CONTENT (%)
	0.3	**FOREST MAT**	459.7+/-					
1	2.0	**POORLY GRADED SAND WITH SILT (SP-SM)**, roots and rootlets noted, orange to brown	458+/-	4" PVC set at 5.5' below grade. Annulus backfilled with soil cuttings to grade.				
1	8.0	**SILTY SAND (SM)**, brown	452+/-	Undisturbed in situ soil	5			8.2

Test Pit Terminated at 8 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Mini excavator w. ~10' reach

Abandonment Method:
Test pit backfilled with spoils after completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

Test pit logged by: JCH

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
30 Corporate Cir Ste 201
Albany, NY

Test Pit Started: 09-20-2022	Test Pit Completed: 09-20-2022
Excavator: Kubota KX057-4	Operator: P.K. Freuh
Project No.: JB225043	

TEST PIT LOG NO. INF-2

PROJECT: Terramor Catskills

CLIENT: Kampgrounds of America Inc
Billings, MT

SITE: NY 212
Saugerties, NY

LOCATION See Exploration Plan

Latitude: 42.0510° Longitude: -74.0745°

Approximate Surface Elev.: 462 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	Material Description	ELEVATION (Ft.)	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	WATER CONTENT (%)
		0.3	**FOREST MAT**	461.7+/-					
1		2.3	**SILTY SAND (SM)**, roots and rootlets noted, orange to brown	459.7+/-	4" PVC set at 5.5' below grade. Annulus backfilled with soil cuttings to grade.				
1		8.0	**WELL GRADED SAND WITH GRAVEL (SW)**, brown	454+/-	Undisturbed in situ soil	5		Grab	7.3

Test Pit Terminated at 8 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Mini excavator w. ~10' reach

Abandonment Method:
Test pit backfilled with spoils after completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

Test pit logged by: JCH

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
30 Corporate Cir Ste 201
Albany, NY

Test Pit Started: 09-20-2022	Test Pit Completed: 09-20-2022
Excavator: Kubota KX057-4	Operator: P.K. Freuh
Project No.: JB225043	

TEST PIT LOG NO. INF-3

PROJECT: Terramor Catskills

CLIENT: Kampgrounds of America Inc
Billings, MT

SITE: NY 212
Saugerties, NY

LOCATION See Exploration Plan

Latitude: 42.0501° Longitude: -74.0760°

Approximate Surface Elev.: 498 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	WATER CONTENT (%)
		0.4	**FOREST MAT**	497.6+/-				
2		2.4	**SILTY SAND WITH GRAVEL (SM)**, containing cobbles and boulders, orange to brown (GLACIAL TILL)	495.6+/-	1 2			12.8

Refusal on Bedrock at 2.4 Feet

After refusal offset 5' and refused again at 2.4'

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Mini excavator w. ~10' reach

Abandonment Method:
Test pit backfilled with spoils after completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

Test pit logged by: JCH

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
30 Corporate Cir Ste 201
Albany, NY

Test Pit Started: 09-20-2022	Test Pit Completed: 09-20-2022
Excavator: Kubota KX057-4	Operator: P.K. Freuh
Project No.: JB225043	

TEST PIT LOG NO. INF-4

PROJECT: Terramor Catskills

CLIENT: Kampgrounds of America Inc Billings, MT

SITE: NY 212 Saugerties, NY

LOCATION See Exploration Plan

Latitude: 42.0483° Longitude: -74.0774°

Approximate Surface Elev.: 528 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH		ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	WATER CONTENT (%)
		0.5	**FOREST MAT**	527.5+/-				
3		1.3	**COMPLETELY WEATHERED ROCK**, orange to gray	526.7+/-	1			
			Refusal on Bedrock at 1.3 Feet					

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Mini excavator w. ~10' reach

Abandonment Method:
Test pit backfilled with spoils after completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

Test pit logged by: JCH

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
30 Corporate Cir Ste 201
Albany, NY

Test Pit Started: 09-20-2022	Test Pit Completed: 09-20-2022
Excavator: Kubota KX057-4	Operator: P.K. Freuh
Project No.: JB225043	

TEST PIT LOG NO. INF-5

PROJECT: Terramor Catskills

CLIENT: Kampgrounds of America Inc
Billings, MT

SITE: NY 212
Saugerties, NY

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 42.0501° Longitude: -74.0736° Approximate Surface Elev.: 458 (Ft.) +/- DEPTH / ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	WATER CONTENT (%)
		0.3 **FOREST MAT** 457.8+/-				
3		**COMPLETELY WEATHERED ROCK**, orange to gray 1.3 456.7+/-	1			
		Refusal on Bedrock at 1.3 Feet **After refusal offset 5' and refused again at 1.3'**				

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Mini excavator w. ~10' reach

Abandonment Method:
Test pit backfilled with spoils after completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:
Test pit logged by: JCH

WATER LEVEL OBSERVATIONS
No free water observed

Terracon
30 Corporate Cir Ste 201
Albany, NY

Test Pit Started: 09-20-2022	Test Pit Completed: 09-20-2022
Excavator: Kubota KX057-4	Operator: P.K. Freuh
Project No.: JB225043	

TEST PIT LOG NO. INF-6

PROJECT: Terramor Catskills

CLIENT: Kampgrounds of America Inc
Billings, MT

SITE: NY 212
Saugerties, NY

LOCATION See Exploration Plan

Latitude: 42.0471° Longitude: -74.0754°

Approximate Surface Elev.: 496 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	WATER CONTENT (%)
		0.4	**FOREST MAT**	495.6+/-				
1		1.6	**SILTY SAND (SM)**, roots and rootlets noted, brown	494.4+/-	1			
2		3.3	**SILT (ML)**, containing cobbles and boulders, orange to brown, (GLACIAL TILL)	492.7+/-	2 3			17.0

Refusal on Bedrock at 3.3 Feet

After refusal offset 5' and refused again at 3.2'

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Mini excavator w. ~10' reach

Abandonment Method:
Test pit backfilled with spoils after completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

Test pit logged by: JCH

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
30 Corporate Cir Ste 201
Albany, NY

Test Pit Started: 09-19-2022	Test Pit Completed: 09-19-2022
Excavator: Kubota KX057-4	Operator: P.K. Freuh
Project No.: JB225043	

TEST PIT LOG NO. INF-7

PROJECT: Terramor Catskills

CLIENT: Kampgrounds of America Inc Billings, MT

SITE: NY 212 Saugerties, NY

MODEL LAYER	GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 42.0470° Longitude: -74.0747° Approximate Surface Elev.: 500 (Ft.) +/- DEPTH / ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	WATER CONTENT (%)
		FOREST MAT 0.5 / 499.5+/-				
3		**COMPLETELY WEATHERED ROCK**, orange to gray 1.3 / 498.7+/-	1			
		Refusal on Bedrock at 1.3 Feet				

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Mini excavator w. ~10' reach

Abandonment Method:
Test pit backfilled with spoils after completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

Test pit logged by: JCH

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
30 Corporate Cir Ste 201
Albany, NY

Test Pit Started: 09-20-2022	Test Pit Completed: 09-20-2022
Excavator: Kubota KX057-4	Operator: P.K. Freuh
Project No.: JB225043	

TEST PIT LOG NO. INF-8

PROJECT: Terramor Catskills

SITE: NY 212 Saugerties, NY

CLIENT: Kampgrounds of America Inc Billings, MT

LOCATION See Exploration Plan

Latitude: 42.0484° Longitude: -74.0742°

Approximate Surface Elev.: 486 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH		ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	WATER CONTENT (%)
		0.4	**FOREST MAT**	485.6+/-				
3		1.5	**COMPLETELY WEATHERED ROCK**, orange to gray	484.5+/-	1			
			Refusal on Bedrock at 1.5 Feet					

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Mini excavator w. ~10' reach

Abandonment Method:
Test pit backfilled with spoils after completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

Test pit logged by: JCH

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
30 Corporate Cir Ste 201
Albany, NY

Test Pit Started: 09-19-2022	Test Pit Completed: 09-19-2022
Excavator: Kubota KX057-4	Operator: P.K. Freuh
Project No.: JB225043	

TEST PIT LOG NO. INF-9

PROJECT: Terramor Catskills	**CLIENT: Kampgrounds of America Inc Billings, MT**
SITE: NY 212 Saugerties, NY	

LOCATION See Exploration Plan

Latitude: 42.0487° Longitude: -74.0736°

Approximate Surface Elev.: 486 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	DESCRIPTION	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	WATER CONTENT (%)
		0.3	**FOREST MAT**	485.7+/-				
3		1.7	**COMPLETELY WEATHERED ROCK**, orange to gray	484.3+/-	1			
			Refusal on Bedrock at 1.7 Feet					

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Mini excavator w. ~10' reach

Abandonment Method:
Test pit backfilled with spoils after completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

Test pit logged by: JCH

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
30 Corporate Cir Ste 201
Albany, NY

Test Pit Started: 09-19-2022	Test Pit Completed: 09-19-2022
Excavator: Kubota KX057-4	Operator: P.K. Freuh
Project No.: JB225043	

TEST PIT LOG NO. INF-10

PROJECT: Terramor Catskills

CLIENT: Kampgrounds of America Inc
Billings, MT

SITE: NY 212
Saugerties, NY

LOCATION See Exploration Plan

Latitude: 42.0483° Longitude: -74.0723°

Approximate Surface Elev.: 440 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH		ELEVATION (Ft.)	INSTALLATION DETAILS	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	WATER CONTENT (%)
		0.5	**FOREST MAT**	439.5+/-					
1		3.0	**POORLY GRADED SAND WITH SILT (SP-SM)**, roots and rootlets noted, orange to brown	437+/-	4" PVC set at 6' below grade. Annulus backfilled with soil cuttings to grade.				
2		7.0	**SILTY SAND WITH GRAVEL (SM)**, containing cobbles and boulders, orange to brown, (GLACIAL TILL) **Significant excavation effort noted 5.5'+**	433+/-	Undisturbed in situ soil	5			
			Refusal on Probable Boulders at 7 Feet						

Stratification lines are approximate. In-situ, the transition may be gradual.

Advancement Method:
Mini excavator w. ~10' reach

Abandonment Method:
Test pit backfilled with spoils after completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

Test pit logged by: JCH

WATER LEVEL OBSERVATIONS

No free water observed

Terracon
30 Corporate Cir Ste 201
Albany, NY

Test Pit Started: 09-19-2022	Test Pit Completed: 09-19-2022
Excavator: Kubota KX057-4	Operator: P.K. Freuh
Project No.: JB225043	

INFILTRATION TEST RESULTS

PROJECT: Terramor Catskills	**PROJECT NO.** JB225043
PROJECT LOCATION: Saugerties, New York	**TESTER:** JCH

Test Location	Test Depth (feet)	Trial No.	Water Drop (inches)	Elapsed Time (hours)	Infiltration Rate (inches/hour)
INF-1	5.5	1	8	1.0	8
		2	8	1.0	8
		3	8	1.0	8
		4	8	1.0	8
		NOTE: Rate of final trial: 8 in/hr. Average of four trials: 8 in/hr.			
INF-2	5.5	1	24	0.32	>24
		2	24	0.23	>24
		3	24	0.22	>24
		4	24	0.32	>24
		NOTE: Rate of final trial: >24 in/hr. Average of four trials: >24 in/hr.			
INF-10	6.0	1	24	0.08	>24
		2	24	0.12	>24
		3	24	0.13	>24
		4	24	0.15	>24
		NOTE: Rate of final trial: >24 in/hr. Average of four trials: >24 in/hr.			

Notes:

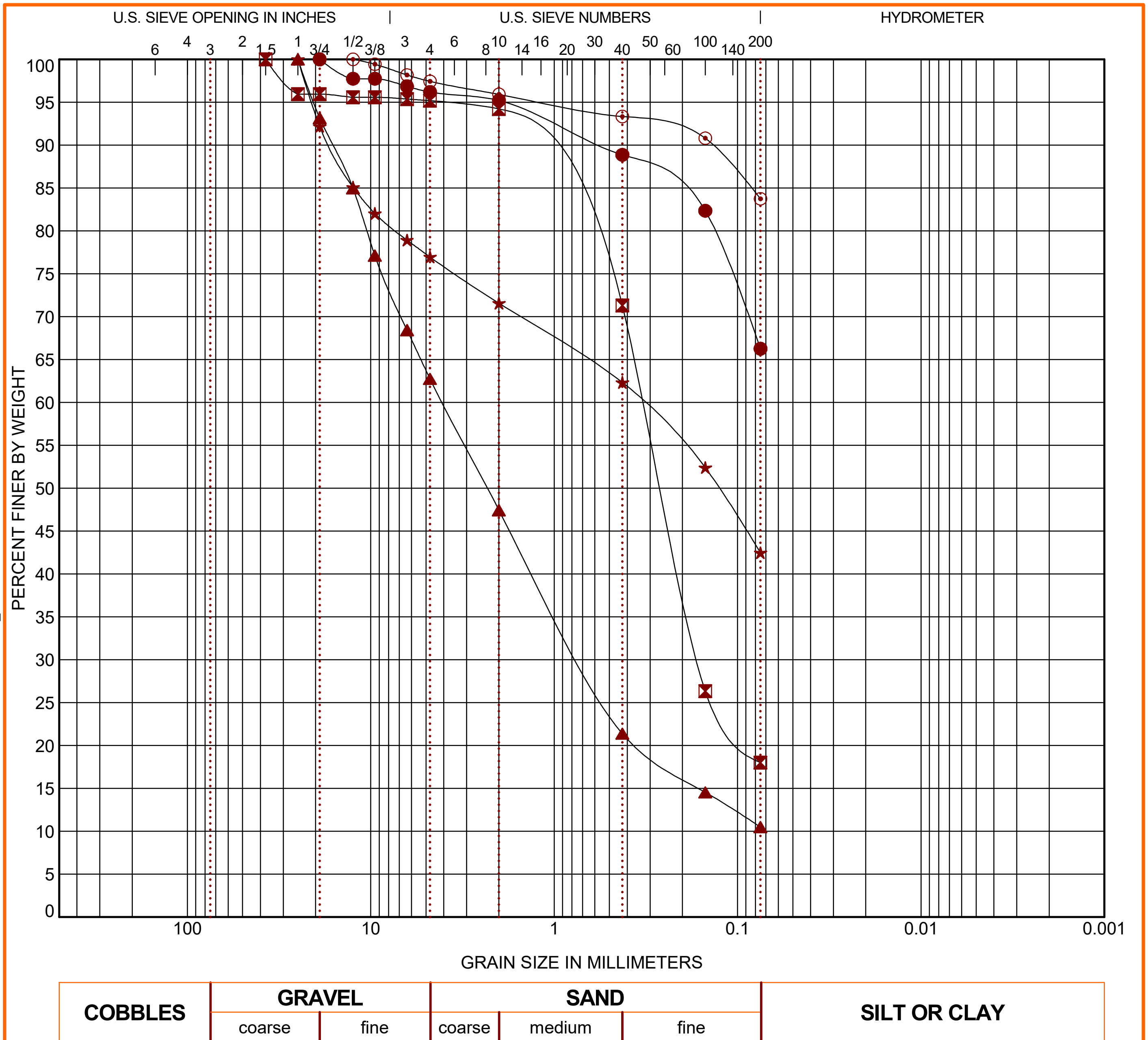
(1) Test pipes were installed in test pits adjacent to INF-1, INF-2, and INF-10
(2) Results at INF-10 are not typical of the subsurface conditions encountered. Lower rates should be anticipated.

SOIL CLASSIFICATION AT TEST DEPTH

Test Location INF-1: Silty Sand (SM)
Test Location INF-2: Well Graded Sand with Silt (SW-SM).
Test Location INF-10: Silty Sand with Gravel (SM)

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



Boring ID		Depth (Ft)	USCS Classification	WC (%)	LL	PL	PI	Cc	Cu
●	TP-1	3 - 4	SANDY SILT (ML)	18.0					
⊠	INF-1	6 - 6.5	SILTY SAND (SM)	8.2					
▲	INF-2	6 - 6.5	WELL-GRADED SAND WITH GRAVEL (SW)	7.3				1.79	58.94
★	INF-3	2 - 2.4	SILTY SAND WITH GRAVEL (SM)	12.8					
⊙	INF-6	2.5 - 3.5	SILT (ML)	17.0					

Boring ID		Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Silt	%Fines	%Clay
●	TP-1	3 - 4	19				0.0	3.8	29.9		66.3	
⊠	INF-1	6 - 6.5	37.5	0.327	0.163		0.0	4.8	77.2		18.0	
▲	INF-2	6 - 6.5	25	4.068	0.71		0.0	37.3	52.3		10.5	
★	INF-3	2 - 2.4	25	0.333			0.0	23.0	34.5		42.5	
⊙	INF-6	2.5 - 3.5	12.5				0.0	2.6	13.7		83.7	

PROJECT: Terramor Catskills

SITE: NY 212
Saugerties, NY

Terracon
30 Corporate Cir Ste 201
Albany, NY

PROJECT NUMBER: JB225043

CLIENT: Kampgrounds of America Inc
Billings, MT

SUPPORTING INFORMATION

Contents:

Note: All attachments are one page unless noted above.

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

Terramor Catskills ■ Saugerties, NY

Terracon Project No. JB225043

SAMPLING	WATER LEVEL	FIELD TESTS
Grab Sample	**Water Initially Encountered**	**N** **Standard Penetration Test Resistance (Blows/Ft.)**
	Water Level After a Specified Period of Time	**(HP)** **Hand Penetrometer**
	Water Level After a Specified Period of Time	**(T)** **Torvane**
	Cave In Encountered	**(DCP)** **Dynamic Cone Penetrometer**
	Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.	**UC** **Unconfined Compressive Strength**
		(PID) **Photo-Ionization Detector**
		(OVA) **Organic Vapor Analyzer**

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

LOCATION AND ELEVATION NOTES

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		**CONSISTENCY OF FINE-GRAINED SOILS** (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength Qu, (tsf)**	**Standard Penetration or N-Value Blows/Ft.**
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	4 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	8 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	15 - 30
		Hard	> 4.00	> 30

RELEVANCE OF SOIL BORING LOG

The soil boring logs contained within this document are intended for application to the project as described in this document. Use of these soil boring logs for any other purpose may not be appropriate.

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]					Soil Classification: Group Symbol	Soil Classification: Group Name[B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines[C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$[E]		GW	Well-graded gravel[F]
			$Cu < 4$ and/or [$Cc<1$ or $Cc>3.0$][E]		GP	Poorly graded gravel[F]
		Gravels with Fines: More than 12% fines[C]	Fines classify as ML or MH		GM	Silty gravel[F, G, H]
			Fines classify as CL or CH		GC	Clayey gravel[F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines[D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$[E]		SW	Well-graded sand[I]
			$Cu < 6$ and/or [$Cc<1$ or $Cc>3.0$][E]		SP	Poorly graded sand[I]
		Sands with Fines: More than 12% fines[D]	Fines classify as ML or MH		SM	Silty sand[G, H, I]
			Fines classify as CL or CH		SC	Clayey sand[G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above “A” line		CL	Lean clay[K, L, M]
			PI < 4 or plots below “A” line[J]		ML	Silt[K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay[K, L, M, N]
			Liquid limit - not dried			Organic silt[K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above “A” line		CH	Fat clay[K, L, M]
			PI plots below “A” line		MH	Elastic Silt[K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay[K, L, M, P]
			Liquid limit - not dried			Organic silt[K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.

[B] If field sample contained cobbles or boulders, or both, add “with cobbles or boulders, or both” to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add “with sand” to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add “with organic fines” to group name.

[I] If soil contains ≥ 15% gravel, add “with gravel” to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add “with sand” or “with gravel,” whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add “sandy” to group name.

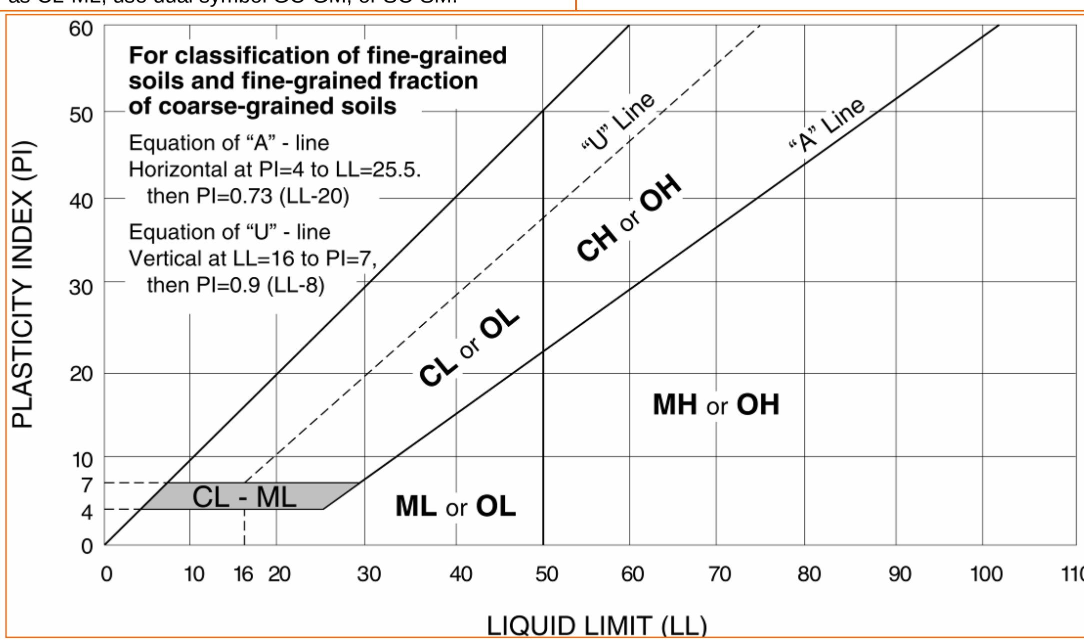
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add “gravelly” to group name.

[N] PI ≥ 4 and plots on or above “A” line.

[O] PI < 4 or plots below “A” line.

[P] PI plots on or above “A” line.

[Q] PI plots below “A” line.



DESCRIPTION OF ROCK PROPERTIES

Terracon GeoReport

WEATHERING	
Term	**Description**
Unweathered	No visible sign of rock material weathering, perhaps slight discoloration on major discontinuity surfaces.
Slightly weathered	Discoloration indicates weathering of rock material and discontinuity surfaces. All the rock material may be discolored by weathering and may be somewhat weaker externally than in its fresh condition.
Moderately weathered	Less than half of the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present either as a continuous framework or as corestones.
Highly weathered	More than half of the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present either as a discontinuous framework or as corestones.
Completely weathered	All rock material is decomposed and/or disintegrated to soil. The original mass structure is still largely intact.
Residual soil	All rock material is converted to soil. The mass structure and material fabric are destroyed. There is a large change in volume, but the soil has not been significantly transported.

STRENGTH OR HARDNESS		
Description	**Field Identification**	**Uniaxial Compressive Strength, psi (MPa)**
Extremely weak	Indented by thumbnail	40-150 (0.3-1)
Very weak	Crumbles under firm blows with point of geological hammer, can be peeled by a pocket knife	150-700 (1-5)
Weak rock	Can be peeled by a pocket knife with difficulty, shallow indentations made by firm blow with point of geological hammer	700-4,000 (5-30)
Medium strong	Cannot be scraped or peeled with a pocket knife, specimen can be fractured with single firm blow of geological hammer	4,000-7,000 (30-50)
Strong rock	Specimen requires more than one blow of geological hammer to fracture it	7,000-15,000 (50-100)
Very strong	Specimen requires many blows of geological hammer to fracture it	15,000-36,000 (100-250)
Extremely strong	Specimen can only be chipped with geological hammer	>36,000 (>250)

DISCONTINUITY DESCRIPTION			
Fracture Spacing (Joints, Faults, Other Fractures)		**Bedding Spacing (May Include Foliation or Banding)**	
Description	**Spacing**	**Description**	**Spacing**
Extremely close	< ¾ in (<19 mm)	**Laminated**	< ½ in (<12 mm)
Very close	¾ in – 2-1/2 in (19 - 60 mm)	**Very thin**	½ in – 2 in (12 – 50 mm)
Close	2-1/2 in – 8 in (60 – 200 mm)	**Thin**	2 in – 1 ft. (50 – 300 mm)
Moderate	8 in – 2 ft. (200 – 600 mm)	**Medium**	1 ft. – 3 ft. (300 – 900 mm)
Wide	2 ft. – 6 ft. (600 mm – 2.0 m)	**Thick**	3 ft. – 10 ft. (900 mm – 3 m)
Very Wide	6 ft. – 20 ft. (2.0 – 6 m)	**Massive**	> 10 ft. (3 m)

Discontinuity Orientation (Angle): Measure the angle of discontinuity relative to a plane perpendicular to the longitudinal axis of the core. (For most cases, the core axis is vertical; therefore, the plane perpendicular to the core axis is horizontal.) For example, a horizontal bedding plane would have a 0-degree angle.

ROCK QUALITY DESIGNATION (RQD) [1]	
Description	**RQD Value (%)**
Very Poor	0 - 25
Poor	25 – 50
Fair	50 – 75
Good	75 – 90
Excellent	90 - 100

1. The combined length of all sound and intact core segments equal to or greater than 4 inches in length, expressed as a percentage of the total core run length.

Reference: U.S. Department of Transportation, Federal Highway Administration, Publication No FHWA-NHI-10-034, December 2009 Technical Manual for Design and Construction of Road Tunnels – Civil Elements

E

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture, Landscape Architecture & Geology, D.P.C.

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518.786.7400 FAX 518.786.7299 www.ctmale.com

TECHNICAL MEMORANDUM

To: Terramor

From: C.T. Male Associates

Subject: Wastewater Collection and Disposal

Date: November 30, 2022

Project: **Terramor Campground – Saugerties, NY**

SUMMARY

This technical memorandum provides the preliminary basis of design for wastewater collection and treatment at the proposed Terramor Campground in Saugerties, Ulster County, New York.

DESCRIPTION OF WASTEWATER DISPOSAL NEEDS

The campground has 4 facility types which generate wastewater.

1. Camping Sites
   a. The proposed project consists of 75 campsites with water and wastewater utilities. There are two types of sites: the Woody 35 and the Woody 45 with 45 sites and 30 sites each, respectively.

2. Guest Amenities
   a. The proposed project consists of a Lodge with a lounge area, bar seating and restaurant seating.
   b. The proposed project includes a pool with a cabana including bathrooms and a pavilion.

3. Operational Structures
   a. The proposed development consists of a Welcome Center and Maintenance Building

4. Employee Units

WASTEWATER STRENGTH

Wastewater generated from the campground will consist of the following types of waste streams:

- Domestic Wastewater – From the campsites, employee units, guest amenities, and operational buildings.

- Process Wastewater – From floor drains in maintenance building.

- Higher Strength Wastewater – From the Lodge including typical of flows from restaurants. This is expected to have higher concentrations of solids and BOD.

WASTEWATER FLOWS

The calculations for the average wastewater flows are shown in the table below:

Water Demands and Wastewater Flows - Terramor Outdoor Resorts Saugerties				
	Unit	**Quantity**	**Unit Water Use**	**GPD**
Woody 35 Campsites	Max Occupancy	90	36	3240
Woody 45 Campsites	Max Occupancy	150	36	5400
General Manager's Unit	# Bedrooms	3	110	330
2 SuiteEmployee Units	# Bedrooms	4	110	440
4 Dorm Employee Units	# Workers	24	50	1200
Maintenance Building/Laundry	# Washing Machine	2	580	1160
Lodge - Tabletop	# Seats	40	35	1400
Lodge - Bartop	# Seats	28	20	560
Lodge - Lounge	# Seats	50	20	1000
Non-Residential Employees	# Employees	11	15	165
Total				14895

The unit water use per guest of 36 gallons per day was generated from actual water use at another Terramor Resort as recorded in the summer of 2022. The 36 gallons per day per guest water use <u>includes</u> all amenities including employees/employee units, a lodge and a pool. To be conservative, design flows for the amenities at this location (shown above) are calculated <u>in addition</u> to the guest unit water use.

WASTEWATER COLLECTION

Wastewater from the proposed development will be collected in a series of wastewater subcatchments which collect and convey wastewater by gravity to a low-pressure-sewer (LPS) pump station with grinder pumps. Each pumpstation is connected into a LPS network which pumps wastewater to a packaged wastewater treatment plant. A LPS system was selected to minimize rock excavation expected to due to the presence of shallow bedrock at the site. The gravity sewers are 4" PVC. The LPS forcemain network varies in sizes with 1.25", 2" and 3" HDPE piping.

WASTEWATER TREATMENT

Due to the shallow bedrock, subsurface treatment and disposal is not proposed at this time. The proposed method of treating and disposing of wastewater from the development is with a packaged wastewater treatment plant (WWTP). This basis of design technical memo uses the Amphidrome System Packaged WWTP which is a submerged attached growth biologically active filter (BAF) which can provide BOD reduction, nitrification, denitrification, phosphorus reduction and filtration of suspended solids in a single reactor. A brochure from the manufacturer is attached to this memo. The wastewater from the lodge is conveyed to a grease trap prior to flowing by gravity to a pump station to reduce the levels of fats, oils, and grease at the WWTP.

As required prior to submission of an application for approval from the NYSDEC, a pre-application conference was held with the NYSDEC. At this time, it is assumed that the facility will obtain a SPDES permit from the NYSDEC to discharge treated effluent to the intermittent stream located on the interior of the site. The preliminary design of the Amphidrome System assumes typical effluent limits for discharging to an intermittent stream from the NYSDEC Manual for Design for Intermediate Sized Wastewater Treatment Systems (Table B-4B) as shown below:

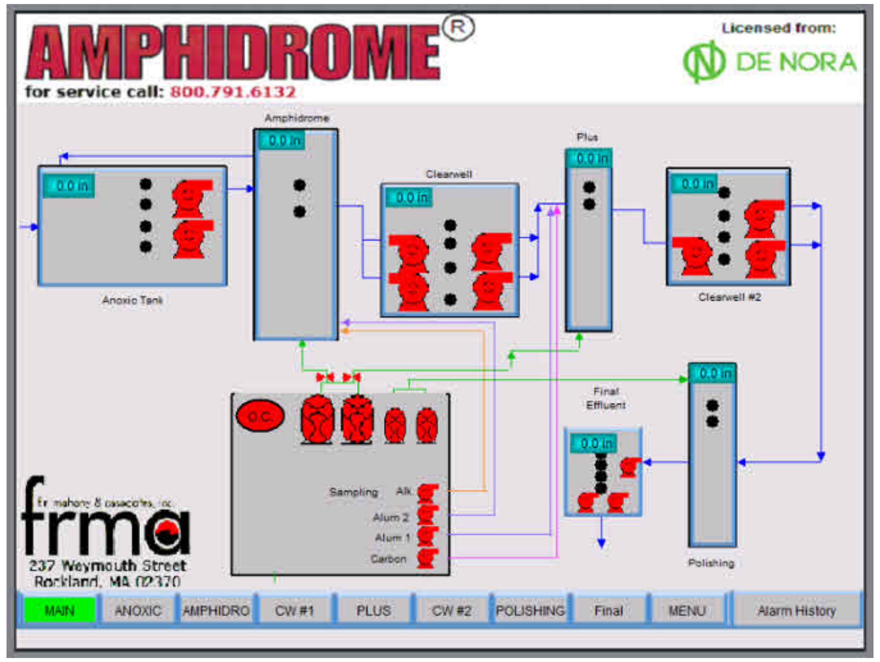
Table B-4B Typical Effluent Limits for Intermittent Streams[32]

Parameter	Type	Limitation	Units
BOD_5	Daily Maximum	5	mg/L
TSS	Daily Maximum	10	mg/L
Settleable Solids	Daily Maximum	0.1	ml/L
Total Residual Chlorine	Daily Maximum	0.02	mg/L
Ammonia[33]	Daily Maximum or Average	2.2 in winter 1.5 in summer	mg/L as NH_3
Dissolved Oxygen	Daily Minimum	≥ 7.0	mg/L
pH	Range	6.0 – 9.0	SU
Total Phosphorus	Site-specific	Site-specific	mg/L as P
Coliform, fecal, when disinfecting	30-day geometric mean	200	Number of colonies per 100 ml
Coliform, fecal, when disinfecting	7 consecutive-day geometric mean	400	Number of colonies per 100 ml

PERMITTING

The design for the wastewater collection and treatment system will be submitted to the NYSDEC for review and approval. It is not expected that the UCDOH will be involved with the review because of the volume of wastewater expected and it is not planned to utilize subsurface disposal of the treated effluent.

CUSTOMIZED TOUCH SCREEN CONTROLS



Typical Applications

Condominiums
Cluster System Developments
Health Care Facilities
Resorts
Shopping Malls
Schools
Office Parks

Single Family Home

f.r. mahony & associates inc.
frma
273 Weymouth Street • Rockland MA 02370

Water & Wastewater Technologies

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fax. 781-982-1056
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Waste Water Treatment System

Advanced Nutrient Removal

Low Visual Site Impact

Your Economical Treatment Solution

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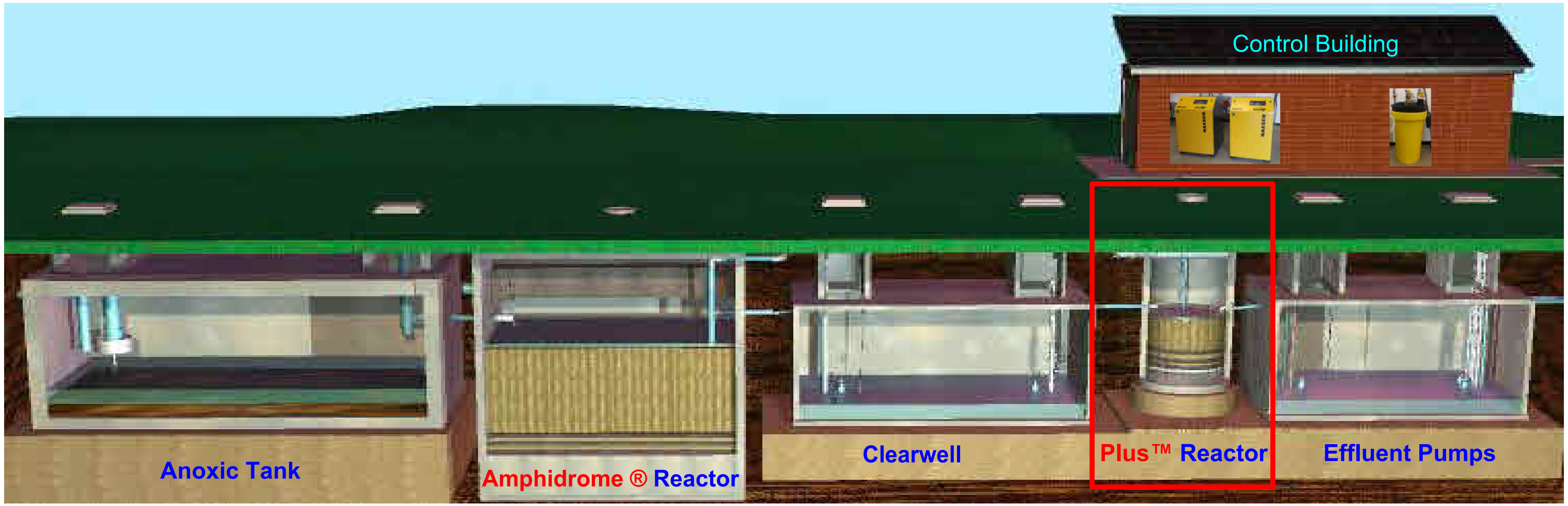

The **Amphidrome® System** is a Submerged Attached Growth **B**iologically **A**ctive **F**ilter (BAF) providing BOD reduction, superior nitrification, denitrification, phosphorus reduction and filtration of suspended solids in a single reactor.

A spherical sand media provides maximum surface area for microorganisms to attach themselves. The microorganism environment is manipulated with intermittent aeration.

The result is an energy efficient superior treatment system with a very small footprint.

With the addition of an **Amphidrome® Plus™** denitrification reactor, nitrogen is further reduced to the lowest level biologically attainable. An enhanced level of phosphorus reduction can also be achieved.

A small building houses a control panel, blowers, and any other ancillary equipment as may be required for a specific application such as alkalinity feed or ultraviolet (UV) disinfection.

SYSTEM BENEFITS

Low Visual Site Impact	**System Below Grade**
Low Audible Site Impact	**Premium Sound Enclosed Blowers**
Simple to Operate	**Touch Screen, Remote Access for Monitoring and Control**
Energy Efficient	**Intermittent Aeration**
Consistent Treatment	**Fixed Film Reactor With High Biomass**
Filtered Effluent	**Effluent Is Filtered Through Our Deep Media Bed Filter**
Easily Upgradable	**Future Nitrogen or Phosphorus Limits**

ALL SYSTEMS ARE CUSTOM CONFIGURED TO MEET STRINGENT LIMITS

Advanced Nutrient Removal

Ammonia < 1 mg/l

Nitrogen to $\leq$ 3 mg/l TN

Phosphorus $\leq$ 0.15 mg/l TP

Contaminants of Emerging Concern

TOC Reduction

F

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TECHNICAL MEMORANDUM

To: Terramor

From: C.T. Male Associates

Subject: Water Supply, Treatment and Distribution

Date: November 30, 2022

Project: **Terramor – Saugerties, NY**

SUMMARY

This technical memorandum provides the preliminary basis of design for the water system at the proposed Terramor Campground in Saugerties, Ulster County, New York.

DESCRIPTION OF FACILITIES WITH WATER DEMAND

The campground has 4 facility types with a need for water services.

1. Camping Sites
   a. The proposed project consists of 75 campsites with water and wastewater utilities. There are two types of sites: the Woody 35 and the Woody 45 with 45 sites and 30 sites each, respectively.

2. Guest Amenities
   a. The proposed project consists of a Lodge with a lounge area, bar seating and restaurant seating.
   b. The proposed project includes a pool with a cabana including bathrooms and a pavilion.

3. Operational Structures
   a. The proposed development consists of a Welcome Center and Maintenance Building

4. Employee Units

DESIGN WATER DEMANDS

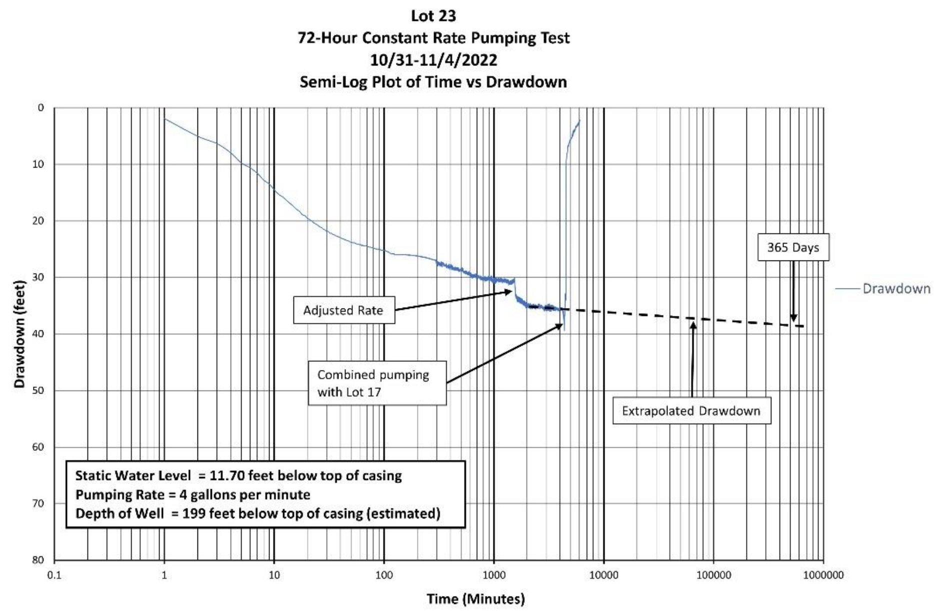
The calculations for the average daily water demands are shown in the table below:

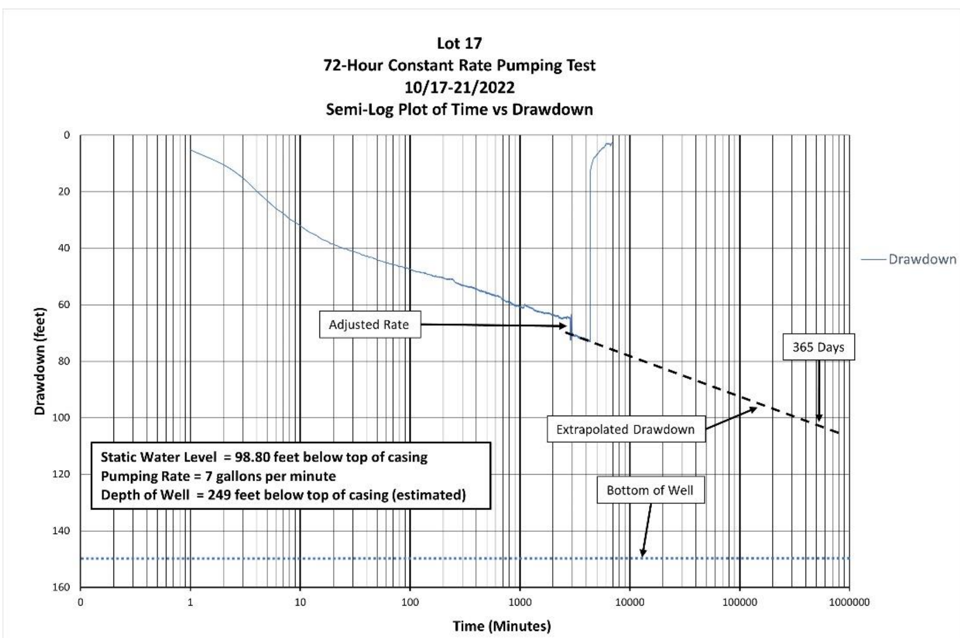
Water Demands and Wastewater Flows - Terramor Outdoor Resorts Saugerties				
	Unit	Quantity	Unit Water Use	GPD
Woody 35 Campsites	Max Occupancy	90	36	3240
Woody 45 Campsites	Max Occupancy	150	36	5400
General Manager's Unit	# Bedrooms	3	110	330
2 SuiteEmployee Units	# Bedrooms	4	110	440
4 Dorm Employee Units	# Workers	24	50	1200
Maintenance Building/Laundry	# Washing Machine	2	580	1160
Lodge - Tabletop	# Seats	40	35	1400
Lodge - Bartop	# Seats	28	20	560
Lodge - Lounge	# Seats	50	20	1000
Non-Residential Employees	# Employees	11	15	165
Total				14895

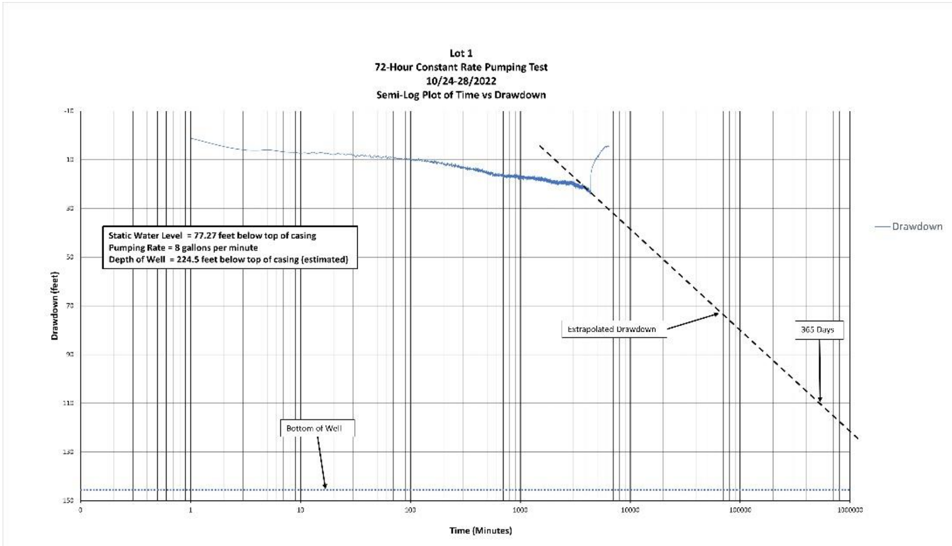
The unit water use per guest of 36 gallons per day was generated from actual water use at another Terramor Resort as recorded in the summer of 2022. The 36 gallons per day per guest water use <u>includes</u> all amenities including employees/employee units, a lodge and a pool. To be conservative, design flows for the amenities at this location (shown above) are calculated <u>in addition</u> to the guest unit water use.

WATER SOURCE

The proposed water sources for the proposed development will be from three of the six existing wells onsite which were originally installed for a development which was never constructed. Step testing and constant rate testing completed in October and November of 2022 suggests that the 3 wells have capacities of 4 GPM (5,760 GPD), 7 GPM (10,080 GPD), and 8 GPM (11,520 GPM). Based on the initial results of the yield testing, these three wells have the capacity to serve the proposed development according to the calculated average daily design flows. The locations of the three proposed well sources can be found on the Water and Wastewater Utility Plans submitted for Site Plan Approval. The water levels recorded during the yield testing is summarized in the charts on the following page.


Lot 23
72-Hour Constant Rate Pumping Test
10/31-11/4/2022
Semi-Log Plot of Time vs Drawdown
Drawdown (feet)
Time (Minutes)
Drawdown
365 Days
Adjusted Rate
Combined pumping with Lot 17
Extrapolated Drawdown
Static Water Level = 11.70 feet below top of casing
Pumping Rate = 4 gallons per minute
Depth of Well = 199 feet below top of casing (estimated)


Lot 17
72-Hour Constant Rate Pumping Test
10/17-21/2022
Semi-Log Plot of Time vs Drawdown
Drawdown (feet)
Time (Minutes)
Drawdown
Adjusted Rate
365 Days
Extrapolated Drawdown
Bottom of Well
Static Water Level = 98.80 feet below top of casing
Pumping Rate = 7 gallons per minute
Depth of Well = 249 feet below top of casing (estimated)



The data shown in the above charts is subject to further review and approval.

IMPACT OF WELL USE ON NEIGHBORING WELLS

During yield testing, the water level in four (4) neighboring wells was monitored to determine if water use on the Terramor site will impact water levels in the wells on the neighboring properties. The table below summarizes the water level recordings of the neighboring wells during each of the three 72-hour yield tests.

Lot 1 72-hour Pump Test - Neighborhood Well Level Monitoring								
	1716 Rout 212*		11 Osnas*		71 Raybrook		109 Cottontail Ln*	
Date	Time	Water Level (ft)	Time	Water Level (ft)	Time	Water Level (ft)	Time	Water Level (ft)
10/25/2022	8:08	<15	8:04	19.50	8:15	28.90	8:23	<15
	10:08	<15	10:02	19.30	10:13	28.00	10:20	<15
	12:11	<15	12:06	19.30	12:17	27.60	12:24	<15
	15:15	<15	15:08	19.60	15:01	27.70	14:56	<15
10/26/2022	8:05	<15	8:08	21.40	8:15	27.10	8:20	<15
	10:03	<15	10:06	21.00	9:54	27..1	10:32	<15
	12:15	<15	12:18	21.20	12:08	27.00	12:21	<15
	15:18	<15	15:15	21.20	15:07	27.40	15:03	<15
10/27/2022	10:00	<15	10:03	23.90	10:10	27.50	10:17	<15
	13:04	<15	13:07	24.60	13:00	27.40	12:56	<15
*<15 feet water level indicates the water level was observed visually due to shallow depth. No significant changes in water level observe								

Lot 17 72-hour Pump Test - Neighborhood Well Level Monitoring								
	1716 Rout 212*		11 Osnas*		71 Raybrook**		109 Cottontail Ln*	
Date	Time	Water Level (ft)	Time	Water Level (ft)	Time	Water Level (ft)	Time	Water Level (ft)
10/17/2022	--	<15	--	<15	--	--	--	--
	11:36	<15	--	<15	--	--	--	<15
10/18/2022	7:36	<15	7:40	<15	9:45	--	8:00	<15
	9:56	<15	9:51	<15	13:16	--	9:40	<15
	13:00	<15	13:11	<15	--	--	13:21	<15
10/19/2022	8:31	<15	8:40	<15	8:48	29.30	8:54	<15
	10:30	<15	10:40	<15	10:46	--	10:51	<15
	12:35	<15	12:40	<15	12:43	--	12:45	<15
	15:29	<15	15:33	<15	15:24	--	15:20	<15
10/20/2022	--	<15	--	<15	--	--	--	<15
	--	<15	--	<15	--	--	--	<15
* <15 feet water level indicates the water level was observed visually due to shallow depth. No significant changes in water level observed								
** Equipment malfunctions resulted in one level recording during testing. Water level was not visible.								

Lot 23 72-hour Pump Test - Neighborhood Well Level Monitoring								
	1716 Rout 212*		11 Osnas*		71 Raybrook		109 Cottontail Ln*	
Date	Time	Water Level (ft)	Time	Water Level (ft)	Time	Water Level (ft)	Time	Water Level (ft)
10/31/2022	9:12	<15	9:17	17.2	9:12	29.10	9:25	<15
	11:14	<15	11:17	<15	11:09	29.10	11:23	<15
	13:16	<15	13:19	<15	13:10	28.90	13:24	<15
11/1/2022	8:30	<15	8:37	<15	8:37	29.30	8:40	<15
	10:22	<15	10:24	<15	10:08	29.30	10:27	<15
	12:25	<15	12:28	<15	12:32	29.20	12:35	<15
	15:11	<15	15:09	<15	15:00	29.30	14:58	<15
11/2/2022	8:26	<15	8:30	<15	8:38	29.70	8:41	<15
	10:17	<15	10:20	<15	10:26	29.70	10:30	<15
	12:19	<15	12:21	15	12:28	29.80	12:32	<15
	15:11	<15	15:14	<15	15:10	29.7	15:07	<15
*<15 feet water level indicates the water level was observed visually due to shallow depth. No significant changes in water level observed								

WELL WATER CONVEYANCE AND TREATMENT

The wells will be equipped with submersible well pumps which will pump the groundwater from the wells to the maintenance building which will house the treatment, disinfection, storage, and pressure maintenance equipment. The well water lines will be HDPE pipeline.

Well water was be collected and sampled per the Ulster County DOH/NYSDOH requirements during the well yield testing to determine the raw water quality. Results of the sampling and water quality testing per NYSDOH requirements determine the final treatment requirements. Analytical results from two of the three wells are attached to this memo. Analytical results from the third well has not been finalized. Results of the testing available at two wells indicate that various forms of filtration will be required to address turbidity, iron, and manganese. The filtered water will be disinfected per the requirements of the NYSDOH/UCDOH. Analytical results for PFOA and PFOS showed detections of the compounds, but at concentrations below the New York State maximum contaminant level.

POTABLE WATER DISTRIBUTION

Potable water will be distributed throughout the proposed development through small diameter HDPE waterlines. Adequate pressure will be maintained in the distribution system using booster pumps and pressure tanks at the maintenance building.

PERMITTING

The design for the source, treatment and distribution systems will be submitted to the UCDOH for review and approval.

ANALYTICAL REPORT

Lab Number:	L2260165
Client:	C.T. Male Associates 50 Century Hill Drive Latham, NY 12110
ATTN:	Jonathan Dippert
Phone:	(518) 786-7400
Project Name:	TERRAMOR
Project Number:	22.2186
Report Date:	11/21/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: TERRAMOR
Project Number: 22.2186

Lab Number: L2260165
Report Date: 11/21/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2260165-01	LOT-1-221027	WATER	SAUGERTIES,NY	10/27/22 11:10	10/27/22
L2260165-02	FB01-221027	DW	SAUGERTIES,NY	10/27/22 11:00	10/27/22
L2260165-03	TRIP BLANK	DW	SAUGERTIES,NY	10/27/22 00:00	10/27/22

Project Name:	TERRAMOR	**Lab Number:**	L2260165
Project Number:	22.2186	**Report Date:**	11/21/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: TERRAMOR **Lab Number:** L2260165
Project Number: 22.2186 **Report Date:** 11/21/22

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

The analyses of Asbestos, Uranium, Radium-226, Radium-228, Gross Alpha, Gross Beta, EPA 531.1, EPA 552.2, EPA 549.2, EPA 548.1, EPA 547, EPA 505, EPA 525.2, Bromate, Chlorite, and EPA 515.3 were subcontracted. A copy of the laboratory report is included as an addendum. Please note: This data is only available in PDF format and is not available on Data Merger.

Sample Receipt

L2260165-01: The sample was received above the appropriate pH for the 1,4-Dioxane by EPA 522 analysis. The analysis was performed at the client's request.

Volatile Organics by Method 524.2

The WG1706698-3 LCS recoveries, associated with L2260165-01 and -03, are above the acceptance criteria for dichlorodifluoromethane (195%) and chloromethane (132%); however, the associated samples are non-detect to the RL for these target analytes. The results of the original analysis are reported.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 11/21/22

ORGANICS

VOLATILES

Project Name: TERRAMOR **Lab Number:** L2260165

Project Number: 22.2186 **Report Date:** 11/21/22

SAMPLE RESULTS

Lab ID:	L2260165-01	Date Collected:	10/27/22 11:10
Client ID:	LOT-1-221027	Date Received:	10/27/22
Sample Location:	SAUGERTIES,NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Dw	Extraction Method:	EPA 504.1
Analytical Method:	14,504.1	Extraction Date:	11/04/22 11:18
Analytical Date:	11/04/22 12:42		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	0.003	1	A
1,2,3-Trichloropropane	ND		ug/l	0.030	0.020	1	A

Project Name: TERRAMOR **Lab Number:** L2260165
Project Number: 22.2186 **Report Date:** 11/21/22

SAMPLE RESULTS

Lab ID:	L2260165-01	Date Collected:	10/27/22 11:10
Client ID:	LOT-1-221027	Date Received:	10/27/22
Sample Location:	SAUGERTIES,NY	Field Prep:	Not Specified

Sample Depth:
Matrix: Dw
Analytical Method: 16,524.2
Analytical Date: 10/28/22 14:50
Analyst: GMT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Dichlorodifluoromethane	ND		ug/l	0.50	0.16	1
Chloromethane	ND		ug/l	0.50	0.26	1
Vinyl chloride	ND		ug/l	0.50	0.19	1
Bromomethane	ND		ug/l	0.50	0.22	1
Chloroethane	ND		ug/l	0.50	0.18	1
Trichlorofluoromethane	ND		ug/l	0.50	0.14	1
1,1-Dichloroethene	ND		ug/l	0.50	0.15	1
Methylene chloride	ND		ug/l	0.50	0.26	1
Methyl tert butyl ether	ND		ug/l	0.50	0.13	1
trans-1,2-Dichloroethene	ND		ug/l	0.50	0.19	1
1,1-Dichloroethane	ND		ug/l	0.50	0.16	1
2,2-Dichloropropane	ND		ug/l	0.50	0.17	1
cis-1,2-Dichloroethene	ND		ug/l	0.50	0.17	1
Chloroform	ND		ug/l	0.50	0.15	1
Bromochloromethane	ND		ug/l	0.50	0.14	1
1,1,1-Trichloroethane	ND		ug/l	0.50	0.16	1
1,1-Dichloropropene	ND		ug/l	0.50	0.19	1
Carbon tetrachloride	ND		ug/l	0.50	0.18	1
1,2-Dichloroethane	ND		ug/l	0.50	0.15	1
Benzene	ND		ug/l	0.50	0.19	1
Trichloroethene	ND		ug/l	0.50	0.22	1
1,2-Dichloropropane	ND		ug/l	0.50	0.18	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
Dibromomethane	ND		ug/l	0.50	0.17	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.20	1
Toluene	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	0.50	0.24	1

SAMPLE RESULTS

Lab ID:	L2260165-01	Date Collected:	10/27/22 11:10
Client ID:	LOT-1-221027	Date Received:	10/27/22
Sample Location:	SAUGERTIES,NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichloropropane	ND		ug/l	0.50	0.22	1
Tetrachloroethene	ND		ug/l	0.50	0.24	1
Dibromochloromethane	ND		ug/l	0.50	0.12	1
1,2-Dibromoethane	ND		ug/l	0.50	0.24	1
Chlorobenzene	ND		ug/l	0.50	0.16	1
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.13	1
p/m-Xylene	ND		ug/l	0.50	0.30	1
o-Xylene	ND		ug/l	0.50	0.19	1
Styrene	ND		ug/l	0.50	0.16	1
Isopropylbenzene	ND		ug/l	0.50	0.13	1
Bromoform	ND		ug/l	0.50	0.25	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.14	1
1,2,3-Trichloropropane	ND		ug/l	0.50	0.24	1
Xylenes, Total[1]	ND		ug/l	0.50	0.19	1
n-Propylbenzene	ND		ug/l	0.50	0.14	1
Bromobenzene	ND		ug/l	0.50	0.13	1
1,3,5-Trimethylbenzene	ND		ug/l	0.50	0.15	1
o-Chlorotoluene	ND		ug/l	0.50	0.17	1
p-Chlorotoluene	ND		ug/l	0.50	0.15	1
tert-Butylbenzene	ND		ug/l	0.50	0.14	1
1,2,4-Trimethylbenzene	ND		ug/l	0.50	0.13	1
sec-Butylbenzene	ND		ug/l	0.50	0.11	1
p-Isopropyltoluene	ND		ug/l	0.50	0.12	1
1,3-Dichlorobenzene	ND		ug/l	0.50	0.17	1
1,4-Dichlorobenzene	ND		ug/l	0.50	0.18	1
n-Butylbenzene	ND		ug/l	0.50	0.25	1
1,2-Dichlorobenzene	ND		ug/l	0.50	0.16	1
1,2-Dibromo-3-chloropropane	ND		ug/l	0.50	0.29	1
1,2,4-Trichlorobenzene	ND		ug/l	0.50	0.12	1
Hexachlorobutadiene	ND		ug/l	0.50	0.15	1
Naphthalene	ND		ug/l	0.50	0.14	1
1,2,3-Trichlorobenzene	ND		ug/l	0.50	0.17	1

Project Name:	TERRAMOR	**Lab Number:**	L2260165
Project Number:	22.2186	**Report Date:**	11/21/22

SAMPLE RESULTS

Lab ID:	L2260165-01	Date Collected:	10/27/22 11:10
Client ID:	LOT-1-221027	Date Received:	10/27/22
Sample Location:	SAUGERTIES,NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	104		80-120
4-Bromofluorobenzene	85		80-120

Project Name: TERRAMOR **Lab Number:** L2260165

Project Number: 22.2186 **Report Date:** 11/21/22

SAMPLE RESULTS

Lab ID: L2260165-03
Client ID: TRIP BLANK
Sample Location: SAUGERTIES,NY

Date Collected: 10/27/22 00:00
Date Received: 10/27/22
Field Prep: Not Specified

Sample Depth:
Matrix: Dw
Analytical Method: 14,504.1
Analytical Date: 11/04/22 12:53
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 11/04/22 11:18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	0.003	1	A
1,2,3-Trichloropropane	ND		ug/l	0.030	0.020	1	A

Project Name: TERRAMOR **Lab Number:** L2260165

Project Number: 22.2186 **Report Date:** 11/21/22

SAMPLE RESULTS

Lab ID: L2260165-03
Client ID: TRIP BLANK
Sample Location: SAUGERTIES,NY

Date Collected: 10/27/22 00:00
Date Received: 10/27/22
Field Prep: Not Specified

Sample Depth:
Matrix: Dw
Analytical Method: 16,524.2
Analytical Date: 10/28/22 15:19
Analyst: GMT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Dichlorodifluoromethane	ND		ug/l	0.50	0.16	1
Chloromethane	ND		ug/l	0.50	0.26	1
Vinyl chloride	ND		ug/l	0.50	0.19	1
Bromomethane	ND		ug/l	0.50	0.22	1
Chloroethane	ND		ug/l	0.50	0.18	1
Trichlorofluoromethane	ND		ug/l	0.50	0.14	1
1,1-Dichloroethene	ND		ug/l	0.50	0.15	1
Methylene chloride	ND		ug/l	0.50	0.26	1
Methyl tert butyl ether	ND		ug/l	0.50	0.13	1
trans-1,2-Dichloroethene	ND		ug/l	0.50	0.19	1
1,1-Dichloroethane	ND		ug/l	0.50	0.16	1
2,2-Dichloropropane	ND		ug/l	0.50	0.17	1
cis-1,2-Dichloroethene	ND		ug/l	0.50	0.17	1
Chloroform	ND		ug/l	0.50	0.15	1
Bromochloromethane	ND		ug/l	0.50	0.14	1
1,1,1-Trichloroethane	ND		ug/l	0.50	0.16	1
1,1-Dichloropropene	ND		ug/l	0.50	0.19	1
Carbon tetrachloride	ND		ug/l	0.50	0.18	1
1,2-Dichloroethane	ND		ug/l	0.50	0.15	1
Benzene	ND		ug/l	0.50	0.19	1
Trichloroethene	ND		ug/l	0.50	0.22	1
1,2-Dichloropropane	ND		ug/l	0.50	0.18	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
Dibromomethane	ND		ug/l	0.50	0.17	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.20	1
Toluene	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	0.50	0.24	1

Project Name: TERRAMOR **Lab Number:** L2260165
Project Number: 22.2186 **Report Date:** 11/21/22

SAMPLE RESULTS

Lab ID: L2260165-03 Date Collected: 10/27/22 00:00
Client ID: TRIP BLANK Date Received: 10/27/22
Sample Location: SAUGERTIES,NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichloropropane	ND		ug/l	0.50	0.22	1
Tetrachloroethene	ND		ug/l	0.50	0.24	1
Dibromochloromethane	ND		ug/l	0.50	0.12	1
1,2-Dibromoethane	ND		ug/l	0.50	0.24	1
Chlorobenzene	ND		ug/l	0.50	0.16	1
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.13	1
p/m-Xylene	ND		ug/l	0.50	0.30	1
o-Xylene	ND		ug/l	0.50	0.19	1
Styrene	ND		ug/l	0.50	0.16	1
Isopropylbenzene	ND		ug/l	0.50	0.13	1
Bromoform	ND		ug/l	0.50	0.25	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.14	1
1,2,3-Trichloropropane	ND		ug/l	0.50	0.24	1
Xylenes, Total[1]	ND		ug/l	0.50	0.19	1
n-Propylbenzene	ND		ug/l	0.50	0.14	1
Bromobenzene	ND		ug/l	0.50	0.13	1
1,3,5-Trimethylbenzene	ND		ug/l	0.50	0.15	1
o-Chlorotoluene	ND		ug/l	0.50	0.17	1
p-Chlorotoluene	ND		ug/l	0.50	0.15	1
tert-Butylbenzene	ND		ug/l	0.50	0.14	1
1,2,4-Trimethylbenzene	ND		ug/l	0.50	0.13	1
sec-Butylbenzene	ND		ug/l	0.50	0.11	1
p-Isopropyltoluene	ND		ug/l	0.50	0.12	1
1,3-Dichlorobenzene	ND		ug/l	0.50	0.17	1
1,4-Dichlorobenzene	ND		ug/l	0.50	0.18	1
n-Butylbenzene	ND		ug/l	0.50	0.25	1
1,2-Dichlorobenzene	ND		ug/l	0.50	0.16	1
1,2-Dibromo-3-chloropropane	ND		ug/l	0.50	0.29	1
1,2,4-Trichlorobenzene	ND		ug/l	0.50	0.12	1
Hexachlorobutadiene	ND		ug/l	0.50	0.15	1
Naphthalene	ND		ug/l	0.50	0.14	1
1,2,3-Trichlorobenzene	ND		ug/l	0.50	0.17	1

Project Name: TERRAMOR **Lab Number:** L2260165

Project Number: 22.2186 **Report Date:** 11/21/22

SAMPLE RESULTS

Lab ID:	L2260165-03	Date Collected:	10/27/22 00:00
Client ID:	TRIP BLANK	Date Received:	10/27/22
Sample Location:	SAUGERTIES,NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Volatile Organics by GC/MS - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	104		80-120
4-Bromofluorobenzene	90		80-120

Project Name: TERRAMOR **Lab Number:** L2260165
Project Number: 22.2186 **Report Date:** 11/21/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 16,524.2
Analytical Date: 10/28/22 11:01
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01,03 Batch: WG1706698-4					
Dichlorodifluoromethane	ND		ug/l	0.50	0.16
Chloromethane	ND		ug/l	0.50	0.26
Vinyl chloride	ND		ug/l	0.50	0.19
Bromomethane	ND		ug/l	0.50	0.22
Chloroethane	ND		ug/l	0.50	0.18
Trichlorofluoromethane	ND		ug/l	0.50	0.14
1,1-Dichloroethene	ND		ug/l	0.50	0.15
Methylene chloride	ND		ug/l	0.50	0.26
Methyl tert butyl ether	ND		ug/l	0.50	0.13
trans-1,2-Dichloroethene	ND		ug/l	0.50	0.19
1,1-Dichloroethane	ND		ug/l	0.50	0.16
2,2-Dichloropropane	ND		ug/l	0.50	0.17
cis-1,2-Dichloroethene	ND		ug/l	0.50	0.17
Chloroform	ND		ug/l	0.50	0.15
Bromochloromethane	ND		ug/l	0.50	0.14
1,1,1-Trichloroethane	ND		ug/l	0.50	0.16
1,1-Dichloropropene	ND		ug/l	0.50	0.19
Carbon tetrachloride	ND		ug/l	0.50	0.18
1,2-Dichloroethane	ND		ug/l	0.50	0.15
Benzene	ND		ug/l	0.50	0.19
Trichloroethene	ND		ug/l	0.50	0.22
1,2-Dichloropropane	ND		ug/l	0.50	0.18
Bromodichloromethane	ND		ug/l	0.50	0.19
Dibromomethane	ND		ug/l	0.50	0.17
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.20
Toluene	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	0.50	0.24
1,3-Dichloropropane	ND		ug/l	0.50	0.22

Project Name: TERRAMOR | **Lab Number:** L2260165
Project Number: 22.2186 | **Report Date:** 11/21/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 16,524.2
Analytical Date: 10/28/22 11:01
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01,03 Batch: WG1706698-4					
Tetrachloroethene	ND		ug/l	0.50	0.24
Dibromochloromethane	ND		ug/l	0.50	0.12
1,2-Dibromoethane	ND		ug/l	0.50	0.24
Chlorobenzene	ND		ug/l	0.50	0.16
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.19
Ethylbenzene	ND		ug/l	0.50	0.13
p/m-Xylene	ND		ug/l	0.50	0.30
o-Xylene	ND		ug/l	0.50	0.19
Styrene	ND		ug/l	0.50	0.16
Isopropylbenzene	ND		ug/l	0.50	0.13
Bromoform	ND		ug/l	0.50	0.25
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.14
Xylenes, Total[1]	ND		ug/l	0.50	0.19
1,2,3-Trichloropropane	ND		ug/l	0.50	0.24
n-Propylbenzene	ND		ug/l	0.50	0.14
Bromobenzene	ND		ug/l	0.50	0.13
1,3,5-Trimethylbenzene	ND		ug/l	0.50	0.15
o-Chlorotoluene	ND		ug/l	0.50	0.17
p-Chlorotoluene	ND		ug/l	0.50	0.15
tert-Butylbenzene	ND		ug/l	0.50	0.14
1,2,4-Trimethylbenzene	ND		ug/l	0.50	0.13
sec-Butylbenzene	ND		ug/l	0.50	0.11
p-Isopropyltoluene	ND		ug/l	0.50	0.12
1,3-Dichlorobenzene	ND		ug/l	0.50	0.17
1,4-Dichlorobenzene	ND		ug/l	0.50	0.18
n-Butylbenzene	ND		ug/l	0.50	0.25
1,2-Dichlorobenzene	ND		ug/l	0.50	0.16
1,2-Dibromo-3-chloropropane	ND		ug/l	0.50	0.29
1,2,4-Trichlorobenzene	ND		ug/l	0.50	0.12

Project Name: TERRAMOR **Lab Number:** L2260165
Project Number: 22.2186 **Report Date:** 11/21/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 16,524.2
Analytical Date: 10/28/22 11:01
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01,03 Batch: WG1706698-4					
Hexachlorobutadiene	ND		ug/l	0.50	0.15
Naphthalene	ND		ug/l	0.50	0.14
1,2,3-Trichlorobenzene	ND		ug/l	0.50	0.17

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	102		80-120
4-Bromofluorobenzene	87		80-120

Project Name: TERRAMOR
Project Number: 22.2186

Lab Number: L2260165
Report Date: 11/21/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 11/04/22 12:12
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 11/04/22 11:18

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01,03 Batch: WG1708211-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	0.003	A
1,2,3-Trichloropropane	ND		ug/l	0.030	0.020	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR **Lab Number:** L2260165
Project Number: 22.2186 **Report Date:** 11/21/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03 Batch: WG1706698-3								
Dichlorodifluoromethane	**195**	Q	-		70-130	-		20
Chloromethane	**132**	Q	-		70-130	-		20
Vinyl chloride	100		-		70-130	-		20
Bromomethane	92		-		70-130	-		20
Chloroethane	95		-		70-130	-		20
Trichlorofluoromethane	90		-		70-130	-		20
1,1-Dichloroethene	95		-		70-130	-		20
Methylene chloride	85		-		70-130	-		20
Methyl tert butyl ether	78		-		70-130	-		20
trans-1,2-Dichloroethene	90		-		70-130	-		20
1,1-Dichloroethane	85		-		70-130	-		20
2,2-Dichloropropane	95		-		70-130	-		20
cis-1,2-Dichloroethene	85		-		70-130	-		20
Chloroform	85		-		70-130	-		20
Bromochloromethane	112		-		70-130	-		20
1,1,1-Trichloroethane	98		-		70-130	-		20
1,1-Dichloropropene	92		-		70-130	-		20
Carbon tetrachloride	102		-		70-130	-		20
1,2-Dichloroethane	98		-		70-130	-		20
Benzene	98		-		70-130	-		20
Trichloroethene	92		-		70-130	-		20
1,2-Dichloropropane	105		-		70-130	-		20
Bromodichloromethane	100		-		70-130	-		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: 22.2186

Lab Number: L2260165
Report Date: 11/21/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03 Batch: WG1706698-3								
Dibromomethane	88		-		70-130	-		20
cis-1,3-Dichloropropene	88		-		70-130	-		20
Toluene	90		-		70-130	-		20
trans-1,3-Dichloropropene	88		-		70-130	-		20
1,1,2-Trichloroethane	85		-		70-130	-		20
1,3-Dichloropropane	90		-		70-130	-		20
Tetrachloroethene	98		-		70-130	-		20
Dibromochloromethane	88		-		70-130	-		20
1,2-Dibromoethane	82		-		70-130	-		20
Chlorobenzene	105		-		70-130	-		20
1,1,1,2-Tetrachloroethane	95		-		70-130	-		20
Ethylbenzene	100		-		70-130	-		20
p/m-Xylene	104		-		70-130	-		20
o-Xylene	102		-		70-130	-		20
Styrene	102		-		70-130	-		20
Isopropylbenzene	100		-		70-130	-		20
Bromoform	85		-		70-130	-		20
1,1,2,2-Tetrachloroethane	85		-		70-130	-		20
1,2,3-Trichloropropane	88		-		70-130	-		20
n-Propylbenzene	102		-		70-130	-		20
Bromobenzene	108		-		70-130	-		20
1,3,5-Trimethylbenzene	100		-		70-130	-		20
o-Chlorotoluene	108		-		70-130	-		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: 22.2186

Lab Number: L2260165
Report Date: 11/21/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03 Batch: WG1706698-3								
p-Chlorotoluene	105		-		70-130	-		20
tert-Butylbenzene	100		-		70-130	-		20
1,2,4-Trimethylbenzene	102		-		70-130	-		20
sec-Butylbenzene	100		-		70-130	-		20
p-Isopropyltoluene	102		-		70-130	-		20
1,3-Dichlorobenzene	105		-		70-130	-		20
1,4-Dichlorobenzene	108		-		70-130	-		20
n-Butylbenzene	98		-		70-130	-		20
1,2-Dichlorobenzene	100		-		70-130	-		20
1,2-Dibromo-3-chloropropane	85		-		70-130	-		20
1,2,4-Trichlorobenzene	100		-		70-130	-		20
Hexachlorobutadiene	88		-		70-130	-		20
Naphthalene	78		-		70-130	-		20
1,2,3-Trichlorobenzene	92		-		70-130	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichlorobenzene-d4	95				80-120
4-Bromofluorobenzene	102				80-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR **Lab Number:** L2260165
Project Number: 22.2186 **Report Date:** 11/21/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01,03 Batch: WG1708211-2									
1,2-Dibromoethane	90		-		80-120	-			A
1,2-Dibromo-3-chloropropane	91		-		80-120	-			A
1,2,3-Trichloropropane	99		-		80-120	-			A

Matrix Spike Analysis

Batch Quality Control

Project Name: TERRAMOR
Project Number: 22.2186

Lab Number: L2260165
Report Date: 11/21/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1706698-6 QC Sample: L2260318-01 Client ID: MS Sample												
Dichlorodifluoromethane	ND	4	6.8	**170**	Q	-	-		70-130	-		20
Chloromethane	ND	4	5.0	125		-	-		70-130	-		20
Vinyl chloride	ND	4	3.7	92		-	-		70-130	-		20
Bromomethane	ND	4	3.5	88		-	-		70-130	-		20
Chloroethane	ND	4	3.5	88		-	-		70-130	-		20
Trichlorofluoromethane	ND	4	3.7	92		-	-		70-130	-		20
1,1-Dichloroethene	ND	4	3.5	88		-	-		70-130	-		20
Methylene chloride	ND	4	3.2	80		-	-		70-130	-		20
Methyl tert butyl ether	ND	4	2.7	**68**	Q	-	-		70-130	-		20
trans-1,2-Dichloroethene	ND	4	3.4	85		-	-		70-130	-		20
1,1-Dichloroethane	ND	4	3.3	82		-	-		70-130	-		20
2,2-Dichloropropane	ND	4	3.2	80		-	-		70-130	-		20
cis-1,2-Dichloroethene	ND	4	3.0	75		-	-		70-130	-		20
Chloroform	0.21J	4	3.4	85		-	-		70-130	-		20
Bromochloromethane	ND	4	4.0	100		-	-		70-130	-		20
1,1,1-Trichloroethane	ND	4	3.5	88		-	-		70-130	-		20
1,1-Dichloropropene	ND	4	3.2	80		-	-		70-130	-		20
Carbon tetrachloride	ND	4	3.6	90		-	-		70-130	-		20
1,2-Dichloroethane	ND	4	3.4	85		-	-		70-130	-		20
Benzene	ND	4	3.5	88		-	-		70-130	-		20
Trichloroethene	ND	4	3.1	78		-	-		70-130	-		20
1,2-Dichloropropane	ND	4	3.5	88		-	-		70-130	-		20
Bromodichloromethane	ND	4	3.4	85		-	-		70-130	-		20
Dibromomethane	ND	4	3.3	82		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: 22.2186
Lab Number: L2260165
Report Date: 11/21/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1706698-6 QC Sample: L2260318-01 Client ID: MS Sample												
cis-1,3-Dichloropropene	ND	4	3.1	78		-	-		70-130	-		20
Toluene	ND	4	3.0	75		-	-		70-130	-		20
trans-1,3-Dichloropropene	ND	4	3.1	78		-	-		70-130	-		20
1,1,2-Trichloroethane	ND	4	3.1	78		-	-		70-130	-		20
1,3-Dichloropropane	ND	4	3.2	80		-	-		70-130	-		20
Tetrachloroethene	ND	4	3.6	90		-	-		70-130	-		20
Dibromochloromethane	ND	4	3.0	75		-	-		70-130	-		20
1,2-Dibromoethane	ND	4	3.0	75		-	-		70-130	-		20
Chlorobenzene	ND	4	3.5	88		-	-		70-130	-		20
1,1,1,2-Tetrachloroethane	ND	4	3.4	85		-	-		70-130	-		20
Ethylbenzene	ND	4	3.2	80		-	-		70-130	-		20
p/m-Xylene	ND	8	6.8	85		-	-		70-130	-		20
o-Xylene	ND	4	3.3	82		-	-		70-130	-		20
Styrene	ND	4	3.3	82		-	-		70-130	-		20
Isopropylbenzene	ND	4	3.4	85		-	-		70-130	-		20
Bromoform	ND	4	3.4	85		-	-		70-130	-		20
1,1,2,2-Tetrachloroethane	ND	4	5.0	125		-	-		70-130	-		20
1,2,3-Trichloropropane	ND	4	3.2	80		-	-		70-130	-		20
n-Propylbenzene	ND	4	3.4	85		-	-		70-130	-		20
Bromobenzene	ND	4	3.5	88		-	-		70-130	-		20
1,3,5-Trimethylbenzene	ND	4	3.4	85		-	-		70-130	-		20
o-Chlorotoluene	ND	4	3.4	85		-	-		70-130	-		20
p-Chlorotoluene	ND	4	3.5	88		-	-		70-130	-		20
tert-Butylbenzene	ND	4	3.2	80		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: 22.2186
Lab Number: L2260165
Report Date: 11/21/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab	Associated sample(s): 01,03	QC Batch ID: WG1706698-6	QC Sample: L2260318-01	Client ID: MS Sample								
1,2,4-Trimethylbenzene	ND	4	3.5	88		-	-		70-130	-		20
sec-Butylbenzene	ND	4	3.3	82		-	-		70-130	-		20
p-Isopropyltoluene	ND	4	3.3	82		-	-		70-130	-		20
1,3-Dichlorobenzene	ND	4	3.5	88		-	-		70-130	-		20
1,4-Dichlorobenzene	ND	4	3.6	90		-	-		70-130	-		20
n-Butylbenzene	ND	4	3.3	82		-	-		70-130	-		20
1,2-Dichlorobenzene	ND	4	3.4	85		-	-		70-130	-		20
1,2-Dibromo-3-chloropropane	ND	4	3.6	90		-	-		70-130	-		20
1,2,4-Trichlorobenzene	ND	4	3.1	78		-	-		70-130	-		20
Hexachlorobutadiene	ND	4	3.3	82		-	-		70-130	-		20
Naphthalene	ND	4	2.5	**62**	Q	-	-		70-130	-		20
1,2,3-Trichlorobenzene	ND	4	3.1	78		-	-		70-130	-		20

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	100				80-120
4-Bromofluorobenzene	100				80-120

Matrix Spike Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: 22.2186

Lab Number: L2260165
Report Date: 11/21/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1708211-3 QC Sample: L2260862-01 Client ID: MS Sample													
1,2-Dibromoethane	ND	0.252	0.232	92		-	-		80-120	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.252	0.221	88		-	-		80-120	-		20	A
1,2,3-Trichloropropane	ND	0.252	0.246	98		-	-		80-120	-		20	A

Lab Duplicate Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: 22.2186
Lab Number: L2260165
Report Date: 11/21/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1706698-5 QC Sample: L2259667-01 Client ID: DUP Sample						
Dichlorodifluoromethane	ND	ND	ug/l	NC		20
Chloromethane	ND	ND	ug/l	NC		20
Vinyl chloride	ND	ND	ug/l	NC		20
Bromomethane	ND	ND	ug/l	NC		20
Chloroethane	ND	ND	ug/l	NC		20
Trichlorofluoromethane	ND	ND	ug/l	NC		20
1,1-Dichloroethene	ND	ND	ug/l	NC		20
Methylene chloride	ND	ND	ug/l	NC		20
Methyl tert butyl ether	ND	ND	ug/l	NC		20
trans-1,2-Dichloroethene	ND	ND	ug/l	NC		20
1,1-Dichloroethane	ND	ND	ug/l	NC		20
2,2-Dichloropropane	ND	ND	ug/l	NC		20
cis-1,2-Dichloroethene	ND	ND	ug/l	NC		20
Chloroform	ND	ND	ug/l	NC		20
Bromochloromethane	ND	ND	ug/l	NC		20
1,1,1-Trichloroethane	ND	ND	ug/l	NC		20
1,1-Dichloropropene	ND	ND	ug/l	NC		20
Carbon tetrachloride	ND	ND	ug/l	NC		20
1,2-Dichloroethane	ND	ND	ug/l	NC		20
Benzene	ND	ND	ug/l	NC		20
Trichloroethene	ND	ND	ug/l	NC		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: 22.2186
Lab Number: L2260165
Report Date: 11/21/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1706698-5 QC Sample: L2259667-01 Client ID: DUP Sample						
1,2-Dichloropropane	ND	ND	ug/l	NC		20
Bromodichloromethane	ND	ND	ug/l	NC		20
Dibromomethane	ND	ND	ug/l	NC		20
cis-1,3-Dichloropropene	ND	ND	ug/l	NC		20
Toluene	ND	ND	ug/l	NC		20
trans-1,3-Dichloropropene	ND	ND	ug/l	NC		20
1,1,2-Trichloroethane	ND	ND	ug/l	NC		20
1,3-Dichloropropane	ND	ND	ug/l	NC		20
Tetrachloroethene	ND	ND	ug/l	NC		20
Dibromochloromethane	ND	ND	ug/l	NC		20
1,2-Dibromoethane	ND	ND	ug/l	NC		20
Chlorobenzene	ND	ND	ug/l	NC		20
1,1,1,2-Tetrachloroethane	ND	ND	ug/l	NC		20
Ethylbenzene	ND	ND	ug/l	NC		20
p/m-Xylene	ND	ND	ug/l	NC		20
o-Xylene	ND	ND	ug/l	NC		20
Styrene	ND	ND	ug/l	NC		20
Isopropylbenzene	ND	ND	ug/l	NC		20
Bromoform	ND	ND	ug/l	NC		20
1,1,2,2-Tetrachloroethane	ND	ND	ug/l	NC		20
Xylene (Total)[1]	ND	ND	ug/l	NC		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: 22.2186
Lab Number: L2260165
Report Date: 11/21/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1706698-5 QC Sample: L2259667-01 Client ID: DUP Sample						
1,2,3-Trichloropropane	ND	ND	ug/l	NC		20
1,3-Dichloropropene, Total	ND	ND	ug/l	NC		20
n-Propylbenzene	ND	ND	ug/l	NC		20
Trihalomethanes, Total	ND	ND	ug/l	NC		20
Bromobenzene	ND	ND	ug/l	NC		20
1,3,5-Trimethylbenzene	ND	ND	ug/l	NC		20
o-Chlorotoluene	ND	ND	ug/l	NC		20
p-Chlorotoluene	ND	ND	ug/l	NC		20
tert-Butylbenzene	ND	ND	ug/l	NC		20
1,2,4-Trimethylbenzene	ND	ND	ug/l	NC		20
sec-Butylbenzene	ND	ND	ug/l	NC		20
p-Isopropyltoluene	ND	ND	ug/l	NC		20
1,3-Dichlorobenzene	ND	ND	ug/l	NC		20
1,4-Dichlorobenzene	ND	ND	ug/l	NC		20
n-Butylbenzene	ND	ND	ug/l	NC		20
1,2-Dichlorobenzene	ND	ND	ug/l	NC		20
1,2-Dibromo-3-chloropropane	ND	ND	ug/l	NC		20
1,2,4-Trichlorobenzene	ND	ND	ug/l	NC		20
Hexachlorobutadiene	ND	ND	ug/l	NC		20
Naphthalene	ND	ND	ug/l	NC		20
1,2,3-Trichlorobenzene	ND	ND	ug/l	NC		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: TERRAMOR **Lab Number:** L2260165

Project Number: 22.2186 **Report Date:** 11/21/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03 QC Batch ID: WG1706698-5 QC Sample: L2259667-01 Client ID: DUP Sample						

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	96		101		80-120
4-Bromofluorobenzene	93		91		80-120

SEMIVOLATILES

Project Name: TERRAMOR **Lab Number:** L2260165

Project Number: 22.2186 **Report Date:** 11/21/22

SAMPLE RESULTS

Lab ID:	L2260165-01	Date Collected:	10/27/22 11:10
Client ID:	LOT-1-221027	Date Received:	10/27/22
Sample Location:	SAUGERTIES,NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Dw	Extraction Method:	EPA 522
Analytical Method:	120,522	Extraction Date:	11/14/22 07:10
Analytical Date:	11/17/22 14:47		
Analyst:	AMV		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by EPA 522 - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.147	0.147	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	85		70-130

Project Name: TERRAMOR **Lab Number:** L2260165
Project Number: 22.2186 **Report Date:** 11/21/22

SAMPLE RESULTS

Lab ID: L2260165-01
Client ID: LOT-1-221027
Sample Location: SAUGERTIES,NY

Date Collected: 10/27/22 11:10
Date Received: 10/27/22
Field Prep: Not Specified

Sample Depth:
Matrix: Dw
Analytical Method: 133,537.1
Analytical Date: 11/06/22 01:26
Analyst: JPW

Extraction Method: EPA 537.1
Extraction Date: 11/05/22 10:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorooctanoic Acid (PFOA)	1.27	J	ng/l	1.87	0.626	1
Perfluorooctanesulfonic Acid (PFOS)	0.937	J	ng/l	1.87	0.626	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	92		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	91		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	97		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	92		70-130

Project Name:	TERRAMOR	**Lab Number:**	L2260165
Project Number:	22.2186	**Report Date:**	11/21/22

SAMPLE RESULTS

Lab ID:	L2260165-02	Date Collected:	10/27/22 11:00
Client ID:	FB01-221027	Date Received:	10/27/22
Sample Location:	SAUGERTIES,NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Dw	Extraction Method:	EPA 537.1
Analytical Method:	133,537.1	Extraction Date:	11/05/22 10:00
Analytical Date:	11/06/22 01:35		
Analyst:	JPW		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.74	0.583	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.74	0.583	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	110		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	103		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	113		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	107		70-130

Project Name: TERRAMOR
Project Number: 22.2186
Lab Number: L2260165
Report Date: 11/21/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 133,537.1
Analytical Date: 11/06/22 01:09
Analyst: JPW

Extraction Method: EPA 537.1
Extraction Date: 11/05/22 10:00

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab for sample(s): 01-02 Batch: WG1708494-1					
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.668
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.668

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	100		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	98		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	98		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	98		70-130

Project Name: TERRAMOR **Lab Number:** L2260165
Project Number: 22.2186 **Report Date:** 11/21/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 120,522
Analytical Date: 11/16/22 06:17
Analyst: AMV

Extraction Method: EPA 522
Extraction Date: 11/14/22 07:10

Parameter	Result	Qualifier	Units	RL	MDL
1,4 Dioxane by EPA 522 - Mansfield Lab for sample(s): 01 Batch: WG1712096-1					
1,4-Dioxane	ND		ug/l	0.150	0.150

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	93		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: 22.2186

Lab Number: L2260165
Report Date: 11/21/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 Batch: WG1708494-2								
Perfluorooctanoic Acid (PFOA)	116		-		70-130	-		30
Perfluorooctanesulfonic Acid (PFOS)	111		-		70-130	-		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	113				70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	118				70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	119				70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	114				70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR **Lab Number:** L2260165
Project Number: 22.2186 **Report Date:** 11/21/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
1,4 Dioxane by EPA 522 - Mansfield Lab Associated sample(s): 01 Batch: WG1712096-2 WG1712096-3								
1,4-Dioxane	99		99		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	103		99		70-130

Matrix Spike Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: 22.2186

Lab Number: L2260165
Report Date: 11/21/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1708494-3 QC Sample: L2261822-01 Client ID: MS Sample												
Perfluorobutanesulfonic Acid (PFBS)	2.02	127	111	86		-	-		70-130	-		30
Perfluorohexanoic Acid (PFHxA)	14.6	143	143	90		-	-		70-130	-		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	143	136	95		-	-		70-130	-		30
Perfluoroheptanoic Acid (PFHpA)	5.62	143	141	95		-	-		70-130	-		30
Perfluorohexanesulfonic Acid (PFHxS)	2.54	130	124	93		-	-		70-130	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	135	128	95		-	-		70-130	-		30
Perfluorooctanoic Acid (PFOA)	21.5	143	162	98		-	-		70-130	-		30
Perfluorononanoic Acid (PFNA)	1.76J	143	142	99		-	-		70-130	-		30
Perfluorooctanesulfonic Acid (PFOS)	9.27	132	136	96		-	-		70-130	-		30
Perfluorodecanoic Acid (PFDA)	0.699J	143	143	100		-	-		70-130	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	133	123	92		-	-		70-130	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	143	136	95		-	-		70-130	-		30
Perfluoroundecanoic Acid (PFUnA)	ND	143	150	105		-	-		70-130	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	143	139	97		-	-		70-130	-		30
Perfluorododecanoic Acid (PFDoA)	ND	143	146	102		-	-		70-130	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	135	116	86		-	-		70-130	-		30
Perfluorotridecanoic Acid (PFTrDA)	ND	143	146	102		-	-		70-130	-		30
Perfluorotetradecanoic Acid (PFTA)	ND	143	151	106		-	-		70-130	-		30

Matrix Spike Analysis
Batch Quality Control

Project Name:	TERRAMOR	**Lab Number:**	L2260165
Project Number:	22.2186	**Report Date:**	11/21/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1708494-3 QC Sample: L2261822-01 Client ID: MS Sample												

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	100				70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	100				70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	102				70-130
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	94				70-130

Lab Duplicate Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: 22.2186
Lab Number: L2260165
Report Date: 11/21/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1708494-4 QC Sample: L2261823-01 Client ID: DUP Sample						
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	ng/l	NC		30
Perfluorohexanoic Acid (PFHxA)	1.12J	1.01J	ng/l	NC		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	ND	ng/l	NC		30
Perfluoroheptanoic Acid (PFHpA)	0.648J	0.614J	ng/l	NC		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	ng/l	NC		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ng/l	NC		30
Perfluorooctanoic Acid (PFOA)	0.973J	0.902J	ng/l	NC		30
Perfluorononanoic Acid (PFNA)	ND	ND	ng/l	NC		30
Perfluorooctanesulfonic Acid (PFOS)	ND	ND	ng/l	NC		30
Perfluorodecanoic Acid (PFDA)	ND	ND	ng/l	NC		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	ND	ng/l	NC		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/l	NC		30
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ng/l	NC		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ng/l	NC		30
Perfluorododecanoic Acid (PFDoA)	ND	ND	ng/l	NC		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	ND	ng/l	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/l	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/l	NC		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: 22.2186

Lab Number: L2260165
Report Date: 11/21/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1708494-4 QC Sample: L2261823-01 Client ID: DUP Sample						

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	102		101		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	98		97		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	102		99		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	100		100		70-130

SEMIVOLATILES

High Resolution Mass Spectrometry

Project Name: TERRAMOR **Lab Number:** L2260165

Project Number: 22.2186 **Report Date:** 11/21/22

SAMPLE RESULTS

Lab ID: L2260165-01
Client ID: LOT-1-221027
Sample Location: SAUGERTIES,NY

Date Collected: 10/27/22 11:10
Date Received: 10/27/22
Field Prep: Not Specified

Sample Depth:
Matrix: Dw
Analytical Method: 132,1613B
Analytical Date: 11/09/22 16:13
Analyst: CP

Extraction Method: EPA 1613B
Extraction Date: 11/04/22 12:30
Cleanup Method: EPA 1613B
Cleanup Date: 11/07/22

Parameter	Result	Qualifier	EMPC	Units	RL	MDL	Dilution Factor
Dioxins & Furans by Isotope Dilution HRMS - Mansfield Lab							
2,3,7,8-TCDD	ND			pg/l	9.80	2.04	1
1,2,3,7,8-PeCDD	ND			pg/l	49.0	10.2	1
1,2,3,4,7,8-HxCDD	ND			pg/l	49.0	12.3	1
1,2,3,6,7,8-HxCDD	ND			pg/l	49.0	15.2	1
1,2,3,7,8,9-HxCDD	ND			pg/l	49.0	14.3	1
1,2,3,4,6,7,8-HpCDD	ND			pg/l	49.0	14.2	1
OCDD	ND			pg/l	98.0	24.9	1
2,3,7,8-TCDF	ND			pg/l	9.80	3.00	1
1,2,3,7,8-PeCDF	ND			pg/l	49.0	6.86	1
2,3,4,7,8-PeCDF	ND			pg/l	49.0	10.2	1
1,2,3,4,7,8-HxCDF	ND			pg/l	49.0	10.9	1
1,2,3,6,7,8-HxCDF	ND			pg/l	49.0	15.6	1
1,2,3,7,8,9-HxCDF	ND			pg/l	49.0	16.1	1
2,3,4,6,7,8-HxCDF	ND			pg/l	49.0	15.5	1
1,2,3,4,6,7,8-HpCDF	ND			pg/l	49.0	13.2	1
1,2,3,4,7,8,9-HpCDF	ND			pg/l	49.0	12.5	1
OCDF	ND			pg/l	98.0	31.8	1
Total TCDD	ND			pg/l	9.80	2.04	1
Total PeCDD	ND			pg/l	49.0	10.2	1
Total HxCDD	ND			pg/l	49.0	12.3	1
Total HpCDD	ND			pg/l	49.0	14.2	1
Total TCDF	ND			pg/l	9.80	3.00	1
Total PeCDF	ND			pg/l	49.0	6.86	1
Total HxCDF	ND			pg/l	49.0	10.9	1
Total HpCDF	ND			pg/l	49.0	13.2	1
Total PCDD	ND			pg/l	9.80	2.04	1
Total PCDF	ND			pg/l	9.80	3.00	1
Toxic Equivalency (TEQ)	ND			pg/l	0.029	0.029	1

Project Name:	TERRAMOR	**Lab Number:**	L2260165
Project Number:	22.2186	**Report Date:**	11/21/22

SAMPLE RESULTS

Lab ID:	L2260165-01	Date Collected:	10/27/22 11:10
Client ID:	LOT-1-221027	Date Received:	10/27/22
Sample Location:	SAUGERTIES,NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	EMPC	Units	RL	MDL	Dilution Factor

Dioxins & Furans by Isotope Dilution HRMS - Mansfield Lab

Surrogate/Cleanup Standard	% Recovery	Qualifier	Acceptance Criteria
13C12-2,3,7,8-TCDF	51		24-169
13C12-2,3,7,8-TCDD	56		25-164
13C12-1,2,3,7,8-PeCDF	68		24-185
13C12-2,3,4,7,8-PeCDF	67		21-178
13C12-1,2,3,7,8-PeCDD	84		25-181
13C12-1,2,3,4,7,8-HxCDF	48		26-152
13C12-1,2,3,6,7,8-HxCDF	41		26-123
13C12-2,3,4,6,7,8-HxCDF	41		28-136
13C12-1,2,3,7,8,9-HxCDF	43		29-147
13C12-1,2,3,4,7,8-HxCDD	48		32-141
13C12-1,2,3,6,7,8-HxCDD	46		28-130
13C12-1,2,3,4,6,7,8-HpCDF	44		28-143
13C12-1,2,3,4,7,8,9-HpCDF	47		26-138
13C12-1,2,3,4,6,7,8-HpCDD	57		23-140
13C12-OCDD	63		17-157
37CL4-2,3,7,8-TCDD	170		35-197

Project Name: TERRAMOR
Project Number: 22.2186
Lab Number: L2260165
Report Date: 11/21/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 132,1613B
Analytical Date: 11/09/22 11:57
Analyst: CP

Extraction Method: EPA 1613B
Extraction Date: 11/04/22 12:30
Cleanup Method: EPA 1613B
Cleanup Date: 11/07/22

Parameter	Result	Qualifier	EMPC	Units	RL	MDL
Dioxins & Furans by Isotope Dilution HRMS - Mansfield Lab for sample(s): 01 Batch: WG1708207-1						
2,3,7,8-TCDD	ND			pg/l	10.0	2.08
1,2,3,7,8-PeCDD	ND			pg/l	50.0	10.4
1,2,3,4,7,8-HxCDD	ND			pg/l	50.0	12.5
1,2,3,6,7,8-HxCDD	ND			pg/l	50.0	15.6
1,2,3,7,8,9-HxCDD	ND			pg/l	50.0	14.6
1,2,3,4,6,7,8-HpCDD	ND			pg/l	50.0	14.5
OCDD	ND			pg/l	100	25.4
2,3,7,8-TCDF	ND			pg/l	10.0	3.06
1,2,3,7,8-PeCDF	ND			pg/l	50.0	7.00
2,3,4,7,8-PeCDF	ND			pg/l	50.0	10.5
1,2,3,4,7,8-HxCDF	ND			pg/l	50.0	11.1
1,2,3,6,7,8-HxCDF	ND			pg/l	50.0	15.9
1,2,3,7,8,9-HxCDF	ND			pg/l	50.0	16.5
2,3,4,6,7,8-HxCDF	ND			pg/l	50.0	15.8
1,2,3,4,6,7,8-HpCDF	ND			pg/l	50.0	13.4
1,2,3,4,7,8,9-HpCDF	ND			pg/l	50.0	12.7
OCDF	ND			pg/l	100	32.4
Total TCDD	ND			pg/l	10.0	2.08
Total PeCDD	ND			pg/l	50.0	10.4
Total HxCDD	ND			pg/l	50.0	12.5
Total HpCDD	ND			pg/l	50.0	14.5
Total TCDF	ND			pg/l	10.0	3.06
Total PeCDF	ND			pg/l	50.0	7.00
Total HxCDF	ND			pg/l	50.0	11.1
Total HpCDF	ND			pg/l	50.0	13.4
Total PCDD	ND			pg/l	10.0	2.08
Total PCDF	ND			pg/l	10.0	3.06
Toxic Equivalency (TEQ)	ND			pg/l	0.030	0.030

Project Name:	TERRAMOR	**Lab Number:**	L2260165
Project Number:	22.2186	**Report Date:**	11/21/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	132,1613B	Extraction Method:	EPA 1613B
Analytical Date:	11/09/22 11:57	Extraction Date:	11/04/22 12:30
Analyst:	CP	Cleanup Method:	EPA 1613B
		Cleanup Date:	11/07/22

Parameter	Result	Qualifier	EMPC	Units	RL	MDL
Dioxins & Furans by Isotope Dilution HRMS - Mansfield Lab for sample(s): 01 Batch: WG1708207-1						

Surrogate/Cleanup Standard	%Recovery	Qualifier	Acceptance Criteria
13C12-2,3,7,8-TCDF	77		24-169
13C12-2,3,7,8-TCDD	85		25-164
13C12-1,2,3,7,8-PeCDF	110		24-185
13C12-2,3,4,7,8-PeCDF	104		21-178
13C12-1,2,3,7,8-PeCDD	140		25-181
13C12-1,2,3,4,7,8-HxCDF	86		26-152
13C12-1,2,3,6,7,8-HxCDF	83		26-123
13C12-2,3,4,6,7,8-HxCDF	78		28-136
13C12-1,2,3,7,8,9-HxCDF	89		29-147
13C12-1,2,3,4,7,8-HxCDD	85		32-141
13C12-1,2,3,6,7,8-HxCDD	89		28-130
13C12-1,2,3,4,6,7,8-HpCDF	87		28-143
13C12-1,2,3,4,7,8,9-HpCDF	96		26-138
13C12-1,2,3,4,6,7,8-HpCDD	106		23-140
13C12-OCDD	116		17-157
37CL4-2,3,7,8-TCDD	124		35-197

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: 22.2186
Lab Number: L2260165
Report Date: 11/21/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Dioxins & Furans by Isotope Dilution HRMS - Mansfield Lab Associated sample(s): 01 Batch: WG1708207-2 WG1708207-3								
2,3,7,8-TCDD	102		103		67-158	1		25
1,2,3,7,8-PeCDD	83		90		70-142	8		25
1,2,3,4,7,8-HxCDD	94		107		70-164	13		25
1,2,3,6,7,8-HxCDD	97		93		76-134	4		25
1,2,3,7,8,9-HxCDD	97		94		64-162	3		25
1,2,3,4,6,7,8-HpCDD	85		94		70-140	10		25
OCDD	102		100		78-144	2		25
2,3,7,8-TCDF	100		92		75-158	8		25
1,2,3,7,8-PeCDF	89		88		80-134	1		25
2,3,4,7,8-PeCDF	80		88		68-160	10		25
1,2,3,4,7,8-HxCDF	100		99		72-134	1		25
1,2,3,6,7,8-HxCDF	101		100		84-130	1		25
1,2,3,7,8,9-HxCDF	109		109		78-130	0		25
2,3,4,6,7,8-HxCDF	103		100		70-156	3		25
1,2,3,4,6,7,8-HpCDF	109		117		82-122	7		25
1,2,3,4,7,8,9-HpCDF	106		110		78-138	4		25
OCDF	89		94		63-170	5		25

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR

Project Number: 22.2186

Lab Number: L2260165

Report Date: 11/21/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Dioxins & Furans by Isotope Dilution HRMS - Mansfield Lab Associated sample(s): 01 Batch: WG1708207-2 WG1708207-3								

Surrogate/Cleanup Standard	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
13C12-2,3,7,8-TCDF	39		58		24-169
13C12-2,3,7,8-TCDD	43		50		25-164
13C12-1,2,3,7,8-PeCDF	59		73		24-185
13C12-2,3,4,7,8-PeCDF	62		70		21-178
13C12-1,2,3,7,8-PeCDD	82		94		25-181
13C12-1,2,3,4,7,8-HxCDF	52		63		26-152
13C12-1,2,3,6,7,8-HxCDF	49		63		26-123
13C12-2,3,4,6,7,8-HxCDF	49		61		28-136
13C12-1,2,3,7,8,9-HxCDF	50		64		29-147
13C12-1,2,3,4,7,8-HxCDD	56		57		32-141
13C12-1,2,3,6,7,8-HxCDD	56		70		28-130
13C12-1,2,3,4,6,7,8-HpCDF	49		59		28-143
13C12-1,2,3,4,7,8,9-HpCDF	54		72		26-138
13C12-1,2,3,4,6,7,8-HpCDD	66		74		23-140
13C12-OCDD	38		91		17-157
37CL4-2,3,7,8-TCDD	115		109		35-197

METALS

Project Name:	TERRAMOR	**Lab Number:**	L2260165
Project Number:	22.2186	**Report Date:**	11/21/22

SAMPLE RESULTS

Lab ID:	L2260165-01	Date Collected:	10/27/22 11:10
Client ID:	LOT-1-221027	Date Received:	10/27/22
Sample Location:	SAUGERTIES,NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Dw		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	0.0021		mg/l	0.0010	0.0002	1	11/03/22 18:11	11/10/22 01:05	EPA 3005A	3,200.8	EGW
Barium, Total	0.0386		mg/l	0.0010	0.0002	1	11/03/22 18:11	11/10/22 01:05	EPA 3005A	3,200.8	EGW
Cadmium, Total	ND		mg/l	0.0002	0.0001	1	11/03/22 18:11	11/10/22 01:05	EPA 3005A	3,200.8	EGW
Calcium, Total	3.92		mg/l	0.100	0.0350	1	11/03/22 18:11	11/07/22 21:04	EPA 3005A	19,200.7	GCL
Chromium, Total	0.0008	J	mg/l	0.0010	0.0002	1	11/03/22 18:11	11/10/22 01:05	EPA 3005A	3,200.8	EGW
Copper, Total	0.0178		mg/l	0.0010	0.0004	1	11/03/22 18:11	11/10/22 01:05	EPA 3005A	3,200.8	EGW
Iron, Total	0.486		mg/l	0.0500	0.0090	1	11/03/22 18:11	11/04/22 19:10	EPA 3005A	19,200.7	DMB
Lead, Total	ND		mg/l	0.0010	0.0003	1	11/03/22 18:11	11/10/22 01:05	EPA 3005A	3,200.8	EGW
Manganese, Total	0.0522		mg/l	0.0100	0.0016	1	11/03/22 18:11	11/04/22 19:10	EPA 3005A	19,200.7	DMB
Mercury, Total	ND		mg/l	0.0002	0.0001	1	11/03/22 18:34	11/04/22 18:19	EPA 245.1	3,245.1	DJR
Selenium, Total	ND		mg/l	0.0050	0.0017	1	11/03/22 18:11	11/10/22 01:05	EPA 3005A	3,200.8	EGW
Silver, Total	ND		mg/l	0.0004	0.0002	1	11/03/22 18:11	11/10/22 01:05	EPA 3005A	3,200.8	EGW
Sodium, Total	105.		mg/l	2.00	0.120	1	11/03/22 18:11	11/04/22 19:10	EPA 3005A	19,200.7	DMB
Zinc, Total	0.0098	J	mg/l	0.0100	0.0034	1	11/03/22 18:11	11/10/22 01:05	EPA 3005A	3,200.8	EGW

Project Name: TERRAMOR
Project Number: 22.2186
Lab Number: L2260165
Report Date: 11/21/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1706322-1										
Arsenic, Total	ND		mg/l	0.0010	0.0002	1	11/03/22 18:11	11/07/22 19:35	3,200.8	EGW
Barium, Total	ND		mg/l	0.0010	0.0002	1	11/03/22 18:11	11/09/22 12:01	3,200.8	EGW
Cadmium, Total	ND		mg/l	0.0002	0.0001	1	11/03/22 18:11	11/07/22 19:35	3,200.8	EGW
Chromium, Total	0.0002	J	mg/l	0.0010	0.0002	1	11/03/22 18:11	11/07/22 19:35	3,200.8	EGW
Copper, Total	ND		mg/l	0.0010	0.0004	1	11/03/22 18:11	11/07/22 19:35	3,200.8	EGW
Lead, Total	ND		mg/l	0.0010	0.0003	1	11/03/22 18:11	11/07/22 19:35	3,200.8	EGW
Selenium, Total	ND		mg/l	0.0050	0.0017	1	11/03/22 18:11	11/09/22 12:01	3,200.8	EGW
Silver, Total	ND		mg/l	0.0004	0.0002	1	11/03/22 18:11	11/07/22 19:35	3,200.8	EGW
Zinc, Total	ND		mg/l	0.0100	0.0034	1	11/03/22 18:11	11/07/22 19:35	3,200.8	EGW

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1706324-1										
Calcium, Total	ND		mg/l	0.100	0.0350	1	11/03/22 18:11	11/07/22 19:27	19,200.7	GCL
Iron, Total	ND		mg/l	0.0500	0.0090	1	11/03/22 18:11	11/04/22 16:02	19,200.7	DMB
Manganese, Total	ND		mg/l	0.0100	0.0016	1	11/03/22 18:11	11/04/22 16:02	19,200.7	DMB
Sodium, Total	ND		mg/l	2.00	0.120	1	11/03/22 18:11	11/04/22 16:02	19,200.7	DMB

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1706326-1										
Mercury, Total	ND		mg/l	0.0002	0.0001	1	11/03/22 18:34	11/04/22 18:12	3,245.1	DJR

Project Name: TERRAMOR **Lab Number:** L2260165
Project Number: 22.2186 **Report Date:** 11/21/22

Method Blank Analysis
Batch Quality Control

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: 22.2186

Lab Number: L2260165
Report Date: 11/21/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1706322-2								
Arsenic, Total	105		-		85-115	-		
Barium, Total	113		-		85-115	-		
Cadmium, Total	96		-		85-115	-		
Chromium, Total	93		-		85-115	-		
Copper, Total	90		-		85-115	-		
Lead, Total	97		-		85-115	-		
Selenium, Total	102		-		85-115	-		
Silver, Total	96		-		85-115	-		
Zinc, Total	95		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1706324-2								
Calcium, Total	105		-		85-115	-		
Iron, Total	95		-		85-115	-		
Manganese, Total	88		-		85-115	-		
Sodium, Total	97		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1706326-2								
Mercury, Total	100		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: 22.2186
Lab Number: L2260165
Report Date: 11/21/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1706322-3 QC Sample: L2259495-01 Client ID: MS Sample												
Arsenic, Total	0.0009J	0.12	0.1259	105		-	-		70-130	-		20
Barium, Total	0.0155	2	2.004	99		-	-		70-130	-		20
Cadmium, Total	ND	0.053	0.0491	93		-	-		70-130	-		20
Chromium, Total	0.0002J	0.2	0.1777	89		-	-		70-130	-		20
Copper, Total	0.0192	0.25	0.2297	84		-	-		70-130	-		20
Lead, Total	0.0026	0.53	0.5049	95		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1334	111		-	-		70-130	-		20
Silver, Total	ND	0.05	0.0472	94		-	-		70-130	-		20
Zinc, Total	0.0774	0.5	0.4960	84		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1706322-5 QC Sample: L2259862-07 Client ID: MS Sample												
Arsenic, Total	0.0009J	0.12	0.1290	108		-	-		70-130	-		20
Barium, Total	2.562	2	5.030	123		-	-		70-130	-		20
Cadmium, Total	ND	0.053	0.0568	107		-	-		70-130	-		20
Chromium, Total	0.0006J	0.2	0.2050	102		-	-		70-130	-		20
Copper, Total	0.0053	0.25	0.2616	102		-	-		70-130	-		20
Lead, Total	ND	0.53	0.5079	96		-	-		70-130	-		20
Selenium, Total	0.0027J	0.12	0.1297	108		-	-		70-130	-		20
Silver, Total	ND	0.05	0.0498	100		-	-		70-130	-		20
Zinc, Total	0.0058J	0.5	0.4915	98		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: 22.2186

Lab Number: L2260165
Report Date: 11/21/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1706324-3 QC Sample: L2259495-01 Client ID: MS Sample										
Calcium, Total	58.9	10	68.6	97		-	-	75-125	-	20
Iron, Total	0.0168J	1	0.999	100		-	-	75-125	-	20
Manganese, Total	0.003J	0.5	0.458	92		-	-	75-125	-	20
Sodium, Total	68.4	10	79.3	109		-	-	75-125	-	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1706324-7 QC Sample: L2259862-07 Client ID: MS Sample										
Calcium, Total	30.2	10	40.7	105		-	-	75-125	-	20
Iron, Total	0.166	1	1.09	92		-	-	75-125	-	20
Manganese, Total	0.0526	0.5	0.474	84		-	-	75-125	-	20
Sodium, Total	225.	10	221	**0**	Q	-	-	75-125	-	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1706326-3 QC Sample: L2260165-01 Client ID: LOT-1-221027										
Mercury, Total	ND	0.005	0.0050	99		-	-	70-130	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: 22.2186

Lab Number: L2260165
Report Date: 11/21/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1706322-6 QC Sample: L2259862-07 Client ID: DUP Sample						
Arsenic, Total	0.0009J	0.0008J	mg/l	NC		20
Barium, Total	2.562	2.572	mg/l	0		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	0.0006J	0.0008J	mg/l	NC		20
Copper, Total	0.0053	0.0053	mg/l	0		20
Lead, Total	ND	ND	mg/l	NC		20
Selenium, Total	0.0027J	0.0025J	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Zinc, Total	0.0058J	0.0052J	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1706324-4 QC Sample: L2259495-01 Client ID: DUP Sample						
Iron, Total	0.0168J	0.0151J	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1706324-4 QC Sample: L2259495-01 Client ID: DUP Sample						
Calcium, Total	58.9	59.3	mg/l	1		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1706324-8 QC Sample: L2259862-07 Client ID: DUP Sample						
Iron, Total	0.166	0.169	mg/l	2		20
Manganese, Total	0.0526	0.0534	mg/l	2		20
Sodium, Total	225.	224	mg/l	0		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: 22.2186

Lab Number: L2260165
Report Date: 11/21/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1706324-8 QC Sample: L2259862-07 Client ID: DUP Sample					
Calcium, Total	30.2	30.2	mg/l	0	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1706326-4 QC Sample: L2260165-01 Client ID: LOT-1-221027					
Mercury, Total	ND	ND	mg/l	NC	20

INORGANICS
&
MISCELLANEOUS

Project Name: TERRAMOR
Project Number: 22.2186

Lab Number: L2260165
Report Date: 11/21/22

SAMPLE RESULTS

Lab ID: L2260165-01
Client ID: LOT-1-221027
Sample Location: SAUGERTIES,NY

Date Collected: 10/27/22 11:10
Date Received: 10/27/22
Field Prep: Not Specified

Sample Depth:
Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Turbidity	21		NTU	0.20	0.20	1	-	10/28/22 18:56	44,180.1	AAS
Odor @ 60 C	NO ODOR		TON	1	1.0	1	-	10/28/22 09:15	121,2150B	KEP
Color, Apparent	N/A		A.P.C.U.	5	5.0	1	-	10/28/22 17:27	121,2120B	AAS
Alkalinity, Total	145.		mg CaCO3/L	2.00	NA	1	-	11/07/22 07:56	121,2320B	MT
Cyanide, Total	ND		mg/l	0.005	0.001	1	10/31/22 03:20	11/01/22 14:48	121,4500CN-CE	JER
Nitrogen, Nitrite	ND		mg/l	0.050	0.014	1	-	10/29/22 02:43	44,353.2	KAF
Nitrogen, Nitrate	ND		mg/l	0.10	0.023	1	-	10/29/22 02:43	44,353.2	KAF
Bacteria in Water - Westborough Lab										
Coliform, Total	Positive		col/100ml	-	NA	1	-	10/28/22 13:25	121,9223B	DRV
Escherichia Coli	Negative		col/100ml	-	NA	1	-	10/28/22 13:25	121,9223B	DRV
Anions by Ion Chromatography - Westborough Lab										
Chloride	53.8		mg/l	5.00	0.839	10	-	11/14/22 04:49	44,300.0	JT,
Fluoride	0.096		mg/l	0.050	0.037	1	-	11/13/22 21:00	44,300.0	JT,
Sulfate	18.2		mg/l	1.00	0.454	1	-	11/13/22 21:00	44,300.0	JT,

Project Name: TERRAMOR **Lab Number:** L2260165
Project Number: 22.2186 **Report Date:** 11/21/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1705368-1										
Odor	NO ODOR		TON	1	1.0	1	-	10/28/22 09:15	121,2150B	KEP
Bacteria in Water - Westborough Lab for sample(s): 01 Batch: WG1705495-1										
Coliform, Total	Negative		col/100ml	-	NA	1	-	10/28/22 13:25	121,9223B	DRV
Escherichia Coli	Negative		col/100ml	-	NA	1	-	10/28/22 13:25	121,9223B	DRV
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1705599-1										
Turbidity	ND		NTU	0.20	0.20	1	-	10/28/22 18:56	44,180.1	AAS
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1705659-1										
Nitrogen, Nitrite	ND		mg/l	0.050	0.014	1	-	10/29/22 02:21	44,353.2	KAF
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1705664-1										
Nitrogen, Nitrate	ND		mg/l	0.10	0.023	1	-	10/29/22 02:28	44,353.2	KAF
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1706049-1										
Cyanide, Total	ND		mg/l	0.005	0.001	1	10/31/22 03:20	11/01/22 14:40	121,4500CN-CE	JER
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1708884-1										
Alkalinity, Total	ND		mg CaCO3/L	2.00	NA	1	-	11/07/22 07:56	121,2320B	MT
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1711808-1										
Fluoride	ND		mg/l	0.050	0.037	1	-	11/13/22 20:17	44,300.0	JT,
Sulfate	ND		mg/l	1.00	0.454	1	-	11/13/22 20:17	44,300.0	JT,
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1711810-1										
Sulfate	ND		mg/l	1.00	0.454	1	-	11/13/22 19:09	44,300.0	JT,
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1711810-1										
Chloride	0.140	J	mg/l	0.500	0.083	1	-	11/13/22 19:09	44,300.0	JT,

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: 22.2186
Lab Number: L2260165
Report Date: 11/21/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1705599-2								
Turbidity	105		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1705659-2								
Nitrogen, Nitrite	96		-		90-110	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1705664-2								
Nitrogen, Nitrate	98		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1706049-2								
Cyanide, Total	103		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1708884-2								
Alkalinity, Total	93		-		90-110	-		10
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1711808-2								
Fluoride	100		-		90-110	-		
Sulfate	100		-		90-110	-		
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1711810-2								
Chloride	102		-		90-110	-		
Sulfate	100		-		90-110	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: 22.2186

Lab Number: L2260165
Report Date: 11/21/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1705659-4 QC Sample: L2260633-01 Client ID: MS Sample												
Nitrogen, Nitrite	ND	4	4.0	100		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1705664-4 QC Sample: L2260633-01 Client ID: MS Sample												
Nitrogen, Nitrate	45.	4	47	**50**	Q	-	-		83-113	-		6
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1706049-3 QC Sample: L2260698-01 Client ID: MS Sample												
Cyanide, Total	ND	0.2	0.220	110		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1708884-4 QC Sample: L2260334-03 Client ID: MS Sample												
Alkalinity, Total	37.0	100	154	**117**	Q	-	-		86-116	-		10
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1711808-3 QC Sample: L2260165-01 Client ID: LOT-1-221027												
Fluoride	0.096	0.4	0.492	99		-	-		90-110	-		15
Sulfate	18.2	8	25.4	90		-	-		90-110	-		20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1711810-3 QC Sample: L2261662-01 Client ID: MS Sample												
Chloride	159.	40	200	102		-	-		90-110	-		18
Sulfate	73.6	8	79.1	**71**	Q	-	-		90-110	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: TERRAMOR

Project Number: 22.2186

Lab Number: L2260165

Report Date: 11/21/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1705368-2 QC Sample: L2260165-01 Client ID: LOT-1-221027						
Odor	NO ODOR	NO ODOR	TON	NC		
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1705578-1 QC Sample: L2260165-01 Client ID: LOT-1-221027						
Color, Apparent	N/A	N/A	A.P.C.U.	NC		
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1705599-3 QC Sample: L2260425-18 Client ID: DUP Sample						
Turbidity	0.39	0.37	NTU	5		13
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1705659-3 QC Sample: L2260633-01 Client ID: DUP Sample						
Nitrogen, Nitrite	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1705664-3 QC Sample: L2260633-01 Client ID: DUP Sample						
Nitrogen, Nitrate	45.	45	mg/l	0		6
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1706049-4 QC Sample: L2260698-02 Client ID: DUP Sample						
Cyanide, Total	ND	0.001J	mg/l	NC		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1708884-3 QC Sample: L2260334-03 Client ID: DUP Sample						
Alkalinity, Total	37.0	39.4	mg CaCO3/L	6		10
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1711808-4 QC Sample: L2260165-01 Client ID: LOT-1-221027						
Fluoride	0.096	0.094	mg/l	2		15
Sulfate	18.2	18.1	mg/l	1		20

Project Name: TERRAMOR
Project Number: 22.2186

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L2260165
Report Date: 11/21/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1711810-4 QC Sample: L2261662-01 Client ID: DUP Sample					
Sulfate	73.6	73.9	mg/l	1	20
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1711810-4 QC Sample: L2261662-01 Client ID: DUP Sample					
Chloride	159.	158	mg/l	1	18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2260165-01A	Vial Ascorbic Acid/HCl preserved	B	NA		3.8	Y	Absent		524.2(14)
L2260165-01B	Vial Ascorbic Acid/HCl preserved	B	NA		3.8	Y	Absent		524.2(14)
L2260165-01C	Vial Na2S2O3 preserved	B	NA		3.8	Y	Absent		504(14)
L2260165-01D	Vial Na2S2O3 preserved	B	NA		3.8	Y	Absent		504(14)
L2260165-01E	Bacteria Cup Na2S2O3 preserved	A	NA		2.0	Y	Absent		T-COLI-C(1.25)
L2260165-01F	Bacteria Cup Na2S2O3 preserved	A	NA		2.0	Y	Absent		T-COLI-C(1.25)
L2260165-01G	Plastic 250ml unpreserved/No Headspace	A	NA		2.0	Y	Absent		ALK-T-2320(14)
L2260165-01H	Plastic 250ml HNO3 preserved	B	<2	<2	3.8	Y	Absent		CD-2008T(180),CA-UI(180),ZN-2008T(180),FE-UI(180),CU-2008T(180),HG-U(28),SE-2008T(180),AG-2008T(180),AS-2008T(180),MN-UI(180),NA-UI(180),BA-2008T(180),CR-2008T(180),PB-2008T(180)
L2260165-01I	Plastic 250ml NaOH preserved	B	>12	>12	3.8	Y	Absent		TCN-4500(14)
L2260165-01J	Plastic 950ml HNO3 preserved	A	<2	<2	2.0	Y	Absent		SUB-RA228(180),SUB-URANIUM(180),SUB-ALPHA/BETA(180),SUB-RA226(180)
L2260165-01K	Plastic 950ml unpreserved	A	7	7	2.0	Y	Absent		SO4-300(28),CL-300(28),F-300(28),TURB-180(2),NO2-353(2),NO3-353(2)
L2260165-01L	Plastic 950ml HNO3 preserved	A	<2	<2	2.0	Y	Absent		SUB-RA228(180),SUB-URANIUM(180),SUB-ALPHA/BETA(180),SUB-RA226(180)
L2260165-01M	Plastic 950ml HNO3 preserved	A	<2	<2	2.0	Y	Absent		SUB-RA228(180),SUB-URANIUM(180),SUB-ALPHA/BETA(180),SUB-RA226(180)
L2260165-01N	Plastic 950ml HNO3 preserved	A	<2	<2	2.0	Y	Absent		SUB-RA228(180),SUB-URANIUM(180),SUB-ALPHA/BETA(180),SUB-RA226(180)
L2260165-01O	Plastic 950ml HNO3 preserved	A	<2	<2	2.0	Y	Absent		SUB-RA228(180),SUB-URANIUM(180),SUB-ALPHA/BETA(180),SUB-RA226(180)
L2260165-01P	Plastic 950ml HNO3 preserved	A	<2	<2	2.0	Y	Absent		SUB-RA228(180),SUB-URANIUM(180),SUB-ALPHA/BETA(180),SUB-RA226(180)
L2260165-01Q	Plastic 950ml HNO3 preserved	A	<2	<2	2.0	Y	Absent		SUB-RA228(180),SUB-URANIUM(180),SUB-ALPHA/BETA(180),SUB-RA226(180)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2260165-01R	Plastic 950ml HNO3 preserved	A	<2	<2	2.0	Y	Absent		SUB-RA228(180),SUB-URANIUM(180),SUB-ALPHA/BETA(180),SUB-RA226(180)
L2260165-01S	Plastic 950ml HNO3 preserved	A	<2	<2	2.0	Y	Absent		SUB-RA228(180),SUB-URANIUM(180),SUB-ALPHA/BETA(180),SUB-RA226(180)
L2260165-01T	Plastic 950ml HNO3 preserved	A	<2	<2	2.0	Y	Absent		SUB-RA228(180),SUB-URANIUM(180),SUB-ALPHA/BETA(180),SUB-RA226(180)
L2260165-01U	Amber 500ml unpreserved	B	7	7	3.8	Y	Absent		A2-DIOXIN-1613(365)
L2260165-01V	Amber 500ml unpreserved	B	7	7	3.8	Y	Absent		A2-DIOXIN-1613(365)
L2260165-01W	Amber 500ml NaSulfite/NaHSO4 preserved	B	4	4	3.8	N	Absent		A2-14DIOXANE-522(28)
L2260165-01X	Amber 500ml NaSulfite/NaHSO4 preserved	B	4	4	3.8	N	Absent		A2-14DIOXANE-522(28)
L2260165-01Y	Amber 1000ml unpreserved	B	7	7	3.8	Y	Absent		COLOR-A-2120(2),ODOR-2150(1)
L2260165-01Z	Plastic 250ml Trizma preserved	A	NA		2.0	Y	Absent		A2-537.1-PFOA/PFOS(14)
L2260165-01Z1	Plastic 250ml Trizma preserved	A	NA		2.0	Y	Absent		A2-537.1-PFOA/PFOS(14)
L2260165-02A	Plastic 250ml Trizma preserved	A	NA		2.0	Y	Absent		A2-537.1-PFOA/PFOS(14)
L2260165-02B	Plastic 250ml Trizma preserved	NA	NA			Y	Absent		A2-537.1-PFOA/PFOS(14)
L2260165-03A	Vial Ascorbic Acid/HCl preserved	B	NA		3.8	Y	Absent		524.2(14)
L2260165-03B	Vial Ascorbic Acid/HCl preserved	B	NA		3.8	Y	Absent		524.2(14)
L2260165-03C	Vial Na2S2O3 preserved	B	NA		3.8	Y	Absent		504(14)
L2260165-03D	Vial Na2S2O3 preserved	B	NA		3.8	Y	Absent		504(14)

*Values in parentheses indicate holding time in days

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA/PFTeDA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDoDS/PFDoS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
Perfluoropropanesulfonic Acid	PFPrS	423-41-6
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA/PFOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1
PERFLUOROETHER SULFONIC ACIDS (PFESAs)		
Perfluoro(2-Ethoxyethane)Sulfonic Acid	PFEESA	113507-82-7
PERFLUOROETHER/POLYETHER CARBOXYLIC ACIDS (PFPCAs)		
Perfluoro-3-Methoxypropanoic Acid	PFMPA	377-73-1
Perfluoro-4-Methoxybutanoic Acid	PFMBA	863090-89-5
Nonafluoro-3,6-Dioxaheptanoic Acid	NFDHA	151772-58-6

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
FLUOROTELOMER CARBOXYLIC ACIDS (FTCAs)		
3-Perfluoroheptyl Propanoic Acid	7:3FTCA	812-70-4
2H,2H,3H,3H-Perfluorooctanoic Acid	5:3FTCA	914637-49-3
3-Perfluoropropyl Propanoic Acid	3:3FTCA	356-02-5

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Project Name: TERRAMOR **Lab Number:** L2260165
Project Number: 22.2186 **Report Date:** 11/21/22

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: TERRAMOR **Lab Number:** L2260165
Project Number: 22.2186 **Report Date:** 11/21/22

REFERENCES

3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

14 Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water. EPA/600/4-88/039, Revised July 1991.

16 Methods for the Determination of Organic Compounds in Drinking Water - Supplement II. EPA/600/R-92/129, August 1992.

19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

120 Determination of 1,4-Dioxane in Drinking Water by Solid Phase Extraction (SPE) and Gas Chromatography/Mass Spectrometry (GC/MS) with Selected Ion Monitoring (SIM). EPA Method 522, EPA/600/R-08/101. Version 1.0, September 2008.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

132 Method 1613 Revision B: Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGC/HRMS. USEPA Office of Water, October 1994.

133 Determination of Selected Per- and Polyfluorinated Alkyl Substances in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS). EPA Method 537.1, EPA/600/R-18/352. Version 1.0, November 2018.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

ALPHA ANALYTICAL

NEW YORK CHAIN OF CUSTODY

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab 10/28/22

ALPHA Job # L2260165

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: Terramar
Project Location: Saugerties, NY
Project # 22.2186
(Use Project name as Project #) ☐
Project Manager: Jon Dippert
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☒ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Billing Information

☒ Same as Client Info
PO #

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information

Please identify below location of applicable disposal facilities.

Disposal Facility:
☐ NJ ☐ NY
☐ Other:

Client Information

Client: C.T. Male
Address: 50 Century Hill Dr.
Latham, NY, 12110
Phone: 518 786 7400
Fax:
Email: J.dippert@ctmale.com

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

* Bacteriological samples - short hold

Please specify Metals or TAL.

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	537.1 PFAS	Part 5	1,4-Dioxane	524.2	Sub 505 504	Sample Specific Comments	Total Bottles
60165-01	LOT-1-221027	10/27	1110	GW	AR	X	X	X	X	X		44
-02	~~Field Blank~~ FB01-221027	10/27	1100		AR	X						1
-03	Trip Blank	10/27	—						X	X		4

	537.1 PFAS	Part 5	1,4-Dioxane	524.2	Sub 505 504
Container Type	P	—	A	V	V
Preservative	O	—	O	O/B	H

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	10/27/22 1320	B. Lyons AAL	10/27/22 1320
B Lyons	10/27/22 14:30	[signature]	10/28/22 00:00

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

Subcontract Chain of Custody

ALPHA ANALYTICAL
World Class Chemistry

GEL Laboratories, LLC
2040 savage road
Charleston, SC 29407

Alpha Job Number
L2260165

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 716-427-5223
Email: cfox@alphalab.com

Project Information

Project Location: NY
Project Manager: Candace Fox

Turnaround & Deliverables Information

Due Date:
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2260165

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	LOT-1-221027	10-27-22 11:10	DW	Gross Alpha/Beta; Radium 226; Radium 228; Uranium by EPA 200.8	

Relinquished By:	Date/Time:	Received By:	Date/Time:
[signature]	10/31/22		

Form No: AL_subcoc

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order ID:	042227035
Customer ID:	ALPH55A
Customer PO:	
Project ID:	

Attn: Candace Fox
Alpha Analytical, Inc.
8 Walkup Drive
Westborough, MA 01581

Phone: (508) 898-9220
Fax: (508) 898-9193
Received: 10/28/2022
Analyzed: 11/10/2022

Proj: L2260165

Test Report: Determination of Asbestos Structures >10µm in Drinking Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm²)	Area Analyzed (mm²)	ASBESTOS Asbestos Types	Fibers Detected	Analytical Sensitivity (MFL)	Concentration (MFL)	Confidence Limits (MFL)
Lot-1-221027 042227035-0001	10/28/2022 11:55 AM	10	1335	0.2620	None Detected	ND	0.51	<0.51	0.00 - 1.90

Collection Date/Time: *10/27/2022 11:10 AM*

Due to excessive particulate the analytical sensitivity of 0.2 MFL as required by the method was not reached.

Bottle supplied by client

MFL (million fibers per liter)

Analyst(s)
Ted Young (1)

Samantha Rundstrom, Laboratory Manager
or Other Approved Signatory

Any questions please contact Samantha Rundstrom-Cruz.

Initial report from: 11/10/2022 13:41:53

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

November 15, 2022

Analytical Subreports
Alpha Analytical Inc
8 Walkup Drive
Westborough, Massachusetts 01581

Re: Analytical Subreports Westborough MA
Work Order: 598977
SDG: L2260165

Dear Analytical Subreports:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on November 01, 2022. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1614.

Sincerely,

Jordan Melton

Jordan Melton for
Delaney Stone
Project Manager

Purchase Order: L2260165
Enclosures

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

Certificate of Analysis Report
for

ALPL001 Alpha Analytical Inc

Client SDG: L2260165 GEL Work Order: 598977

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a Tracer compound
- ** Analyte is a surrogate compound
- J See case narrative for an explanation
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the ’U’ qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Delaney Stone.

Jordan Melton

Reviewed by ____

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 15, 2022

Company :	Alpha Analytical Inc
Address :	8 Walkup Drive
	Westborough, Massachusetts 01581
Contact:	Analytical Subreports
Project:	Analytical Subreports Westborough MA

Client Sample ID:	LOT-1-221027	Project:	ALPL00420
Sample ID:	598977001	Client ID:	ALPL001
Matrix:	DW		
Collect Date:	27-OCT-22 11:10		
Receive Date:	01-NOV-22		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
200.2/200.8 Uranium "As Received"												
Uranium		0.280	0.0670	0.200	ug/L	1.00	1	PRB	11/11/22	1535	2336824	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	PC1	11/03/22	1000	2336822

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Alpha Analytical Inc
Address : 8 Walkup Drive

Westborough, Massachusetts 01581 Report Date: November 15, 2022

Contact: Analytical Subreports
Project: Analytical Subreports Westborough MA

Client Sample ID: LOT-1-221027 Project: ALPL00420
Sample ID: 598977001 Client ID: ALPL001
Matrix: DW
Collect Date: 27-OCT-22
Receive Date: 01-NOV-22
Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting														
EPA 904.0 Radium-228, DW "As Received"														
Radium-228	U	-0.511	+/-0.482	0.922	+/-0.482	1.00	pCi/L			JE1	11/14/22	1532	2338442	1
Gross Alpha/Beta in Drinking Water EPA 900.0 "As Received"														
Alpha		3.86	+/-2.38	2.75	+/-2.48	3.00	pCi/L			KP1	11/10/22	0742	2337958	2
Beta	U	2.38	+/-1.73	2.72	+/-1.76	4.00	pCi/L							
Rad Radium-226														
EPA 903.1 Ra226 Drinking Water "As Received"														
Radium-226		0.253	+/-0.179	0.212	+/-0.186	1.00	pCi/L			LXP1	11/14/22	0804	2338441	3

The following Analytical Methods were performed

Method	Description
1	EPA 904.0/ EPA 9320
2	EPA 900.0
3	EPA 903.1

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium Carrier	EPA 904.0 Radium-228, DW "As Received"	2338442	111	(25%-125%)
Yttrium Carrier	EPA 904.0 Radium-228, DW "As Received"	2338442	51.9	(25%-125%)

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 15, 2022

	Alpha Analytical Inc
	8 Walkup Drive
	Westborough, Massachusetts
Contact:	**Analytical Subreports**
Workorder:	**598977**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch 2336824											
QC1205233502 598977001 DUP											
Uranium		0.280		0.270	ug/L	3.64 ^		(+/-0.200)	PRB	11/11/22	15:38
QC1205233500 LCS											
Uranium	50.0			51.3	ug/L		103	(85%-115%)		11/11/22	15:22
QC1205233501 LCSD											
Uranium	50.0			52.2	ug/L	1.64	104	(0%-20%)		11/11/22	15:25
QC1205233499 MB											
Uranium			U	ND	ug/L					11/11/22	15:18
QC1205233503 598977001 MS											
Uranium	50.0	0.280		51.8	ug/L		103	(75%-125%)		11/11/22	15:41
QC1205233504 598977001 SDILT											
Uranium		0.280	J	0.100	ug/L	78.6		(0%-10%)		11/11/22	15:44

Notes:

The Qualifiers in this report are defined as follows:

<	Result is less than value reported
>	Result is greater than value reported
E	%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	See case narrative for an explanation
J	Value is estimated
N	Metals--The Matrix spike sample recovery is not within specified control limits
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 598977

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time

NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.

R Sample results are rejected

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Y Other specific qualifiers were required to properly define the results. Consult case narrative.

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

h Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where the duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 15, 2022

Client :	**Alpha Analytical Inc** **8 Walkup Drive** **Westborough, Massachusetts**
Contact:	**Analytical Subreports**
Workorder:	**598977**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gas Flow											
Batch 2337958											
QC1205235594 598923001 DUP											
Alpha		U	-0.185	U	0.330	pCi/L	0		N/A	KP1	11/10/22 07:45
		Uncert:	+/-1.12		+/-1.30						
		TPU:	+/-1.12		+/-1.31						
Beta		U	0.260	U	0.0114	pCi/L	0		N/A		
		Uncert:	+/-1.92		+/-1.22						
		TPU:	+/-1.92		+/-1.22						
QC1205235597 LCS											
Alpha	33.7				27.7	pCi/L		82.2	(80%-120%)	KP1	11/10/22 07:45
		Uncert:			+/-4.77						
		TPU:			+/-6.85						
Beta	29.8				32.3	pCi/L		109	(80%-120%)		
		Uncert:			+/-4.00						
		TPU:			+/-5.90						
QC1205235593 MB											
Alpha				U	0.585	pCi/L				KP1	11/10/22 07:44
		Uncert:			+/-0.958						
		TPU:			+/-0.964						
Beta				U	0.773	pCi/L					
		Uncert:			+/-2.07						
		TPU:			+/-2.07						
QC1205235595 598923001 MS											
Alpha	33.7	U	-0.185		20.2	pCi/L		60 *	(70%-130%)	KP1	11/10/22 12:16
		Uncert:	+/-1.12		+/-5.95						
		TPU:	+/-1.12		+/-6.93						
Beta	29.8	U	0.260		34.4	pCi/L		116	(70%-130%)		
		Uncert:	+/-1.92		+/-4.29						
		TPU:	+/-1.92		+/-6.23						
QC1205235596 598923001 MSD											
Alpha	33.7	U	-0.185		28.0	pCi/L	32.5*	83.2	(0%-20%)	KP1	11/10/22 07:41
		Uncert:	+/-1.12		+/-6.72						
		TPU:	+/-1.12		+/-8.46						
Beta	29.8	U	0.260		28.8	pCi/L	17.7	96.7	(0%-20%)		
		Uncert:	+/-1.92		+/-3.78						
		TPU:	+/-1.92		+/-5.47						
Batch 2338442											
QC1205236675 599610001 DUP											
Radium-228		U	-0.0842	U	-0.0133	pCi/L	0		N/A	JE1	11/14/22 15:32
		Uncert:	+/-0.364		+/-0.406						
		TPU:	+/-0.364		+/-0.406						
QC1205236677 LCS											

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QC Summary

Workorder: 598977

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gas Flow											
Batch 2338442											
Radium-228	9.94				8.72	pCi/L		87.7	(80%-120%)	JE1	11/14/22 15:32
	Uncert:				+/-1.55						
	TPU:				+/-2.09						
QC1205236674 MB											
Radium-228				U	-0.0499	pCi/L				JE1	11/14/22 15:32
	Uncert:				+/-0.466						
	TPU:				+/-0.466						
QC1205236676 599610001 MS											
Radium-228	19.9	U	-0.0842		18.4	pCi/L		92.5	(70%-130%)	JE1	11/14/22 15:32
	Uncert:		+/-0.364		+/-1.72						
	TPU:		+/-0.364		+/-3.44						
Rad Ra-226											
Batch 2338441											
QC1205236669 599608001 DUP											
Radium-226		U	0.152	U	-0.0130	pCi/L	0		N/A	LXP1	11/14/22 08:21
	Uncert:		+/-0.157		+/-0.0673						
	TPU:		+/-0.161		+/-0.0673						
QC1205236671 LCS											
Radium-226	13.4				12.1	pCi/L		90.6	(90%-110%)	LXP1	11/14/22 08:21
	Uncert:				+/-1.01						
	TPU:				+/-2.22						
QC1205236668 MB											
Radium-226				U	0.0508	pCi/L				LXP1	11/14/22 08:21
	Uncert:				+/-0.111						
	TPU:				+/-0.112						
QC1205236670 599608001 MS											
Radium-226	13.4	U	0.152		11.4	pCi/L		85	(80%-120%)	LXP1	11/14/22 08:21
	Uncert:		+/-0.157		+/-1.18						
	TPU:		+/-0.161		+/-2.69						

Notes:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

**	Analyte is a Tracer compound
<	Result is less than value reported
>	Result is greater than value reported
BD	Results are either below the MDC or tracer recovery is low
FA	Failed analysis.
H	Analytical holding time was exceeded
J	See case narrative for an explanation
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: **598977**

Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time

M REMP Result > MDC/CL and < RDL
N/A RPD or %Recovery limits do not apply.
N1 See case narrative
ND Analyte concentration is not detected above the detection limit
NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI Gamma Spectroscopy--Uncertain identification
UJ Gamma Spectroscopy--Uncertain identification
UL Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y Other specific qualifiers were required to properly define the results. Consult case narrative.
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

598977

ALPHA ANALYTICAL
World Class Chemistry

Subcontract Chain of Custody

GEL Laboratories, LLC
2040 savage road
Charleston, SC 29407

Alpha Job Number
L2260165

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 716-427-5223
Email: cfox@alphalab.com

Project Information

Project Location: NY
Project Manager: Candace Fox

Turnaround & Deliverables Information

Due Date:
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2260165

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	LOT-1-221027	10-27-22 11:10	DW	Gross Alpha/Beta; Radium 226; Radium 228; Uranium by EPA 200.8	

Relinquished By:	Date/Time:	Received By:	Date/Time:
[signature]	10/31/22	[signature]	11/01/22 1000

Form No: AL_subcoc

GEL | Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: ALPL	SDG/AR/COC/Work Order: 598977
Received By: StacyBoone	Date Received: NOV 1, 2022
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 1Z E30 654 01 9438 0710

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A)Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		✓	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
D) Did the client designate samples are hazardous?		✓	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		✓	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*		✓		Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: 19°C
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR4-22 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	✓			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials [signature] Date 11/1/22 Page 1 of 1

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GL-CHL-SR-001 Rev 7

List of current GEL Certifications as of 15 November 2022

State	Certification
Alabama	42200
Alaska	17−018
Alaska Drinking Water	SC00012
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2019020
Maryland	270
Massachusetts	M−SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122023−3
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	2022−160
Pennsylvania NELAP	68−00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−22−20
Utah NELAP	SC000122022−37
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Technical Case Narrative
Alpha Analytical Inc
SDG #: L2260165
Work Order #: 598977

Metals

Product: **Determination of Metals by ICP-MS**
Analytical Method: EPA 200.8
Analytical Procedure: GL-MA-E-014 REV# 35
Analytical Batch: 2336824

Preparation Method: EPA 200.2
Preparation Procedure: GL-MA-E-016 REV# 18
Preparation Batch: 2336822

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
598977001	LOT-1-221027
1205233499	Method Blank (MB)**ICP-MS**
1205233500	Laboratory Control Sample (LCS)
1205233501	Laboratory Control Sample Duplicate (LCSD)
1205233504	598977001(LOT-1-221027L) Serial Dilution (SD)
1205233502	598977001(LOT-1-221027D) Sample Duplicate (DUP)
1205233503	598977001(LOT-1-221027S) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Calibration Information

ICSA/ICSAB Statement
For the ICP-MS analysis, the ICSA solution contains analyte concentrations which are verified trace impurities indigenous to the purchased standard.

Radiochemistry

Product: **Gross Alpha/Beta in Drinking Water EPA 900.0**
Analytical Method: EPA 900.0
Analytical Procedure: GL-RAD-A-001D REV# 4
Analytical Batch: 2337958

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	**Client Sample Identification**
598977001	LOT-1-221027
1205235593	Method Blank (MB)
1205235594	598923001(NonSDG) Sample Duplicate (DUP)
1205235595	598923001(NonSDG) Matrix Spike (MS)
1205235596	598923001(NonSDG) Matrix Spike Duplicate (MSD)
1205235597	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Matrix Spike (MS) Recovery
Matrix Spike did not meet the recovery requirement; however the Matrix Spike Duplicate did meet the recovery requirement. The Matrix Spike and Matrix Spike Duplicate also meet the relative error requirement.

Sample	Analyte	Value
1205235595 (Non SDG 598923001MS)	Alpha	60* (70%-130%)

Duplication Criteria between MS and MSD
The Matrix Spike and Matrix Spike Duplicate, (See Below), did not meet the relative percent difference requirement; however, they do meet the relative error ratio requirement with the value listed below.

Sample	Analyte	Value
1205235595MS and 1205235596MSD (Non SDG 598923001)	Alpha	RPD 32.5* (0%-20%) RER 0.716 (0-2)

Technical Information

Gross Alpha/Beta Preparation Information
None of the samples have been flamed.

Recounts
Sample 1205235595 (Non SDG 598923001MS) was recounted due to high recovery. The recount is reported.

Product: **EPA 904.0 Radium-228, DW**
Analytical Method: EPA 904.0/ EPA 9320
Analytical Procedure: GL-RAD-A-030 REV# 21
Analytical Batch: 2338442

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	**Client Sample Identification**
598977001	LOT-1-221027
1205236674	Method Blank (MB)
1205236675	599610001(NonSDG) Sample Duplicate (DUP)
1205236676	599610001(NonSDG) Matrix Spike (MS)
1205236677	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Recounts
Samples were re-eluted and recounted to verify sample results. The recounts are reported.

Product: **EPA 903.1 Ra226 Drinking Water**
Analytical Method: EPA 903.1
Analytical Procedure: GL-RAD-A-028 REV# 20
Analytical Batch: 2338441

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	**Client Sample Identification**
598977001	LOT-1-221027
1205236668	Method Blank (MB)
1205236669	599608001(NonSDG) Sample Duplicate (DUP)
1205236670	599608001(NonSDG) Matrix Spike (MS)
1205236671	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

301 Fulling Mill Road | Middletown, PA 17057 | Phone: 717-944-5541 | Fax: 717-944-1430 | www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

Analytical Results Report For	**Alpha Analytical**	
	Project	L2260165
	Workorder	3271127
	Report ID	208431 on 11/21/2022

Certificate of Analysis

Enclosed are the analytical results for samples received by the laboratory on Oct 28, 2022.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact George Methlie (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

ALS Middletown: 301 Fulling Mill Road, Middletown, PA 17057 : 717-944-5541.

Recipient(s):
- Ms Kane - Alpha Analytical
- Ben Rao - Alpha Analytical
- Candace Fox - Alpha Analytical
- Cindy Romero - Alpha Analytical
- Melissa Deyo - Alpha Analytical
- Nadine Yakes - Alpha Analytical
- Results - Alpha Analytical

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

George Methlie

George Methlie *(ALS Digital Signature)*
Project Coordinator

Project L2260165
Workorder 3271127

Sample Summary

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collector	Collection Company
3271127001	LOT-1-221027	NY Potable Water	10/27/2022 11:10	10/28/2022 10:06	CBC	Collected By Client

Reference

Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- Except as qualified, Clean Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 136.
- Except as qualified, Safe Drinking Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 141.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND) above the MDL
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Practical Quantitation Limit for this Project
ND	Not Detected - indicates that the analyte was Not Detected
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits
#	Please reference the result in the Results Section for analyte-level flags.

Project L2260165
Workorder 3271127

Project Notations

Sample Notations

Lab ID	Sample ID

Result Notations

Notation Ref.	
1	Due to sample matrix interferences, this analyte was analyzed at a dilution and the detection levels adjusted accordingly.
2	See attached subcontract 515.3 results from Eurofins Eaton. SLW 11/21/2022

Project L2260165
Workorder 3271127

Detected Results Summary

Client Sample ID	LOT-1-221027	Collected	10/27/2022 11:10
Lab Sample ID	3271127001	Lab Receipt	10/28/2022 10:06

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILES					
bis(2-Ethylhexyl)phthalate	1.0	ug/L	0.96	EPA 525.2	#
SUBCONTRACTED ANALYSIS					
Subcontracted Analysis	See attached			Subcontract	#

Project L2260165
Workorder 3271127

Results

Client Sample ID	LOT-1-221027	Collected	10/27/2022 11:10
Lab Sample ID	3271127001	Lab Receipt	10/28/2022 10:06

CARBAMATES

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
3-Hydroxycarbofuran	ND	ND	ug/L	1.0	EPA 531.1	1	11/09/2022 04:36	CGS	G
Aldicarb	ND	ND	ug/L	2.0	EPA 531.1	1	11/09/2022 04:36	CGS	G
Aldicarb Sulfone	ND	ND	ug/L	2.0	EPA 531.1	1	11/09/2022 04:36	CGS	G
Aldicarb Sulfoxide	ND	ND	ug/L	2.0	EPA 531.1	1	11/09/2022 04:36	CGS	G
Carbaryl	ND	ND	ug/L	1.0	EPA 531.1	1	11/09/2022 04:36	CGS	G
Carbofuran	ND	ND	ug/L	1.0	EPA 531.1	1	11/09/2022 04:36	CGS	G
Methomyl	ND	ND	ug/L	1.0	EPA 531.1	1	11/09/2022 04:36	CGS	G
Oxamyl	ND	ND	ug/L	1.0	EPA 531.1	1	11/09/2022 04:36	CGS	G

HALOACETIC ACID

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Dibromoacetic Acid	ND	ND	ug/L	1.0	EPA 552.2	1	11/01/2022 23:54	DXL	O
Dichloroacetic Acid	ND	ND	ug/L	1.0	EPA 552.2	1	11/01/2022 23:54	DXL	O
Monobromoacetic Acid	ND	ND	ug/L	1.0	EPA 552.2	1	11/01/2022 23:54	DXL	O
Monochloroacetic Acid	ND	ND	ug/L	2.0	EPA 552.2	1	11/01/2022 23:54	DXL	O
Trichloroacetic Acid	ND	ND	ug/L	1.0	EPA 552.2	1	11/01/2022 23:54	DXL	O

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2,3-Dibromopropionic Acid	600-05-5	101%	70 – 130	11/01/2022 23:54	

HERBICIDES

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Diquat	ND	ND	ug/L	2.0	EPA 549.2	1	11/03/2022 13:37	CGS	I1
Endothall	ND	ND	ug/L	20.0	EPA 548.1	1	11/01/2022 12:27	GEC	J
Glyphosate	ND	ND	ug/L	25.0	EPA 547	1	11/02/2022 22:17	CGS	L

PESTICIDES

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Aroclor-1016	ND	ND	ug/L	0.48	EPA 505	1	11/04/2022 06:47	DXL	A
Aroclor-1221	ND	ND	ug/L	0.48	EPA 505	1	11/04/2022 06:47	DXL	A
Aroclor-1232	ND	ND	ug/L	0.48	EPA 505	1	11/04/2022 06:47	DXL	A
Aroclor-1242	ND	ND	ug/L	0.48	EPA 505	1	11/04/2022 06:47	DXL	A
Aroclor-1248	ND	ND	ug/L	0.48	EPA 505	1	11/04/2022 06:47	DXL	A
Aroclor-1254	ND	ND	ug/L	0.48	EPA 505	1	11/04/2022 06:47	DXL	A
Aroclor-1260	ND	ND	ug/L	0.48	EPA 505	1	11/04/2022 06:47	DXL	A
Chlordane	ND	ND	ug/L	0.48	EPA 505	1	11/04/2022 06:47	DXL	A
Polychlorinated Biphenyls	ND	ND	ug/L	0.48	EPA 505	1	11/04/2022 06:47	DXL	A
Toxaphene	ND	ND	ug/L	1.9	EPA 505	1	11/04/2022 06:47	DXL	A

Project L2260165
Workorder 3271127

Results

Client Sample ID	LOT-1-221027	Collected	10/27/2022 11:10
Lab Sample ID	3271127001	Lab Receipt	10/28/2022 10:06

PESTICIDES (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
Tetrachloro-m-xylene	877-09-8	101%	70 – 130	11/04/2022 06:47	

SEMIVOLATILES

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alachlor	ND	ND	ug/L	0.19	EPA 525.2	1	11/04/2022 13:48	CGS	E1
Aldrin	ND	ND	ug/L	0.19	EPA 525.2	1	11/04/2022 13:48	CGS	E1
Atrazine	ND	ND	ug/L	0.19	EPA 525.2	1	11/04/2022 13:48	CGS	E1
Benzo(a)pyrene	ND	ND	ug/L	0.096	EPA 525.2	1	11/04/2022 13:48	CGS	E1
bis(2-Ethylhexyl)phthalate	1.0		ug/L	0.96	EPA 525.2	1	11/04/2022 13:48	CGS	E1
Butachlor	ND	ND	ug/L	0.19	EPA 525.2	1	11/04/2022 13:48	CGS	E1
Di(2-Ethylhexyl)adipate	ND	ND	ug/L	0.96	EPA 525.2	1	11/04/2022 13:48	CGS	E1
Dieldrin	ND	ND	ug/L	0.19	EPA 525.2	1	11/04/2022 13:48	CGS	E1
Endrin	ND	ND	ug/L	0.19	EPA 525.2	1	11/04/2022 13:48	CGS	E1
gamma-BHC	ND	ND	ug/L	0.096	EPA 525.2	1	11/04/2022 13:48	CGS	E1
Heptachlor	ND	ND	ug/L	0.096	EPA 525.2	1	11/04/2022 13:48	CGS	E1
Heptachlor Epoxide	ND	ND	ug/L	0.096	EPA 525.2	1	11/04/2022 13:48	CGS	E1
Hexachlorobenzene	ND	ND	ug/L	0.096	EPA 525.2	1	11/04/2022 13:48	CGS	E1
Hexachlorocyclopentadiene	ND	ND	ug/L	0.19	EPA 525.2	1	11/04/2022 13:48	CGS	E1
Methoxychlor	ND	ND	ug/L	0.19	EPA 525.2	1	11/04/2022 13:48	CGS	E1
Metolachlor	ND	ND	ug/L	0.19	EPA 525.2	1	11/04/2022 13:48	CGS	E1
Metribuzin	ND	ND	ug/L	0.19	EPA 525.2	1	11/04/2022 13:48	CGS	E1
Propachlor	ND	ND	ug/L	0.19	EPA 525.2	1	11/04/2022 13:48	CGS	E1
Simazine	ND	ND	ug/L	0.19	EPA 525.2	1	11/04/2022 13:48	CGS	E1

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,3-Dimethyl-2-Nitrobenzene	81-20-9	101%	70 – 130	11/04/2022 13:48	
IS_Perylene-d12	1520-96-3	110%	70 – 130	11/04/2022 13:48	
Pyrene-d10	1718-52-1	103%	70 – 130	11/04/2022 13:48	
Triphenylphosphate	115-86-6	115%	70 – 130	11/04/2022 13:48	

SUBCONTRACTED ANALYSIS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Subcontracted Analysis	See attached	2			Subcontract	1	11/21/2022 16:54	SUB	

WET CHEMISTRY

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Bromate	ND	ND,1	ug/L	50.0	EPA 300.1	10	11/02/2022 11:20	DMG	N

Project L2260165
Workorder 3271127

Results

Client Sample ID	LOT-1-221027	Collected	10/27/2022 11:10
Lab Sample ID	3271127001	Lab Receipt	10/28/2022 10:06

WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chlorite	ND	ND,1	ug/L	200	EPA 300.1	10	11/02/2022 11:20	DMG	N

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
Dichloroacetate	DCA	102%	90 – 115	11/02/2022 11:20	
Dichloroacetate	DCA	102%	90 – 115	11/02/2022 11:20	

Project L2260165
Workorder 3271127

Sample - Method Cross Reference Table

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3271127001	LOT-1-221027	EPA 531.1	N/A	
		EPA 547	N/A	
		EPA 549.2	EPA 549.2	
		Subcontract	N/A	
		EPA 505	EPA 505	
		EPA 552.2	EPA 552.2	
		EPA 525.2	EPA 525.2	
		EPA 548.1	EPA 548.1	
		EPA 300.1	N/A	

Project L2260165
Workorder 3271127

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Lab ID	Sample ID	Preparation Method	Prep Batch	Prep Date/Time	By	Analysis Method	Anly Batch
3271127001	LOT-1-221027	N/A	N/A	N/A		EPA 531.1	903920
		N/A	N/A	N/A		EPA 547	899633
		EPA 549.2	899982	11/03/2022 02:30	KMR	EPA 549.2	900194
		N/A	N/A	N/A		Subcontract	
		EPA 505	900310	11/03/2022 18:50	DXL	EPA 505	900782
		EPA 552.2	899084	11/01/2022 08:20	S7M	EPA 552.2	899369
		EPA 525.2	900798	11/04/2022 01:45	KMR	EPA 525.2	901390
		EPA 548.1	898930	10/31/2022 11:05	JEK	EPA 548.1	899235
		N/A	N/A	N/A		EPA 300.1	898969

3271127
Logged By: SLS
PM: GJM

ALPHA ANALYTICAL
World Class Chemistry

Subcontract Chain of Custody

ALS Environmental (PA)
301 Fulling Mill Road
Middletown, PA 17057

Alpha Job Number
0165

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 716-427-5223
Email: cfox@alphalab.com

Project Information

Project Location: NY
Project Manager: Candace Fox

Turnaround & Deliverables Information

Due Date:
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2260165

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	LOT-1-221027	10-27-22 11:10	DW	PCB/Chlor/Tox - EPA 505; Chlor. Acids - EPA 515.3; Pesticides - EPA 525.2; Carbamates - EPA 531.1; Bromate; Chlorite;Subcontract Diquat -EPA 549.2; Subcontract Endothall -EPA 548.1;Subcontract Glyphosate -EPA 547;Haloacetic Acids - Subcontracted	

2 40mL MAB
4 40mL ST
1 P 250 EDA

2 A/SSHCl
1 P/NH4OH
1 P/ST
4 A/ST
1 A/NH4Cl

NO collector, C/G, PRES

Temp Taken By: AMRF
WO Temp (°C) 2°
Therm ID: 569
Receipt Info Completed By: AMRF
Cooler Custody Seal Intact Y N NA
Sample Custody Seal Intact Y N NA
Received on Ice Y N NA
Cooler & Samples Intact Y N
Correct Containers Provided Y N
Sample Label/COC Agree Y N
Adequate Sample Volumes Y N
VOA Headspace Present Y N NA
Voa Trip Blank Y N NA
NJ≤ 4 Days? ~~Y N~~
Rad Screen (uCi)
Courier/Tracking #: 1ZE3065401 99378483
SDWA Compliance Y N
PWSID
WV Containers 0-6°C Y N NA

Relinquished By:	Date/Time:	Received By:	Date/Time:
Jim Conley AAL	10/27/22 1500	UPS	
UPS		AMRF/ALS	10/28/22 10:06

Form No: AL_subcoc

Environment Testing

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ANALYTICAL REPORT

PREPARED FOR

Attn: Sarah Leung
ALS Environmental
301 Fulling Mill Road
Middletown Pennsylvania 17057

Generated 11/21/2022 12:00:40 PM

JOB DESCRIPTION

3271127

JOB NUMBER

810-43559-1

Eurofins Eaton South Bend
110 S Hill Street
South Bend IN 46617

Table of Contents

Definitions/Glossary

Client: ALS Environmental
Project/Site: 3271127

Job ID: 810-43559-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: ALS Environmental
Project/Site: 3271127

Job ID: 810-43559-1

Job ID: 810-43559-1

Laboratory: Eurofins Eaton South Bend

Narrative

Job Narrative
810-43559-1

Receipt

The sample was received on 11/4/2022 1:15 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.0°C

GC Semi VOA

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: ALS Environmental
Job ID: 810-43559-1
Project/Site: 3271127

Client Sample ID: 3271127-001
Lab Sample ID: 810-43559-1

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: ALS Environmental
Job ID: 810-43559-1
Project/Site: 3271127

Client Sample ID: 3271127-001
Lab Sample ID: 810-43559-1
Date Collected: 10/27/22 11:10
Matrix: Drinking Water
Date Received: 11/04/22 13:15

Method: EPA 515.3 - Herbicides (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-TP (Silvex)	<0.10		0.10		ug/L		11/10/22 09:43	11/18/22 05:24	1
Dalapon	<1.0		1.0		ug/L		11/10/22 09:43	11/18/22 05:24	1
Dicamba	<0.10		0.10		ug/L		11/10/22 09:43	11/18/22 05:24	1
Dinoseb	<0.10		0.10		ug/L		11/10/22 09:43	11/18/22 05:24	1
Pentachlorophenol	<0.040		0.040		ug/L		11/10/22 09:43	11/18/22 05:24	1
Picloram	<0.10		0.10		ug/L		11/10/22 09:43	11/18/22 05:24	1
2,4-D	<0.10		0.10		ug/L		11/10/22 09:43	11/18/22 05:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*92*		*70 - 130*	*11/10/22 09:43*	*11/18/22 05:24*	*1*

Surrogate Summary

Client: ALS Environmental
Project/Site: 3271127

Job ID: 810-43559-1

Method: 515.3 - Herbicides (GC)

Matrix: Drinking Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	**Client Sample ID**	**DCPAA1 (70-130)**
810-43559-1	3271127-001	92
810-43559-1 MS	3271127-001	88
LLCS 810-38023/2-B	Lab Control Sample	81
MB 810-38023/1-B	Method Blank	102

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid

QC Sample Results

Client: ALS Environmental
Project/Site: 3271127

Job ID: 810-43559-1

Method: 515.3 - Herbicides (GC)

Lab Sample ID: MB 810-38023/1-B
Matrix: Drinking Water
Analysis Batch: 38815

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 38023

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-TP (Silvex)	<0.10		0.10		ug/L		11/10/22 09:43	11/17/22 22:59	1
Dalapon	<1.0		1.0		ug/L		11/10/22 09:43	11/17/22 22:59	1
Dicamba	<0.10		0.10		ug/L		11/10/22 09:43	11/17/22 22:59	1
Dinoseb	<0.10		0.10		ug/L		11/10/22 09:43	11/17/22 22:59	1
Pentachlorophenol	<0.040		0.040		ug/L		11/10/22 09:43	11/17/22 22:59	1
Picloram	<0.10		0.10		ug/L		11/10/22 09:43	11/17/22 22:59	1
2,4-D	<0.10		0.10		ug/L		11/10/22 09:43	11/17/22 22:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*102*		*70 - 130*	*11/10/22 09:43*	*11/17/22 22:59*	*1*

Lab Sample ID: LLCS 810-38023/2-B
Matrix: Drinking Water
Analysis Batch: 38815

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 38023

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4,5-TP (Silvex)	0.100	<0.080		ug/L		74	48 - 148
Dicamba	0.200	0.203		ug/L		102	
Dinoseb	0.200	0.193		ug/L		97	39 - 141
Pentachlorophenol	0.0400	0.0396	J	ug/L		99	30 - 171
Picloram	0.100	0.148		ug/L		148	24 - 150
2,4-D	0.200	0.146		ug/L		73	24 - 138

Surrogate	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*81*		*70 - 130*

Lab Sample ID: 810-43559-1 MS
Matrix: Drinking Water
Analysis Batch: 38815

Client Sample ID: 3271127-001
Prep Type: Total/NA
Prep Batch: 38023

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
2,4,5-TP (Silvex)	<0.10		1.50	1.47		ug/L		98	70 - 130
Dalapon	<1.0		3.00	2.49		ug/L		83	70 - 130
Dicamba	<0.10		3.00	2.97		ug/L		99	70 - 130
Dinoseb	<0.10		3.00	2.96		ug/L		99	70 - 130
Pentachlorophenol	<0.040		0.600	0.525		ug/L		87	70 - 130
Picloram	<0.10		1.50	1.34		ug/L		89	70 - 130
2,4-D	<0.10		3.00	2.76		ug/L		92	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*88*		*70 - 130*

QC Association Summary

Client: ALS Environmental
Project/Site: 3271127

Job ID: 810-43559-1

GC Semi VOA

Prep Batch: 38023

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
810-43559-1	3271127-001	Total/NA	Drinking Water	515.3	
MB 810-38023/1-B	Method Blank	Total/NA	Drinking Water	515.3	
LLCS 810-38023/2-B	Lab Control Sample	Total/NA	Drinking Water	515.3	
810-43559-1 MS	3271127-001	Total/NA	Drinking Water	515.3	

Cleanup Batch: 38082

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
810-43559-1	3271127-001	Total/NA	Drinking Water	Aliquot	38023
MB 810-38023/1-B	Method Blank	Total/NA	Drinking Water	Aliquot	38023
LLCS 810-38023/2-B	Lab Control Sample	Total/NA	Drinking Water	Aliquot	38023
810-43559-1 MS	3271127-001	Total/NA	Drinking Water	Aliquot	38023

Analysis Batch: 38815

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
810-43559-1	3271127-001	Total/NA	Drinking Water	515.3	38082
MB 810-38023/1-B	Method Blank	Total/NA	Drinking Water	515.3	38082
LLCS 810-38023/2-B	Lab Control Sample	Total/NA	Drinking Water	515.3	38082
810-43559-1 MS	3271127-001	Total/NA	Drinking Water	515.3	38082

Lab Chronicle

Client: ALS Environmental
Project/Site: 3271127

Job ID: 810-43559-1

Client Sample ID: 3271127-001
Date Collected: 10/27/22 11:10
Date Received: 11/04/22 13:15

Lab Sample ID: 810-43559-1
Matrix: Drinking Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	515.3			38023	ER	EA SB	11/10/22 09:43
Total/NA	Cleanup	Aliquot			38082	ER	EA SB	11/10/22 14:36
Total/NA	Analysis	515.3		1	38815	TL	EA SB	11/18/22 05:24

Laboratory References:

EA SB = Eurofins Eaton South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

Accreditation/Certification Summary

Client: ALS Environmental
Project/Site: 3271127

Job ID: 810-43559-1

Laboratory: Eurofins Eaton South Bend

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Pennsylvania	NELAP	68-00466	04-30-23

Method Summary

Client: ALS Environmental
Project/Site: 3271127

Job ID: 810-43559-1

Method	Method Description	Protocol	Laboratory
515.3	Herbicides (GC)	EPA	EA SB
515.3	Extraction of Chlorinated Acids	EPA-DW	EA SB
Aliquot	Preparation, Extract aliquot	None	EA SB

Protocol References:

EPA = US Environmental Protection Agency

EPA-DW = "Methods For The Determination Of Organic Compounds In Drinking Water", EPA/600/4-88/039, December 1988 And Its Supplements.

None = None

Laboratory References:

EA SB = Eurofins Eaton South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

Sample Summary

Client: ALS Environmental
Project/Site: 3271127

Job ID: 810-43559-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
810-43559-1	3271127-001	Drinking Water	10/27/22 11:10	11/04/22 13:15

301 Fulling Mill Rd, Suite A
Middletown, PA 17057
P. 717-944-5541

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: of

ALS Quote #: 40-3271127

810-43559 Chain of Custody

Client Name: ALS Middletown

Address: 301 Fulling Mill Road
Middletown, PA 17057

Container Type: AG
Container Size: 250mL
Preservative: ST

Unless otherwise Indicated, preservation indicates field filtration on applicable methods

Contact: Mr. George Methlie
Phone#: 717-944-5541
Project Name/#:
Bill To:
Purchase Order #: 40-3271127

TAT: [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? [X] -Y NAMDT.Subcontract@alsglobal.com

ANALYSES/METHOD REQUESTED

Client Provided Sample Container
50mL AG
$Na_2S_2O_3$

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	SDWA Sample Type (see key)	*G or C	**Matrix (See bottom of COC)	515.3								
1	3271127-001	10/27/22	11:10		G	DW	2								
2															
3															
4															
5															
6															
7															
8															
9															
10															

Initial Temp: 0
Corrected Temp: 0
IR Gun #: 21
wet

Circle Sample Collector: ALS Tech / Client ID:

Comments:

Date:	Time		Relinquished By / Company Name		Received By / Company Name
11-3-22	1600	1	[signature]	2	[signature] EEA 11-4-22 1315
		3		4	
		5		6	
		7		8	
		9		10	

Receipt Information (completed by Receiving Lab)

Temp Taken By: Therm ID: WO Temp (°C)

Receipt Info completed by:______ WV Containers 0-6°C Y N NA

Cooler Custody Seals Intact	Y	N	NA
Sample Custody Seal Intact	Y	N	NA
Received on Ice	Y	N	NA
Coolers & Samples Intact	Y	N	
Correct Containers Provided	Y	N	
Sample Label/COC Agree	Y	N	
Adequate Sample Volumes	Y	N	
VOA only: Headspace Present	Y	N	NA
VOA only: Trip Blank	Y	N	NA
NJ ≤ 4 days?	Y	N	

Deviations? NO YES
If YES, list below:

Client contact:
Date/Tech:

Courier/Tracking #:______

Sample(s) for Radiation testing? Y N — Rad Screen (uCi)______
Reportable SDWA Sample(s)? Y N — New Source? Y N
SDWA State of Origin?______ — New Source Contact:
PWSID #
PWS Contact:______ PWS Phone #:______

SDWA Sample Type Key: D=Distribution E=Entry Point R=Raw P=Plant C=Check S=Special A=Annual Startup

Sample/COC Remarks

Not Reportable

Client ID: L2260165

Contains Short Hold Testing YES NO

Internal Use: If less than 48 hours - notify lab upon receipt

Data Deliverables: [ ] Standard Lvl 1 [ ] Standard Lvl 2 [ ] Standard Lvl 3 [ ] Standard Lvl 4 [ ] CLP-like [ ] DOD [ ] NJ RED [ ] NJ Full [ ] HSCA [ ] Landfill [ ] NJ GW [ ] ______

EDD: [ ] Excel Summary [ ] Equis [ ] Custom

Sample Disposal: Lab [ ] Special [ ]

EDDS: Format Type

State Samples Collected In: [x] NY [ ] NJ [ ] PA [ ] WV [ ] FL MD other

* G=Grab; C=Composite **Matrix - A=Air; D=Drinking Water; GW=Groundwater; O=Oil; LW=Liquid Waste; S=Solid/Soil/Sludge; SW=Surface Water; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Suite A, Middletown, PA 17057

Rev 7.19.22

Login Sample Receipt Checklist

Client: ALS Environmental

Job Number: 810-43559-1

Login Number: 43559
List Number: 1
Creator: Spurgeon, Sheri

List Source: Eurofins Eaton South Bend

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Samples do not require splitting or compositing.	True	
Container provided by EEA	False	Client provided containers

Eurofins Eaton South Bend

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Eaton Analytical, LLC Project Manager.

Authorization

Authorized for release by
Caleb Hunsberger, Project Manager
Anthony.Hunsberger@et.eurofinsus.com
(574)233-4777

Generated
11/21/2022 12:00:40 PM

ANALYTICAL REPORT

Lab Number:	L2258610
Client:	C.T. Male Associates 50 Century Hill Drive Latham, NY 12110
ATTN:	Jonathan Dippert
Phone:	(518) 786-7400
Project Name:	TERRAMOR
Project Number:	Not Specified
Report Date:	11/11/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2258610-01	LOT-17-221020	WATER	SAUGERTIES, NY	10/20/22 10:00	10/20/22
L2258610-02	FIELD BLANK	DW	SAUGERTIES, NY	10/20/22 10:40	10/20/22
L2258610-03	TRIP BLANK	WATER	SAUGERTIES, NY	10/20/22 00:00	10/20/22
L2258610-04	LOT-17-221021	DW	SAUGERTIES, NY	10/21/22 13:00	10/21/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission
All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

The analyses of HALOACETIC ACID, Uranium, Gross Alpha, Gross Beta, Radium-226, Radium-228, Asbestos, EPA 531.1, EPA 549.2, 548.1, EPA 547, EPA 505, EPA 525.2, EPA 504.1, Bromate, Chlorite, and EPA 515.3 were subcontracted. A copy of the laboratory report is included as an addendum. Please note: This data is only available in PDF format and is not available on Data Merger.

Sample Receipt
The analyses performed were specified by the client.
L2258610-03: A sample identified as "TRIP BLANK" was received, but not listed on the Chain of Custody. At the client's request, this sample was analyzed.

Volatile Organics by Method 524.2
The WG1703420-3 LCS recovery, associated with L2258610-01, is above the acceptance criteria for dichlorodifluoromethane (150%); however, the associated sample is non-detect to the RL for this target analyte. The results of the original analysis are reported.
The WG1706698-3 LCS recoveries, associated with L2258610-03, are above the acceptance criteria for dichlorodifluoromethane (195%) and chloromethane (132%); however, the associated sample is non-detect to the RL for these target analytes. The results of the original analysis are reported.

Color, Apparent
L2258610-01: The sample has an elevated detection limit due to the dilution required by the sample matrix.

Cyanide, Total
WG1705195: A Laboratory Duplicate was prepared with the sample batch, however, the native sample required

Case Narrative (continued)

re-analysis; therefore, the result could not be reported.

Anions by Ion Chromatography

The WG1709241-3 MS recovery for chloride (74%), performed on L2258610-01, does not apply because the sample concentration is greater than four times the spike amount added.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 11/11/22

ORGANICS

VOLATILES

Project Name: TERRAMOR **Lab Number:** L2258610
Project Number: Not Specified **Report Date:** 11/11/22

SAMPLE RESULTS

Lab ID: L2258610-01
Client ID: LOT-17-221020
Sample Location: SAUGERTIES, NY

Date Collected: 10/20/22 10:00
Date Received: 10/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Dw
Analytical Method: 14,504.1
Analytical Date: 10/26/22 15:05
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 10/26/22 13:40

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	0.003	1	A
1,2,3-Trichloropropane	ND		ug/l	0.030	0.020	1	A

Project Name: TERRAMOR **Lab Number:** L2258610

Project Number: Not Specified **Report Date:** 11/11/22

SAMPLE RESULTS

Lab ID: L2258610-01
Client ID: LOT-17-221020
Sample Location: SAUGERTIES, NY
Date Collected: 10/20/22 10:00
Date Received: 10/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Dw
Analytical Method: 16,524.2
Analytical Date: 10/21/22 17:24
Analyst: GMT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Dichlorodifluoromethane	ND		ug/l	0.50	0.16	1
Chloromethane	ND		ug/l	0.50	0.26	1
Vinyl chloride	ND		ug/l	0.50	0.19	1
Bromomethane	ND		ug/l	0.50	0.22	1
Chloroethane	ND		ug/l	0.50	0.18	1
Trichlorofluoromethane	ND		ug/l	0.50	0.14	1
1,1-Dichloroethene	ND		ug/l	0.50	0.15	1
Methylene chloride	ND		ug/l	0.50	0.26	1
Methyl tert butyl ether	ND		ug/l	0.50	0.13	1
trans-1,2-Dichloroethene	ND		ug/l	0.50	0.19	1
1,1-Dichloroethane	ND		ug/l	0.50	0.16	1
2,2-Dichloropropane	ND		ug/l	0.50	0.17	1
cis-1,2-Dichloroethene	ND		ug/l	0.50	0.17	1
Chloroform	ND		ug/l	0.50	0.15	1
Bromochloromethane	ND		ug/l	0.50	0.14	1
1,1,1-Trichloroethane	ND		ug/l	0.50	0.16	1
1,1-Dichloropropene	ND		ug/l	0.50	0.19	1
Carbon tetrachloride	ND		ug/l	0.50	0.18	1
1,2-Dichloroethane	ND		ug/l	0.50	0.15	1
Benzene	ND		ug/l	0.50	0.19	1
Trichloroethene	ND		ug/l	0.50	0.22	1
1,2-Dichloropropane	ND		ug/l	0.50	0.18	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
Dibromomethane	ND		ug/l	0.50	0.17	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.20	1
Toluene	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	0.50	0.24	1

Project Name: TERRAMOR **Lab Number:** L2258610

Project Number: Not Specified **Report Date:** 11/11/22

SAMPLE RESULTS

Lab ID: L2258610-01 Date Collected: 10/20/22 10:00

Client ID: LOT-17-221020 Date Received: 10/20/22

Sample Location: SAUGERTIES, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichloropropane	ND		ug/l	0.50	0.22	1
Tetrachloroethene	ND		ug/l	0.50	0.24	1
Dibromochloromethane	ND		ug/l	0.50	0.12	1
1,2-Dibromoethane	ND		ug/l	0.50	0.24	1
Chlorobenzene	ND		ug/l	0.50	0.16	1
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.13	1
p/m-Xylene	ND		ug/l	0.50	0.30	1
o-Xylene	ND		ug/l	0.50	0.19	1
Styrene	ND		ug/l	0.50	0.16	1
Isopropylbenzene	ND		ug/l	0.50	0.13	1
Bromoform	ND		ug/l	0.50	0.25	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.14	1
1,2,3-Trichloropropane	ND		ug/l	0.50	0.24	1
Xylenes, Total[1]	ND		ug/l	0.50	0.19	1
n-Propylbenzene	ND		ug/l	0.50	0.14	1
Bromobenzene	ND		ug/l	0.50	0.13	1
1,3,5-Trimethylbenzene	ND		ug/l	0.50	0.15	1
o-Chlorotoluene	ND		ug/l	0.50	0.17	1
p-Chlorotoluene	ND		ug/l	0.50	0.15	1
tert-Butylbenzene	ND		ug/l	0.50	0.14	1
1,2,4-Trimethylbenzene	ND		ug/l	0.50	0.13	1
sec-Butylbenzene	ND		ug/l	0.50	0.11	1
p-Isopropyltoluene	ND		ug/l	0.50	0.12	1
1,3-Dichlorobenzene	ND		ug/l	0.50	0.17	1
1,4-Dichlorobenzene	ND		ug/l	0.50	0.18	1
n-Butylbenzene	ND		ug/l	0.50	0.25	1
1,2-Dichlorobenzene	ND		ug/l	0.50	0.16	1
1,2-Dibromo-3-chloropropane	ND		ug/l	0.50	0.29	1
1,2,4-Trichlorobenzene	ND		ug/l	0.50	0.12	1
Hexachlorobutadiene	ND		ug/l	0.50	0.15	1
Naphthalene	ND		ug/l	0.50	0.14	1
1,2,3-Trichlorobenzene	ND		ug/l	0.50	0.17	1

Project Name:	TERRAMOR	**Lab Number:**	L2258610
Project Number:	Not Specified	**Report Date:**	11/11/22

SAMPLE RESULTS

Lab ID:	L2258610-01	Date Collected:	10/20/22 10:00
Client ID:	LOT-17-221020	Date Received:	10/20/22
Sample Location:	SAUGERTIES, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Volatile Organics by GC/MS - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	110		80-120
4-Bromofluorobenzene	99		80-120

Project Name: TERRAMOR **Lab Number:** L2258610

Project Number: Not Specified **Report Date:** 11/11/22

SAMPLE RESULTS

Lab ID: L2258610-03 Date Collected: 10/20/22 00:00
Client ID: TRIP BLANK Date Received: 10/20/22
Sample Location: SAUGERTIES, NY Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 16,524.2
Analytical Date: 10/28/22 11:30
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Dichlorodifluoromethane	ND		ug/l	0.50	0.16	1
Chloromethane	ND		ug/l	0.50	0.26	1
Vinyl chloride	ND		ug/l	0.50	0.19	1
Bromomethane	ND		ug/l	0.50	0.22	1
Chloroethane	ND		ug/l	0.50	0.18	1
Trichlorofluoromethane	ND		ug/l	0.50	0.14	1
1,1-Dichloroethene	ND		ug/l	0.50	0.15	1
Methylene chloride	ND		ug/l	0.50	0.26	1
Methyl tert butyl ether	ND		ug/l	0.50	0.13	1
trans-1,2-Dichloroethene	ND		ug/l	0.50	0.19	1
1,1-Dichloroethane	ND		ug/l	0.50	0.16	1
2,2-Dichloropropane	ND		ug/l	0.50	0.17	1
cis-1,2-Dichloroethene	ND		ug/l	0.50	0.17	1
Chloroform	ND		ug/l	0.50	0.15	1
Bromochloromethane	ND		ug/l	0.50	0.14	1
1,1,1-Trichloroethane	ND		ug/l	0.50	0.16	1
1,1-Dichloropropene	ND		ug/l	0.50	0.19	1
Carbon tetrachloride	ND		ug/l	0.50	0.18	1
1,2-Dichloroethane	ND		ug/l	0.50	0.15	1
Benzene	ND		ug/l	0.50	0.19	1
Trichloroethene	ND		ug/l	0.50	0.22	1
1,2-Dichloropropane	ND		ug/l	0.50	0.18	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
Dibromomethane	ND		ug/l	0.50	0.17	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.20	1
Toluene	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	0.50	0.24	1

ALPHA ANALYTICAL

Project Name: TERRAMOR **Lab Number:** L2258610

Project Number: Not Specified **Report Date:** 11/11/22

SAMPLE RESULTS

Lab ID: L2258610-03 Date Collected: 10/20/22 00:00

Client ID: TRIP BLANK Date Received: 10/20/22

Sample Location: SAUGERTIES, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichloropropane	ND		ug/l	0.50	0.22	1
Tetrachloroethene	ND		ug/l	0.50	0.24	1
Dibromochloromethane	ND		ug/l	0.50	0.12	1
1,2-Dibromoethane	ND		ug/l	0.50	0.24	1
Chlorobenzene	ND		ug/l	0.50	0.16	1
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.13	1
p/m-Xylene	ND		ug/l	0.50	0.30	1
o-Xylene	ND		ug/l	0.50	0.19	1
Styrene	ND		ug/l	0.50	0.16	1
Isopropylbenzene	ND		ug/l	0.50	0.13	1
Bromoform	ND		ug/l	0.50	0.25	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.14	1
1,2,3-Trichloropropane	ND		ug/l	0.50	0.24	1
Xylenes, Total[1]	ND		ug/l	0.50	0.19	1
n-Propylbenzene	ND		ug/l	0.50	0.14	1
Bromobenzene	ND		ug/l	0.50	0.13	1
1,3,5-Trimethylbenzene	ND		ug/l	0.50	0.15	1
o-Chlorotoluene	ND		ug/l	0.50	0.17	1
p-Chlorotoluene	ND		ug/l	0.50	0.15	1
tert-Butylbenzene	ND		ug/l	0.50	0.14	1
1,2,4-Trimethylbenzene	ND		ug/l	0.50	0.13	1
sec-Butylbenzene	ND		ug/l	0.50	0.11	1
p-Isopropyltoluene	ND		ug/l	0.50	0.12	1
1,3-Dichlorobenzene	ND		ug/l	0.50	0.17	1
1,4-Dichlorobenzene	ND		ug/l	0.50	0.18	1
n-Butylbenzene	ND		ug/l	0.50	0.25	1
1,2-Dichlorobenzene	ND		ug/l	0.50	0.16	1
1,2-Dibromo-3-chloropropane	ND		ug/l	0.50	0.29	1
1,2,4-Trichlorobenzene	ND		ug/l	0.50	0.12	1
Hexachlorobutadiene	ND		ug/l	0.50	0.15	1
Naphthalene	ND		ug/l	0.50	0.14	1
1,2,3-Trichlorobenzene	ND		ug/l	0.50	0.17	1

Project Name:	TERRAMOR	**Lab Number:**	L2258610
Project Number:	Not Specified	**Report Date:**	11/11/22

SAMPLE RESULTS

Lab ID:	L2258610-03	Date Collected:	10/20/22 00:00
Client ID:	TRIP BLANK	Date Received:	10/20/22
Sample Location:	SAUGERTIES, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	101		80-120
4-Bromofluorobenzene	97		80-120

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 16,524.2
Analytical Date: 10/21/22 10:43
Analyst: GMT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1703420-4					
Dichlorodifluoromethane	ND		ug/l	0.50	0.16
Chloromethane	ND		ug/l	0.50	0.26
Vinyl chloride	ND		ug/l	0.50	0.19
Bromomethane	ND		ug/l	0.50	0.22
Chloroethane	ND		ug/l	0.50	0.18
Trichlorofluoromethane	ND		ug/l	0.50	0.14
1,1-Dichloroethene	ND		ug/l	0.50	0.15
Methylene chloride	ND		ug/l	0.50	0.26
Methyl tert butyl ether	ND		ug/l	0.50	0.13
trans-1,2-Dichloroethene	ND		ug/l	0.50	0.19
1,1-Dichloroethane	ND		ug/l	0.50	0.16
2,2-Dichloropropane	ND		ug/l	0.50	0.17
cis-1,2-Dichloroethene	ND		ug/l	0.50	0.17
Chloroform	ND		ug/l	0.50	0.15
Bromochloromethane	ND		ug/l	0.50	0.14
1,1,1-Trichloroethane	ND		ug/l	0.50	0.16
1,1-Dichloropropene	ND		ug/l	0.50	0.19
Carbon tetrachloride	ND		ug/l	0.50	0.18
1,2-Dichloroethane	ND		ug/l	0.50	0.15
Benzene	ND		ug/l	0.50	0.19
Trichloroethene	ND		ug/l	0.50	0.22
1,2-Dichloropropane	ND		ug/l	0.50	0.18
Bromodichloromethane	ND		ug/l	0.50	0.19
Dibromomethane	ND		ug/l	0.50	0.17
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.20
Toluene	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	0.50	0.24
1,3-Dichloropropane	ND		ug/l	0.50	0.22

Project Name: TERRAMOR **Lab Number:** L2258610
Project Number: Not Specified **Report Date:** 11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 16,524.2
Analytical Date: 10/21/22 10:43
Analyst: GMT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1703420-4					
Tetrachloroethene	ND		ug/l	0.50	0.24
Dibromochloromethane	ND		ug/l	0.50	0.12
1,2-Dibromoethane	ND		ug/l	0.50	0.24
Chlorobenzene	ND		ug/l	0.50	0.16
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.19
Ethylbenzene	ND		ug/l	0.50	0.13
p/m-Xylene	ND		ug/l	0.50	0.30
o-Xylene	ND		ug/l	0.50	0.19
Styrene	ND		ug/l	0.50	0.16
Isopropylbenzene	ND		ug/l	0.50	0.13
Bromoform	ND		ug/l	0.50	0.25
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.14
1,2,3-Trichloropropane	ND		ug/l	0.50	0.24
Xylenes, Total[1]	ND		ug/l	0.50	0.19
n-Propylbenzene	ND		ug/l	0.50	0.14
Bromobenzene	ND		ug/l	0.50	0.13
1,3,5-Trimethylbenzene	ND		ug/l	0.50	0.15
o-Chlorotoluene	ND		ug/l	0.50	0.17
p-Chlorotoluene	ND		ug/l	0.50	0.15
tert-Butylbenzene	ND		ug/l	0.50	0.14
1,2,4-Trimethylbenzene	ND		ug/l	0.50	0.13
sec-Butylbenzene	ND		ug/l	0.50	0.11
p-Isopropyltoluene	ND		ug/l	0.50	0.12
1,3-Dichlorobenzene	ND		ug/l	0.50	0.17
1,4-Dichlorobenzene	ND		ug/l	0.50	0.18
n-Butylbenzene	ND		ug/l	0.50	0.25
1,2-Dichlorobenzene	ND		ug/l	0.50	0.16
1,2-Dibromo-3-chloropropane	ND		ug/l	0.50	0.29
1,2,4-Trichlorobenzene	ND		ug/l	0.50	0.12

Project Name: TERRAMOR
Lab Number: L2258610
Project Number: Not Specified
Report Date: 11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 16,524.2
Analytical Date: 10/21/22 10:43
Analyst: GMT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1703420-4					
Hexachlorobutadiene	ND		ug/l	0.50	0.15
Naphthalene	ND		ug/l	0.50	0.14
1,2,3-Trichlorobenzene	ND		ug/l	0.50	0.17

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	108		80-120
4-Bromofluorobenzene	99		80-120

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 10/26/22 14:33
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 10/26/22 13:40

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01 Batch: WG1704409-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A
1,2-Dibromo-3-chloropropane	ND		ug/l	0.010	0.003	A
1,2,3-Trichloropropane	ND		ug/l	0.030	0.020	A

Project Name: TERRAMOR **Lab Number:** L2258610
Project Number: Not Specified **Report Date:** 11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 16,524.2
Analytical Date: 10/28/22 11:01
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03 Batch: WG1706698-4					
Dichlorodifluoromethane	ND		ug/l	0.50	0.16
Chloromethane	ND		ug/l	0.50	0.26
Vinyl chloride	ND		ug/l	0.50	0.19
Bromomethane	ND		ug/l	0.50	0.22
Chloroethane	ND		ug/l	0.50	0.18
Trichlorofluoromethane	ND		ug/l	0.50	0.14
1,1-Dichloroethene	ND		ug/l	0.50	0.15
Methylene chloride	ND		ug/l	0.50	0.26
Methyl tert butyl ether	ND		ug/l	0.50	0.13
trans-1,2-Dichloroethene	ND		ug/l	0.50	0.19
1,1-Dichloroethane	ND		ug/l	0.50	0.16
2,2-Dichloropropane	ND		ug/l	0.50	0.17
cis-1,2-Dichloroethene	ND		ug/l	0.50	0.17
Chloroform	ND		ug/l	0.50	0.15
Bromochloromethane	ND		ug/l	0.50	0.14
1,1,1-Trichloroethane	ND		ug/l	0.50	0.16
1,1-Dichloropropene	ND		ug/l	0.50	0.19
Carbon tetrachloride	ND		ug/l	0.50	0.18
1,2-Dichloroethane	ND		ug/l	0.50	0.15
Benzene	ND		ug/l	0.50	0.19
Trichloroethene	ND		ug/l	0.50	0.22
1,2-Dichloropropane	ND		ug/l	0.50	0.18
Bromodichloromethane	ND		ug/l	0.50	0.19
Dibromomethane	ND		ug/l	0.50	0.17
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.20
Toluene	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	0.50	0.24
1,3-Dichloropropane	ND		ug/l	0.50	0.22

Project Name:	TERRAMOR	**Lab Number:**	L2258610
Project Number:	Not Specified	**Report Date:**	11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 16,524.2
Analytical Date: 10/28/22 11:01
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03 Batch: WG1706698-4					
Tetrachloroethene	ND		ug/l	0.50	0.24
Dibromochloromethane	ND		ug/l	0.50	0.12
1,2-Dibromoethane	ND		ug/l	0.50	0.24
Chlorobenzene	ND		ug/l	0.50	0.16
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.19
Ethylbenzene	ND		ug/l	0.50	0.13
p/m-Xylene	ND		ug/l	0.50	0.30
o-Xylene	ND		ug/l	0.50	0.19
Styrene	ND		ug/l	0.50	0.16
Isopropylbenzene	ND		ug/l	0.50	0.13
Bromoform	ND		ug/l	0.50	0.25
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.14
Xylenes, Total[1]	ND		ug/l	0.50	0.19
1,2,3-Trichloropropane	ND		ug/l	0.50	0.24
n-Propylbenzene	ND		ug/l	0.50	0.14
Bromobenzene	ND		ug/l	0.50	0.13
1,3,5-Trimethylbenzene	ND		ug/l	0.50	0.15
o-Chlorotoluene	ND		ug/l	0.50	0.17
p-Chlorotoluene	ND		ug/l	0.50	0.15
tert-Butylbenzene	ND		ug/l	0.50	0.14
1,2,4-Trimethylbenzene	ND		ug/l	0.50	0.13
sec-Butylbenzene	ND		ug/l	0.50	0.11
p-Isopropyltoluene	ND		ug/l	0.50	0.12
1,3-Dichlorobenzene	ND		ug/l	0.50	0.17
1,4-Dichlorobenzene	ND		ug/l	0.50	0.18
n-Butylbenzene	ND		ug/l	0.50	0.25
1,2-Dichlorobenzene	ND		ug/l	0.50	0.16
1,2-Dibromo-3-chloropropane	ND		ug/l	0.50	0.29
1,2,4-Trichlorobenzene	ND		ug/l	0.50	0.12

Project Name:	TERRAMOR	**Lab Number:**	L2258610
Project Number:	Not Specified	**Report Date:**	11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 16,524.2
Analytical Date: 10/28/22 11:01
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03 Batch: WG1706698-4					
Hexachlorobutadiene	ND		ug/l	0.50	0.15
Naphthalene	ND		ug/l	0.50	0.14
1,2,3-Trichlorobenzene	ND		ug/l	0.50	0.17

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	102		80-120
4-Bromofluorobenzene	87		80-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1703420-3								
Dichlorodifluoromethane	**150**	Q	-		70-130	-		20
Chloromethane	125		-		70-130	-		20
Vinyl chloride	110		-		70-130	-		20
Bromomethane	85		-		70-130	-		20
Chloroethane	120		-		70-130	-		20
Trichlorofluoromethane	110		-		70-130	-		20
1,1-Dichloroethene	118		-		70-130	-		20
Methylene chloride	118		-		70-130	-		20
Methyl tert butyl ether	115		-		70-130	-		20
trans-1,2-Dichloroethene	115		-		70-130	-		20
1,1-Dichloroethane	112		-		70-130	-		20
2,2-Dichloropropane	130		-		70-130	-		20
cis-1,2-Dichloroethene	108		-		70-130	-		20
Chloroform	118		-		70-130	-		20
Bromochloromethane	122		-		70-130	-		20
1,1,1-Trichloroethane	118		-		70-130	-		20
1,1-Dichloropropene	110		-		70-130	-		20
Carbon tetrachloride	120		-		70-130	-		20
1,2-Dichloroethane	110		-		70-130	-		20
Benzene	128		-		70-130	-		20
Trichloroethene	112		-		70-130	-		20
1,2-Dichloropropane	122		-		70-130	-		20
Bromodichloromethane	118		-		70-130	-		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR **Lab Number:** L2258610
Project Number: Not Specified **Report Date:** 11/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1703420-3								
Dibromomethane	118		-		70-130	-		20
cis-1,3-Dichloropropene	120		-		70-130	-		20
Toluene	115		-		70-130	-		20
trans-1,3-Dichloropropene	120		-		70-130	-		20
1,1,2-Trichloroethane	118		-		70-130	-		20
1,3-Dichloropropane	122		-		70-130	-		20
Tetrachloroethene	115		-		70-130	-		20
Dibromochloromethane	125		-		70-130	-		20
1,2-Dibromoethane	112		-		70-130	-		20
Chlorobenzene	102		-		70-130	-		20
1,1,1,2-Tetrachloroethane	98		-		70-130	-		20
Ethylbenzene	95		-		70-130	-		20
p/m-Xylene	102		-		70-130	-		20
o-Xylene	100		-		70-130	-		20
Styrene	100		-		70-130	-		20
Isopropylbenzene	98		-		70-130	-		20
Bromoform	108		-		70-130	-		20
1,1,2,2-Tetrachloroethane	98		-		70-130	-		20
1,2,3-Trichloropropane	98		-		70-130	-		20
n-Propylbenzene	100		-		70-130	-		20
Bromobenzene	102		-		70-130	-		20
1,3,5-Trimethylbenzene	98		-		70-130	-		20
o-Chlorotoluene	108		-		70-130	-		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1703420-3								
p-Chlorotoluene	105		-		70-130	-		20
tert-Butylbenzene	100		-		70-130	-		20
1,2,4-Trimethylbenzene	100		-		70-130	-		20
sec-Butylbenzene	100		-		70-130	-		20
p-Isopropyltoluene	95		-		70-130	-		20
1,3-Dichlorobenzene	108		-		70-130	-		20
1,4-Dichlorobenzene	95		-		70-130	-		20
n-Butylbenzene	88		-		70-130	-		20
1,2-Dichlorobenzene	95		-		70-130	-		20
1,2-Dibromo-3-chloropropane	85		-		70-130	-		20
1,2,4-Trichlorobenzene	85		-		70-130	-		20
Hexachlorobutadiene	85		-		70-130	-		20
Naphthalene	80		-		70-130	-		20
1,2,3-Trichlorobenzene	88		-		70-130	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichlorobenzene-d4	105				80-120
4-Bromofluorobenzene	107				80-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR **Lab Number:** L2258610
Project Number: Not Specified **Report Date:** 11/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01 Batch: WG1704409-2									
1,2-Dibromoethane	101		-		80-120	-			A
1,2-Dibromo-3-chloropropane	100		-		80-120	-			A
1,2,3-Trichloropropane	110		-		80-120	-			A

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1706698-3								
Dichlorodifluoromethane	**195**	Q	-		70-130	-		20
Chloromethane	**132**	Q	-		70-130	-		20
Vinyl chloride	100		-		70-130	-		20
Bromomethane	92		-		70-130	-		20
Chloroethane	95		-		70-130	-		20
Trichlorofluoromethane	90		-		70-130	-		20
1,1-Dichloroethene	95		-		70-130	-		20
Methylene chloride	85		-		70-130	-		20
Methyl tert butyl ether	78		-		70-130	-		20
trans-1,2-Dichloroethene	90		-		70-130	-		20
1,1-Dichloroethane	85		-		70-130	-		20
2,2-Dichloropropane	95		-		70-130	-		20
cis-1,2-Dichloroethene	85		-		70-130	-		20
Chloroform	85		-		70-130	-		20
Bromochloromethane	112		-		70-130	-		20
1,1,1-Trichloroethane	98		-		70-130	-		20
1,1-Dichloropropene	92		-		70-130	-		20
Carbon tetrachloride	102		-		70-130	-		20
1,2-Dichloroethane	98		-		70-130	-		20
Benzene	98		-		70-130	-		20
Trichloroethene	92		-		70-130	-		20
1,2-Dichloropropane	105		-		70-130	-		20
Bromodichloromethane	100		-		70-130	-		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR **Lab Number:** L2258610
Project Number: Not Specified **Report Date:** 11/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1706698-3								
Dibromomethane	88		-		70-130	-		20
cis-1,3-Dichloropropene	88		-		70-130	-		20
Toluene	90		-		70-130	-		20
trans-1,3-Dichloropropene	88		-		70-130	-		20
1,1,2-Trichloroethane	85		-		70-130	-		20
1,3-Dichloropropane	90		-		70-130	-		20
Tetrachloroethene	98		-		70-130	-		20
Dibromochloromethane	88		-		70-130	-		20
1,2-Dibromoethane	82		-		70-130	-		20
Chlorobenzene	105		-		70-130	-		20
1,1,1,2-Tetrachloroethane	95		-		70-130	-		20
Ethylbenzene	100		-		70-130	-		20
p/m-Xylene	104		-		70-130	-		20
o-Xylene	102		-		70-130	-		20
Styrene	102		-		70-130	-		20
Isopropylbenzene	100		-		70-130	-		20
Bromoform	85		-		70-130	-		20
1,1,2,2-Tetrachloroethane	85		-		70-130	-		20
1,2,3-Trichloropropane	88		-		70-130	-		20
n-Propylbenzene	102		-		70-130	-		20
Bromobenzene	108		-		70-130	-		20
1,3,5-Trimethylbenzene	100		-		70-130	-		20
o-Chlorotoluene	108		-		70-130	-		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified
Lab Number: L2258610
Report Date: 11/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1706698-3								
p-Chlorotoluene	105		-		70-130	-		20
tert-Butylbenzene	100		-		70-130	-		20
1,2,4-Trimethylbenzene	102		-		70-130	-		20
sec-Butylbenzene	100		-		70-130	-		20
p-Isopropyltoluene	102		-		70-130	-		20
1,3-Dichlorobenzene	105		-		70-130	-		20
1,4-Dichlorobenzene	108		-		70-130	-		20
n-Butylbenzene	98		-		70-130	-		20
1,2-Dichlorobenzene	100		-		70-130	-		20
1,2-Dibromo-3-chloropropane	85		-		70-130	-		20
1,2,4-Trichlorobenzene	100		-		70-130	-		20
Hexachlorobutadiene	88		-		70-130	-		20
Naphthalene	78		-		70-130	-		20
1,2,3-Trichlorobenzene	92		-		70-130	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichlorobenzene-d4	95				80-120
4-Bromofluorobenzene	102				80-120

Matrix Spike Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified
Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1703420-6 QC Sample: L2258040-01 Client ID: MS Sample												
Dichlorodifluoromethane	ND	4	6.8	**170**	Q	-	-		70-130	-		20
Chloromethane	ND	4	5.4	**135**	Q	-	-		70-130	-		20
Vinyl chloride	ND	4	4.9	123		-	-		70-130	-		20
Bromomethane	ND	4	2.2	**55**	Q	-	-		70-130	-		20
Chloroethane	ND	4	5.4	**135**	Q	-	-		70-130	-		20
Trichlorofluoromethane	ND	4	5.0	125		-	-		70-130	-		20
1,1-Dichloroethene	ND	4	5.4	**135**	Q	-	-		70-130	-		20
Methylene chloride	ND	4	4.8	120		-	-		70-130	-		20
Methyl tert butyl ether	ND	4	4.4	110		-	-		70-130	-		20
trans-1,2-Dichloroethene	ND	4	5.0	125		-	-		70-130	-		20
1,1-Dichloroethane	ND	4	4.8	120		-	-		70-130	-		20
2,2-Dichloropropane	ND	4	3.9	98		-	-		70-130	-		20
cis-1,2-Dichloroethene	ND	4	4.8	120		-	-		70-130	-		20
Chloroform	15	4	20	125		-	-		70-130	-		20
Bromochloromethane	ND	4	5.3	**133**	Q	-	-		70-130	-		20
1,1,1-Trichloroethane	ND	4	5.2	130		-	-		70-130	-		20
1,1-Dichloropropene	ND	4	5.0	125		-	-		70-130	-		20
Carbon tetrachloride	ND	4	5.5	**138**	Q	-	-		70-130	-		20
1,2-Dichloroethane	ND	4	4.8	120		-	-		70-130	-		20
Benzene	ND	4	5.6	**140**	Q	-	-		70-130	-		20
Trichloroethene	ND	4	5.0	125		-	-		70-130	-		20
1,2-Dichloropropane	ND	4	5.2	130		-	-		70-130	-		20
Bromodichloromethane	0.39J	4	5.6	**140**	Q	-	-		70-130	-		20
Dibromomethane	ND	4	5.0	125		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified
Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1703420-6 QC Sample: L2258040-01 Client ID: MS Sample												
cis-1,3-Dichloropropene	ND	4	4.7	118		-	-		70-130	-		20
Toluene	ND	4	5.0	125		-	-		70-130	-		20
trans-1,3-Dichloropropene	ND	4	4.7	118		-	-		70-130	-		20
1,1,2-Trichloroethane	ND	4	5.0	125		-	-		70-130	-		20
1,3-Dichloropropane	ND	4	5.1	128		-	-		70-130	-		20
Tetrachloroethene	ND	4	5.1	128		-	-		70-130	-		20
Dibromochloromethane	ND	4	5.2	130		-	-		70-130	-		20
1,2-Dibromoethane	ND	4	4.6	115		-	-		70-130	-		20
Chlorobenzene	ND	4	4.5	113		-	-		70-130	-		20
1,1,1,2-Tetrachloroethane	ND	4	4.3	108		-	-		70-130	-		20
Ethylbenzene	ND	4	4.2	105		-	-		70-130	-		20
p/m-Xylene	ND	8	9.0	113		-	-		70-130	-		20
o-Xylene	ND	4	4.3	108		-	-		70-130	-		20
Styrene	ND	4	4.2	105		-	-		70-130	-		20
Isopropylbenzene	ND	4	4.3	108		-	-		70-130	-		20
Bromoform	ND	4	4.4	110		-	-		70-130	-		20
1,1,2,2-Tetrachloroethane	ND	4	4.1	103		-	-		70-130	-		20
1,2,3-Trichloropropane	ND	4	4.2	105		-	-		70-130	-		20
n-Propylbenzene	ND	4	4.4	110		-	-		70-130	-		20
Bromobenzene	ND	4	4.4	110		-	-		70-130	-		20
1,3,5-Trimethylbenzene	ND	4	4.2	105		-	-		70-130	-		20
o-Chlorotoluene	ND	4	4.7	118		-	-		70-130	-		20
p-Chlorotoluene	ND	4	4.6	115		-	-		70-130	-		20
tert-Butylbenzene	ND	4	4.4	110		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: TERRAMOR
Lab Number: L2258610
Project Number: Not Specified
Report Date: 11/11/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab	Associated sample(s): 01	QC Batch ID: WG1703420-6	QC Sample: L2258040-01	Client ID: MS Sample								
1,2,4-Trimethylbenzene	ND	4	4.4	110		-	-		70-130	-		20
sec-Butylbenzene	ND	4	4.4	110		-	-		70-130	-		20
p-Isopropyltoluene	ND	4	4.2	105		-	-		70-130	-		20
1,3-Dichlorobenzene	ND	4	4.6	115		-	-		70-130	-		20
1,4-Dichlorobenzene	ND	4	4.0	100		-	-		70-130	-		20
n-Butylbenzene	ND	4	3.7	92		-	-		70-130	-		20
1,2-Dichlorobenzene	ND	4	4.0	100		-	-		70-130	-		20
1,2-Dibromo-3-chloropropane	ND	4	3.3	82		-	-		70-130	-		20
1,2,4-Trichlorobenzene	ND	4	3.5	88		-	-		70-130	-		20
Hexachlorobutadiene	ND	4	3.7	92		-	-		70-130	-		20
Naphthalene	ND	4	3.2	80		-	-		70-130	-		20
1,2,3-Trichlorobenzene	ND	4	3.7	92		-	-		70-130	-		20

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	104				80-120
4-Bromofluorobenzene	106				80-120

Matrix Spike Analysis
Batch Quality Control

Project Name: TERRAMOR **Lab Number:** L2258610
Project Number: Not Specified **Report Date:** 11/11/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1704409-3 QC Sample: L2259605-01 Client ID: MS Sample													
1,2-Dibromoethane	ND	0.25	0.280	112		-	-		80-120	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.25	0.266	106		-	-		80-120	-		20	A
1,2,3-Trichloropropane	ND	0.25	0.292	117		-	-		80-120	-		20	A

Matrix Spike Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1706698-6 QC Sample: L2260318-01 Client ID: MS Sample												
Dichlorodifluoromethane	ND	4	6.8	**170**	Q	-	-		70-130	-		20
Chloromethane	ND	4	5.0	125		-	-		70-130	-		20
Vinyl chloride	ND	4	3.7	92		-	-		70-130	-		20
Bromomethane	ND	4	3.5	88		-	-		70-130	-		20
Chloroethane	ND	4	3.5	88		-	-		70-130	-		20
Trichlorofluoromethane	ND	4	3.7	92		-	-		70-130	-		20
1,1-Dichloroethene	ND	4	3.5	88		-	-		70-130	-		20
Methylene chloride	ND	4	3.2	80		-	-		70-130	-		20
Methyl tert butyl ether	ND	4	2.7	**68**	Q	-	-		70-130	-		20
trans-1,2-Dichloroethene	ND	4	3.4	85		-	-		70-130	-		20
1,1-Dichloroethane	ND	4	3.3	82		-	-		70-130	-		20
2,2-Dichloropropane	ND	4	3.2	80		-	-		70-130	-		20
cis-1,2-Dichloroethene	ND	4	3.0	75		-	-		70-130	-		20
Chloroform	0.21J	4	3.4	85		-	-		70-130	-		20
Bromochloromethane	ND	4	4.0	100		-	-		70-130	-		20
1,1,1-Trichloroethane	ND	4	3.5	88		-	-		70-130	-		20
1,1-Dichloropropene	ND	4	3.2	80		-	-		70-130	-		20
Carbon tetrachloride	ND	4	3.6	90		-	-		70-130	-		20
1,2-Dichloroethane	ND	4	3.4	85		-	-		70-130	-		20
Benzene	ND	4	3.5	88		-	-		70-130	-		20
Trichloroethene	ND	4	3.1	78		-	-		70-130	-		20
1,2-Dichloropropane	ND	4	3.5	88		-	-		70-130	-		20
Bromodichloromethane	ND	4	3.4	85		-	-		70-130	-		20
Dibromomethane	ND	4	3.3	82		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified
Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1706698-6 QC Sample: L2260318-01 Client ID: MS Sample												
cis-1,3-Dichloropropene	ND	4	3.1	78		-	-		70-130	-		20
Toluene	ND	4	3.0	75		-	-		70-130	-		20
trans-1,3-Dichloropropene	ND	4	3.1	78		-	-		70-130	-		20
1,1,2-Trichloroethane	ND	4	3.1	78		-	-		70-130	-		20
1,3-Dichloropropane	ND	4	3.2	80		-	-		70-130	-		20
Tetrachloroethene	ND	4	3.6	90		-	-		70-130	-		20
Dibromochloromethane	ND	4	3.0	75		-	-		70-130	-		20
1,2-Dibromoethane	ND	4	3.0	75		-	-		70-130	-		20
Chlorobenzene	ND	4	3.5	88		-	-		70-130	-		20
1,1,1,2-Tetrachloroethane	ND	4	3.4	85		-	-		70-130	-		20
Ethylbenzene	ND	4	3.2	80		-	-		70-130	-		20
p/m-Xylene	ND	8	6.8	85		-	-		70-130	-		20
o-Xylene	ND	4	3.3	82		-	-		70-130	-		20
Styrene	ND	4	3.3	82		-	-		70-130	-		20
Isopropylbenzene	ND	4	3.4	85		-	-		70-130	-		20
Bromoform	ND	4	3.4	85		-	-		70-130	-		20
1,1,2,2-Tetrachloroethane	ND	4	5.0	125		-	-		70-130	-		20
1,2,3-Trichloropropane	ND	4	3.2	80		-	-		70-130	-		20
n-Propylbenzene	ND	4	3.4	85		-	-		70-130	-		20
Bromobenzene	ND	4	3.5	88		-	-		70-130	-		20
1,3,5-Trimethylbenzene	ND	4	3.4	85		-	-		70-130	-		20
o-Chlorotoluene	ND	4	3.4	85		-	-		70-130	-		20
p-Chlorotoluene	ND	4	3.5	88		-	-		70-130	-		20
tert-Butylbenzene	ND	4	3.2	80		-	-		70-130	-		20

Matrix Spike Analysis

Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified
Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1706698-6 QC Sample: L2260318-01 Client ID: MS Sample												
1,2,4-Trimethylbenzene	ND	4	3.5	88		-	-		70-130	-		20
sec-Butylbenzene	ND	4	3.3	82		-	-		70-130	-		20
p-Isopropyltoluene	ND	4	3.3	82		-	-		70-130	-		20
1,3-Dichlorobenzene	ND	4	3.5	88		-	-		70-130	-		20
1,4-Dichlorobenzene	ND	4	3.6	90		-	-		70-130	-		20
n-Butylbenzene	ND	4	3.3	82		-	-		70-130	-		20
1,2-Dichlorobenzene	ND	4	3.4	85		-	-		70-130	-		20
1,2-Dibromo-3-chloropropane	ND	4	3.6	90		-	-		70-130	-		20
1,2,4-Trichlorobenzene	ND	4	3.1	78		-	-		70-130	-		20
Hexachlorobutadiene	ND	4	3.3	82		-	-		70-130	-		20
Naphthalene	ND	4	2.5	**62**	Q	-	-		70-130	-		20
1,2,3-Trichlorobenzene	ND	4	3.1	78		-	-		70-130	-		20

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	100				80-120
4-Bromofluorobenzene	100				80-120

Lab Duplicate Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified
Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1703420-5 QC Sample: L2258039-01 Client ID: DUP Sample						
Dichlorodifluoromethane	ND	ND	ug/l	NC		20
Chloromethane	ND	ND	ug/l	NC		20
Vinyl chloride	ND	ND	ug/l	NC		20
Bromomethane	ND	ND	ug/l	NC		20
Chloroethane	ND	ND	ug/l	NC		20
Trichlorofluoromethane	ND	ND	ug/l	NC		20
1,1-Dichloroethene	ND	ND	ug/l	NC		20
Methylene chloride	ND	ND	ug/l	NC		20
Methyl tert butyl ether	ND	ND	ug/l	NC		20
trans-1,2-Dichloroethene	ND	ND	ug/l	NC		20
1,1-Dichloroethane	ND	ND	ug/l	NC		20
2,2-Dichloropropane	ND	ND	ug/l	NC		20
cis-1,2-Dichloroethene	ND	ND	ug/l	NC		20
Chloroform	ND	ND	ug/l	NC		20
Bromochloromethane	ND	ND	ug/l	NC		20
1,1,1-Trichloroethane	ND	ND	ug/l	NC		20
1,1-Dichloropropene	ND	ND	ug/l	NC		20
Carbon tetrachloride	ND	ND	ug/l	NC		20
1,2-Dichloroethane	ND	ND	ug/l	NC		20
Benzene	ND	ND	ug/l	NC		20
Trichloroethene	ND	ND	ug/l	NC		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1703420-5 QC Sample: L2258039-01 Client ID: DUP Sample						
1,2-Dichloropropane	ND	ND	ug/l	NC		20
Bromodichloromethane	ND	ND	ug/l	NC		20
Dibromomethane	ND	ND	ug/l	NC		20
cis-1,3-Dichloropropene	ND	ND	ug/l	NC		20
Toluene	ND	ND	ug/l	NC		20
trans-1,3-Dichloropropene	ND	ND	ug/l	NC		20
1,1,2-Trichloroethane	ND	ND	ug/l	NC		20
1,3-Dichloropropane	ND	ND	ug/l	NC		20
Tetrachloroethene	ND	ND	ug/l	NC		20
Dibromochloromethane	ND	ND	ug/l	NC		20
1,2-Dibromoethane	ND	ND	ug/l	NC		20
Chlorobenzene	ND	ND	ug/l	NC		20
1,1,1,2-Tetrachloroethane	ND	ND	ug/l	NC		20
Ethylbenzene	ND	ND	ug/l	NC		20
p/m-Xylene	ND	ND	ug/l	NC		20
o-Xylene	ND	ND	ug/l	NC		20
Styrene	ND	ND	ug/l	NC		20
Isopropylbenzene	ND	ND	ug/l	NC		20
Bromoform	ND	ND	ug/l	NC		20
1,1,2,2-Tetrachloroethane	ND	ND	ug/l	NC		20
1,2,3-Trichloropropane	ND	ND	ug/l	NC		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified
Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1703420-5 QC Sample: L2258039-01 Client ID: DUP Sample						
Xylene (Total)[1]	ND	ND	ug/l	NC		20
1,3-Dichloropropene, Total	ND	ND	ug/l	NC		20
n-Propylbenzene	ND	ND	ug/l	NC		20
Bromobenzene	ND	ND	ug/l	NC		20
Trihalomethanes, Total	ND	ND	ug/l	NC		20
1,3,5-Trimethylbenzene	ND	ND	ug/l	NC		20
o-Chlorotoluene	ND	ND	ug/l	NC		20
p-Chlorotoluene	ND	ND	ug/l	NC		20
tert-Butylbenzene	ND	ND	ug/l	NC		20
1,2,4-Trimethylbenzene	ND	ND	ug/l	NC		20
sec-Butylbenzene	ND	ND	ug/l	NC		20
p-Isopropyltoluene	ND	ND	ug/l	NC		20
1,3-Dichlorobenzene	ND	ND	ug/l	NC		20
1,4-Dichlorobenzene	ND	ND	ug/l	NC		20
n-Butylbenzene	ND	ND	ug/l	NC		20
1,2-Dichlorobenzene	ND	ND	ug/l	NC		20
1,2-Dibromo-3-chloropropane	ND	ND	ug/l	NC		20
1,2,4-Trichlorobenzene	ND	ND	ug/l	NC		20
Hexachlorobutadiene	ND	ND	ug/l	NC		20
Naphthalene	ND	ND	ug/l	NC		20
1,2,3-Trichlorobenzene	ND	ND	ug/l	NC		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1703420-5 QC Sample: L2258039-01 Client ID: DUP Sample						

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	108		109		80-120
4-Bromofluorobenzene	99		98		80-120

Project Name: TERRAMOR
Project Number: Not Specified

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1706698-5 QC Sample: L2259667-01 Client ID: DUP Sample						
Dichlorodifluoromethane	ND	ND	ug/l	NC		20
Chloromethane	ND	ND	ug/l	NC		20
Vinyl chloride	ND	ND	ug/l	NC		20
Bromomethane	ND	ND	ug/l	NC		20
Chloroethane	ND	ND	ug/l	NC		20
Trichlorofluoromethane	ND	ND	ug/l	NC		20
1,1-Dichloroethene	ND	ND	ug/l	NC		20
Methylene chloride	ND	ND	ug/l	NC		20
Methyl tert butyl ether	ND	ND	ug/l	NC		20
trans-1,2-Dichloroethene	ND	ND	ug/l	NC		20
1,1-Dichloroethane	ND	ND	ug/l	NC		20
2,2-Dichloropropane	ND	ND	ug/l	NC		20
cis-1,2-Dichloroethene	ND	ND	ug/l	NC		20
Chloroform	ND	ND	ug/l	NC		20
Bromochloromethane	ND	ND	ug/l	NC		20
1,1,1-Trichloroethane	ND	ND	ug/l	NC		20
1,1-Dichloropropene	ND	ND	ug/l	NC		20
Carbon tetrachloride	ND	ND	ug/l	NC		20
1,2-Dichloroethane	ND	ND	ug/l	NC		20
Benzene	ND	ND	ug/l	NC		20
Trichloroethene	ND	ND	ug/l	NC		20

Project Name: TERRAMOR
Project Number: Not Specified

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1706698-5 QC Sample: L2259667-01 Client ID: DUP Sample						
1,2-Dichloropropane	ND	ND	ug/l	NC		20
Bromodichloromethane	ND	ND	ug/l	NC		20
Dibromomethane	ND	ND	ug/l	NC		20
cis-1,3-Dichloropropene	ND	ND	ug/l	NC		20
Toluene	ND	ND	ug/l	NC		20
trans-1,3-Dichloropropene	ND	ND	ug/l	NC		20
1,1,2-Trichloroethane	ND	ND	ug/l	NC		20
1,3-Dichloropropane	ND	ND	ug/l	NC		20
Tetrachloroethene	ND	ND	ug/l	NC		20
Dibromochloromethane	ND	ND	ug/l	NC		20
1,2-Dibromoethane	ND	ND	ug/l	NC		20
Chlorobenzene	ND	ND	ug/l	NC		20
1,1,1,2-Tetrachloroethane	ND	ND	ug/l	NC		20
Ethylbenzene	ND	ND	ug/l	NC		20
p/m-Xylene	ND	ND	ug/l	NC		20
o-Xylene	ND	ND	ug/l	NC		20
Styrene	ND	ND	ug/l	NC		20
Isopropylbenzene	ND	ND	ug/l	NC		20
Bromoform	ND	ND	ug/l	NC		20
1,1,2,2-Tetrachloroethane	ND	ND	ug/l	NC		20
Xylene (Total)[1]	ND	ND	ug/l	NC		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1706698-5 QC Sample: L2259667-01 Client ID: DUP Sample						
1,2,3-Trichloropropane	ND	ND	ug/l	NC		20
1,3-Dichloropropene, Total	ND	ND	ug/l	NC		20
n-Propylbenzene	ND	ND	ug/l	NC		20
Trihalomethanes, Total	ND	ND	ug/l	NC		20
Bromobenzene	ND	ND	ug/l	NC		20
1,3,5-Trimethylbenzene	ND	ND	ug/l	NC		20
o-Chlorotoluene	ND	ND	ug/l	NC		20
p-Chlorotoluene	ND	ND	ug/l	NC		20
tert-Butylbenzene	ND	ND	ug/l	NC		20
1,2,4-Trimethylbenzene	ND	ND	ug/l	NC		20
sec-Butylbenzene	ND	ND	ug/l	NC		20
p-Isopropyltoluene	ND	ND	ug/l	NC		20
1,3-Dichlorobenzene	ND	ND	ug/l	NC		20
1,4-Dichlorobenzene	ND	ND	ug/l	NC		20
n-Butylbenzene	ND	ND	ug/l	NC		20
1,2-Dichlorobenzene	ND	ND	ug/l	NC		20
1,2-Dibromo-3-chloropropane	ND	ND	ug/l	NC		20
1,2,4-Trichlorobenzene	ND	ND	ug/l	NC		20
Hexachlorobutadiene	ND	ND	ug/l	NC		20
Naphthalene	ND	ND	ug/l	NC		20
1,2,3-Trichlorobenzene	ND	ND	ug/l	NC		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified
Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1706698-5 QC Sample: L2259667-01 Client ID: DUP Sample						

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	96		101		80-120
4-Bromofluorobenzene	93		91		80-120

SEMIVOLATILES

Project Name: TERRAMOR **Lab Number:** L2258610

Project Number: Not Specified **Report Date:** 11/11/22

SAMPLE RESULTS

Lab ID:	L2258610-01	Date Collected:	10/20/22 10:00
Client ID:	LOT-17-221020	Date Received:	10/20/22
Sample Location:	SAUGERTIES, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Dw	Extraction Method:	EPA 537.1
Analytical Method:	133,537.1	Extraction Date:	11/02/22 11:00
Analytical Date:	11/03/22 01:51		
Analyst:	LV		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.07	0.693	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.07	0.693	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	116		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	107		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	111		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	97		70-130

Project Name: TERRAMOR **Lab Number:** L2258610

Project Number: Not Specified **Report Date:** 11/11/22

SAMPLE RESULTS

Lab ID:	L2258610-02	Date Collected:	10/20/22 10:40
Client ID:	FIELD BLANK	Date Received:	10/20/22
Sample Location:	SAUGERTIES, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Dw	Extraction Method:	EPA 537.1
Analytical Method:	133,537.1	Extraction Date:	11/02/22 11:00
Analytical Date:	11/03/22 02:00		
Analyst:	LV		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.78	0.594	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.78	0.594	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	114		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	108		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	102		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	100		70-130

Project Name: TERRAMOR **Lab Number:** L2258610

Project Number: Not Specified **Report Date:** 11/11/22

SAMPLE RESULTS

Lab ID:	L2258610-04	Date Collected:	10/21/22 13:00
Client ID:	LOT-17-221021	Date Received:	10/21/22
Sample Location:	SAUGERTIES, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Dw	Extraction Method:	EPA 522
Analytical Method:	120,522	Extraction Date:	10/31/22 08:00
Analytical Date:	11/02/22 18:19		
Analyst:	DMB		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by EPA 522 - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.144	0.144	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	80		70-130

Project Name:	TERRAMOR	**Lab Number:**	L2258610
Project Number:	Not Specified	**Report Date:**	11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	120,522	Extraction Method:	EPA 522
Analytical Date:	11/02/22 12:29	Extraction Date:	10/31/22 08:00
Analyst:	DMB		

Parameter	Result	Qualifier	Units	RL	MDL
1,4 Dioxane by EPA 522 - Mansfield Lab for sample(s): 04 Batch: WG1706287-1					
1,4-Dioxane	ND		ug/l	0.150	0.150

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	87		70-130

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 133,537.1
Analytical Date: 11/03/22 01:33
Analyst: LV

Extraction Method: EPA 537.1
Extraction Date: 11/02/22 11:00

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab for sample(s): 01-02 Batch: WG1707126-1					
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.668
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.668

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	104		70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	88		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	99		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
1,4 Dioxane by EPA 522 - Mansfield Lab Associated sample(s): 04 Batch: WG1706287-2 WG1706287-3								
1,4-Dioxane	88		90		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	84		84		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 Batch: WG1707126-2								
Perfluorooctanoic Acid (PFOA)	86		-		50-150	-		30
Perfluorooctanesulfonic Acid (PFOS)	90		-		50-150	-		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	86				70-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	77				70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	79				70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	81				70-130

Matrix Spike Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified
Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1707126-3 QC Sample: L2259539-01 Client ID: MS Sample												
Perfluorobutanesulfonic Acid (PFBS)	ND	1.67	1.74J	104		-	-		50-150	-		30
Perfluorohexanoic Acid (PFHxA)	0.852J	1.89	2.83	150		-	-		50-150	-		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	1.89	2.23	118		-	-		50-150	-		30
Perfluoroheptanoic Acid (PFHpA)	ND	1.89	1.85J	98		-	-		50-150	-		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	1.72	1.70J	98		-	-		50-150	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	1.78	1.96	110		-	-		50-150	-		30
Perfluorooctanoic Acid (PFOA)	ND	1.89	2.00	106		-	-		50-150	-		30
Perfluorononanoic Acid (PFNA)	ND	1.89	2.04	108		-	-		50-150	-		30
Perfluorooctanesulfonic Acid (PFOS)	ND	1.75	1.70J	97		-	-		50-150	-		30
Perfluorodecanoic Acid (PFDA)	ND	1.89	2.04	108		-	-		50-150	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	1.76	1.28J	73		-	-		50-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	1.89	1.92J	102		-	-		50-150	-		30
Perfluoroundecanoic Acid (PFUnA)	ND	1.89	2.11	112		-	-		50-150	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.89	1.85J	98		-	-		50-150	-		30
Perfluorododecanoic Acid (PFDoA)	ND	1.89	2.04	108		-	-		50-150	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	1.78	1.36J	76		-	-		50-150	-		30
Perfluorotridecanoic Acid (PFTrDA)	ND	1.89	1.74J	92		-	-		50-150	-		30
Perfluorotetradecanoic Acid (PFTA)	ND	1.89	1.70J	90		-	-		50-150	-		30

Matrix Spike Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1707126-3 QC Sample: L2259539-01 Client ID: MS Sample												

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	102				70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	93				70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	99				70-130
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	105				70-130

Lab Duplicate Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1707126-4 QC Sample: L2259541-01 Client ID: DUP Sample						
Perfluorobutanesulfonic Acid (PFBS)	6.22	5.75	ng/l	8		30
Perfluorohexanoic Acid (PFHxA)	40.2	36.8	ng/l	9		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	ND	ng/l	NC		30
Perfluoroheptanoic Acid (PFHpA)	10.9	10.4	ng/l	5		30
Perfluorohexanesulfonic Acid (PFHxS)	38.6	40.5	ng/l	5		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ng/l	NC		30
Perfluorooctanoic Acid (PFOA)	7.54	7.76	ng/l	3		30
Perfluorononanoic Acid (PFNA)	ND	ND	ng/l	NC		30
Perfluorooctanesulfonic Acid (PFOS)	5.06	4.64	ng/l	9		30
Perfluorodecanoic Acid (PFDA)	ND	ND	ng/l	NC		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	ND	ng/l	NC		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/l	NC		30
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ng/l	NC		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ng/l	NC		30
Perfluorododecanoic Acid (PFDoA)	ND	ND	ng/l	NC		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	ND	ng/l	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/l	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/l	NC		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified
Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1707126-4 QC Sample: L2259541-01 Client ID: DUP Sample						

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	112		99		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	106		97		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	103		101		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	103		84		70-130

SEMIVOLATILES

High Resolution Mass Spectrometry

Project Name:	TERRAMOR	**Lab Number:**	L2258610
Project Number:	Not Specified	**Report Date:**	11/11/22

SAMPLE RESULTS

Lab ID:	L2258610-01	Date Collected:	10/20/22 10:00
Client ID:	LOT-17-221020	Date Received:	10/20/22
Sample Location:	SAUGERTIES, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Dw	Extraction Method:	EPA 1613B
Analytical Method:	132,1613B	Extraction Date:	10/27/22 14:35
Analytical Date:	11/01/22 20:28	Cleanup Method:	EPA 1613B
Analyst:	CP	Cleanup Date:	10/31/22

Parameter	Result	Qualifier	EMPC	Units	RL	MDL	Dilution Factor
Dioxins & Furans by Isotope Dilution HRMS - Mansfield Lab							
2,3,7,8-TCDD	ND			pg/l	12.6	2.63	1
1,2,3,7,8-PeCDD	ND			pg/l	63.3	13.1	1
1,2,3,4,7,8-HxCDD	ND			pg/l	63.3	15.9	1
1,2,3,6,7,8-HxCDD	ND			pg/l	63.3	19.7	1
1,2,3,7,8,9-HxCDD	ND			pg/l	63.3	18.5	1
1,2,3,4,6,7,8-HpCDD	ND			pg/l	63.3	18.4	1
OCDD	ND			pg/l	126	32.2	1
2,3,7,8-TCDF	ND			pg/l	12.6	3.87	1
1,2,3,7,8-PeCDF	ND			pg/l	63.3	8.86	1
2,3,4,7,8-PeCDF	ND			pg/l	63.3	13.2	1
1,2,3,4,7,8-HxCDF	ND			pg/l	63.3	14.1	1
1,2,3,6,7,8-HxCDF	ND			pg/l	63.3	20.2	1
1,2,3,7,8,9-HxCDF	ND			pg/l	63.3	20.8	1
2,3,4,6,7,8-HxCDF	ND			pg/l	63.3	20.0	1
1,2,3,4,6,7,8-HpCDF	ND			pg/l	63.3	17.0	1
1,2,3,4,7,8,9-HpCDF	ND			pg/l	63.3	16.1	1
OCDF	ND			pg/l	126	41.0	1
Total TCDD	ND			pg/l	12.6	2.63	1
Total PeCDD	ND			pg/l	63.3	13.1	1
Total HxCDD	ND			pg/l	63.3	15.9	1
Total HpCDD	ND			pg/l	63.3	18.4	1
Total TCDF	ND			pg/l	12.6	3.87	1
Total PeCDF	ND			pg/l	63.3	8.86	1
Total HxCDF	ND			pg/l	63.3	14.1	1
Total HpCDF	ND			pg/l	63.3	17.0	1
Total PCDD	ND			pg/l	12.6	2.63	1
Total PCDF	ND			pg/l	12.6	3.87	1
Toxic Equivalency (TEQ)	ND			pg/l	0.038	0.038	1

Project Name: TERRAMOR **Lab Number:** L2258610

Project Number: Not Specified **Report Date:** 11/11/22

SAMPLE RESULTS

Lab ID:	L2258610-01	Date Collected:	10/20/22 10:00
Client ID:	LOT-17-221020	Date Received:	10/20/22
Sample Location:	SAUGERTIES, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	EMPC	Units	RL	MDL	Dilution Factor

Dioxins & Furans by Isotope Dilution HRMS - Mansfield Lab

Surrogate/Cleanup Standard	% Recovery	Qualifier	Acceptance Criteria
13C12-2,3,7,8-TCDF	65		24-169
13C12-2,3,7,8-TCDD	64		25-164
13C12-1,2,3,7,8-PeCDF	71		24-185
13C12-2,3,4,7,8-PeCDF	64		21-178
13C12-1,2,3,7,8-PeCDD	84		25-181
13C12-1,2,3,4,7,8-HxCDF	77		26-152
13C12-1,2,3,6,7,8-HxCDF	76		26-123
13C12-2,3,4,6,7,8-HxCDF	70		28-136
13C12-1,2,3,7,8,9-HxCDF	77		29-147
13C12-1,2,3,4,7,8-HxCDD	64		32-141
13C12-1,2,3,6,7,8-HxCDD	66		28-130
13C12-1,2,3,4,6,7,8-HpCDF	75		28-143
13C12-1,2,3,4,7,8,9-HpCDF	83		26-138
13C12-1,2,3,4,6,7,8-HpCDD	81		23-140
13C12-OCDD	71		17-157
37CL4-2,3,7,8-TCDD	112		35-197

Project Name:	TERRAMOR	**Lab Number:**	L2258610
Project Number:	Not Specified	**Report Date:**	11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	132,1613B	Extraction Method:	EPA 1613B
Analytical Date:	11/01/22 14:02	Extraction Date:	10/27/22 14:35
Analyst:	CP	Cleanup Method:	EPA 1613B
		Cleanup Date:	10/31/22

Parameter	Result	Qualifier	EMPC	Units	RL	MDL
Dioxins & Furans by Isotope Dilution HRMS - Mansfield Lab for sample(s): 01 Batch: WG1704981-1						
2,3,7,8-TCDD	ND			pg/l	10.0	2.08
1,2,3,7,8-PeCDD	ND			pg/l	50.0	10.4
1,2,3,4,7,8-HxCDD	ND			pg/l	50.0	12.5
1,2,3,6,7,8-HxCDD	ND			pg/l	50.0	15.6
1,2,3,7,8,9-HxCDD	ND			pg/l	50.0	14.6
1,2,3,4,6,7,8-HpCDD	ND			pg/l	50.0	14.5
OCDD	ND			pg/l	100	25.4
2,3,7,8-TCDF	ND			pg/l	10.0	3.06
1,2,3,7,8-PeCDF	ND			pg/l	50.0	7.00
2,3,4,7,8-PeCDF	ND			pg/l	50.0	10.5
1,2,3,4,7,8-HxCDF	ND			pg/l	50.0	11.1
1,2,3,6,7,8-HxCDF	ND			pg/l	50.0	15.9
1,2,3,7,8,9-HxCDF	ND			pg/l	50.0	16.5
2,3,4,6,7,8-HxCDF	ND			pg/l	50.0	15.8
1,2,3,4,6,7,8-HpCDF	ND			pg/l	50.0	13.4
1,2,3,4,7,8,9-HpCDF	ND			pg/l	50.0	12.7
OCDF	ND			pg/l	100	32.4
Total TCDD	ND			pg/l	10.0	2.08
Total PeCDD	ND			pg/l	50.0	10.4
Total HxCDD	ND			pg/l	50.0	12.5
Total HpCDD	ND			pg/l	50.0	14.5
Total TCDF	ND			pg/l	10.0	3.06
Total PeCDF	ND			pg/l	50.0	7.00
Total HxCDF	ND			pg/l	50.0	11.1
Total HpCDF	ND			pg/l	50.0	13.4
Total PCDD	ND			pg/l	10.0	2.08
Total PCDF	ND			pg/l	10.0	3.06
Toxic Equivalency (TEQ)	ND			pg/l	0.030	0.030

Project Name: TERRAMOR | **Lab Number:** L2258610
Project Number: Not Specified | **Report Date:** 11/11/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 132,1613B
Analytical Date: 11/01/22 14:02
Analyst: CP

Extraction Method: EPA 1613B
Extraction Date: 10/27/22 14:35
Cleanup Method: EPA 1613B
Cleanup Date: 10/31/22

Parameter	Result	Qualifier	EMPC	Units	RL	MDL

Dioxins & Furans by Isotope Dilution HRMS - Mansfield Lab for sample(s): 01 Batch: WG1704981-1

Surrogate/Cleanup Standard	%Recovery	Qualifier	Acceptance Criteria
13C12-2,3,7,8-TCDF	71		24-169
13C12-2,3,7,8-TCDD	62		25-164
13C12-1,2,3,7,8-PeCDF	66		24-185
13C12-2,3,4,7,8-PeCDF	61		21-178
13C12-1,2,3,7,8-PeCDD	71		25-181
13C12-1,2,3,4,7,8-HxCDF	81		26-152
13C12-1,2,3,6,7,8-HxCDF	79		26-123
13C12-2,3,4,6,7,8-HxCDF	73		28-136
13C12-1,2,3,7,8,9-HxCDF	76		29-147
13C12-1,2,3,4,7,8-HxCDD	63		32-141
13C12-1,2,3,6,7,8-HxCDD	67		28-130
13C12-1,2,3,4,6,7,8-HpCDF	79		28-143
13C12-1,2,3,4,7,8,9-HpCDF	78		26-138
13C12-1,2,3,4,6,7,8-HpCDD	76		23-140
13C12-OCDD	62		17-157
37CL4-2,3,7,8-TCDD	111		35-197

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Dioxins & Furans by Isotope Dilution HRMS - Mansfield Lab Associated sample(s): 01 Batch: WG1704981-2 WG1704981-3								
2,3,7,8-TCDD	103		108		67-158	5		25
1,2,3,7,8-PeCDD	95		95		70-142	0		25
1,2,3,4,7,8-HxCDD	113		119		70-164	5		25
1,2,3,6,7,8-HxCDD	105		105		76-134	0		25
1,2,3,7,8,9-HxCDD	106		106		64-162	0		25
1,2,3,4,6,7,8-HpCDD	96		96		70-140	0		25
OCDD	110		107		78-144	3		25
2,3,7,8-TCDF	106		112		75-158	6		25
1,2,3,7,8-PeCDF	99		102		80-134	3		25
2,3,4,7,8-PeCDF	94		98		68-160	4		25
1,2,3,4,7,8-HxCDF	110		115		72-134	4		25
1,2,3,6,7,8-HxCDF	108		108		84-130	0		25
1,2,3,7,8,9-HxCDF	116		113		78-130	3		25
2,3,4,6,7,8-HxCDF	107		111		70-156	4		25
1,2,3,4,6,7,8-HpCDF	112		113		82-122	1		25
1,2,3,4,7,8,9-HpCDF	116		110		78-138	5		25
OCDF	126		120		63-170	5		25

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR **Lab Number:** L2258610
Project Number: Not Specified **Report Date:** 11/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Dioxins & Furans by Isotope Dilution HRMS - Mansfield Lab Associated sample(s): 01 Batch: WG1704981-2 WG1704981-3								

Surrogate/Cleanup Standard	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
13C12-2,3,7,8-TCDF	65		55		24-169
13C12-2,3,7,8-TCDD	59		54		25-164
13C12-1,2,3,7,8-PeCDF	65		58		24-185
13C12-2,3,4,7,8-PeCDF	64		55		21-178
13C12-1,2,3,7,8-PeCDD	73		66		25-181
13C12-1,2,3,4,7,8-HxCDF	74		63		26-152
13C12-1,2,3,6,7,8-HxCDF	73		65		26-123
13C12-2,3,4,6,7,8-HxCDF	71		58		28-136
13C12-1,2,3,7,8,9-HxCDF	75		69		29-147
13C12-1,2,3,4,7,8-HxCDD	61		52		32-141
13C12-1,2,3,6,7,8-HxCDD	66		59		28-130
13C12-1,2,3,4,6,7,8-HpCDF	73		66		28-143
13C12-1,2,3,4,7,8,9-HpCDF	75		72		26-138
13C12-1,2,3,4,6,7,8-HpCDD	73		67		23-140
13C12-OCDD	62		60		17-157
37CL4-2,3,7,8-TCDD	108		109		35-197

METALS

Project Name: TERRAMOR **Lab Number:** L2258610
Project Number: Not Specified **Report Date:** 11/11/22

SAMPLE RESULTS

Lab ID: L2258610-01 Date Collected: 10/20/22 10:00
Client ID: LOT-17-221020 Date Received: 10/20/22
Sample Location: SAUGERTIES, NY Field Prep: Not Specified

Sample Depth:
Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	0.0017		mg/l	0.0010	0.0002	1	10/25/22 00:26	11/07/22 14:42	EPA 3005A	3,200.8	EGW
Barium, Total	0.0809		mg/l	0.0010	0.0002	1	10/25/22 00:26	11/07/22 14:42	EPA 3005A	3,200.8	EGW
Cadmium, Total	ND		mg/l	0.0002	0.0001	1	10/25/22 00:26	11/07/22 14:42	EPA 3005A	3,200.8	EGW
Calcium, Total	1.48		mg/l	0.100	0.0350	1	10/25/22 00:26	10/31/22 17:34	EPA 3005A	19,200.7	NB
Chromium, Total	0.0050		mg/l	0.0010	0.0002	1	10/25/22 00:26	11/07/22 14:42	EPA 3005A	3,200.8	EGW
Copper, Total	0.0141		mg/l	0.0010	0.0004	1	10/25/22 00:26	11/07/22 14:42	EPA 3005A	3,200.8	EGW
Iron, Total	5.87		mg/l	0.0500	0.0090	1	10/25/22 00:26	10/31/22 17:34	EPA 3005A	19,200.7	NB
Lead, Total	0.0022		mg/l	0.0010	0.0003	1	10/25/22 00:26	11/07/22 14:42	EPA 3005A	3,200.8	EGW
Manganese, Total	0.0907		mg/l	0.0100	0.0016	1	10/25/22 00:26	10/31/22 17:34	EPA 3005A	19,200.7	NB
Mercury, Total	ND		mg/l	0.0002	0.0001	1	10/25/22 02:20	10/25/22 10:46	EPA 245.1	3,245.1	ZK
Selenium, Total	ND		mg/l	0.0050	0.0017	1	10/25/22 00:26	11/07/22 14:42	EPA 3005A	3,200.8	EGW
Silver, Total	ND		mg/l	0.0004	0.0002	1	10/25/22 00:26	11/07/22 14:42	EPA 3005A	3,200.8	EGW
Sodium, Total	91.5		mg/l	2.00	0.120	1	10/25/22 00:26	10/31/22 17:34	EPA 3005A	19,200.7	NB
Zinc, Total	0.0467		mg/l	0.0100	0.0034	1	10/25/22 00:26	11/07/22 14:42	EPA 3005A	3,200.8	EGW

Project Name: TERRAMOR **Lab Number:** L2258610
Project Number: Not Specified **Report Date:** 11/11/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1702485-1										
Arsenic, Total	0.0004	J	mg/l	0.0010	0.0002	1	10/25/22 00:26	10/25/22 18:41	3,200.8	WKP
Barium, Total	ND		mg/l	0.0010	0.0002	1	10/25/22 00:26	10/25/22 18:41	3,200.8	WKP
Cadmium, Total	ND		mg/l	0.0002	0.0001	1	10/25/22 00:26	10/25/22 18:41	3,200.8	WKP
Chromium, Total	ND		mg/l	0.0010	0.0002	1	10/25/22 00:26	10/25/22 18:41	3,200.8	WKP
Copper, Total	ND		mg/l	0.0010	0.0004	1	10/25/22 00:26	10/25/22 18:41	3,200.8	WKP
Lead, Total	ND		mg/l	0.0010	0.0003	1	10/25/22 00:26	10/25/22 18:41	3,200.8	WKP
Selenium, Total	ND		mg/l	0.0050	0.0017	1	10/25/22 00:26	10/25/22 18:41	3,200.8	WKP
Silver, Total	ND		mg/l	0.0004	0.0002	1	10/25/22 00:26	10/25/22 18:41	3,200.8	WKP
Zinc, Total	ND		mg/l	0.0100	0.0034	1	10/25/22 00:26	10/25/22 18:41	3,200.8	WKP

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1702490-1										
Calcium, Total	ND		mg/l	0.100	0.0350	1	10/25/22 00:26	10/25/22 08:01	19,200.7	NB
Iron, Total	ND		mg/l	0.0500	0.0090	1	10/25/22 00:26	10/25/22 08:01	19,200.7	NB
Manganese, Total	ND		mg/l	0.0100	0.0016	1	10/25/22 00:26	10/25/22 08:01	19,200.7	NB
Sodium, Total	ND		mg/l	2.00	0.120	1	10/25/22 00:26	10/25/22 08:01	19,200.7	NB

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1702492-1										
Mercury, Total	ND		mg/l	0.0002	0.0001	1	10/25/22 02:20	10/25/22 10:29	3,245.1	ZK

Project Name: TERRAMOR **Lab Number:** L2258610

Project Number: Not Specified **Report Date:** 11/11/22

Method Blank Analysis
Batch Quality Control

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified
Lab Number: L2258610
Report Date: 11/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1702485-2								
Arsenic, Total	104		-		85-115	-		
Barium, Total	100		-		85-115	-		
Cadmium, Total	101		-		85-115	-		
Chromium, Total	97		-		85-115	-		
Copper, Total	97		-		85-115	-		
Lead, Total	99		-		85-115	-		
Selenium, Total	103		-		85-115	-		
Silver, Total	92		-		85-115	-		
Zinc, Total	96		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1702490-2								
Calcium, Total	93		-		85-115	-		
Iron, Total	92		-		85-115	-		
Manganese, Total	91		-		85-115	-		
Sodium, Total	96		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1702492-2								
Mercury, Total	96		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1702485-3 QC Sample: L2258620-01 Client ID: MS Sample												
Arsenic, Total	0.0117	0.12	0.1343	102		-	-		70-130	-		20
Barium, Total	ND	2	1.972	99		-	-		70-130	-		20
Cadmium, Total	ND	0.053	0.0527	99		-	-		70-130	-		20
Chromium, Total	ND	0.2	0.1944	97		-	-		70-130	-		20
Copper, Total	0.0170	0.25	0.2618	98		-	-		70-130	-		20
Lead, Total	0.0014	0.53	0.5134	97		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1139	95		-	-		70-130	-		20
Silver, Total	ND	0.05	0.0459	92		-	-		70-130	-		20
Zinc, Total	0.0127	0.5	0.4913	96		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1702485-5 QC Sample: L2258620-02 Client ID: MS Sample												
Arsenic, Total	0.0023	0.12	0.1249	102		-	-		70-130	-		20
Barium, Total	ND	2	1.949	97		-	-		70-130	-		20
Cadmium, Total	ND	0.053	0.0477	90		-	-		70-130	-		20
Chromium, Total	0.0006J	0.2	0.1749	87		-	-		70-130	-		20
Copper, Total	0.0017	0.25	0.2215	88		-	-		70-130	-		20
Lead, Total	0.0018	0.53	0.4968	93		-	-		70-130	-		20
Selenium, Total	ND	0.12	0.1133	94		-	-		70-130	-		20
Silver, Total	ND	0.05	0.0495	99		-	-		70-130	-		20
Zinc, Total	ND	0.5	0.4282	86		-	-		70-130	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1702490-3 QC Sample: L2258620-01 Client ID: MS Sample									
Calcium, Total	0.050J	10	9.35	94	-	-	75-125	-	20
Iron, Total	0.014J	1	0.946	95	-	-	75-125	-	20
Manganese, Total	ND	0.5	0.458	92	-	-	75-125	-	20
Sodium, Total	74.6	10	85.3	107	-	-	75-125	-	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1702490-7 QC Sample: L2258620-02 Client ID: MS Sample									
Calcium, Total	1.00	10	10.7	97	-	-	75-125	-	20
Iron, Total	ND	1	0.991	99	-	-	75-125	-	20
Manganese, Total	ND	0.5	0.484	97	-	-	75-125	-	20
Sodium, Total	7.77	10	17.7	99	-	-	75-125	-	20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1702492-3 QC Sample: L2258042-01 Client ID: MS Sample									
Mercury, Total	ND	0.005	0.0036	73	-	-	70-130	-	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1702485-4 QC Sample: L2258620-01 Client ID: DUP Sample						
Arsenic, Total	0.0117	0.0122	mg/l	5		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1702485-6 QC Sample: L2258620-02 Client ID: DUP Sample						
Arsenic, Total	0.0023	0.0022	mg/l	2		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1702490-4 QC Sample: L2258620-01 Client ID: DUP Sample						
Sodium, Total	74.6	71.8	mg/l	4		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1702490-8 QC Sample: L2258620-02 Client ID: DUP Sample						
Sodium, Total	7.77	7.40	mg/l	5		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1702492-4 QC Sample: L2258042-01 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/l	NC		20

INORGANICS
&
MISCELLANEOUS

Project Name: TERRAMOR **Lab Number:** L2258610
Project Number: Not Specified **Report Date:** 11/11/22

SAMPLE RESULTS

Lab ID: L2258610-01
Client ID: LOT-17-221020
Sample Location: SAUGERTIES, NY

Date Collected: 10/20/22 10:00
Date Received: 10/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Turbidity	300		NTU	2.0	2.0	10	-	10/21/22 09:45	44,180.1	KEP
Odor @ 60 C	NO ODOR		TON	1	1.0	1	-	10/21/22 09:00	121,2150B	KEP
Color, Apparent	ND		A.P.C.U.	120	120	25	-	10/21/22 18:49	121,2120B	AAS
Alkalinity, Total	156.		mg CaCO3/L	2.00	NA	1	-	11/01/22 06:09	121,2320B	MRM
Cyanide, Total	ND		mg/l	0.005	0.001	1	10/28/22 07:40	10/28/22 13:27	121,4500CN-CE	JER
Nitrogen, Nitrite	ND		mg/l	0.050	0.014	1	-	10/22/22 05:22	44,353.2	KAF
Nitrogen, Nitrate	0.058	J	mg/l	0.10	0.023	1	-	10/22/22 05:22	44,353.2	KAF
Bacteria in Water - Westborough Lab										
Coliform, Total	Positive		col/100ml	-	NA	1	-	10/21/22 13:34	121,9223B	DRV
Escherichia Coli	Negative		col/100ml	-	NA	1	-	10/21/22 13:34	121,9223B	DRV
Anions by Ion Chromatography - Westborough Lab										
Chloride	28.2		mg/l	0.500	0.083	1	-	11/07/22 21:54	44,300.0	AT,
Fluoride	0.147		mg/l	0.050	0.037	1	-	11/07/22 21:54	44,300.0	AT,
Sulfate	11.6		mg/l	1.00	0.454	1	-	11/07/22 21:54	44,300.0	AT,

Project Name: TERRAMOR **Lab Number:** L2258610
Project Number: Not Specified **Report Date:** 11/11/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1702423-1										
Odor	NO ODOR		TON	1	1.0	1	-	10/21/22 09:00	121,2150B	KEP
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1702472-1										
Turbidity	ND		NTU	0.20	0.20	1	-	10/21/22 09:45	44,180.1	KEP
Bacteria in Water - Westborough Lab for sample(s): 01 Batch: WG1702574-1										
Coliform, Total	Negative		col/100ml	-	NA	1	-	10/21/22 13:34	121,9223B	DRV
Escherichia Coli	Negative		col/100ml	-	NA	1	-	10/21/22 13:34	121,9223B	DRV
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1702699-1										
Nitrogen, Nitrite	ND		mg/l	0.050	0.014	1	-	10/22/22 03:27	44,353.2	KAF
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1702706-1										
Nitrogen, Nitrate	ND		mg/l	0.10	0.023	1	-	10/22/22 03:32	44,353.2	KAF
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1705195-1										
Cyanide, Total	ND		mg/l	0.005	0.001	1	10/28/22 07:40	10/28/22 13:24	121,4500CN-CE	JER
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1706486-1										
Alkalinity, Total	ND		mg CaCO3/L	2.00	NA	1	-	11/01/22 06:09	121,2320B	MRM
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1709241-1										
Chloride	0.173	J	mg/l	0.500	0.083	1	-	11/07/22 17:10	44,300.0	AT,
Fluoride	0.040	J	mg/l	0.050	0.037	1	-	11/07/22 17:10	44,300.0	AT,
Sulfate	ND		mg/l	1.00	0.454	1	-	11/07/22 17:10	44,300.0	AT,

Lab Control Sample Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified
Lab Number: L2258610
Report Date: 11/11/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1702472-2								
Turbidity	99		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1702699-2								
Nitrogen, Nitrite	92		-		90-110	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1702706-2								
Nitrogen, Nitrate	92		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1705195-2								
Cyanide, Total	110		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1706486-2								
Alkalinity, Total	105		-		90-110	-		10
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1709241-2								
Chloride	102		-		90-110	-		
Fluoride	103		-		90-110	-		
Sulfate	100		-		90-110	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1702699-4 QC Sample: L2258610-01 Client ID: LOT-17-221020												
Nitrogen, Nitrite	ND	4	4.2	105		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1702706-4 QC Sample: L2258610-01 Client ID: LOT-17-221020												
Nitrogen, Nitrate	0.058J	4	3.8	95		-	-		83-113	-		6
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1705195-3 QC Sample: L2260243-01 Client ID: MS Sample												
Cyanide, Total	0.007	0.2	0.212	102		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1706486-4 QC Sample: L2258776-01 Client ID: MS Sample												
Alkalinity, Total	65.6	100	180	114		-	-		86-116	-		10
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1709241-3 QC Sample: L2258610-01 Client ID: LOT-17-221020												
Chloride	28.2	4	31.2	**74**	Q	-	-		90-110	-		18
Fluoride	0.147	0.4	0.549	100		-	-		90-110	-		15
Sulfate	11.6	8	19.4	98		-	-		90-110	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1702423-2 QC Sample: L2258610-01 Client ID: LOT-17-221020						
Odor	NO ODOR	NO ODOR	TON	NC		
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1702472-3 QC Sample: L2258594-01 Client ID: DUP Sample						
Turbidity	0.37	0.36	NTU	3		13
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1702653-2 QC Sample: L2258858-01 Client ID: DUP Sample						
Color, Apparent	ND	ND	A.P.C.U.	NC		
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1702699-3 QC Sample: L2258610-01 Client ID: LOT-17-221020						
Nitrogen, Nitrite	ND	0.018J	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1702706-3 QC Sample: L2258610-01 Client ID: LOT-17-221020						
Nitrogen, Nitrate	0.058J	0.058J	mg/l	NC		6
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1706486-3 QC Sample: L2258776-01 Client ID: DUP Sample						
Alkalinity, Total	65.6	67.9	mg CaCO3/L	3		10
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1709241-4 QC Sample: L2258610-01 Client ID: LOT-17-221020						
Chloride	28.2	28.2	mg/l	0		18
Fluoride	0.147	0.145	mg/l	1		15
Sulfate	11.6	11.6	mg/l	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2258610-01A	Vial Na2S2O3 preserved	A	NA		3.1	Y	Absent		504(14)
L2258610-01B	Vial Na2S2O3 preserved	A	NA		3.1	Y	Absent		504(14)
L2258610-01C	Vial Ascorbic Acid/HCl preserved	A	NA		3.1	Y	Absent		524.2(14)
L2258610-01D	Vial Ascorbic Acid/HCl preserved	A	NA		3.1	Y	Absent		524.2(14)
L2258610-01E	Bacteria Cup Na2S2O3 preserved	A	NA		3.1	Y	Absent		T-COLI-C(1.25)
L2258610-01F	Bacteria Cup Na2S2O3 preserved	A	NA		3.1	Y	Absent		T-COLI-C(1.25)
L2258610-01G	Plastic 250ml HNO3 preserved	A	<2	<2	3.1	Y	Absent		CD-2008T(180),CA-UI(180),ZN-2008T(180),FE-UI(180),CU-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),AG-2008T(180),MN-UI(180),NA-UI(180),BA-2008T(180),CR-2008T(180),PB-2008T(180)
L2258610-01G1	Plastic 950ml HNO3 preserved	A	<2	<2	3.1	Y	Absent		CD-2008T(180),CA-UI(180),ZN-2008T(180),FE-UI(180),CU-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),AG-2008T(180),MN-UI(180),NA-UI(180),BA-2008T(180),CR-2008T(180),PB-2008T(180)
L2258610-01H	Plastic 250ml NaOH preserved	A	>12	>12	3.1	Y	Absent		TCN-4500(14)
L2258610-01J	Plastic 250ml unpreserved/No Headspace	A	NA		3.1	Y	Absent		ALK-T-2320(14)
L2258610-01K	Plastic 250ml Trizma preserved	B	NA		3.0	Y	Absent		A2-537.1-PFOA/PFOS(14)
L2258610-01L	Plastic 250ml Trizma preserved	B	NA		3.0	Y	Absent		A2-537.1-PFOA/PFOS(14)
L2258610-01M	Amber 500ml NaSulfite/NaHSO4 preserved	A	5	5	3.1	Y	Absent		HOLD-522(28)
L2258610-01N	Amber 500ml NaSulfite/NaHSO4 preserved	A	5	5	3.1	Y	Absent		HOLD-522(28)
L2258610-01O	Plastic 950ml unpreserved	A	7	7	3.1	Y	Absent		SO4-300(28),CL-300(28),F-300(28),NO2-353(2),TURB-180(2),NO3-353(2)
L2258610-01P	Plastic 500ml HNO3 preserved	A	<2	<2	3.1	Y	Absent		SUB-URANIUM(180)
L2258610-01Q	Plastic 950ml HNO3 preserved	A	<2	<2	3.1	Y	Absent		SUB-RA228(180)

*Values in parentheses indicate holding time in days

Project Name: TERRAMOR
Project Number: Not Specified

Lab Number: L2258610
Report Date: 11/11/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2258610-01Q1	Plastic 950ml HNO3 preserved	A	<2	<2	3.1	Y	Absent		SUB-RA228(180)
L2258610-01R	Plastic 950ml HNO3 preserved	A	<2	<2	3.1	Y	Absent		SUB-RA226(180)
L2258610-01R1	Plastic 950ml HNO3 preserved	A	<2	<2	3.1	Y	Absent		SUB-RA226(180)
L2258610-01R2	Plastic 950ml HNO3 preserved	A	<2	<2	3.1	Y	Absent		SUB-RA226(180)
L2258610-01S	Amber 950ml unpreserved	A	7	7	3.1	Y	Absent		COLOR-A-2120(2),ODOR-2150(1)
L2258610-01S1	Amber 500ml unpreserved split	A	7	7	3.1	Y	Absent		A2-DIOXIN-1613(365)
L2258610-01T	Plastic 950ml HNO3 preserved	A	<2	<2	3.1	Y	Absent		SUB-ALPHA/BETA(180)
L2258610-01T1	Plastic 950ml HNO3 preserved	A	<2	<2	3.1	Y	Absent		SUB-ALPHA/BETA(180)
L2258610-01T2	Plastic 950ml HNO3 preserved	A	<2	<2	3.1	Y	Absent		SUB-ALPHA/BETA(180)
L2258610-02A	Plastic 250ml Trizma preserved	B	NA		3.0	Y	Absent		A2-537.1-PFOA/PFOS(14)
L2258610-03A	Vial Ascorbic Acid/HCl preserved	A	NA		3.1	Y	Absent		524.2(14)
L2258610-03B	Vial Ascorbic Acid/HCl preserved	A	NA		3.1	Y	Absent		524.2(14)
L2258610-04A	Amber 500ml NaSulfite/NaHSO4 preserved	C	<4	<4	2.3	Y	Absent		A2-14DIOXANE-522(28)
L2258610-04B	Amber 500ml NaSulfite/NaHSO4 preserved	C	<4	<4	2.3	Y	Absent		A2-14DIOXANE-522(28)
L2258610-04C	Vial NH4Cl preserved	C	7	7	2.3	Y	Absent		SUB-HAA(9)

*Values in parentheses indicate holding time in days

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA/PFTeDA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDoDS/PFDoS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
Perfluoropropanesulfonic Acid	PFPrS	423-41-6
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA/PFOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1
PERFLUOROETHER SULFONIC ACIDS (PFESAs)		
Perfluoro(2-Ethoxyethane)Sulfonic Acid	PFEESA	113507-82-7
PERFLUOROETHER/POLYETHER CARBOXYLIC ACIDS (PFPCAs)		
Perfluoro-3-Methoxypropanoic Acid	PFMPA	377-73-1
Perfluoro-4-Methoxybutanoic Acid	PFMBA	863090-89-5
Nonafluoro-3,6-Dioxaheptanoic Acid	NFDHA	151772-58-6

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
FLUOROTELOMER CARBOXYLIC ACIDS (FTCAs)		
3-Perfluoroheptyl Propanoic Acid	7:3FTCA	812-70-4
2H,2H,3H,3H-Perfluorooctanoic Acid	5:3FTCA	914637-49-3
3-Perfluoropropyl Propanoic Acid	3:3FTCA	356-02-5

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: *DU Report with 'J' Qualifiers*

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

14 Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water. EPA/600/4-88/039, Revised July 1991.

16 Methods for the Determination of Organic Compounds in Drinking Water - Supplement II. EPA/600/R-92/129, August 1992.

19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

120 Determination of 1,4-Dioxane in Drinking Water by Solid Phase Extraction (SPE) and Gas Chromatography/Mass Spectrometry (GC/MS) with Selected Ion Monitoring (SIM). EPA Method 522, EPA/600/R-08/101. Version 1.0, September 2008.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

132 Method 1613 Revision B: Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGC/HRMS. USEPA Office of Water, October 1994.

133 Determination of Selected Per- and Polyfluorinated Alkyl Substances in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS). EPA Method 537.1, EPA/600/R-18/352. Version 1.0, November 2018.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

ALPHA ANALYTICAL

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Page 1 of 1

Date Rec'd in Lab: 10/21/22

ALPHA Job #: L2258610

Project Information

Project Name: Terramor
Project Location: ~~22-2168~~ Saugerties, NY
Project #: 22.2168
(Use Project name as Project #) [X]
Project Manager: Jon Dippert
ALPHAQuote #:

Turn-Around Time

Standard [X]   Due Date:
Rush (only if pre approved) [ ]   # of Days:

Client Information

Client: CT Male
Address: 50 Century Hill Dr
Phone: 518 786 7400
Fax:
Email: J.dippert@ctmale.com

Deliverables

[ ] ASP-A [ ] ASP-B
[X] EQuIS (1 File) [ ] EQuIS (4 File)
[ ] Other

Regulatory Requirement

[ ] NY TOGS [ ] NY Part 375
[ ] AWQ Standards [ ] NY CP-51
[ ] NY Restricted Use [ ] Other
[ ] NY Unrestricted Use
[ ] NYC Sewer Discharge

Billing Information

[X] Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.

Disposal Facility:
[ ] NJ [ ] NY
[ ] Other:

These samples have been previously analyzed by Alpha [ ]

Other project specific requirements/comments:

* Bacteriological Samples - short hold

Please specify Metals or TAL.

Sample Filtration
[ ] Done
[ ] Lab to do
Preservation
[ ] Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: 537.1 PFAS	Part 5	1,4-Dioxane						Sample Specific Comments	Total Bottles
58610-01	LOT_17-221020	10/20	1000	GW	AR	X	X	X							43
-02	Field Blank	10/20	10 40	GW	AR	X									2

	537.1 PFAS	Part 5	1,4-Dioxane
Container Type	P	-	A
Preservative	O	-	O

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	10/20/22 1130	[signature]	10/20/22 1130
[signature]	10/20/22 1400	[signature]	10/21/22 0000

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

ALPHA

NEW YORK CHAIN OF CUSTODY

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab: 10/22/22

ALPHA Job #: L2258610

Project Information

Project Name: Terramor
Project Location: Saugerties, NY
Project #: 22.2186
(Use Project name as Project #) ☐
Project Manager: Jon Dippert
ALPHAQuote #:

Client Information

Client: CT Male Associates
Address: 50 Century Hill Dr
Latham, NY, 12110
Phone: 518 786 7400
Fax:
Email: J.dippert@ctmale.com

Turn-Around Time

Standard ☒
Rush (only if pre approved) ☐
Due Date:
# of Days:

Deliverables

☐ ASP-A ☐ ASP-B
☒ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information

☒ Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	1,4 Dioxane	Sub HAA							Sample Specific Comments	Total Bottles
58610-01	LOT-17-221021	10/21	1300	GW	AR	✓	✓								3

Container Type	A	A						
Preservative	O	A						

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	10/21 1415	[signature] AAL	10/21/22 16:15
[signature]	10/21/22 16:15	R. Manoz	10/22/22 0600
[signature]	10/22/22 0600	[signature]	10/22/22 0600
R. Manoz	10/22/22 0720	[signature]	10/22/22 0720

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

ALPHA ANALYTICAL World Class Chemistry

Subcontract Chain of Custody

GEL Laboratories, LLC
2040 savage road
Charleston, SC 29407

Alpha Job Number
L2258610

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 716-427-5223
Email: cfox@alphalab.com

Project Information

Project Location: NY
Project Manager: Candace Fox

Turnaround & Deliverables Information

Due Date:
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2258610

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	LOT-17-221020	10-20-22 10:00	DW	Gross Alpha/Beta; Radium 226; Radium 228; Uranium by EPA 200.8	

Relinquished By:	Date/Time:	Received By:	Date/Time:
[signature]	10/24/22		

Form No: AL_subcoc

301 Fulling Mill Road | Middletown, PA 17057 | Phone: 717-944-5541 | Fax: 717-944-1430 | www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

Analytical Results Report For

Alpha Analytical

Project L2258610
Workorder 3270378
Report ID 203606 on 10/28/2022

Certificate of Analysis

Enclosed are the analytical results for samples received by the laboratory on Oct 25, 2022.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact George Methlie (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

ALS Middletown: 301 Fulling Mill Road, Middletown, PA 17057 : 717-944-5541.

Recipient(s):
- Ms Kane - Alpha Analytical
- Ben Rao - Alpha Analytical
- Candace Fox - Alpha Analytical
- Cindy Romero - Alpha Analytical
- Melissa Deyo - Alpha Analytical
- Nadine Yakes - Alpha Analytical
- Results - Alpha Analytical

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

George Methlie

George Methlie *(ALS Digital Signature)*
Project Coordinator

Project L2258610
Workorder 3270378

Sample Summary

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collector	Collection Company
3270378001	LOT-17-221021	NY Potable Water	10/21/2022 13:00	10/25/2022 13:13	CBC	Collected By Client

Project L2258610
Workorder 3270378

Reference

Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- Except as qualified, Clean Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 136.
- Except as qualified, Safe Drinking Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 141.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND) above the MDL
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Practical Quantitation Limit for this Project
ND	Not Detected - indicates that the analyte was Not Detected
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits
#	Please reference the result in the Results Section for analyte-level flags.

Project L2258610
Workorder 3270378

Project Notations

Sample Notations

Lab ID	Sample ID

Result Notations

Notation Ref.

Project L2258610
Workorder 3270378

Detected Results Summary

Client Sample ID	**LOT-17-221021**	Collected	**10/21/2022 13:00**
Lab Sample ID	**3270378001**	Lab Receipt	**10/25/2022 13:13**

Compound	Result	Units	RDL	Method	Flag
HALOACETIC ACID					
Dichloroacetic Acid	3.4	ug/L	1.0	EPA 552.2	#

Project L2258610
Workorder 3270378

Results

Client Sample ID	LOT-17-221021	Collected	10/21/2022 13:00
Lab Sample ID	3270378001	Lab Receipt	10/25/2022 13:13

HALOACETIC ACID

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Dibromoacetic Acid	ND	ND	ug/L	1.0	EPA 552.2	1	10/28/2022 05:25	KJH	B
Dichloroacetic Acid	3.4		ug/L	1.0	EPA 552.2	1	10/28/2022 05:25	KJH	B
Monobromoacetic Acid	ND	ND	ug/L	1.0	EPA 552.2	1	10/28/2022 05:25	KJH	B
Monochloroacetic Acid	ND	ND	ug/L	2.0	EPA 552.2	1	10/28/2022 05:25	KJH	B
Trichloroacetic Acid	ND	ND	ug/L	1.0	EPA 552.2	1	10/28/2022 05:25	KJH	B

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2,3-Dibromopropionic Acid	600-05-5	95.9%	70 – 130	10/28/2022 05:25	

Project L2258610
Workorder 3270378

Sample - Method Cross Reference Table

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3270378001	LOT-17-221021	EPA 552.2	EPA 552.2	

Project L2258610
Workorder 3270378

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Lab ID	Sample ID	Preparation Method	Prep Batch	Prep Date/Time	By	Analysis Method	Anly Batch
3270378001	LOT-17-221021	EPA 552.2	894704	10/26/2022 17:30	JEK	EPA 552.2	895785

ALPHA ANALYTICAL
World Class Chemistry

Subcontract Chain of Custody

ALS Environmental (PA)
301 Fulling Mill Road
Middletown, PA 17057

3270378
Logged By: SLS
PM: GJM

Alpha Job Number
L2258610

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 716-427-5223
Email: cfox@alphalab.com

Project Information

Project Location: NY
Project Manager: Candace Fox

Turnaround & Deliverables Information

Due Date:
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2258610

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	~~LOT-17-221020~~	~~10-20-22 10:00~~	~~DW~~	PCB/Chlor/Tox - EPA 505; Chlor. Acids - EPA 515.3; Pesticides - EPA 525.2; Carbamates - EPA 531.1; Bromate; Chlorite;Subcontract Diquat -EPA 549.2; ~~Subcontract Endothall -EPA 548.1~~;Subcontract Glyphosate -EPA 547	
	LOT-17-221021	10-21-22 13:00	DW	Haloacetic Acids - Subcontracted	

1-250mL/NH4CL/AC
DD
10/25/22
Sampler - AR

Temp Taken By: DD
WO Temp (°C) 20
Therm ID: 573
Receipt Info Completed By: DD
Cooler Custody Seal Intact Y N NA
Sample Custody Seal Intact Y N NA
Received on Ice Y N NA
Cooler & Samples Intact Y N
Correct Containers Provided Y N
Sample Label/COC Agree Y N
Adequate Sample Volumes Y N
VOA Headspace Present Y N NA
Voa Trip Blank Y N NA
NJ≤ 4 Days? Y N
Rad Screen (uCi)
Courier/Tracking #: 1 1

SDWA Compliance Y N
PWSID
WV Containers 0-6°C Y N NA

No C/C, DD

Relinquished By:	Date/Time:	Received By:	Date/Time:
Sam Oldham	10/24/22	10/24 [illegible]	[illegible]
Paul Margello [illegible] 10/24	10/24/22 2232	Paul Margello AAC	10/24/22 2000
[illegible] AAC	10/25/22 2130		10/24/22 2240
[illegible] AAM	10-25 1212	Dave [illegible] ALS	10/25/22 13:13

Form No: AL_subcoc

GEL Laboratories LLC
a member of **The GEL Group** INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

November 07, 2022

Analytical Subreports
Alpha Analytical Inc
8 Walkup Drive
Westborough, Massachusetts 01581

Re: Analytical Subreports Westborough MA
Work Order: 598073

Dear Analytical Subreports:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on October 25, 2022. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 1614.

Sincerely,

Jordan Melton for
Delaney Stone
Project Manager

Enclosures

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 − (843) 556−8171 − www.gel.com

Certificate of Analysis Report
for

ALPL001 Alpha Analytical Inc

Client SDG: 598073 GEL Work Order: 598073

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a Tracer compound
- ** Analyte is a surrogate compound
- J See case narrative for an explanation
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Delaney Stone.

Jordan Melton

Reviewed by ____

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: November 7, 2022

Company :	Alpha Analytical Inc
Address :	8 Walkup Drive
	Westborough, Massachusetts 01581
Contact:	Analytical Subreports
Project:	Analytical Subreports Westborough MA

Client Sample ID:	LOT-17-221020	Project:	ALPL00420
Sample ID:	598073001	Client ID:	ALPL001
Matrix:	DW		
Collect Date:	20-OCT-22 10:00		
Receive Date:	25-OCT-22		
Collector:	Client		

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS												
200.2/200.8 Uranium "As Received"												
Uranium		0.359	0.0670	0.200	ug/L	1.00	1	BAJ	10/27/22	2050	2333556	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	LG2	10/26/22	0820	2333555

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 200.8	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Alpha Analytical Inc
Address : 8 Walkup Drive

Westborough, Massachusetts 01581 — Report Date: November 7, 2022

Contact: Analytical Subreports
Project: Analytical Subreports Westborough MA

Client Sample ID: LOT-17-221020 — Project: ALPL00420
Sample ID: 598073001 — Client ID: ALPL001
Matrix: DW
Collect Date: 20-OCT-22
Receive Date: 25-OCT-22
Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting														
GFPC Gross A/B, Liquid "As Received"														
Alpha		7.22	+/-3.98	4.16	+/-4.15	5.00	pCi/L			KP1	11/01/22	1326	2333941	1
Beta		11.0	+/-3.24	3.76	+/-3.72	5.00	pCi/L							
GFPC Ra228, Liquid "As Received"														
Radium-228	U	0.559	+/-1.47	2.59	+/-1.48	3.00	pCi/L			JE1	11/03/22	0834	2334490	2
Rad Radium-226														
Lucas Cell, Ra226, Liquid "As Received"														
Radium-226		0.825	+/-0.348	0.316	+/-0.389	1.00	pCi/L			LXP1	11/06/22	0756	2335610	3

The following Analytical Methods were performed

Method	Description
1	EPA 900.0/SW846 9310
2	EPA 904.0/SW846 9320 Modified
3	EPA 903.1 Modified

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC Ra228, Liquid "As Received"	2334490	78.1	(15%-125%)

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 7, 2022

	Alpha Analytical Inc
	8 Walkup Drive
	Westborough, Massachusetts
Contact:	**Analytical Subreports**
Workorder:	**598073**

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time
Metals Analysis - ICPMS											
Batch 2333556											
QC1205226871 598073001 DUP											
Uranium		0.359		0.335	ug/L	6.92 ^		(+/-0.200)	BAJ	10/27/22	20:53
QC1205226869 LCS											
Uranium	50.0			51.4	ug/L		103	(85%-115%)		10/27/22	20:43
QC1205226870 LCSD											
Uranium	50.0			52.5	ug/L	2.18	105	(0%-20%)		10/27/22	20:46
QC1205226868 MB											
Uranium			U	ND	ug/L					10/27/22	20:39
QC1205226872 598073001 MS											
Uranium	50.0	0.359		51.2	ug/L		102	(75%-125%)		10/27/22	20:57
QC1205226873 598073001 SDILT											
Uranium		0.359	J	0.0910	ug/L	26.7		(0%-10%)		10/27/22	21:00

Notes:

The Qualifiers in this report are defined as follows:

<	Result is less than value reported
>	Result is greater than value reported
E	%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
FB	Mercury was found present at quantifiable concentrations in field blanks received with these samples. Data associated with the blank are deemed invalid for reporting to regulatory agencies
H	Analytical holding time was exceeded
J	See case narrative for an explanation
J	Value is estimated
N	Metals--The Matrix spike sample recovery is not within specified control limits
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit

GEL LABORATORIES LLC
2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 598073

Parmname	NOM	Sample	Qual	QC	Units	RPD/D%	REC%	Range	Anlst	Date	Time

NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where the duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: November 7, 2022

Client : **Alpha Analytical Inc**
8 Walkup Drive

Westborough, Massachusetts
Contact: **Analytical Subreports**
Workorder: **598073**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 2333941										
QC1205227665 598073001 DUP										
Alpha		7.22		6.84	pCi/L	5.32		(0% - 100%)	KP1	11/01/22 13:26
	Uncert:	+/-3.98		+/-3.68						
	TPU:	+/-4.15		+/-3.85						
Beta		11.0		8.72	pCi/L	22.8		(0% - 100%)		
	Uncert:	+/-3.24		+/-3.34						
	TPU:	+/-3.72		+/-3.64						
QC1205227668 LCS										
Alpha	116			132	pCi/L		113	(75%-125%)	KP1	11/01/22 13:26
	Uncert:			+/-12.0						
	TPU:			+/-25.5						
Beta	447			451	pCi/L		101	(75%-125%)		
	Uncert:			+/-16.1						
	TPU:			+/-77.2						
QC1205227669 LCSD										
Alpha	116			121	pCi/L	8.72	104	(0%-20%)	KP1	11/01/22 13:26
	Uncert:			+/-12.0						
	TPU:			+/-23.3						
Beta	447			470	pCi/L	4.21	105	(0%-20%)		
	Uncert:			+/-16.6						
	TPU:			+/-79.0						
QC1205227664 MB										
Alpha			U	0.223	pCi/L				KP1	11/01/22 13:26
	Uncert:			+/-1.29						
	TPU:			+/-1.29						
Beta			U	-1.55	pCi/L					
	Uncert:			+/-1.98						
	TPU:			+/-1.98						
QC1205227666 598073001 MS										
Alpha	471	7.22		454	pCi/L		94.7	(75%-125%)	KP1	11/01/22 13:26
	Uncert:	+/-3.98		+/-47.2						
	TPU:	+/-4.15		+/-88.8						
Beta	1820	11.0		1890	pCi/L		103	(75%-125%)		
	Uncert:	+/-3.24		+/-67.9						
	TPU:	+/-3.72		+/-323						
QC1205227667 598073001 MSD										
Alpha	455	7.22		442	pCi/L	2.68	95.5	(0%-20%)	KP1	11/01/22 13:26
	Uncert:	+/-3.98		+/-44.6						
	TPU:	+/-4.15		+/-85.2						
Beta	1750	11.0		1710	pCi/L	9.74	97.2	(0%-20%)		
	Uncert:	+/-3.24		+/-63.3						
	TPU:	+/-3.72		+/-289						

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 598073

Parmname		NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gas Flow											
Batch	2334490										
QC1205228718	LCS										
Radium-228		66.5			70.4	pCi/L		106	(75%-125%)	JE1	11/03/22 08:34
		Uncert:			+/-4.31						
		TPU:			+/-18.1						
QC1205228719	LCSD										
Radium-228		66.5			71.3	pCi/L	1.31	107	(0%-20%)	JE1	11/03/22 08:34
		Uncert:			+/-4.45						
		TPU:			+/-18.4						
QC1205228717	MB										
Radium-228				U	0.902	pCi/L				JE1	11/03/22 08:34
		Uncert:			+/-1.16						
		TPU:			+/-1.19						
Rad Ra-226											
Batch	2335610										
QC1205230925	598717011 DUP										
Radium-226			0.898		0.779	pCi/L	14.2		(0% - 100%)	LXP1	11/06/22 09:02
		Uncert:	+/-0.350		+/-0.392						
		TPU:	+/-0.394		+/-0.426						
QC1205230927	LCS										
Radium-226		26.5			21.3	pCi/L		80.1	(75%-125%)	LXP1	11/06/22 09:02
		Uncert:			+/-1.54						
		TPU:			+/-4.32						
QC1205230928	LCSD										
Radium-226		26.5			25.1	pCi/L	16.6	94.6	(0%-20%)	LXP1	11/06/22 09:02
		Uncert:			+/-1.80						
		TPU:			+/-4.29						
QC1205230924	MB										
Radium-226				U	0.304	pCi/L				LXP1	11/06/22 09:02
		Uncert:			+/-0.292						
		TPU:			+/-0.298						
QC1205230926	598717011 MS										
Radium-226		131	0.898		116	pCi/L		88.1	(75%-125%)	LXP1	11/06/22 09:02
		Uncert:	+/-0.350		+/-8.03						
		TPU:	+/-0.394		+/-21.3						

Notes:

TPU and Counting Uncertainty are calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

**	Analyte is a Tracer compound
<	Result is less than value reported
>	Result is greater than value reported
BD	Results are either below the MDC or tracer recovery is low
FA	Failed analysis.
H	Analytical holding time was exceeded
J	See case narrative for an explanation

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: 598073

Parmname	NOM	Sample Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time

J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	REMP Result > MDC/CL and < RDL
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

598073

Subcontract Chain of Custody

GEL Laboratories, LLC
2040 savage road
Charleston, SC 29407

Alpha Job Number
L2258610

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 716-427-5223 Email: cfox@alphalab.com	Project Location: NY Project Manager: Candace Fox **Turnaround & Deliverables Information** Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2258610

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	LOT-17-221020	10-20-22 10:00	DW	Gross Alpha/Beta; Radium 226; Radium 228; Uranium by EPA 200.8	

Relinquished By:	Date/Time:	Received By:	Date/Time:
[signature]	10/24/22	[signature]	10/25/22 1000

Form No: AL_subcoc

Serial_No:11112220:01

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM PS

Client: ALPL			**SDG/AR/COC/Work Order:** 598073	
Received By: MVH			**Date Received:** 10/25/2022	
Carrier and Tracking Number			Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 12E306540195223174	
Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.	
A)Shipped as a DOT Hazardous?		/	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___	
B) Did the client designate the samples are to be received as radioactive?		/	COC notation or radioactive stickers on containers equal client designation.	
C) Did the RSO classify the samples as radioactive?		/	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): Ø CPM / mR/Hr **Classified as: Rad 1 Rad 2 Rad 3**	
D) Did the client designate samples are hazardous?		/	COC notation or hazard labels on containers equal client designation.	
E) Did the RSO identify possible hazards?		/	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	/			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	/			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*		/		Preservation Method: Wet Ice Ice Packs Dry Ice None Other: *all temperatures are recorded in Celsius **TEMP:** 12
4	Daily check performed and passed on IR temperature gun?	/			**Temperature Device Serial #:** IR2-21 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	/			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?		/		Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			/	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	/			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	/			ID's and containers affected:
10	Date & time on COC match date & time on bottles?		/		Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?			/	Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?			/	
13	COC form is properly signed in relinquished/received sections?	/			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials SW Date 10/25/22 Page 1 of 1

GL-CHL-SR-001 Rev 7

List of current GEL Certifications as of 07 November 2022

State	Certification
Alabama	42200
Alaska	17−018
Alaska Drinking Water	SC00012
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2019020
Maryland	270
Massachusetts	M−SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122023−3
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	2022−160
Pennsylvania NELAP	68−00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−22−20
Utah NELAP	SC000122022−37
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

Technical Case Narrative
Alpha Analytical Inc
SDG #: 598073

Metals

Product: **Determination of Metals by ICP-MS**
Analytical Method: EPA 200.8
Analytical Procedure: GL-MA-E-014 REV# 35
Analytical Batch: 2333556

Preparation Method: EPA 200.2
Preparation Procedure: GL-MA-E-016 REV# 18
Preparation Batch: 2333555

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
598073001	LOT-17-221020
1205226868	Method Blank (MB)**ICP-MS**
1205226869	Laboratory Control Sample (LCS)
1205226870	Laboratory Control Sample Duplicate (LCSD)
1205226873	598073001(LOT-17-221020L) Serial Dilution (SD)
1205226871	598073001(LOT-17-221020D) Sample Duplicate (DUP)
1205226872	598073001(LOT-17-221020S) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Calibration Information

ICSA/ICSAB Statement
For the ICP-MS analysis, the ICSA solution contains analyte concentrations which are verified trace impurities indigenous to the purchased standard.

Radiochemistry

Product: **GFPC Gross A/B, Liquid**
Analytical Method: EPA 900.0/SW846 9310
Analytical Procedure: GL-RAD-A-001 REV# 20
Analytical Batch: 2333941

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID# **Client Sample Identification**

598073001	LOT-17-221020
1205227664	Method Blank (MB)
1205227665	598073001(LOT-17-221020) Sample Duplicate (DUP)
1205227666	598073001(LOT-17-221020) Matrix Spike (MS)
1205227667	598073001(LOT-17-221020) Matrix Spike Duplicate (MSD)
1205227668	Laboratory Control Sample (LCS)
1205227669	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Preparation Information

Homogenous Matrix
Samples were non-homogenous matrix. sample has an orange tint

Technical Information

Gross Alpha/Beta Preparation Information
High hygroscopic salt content in evaporated samples can cause the sample mass to fluctuate due to moisture absorption. To minimize this interference, the salts are converted to oxides by heating the sample under a flame until a dull red color is obtained. The conversion to oxides stabilizes the sample weight and ensures that proper alpha/beta efficiencies are assigned for each sample. Volatile radioisotopes of carbon, hydrogen, technetium, polonium and cesium may be lost during sample heating.

Miscellaneous Information

Additional Comments
The matrix spike and matrix spike duplicate, 1205227666 (LOT-17-221020MS) and 1205227667 (LOT-17-221020MSD), aliquots were reduced to conserve sample volume.

Product: GFPC Ra228, Liquid
Analytical Method: EPA 904.0/SW846 9320 Modified
Analytical Procedure: GL-RAD-A-063 REV# 5
Analytical Batch: 2334490

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
598073001	LOT-17-221020
1205228717	Method Blank (MB)
1205228718	Laboratory Control Sample (LCS)
1205228719	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: Lucas Cell, Ra226, Liquid
Analytical Method: EPA 903.1 Modified
Analytical Procedure: GL-RAD-A-008 REV# 15
Analytical Batch: 2335610

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
598073001	LOT-17-221020
1205230924	Method Blank (MB)
1205230925	598717011(NonSDG) Sample Duplicate (DUP)
1205230926	598717011(NonSDG) Matrix Spike (MS)
1205230927	Laboratory Control Sample (LCS)
1205230928	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Preparation Information

Homogenous Matrix
Sample 598073001 (LOT-17-221020) was non-homogenous matrix.

Miscellaneous Information

Additional Comments
The matrix spike, 1205230926 (Non SDG 598717011MS), aliquot was reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order ID:	042226392
Customer ID:	ALPH55
Customer PO:	
Project ID:	

Attn: Candace Fox
Alpha Analytical, Inc.
Accounts Payable
145 Flanders Road
Westborough, MA 01581
Proj: L2258610

Phone:	(508) 898-9220
Fax:	(508) 898-9193
Received:	10/21/2022
Analyzed:	11/06/2022

Test Report: Determination of Asbestos Structures >10µm in Drinking Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm²)	Area Analyzed (mm²)	ASBESTOS: Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration	Confidence Limits
							MFL (million fibers per liter)		
Lot-17-221020 042226392-0001	10/21/2022 03:35 PM	0.10	1335	0.2580	None Detected	ND	52.00	<52.00	0.00 - 190.00

Collection Date/Time: *10/20/2022 10:00 AM*

Due to excessive particulate the analytical sensitivity of 0.2 MFL as required by the method was not reached.

Bottle supplied by client.

Analyst(s)
Daniel Blake (1)

Samantha Rundstrom, Laboratory Manager
or Other Approved Signatory

Any questions please contact Samantha Rundstrom-Cruz.

Initial report from: 11/07/2022 16:22:06

301 Fulling Mill Road | Middletown, PA 17057 | Phone: 717-944-5541 | Fax: 717-944-1430 | www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

Analytical Results Report For **Alpha Analytical**

Project L2258610
Workorder 3269986
Report ID 206552 on 11/11/2022

Certificate of Analysis

Enclosed are the analytical results for samples received by the laboratory on Oct 21, 2022.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact George Methlie (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

ALS Middletown: 301 Fulling Mill Road, Middletown, PA 17057 : 717-944-5541.

Recipient(s):
- Ms Kane - Alpha Analytical
- Ben Rao - Alpha Analytical
- Candace Fox - Alpha Analytical
- Cindy Romero - Alpha Analytical
- Melissa Deyo - Alpha Analytical
- Nadine Yakes - Alpha Analytical
- Results - Alpha Analytical

George Methlie

George Methlie *(ALS Digital Signature)*
Project Coordinator

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Project L2258610
Workorder 3269986

Sample Summary

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collector	Collection Company
3269986001	LOT-17-221020	NY Potable Water	10/20/2022 10:00	10/21/2022 13:00	CBC	Collected By Client

Reference

Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- Except as qualified, Clean Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 136.
- Except as qualified, Safe Drinking Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 141.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND) above the MDL
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Practical Quantitation Limit for this Project
ND	Not Detected - indicates that the analyte was Not Detected
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits
#	Please reference the result in the Results Section for analyte-level flags.

Project L2258610
Workorder 3269986

Project Notations

Sample Notations

Lab ID	Sample ID		
3269986001	LOT-17-221020	**S1**	No trip blank was provided with sample for the 504.1 analysis.

Result Notations

Notation Ref.	
1	Due to sample matrix interferences, this analyte was analyzed at a dilution and the detection levels adjusted accordingly.
2	See attached subcontract results from Eurofins Eaton. SLW 11/11/2022

Project L2258610
Workorder 3269986

Detected Results Summary

Client Sample ID	LOT-17-221020	Collected	10/20/2022 10:00
Lab Sample ID	3269986001	Lab Receipt	10/21/2022 13:00

Compound	Result	Units	RDL	Method	Flag
SUBCONTRACTED ANALYSIS					
Subcontracted Analysis	See attached			Subcontract	#

Project L2258610
Workorder 3269986

Results

Client Sample ID	LOT-17-221020	Collected	10/20/2022 10:00
Lab Sample ID	3269986001	Lab Receipt	10/21/2022 13:00

CARBAMATES

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
3-Hydroxycarbofuran	ND	ND,S1	ug/L	1.0	EPA 531.1	1	10/26/2022 18:55	CGS	G
Aldicarb	ND	ND,S1	ug/L	2.0	EPA 531.1	1	10/26/2022 18:55	CGS	G
Aldicarb Sulfone	ND	ND,S1	ug/L	2.0	EPA 531.1	1	10/26/2022 18:55	CGS	G
Aldicarb Sulfoxide	ND	ND,S1	ug/L	2.0	EPA 531.1	1	10/26/2022 18:55	CGS	G
Carbaryl	ND	ND,S1	ug/L	1.0	EPA 531.1	1	10/26/2022 18:55	CGS	G
Carbofuran	ND	ND,S1	ug/L	1.0	EPA 531.1	1	10/26/2022 18:55	CGS	G
Methomyl	ND	ND,S1	ug/L	1.0	EPA 531.1	1	10/26/2022 18:55	CGS	G
Oxamyl	ND	ND,S1	ug/L	1.0	EPA 531.1	1	10/26/2022 18:55	CGS	G

HERBICIDES

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Diquat	ND	ND,S1	ug/L	2.0	EPA 549.2	1	10/25/2022 15:15	CGS	I1
Endothall	ND	ND,S1	ug/L	20.0	EPA 548.1	1	10/27/2022 14:13	CGS	J1
Glyphosate	ND	ND,S1	ug/L	25.0	EPA 547	1	10/27/2022 20:12	CGS	L

PESTICIDES

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Aroclor-1016	ND	ND,S1	ug/L	0.48	EPA 505	1	10/27/2022 07:33	DXL	B
Aroclor-1221	ND	ND,S1	ug/L	0.48	EPA 505	1	10/27/2022 07:33	DXL	B
Aroclor-1232	ND	ND,S1	ug/L	0.48	EPA 505	1	10/27/2022 07:33	DXL	B
Aroclor-1242	ND	ND,S1	ug/L	0.48	EPA 505	1	10/27/2022 07:33	DXL	B
Aroclor-1248	ND	ND,S1	ug/L	0.48	EPA 505	1	10/27/2022 07:33	DXL	B
Aroclor-1254	ND	ND,S1	ug/L	0.48	EPA 505	1	10/27/2022 07:33	DXL	B
Aroclor-1260	ND	ND,S1	ug/L	0.48	EPA 505	1	10/27/2022 07:33	DXL	B
Chlordane	ND	ND,S1	ug/L	0.48	EPA 505	1	10/27/2022 07:33	DXL	B
Polychlorinated Biphenyls	ND	ND,S1	ug/L	0.48	EPA 505	1	10/27/2022 07:33	DXL	B
Toxaphene	ND	ND,S1	ug/L	1.9	EPA 505	1	10/27/2022 07:33	DXL	B

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
Tetrachloro-m-xylene	877-09-8	84.9%	70 – 130	10/27/2022 07:33	

SEMIVOLATILES

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alachlor	ND	ND,S1	ug/L	0.19	EPA 525.2	1	10/31/2022 17:34	CGS	E
Aldrin	ND	ND,S1	ug/L	0.19	EPA 525.2	1	10/31/2022 17:34	CGS	E
Atrazine	ND	ND,S1	ug/L	0.19	EPA 525.2	1	10/31/2022 17:34	CGS	E
Benzo(a)pyrene	ND	ND,S1	ug/L	0.095	EPA 525.2	1	10/31/2022 17:34	CGS	E
bis(2-Ethylhexyl)phthalate	ND	ND,S1	ug/L	0.95	EPA 525.2	1	10/31/2022 17:34	CGS	E
Butachlor	ND	ND,S1	ug/L	0.19	EPA 525.2	1	10/31/2022 17:34	CGS	E
Di(2-Ethylhexyl)adipate	ND	ND,S1	ug/L	0.95	EPA 525.2	1	10/31/2022 17:34	CGS	E
Dieldrin	ND	ND,S1	ug/L	0.19	EPA 525.2	1	10/31/2022 17:34	CGS	E

Project L2258610
Workorder 3269986

Results

Client Sample ID	LOT-17-221020	Collected	10/20/2022 10:00
Lab Sample ID	3269986001	Lab Receipt	10/21/2022 13:00

SEMIVOLATILES (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Endrin	ND	ND,S1	ug/L	0.19	EPA 525.2	1	10/31/2022 17:34	CGS	E
gamma-BHC	ND	ND,S1	ug/L	0.095	EPA 525.2	1	10/31/2022 17:34	CGS	E
Heptachlor	ND	ND,S1	ug/L	0.095	EPA 525.2	1	10/31/2022 17:34	CGS	E
Heptachlor Epoxide	ND	ND,S1	ug/L	0.095	EPA 525.2	1	10/31/2022 17:34	CGS	E
Hexachlorobenzene	ND	ND,S1	ug/L	0.095	EPA 525.2	1	10/31/2022 17:34	CGS	E
Hexachlorocyclopentadiene	ND	ND,S1	ug/L	0.19	EPA 525.2	1	10/31/2022 17:34	CGS	E
Methoxychlor	ND	ND,S1	ug/L	0.19	EPA 525.2	1	10/31/2022 17:34	CGS	E
Metolachlor	ND	ND,S1	ug/L	0.19	EPA 525.2	1	10/31/2022 17:34	CGS	E
Metribuzin	ND	ND,S1	ug/L	0.19	EPA 525.2	1	10/31/2022 17:34	CGS	E
Propachlor	ND	ND,S1	ug/L	0.19	EPA 525.2	1	10/31/2022 17:34	CGS	E
Simazine	ND	ND,S1	ug/L	0.19	EPA 525.2	1	10/31/2022 17:34	CGS	E

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,3-Dimethyl-2-Nitrobenzene	81-20-9	96.5%	70 – 130	10/31/2022 17:34	
IS_Perylene-d12	1520-96-3	112%	70 – 130	10/31/2022 17:34	
Pyrene-d10	1718-52-1	98.3%	70 – 130	10/31/2022 17:34	
Triphenylphosphate	115-86-6	120%	70 – 130	10/31/2022 17:34	

SUBCONTRACTED ANALYSIS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Subcontracted Analysis	See attached	2,S1			Subcontract	1	11/11/2022 12:31	SUB	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,2-Dibromo-3-chloropropane	ND	ND,S1	ug/L	0.0096	EPA 504.1	1	10/28/2022 04:47	DXL	A
1,2-Dibromoethane	ND	ND,S1	ug/L	0.0096	EPA 504.1	1	10/28/2022 04:47	DXL	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1-Chloro-2-Fluorobenzene	348-51-6	94.8%	70 – 130	10/28/2022 04:47	

WET CHEMISTRY

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Bromate	ND	ND,1,S1	ug/L	50.0	EPA 300.1	10	10/30/2022 05:51	DMG	O
Chlorite	ND	ND,1,S1	ug/L	200	EPA 300.1	10	10/30/2022 05:51	DMG	O

Project L2258610
Workorder 3269986

Results

Client Sample ID	**LOT-17-221020**	Collected	**10/20/2022 10:00**
Lab Sample ID	**3269986001**	Lab Receipt	**10/21/2022 13:00**

WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
Dichloroacetate	DCA	105%	90 – 115	10/30/2022 05:51	
Dichloroacetate	DCA	105%	90 – 115	10/30/2022 05:51	

Project L2258610
Workorder 3269986

Sample - Method Cross Reference Table

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3269986001	LOT-17-221020	EPA 531.1	N/A	
		EPA 547	N/A	
		EPA 549.2	EPA 549.2	
		Subcontract	N/A	
		EPA 504.1	EPA 504.1	
		EPA 505	EPA 505	
		EPA 525.2	EPA 525.2	
		EPA 548.1	EPA 548.1	
		EPA 300.1	N/A	

Project L2258610
Workorder 3269986

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Lab ID	Sample ID	Preparation Method	Prep Batch	Prep Date/Time	By	Analysis Method	Anly Batch
3269986001	LOT-17-221020	N/A	N/A	N/A		EPA 531.1	893434
		N/A	N/A	N/A		EPA 547	895697
		EPA 549.2	893678	10/24/2022 23:30	KMR	EPA 549.2	893957
		N/A	N/A	N/A		Subcontract	
		EPA 504.1	896175	10/27/2022 21:15	DXL	EPA 504.1	896376
		EPA 505	895082	10/26/2022 21:00	DXL	EPA 505	895477
		EPA 525.2	896438	10/28/2022 11:30	JEK	EPA 525.2	898977
		EPA 548.1	895480	10/27/2022 02:45	KMR	EPA 548.1	895826
		N/A	N/A	N/A		EPA 300.1	896464

Serial_No:11112220:01

Subcontract Chain of Custody

ALS Environmental (PA)
301 Fulling Mill Road
Middletown, PA 17057

3269986
Logged By: SLS
PM: GJM

Alpha Job Number
L2258610

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 716-427-5223
Email: cfox@alphalab.com

Project Information

Project Location: NY
Project Manager: Candace Fox

Turnaround & Deliverables Information

Due Date:
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2258610

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	LOT-17-221020	10-20-22 10:00	DW	PCB/Chlor/Tox - EPA 505; Chlor. Acids - EPA 515.3; Pesticides - EPA 525.2; Carbamates - EPA 531.1; Bromate; Chlorite;Subcontract Diquat -EPA 549.2; Subcontract Endothall -EPA 548.1;Subcontract Glyphosate -EPA 547;Haloacetic Acids - Subcontracted	

2-1L/Sulfite HCL/AG
1-1L/Na2S2O3/AP
4-250mL/Na2S2O3/AG
4-40mL/Na2S2O3/G
2-40mL/ST/G
1-250mL/EDA/P
No C/C
Sampler - AR
DD 10/21/22

Temp Taken By: DD
WO Temp (°C): 3°
Therm ID: 523
Receipt Info Completed By: DD
Cooler Custody Seal Intact Y N NA
Sample Custody Seal Intact Y N NA
Received on Ice Y N NA
Cooler & Samples Intact Y N
Correct Containers Provided Y N
Sample Label/COC Agree Y N
Adequate Sample Volumes Y N
VOA Headspace Present Y N NA
Voa Trip Blank Y N NA
NJ≤ 4 Days? Y N
Rad Screen (uCi)
Courier/Tracking #: 1ZE306540199832508
SDWA Compliance Y N
PWSID
WV Containers 0-6°C Y N NA

Relinquished By:	Date/Time:	Received By:
[signature] AAL	10/20/22 13:00	UPS
UPS		[signature] ALS 10/21/22

Form No: AL_subcoc

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

eurofins | Environment Testing

ANALYTICAL REPORT

Eurofins Eaton South Bend
110 S Hill Street
South Bend, IN 46617
Tel: (574)233-4777

Laboratory Job ID: 810-42921-1
Client Project/Site: 40-3269986

For:
ALS Environmental
301 Fulling Mill Road
Middletown, Pennsylvania 17057

Attn: Sarah Leung

Authorized for release by:
11/11/2022 6:30:10 AM

Caleb Hunsberger, Project Manager
(574)233-4777
Anthony.Hunsberger@et.eurofinsus.com

LINKS

Review your project results through myEOL

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

Table of Contents

Definitions/Glossary

Client: ALS Environmental
Project/Site: 40-3269986

Job ID: 810-42921-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: ALS Environmental
Project/Site: 40-3269986

Job ID: 810-42921-1

Job ID: 810-42921-1

Laboratory: Eurofins Eaton South Bend

Narrative

Job Narrative
810-42921-1

Receipt
The sample was received on 10/27/2022 1:30 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.0°C

GC Semi VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: ALS Environmental

Job ID: 810-42921-1

Project/Site: 40-3269986

Client Sample ID: LOT-17-221020 **Lab Sample ID: 810-42921-1**

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: ALS Environmental
Job ID: 810-42921-1
Project/Site: 40-3269986

Client Sample ID: LOT-17-221020
Lab Sample ID: 810-42921-1
Date Collected: 10/20/22 10:00
Matrix: Drinking Water
Date Received: 10/27/22 13:30

Method: EPA 515.3 - Herbicides (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-TP (Silvex)	<0.10		0.10		ug/L		11/02/22 10:13	11/09/22 17:01	1
Dalapon	<1.0		1.0		ug/L		11/02/22 10:13	11/09/22 17:01	1
Dicamba	<0.10		0.10		ug/L		11/02/22 10:13	11/09/22 17:01	1
Dinoseb	<0.10		0.10		ug/L		11/02/22 10:13	11/09/22 17:01	1
Pentachlorophenol	<0.040		0.040		ug/L		11/02/22 10:13	11/09/22 17:01	1
Picloram	<0.10		0.10		ug/L		11/02/22 10:13	11/09/22 17:01	1
2,4-D	<0.10		0.10		ug/L		11/02/22 10:13	11/09/22 17:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*89*		*70 - 130*	*11/02/22 10:13*	*11/09/22 17:01*	*1*

Surrogate Summary

Client: ALS Environmental
Project/Site: 40-3269986

Job ID: 810-42921-1

Method: 515.3 - Herbicides (GC)

Matrix: Drinking Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
		DCPAA1
Lab Sample ID	Client Sample ID	(70-130)
810-42921-1	LOT-17-221020	89
LLCS 810-37210/2-B	Lab Control Sample	97
MB 810-37210/1-B	Method Blank	98

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid

QC Sample Results

Client: ALS Environmental
Project/Site: 40-3269986

Job ID: 810-42921-1

Method: 515.3 - Herbicides (GC)

Lab Sample ID: MB 810-37210/1-B
Matrix: Drinking Water
Analysis Batch: 37771

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37210

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-TP (Silvex)	<0.10		0.10		ug/L		11/02/22 10:13	11/08/22 22:23	1
Dalapon	<1.0		1.0		ug/L		11/02/22 10:13	11/08/22 22:23	1
Dicamba	<0.10		0.10		ug/L		11/02/22 10:13	11/08/22 22:23	1
Dinoseb	<0.10		0.10		ug/L		11/02/22 10:13	11/08/22 22:23	1
Pentachlorophenol	<0.040		0.040		ug/L		11/02/22 10:13	11/08/22 22:23	1
Picloram	<0.10		0.10		ug/L		11/02/22 10:13	11/08/22 22:23	1
2,4-D	<0.10		0.10		ug/L		11/02/22 10:13	11/08/22 22:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*98*		*70 - 130*	*11/02/22 10:13*	*11/08/22 22:23*	*1*

Lab Sample ID: LLCS 810-37210/2-B
Matrix: Drinking Water
Analysis Batch: 37771

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37210

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4,5-TP (Silvex)	0.100	0.100		ug/L		100	48 - 148
Dicamba	0.200	0.175		ug/L		87	
Dinoseb	0.200	0.228		ug/L		114	39 - 141
Pentachlorophenol	0.0400	0.0341	J	ug/L		85	30 - 171
Picloram	0.100	0.127		ug/L		127	24 - 150
2,4-D	0.200	0.151		ug/L		76	24 - 138

Surrogate	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*97*		*70 - 130*

QC Association Summary

Client: ALS Environmental
Project/Site: 40-3269986

Job ID: 810-42921-1

GC Semi VOA

Prep Batch: 37210

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
810-42921-1	LOT-17-221020	Total/NA	Drinking Water	515.3	
MB 810-37210/1-B	Method Blank	Total/NA	Drinking Water	515.3	
LLCS 810-37210/2-B	Lab Control Sample	Total/NA	Drinking Water	515.3	

Cleanup Batch: 37244

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
810-42921-1	LOT-17-221020	Total/NA	Drinking Water	Aliquot	37210
MB 810-37210/1-B	Method Blank	Total/NA	Drinking Water	Aliquot	37210
LLCS 810-37210/2-B	Lab Control Sample	Total/NA	Drinking Water	Aliquot	37210

Analysis Batch: 37771

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
810-42921-1	LOT-17-221020	Total/NA	Drinking Water	515.3	37244
MB 810-37210/1-B	Method Blank	Total/NA	Drinking Water	515.3	37244
LLCS 810-37210/2-B	Lab Control Sample	Total/NA	Drinking Water	515.3	37244

Lab Chronicle

Client: ALS Environmental
Project/Site: 40-3269986

Job ID: 810-42921-1

Client Sample ID: LOT-17-221020
Date Collected: 10/20/22 10:00
Date Received: 10/27/22 13:30

Lab Sample ID: 810-42921-1
Matrix: Drinking Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	515.3			37210	ER	EA SB	11/02/22 10:13
Total/NA	Cleanup	Aliquot			37244	ER	EA SB	11/02/22 13:42
Total/NA	Analysis	515.3		1	37771	TL	EA SB	11/09/22 17:01

Laboratory References:

EA SB = Eurofins Eaton South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

Accreditation/Certification Summary

Client: ALS Environmental
Project/Site: 40-3269986

Job ID: 810-42921-1

Laboratory: Eurofins Eaton South Bend

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Pennsylvania	NELAP	68-00466	04-30-23

Method Summary

Client: ALS Environmental
Project/Site: 40-3269986

Job ID: 810-42921-1

Method	Method Description	Protocol	Laboratory
515.3	Herbicides (GC)	EPA	EA SB
515.3	Extraction of Chlorinated Acids	EPA-DW	EA SB
Aliquot	Preparation, Extract aliquot	None	EA SB

Protocol References:

EPA = US Environmental Protection Agency

EPA-DW = "Methods For The Determination Of Organic Compounds In Drinking Water", EPA/600/4-88/039, December 1988 And Its Supplements.

None = None

Laboratory References:

EA SB = Eurofins Eaton South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

Sample Summary

Client: ALS Environmental
Job ID: 810-42921-1
Project/Site: 40-3269986

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
810-42921-1	LOT-17-221020	Drinking Water	10/20/22 10:00	10/27/22 13:30

301 Fulling Mill Rd, Suite A
Middletown, PA 17057
P. 717-944-5541

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: of

ALS Quote #: 40-3269986

810-42921 Chain of Custody

Client Name: ALS Middletown

Address: 301 Fulling Mill Road
Middletown, PA 17057

Contact: Mr. George Methlie

Phone#: 717-944-5541

Project Name/#:

Bill To:

Purchase Order #: 40-3269986

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? [X] -Y NAMDT.Subcontract@alsglobal.com

Container Type	AG
Container Size	250mL
Preservative	ST

Unless otherwise Indicated, preservation indicates field filtration on applicable methods

ANALYSES/METHOD REQUESTED

Enter Number of Containers Per Sample or Field Results Below.

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	SDWA Sample Type (see key)	*G or C	**Matrix (See bottom of COC)	515.3
1	LOT-17-221020	10/20/22	10:00		G	DW	2
2							
3	... has suspect matrix, pass						
4	"DW" per G. Methlie				10-27-22		
5	TC 10-28-22						
6							
7							
8							
9							
10							

Client Provided Sample Container
250AG W1N42S203
Initial Temp: 1.0
Corrected Temp: 1.0
IR Gun #: 21
Wet

Receipt Information (completed by Receiving Lab)

Temp Taken By: Therm ID: WO Temp (°C)

Receipt Info completed by:________ WV Containers 0-6°C Y N NA

Cooler Custody Seals Intact	Y	N	NA
Sample Custody Seal Intact	Y	N	NA
Received on Ice	Y	N	NA
Coolers & Samples Intact	Y	N	
Correct Containers Provided	Y	N	
Sample Label/COC Agree	Y	N	
Adequate Sample Volumes	Y	N	
VOA only: Headspace Present	Y	N	NA
VOA only: Trip Blank	Y	N	NA
NJ ≤ 4 days?	Y	N	

Deviations? NO YES
If YES, list below:

Client contact:
Date/Tech:

Courier/Tracking #:________

Sample(s) for Radiation testing? Y N — Rad Screen (uCi)________
Reportable SDWA Sample(s)? Y N — New Source? Y N
SDWA State of Origin?________ — New Source Contact:
PWSID #________
PWS Contact:________ PWS Phone #:________

SDWA Sample Type Key: D=Distribution E=Entry Point R=Raw P=Plant C=Check S=Special A=Annual Startup

Sample/COC Remarks

New Source/ Not Reportable

Contains Short Hold Testing YES NO

Internal Use: If less than 48 hours - notify lab upon receipt

Circle Sample Collector: ALS Tech / Client
ID:

Comments:

Date:	Time		Relinquished By / Company Name		Received By / Company Name
10/27/22	1400	1	[signature]	2	[signature] EEA
		3		4	10-27-22 1330
		5		6	
		7		8	
		9		10	

Data Deliverables: [ ] Standard Lvl 1 [ ] Standard Lvl 2 [ ] Standard Lvl 3 [ ] Standard Lvl 4 [ ] CLP-like [ ] DOD [ ] NJ RED [ ] NJ Full [ ] HSCA [ ] Landfill [ ] NJ GW [ ]

EDD: [ ] Excel Summary [ ] Equis [ ] Custom

Sample Disposal: Lab [ ] Special [ ]

EDDS: Format Type

State Samples Collected In: [X] NY [ ] NJ [ ] PA [ ] WV [ ] FL MD other

* G=Grab; C=Composite **Matrix - A=Air; D=Drinking Water; GW=Groundwater; O=Oil; LW=Liquid Waste; S=Solid/Soil/Sludge; SW=Surface Water; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Suite A, Middletown, PA 17057

Rev 7.19.22

Login Sample Receipt Checklist

Client: ALS Environmental

Job Number: 810-42921-1

Login Number: 42921
List Number: 1
Creator: Spurgeon, Sheri

List Source: Eurofins Eaton South Bend

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Samples do not require splitting or compositing.	True	
Container provided by EEA	False	Client provided containers

G

RAMBOLL

ENVIRONMENT
& HEALTH

MEMO

Project name **Terramor Air Quality Services - Catskills**
Project no. **1940103256**
Client **Terramor**
Memo no. **1**
Version **Final**
To **Ahmed Helmi**
From **Julia Lester**
Copy to **Kim White**
Charles Gottlieb, Esq.
Jenny Mccullough
Kevin Franke
CherylAnn Whitmore, PE

Date December 2, 2022

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1 Introduction

1.1 Scope of the Document

Kampgrounds of America Inc. d/b/a Terramor is proposing construction of a campground with 75 camping spaces in the Town of Saugerties, Ulster County, New York. This report assesses potential impacts and proposed requirements related to campfire smoke from the proposed facility, specifically potential opacity, pollution, odor, and nuisance issues.

1.2 Project Description

The proposed facility is a 75 unit "glamping" campground including:

- 75 camping spaces with their individual bathroom facilities
- Welcome center building
- Lodge building with food and beverage services
- Swimming pool area
- Event lawn pavilion
- Wellness tent
- Walking trails
- Maintenance and laundry building
- Covered golf cart storage
- Employee housing for 32 employees (30 occupied & 2 for extra capacity if needed)
- Manager's residence
- Parking areas

The proposed project site is located within the Catskill Mountain Region on two (2) parcels totaling 77.51 acres in the Moderate Density Residential (MDR) zoning district. Figure 1 in **Attachment A** shows the project location.

Terramor is seeking site plan, special use permit, and subdivision approval from the Town of Saugerties Planning Board. The Ulster County Planning Board is also required to provide a review and the State Environmental Quality Review must be completed.

One feature of the proposed facility, the primary focus of this report, is campfire pits at each of the 75 camping spaces spread throughout the wooded project area. Wood campfires can happen at all hours, but based on the applicant's experience, the peak time is between 6:00 and 9:00 PM and some during 8:00 to 10:00 AM time frame. There is an at least 100' setback between the campfire locations and the property boundary in all but five instances (two are at least 50' and three are at least 75' from the property line). The shortest distance between the proposed camping spaces and the nearest residence has been estimated to be approximately 204 feet (near the western boundary of the project).

2 NPV Memorandum – Wood Smoke and Odor Provisions

2.1 Overview

Nelson Pope Vorhees (NPV), consultant to the Saugerties Planning Board, reviewed the proposed facility as part of the process required for the Saugerties Planning Board to issue a Special Use Permit (SUP). NPV prepared a memorandum dated July 22, 2022 (NPV Memorandum) summarizing their review of the most recent project related submittals. The NPV Memorandum, which has been included in **Attachment B** for reference, specifically identified the following area of concern related to wood smoke:

"At least 7 or 8 tent sites depict fire pits situated between the tent site and the property boundary. With the proposed design, a fire is likely to be visible from the existing residences and woodsmoke (both smell and visible smoke) could carry over to adjoining residential parcels."

As such, the NPV Memorandum outlines specific considerations of Zoning Code Section 245-34-D that require further review. Specifically, Zoning Code Section 245-34-D:

Wood smoke (air quality, opacity, odors, nuisance)

- (g) Smoke. No emission shall be permitted of a shade equal to or darker than Ringelmann Smoke Chart No. 2.
- (i) Other forms of pollution. No emission of fly ash, dust, smoke, vapors, gases or other forms of air pollution shall be permitted which can jeopardize human health, animal or vegetable life or which otherwise contributes to the deterioration of or detracts from adjacent properties.
- (h) Odors. No emission of odorous gases or other matter shall be permitted in a quantity or of a type that permits it to be detectable, other than by instrument, at the property line.
- (s) Nuisances. The proposed use shall not be more objectionable to nearby property owners or occupants by reason of noise, fumes, vibration or lighting than would be the operations of a permitted use.

As noted above, this report is intended to review these wood smoke and odor concerns.

3 Ramboll Analysis

3.1 Wood Smoke Characterization

The smoke from wood burning is made up of a complex mixture of gases and fine particles (*i.e.,* particulate pollution or particulate matter (PM)). PM is a mixture of solid particles (*i.e.,* filterable PM) and liquid droplets found in the air (*i.e.,* condensable PM). Filterable PM can further be broken down by particle size. For example, PM less than 10 microns in diameter (PM_{10}) and less than 2.5 microns in diameter ($PM_{2.5}$). Wood smoke can be in both of these size ranges. $PM_{2.5}$ is often responsible for reduced visibility or haze.

3.2 Ambient Air Quality Standards and Local Attainment Status

The United State Environmental Protection Agency (USEPA) has concluded that PM_{10} and $PM_{2.5}$ can have adverse health effects above specific concentrations (typically micrograms per cubic meter or $\mu g/m^3$). The Clean Air Act requires that USEPA establish and periodically review the National Air Quality Standards for each criteria air pollutant. This includes $PM_{10}/PM_{2.5}$, ground-level ozone, nitrogen oxides, carbon monoxide, sulfur dioxide and lead. Primary standards provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. The federal PM_{10} standard (both primary and secondary) is 150 $\mu g/m^3$ (24-hour average). The federal $PM_{2.5}$ standard (primary and secondary) is 35 $\mu g/m^3$ (24-hour average). The federal primary annual average $PM_{2.5}$ standard is 12 $\mu g/m^3$ (annual average); the secondary primary annual average $PM_{2.5}$ standard is 15 $\mu g/m^3$ (annual average).[1]

Ulster County, NY, which includes Saugerties, is in attainment for each federal criteria pollutant health standard, including for particulate matter (PM_{10} and $PM_{2.5}$)[2].

3.3 Regulatory Review

Ramboll reviewed New York State regulations for specific regulatory requirements that may apply to recreational campfires. Since Ulster County is an attainment area for the federal PM_{10} and $PM_{2.5}$ standards, there are no specific Clean Air Act requirements applicable to the area for control measures to attain the PM standards. It should be noted that even serious $PM_{10}/PM_{2.5}$ non-attainment areas do not include control measures specific to recreational campfires as part of their State Implementation Plans and attainment strategies.

3.3.1 New York State: Open Burning and Campfires Exemption

Open burning is prohibited in New York State with several exceptions. Title 6 of the New York State Codes, Rules and Regulations (6 NYCRR) Part 215 addresses the requirements for Open Fires. Pursuant to 6 NYCRR 215.1(a) "open fire" is defined as:

[1] https://www.epa.gov/criteria-air-pollutants/naaqs-table (accessed November 15, 2022).

[2] Counties Designated Nonattainment https://www3.epa.gov/airquality/greenbook/mapnpoll.html Accessed: November 2022

Any outdoor fire or outdoor smoke producing process from which air contaminants are emitted directly into the outdoor atmosphere. Open fires include burning in barrels or modified barrels. Open fires do not include burning in outdoor furnaces or boilers that are used to heat buildings when the devices are actually used for such purpose.

A campfire is an open fire. Pursuant to 6 NYCRR 215.1(c) "camp fire" is defined as:

A camp fire or any other outdoor open fire less than three feet in height, and less than four feet in length and width or diameter.

In accordance with 6 NYCRR 215.3(c) campfires are allowed provided only untreated wood is used as fuel and the fire is not left unattended until extinguished.

Assessment: Campfires at the proposed facility will be in compliance with NY State laws related to campfires so long as they only use untreated wood as fuel and each campfire is attended. In addition, the untreated wood made available at the site will meet the requirements outlined in 6 NYCRR 192.5 and source documentation will be maintained by Terramor.

3.3.2 Opacity

Opacity is a measure of the amount of light obscured by the particulate matter (PM) or soot. Smoke density or opacity limits are commonly incorporated into municipal, state, and federal regulations as a means of regulating sources of visual emissions. Opacity tests are typically performed for combustion equipment, as higher opacity is associated with inefficient fuel combustion, particularly for diesel and mixed fuels. Some of these regulations rely on the Ringelmann Smoke Chart, a set of charts representing graduated shades of gray, by which the density of a column of smoke rising from a source may be compared. The Ringelmann Smoke Chart is acknowledged to have many limitations. For example, the apparent darkness or opacity of a plume depends upon several factors including the concentration and size of the particulate matter in the plume, the depth of the smoke column being observed, the natural lighting conditions and positioning of the sun relative to the observer, and the color of the smoke particles. Despite these limitations, the Ringelmann Smoke Chart can give good practical results when used by well-trained operators. In 1974, the USEPA stopped using Ringelmann Smoke Chart in New Source Performance Standards (NSPS) when the revised USEPA Method 9 – *Visual Determination of the Opacity of Emissions from Stationary Sources* was promulgated. Opacity is evaluated as an average of 24 consecutive observations recorded in 15-second intervals (6-minute averaging period) unless an alternative time period is specified in the regulation or standard (*e.g.,* some NSPS specify a 3-minute averaging period). The USEPA conducted extensive field studies on the accuracy and reliability of the revised Method 9 and showed that visible emissions can be accurately assessed under the method by properly trained and certified observers[3]. For regulatory determinations, a trained and generally certified Visual Emissions Evaluation (VEE) is required to make a determination (https://www.epa.gov/emc/method-9-visual-opacity). Consistent with 6 NYCRR, wood-only campfires are explicitly excluded from open burning requirements, including opacity limits, in open burning

[3] References:
Eastern Technical Associates and Entrophy Environmentalist, Inc. 1993. Visible Emissions Field Manual – EPA Methods 9 and 22. EPA 340/1-92-004. December. Available at: https://www3.epa.gov/ttnemc01/methods/VEFieldManual.pdf. Accessed: September 2022.
United States Department of the Interior. 1967. Ringelmann Smoke Chart (Revision of IC 7718). Bureau of Mines. May. Available at: https://www.cdc.gov/niosh/mining/userfiles/works/pdfs/ic8333.pdf. Accessed: September 2022.

regulations in PM non-attainment and attainment areas.[4] This is in contrast to explicit opacity requirements for diesel equipment and large-scale and/or mixed-fuel open burning.

Saugerties Zoning Code 245-34-D(g), which specifically addresses "Smoke", states that "[n]o emission shall be permitted of a shade equal to or darker than Ringelmann Smoke Chart No. 2." It does not appear as if the Zoning Code includes reference to regulatory methods to evaluate Ringelmann levels or reference to the current visual opacity metric (*i.e.,* percent opacity) and its regulatory methods. (As a note, Ringelmann Smoke Chart No. 2 is generally equivalent to an opacity reading of 40%.)

Assessment: Regulatory opacity reading methodologies require multiple observations by trained observers over required intervals and time periods. As such, they are difficult to use on highly-variable, transient sources such as small campfires. Campfires, by their nature, are small open-air combustion sources characterized by more efficient combustion of smaller amounts of fuel compared to sources with explicit opacity requirements such as diesel combustion engines/equipment and larger open air burning of mixed (*e.g.*, not untreated wood only) fuels. In addition, key observation metrics (*e.g.,* the natural lighting conditions and positioning of the sun relative to the observer) may be difficult to achieve for readings of campfire smoke in wooded and low-light conditions. In addition, the campfires will only be using untreated wood as fuel, which would minimize dense and/or darker smoke associated with more general burning, consistent with the 6 NYCRR 215.3(c) exemption of untreated wood-only campfires from open burning regulatory requirements. Wood-only campfires are too small and well-provided with oxygen to expect the type of dark smoke equal or darker than Ringelmann Smoke Chart No. 2 (or related opacity metrics), even if the regulatory methods could be accurately applied to them.

3.4 Odor and Nuisance

As noted in the NPV Memorandum, "*At least 7 or 8 tent sites depict fire pits situated between the tent site and the property boundary. With the proposed design, a fire is likely to be visible from the existing residences and woodsmoke (both smell and visible smoke) could carry over to adjoining residential parcels."* Wood smoke contains many different chemical compounds that can be detected by the human olfactory system and, for certain compounds, by instruments. The detection by the human sense of smell is highly variable in the human population. The cause of this variation is the variation in genetics that manifests in the diversity of the global human population.[5] Small differences in olfactory receptor genes, which are extremely common in humans, can affect the way each receptor functions. These genetic differences mean that when two people smell the same molecule, one person may detect a floral odor while another smells nothing at all.[6] The proposed provision that "No emission of odorous gases or other matter shall be permitted in a quantity or of a type that permits it to be detectable, other than by

[4] Imperial County Air Pollution Control District. Exemption C.7 in Rule 421. Available at: https://apcd.imperialcounty.org/wp-content/uploads/2020/05/1RULE421.pdf. Accessed November 2022.
South Coast Air Quality Management District. Exemptions (h)(6)(A) and (B) in Rule 444. Available at http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-444.pdf?sfvrsn=4 Accessed November 2022.
British Columbia Open Burning Smoke Control Regulation. Available at: https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/152_2019/#section4. Accessed November 2022
Florida Department of Environment Protection – Open Burning. Available at https://floridadep.gov/air/permitting-compliance/content/open-burning. Accessed November 2022.
San Diego County Air Pollution Control District. Exemption (b)(1)(ii) in Rule 101. Available at: https://www.sdapcd.org/content/dam/sdapcd/documents/rules/current-rules/Rule-101.pdf. Accessed November 2022.

[5] Logan DW. Do you smell what I smell? Genetic variation in olfactory perception. Biochem Soc Trans. 2014 Aug;42(4):861-5. doi: 10.1042/BST20140052. PMID: 25109969. Accessed November 2022.

[6] Monell Chemical Senses Center. "Do you smell what I smell? From genes to receptors to perception: Olfaction unraveled." ScienceDaily. ScienceDaily, 30 April 2019. Available at www.sciencedaily.com/releases/2019/04/190430164208.htm. Accessed November 2022.

instrument, at the property line" is highly restrictive, in that certain individuals can be highly sensitive to an odor of a specific chemical component of wood smoke odors and a different individual may not detect that same odor or perceive it in the same manner. Definition of "detectable" in zoning code condition does not appear to be further defined nor is the type or impact of the odor qualified. In the code section on nuisance (Zoning Code Section 245-34-D (s), it specifically refers to "objectionable" by reason on fumes; although this is still subjective, it does provide more specificity as to the type of odor that is of concern.

Campfires at the proposed facility will only be allowed to use untreated wood as fuel, minimizing or eliminating certain odorous emissions. In addition, the project campfires are located in a wooded area. Vegetation is a known mitigation of PM concentrations, including organic aerosol compounds.[7] For example, reductions of fine particulate concentrations of 55-88% have been reported, particularly at lower windspeeds when concentrations are expected to be higher (*e.g.,* not dispersed to lower concentrations by the wind).[8] This should also reduce potential fumes and odors. We note that fireplace and residential outdoor fire pits are not restricted in Saugerties. Thus, similar wood smoke compounds and odors are likely already in the area.

4 Ramboll Summary and Conclusions

Ramboll reviewed the NPV memorandum's analysis and recommendations related to wood smoke. The conclusions below are based on the analysis in Section 3 above.

Zoning Code 245-34-D(g) Smoke. No emission shall be permitted of a shade equal to or darker than Ringelmann Smoke Chart No. 2.

Campfires at the proposed facility will only be allowed to use untreated wood as fuel and each campfire will be attended. We note that the Zoning Code does not reference how Ringelmann determinations will be made (*e.g.,* methodology, certified readers, newer opacity techniques) and our experience suggests that regulatory opacity readings on campfire smoke on the property may not be possible. Regardless, it is not anticipated that project campfires would result in Ringelmann Smoke Chart No. 2 (*i.e.,* 40% opacity) or greater levels because the campfires will only be using untreated wood as fuel, which would minimize dense and/or darker smoke associated with incomplete diesel combustion and larger-scale mixed-fuel open burning.

Zoning Code 245-34-D(i): Other forms of pollution. No emission of fly ash, dust, smoke, vapors, gases or other forms of air pollution shall be permitted which can jeopardize human health, animal or vegetable life or which otherwise contributes to the deterioration of or detracts from adjacent properties.

Ulster County is an attainment area for primary and secondary federal PM_{10} and $PM_{2.5}$ standards and there are no specific Clean Air Act requirements for PM control measures on campfires to attain or maintain these health standards in this area. Thus, it would not be expected that the campfire wood smoke from the project would jeopardize human health (*i.e.*, no exceedances of the primary PM

[7] EPA Workshop. The Role of Vegetation in Mitigating Air Quality Impacts from Traffic Emissions Seminar, EPA Campus, RTP, NC, April 27-2,2010. Available at: https://archive.epa.gov/nrmrl/archive-appcd/web/html/workshop.html. Accessed: November 2022.

[8] Available at: https://archive.epa.gov/nrmrl/archive-appcd/web/pdf/2bcahill2.pdf. Accessed November 2022.

standards) or animal / vegetable life or decreased visibility (*i.e.*, no exceedances of the secondary PM standards). 6 NYCRR 215.3(c) exempts wood-only campfires from open burning regulatory requirements. In addition, the project campfires are located in a wooded area. Vegetation is a known mitigation of PM concentrations.[9] For example, reductions of fine particulate concentrations of 55-88% have been reported, particularly at lower windspeeds when concentrations are expected to be higher (*e.g.,* not dispersed to lower concentrations by the wind).[10]

Zoning Code 245-34-D(h): Odors. No emission of odorous gases or other matter shall be permitted in a quantity or of a type that permits it to be detectable, other than by instrument, at the property line.

It is not anticipated that wood smoke fumes from the project would be a nuisance because they are dispersed over the project area, vegetation in the project area would reduce wood smoke compound concentrations, the campfires are only fueled by untreated wood (eliminating potential nuisance compounds), and distances to all but five of the fire pits are over 100' from the property line (two of which are at least 50' and three are at least 75' from the property line).

Zoning Code 245-34-D(s) Nuisances. The proposed use shall not be more objectionable to nearby property owners or occupants by reason of noise, fumes, vibration or lighting than would be the operations of a permitted use.

Ramboll's analysis is confined to the potential fume impacts from the campfire woodsmoke. Campfires at the proposed facility will only be allowed to use untreated wood as fuel, minimizing or eliminating certain odorous emissions. In addition, the project campfires are located in a wooded area. Vegetation is a known mitigation of PM concentrations, including organic aerosol compounds.[11] For example, reductions of fine particulate concentrations of 55-88% have been reported, particularly at lower windspeeds when concentrations are expected to be higher (*e.g.*, not dispersed to lower concentrations by the wind).[12] This should also reduce any potential fumes. We note that fireplace and residential outdoor fire pits are not restricted in Saugerties. Thus, similar wood smoke odors are likely already in the area. It is not anticipated that wood smoke fumes from the project would be a nuisance because they are dispersed over the project area, vegetation in the project area would reduce wood smoke compound concentrations, the campfires are only fueled by wood (eliminating potential nuisance compounds), and distances to all but five of the fire pits are over 100' from the property line (two of which are at least 50' and three are at least 75' from the property line).

Based on the above assessment, we find that project's use of campfires would not have appreciable impacts on air quality or odor, in part because the project design includes multiple mitigating effects ((*e.g.*, use of untreated wood only for campfires, vegetation around camping spaces, setbacks between camping spaces and the property boundary, etc.).

Attachments: A. Figure 1 - Site Location Map
B. NPV Memorandum

[9] EPA Workshop. The Role of Vegetation in Mitigating Air Quality Impacts from Traffic Emissions Seminar, EPA Campus, RTP, NC, April 27-2,2010. Available at: https://archive.epa.gov/nrmrl/archive-appcd/web/html/workshop.html. Accessed: November 2022.

[10] Available at: https://archive.epa.gov/nrmrl/archive-appcd/web/pdf/2bcahill2.pdf. Accessed November 2022.

[11] EPA Workshop. The Role of Vegetation in Mitigating Air Quality Impacts from Traffic Emissions Seminar, EPA Campus, RTP, NC, April 27-2,2010. Available at: https://archive.epa.gov/nrmrl/archive-appcd/web/html/workshop.html. Accessed: November 2022.

[12] Available at: https://archive.epa.gov/nrmrl/archive-appcd/web/pdf/2bcahill2.pdf. Accessed November 2022.

ATTACHMENT A
FIGURE 1 – SITE LOCATION MAP

\\files\Projects\REH2022N024XX\REH2022N02498\Drawing\FigureOne_SiteLocation.mxd

PROJECT: 1940103256 | DATED: 11/11/2022

SITE LOCATION MAP

FIGURE 1

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC
A RAMBOLL COMPANY

Terramor Catskills
NY Route 212
Saugerties, NY 12477

0 500 1,000 Feet

RAMBOLL

ATTACHMENT B
NPV MEMORANDUM

NELSON POPE VOORHIS
environmental • land use • planning

MEMORANDUM

TO: Howard Post, Planning Board Chair
Members, Saugerties Planning Board

FROM: Adriana Beltrani, AICP
Max Stach, AICP

RE: Terramor Catskills; SBL 27.2-8-28/32.110

DATE: July 11, 2022

CC: Kevin Franke Applicant Representative
Ahmed Helmi, Applicant Representative
Becky Bertorelli, Planning Board Clerk
Alvah Weeks, Building Inspector
Dennis Larios, P.E., Town Engineer

We are in receipt of the following items:

- Determination from Alvah Weeks, Building Inspector, dated June 6, 2022;
- Cover Letter prepared by Kevin Franke, dated July 1, 2022;
- Site Plan Application not signed, dated July 1, 2022;
- Responses to NPV Sketch Plan Comments, prepared by Kevin J. Franke, dated July 1, 2022;
- Site Plan Set, 86 sheets dated July 1, 2022 including:
    - Boundary Survey prepared by Ausfelt & Waldruff Land Surveyors, LLP
    - Landscape Plans including Existing and Proposed Conditions, Grading and Drainage, Road Profiles, Lighting, Materials and Planting Plan, prepared by the LA Group
    - Architectural Drawings prepared by Design Group Collaborative
    - Sewer and Water Engineering Plans Prepared by C.T. Male Associates
- Lighting Cut Sheets, 37 sheets dated July 1, 2021
- Full EAF Part 1 prepared by Kimberly White, dated July 1, 2022
- Ground Water Sampling Results prepared by ALPHA Geoscience dated December 21, 2021
- Traffic Impact Study prepared by GPI, dated June 2022
- Stormwater Pol
- Wastewater Basis of Design Report
- Water Supply Basis of Design Report

We previously reviewed additional documents, enumerated in our March 11, 2022 memorandum.

The applicant seeks site plan and special use permit approval for a 75 unit "glamping" campground including a wellness center, activity lawns, swimming pool, lodge and facility operations including a maintenance facility, golf cart storage and on-site employee housing. The project is proposed on two (2) parcels totaling 77.51 acres in the Moderate Density Residential (MDR) zoning district. The applicant proposes to gain primary access from Route 212 with emergency access via Cotton Tail Lane.

We have been as thorough as possible in our review but given the size of this submission and time allotted to review, it is likely that we may have additional comments as the planning and review process proceeds. Our comments are as follows:

Process

1. The Lead Agency Notice of Intent for this Type I action should be circulated along with the Full EAF Part 1 form and a copy of the application. Due to the voluminous size of the application, the Board may wish to send flash drives or provide a link to the document posted online in lieu of paper copies. If so, the Lead Agency NOI should indicate how involved and interested agencies may request paper copies.
    a. The Board must wait 30 days to assume Lead Agency status and proceed with SEQR review, as detailed below.

2. Ulster County Planning Board review is required. The plans and required forms should be submitted at this time.

3. The project site borders the Town Boundary with the Town of Woodstock. Pursuant to GML §239-nn, the clerk of the Town will need to receive written notice of the public hearing for this application. We suggest including the Town of Woodstock as an interested agency for SEQR review.

4. Comment or correspondence should be solicited from the following organization or agencies in addition to any others identified by the Planning Board:
    a. Centerville Fire Department
    b. NYS DEC regarding disturbance to wetlands and waterbodies, wastewater (SPDES), biodiversity and bulk petroleum storage
    c. US ACOE for jurisdictional determination of wetlands, possible disturbance permits
    d. NYS DOT for curb cut permit and sight distance review
    e. UC DOH/NYS DOH for public water supply and wastewater permitting, campground permitting, public swimming pool permitting
    f. Town Engineer for SWPPP, water/wastewater and site plan review.

5. The Board should consider engaging with a traffic engineer to review the Traffic Impact Study.

6. The Board may wish to forward the plans, particularly the architectural drawings, to the Building Department for Building Inspector review to ensure that applicable codes are met which might relate to the site plan and layout (see comments below).

7. A public hearing will be required for special use permit review.

Application

1. The applicant proposes to merge the two parcels as part of the application, a subdivision application will be required and should be coordinated through the Planning Board secretary.

2. The application forms must be signed by the preparer.

Planning & Zoning

3. In issuing a Special Use Permit, the Planning Board must consider the supplemental requirements set forth in the zoning code and can request additional studies or analyses to support its review. Based on our review, specific consideration of the following provisions is warranted:
    <u>§245-34.D states:</u>

a. (g) Smoke. No emission shall be permitted of a shade equal to or darker than Ringelmann Smoke Chart No. 2.
b. (h) Odors. No emission of odorous gases or other matter shall be permitted in a quantity or of a type that permits it to be detectable, other than by instrument, at the property line.
c. (i) Other forms of pollution. No emission of fly ash, dust, smoke, vapors, gases or other forms of air pollution shall be permitted which can jeopardize human health, animal or vegetable life or which otherwise contributes to the deterioration of or detracts from adjacent properties.
d. (o)Character and appearance. The character and appearance of the proposed use, buildings, structures, outdoor signs, and lighting shall be in general harmony with the character and appearance of the surrounding neighborhood and of the Town of Saugerties and shall not adversely affect the general welfare of the inhabitants of the Town.
e. (q) Sewage treatment and water supply. The adequacy of available sewage disposal and water supply services supporting the proposed activity or use shall be sufficient to meet the needs of the proposed activity or use. This consideration shall include, but not be limited to, the suitability of water supply and sanitary sewage facilities to accommodate the intended use and adequate means to protect surface and groundwater from pollution.
f. (s) Nuisances. The proposed use shall not be more objectionable to nearby property owners or occupants by reason of noise, fumes, vibration or lighting than would be the operations of a permitted use.
g. (v) The design of structures and the operation of the use (including hours of operation) shall ensure compatibility with surrounding uses and with the scenic and visual characteristics of the Town.

<u>§245-11.I includes the following paraphrased considerations:</u>

h. The Planning Board shall consider the following: Overcrowding of units; and the extent to which noise or light interferes with the use and enjoyment of surrounding properties.

4. Campsites are now proposed along the western boundary of the site which are located near to existing residences and residential lot lines. A field investigation conducted on June 7, 2022 showed these sites are clearly visible from these existing residences. While forest cover is shown on the plans as a buffer, the forest cover actually lacks significant understory, consistent with mature eastern hemlock forests. At least 7 or 8 tent sites depict fire pits situated between the tent site and the property boundary. With the proposed design, a fire is likely to be visible from the existing residences and woodsmoke (both smell and visible smoke) could carry over to adjoining residential parcels. (See below image which depicts a residential structure from a camp site proposed at the time.)
    i. The applicant should suggest methods to ensure that these sites meet the above referenced special permit standards with relation to screening and buffering campsites and campfires from adjacent residences.

5. An inventory of buildings on the site should be provided on the Project Master Plan Sheet L-2.0 indicating the name of the building, gross building square footage and/or seats, beds or maximum occupancy for staff and guests. In addition, the 'Woody 35' and 'Woody 45' sized tents should be more clearly indicated on the plans. Currently the only enumeration of the number and breakdown of campsite types is within the Water Supply BOD report. If these tents are intended to be interchangeable, the Planning Board may wish to establish limitations on the total number of the larger tent to reflect the water use/wastewater generation and traffic studies.

6. The comment response letter states that the maximum capacity of a Woody 35 tent is 6 people and for a Woody 45 tent is 8 people. This equates to a capacity of 510 guests at the facility. The Water and Wastewater Basis of Design Reports indicate that the maximum capacity of the campsites is 240, which vastly underrepresents the possible worst-case scenario.
    j. It seems that these lower numbers are based on average occupancy rates from the Bar Harbor site. We question whether this Bar Harbor site is representative of the proposed site in terms of market economics and demographics.
    k. We defer to the Town Engineer on what standard to design a water or wastewater system, but to meet the hard-look requirement under SEQR, a "reasonable worst-case standard" should be utilized, which would be related to full occupancy, or if full occupancy is not reasonably likely to occur, then some percentage of full occupancy that is reasonably likely to occur. The Planning Board may wish to impose an occupancy restriction based on the capacity outlined by the applicant to establish environmental determinations and/or findings, and for the wastewater and potable water facilities.

7. We question whether traffic impacts from this resort campground should be assessed as a traditional campground/RV park or as a resort hotel. We suggest that the Planning Board engage with a Traffic Engineer to review this and other traffic related questions.

8. Sheets A213, A214. The arrangement of beds for guest tents should be shown on the architectural plans, and it should be indicated whether these beds are single or bunk beds. We note that "Tent 2" (we assume this is the Woody 45 model) has two bedrooms while "Tent 1" has one bedroom. It appears that an indoor and an outdoor shower is proposed for each unit-this should be confirmed.

9. The capacity of employee housing does not match between the architectural drawings, the water and wastewater BOD reports, the comment response letter or the EAF project description. The BOD report states that 6 dorm units are proposed for 30 workers. This would require five beds per dorm building. Dorm buildings depicted on sheet A210 show 3 beds. If these represent bunk beds, then 36 employees can be accommodated with 6 to a dorm building.
    l. Further, the comment response letter states that 4 structures are proposed to house 5 employees each, and 2 structures are proposed with a capacity for 4 employees each. Sheet A212 depicts the studio units with two rooms each containing a full-sized bed. We assume that these are the 2 structures proposed to house 4 employees each. Is this housing for couples only?
    m. The number of Dorm and Studio units must be called out on the Master Plan Sheet L-2.0.

10. The BOD report indicates that the General Manager's House contains bedrooms, but three bedrooms are shown on the Architectural Drawings. Are these bedrooms intended to house employees or family members? The Planning Board may wish to limit occupancy to only the manager and/or their family, especially if water and sewer usage for this building is based on a single family detached residence.

11. The number of residential and non-residential employees and/or non-employee residents should be established. The comment response letter states that 42 employees are anticipated, split into two shifts. The letter totals 28 on-site employees, while the architectural drawings and BOD report indicate up to 48 individuals could be accommodated within the dorm and studio units. This calculation does not include the General Manager's House, as the capacity of this building is not clear (comment #8).

12. The single kitchen provided does not appear to be large enough to support between 24-42 residential employees, especially if meals are prepared individually by residents at mealtimes. Please verify that the single kitchen devoted to these employees is enough.

13. The Building Inspectors should review the site, building and floor plans to ensure compliance with the Americans with Disabilities Act (ADA) and other applicable building codes that could impact site design. We believe this may be a concern with regard to employee housing as depicted in the architectural plans.

14. We have counted 168 parking spaces. A parking calculation reflecting the maximum capacity of the resort should be included on the site plans which differentiates guest parking from employee parking. The Planning Board shall determine the appropriate number of parking spaces (245-29(a)).

15. From where will firewood be sourced? Please verify that all firewood will comply with NYS DEC requirements of 6 NYCRR 192.5.

16. Seasonality. The timing of activities and occupancy of the site must be clarified. Is the General Manager on site year-round? Are events proposed to take place during a full 12-month period or only from May-October?

17. Dumpsters should be called out on the plans.

18. We note that 2-3 box truck deliveries could occur per day. Is this anticipated year-round? Where and when are these deliveries received? It appears that loading space is accommodated only at the maintenance buildings and the Lodge.

19. Is the restaurant at the lodge open to the public or to guests only?

20. While the notes sheet lists a diversity of plantings, the landscape plans indicate only the type of planting proposed (evergreen tree, deciduous tree etc). More detail should be submitted regarding landscaping given the ecological importance of the site.

21. Three (3) propane storage tanks are proposed totaling 30,000 gallons – is each tank 10,000 gallons? These should be clearly marked on the site plans. Liquid propane stored on site must demonstrate compliance with 6CRR-NY 613-4.1. The applicant should submit drawings, construction details and a narrative or correspondence with NYS DEC that demonstrates propane tanks are protective of sensitive receptors referenced in the law. (Law section linked here)

22. We defer review of the erosion and sediment control plans, grading plans, road profiles, construction details, water and wastewater concept plans and the SWPPP to the Town Engineer.

SEQR/Environmental Review

23. This is a Type I action under SEQR as more than 10 acres is proposed to be physically altered. The Board should classify the action and notice its intent to assume Lead Agency (a draft NOI is attached). The Board must allow involved agencies 30 days to contest Lead Agency before taking any further SEQR action.

24. In general, all correspondence with agencies and studies conducted should be provided to the Planning Board. This includes letters or correspondence with the NYS DEC and NYS Department of Health. The wetland delineation report should be provided along with the request for jurisdictional determination. It is typical for State agencies to provide formal letters upon receipt of the SEQR NOI.

25. The Ducks Unlimited wetland mitigation program is a new program in the State of New York. It is unclear if this program has even been authorized at this time. We request documentation from NYS DEC to confirm that this is a feasible and appropriate mitigation. The applicant should also provide the Board with additional information about the Ducks Unlimited program, and its applicability in the State of New York.

26. We have reviewed the long EAF Part 1 and have the following comments:
    a. C.2.c- The project site is part of an “Important Natural Area”, within the Catskill Mountain physiographic area, Map 2, of the Open Space Plan. Further, the Open Space Vision Map calls out this physiographic area, including the project site. The response to this question should be “yes.”

b. D.2.b- We note that 19.13 acres are proposed to be disturbed. We defer to the Town Engineer and NYS DEC in the review of the SWPPP. This should be reconciled with the land cover changes indicated in Table I.1.a which indicate the reduction of only 5.0 acres of wetland and forest. Since almost the entirety of the existing site is forest and wetland it is difficult to reconcile without further explanation.
c. D.1.e- We note that the proposed project will be conducted over the course of a 14-month period. Construction phasing or sequencing should be discussed.
d. D.2.f- Regarding employee housing, clarification is needed and water/wastewater calculations must match the actual proposed accommodations on site.
e. D.2.g- Please ensure that architectural drawings match EAF. The lodge appears to be 111 feet long on plans.
f. D.2.b- See above discussion of Ducks Unlimited mitigation. In addition, part ii is left blank where the applicant proposes stream disturbances. The extent and nature of the stream disturbances should be explained, even if temporary. NYS DEC permits may be required for disturbances to the bed or banks of Class B streams, ie "protected streams."
g. D.2.c, d- We note that the water and wastewater calculations may not be based on the maximum capacity of the facility per above comments.
    i. In addition, a SPDES permit will be required from NYSDEC to discharge effluent from the proposed wastewater treatment plant into a protected, Class B stream.
    ii. We note that 5 acres of impervious surface is proposed as a result of this project and defer a review of stormwater management practices to the Town Engineer.
h. D2j- The number of parking spaces does not match the number we counted on the plans, this should be confirmed (166 or 168?). Please see our comments regarding the TIS and parking above.
i. D2j- EV charging stations are proposed, these must be shown on the site plans.
j. D2k- Please confirm the estimated annual electricity demand. The response is missing a zero or the comma is incorrect. A willingness to serve letter from the local utility should be provided.
    i. Does this calculation include the proposed EV charging stations?
k. D2o- We note that wood campfires are to be permitted at all hours. This may produce odors for more than one hour per day.
l. D2p- See above comment referencing bulk storage of liquid propane.
m. D2q- Treatments are proposed for mosquito and tick control 2-3 times per year. Information regarding the chemicals proposed, application methodologies, safety, hazards and any required permits must be provided.
n. E1h- We defer to the Town Engineer regarding water quality assessment.
o. E2h- The project site is within five miles of Big Indian Wilderness and Overlook Mountain. This response should be "yes."

27. Based on a review of the Part 1 EAF, we have provided the Board with a draft Part 2 EAF to review. The Part 2 cannot be adopted until the Board declares Lead Agency, 30 days from circulation of the attached NOI. The Part 2 identifies the following potential impacts, to be reviewed and confirmed by the Board at the next meeting:
    p. Impacts on Land
    q. Impacts on Surface Water
    r. Impacts on groundwater
    s. Impact on Plants and Animals
    t. Impact on Agricultural Resources
    u. Impact on Open Space and Recreation
    v. Impact on Transportation

w. Impact on Noise, Odor and Light
x. Impact on Human Health

Further Review is needed by the Planning Board to determine whether the proposed action may impact the following:

y. Consistency with Community Plans (see comment 28)
z. Consistency with Community Character (See comment 29)

28. When considering the proposed action's consistency with Community Plans, the Board should consider whether this project is consistent with the Town of Saugerties 2020 Comprehensive Plan. In particular, NYS DEC guidance states: "How do the vision and goals described in these plans compare with various elements of the proposed project? Do any elements of the proposed project conflict with the vision, goals, and strategies outlined in any of these adopted plans?"
    aa. We have attached pages from the Comprehensive Plan that enumerate recommendations related to Land Use and Development (#6), Economics (Diversify Economic Base, Goal #9) and Tourism (#13). The following are the goal statements:
        i. #6: "The Town and Village support, and encourage, planning policies that promote environmentally sound development (see Glossary) in all zoning districts and are responsive to the socioeconomic needs of the communities. These two factors must be balanced. The open spaces and rural aspects of the area are not replaceable, and any development should be well thought-out and planned with the future in mind. The Comprehensive Plan also seeks to strike a balance between open space conservation and economic development as stated in the Open Space Plan."
        ii. #9: "The Town and the Village should attempt to diversify its economic base by encouraging a variety of business and employment opportunities."
        iii. #13: "Promotion of tourism will be well-planned to maximize its economic benefit to the community. Tourism is important to many town businesses. In promoting tourism and it benefits, the community must consider the potential impacts of tourism development, such as additional parking demands, increased traffic, and pollution."

29. When considering the proposed action's consistency with Community Character, the Board should consider the following NYS DEC guidance:
    bb. "Community character is defined by all the man-made and natural features of the area. It includes the visual character of a town, village, or city, and its visual landscape; but also includes the buildings and structures and their uses, the natural environment, activities, town services, and local policies that are in place…Changes to the type and intensity of land use, housing, public services, aesthetic quality, and to the balance between residential and commercial uses can all change community character."

H

Prepared for

Terramor Catskills

Indiana Bat and Northern Long-Eared Bat Habitat and Acoustic Survey

Terramor Catskills Site, Town of Saugerties, Ulster County, NY

5 October 2022

Edgewood Environmental Consulting, LLC

Thinking Outside.

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Indiana Bat and Northern Long-Eared Bat Habitat and Acoustic Survey

Terramor Catskills Site, Town of Saugerties, Ulster County, NY

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ACRONYMS AND ABBREVIATIONS

Name	Description
Ac	Acre
AMSL	Above Mean Sea Level
BCM	Bat Conservation and Management
°C	Degrees Celsius
CA	California
cm	Centimeter
CWB	Certified Wildlife Biologist®
dB	Decibels
DBH	Diameter at Breast Height
DD	Decimal Degrees
EDT	Eastern Daylight Time
ERM	Environmental Resource Management
°F	Degrees Fahrenheit
Fc	Characteristic Frequency
Fmax	Maximum Frequency
Fmin	Minimum Frequency
FS	Full Spectrum
GB	Gigabyte
GPS	Global Positioning System
In	Inches
IPaC	Information for Planning and Consultation system (USFWS)
kHz	Kilohertz
km	Kilometer
KS	Kansas
LLC	Limited Liability Corporation
Ltd.	Limited
m	Meter
m/s	Meters per second
ms	Milliseconds
MA	Massachusetts
mi	Mile(s)
MLE	Maximum Likelihood Estimator
Mph	Miles per hour
NWS	National Weather Service
NY	New York
NYNHP	New York Natural Heritage Program
NYSDEC	New York State Department of Environmental Conservation
o/s	Octaves per second (unit of slope)
Sc	Characteristic Slope
SD	Secure Digital
Sec	Seconds
USFWS	United States Fish & Wildlife Service
UTC	Universal Time Coordinated (formerly Greenwich Mean Time)
v.	Version
WGS84	World Geodetic System 1984 (geodetic datum)
ZC	Zero Crossing

1. INTRODUCTION

Terramor Outdoor Resorts (Terramor, or Project Sponsor) proposes to develop the Terramor Catskills Outdoor Resort Project (Project) on a 77.4-acre parcel located west of State Route 212 (Saugerties-Woodstock Road), and south of Glasco Turnpike in the Town of Saugerties, Ulster County, New York (Project Site). The Project will be a public camping and outdoor recreation resort.

Routine environmental due diligence review indicated that the endangered species, Indiana Bat (*Myotis sodaliis*), may occur in the vicinity of the Project Site[1] (***Appendix A***). Due to the presence of wetlands on the Project Site, permitting of the proposed Project may require U.S. Army Corps of Engineers' (USACE) authorization for wetland crossings or discharges. General Condition #18 of the Clean Water Act (CWA) Section 404 Nationwide General Permits (NWPs) requires that, "Non-federal permittees must submit a preconstruction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the activity...and shall not begin work on the activity until notified by the district engineer that the requirements of the [Endangered Species Act] have been satisfied and that the activity is authorized." Therefore, the Project Sponsor retained Edgewood Environmental Consulting, LLC (Edgewood) to conduct a habitat assessment and Phase 2 acoustic presence/probable absence survey of the Project Site to determine whether this listed species actually uses the Site. Whereas the threatened Northern Long-eared Bat (*Myotis septentrionalis*) was not indicated by either the U.S. Fish & Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) system, nor the New York State Department of Environmental Conservation's online Environmental Resource Mapper, it is currently under consideration for listing to endangered status, and was once considered to be virtually ubiquitous in the Northeast. Therefore, Edgewood conducted the survey with sufficient effort to detect both species. Edgewood conducted this study from 31 July to 3 August 2022 with additional documentation of site conditions on 21 September 2022, and this report outlines the methods and findings of the study.

1.1 Site Location, Description, and Surrounding Landscape

The Project Site was located on an undeveloped 77.4-acre parcel situated on the west side of Saugerties-Woodstock Road, south of Glasco Turnpike in the Town of Saugerties, Ulster County, New York (see ***Figure 1. Site Location Map***). Coordinates of a central point on the Site were 42.049596°N, 74.074725°W (WGS84 Datum, New York Plane Projection). Ecological cover types on the Project Site include hemlock-northern hardwood forest, successional northern hardwood forest, red maple-hardwood swamp, hemlock-hardwood swamp, eutrophic pond (woodland pool), midreach stream, and unpaved road/path (see ***Figure 2, Habitat Cover Type Map***). Elevations on the site range from ±428 feet to ±534 feet above mean sea level (AMSL), and the terrain on site could be described as rolling hills. Habitats around the Project Site include large expanses of mixed age successional evergreen and hardwood forest with low-density residential and commercial development interspersed along roads in the region. Potential access to the site is available from Saugerties-Woodstock Road (State Route 212) on the eastern side of the Site, and also from Cottontail Lane from the north.

[1] U.S. Fish & Wildlife Service. 2022. Information for Planning and Consultation Website. https://ipac.ecosphere.fws.gov/location/KTC2CEB5ZBBBNKVG5JTZ3MMAZI/resources, Accessed 06 July 2022.

1.2 Indiana Bat and Northern Long-Eared Bat Habitat Requirements

In order to assess potential habitat for bats it is necessary to understand how bats use their habitats. Potential bat habitats should provide a range of resources for bats at multiple spatial scales. These resources may include hibernacula (hibernation sites), roost structures, food and foraging space, water, and protective cover. They should also have habitat corridors to allow them to disperse or travel across the landscape to migrate, find food, and move among multiple roosts. Indiana bats and northern long-eared bats are both known to hibernate in caves or mines underground. Northern long-eared bats have also been found hibernating in building basements and beneath frame buildings in areas that lack subsurface caves or mines.

Spring and summer roost structures for both species are typically trees, although both have been known to occasionally roost in man-made structures. Indiana bats typically roost beneath exfoliating bark or in crevices of standing live trees or snags (standing dead trees) that are larger than 12.5 cm (about 5 inches) diameter at breast height (DBH), whereas northern long-eared bats may roost in similar places in trees or snags as small as 7.5 cm (about 3 inches) DBH, and may also roost in fallen trees on the forest floor.

Both bat species forage for insects in flight, usually below the tree canopy in mature hardwood or mixed evergreen and hardwood forests with open understories. Both species may capture their prey in flight, but northern long-eared bats are also known to glean their insect prey from surfaces of leaves, branches, and trunks of trees. Both species therefore require mature forest communities with open space beneath the tree canopy that allows them to acoustically detect prey and pursue prey in flight.

Bats drink water by flying low over open still or slow-flowing water bodies, and dipping their tongues into the water to lap it up. They therefore require open water bodies with minimal clutter over which they can fly and drink.

Bats may travel many miles in a night between roosting locations and foraging locations, and may travel tens to hundreds of miles to migrate to winter hibernation sites. Indiana bats are known to fly longer distances to avoid crossing open habitats, such as large fields or open grasslands. Therefore, they require contiguous corridors of mature forest with open understory to travel longer distances across the landscape to other large patches of mature forest that provide potential foraging, watering, and roosting habitat.

Thus, identification of potential habitat for Indiana bats and northern long-eared bats includes: reviewing aerial photos to identify areas of public or private forest land and potential connective habitat corridors between the Project Site and those forested lands; review of aerial photos of the Project Site to identify forested cover types; onsite identification of trees that provide potential roost structure, as well as flyways for transit onsite; and potential water sources that could provide drinking water for bats.

1.3 Acoustic Identification of Bats

Although bats have eyes that function very well in lighted areas, they cannot see very well in the dark. They therefore use ultrasonic sound (high-frequency sound waves above the range of human hearing) to sense their way through their environment in the dark, in a process called echolocation. They project high frequency sound pulses and listen for the echoes bouncing off of objects in their immediate surroundings, to determine the distance of each object, whether it is still or moving, and if it is moving, how fast and in what direction. Echolocation is a surrogate for vision that allows bats to detect obstacles in their flightpaths and to identify, pursue, and capture potential prey, as well as to maneuver through the forest at night. The sounds that bats emit for echolocation vary depending on what they are doing. If they are navigating through the woods or searching for prey, they emit regularly spaced sound pulses about 1/10 second apart, called search-phase calls. Their calls change in both quality and quantity under different activities (*e.g.*, pursuing prey, interacting with other bats) and circumstances (*e.g.*, in highly cluttered environments). Bats can be identified to species by their search phase calls, using special computer programs designed to measure certain parameters of their echolocation calls. Only search phase calls can be identified to species, but the natural variability of bat calls and the impact of environmental factors on both calls and recording quality (e.g., wind, insect noise, distance of bat from the microphone, density of surrounding vegetation, temperature variations, etc.) can confound species identification. Further, some bat species have very similar search phase call characteristics to other species making it difficult or sometimes impossible to distinguish between the species. Acoustic identification of bats is a useful tool to detect bat species that is less costly than capture-based survey methods, but it is also less accurate than capture-based methods, and does not provide information on population density.

Computer programs designed to classify bat species from their echolocation calls can only measure certain parameters of each call, and may therefore be limited in their ability to identify bat species accurately. Therefore, when rare species are indicated by the computer programs, trained and experienced bat biologists are required to visually review each call sonogram (a visual representation of the sound plotted as sound frequency and intensity over time) to independently classify the call to species. This is done because the human eye and brain are able to observe combinations of parameters in the calls that cannot be consistently measured by the computer programs. Observed call parameters are assessed based on known ranges of each parameter for each species, so that a scientifically repeatable, defensible process can be used to identify a call to species. Again, natural variability among bat call parameters may yield overlap between species, so that some species identifications may be less certain or definitive than others. In many cases, calls cannot be identified to species at all because the call is either not a search phase call, or the recording of the call is not of sufficient quality to observe the necessary classification parameters (*i.e.*, the bat was too far from the microphone and the call is too faint to exhibit the necessary parameters). Acoustic identification of bats is therefore not an exact science, but it is more often accurate than not. It is important to understand that although acoustic identification of bats is a valuable tool for determining potential presence of rare bat species, it has natural limitations in its accuracy and must be practiced by experienced scientists.

1.4 Bat Surveyor Qualifications

Range Wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines (USFWS, 2022, hereafter, Federal Protocol) states that acoustic surveys should be conducted by surveyors that, "have either completed one or more of the available bat acoustic courses/workshops (*e.g.*, BCM [Bat Conservation and Management], ERM, Titley/AnaBat, Wildlife Acoustics, USFWS) or be able to show similar on-the-job or academic experience." This habitat assessment and acoustic survey were conducted by Michael S. Fishman, a Certified Wildlife Biologist® (CWB) and Qualified Indiana Bat Surveyor with 32 years of experience working with bats in NY. Mr. Fishman held a Bachelor of Science degree in Natural Resources, Wildlife and Aquatic Sciences from Cornell University, and a Master of Science degree in Conservation Biology from the State University of New York College of Environmental Science and Forestry. His thesis study was on habitat selection by Indiana bats, and he has conducted and published additional original research on bats, has developed novel bat survey methods, and has conducted dozens of bat surveys throughout the eastern U.S., as well as in Canada, Mexico, Suriname, and

Belize. He has taken two bat acoustic survey courses from Bat Conservation and Management, one course from Wildlife Acoustics, one course from Vesper Bat Detection Services, and developed and taught ERM's bat acoustic survey method training course, which has been presented across the eastern U.S., and is among the courses specifically listed in the Federal Protocol. Mr. Fishman's qualifications are presented in resume format in ***Appendix B***.

2. METHODS

The methods used in this habitat assessment and acoustic presence/probable absence survey were based on the methods outlined in Appendices A and C of, *Range Wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines* (USFWS, 2022, hereafter, Federal Protocol). Methods proposed for the bat acoustic presence/probable absence survey were outlined in a study plan that was submitted to the USFWS New York Field Office on 27 July 2021 (***Appendix C***). This proposed study plan was approved by USFWS on 28 July 2021 (***Appendix C***). Methods used in this study are briefly summarized below, including any deviations from the methods proposed in the study plan.

2.1 Habitat Assessment

Bat habitat on the Project Site was assessed in a two-step process consisting of desktop data review and field reconnaissance. Desktop data review included reviewing online data sources for information about bat species occurrences on or near the Project Site, and reviewing remote sensing imagery (Google Earth Pro v. 7.3.4.8642, 12 May 2022, Google, LLC, Mountain View, CA, USA) to preliminarily identify habitat types and distribution on the Project Site. Google Earth was also used to identify and measure distances to the nearest public forested lands (parks, wildlife management areas, etc.), and potential forest habitat connective corridors among adjacent habitat areas.

We also reviewed online data resources and prior published records regarding bat occurrences on the Project Site. These included the USFWS's online Information for Planning and Consultation (IPaC) system (***Appendix A-1***), and the New York State Department of Environmental Conservation's (NYSDEC) online Environmental Resource Mapper (***Appendix A-2***).

The desktop data review was followed by field reconnaissance, in which habitats on the Project Site were identified, and classified per Edinger, *et al.* (2014). ***Figure 2. Habitat Cover Type Map***, illustrates the spatial distribution and extent of ecological cover types, or habitats on the site. Ground level photographs were taken of representative habitats on the Project Site, as well as habitat features that indicated potential bat habitat resources or conditions on the site that might preclude bat use. Tree species were identified in each ecological community type, and estimates were made of the frequency and size distribution of tree species and of snags. ***Appendix D*** contains Indiana Bat Habitat Assessment Data Sheets, which document observations and ocular estimates of habitat characteristics at multiple spatial scales, including vegetation cover types on and adjacent to the Project Site, connective corridors to adjacent and regional habitat patches, wetland and water resources onsite, percent canopy cover, distribution of tree size classes, dominant tree species, and cover density by canopy level. ***Appendix D*** also includes photographs of representative habitats throughout the Project Site. Based on these observations, Edgewood classified habitats on the Site as either potential bat habitat, or not suitable habitat for bats. ***Figure 3. Potential Bat Habitat Map and Photo Location Key***, illustrates the areas of the site that were designated as potential bat habitat and not suitable habitat, as well as the locations of photos taken to document habitat conditions.

2.2 Acoustic Survey

Acoustic surveys were conducted per the 2022 Federal Protocol requirements, and a study plan that was submitted to the USFWS on 27 July 2021 (***Appendix C***). Minor in-field adjustments were made to proposed bat detector locations due to unsuitability of some of the originally proposed sample sites. ***Figure 4. Bat Habitat and Acoustic Sampling Map*** indicates the actual sampling site locations used in this survey.

The Project Site contained 0.31 km^2 (77 ac) of potential bat habitat (forest cover), and per the Federal Protocol, sites up to 0.5 km^2 required at least 10 detector nights of sampling effort to detect Indiana bats and at least 14 detector nights to detect northern long-eared bats. A detector night was equal to 1 detector recording for at least a 5-hour period starting at sunset each night. We set 5 Song Meter Mini bat detectors (Wildlife Acoustics, LLC, Maynard, MA, USA), running then-current firmware versions, and recording to 64 GB SanDisk SD memory cards (SanDisk, Malpitas, CA, USA), to record for 3 nights, from 31 July through 2 August 2022. All deployed bat detectors functioned properly, and weather conditions complied with the Federal Protocol, yielding 15 detector nights of sampling effort, which slightly exceeded the level of effort required by the Federal Protocol.

Most of the bat detectors were located such that each was at least 200 m from any other bat detector. The exception was that bat detectors 1 and 2 were located +157 m apart, which was considered sufficient spacing in the field. Each bat detector location was plotted with a handheld 12-channel global positioning system (GPS) unit (Garmin eTrex 30, Garmin, Ltd., Olathe, KS, USA). Bat detectors were placed in wetland and upland habitats, along logging roads, along a stream corridor, and in open understory of a mature hardwood forest, as recommended by the Federal Protocol. However, openings and forest edge habitat were limited, so most detectors were placed in areas of open forest understory or along logging roads. Bat detector placements provided a representative variety of sampling conditions in locations that were considered by the surveyor to be potential bat flyways. Bat detector locations are illustrated in ***Figure 4. Bat Habitat and Acoustic Sampling Map.***

Song Meter Mini bat detector microphones are omnidirectional. Bat detectors were mounted on 3 m tall electrical metallic tubing (EMT) poles such that microphones were at the top and thus at least 3 m above ground level. Microphones were oriented in the horizontal plane, at least 3 m from vegetation and other obstructions in all directions, with minimal vegetation/clutter within 10 m in any direction, and roughly parallel to adjacent forest edges (where applicable). Detectors 2, 3, and 4 were located along logging roads through dense understory hemlock-northern hardwood forest, so were closer to clutter than other detectors, but the roads provided open flyways, and all recorders detected bats. No weatherproofing was added to the microphones, as Wildlife Acoustics' microphones are designed to be weather resistant. ***Appendix E*** contains a summary table of bat detector types and deployment logistics (locations, deployment orientation, and habitat type). ***Appendix F*** contains Bat Acoustic Survey Data Sheets and photos of bat detector deployments, illustrating set up, reception cone in front of the microphone, and habitat setting. Bat detector settings for all detectors are summarized in Table 2.2-1.

Table 2.2-1. Bat detector settings for the Terramor Catskills Project Acoustic Bat Survey

Ultrasonic Detector Feature	Setting
Recording Format	FS
Full Spectrum Sample Rate	256 kHz
Minimum Trigger Frequency	16 kHz
Maximum Recording Length	15 sec
Trigger Window	3 sec
Save noise files	no
Left channel gain	12 dB
Time Zone	UTC – 04:00

Proper functioning of each Song Meter Mini bat detector was checked upon set up and take down by using a continuous 40 kHz tone generated by an Ultrasonic Calibrator (Wildlife Acoustics, LLC, Maynard, MA, USA), which provided a linked smartphone (iPhone 7 Plus, Apple, Inc., Cupertino, CA, USA) readout of microphone reception in decibels (dB). Readings greater than -30 dB indicated a properly functioning microphone. Screenshots of each test were saved for documentation, and are included among the photos in ***Appendix F***.

Hourly weather conditions for each night of sampling were checked on the Weather Underground website, www.weatherunderground.com, to ensure that acceptable weather conditions occurred throughout the sampling period. Acceptable weather conditions during the first 5 hours of sampling, per the Federal Protocol, included the following:

- Air temperature of at least 10°C (50°F)
- No precipitation for longer than 30 minutes
- No intermittent precipitation
- No sustained wind greater than 4 m/s (9 mph, or ~7.5 knots) for 30 minutes or more

Historic weather readings from the nearest National Weather Service (NWS) weather station came from Stewart Airport in Newburgh, Orange County, NY, about 60 km (37.3 mi) away. There was a brief rain event recorded on 1 August 2022 (Night 1), but it was after the first 5 hours of recording after sunset, so the 3 sample nights (31 July through 3 August) were weather-compliant. ***Appendix G*** contains summary weather data for each sample night.

2.3 Acoustic Analysis

All raw recording files were downloaded from each bat detector and saved as archival files, organized by sampling site. The original raw recordings were then copied to a working folder within each sampling site folder, and recording copies were used for analysis. The copied sound files were first divided up by sampling night, which was defined as sunset to sunrise, or from the earliest evening recording to the latest morning recording on the following calendar date. This allowed analysis of the calls by night for each sample site.

2.3.1 Auto-Classification Software Analysis

Each night's calls for a sample site were then batch-processed through Kaleidoscope Pro v.5.4.7 (Wildlife Acoustics, LLC, Maynard, MA, USA) to auto-classify bat calls using the Bats of North America v. 5.4.0 classifiers, selected by region (New York), and -1 Balanced (More Sensitive). This filtered all auto-classifications to the 9 species of bats that are known to occur in New York. Signal parameter settings used for analyzing all calls are outlined in **Table 2.3.1-1.**

Table 2.3.1-1. Signal parameter settings for Kaleidoscope Pro

Signal Parameter	Setting
Frequency Range (min – max, kHz)	8 - 120
Length of detected pulses (min – max, ms)	2 - 500
Maximum inter-syllable gap (ms)	500
Minimum number of pulses for identification	2
Enhance with advanced signal processing when zero crossing for conversion or analysis	yes
Input files	WAV
Output files	WAV
Time Expansion Factor in Output Files	Auto

Resulting files were saved as WAV files so they could be visually reviewed as both full spectrum (FS) and zero-crossing (ZC) files. Kaleidoscope Pro converted all FS recordings to ZC for its auto-classification analysis, but FS files provided more visual information about recorded sounds for manual visual analysis.

Output from Kaleidoscope Pro was a spreadsheet that provided an auto-classification of each call to species, along with a variety of measurements of call parameters. Bat classifications followed the standard 6-letter abbreviations for North American bat scientific names as summarized in Table 2.3.1-2, below.

Table 2.3.1-2. Standard 6-letter bat name abbreviations used by Kaleidoscope Pro and Vetting.

6-Letter Code	Scientific Name	Common Name
EPTFUS	*Eptesicus fuscus*	Big Brown Bat
LASBOR	*Lasiurus borealis*	Eastern Red Bat
LASCIN	*Lasiurus cinereus*	Hoary Bat
LASNOC	*Lasionycteris noctivagans*	Silver-haired Bat

MYOLEI	*Myotis leibii*	Eastern Small-footed Bat
MYOLUC	*Myotis lucifugus*	Little Brown Bat
MYOSEP	*Myotis septentrionalis*	Northern Long-eared Bat
MYOSOD	*Myotis sodalis*	Indiana Bat
PERSUB	*Perimyotis subflavus*	Tricolored Bat

We reviewed resulting bat classification ID summaries in Kaleidoscope Pro for species identified and for maximum likelihood estimator (MLE) p-values for each identified species, which provided an index of confidence in the auto-classifications. If Indiana bats or northern long-eared bats were identified by Kaleidoscope Pro with MLE p-values of <0.05, all of the calls for that site and night were visually vetted to confirm or refute the identifications. If listed species were identified at a sample site with MLE p-values >0.05, we did not manually review the calls. If any species identification adjustments were made, they were noted in the Manual ID column on the identification output spreadsheets in ***Appendix H***.

2.3.2 Manual Review of Software Output

Visual vetting of bat calls was a qualitative visual reassessment of the FS and ZC sonograms plotted by Kaleidoscope Pro based on visual interpretation of the sonogram's qualitative properties by an experienced observer. As such, it can be considered a subjective and biased process. However, certain standard criteria for visual species identification were used to improve its consistency and reliability to make the process repeatable. These criteria were based on call type (search phase), recording quality (at least 4 fully-formed call pulses), measured call parameters, and consideration of the influence that habitat conditions may have had on call parameters. In addition, qualitative individual species call characteristics were considered to more clearly define species level call sonograms.

Sonograms are visual representations of calls that are graphed as sound frequency in kilohertz (kHz) over time in milliseconds (ms). In this context, a bat call was a series of individual ultrasonic sound pulses that were emitted by a bat as part of its echolocation mechanism. A call may be interpreted as a series of high frequency chirps, or clicks. A pulse, as used herein, was an individual ultrasonic chirp or click that was part of a call. Our visual vetting process was a visual assessment of both ZC and FS sonograms to determine whether bat calls satisfied the following criteria:

- The call had to be a search phase call in order to be identifiable to species. Search phase calls generally have pulses spaced at least 100 ms (1/10th of a second) apart. Calls separated by less than 90 ms were not considered search phase calls.
- The quality of the recording, and therefore the clarity of the sonogram had to indicate fully formed call pulses of sufficient amplitude [loud enough] for the sonogram to accurately depict the sound produced by the bat. Sonograms of *Myotis* species bat calls, for example, should show a low-hanging terminal sweep, or "tail", at the lowest frequency part of each pulse. Visible harmonics of a pulse (similar structured sound pulses at octave intervals of the fundamental (original) pulse frequency, in the same time span) were also used as an indicator of a fully formed/depicted pulse.

- The characteristic frequency (Fc) and characteristic slope (Sc) of each call pulse had to fall within the known range of these parameters for the species. Ranges for these parameters were from Szewczak (2011).

Once these criteria were met, special characteristics for particular species were assessed. Whereas Indiana bat and little brown bat call parameters have substantial overlap, there are qualitative observations that can be used to separate them. For example, both species produce calls with Fc circa 40 kHz, but Indiana bat calls tend to be the higher end of the range (*i.e.*, 40-43 kHz), whereas little brown bat calls can be at the lower end of the scale (*i.e.*, 36-40 kHz). Similarly, both species' calls can have Sc between 100-120 o/s, but Sc>120 is more likely to be Indiana bat, whereas Sc<100 is more likely to be little brown bat. Indiana bat calls of longer duration (>4.5 ms) may have a secondary inflection, appearing as a flattened section of the pulse immediately before the tail. Little brown bat pulses may have multiple higher amplitude portions of pulses, making FS plots appear clumpy.

Because visual vetting is a subjective method, Edgewood gathered multiple qualitative cues from each call sequence that was reviewed to support the species classification. The more qualitative cues that were observed, the higher was the confidence in the identification of the species. If most or all of the cues were observed, Edgewood noted that species presence was probable to indicate high confidence in the species identification. If only a few, but not all of the species-indicating cues were observed, Edgewood noted that species presence was possible to indicate limited confidence in species identification.

Standard notations were used to describe bat call qualities and parameters in the comments column on the visual vetting matrices (***Appendix H***). Codes are defined in Table 2.3.2-1, below.

Table 2.3.2-1. Codes used to describe bat call parameters and qualities for visual vetting.

Code	Abbreviation for	Meaning/Use
CF	Constant Frequency	Call pulses had a narrow range of frequencies, appearing relatively flat, or having a horizontal aspect to their sonogram
CMT	Confirmed Myotis Tail	Myotis tail was visually evident, confirming that the bat was in the genus, *Myotis.*
Fc	Characteristic Frequency	A measure of the average frequency of a call pulse at the flattest part of the sonogram
FM	Frequency Modulated	Call pulses had a broad range of frequency from high to low, indicated by a vertical aspect of the sonogram
NSP	Not Search Phase	Indicated that the call was not a search phase call and therefore could not be identified to species.
PQR	Poor Quality Recording	Quality of recording was such that fully formed calls were not depicted and call parameters could not be clearly measured.
Sc	Characteristic Slope	Average slope of the call pulse sonogram, measured in octaves/second

VMF	Variable Minimum Frequency	Minimum frequency of each call pulse varied up and down, appearing jumpy; typical of eastern red bats (*Lasiurus borealis*).

3. FINDINGS

3.1 Habitat Description and Suitability

Edgewood identified 8 distinct ecological communities on the Project Site: successional northern hardwood forest, red maple-hardwood swamp, hemlock-hardwood swamp, hemlock-northern hardwood forest, rich mesophytic forest, headwater stream, eutrophic pond, and unpaved road/path (Edinger, *et al.*, 2014) on the Project Site. The locations, approximate extents, and classification of these communities are depicted in ***Figure 2. Habitat Cover Type Map.*** Photographs of representative cover types are contained in ***Appendix D***.

Some of these ecological communities provided suitable potential bat habitat, whereas others did not. ***Figure 3. Potential Bat Habitat Map and Photo Location Key*** illustrates the locations and extent of potential bat habitat and unsuitable habitat for bats on the Project Site.

No caves or subterranean mines were identified on the Project Site, nor were any buildings or ruins of buildings with basements. Therefore, there were no potential hibernacula on the Project Site.

Most of the site consisted of hemlock-northern hardwood forest that consisted of a mix of young and mature growth stands. Due to the growth habit of eastern hemlock (*Tsuga canadensis*), the dominant tree in this habitat type, the understory of this community was highly cluttered with lower branches from ground level up to the canopy. This rendered this cover type unsuited for bat habitat, as bats had no open flyways through which to travel, except where there were cleared roads or paths. Scattered larger trees within this habitat type were not accessible to bats, since bats could not fly below the canopy, so even larger trees were not considered potential roost trees. Interior areas of this habitat type were considered impassable to bats below tree canopy level.

Potential bat habitat did occur in 6 disjunct patches of successional northern hardwood forest and wooded wetland (hemlock-hardwood swamp and red maple-hardwood swamp) habitats on the Site. The largest of these habitat patches was about 8.5 acres in area and was located at the northern corner of the site, where it connected to additional potential habitat offsite to the north and northwest. A large expanse of red maple-hardwood swamp and hemlock-hardwood swamp near the western edge of the Site yielded about 1.7 acres of potential roost, foraging, and transit habitat that connected to additional habitat offsite to the northwest. A smaller patch of hardwood forest about 1.1 acre in area was located in the northeast corner of the Site, but was surrounded by either residential housing, or by dense hemlock-northern hardwood forest, so was likely an isolated habitat patch. About 2.5 acres of mixed red maple-hardwood swamp and rich mesic forest habitat at the entrance to the site from Saugerties-Woodstock Road was also potential roost, foraging and transit habitat, and connected to potential habitat offsite to the south and southwest. A narrow strip of successional northern hardwood forest along the eastern side of the Site was about 1.2 acres in area, and was connected to offsite habitats to the south via similar habitat and by an old logging road. Another patch of potential roost and transit habitat about 1.3 acres in area was located in the south-central portion of the Site, and was surrounded by dense young hemlock-northern hardwood forest, but was connected to other potential habitat areas by the old unpaved roads in the southern half of the Site. The unpaved roads through the southern half of the site, representing about 1.2 acres, may have also provided potential transit or foraging habitat that might allow bats to move through a portion of the Site that was otherwise impassable. Therefore, these habitat patches provided about 16.3 acres of potential roost, foraging, and transit habitat, and the unpaved roads in the southern half of the Site provided an additional 1.2 acres of potential transit and foraging habitat and a connective corridor that could allow bats to travel among the patches of suitable habitat through unsuitable habitat.

Water resources on the site included 2 woodland pools (eutrophic pond, per Edinger, *et al.*, 2014) a wetland with small open water pockets along the western side of the Site, and a small stream that crossed the entry from Saugerties-Woodstock Road. Other ephemeral or seasonal water sources also exist within the red maple-hardwood swamp and hemlock-hardwood swamp habitat on the site. The 2 woodland pools were not accessible to bats, as they were surrounded by dense, young-growth hemlock-northern hardwood forest, but surface water was available and accessible in the hemlock-hardwood swamp and red maple-hardwood swamp along the western side of the Site and in the small headwater stream near the Site entrance.

Forested public lands within 5 miles of the Project Site may provide potential additional potential habitat for bats and may also provide habitat stepping stones across the landscape. Bats may travel up to 5 miles in foraging bouts, so could use connected forested lands, or bats on those lands could potentially use the Project Site. Therefore, the habitat assessment included a review of aerial photos and maps to identify forested public lands within 5 miles of the Project Site. Such forested lands are summarized in **Table 3.1-1**.

Table 3.1-1. Forested public lands proximal to the Terramor Catskills Project Site.

Public Land Name	Direction	Distance (km/mi)
Indian Head Wilderness	north	2.02 km/1.26 mi
Comeau Property	west-southwest	3.7 km/2.3 mi
Bluestone Wild Forest	south	5.1 km/3.2 mi

Thus, there was forested habitat on the Project Site to support bats, as well as forested connective corridors across the landscape within 5 miles that bats could use to reach and disperse to or from surrounding forested habitat on public parkland. This indicated that warm season bat habitat exists on and around the Project Site at multiple landscape spatial scales.

3.2 Acoustic Survey

3.2.1 Equipment Function

All deployed bat detectors functioned correctly for the duration of the survey. This was supported by microphone calibration checks that were run at set up and take down, and by the fact that the detectors recorded bat calls from shortly after sundown to shortly before sunrise on every night of the survey. Smartphone screen shots of microphone calibration checks are contained in ***Appendix F***.

3.2.2 Weather

Weather data from the nearest NWS weather station at Stewart International Airport, Newburgh, Orange County, NY (***Appendix G***) indicated that weather conditions for 3 nights during the survey period complied with the Federal Protocol. Temperatures throughout the study period remained above 50°F, winds remained below 9 mph, and no precipitation fell during the first five hours of sampling each night.

3.2.3 Level of Effort

The Federal Protocol required at least 14 detector nights of recording time to detect both Indiana bats and Northern Long-eared Bats on a Project Site of this size, and each detector was required to sample for at least 2 nights. Among the 5 bat detectors deployed on the Project Site, all of them recorded for 3 weather-compliant nights, yielding 15 successful detector nights of survey effort, which slightly exceeded the Federal Protocol.

3.2.4 Software-Based Bat Call Classification

Kaleidoscope Pro auto-classified bat calls from 9 bat species on the Project Site, but calls for only 5 species had MLE p-values <0.05. MLE p-values are an indication of the probability of a false positive detection (a Type 1 Error in statistics), and values <0.05 indicate a low probability of false detection, or that the result is likely to be reliable. However, bat acoustic classification software may not always be entirely reliable, so the Federal Protocol requires manual review of threatened or endangered bat call recordings that are identified by software with a MLE p-value <0.05. Software-confirmed species included Big Brown Bat (*Eptesicus fuscus*), Eastern Red Bat (*Lasiurus borealis*), Little Brown Bat (*M. lucifugus*), Northern Long-eared Bat (*Myotis septentrionalis*), and Indiana Bat (*M. sodalis*).

Frequency distribution of bat call detections by site, night, and species are summarized in **Table 3.2.4-1**, with MLE p-values. MLE p-values >0.05 indicate a likelihood of false positive classification, and a corresponding lower confidence in the classification.

Table 3.2.4-1. Kaleidoscope Pro bat species classifications by sample site and night with MLE p-values.

Site & Night		Big Brown Bat	Eastern Red Bat	Hoary Bat	Silver Haired Bat	Eastern Small-footed Bat	Little Brown Bat	Northern Long-Eared Bat	Indiana Bat	Tricolored Bat
Site 1	**Bat Passess**	**9**	**6**	**--**	**3**	**1**	**2**	**--**	**--**	**2**
Night 1	***MLE p-value***	***9.4E-06***	***4E-07***	***1***	***0.87417***	***0.0957***	***0.9671***	***1***	***1***	***0.99625***
Site 1	**Bat Passess**	**15**	**2**	**--**	**1**	**--**	**1**	**1**	**--**	**1**
Night 2	***MLE p-value***	***0***	***0.01291***	***1***	***1***	***1***	***0.87832***	***0.2676***	***1***	***0.92937***
Site 1	**Bat Passess**	**2**	**--**	**1**	**1**	**--**	**1**	**--**	**--**	**--**
Night 3	***MLE p-value***	***0.12425***	***1***	***0.46685***	***0.93474***	***1***	***0.18052***	***1***	***1***	***1***
Site 2	**Bat Passess**	**28**	**80**	**1**	**3**	**--**	**198**	**16**	**10**	**24**
Night 1	***MLE p-value***	***0***	***0***	***1***	***1***	***1***	***0***	***1***	***1***	***1***
Site 2	**Bat Passess**	**18**	**74**	**--**	**1**	**--**	**222**	**11**	**11**	**18**
Night 2	***MLE p-value***	***0***	***0***	***1***	***1***	***1***	***0***	***1***	***1***	***1***

Site 2	**Bat Passess**	**6**	**57**	**1**	**--**	**--**	**195**	**3**	**12**	**3**
Night 3	***MLE p-value***	***3.6E-05***	***0***	***0.82577***	***1***	***1***	***0***	***1***	***1***	***1***
Site 3	**Bat Passess**	**57**	**1**	**4**	**3**	**2**	**151**	**39**	**37**	**--**
Night 1	***MLE p-value***	***0***	***1***	***1***	***1***	***1***	***0***	***1.3E-06***	***0.07841***	***1***
Site 3	**Bat Passess**	**16**	**1**	**--**	**--**	**1**	**103**	**50**	**40**	**--**
Night 2	***MLE p-value***	***0***	***1***	***1***	***1***	***1***	***0***	***0***	***0.00029***	***1***
Site 3	**Bat Passess**	**25**	**--**	**--**	**1**	**--**	**154**	**21**	**37**	**--**
Night 3	***MLE p-value***	***0***	***1***	***1***	***1***	***1***	***0***	***0.28746***	***0.08206***	***1***
Site 4	**Bat Passess**	**8**	**--**	**2**	**6**	**--**	**--**	**--**	**--**	**--**
Night 1	***MLE p-value***	***0.00076***	***1***	***0.58385***	***0.1821***	***1***	***1***	***1***	***1***	***1***
Site 4	**Bat Passess**	**7**	**--**	**--**	**4**	**--**	**--**	**3**	**--**	**--**
Night 2	***MLE p-value***	***0.00068***	***1***	***1***	***0.39977***	***1***	***1***	***0.00048***	***1***	***1***
Site 4	**Bat Passess**	**2**	**1**	**--**	**1**	**--**	**--**	**--**	**--**	**--**
Night 3	***MLE p-value***	***0.10938***	***0.05459***	***1***	***0.83964***	***1***	***1***	***1***	***1***	***1***
Site 5	**Bat Passess**	**108**	**--**	**--**	**1**	**--**	**7**	**3**	**8**	**--**
Night 1	***MLE p-value***	***0***	***1***	***1***	***1***	***1***	***5.1E-05***	***0.24652***	***0.00176***	***1***
Site 5	**Bat Passess**	**85**					**3**	**1**	**6**	
Night 2	***MLE p-value***	***0***	***1***	***1***	***1***	***1***	***0.03928***	***0.81328***	***0.00128***	***1***
Site 5	**Bat Passess**	**69**	**1**	**1**		**1**	**14**	**4**	**4**	
Night 3	***MLE p-value***	***0***	***0.98604***	***1***	***1***	***0.68139***	***0***	***0.24322***	***0.70293***	***1***

MLE p-values of 0 indicate value much <0.05 and relatively high confidence in species classification;
MLE p-values >0.05 indicate probable Type I Error and relatively low confidence in species classification.
Highlighted values indicate listed species identified by Kaleidoscope Pro with a MLE p-value <0.05. All bat calls for those sites and those nights were manually reviewed to confirm or refute identifications.

Numbers of bat calls indicated per species in Table 3.2.4-1 are an index of bat activity in an area, but not necessarily an index of bat abundance since one bat passing a point many times may be recorded repeatedly. Therefore, higher numbers of calls are indicative of higher activity of a particular species, but not necessarily higher bat numbers or relative frequency of occurrence.

3.2.5 Manual/Visual Vetting of Bat Calls

Manual vetting of calls was performed for sites and nights on which listed bat species were autoclassified by the Kaleidoscope Pro with MLE p-values <0.05 to confirm or refute these software-based classifications. We manually vetted all calls from Site 3, Nights 1 and 2; Site 4, Night 2; and Site 5, Nights 1 and 2, based on Kaleidoscope Pro identifying northern long-eared bat or Indiana bat, or both with MLE p-values <0.05 for those sites and nights. Our visual vetting of bat calls determined that none of the calls classified as northern long-eared bats were correctly classified as such, and they were either reclassified as NOID (not identified to species), MYOSPP (*Myotis* species, no specific identification was possible), or as other, non-listed species. Vetting confirmed 3 of 8 calls identified as Indiana Bat at Site 5 on Night 1, and 2 of 6 calls identified as Indiana Bat at Site 5 on Night 2, and reclassified a Little Brown Bat identified by Kaleidoscope Pro at Site 5, Night 1 to Indiana Bat for a total of 6 Indiana Bat calls identified on the Project Site. All other calls that Kaleidoscope Pro identified as Indiana Bats were refuted. Confirmed Indiana Bat calls were consistent with Fc and Sc ranges for this species, being at slightly higher ranges in both of these metrics than typical little brown bat calls, with which they overlap.

Table 3.2.5-1, below, summarizes the results of all call vetting for listed species. Details of manual vetting for each of these sites and nights are detailed in call vetting spreadsheets in Appendix H, which includes manual identifications for all species for each site and night.

Table 3.2.5-1. Listed bat species‡ Kaleidoscope Pro classifications and visual vetting results by sample site with MLE p-values

Sample Site		Indiana Bat	Vetting Results Comments	Northern Long-eared Bat	Vetting Results Comments
Site 3 Night 1	Bat Calls MLE p-value			39 1.3E-06	Vetting refuted all software classifications
Site 3 Night 2	Bat Calls MLE p-value	40 0.00029	Vetting refuted all software classifications	50 0	Vetting refuted all software classifications
Site 4 Night 2	Bat Calls MLE p-value			3 0.00048	Vetting refuted all software classifications
Site 5 Night 1	Bat Calls MLE p-value	8 0.00176	3 of 8 calls confirmed as Indiana Bat		
Site 5 Night 2	Bat Calls MLE p-value	6 0.00128	2 of 6 calls confirmed as Indiana Bat		

MLE p-values of 0 indicate value much <0.05 and relatively high confidence in species classification;
MLE p-values >0.05 indicate probable Type I Error and relatively low confidence in species classification.

Of 54 calls identified as Indiana Bats by Kaleidoscope Pro, only 5 calls were manually classified as Indiana bats, and all of those calls were recorded at Site 5, which was within successional northern hardwood forest in the northern end of the Project Site. In addition, 1 call from Site 5 that was autoclassified as a Little Brown Bat was reclassified as Indiana Bat by manual vetting. Characteristic frequencies (F_c) for each of these calls fell between 39 and 43 kHz, and characteristic slopes fell between 128 and 209 OPS. These calls fall well within the parameters used to distinguish Indiana Bat calls from Little Brown Bat (*Myotis lucifugus*), so are considered relatively confident manual identifications and therefore the presence of Indiana Bats was considered probable.

4. CONCLUSIONS

4.1 Bat Habitat Suitability

Edgewood's bat habitat assessment revealed that most of the Terramor Catskills Site was dominated by a hemlock-northern hardwoods ecological community with a dense understory that was not suited to bat flight, foraging, or roosting. However, there were 6 distinct patches of ecological communities including successional northern hardwoods, red maple-hardwood swamp, and hemlock-hardwood swamp, that were connected by unpaved roads and by offsite habitats that provided about 16.3 acres of potential roost, foraging, and transit habitat, with another 1.2 acres of potential transit habitat in the unpaved roads, for a total of 17.5 acres of potential bat habitat. Water resources were potentially available to bats in the hemlock-hardwood swamp and red maple-hardwood swamp wetlands along the western side of the Site and in the small headwater stream that is located near the entrance to the site from Saugerties-Woodstock Road. Other water resources exist on the Site, but are inaccessible to bats, as they are surrounded by dense understory brush.

4.2 Presence of Listed Species

Multiple calls of northern long-eared bat, a threatened species, and Indiana bat, an endangered species, were auto-classified by Kaleidoscope Pro at multiple sampling sites and nights, with MLE p-values <0.05. Per Federal Protocol requirements, all bat call sonograms for the sampling site and sampling night by which such calls were classified were manually/visually reviewed by an experienced bat call identifier to either confirm or refute the software-based species classification to avoid mis-classifications. Visual vetting refuted the classification of all Northern Long-eared Bat calls, but confirmed 5 Indiana Bat calls from Bat Detector 5, which was located at an edge between mature successional northern hardwood forest and red maple-hardwood swamp at the north end of the Site. The indicators used to manually classify Indiana Bat calls all have ranges that overlap with those of the Little Brown Bat, but the ranges of the calls that were manually vetted from this Site were well within the metrics indicating Indiana Bat, so the manual identifications were considered accurate. It was therefore considered probable that Indiana Bat was present in the north end of this Site. Northern Long-eared Bat occurrence was determined to be unlikely as no calls identified as Northern Long-eared Bat were manually confirmed.

4.3 Management Recommendations

Terramor proposes to develop a camping resort on the Project Site. Based on the spatial distribution of habitat and non-habitat areas for bats, it should be possible to avoid significant adverse impacts to bats by careful site planning to avoid or minimize disturbance within potential bat habitat areas, concentrating development in non-habitat areas, and timing construction activities to avoid or minimize disturbance to bats on the site. Development of the site may actually open up more habitat for bats by creating new access roads, paths, and openings in which bats may forage or traverse current non-habitat areas.

As for site planning, Edgewood understands that access to the site is only available from Saugerties-Woodstock Road or from Cottontail Lane, both of which will require crossing potential bat habitat areas. Disturbance of these habitat areas can be minimized by only having the access road pass through (no other structures or activities), and by minimizing the footprint of the access road. Overall, tree clearing should be minimized and should only be conducted during the bat hibernation season (November through March) to avoid direct take of roosting bats. Further design elements that can avoid or minimize disturbance of bats include:

- Outdoor lighting should be at low level (e.g., bollard lighting, rather than overhead lights).
- Outdoor lighting near edges between cleared areas and remaining forest stands should be motion-sensor lights that do not stay illuminated all night.
- Chemical pesticides must not be used onsite, especially in water bodies.

- Noise should be minimized at night to avoid changing bat behavior within the Site (e.g., night-time quiet hours may be implemented at the campsite at reasonable hours).
- Pets should be kept on leashes when outdoors and not allowed to run free.
- Campfire rings should be spaced away from wooded areas to keep smoke from campfires away from potential roost areas.

All of these elements are dependent on feasibility and should not be implemented if they may compromise human health and safety.

5. REFERENCES CITED

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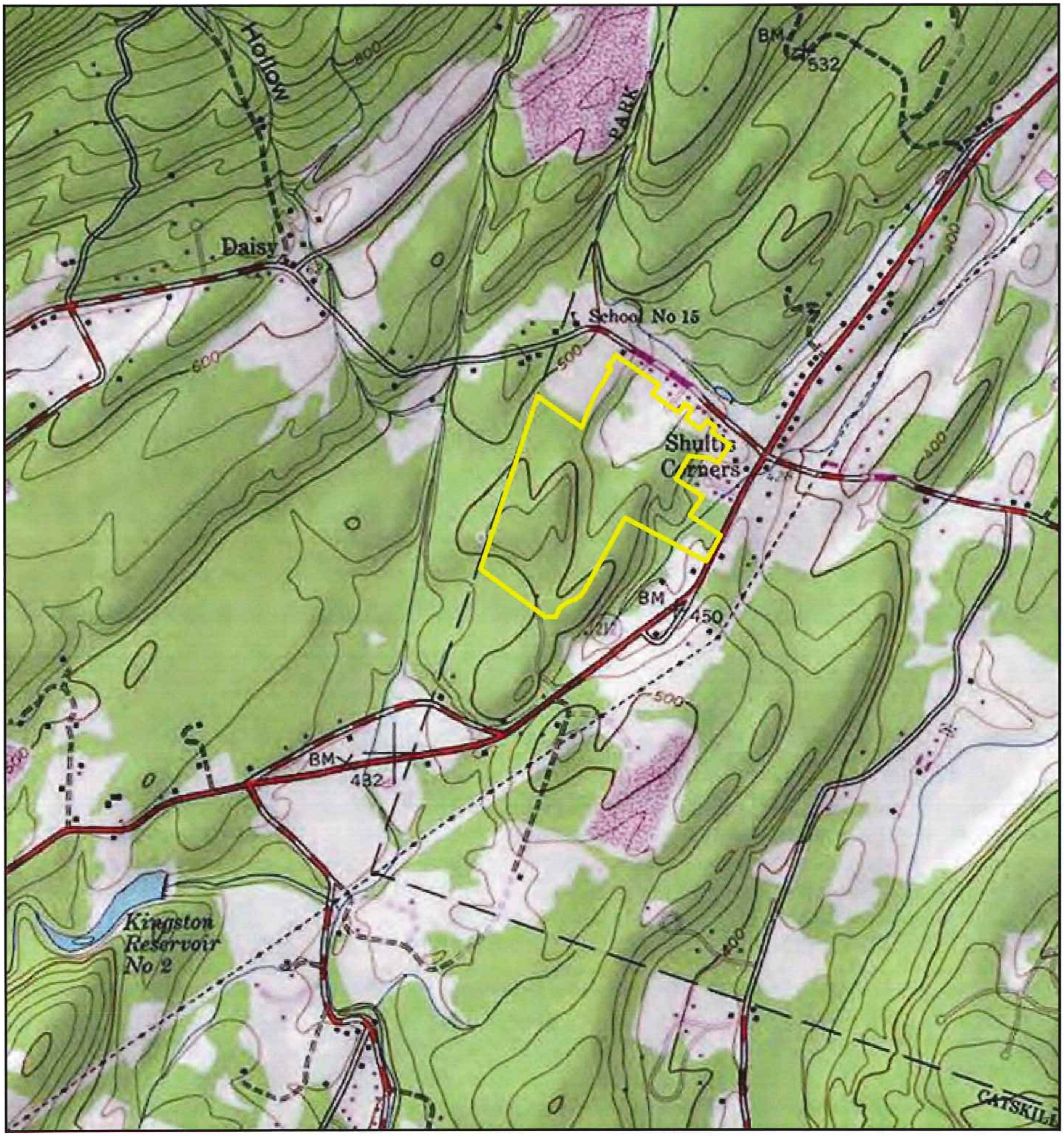
FIGURES

Figure 1. Site Location Map



Legend

Project Site Boundary

N

1:24,000

0 0.15 0.3 0.6 mi

0 0.23 0.45 0.9 km

Terramor Catskills
Terramor Outdoor Resorts
Saugerties-Woodstock Road
Saugerties, Ulster County, NY
42.049596°N, 74.074725°W

Edgewood Environmental Consulting, LLC

USGS
2021 USGS

Figure 2. Habitat Cover Type Map
Terramor Catskills Site
Town of Saugerties, Ulster County, New York

Terramor Outdoor Resorts

Legend
Project Parcel Boundary
Habitat Cover Type Extent
Stream

Cover Types
EP-Eutrophic Pond
HHS-Hemlock-Hardwood Swamp
HNH-Hemlock-Northern Hardwoods
HS-Headwater Stream
RMHS-Red Maple-Hardwood Swamp
RMF-Rich Mesic Forest
SNH-Successional Northern Hardwoods
URP-Unpaved Road/Path

Edgewood Environmental Consulting, LLC

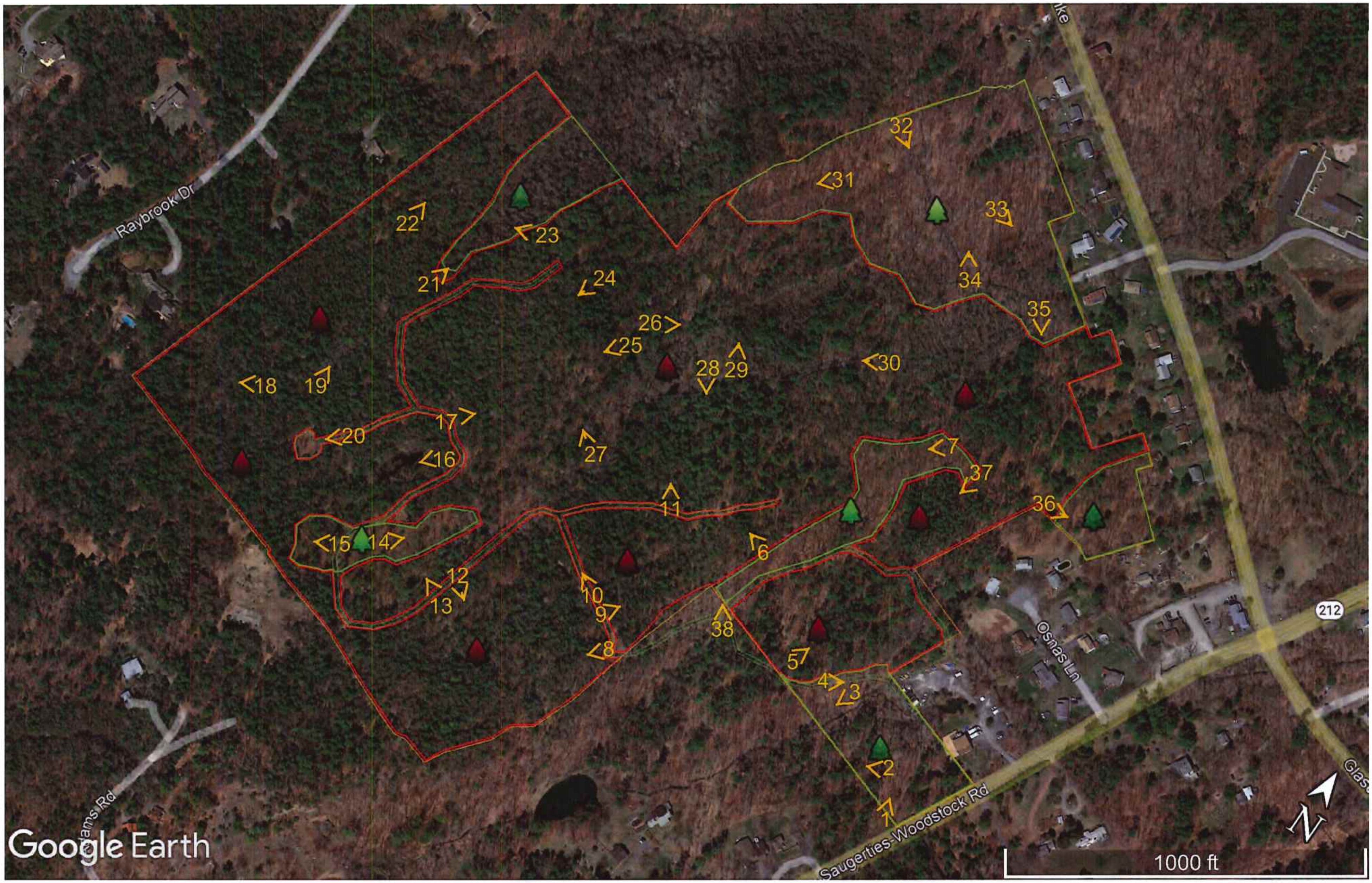


Figure 3. Potential Bat Habitat Map and Photo Location Key
See numbered photos in Appendix D
Terramor Catskills Site
Town of Saugerties, Ulster County, NY

Terramor Outdoor Resorts

Legend
Potential Bat Habitat
Not Suitable Bat Habitat
Waters and Wetlands
#> Photo Number and Direction

Edgewood Environmental Consulting, LLC

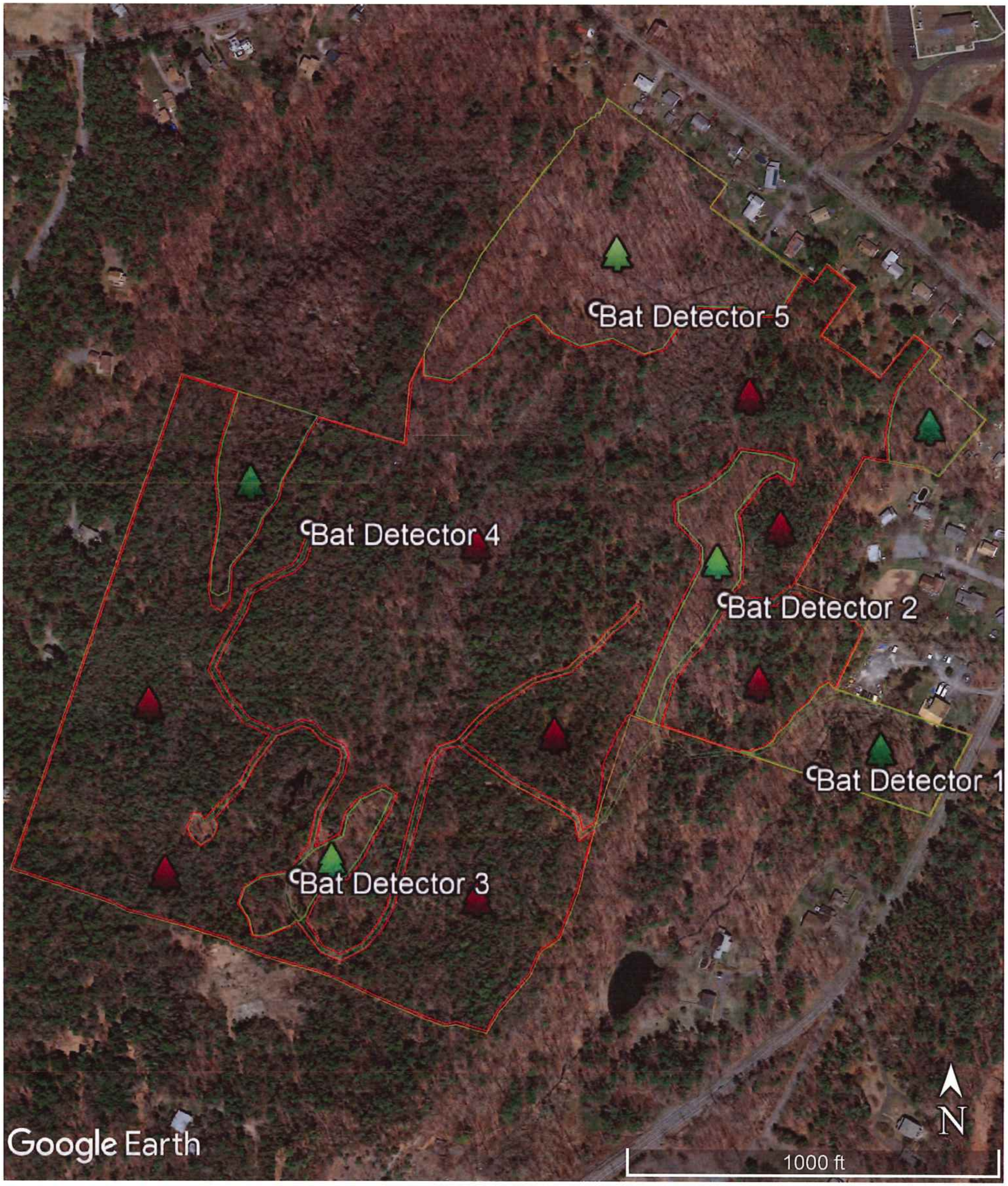


Figure 4. Bat Habitat and Acoustic Sampling Map
Terramor Catskills Site
Town of Saugerties, Ulster County, NY

Terramor Outdoor Resorts

Legend
Potential Bat Habitat
Non Suitable Habitat for Bats
Bat Detector Location

Edgewood Environmental Consulting, LLC

APPENDIX A AGENCY BAT LOCATION DATA

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
Email Address: fw5es_nyfo@fws.gov

In Reply Refer To: July 08, 2022
Project Code: 2022-0061692
Project Name: Terramor Catskills

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. **Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.**

Attachment(s):

- **Official Species List**

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

Project Summary

Project Code:	2022-0061692
Event Code:	None
Project Name:	Terramor Catskills
Project Type:	Commercial Development
Project Description:	The site is a mixed deciduous / coniferous forest approximately 75 acres is size and includes palustrine wetlands and intermittent and perennial streams.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.04940405,-74.07487204201507,14z

Counties: Ulster County, New York

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

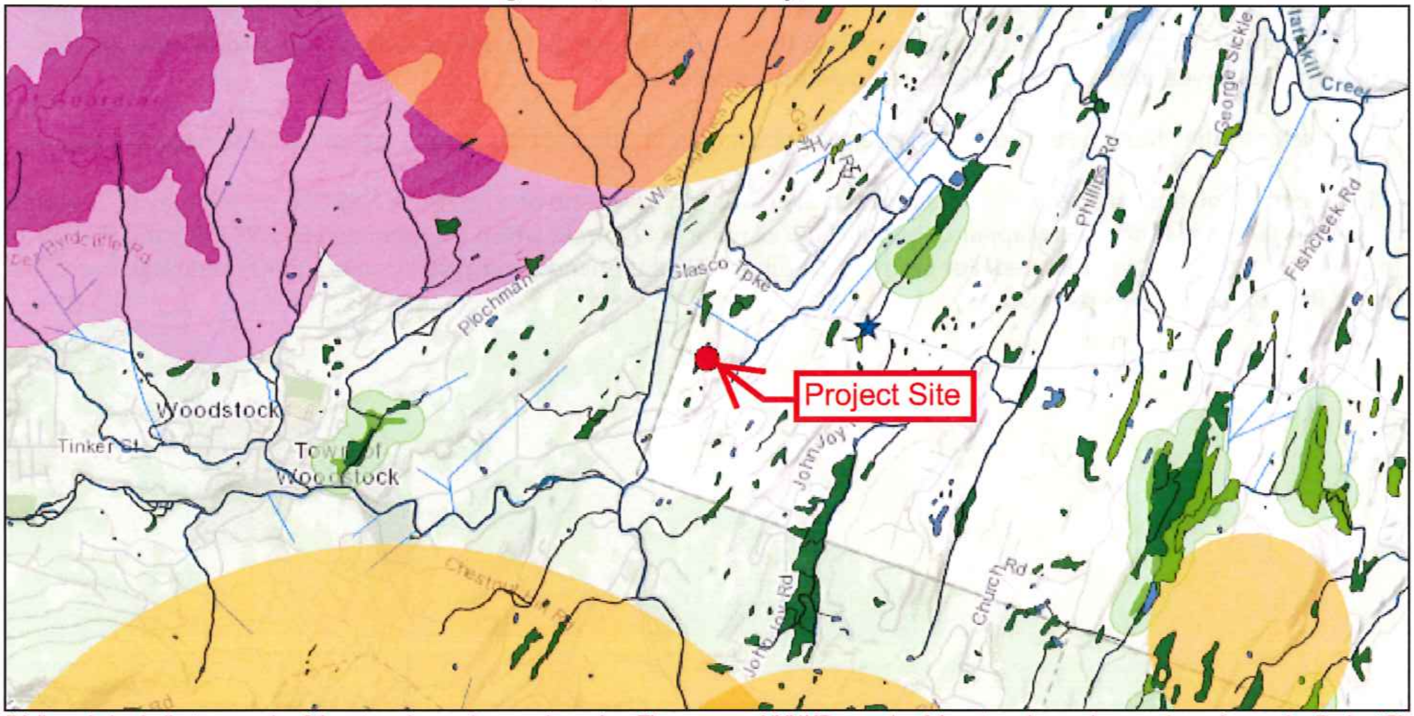
IPaC User Contact Information

Agency: The LA Group, P.C.
Name: Robert Fraser
Address: 40 Long Alley
City: Saratoga Springs
State: NY
Zip: 12866
Email rfraser@thelagroup.com
Phone: 5185878100

Appendix A-2

Environmental Resource Mapper

Terramor Catskills Site, Town of Saugerties, Ulster County, NY



*Yellow circles indicate records of threatened or endangered species. There are no NYNHP records of threatened or endangered species on the Project Site. Only federal wetlands are indicated on the Site.

The coordinates of the point you clicked on are:

UTM 18	**Easting:**	576386.9961274376	**Northing:**	4655388.893049199
Longitude/Latitude	**Longitude:**	-74.07697655610058	**Latitude:**	42.04684808951759

The approximate address of the point you clicked on is:
12498, Woodstock, New York

County: Ulster
Town: Saugerties
USGS Quad: WOODSTOCK

National Wetands Inventory

Attribute: PFO1E
Type: Freshwater Forested/Shrub Wetland
Acres: 0.408074312

Attribute: PUBF
Type: Freshwater Pond
Acres: 0.309585372

For more information about the National Wetands Inventory wetlands visit http://www.fws.gov/wetlands/

If your project or action is within or near an area with a rare animal, a permit may be required if the species is listed as endangered or threatened and the department determines the action may be harmful to the species or its habitat.

If your project or action is within or near an area with rare plants and/or significant natural communities, the environmental impacts may need to be addressed.

The presence of a unique geological feature or landform near a project, unto itself, does not trigger a requirement for a NYS DEC permit. Readers are advised, however, that there is the chance that a unique feature may also show in another data layer (ie. a wetland) and thus be subject to permit jurisdiction.

Please refer to the "Need a Permit?" tab for permit information or other authorizations regarding these natural resources.

Disclaimer: If you are considering a project or action in, or near, a wetland or a stream, a NYS DEC permit may be required. The Environmental Resources Mapper does not show all natural resources which are regulated by NYS DEC, and for which permits from NYS DEC are required. For example, Regulated Tidal Wetlands, and Wild, Scenic, and Recreational Rivers, are currently not included on the maps.

APPENDIX B BAT SURVEYOR QUALIFICATIONS

Michael S. Fishman, CWB

Certified Wildlife Biologist; Professional Wetland Scientist; Regulatory Specialist

Mr. Fishman has 35 years of professional experience in biodiversity and natural resources survey, threatened and endangered species surveys (all taxa, but especially bats and birds), terrestrial, and wetland ecology, environmental impact assessment, environmental permitting, and endangered species management and consultations. He has served as principal investigator on more than 200 biodiversity inventories, each including surveys for birds, mammals, reptiles, amphibians, insects, aquatic invertebrates, and vascular plants, involving a wide variety of observational, photographic, acoustic, and live capture survey techniques. Mr. Fishman has developed original survey protocols for some species. His field work has spanned 26 states in the U.S., as well as Canada, Mexico, Puerto Rico, and Suriname, and his study plan experience has included Dominican Republic and Panama.

His environmental impact assessment experience includes extensive experience with the preparation of environmental impact statements (EIS) and Environmental and Social Impact Assessments (ESIAs) under IFC Performance Standard 6 (Biodiversity). His permitting experience includes local, state, and federal wetlands and waters, endangered species, energy generation and transmission certification, for renewable energy (solar, wind, hydro, bio), oil & gas, mining, industrial/commercial development, municipal water, wastewater, and solid waste, and residential land use.

Experience: 35 years; 2 in academia, 4 in regulatory, 2 in non-profit, and 27 in consulting.

LinkedIn: https://www.linkedin.com/in/michael-fishman-8055379/

Email: mfishman@edgewoodenviro.com

Education

- Master of Science, Conservation Biology, State University of New York, College of Environmental Science and Forestry, USA, Thesis Topic: Indiana Bat (*Myotis sodalis*) Habitat Characterization in the Ontario Lake Plain of New York.
- Bachelor of Science, Natural Resources, Wildlife, and Aquatic Sciences, Cornell University, USA

Professional Affiliations & Registrations

- Certified Wildlife Biologist (CWB)
- Fellow, The Wildlife Society
- Professional Wetland Scientist (PWS)(exp)
- The Wildlife Society (Renewable Energy Working Group Member; Editorial Advisory Board of *The Wildlife Professional*; President, Northeast Section; President and Vice President, New York Chapter)
- Northeast Bat Working Group (Past Chair/President)
- North American Society for Bat Research – Secretary and Member, Board of Directors

Licenses & Permits

- New York Endangered/Threatened Species/Scientific
- New York Collect & Possess/Scientific
- Former federal licensee – Possess/Collect Endangered Bats
- Former federal licensee – Migratory Bird Treaty Act – Collect and Possess

Fields of Competence

- Flora and Fauna/Biodiversity Survey & Management – especially avian and bat species, includes all taxa
- Threatened and Endangered Species Survey
- IFC Performance Standard 6 Biodiversity Survey
- Endangered Species Act Formal Consultation
- Wetland Delineation (Freshwater and Tidal)
- Environmental Due Diligence
- Environmental Impact Assessment/EIS Preparation
- State Environmental Quality Review (SEQR)
- Wetland Regulatory Permitting
- Endangered Species and Wetland Mitigation Planning
- NY State Public Service Law Article VII and Article 10 Review/Certification
- Municipal planning; Landscape/Habitat Management
- Wildlife management planning

Languages

- English, native speaker; some Spanish

Key Industry Sectors

- Renewable Energy (Solar, Wind, Hydro, Biofuel)
- Oil & Gas Midstream
- Mining
- Golf Course
- Residential, Commercial, Industrial, and Mixed-Use Development
- Municipal Water, Wastewater, and Solid Waste

Honors & Awards

- Organization for Bat Conservation Award, 2011
- 40 Under 40 Award, 2009

Bat Acoustic Training

Bat Conservation & Management's Bat Acoustic Training Course, 2011

Developed and Taught ERM's Bat Acoustic Training Course, Amherst, MA (2015); Knoxville, TN (2017); Syracuse, NY (2019)

Wildlife Acoustics, LLC's Bat Acoustic Training Course – Kaleidoscope Pro and SMMiniBAT Bat Detector, 2019

Vesper Bat Detection Services Bat Acoustic Training Course – Eastern Bats, 2020

Recent Bat Projects

Bat Mist Net Survey, Confidential Client/Project, Essex County, NY, 2022.
Conducted a federal protocol Phase 2 mist net survey for Indiana bats for a proposed access road project.

Bat Acoustic Survey, Confidential Client; Confidential Project, Rockland County, NY, 2022
Completed a Phase 2 acoustic survey for Northern Long-eared Bats on a former golf course site proposed for a multi-use development.

Remington Mills Bat Emergence Survey for limited tree clearing, Town of Watertown, Jefferson County, NY, 2022.
Conducted potential roost tree bat emergence surveys at one location to facilitate tree clearing for access to demolish ruins of an old mill along the Black River.

Number Three Wind, Bat Emergence Survey for limited tree clearing, Town of Lowville, Lewis County, NY, 2021, 2022
Conducted potential roost tree bat emergence surveys at multiple locations for limited tree clearing activities during the seasonal restriction on tree clearing. No bats were detected emerging from selected trees, so clearing was able to proceed without risk of take, and under state and federal agency approval.

Confidential Solar Power Development Bat Acoustic Survey, Town of Cortlandt, Westchester County, NY, 2021
Conducted a Phase 2, Step 5/6/7 Acoustic Survey for Indiana and northern long-eared bats on a ±43-acre property proposed for a solar power facility.

Brookhaven National Laboratory Bat Mist Net Surveys, Upton, Town of Brookhaven, Suffolk County, NY, 2021
Conducted mist net surveys to determine potential continued presence of northern long-eared bats, which we detected in previous surveys in 2012, 2014, and 2015.

Confidential Mixed Use Development Project Bat Acoustic Survey, Dutchess County, NY, 2021
Conducted a Phase 2, Step 5/6/7 Acoustic Survey for Indiana and northern long-eared bats on a 3,000-acre property proposed for a mixed-use development. This was a follow-up survey to a mist-net survey I conducted in 2005 for the same client.

Invenergy Number Three Wind Project Bat Potential Roost Tree Survey, Lowville, Lewis County, NY, 2021
Conducted winter survey for potential bat roost trees to enable seasonally restricted clearing of bat roost trees during the winter.

Verizon Cellular Tower Bat Habitat and Impact Assessment, Wappingers Falls, Dutchess County, NY, 2020
Assessed proposed site of a new cellular phone tower for threatened and endangered bat habitat. Determined that although the site was mature forest, no suitable potential roost trees would be cut. USFWS concurred with our findings thereby clearing the project to proceed.

The Wetland Trust Overlook Property, Bat Acoustic Survey, LaGrange, Dutchess County, NY, 2020
Conducted federal protocol acoustic surveys for Indiana and northern long-eared bats on conservation lands to explore feasibility of establishing a bat habitat mitigation bank.

Endangered Bat Habitat Assessment and Tree Management Plan, Trammell Crow – Amazon Warehouse Facility, Liverpool, NY, 2019-20
Conducted Indiana bat habitat assessment and documented management recommendations, and completed seasonal tree clearing compliance inspections for a proposed 4 million square foot warehouse facility on an existing golf course.

Bird and Bat Impact Assessment, Delphos International – Wind Farm Siruai, Kenya, 2019-20
Assisted with design and oversight of baseline field studies for bird and bat biodiversity in compliance with IFC Performance Standard 6 Guidelines for Wind Development; next phase is to assess potential impacts to birds and bats, including 2 critically endangered species of vulture. Draft bird and bat

section of the Environmental and Social Impact Assessment.

Avian and Bat Field Study Protocol for Proposed Wind Energy Project (Confidential), Dominican Republic, 2019.
Drafted IFC PS6-compliant avian and bat study protocol for proposed second phase of a wind energy development project in Dominican Republic.

Biodiversity Due Diligence Review for Proposed Mine Reactivation, Nucor Steel – Project 200, Clifton, NY, 2019
Led natural resources inventory baseline studies, for feasibility study for re-opening an iron mine in the Adirondack Park Preserve. Included identifying baseline environmental resources and required permitting. Next phase will include designing and overseeing field studies for baseline data, coordinating environmental impact assessment, impact avoidance/minimization design guidance, assessing impacts to wetlands, wildlife, and habitats, and preparing environmental permit applications.

Endangered Bat Surveys, Waymart II Wind Farm, NextEra Energy, Northeastern Pennsylvania, USA, 2018
Oversaw and conducted endangered bat presence/absence surveys for a proposed wind energy facility of 20+ turbines.

Endangered Species and Wetland Impact Assessment and Permitting for Multiuse Development, BRH Land – LaGrange Town Center Development, Poughkeepsie, NY, USA 2010-21
Completed federal and state wetland permitting and endangered species permitting/formal consultation for Indiana bat and Blanding's turtle on a proposed multi-use commercial/residential development. Included developing mitigation and management plans for Indiana bat and Blanding's turtles.

Avian and Bat Impact Assessment, Medline Distribution Center EIS, Goshen, NY, USA 2018-20
Completed the wetlands and flora and fauna sections of a DEIS for a proposed 1.3 million square foot medical equipment distribution facility. Issues addressed included avoidance and mitigation of potential impacts to grassland birds, including several state-listed species, and endangered bats.

Biodiversity Due Diligence, Impact Assessment and Permitting for Solar PV Arrays, Duke Energy Renewables, Multiple sites, NY, USA, 2018-20
Conducted environmental due diligence, local permitting, and helped to coordinated NYSERDA bid for 3 ca. 20-MW solar farms in central and western NY.

Biodiversity Due Diligence, Impact Assessment and Permitting for Solar PV Arrays, Cypress Creek Renewables, LLC, 8 sites in New York, USA; 2016 - 2020
Conducted environmental due diligence (Phase 1 ESA, wetlands, T&E species, cultural resources), environmental impact assessment under SEQRA, and prepared local, state, and federal permitting applications for 8 local community generated solar power facilities. Included wetland mitigation planning, watercourse crossings, and conservation plans for bog turtle, Blanding's turtle, and Indiana bat.

Bat and Arboreal Mammal Survey and ESIA, IAMGOLD Saramacca Concession, Brokopondo and Sipilawini Districts, Suriname; 2017 - 2018
Conducted field capture, acoustic, and camera surveys for bats and arboreal mammals to establish baseline data for terrestrial wildlife, and prepared wildlife impacts section of an environmental and social impact assessment (ESIA) for a proposed

gold mine expansion in remote Suriname tropical forest.

Bat Hibernaculum Survey, Chevron – Kitimat LNG Site, Kitimat BC, Canada, 2017

Conducted visual and acoustic survey for bats roosting in abandoned pulp and paper mill slated for demolition for a proposed LNG plant.

Endangered Bat Surveys, Atlantic Coast Pipeline, West Virginia, Virginia, and North Carolina, USA, 2015 - 2018

Led a team of bat biologists to develop and conduct survey protocols for 4 listed bat species and potential roost trees and hibernacula along a proposed ±660 mile gas pipeline project that crossed 4 states. Negotiated conservation measures with state and federal agencies, and led team to conduct construction monitoring for compliance with conservation measures.

Endangered Bat Surveys, Virginia Department of Transportation (VDOT), 9 sites throughout Virginia, USA, 2015

Coordinated acoustic bat surveys on 9 proposed bridge replacement sites in various locations around Virginia and provided final report and conservation recommendations.

Endangered Bat Survey, DeWitt Community Library, DeWitt, New York, USA. 2016.

Conducted acoustic bat survey on greenfield site proposed for construction of a new community library. Included preparing study plan approved by USFWS, deploying acoustic detectors, identifying bat calls, and preparing final report.

Threatened Bat Habitat Assessment, Amazon Distribution Facility, Fall River, Massachusetts, USA, 2016

Assessed site proposed for Amazon distribution facility for potential Northern Long-eared Bat (*Myotis septentrionalis*) habitat. Obtained concurrence from USFWS that site was not suitable habitat, which allowed the development to proceed.

Endangered Bat Surveys, Algonquin Incremental Market Pipeline Project, Various locations in NY, CT, RI, and MA, USA, 2014

Coordinated large-scale acoustic bat survey for proposed gas pipeline expansion project across New England region. Developed study plan approved by USFWS, coordinated field crews and conducted surveys, prepared final report and coordinated with state and federal wildlife agencies for approvals.

Long Island Century Bat Survey, Long Island, New York, USA, 2012-2013

Obtained grant from the National Parks Foundation to conduct the largest bat survey on Long Island in more than 100 years. Survey included 4 U.S. National Park properties, Brookhaven National Laboratory, and Wertheim National Wildlife Refuge, and was performed in cooperation with the NYSDEC, USFWS, USNPS, Brookhaven National Laboratory, and numerous private volunteers.

Endangered Indiana Bat Survey Ultra Resources Marshlands Gas Play, Tioga and Potter Counties, Pennsylvania, USA, 2010

Served as principal investigator for mist net surveys of more than 200 sites in north-central Pennsylvania for a proposed gas play expansion. Recruited surveyors, coordinated staff, collated data, and produced report.

Biodiversity Inventory, Environmental Impact Statement, and Wetland and Endangered Species Permitting, Hudson River Valley Resort Development, Rosendale, New York, USA, 2006-2012

Conducted 4-year natural resource inventory and completed wetlands and wildlife sections of a DEIS and FEIS for a 900-acre proposed resort development. Developed original protocols for vernal pool ecosystem services assessment and threatened Northern Cricket Frog (*Acris crepitans*) surveys that were approved by state wildlife agency, and developed conservation plan for the 2nd largest Indiana bat (*Myotis sodalis*) hibernaculum in the Northeast U.S.

Endangered Bat Survey, West Point Military Reservation, Town of Highland, New York, USA, 2008

Principal investigator for the survey of the 50,000+ acre U.S. Military Academy and Reservation, including mist net and acoustic surveys, preparation of reports, and follow-up guidance to Natural Resources Department personnel on bat management.

Bat-Related Publications

- Fishman, M.S. In Prep. Bats of New York. Commissioned book.
- Fishman, M.S. and R. Allen. In Prep. Filling the gap in the range map of *Micronycteris schmidtorum*; a capture in Suriname.
- Fishman, M.S. 2017. Indiana Bat Selection of Day Roosts in the Ontario Lake Plain of New York. Master's Degree Thesis, State University of New York College of Environmental Science and Forestry, New York, USA.
- Fishman, M.S. 2016. Indiana Bat Selection of Day Roosts in the Ontario Lake Plain of New York. Chapter 11 ***in*** Sociality in Bats, Jorge Ortega (ed.). Springer.
- Fishman, M.S. 2005. Saving your project from the endangered species list. *New York State Real Property Law Journal*, 33(3), Summer, 2005.
- Fishman, M.S. 1995. A selective cut above. Wildlife in the News 7(1).
- Fishman, M.S. 1994. A rose by any other name. Wildlife in the News 6(4).
- Fishman, M.S. 1994. Wastelands to wetlands. Wildlife in the News 6(3).
- Fishman, M.S. and M.S. Scheibel. 1990. Osprey productivity on Long Island 1978-1987: a decade of stabilization. Kingbird 40(1).

Bat-Related Professional Presentations

- Preliminary acoustic bat survey of the boreal peatlands of central Ontario. Poster presentation with James Rettie (coauthor) at the 49th Annual North American Symposium on Bat Research, Kalamazoo, MI.
- Resilience of Northern Long-eared Bats in Coastal Plains. Invited presentation at the White Nose Syndrome Symposium, Rosendale, NY. April 2017.
- The Long Island Century Bat Survey. Invited presentation at Westfield State University, Westfield, MA. February 2017
- Final Threatened Listing and §4(d) Rule for Northern Long-eared Bats. Invited presentation at the Southern Gas Association's 2016 Annual Meeting, Savannah, GA, February 2016.
- Bats at the Beach: Northern Long-eared Bats Are Alive and Well in Northeastern Coastal Communities. Presentation at the 45th Annual American Symposium on Bat Research, Monterey, CA, October, 2015.
- "The Northern Long-eared Bat Threatened Species Listing and Interim 4(d) Rule: How Do They Affect Right-of-Way Work?", invited presentation at the 11th Annual Environmental Concerns in Right-of-Way Management Symposium, Halifax, NS, September 2015.
- "Remnant Populations of Northern Long-Eared Bat in Northeastern Coastal Communities". Presentation at the Northeast Natural History Conference, Springfield, MA, April 2015.
- "Bats of Long Island and the Long Island Century Bat Survey", Invited presentation to the Seatuck Environmental Association's annual Bats and Brews Conference, October, 2015.
- "Remnant Populations of Northern Long-Eared Bat in Northeastern Coastal Communities". Cooperative presentation with the USFWS, NYSDEC, and

BiodiversityWorks at the Northeast Bat Working Group Meeting, Portland, ME, January, 2015.

- "Reviewing for Endangered Species", invited presentation for the Lorman Seminar, *Wetland Regulation*, scheduled for December 4, 2014, Albany, NY.
- "Male and Female Indiana bats Select Different Roost Trees in the Ontario Lake Plain of Central New York", poster accepted for presentation at the North American Symposium on Bat Research, Albany, NY, October 2014.
- "Indiana bat day roost selection and characteristics in the Ontario Lake plain of New York", poster accepted for exhibit at The Wildlife Society 2014 Annual Meeting, Pittsburgh, PA, October 2014.
- "Habitat Modeling for Indiana Bats in Central New York" – Presentation at the Northeast Bat Working Group 2014 Annual Meeting, Clinton, NJ, January 2014.
- "Long Island's Bats" – Invited presentation at the 2nd Annual Long Island Natural History Conference, Long Island, NY, December 2013
- "Bats of the Barrens" – Invited presentation at the 18th Annual Long Island Pine Barrens Research Forum, Long Island, NY, October 2013

APPENDIX C BAT ACOUSTIC SURVEY STUDY PLAN AND APPROVAL

Edgewood Environmental Consulting, LLC

5 Edgewood Parkway
Fayetteville, NY 13066
+1 (315) 456-8731

26 July 2022

Noelle Rayman-Metcalf
Fish & Wildlife Biologist
U.S. Fish & Wildlife Service, New York Field Office
3817 Luker Road
Cortland, NY 13045

Re: Proposed Bat Acoustic Survey Study Plan for the
Proposed Terramor Catskills Development
W/s NY State Rte. 212 (Saugerties-Woodstock Road), S/o Glasco Turnpike
Town of Saugerties, Ulster County, New York
42.049143°N, 74.075251°W

Dear Ms. Rayman-Metcalf:

Kampgrounds of America, Inc., d/b/a Terramor Outdoor Resorts (Terramor) is proposing the Terramor Catskills Outdoor Resort (Project) on a ±75-acre wooded site located on the west side of New York State Route 212 (Saugerties-Woodstock Road), and south of Glasco Turnpike, in the Town of Saugerties, Ulster County, New York (Project Site; see Location Map, ***Figure 1***, and Aerial Orthophoto, ***Figure 2***). The U.S. Fish & Wildlife Service's (USFWS) online Information for Planning and Consultation (IPaC) system (see ***Attachment A***) indicates that the site falls within the range of the endangered Indiana bat (*Myotis sodalis*), and candidate species, Monarch Butterfly (*Danaus plexippus*). New York State Department of Environmental Conservation's (NYSDEC) online Environmental Resource Mapper (ERM) tool (***Attachment B***) indicates no known records of threatened or endangered species on or near the Project Site, and NYSDEC's Northern Long-eared Bat Occurrences by Town (2018) ***(Attachment C)*** indicates that there are no known occurrences of the threatened Northern Long-eared Bat (*Myotis septentrionalis*) within the Town of Saugerties, or closer than the Town of Kingston.

Permitting of the proposed development may require U.S. Army Corps of Engineers' (USACE) authorization for wetland crossings or discharges. General Condition #18 of the Clean Water Act (CWA) Section 404 Nationwide General Permits (NWPs) requires that, "Non-federal permittees must submit a preconstruction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the activity…and shall not begin work on the activity until notified by the district engineer that the requirements of the [Endangered Species Act] have been satisfied and that the activity is authorized." Therefore, Edgewood Environmental Consulting, LLC (Edgewood) has been retained by Terramor to assess the site for potential Indiana bats (*Myotis sodalis*) by acoustic presence/probable absence survey on the Project Site. Whereas Northern Long-eared bats are not known from within the Town of Saugerties, they were once considered virtually ubiquitous. They are proposed for relisting later this year, and could be relisted as an endangered species, so survey efforts for this site will include effort to detect Northern Long-eared Bat, too.

This letter is submitted as our proposed study plan for a field-based acoustic presence/probable absence survey, per the requirements outlined in Appendix C of the *Range-Wide Indiana Bat and Northern Long-eared Bat Survey Guidelines* (USFWS, March 2022; hereinafter, Federal Protocol).

Site Description

The proposed Terramor Catskills Project Site is entirely forested with mixed hardwoods, evergreen/hardwood, and forested wetland cover types. Reference is made to the aerial orthophoto of the Site in ***Figure 2***. The Site slopes down from the southwest corner to the northeast and east, ranging from circa 530 feet down to about 442 feet elevation above mean sea level.

The Site is undeveloped, although a dirt road snakes partially across the property from Saugerties-Woodstock Road (see ***Figure 2***), and there is a storm sewer easement that extends onto the Site from Cottontail Lane, to the north. The Site also contains palustrine wooded wetlands that generally drain to the northeast, and which contain stream flows that also drain to the north-northeast.

Residential and commercial developments occur on lands to the north, east, and south of the Site, but are interspersed among large patches of successional northern hardwood forest that provides connective forested habitat corridors to surrounding forestlands in the region. The presence of large patches of mature hardwood forest, forested wetlands, and abundant connective habitat corridors to adjacent forested habitat make the Site a potential habitat that could support Indiana bats.

Proposed Methods

The federal protocol Phase 1, Step 2 field-based habitat survey will include a pedestrian visual survey of the Site, during which Edgewood will identify and photograph ecological cover types, including hardwood forests that may contain potentially suitable roost trees, foraging habitat, or commuting habitat for bats. Using existing aquatic resource delineation mapping for the site, Edgewood will document the extent of streams, ponds, and wetlands that may be used for foraging or commuting, as well as connective forest corridors that may provide commuting or distribution flight paths for bats to adjacent habitat areas. Documented metrics of forest cover will also include dominant tree species, range and distribution of tree diameters at breast height (DBH), canopy closure, and observations of trees with exfoliating bark or crevices that may be suitable for bat roosting. Findings of this habitat evaluation will be documented in a report that will include Northern Long-eared Bat/Indiana Bat Habitat Assessment Data Sheets from Appendix A of the federal protocol, as well as narrative description of the Site, photographs of Site conditions and features, and maps illustrating approximate locations of photographs and habitat types.

Phase 2, Step 5 acoustic surveys of the Site will follow the habitat assessment. Per the federal protocol, 14 detector nights of sampling effort are required per 0.5 km^2 (123 acres) of habitat to detect both Indiana Bats and Northern Long-eared Bats in non-linear project sites. This Site contains ±75 acres of forested habitat, which is 0.30 km^2, so should require the minimum 14 detector nights of sampling effort. Therefore, Edgewood proposes to deploy 5 Song Meter MiniBAT Bat Detectors (Wildlife Acoustics, LLC, Maynard, MA) for at least 3 calendar nights in likely bat flyways distributed across the Site. ***Figure 2*** illustrates proposed tentative locations for the 5 bat detectors. Edgewood reserves the right to locate bat detectors at other locations, if such locations are found to be better potential sampling locations than the locations indicated in ***Figure 2***. Any deviations from the proposed bat detector locations will be noted with justification in the study report. Five bat detectors deployed for at least 3 calendar nights will yield a sampling effort of 15 detector nights for 75 acres/0.30 km^2 of potentially suitable habitat, which slightly exceeds the minimum requirement of the Federal Protocol.

Bat detectors will be deployed at least 656 feet (200 m) apart, along likely bat flyways such as streams, cleared paths through wooded habitats, or along forest edges. Microphones will be oriented horizontally, at least 10 feet (3 m) above ground level, and will be placed at least 33 feet (10 m) from vegetation or other solid obstructions, parallel to woodland edges, and at least 49 feet (15 m) from any known roost structures (there are no known roost structures on the Project Site). Actual locations of each detector will be plotted with a hand-held 12-channel global positioning system (GPS) unit and documented in the study report. Each bat detector will be photographed in the field to document conditions of the set up and surrounding sample space. Upon set-up and take-down of bat detectors, their function will be confirmed per the manufacturer's recommended procedures, and results will be noted in the study report.

Weather conditions for each night will be reviewed, based on the nearest available National Weather Service data, to confirm compliance with federal protocol-required weather conditions. Weather for sampling nights will be considered in compliance with federal protocol if the following conditions are met for the first 5 hours of sampling in each sample night:

- Air temperature of at least 50°F (10°C)
- No precipitation for longer than 30 minutes
- No intermittent precipitation
- Sustained wind not greater than 9 mph (~7.5 knots; 4 m/s) for 30 minutes or more

If weather conditions during the first 5 hours of any sampling night fail to meet the required conditions, then sampling will be extended until all such conditions are met for at least 3 calendar nights.

Upon completion of acoustic sampling, raw acoustic recordings will be archived, per requirements of the federal protocol. A copy of these recordings will then be analyzed through the current USFWS approved version of the program "Kaleidoscope Pro" (Wildlife Acoustics, LLC, Maynard, MA), to auto-identify/classify each call file to species. If auto-classifiers do not identify any Indiana bats, then no further analysis will be performed. Per the federal protocol, Phase 2, Steps 6 and 7, if auto-classifiers identify Indiana bats or northern long-eared bats (maximum likelihood estimator [MLE] level $p < 0.05$) at a site, all high frequency calls for that site for that night will be manually assessed by a qualified bat biologist with extensive experience in acoustic call analysis (see attached qualifications, ***Attachment D***) to confirm or correct auto-identified classifications, and to determine whether unidentified calls can be appropriately classified. Printed Kaleidoscope Pro classification output with manual confirmations/corrections will be appended to the study report as supporting documentation.

Results of the survey will be documented in a study report, as well as on the standard USFWS spreadsheets available on the USFWS Indiana Bat Summer Survey Guidance webpage. Edgewood anticipates reporting results of the surveys to the USFWS on the standard spreadsheets within 14 days of the completion of the acoustic surveys. The more detailed study report is proposed for completion within 45-60 days of completion of the call vetting. The more detailed study report will include the following information required in the federal protocol:

- Habitat Assessment description with supporting photographs and data sheets
- Explanation of any modifications to survey methods proposed herein
- Names and resumes of all personnel conducting acoustic surveys and conducting qualitative analysis
- Description of each acoustic sampling site
- Dates and duration of survey, weather conditions, and summary of findings
- Summary table outlining detector GPS coordinates, survey dates, survey hours
- Map identifying actual acoustic detector locations with arrows indicating direction of each microphone deployment, with corresponding table of GPS coordinates
- Photographs documenting the location of each detector, the orientation of the detector, and the intended sampling area. The detector and an object indicating scale will be included in each photograph. Poles used to mount detectors/microphones will be graduated in 1 m increments.
- Description of each detector type and microphone (brand/model) used, use of weatherproofing (if any), equipment settings (e.g., sensitivity, audio division ratios), deployment data (i.e., deployment site, habitat, date, time started, time stopped, orientation), and call analysis method used
- Description of how proper functioning of bat detector was determined
- Discussion of program used for analysis, including settings
- Acoustic detector log files renamed by site identifier
- Acoustic analysis software program output/summary results by site, by night (i.e., number of calls detected, species composition, MLE results, settings files)
- Discussion of any nights with zero bat calls recorded (if any)

- Discussion of what keys were used for manual vetting
- Discussion of manual vetting results that alter/correct any auto-identification of listed bat species.

Please advise if USFWS requests any additional information in the final study report.

Given the limited amount of time remaining in the allowable bat survey season and prior commitments between August 7th and 15th, Edgewood proposes to conduct this survey during the week of August 1-6, weather permitting. This should allow ample time to complete the survey before the end of the bat survey season on August 15. Please contact me directly at (315) 456-8731, or at mfishman@edgewoodenviro.com, if you have any questions or require additional information. If this study plan is approved as is, or can be approved with recommended minor changes, please note any changes, sign, and return a copy of the following authorization page to me at your earliest convenience.

Thank you for your review of this plan, and I look forward to hearing from you.

Yours sincerely,

Michael S. Fishman

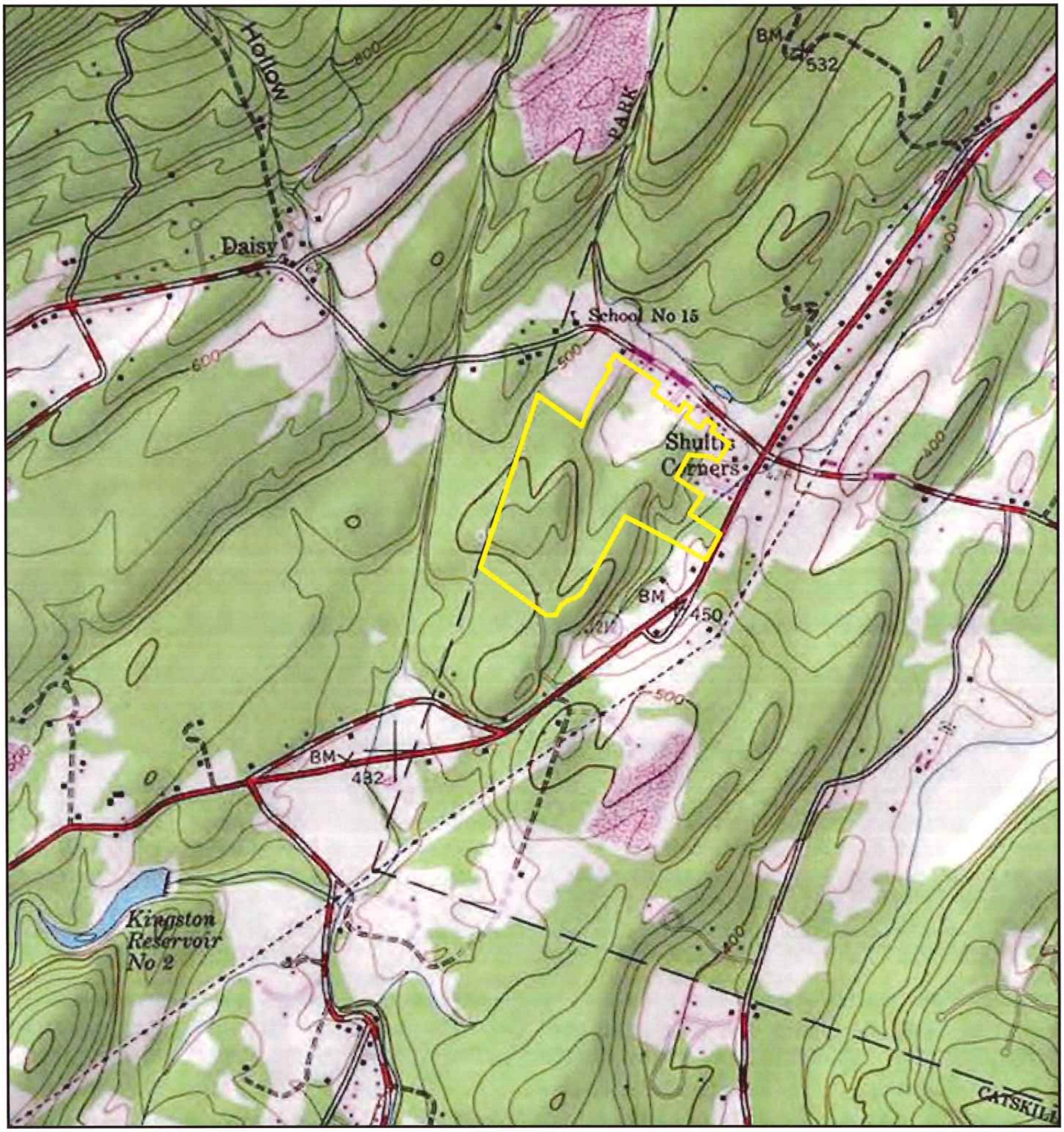
Michael S. Fishman
Certified Wildlife Biologist

Attachments: Figure 1. Site Location Map
Figure 2. Site Aerial Photo and Proposed Bat Detector Locations
Attachment A: IPaC Data
Attachment B: NYSDEC ERM Data
Attachment C: NYNHP Data Report
Attachment D: Qualified Bat Biologist Resume

cc: Kimberly White, Terramor Outdoor Resorts
Kevin Franke, LA Group

FIGURES

Figure 1. Site Location Map



Legend

Project Site Boundary

N

1:24,000

0 0.15 0.3 0.6 mi

0 0.23 0.45 0.9 km

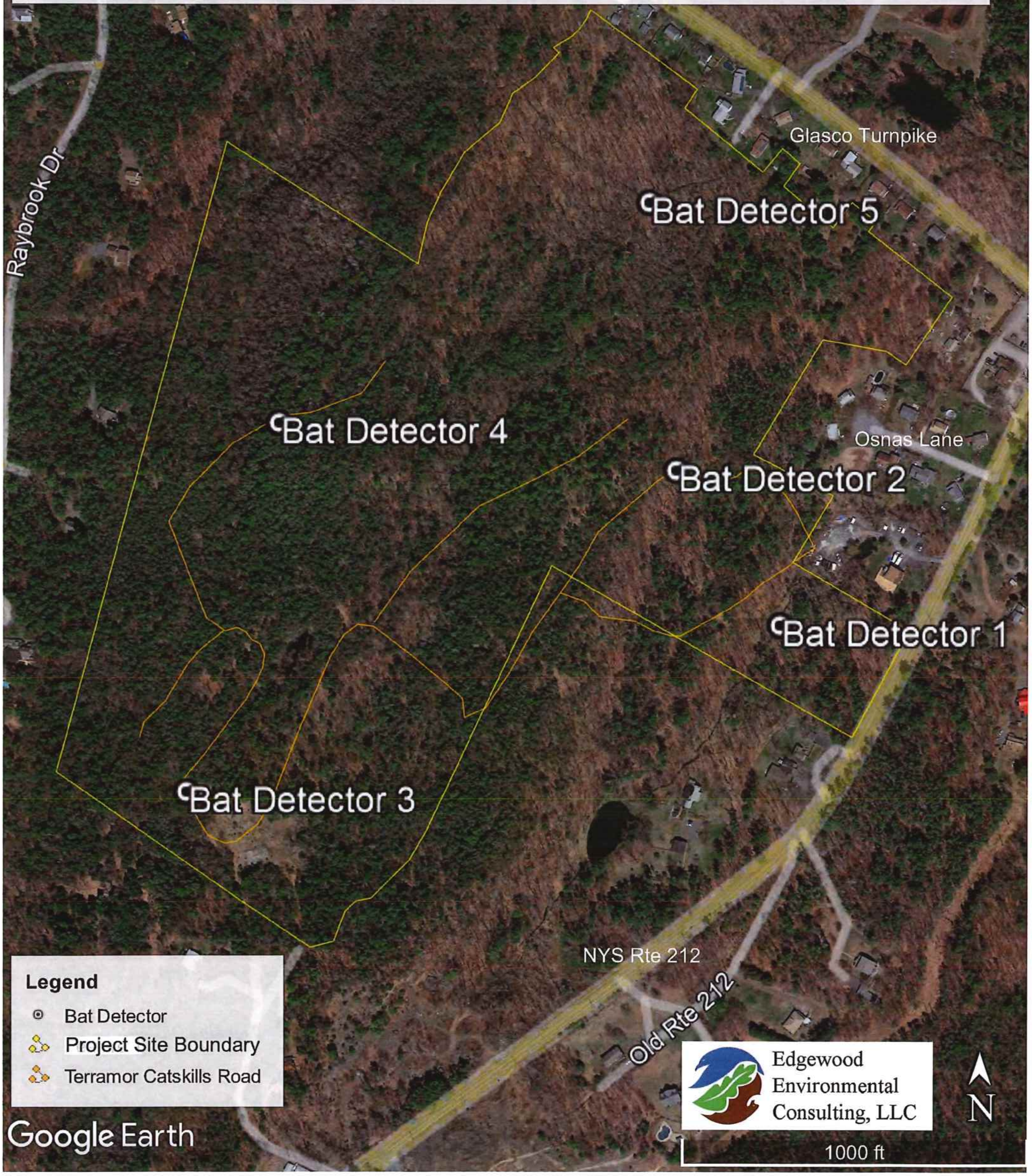
Terramor Catskills
Terramor Outdoor Resorts
Saugerties-Woodstock Road
Saugerties, Ulster County, NY
42.049596°N, 74.074725°W

Edgewood Environmental Consulting, LLC

USGS
2021 USGS

Figure 2. Aerial Orthophoto and Proposed Bat Detector Locations

Terramor Catskills Bat Acoustic Survey
Saugerties-Woodstock Road, Town of Saugerties, Ulster County, NY
42.049596°N, 74.074725°W, WGS84 datum, NY Plane Projection



ATTACHMENT A
IPaC DATA REPORT

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
Email Address: fw5es_nyfo@fws.gov

In Reply Refer To:
Project Code: 2022-0061692
Project Name: Terramor Catskills

July 08, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. **Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.**

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

Project Summary

Project Code:	2022-0061692
Event Code:	None
Project Name:	Terramor Catskills
Project Type:	Commercial Development
Project Description:	The site is a mixed deciduous / coniferous forest approximately 75 acres is size and includes palustrine wetlands and intermittent and perennial streams.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.04940405,-74.07487204201507,14z

Counties: Ulster County, New York

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

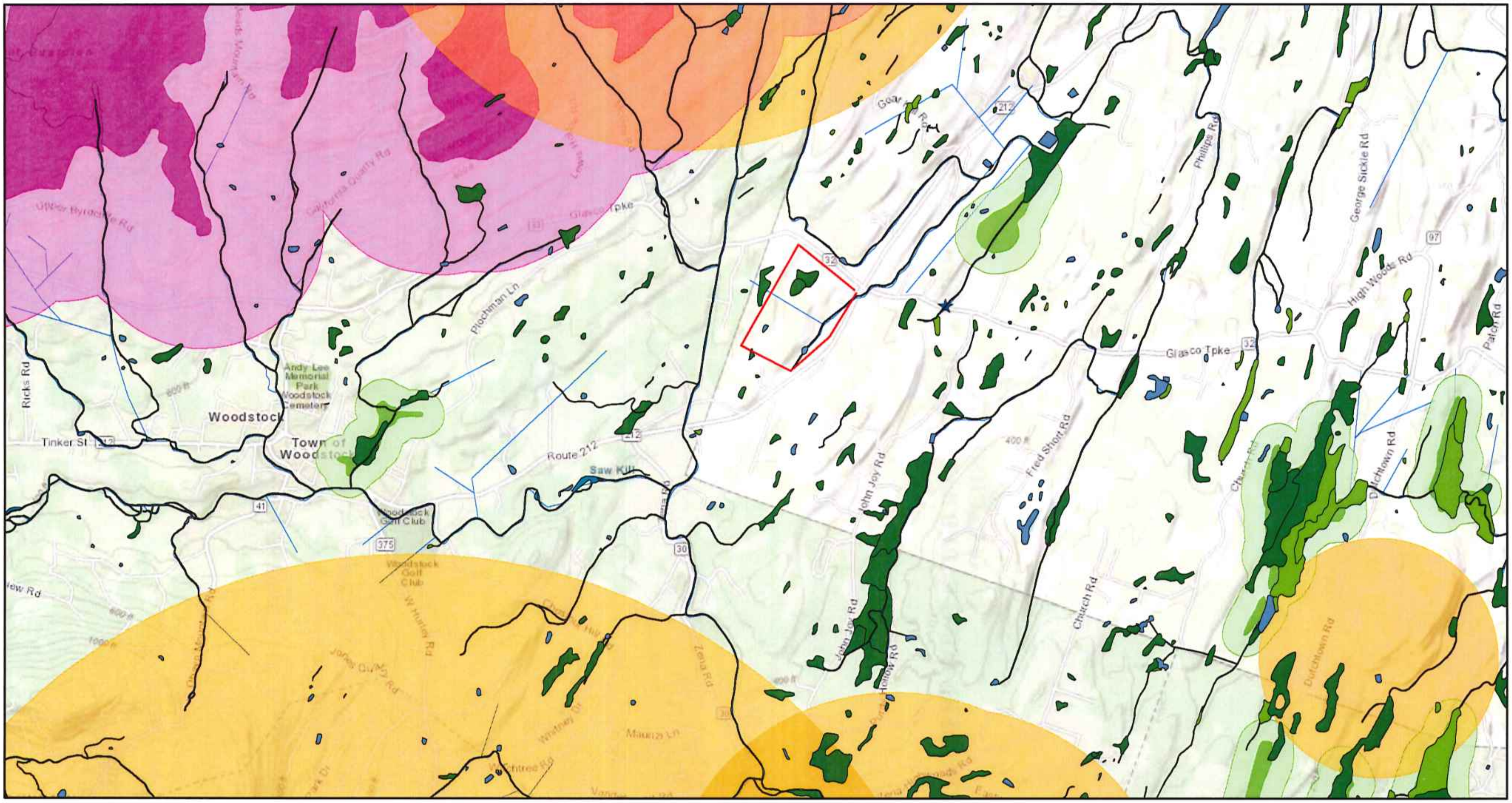
THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPaC User Contact Information

Agency: The LA Group, P.C.
Name: Robert Fraser
Address: 40 Long Alley
City: Saratoga Springs
State: NY
Zip: 12866
Email rfraser@thelagroup.com
Phone: 5185878100

ATTACHMENT B
NYSDEC ERM DATA REPORT

NYSDEC Enviro Resource Mapper



Terramor Outdoor Resorts
Terramor Catskills
Saugerties-Woodstock Road
Saugerties, Ulster County, NY

Legend
- Project Site
- Stream
- Listed Species Occurrence
- Significant Natural Community
- State-regulated Freshwater Wetlands

N

1:36,112

0 0.33 0.65 1.3 mi
0 0.5 1 2 km

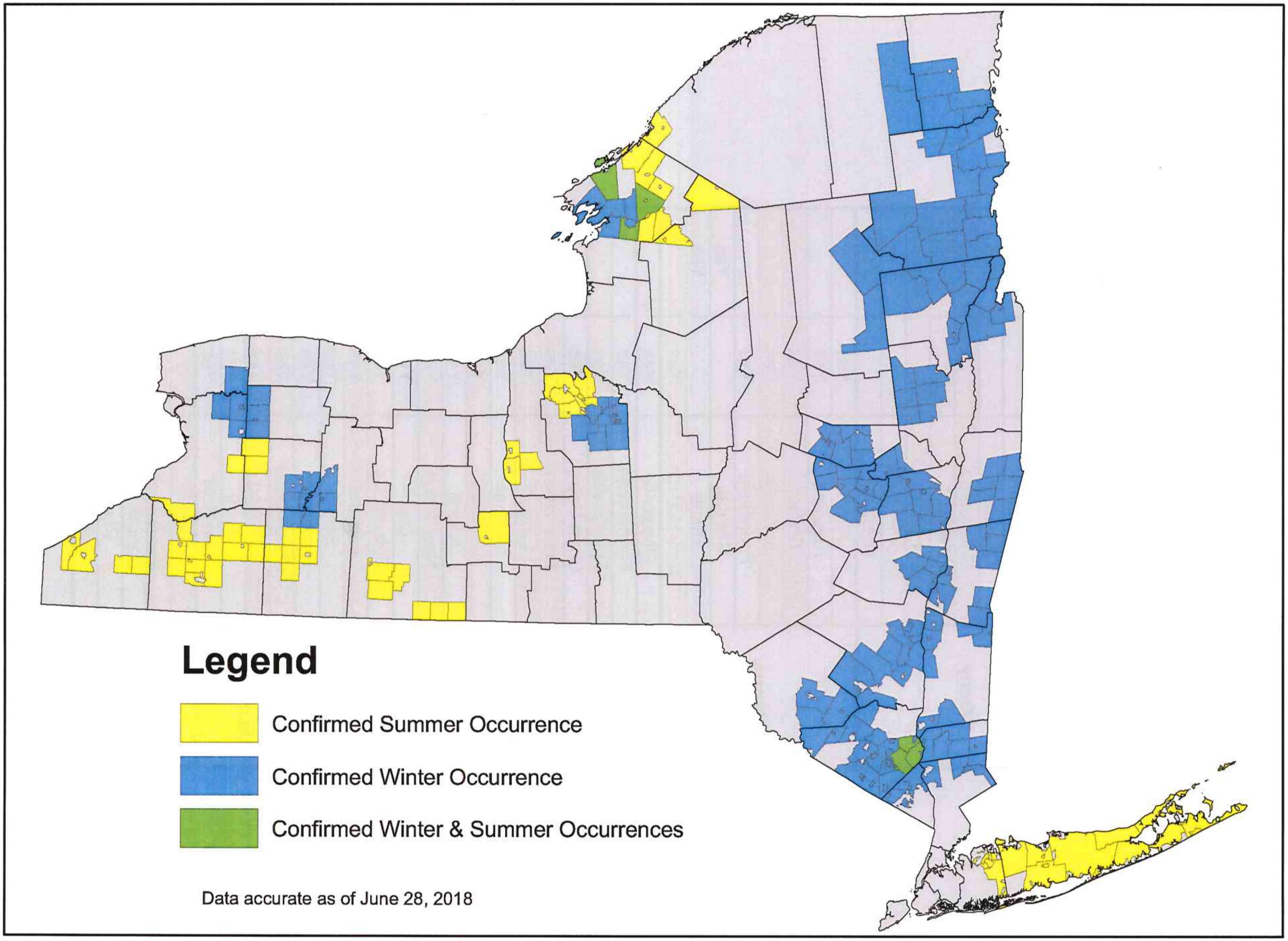
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Edgewood Environmental Consulting, LLC

YS Department of Environmental Conservation
Not a legal document

ATTACHMENT C
NYSDEC'S NORTHERN LONG-EARED BAT OCCURRENCES BY TOWN (2018)

Northern Long-eared Bat Occurrences by Town



Northern Long-eared Bat Occurrences by Town

*if your town is highlighted in yellow, please contact NYNHP to see whether your project site is within 0.25 miles of a hibernacula, or 150 feet of a summer occurrence.

County	Name	Occurrence	
		Summer	Winter
Albany	Altamont		Yes
	Berne		Yes
	Bethlehem		Yes
	Coeymans		Yes
	Guilderland		Yes
	Knox		Yes
	New Scotland		Yes
	Voorheesville		Yes
	Westerlo		Yes
Allegany	Allen	Yes	
	Angelica	Yes	
	Belfast	Yes	
	Caneadea	Yes	
	Friendship	Yes	
	Granger		Yes
	Hume		Yes
	New Hudson	Yes	
Cattaraugus	Ellicottville	Yes	
	Farmersville	Yes	
	Franklinville	Yes	
	Great Valley	Yes	
	Little Valley	Yes	
	Lyndon	Yes	
	Machias	Yes	
	Mansfield	Yes	
	Napoli	Yes	
	New Albion	Yes	
	Otto	Yes	
	Salamanca	Yes	
Cayuga	Ledyard	Yes	
	Scipio	Yes	
	Springport	Yes	
Chautauqua	Chautauqua	Yes	
	Ellington	Yes	
	Gerry	Yes	
	Westfield	Yes	
Clinton	Ausable		Yes
	Black Brook		Yes
	Dannemora		Yes
	Peru		Yes
	Saranac		Yes

Note: not all portions of listed towns are covered by a buffer. If your town is listed, contact NYNHP or your regional DEC office to see whether your project site falls within known occupied habitat.

County	Name	Occurrence	
		Summer	Winter
Columbia	Ancram		Yes
	Austerlitz		Yes
	Canaan		Yes
	Chatham		Yes
	Copake		Yes
	Germantown		Yes
	Greenport		Yes
	Hudson		Yes
	Livingston		Yes
	New Lebanon		Yes
Dutchess	East Fishkill		Yes
	Fishkill		Yes
	Hyde Park		Yes
	Millerton		Yes
	Northeast		Yes
	Pine Plains		Yes
	Red Hook		Yes
	Rhinebeck		Yes
Erie	Akron		Yes
	Alden		Yes
	Clarence		Yes
	Collins	Yes	
	Newstead		Yes
	Wales	Yes	
Essex	Chesterfield		Yes
	Crown Point		Yes
	Elizabethtown		Yes
	Essex		Yes
	Jay		Yes
	Lewis		Yes
	Minerva		Yes
	Moriah		Yes
	Newcomb		Yes
	North Hudson		Yes
	Schroon		Yes
	Ticonderoga		Yes
	Westport		Yes
	Wilmington		Yes
Franklin	Bellmont		Yes
	Franklin		Yes
Genesee	Alabama		Yes
	Corfu		Yes
	Darien		Yes
	Pembroke		Yes

Note: not all portions of listed towns are covered by a buffer. If your town is listed, contact NYNHP or your regional DEC office to see whether your project site falls within known occupied habitat.

County	Name	Occurrence	
		Summer	Winter
Greene	Athens		Yes
	Cairo		Yes
	Catskill		Yes
	Coxsackie		Yes
Hamilton	Indian Lake		Yes
	Wells		Yes
Jefferson	Alexandria	Yes	
	Black River	Yes	
	Brownville		Yes
	Champion	Yes	
	Chaumont		Yes
	Clayton	Yes	Yes
	Dexter		Yes
	Evans Mills	Yes	
	Glen Park		Yes
	Hounsfield		Yes
	Le Ray	Yes	Yes
	Lyme		Yes
	Pamelia		Yes
	Philadelphia	Yes	
	Rutland	Yes	
	Theresa	Yes	
	Watertown	Yes	Yes
Lewis	Copenhagen	Yes	
	Denmark	Yes	
	Diana	Yes	
Livingston	Mount Morris		Yes
	Nunda		Yes
	Portage		Yes
Montgomery	Ames		Yes
	Canajoharie		Yes
	Charleston		Yes
	Glen		Yes
	Mohawk		Yes
	Nelliston		Yes
	Palatine		Yes
	Palatine Bridge		Yes
	Root		Yes
Nassau	Brookville	Yes	
	Muttontown	Yes	
	Oyster Bay	Yes	
	Oyster Bay Cove	Yes	
	Upper Brookville	Yes	
Niagara	Royalton		Yes

Note: not all portions of listed towns are covered by a buffer. If your town is listed, contact NYNHP or your regional DEC office to see whether your project site falls within known occupied habitat.

County	Name	Occurrence	
		Summer	Winter
Onondaga	Camillus	Yes	
	Clay	Yes	
	De Witt		Yes
	East Syracuse		Yes
	Fayetteville		Yes
	Geddes	Yes	
	La Fayette		Yes
	Liverpool	Yes	
	Lysander	Yes	
	Manlius		Yes
	Minoa		Yes
	Onondaga		Yes
	Pompey		Yes
	Salina	Yes	
	Syracuse		Yes
	Van Buren	Yes	
Orange	Blooming Grove		Yes
	Chester		Yes
	Cornwall	Yes	Yes
	Cornwall-on-Hudson		Yes
	Crawford		Yes
	Deerpark		Yes
	Goshen		Yes
	Greenwood Lake		Yes
	Hamptonburgh		Yes
	Harriman		Yes
	Highland Falls		Yes
	Highlands	Yes	Yes
	Kiryas Joel		Yes
	Monroe		Yes
	Mount Hope		Yes
	Otisville		Yes
	South Blooming Grove		Yes
	Tuxedo		Yes
	Tuxedo Park		Yes
	Wallkill		Yes
	Warwick		Yes
	Washingtonville		Yes
	Woodbury	Yes	Yes
Putnam	Brewster		Yes
	Carmel		Yes
	Cold Spring		Yes
	Kent		Yes
	Nelsonville		Yes
	Philipstown		Yes
	Putnam Valley		Yes
	Southeast		Yes

Note: not all portions of listed towns are covered by a buffer. If your town is listed, contact NYNHP or your regional DEC office to see whether your project site falls within known occupied habitat.

County	Name	Occurrence	
		Summer	Winter
Rensselaer	Berlin		Yes
	Grafton		Yes
	Petersburgh		Yes
	Poestenkill		Yes
	Sand Lake		Yes
	Stephentown		Yes
Rockland	Haverstraw		Yes
	Hillburn		Yes
	Pomona		Yes
	Ramapo		Yes
	Sloatsburg		Yes
	Stony Point		Yes
Saratoga	Corinth		Yes
	Edinburg		Yes
	Galway		Yes
	Greenfield		Yes
	Milton		Yes
	Providence		Yes
Schenectady	Delanson		Yes
	Duanesburg		Yes
	Princetown		Yes
Schoharie	Carlisle		Yes
	Cobleskill		Yes
	Esperance		Yes
	Esperance		Yes
	Fulton		Yes
	Middleburgh		Yes
	Schoharie		Yes
	Seward		Yes
	Sharon		Yes
	Wright		Yes
Schuyler	Hector	Yes	
St Lawrence	Hammond	Yes	
Steuben	Cameron	Yes	
	Canisteo	Yes	
	Caton	Yes	
	Jasper	Yes	
	Lindley	Yes	
	Tuscarora	Yes	
Suffolk	Brookhaven	Yes	
	Dering Harbor	Yes	
	East Hampton	Yes	
	Huntington	Yes	
	Islandia	Yes	
	Islip	Yes	
	Lloyd Harbor	Yes	
	Mastic Beach	Yes	

Note: not all portions of listed towns are covered by a buffer. If your town is listed, contact NYNHP or your regional DEC office to see whether your project site falls within known occupied habitat.

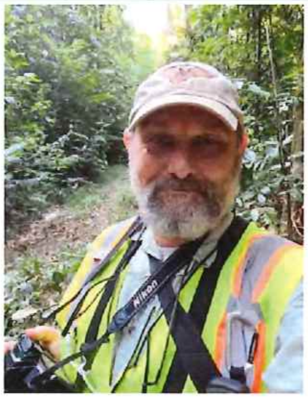
County	Name	Occurrence	
		Summer	Winter
Suffolk (cont'd)	Riverhead	Yes	
	Sag Harbor	Yes	
	Shelter Island	Yes	
	Shoreham	Yes	
	Smithtown	Yes	
	Southampton	Yes	
	Southold	Yes	
	Village of the Branch	Yes	
Sullivan	Bloomingburg		Yes
	Forestburgh		Yes
	Mamakating		Yes
	Thompson		Yes
	Wurtsboro		Yes
Ulster	Esopus		Yes
	Hurley		Yes
	Kingston		Yes
	Marbletown		Yes
	New Paltz		Yes
	Rochester		Yes
	Rosendale		Yes
	Shawangunk		Yes
	Ulster		Yes
	Wawarsing		Yes
Warren	Bolton		Yes
	Chester		Yes
	Hague		Yes
	Horicon		Yes
	Johnsburg		Yes
	Lake George		Yes
	Queensbury		Yes
Washington	Dresden		Yes
	Fort Ann		Yes
	Putnam		Yes
	Whitehall		Yes
Westchester	Cortlandt		Yes
	Lewisboro		Yes
	North Salem		Yes
	Somers		Yes
Wyoming	Bennington	Yes	
	Castile		Yes
	Gainesville		Yes
	Genesee Falls		Yes
	Pike		Yes
	Sheldon	Yes	

Note: not all portions of listed towns are covered by a buffer. If your town is listed, contact NYNHP or your regional DEC office to see whether your project site falls within known occupied habitat.

ATTACHMENT D
BAT ACOUSTIC ANALYST QUALIFICATIONS

Michael S. Fishman, CWB

Conservation Biologist; Environmental Regulatory Specialist; Partner



Mr. Fishman has 35 years of professional experience in biodiversity and natural resources survey, threatened and endangered species surveys (all taxa, but especially bats and birds), terrestrial, and wetland ecology, environmental impact assessment, environmental permitting, and endangered species management and consultations. He has served as principal investigator on more than 200 biodiversity inventories, each including surveys for birds, mammals, reptiles, amphibians, insects, aquatic invertebrates, and vascular plants, involving a wide variety of observational, photographic, acoustic, and live capture survey techniques. Mr. Fishman has developed original survey protocols for some species. His field work has spanned 26 states in the U.S., as well as Canada, Mexico, Puerto Rico, and Suriname, and his study plan experience has included Dominican Republic and Panama.

His environmental impact assessment experience includes extensive experience with the preparation of environmental impact statements (EIS) and Environmental and Social Impact Assessments (ESIAs) under IFC Performance Standard 6 (Biodiversity). His permitting experience includes local, state, and federal wetlands and waters, endangered species, energy generation and transmission certification, for renewable energy (solar, wind, hydro, bio), oil & gas, mining, industrial/commercial development, municipal water, wastewater, and solid waste, and residential land use.

Experience: 35 years; 2 in academia, 4 in regulatory, 2 in non-profit, and 27 in consulting.

LinkedIn: https://www.linkedin.com/in/michael-fishman-8055379/

Email: mfishman@edgewoodenviro.com

Education

- Master of Science, Conservation Biology, State University of New York, College of Environmental Science and Forestry, USA, Thesis Topic: Indiana Bat (*Myotis sodalis*) Habitat Characterization in the Ontario Lake Plain of New York.
- Bachelor of Science, Natural Resources, Wildlife, and Aquatic Sciences, Cornell University, USA

Professional Affiliations & Registrations

- Certified Wildlife Biologist (CWB)
- Professional Wetland Scientist (PWS)(exp)
- The Wildlife Society (Renewable Energy Working Group Member; Editorial Advisory Board of *The Wildlife Professional*; President, Northeast Section; President and Vice President, New York Chapter)
- Northeast Bat Working Group (Past Chair/President)
- North American Society for Bat Research

Licenses & Permits

- New York Endangered/Threatened Species/Scientific
- New York Collect & Possess/Scientific
- Former federal licensee – Possess/Collect Endangered Bats
- Former federal licensee – Migratory Bird Treaty Act – Collect and Possess

Fields of Competence

- Flora and Fauna/Biodiversity Survey & Management – especially avian and bat species, includes all taxa
- Threatened and Endangered Species Survey
- IFC Performance Standard 6 Biodiversity Survey
- Endangered Species Act Formal Consultation
- Wetland Delineation (Freshwater and Tidal)
- Environmental Due Diligence
- Environmental Impact Assessment/EIS Preparation
- State Environmental Quality Review (SEQR)
- Wetland Regulatory Permitting
- Endangered Species and Wetland Mitigation Planning
- NY State Public Service Law Article VII and Article 10 Review/Certification
- Municipal planning; Landscape/Habitat Management
- Wildlife management planning

Languages

- English, native speaker; some Spanish

Key Industry Sectors

- Renewable Energy (Solar, Wind, Hydro, Biofuel)
- Oil & Gas Midstream
- Mining
- Golf Course
- Residential, Commercial, Industrial, and Mixed-Use Development
- Municipal Water, Wastewater, and Solid Waste

Honors & Awards

- Organization for Bat Conservation Award, 2011
- 40 Under 40 Award, 2009

Bat Acoustic Training

Bat Conservation & Management's Bat Acoustic Training Course, 2011

Developed and Taught ERM's Bat Acoustic Training Course, Amherst, MA (2015); Knoxville, TN (2017); Syracuse, NY (2019)

Wildlife Acoustics, LLC's Bat Acoustic Training Course – Kaleidoscope Pro and SMMiniBAT Bat Detector, 2019

Vesper Bat Detection Services Bat Acoustic Training Course – Eastern Bats, 2020

Recent Bat Projects

Number Three Wind, Bat Emergence Survey for limited tree clearing, Town of Lowville, Lewis County, NY, 2021

Conducted potential roost tree bat emergence surveys at multiple locations for limited tree clearing activities during the seasonal restriction on tree clearing. No bats were detected emerging from selected trees, so clearing was able to proceed without risk of take, and under state and federal agency approval.

Confidential Solar Power Development Bat Acoustic Survey, Town of Cortlandt, Westchester County, NY, 2021

Conducted a Phase 2, Step 5/6/7 Acoustic Survey for Indiana and northern long-eared bats on a ±43-acre property proposed for a solar power facility.

Brookhaven National Laboratory Bat Mist Net Surveys, Upton, Town of Brookhaven, Suffolk County, NY, 2021

Conducted mist net surveys to determine potential continued presence of northern long-eared bats, which we detected in previous surveys in 2012, 2014, and 2015.

Confidential Mixed Use Development Project Bat Acoustic Survey, Dutchess County, NY, 2021

Conducted a Phase 2, Step 5/6/7 Acoustic Survey for Indiana and northern long-eared bats on a 3,000-acre property proposed for a mixed-use development. This was a follow-up survey to a mist-net survey I conducted in 2005 for the same client.

Invenergy Number Three Wind Project Bat Potential Roost Tree Survey, Lowville, Lewis County, NY, 2021

Conducted winter survey for potential bat roost trees to enable seasonally restricted clearing of bat roost trees during the winter.

Verizon Cellular Tower Bat Habitat and Impact Assessment, Wappingers Falls, Dutchess County, NY, 2020

Assessed proposed site of a new cellular phone tower for threatened and endangered bat habitat. Determined that although the site was mature forest, no suitable potential roost trees would be cut. USFWS concurred with our findings thereby clearing the project to proceed.

The Wetland Trust Overlook Property, Bat Acoustic Survey, LaGrange, Dutchess County, NY, 2020

Conducted federal protocol acoustic surveys for Indiana and northern long-eared bats on conservation lands to explore feasibility of establishing a bat habitat mitigation bank.

Endangered Bat Habitat Assessment and Tree Management Plan, Trammell Crow – Amazon Warehouse Facility, Liverpool, NY, 2019-20

Conducted Indiana bat habitat assessment and documented management recommendations, and completed seasonal tree clearing compliance inspections for a proposed 4 million square foot warehouse facility on an existing golf course.

Bird and Bat Impact Assessment, Delphos International – Wind Farm Siruai, Kenya, 2019-20

Assisted with design and oversight of baseline field studies for bird and bat biodiversity in compliance with IFC Performance Standard 6 Guidelines for Wind Development; next phase is to assess potential impacts to birds and bats, including 2 critically endangered species of vulture. Draft bird and bat section of the Environmental and Social Impact Assessment.

Avian and Bat Field Study Protocol for Proposed Wind Energy Project (Confidential), Dominican Republic, 2019.

Drafted IFC PS6-compliant avian and bat study protocol for proposed second phase of a wind energy development project in Dominican Republic.

Biodiversity Due Diligence Review for Proposed Mine Reactivation, Nucor Steel – Project 200, Clifton, NY, 2019

Led natural resources inventory baseline studies, for feasibility study for re-opening an iron mine in the Adirondack Park Preserve. Included identifying baseline environmental resources and required permitting. Next phase will include designing and overseeing field studies for baseline data, coordinating environmental impact assessment, impact avoidance/minimization design guidance, assessing impacts to wetlands, wildlife, and habitats, and preparing environmental permit applications.

Endangered Bat Surveys, Waymart II Wind Farm, NextEra Energy, Northeastern Pennsylvania, USA, 2018

Oversaw and conducted endangered bat presence/absence surveys for a proposed wind energy facility of 20+ turbines.

Endangered Species and Wetland Impact Assessment and Permitting for Multiuse Development, BRH Land – LaGrange Town Center Development, Poughkeepsie, NY, USA 2010-21

Completed federal and state wetland permitting and endangered species permitting/formal consultation for Indiana bat and Blanding's turtle on a proposed multi-use commercial/residential development. Included developing mitigation and management plans for Indiana bat and Blanding's turtles.

Avian and Bat Impact Assessment, Medline Distribution Center EIS, Goshen, NY, USA 2018-20

Completed the wetlands and flora and fauna sections of a DEIS for a proposed 1.3 million square foot medical equipment distribution facility. Issues addressed included avoidance and mitigation of potential impacts to grassland birds, including several state-listed species, and endangered bats.

Biodiversity Due Diligence, Impact Assessment and Permitting for Solar PV Arrays, Duke Energy Renewables, Multiple sites, NY, USA, 2018-20

Conducted environmental due diligence, local permitting, and helped to coordinated NYSERDA bid for 3 ca. 20-MW solar farms in central and western NY.

Biodiversity Due Diligence, Impact Assessment and Permitting for Solar PV Arrays, Cypress Creek Renewables, LLC, 8 sites in New York, USA; 2016 - 2020

Conducted environmental due diligence (Phase 1 ESA, wetlands, T&E species, cultural resources), environmental impact assessment under SEQRA, and prepared local, state, and federal permitting applications for 8 local community generated solar power facilities. Included wetland mitigation planning, watercourse crossings, and conservation plans for bog turtle, Blanding's turtle, and Indiana bat.

Bat and Arboreal Mammal Survey and ESIA, IAMGOLD Saramacca Concession, Brokopondo and Sipilawini Districts, Suriname; 2017 - 2018

Conducted field capture, acoustic, and camera surveys for bats and arboreal mammals to establish baseline data for terrestrial wildlife, and prepared wildlife impacts section of an environmental and social impact assessment (ESIA) for a proposed gold mine expansion in remote Suriname tropical forest.

Bat Hibernaculum Survey, Chevron – Kitimat LNG Site, Kitimat BC, Canada, 2017

Conducted visual and acoustic survey for bats roosting in abandoned pulp and paper mill slated for demolition for a proposed LNG plant.

Endangered Bat Surveys, Atlantic Coast Pipeline, West Virginia, Virginia, and North Carolina, USA, 2015 - 2018

Led a team of bat biologists to develop and conduct survey protocols for 4 listed bat species and potential roost trees and hibernacula along a proposed ±660 mile gas pipeline project that crossed 4 states. Negotiated conservation measures with state and federal agencies, and led team to conduct construction monitoring for compliance with conservation measures.

Endangered Bat Surveys, Virginia Department of Transportation (VDOT), 9 sites throughout Virginia, USA, 2015

Coordinated acoustic bat surveys on 9 proposed bridge replacement sites in various locations around Virginia and provided final report and conservation recommendations.

Endangered Bat Survey, DeWitt Community Library, DeWitt, New York, USA. 2016.

Conducted acoustic bat survey on greenfield site proposed for construction of a new community library. Included preparing study plan approved by USFWS, deploying acoustic detectors, identifying bat calls, and preparing final report.

Threatened Bat Habitat Assessment, Amazon Distribution Facility, Fall River, Massachusetts, USA, 2016

Assessed site proposed for Amazon distribution facility for potential Northern Long-eared Bat (*Myotis septentrionalis*) habitat. Obtained concurrence from USFWS that site was not suitable habitat, which allowed the development to proceed.

Endangered Bat Surveys, Algonquin Incremental Market Pipeline Project, Various locations in NY, CT, RI, and MA, USA, 2014

Coordinated large-scale acoustic bat survey for proposed gas pipeline expansion project across New England region. Developed study plan approved by USFWS, coordinated field crews and conducted surveys, prepared final report and coordinated with state and federal wildlife agencies for approvals.

Long Island Century Bat Survey, Long Island, New York, USA, 2012-2013

Obtained grant from the National Parks Foundation to conduct the largest bat survey on Long Island in more than 100 years. Survey included 4 U.S. National Park properties, Brookhaven National Laboratory, and Wertheim National Wildlife Refuge, and was performed in cooperation with the NYSDEC, USFWS, USNPS, Brookhaven National Laboratory, and numerous private volunteers.

Endangered Indiana Bat Survey Ultra Resources Marshlands Gas Play, Tioga and Potter Counties, Pennsylvania, USA, 2010

Served as principal investigator for mist net surveys of more than 200 sites in north-central Pennsylvania for a proposed gas play expansion. Recruited surveyors, coordinated staff, collated data, and produced report.

Biodiversity Inventory, Environmental Impact Statement, and Wetland and Endangered Species Permitting, Hudson River Valley Resort Development, Rosendale, New York, USA, 2006-2012

Conducted 4-year natural resource inventory and completed wetlands and wildlife sections of a DEIS and FEIS for a 900-acre proposed resort development. Developed original protocols for vernal pool ecosystem services assessment and threatened Northern Cricket Frog (*Acris crepitans*) surveys that were approved by state wildlife agency, and developed conservation plan for the 2nd largest Indiana bat (*Myotis sodalis*) hibernaculum in the Northeast U.S.

Endangered Bat Survey, West Point Military Reservation, Town of Highland, New York, USA, 2008

Principal investigator for the survey of the 50,000+ acre U.S. Military Academy and Reservation, including mist net and acoustic surveys, preparation of reports, and follow-up guidance to Natural Resources Department personnel on bat management.

Bat-Related Publications

- Fishman, M.S. In Prep. Bats of New York. Commissioned book.
- Fishman, M.S. and R. Allen. In Prep. Filling the gap in the range map of *Micronycteris schmidtorum*; a capture in Suriname.
- Fishman, M.S. 2017. Indiana Bat Selection of Day Roosts in the Ontario Lake Plain of New York. Master's Degree Thesis, State University of New York College of Environmental Science and Forestry, New York, USA.
- Fishman, M.S. 2016. Indiana Bat Selection of Day Roosts in the Ontario Lake Plain of New York. Chapter 11 ***in*** Sociality in Bats, Jorge Ortega (ed.). Springer.
- Fishman, M.S. 2005. Saving your project from the endangered species list. *New York State Real Property Law Journal*, 33(3), Summer, 2005.
- Fishman, M.S. 1995. A selective cut above. Wildlife in the News 7(1).
- Fishman, M.S. 1994. A rose by any other name. Wildlife in the News 6(4).
- Fishman, M.S. 1994. Wastelands to wetlands. Wildlife in the News 6(3).
- Fishman, M.S. and M.S. Scheibel. 1990. Osprey productivity on Long Island 1978-1987: a decade of stabilization. Kingbird 40(1).

Bat-Related Professional Presentations

- Preliminary acoustic bat survey of the boreal peatlands of central Ontario. Poster presentation with James Rettie (coauthor) at the 49th Annual North American Symposium on Bat Research, Kalamazoo, MI.
- Resilience of Northern Long-eared Bats in Coastal Plains. Invited presentation at the White Nose Syndrome Symposium, Rosendale, NY. April 2017.
- The Long Island Century Bat Survey. Invited presentation at Westfield State University, Westfield, MA. February 2017
- Final Threatened Listing and §4(d) Rule for Northern Long-eared Bats. Invited presentation at the Southern Gas Association's 2016 Annual Meeting, Savannah, GA, February 2016.
- Bats at the Beach: Northern Long-eared Bats Are Alive and Well in Northeastern Coastal Communities. Presentation at the 45th Annual American Symposium on Bat Research, Monterey, CA, October, 2015.
- "The Northern Long-eared Bat Threatened Species Listing and Interim 4(d) Rule: How Do They Affect Right-of-Way Work?", invited presentation at the 11th Annual Environmental Concerns in Right-of-Way Management Symposium, Halifax, NS, September 2015.
- "Remnant Populations of Northern Long-Eared Bat in Northeastern Coastal Communities". Presentation at the Northeast Natural History Conference, Springfield, MA, April 2015.
- "Bats of Long Island and the Long Island Century Bat Survey", Invited presentation to the Seatuck Environmental Association's annual Bats and Brews Conference, October, 2015.
- "Remnant Populations of Northern Long-Eared Bat in Northeastern Coastal Communities". Cooperative presentation with the USFWS, NYSDEC, and BiodiversityWorks at the Northeast Bat Working Group Meeting, Portland, ME, January, 2015.
- "Reviewing for Endangered Species", invited presentation for the Lorman Seminar, *Wetland Regulation*, scheduled for December 4, 2014, Albany, NY.
- "Male and Female Indiana bats Select Different Roost Trees in the Ontario Lake Plain of Central New York", poster accepted for presentation at the North American Symposium on Bat Research, Albany, NY, October 2014.
- "Indiana bat day roost selection and characteristics in the Ontario Lake plain of New York", poster accepted for exhibit at The Wildlife Society 2014 Annual Meeting, Pittsburgh, PA, October 2014.
- "Habitat Modeling for Indiana Bats in Central New York" – Presentation at the Northeast Bat Working

Group 2014 Annual Meeting, Clinton, NJ, January 2014.

- "Long Island's Bats" – Invited presentation at the 2nd Annual Long Island Natural History Conference, Long Island, NY, December 2013
- "Bats of the Barrens" – Invited presentation at the 18th Annual Long Island Pine Barrens Research Forum, Long Island, NY, October 2013

Michael Fishman <mfishman@edgewoodenviro.com>

Fw: [EXTERNAL] URGENT: Late Request for Bat Acoustic Study Plan Review; START DATE 31 July 2022 - APPROVED

1 message

Rayman, Noelle <noelle_rayman@fws.gov> Thu, Jul 28, 2022 at 9:05 AM
To: Michael Fishman <mfishman@edgewoodenviro.com>
Cc: "Doran, Sandra" <Sandra_Doran@fws.gov>

Hi Mike - your survey plan for this project is approved. Please let us know if you run into any issues.

--
Noelle L. Rayman-Metcalf
Endangered Species Biologist
U.S. Fish and Wildlife Service
New York Field Office
3817 Luker Rd.
Cortland, NY 13045
607-753-9334
noelle_rayman@fws.gov
http://www.fws.gov/northeast/nyfo

Please Note:

We are currently experiencing a high demand for Endangered Species Act project reviews. To ensure that your project review packages are able to be reviewed as efficiently as possible, please include an Official Species List from the Information for Planning and Consultation (IPaC) website and all relevant project information. In addition, please use our Project Review website (New York Project Reviews | U.S. Fish & Wildlife Service (fws.gov)) and use our project review checklist (Project submittal checklist | U.S. Fish & Wildlife Service (fws.gov)) to make sure your project review request is complete.

Due to current staff shortages, a large workload for project reviews, and our work to conserve federally listed and at-risk species with our partners, current project review times can vary, possibly 60 days or more for large projects. Every project review is important to us; we will do our very best to address project reviews in a timely fashion. Your patience is appreciated.

From: Rayman, Noelle <noelle_rayman@fws.gov>
Sent: Thursday, July 28, 2022 9:02 AM
To: Doran, Sandra <Sandra_Doran@fws.gov>
Subject: Re: [EXTERNAL] URGENT: Late Request for Bat Acoustic Study Plan Review; START DATE 31 July 2022

I think this study proposal looks good and can quickly respond to Mike.

--
Noelle L. Rayman-Metcalf
Endangered Species Biologist

U.S. Fish and Wildlife Service
New York Field Office
3817 Luker Rd.
Cortland, NY 13045
607-753-9334
noelle_rayman@fws.gov
http://www.fws.gov/northeast/nyfo

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We are currently experiencing a high demand for Endangered Species Act project reviews. To ensure that your project review packages are able to be reviewed as efficiently as possible, please include an Official Species List from the Information for Planning and Consultation (IPaC) website and all relevant project information. In addition, please use our Project Review website ([New York Project Reviews | U.S. Fish & Wildlife Service (fws.gov)]) and use our project review checklist ([Project submittal checklist | U.S. Fish & Wildlife Service (fws.gov)]) to make sure your project review request is complete.

Due to current staff shortages, a large workload for project reviews, and our work to conserve federally listed and at-risk species with our partners, current project review times can vary, possibly 60 days or more for large projects. Every project review is important to us; we will do our very best to address project reviews in a timely fashion. Your patience is appreciated.

From: Doran, Sandra <Sandra_Doran@fws.gov>
Sent: Wednesday, July 27, 2022 2:24 PM
To: Rayman, Noelle <noelle_rayman@fws.gov>
Subject: Fw: [EXTERNAL] URGENT: Late Request for Bat Acoustic Study Plan Review; START DATE 31 July 2022

Can you fit this in?

Sandie Doran
U.S. Fish and Wildlife Service
3817 Luker Road
Cortland, NY 13045
Office Phone: 607-753-9334
Email: sandra_doran@fws.gov

From: Michael Fishman <mfishman@edgewoodenviro.com>
Sent: Wednesday, July 27, 2022 11:55 AM
To: Rayman, Noelle <noelle_rayman@fws.gov>; Doran, Sandra <Sandra_Doran@fws.gov>; Sullivan, Tim R <tim_r_sullivan@fws.gov>
Cc: Kimberly White <kwhite@koa.net>; Kevin Franke <kfranke@thelagroup.com>; Ahmed Helmi <ahelmi@koa.net>
Subject: [EXTERNAL] URGENT: Late Request for Bat Acoustic Study Plan Review; START DATE 31 July 2022

or responding.

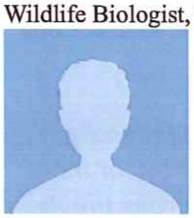
Noelle, Sandy, and Tim,

We've had a late request for a bat acoustic survey on a 75-acre site in Saugerties, NY. I can only fit this in next week, deploying on Sunday, 31 July.

Sorry for the last minute request, but could you please review the attached study plan and let me know if it is approved for implementation?

Thank you very much!

Michael S. Fishman, CWB
Wildlife Biologist, Wetland Scientist, Regulatory Specialist



Edgewood Environmental Consulting, LLC
5 Edgewood Parkway, Fayetteville, NY 13066
+1 (315) 456-8731
mfishman@edgewoodenviro.com

Thinking Outside.

APPENDIX D BAT HABITAT ASSESSMENT DATA SHEETS AND PHOTOS

M.S. Fishman **2022 JOURNAL** Page____

Indiana Bat Phase 1 Summer Habitat Assessment Page 1 of 2

Date: 21 September **Time In:** 1400 **Out:** 1800 EDT EST

Project Name/Location: Terramor Catskills Site, W/s Saugerties-Woodstock Rd, T/o Saugertres, Ulster Co, NY

Position: Zone: 42.04810 N 74.07157 W **Datum:** WGS84 **Elevation** **Site #:** 1

Observers: MSF

Brief Project Description: Proposed camping resort

Project Area Total Acres: 77 **Forested Acres:** 77 **Open Acres:** –

Proposed Trees (ac) Cleared: **Partially Cleared:** **Preserved:**

Landscape Within 5 Mile Radius:
Contains Connective Forested Corridors? Y N ☑ See Aerial Photo

Direction(s) of Corridors (circle all that apply): N NE E SE S SW W NW

Adjacent Land Uses (circle all that apply):

Undeveloped: Forested Shrubland Open/Successional Open/Agricultural Water

Developed: Residential Commercial Industrial Parkland Road Other

Other (describe):

Proximity to Forested Public Land or Preserve

Name	Distance (mi)	
Indian Head Wilderness	1.26	N S E W
Comeau Property	2.3	N S E W
Bluestone Wild Forest	3.18	N S E W
		N S E W

Sample Site Description: Near entrance from Saugerties-Woodstock Road; mostly red-maple-hardwood swamp, with some rich mesic forest w/ Pines

Photos: __edge __interior __understory __canopy __snags __live roosts __water bodies
Revised:07.11.21

M.S. Fishman **2022 JOURNAL** Page____

Indiana Bat Phase 1 Summer Habitat Assessment Page 2 of 2

Date: (Cont'd) 21 September **Project Name** Terramor Catskills **Site #:** 1

Vegetation Cover Types: Red Maple-Hardwood Swamp
Headwater Stream
Rich Mesic Forest

Forest Resources at Sample Site:
Dominant Species of Mature Trees: Red Maple White Pine
Green Ash White Ash

# of Trees in 30 m circle: 20 **% Trees w/Exfoliating Bark:** 1 **# of Snags:** 1

Clutter/ % Closure: **Canopy (>20m):** ~~80~~ 80 **Midstory (7-20m):** 20-40 **Understory (<7m):** 20-40

Size Dist. of Live Trees (%):
Small (8-20cm): (3-8 in): 20% **Medium (20-40 cm): (8-16 in):** 75+% **Large (40+cm): (>16 in):** <5

Water Resources at Sample Site:	Width (m)	Intermit/Perennial	Bat Accessible
Streams: unnamed trib.	±0.6	perennial	yes

Pools/Ponds/Wetlands:	Area (ac)	Vernal/Perennial	Bat Accessible
N/A			

Is this habitat potentially suitable for Indiana/Northern Long Eared Bats? Y N

Roosting Habitat: mature trees/snags in wetland

Foraging Habitat: along stream and in open understory

Transit Habitat: " " " " " "

Hibernaculum: N/A

Additional Comments:

M.S. Fishman 2022JOURNAL Page 82

Indiana Bat Phase 1 Summer Habitat Assessment Page 1 of 2

Date: 04 AUGUST Time In: 14:50 Out: 1650 EDT EST

Project Name/Location: KOA TERRAMOR CATSKILLS, W/S SAUGERTIES-WOODSTOCK RD, S/o GLASCO TPK, SAUGERTIES, NY

Position: Zone: 42.04853 N E 74.07310 W N Datum: W6584 Site #: 2 Elevation 147 m

Observers: MSF

Brief Project Description: PROPOSED CAMPING RESORT

Project Area Total Acres: 77 Forested Acres: 77 Open Acres: —

Proposed Trees (ac) Cleared: Partially Cleared: Preserved:

Landscape Within 5 Mile Radius:
Contains Connective Forested Corridors? Y N ☑ See Aerial Photo

Direction(s) of Corridors (circle all that apply): N NE E SE S SW W NW

Adjacent Land Uses (circle all that apply):

Undeveloped: Forested Shrubland Open/Successional Open/Agricultural Water

Developed: Residential Commercial Industrial Parkland Road Other

Other (describe):

Proximity to Forested Public Land or Preserve

Name	Distance (mi)	
Indian Head Wilderness	1.26	N S E W
Comeau Property	2.3	N S E W
Bluestone Wild Forest	3.18	N S E W
		N S E W

Sample Site Description: Eastern Slope of site, below bluff and Stone wall - mature successional hardwood forest some hemlock mixed in

Photos: 3068 edge 3069 interior 3069 understory __canopy 3070 snags __live roosts __water bodies

Revised:07.11.21

M.S. Fishman 2022JOURNAL Page 83

Indiana Bat Phase 1 Summer Habitat Assessment Page 2 of 2

Date: (Cont'd) 04 AUG Project Name: Terramor Catskills Site #: 2

Vegetation Cover Types: Mature successional northern hardwood forest

Forest Resources at Sample Site:

Dominant Species of Mature Trees: Sugar Maple, Red Maple, Red Oak

# of Trees in 30 m circle: 100 % Trees w/Exfoliating Bark: 3 # of Snags: 2

Clutter/ % Closure: Canopy (>20m): 80-100 Midstory (7-20m): 80-100 Understory (<7m): 60-80

Size Dist. of Live Trees (%):
Small (8-20cm): (3-8 in): 30% Medium (20-40 cm): (8-16 in): 50% Large (40+cm): (>16 in): 20%

Water Resources at Sample Site:

Streams:	Width (m)	Intermit/Perennial	Bat Accessible
unnamed stream	0.6	intermittent	yes

Pools/Ponds/Wetlands:	Area (ac)	Vernal/Perennial	Bat Accessible
floodplain wetland		Perennial	yes

Is this habitat potentially suitable for Indiana/Northern Long Eared Bats? Y N

Roosting Habitat: Snags and dead limbs, Shagbark

Foraging Habitat: logging roads; open understory

Transit Habitat: logging roads; open understory

Hibernaculum: N/A

Additional Comments: Dense understory in areas w/ E. Hemlock

Indiana Bat Phase 1 Summer Habitat Assessment Page 1 of 2

Date: 04 AUGUST **Time In:** 1450 **Out:** 1650 EDT EST

Project Name/Location: Terramor Catskills, W/s Saugerties-Woodstock Rd, S/o Glasco Tpke, Saugerties, Ulster Co. NY

Position: N 42.04742 **Zone:** E W 74.07684 **Datum:** WGS84 **Site #:** 3 N **Elevation**

Observers: MSF

Brief Project Description: Proposed campsite/resort

Project Area Total Acres: 77 **Forested Acres:** 77 **Open Acres:** —

Proposed Trees (ac) Cleared: **Partially Cleared:** **Preserved:**

Landscape Within 5 Mile Radius:
Contains Connective Forested Corridors? Y N ☑ See Aerial Photo

Direction(s) of Corridors (circle all that apply): N NE E SE S SW W NW

Adjacent Land Uses (circle all that apply):

Undeveloped: Forested Shrubland Open/Successional Open/Agricultural Water

Developed: Residential Commercial Industrial Parkland Road Other

Other (describe):

Proximity to Forested Public Land or Preserve

Name	Distance (mi)	
(See Site 1)		N S E W
		N S E W
		N S E W
		N S E W

Sample Site Description: Dense, mature hemlock-hardwood forest - very dense understory - no flyways except for cleared ATV trail

Photos: ✓ edge ✓ interior ✓ understory __ canopy __ snags __ live roosts __ water bodies
Revised:07.11.21

Indiana Bat Phase 1 Summer Habitat Assessment Page 2 of 2

Date: (Cont'd) 04 AUGUST **Project Name** Terramor Catskills **Site #:** 3

Vegetation Cover Types: Hemlock-hardwood forest

Forest Resources at Sample Site:
Dominant Species of Mature Trees:
Eastern Hemlock
Red Oak

# of Trees in 30 m circle: 50 **% Trees w/Exfoliating Bark:** — **# of Snags:** —

Clutter/ % Closure: **Canopy (>20m):** 80-100 **Midstory (7-20m):** 80-100 **Understory (<7m):** 80-100

Size Dist. of Live Trees (%):
Small (8-20cm): (3-8 in): 65+ **Medium (20-40 cm): (8-16 in):** 30 **Large (40+cm): (>16 in):** <5

Water Resources at Sample Site: **Width (m)** **Intermit/Perennial** **Bat Accessible**
Streams: N/A

Area (ac) **Vernal/Perennial** **Bat Accessible**
Pools/Ponds/Wetlands: N/A

Is this habitat potentially suitable for Indiana/Northern Long Eared Bats? Y N

Roosting Habitat: understory is dense; few, if any snags

Foraging Habitat: Cleared ATV trails provide travel

Transit Habitat: and foraging corridors.

Hibernaculum: N/A.

Additional Comments: This habitat is mostly inaccessible, except via ATV Trails/Logging roads

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Indiana Bat Phase 1 Summer Habitat Assessment Page 1 of 2

Date: 21 September Time In: 1400 Out: 1800 EDT EST

Project Name/Location: Terramor Catskills Site, W/s Saugerties-Woodstock Rd, Saugerties, Ulster Co, NY

Position: 42.04970 N 74.07663 W Datum: WGS84 Site #: 4

Zone: E N Elevation

Observers: MSF

Brief Project Description: proposed camping resort.

Project Area Total Acres: 77 Forested Acres: 77 Open Acres: –

Proposed Trees (ac) Cleared: Partially Cleared: Preserved:

Landscape Within 5 Mile Radius:

Contains Connective Forested Corridors? Y N ☑ See Aerial Photo

Direction(s) of Corridors (circle all that apply): N NE E SE S SW W NW

Adjacent Land Uses (circle all that apply):

Undeveloped: Forested Shrubland Open/Successional Open/Agricultural Water

Developed: Residential Commercial Industrial Parkland Road Other

Other (describe):

Proximity to Forested Public Land or Preserve

Name	Distance (mi)	
		N S E W
See site 1		N S E W
		N S E W
		N S E W

Sample Site Description: Hemlock-Northern Hardwoods transition to Successional Northern Hardwoods along a logging/ATV trail

Photos: __edge ✓interior ✓understory __canopy __snags __live roosts __water bodies

Re 7.11.21

M.S. Fishman 2022JOURNAL Page____

Indiana Bat Phase 1 Summer Habitat Assessment Page 2 of 2

Date: (Cont'd) 21 September Project Name Terramor Catskills Site #: 4

Vegetation Cover Types: Hemlock-Northern Hardwoods

Forest Resources at Sample Site:

Dominant Species of Mature Trees: Eastern Hemlock, Red Oak

# of Trees in 30 m circle: 50+ % Trees w/Exfoliating Bark: 0 # of Snags: 0

Clutter/ % Closure: Canopy (>20m): 80-100 Midstory (7-20m): 80-100 Understory (<7m): 80-100

Size Dist. of Live Trees (%):

Small (8-20cm) (3-8 in): 65 Medium (20-40 cm) (8-16 in): 30+ Large (40+cm) (>16 in): <5

Water Resources at Sample Site: Width (m) Intermit/Perennial Bat Accessible

Streams: N/A

Pools/Ponds/Wetlands: Area (ac) Vernal/Perennial Bat Accessible

forested wetland ±100m W of this location yes

Is this habitat potentially suitable for Indiana/Northern Long Eared Bats? Y N only along road

Roosting Habitat: N/A

Foraging Habitat: along logging road/ATV Trail

Transit Habitat: along ATV trail

Hibernaculum: N/A

Additional Comments:

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Indiana Bat Phase 1 Summer Habitat Assessment Page 1 of 2

Date: 04 August Time In: 1450 Out: 1650 EDT EST

Project Name/Location: Terramor Catskills, W/s Saugerties-Woodstock Road, S/o Glasco Tpke, Saugerties, Ulster Co., NY

Position/Zone: 42.05138 N E 74.07378 W Datum: WGS84 N Elevation Site #: 5

Observers: MSF

Brief Project Description: Proposed campsite/resort

Project Area Total Acres: 75 Forested Acres: 74.5 Open Acres: 0.5

Proposed Trees (ac) Cleared: Partially Cleared: Preserved:

Landscape Within 5 Mile Radius:
Contains Connective Forested Corridors? Y N ☑ See Aerial Photo

Direction(s) of Corridors (circle all that apply): N NE E SE S SW W NW

Adjacent Land Uses (circle all that apply):

Undeveloped: Forested Shrubland Open/Successional Open/Agricultural Water

Developed: Residential Commercial Industrial Parkland Road Other

Other (describe):

Proximity to Forested Public Land or Preserve

Name	Distance (mi)	
(See Site 1)		N S E W
		N S E W
		N S E W
		N S E W

Sample Site Description: Mature successional hardwood forest at edge of red maple hardwood swamp

Photos: 3074 edge __interior 3075 understory __canopy shagbark 3076 snags __live roosts __water bodies

Revised:07.11.21

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Indiana Bat Phase 1 Summer Habitat Assessment Page 2 of 2

Date: (Cont'd) 04 August - Project Name: Terramor Catskills Site #: 5

Vegetation Cover Types: Mature successional hardwoods

Red maple hardwood swamp

Forest Resources at Sample Site:

Dominant Species of Mature Trees: Red Maple, Swamp white oak, Sugar maple White Pine, Shagbark Hickory

\# of Trees in 30 m circle: 50 # Trees w/Exfoliating Bark: 3 # of Snags: 2

Clutter/ % Closure: Canopy (>20m): 80-100 Midstory (7-20m): 60-80 Understory (<7m): 20-40

Size Dist. of Live Trees (%):
Small (8-20cm): (3-8 in): 25 Medium (20-40 cm): (8-16 in): 30 Large (40+cm): (>16 in): 3

Water Resources at Sample Site: Width (m) Intermit/Perennial Bat Accessible

Streams: — dried intermittent streams

Area (ac) Vernal/Perennial Bat Accessible

Pools/Ponds/Wetlands: –

Is this habitat potentially suitable for Indiana/Northern Long Eared Bats? Y N

Roosting Habitat: In snags and shagbark hickory

Foraging Habitat: along logging roads and paths

Transit Habitat: " " " "

Hibernaculum: N/A

Additional Comments: More open understory - better suited for sub-canopy flight

Photograph: 1	View of wetland at proposed Site entrance from Saugerties-Woodstock Road. Open understory and snags provide potential roost and foraging habitat.

Photograph: 2	Rich mesic forest with open understory, but young growth. Passage habitat, but no potential roosts.

Photograph: 3	Successional northern hardwoods (mature). Open understory and mature hardwoods provide foraging, transit, and potential roost habitat.

Photograph: 4	Unpaved road between Hemlock-Northern Hardwood (left) and Successional Northern Hardwood (right). Road provides flyway and hardwoods provide roosts; dense evergreens to left are not suitable habitat.

Photograph: 5	Hemlock-northern hardwoods with dense understory and few if any snags. No open flyways and no roost structure – not suitable potential bat habitat.

Photograph: 6	Hemlock-northern hardwoods – young growth. Dense understory and young/small trees provide no flyways and no potential roost structure.

Photograph: 7	Patch of dying ash trees in Successional Northern Hardwoods. Open understory provides flyway and snags provide potential roosts.

Photograph: 8	Young Hemlock-Northern Hardwoods with dense understory; no flyways and no potential roost structure.

Photograph: 9	Young Hemlock-Northern Hardwoods (with some White Pine mixed in) with dense understory; no flyways and no potential roost structure.

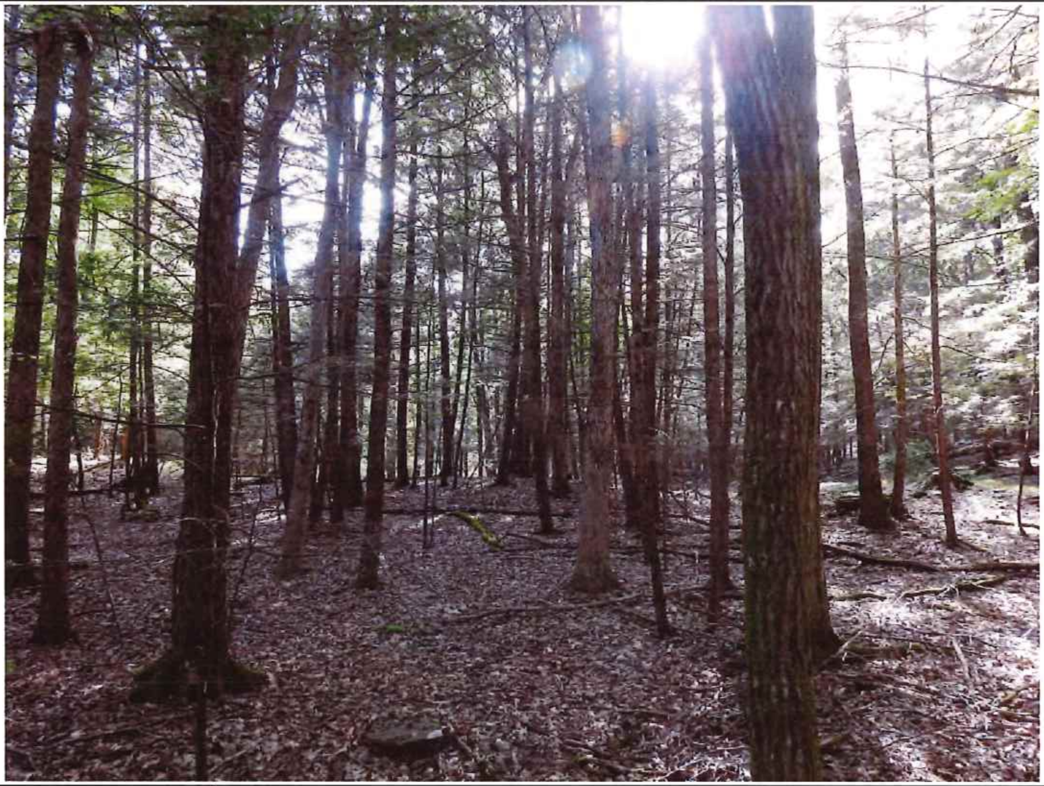
Photograph: 10	Unpaved Road through dense, young Hemlock-Northern Hardwoods provides only flyway through this habitat. No mature trees or snags for potential roost structure.

Photograph: 11	Dense young Hemlock-Northern Hardwoods provide no flyways or roost structure.

Photograph: 12	Mature Hemlock-Northern Hardwood stand still has dense understory of dead minor limbs; no open flyways and no potential roost structure.

Photograph: 13	Mature Hemlock-Northern Hardwood stand still has dense understory of dead minor limbs; no open flyways. Snag (right) is not accessible to flying/foraging bats.

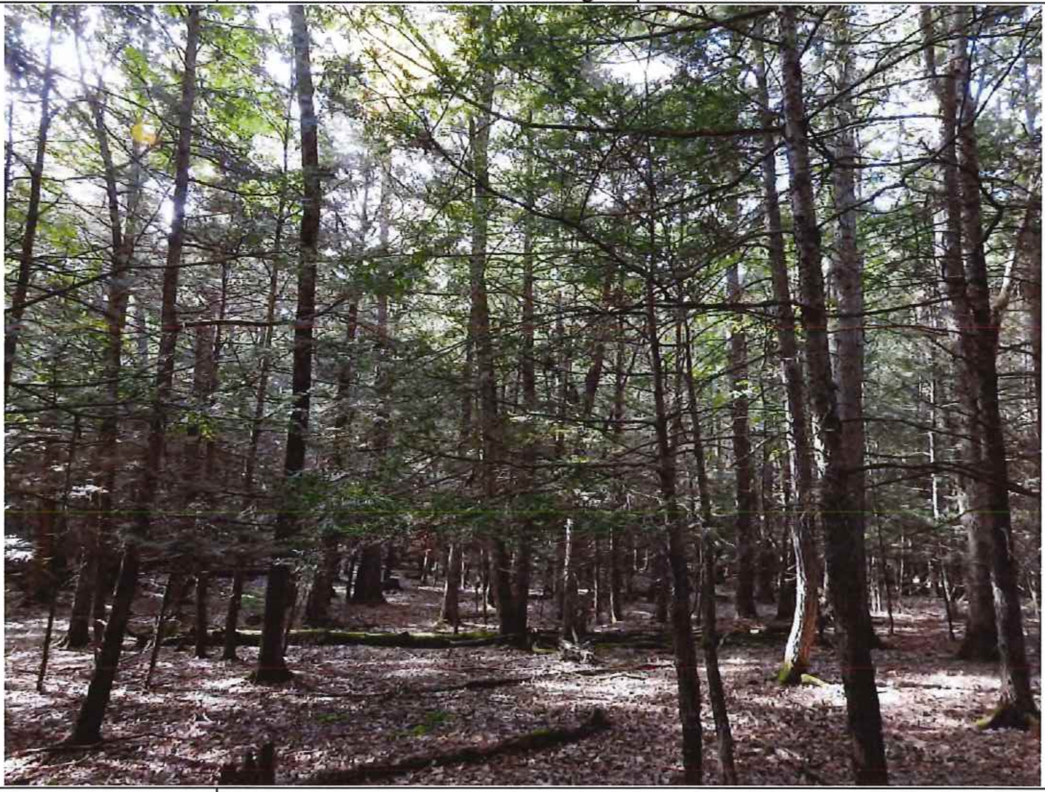
Photograph: 14	Successional Northern Hardwood patch with open understory: provides potential foraging and transit flyways and larger trees may provide potential bat roosts.



Photograph: 15	Successional Northern Hardwood patch with open understory for open flyways and mature hardwoods for potential roosts.

Photograph: 16	Woodland pool surrounded by dense Hemlock-Northern Hardwood forest. Potential for water resource, but not easily accessible to bats from below the forest canopy.

Photograph: 17	Dense Hemlock-Northern Hardwood forest with no open flyways; only gaps are in small blowdowns, or along Unpaved Roads.



Photograph: 18	Dense Hemlock-Northern Hardwood forest; no open flyways or potential roost structure.

Photograph: 19	Woodland pool surrounded by dense Hemlock-Northern Hardwood forest. Potential for water resource, but not easily accessible to bats from below the forest canopy.

Photograph: 20	Small clearing at end of Unpaved Road; surrounded by dense Hemlock-Northern Hardwoods, it is only accessible along the Unpaved Road.

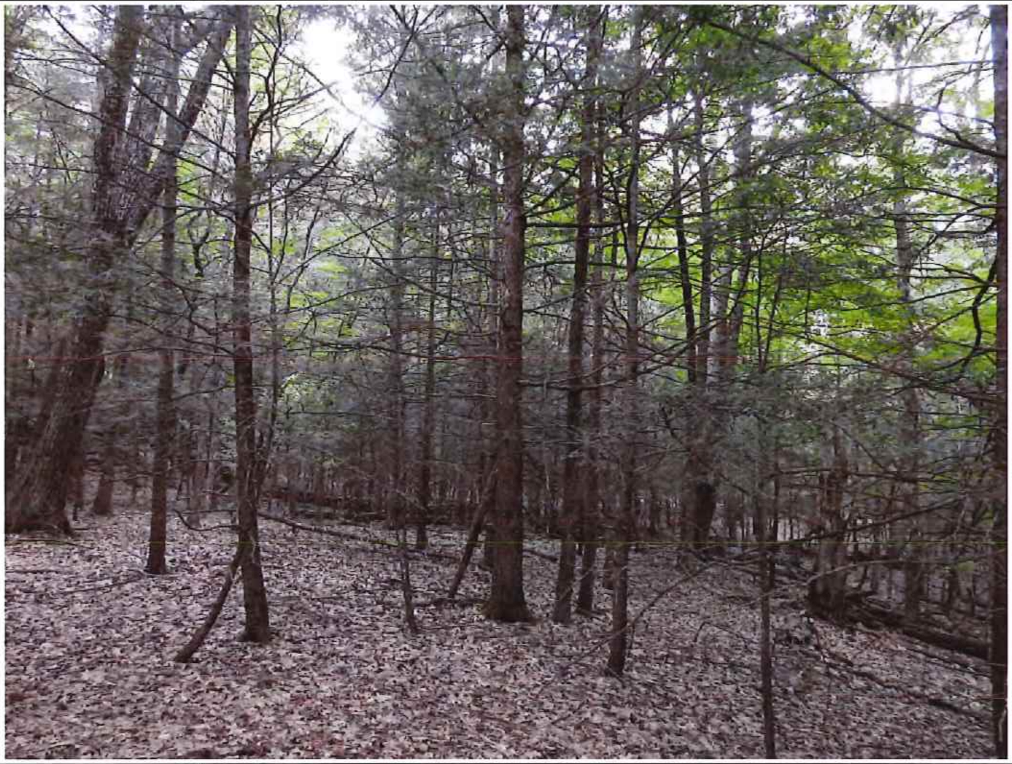
Photograph: 21 Hemlock/Hardwood Swamp/Red Maple-Hardwood Swamp provides potential habitat (water resource, open flyway for foraging; snags for roosting

Photograph: 22 Dense Hemlock-Northern Hardwoods along western side of Site: too dense in understory for flyways and trees are too small and no snags for roost structure.

Photograph: 23	Hemlock-Hardwood Swamp (distant) transitions to Red Maple-Hardwood Swamp (foreground); open understory is open flyway and snags provide potential bat roosts.

Photograph: 24	Dense young growth Hemlock-Northern Hardwood forest; no open flyways and no potential roost structure.

Photograph: 25	Mature Hemlock-Northern Hardwood forest; dense understory provides no open flyways; bats can't access mature trees for potential roosts.



Photograph: 26	Mostly young Hemlock-Northern Hardwood forest with scattered larger trees. Young hemlocks are too dense to provide open flyways.

Photograph: 27	Mixed age Hemlock-Northern Hardwoods; understory is too dense for open flyways. Scattered larger trees are not accessible to bats from beneath the canopy.

Photograph: 28	Very dense subcanopy of young Hemlock-Northern Hardwood forest; no open flyways or potential roost structure.

Photograph: 29	Young Hemlock-Northern Hardwood forest with dense understory; no flyways for bat transit or foraging and no snags for potential roosts.

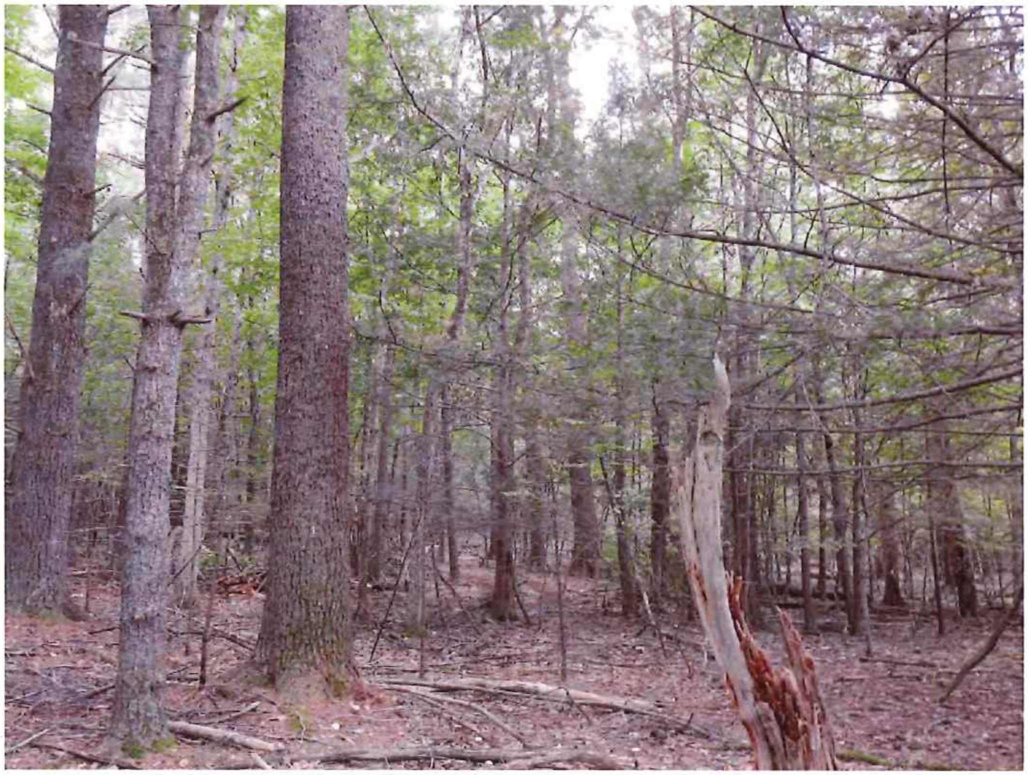
Photograph: 30	Young Hemlock-Northern Hardwood forest; too dense to provide sub-canopy flyways or access to potential roost trees, of which there are few.

Photograph: 31 | Mature Successional Northern Hardwoods in the northwestern corner of the Site with a wide-open understory for flyways, and mature trees and snags for potential roost trees.

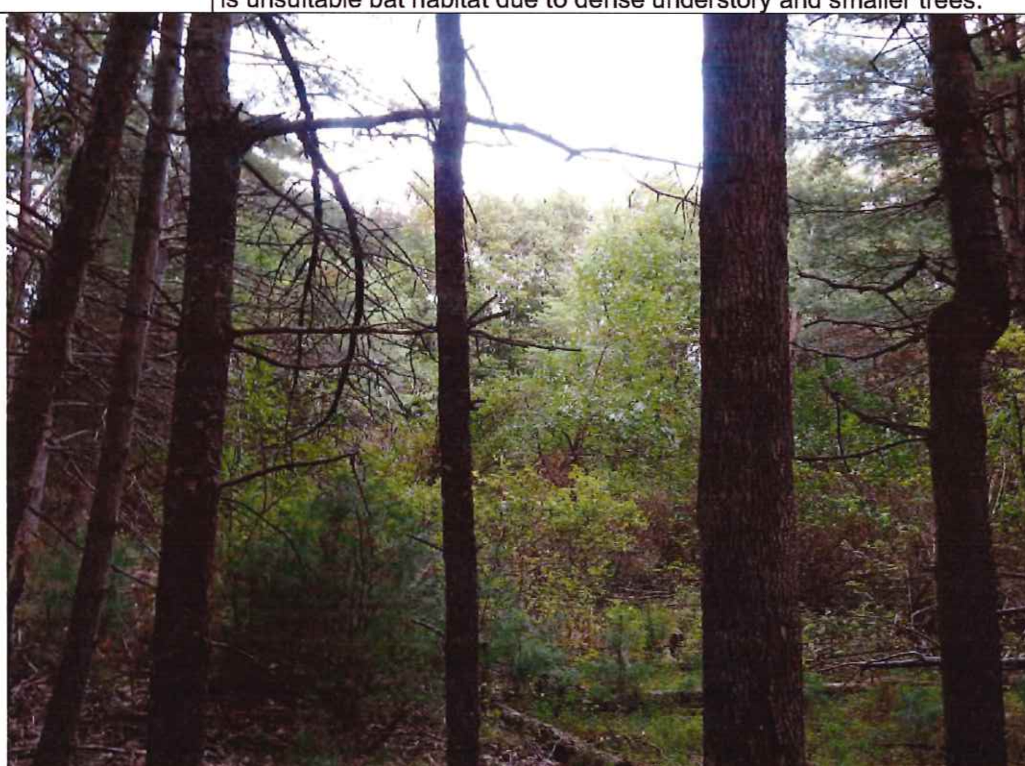
Photograph: 32 | Mature Successional Northern Hardwood forest with intermittent drainage channel flowing downhill toward Red Maple-Hardwood Swamp. Open understory provides flyways, and mature trees and snags provide potential roosts.

Photograph: 33	Open understory of mature Successional Northern Hardwoods provide open flyways for foraging and transit, and large trees and snags provide potential roost trees.

Photograph: 34	Younger Successional Northern Hardwoods provide an open understory for flyways, and scattered large trees and snags for potential roost trees.



Photograph: 35	Looking from the edge of mature Successional Northern Hardwoods (foreground) into dense Hemlock-Northern Hardwoods (background), that is unsuitable bat habitat due to dense understory and smaller trees.



Photograph: 36	A small patch of open canopy Successional Northern Hardwoods in the northeast corner of the Site provides potential foraging area and access to potential roost trees at edges.

Photograph: 37	Young Hemlock-Northern Hardwood forest; no open flyways or roosts.

Photograph: 38	Narrow band of Successional Northern Hardwoods provides subcanopy flyways and potential roost trees.

APPENDIX E SUMMARY OF BAT DETECTOR TYPES AND DEPLOYMENTS

Bat Detector Deployment Summary

Sample Site	Bat Detector Type	Bat Detector No.	Latitude °N (DD, WGS84)	Longitude °W (DD, WGS84)	Height (m)	Orientation* (Azimuth °)	Distance to Clutter (m)	Sample Nights	Habitat Type
1	SMMini	1544	42.04804	74.07175	3	246°	15	3	Open understory of Red Maple Hardwood Swamp, along narrow (1 m) stream.
2	SMMini	1618	42.04913	74.07256	3	90°	10	3	Open understory of mature Successional Northern Hardwood forest, along logging road.
3	SMMini	1631	42.04723	74.07673	3	15°	20+	3	Along logging road through dense Hemlock-Northern Hardwood forest
4	SMMini	1645	42.04978	74.07662	3	212°	15	3	Along logging road through dense Hemlock-Northern Hardwood forest
5	SMMini	1649	42.05138	74.07378	3	42°	20	3	Northern Hardwoods and Red Maple-Hardwood Swamp

*All microphones were mounted horizontally.

APPENDIX F BAT ACOUSTIC SURVEY DATA SHEETS AND PHOTOS

BAT ACOUSTIC SURVEY DATA

Dates:
Deployment: 31 JULY **Pick Up:** 04 AUGUST
Project Name: KOA Terramor Catskills **Sample Site:** TC1
Position: 42.04804 °N 74.07175 °W **Datum:** WGS84
Location: W/s SR 212 (Saugerties - Woodstock Rd) S/W/o Osnas Lane

Habitat:
(a) Forest Canopy Opening (b) Near/Over Still Water (c) Wooded Hedgerow
(d) Recently Logged Forest (e) Road/Stream Corridor (f) Woodland Edge
✓ Closed Canopy ___ Parallel to wooded edge

Equipment:
___ Wildlife Acoustics SM4BAT w/SMM-U1 Microphone w/directional cone #___
✓ Wildlife Acoustics SM MiniBAT Unit # 1544-TC1
___ Other:

Mic.angle 0 ° to horiz Orientation 246° Ht. 3 m Dist to Clutter 15 m
pg00
Photos: Set Up: 3058 Reception Cone: 3059 Test Screen Start: ✓ Finish: ✓
Program: Sunset to Sunrise Other:
Sunset: 2025 EDT **Sunrise:** 0547 EDT **Moon Phase:** 1Q 2Q/F 3Q N
Weather Night OK?: Night 1 ✓ 2 ✓ 3 ✓ 4 ___ 5 ___ 6 ___
Resulting Data: 14.12 GB 2,420 Recordings
Notes:

BAT ACOUSTIC SURVEY DATA

Dates:
Deployment: 31 JULY **Pick Up:** 04 AUGUST
Project Name: KOA Terramor Catskills **Sample Site:** TC2
Position: 42.04913 °N 74.07256 °W **Datum:** WGS84
Location: Along logging road on E side of site.

Habitat:
(a) Forest Canopy Opening (b) Near/Over Still Water (c) Wooded Hedgerow
(d) Recently Logged Forest (e) Road/Stream Corridor (f) Woodland Edge
✓ Closed Canopy ___ Parallel to wooded edge

Equipment:
___ Wildlife Acoustics SM4BAT w/SMM-U1 ~~Microphone w/directional~~ cone #___
✓ Wildlife Acoustics SM MiniBAT Unit # 1618-TC2
___ Other:

Mic.angle 0 ° to horiz Orientation 90 ° Ht. 3 m Dist to Clutter 10 m
Photos: Set Up: 3060 Reception Cone: 3061 Test Screen Start: ✓ Finish: ✓
Program: Sunset to Sunrise Other:
Sunset: 2025 EDT **Sunrise:** 0547 EDT **Moon Phase:** 1Q 2Q/F 3Q N
Weather Night OK?: Night 1 ✓ 2 ✓ 3 ✓ 4 ___ 5 ___ 6 ___
Resulting Data: 13.06 GB 2591 Recordings
Notes:

BAT ACOUSTIC SURVEY DATA

Dates:
Deployment: 31 JULY **Pick Up:** 04 AUGUST
Project Name: Terramor Catskills **Sample Site:** TC3
Position: 42.04723 °N 74.07673 °W **Datum:** WGS 84
Location: SW section of site along ATV trail

Habitat:
(a) Forest Canopy Opening (b) Near/Over Still Water (c) Wooded Hedgerow
(d) Recently Logged Forest (e) Road/Stream Corridor (f) Woodland Edge
✓ Closed Canopy ___ Parallel to wooded edge

Equipment:
___ Wildlife Acoustics SM4BAT w/SMM-U1 Microphone w/directional cone # ___
✓ Wildlife Acoustics SM MiniBAT Unit # 1631-TC3
___ Other: ___

Mic.angle 0 ° to horiz Orientation 15 ° Ht. 3 m Dist to Clutter 20+ m
Photos: Set Up: 3064 Reception Cone: 3065 Test Screen Start: ✓ Finish: ✓
Program: Sunset to Sunrise Other: ___
Sunset: 2025 EDT **Sunrise:** 0547 EDT **Moon Phase:** 1Q 2Q/F 3Q N
Weather Night OK?: Night 1 ✓ 2 ✓ 3 ✓ 4 ___ 5 ___ 6 ___
Resulting Data: 42.38 GB 6,515 Recordings
Notes: Along ATV trail through hemlock-hardwood forest; dense understory

Rev.080121

BAT ACOUSTIC SURVEY DATA

Dates:
Deployment: 31 JULY **Pick Up:** 04 AUGUST
Project Name: Terramor Catskills **Sample Site:** TC4
Position: 42.04978 °N 74.07662 °W **Datum:** WGS 84
Location: West side of site along ATV trail

Habitat:
(a) Forest Canopy Opening (b) Near/Over Still Water (c) Wooded Hedgerow
(d) Recently Logged Forest (e) Road/Stream Corridor (f) Woodland Edge
✓ Closed Canopy ___ Parallel to wooded edge

Equipment:
___ Wildlife Acoustics SM4BAT w/SMM-U1 Microphone w/directional cone # ___
✓ Wildlife Acoustics SM MiniBAT Unit # 1645-TC4
___ Other: ___

Mic.angle 0 ° to horiz Orientation 212 ° Ht. 3 m Dist to Clutter 15 m
Photos: Set Up: 3062 Reception Cone: 3063 Test Screen Start: ✓ Finish: ✓
Program: Sunset to Sunrise Other: ___
Sunset: 2025 EDT **Sunrise:** 0547 EDT **Moon Phase:** 1Q 2Q/F 3Q N
Weather Night OK?: Night 1 ✓ 2 ✓ 3 ✓ 4 ___ 5 ___ 6 ___
Resulting Data: 23.81 GB 3,820 Recordings
Notes: Along ATV trail through E. hemlock-hardwood forest; dense understory

Rev.080121

BAT ACOUSTIC SURVEY DATA

Dates:
Deployment: 31 JULY **Pick Up:** 04 AUGUST
Project Name: Terramor Catskills **Sample Site:** TC5
Position: 42.05138 °N 74.07378 °W **Datum:** WGS 84
Location: N end of Site - old dirt road (disused) between mature hardwoods and swamp.

Habitat:
(a) Forest Canopy Opening (b) Near/Over Still Water (c) Wooded Hedgerow
(d) Recently Logged Forest (e) Road/Stream Corridor (f) Woodland Edge
✓ Closed Canopy ___ Parallel to wooded edge

Equipment:
___ Wildlife Acoustics SM4BAT w/SMM-U1 Microphone w/directional cone # ___
✓ Wildlife Acoustics SM MiniBAT Unit # 1649-TC5
___ Other: ___

Mic.angle 0 ° to horiz Orientation 42 ° Ht. 3 m Dist to Clutter 20 m

Photos: Set Up: 3066 Reception Cone: 3067 Test Screen Start: ✓ Finish: ✓

Program: Sunset to Sunrise Other: ___

Sunset: 2025 EDT **Sunrise:** 0547 EDT **Moon Phase:** 1Q 2Q/F 3Q N

Weather Night OK?: Night 1 ✓ 2 ✓ 3 ✓ 4 ___ 5 ___ 6 ___

Resulting Data: 15.67 GB 3,084 Recordings

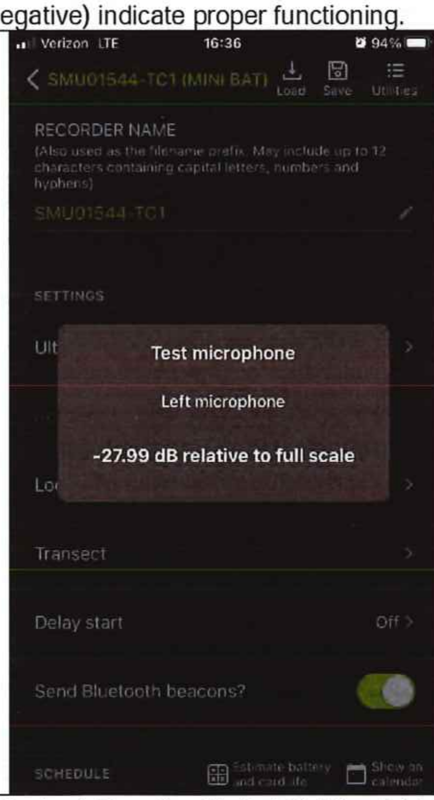
Notes: Mature successional hardwood forest at edge of red maple-hardwood swamp. Open understory; old trail along stone wall.

Rev.080121

Photograph: 1	Bat Detector 1 Deployment in Red Maple Hardwood Swamp along a narrow stream.

Photograph: 2	Bat Detector 1 Reception Cone

Photograph: 3	Bat Detector 1 Function Test at Installation. Values greater than -30 dB (less negative) indicate proper functioning.



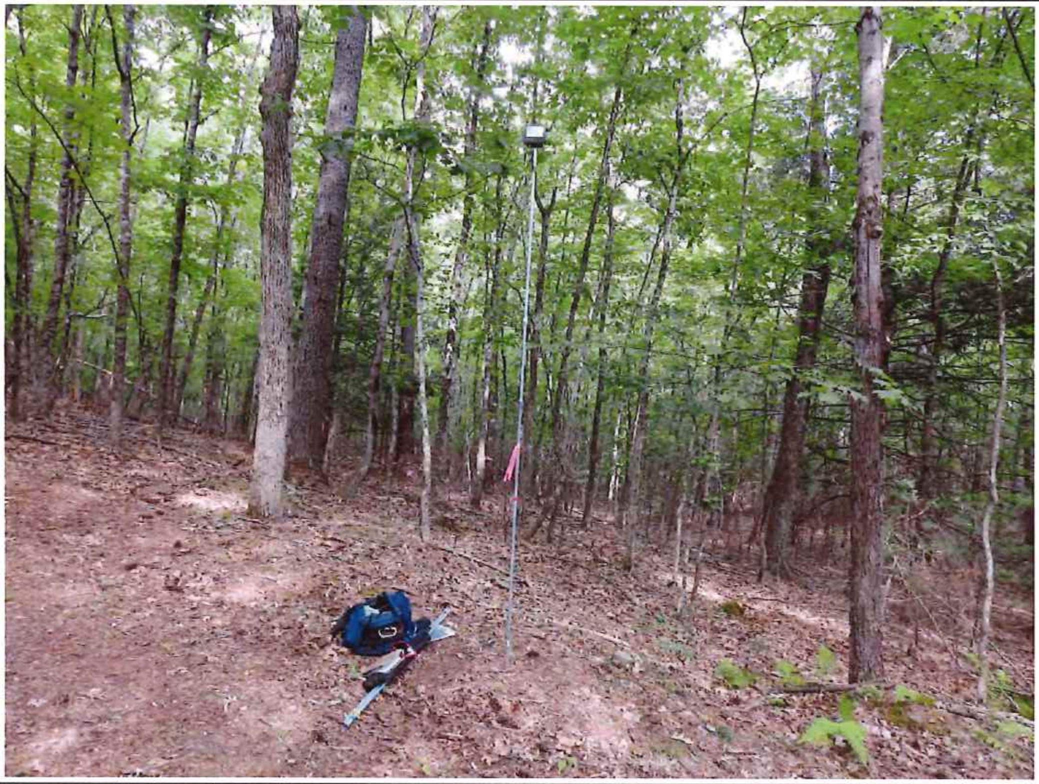
Photograph: 4	Bat Detector 1 Function Test at Retrieval. Values greater than -30 dB (less negative) indicate proper functioning.

Photograph: 5	Bat Detector 2 Deployment along a logging road at the edge between mature Successional Northern Hardwoods and Hemlock Hardwood forests.

Photograph: 6	Bat Detector 2 Reception Cone

Photograph: 7 Bat Detector 2 Function Test at Installation. Values greater than -30 dB (less negative) indicate proper functioning.

Photograph: 8 Bat Detector 2 Function Test at Retrieval. Values greater than -30 dB (less negative) indicate proper functioning.



Photograph: 9	Bat Detector 3 Deployment along side of logging road through dense Hemlock Northern Hardwood Forest.

Photograph: 10	Bat Detector 3 Reception Cone

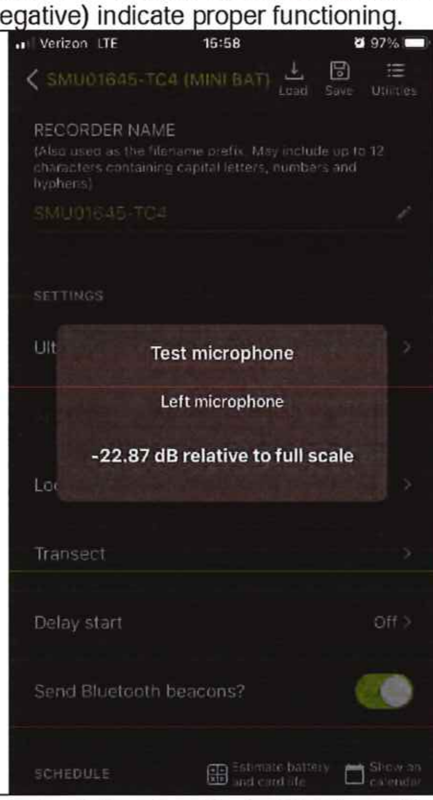
Photograph: 11	Bat Detector 3 Function Test at Installation. Values greater than -30 dB (less negative) indicate proper functioning.

Photograph: 12	Bat Detector 3 Function Test at Retrieval. Values greater than -30 dB (less negative) indicate proper functioning.

Photograph: 13	Bat Detector 4 Deployment along logging road through Hemlock-Hardwood Forest.

Photograph: 14	Bat Detector 4 Reception Cone

Photograph: 15	Bat Detector 4 Function Test at Installation. Values greater than -30 dB (less negative) indicate proper functioning.



Photograph: 16	Bat Detector 4 Function Test at Retrieval. Values greater than -30 dB (less negative) indicate proper functioning.

Photograph: 17	Bat Detector 5 Deployment in open understory of Red Maple-Hardwood Swamp near edge of mature Successional Northern Hardwood forest.

Photograph: 18	Bat Detector 5 Reception Cone

Photograph: 19 Bat Detector 5 Function Test at Installation. Values greater than -30 dB (less negative) indicate proper functioning.

Photograph: 20 Bat Detector 5 Function Test at Retrieval. Values greater than -30 dB (less negative) indicate proper functioning.

APPENDIX G WEATHER DATA

Detector Night	Date	Time	Temperature	Dew Pt	Humidity	Wind Dir	Wind Spd	Gust Spd	Pressure	Precip	Condition
1	7/31/2022	8:45 PM	79 °F	57 °F	47 %	SW	6 mph	0 mph	29.55 in	0.0 in	Cloudy
	7/31/2022	9:45 PM	79 °F	61 °F	54 %	SW	6 mph	0 mph	29.55 in	0.0 in	Cloudy
	7/31/2022	11:56 PM	79 °F	61 °F	54 %	SW	6 mph	0 mph	29.55 in	0.0 in	Cloudy
	8/1/2022	12:45 AM	72 °F	66 °F	83 %	CALM	0 mph	0 mph	29.53 in	0.0 in	Light Rain
	8/1/2022	3:45 AM	68 °F	68 °F	100 %	WNW	6 mph	0 mph	29.53 in	0.0 in	Light Rain
	8/1/2022	4:45 AM	68 °F	66 °F	94 %	CALM	0 mph	0 mph	29.51 in	0.0 in	Cloudy
	8/1/2022	5:45 AM	68 °F	66 °F	94 %	CALM	0 mph	0 mph	29.51 in	0.0 in	Cloudy
2	8/1/2022	8:45 PM	73 °F	64 °F	73 %	WSW	6 mph	0 mph	29.33 in	0.0 in	Fair
	8/1/2022	9:45 PM	72 °F	66 °F	83 %	WSW	6 mph	0 mph	29.34 in	0.0 in	Fair
	8/1/2022	10:45 PM	70 °F	66 °F	88 %	WSW	6 mph	0 mph	29.33 in	0.0 in	Fair
	8/1/2022	11:45 PM	70 °F	66 °F	88 %	WSW	6 mph	0 mph	29.33 in	0.0 in	Fair
	8/2/2022	1:49 AM	68 °F	66 °F	94 %	VAR	6 mph	0 mph	29.31 in	0.0 in	Fair
	8/2/2022	2:45 AM	68 °F	66 °F	94 %	CALM	0 mph	0 mph	29.30 in	0.0 in	Fair
	8/2/2022	3:45 AM	68 °F	66 °F	94 %	CALM	0 mph	0 mph	29.30 in	0.0 in	Fair
	8/2/2022	4:45 AM	68 °F	66 °F	94 %	CALM	0 mph	0 mph	29.29 in	0.0 in	Cloudy
	8/2/2022	5:45 AM	68 °F	66 °F	94 %	CALM	0 mph	0 mph	29.29 in	0.0 in	Partly Cloudy
3	8/2/2022	8:45 PM	79 °F	68 °F	69 %	VAR	5 mph	0 mph	29.31 in	0.0 in	Mostly Cloudy
	8/2/2022	9:45 PM	79 °F	68 °F	69 %	N	5 mph	0 mph	29.35 in	0.0 in	Mostly Cloudy
	8/2/2022	10:45 PM	75 °F	66 °F	73 %	N	5 mph	0 mph	29.37 in	0.0 in	Mostly Cloudy
	8/2/2022	11:45 PM	73 °F	66 °F	78 %	VAR	6 mph	0 mph	29.39 in	0.0 in	Fair
	8/3/2022	12:45 AM	72 °F	66 °F	83 %	VAR	6 mph	0 mph	29.41 in	0.0 in	Fair
	8/3/2022	1:45 AM	72 °F	66 °F	83 %	VAR	6 mph	0 mph	29.41 in	0.0 in	Fair
	8/3/2022	2:45 AM	70 °F	64 °F	83 %	VAR	6 mph	0 mph	29.41 in	0.0 in	Fair
	8/3/2022	3:45 AM	68 °F	64 °F	88 %	WNW	7 mph	0 mph	29.43 in	0.0 in	Fair
	8/3/2022	4:45 AM	66 °F	63 °F	88 %	WNW	7 mph	0 mph	29.45 in	0.0 in	Fair
	8/3/2022	5:45 AM	64 °F	63 °F	94 %	CALM	0 mph	0 mph	29.45 in	0.0 in	Fair

Weather Data from Weather Underground:
https://www.wunderground.com/history/daily/us/ny/newburgh/KSWF/date/, Accessed 04 August 2022. Weather data source: Stewart International Airport, Newburgh, NY

APPENDIX H BAT CALL VETTING RESULTS

OUT FILE FS	DATE	TIME	AUTO ID*	PULSES	MATCH	N	Fc	Sc	Fmax	Fmin	MANUAL ID	Comments
SMU01631-TC3_20220731_212822_000.wav	7/31/2022	21:28:22	EPTFUS	35	18	35	36.078	169.52	65.948	34.833	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_212835_000.wav	7/31/2022	21:28:35	EPTFUS	25	21	25	33.998	144.33	67.147	32.544	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_212852_000.wav	7/31/2022	21:28:52	EPTFUS	44	27	44	35.589	145.51	67.889	34.34	NOID	NSP
SMU01631-TC3_20220731_212924_000.wav	7/31/2022	21:29:24	EPTFUS	26	23	26	33.128	145.58	66.773	31.593	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_212933_000.wav	7/31/2022	21:29:33	EPTFUS	48	27	48	35.794	160.94	68.602	34.476	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213004_000.wav	7/31/2022	21:30:04	EPTFUS	13	11	13	33.113	128.11	63.504	32.253	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213019_000.wav	7/31/2022	21:30:19	EPTFUS	13	13	13	32.701	170.64	72.038	30.749	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213034_000.wav	7/31/2022	21:30:34	EPTFUS	21	20	21	32.715	144.22	68.607	31.885	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213049_000.wav	7/31/2022	21:30:49	EPTFUS	5	3	5	32.331	224.97	75.687	30.981	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213104_000.wav	7/31/2022	21:31:04	EPTFUS	46	31	46	35.228	161.83	66.366	34.27	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213119_000.wav	7/31/2022	21:31:19	EPTFUS	32	17	32	36.618	148.26	70.862	35.387	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213205_000.wav	7/31/2022	21:32:05	EPTFUS	26	24	26	34.208	166.09	67.894	32.152	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213225_000.wav	7/31/2022	21:32:25	EPTFUS	25	19	25	33.472	164.23	68.572	31.787	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213312_000.wav	7/31/2022	21:33:12	EPTFUS	9	9	9	31.896	122.99	54.186	31.854	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213323_000.wav	7/31/2022	21:33:23	EPTFUS	18	15	18	32.905	166.99	64.434	32.393	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213338_000.wav	7/31/2022	21:33:38	EPTFUS	31	30	31	33.034	142.16	67.343	31.998	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213446_000.wav	7/31/2022	21:34:46	EPTFUS	8	4	8	38.294	149.45	59.269	37.445	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213517_000.wav	7/31/2022	21:35:17	EPTFUS	24	13	24	37.758	140.47	62.533	36.732	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213532_000.wav	7/31/2022	21:35:32	EPTFUS	25	19	25	34.611	133.9	64.456	33.729	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213547_000.wav	7/31/2022	21:35:47	EPTFUS	29	14	29	36.596	149.75	65.963	36.058	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213603_000.wav	7/31/2022	21:36:03	EPTFUS	21	11	21	35.743	155.52	67.261	34.779	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213646_000.wav	7/31/2022	21:36:46	EPTFUS	8	8	8	33.994	122.7	61.019	32.69	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213709_000.wav	7/31/2022	21:37:09	EPTFUS	36	31	36	33.744	181.57	66.098	32.102	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213741_000.wav	7/31/2022	21:37:41	EPTFUS	26	20	26	33.834	172.14	66.548	32.625	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213810_000.wav	7/31/2022	21:38:10	EPTFUS	39	23	39	33.949	202.37	65.725	32.399	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213842_000.wav	7/31/2022	21:38:42	EPTFUS	8	7	8	33.117	126.2	56.975	32.658	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213857_000.wav	7/31/2022	21:38:57	EPTFUS	4	3	4	35.062	100.79	58.382	32.115	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213913_000.wav	7/31/2022	21:39:13	EPTFUS	10	10	10	33.47	122.29	58.206	32.333	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213923_000.wav	7/31/2022	21:39:23	EPTFUS	10	9	10	33.663	154.02	60.809	32.666	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_214008_000.wav	7/31/2022	21:40:08	EPTFUS	11	10	11	33.21	166.03	55.941	32.767	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_214024_000.wav	7/31/2022	21:40:24	EPTFUS	17	14	17	32.176	145.6	58.779	31.552	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_214156_000.wav	7/31/2022	21:41:56	EPTFUS	39	29	39	36.194	155.93	66.372	33.875	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_214211_000.wav	7/31/2022	21:42:11	EPTFUS	45	21	45	36.446	170.73	63.861	34.203	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_214342_000.wav	7/31/2022	21:43:42	EPTFUS	18	17	18	33.743	179.93	67.388	32.102	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_221251_000.wav	7/31/2022	22:12:51	EPTFUS	6	6	6	33.182	148.58	55.121	32.877	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_222427_000.wav	7/31/2022	22:24:27	EPTFUS	11	7	11	35.836	167.86	66.385	35.422	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_222457_000.wav	7/31/2022	22:24:57	EPTFUS	16	10	16	36.726	169.21	64.836	35.436	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_222701_000.wav	7/31/2022	22:27:01	EPTFUS	2	2	2	35.49	167.57	58.168	35.044	NOID	PQR - faint and too few pulses to measure
SMU01631-TC3_20220731_222716_000.wav	7/31/2022	22:27:16	EPTFUS	9	8	9	34.224	195.61	68.919	32.674	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_222728_000.wav	7/31/2022	22:27:28	EPTFUS	6	6	6	32.818	118.73	54.526	32.624	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_223018_000.wav	7/31/2022	22:30:18	EPTFUS	10	9	10	35.674	162.46	64.735	33.958	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_225326_000.wav	7/31/2022	22:53:26	EPTFUS	4	3	4	35.473	145.39	63.947	35.309	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_225341_000.wav	7/31/2022	22:53:41	EPTFUS	17	10	17	35.388	184.52	65.045	33.889	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_225429_000.wav	7/31/2022	22:54:29	EPTFUS	10	5	10	37.942	98.03	63.125	35.322	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_225952_000.wav	7/31/2022	22:59:52	EPTFUS	16	11	16	36.321	170.12	65.25	35.228	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_230443_000.wav	7/31/2022	23:04:43	EPTFUS	12	12	12	32.517	123.74	56.037	31.813	EPTFUS	Fc=low 30s; FM call

SMU01631-TC3_20220731_230513_000.wav	7/31/2022	23:05:13	EPTFUS	11	11	11	32.637	112.41	57.446	31.581	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_230526_000.wav	7/31/2022	23:05:26	EPTFUS	8	8	8	32.593	129.04	55.036	31.908	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_231349_000.wav	7/31/2022	23:13:49	EPTFUS	13	4	13	38.206	101.54	65.093	36.681	NOID	multiple bat interference; at least one is probably EPTFUS
SMU01631-TC3_20220731_231404_000.wav	7/31/2022	23:14:04	EPTFUS	8	5	8	36.126	168.4	66.016	32.907	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_231523_000.wav	7/31/2022	23:15:23	EPTFUS	35	24	35	35.007	188.47	67.854	32.852	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_231617_000.wav	7/31/2022	23:16:17	EPTFUS	18	9	18	36.478	164.16	60.464	34.493	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_231823_000.wav	7/31/2022	23:18:23	EPTFUS	31	13	31	36.774	144.9	64.491	35.034	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_231839_000.wav	7/31/2022	23:18:39	EPTFUS	24	17	24	36.172	148.37	63.783	35.284	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_232633_000.wav	7/31/2022	23:26:33	EPTFUS	13	4	13	36.868	117.14	61.927	35.339	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220801_020604_000.wav	8/1/2022	2:06:04	EPTFUS	6	5	6	29.429	20.13	38.794	28.872	EPTFUS/LASNOC	more of a CF call, Fc around 26 kHz; very faint.
SMU01631-TC3_20220801_034257_000.wav	8/1/2022	3:42:57	EPTFUS	2	2	2	30.623	44.02	43.092	29.751	NOID	PQR - faint and too few pulses to measure
SMU01631-TC3_20220801_004620_000.wav	8/1/2022	0:46:20	LASBOR	4	3	4	44.035	159.86	67.193	42.002	LASBOR	VMF; NMT
SMU01631-TC3_20220731_202056_000.wav	7/31/2022	20:20:56	LASCIN	3	3	3	19.187	8.42	20.013	18.873	LASCIN	CF call at ca. 20 kHz or lower
SMU01631-TC3_20220731_202356_000.wav	7/31/2022	20:23:56	LASCIN	3	3	3	19.097	-0.86	20.18	18.667	LASCIN	CF call at ca. 20 kHz or lower
SMU01631-TC3_20220801_050804_000.wav	8/1/2022	5:08:04	LASCIN	2	2	2	19.784	6.43	20.335	19.62	NOID	PQR - faint and too few pulses to measure
SMU01631-TC3_20220801_051523_000.wav	8/1/2022	5:15:23	LASCIN	3	2	3	24.644	16.45	25.279	24.268	LASCIN	CF call at ca 24 kHz - faint and only a few pulses, but diagnostic
SMU01631-TC3_20220731_205351_000.wav	7/31/2022	20:53:51	LASNOC	2	2	2	26.28	22.48	27.402	26.103	LASNOC	CF Call at ca. 26 kHz
SMU01631-TC3_20220801_011738_000.wav	8/1/2022	1:17:38	LASNOC	4	1	4	31.17	37.33	42.07	29.632	LASNOC/EPTFUS	CF/FM call at ca 26 kHz, but more vertical than typical LASNOC
SMU01631-TC3_20220801_033051_000.wav	8/1/2022	3:30:51	LASNOC	4	3	4	27.202	15.14	29.111	26.723	LASNOC	Faint CF pulses at ca 26 kHz
SMU01631-TC3_20220731_213938_000.wav	7/31/2022	21:39:38	MYOLEI	5	3	5	41.393	102.78	56.304	41.27	NOID	PQR - faint; NSP
SMU01631-TC3_20220731_232922_000.wav	7/31/2022	23:29:22	MYOLEI	8	2	8	43.994	115.04	66.367	43.116	NOID	PQR - faint and too few pulses to measure
SMU01631-TC3_20220731_211817_000.wav	7/31/2022	21:18:17	MYOLUC	13	7	13	41.61	126.06	79.198	40.904	NOID	NSP
SMU01631-TC3_20220731_211847_000.wav	7/31/2022	21:18:47	MYOLUC	12	4	12	41.853	141.94	71.662	40.696	LASBOR	NMT; variable Fc and upturned tail; diagnostic
SMU01631-TC3_20220731_211935_000.wav	7/31/2022	21:19:35	MYOLUC	6	3	6	43.175	111.5	64.781	43.175	NOID	NSP; NMT
SMU01631-TC3_20220731_212006_000.wav	7/31/2022	21:20:06	MYOLUC	3	1	3	39.941	64.68	51.618	39.612	NOID	NSP; PQR; not enough pulses to identify; weak
SMU01631-TC3_20220731_212021_000.wav	7/31/2022	21:20:21	MYOLUC	19	5	19	40.599	87.37	66.25	39.38	MYOLUC	Fc=37-38; Sc=45-68
SMU01631-TC3_20220731_212122_000.wav	7/31/2022	21:21:22	MYOLUC	8	3	8	41.232	152.25	66.108	40.923	NOID	NSP
SMU01631-TC3_20220731_212137_000.wav	7/31/2022	21:21:37	MYOLUC	17	8	17	41.894	158.68	75.505	40.479	MYOSPP	NSP; clear myotis tail
SMU01631-TC3_20220731_212208_000.wav	7/31/2022	21:22:08	MYOLUC	4	1	4	42.836	119.66	62.316	42.268	NOID	PQR; NSP - faint
SMU01631-TC3_20220731_212223_000.wav	7/31/2022	21:22:23	MYOLUC	6	4	6	41.85	109.68	79.397	40.377	MYOLUC	Fc=38-45; Sc=74-95
SMU01631-TC3_20220731_212252_000.wav	7/31/2022	21:22:52	MYOLUC	16	7	16	43.268	120.1	75.919	41.579	MYOSPP	NSP; clear myotis tail
SMU01631-TC3_20220731_212548_000.wav	7/31/2022	21:25:48	MYOLUC	26	9	26	41.235	136.2	67.455	40.483	MYOLUC	Fc=37-41; Sc=75-91; clear myotis tail
SMU01631-TC3_20220731_212725_000.wav	7/31/2022	21:27:25	MYOLUC	18	9	18	42.339	174.18	72.978	40.323	MYOLUC	Fc=36-42; Sc=75-110; CMT
SMU01631-TC3_20220731_212742_000.wav	7/31/2022	21:27:42	MYOLUC	13	3	13	42.743	68.41	59.883	41.011	NOID	PQR-faint
SMU01631-TC3_20220731_213134_000.wav	7/31/2022	21:31:34	MYOLUC	22	4	22	38.185	134.02	62.926	37.184	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213150_000.wav	7/31/2022	21:31:50	MYOLUC	23	9	23	38.973	146.43	72.142	37.507	NOID	NSP; multiple bats and interference
SMU01631-TC3_20220731_213354_000.wav	7/31/2022	21:33:54	MYOLUC	15	4	15	40.419	79.77	65.239	39.751	MYOLUC	Fc=38-40; Sc=46-73
SMU01631-TC3_20220731_213409_000.wav	7/31/2022	21:34:09	MYOLUC	13	7	13	42.252	128.75	74.14	41.156	MYOSPP	NSP; CMT
SMU01631-TC3_20220731_213431_000.wav	7/31/2022	21:34:31	MYOLUC	24	8	24	40.936	169.91	69.003	40.283	EPTFUS	Fc=low 30s; FM call
SMU01631-TC3_20220731_213618_000.wav	7/31/2022	21:36:18	MYOLUC	34	10	34	41.213	153.34	71.811	39.923	MYOLUC	Fc=39-45; Sc=56-110
SMU01631-TC3_20220731_213953_000.wav	7/31/2022	21:39:53	MYOLUC	27	12	27	40.588	130.23	67.488	38.775	MYOLUC	Fc=39-40; Sc=59-110; also EPTFUS
SMU01631-TC3_20220731_214053_000.wav	7/31/2022	21:40:53	MYOLUC	27	9	27	42.962	174.68	72.333	41.257	MYOSPP	CMT; NSP
SMU01631-TC3_20220731_214133_000.wav	7/31/2022	21:41:33	MYOLUC	27	10	27	38.967	124.55	62.346	37.82	MULTSP	EPTFUS AND MYOSPP; CMT, NSP; interference
SMU01631-TC3_20220731_214226_000.wav	7/31/2022	21:42:26	MYOLUC	19	8	19	41.94	149.48	71.775	41.023	MYOSPP	CMT; NSP
SMU01631-TC3_20220731_214256_000.wav	7/31/2022	21:42:56	MYOLUC	26	18	26	42.615	116.27	71.016	41.472	MYOSPP	NSP; CMT
SMU01631-TC3_20220731_214533_000.wav	7/31/2022	21:45:33	MYOLUC	9	4	9	43.374	158.22	71.716	40.885	MYOSPP	NSP; CMT; PQR; limited ZC measurement
SMU01631-TC3_20220731_214557_000.wav	7/31/2022	21:45:57	MYOLUC	3	2	3	43.496	117.95	61.163	42.602	MYOSPP	NSP; CMT

SMU01631-TC3_20220731_214650_000.wav	7/31/2022	21:46:50	MYOLUC	12	3	12	41.093	146.73	63.238	40.451	MYOSPP	NSP; CMT; PQR - faint
SMU01631-TC3_20220731_214705_000.wav	7/31/2022	21:47:05	MYOLUC	18	8	18	41.891	184.11	74.634	40.815	MYOSPP	NSP; CMT
SMU01631-TC3_20220731_214720_000.wav	7/31/2022	21:47:20	MYOLUC	9	2	9	41.981	181.01	64.129	40.659	NOID	NSP; PQR - faint
SMU01631-TC3_20220731_214746_000.wav	7/31/2022	21:47:46	MYOLUC	14	2	14	42.436	150.92	72.24	41.526	MYOSPP	NSP
SMU01631-TC3_20220731_214835_000.wav	7/31/2022	21:48:35	MYOLUC	10	6	10	41.574	170.22	78.363	40.81	SOD/LUC	Fc=39-43; Sc=90-165; multiple pulses with split power centers suggest MYOLUC.
SMU01631-TC3_20220731_214916_000.wav	7/31/2022	21:49:16	MYOLUC	21	11	21	43.19	145.05	72.008	41.941	MYOSPP	NSP; CMT
SMU01631-TC3_20220731_214940_000.wav	7/31/2022	21:49:40	MYOLUC	3	1	3	44.63	68.82	66.626	41.919	NOID	PQR - faint; NSP
SMU01631-TC3_20220731_214950_000.wav	7/31/2022	21:49:50	MYOLUC	16	9	16	41.333	134.33	75.827	40.314	MYOLUC	Fc=39-41; Sc=38-106
SMU01631-TC3_20220731_215014_000.wav	7/31/2022	21:50:14	MYOLUC	13	5	13	42.847	176.45	70.975	42.247	MYOSPP	NSP; CMT
SMU01631-TC3_20220731_215052_000.wav	7/31/2022	21:50:52	MYOLUC	15	9	15	41.491	132.17	72.71	40.976	MYOSPP	NSP; CMT
SMU01631-TC3_20220731_215239_000.wav	7/31/2022	21:52:39	MYOLUC	13	5	13	42.568	139.51	69.781	41.353	MYOSPP	NSP; CMT
SMU01631-TC3_20220731_215309_000.wav	7/31/2022	21:53:09	MYOLUC	3	1	3	42.642	155.12	73.433	42.275	MYOSPP	NSP; CMT; PQR- faint
SMU01631-TC3_20220731_215342_000.wav	7/31/2022	21:53:42	MYOLUC	16	8	16	42.338	157.5	73.994	41.041	MYOSPP	NSP; CMT
SMU01631-TC3_20220731_215353_000.wav	7/31/2022	21:53:53	MYOLUC	15	4	15	41.728	131.33	61.154	40.899	MYOSPP	NSP; CMT; PQR - faint
SMU01631-TC3_20220731_215405_000.wav	7/31/2022	21:54:05	MYOLUC	12	5	12	42.674	169.8	75.212	41.198	MYOSPP	NSP; CMT
SMU01631-TC3_20220731_215630_000.wav	7/31/2022	21:56:30	MYOLUC	10	3	10	41.957	109.44	64.288	40.788	MYOSPP	NSP; CMT; PQR - faint
SMU01631-TC3_20220731_215830_000.wav	7/31/2022	21:58:30	MYOLUC	15	8	15	42.313	154.09	71.569	41.213	MYOSPP	NSP; CMT
SMU01631-TC3_20220731_230542_000.wav	7/31/2022	23:05:42	MYOLUC	31	10	31	41.959	133.66	72.326	41.301	LASBOR	NMT; variable Fc and upturned tail; diagnostic
SMU01631-TC3_20220731_230644_000.wav	7/31/2022	23:06:44	MYOLUC	8	3	8	42.908	121.39	65.869	42.104	LASBOR	NMT; variable Fc and upturned tail; diagnostic
SMU01631-TC3_20220731_230659_000.wav	7/31/2022	23:06:59	MYOLUC	10	3	10	40.447	105.84	63.713	40.246	NOID	NMT; PQR - faint
SMU01631-TC3_20220731_230726_000.wav	7/31/2022	23:07:26	MYOLUC	33	13	33	41.75	112.42	63.994	40.873	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220731_230757_000.wav	7/31/2022	23:07:57	MYOLUC	11	4	11	41.268	126.53	65.436	40.307	NOID	NMT; NSP
SMU01631-TC3_20220731_230812_000.wav	7/31/2022	23:08:12	MYOLUC	28	17	28	41.957	129.74	70.673	40.505	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220731_230932_000.wav	7/31/2022	23:09:32	MYOLUC	20	8	20	41.952	133.83	62.074	40.912	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220731_230947_000.wav	7/31/2022	23:09:47	MYOLUC	10	4	10	42.912	146.95	62.54	41.734	NOID	NMT; NSP
SMU01631-TC3_20220731_231002_000.wav	7/31/2022	23:10:02	MYOLUC	6	4	6	41.398	143.23	79.947	40.803	NOID	NMT; NSP
SMU01631-TC3_20220731_231018_000.wav	7/31/2022	23:10:18	MYOLUC	14	6	14	41.579	130.16	65.733	41.496	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220731_231033_000.wav	7/31/2022	23:10:33	MYOLUC	21	12	21	41.78	91.02	71.986	40.031	NOID	NMT; NSP
SMU01631-TC3_20220731_231131_000.wav	7/31/2022	23:11:31	MYOLUC	19	9	19	41.701	122.82	63.329	41.328	NOID	NMT; NSP
SMU01631-TC3_20220731_231146_000.wav	7/31/2022	23:11:46	MYOLUC	8	2	8	45.26	156.64	64.68	41.784	NOID	NMT; NSP
SMU01631-TC3_20220731_231201_000.wav	7/31/2022	23:12:01	MYOLUC	35	17	35	41.481	103.04	68.053	40.691	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220731_231232_000.wav	7/31/2022	23:12:32	MYOLUC	24	10	24	42.988	117.88	70.113	41.491	NOID	NMT; NSP
SMU01631-TC3_20220731_231247_000.wav	7/31/2022	23:12:47	MYOLUC	10	3	10	41.151	95.35	63.51	41.016	NOID	NMT; NSP
SMU01631-TC3_20220731_231303_000.wav	7/31/2022	23:13:03	MYOLUC	13	7	13	41.995	101.86	76.541	41.485	NOID	NMT; NSP
SMU01631-TC3_20220731_231334_000.wav	7/31/2022	23:13:34	MYOLUC	26	16	26	42.134	76.84	65.529	41.16	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220731_231420_000.wav	7/31/2022	23:14:20	MYOLUC	47	22	47	40.582	150.67	67.58	39.408	NOID	multiple bat interference; at least one is probably LASBOR
SMU01631-TC3_20220731_231451_000.wav	7/31/2022	23:14:51	MYOLUC	3	1	3	42.54	117.72	56.562	42.54	NOID	PQR - faint; too few pulses to measure
SMU01631-TC3_20220731_231539_000.wav	7/31/2022	23:15:39	MYOLUC	17	7	17	42.793	121.4	63.354	41.855	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220731_231602_000.wav	7/31/2022	23:16:02	MYOLUC	31	9	31	39.071	156.89	72.205	38.585	EPTFUS	FM call; Fc in low 30s
SMU01631-TC3_20220731_231751_000.wav	7/31/2022	23:17:51	MYOLUC	30	9	30	38.729	133.95	63.104	38.244	EPTFUS	FM call; Fc in low 30s
SMU01631-TC3_20220731_231807_000.wav	7/31/2022	23:18:07	MYOLUC	21	10	21	40.689	133.23	72.613	39.879	NOID	Multiple bat interference; VMF suggests LASBOR
SMU01631-TC3_20220731_232028_000.wav	7/31/2022	23:20:28	MYOLUC	19	6	19	42.373	125.89	69.599	41.184	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220731_232049_000.wav	7/31/2022	23:20:49	MYOLUC	18	10	18	41.93	103.87	73.85	40.776	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220731_232124_000.wav	7/31/2022	23:21:24	MYOLUC	11	4	11	40.47	128.7	66.425	39.825	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220731_232204_000.wav	7/31/2022	23:22:04	MYOLUC	14	10	14	42.26	136.53	77.413	40.908	NOID	NSP; but VMF suggests LASBOR
SMU01631-TC3_20220731_232219_000.wav	7/31/2022	23:22:19	MYOLUC	19	9	19	41.826	123.17	63.808	41.048	NOID	NSP; PQR - faint
SMU01631-TC3_20220731_232408_000.wav	7/31/2022	23:24:08	MYOLUC	21	12	21	41.593	127.43	70.954	41.463	NOID	NSP

SMU01631-TC3_20220731_232439_000.wav	7/31/2022	23:24:39	MYOLUC	13	9	13	41.198	95.73	66.861	40.721	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220731_232509_000.wav	7/31/2022	23:25:09	MYOLUC	16	7	16	41.445	31.66	60.076	39.646	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220731_232524_000.wav	7/31/2022	23:25:24	MYOLUC	18	8	18	41.406	103.18	62.096	40.758	NOID	NSP
SMU01631-TC3_20220731_232540_000.wav	7/31/2022	23:25:40	MYOLUC	21	12	21	41.318	113.17	70.348	40.363	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220731_232601_000.wav	7/31/2022	23:26:01	MYOLUC	17	11	17	41.785	150.58	69.923	40.539	NOID	NSP
SMU01631-TC3_20220731_232617_000.wav	7/31/2022	23:26:17	MYOLUC	46	15	46	40.218	150.28	69.822	38.606	EPTFUS	FM call; Fc in low 30s; multiple bats early in call
SMU01631-TC3_20220731_232649_000.wav	7/31/2022	23:26:49	MYOLUC	51	17	51	41.555	123.81	65.884	40.117	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220731_232720_000.wav	7/31/2022	23:27:20	MYOLUC	10	4	10	40.923	211.81	71.187	38.399	NOID	Multiple bat interference; NSP
SMU01631-TC3_20220731_232806_000.wav	7/31/2022	23:28:06	MYOLUC	46	12	46	39.79	128.43	68.979	38.373	NOID	NSP
SMU01631-TC3_20220731_232821_000.wav	7/31/2022	23:28:21	MYOLUC	28	12	28	41.301	149.62	64.059	40.068	NOID	NSP
SMU01631-TC3_20220731_232907_000.wav	7/31/2022	23:29:07	MYOLUC	34	10	34	39.252	138.56	64.449	38.64	NOID	NSP
SMU01631-TC3_20220731_232937_000.wav	7/31/2022	23:29:37	MYOLUC	29	9	29	40.106	126.16	65.69	38.064	EPTFUS	FM call; Fc in low 30s; multiple bats early in call
SMU01631-TC3_20220801_000808_000.wav	8/1/2022	0:08:08	MYOLUC	20	7	20	40.571	91.55	63.169	40.107	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_000833_000.wav	8/1/2022	0:08:33	MYOLUC	2	2	2	44.437	102.05	61.787	42.729	NOID	PQR - faint; too few pulses to measure
SMU01631-TC3_20220801_000847_000.wav	8/1/2022	0:08:47	MYOLUC	27	15	27	41.045	134.22	71.188	40.053	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_000902_000.wav	8/1/2022	0:09:02	MYOLUC	40	14	40	41.106	121.24	68.897	40.2	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_000934_000.wav	8/1/2022	0:09:34	MYOLUC	17	7	17	41.245	146.86	65.877	40.401	NOID	NSP; PQR - faint
SMU01631-TC3_20220801_000949_000.wav	8/1/2022	0:09:49	MYOLUC	20	9	20	41.578	127.93	73.617	41.092	NOID	NSP; PQR - faint
SMU01631-TC3_20220801_001005_000.wav	8/1/2022	0:10:05	MYOLUC	13	4	13	40.227	116.08	64.517	39.47	NOID	NSP; PQR - faint
SMU01631-TC3_20220801_001011_000.wav	8/1/2022	0:10:11	MYOLUC	15	8	15	42.313	115.16	70.425	41.422	NOID	NSP; PQR - faint
SMU01631-TC3_20220801_001026_000.wav	8/1/2022	0:10:26	MYOLUC	9	4	9	41.059	139.86	71.423	40.708	NOID	NSP; PQR - faint
SMU01631-TC3_20220801_001057_000.wav	8/1/2022	0:10:57	MYOLUC	14	2	14	40.509	125.15	64.816	40.07	NOID	NSP; PQR - faint
SMU01631-TC3_20220801_001249_000.wav	8/1/2022	0:12:49	MYOLUC	4	2	4	43.315	96.14	57.542	42.661	NOID	NSP; PQR - faint
SMU01631-TC3_20220801_001255_000.wav	8/1/2022	0:12:55	MYOLUC	15	8	15	42.002	126.59	76.941	40.437	NOID	NSP
SMU01631-TC3_20220801_001311_000.wav	8/1/2022	0:13:11	MYOLUC	22	10	22	42.92	108.72	65.32	41.598	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_001327_000.wav	8/1/2022	0:13:27	MYOLUC	11	8	11	41.083	113.68	71.568	40.521	NOID	NSP
SMU01631-TC3_20220801_001342_000.wav	8/1/2022	0:13:42	MYOLUC	35	18	35	41.956	121.91	72.66	41.137	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_001358_000.wav	8/1/2022	0:13:58	MYOLUC	14	5	14	41.262	119.48	69.734	41.049	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_001410_000.wav	8/1/2022	0:14:10	MYOLUC	19	7	19	43.51	157.44	70.829	41.312	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_001436_000.wav	8/1/2022	0:14:36	MYOLUC	20	10	20	41.824	117.63	67.706	41.219	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_001451_000.wav	8/1/2022	0:14:51	MYOLUC	27	17	27	41.939	111.06	71.627	40.883	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_001507_000.wav	8/1/2022	0:15:07	MYOLUC	14	9	14	42.376	82.03	65.067	41.786	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_001522_000.wav	8/1/2022	0:15:22	MYOLUC	21	10	21	41.661	123.14	66.556	40.915	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_001537_000.wav	8/1/2022	0:15:37	MYOLUC	15	6	15	41.853	114.13	64.046	41.156	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_001603_000.wav	8/1/2022	0:16:03	MYOLUC	13	6	13	42.376	110.72	65.053	41.836	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_001622_000.wav	8/1/2022	0:16:22	MYOLUC	37	18	37	42.451	117.14	68.452	41.33	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_001638_000.wav	8/1/2022	0:16:38	MYOLUC	27	15	27	41.929	116.56	69.072	40.752	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_001654_000.wav	8/1/2022	0:16:54	MYOLUC	20	8	20	41.984	84.54	64.976	41.075	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_001804_000.wav	8/1/2022	0:18:04	MYOLUC	22	17	22	42.006	93.8	73.083	40.802	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_004346_000.wav	8/1/2022	0:43:46	MYOLUC	19	14	19	41.595	110.81	68.874	40.799	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_004401_000.wav	8/1/2022	0:44:01	MYOLUC	16	9	16	42.675	126.29	67.611	41.244	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_004417_000.wav	8/1/2022	0:44:17	MYOLUC	19	12	19	42.363	89.64	67.684	40.952	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_004433_000.wav	8/1/2022	0:44:33	MYOLUC	10	5	10	41.306	103.42	69.367	40.525	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_004448_000.wav	8/1/2022	0:44:48	MYOLUC	18	15	18	41.548	120.29	75.413	41.094	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_004503_000.wav	8/1/2022	0:45:03	MYOLUC	14	11	14	40.945	104.61	69.808	40.578	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_004604_000.wav	8/1/2022	0:46:04	MYOLUC	26	15	26	42.069	115.62	67.35	41.572	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_005623_000.wav	8/1/2022	0:56:23	MYOLUC	15	7	15	40.211	99.2	65.025	39.984	LASBOR	VMF; NMT; upward curve to tail

SMU01631-TC3_20220801_005654_000.wav	8/1/2022	0:56:54	MYOLUC	29	15	29	41.672	105.78	67.533	41.025	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_005709_000.wav	8/1/2022	0:57:09	MYOLUC	6	2	6	39.888	142.91	56.415	39.368	NOID	PQR - faint; NMT; NSP
SMU01631-TC3_20220801_005724_000.wav	8/1/2022	0:57:24	MYOLUC	16	11	16	42.766	141.8	78.183	41.118	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_005740_000.wav	8/1/2022	0:57:40	MYOLUC	18	7	18	42.298	115.12	64.51	41.766	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_005928_000.wav	8/1/2022	0:59:28	MYOLUC	26	11	26	41.569	168.45	70.652	40.417	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_005944_000.wav	8/1/2022	0:59:44	MYOLUC	13	4	13	41.141	99.74	67.52	40.813	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_005959_000.wav	8/1/2022	0:59:59	MYOLUC	30	15	30	41.483	125.32	71.469	40.698	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_010012_000.wav	8/1/2022	1:00:12	MYOLUC	22	9	22	41.852	153.8	65.692	40.804	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_010030_000.wav	8/1/2022	1:00:30	MYOLUC	27	11	27	41.869	132.21	68.799	40.931	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_010046_000.wav	8/1/2022	1:00:46	MYOLUC	27	13	27	41.619	78.54	61.097	40.891	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_010133_000.wav	8/1/2022	1:01:33	MYOLUC	11	7	11	49.543	82.88	75.389	45.774	NOID	NSP; NMT
SMU01631-TC3_20220801_041727_000.wav	8/1/2022	4:17:27	MYOLUC	4	2	4	40.324	76.48	53.339	38.385	NOID	PQR - faint
SMU01631-TC3_20220801_045010_000.wav	8/1/2022	4:50:10	MYOLUC	9	5	9	42.745	172.04	77.402	41.177	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_045028_000.wav	8/1/2022	4:50:28	MYOLUC	10	8	10	45.174	135.15	79.242	44.244	NOID	NSP; NMT
SMU01631-TC3_20220801_045052_000.wav	8/1/2022	4:50:52	MYOLUC	17	10	17	40.496	58.64	65.762	39.973	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_045150_000.wav	8/1/2022	4:51:50	MYOLUC	9	5	9	45.099	190.37	83.718	44.52	NOID	NSP; NMT
SMU01631-TC3_20220801_045309_000.wav	8/1/2022	4:53:09	MYOLUC	7	4	7	42.918	180.4	71.939	41.892	NOID	NSP; NMT
SMU01631-TC3_20220801_045319_000.wav	8/1/2022	4:53:19	MYOLUC	4	4	4	40.801	97.22	51.566	38.952	NOID	PQR - faint
SMU01631-TC3_20220801_045501_000.wav	8/1/2022	4:55:01	MYOLUC	10	6	10	46.637	148.64	86.817	44.515	NOID	NSP; NMT
SMU01631-TC3_20220801_045520_000.wav	8/1/2022	4:55:20	MYOLUC	6	3	6	44.386	111.5	66.461	43.288	NOID	PQR - faint
SMU01631-TC3_20220801_045647_000.wav	8/1/2022	4:56:47	MYOLUC	10	6	10	45.406	180.79	81.208	42.688	NOID	NSP; NMT
SMU01631-TC3_20220801_045825_000.wav	8/1/2022	4:58:25	MYOLUC	5	2	5	42.76	119.29	69.545	42.244	NOID	PQR - faint
SMU01631-TC3_20220801_045914_000.wav	8/1/2022	4:59:14	MYOLUC	12	9	12	45.614	92.84	77.302	44.589	NOID	NSP; NMT
SMU01631-TC3_20220801_045930_000.wav	8/1/2022	4:59:30	MYOLUC	4	3	4	42.105	141.63	72.068	41.996	NOID	PQR - faint
SMU01631-TC3_20220801_050005_000.wav	8/1/2022	5:00:05	MYOLUC	9	7	9	43.905	132.12	74.715	42.908	NOID	PQR - faint
SMU01631-TC3_20220801_050107_000.wav	8/1/2022	5:01:07	MYOLUC	11	7	11	45.756	147.6	77.755	44.886	LASBOR	VMF; NMT; upward curve to tail
SMU01631-TC3_20220801_050214_000.wav	8/1/2022	5:02:14	MYOLUC	7	5	7	46.41	145.09	83.265	45.296	NOID	NSP; NMT
SMU01631-TC3_20220801_050741_000.wav	8/1/2022	5:07:41	MYOLUC	11	6	11	45.462	127.95	81.949	44.469	NOID	NSP; NMT
SMU01631-TC3_20220801_050850_000.wav	8/1/2022	5:08:50	MYOLUC	11	4	11	47.408	106.72	70.478	45.595	NOID	NSP; NMT
SMU01631-TC3_20220801_052745_000.wav	8/1/2022	5:27:45	MYOLUC	21	10	21	41.94	71.38	68.304	40.819	LASBOR	VMF - bouncy; Fc-35-40; very variable slope
SMU01631-TC3_20220801_052759_000.wav	8/1/2022	5:27:59	MYOLUC	27	16	27	42.268	139.08	73.365	40.628	LASBOR	VMF - bouncy; Fc-35-40; very variable slope
SMU01631-TC3_20220731_212619_000.wav	7/31/2022	21:26:19	MYOSEP	11	5	11	43.505	201.37	71.872	41.209	MYOSPP	NSP; PQR-faint; CMT
SMU01631-TC3_20220731_221521_000.wav	7/31/2022	22:15:21	MYOSEP	8	7	8	42.105	183.75	67.747	39.005	NOID	NSP; PQR - faint
SMU01631-TC3_20220731_222258_000.wav	7/31/2022	22:22:58	MYOSEP	8	5	8	37.628	154.09	67.733	36.221	EPTFUS	Fc in low 30s; FM call
SMU01631-TC3_20220731_222326_000.wav	7/31/2022	22:23:26	MYOSEP	23	17	23	36.703	192.82	65.744	35.302	MYOSPP	NSP; CMT, but inconsistent; PQR; Fc35-38, but Sc >200 were going into AF
SMU01631-TC3_20220731_222356_000.wav	7/31/2022	22:23:56	MYOSEP	19	14	19	35.54	190.81	69.645	34.779	EPTFUS	Fc in low 30s; Steep FM Call
SMU01631-TC3_20220731_222411_000.wav	7/31/2022	22:24:11	MYOSEP	18	11	18	36.045	213.69	68.834	35.353	NOID	PQR; too few measurable pulses to ID
SMU01631-TC3_20220731_222442_000.wav	7/31/2022	22:24:42	MYOSEP	18	8	18	36.492	211.61	68.149	35.488	NOID	NMT; Fc-33-36; Sc-173-217; PQR
SMU01631-TC3_20220731_222514_000.wav	7/31/2022	22:25:14	MYOSEP	12	9	12	36.276	211.95	67.437	35.365	NOID	NMT; PQR - faint
SMU01631-TC3_20220731_222529_000.wav	7/31/2022	22:25:29	MYOSEP	11	5	11	36.758	166.99	65.678	34.807	LASBOR	NMT; VMF; steep calls, but Fc dips to low 30s
SMU01631-TC3_20220731_222544_000.wav	7/31/2022	22:25:44	MYOSEP	13	7	13	35.568	170.7	66.016	34.264	LASBOR	NMT; VMF; steep calls, but Fc dips to low 30s
SMU01631-TC3_20220731_222615_000.wav	7/31/2022	22:26:15	MYOSEP	32	16	32	35.973	155.46	66.464	34.931	LASBOR	NMT; VMF; steep calls, but Fc dips to low 30s
SMU01631-TC3_20220731_222631_000.wav	7/31/2022	22:26:31	MYOSEP	36	20	36	35.477	222.15	66.661	33.9	NOID	NSP
SMU01631-TC3_20220731_222646_000.wav	7/31/2022	22:26:46	MYOSEP	30	21	30	36.235	191.87	69.706	34.916	LASBOR	NMT; VMF; steep calls, but Fc dips to low 30s; UT
SMU01631-TC3_20220731_222841_000.wav	7/31/2022	22:28:41	MYOSEP	13	8	13	40.795	208.11	71.835	37.043	LASBOR	NMT; VMF; steep calls, but Fc dips to low 30s; UT
SMU01631-TC3_20220731_225356_000.wav	7/31/2022	22:53:56	MYOSEP	11	7	11	36.52	174.61	66.245	35.622	NOID	NSP
SMU01631-TC3_20220731_225411_000.wav	7/31/2022	22:54:11	MYOSEP	14	5	14	36.548	213.59	66.455	35.149	LASBOR	NMT; VMF; steep calls but Fc dips to low 30s

SMU01631-TC3_20220731_225444_000.wav	7/31/2022	22:54:44	MYOSEP	20	12	20	36.484	185.38	65.405	35.44	LASBOR	NMT; VMF; steep calls but Fc dips to low 30s
SMU01631-TC3_20220731_225457_000.wav	7/31/2022	22:54:57	MYOSEP	30	20	30	36.115	185.32	67.649	34.369	LASBOR	NMT; VMF; steep calls but Fc dips to low 30s
SMU01631-TC3_20220731_225907_000.wav	7/31/2022	22:59:07	MYOSEP	30	16	30	37.286	169.62	66.317	34.988	LASBOR	NMT; VMF; steep pulses but Fc dips to low 30s
SMU01631-TC3_20220731_225924_000.wav	7/31/2022	22:59:24	MYOSEP	16	12	16	36.384	169.51	66.048	35.611	LASBOR	NMT; VMF; steep pulses, but Fc dips to low 30s
SMU01631-TC3_20220731_225937_000.wav	7/31/2022	22:59:37	MYOSEP	15	12	15	36.358	212.47	66.137	35.411	LASBOR	NMT; VMF; steep pulses, but Fc dips to low 30s
SMU01631-TC3_20220731_230022_000.wav	7/31/2022	23:00:22	MYOSEP	21	15	21	35.966	209.74	66.987	35.298	LASBOR	NMT; VMF; steep pulses, but Fc dips to low 30s
SMU01631-TC3_20220731_230037_000.wav	7/31/2022	23:00:37	MYOSEP	29	12	29	36.57	181.64	66.738	35.599	LASBOR	NMT; VMF; steep pulses, but Fc dips to low 30s
SMU01631-TC3_20220731_231436_000.wav	7/31/2022	23:14:36	MYOSEP	45	21	45	37.809	164.9	68.936	36.893	LASBOR	NMT; VMF; steep pulses, but Fc dips to low 30s
SMU01631-TC3_20220731_231507_000.wav	7/31/2022	23:15:07	MYOSEP	35	25	35	36.457	185.18	67.268	35.076	LASBOR	NMT; VMF; steep pulses, but Fc dips to low 30s
SMU01631-TC3_20220731_231632_000.wav	7/31/2022	23:16:32	MYOSEP	17	12	17	35.668	170.78	69.108	34.376	LASBOR	NMT; VMF; steep pulses, but Fc dips to low 30s
SMU01631-TC3_20220731_231721_000.wav	7/31/2022	23:17:21	MYOSEP	18	13	18	36.752	169.93	63.747	35.766	LASBOR	NMT; VMF; steep pulses, but Fc dips to low 30s
SMU01631-TC3_20220731_231736_000.wav	7/31/2022	23:17:36	MYOSEP	3	3	3	36.886	123.01	72.311	35.239	NOID	NSP; too short to ID
SMU01631-TC3_20220731_231854_000.wav	7/31/2022	23:18:54	MYOSEP	15	12	15	36.3	197.91	67.534	34.891	LASBOR	NMT; VMF; steep pulses, but Fc dips to low 30s
SMU01631-TC3_20220731_231926_000.wav	7/31/2022	23:19:26	MYOSEP	13	11	13	36.678	131.28	65.341	34.492	LASBOR	NMT; VMF; steep pulses, but Fc dips to low 30s
SMU01631-TC3_20220731_231942_000.wav	7/31/2022	23:19:42	MYOSEP	16	11	16	36.227	208.75	68.869	35.175	LASBOR	NMT; VMF; steep pulses, but Fc dips to low 30s
SMU01631-TC3_20220731_232704_000.wav	7/31/2022	23:27:04	MYOSEP	22	13	22	37.07	160.69	65.197	35.258	LASBOR	NMT; VMF; steep pulses, but Fc dips to low 30s
SMU01631-TC3_20220731_232735_000.wav	7/31/2022	23:27:35	MYOSEP	13	7	13	35.501	150.09	65.441	34.914	LASBOR	NMT; VMF; steep pulses, but Fc dips to low 30s
SMU01631-TC3_20220731_232750_000.wav	7/31/2022	23:27:50	MYOSEP	58	20	58	37.509	154.96	65.723	36.178	LASBOR	NMT; VMF; steep pulses, but Fc dips to low 30s
SMU01631-TC3_20220731_232837_000.wav	7/31/2022	23:28:37	MYOSEP	28	12	28	36.94	145.4	65.396	35.35	LASBOR	NMT; VMF; steep pulses, but Fc dips to low 30s
SMU01631-TC3_20220731_232852_000.wav	7/31/2022	23:28:52	MYOSEP	31	15	31	37.579	186.83	68.489	36.607	LASBOR	NMT; VMF; steep pulses, but Fc dips to low 30s
SMU01631-TC3_20220731_233745_000.wav	7/31/2022	23:37:45	MYOSEP	11	10	11	37.193	175.09	67.991	35.924	LASBOR	NMT; VMF; steep pulses, but Fc dips to low 30s
SMU01631-TC3_20220801_045945_000.wav	8/1/2022	4:59:45	MYOSEP	15	8	15	45.316	207.92	79.085	42.603	NOID	NSP
SMU01631-TC3_20220801_050645_000.wav	8/1/2022	5:06:45	MYOSEP	6	3	6	48.647	186.75	80.316	45.714	NOID	NSP
SMU01631-TC3_20220731_211801_000.wav	7/31/2022	21:18:01	MYOSOD	20	6	20	42.048	135.42	67.379	41.232	NOID	NSP
SMU01631-TC3_20220731_211832_000.wav	7/31/2022	21:18:32	MYOSOD	15	3	15	42.334	163.59	67.183	41.109	NOID	NSP
SMU01631-TC3_20220731_211950_000.wav	7/31/2022	21:19:50	MYOSOD	22	6	22	41.31	166.79	63.527	41.005	NOID	NSP
SMU01631-TC3_20220731_212152_000.wav	7/31/2022	21:21:52	MYOSOD	11	2	11	41.084	160.28	64.901	40.672	NOID	PQR - faint
SMU01631-TC3_20220731_212237_000.wav	7/31/2022	21:22:37	MYOSOD	12	4	12	42.067	122.74	62.219	41.53	NOID	NSP; PQR - faint
SMU01631-TC3_20220731_212525_000.wav	7/31/2022	21:25:25	MYOSOD	11	5	11	40.671	160.61	65.075	39.791	MYOSPP	NSP; PQR - faint; identifiable myotis tail in some pulses
SMU01631-TC3_20220731_212710_000.wav	7/31/2022	21:27:10	MYOSOD	14	3	14	41.435	96.87	61.489	40.793	NOID	NSP; PQR-faint
SMU01631-TC3_20220731_212758_000.wav	7/31/2022	21:27:58	MYOSOD	13	1	13	42.785	132.73	68.626	40.912	MYOSPP	NSP; PQR-faint; CMT
SMU01631-TC3_20220731_212909_000.wav	7/31/2022	21:29:09	MYOSOD	6	3	6	44.458	181.56	71.067	42.007	NOID	NSP; PQR - faint
SMU01631-TC3_20220731_213502_000.wav	7/31/2022	21:35:02	MYOSOD	13	4	13	41.45	201.42	78.17	40.287	MYOSPP	CMT; NSP
SMU01631-TC3_20220731_214149_000.wav	7/31/2022	21:41:49	MYOSOD	5	2	5	42.692	150.63	70.278	42.692	NOID	NSP; PQR - faint
SMU01631-TC3_20220731_214242_000.wav	7/31/2022	21:42:42	MYOSOD	8	2	8	41.214	137.91	68.834	40.729	NOID	NSP; PQR - faint
SMU01631-TC3_20220731_214311_000.wav	7/31/2022	21:43:11	MYOSOD	9	4	9	40.912	155.32	61.994	40.191	MYOSPP	NSP; CMT; PQR - faint
SMU01631-TC3_20220731_214539_000.wav	7/31/2022	21:45:39	MYOSOD	18	5	18	41.242	90.93	63.917	40.925	MYOLUC	Fc=38-42; Sc=59-98; CMT
SMU01631-TC3_20220731_214548_000.wav	7/31/2022	21:45:48	MYOSOD	13	4	13	41.252	160.29	75.389	40.673	MYOSPP	NSP; CMT
SMU01631-TC3_20220731_214625_000.wav	7/31/2022	21:46:25	MYOSOD	34	14	34	41.408	139.34	68.65	40.642	MYOLUC	Fc=38-41; Sc=57-106
SMU01631-TC3_20220731_214736_000.wav	7/31/2022	21:47:36	MYOSOD	2	1	2	47.058	190.65	67.543	43.483	NOID	NSP; PQR - faint
SMU01631-TC3_20220731_214808_000.wav	7/31/2022	21:48:08	MYOSOD	22	10	22	41.818	185.22	71.028	41.229	MYOSPP	NSP
SMU01631-TC3_20220731_214849_000.wav	7/31/2022	21:48:49	MYOSOD	8	4	8	41.454	153.9	60.678	40.746	NOID	NSP; PQR
SMU01631-TC3_20220731_215005_000.wav	7/31/2022	21:50:05	MYOSOD	6	5	6	42.436	145.75	69.36	40.417	MYOSPP	NSP; CMT
SMU01631-TC3_20220731_215035_000.wav	7/31/2022	21:50:35	MYOSOD	10	7	10	40.895	107.67	63.171	40.175	MYOSPP	NSP; CMT; PQR
SMU01631-TC3_20220731_215221_000.wav	7/31/2022	21:52:21	MYOSOD	13	4	13	41.47	171.8	61.686	40.767	MYOSPP	NSP; CMT; PQR
SMU01631-TC3_20220731_215326_000.wav	7/31/2022	21:53:26	MYOSOD	9	3	9	41.365	150.17	68.483	40.509	MYOSPP	NSP; CMT; PQR - faint
SMU01631-TC3_20220731_215542_000.wav	7/31/2022	21:55:42	MYOSOD	17	5	17	42.976	117.36	64.432	42.27	MYOSPP	NSP; CMT; PQR - faint

SMU01631-TC3_20220731_215558_000.wav	7/31/2022	21:55:58	MYOSOD	20	8	20	42.518	155.53	70.616	41.528	MYOSPP	NSP; CMT
SMU01631-TC3_20220731_230613_000.wav	7/31/2022	23:06:13	MYOSOD	8	2	8	43.578	112.48	67.474	43.116	LASBOR	NMT; VMF; steep pulses, but Fc dips to low 30s
SMU01631-TC3_20220731_230629_000.wav	7/31/2022	23:06:29	MYOSOD	20	5	20	41.995	128.64	65.956	41.027	LASBOR	NMT; VMF; steep pulses, but Fc dips to low 30s
SMU01631-TC3_20220731_230710_000.wav	7/31/2022	23:07:10	MYOSOD	21	4	21	42.774	135.81	69.12	41.281	LASBOR	NMT; VMF; steep pulses, but Fc dips to low 30s
SMU01631-TC3_20220731_232044_000.wav	7/31/2022	23:20:44	MYOSOD	3	1	3	40.551	110.07	72.682	40.284	LASBOR	NMT; VMF; steep pulses, but Fc dips to low 30s
SMU01631-TC3_20220731_232149_000.wav	7/31/2022	23:21:49	MYOSOD	5	1	5	45.316	112.47	67.698	43.629	NOID	PQR - faint; NSP
SMU01631-TC3_20220801_004330_000.wav	8/1/2022	0:43:30	MYOSOD	16	6	16	41.268	111.06	68.866	40.83	NOID	NSP; PQR
SMU01631-TC3_20220801_004635_000.wav	8/1/2022	0:46:35	MYOSOD	16	7	16	41.597	86.41	66.317	41.016	NOID	NSP
SMU01631-TC3_20220801_005639_000.wav	8/1/2022	0:56:39	MYOSOD	7	2	7	43.224	122.56	67.52	41.769	NOID	NSP
SMU01631-TC3_20220801_050125_000.wav	8/1/2022	5:01:25	MYOSOD	7	2	7	42.676	105.7	66.238	42.217	NOID	NSP
SMU01631-TC3_20220801_050600_000.wav	8/1/2022	5:06:00	MYOSOD	8	3	8	44.45	149.77	72.465	43.913	NOID	NSP
SMU01631-TC3_20220801_050701_000.wav	8/1/2022	5:07:01	MYOSOD	9	5	9	45.661	146.91	67.133	44.574	NOID	NSP
SMU01631-TC3_20220801_050751_000.wav	8/1/2022	5:07:51	MYOSOD	7	2	7	45.22	185.87	74.245	44.23	NOID	NSP
SMU01631-TC3_20220731_213425_000.wav	7/31/2022	21:34:25	NoID	4	0	4	43.852	174.06	67.251	42.467	NOID	PQR; NSP
SMU01631-TC3_20220731_214238_000.wav	7/31/2022	21:42:38	NoID	2	0	2	42.697	137.8	72.172	42.28	NOID	PQR - short
SMU01631-TC3_20220801_010117_000.wav	8/1/2022	1:01:17	NoID	5	0	5	42.548	145	64.822	42.548	NOID	PQR - faint; NSP

OUT FILE FS	DATE	TIME	AUTO ID*	PULSES	MATCH	N	Fc	Sc	Dur	Fmax	Fmin	MANUAL ID	Comments
SMU01631-TC3_20220801_210909_000.wav	8/1/2022	21:09:09	MYOLUC	13	6	13	42.495	142.96	3.54	68.222	40.641	MYOLUC	CMT; Fc ~43; Sc 54-129
SMU01631-TC3_20220801_210925_000.wav	8/1/2022	21:09:25	MYOLUC	6	3	6	39.535	102.17	3.706	61.903	39.428	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_210941_000.wav	8/1/2022	21:09:41	MYOLUC	26	13	26	41.25	153.02	3.349	70.699	40.429	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_211036_000.wav	8/1/2022	21:10:36	MYOLUC	23	11	23	41.522	159.77	3.515	72.333	40.659	NOID	NMT; NSP
SMU01631-TC3_20220801_211407_000.wav	8/1/2022	21:14:07	MYOLUC	34	14	34	41.896	122.39	3.353	66.851	40.867	NOID	NMT; NSP
SMU01631-TC3_20220801_211421_000.wav	8/1/2022	21:14:21	MYOLUC	21	6	21	41.579	151.92	3.065	65.452	40.883	NOID	NMT; NSP
SMU01631-TC3_20220801_211444_000.wav	8/1/2022	21:14:44	MYOLUC	18	5	18	42.121	96.69	3.639	68.012	41.602	LASBOR	VMF from 32-40+kHz; upturned tail
SMU01631-TC3_20220801_211513_000.wav	8/1/2022	21:15:13	MYOSOD	20	6	20	41.538	131.04	3.515	72.658	40.271	LASBOR	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_211555_000.wav	8/1/2022	21:15:55	MYOLUC	24	11	24	41.829	67.55	3.709	61.669	41.292	LASBOR	VMF from 32-40+kHz; upturned tail
SMU01631-TC3_20220801_211622_000.wav	8/1/2022	21:16:22	MYOSOD	12	5	12	40.495	128.4	2.997	61.58	40.218	LASBOR	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_211639_000.wav	8/1/2022	21:16:39	MYOSOD	21	7	21	41.992	138.43	3.525	71.685	40.382	LASBOR	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_211654_000.wav	8/1/2022	21:16:54	MYOLUC	31	14	31	41.068	65.56	3.364	64.646	40.525	LASBOR	VMF from 32-40+kHz; upturned tail
SMU01631-TC3_20220801_211757_000.wav	8/1/2022	21:17:57	MYOSOD	17	5	17	41.582	163.4	2.924	66.737	41.343	NOID	NMT; NSP
SMU01631-TC3_20220801_211823_000.wav	8/1/2022	21:18:23	MYOLUC	27	11	27	41.794	142.49	3.603	74.29	40.447	LASBOR	VMF from 32-40+kHz; upturned tail
SMU01631-TC3_20220801_211852_000.wav	8/1/2022	21:18:52	MYOSOD	17	6	17	41.918	159.02	2.982	64.727	41.162	NOID	NMT; NSP
SMU01631-TC3_20220801_211909_000.wav	8/1/2022	21:19:09	MYOLUC	14	2	14	40.229	93.46	3.878	66.596	39.622	LASBOR	VMF from 32-40+kHz; upturned tail
SMU01631-TC3_20220801_211919_000.wav	8/1/2022	21:19:19	MYOSOD	6	2	6	41.455	145.2	3.209	68.294	40.214	NOID	NMT; NSP
SMU01631-TC3_20220801_211931_000.wav	8/1/2022	21:19:31	MYOLUC	21	9	21	43.518	128.32	3.405	76.679	42.6	LASBOR	VMF from 32-40+kHz; upturned tail
SMU01631-TC3_20220801_211948_000.wav	8/1/2022	21:19:48	MYOLUC	10	5	10	43.298	165.14	3.205	74.729	41.914	LASBOR	VMF from 32-40+kHz; upturned tail
SMU01631-TC3_20220801_212008_000.wav	8/1/2022	21:20:08	MYOLUC	9	5	9	41.995	105.57	4.074	74.795	41.416	LASBOR	VMF from 32-40+kHz; upturned tail
SMU01631-TC3_20220801_212030_000.wav	8/1/2022	21:20:30	MYOLUC	22	10	22	39.709	105.65	3.936	67.216	39.312	LASBOR	VMF from 32-40+kHz; upturned tail
SMU01631-TC3_20220801_212100_000.wav	8/1/2022	21:21:00	LASBOR	16	7	16	41.906	79.36	3.854	65.651	41.216	MYOSPP	CMT; NSP; Fc consistently 40+
SMU01631-TC3_20220801_212117_000.wav	8/1/2022	21:21:17	MYOSOD	17	5	17	41.616	134.01	2.81	62.112	40.954	NOID	NMT; NSP
SMU01631-TC3_20220801_212132_000.wav	8/1/2022	21:21:32	MYOLUC	18	3	18	43.852	188.91	2.952	74.974	41.813	NOID	NMT; NSP
SMU01631-TC3_20220801_212158_000.wav	8/1/2022	21:21:58	MYOSOD	17	3	17	42.288	144.5	2.746	63.978	41.738	NOID	NMT; NSP
SMU01631-TC3_20220801_212225_000.wav	8/1/2022	21:22:25	NoID	12	0	12	39.66	145.79	3.617	79.142	39.517	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_212257_000.wav	8/1/2022	21:22:57	MYOLUC	20	7	20	41.6	169.9	3.221	73.527	40.665	NOID	NMT; NSP
SMU01631-TC3_20220801_212326_000.wav	8/1/2022	21:23:26	MYOLUC	15	5	15	41.967	115.46	2.907	63.27	40.916	NOID	NSP
SMU01631-TC3_20220801_212342_000.wav	8/1/2022	21:23:42	MYOSOD	22	9	22	42.522	150.88	3.022	71.897	41.478	NOID	NMT; NSP
SMU01631-TC3_20220801_212410_000.wav	8/1/2022	21:24:10	MYOLUC	10	2	10	42.261	130.8	2.426	57.207	40.328	NOID	NSP
SMU01631-TC3_20220801_212426_000.wav	8/1/2022	21:24:26	MYOLUC	29	9	29	42.33	171.73	3.121	72.111	41.41	NOID	NSP
SMU01631-TC3_20220801_212442_000.wav	8/1/2022	21:24:42	MYOLUC	12	6	12	42.39	161.72	3.241	64.734	40.687	NOID	NSP
SMU01631-TC3_20220801_212502_000.wav	8/1/2022	21:25:02	MYOLUC	16	8	16	41.594	121.57	3.837	72.966	40.515	NOID	NSP
SMU01631-TC3_20220801_212532_000.wav	8/1/2022	21:25:32	MYOLUC	6	4	6	41.182	87.47	4.377	64.882	40.8	NOID	PQR; too few pulses to ID
SMU01631-TC3_20220801_212554_000.wav	8/1/2022	21:25:54	NoID	3	0	3	43.899	226.72	2.17	64.66	43.157	NOID	PQR; too few pulses to ID
SMU01631-TC3_20220801_212558_000.wav	8/1/2022	21:25:58	MYOLUC	14	3	14	40.185	163.44	2.664	59.59	39.246	NOID	NSP
SMU01631-TC3_20220801_212606_000.wav	8/1/2022	21:26:06	MYOSOD	18	4	18	44.955	181.6	2.7	71.122	43.456	NOID	NMT; NSP
SMU01631-TC3_20220801_212643_000.wav	8/1/2022	21:26:43	MYOLUC	5	2	5	42.92	122.52	2.981	65.307	42.285	NOID	NSP
SMU01631-TC3_20220801_212659_000.wav	8/1/2022	21:26:59	MYOSOD	14	8	14	41.055	109.15	2.986	61.388	40.467	NOID	NMT; NSP
SMU01631-TC3_20220801_213304_000.wav	8/1/2022	21:33:04	MYOLUC	17	5	17	42.214	136.78	2.92	65.18	40.906	NOID	NSP
SMU01631-TC3_20220801_213320_000.wav	8/1/2022	21:33:20	MYOLUC	17	9	17	42.318	93.36	3.648	74.541	40.776	NOID	NSP
SMU01631-TC3_20220801_213335_000.wav	8/1/2022	21:33:35	MYOLUC	21	4	21	41.734	155.04	2.669	61.901	41.262	NOID	NSP
SMU01631-TC3_20220801_213345_000.wav	8/1/2022	21:33:45	MYOLUC	10	5	10	40.934	126.6	3.738	69.433	40.014	NOID	NSP
SMU01631-TC3_20220801_213422_000.wav	8/1/2022	21:34:22	MYOLUC	16	8	16	40.968	155.7	3.946	78.853	39.792	NOID	NSP
SMU01631-TC3_20220801_213440_000.wav	8/1/2022	21:34:40	MYOSOD	10	2	10	39.81	141.58	3.033	60.627	39.49	NOID	NMT; NSP
SMU01631-TC3_20220801_213456_000.wav	8/1/2022	21:34:56	MYOSOD	18	7	18	42.164	160.92	3.219	73.362	41.028	NOID	NMT; NSP

SMU01631-TC3_20220801_213519_000.wav	8/1/2022	21:35:19	MYOSOD	12	4	12	41.829	159.56	2.823	63.672	41.458	NOID	NMT; NSP
SMU01631-TC3_20220801_213535_000.wav	8/1/2022	21:35:35	MYOLUC	19	10	19	42.985	166.86	3.177	72.334	41.728	NOID	NSP
SMU01631-TC3_20220801_213551_000.wav	8/1/2022	21:35:51	MYOSOD	19	6	19	40.99	107.96	2.96	58.737	40.217	NOID	NMT; NSP; multiple bats/interference; VMF - probable LASBOR
SMU01631-TC3_20220801_213607_000.wav	8/1/2022	21:36:07	MYOSOD	17	5	17	42.386	158.66	3.431	73.836	41.384	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_213634_000.wav	8/1/2022	21:36:34	MYOSOD	9	3	9	42.151	105.86	3.201	61.38	41.273	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_213800_000.wav	8/1/2022	21:38:00	MYOLUC	12	6	12	42.821	92.95	3.688	67.707	41.044	MYOLUC	CMT; Fc; 39-43; Sc:62-104
SMU01631-TC3_20220801_213814_000.wav	8/1/2022	21:38:14	MYOLUC	21	6	21	41.195	138.51	3.376	65.815	40.239	NOID	NSP
SMU01631-TC3_20220801_213830_000.wav	8/1/2022	21:38:30	MYOLUC	22	9	22	41.918	139.83	3.499	72.652	40.46	NOID	NSP
SMU01631-TC3_20220801_213846_000.wav	8/1/2022	21:38:46	MYOLUC	11	3	11	41.21	142.1	3.248	63.735	40.37	NOID	NSP
SMU01631-TC3_20220801_213902_000.wav	8/1/2022	21:39:02	MYOSOD	20	4	20	42.924	163.18	2.916	70.027	41.666	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_213934_000.wav	8/1/2022	21:39:34	MYOLUC	23	8	23	42.202	137.92	3.203	67.627	41.242	NOID	NSP
SMU01631-TC3_20220801_213949_000.wav	8/1/2022	21:39:49	MYOSOD	35	14	35	41.498	105.39	3.369	64.278	40.682	LASBOR	NMT; VMF circa 40 kHz; diagnostic
SMU01631-TC3_20220801_214004_000.wav	8/1/2022	21:40:04	MYOLUC	24	6	24	40.318	99.27	3.742	65.924	39.88	MYOLUC	CMT; Fc: 37-40; Sc: 47-102
SMU01631-TC3_20220801_214019_000.wav	8/1/2022	21:40:19	MYOLUC	46	15	46	41.658	136.44	3.216	64.954	40.992	MYOLUC	CMT; Fc: 39-41; Sc: 50-79
SMU01631-TC3_20220801_214035_000.wav	8/1/2022	21:40:35	MYOSOD	5	4	5	39.231	70.81	3.231	58.36	39.194	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_214051_000.wav	8/1/2022	21:40:51	MYOLUC	29	11	29	41.669	151.33	3.392	74.535	40.791	NOID	NMT; PQR; truncated pulses
SMU01631-TC3_20220801_214104_000.wav	8/1/2022	21:41:04	MYOSOD	15	8	15	40.336	113.93	3.387	62.135	40.029	LASBOR	NMT; VMF circa 40 kHz; diagnostic
SMU01631-TC3_20220801_214119_000.wav	8/1/2022	21:41:19	MYOLUC	25	6	25	41.928	168.91	3.404	74.388	40.998	NOID	NMT; NSP
SMU01631-TC3_20220801_214134_000.wav	8/1/2022	21:41:34	MYOSEP	32	14	32	36.964	192.46	2.815	65.043	36.028	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_214151_000.wav	8/1/2022	21:41:51	MYOLUC	17	7	17	41.967	125.77	4.096	76.41	40.636	NOID	NMT; NSP
SMU01631-TC3_20220801_214157_000.wav	8/1/2022	21:41:57	EPTFUS	32	11	32	38.364	154.14	3.042	65.894	37.147	LASBOR	VMF from 32-40+kHz
SMU01631-TC3_20220801_214224_000.wav	8/1/2022	21:42:24	MYOSEP	37	15	37	37.703	154.28	3.404	67.435	36.739	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_214240_000.wav	8/1/2022	21:42:40	MYOSEP	33	18	33	36.294	198.84	2.841	65.478	34.473	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_214257_000.wav	8/1/2022	21:42:57	MYOSEP	23	9	23	39.451	181.71	3.143	69.209	38.062	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_214312_000.wav	8/1/2022	21:43:12	MYOSEP	28	11	28	38.957	144.18	3.074	64.744	38.012	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_214327_000.wav	8/1/2022	21:43:27	MYOLUC	6	6	6	49.24	72	3.243	66.087	47.97	NOID	NSP; multiple bats
SMU01631-TC3_20220801_214342_000.wav	8/1/2022	21:43:42	MYOLUC	7	4	7	48.126	80.1	4.451	70.469	42.771	NOID	NSP; PQR - faint; too few pulses to measure
SMU01631-TC3_20220801_214359_000.wav	8/1/2022	21:43:59	MYOSOD	7	2	7	42.792	205.42	3.389	65.489	41.147	NOID	NMT; NSP; NMF - probable LASBOR
SMU01631-TC3_20220801_214414_000.wav	8/1/2022	21:44:14	MYOLUC	20	9	20	42.397	105.39	3.283	60.358	41.165	NOID	NSP
SMU01631-TC3_20220801_214437_000.wav	8/1/2022	21:44:37	MYOSEP	26	11	26	40.619	158.9	3.121	68.914	39.781	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_214452_000.wav	8/1/2022	21:44:52	MYOSEP	17	12	17	37.331	220.95	2.943	69.005	34.667	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_214508_000.wav	8/1/2022	21:45:08	MYOSEP	37	23	37	36.488	190.73	3.24	67.175	34.605	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_214539_000.wav	8/1/2022	21:45:39	MYOSEP	32	14	32	36.373	213.39	3.036	67.384	35.179	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_214556_000.wav	8/1/2022	21:45:56	MYOLUC	29	8	29	40.942	135.53	2.82	62.428	39.382	NOID	NMT; PQR; faint, truncated pulses
SMU01631-TC3_20220801_214613_000.wav	8/1/2022	21:46:13	MYOSEP	16	10	16	36.108	203.42	2.925	69.504	35.573	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_214628_000.wav	8/1/2022	21:46:28	MYOSEP	33	13	33	35.126	194.7	2.994	63.359	33.369	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_214644_000.wav	8/1/2022	21:46:44	EPTFUS	2	2	2	35.72	167.77	2.916	62.09	35.72	NOID	NSP; PQR - faint; too few pulses to measure
SMU01631-TC3_20220801_214659_000.wav	8/1/2022	21:46:59	MYOSEP	34	24	34	35.981	203.42	3.201	69.464	34.878	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_214709_000.wav	8/1/2022	21:47:09	MYOSEP	25	18	25	36.563	245.28	2.945	69.183	34.73	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_214725_000.wav	8/1/2022	21:47:25	MYOSEP	27	15	27	36.067	208.31	2.876	67.637	34.575	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_214741_000.wav	8/1/2022	21:47:41	EPTFUS	12	9	12	35.77	169.19	2.819	65.718	35.467	LASBOR	VMF from 32-40+kHz
SMU01631-TC3_20220801_214757_000.wav	8/1/2022	21:47:57	MYOSEP	17	12	17	36.499	216.96	2.824	67.863	35.535	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_214812_000.wav	8/1/2022	21:48:12	MYOSEP	15	7	15	38.61	170.13	3.085	66.315	36.439	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_214828_000.wav	8/1/2022	21:48:28	MYOLUC	50	10	50	39.443	175.16	3.151	68.453	38.379	NOID	NMT; VMF; NSP
SMU01631-TC3_20220801_214843_000.wav	8/1/2022	21:48:43	MYOSEP	40	23	40	36.55	163.84	3.058	69.134	35.271	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_214859_000.wav	8/1/2022	21:48:59	MYOSEP	41	17	41	39.061	170.06	3.095	68.493	37.84	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_214914_000.wav	8/1/2022	21:49:14	MYOSEP	29	11	29	40.197	177.71	2.927	64.752	36.842	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail

SMU01631-TC3_20220801_214929_000.wav	8/1/2022	21:49:29	MYOLUC	36	8	36	38.696	146.22	3.163	68.214	37.416	NOID	NMT; VMF; NSP; Fc<35 to >40
SMU01631-TC3_20220801_214944_000.wav	8/1/2022	21:49:44	MYOSEP	28	17	28	37.567	196.38	2.834	66.203	35.4	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_214959_000.wav	8/1/2022	21:49:59	MYOSEP	22	17	22	36.232	231.16	2.841	69.805	35.68	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_215014_000.wav	8/1/2022	21:50:14	MYOSEP	13	5	13	36.81	130.59	2.833	63.841	35.874	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_215030_000.wav	8/1/2022	21:50:30	MYOSEP	37	17	37	38.262	151.69	3.041	65.517	37.425	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_215045_000.wav	8/1/2022	21:50:45	MYOLUC	66	27	66	41.407	139.02	3.276	67.823	39.868	NOID	NSP/PQR - faint in some areas and aliasing in others
SMU01631-TC3_20220801_215100_000.wav	8/1/2022	21:51:00	MYOSEP	15	7	15	36.375	189.58	2.559	62.404	35.434	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_215115_000.wav	8/1/2022	21:51:15	MYOSEP	32	20	32	36.459	175.92	3.257	70.302	34.938	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_215131_000.wav	8/1/2022	21:51:31	EPTFUS	2	2	2	37.374	252.18	2.99	64.677	35.27	NOID	NSP; PQR - faint; too few pulses to measure
SMU01631-TC3_20220801_215146_000.wav	8/1/2022	21:51:46	MYOSEP	30	22	30	37.999	212.23	2.918	68.141	36.166	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_215202_000.wav	8/1/2022	21:52:02	MYOSEP	29	20	29	38.025	211.89	2.867	67.032	35.628	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_215218_000.wav	8/1/2022	21:52:18	MYOSEP	7	5	7	37.184	220.5	2.897	69.549	35.862	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_215233_000.wav	8/1/2022	21:52:33	MYOSEP	33	16	33	37.171	203.59	2.945	68.27	35.48	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_215249_000.wav	8/1/2022	21:52:49	MYOSEP	10	7	10	36.191	177.7	3.368	71.765	34.403	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_215321_000.wav	8/1/2022	21:53:21	MYOLUC	22	11	22	42	112.53	3.445	62.521	41.422	NOID	NSP
SMU01631-TC3_20220801_215339_000.wav	8/1/2022	21:53:39	MYOLUC	20	8	20	41.643	125.39	3.242	69.32	40.885	NOID	NSP
SMU01631-TC3_20220801_215357_000.wav	8/1/2022	21:53:57	MYOSOD	18	7	18	40.424	86.11	3.493	60.281	40.069	LASBOR	NMT; VMF circa 40 kHz; diagnostic
SMU01631-TC3_20220801_215413_000.wav	8/1/2022	21:54:13	MYOLUC	25	10	25	41.09	143.93	3.471	72.351	40.376	NOID	NSP
SMU01631-TC3_20220801_215629_000.wav	8/1/2022	21:56:29	MYOLUC	17	8	17	41.803	139.74	3.506	73.601	40.802	NOID	NSP
SMU01631-TC3_20220801_215644_000.wav	8/1/2022	21:56:44	MYOSOD	18	7	18	42.506	165.64	3.002	63.57	41.167	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_215715_000.wav	8/1/2022	21:57:15	MYOLUC	23	12	23	41.628	158.56	3.234	69.796	40.956	NOID	NSP
SMU01631-TC3_20220801_215730_000.wav	8/1/2022	21:57:30	MYOLUC	13	5	13	41.562	174.4	3.403	70.134	40.164	NOID	NSP
SMU01631-TC3_20220801_215746_000.wav	8/1/2022	21:57:46	MYOLUC	30	12	30	42.56	122.64	3.329	65.772	41.567	NOID	NMT; NSP
SMU01631-TC3_20220801_215814_000.wav	8/1/2022	21:58:14	MYOLUC	14	5	14	41.712	150.66	3.49	75.805	40.291	NOID	NMT; NSP
SMU01631-TC3_20220801_215857_000.wav	8/1/2022	21:58:57	MYOLUC	15	4	15	42.403	173.18	3.292	74.87	41.177	NOID	NMT; NSP; VMF
SMU01631-TC3_20220801_215913_000.wav	8/1/2022	21:59:13	MYOLUC	13	4	13	42.422	104.69	3.087	61.496	41.397	NOID	NMT; NSP
SMU01631-TC3_20220801_215928_000.wav	8/1/2022	21:59:28	MYOLUC	24	7	24	42.294	122.33	3.21	71.337	40.967	NOID	NMT; NSP
SMU01631-TC3_20220801_215943_000.wav	8/1/2022	21:59:43	MYOSOD	8	3	8	41.818	160.76	3.249	66.985	40.976	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_220008_000.wav	8/1/2022	22:00:08	MYOSEP	54	22	54	39.768	167.6	3.148	70.336	38.736	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_220024_000.wav	8/1/2022	22:00:24	MYOLUC	20	12	20	40.078	123.09	3.58	67.467	39.753	NOID	NMT; NSP
SMU01631-TC3_20220801_220039_000.wav	8/1/2022	22:00:39	MYOSEP	22	14	22	37.441	142.21	3.05	67.134	35.063	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_220052_000.wav	8/1/2022	22:00:52	MYOSEP	26	11	26	41.158	150.26	3.287	70.985	38.884	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_220108_000.wav	8/1/2022	22:01:08	MYOSEP	35	12	35	38.851	181.6	2.882	64.197	37.451	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_220124_000.wav	8/1/2022	22:01:24	EPTFUS	24	11	24	38.871	136.32	2.886	63.701	37.122	LASBOR	VMF from 32-40+kHz
SMU01631-TC3_20220801_220139_000.wav	8/1/2022	22:01:39	MYOSEP	48	16	48	38.817	184.91	3.031	69.612	38.031	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_220156_000.wav	8/1/2022	22:01:56	MYOSEP	39	19	39	37.896	170.63	3.198	68.243	36.745	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_220212_000.wav	8/1/2022	22:02:12	MYOLUC	38	14	38	40.672	135.4	3.376	68.292	39.524	NOID	NMT; NSP
SMU01631-TC3_20220801_220228_000.wav	8/1/2022	22:02:28	EPTFUS	15	9	15	36.401	153.19	3.04	65.515	35.486	LASBOR	VMF from 32-40+kHz
SMU01631-TC3_20220801_220242_000.wav	8/1/2022	22:02:42	MYOSEP	19	14	19	37.655	213.95	2.855	66.418	34.726	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_220257_000.wav	8/1/2022	22:02:57	MYOSEP	21	9	21	36.055	176.62	3.045	66.132	35.13	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_220312_000.wav	8/1/2022	22:03:12	MYOSEP	24	12	24	36.476	142.13	3.17	67.999	34.874	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_221010_000.wav	8/1/2022	22:10:10	MYOLEI	3	2	3	44.185	182.37	3.011	68.686	41.68	NOID	NSP; PQR - faint; too few pulses to measure
SMU01631-TC3_20220801_221855_000.wav	8/1/2022	22:18:55	MYOSOD	19	4	19	43.212	134.54	3.02	64.725	41.782	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_221910_000.wav	8/1/2022	22:19:10	MYOLUC	22	10	22	43.186	121.86	3.348	72.222	41.005	NOID	NMT; NSP
SMU01631-TC3_20220801_221920_000.wav	8/1/2022	22:19:20	MYOSOD	14	5	14	42.033	150.19	3.263	67.377	41.472	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_222108_000.wav	8/1/2022	22:21:08	MYOLUC	21	9	21	42.525	159.82	3.087	71.446	42.014	NOID	NMT; NSP
SMU01631-TC3_20220801_222316_000.wav	8/1/2022	22:23:16	MYOSOD	18	6	18	41.476	134.46	3.006	61.354	40.598	NOID	NMT; NSP; VMF - probable LASBOR

SMU01631-TC3_20220801_222328_000.wav	8/1/2022	22:23:28	MYOLUC	20	14	20	42.409	133.44	3.395	70.164	41.38	NOID	NMT; NSP
SMU01631-TC3_20220801_222347_000.wav	8/1/2022	22:23:47	MYOSOD	15	6	15	41.672	107.69	3.062	62.739	41.057	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_222403_000.wav	8/1/2022	22:24:03	MYOLUC	15	8	15	43.772	109.59	3.544	73.696	41.552	NOID	NMT; NSP
SMU01631-TC3_20220801_222908_000.wav	8/1/2022	22:29:08	MYOSEP	15	13	15	36.429	207.82	2.989	69.662	35.534	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_222925_000.wav	8/1/2022	22:29:25	MYOSEP	17	10	17	36	149.8	3.377	66.713	34.672	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_222942_000.wav	8/1/2022	22:29:42	MYOSEP	15	10	15	36.288	206.72	2.959	68.013	35.425	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_222958_000.wav	8/1/2022	22:29:58	EPTFUS	18	9	18	36.119	145.4	3.079	62.905	34.904	LASBOR	VMF from 32-40+kHz
SMU01631-TC3_20220801_223015_000.wav	8/1/2022	22:30:15	MYOSEP	17	10	17	36.097	184.79	3.211	68.352	34.474	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_223030_000.wav	8/1/2022	22:30:30	EPTFUS	4	4	4	35.448	161.29	2.432	53.573	35.261	NOID	NSP; PQR - faint; too few pulses to measure
SMU01631-TC3_20220801_223105_000.wav	8/1/2022	22:31:05	EPTFUS	15	9	15	36.756	160.54	2.898	63.759	35.61	LASBOR	VMF from 32-40+kHz; upturned tail
SMU01631-TC3_20220801_223120_000.wav	8/1/2022	22:31:20	MYOSEP	22	15	22	36.478	209.37	2.967	68.588	35.183	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_223145_000.wav	8/1/2022	22:31:45	EPTFUS	15	8	15	36.04	124.19	2.915	63.63	35.604	LASBOR	VMF from 32-40+kHz; upturned tail
SMU01631-TC3_20220801_223454_000.wav	8/1/2022	22:34:54	MYOSEP	23	19	23	36.054	199	2.879	67.116	35.191	NOID	CMT; NSP; Fc drops to low 30s;
SMU01631-TC3_20220801_223525_000.wav	8/1/2022	22:35:25	EPTFUS	25	10	25	36.767	186.75	2.862	65.81	36.151	LASBOR	VMF from 32-40+kHz; upturned tail
SMU01631-TC3_20220801_223540_000.wav	8/1/2022	22:35:40	MYOSEP	7	6	7	35.747	180.42	3.404	71.277	35.084	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_223611_000.wav	8/1/2022	22:36:11	EPTFUS	14	7	14	35.985	150.06	3.004	64.476	35.42	LASBOR	VMF from 32-40+kHz; upturned tail
SMU01631-TC3_20220801_223643_000.wav	8/1/2022	22:36:43	MYOSEP	22	14	22	36.433	190.27	3.008	67.813	35.174	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_223833_000.wav	8/1/2022	22:38:33	EPTFUS	2	1	2	25.941	40.7	8.431	36.368	25.772	LASBOR	VMF from 32-40+kHz; upturned tail
SMU01631-TC3_20220801_224210_000.wav	8/1/2022	22:42:10	EPTFUS	3	2	3	30.392	-1.74	4.964	40.064	29.643	EPTFUS	FM Call; Fc ca 30 kHz
SMU01631-TC3_20220801_224401_000.wav	8/1/2022	22:44:01	MYOSEP	29	15	29	37.491	194.32	2.997	68.179	35.387	LASBOR	NMT; VMF circa 35-40 kHz; upturned tail
SMU01631-TC3_20220801_224759_000.wav	8/1/2022	22:47:59	MYOLUC	2	2	2	40.014	65.34	2.933	48.196	39.334	NOID	PQR - too faint to ID
SMU01631-TC3_20220801_225550_000.wav	8/1/2022	22:55:50	MYOLUC	23	10	23	45.149	151.06	3.302	77.377	42.066	NOID	NMT; NSP
SMU01631-TC3_20220801_232135_000.wav	8/1/2022	23:21:35	MYOSOD	7	3	7	41.108	112.31	2.965	57.985	39.175	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_232152_000.wav	8/1/2022	23:21:52	MYOSOD	17	5	17	42.632	137.67	3.435	71.417	41.285	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_232222_000.wav	8/1/2022	23:22:22	MYOSOD	12	4	12	42.248	139.16	3.141	65.849	41.123	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_232238_000.wav	8/1/2022	23:22:38	MYOLUC	18	8	18	42.069	130.83	3.162	68.287	41.184	NOID	NMT; NSP
SMU01631-TC3_20220801_232253_000.wav	8/1/2022	23:22:53	MYOSOD	15	6	15	41.461	111.53	3.301	65.468	41.226	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_232308_000.wav	8/1/2022	23:23:08	MYOLUC	16	8	16	41.631	109.76	3.677	63.404	40.603	NOID	NMT; NSP
SMU01631-TC3_20220801_232332_000.wav	8/1/2022	23:23:32	MYOLUC	9	3	9	40.713	83.29	3.659	59.085	40.018	NOID	NMT; NSP
SMU01631-TC3_20220801_232347_000.wav	8/1/2022	23:23:47	MYOLUC	18	8	18	45.886	167.26	3.3	73.264	43.89	NOID	NMT; NSP
SMU01631-TC3_20220801_232408_000.wav	8/1/2022	23:24:08	MYOLUC	16	6	16	41.938	117.2	3.435	65.692	41.103	NOID	NMT; NSP
SMU01631-TC3_20220801_232416_000.wav	8/1/2022	23:24:16	MYOLUC	10	6	10	42.406	135.78	3.482	69.769	41.364	NOID	NMT; NSP
SMU01631-TC3_20220801_232431_000.wav	8/1/2022	23:24:31	MYOSOD	6	2	6	41.718	109.83	2.667	60.175	41.051	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_232645_000.wav	8/1/2022	23:26:45	MYOLUC	5	2	5	43.426	132.69	3.488	61.512	42.371	NOID	NMT; NSP
SMU01631-TC3_20220801_232701_000.wav	8/1/2022	23:27:01	MYOLUC	9	5	9	42.547	122.07	3.391	66.743	42.018	NOID	NMT; NSP
SMU01631-TC3_20220801_232717_000.wav	8/1/2022	23:27:17	MYOLUC	19	8	19	43.468	164.8	3.307	71.185	41.828	NOID	NMT; NSP
SMU01631-TC3_20220801_232732_000.wav	8/1/2022	23:27:32	MYOLUC	5	1	5	41.01	180.59	3.229	66.908	40.864	NOID	NMT; NSP
SMU01631-TC3_20220801_232918_000.wav	8/1/2022	23:29:18	MYOSOD	22	5	22	42.916	96.31	3.481	72.103	41.416	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_232933_000.wav	8/1/2022	23:29:33	MYOLUC	13	5	13	41.401	125.57	3.22	62.877	40.962	NOID	NMT; NSP
SMU01631-TC3_20220801_232950_000.wav	8/1/2022	23:29:50	MYOLUC	3	3	3	42.879	109.83	3.324	62.737	40.917	NOID	NMT; NSP
SMU01631-TC3_20220801_233006_000.wav	8/1/2022	23:30:06	MYOLUC	14	4	14	41.595	148.64	3.469	71.596	40.862	LASBOR	VMF; NMT; upward hook at tail
SMU01631-TC3_20220801_233302_000.wav	8/1/2022	23:33:02	MYOSOD	16	7	16	41.497	136.81	3.137	64.108	40.076	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220801_233323_000.wav	8/1/2022	23:33:23	MYOLUC	18	11	18	42.134	119.4	3.825	74.146	40.658	LASBOR	VMF; NMT; upward hook at tail
SMU01631-TC3_20220801_233338_000.wav	8/1/2022	23:33:38	MYOLUC	13	5	13	41.296	114.75	3.616	65.063	40.559	LASBOR	VMF; NMT; upward hook at tail
SMU01631-TC3_20220801_233403_000.wav	8/1/2022	23:34:03	MYOLUC	17	7	17	42.183	145.92	3.183	67.803	41.046	LASBOR	VMF; NMT; upward hook at tail
SMU01631-TC3_20220802_005627_000.wav	8/2/2022	0:56:27	MYOLUC	12	4	12	41.274	100.76	3.266	61.06	40.38	LASBOR	VMF; NMT; upward hook at tail
SMU01631-TC3_20220802_005642_000.wav	8/2/2022	0:56:42	MYOSOD	9	4	9	42.24	134.05	2.884	62.452	41.299	NOID	NMT; NSP; VMF - probable LASBOR

SMU01631-TC3_20220802_005823_000.wav	8/2/2022	0:58:23	MYOSOD	16	6	16	42.813	116.77	3.093	62.201	41.273	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220802_005838_000.wav	8/2/2022	0:58:38	MYOLUC	28	14	28	41.406	123.33	3.475	68.16	40.707	LASBOR	VMF; NMT; upward hook at tail
SMU01631-TC3_20220802_005854_000.wav	8/2/2022	0:58:54	MYOLUC	9	3	9	42.048	103.15	3.336	63.278	41.44	NOID	VMF; NSP; probable LASBOR
SMU01631-TC3_20220802_010311_000.wav	8/2/2022	1:03:11	MYOLUC	19	12	19	42.563	121.67	3.543	67.291	40.984	NOID	VMF; NSP; probable LASBOR
SMU01631-TC3_20220802_010327_000.wav	8/2/2022	1:03:27	MYOLUC	18	12	18	42.764	109.34	3.526	64.332	41.752	LASBOR	VMF; NMT; upward hook at tail
SMU01631-TC3_20220802_010509_000.wav	8/2/2022	1:05:09	MYOLUC	28	15	28	42.595	125.46	3.686	69.164	41.336	LASBOR	VMF; NMT; upward hook at tail
SMU01631-TC3_20220802_021754_000.wav	8/2/2022	2:17:54	EPTFUS	4	1	4	30.149	19.19	4.266	43.352	29.618	EPTFUS	FM Call; Fc ca 30 kHz
SMU01631-TC3_20220802_021802_000.wav	8/2/2022	2:18:02	EPTFUS	11	6	11	28.722	24.45	4.494	39.983	28.248	EPTFUS	FM Call; Fc ca 30 kHz
SMU01631-TC3_20220802_024453_000.wav	8/2/2022	2:44:53	MYOLUC	2	1	2	40.414	41.71	2.234	48.354	39.73	NOID	PQR - faint
SMU01631-TC3_20220802_041540_000.wav	8/2/2022	4:15:40	MYOLUC	2	2	2	40.447	67.59	3.031	51.517	39.085	NOID	PQR - faint
SMU01631-TC3_20220802_043440_000.wav	8/2/2022	4:34:40	MYOSEP	14	6	14	36.064	146.65	3.111	69.352	35.321	NOID	CMT; NSP; Fc drops to low 30s;
SMU01631-TC3_20220802_043505_000.wav	8/2/2022	4:35:05	MYOSEP	9	8	9	40.077	251.25	2.437	66.681	38.624	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220802_045011_000.wav	8/2/2022	4:50:11	MYOLUC	2	2	2	41.094	55.21	3.871	50.82	39.229	NOID	PQR - faint
SMU01631-TC3_20220802_050331_000.wav	8/2/2022	5:03:31	MYOLUC	10	2	10	43.714	173.06	3.101	71.695	42.674	NOID	PQR - too few pulses to measure; faint
SMU01631-TC3_20220802_050348_000.wav	8/2/2022	5:03:48	MYOLUC	24	8	24	42.574	139.06	3.443	72.155	41.121	LASBOR	VMF; NMT; upward hook at tail
SMU01631-TC3_20220802_050402_000.wav	8/2/2022	5:04:02	MYOSOD	11	4	11	44.015	117.97	3.338	68.671	42.32	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220802_050418_000.wav	8/2/2022	5:04:18	MYOLUC	11	7	11	45.834	219.62	3.095	81.044	42.585	NOID	VMF; NSP; probable LASBOR
SMU01631-TC3_20220802_050434_000.wav	8/2/2022	5:04:34	MYOLUC	26	13	26	42.691	160.65	3.262	69.471	40.904	NOID	VMF; NSP; probable LASBOR
SMU01631-TC3_20220802_050452_000.wav	8/2/2022	5:04:52	MYOLUC	15	11	15	44.885	90.33	3.587	80.308	43.567	NOID	VMF; NSP; probable LASBOR
SMU01631-TC3_20220802_050509_000.wav	8/2/2022	5:05:09	MYOLUC	24	15	24	42.579	102.93	3.865	72.134	41.628	LASBOR	VMF; NMT; upward hook at tail
SMU01631-TC3_20220802_050518_000.wav	8/2/2022	5:05:18	MYOLUC	9	4	9	44.425	141.45	2.925	63.428	43.202	NOID	PQR - faint
SMU01631-TC3_20220802_050657_000.wav	8/2/2022	5:06:57	MYOLUC	13	8	13	46.669	169.49	3.318	79.392	44.018	NOID	VMF; NSP; probable LASBOR
SMU01631-TC3_20220802_050713_000.wav	8/2/2022	5:07:13	MYOLUC	9	4	9	45.056	169.21	3.295	71.731	43.634	NOID	VMF; NSP; probable LASBOR
SMU01631-TC3_20220802_050731_000.wav	8/2/2022	5:07:31	MYOLUC	10	8	10	45.896	169.9	3.424	79.682	43.657	NOID	VMF; NSP; probable LASBOR
SMU01631-TC3_20220802_050747_000.wav	8/2/2022	5:07:47	MYOSOD	8	3	8	44.968	161.37	3.255	74.297	43.913	NOID	NMT; NSP; VMF - probable LASBOR
SMU01631-TC3_20220802_050840_000.wav	8/2/2022	5:08:40	MYOLUC	8	5	8	44.874	164.39	3.498	82.687	43.824	NOID	VMF; NSP; probable LASBOR

OUT FILE FS	DATE	TIME	AUTO ID*	PULSES	MATCH	N	Fc	Sc	Dur	Fmax	Fmin	MANUAL ID	Comments
SMU01645-TC4_20220801_232849_000.wav	8/1/2022	23:28:49	EPTFUS	2	2	2	30.546	16.61	5.274	47.956	30.204	NOID	PQR - too few pulses to measure
SMU01645-TC4_20220802_004630_000.wav	8/2/2022	0:46:30	EPTFUS	17	11	17	33.034	245.74	3.165	62.699	31.094	EPTFUS	FM Call; Fc in low 30s kHz
SMU01645-TC4_20220802_004638_000.wav	8/2/2022	0:46:38	EPTFUS	13	10	13	31.425	245.87	3.331	64.473	30.888	EPTFUS	FM Call; Fc in low 30s kHz
SMU01645-TC4_20220802_004644_000.wav	8/2/2022	0:46:44	EPTFUS	15	6	15	32.731	207.44	2.569	52.877	31.788	EPTFUS	FM Call; Fc in low 30s kHz
SMU01645-TC4_20220802_005120_000.wav	8/2/2022	0:51:20	EPTFUS	11	5	11	27.259	46.5	6.084	32.565	24.527	LASNOC	CF Call; Fc ~26 kHz or below; Fmax<45
SMU01645-TC4_20220802_011239_000.wav	8/2/2022	1:12:39	EPTFUS	5	3	5	26.948	25.29	8.676	35.267	26.592	LASNOC	CF Call; Fc ~26 kHz or below; Fmax<46
SMU01645-TC4_20220802_045318_000.wav	8/2/2022	4:53:18	EPTFUS	8	4	8	29.282	23.36	2.933	34.13	28.838	EPTFUS/LASNOC	FM to CF call; Fc~26 kHz; Fmax < 50 kHz
SMU01645-TC4_20220801_211243_000.wav	8/1/2022	21:12:43	LASNOC	2	1	2	27.974	47.04	3.408	31.274	27.126	NOID	PQR - too few pulses to measure, but few pulses look like LASNOC
SMU01645-TC4_20220802_000106_000.wav	8/2/2022	0:01:06	LASNOC	2	1	2	26.385	21.44	12.118	38.474	26.249	LASNOC	CF call; Fc~26 kHz; Fmax<50 kHz
SMU01645-TC4_20220802_014255_000.wav	8/2/2022	1:42:55	LASNOC	9	9	9	27.789	7.81	7.236	32.83	27.253	LASNOC	CF call; Fc~26 kHz; Fmax<50 kHz
SMU01645-TC4_20220802_045313_000.wav	8/2/2022	4:53:13	LASNOC	3	3	3	26.968	15.43	4.812	30.174	26.613	LASNOC	CF Call; Fc ~26 kHz or below; Fmax<45; only a few pulses, but diagnostic
SMU01645-TC4_20220802_044018_000.wav	8/2/2022	4:40:18	MYOSEP	14	11	14	38.637	314.74	2.688	70.048	33.394	NOID	NSP; Fc in low 30s
SMU01645-TC4_20220802_044946_000.wav	8/2/2022	4:49:46	MYOSEP	4	4	4	52.049	327.17	2.517	68.986	37.87	NOID	NMT; NSP
SMU01645-TC4_20220802_045232_000.wav	8/2/2022	4:52:32	MYOSEP	15	12	15	40.658	290.14	2.494	69.421	35.834	NOID	NMT; NSP

OUT FILE FS	DATE	TIME	AUTO ID*	PULSES	MATCH	N	Fc	Sc	Dur	Fmax	Fmin	MANUAL ID	Comments
SMU01649-TC5_20220731_202448_000.wav	7/31/2022	20:24:48	MYOLUC	32	18	32	45.522	92.86	3.56	70.577	45.088	NOID	NMT; NSP
SMU01649-TC5_20220731_204730_000.wav	7/31/2022	20:47:30	MYOSEP	19	8	19	36.893	208.18	2.852	68.47	35.251	NOID	NMT; NSP
SMU01649-TC5_20220731_205054_000.wav	7/31/2022	20:50:54	MYOSEP	16	6	16	33.676	259.08	2.792	68.616	32.076	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_205747_000.wav	7/31/2022	20:57:47	EPTFUS	53	44	53	35.037	178.42	3.151	65.116	33.031	EPTFUS	FM call; 26<Fc<32
SMU01649-TC5_20220731_205925_000.wav	7/31/2022	20:59:25	EPTFUS	28	25	28	37.617	150.69	3.348	67.056	35.981	LASBOR	VMF; UT
SMU01649-TC5_20220731_210050_000.wav	7/31/2022	21:00:50	EPTFUS	44	38	44	36.105	169.9	2.973	63.08	33.735	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_210119_000.wav	7/31/2022	21:01:19	EPTFUS	27	15	27	34.549	241.09	2.77	66.845	33.147	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_210303_000.wav	7/31/2022	21:03:03	EPTFUS	18	7	18	44.732	191.54	3.028	71.782	38.623	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_210331_000.wav	7/31/2022	21:03:31	EPTFUS	25	22	25	35.119	148.2	3.517	68.661	33.264	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_210428_000.wav	7/31/2022	21:04:28	MYOSOD	72	11	72	43.051	139.77	2.871	68.687	40.97	MYOSPP	CMT; NSP
SMU01649-TC5_20220731_210444_000.wav	7/31/2022	21:04:44	EPTFUS	27	21	27	34.67	175.34	3.426	68.683	33.79	MYOSPP	CMT; NSP
SMU01649-TC5_20220731_210500_000.wav	7/31/2022	21:05:00	MYOLUC	30	11	30	41.805	139	3.137	67.359	39.66	MYOSOD	CMT; Fc-40-41; Sc 128-141; PROBABLE
SMU01649-TC5_20220731_210508_000.wav	7/31/2022	21:05:08	EPTFUS	42	21	42	36.101	186.97	3.059	66.874	34.634	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_210612_000.wav	7/31/2022	21:06:12	EPTFUS	13	9	13	35.017	150.52	3.423	68.139	34.022	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_210844_000.wav	7/31/2022	21:08:44	EPTFUS	20	15	20	37.079	149.94	3.346	68.354	34.333	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_210927_000.wav	7/31/2022	21:09:27	EPTFUS	21	16	21	36.585	162.77	3.097	63.944	33.772	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_211003_000.wav	7/31/2022	21:10:03	EPTFUS	39	28	39	35.757	155.5	3.399	67.667	34.551	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_211132_000.wav	7/31/2022	21:11:32	EPTFUS	29	22	29	36.53	173.06	2.95	64.621	35.243	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_211249_000.wav	7/31/2022	21:12:49	EPTFUS	30	21	30	34.67	145.31	3.245	65.853	33.324	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_211305_000.wav	7/31/2022	21:13:05	EPTFUS	21	15	21	38.793	140.72	3.515	69.688	36.612	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_211426_000.wav	7/31/2022	21:14:26	EPTFUS	67	48	67	33.554	191.8	3.1	64.834	32.465	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_211518_000.wav	7/31/2022	21:15:18	EPTFUS	27	21	27	35.119	166.68	3.296	67.413	33.999	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_211605_000.wav	7/31/2022	21:16:05	EPTFUS	31	28	31	35.849	145.35	3.386	66.312	35.104	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_211655_000.wav	7/31/2022	21:16:55	EPTFUS	19	18	19	33.741	148.19	3.577	68.853	33.208	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_211744_000.wav	7/31/2022	21:17:44	EPTFUS	25	19	25	34.812	168.69	3.489	72.441	33.847	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_211826_000.wav	7/31/2022	21:18:26	EPTFUS	13	9	13	34.62	187.64	2.549	59.514	34.352	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_212107_000.wav	7/31/2022	21:21:07	EPTFUS	15	12	15	41.677	149.57	3.598	73.716	37.292	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_212210_000.wav	7/31/2022	21:22:10	EPTFUS	24	19	24	36.482	165.09	3.415	70.171	35.112	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_212333_000.wav	7/31/2022	21:23:33	EPTFUS	20	19	20	33.727	158.08	3.513	67.57	33.218	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_212419_000.wav	7/31/2022	21:24:19	EPTFUS	20	14	20	35.428	162.66	3.25	67.736	33.654	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_212439_000.wav	7/31/2022	21:24:39	EPTFUS	13	9	13	42.003	93.75	3.544	73.121	37.241	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_212644_000.wav	7/31/2022	21:26:44	EPTFUS	22	18	22	34.298	138.2	3.496	69.427	33.22	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_212730_000.wav	7/31/2022	21:27:30	EPTFUS	21	16	21	37.051	122.15	3.38	69.484	34.741	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_212738_000.wav	7/31/2022	21:27:38	EPTFUS	14	12	14	33.675	171.04	3.668	67.546	32.594	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_212916_000.wav	7/31/2022	21:29:16	EPTFUS	27	24	27	37.709	150.34	3.136	66.125	35.672	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_212951_000.wav	7/31/2022	21:29:51	EPTFUS	24	19	24	34.515	140.71	3.3	68.039	33.655	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_213039_000.wav	7/31/2022	21:30:39	EPTFUS	24	19	24	39.914	162.29	3.278	68.558	36.215	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_213242_000.wav	7/31/2022	21:32:42	EPTFUS	14	8	14	33.826	167.88	3.297	65.934	33.176	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_213330_000.wav	7/31/2022	21:33:30	EPTFUS	20	19	20	34.317	146.63	3.359	67.371	33.572	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_213417_000.wav	7/31/2022	21:34:17	EPTFUS	20	18	20	34.146	136.75	3.961	70.913	32.84	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_213458_000.wav	7/31/2022	21:34:58	EPTFUS	26	24	26	34.967	156.84	3.26	65.752	34.151	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_213541_000.wav	7/31/2022	21:35:41	EPTFUS	23	23	23	34.162	133.18	3.558	67.086	32.925	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_213635_000.wav	7/31/2022	21:36:35	EPTFUS	13	10	13	35.054	138.73	3.382	67.799	34.071	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_214007_000.wav	7/31/2022	21:40:07	EPTFUS	18	15	18	34.247	145.97	3.292	64.76	33.166	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_214034_000.wav	7/31/2022	21:40:34	EPTFUS	12	11	12	35.383	127.99	3.393	65.422	33.639	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_214210_000.wav	7/31/2022	21:42:10	EPTFUS	13	12	13	33.734	138.34	3.696	68.847	32.168	EPTFUS	FM call: Fc low 30s

SMU01649-TC5_20220731_214901_000.wav	7/31/2022	21:49:01	EPTFUS	16	15	16	33.722	82.75	4.776	56.673	31.743	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_215009_000.wav	7/31/2022	21:50:09	EPTFUS	11	9	11	32.134	104.44	4.219	60.684	31.52	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_215236_000.wav	7/31/2022	21:52:36	EPTFUS	21	15	21	35.405	174.83	3.541	72.808	33.192	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_215618_000.wav	7/31/2022	21:56:18	EPTFUS	14	13	14	34.143	129.23	3.701	68.932	32.903	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_215704_000.wav	7/31/2022	21:57:04	EPTFUS	18	17	18	33.649	137.31	3.697	70.489	33.16	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_220252_000.wav	7/31/2022	22:02:52	EPTFUS	24	22	24	33.86	131.37	3.277	62.524	33.039	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_220740_000.wav	7/31/2022	22:07:40	EPTFUS	46	36	46	34.652	180.51	3.047	63.556	33.885	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_220835_000.wav	7/31/2022	22:08:35	EPTFUS	20	18	20	37.871	131.2	3.433	68.777	36.318	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_220946_000.wav	7/31/2022	22:09:46	EPTFUS	22	20	22	34.374	149.21	3.275	65.41	33.817	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_221008_000.wav	7/31/2022	22:10:08	EPTFUS	18	14	18	36.497	161.01	3.31	66.505	35.299	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_221037_000.wav	7/31/2022	22:10:37	EPTFUS	24	22	24	35.412	149.98	3.287	65.163	33.925	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_221206_000.wav	7/31/2022	22:12:06	EPTFUS	22	16	22	34.4	151.64	3.534	68.455	33.376	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_221225_000.wav	7/31/2022	22:12:25	EPTFUS	14	12	14	33.991	127.08	3.65	61.334	31.939	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_221332_000.wav	7/31/2022	22:13:32	EPTFUS	24	20	24	34.733	154.02	3.097	62.362	33.955	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_221532_000.wav	7/31/2022	22:15:32	EPTFUS	22	19	22	34.03	142.47	3.333	63.416	33.525	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_221618_000.wav	7/31/2022	22:16:18	EPTFUS	15	14	15	33.994	153.02	3.811	69.388	33.519	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_222003_000.wav	7/31/2022	22:20:03	EPTFUS	28	20	28	37.411	151.12	3.22	69.449	36.624	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_222031_000.wav	7/31/2022	22:20:31	EPTFUS	16	13	16	33.605	148.67	3.571	68.584	32.532	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_222200_000.wav	7/31/2022	22:22:00	EPTFUS	14	12	14	38.49	155.71	3.054	66.641	37.695	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_222205_000.wav	7/31/2022	22:22:05	EPTFUS	24	21	24	33.213	147.3	3.417	59.297	32.566	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_222421_000.wav	7/31/2022	22:24:21	MYOSOD	56	32	56	40.983	136.68	3.105	66.846	39.888	MYOSOD	CMT; Fc-40-41; Sc-152-161; PROBABLE
SMU01649-TC5_20220731_222435_000.wav	7/31/2022	22:24:35	MYOSOD	30	10	30	41.805	117.66	2.922	63.266	40.576	MYOSOD	CMT; Fc-41-42; Sc-128-153; PROBABLE
SMU01649-TC5_20220731_222453_000.wav	7/31/2022	22:24:53	EPTFUS	26	23	26	34.109	129.69	3.368	65.21	33.536	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_222543_000.wav	7/31/2022	22:25:43	EPTFUS	29	24	29	35.566	140.26	3.31	65.981	33.673	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_222756_000.wav	7/31/2022	22:27:56	NoID	8	0	8	43.286	196.71	2.309	67.305	42.35	NOID	NSP; PQR - faint
SMU01649-TC5_20220731_222801_000.wav	7/31/2022	22:28:01	MYOSOD	39	7	39	48.207	137.55	2.863	77.044	44.079	LASBOR	NMT; VMF; Fc-low 30s
SMU01649-TC5_20220731_223139_000.wav	7/31/2022	22:31:39	EPTFUS	17	15	17	33.34	147.44	3.87	69.371	32.894	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_223409_000.wav	7/31/2022	22:34:09	EPTFUS	28	25	28	34.243	138.78	3.228	64.799	33.185	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_223509_000.wav	7/31/2022	22:35:09	EPTFUS	14	11	14	37.757	143.74	3.496	70.537	34.75	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_223555_000.wav	7/31/2022	22:35:55	EPTFUS	22	19	22	37.94	141.8	3.31	68.313	36.55	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_223638_000.wav	7/31/2022	22:36:38	EPTFUS	33	26	33	36.092	149.13	2.978	62.342	34.399	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_223707_000.wav	7/31/2022	22:37:07	EPTFUS	10	7	10	34.494	122.67	3.286	64.471	33.879	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_223817_000.wav	7/31/2022	22:38:17	EPTFUS	13	11	13	34.335	123.25	3.898	70.839	33.497	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_224035_000.wav	7/31/2022	22:40:35	EPTFUS	29	26	29	36.683	128.55	3.317	66.259	34.698	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_224153_000.wav	7/31/2022	22:41:53	EPTFUS	22	20	22	37.196	153.25	3.36	67.08	35.01	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_224307_000.wav	7/31/2022	22:43:07	EPTFUS	26	24	26	37.92	137.9	3.259	68.44	36.567	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_224355_000.wav	7/31/2022	22:43:55	EPTFUS	34	22	34	34.353	197.07	3.224	69.359	33.467	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_224444_000.wav	7/31/2022	22:44:44	EPTFUS	20	14	20	35.188	161.98	3.523	70.449	34.533	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_224530_000.wav	7/31/2022	22:45:30	EPTFUS	29	26	29	34.599	141.14	3.204	65.319	33.759	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_224623_000.wav	7/31/2022	22:46:23	EPTFUS	42	28	42	34.768	183.05	3.113	66.575	33.71	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_224853_000.wav	7/31/2022	22:48:53	EPTFUS	18	16	18	34.236	141.52	3.532	68.178	33.461	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_224935_000.wav	7/31/2022	22:49:35	EPTFUS	13	9	13	34.255	155.71	3.359	67.363	33.307	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_225013_000.wav	7/31/2022	22:50:13	EPTFUS	25	22	25	34.829	154.9	3.001	62.224	34.133	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_225107_000.wav	7/31/2022	22:51:07	EPTFUS	29	21	29	35.027	150.92	3.31	66.44	33.919	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_225117_000.wav	7/31/2022	22:51:17	MYOSEP	29	15	29	36.959	71.3	4.386	59.083	36.192	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_225135_000.wav	7/31/2022	22:51:35	EPTFUS	21	11	21	36.253	142.57	3.7	66.207	33.668	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_225311_000.wav	7/31/2022	22:53:11	EPTFUS	26	21	26	39.644	134.32	3.298	69.083	36.233	EPTFUS	FM call: Fc low 30s

SMU01649-TC5_20220731_225354_000.wav	7/31/2022	22:53:54	EPTFUS	27	18	27	36.059	136.72	2.902	62.625	35.268	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_225449_000.wav	7/31/2022	22:54:49	EPTFUS	25	23	25	34.331	121.39	3.293	64.137	33.829	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_225528_000.wav	7/31/2022	22:55:28	EPTFUS	30	25	30	37.149	136.38	3.285	67.265	35.813	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_225639_000.wav	7/31/2022	22:56:39	EPTFUS	24	19	24	37.316	162.47	3.03	65.199	34.746	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_225941_000.wav	7/31/2022	22:59:41	EPTFUS	27	22	27	34.418	140.22	3.279	61.743	33.419	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_230030_000.wav	7/31/2022	23:00:30	EPTFUS	23	18	23	37.201	165.21	3.431	69.883	35.778	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_231232_000.wav	7/31/2022	23:12:32	EPTFUS	17	15	17	35.751	158.53	3.458	69.893	34.243	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_231401_000.wav	7/31/2022	23:14:01	EPTFUS	17	14	17	35.473	149.2	3.682	71.924	34.537	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_231523_000.wav	7/31/2022	23:15:23	EPTFUS	30	29	30	34.281	150.75	3.16	63.311	33.514	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_231635_000.wav	7/31/2022	23:16:35	EPTFUS	28	26	28	34.208	138.64	3.063	59.94	33.454	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_231730_000.wav	7/31/2022	23:17:30	EPTFUS	34	31	34	33.999	144.37	3.203	61.92	33.356	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_232642_000.wav	7/31/2022	23:26:42	EPTFUS	22	17	22	34.245	145.79	3.262	61.881	33.513	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_232906_000.wav	7/31/2022	23:29:06	EPTFUS	30	24	30	35.206	125.74	3.108	62.74	34.708	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_232956_000.wav	7/31/2022	23:29:56	EPTFUS	27	25	27	33.907	121.42	3.284	61.156	33.046	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_233037_000.wav	7/31/2022	23:30:37	EPTFUS	23	22	23	34.342	119.94	3.086	59.756	33.604	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_233912_000.wav	7/31/2022	23:39:12	EPTFUS	20	19	20	33.493	143.76	3.433	62.551	32.681	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_234000_000.wav	7/31/2022	23:40:00	EPTFUS	22	15	22	34.306	148	3.338	65.543	33.069	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_234107_000.wav	7/31/2022	23:41:07	EPTFUS	26	26	26	33.639	149.95	3.586	65.338	32.796	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_234121_000.wav	7/31/2022	23:41:21	EPTFUS	31	28	31	35.095	132.82	3.134	60.043	33.405	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_234217_000.wav	7/31/2022	23:42:17	EPTFUS	16	13	16	33.699	155.59	3.059	62.867	33.036	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_234257_000.wav	7/31/2022	23:42:57	EPTFUS	14	10	14	34.192	189.8	3.29	68.861	32.403	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220731_234831_000.wav	7/31/2022	23:48:31	EPTFUS	24	18	24	36.283	127.83	3.418	67.005	34.365	EPTFUS	FM call: Fc low 30s
SMU01649-TC5_20220801_010054_000.wav	8/1/2022	1:00:54	EPTFUS	8	7	8	33.908	122.44	3.415	49.235	32.916	NOID	PQR - faint
SMU01649-TC5_20220801_011711_000.wav	8/1/2022	1:17:11	MYOLUC	48	24	48	44.883	114.07	3.502	68.805	42.631	MYOSPP	CMT; NSP
SMU01649-TC5_20220801_011957_000.wav	8/1/2022	1:19:57	MYOSOD	27	10	27	43.548	131.07	2.91	63.383	41.748	MYOSOD	CMT; Fc-41-43; Sc-132-192; PROBABLE
SMU01649-TC5_20220801_012018_000.wav	8/1/2022	1:20:18	NoID	3	0	3	39.941	40.2	3.208	45.383	39.544	NOID	PQR - not enough pulses to measure
SMU01649-TC5_20220801_013300_000.wav	8/1/2022	1:33:00	MYOSOD	30	6	30	43.826	134.48	2.511	62.324	41.81	MYOSPP	CMT; NSP
SMU01649-TC5_20220801_024817_000.wav	8/1/2022	2:48:17	EPTFUS	2	1	2	26.104	26.48	5.824	33.988	26.103	NOID	PQR - too few pulses to ID
SMU01649-TC5_20220801_031838_000.wav	8/1/2022	3:18:38	EPTFUS	2	1	2	29.63	84.7	2.42	35.444	29.118	NOID	PQR - too few pulses to ID
SMU01649-TC5_20220801_034917_000.wav	8/1/2022	3:49:17	MYOLUC	35	14	35	42.9	109.22	3.83	68.68	41.597	MYOLUC	CMT; Fc 41-42; Sc 99-108
SMU01649-TC5_20220801_035437_000.wav	8/1/2022	3:54:37	NoID	2	0	2	44.094	115.38	2.409	58.603	42.589	NOID	PQR - not enough pulses to measure
SMU01649-TC5_20220801_035451_000.wav	8/1/2022	3:54:51	MYOSOD	10	5	10	43.802	116.78	2.611	58.495	42.214	MYOSPP	CMT; NSP; PQR - faint
SMU01649-TC5_20220801_045240_000.wav	8/1/2022	4:52:40	LASNOC	3	3	3	26.941	-16.78	5.243	29.329	26.365	NOID	PQR - too few pulses to ID
SMU01649-TC5_20220801_045321_000.wav	8/1/2022	4:53:21	MYOSOD	101	11	101	44.59	126.8	2.671	70.177	43.252	LASBOR	NMT; VMF; Fc->40, in and out of search phase
SMU01649-TC5_20220801_045448_000.wav	8/1/2022	4:54:48	MYOLUC	13	7	13	46.798	125.99	3.555	86.88	43.702	NOID	NMT; NSP
SMU01649-TC5_20220801_050216_000.wav	8/1/2022	5:02:16	MYOLUC	12	8	12	45.98	94.03	3.873	77.137	45.826	NOID	NMT; NSP
SMU01649-TC5_20220801_051510_000.wav	8/1/2022	5:15:10	MYOLUC	10	4	10	43.042	54.66	2.975	60.25	42.787	NOID	NMT; NSP

OUT FILE FS	DATE	TIME	AUTO ID*	PULSES	MATCH	N	Fc	Sc	Dur	Fmax	Fmin	MANUAL ID	Comment
SMU01649-TC5_20220801_203929_000.wav	8/1/2022	20:39:29	NoID	2	0	2	42.472	179.34	2.026	59.954	41.04	NOID	NSP; PQR - faint and too few pulses to ID
SMU01649-TC5_20220801_203946_000.wav	8/1/2022	20:39:46	MYOSOD	12	5	12	41.447	157.87	2.251	53.531	40.032	NOID	NSP; PQR - faint and too few pulses to ID
SMU01649-TC5_20220801_204111_000.wav	8/1/2022	20:41:11	MYOLUC	28	4	28	42.4	169.15	2.349	60.9	40.128	MYOSPP	CMT; NSP
SMU01649-TC5_20220801_204343_000.wav	8/1/2022	20:43:43	EPTFUS	45	34	45	36.672	166.08	2.98	60.836	33.881	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_204359_000.wav	8/1/2022	20:43:59	EPTFUS	7	6	7	32.211	117.63	2.871	48.036	32.066	NOID	PQR - faint; NSP
SMU01649-TC5_20220801_204427_000.wav	8/1/2022	20:44:27	MYOSOD	7	4	7	40.713	127.89	2.619	54.625	39.38	MYOSPP	CMT; PQR - faint and too few pulses to ID
SMU01649-TC5_20220801_204452_000.wav	8/1/2022	20:44:52	MYOSEP	3	3	3	40.277	188.35	2.295	58.155	39.809	NOID	NSP; PQR - faint and too few pulses to ID
SMU01649-TC5_20220801_205139_000.wav	8/1/2022	20:51:39	MYOSOD	18	5	18	42.044	155.41	2.685	59.585	40.471	MYOSPP	CMT; PQR - faint and too few pulses to ID
SMU01649-TC5_20220801_205810_000.wav	8/1/2022	20:58:10	EPTFUS	22	14	22	41.661	148.05	3.215	69.504	38.968	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_210013_000.wav	8/1/2022	21:00:13	EPTFUS	34	26	34	37.037	171.62	4.178	69.872	32.924	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_210226_000.wav	8/1/2022	21:02:26	EPTFUS	26	18	26	39.248	200.77	3.102	69.659	36.053	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_210323_000.wav	8/1/2022	21:03:23	EPTFUS	24	20	24	36.834	151.31	3.428	72.744	35.714	NOID	NSP; FM Call; Fc - low 30s; Probable EPTFUS
SMU01649-TC5_20220801_210354_000.wav	8/1/2022	21:03:54	MYOSOD	47	13	47	42.368	153.07	2.766	67.765	41.134	MYOSOD	CMT; Fc-40-43; Sc-161-209; Fmin-37-41: PROBABLE
SMU01649-TC5_20220801_210437_000.wav	8/1/2022	21:04:37	EPTFUS	46	28	46	39.55	139.25	3.145	68.354	36.432	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_210453_000.wav	8/1/2022	21:04:53	EPTFUS	65	32	65	37.359	174.32	3.091	66.695	35.786	NOID	multiple bat interference; Probable EPTFUS - FM Call in low 30s
SMU01649-TC5_20220801_210539_000.wav	8/1/2022	21:05:39	EPTFUS	26	20	26	35.685	169.32	2.998	62.941	34.455	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_210629_000.wav	8/1/2022	21:06:29	EPTFUS									NOID	PQR - faint; NSP
SMU01649-TC5_20220801_210645_000.wav	8/1/2022	21:06:45	EPTFUS	13	10	13	34.018	177.68	3.305	65.817	32.789	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_210830_000.wav	8/1/2022	21:08:30	EPTFUS	18	14	18	33.76	148.15	3.578	66.094	33.05	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_210853_000.wav	8/1/2022	21:08:53	EPTFUS	24	19	24	34.99	168	3.031	66.456	33.836	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_210910_000.wav	8/1/2022	21:09:10	EPTFUS	16	11	16	34.79	166.21	3.064	66.128	33.683	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_210925_000.wav	8/1/2022	21:09:25	EPTFUS	10	4	10	37.161	167.87	3.514	70.888	35.756	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_211003_000.wav	8/1/2022	21:10:03	EPTFUS	23	13	23	34.403	198.84	3.015	66.94	33.706	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_211048_000.wav	8/1/2022	21:10:48	EPTFUS	30	28	30	33.887	176.69	3.209	64.775	33.042	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_211103_000.wav	8/1/2022	21:11:03	EPTFUS	28	23	28	35.831	166.97	3.32	68.244	33.764	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_211238_000.wav	8/1/2022	21:12:38	EPTFUS	31	26	31	36.854	178.11	3.08	67.018	34.58	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_211326_000.wav	8/1/2022	21:13:26	EPTFUS	21	13	21	34.6	178.95	3.211	68.37	33.593	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_211408_000.wav	8/1/2022	21:14:08	EPTFUS	25	20	25	37.276	177.53	3.195	66.498	33.805	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_211502_000.wav	8/1/2022	21:15:02	EPTFUS	43	35	43	37.174	163.67	4.286	68.853	34.41	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_211532_000.wav	8/1/2022	21:15:32	EPTFUS	27	20	27	37.126	157.51	3.083	66.835	35.849	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_211620_000.wav	8/1/2022	21:16:20	EPTFUS	2	2	2	33.445	152.71	2.079	44.848	33.445	NOID	PQR - faint; NSP
SMU01649-TC5_20220801_211629_000.wav	8/1/2022	21:16:29	EPTFUS	12	6	12	44.991	126.76	3.32	76.14	39.736	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_211716_000.wav	8/1/2022	21:17:16	EPTFUS	29	26	29	33.503	150.4	3.531	66.9	32.628	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_211858_000.wav	8/1/2022	21:18:58	EPTFUS	18	17	18	33.699	141.35	3.33	63.497	33.007	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_211943_000.wav	8/1/2022	21:19:43	EPTFUS	25	22	25	36.731	142.87	3.225	66.245	34.373	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_212036_000.wav	8/1/2022	21:20:36	MYOSOD	24	5	24	42.26	148.29	2.357	60.619	41.49	NOID	NSP; PQR - faint
SMU01649-TC5_20220801_212057_000.wav	8/1/2022	21:20:57	EPTFUS	29	24	29	36.412	131.2	3.105	63.033	34.684	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_212214_000.wav	8/1/2022	21:22:14	EPTFUS	31	24	31	38.219	112.91	3.162	69.062	35.904	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_212241_000.wav	8/1/2022	21:22:41	EPTFUS	31	26	31	36.258	174.24	3.255	68.499	34.942	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_212538_000.wav	8/1/2022	21:25:38	EPTFUS	25	20	25	33.808	176.24	3.282	67.837	33.101	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_212648_000.wav	8/1/2022	21:26:48	EPTFUS	24	18	24	37.717	175.89	3.103	65.612	35.287	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_212742_000.wav	8/1/2022	21:27:42	EPTFUS	24	21	24	33.777	146.11	3.612	71.132	33.363	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_212828_000.wav	8/1/2022	21:28:28	EPTFUS	27	19	27	38.36	128.06	3.341	70.419	36.448	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_213004_000.wav	8/1/2022	21:30:04	EPTFUS	27	20	27	39.675	174.36	2.853	64.468	35.916	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_213128_000.wav	8/1/2022	21:31:28	EPTFUS	27	22	27	35.474	163.79	3.281	66.303	34.287	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_213426_000.wav	8/1/2022	21:34:26	EPTFUS	26	23	26	34.243	124.35	3.107	62.19	33.779	EPTFUS	FM Call; Fc-low 30s; NMT

SMU01649-TC5_20220801_213507_000.wav	8/1/2022	21:35:07	EPTFUS	24	18	24	34.53	159.59	3.469	67.511	33.391	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_213547_000.wav	8/1/2022	21:35:47	NoID	8	0	8	42.829	179.58	2.323	60.53	41.085	NOID	NSP; PQR - faint and too few pulses to ID
SMU01649-TC5_20220801_213641_000.wav	8/1/2022	21:36:41	EPTFUS	13	12	13	33.472	123.07	3.694	65.861	32.505	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_214443_000.wav	8/1/2022	21:44:43	EPTFUS	19	11	19	36.452	164	3.396	70.202	35.548	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_214508_000.wav	8/1/2022	21:45:08	EPTFUS	16	13	16	34.282	135.33	3.28	63.428	32.795	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_214714_000.wav	8/1/2022	21:47:14	EPTFUS	16	13	16	39.079	169.65	3.196	68.392	35.204	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_214758_000.wav	8/1/2022	21:47:58	EPTFUS	12	11	12	33.4	161.29	3.535	64.587	32.781	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_214852_000.wav	8/1/2022	21:48:52	EPTFUS	18	17	18	35.656	155.29	3.492	68.568	33.592	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_214857_000.wav	8/1/2022	21:48:57	EPTFUS	14	14	14	32.03	98.22	4.316	65.348	31.512	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_214903_000.wav	8/1/2022	21:49:03	EPTFUS	26	23	26	34.864	144.04	3.242	67.876	34.309	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_215023_000.wav	8/1/2022	21:50:23	EPTFUS	7	7	7	35.122	143.1	2.248	55.059	35.015	NOID	PQR - faint
SMU01649-TC5_20220801_215027_000.wav	8/1/2022	21:50:27	EPTFUS	19	17	19	35.424	131.17	3.443	67.354	34.766	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_215112_000.wav	8/1/2022	21:51:12	EPTFUS	16	14	16	39.477	123.86	3.745	73.507	35.305	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_215232_000.wav	8/1/2022	21:52:32	EPTFUS	23	16	23	34.992	136.29	3.028	63.197	34.314	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_215303_000.wav	8/1/2022	21:53:03	EPTFUS	21	13	21	34.3	164.86	3.628	72.621	33.597	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_215328_000.wav	8/1/2022	21:53:28	EPTFUS	59	48	59	34.949	141.77	3.177	65.831	33.983	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_215419_000.wav	8/1/2022	21:54:19	EPTFUS	36	33	36	36.35	163.41	3.028	64.907	35.932	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_215510_000.wav	8/1/2022	21:55:10	EPTFUS	28	26	28	37.242	170.74	3.107	65.345	35.062	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_215530_000.wav	8/1/2022	21:55:30	EPTFUS	39	32	39	34.648	166.74	2.982	64.092	33.914	EPTFUS	FM Call; Fc-low 30s; NMT
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SMU01649-TC5_20220801_221729_000.wav	8/1/2022	22:17:29	EPTFUS	21	18	21	34.093	120.32	4.891	62.922	32.396	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_223307_000.wav	8/1/2022	22:33:07	EPTFUS	11	10	11	32.65	48.51	5.123	61.616	31.794	EPTFUS	FM Call; Fc-low 30s; NMT
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SMU01649-TC5_20220801_224215_000.wav	8/1/2022	22:42:15	EPTFUS	20	18	20	35.155	150.48	3.507	67.175	33.632	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_224258_000.wav	8/1/2022	22:42:58	EPTFUS	17	13	17	36.195	158.3	3.65	66.723	32.973	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_224416_000.wav	8/1/2022	22:44:16	EPTFUS	25	23	25	33.788	144.6	3.541	63.765	32.988	EPTFUS	FM Call; Fc-low 30s; NMT
SMU01649-TC5_20220801_224520_000.wav	8/1/2022	22:45:20	EPTFUS	26	21	26	38.297	131.26	3.486	67.236	36.397	EPTFUS	FM Call; Fc-low 30s; NMT
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SMU01649-TC5_20220801_230725_000.wav	8/1/2022	23:07:25	EPTFUS	27	21	27	35.833	138.31	3.774	69.366	34.426	EPTFUS	FM Call; Fc-low 30s; NMT
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SMU01649-TC5_20220801_231416_000.wav	8/1/2022	23:14:16	EPTFUS	25	24	25	33.854	134.81	3.981	68.143	32.677	EPTFUS	FM Call; Fc-low 30s; NMT
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SMU01649-TC5_20220802_030314_000.wav	8/2/2022	3:03:14	MYOLUC	13	3	13	40.386	107.74	3.136	74.771	39.154	NOID	NSP; NMT; probable LASBOR (VMF)
SMU01649-TC5_20220802_041907_000.wav	8/2/2022	4:19:07	EPTFUS	4	4	4	28.347	53.1	3.508	34.645	27.807	NOID	PQR - faint
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SMU01649-TC5_20220802_050702_000.wav	8/2/2022	5:07:02	EPTFUS	53	43	53	36.213	126.86	3.303	61.809	34.597	EPTFUS	FM Call; Fc-low 30s; NMT

Edgewood Environmental Consulting, LLC
5 Edgewood Parkway
Fayetteville, NY 13066
mfishman@edgewoodenviro.com

T: +1 315.456.8731

I

Gottlieb, Charles

From:	Michael Fishman <mfishman@edgewoodenviro.com>
Sent:	Wednesday, November 2, 2022 3:19 PM
To:	Gottlieb, Charles
Subject:	Fwd: NYSDEC Preapplication Meeting Request Terramor Catskills Project

Michael S. Fishman, CWB
Wildlife Biologist, Wetland Scientist, Regulatory Specialist

Edgewood Environmental Consulting, LLC
+1 (315) 456-8731
mfishman@edgewoodenviro.com

---------- Forwarded message ---------
From: **Benedetto, Frank J (DEC)** <Frank.Benedetto@dec.ny.gov>
Date: Wed, Nov 2, 2022 at 9:14 AM
Subject: NYSDEC Preapplication Meeting Request Terramor Catskills Project
To: mfishman@edgewoodenviro.com <mfishman@edgewoodenviro.com>

Hi Michael,

I was forwarded your email about a request for a preapplication meeting for the Terramor Catskills Project regarding a hit for Indiana Bats. I am the analyst handling the permitting of this project. I forwarded the information about the acoustic bat survey to our bat biologist. At this time the Department's position is that this survey result alone would not trigger review for State-listed bat species under our Article 11 Incidental Take permit program. The Department supports the management recommendations found in the report to avoid any potential impacts. Because of this, DEC doesn't think that a preapplication meeting to discuss the aforementioned permitting is necessary. In regards to the Article 15, Protection of Waters inquiry, I believe most of the applicants questions were answered in previous preapplication meetings, but I am happy to answer any other questions you may have about that. Please feel free to reach out to me directly with any other questions or concerns regarding this project.

Thank you,

Frank J. Benedetto

Environmental Analyst 1, Division of Environmental Permits

New York State Department of Environmental Conservation

21 S. Putt Corners Rd, New Paltz, NY 12561

(845) 256-0208 frank.benedetto@dec.ny.gov

Edgewood Environmental Consulting, LLC

5 Edgewood Parkway
Fayetteville, NY 13066
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15 November 2022

Noelle Rayman-Metcalf
U.S. Fish & Wildlife Service
New York Field Office
3817 Luker Road
Cortland, NY 13045

Re: Indiana Bat Habitat Impact Assessment for Proposed Terramor Catskills Development
Saugerties-Woodstock Road, T/o Saugerties, Ulster County, New York
42.049596°N, 74.074725°W, WGS84 datum

Dear Ms. Rayman-Metcalf:

Thank you for your time in our phone conference last week to discuss the above-referenced project. Per our discussion, we are herein providing a detailed description of the proposed project, a map of the bat habitat on the site with the site plan overlaid, and a more detailed site plan. These items should facilitate your determination of whether Indiana bats are likely to be adversely affected by the proposed development project.

The proposed Terramor Catskills project involves the construction of a 75-tent glamping campground with a lodge building containing food and beverage service and other customer services. Each tent site will have its own restroom facilities. The campground will also include a swimming pool area, event lawn, pavilion, and a wellness tent. Proposed support accessory structures including employee housing, a maintenance building, and golf cart storage. The attached Overall Site Plan illustrates the components and layout of all proposed development on the site. A total of 19.13 acres of land will be disturbed during the construction process, including a total of 4.72 acres of existing wooded area that will be cleared for the Project.

We anticipate that permitting of the site will be complete in early 2023, and construction will begin in early 2023, to be completed in 2024. Opening and operation of the facility is anticipated in late 2024, or early 2025.

The attached *Bat Habitat Map with Proposed Site Plan Overlay* illustrates that most of the proposed development is confined to non-bat habitat areas of the site (mostly hemlock-hardwood forest with a dense understory). The only disturbances proposed in potential bat habitat areas include:

- Proposed access roads from Saugerties-Woodstock Road and from Glasco Turnpike

- Employee housing in the habitat area in the northwestern corner of the site
- Paved access road through the habitat patch in the south-central part of the site, which is along an existing dirt road, so little if any additional clearing will be required there.

The attached Forest Cover Map illustrates the forest cover within 2.5 miles of the Project Site. It indicates that of the 15,034 acres of land within 2.5 miles of the Project Site, 10,668 acres (70.96%) is forested with deciduous, mixed, and woody wetlands. If evergreen forest cover is also considered, then there are 12,509 acres (83.20%) of forest cover. The Project proposes to clear 4.72 acres of forest on the Project Site, which will leave 70.93% of deciduous/mixed/ woody wetland forest, or 83.17% of all forest types within 2.5 miles. The area of clearing represents 0.044% of deciduous/mixed/wetland forest, and 0.038% of all forest cover types, so impacts should be considered insignificant and discountable.

In addition, the Project Sponsor has committed to the following conservation measures to avoid incidental take of bats:

- Disturbance and tree clearing within potential bat habitat areas and near the acoustic detection of Indiana bat has been minimized. This will minimize human activity and disturbance in occupied and potential bat habitat areas.
- All necessary tree clearing will occur between November 1 and March 31, when bats are hibernating offsite. This will avoid incidental direct take of roosting bats from tree cutting during summer roosting season.
- Outdoor lighting will either be shielded to cast light below the horizontal plane, or will be low level (bollard) lighting to keep light near ground level.
- Outdoor lighting adjacent to wooded potential bat habitat areas will be motion-sensor lights to avoid illuminating forest edges all night.
- Chemical pesticides will not be used onsite, especially in or near water bodies.
- Quiet hours in the campsite will be enforced between 10 pm and 7 am, minimizing human disturbance of the area even when it is occupied.
- Pets will be required to be kept on leashes when outdoors and will not be allowed to run free.
- Campfire rings will be confined to developed areas of the site, away from wooded potential bat habitat. This will prevent smoke from disturbing roosting and foraging bats at night.

The minimal forest clearing and proposed conservation measures will yield minimal effects on resident or migrating bats. Therefore, we feel that the Project may affect, but is not likely to adversely affect Indiana bats on or around the Site.

NYSDEC has reviewed this project and made a determination that no incidental take permit (ITP) was required under NYSECL Article 11 as long as the above conservation measures were implemented (see attached email from NYSDEC).

Please advise as to whether you concur with our findings, or if you have any further questions or require any additional information.

The Project Sponsor has a meeting at the end of this week at which they are discussing this project, and would appreciate knowing your decision by then, if possible. Anything you can do to expedite this review would be greatly appreciated.

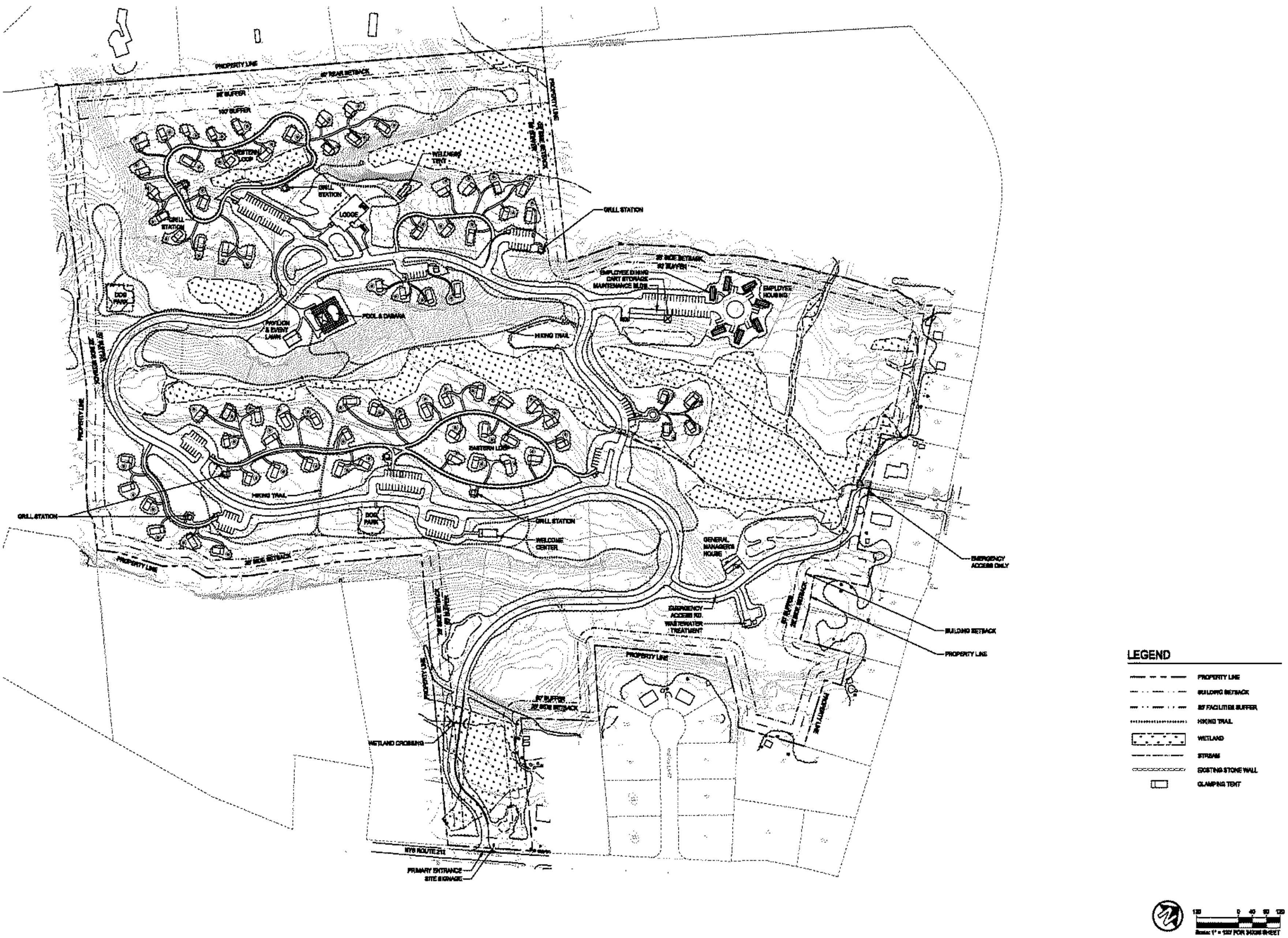
Sincerely,

Michael S. Fishman

Michael S. Fishman, CWB, FTWS
Wildlife Biologist, Wetland Scientist, Regulatory Specialist

Enclosures

ec: Ahmed Helmi, Development Director, Terramor Resorts, LLC
Kim White, Project Manager, Terramor Resorts, LLC
Kevin Franke, The LA Group



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Prepared for:

TERRAMOR.

550 N 31st Street
Billings, MT 59101

Civil Engineer:
C.T. Male Associates
50 Century Hill Drive
Latham, NY 12110

Architect:
DGC Architects
40 Church Street, Studio A
Ellsworth, ME 04605

Traffic Engineer:
GPI
80 Wolf Road, Suite 300,
Albany, NY 12205

Surveyor:
Ausfeld & Waldruff
323 Clinton Street
Schenectady, NY 12305

Project Title

Terramor Catskills

NY ROUTE 212
Saugerties, NY 12477

ISSUED FOR:
SITE PLAN APPLICATION

Project No.:			2021/056
Design:			MJT/KAC
Drawn:	BAS	Ch'k'd:	MJT
Date:	07/01/2022	Scale:	1"=120'

Rev:	Description:	Date:

Drawing Title

OVERALL SITE PLAN PLAN

Drawing No.

L-2.0

Bat Habitat Map with Proposed Site Plan Overlay

Terramor Catskills Project
Saugerties-Woodstock Road
Saugerties, Ulster County, NY
42.049596°N, 74.074725°W, WGS84 datum

Legend

- Parcel Boundary
- Potential Bat Habitat Area
- Potential Bat Habitat Extent
- Non Bat Habitat Area
- Non-Bat Habitat Extent
- Proposed/Existing Paved Road
- Proposed Unpaved Road/Path
- Proposed Stormwater Basin
- Proposed Tent Site
- Proposed Building
- Proposed Building

Edgewood
Environmental
Consulting, LLC
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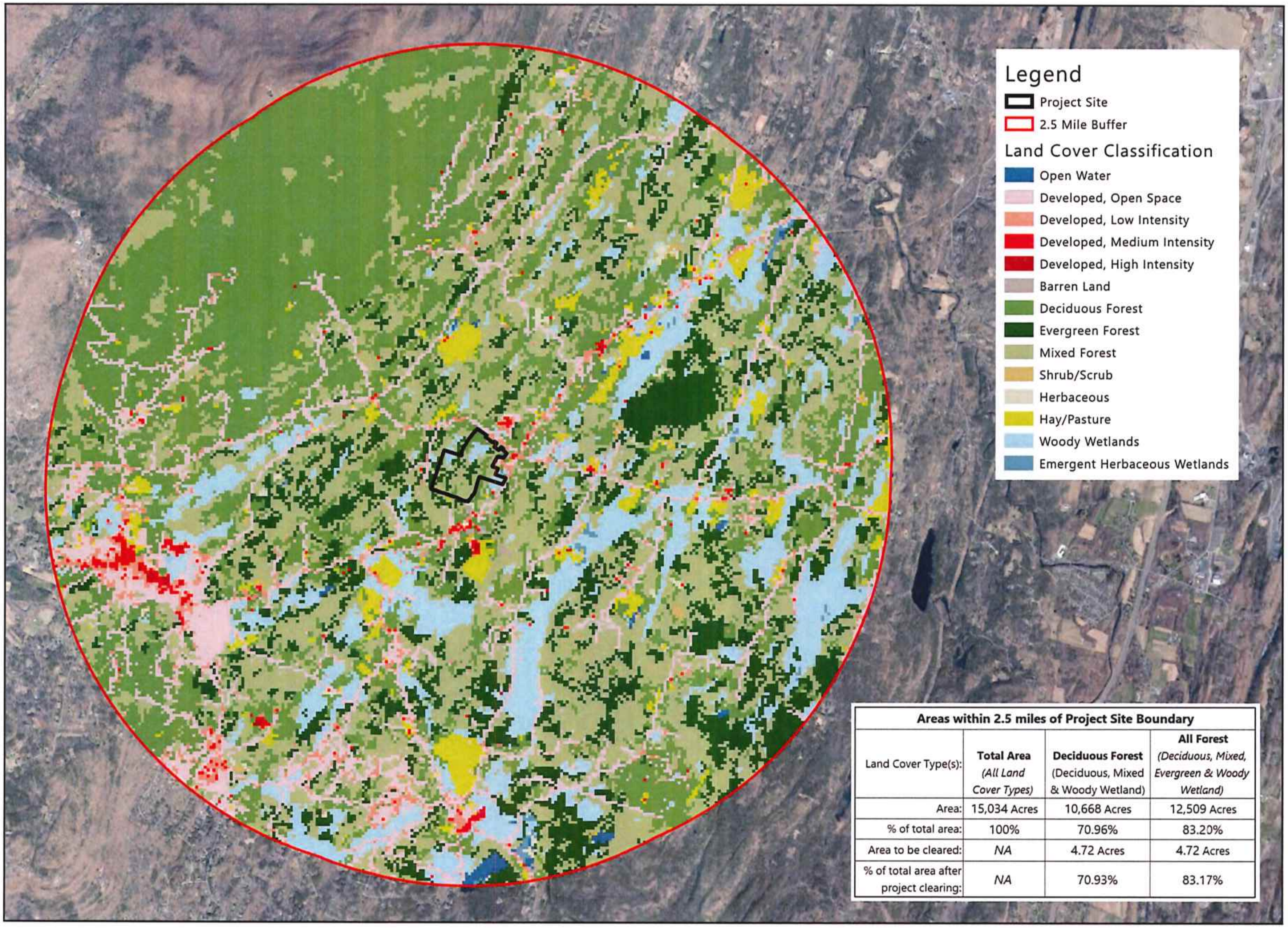
(315) 456-8731



Areas within 2.5 miles of Project Site Boundary

Land Cover Type(s):	**Total Area** *(All Land Cover Types)*	**Deciduous Forest** (Deciduous, Mixed & Woody Wetland)	**All Forest** *(Deciduous, Mixed, Evergreen & Woody Wetland)*
Area:	15,034 Acres	10,668 Acres	12,509 Acres
% of total area:	100%	70.96%	83.20%
Area to be cleared:	*NA*	4.72 Acres	4.72 Acres
% of total area after project clearing:	*NA*	70.93%	83.17%

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Terramor Saugerties
Town of Saugerties, Ulster County, NY 12477

Title
Forest Cover Map

Project: 2021096
Date: 11/14/2022

Figure:
01

Michael Fishman <mfishman@edgewoodenviro.com>

NYSDEC Preapplication Meeting Request Terramor Catskills Project

1 message

Benedetto, Frank J (DEC) <Frank.Benedetto@dec.ny.gov> Wed, Nov 2, 2022 at 9:14 AM
To: "mfishman@edgewoodenviro.com" <mfishman@edgewoodenviro.com>

Hi Michael,

I was forwarded your email about a request for a preapplication meeting for the Terramor Catskills Project regarding a hit for Indiana Bats. I am the analyst handling the permitting of this project. I forwarded the information about the acoustic bat survey to our bat biologist. At this time the Department's position is that this survey result alone would not trigger review for State-listed bat species under our Article 11 Incidental Take permit program. The Department supports the management recommendations found in the report to avoid any potential impacts. Because of this, DEC doesn't think that a preapplication meeting to discuss the aforementioned permitting is necessary. In regards to the Article 15, Protection of Waters inquiry, I believe most of the applicants questions were answered in previous preapplication meetings, but I am happy to answer any other questions you may have about that. Please feel free to reach out to me directly with any other questions or concerns regarding this project.

Thank you,

Frank J. Benedetto

Environmental Analyst 1, Division of Environmental Permits

New York State Department of Environmental Conservation

21 S. Putt Corners Rd, New Paltz, NY 12561

(845) 256-0208 frank.benedetto@dec.ny.gov

J

VISUAL IMPACT ASSESSMENT
FOR
KAMPGROUNDS OF AMERICA INC.
D/B/A TERRAMOR

TERRAMOR CATSKILLS CAMPGROUND FACILITY

NYS Route 212, Town of Saugerties, Ulster County, NY

KOA

November 2022

The LA GROUP
Landscape Architecture & Engineering P.C.
People. Purpose. Place.

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VISUAL IMPACT ASSESSMENT
TERRAMOR CATSKILLS CAMPGROUND FACILITY

1. Visual Impact Assessment/Introduction

Visual impact is assessed in terms of the anticipated change in visual resources, including whether there would be a change in the character or quality of a view with respect to significant scenic and aesthetic resources.

The following is a discussion of the Visual Impact Assessment performed for a new Terramor Catskills campground facility (the Project) proposed at the Kampgrounds of America Inc. (KOA) parcels (27.2-8-28 & 27.2-8-32.110) located west of Shultis Corners in Saugerties, NY. The Visual Impact Assessment considers existing conditions, viewshed analyses, identification of sensitive receptors within the surrounding area from which the Project may be visible, and impact assessments for representative viewpoints. A field study utilizing weather balloons to mark the location of the project site was conducted on October 7, 2022. Additional potential receptors were examined on October 21, November 2 and November 3, 2022.

A. Project Description

The Terramor Catskills property (the Site) consists of 77.51 acres in Saugerties, NY, abutting the eastern border of the town of Woodstock. The property is made up of two parcels, Tax # 27.2-8-28 and 27.2-8-32.110, both of which are currently undeveloped wooded sites.

The proposed project involves the construction of a campground including 75 camping spaces with a Lodge building containing food and beverage and other customer services. Each camping space will have their own restroom facilities. The campground will also include a Welcome Center, swimming pool area, event lawn, pavilion, and a wellness tent. Support accessory structures including employee housing, a maintenance building, and golf cart storage are also proposed. **Figure 1**, Overall Site Plan, illustrates the components and layout of all project development. The Lodge, the largest structure in the proposed Project, has a footprint of 6,455 square feet (See **Figure 2**) and a height of 30'-3" at its highest point (See **Figure 3**). Figures 2 and 3, respectively, show the floor plan and elevations of the Lodge building. A total of 19.13 acres of land will be disturbed during the construction process, including a total of 4.72 acres of existing wooded area that will be developed for the Project.

B. Regional and Local Landscape

Landscape character is largely determined by the topography, land use, vegetation and water features that contribute to area views.

The project site is nestled between Ashokan Reservoir to the south and Overlook Mountain to the north. The Site is a mix of deciduous forest of moderate age with a general lack of woody understory and hemlock hardwood forest with a well-developed understory. Two brooks pass through the site including H-171-11-11-1-6 near the Route 212 frontage, and H-171-11-11-1 near the norther part of the site. Wetlands that were re-delineated in the spring of 2022 trend east-west on the site and include an area spanning the Route 212 frontage and the large drainage that ends near Cottontail Lane and extends well into the site. There are two areas of ponded water within delineated wetlands in the northwest portion of the site. There are areas of steep slopes towards the upper ends of some wetlands, and overall, topography consists of a number of flat plateaus separated by areas of moderate slopes.

The regional context surrounding the project site is largely characterized by the Catskill Mountains and the Catskill Park, the smaller of New York State's two Forest Preserves, including nearby lands to the north, west, and south. The Catskill Park consists of 700,000 acres of land, 41% of which is state-owned "forever-wild" forest preserve. The region is home to a diverse array of wildlife and recreational activities. The Catskills are a prominent tourist destination, attracting approximately half a million visitors each year. The proposed Terramor Catskills Campground Facility aligns well with this regional context by supporting nature-based recreational activities and the tourism industry with temporary housing for those seeking to explore the State Park.

On a local scale, the site is located in an area that includes homes located on Raybrook Drive to the west and Glasco Turnpike and Cottontail Lane to the North. The NY Route 212 corridor is more mixed use and includes commercial properties in addition to residential properties. Commercial uses nearby include the Red Onion Restaurant, Glamour House Salon and Spa, and the South Peak Veterinary Hospital. A home occupation business, Cutting Edge Spray Foam Services, abuts the property along NY Route 212. Osnas Lane is a residential cul-de-sac located between the Red Onion and Cutting Edge Spray Foam Services.

C. Potential Impacts

Due to the scenic nature of the area and the presence of several historic resources in the study area, it is particularly important to take steps to limit the impact of the Project on existing views into the Site. That is why the following analysis explicitly investigates the potential impact of the Project on all sensitive receptors (including scenic, aesthetic, historic, recreational, and natural resources) identified as having potential views into the Site.

In addition to this broader scale, Terramor is sensitive to the affect that the project may have on views from local residences. A number of project camp spaces are located in relatively close proximity to some of the residences located on Raybrook Drive. In their 7/11/2022 memo to the Planning Board, the Town's Planning Consultant identifies potential views into the project from these residences as an issue to be addressed (Item 4, pp. 3 & 4).

Upon conclusion of this analysis, it is the Applicant's position that the proposed Terramor campground facility will not cause a significant undue adverse visual impact. Some of the camp spaces on the south-west corner of the site will be visible from the neighboring Buck, Isaacs, and Monchik properties. The largest proposed structure, the Lodge, will only potentially be visible from the Overlook Mountain fire tower and scenic overlook viewpoints approximately 2.5 miles away. The impact assessment has also identified that a slight break in the treeline may be visible from Overlook Mountain due to the removal of trees within the project limits of clearing. The entry drive and Terramor welcome sign will be visible from NYS Route 212 in both the easterly and westerly directions. All other development on the project site will be hidden from view at the viewpoints evaluated in this analysis, primarily due to the minimal limits of proposed project clearing and robust foreground vegetation blocking views into the site.

2. Methodology

The Visual Impact Assessment evaluates existing conditions and determines the anticipated change in visual resources, including whether there would be a change in character or quality of views with respect to significant scenic and aesthetic resources within the study area. The "study area" consists of lands in the Towns of Saugerties, Woodstock, Hunter, Hurley, Kingston, and Ulster within a five-mile radius surrounding the project site (See **Figure 4**). **Figure 4** shows the project site location within the context of the study area and greater surroundings.

The methodology used for the evaluation of potential visual impacts generally follows NYS DEC's *Assessing and Mitigating Visual Impacts* (NYSDEC Program Policy DEP-00-2)[1] and NYS APA's *Visual Analysis Methodology* policy[2] with a few adjustments.

The Visual Impact Assessment includes the use of USGS elevation data to create zone of potential visibility maps that show all areas within the 5-mile radius study area that are likely to have views into the project site. Next, a resource inventory is conducted to determine all the aesthetic resources/potential receptors within the study area. These resources are then evaluated against the zone of potential visibility maps to determine which potential receptors are likely to have views into the Project. Receptors within the zones of potential visibility, considered sensitive receptors, are then field verified, and photographs are taken. Representative photographs are then used to create simulations of the Project after construction. Finally, a comparison of the "before" and "after" views is conducted and discussed in the context of landscape character and receptor activity.

A. Zone of Potential Visibility Maps

A digital elevation model (DEM), which represents the bare-Earth surface with all natural and built features removed, was created for this analysis by mosaicking the following elevation data:

1. Proposed surface for areas of development – 2 foot contours
2. Survey of existing elevations on project site – 2 foot contours
3. 2014 USGS DEM for 5-mile radius around project site – 1 meter resolution

Using ArcGIS Pro software and the DEM described above, a visibility analysis was conducted to determine each 1 ft x 1 ft raster cell within the 5-mile radius study area from which the Terramor Catskills campground facility may be visible based on topography alone. The height of the "viewer" was assumed to be 5'6", and the target point was set at the highest point on the roofline of the Lodge building. Using this process, a **Zone of Potential Visibility** map was prepared to aid in visual assessment (See **Figure 5**). **Figure 5** shows the location of the project site and areas from which views into the Project might be visible when only topography is considered (areas of potential visibility are denoted by the color orange).

Next, a resource inventory was conducted to determine all the aesthetic resources within a 5-mile radius of the project site (this process is described in detail in the next report section; NYSDEC Visual Policy Resource Inventory). These identified resources/potential receptors were then evaluated against the zone of potential visibility map created from the DEM to determine which potential receptors are likely to have views into the Project based on topography alone. The 5-mile radius buffer around the project site was then reduced to the smallest area needed to capture all potential sensitive receptors. This new buffer area was then used as the spatial extent for a digital surface model analysis.

A digital surface model (DSM), which captures both the natural and built features of the environment (trees, buildings, etc.) in addition to the topographic surface of the surroundings, was also built for this analysis. The DSM was built using 2014 USGS LiDAR point cloud data.

A second visibility analysis was then conducted using the DSM surface to determine each 1 ft x 1 ft raster cell within the reduced buffer area around the project site from which the campground facility may be visible based on existing topographic conditions and vegetative cover. Due to the high computational requirements for manipulating LiDAR data, the DSM zone of potential visibility analysis was only conducted for the reduced buffer area covering potential sensitive receptors identified in the more conservative DEM analysis. The height of the "viewer" was once again assumed to be 5'6", and the target point was set at the highest point on the roofline of the Lodge building. In this analysis, vegetation is assumed to be sufficiently dense to block views when it is an intervening feature between the viewer and the Project. A second **Zone of Potential Visibility** map was prepared to aid in visual assessment (See **Figure 6**). **Figure 6** shows the location of the project site and areas from which views into the Project might be visible when both topography and vegetative cover are considered (areas of potential visibility are denoted by the color orange).

B. <u>NYSDEC Visual Policy Resource Inventory</u>

This section addresses an inventory of all visual policy resources located within a 5-mile radius of the project site in accordance with NYSDEC's Visual Assessment Program Policy. Identified resources are shown on **Figure 7**.

Table 1. NYSDEC Visual Policy Aesthetic Resource Inventory Potential Receptors

NYSDEC Aesthetic Resource Category	Identified Resources/Potential Receptors within 5-mile Radius Study Area
A property on or eligible for inclusion in the National or State Register of Historic Places	Byrdcliffe Historic District
	Church of the Holy Transfiguration of Christ-on-the-Mount
	Hasbrouck, Judge Jonathan, House
	Maverick Concert Hall
	National Youth Administration Woodstock Resident Work Center
	Opus 40
	Vosburg Turning Mill Complex
State Parks	Catskill Park Forest Preserve - Bluestone Wild Forest - Kaaterskill Wild Forest - Overlook Mountain Wild forest

NYS Heritage Areas (formerly Urban Cultural Parks)	*None*
Adirondack State Forest Preserve	*None*
National Wildlife Refuges, State Game Refuges, or State Wildlife Management Areas	*None*
National Natural Landmarks	*None*
The National Park System, Recreation Areas, Seashores and Forests	*None*
Rivers designated as National or State Wild, Scenic or Recreational	*None*
A site, area, lake, reservoir or highway designated or eligible for designation as scenic	NYS Route 28
Scenic Areas of Statewide Significance	*None*
State or Federally designated trail, or one proposed for designation	Bluestone Wild Forest Onteora Lake Blue Trail
	Bluestone Wild Forest Onteora Lake Red Trail
	Bluestone Wild Forest Onteora Lake Yellow Trail
	Bluestone Wild Forest Jockey Hill Bicycle Trail
	High Woods Multiple Use Area Unmarked Trails
	Indian Head Wilderness Overlook Trail
	Indian Head Wilderness Echo Lake Trail
	Indian Head Wilderness Devil's Path Trail
	Overlook Mountain Wild Forest Meads Meadow Trail
	Overlook Mountain Overlook Spur Trail Extension
	Overlook Mountain Overloop Trail
	Overlook Mountain Trail
Adirondack Park Scenic Vistas	*None*

State Nature and Historic Preserve Areas	Ashokan Fishing Access Area
	Indian Head Wilderness
	Kingston City Local Resource Management Area Lands
	New York City Watershed Lands
	New York State Conservation Area Lands
	Rondout-Esopus Land Conservancy Relc #17
	Saugerties Village Local Resource Management Area Lands
	Thorn Preserve – Catskill Center
Palisades Park	*None*
Bond Act Properties Purchased under Exceptional Scenic Beauty or Open Space Category	*None*
Additional Potential Receptors identified by the LA Group (LAG) (Outside of NYSDEC's Visual Assessment Program Policy Requirements)	High Woods Multiple Use Area (Local Recreation Area)
	Big Deep (Local Recreation Area)
	The Comeau Property Park (Local Recreation Area)
	Mount Marion Park Lands (Local Recreation Area)
	Rick Volz Field (Local Recreation Area)
	John Victor Brown Memorial Park (Local Recreation Area)
	Ulster County Local Park Lands (Local Recreation Area)
	Saugerties Town Local Park Lands (Local Recreation Area)
	Woodstock Town Local Park Lands (Local Recreation Area)
	All public roads within a two-mile radius of the project site that pass through the zones of potential visibility were identified as potential sensitive receptors.
	Additionally, the three neighboring properties adjacent to the southwest corner of the project site (Isaacs, Buck, and Monchik properties) were also evaluated as potential receptors despite their being private property.

An additional figure, the **Aesthetic Resource Inventory Receptors & Zone of Potential Visibility Map**, was developed to show the DSM zone of potential visibility in relation to the potential receptors identified by the inventory of visual resources (See **Figure 8**).

C. Viewpoint Selection and Field Study

The potential receptors identified during the resource inventory were evaluated against the DSM zone of potential visibility map to determine which potential receptors were likely to have views into the Project. Potential receptors within the zone of potential visibility were considered sensitive receptors and require field verification of potential views into the project site (See **Figure 9**). **Figure 9**, the Sensitive Receptors Map, shows all the sensitive potential receptors that were later evaluated in the field.

A total of 32 sensitive receptors were identified for evaluation in the field. Twenty-six (26) of these sensitive receptors are located within a 2-mile radius around the project site. These 26 receptors were evaluated on the first day of the field study conducted by LAG Staff on October 7, 2022. The 6 remaining sensitive receptors were evaluated over the course of three other field days, taking place on October 21, November 2, and November 3, 2022.

Table 2. Sensitive Receptors for Field Evaluation

Date of Field Evaluation	Sensitive Receptor	Potential Site Visibility Detected in the Field
10/07/2022	Isaacs Property	Potential views
	Buck Property	Potential views
	Monchik Property	Potential views
	CR 32 Glasco Tpke (from road public right-of-way)	No potential views
	CR 33 W Saugerties Rd (from road public right-of-way)	No potential views
	Stroll Road/Goat Hill Rd (from road public right-of-way)	No potential views
	Woodstock Ridge (from road public right-of-way)	No potential views
	Mcgee Rd (from road public right-of-way)	No potential views
	Lewis Hollow Rd (from road public right-of-way)	No potential views
	Livingston Ct (from road public right-of-way)	No potential views
	California Quarry Rd/Cali Quarry Loop (from road public right-of-way)	No potential views
	Raybrook Dr (from road public right-of-way)	No potential views
	NYS Route 212 (from road public right-of-way)	Potential views (of entry drive only)
	National Youth Administration Woodstock Resident Work Center (Woodstock School of Art)	No potential views
	Artist Rd (from road public right-of-way)	No potential views
	Saugerties Transfer Station	Potential views
	Reynolds Lane (from road public right-of-way)	No potential views
	Osnas Lane (from road public right-of-way)	No potential views
	Church St (from road public right-of-way)	No potential views
	Timberwall Rd (from road public right-of-way)	No potential views
	Phillips Rd (from road public right-of-way)	No potential views
	Fred Short Rd (from road public right-of-way)	No potential views
	Woodmore Lane (from road public right-of-way)	No potential views
	John Joy Rd (from road public right-of-way)	No potential views
	Site Entry Drive (NYS Route 212)	Potential views
	Cottontail Ln	Potential views
10/21/2022	Maverick Concert Hall	No potential views
	Church of the Holy Transfiguration of Christ-on-the-Mount	No potential views
	Opus 40	No potential views
11/02/2022	Sloan Gorge Loop Trail	No potential views
	High Woods Multiple Use Area Unmarked Trails	No potential views
11/03/2022	Overlook Mountain Trail	Potential views

During the October 7th field study, one 3-foot diameter red locator balloon on a 100-foot-long tether was flown above the tree canopy at the location of the Lodge building. A second 3-foot diameter red locator balloon on a 200-foot-long tether was flown above an existing clearing where the Pavilion & Event Lawn will be sited. Additionally, 16 ft x 20 ft orange tarps and a 20 ft x 20 ft red tarp were hung between trees at the locations and heights of the three tents that are sited closest to each of the neighboring homes (Isaacs, Buck, and Monchik Properties) to the south west. A traffic cone was also placed at the point where the centerline of the proposed entry drive intersects NYS Route 212. The traffic cone, tarps, and locator balloons were not set up during the final three days of field evaluation. During all four field days, a Trimble Geo7x GPS device was used to orient to the correct bearing when looking for the project site from a sensitive receptor location.

The red locator balloons were used for orientation purposes only and were not intended to be representative of any element of the proposed development. The presence of the balloons within the photograph(s) was used to demonstrate that the photographs are capturing the correct views towards and into the project site. It is not necessary to use the location or size of the balloon in the photographs to accurately render the simulations of the Project. Before the advent of GPS and GIS technologies, the balloon diameter was used to scale the size of the target object. Today, using a georeferenced and scaled plan of the Project and GPS waypoints for the viewpoints, an accurately dimensioned Project can be rendered into the existing condition photographs to produce accurate simulations of the proposed views from the various viewpoints.

Throughout the course of the four field-days, all 32 sensitive receptors were visited to determine potential project visibility. Photographs were only taken, and datasheets only filled out, at locations where potential views into the project site were evident in the field. Sensitive receptors with apparent views from which photographs were taken are considered "Viewpoints". A total of 15 Viewpoints were identified during the four days of field evaluation.

Field photographs are taken at both 50 mm and 85 mm focal length digital equivalents (32 mm and 53 mm respectively). Photographs using a 50 mm equivalent focal length are considered to be the best representation of the field of vision of the average human eye. Photographs using an 85 mm focal length equivalent are representative of the acuity, or the ability to focus, of the human eye. It is very **important to note** that accurate representations of the field of view and acuity of the human eye when using these lens settings are only achieved when the images of the views are viewed as 11 inch by 17 inch graphics, the size of the simulations presented in this report. When these images are enlarged by printing them at a larger size or by projecting the images onto a screen at a different scale, the accuracy of what the eye will see is lost, and changes in what would actually be seen are exaggerated by such enlargements.

All photographs were taken with a digital SLR Cannon Rebel EOS camera. Photographs were downloaded and catalogued by viewpoint number and lens settings. Photo viewpoint locations were collected using a Trimble Geo7x GPS device. Photo location waypoints were downloaded from the GPS unit following the completion of the field study. Datasheets were scanned and copies of the data forms are included in **Appendix C, Visual Impact Assessment Field Data Sheets**. Datasheets include the time and date of photography, weather conditions, photograph locations (GPS waypoints), notes on the existing foreground, middleground and background views, and information regarding the potential project visibility from the viewpoint. **Appendix B, Existing View Photographs**, contains photos of existing views in the direction of the project site.

The following Table lists the 15 viewpoint locations identified during the field component of the Terramor Catskills Campground Facility Visual Impact Assessment and notes the potential for views into the project site from each location. See **Figure 10** for a map of the viewpoint locations.

Table 3. Viewpoints with Potential Views into Project Site

Viewpoint #	Viewpoint Name	Visibility Notes
VP-T1	Isaacs Property	> ½ of the orange tarp representing the closest camp space is visible from the property boundary.
VP-T2	Buck Property	An extremely small part of the red tarp representing the closest camp space is visible through the trees from the property boundary.
VP-T3	Monchik Property	> ½ of the orange tarp representing the closest camp space is visible from the property boundary.
VP-L1	Saugerties Transfer & Recycling Station	The 200 ft red locator balloon is visible, but the topography and foreground vegetation block views into the project site from this location.
VP-L2	Entry Drive Cone – Head-On	The traffic cone is visible. The entry road into the site and the welcome sign will be visible from this location.
VP-L3	Entry Drive Cone – Westbound	The traffic cone is visible. The entry road into the site and the welcome sign will be visible from this location.
VP-L4	Entry Drive Cone – Eastbound	The traffic cone is visible. The entry road into the site and the welcome sign will be visible from this location.
VP-L5	Cottontail Lane – West	The emergency access drive will be visible from this location.
VP-L6	Cottontail Lane – East	The emergency access drive will be visible from this location.
VP-OM1	Overlook Mountain Fire Tower	The Site is visible from this location. It is possible that small portions of the Lodge and breaks in the treeline from the trees that are cleared for the Project will be visible after construction.
VP-OM2	Overlook Mountain Base of Fire Tower	The site is partially visible from this location during leaf off conditions. The site will be obscured from view during leaf-on conditions.
VP-OM3	Overlook Mountain Scenic Overlook 1	The Site is visible from this location. It is possible that small portions of the Lodge and breaks in the treeline from the trees that are cleared for the Project will be visible after construction.
VP-OM4	Overlook Mountain Scenic Overlook 2	The Site is visible from this location. It is possible that small portions of the Lodge and breaks in the treeline from the trees that

		are cleared for the Project will be visible after construction.
VP-OM5	Overlook Mountain Scenic Overlook 3	The Site is visible from this location. It is possible that small portions of the Lodge and breaks in the treeline from the trees that are cleared for the Project will be visible after construction.
VP-OM6	Overlook Mountain Scenic Overlook 4	The site is partially visible from this location during leaf off conditions. The site will be obscured from view during leaf-on conditions.

Six viewpoints (VP-T1, VP-T2, VP-T3, VP-L2, VP-L4, and VP-OM1) were selected as the representative viewpoints for photo simulations to demonstrate the potential visual impact of the Project (See **Figure 11**). **Figure 11**, the Simulation Viewpoint Locations Map, shows the locations of all viewpoints selected for visual simulations. For viewpoints T1, T2, T3, L2, and L4, simulations were conducted for the 50 mm focal length photos (digital equivalent = 32 mm). For viewpoint OM1, simulations were conducted for both the 50 mm and 85 mm focal length photo (digital equivalents = 32 mm and 53 mm respectively).

Table 4. Representative Viewpoints Selected for Simulations

Viewpoint #	Viewpoint Name	Focal Length(s) Selected for Simulation
VP-T1	Isaacs Property	50 mm (digital equivalent = 32 mm)
VP-T2	Buck Property	50 mm (digital equivalent = 32 mm)
VP-T3	Monchik Property	50 mm (digital equivalent = 32 mm)
VP-L2	Entry Drive Cone – Head-On	50 mm (digital equivalent = 32 mm)
VP-L4	Entry Drive Cone – Eastbound	50 mm (digital equivalent = 32 mm)
VP-OM1	Overlook Mountain Fire Tower	50 & 85 mm (digital equivalents = 32 & 53 mm)

D. Photo Simulations Rendering Process

Photo simulations ("After" photographic renderings) were created to depict visual changes or impacts that may result from the Project.

A 3-dimensional model of the study area was built by bringing the site plan, 3D models of the proposed tents, and the same DEM used to produce the Zone of Potential Visibility – No Tree Cover Map (See **Figure 5**) into the modeling program Rhino 3D. The DEM was used to create a 3D terrain surface. The 3D tents were then placed onto the terrain surface in the appropriate locations. Proposed project features from the site plan (buildings, roads, clearing limits, proposed plantings, and other miscellaneous features (campfires, light poles, signage, etc.)) were then projected onto the terrain surface to sit at the correct X, Y, Z positions in space.

The photo viewpoints and project development target GPS waypoints collected during the field component of the Visual Impact Assessment were also loaded into Rhino 3D and projected onto the 3D terrain surface. These points capture the locations of the photographer (viewpoint locations) and the target objects (the Lodge locator balloon, the tarps representing the proposed tents, or the traffic cone representing the centerline of the entry drive) down to an accuracy of approximately 3 feet. The original photographs taken at the six viewpoints selected for simulations were also loaded into Rhino 3D to be used as background images for the photo simulations.

The models in Rhino 3D were then adjusted to correctly match the perspective of the background images based on the information stored in the GPS waypoints. The height of the camera in the Rhino model was positioned to match the height of the photographer. The target of the camera was set to the GPS location of the target site feature (hanging tarp to represent tents for VP-T1, VP-T2, and VP-T3; traffic cone to represent centerline of entry drive for VP-L2 and VP-L4; lodge building for VP-OM1). For each rendering, the lens length of the model in Rhino 3D was set to match the lens length of the original background photograph. Sun positions were set to precisely recreate the sun direction and shadows at the times the photographs were taken.

V-Ray for Rhino 3D, a raytracing renderer that calculates the path that rays of light will travel in a given scene, was used to render the proposed condition with accurate textures, shadows, and light levels. High resolution raster images of the proposed conditions were then exported from V-Ray and brought into Photoshop where they were composited with the original photographs. Foreground trees were isolated in the original photographs and layered on top of the simulated images. The rendered image was then adjusted to match the depth of field of the original image.

For viewpoints VP-T1, VP-T2, VP-T3, VP-L2, VP-L3, VP-L4, VP-L5 and VP-L6, three (or four) simulation images were exported:

1. The original, existing view photograph
2. The terrain surface reference image
3. The final simulated view
4. (For VP-T1 and VP-T3, a fourth figure of the final simulated view with proposed screen plantings included was also exported)

For viewpoint VP-OM1 Overlook Mountain Fire Tower, a model of the canopy was needed to accurately represent the degree to which existing trees would block views of proposed features. This was necessary due to the distance between the viewpoint and the Project Site, and because the viewpoint is situated at an elevation above the canopy at the Site. Therefore, portions of the canopy can be expected to obstruct views of proposed site features. The DSM surface made from LiDAR point data was used to create a mesh in Rhino 3D. Sections of the mesh were then removed to reflect proposed clearing limits. The resulting mesh accurately portrays proposed clearing limits and the degree of visibility of proposed site features from the Overlook Mountain Fire Tower.

For viewpoint VP-OM1, four simulation images were exported:

1. The original, existing view photograph
2. The terrain surface reference image
3. The DSM reference image
4. The final simulated view

See **Figures 12-36** in **Appendix A, Maps and Simulation Figures** for the photographic renderings of each representative viewpoint.

3. Evaluation of Viewpoints Selected for Simulations

The following Table provides a list of all the viewpoints for which simulations were prepared and indicates the scenic or historic significance (if any) of the resource, the viewer group, the distance between the resource and the project site, and the extent of expected project visibility.

Table 5 Evaluation of Simulated Views

VP#	Viewpoint	Significance (NYSDEC inventory category)	Potential Viewers	Miles from Site	Description of Expected View
T1	Isaacs Property	No NYSDEC classification, this viewpoint is a local concern review	Private Property Owner	0.06	Filtered views of at least one camp space will be visible from the Isaacs Property. Evergreen plantings will be placed around the tent for additional screening to provide mitigation for this potential change in view.
T2	Buck Property	No NYSDEC classification, this viewpoint is a local concern review	Private Property Owner	0.06	A very slight portion of two camp spaces may be visible from the Buck property through the intervening vegetation. Evergreen plantings will still be placed around the camp space for additional screening to provide mitigation for this potential change in view.
T3	Monchik Property	No NYSDEC classification, this viewpoint is a local concern review	Private Property Owner	0.06	Filtered views of at least three camp spaces will be visible from the Monchik Property. Evergreen plantings will be placed around the camp space for additional screening to provide mitigation for this potential change in view.
L2	Entry Drive Cone - Head-On	No NYSDEC classification, this viewpoint is a local concern review	Drivers & passengers on NYS Route 212	0.01	The facility entrance drive, welcome sign, light fixtures, and plantings will be visible from NYS Route 212 when approaching from the east and the west. No other site development will be visible.
L4	Entry Drive Cone - Eastbound	No NYSDEC classification, this viewpoint is a local concern review	Drivers & passengers on NYS Route 212	0.02	The facility entrance drive, welcome sign, light fixtures, and plantings will be visible from NYS Route 212 when approaching from the east and the west. No other site development will be visible.
OM1	Overlook Mountain Fire Tower	State designated trail in NYSDEC Forest Preserve	Hikers – open to the public	2.62	Distant filtered view of the site including the Lodge, Pavilion, Welcome Center, and General Manager's House. Additionally, portions of the proposed ground plane and roadway will be visible. Visible elements of the Terramor Catskills development will be positioned between five prominent existing clearings in the surrounding landscape: (1) Saugerties-Woodstock Transfer Station, (2) Zena Cornfields, (3) Fam Acres LLC property, (4) Town of Woodstock Landfill, (5) Woodstock Jewish Congregation. Other prominent features

					in the existing view include the NYS Route 212 corridor and the Quality Woven Labels, Especially Swedish Inc, and Woodstock Wood facilities.

4. Visual Impact Assessment - Summary

Visual impact is assessed in terms of the anticipated change in visual resources, including whether there would be a change in character or quality of the view with respect to significant scenic and aesthetic resources.

The zone of potential visibility map based on both topography and existing vegetation **(Figure 6)** showed that potential views into the Project would be very limited. Field reconnaissance and digital simulations verified that the proposed project will be minimally visible from the surrounding area.

The only viewpoints from which any component of the proposed Project may be visible are: VP-T1 (filtered views of tents from the Isaacs Property); VP-T2 (filtered views of tents from the Buck Property); VP-T3 (filtered views of tents from the Monchik Property); VP-L2, VP-L3, and VP-L4 (views of the Entry Drive from NYS Route 212); VP-L5 and VP-L6 (views of the emergency access drive from Cottontail Lane); and VP-OM1, VP-OM2, VP-OM3, VP-OM4, VP-OM5, and VP-OM6 (filtered views of the Lodge, Pavilion, Welcome Center, General Manager's House, ground plane, and roadway from the Overlook Mountain Fire Tower and scenic overlooks). Of these viewpoints, only those on the State-designated Overlook Mountain Trail are considered significant aesthetic resources according to the NYSDEC Visual Policy. The neighboring properties (Isaacs, Buck and Monchik Properties) and public roads (NYS Route 212 and Cottontail Lane) were investigated in this report as local concerns upon request from the Planning Board's consultant. This goes above and beyond the NYSDEC requirements for Visual Impact Assessment, but was appropriate to include in order to provide a complete assessment of the Project.

The results of this analysis indicate that the Project will not result in any significant adverse impacts to visual resources within the 5-mile radius study area.

Camp spaces will be visible to varying degrees from neighboring private properties on Raybrook Drive. While views of tents from the Buck property will be nearly entirely screened, there will be views that include camp spaces from the Isaacs and Monchik properties. However, intervening vegetation to remain, along with proposed screen plantings, while not totally blocking views into camp spaces from the Isaacs and Monchik property lines, provide views that are in general harmony with the character and appearance of the surrounding neighborhood and of the Town of Saugerties and will not adversely affect the general welfare of the inhabitants of the Town.

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[1] http://www.dec.state.ny.us/website/dcs/policy/visual2000.pdf

[2] http://www.apa.state.ny.us/Documents/Guidelines/Visual%20Analysis%20Methodology.swf

APPENDIX A

Maps and Simulation Figures

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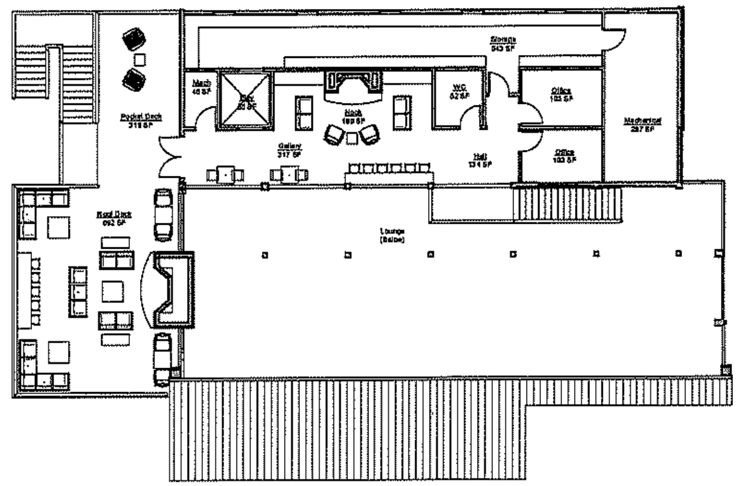
Project Title:
Terramor
Catskills
NY ROUTE 212
Saugerties, NY 12477

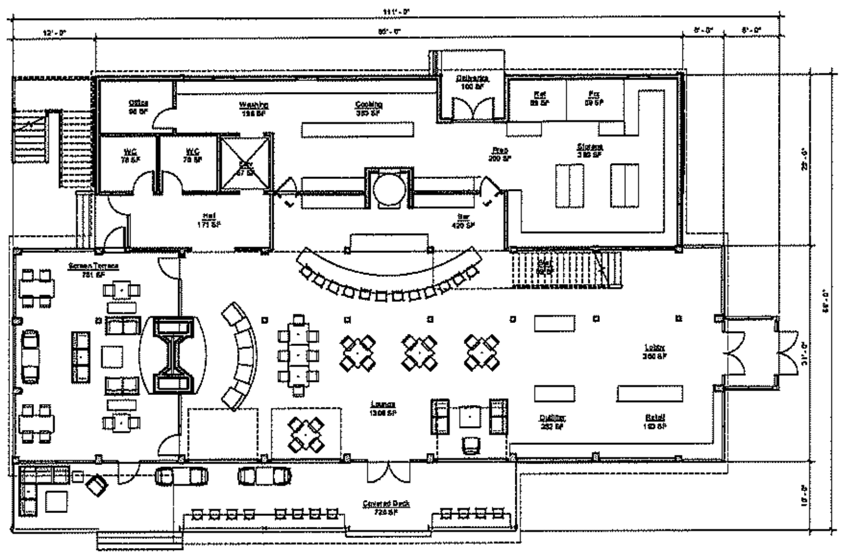
ISSUED FOR:
SITE PLAN APPLICATION

Drawing Title:
OVERALL SITE PLAN

Drawing No.
Figure 01



② SECOND LEVEL - CONCEPT
1/8" = 1'-0"



① MAIN LEVEL - CONCEPT
1/8" = 1'-0"

NTS, see full-size project plans.

NOTE: SEE LIGHTING PLANS FOR SPECIFICS ON EXTERIOR LIGHT FIXTURES

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Terramor
Catskills
NY ROUTE 212
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ISSUED FOR:
SPECIAL USE / SITE PLAN APPLICATION

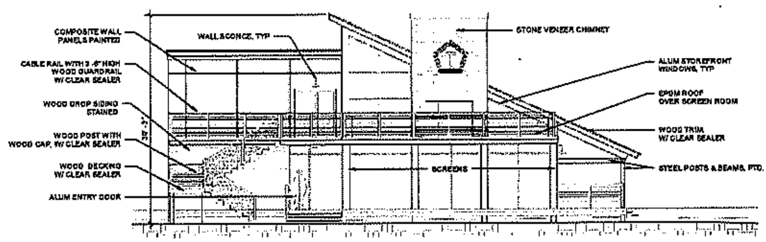
Project No.	132702		2021094
Design			
Drawn	MDW	Chk'd	CMH
Date	06/30/22	Scale	1/8" = 1'-0"

Rev	Description	Date

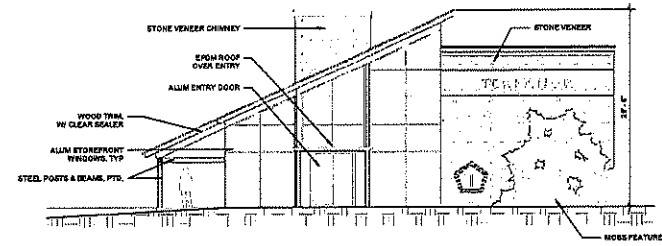
Drawing Title
FLOOR PLANS

LODGE

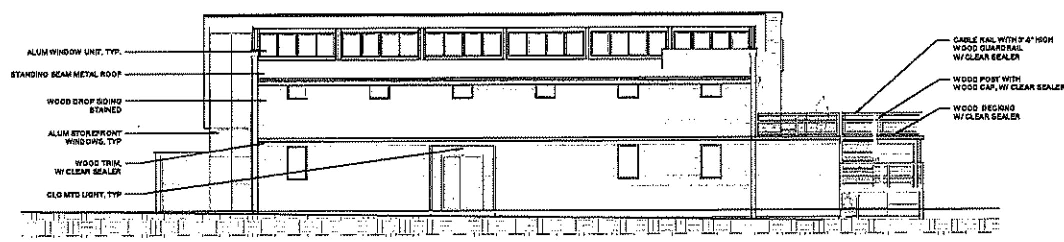
Drawing No
Figure 02



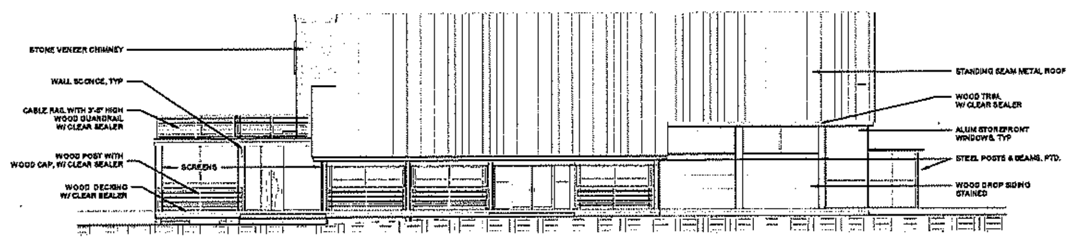
2 NORTH
1/8" = 1'-0"



1 SOUTH
1/8" = 1'-0"



3 EAST
1/8" = 1'-0"



4 WEST
1/8" = 1'-0"

NTS, see full-size project plans.

NOTE: SEE LIGHTING PLANS FOR SPECIFICS ON EXTERIOR LIGHT FIXTURES

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Prepared for:
TERRAMOR
OUTDOOR RESORT
550 N 31st Street
Billings, MT 59101

Civil Engineer:
C.T. Male Associates
50 Century Hill Drive
Latham, NY 12110

Architect:
DGC Architects
40 Church Street, Studio A
Ellsworth, ME 04605

Traffic Engineer:
GPI
80 Wolf Road, Suite 300,
Albany, NY 12205

Surveyor:
Ausfeld & Waldruff
323 Clinton Street
Schenectady, NY 12305

Project Title
Terramor Catskills
NY ROUTE 212
Saugerties, NY 12477

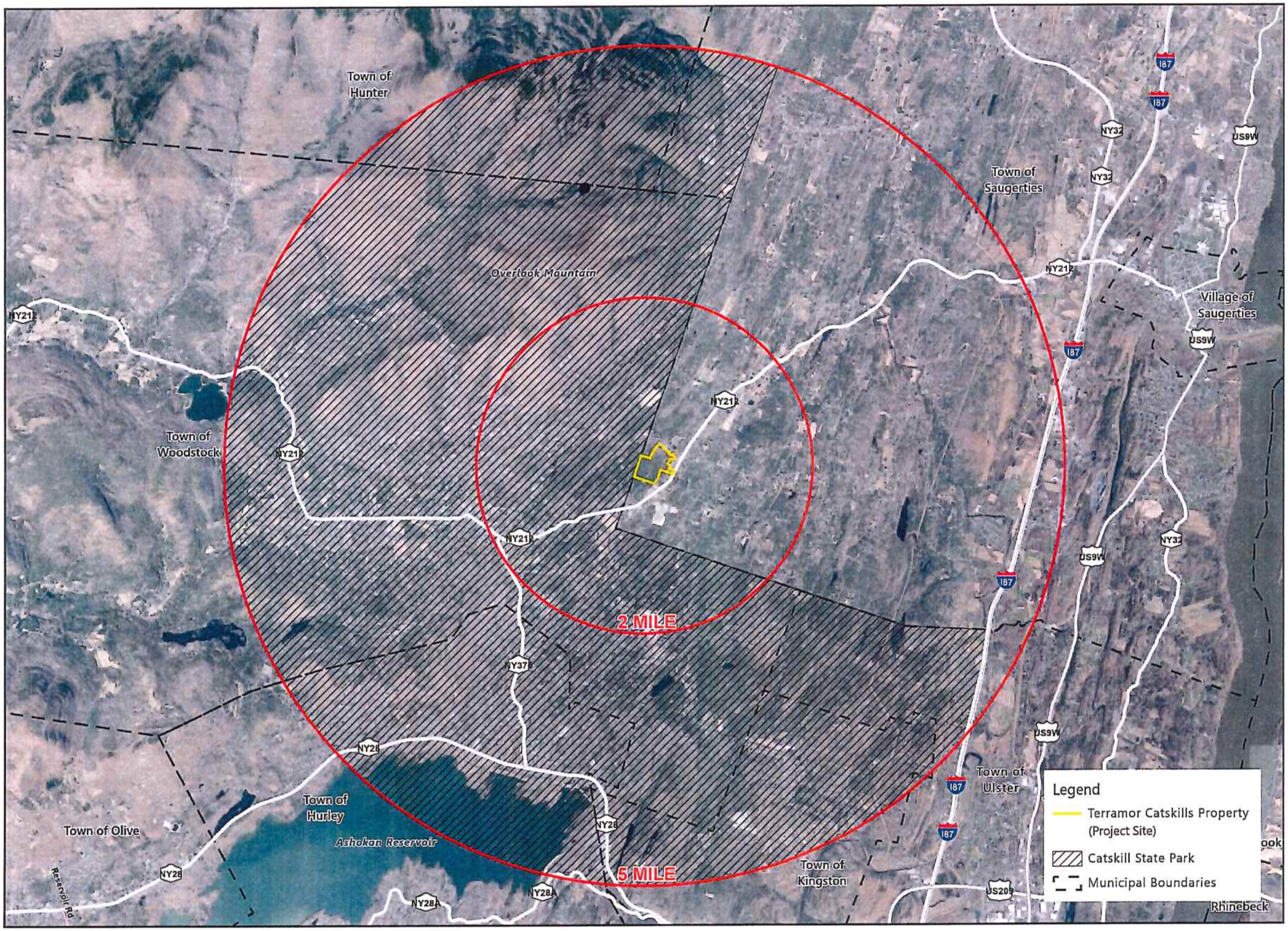
ISSUED FOR:
SPECIAL USE / SITE PLAN APPLICATION

Project No.	132202		2021996
Design			
Drawn	MDW	Ch'k'd	CMH
Date	06/30/22	Scale	1/8" = 1'-0"

Rev	Description	Date

Drawing Title
ELEVATIONS
LODGE

Drawing No.
Figure 03



Terramor Saugerties Visual Impact Assessment

NYS Route 212, Town of Saugerties, Ulster County, NY 12477

Title

Project Site Location Map

Project: 2021096

Date: 11/15/2022

Figure: 04

N

1 inch = 5,500 feet

0 2,750 5,500 Feet

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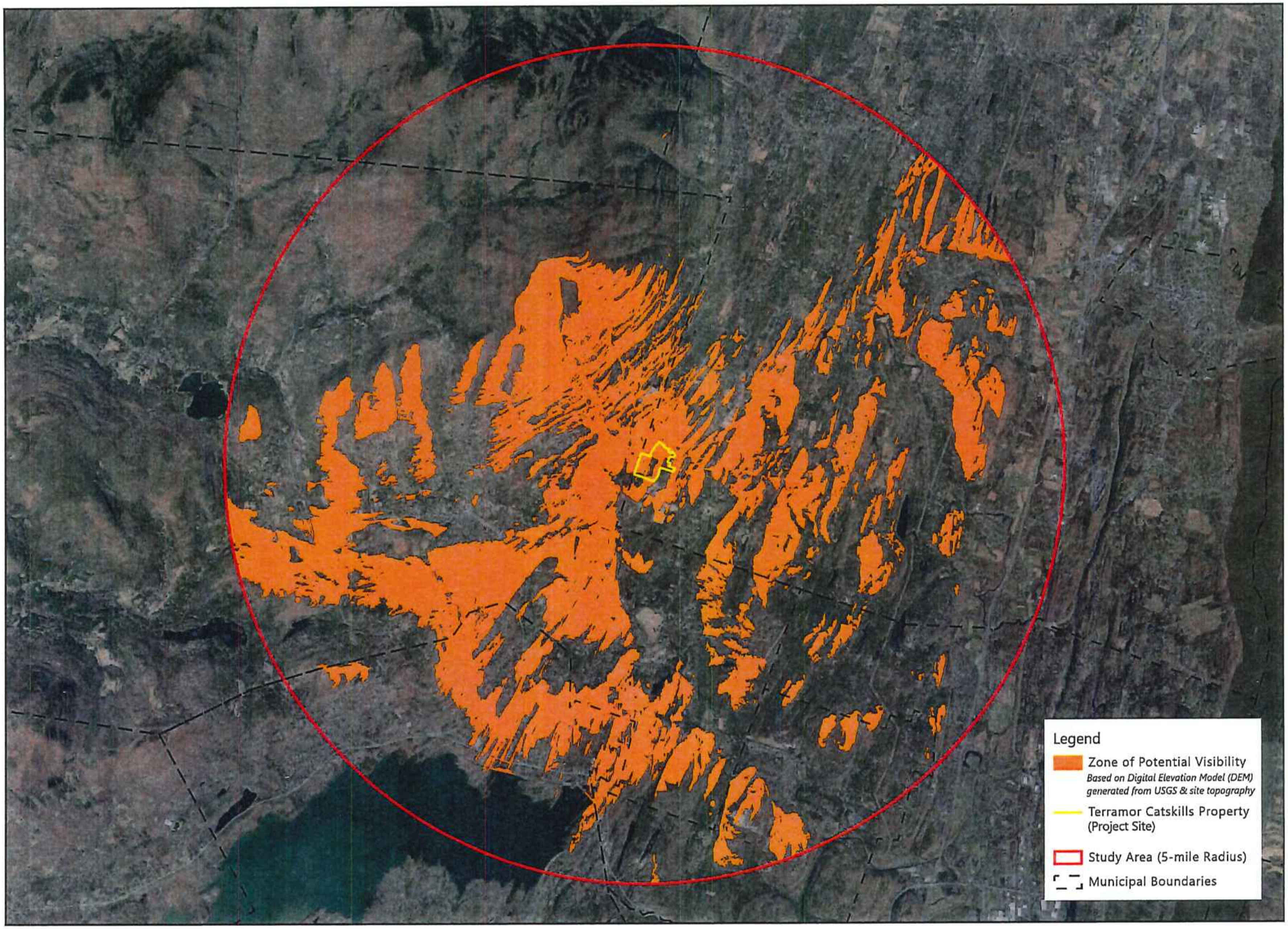

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Terramor Saugerties Visual Impact Assessment

NYS Route 212, Town of Saugerties, Ulster County, NY 12477

Title

Zone of Potential Visibility Map

No Tree Cover

Project: 2021096

Date: 11/15/2022

Figure:

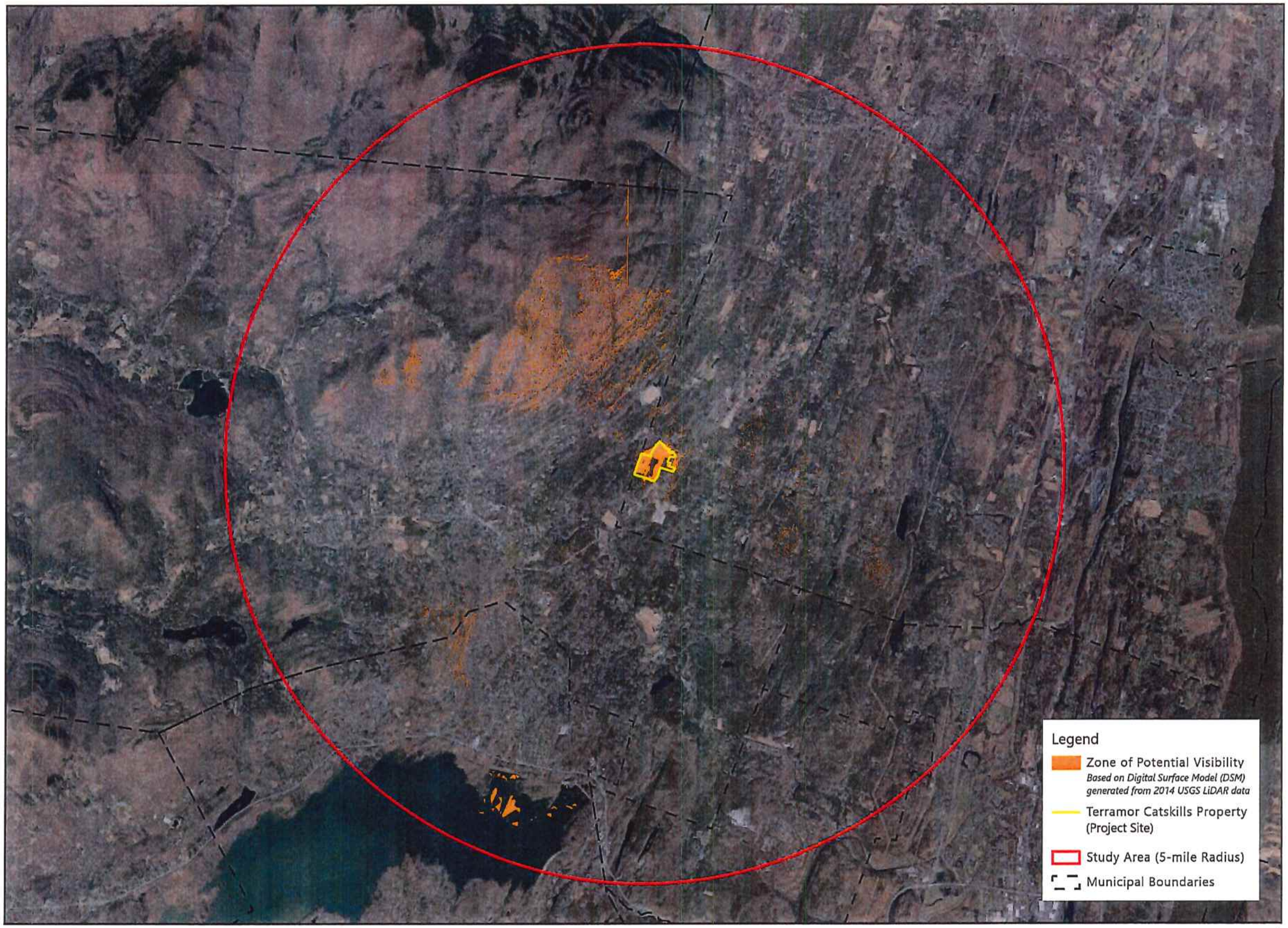
05

N

1 inch = 5,500 feet

0 2,750 5,500

Feet



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NYS Route 212, Town of Saugerties, Ulster County, NY 12477

Title

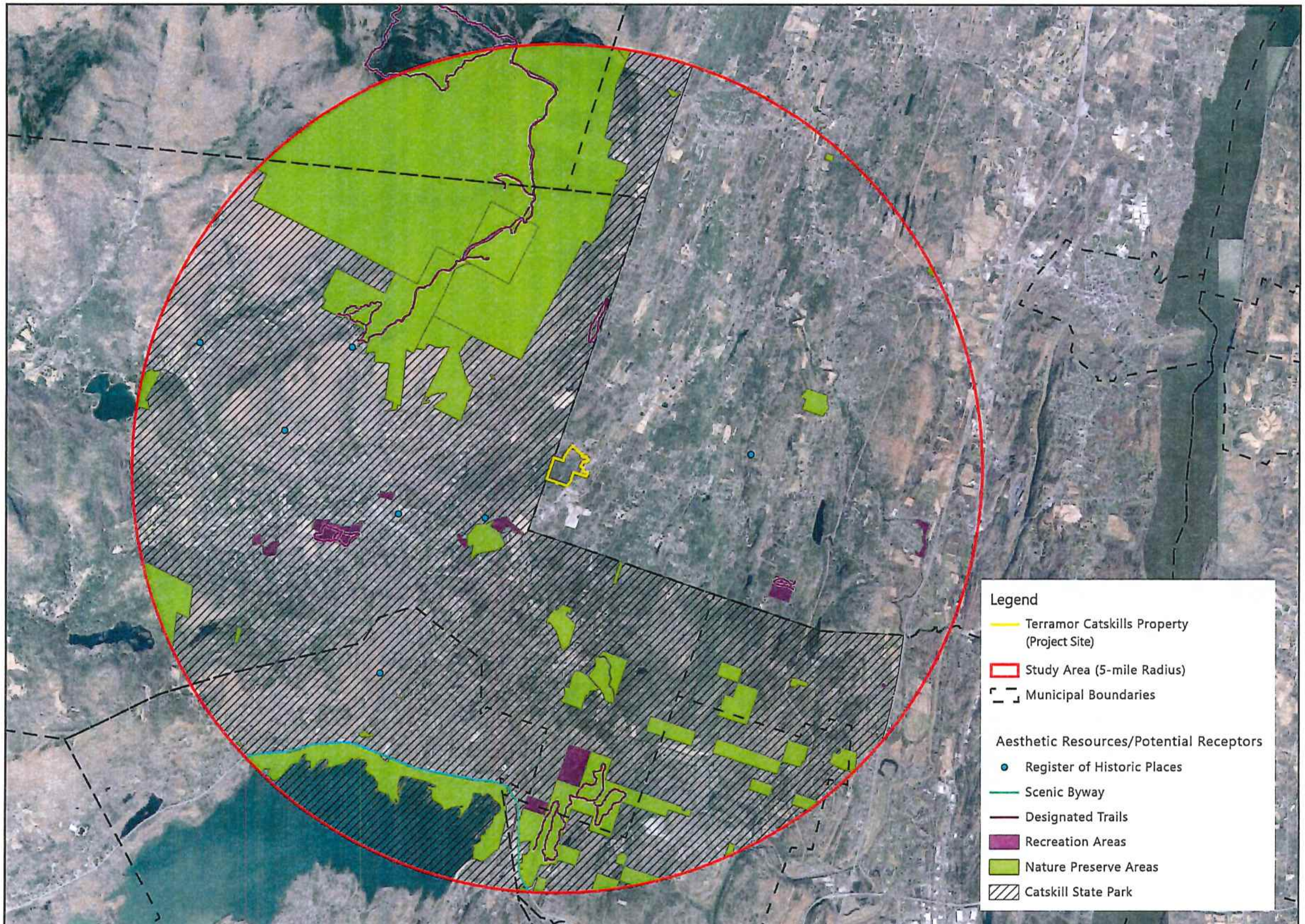
Zone of Potential Visibility Map

With Tree Cover

Project: 2021096

Date: 11/15/2022

Figure: 06



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Terramor Saugerties Visual Impact Assessment

NYS Route 212, Town of Saugerties, Ulster County, NY 12477

Title
NYSDEC Visual Policy Aesthetic Resource Inventory

Potential Receptors Map

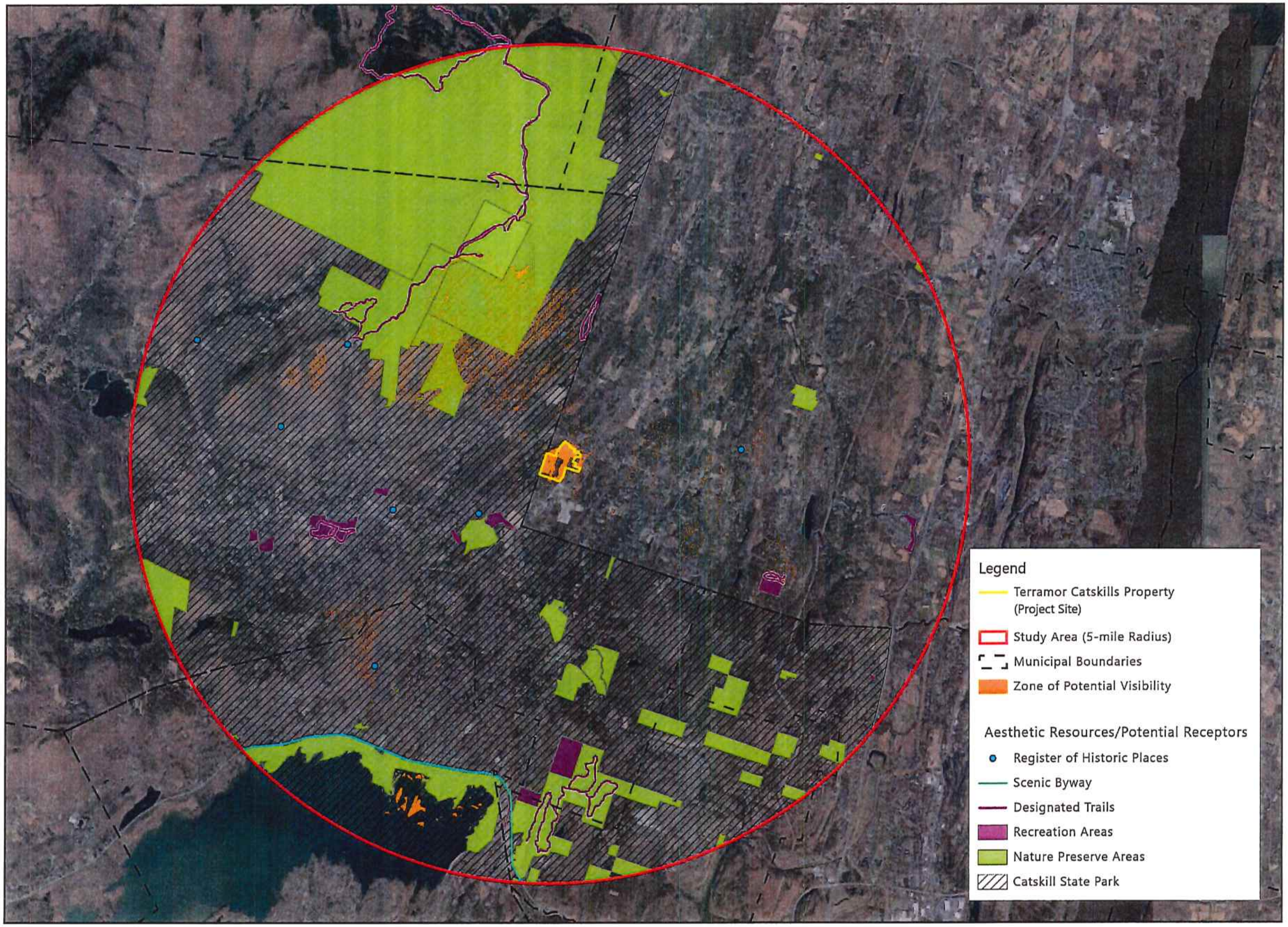
Project: 2021096
Date: 11/15/2022

Figure:
07

N

1 inch = 5,500 feet

0 2,750 5,500
Feet



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Terramor Saugerties Visual Impact Assessment

NYS Route 212, Town of Saugerties, Ulster County, NY 12477

Title

NYSDEC Visual Policy Aesthetic Resource Inventory

Potential Receptors & Zone of Potential Visibility Map

Project: 2021096

Date: 11/15/2022

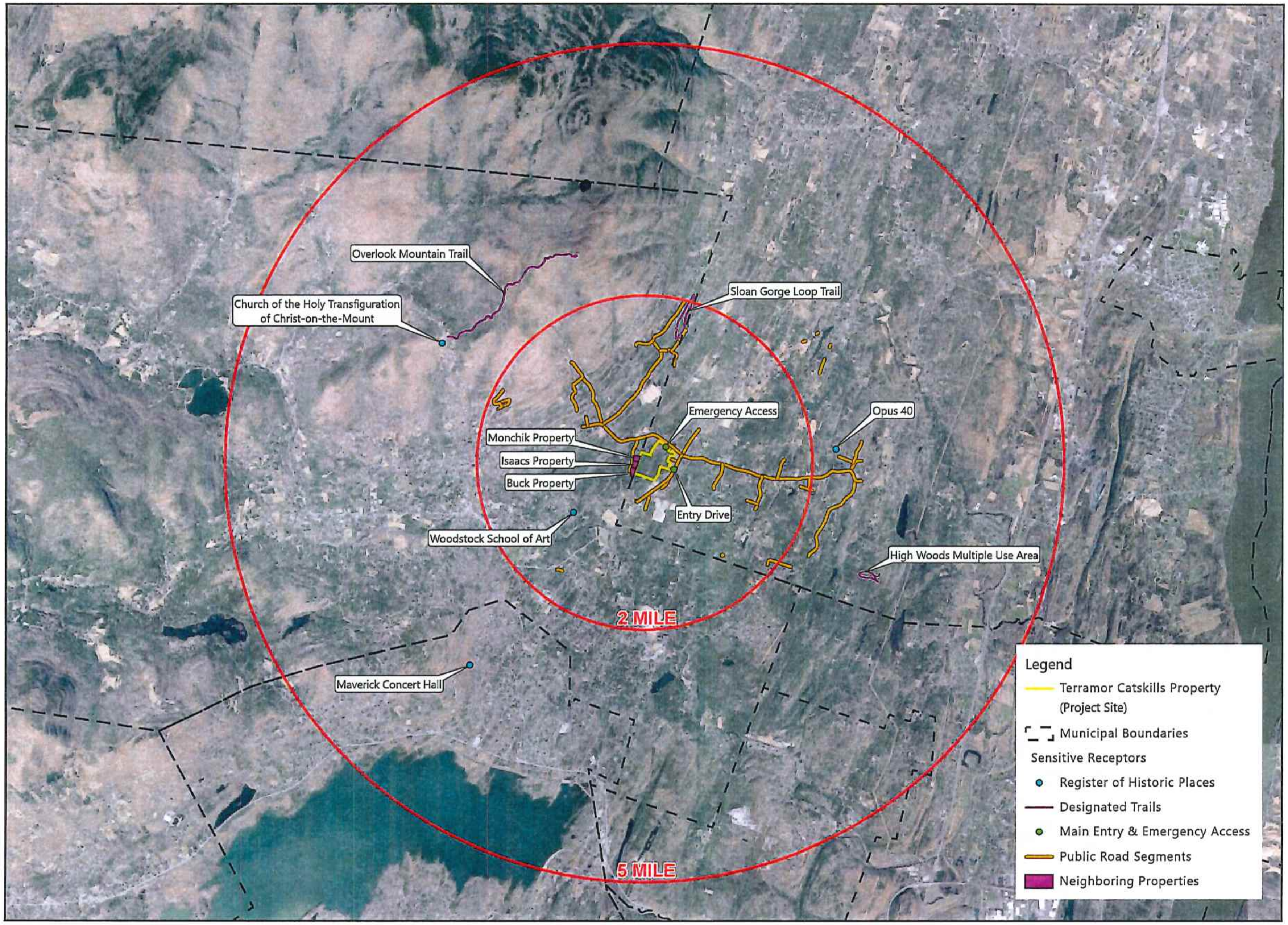
Figure: 08

N

1 inch = 5,500 feet

0 2,750 5,500

Feet



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NYS Route 212, Town of Saugerties, Ulster County, NY 12477

Title

Sensitive Receptors Map

Project: 2021096

Date: 11/15/2022

Figure:

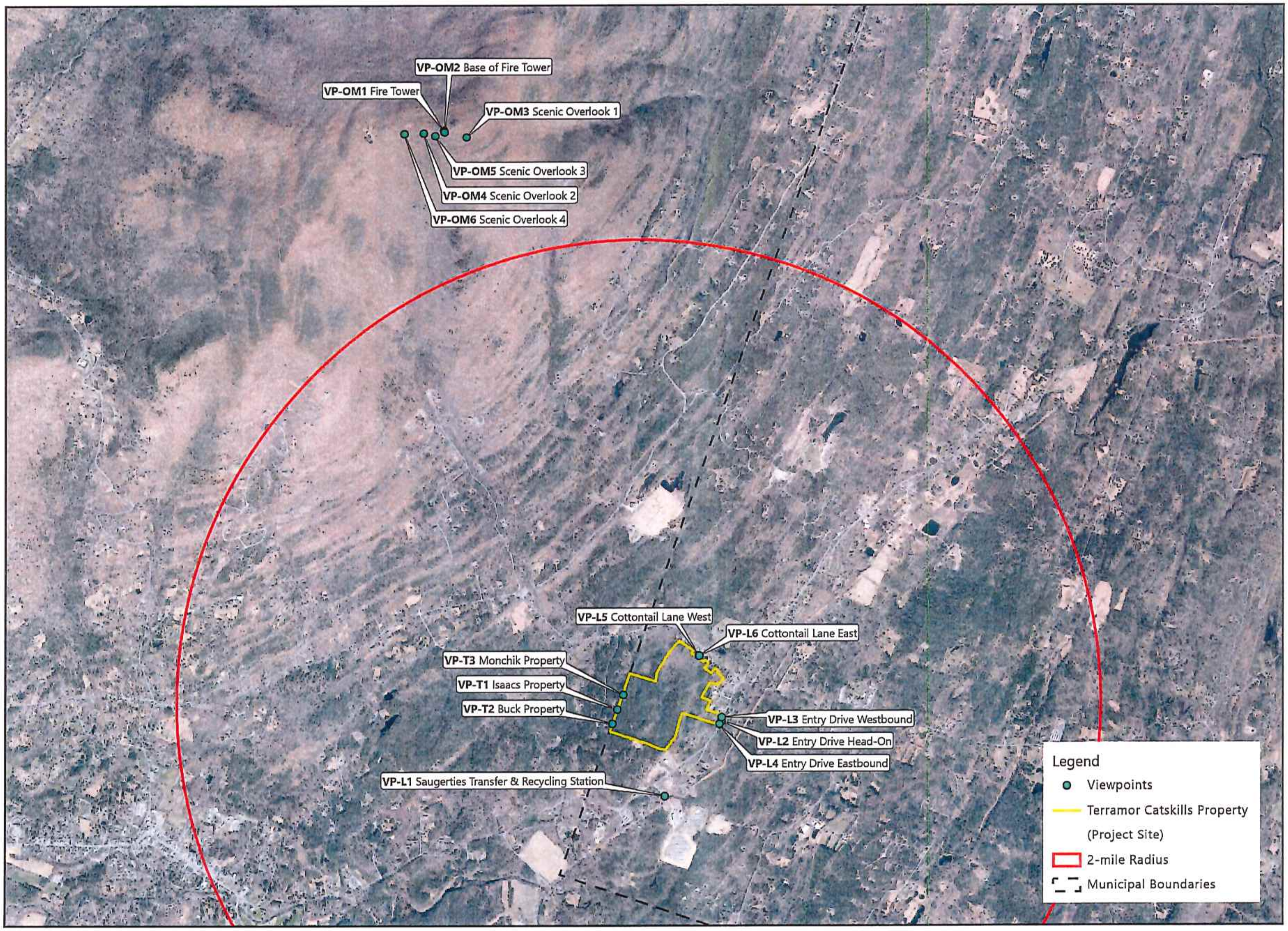
09

N

1 inch = 5,500 feet

0 2,750 5,500

Feet



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Terramor Saugerties Visual Impact Assessment

NYS Route 212, Town of Saugerties, Ulster County, NY 12477

Title

Viewpoint Locations Map

Project: 2021096

Date: 11/15/2022

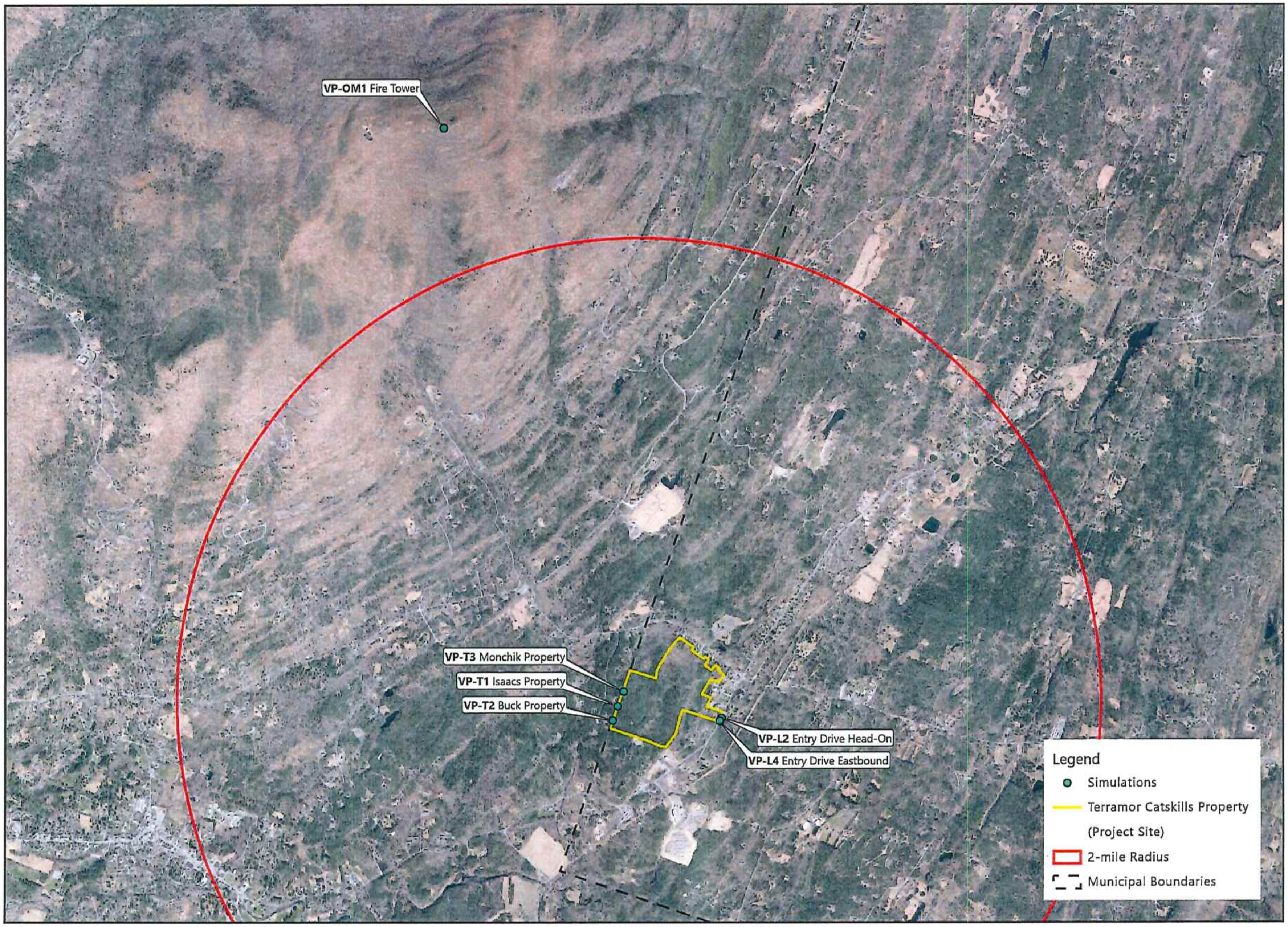
Figure: 10

N

1 inch = 2,000 feet

0 1,000 2,000

Feet



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Terramor Saugerties Visual Impact Assessment
NYS Route 212, Town of Saugerties, Ulster County, NY 12477

Title
Simulation Viewpoint Locations Map

Project: 2021096
Date: 11/15/2022

Figure:
11

N

1 inch = 2,000 feet
0 1,000 2,000
Feet

Viewpoint T1 - Isaacs Property - Existing View

50 mm Focal Length

Figure 12

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Viewpoint T1 - Isaacs Property - Terrain Reference

50 mm Focal Length

Figure 13

The LA GROUP

Viewpoint T1 - Isaacs Property - Simulated View

50 mm Focal Length

Figure 14

The LA GROUP

Viewpoint T1 - Isaacs Property - Simulated View with Screen Plantings

Figure 15

50 mm Focal Length

The LA GROUP

Viewpoint T2 - Buck Property - Existing View

Figure 16

50 mm Focal Length

The LA GROUP

Viewpoint T2 - Buck Property - Terrain Reference

50 mm Focal Length

Figure 17

The LA GROUP

Viewpoint T2 - Buck Property - Simulated View

50 mm Focal Length

Figure 18

The LA GROUP

Viewpoint T3 - Monchik Property - Existing View

50 mm Focal Length

Figure 19

The LA GROUP

Viewpoint T3 - Monchik Property - Terrain Reference

50 mm Focal Length

Figure 20

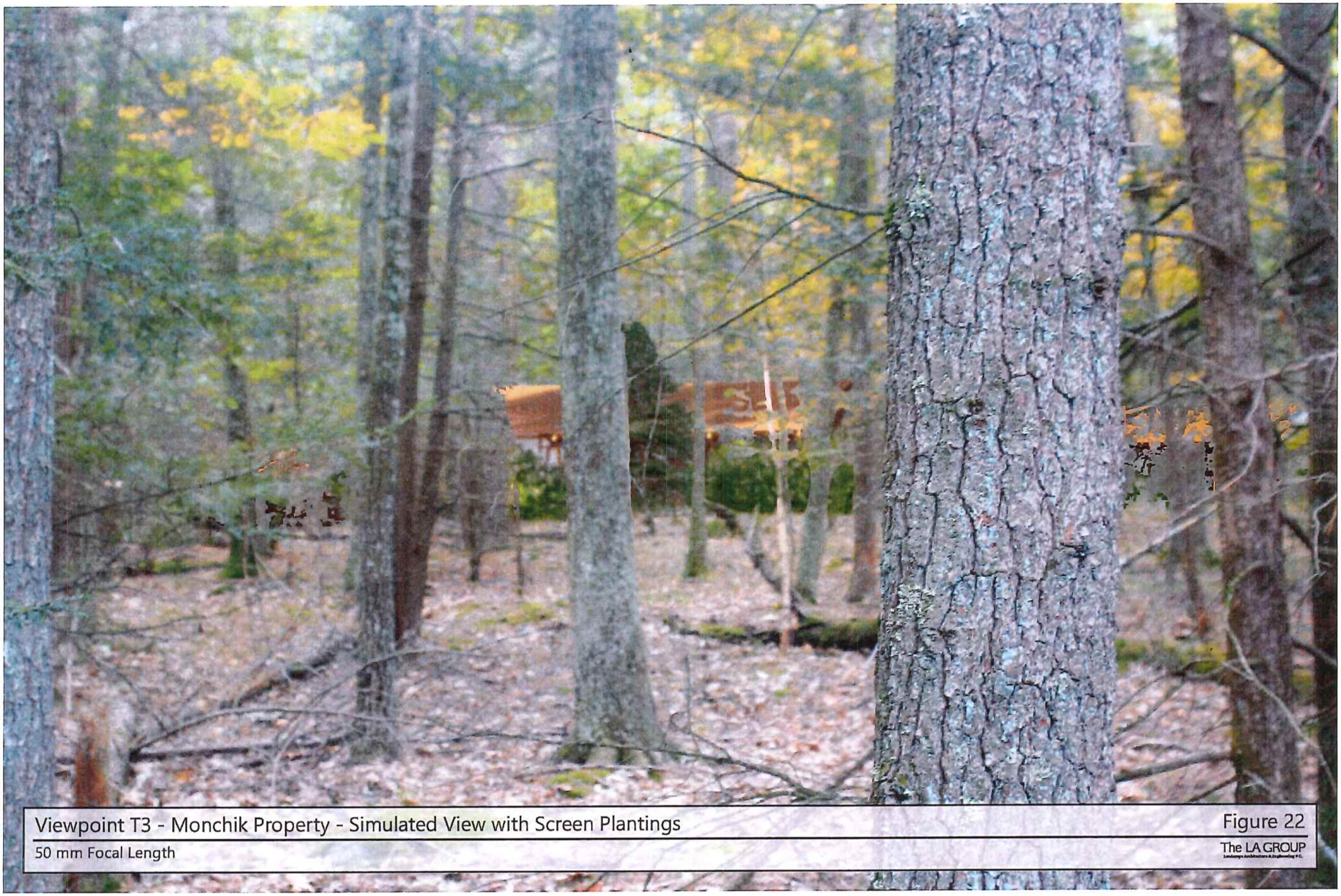
The LA GROUP

Viewpoint T3 - Monchik Property - Simulated View

Figure 21

50 mm Focal Length

The LA GROUP



Viewpoint T3 - Monchik Property - Simulated View with Screen Plantings

50 mm Focal Length

Figure 22

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Viewpoint L2 - Entry Drive Head-On - Existing View

Figure 23

50 mm Focal Length

The LA GROUP

Viewpoint L2 - Entry Drive Head-On - Terrain Reference

50 mm Focal Length

Figure 24

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Viewpoint L2 - Entry Drive Head-On - Simulated View

50 mm Focal Length

Figure 25

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Viewpoint L4 - Entry Drive Eastbound - Existing View

50 mm Focal Length

Figure 26

The LA GROUP

Viewpoint L4 - Entry Drive Eastbound - Terrain Reference

50 mm Focal Length

Figure 27

The LA GROUP

Viewpoint L4 - Entry Drive Eastbound - Simulated View

50 mm Focal Length

Figure 28

The LA GROUP

Viewpoint OM1 - Overlook Mountain Fire Tower - Existing View

Figure 29

50 mm Focal Length

The LA GROUP

Viewpoint OM1 - Overlook Mountain Fire Tower - Terrain Reference

50 mm Focal Length

Figure 30

The LA GROUP


Viewpoint OM1 - Overlook Mountain Fire Tower - DSM Reference
Figure 31
50 mm Focal Length
The LA GROUP

Viewpoint OM1 - Overlook Mountain Fire Tower - Simulated View

50 mm Focal Length

Figure 32

The LA GROUP

Viewpoint OM1 - Overlook Mountain Fire Tower - Existing View

85 mm Focal Length

Figure 33

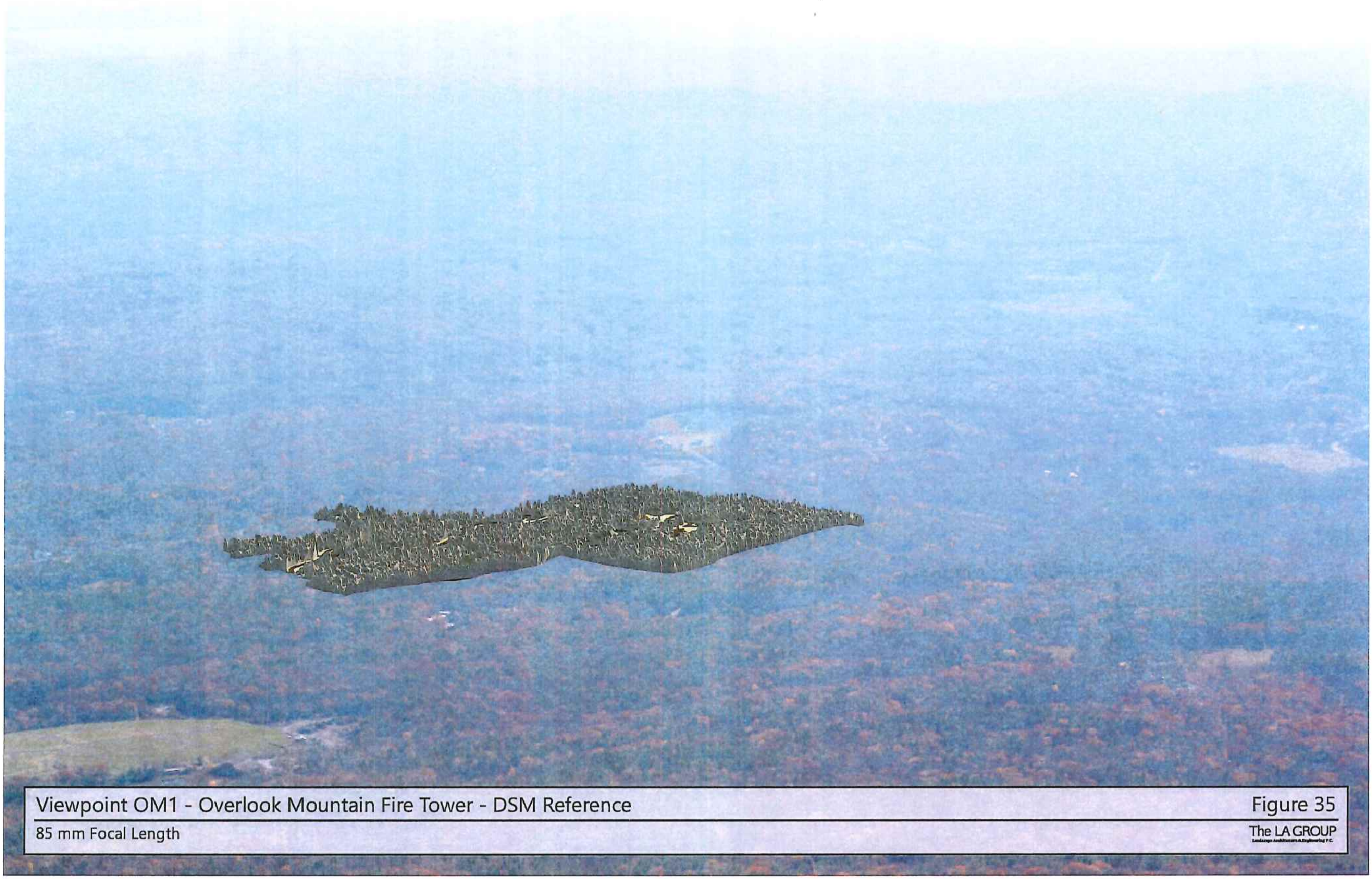
The LA GROUP

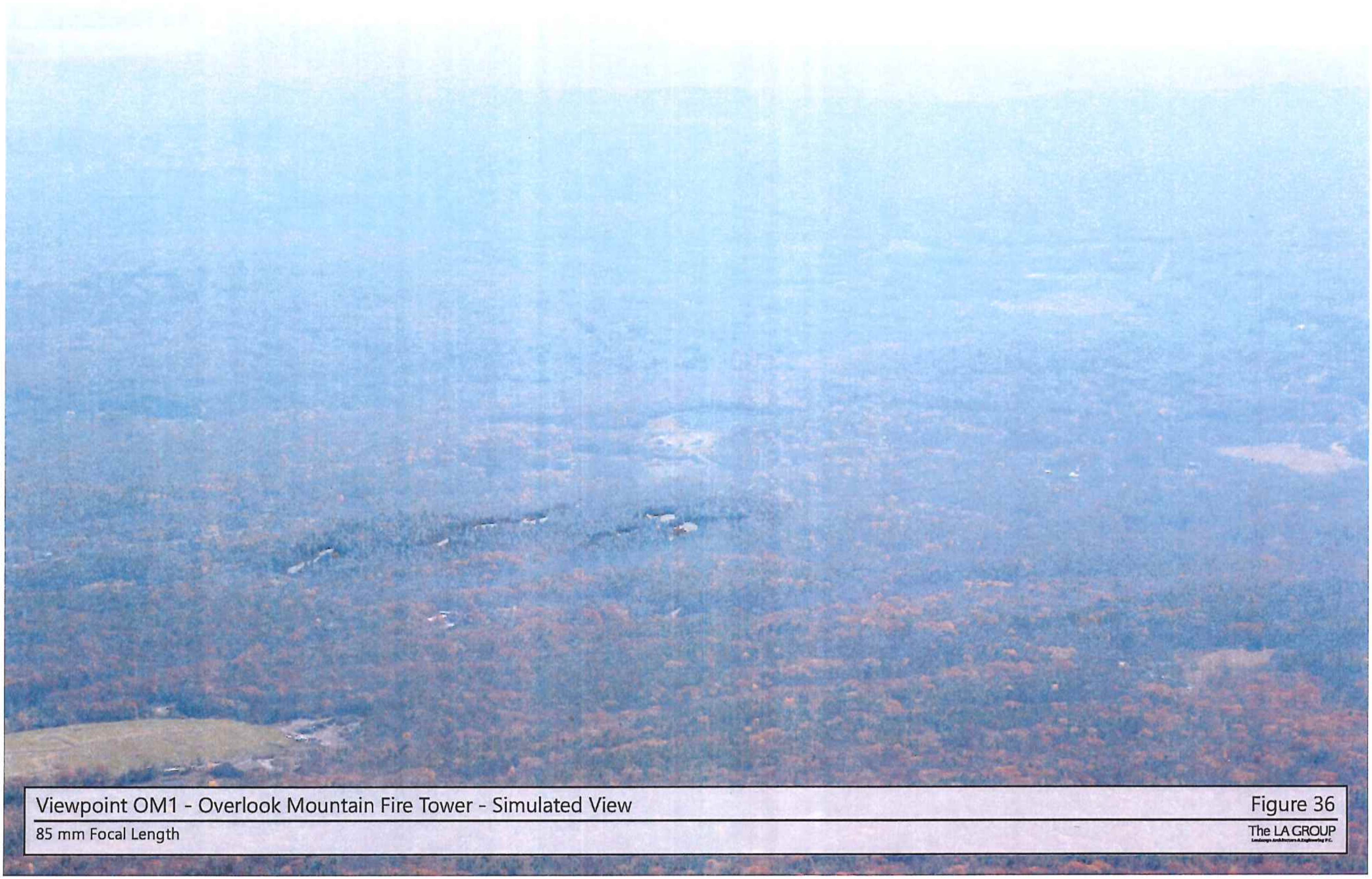
Viewpoint OM1 - Overlook Mountain Fire Tower - Terrain Reference

85 mm Focal Length

Figure 34

The LA GROUP


Viewpoint OM1 - Overlook Mountain Fire Tower - DSM Reference
85 mm Focal Length
Figure 35
The LA GROUP



Viewpoint OM1 - Overlook Mountain Fire Tower - Simulated View

85 mm Focal Length

Figure 36

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APPENDIX B

Existing View Photographs

Viewpoint T1 - Existing View Photograph

50 mm F[illegible]l Length

Photograph 1

LA GROUP
Architecture & Engineering P.C.

Viewpoint T1 - Existing View Photograph

85 mm Focal Length

Photograph 2

The LA GROUP

Landscape Architecture & Engineering P.C.

Viewpoint T2 - Existing View Photograph

50 mm F[illegible]l Length

Photograph 3

The LA GROUP

Architecture & Engineering P.C.

Viewpoint T2 - Existing View Photograph

85 mm Focal Length

Photograph 4

The LA GROUP
Landscape Architecture & Engineering P.C.

Viewpoint T3 - Existing View Photograph

50 mm F   l Length

Photograph 5

LA GROUP
rchitecture & Engineering P.C.

Viewpoint T3 - Existing View Photograph

85 mm Focal Length

Photograph 6

The LA GROUP

Landscape Architecture & Engineering P.C.

Viewpoint L1 - Existing View Photograph

50 mm F[illegible]l Length

Photograph 7

Viewpoint L1 - Existing View Photograph

Photograph 8

85 mm Focal Length

The LA GROUP
Landscape Architecture & Engineering P.C.

Viewpoint L2 - Existing View Photograph

50 mm F l Length

Photograph 9

The LA GROUP
Architecture & Engineering P.C.

Viewpoint L2 - Existing View Photograph

85 mm Focal Length

Photograph 10

The LA GROUP

Landscape Architecture & Engineering P.C.

Viewpoint L3 - Existing View Photograph

50 mm F[illegible]l Length

Photograph 11

The LA GROUP
Architecture & Engineering P.C.

Viewpoint L3 - Existing View Photograph

85 mm Focal Length

Photograph 12

The LA GROUP
Landscape Architecture & Engineering P.C.

Viewpoint L4 - Existing View Photograph

Photograph 13

50 mm F[illegible]l Length

The LA GROUP
Architecture & Engineering P.C.

Viewpoint L4 - Existing View Photograph

85 mm Focal Length

Photograph 14

The LA GROUP

Landscape Architecture & Engineering P.C.

Viewpoint L5 - Existing View Photograph

50 mm F l Length

Photograph 15

LA GROUP
Architecture & Engineering P.C.

Viewpoint L5 - Existing View Photograph

85 mm Focal Length

Photograph 16

The LA GROUP
Landscape Architecture & Engineering P.C.

Viewpoint L6 - Existing View Photograph

Photograph 17

50 mm F[illegible]l Length

THE LA GROUP
Architecture & Engineering P.C.

Viewpoint L6 - Existing View Photograph

85 mm Focal Length

Photograph 18

The LA GROUP
Landscape Architecture & Engineering P.C.

Viewpoint OM1 - Existing View Photograph

50 mm F l Length

Photograph 19

LA GROUP
Architecture & Engineering P.C.

Viewpoint OM1 - Existing View Photograph
85 mm Focal Length

Photograph 20

The LA GROUP
Landscape Architecture & Engineering P.C.

Viewpoint OM2 - Existing View Photograph

Photograph 21

50 mm F   l Length

LA GROUP
Architecture & Engineering P.C.

Viewpoint OM2 - Existing View Photograph

85 mm Focal Length

Photograph 22

The LA GROUP

Landscape Architecture & Engineering P.C.

Viewpoint OM3 - Existing View Photograph

50 mm F l Length

Photograph 23

T LA GROUP
architecture & Engineering P.C.

Viewpoint OM3 - Existing View Photograph

85 mm Focal Length

Photograph 24

The LA GROUP

Landscape Architecture & Engineering P.C.

Viewpoint OM4 - Existing View Photograph

Photograph 25

50 mm F l Length

The LA GROUP
Landscape Architecture & Engineering P.C.

Viewpoint OM4 - Existing View Photograph

85 mm Focal Length

Photograph 26

The LA GROUP
Landscape Architecture & Engineering P.C.

Viewpoint OM5 - Existing View Photograph

50 mm F l Length

Photograph 27

T LA GROUP

rchitecture & Engineering P.C.

Viewpoint OM5 - Existing View Photograph

85 mm Focal Length

Photograph 28

The LA GROUP

Landscape Architecture & Engineering P.C.

Viewpoint OM6 - Existing View Photograph

Photograph 29

50 mm F l Length

The LA GROUP
Architecture & Engineering P.C.

Viewpoint OM6 - Existing View Photograph

85 mm Focal Length

Photograph 30

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Landscape Architecture & Engineering P.C.

APPENDIX C

Visual Impact Assessment Field Datasheets

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tent/tarp line heights 12'

VP-T1

VIA FIELD FORM FOR INDIVIDUAL VIEWPOINTS

Page 1 of 3

Project Name Too Cats **LAG Project Number** 2021194

Viewpoint Location # and Name Woody 35 @ Isaacs

Date/Time 10/7/22 11:50 **Camera Used** Canon Eos

Photographer DLS **Other Personnel** KJF

Weather Conditions (clarity, wind, etc) clear breeze, 70°

GPS Used tablet **GPS Point Taken?** Yes ☒ No ☐

Coordinates X (E) 42.048647 **Y (N)** 74.078930

Bearing looking from E toward tent SE 131°

View Location Description (example *"on shoulder of the road," or "down the bank looking through trees," etc.*)

Foreground Description

Middleground Description

Background Description

W/D Tarp

Locator Visible Yes ☐ **Yes w/ binoculars** ☐ **No** ☐
Balloons Visible Yes ☐ **Yes w/ binoculars** ☐ **No** ☐
Project Site Visible Yes ☐ **No** ☐ [Important especially in cases where balloons may not be visible, but the site clearly is]

Picture Number(s)	Zoom *	Balloon Color/# Visible
436, 435, 434	32	
433, 32, 31	53	N/A
30, 29	65	

	Relationship to Other Dominant Land Uses (check appropriate)
✓	Not indigenous
	Diversity of land Uses in View
	Consolidation of Intrusions

	View Durations (if applicable)
	6 seconds +
	3-6 seconds
	Less than 3 seconds
	Other

Sta hc

***(50mm and 85mm generally required. Digital equivalents are 32mm and 53mm.)**

Notes:

orange tarp @ 12'

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Red 21x20 12' vp

VIA FIELD FORM FOR INDIVIDUAL VIEWPOINTS

VP-T2

Page 2 of 3

Project Name Toe Cats **LAG Project Number** 208196.01

Viewpoint Location # and Name Woody 45 / Bulk Res.

Date/Time 10/7/22 13:20 **Camera Used** Canon Eos

Photographer DLS **Other Personnel** KJC

Weather Conditions (clarity, wind, etc) Clear, breezy

GPS Used Tablet **GPS Point Taken?** Yes ☒ No ☐

Bulk **Coordinates** X (E) 42.047758 Y (N) 74.079357

Bearing E 105°

View Location Description (example *"on shoulder of the road," or "down the bank looking through trees," etc.)*

Foreground Description ~~Thin woods~~ - highly screened

Middleground Description

Background Description

Locator Visible Yes ☐ Yes w/ binoculars ☐ No ☐

N/A **Balloons Visible** Yes ☐ Yes w/ binoculars ☐ No ☐ N/A

Project Site Visible Yes ☐ No ☐ [Important especially in cases where balloons may not be visible, but the site clearly is]

Picture Number(s)	Zoom *	Balloon Color/# Visible
427, 26, 25	32	
		Red
424 23	21 53mm	20x20
		12' Drop
21	70	zoom

	Relationship to Other Dominant Land Uses (check appropriate)
\	Not indigenous
\	Diversity of land Uses in View
	Consolidation of Intrusions

	View Durations (if applicable)
	6 seconds +
	3-6 seconds
	Less than 3 seconds
	Other

SX-TC

***(50mm and 85mm generally required. Digital equivalents are 32mm and 53mm.)**

Notes: highly screened, little red visible

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VIA FIELD FORM FOR INDIVIDUAL VIEWPOINTS VP T-3

Project Name TOR Cats **LAG Project Number** 202146

Viewpoint Location # and Name Manchik Ferd

Date/Time 10/7/22 3:00 **Camera Used** Canon Eos

Photographer BLS **Other Personnel** KJC KGF

Weather Conditions (clarity, wind, etc) Cloudier breezier

GPS Used trimble **GPS Point Taken? Yes** ☒ **No** ☐

Coordinates X (E) 74° 4' 42" **Y (N)** 42° 2' 59"

Bearing 148° SE

View Location Description (example *"on shoulder of the road," or "down the bank looking through trees," etc.*)

Foreground Description Thinning trees

Middleground Description

Background Description

Locator Visible **Yes** ☐ **Yes w/ binoculars** ☐ **No** ☐ N/A
Balloons Visible **Yes** ☐ **Yes w/ binoculars** ☐ **No** ☐
Project Site Visible **Yes** ☐ **No** ☐ [Important especially in cases where balloons may not be visible, but the site clearly is]

	Picture Number(s)	Zoom *	Balloon Color/# Visible
4/21	20 19	32	
			N/A
4/8	17 16	53	

	Relationship to Other Dominant Land Uses (check appropriate)
	Not indigenous
	Diversity of land Uses in View
	Consolidation of Intrusions

	View Durations (if applicable)
	6 seconds +
	3-6 seconds
	Less than 3 seconds
	Other

Stake

***(50mm and 85mm generally required. Digital equivalents are 32mm and 53mm.)**

Notes:

W35 Orange tarp 12'

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VIA FIELD FORM FOR INDIVIDUAL VIEWPOINTS

Project Name Terramor Saugerties **LAG Project Number** 2021096.02-008

Viewpoint Location # and Name VP-L1 Saugerties Transfer & Recycling Station

Date/Time 10/7/22 12:31 PM **Camera Used** Canon Eos

Photographer Rob **Other Personnel** Leah

Weather Conditions (clarity, wind, etc) Partly Cloudy, very little wind, 70°F

GPS Used Trimble Geo 7x **GPS Point Taken?** Yes ☑ No ☐

Coordinates X (E) 74° 4' 30" W Y (N) 42° 2' 36" N

Bearing 353°N

View Location Description (example *"on shoulder of the road," or "down the bank looking through trees," etc.*) Standing on road to Transfer Station & Animal Shelter

Foreground Description wetland & Route NY212

Middleground Description Tree Canopy (above project site)

Background Description Mountain (goat hill?)

Locator Visible Yes ☑ **Yes w/ binoculars** ☐ **No** ☐
Balloons Visible Yes ☐ **Yes w/ binoculars** ☐ **No** ☐
Project Site Visible Yes ☐ **No** ☑ [Important especially in cases where balloons may not be visible, but the site clearly is]

Picture Number(s)	Zoom *	Balloon Color/# Visible
1	32 mm	200' Red Locator
2	32 mm	" "
3	53 mm	" "
4	53 mm	" "

	Relationship to Other Dominant Land Uses (check appropriate)
	Not indigenous
	Diversity of land Uses in View
	Consolidation of Intrusions

	View Durations (if applicable)
	6 seconds +
	3-6 seconds
	Less than 3 seconds
	Other

***(50mm and 85mm generally required. Digital equivalents are 32mm and 53mm.)**

Notes:

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VIA FIELD FORM FOR INDIVIDUAL VIEWPOINTS

Project Name Terramor Saugerties **LAG Project Number** 2021096 02-008

Viewpoint Location # and Name VP-L2 Entry Drive Cone - Straight on

Date/Time 10/7/22 1:14 PM **Camera Used** Canon Eos

Photographer Rob **Other Personnel** Leah

Weather Conditions (clarity, wind, etc) Partly Cloudy, very little wind, 70°F

GPS Used Trimble Geo 7X **GPS Point Taken?** Yes ☑ No ☐

Coordinates X (E) 74° 4' 13" W Y (N) 42° 2' 52" N

Bearing 320° NW

View Location Description (example *"on shoulder of the road," or "down the bank looking through trees," etc.*)

Foreground Description

Middleground Description

Background Description

Locator Visible Yes ☐ Yes w/ binoculars ☐ No ☑
Balloons Visible Yes ☐ Yes w/ binoculars ☐ No ☑
Project Site Visible Yes ☐ No ☑ [Important especially in cases where balloons may not be visible, but the site clearly is]

Picture Number(s)	Zoom *	Balloon Color/# Visible
5	32mm	None
6	53mm	None

	Relationship to Other Dominant Land Uses (check appropriate)
	Not indigenous
	Diversity of land Uses in View
	Consolidation of Intrusions

	View Durations (if applicable)
	6 seconds +
	3-6 seconds
	Less than 3 seconds
	Other

***(50mm and 85mm generally required. Digital equivalents are 32mm and 53mm.)**

Notes:

Entry drive traffic Cone visible from this location

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VIA FIELD FORM FOR INDIVIDUAL VIEWPOINTS

Project Name Terramor Saugerties **LAG Project Number** 2021096.02-008

Viewpoint Location # and Name VP-L3 Entry Drive Cone – Westbound

Date/Time 10/7/22 1:18 PM **Camera Used** Canon Eos

Photographer Rob **Other Personnel** Leah

Weather Conditions (clarity, wind, etc) Partly Cloudy, very little wind, 70°F

GPS Used Trimble Geo 7x **GPS Point Taken?** Yes ☑ No ☐

Coordinates X (E) 74° 4' 12" W Y (N) 42° 2' 53" N

Bearing 219° SW

View Location Description (example *"on shoulder of the road," or "down the bank looking through trees," etc.*)

Foreground Description

Middleground Description

Background Description

Locator Visible Yes ☐ **Yes w/ binoculars** ☐ **No** ☑
Balloons Visible Yes ☐ **Yes w/ binoculars** ☐ **No** ☑
Project Site Visible Yes ☐ No ☑ [Important especially in cases where balloons may not be visible, but the site clearly is]

Picture Number(s)	Zoom *	Balloon Color/# Visible
7	32mm	None
8	53 mm	None

	Relationship to Other Dominant Land Uses (check appropriate)
	Not indigenous
	Diversity of land Uses in View
	Consolidation of Intrusions

	View Durations (if applicable)
	6 seconds +
	3-6 seconds
	Less than 3 seconds
	Other

***(50mm and 85mm generally required. Digital equivalents are 32mm and 53mm.)**

Notes:

Entry Drive traffic Cone visible from this location

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VIA FIELD FORM FOR INDIVIDUAL VIEWPOINTS

Project Name Ferramor Saugerties **LAG Project Number** 2021096.02-008

Viewpoint Location # and Name VP-L4 Entry Drive Cone - Eastbound

Date/Time 10/7/22 1:21 PM **Camera Used** Canon Eos

Photographer Rob **Other Personnel** Leah

Weather Conditions (clarity, wind, etc) Partly Cloudy, very little wind, 70° F

GPS Used Trimble Geo 7x **GPS Point Taken?** Yes ☑ No ☐

Coordinates X (E) 74° 4' 13" W Y (N) 42° 2' 52" N

Bearing 22° NE

View Location Description (example *"on shoulder of the road," or "down the bank looking through trees," etc.*)

Foreground Description

Middleground Description

Background Description

Locator Visible Yes ☐ **Yes w/ binoculars** ☐ **No** ☑
Balloons Visible Yes ☐ **Yes w/ binoculars** ☐ **No** ☑
Project Site Visible Yes ☐ **No** ☑ [Important especially in cases where balloons may not be visible, but the site clearly is]

Picture Number(s)	Zoom *	Balloon Color/# Visible
9	32mm	None
10	53mm	None

	Relationship to Other Dominant Land Uses (check appropriate)
	Not indigenous
	Diversity of land Uses in View
	Consolidation of Intrusions

	View Durations (if applicable)
	6 seconds +
	3-6 seconds
	Less than 3 seconds
	Other

***(50mm and 85mm generally required. Digital equivalents are 32mm and 53mm.)**

Notes:

Entry Drive traffic cone visible from this location

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VIA FIELD FORM FOR INDIVIDUAL VIEWPOINTS

Project Name Terramor Saugerties **LAG Project Number** 2021096.02-008

Viewpoint Location # and Name VP-L5 Cottontail Ln West

Date/Time 10/7/22 1:50 PM **Camera Used** Canon Eos

Photographer Rob **Other Personnel** Leah

Weather Conditions (clarity, wind, etc) Partly Cloudy, Slightly Windy, 70° F

GPS Used Trimble Geo 7x **GPS Point Taken?** Yes [x] No [ ]

Coordinates X (E) 74° 4' 20" W Y (N) 42° 3' 7" N

Bearing 216° SW

View Location Description (example *"on shoulder of the road," or "down the bank looking through trees," etc.*)

Foreground Description

Middleground Description

Background Description

Locator Visible Yes [ ] **Yes w/ binoculars** [ ] **No** [x]
Balloons Visible Yes [ ] **Yes w/ binoculars** [ ] **No** [x]
Project Site Visible Yes [ ] **No** [x] [Important especially in cases where balloons may not be visible, but the site clearly is]

Picture Number(s)	Zoom *	Balloon Color/# Visible
11	32mm	None
12	53mm	None

	Relationship to Other Dominant Land Uses (check appropriate)
	Not indigenous
	Diversity of land Uses in View
	Consolidation of Intrusions

	View Durations (if applicable)
	6 seconds +
	3-6 seconds
	Less than 3 seconds
	Other

***(50mm and 85mm generally required. Digital equivalents are 32mm and 53mm.)**

Notes:

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VIA FIELD FORM FOR INDIVIDUAL VIEWPOINTS

Project Name Terramor Saugerties **LAG Project Number** 2021096.02-008

Viewpoint Location # and Name VP-L6 Cottontail Ln East

Date/Time 10/7/22 1:51 PM **Camera Used** Canon Eos

Photographer Rob **Other Personnel** Leah

Weather Conditions (clarity, wind, etc) Partly Cloudy, Slightly Windy, 70°F

GPS Used Trimble Geo 7x **GPS Point Taken?** Yes ☑ No ☐

Coordinates X (E) 74° 4' 19" W Y (N) 42° 3' 7" N

Bearing 231° SW

View Location Description (example *"on shoulder of the road," or "down the bank looking through trees," etc.*)

Foreground Description

Middleground Description

Background Description

Locator Visible Yes ☐ **Yes w/ binoculars** ☐ **No** ☑
Balloons Visible Yes ☐ **Yes w/ binoculars** ☐ **No** ☑
Project Site Visible Yes ☐ **No** ☑ [Important especially in cases where balloons may not be visible, but the site clearly is]

Picture Number(s)	Zoom *	Balloon Color/# Visible
13	32mm	None
14	53mm	None

	Relationship to Other Dominant Land Uses (check appropriate)
	Not indigenous
	Diversity of land Uses in View
	Consolidation of Intrusions

	View Durations (if applicable)
	6 seconds +
	3-6 seconds
	Less than 3 seconds
	Other

***(50mm and 85mm generally required. Digital equivalents are 32mm and 53mm.)**

Notes:

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VIA FIELD FORM FOR INDIVIDUAL VIEWPOINTS

Page 1 of 6

Project Name Terramor Saugerties **LAG Project Number** 2021096.02-009

Viewpoint Location # and Name VP-OM1 Fire Tower

Date/Time 11/3/22 11:58AM **Camera Used** Canon Eos

Photographer Leah **Other Personnel** RGF

Weather Conditions (clarity, wind, etc) 59°F, Wind 5MPH, Sunny, very few clouds, hazy

GPS Used Trimble Geo 7x **GPS Point Taken?** Yes ☑ No ☐

Coordinates X (N) 42° 5' 6" N Y (E) 74° 5' 36" E

Bearing 161° S

View Location Description (example *"on shoulder of the road," or "down the bank looking through trees," etc.)*

Foreground Description

Middleground Description

Background Description

Locator Visible Yes ☐ **Yes w/ binoculars** ☐ No ☐ NA

Balloons Visible Yes ☐ **Yes w/ binoculars** ☐ No ☐ NA

Project Site Visible Yes ☑ No ☐ [Important especially in cases where balloons may not be visible, but the site clearly is]

Picture Number(s)	Zoom *	Balloon Color/# Visible
1	32mm	
2	32mm	
3	53mm	
4	53mm	

	Relationship to Other Dominant Land Uses (check appropriate)
	Not indigenous
	Diversity of land Uses in View
	Consolidation of Intrusions

	View Durations (if applicable)
	6 seconds +
	3-6 seconds
	Less than 3 seconds
	Other

***(50mm and 85mm generally required. Digital equivalents are 32mm and 53mm.)**

Notes:

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VIA FIELD FORM FOR INDIVIDUAL VIEWPOINTS

Project Name Terramor Saugerties **LAG Project Number** 2021096.02 - 009

Viewpoint Location # and Name VP - OM 2 Base of Fire Tower

Date/Time 11/3/22 12:28 PM **Camera Used** Canon Eos

Photographer RGF **Other Personnel** LRC

Weather Conditions (clarity, wind, etc) 59°F, 5MPH Winds, Sunny, very few Clouds, hazy

GPS Used Trimble Geo 7x **GPS Point Taken?** Yes ☑ No ☐

Coordinates X (E) 74° 5' 35" E Y (N) 42° 5' 5" N

Bearing 161° S

View Location Description (example *"on shoulder of the road," or "down the bank looking through trees," etc.*)

Foreground Description

Middleground Description

Background Description

Locator Visible Yes ☐ **Yes w/ binoculars** ☐ **No** ☐ NA
Balloons Visible Yes ☐ **Yes w/ binoculars** ☐ **No** ☐ NA
Project Site Visible Yes ☑ **No** ☐ [Important especially in cases where balloons may not be visible, but the site clearly is]

Picture Number(s)	Zoom *	Balloon Color/# Visible
5	32mm	
6	53mm	

	Relationship to Other Dominant Land Uses (check appropriate)
	Not indigenous
	Diversity of land Uses in View
	Consolidation of Intrusions

	View Durations (if applicable)
	6 seconds +
	3-6 seconds
	Less than 3 seconds
	Other

***(50mm and 85mm generally required. Digital equivalents are 32mm and 53mm.)**

Notes:

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VIA FIELD FORM FOR INDIVIDUAL VIEWPOINTS

Project Name Fenumor Saugerties **LAG Project Number** 2021096.02 - 009

Viewpoint Location # and Name VP-OM3 Scenic Overlook 1

Date/Time 11/3/22 12:38 PM **Camera Used** Canon Eos

Photographer RGF **Other Personnel** LRC

Weather Conditions (clarity, wind, etc) 59°F, 5MPH winds, sunny, very few clouds, hazy

GPS Used Trimble Geo 7x **GPS Point Taken?** **Yes** ☑ **No** ☐

Coordinates **X (E)** 74° 5' 29" E **Y (N)** 42° 5' 4" N

Bearing 163° S

View Location Description (example *"on shoulder of the road," or "down the bank looking through trees," etc.)*

Foreground Description

Middleground Description

Background Description

Locator Visible **Yes** ☐ **Yes w/ binoculars** ☐ **No** ☐ NA
Balloons Visible **Yes** ☐ **Yes w/ binoculars** ☐ **No** ☐ NA
Project Site Visible **Yes** ☑ **No** ☐ [Important especially in cases where balloons may not be visible, but the site clearly is]

Picture Number(s)	Zoom *	Balloon Color/# Visible
7	32mm	
8	53mm	
9	53mm	

	Relationship to Other Dominant Land Uses (check appropriate)
	Not indigenous
	Diversity of land Uses in View
	Consolidation of Intrusions

	View Durations (if applicable)
	6 seconds +
	3-6 seconds
	Less than 3 seconds
	Other

***(50mm and 85mm generally required. Digital equivalents are 32mm and 53mm.)**

Notes:

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VIA FIELD FORM FOR INDIVIDUAL VIEWPOINTS

Project Name Terramor Saugerties **LAG Project Number** 2021096.02-008

Viewpoint Location # and Name VP-OM4 Scenic Overlook 2

Date/Time 11/3/22 1:05 PM **Camera Used** Canon Eos

Photographer RGF **Other Personnel** LRC

Weather Conditions (clarity, wind, etc) 59°F, 5MPH Winds, Sunny, Very few Clouds, hazy

GPS Used Trimble Geo 7x **GPS Point Taken? Yes** ☑ **No** ☐

Coordinates X (E) 74° 5' 42" E Y (N) 42° 5' 5" N

Bearing 160° S

View Location Description (example *"on shoulder of the road," or "down the bank looking through trees," etc.)*

Foreground Description

Middleground Description

Background Description

Locator Visible Yes ☐ **Yes w/ binoculars** ☐ **No** ☐ NA
Balloons Visible Yes ☐ **Yes w/ binoculars** ☐ **No** ☐ NA
Project Site Visible Yes ☑ **No** ☐ [Important especially in cases where balloons may not be visible, but the site clearly is]

Picture Number(s)	Zoom *	Balloon Color/# Visible
10	32mm	
11	53mm	

	Relationship to Other Dominant Land Uses (check appropriate)
	Not indigenous
	Diversity of land Uses in View
	Consolidation of Intrusions

	View Durations (if applicable)
	6 seconds +
	3-6 seconds
	Less than 3 seconds
	Other

***(50mm and 85mm generally required. Digital equivalents are 32mm and 53mm.)**

Notes:

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VIA FIELD FORM FOR INDIVIDUAL VIEWPOINTS

Project Name Terramor Saugerties **LAG Project Number** 2021096.02-009

Viewpoint Location # and Name VP-OM5 Scenic Overlook 3

Date/Time 11/3/22 1:12 PM **Camera Used** Canon Eos

Photographer RGF **Other Personnel** LRC

Weather Conditions (clarity, wind, etc) 59°F, 5MPH Winds, sunny, very few clouds, hazy

GPS Used Trimble Geo 7x **GPS Point Taken?** Yes ☑ No ☐

Coordinates X (E) 74° 5' 38" E Y (N) 42° 5' 4" N

Bearing 160°S

View Location Description (example *"on shoulder of the road," or "down the bank looking through trees," etc.*)

Foreground Description

Middleground Description

Background Description

Locator Visible Yes ☐ **Yes w/ binoculars** ☐ No ☐ NA
Balloons Visible Yes ☐ **Yes w/ binoculars** ☐ No ☐ NA
Project Site Visible Yes ☐ No ☐ [Important especially in cases where balloons may not be visible, but the site clearly is]

Picture Number(s)	Zoom *	Balloon Color/# Visible
12	32mm	
13	53mm	

	Relationship to Other Dominant Land Uses (check appropriate)
	Not indigenous
	Diversity of land Uses in View
	Consolidation of Intrusions

	View Durations (if applicable)
	6 seconds +
	3-6 seconds
	Less than 3 seconds
	Other

***(50mm and 85mm generally required. Digital equivalents are 32mm and 53mm.)**

Notes:

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VIA FIELD FORM FOR INDIVIDUAL VIEWPOINTS

Project Name Terramor Saugerties **LAG Project Number** 2021696.02-009

Viewpoint Location # and Name VP-OM6 Scenic Overlook 4

Date/Time 11/3/22 1:21 **Camera Used** Canon Eos

Photographer RGF **Other Personnel** LRC

Weather Conditions (clarity, wind, etc) 59°F, 5MPH winds, sunny, very few clouds, hazy

GPS Used Trimble 6007x **GPS Point Taken?** Yes ☑ No ☐

Coordinates X (E) 74° 5' ~~[illegible]~~ 48" Y (N) 42° 5' 5" N

Bearing 158° S

View Location Description (example *"on shoulder of the road," or "down the bank looking through trees," etc.*)

Foreground Description

Middleground Description

Background Description

Locator Visible Yes ☐ **Yes w/ binoculars** ☐ No ☐ NA
Balloons Visible Yes ☐ **Yes w/ binoculars** ☐ No ☐ NA
Project Site Visible Yes ☑ No ☐ [Important especially in cases where balloons may not be visible, but the site clearly is]

Picture Number(s)	Zoom *	Balloon Color/# Visible
14	32mm	
15	53mm	

Relationship to Other Dominant Land Uses (check appropriate)	
	Not indigenous
	Diversity of land Uses in View
	Consolidation of Intrusions

View Durations (if applicable)	
	6 seconds +
	3-6 seconds
	Less than 3 seconds
	Other

***(50mm and 85mm generally required. Digital equivalents are 32mm and 53mm.)**

Notes:

K

NEW YORK STATE OF OPPORTUNITY | Parks, Recreation, and Historic Preservation

KATHY HOCHUL
Governor

ERIK KULLESEID
Commissioner

February 10, 2022

Robert Fraser
The LA Group, P.C.
266 Locust Grove Road
Greenfield, NY 12833

Re: SEQRA
Terramor Camping Facility, Saugerties
Town of Saugerties, Ulster County, NY
22PR00774

Dear Robert Fraser:

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project in accordance with the New York State Historic Preservation Act of 1980 (Section 14.09 of the New York Parks, Recreation and Historic Preservation Law). These comments are those of the OPRHP and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8) and its implementing regulations (6 NYCRR Part 617).

Based upon this review, it is the opinion of OPRHP that no properties, including archaeological and/or historic resources, listed in or eligible for the New York State and National Registers of Historic Places will be impacted by this project.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Roger Daniel Mackay

R. Daniel Mackay

Deputy Commissioner for Historic Preservation
Division for Historic Preservation

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TECHNICAL MEMORANDUM

Date: August 30, 2022

To: Ahmed Helmi / Kimberly White, Terramor Campgrounds
Kevin Franke, The LA Group

From: Michael R. Wieszchowski, P.E. PTOE

Subject: Summer Traffic Counts
NYS Route 212 & Glasco Turnpike, Town of Saugerties, Ulster County, NY

Greenman-Pedersen, Inc. (GPI) performed a turn movement traffic count at the Route 212 and Glasco Turnpike intersection on August 9, 2022 in order to compare typical summer peak hour traffic volumes to those used in the traffic impact study dated June 2022. For that study the traffic counts were collected in February 2022, but were adjusted up by 20% based on NYSDOT seasonal adjustment factors, to convert February counted volumes to Average Annual Peak Hour Volumes. The volumes from the traffic study are shown in the figure below.

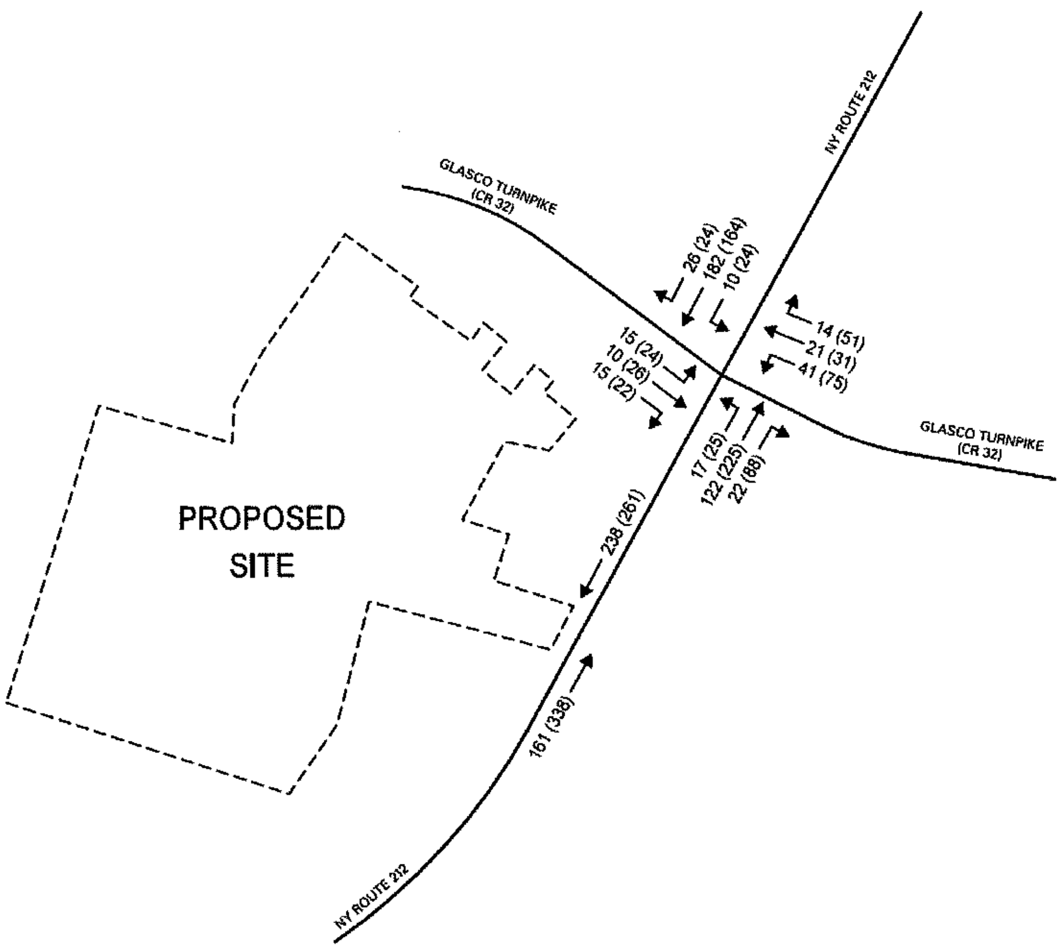

Figure 1: 2022 Exiting Traffic Volumes as Shown in the June 2022 Traffic Impact Study

In the traffic impact study, the PM peak hour was the period with highest traffic volumes, and as such, was the critical period for determining traffic impacts. For that period, the traffic study analyzed traffic volumes that included 779 vehicles entering the Route 212 and Glasco Turnpike intersection and 599 vehicles along Route 212 adjacent to the Terramor development.

For the Summer count, conducted on August 9, 2022, the maximum hourly volume entering the Glasco Turnpike intersection was 574 vehicles and the maximum roadway volume adjacent to the site was 476 (see the attached traffic count data sheet). These counted volumes are 25% less than what was used to analyze the intersection, and 20% less that the volumes show in the study adjacent to the intersection.

Based on these counts, the volumes used in the traffic study are significantly higher than those present during either the summer or winter months and provide a very conservative analysis of the traffic impacts.

Attachments:

Traffic Count Data Sheet

Study Name **1-NY ROUTE 212 & GLASCO TURNPIKE**
Start Date **08-09-2022**
Start Time **7:00 AM**
Site Code

	ROUTE 212 Southbound				GLASCO TPKE Westbound				ROUTE 212 Northbound				GLASCO TPKE Eastbound				Overall Intersection Volume
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	
7:00 AM	0	27	1	0	4	3	2	0	0	16	2	0	1	2	3	0	61
7:15 AM	3	26	5	0	11	2	1	0	0	17	1	0	2	0	4	0	72
7:30 AM	1	44	1	0	5	3	1	0	1	16	4	0	2	2	2	0	82
7:45 AM	2	35	8	0	8	4	4	0	4	22	2	0	5	1	4	0	99
8:00 AM	4	44	1	0	5	0	0	0	1	22	6	0	2	1	3	0	89
8:15 AM	6	51	2	0	11	6	0	0	3	29	11	0	3	6	10	0	138
8:30 AM	4	39	3	0	14	5	4	0	6	30	9	0	3	4	14	0	135
8:45 AM	4	53	7	0	13	13	3	0	3	40	22	0	3	17	7	0	185
Peak Hour	**18**	**187**	**13**	**0**	**43**	**24**	**7**	**0**	**13**	**121**	**48**	**0**	**11**	**28**	**34**	**0**	**547**
Overall Total	24	319	28	0	71	36	15	0	18	192	57	0	21	33	47	0	861

0

	ROUTE 212 Southbound				GLASCO TPKE Westbound				ROUTE 212 Northbound				GLASCO TPKE Eastbound				Overall Intersection Volume
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	
4:00 PM	1	39	9	0	7	4	5	0	3	47	17	0	4	4	6	0	146
4:15 PM	7	37	6	0	8	6	5	0	1	50	17	0	3	6	7	0	153
4:30 PM	3	41	4	0	12	3	4	0	4	41	10	0	6	4	6	0	138
4:45 PM	2	37	3	0	8	1	4	0	4	46	8	0	1	6	2	0	122
5:00 PM	4	49	4	0	9	3	4	0	6	53	14	0	3	6	6	0	161
5:15 PM	0	40	4	0	12	4	4	0	2	45	11	0	5	5	4	0	136
5:30 PM	2	35	7	0	9	4	6	0	3	45	8	0	7	4	10	0	140
5:45 PM	0	47	8	0	6	2	2	0	3	36	11	0	4	2	0	0	121
Peak Hour	**16**	**164**	**17**	**0**	**37**	**13**	**17**	**0**	**15**	**190**	**49**	**0**	**13**	**22**	**21**	**0**	**574**
Overall Total	19	325	45	0	71	27	34	0	26	363	96	0	33	37	41	0	1117

M

Nicola LaPiana
Associate District Director
Business Development

People. Power. Possibilities.
Central Hudson
A FORTIS COMPANY

September 15th, 2022
Kevin Franke
40 Long Alley
Saratoga Springs, NY, 12866
By E-mail

Re: Glasco Turnpike SBL 27.002-8-28 & 27.2-8-32.11

Mr. Kevin Franke:

I am writing concerning the new service located on Glasco Turnpike, notated as SBLs 27.002-8-28 and 27.2-8-32.11 Central Hudson Gas and Electric Corp., 284 South Ave., Poughkeepsie, N.Y. 12601 is committed to providing electric service to the site in accordance with our filed tariff.

For more information, please view our tariff filed with the NYS Department of Public Service by visiting: https://www.cenhud.com/account-resources/rates/

I wish you success with the operation of your venture. If you have any questions I may be reached by e-mail at nlapiana@cenhud.com or phone at 845-334-3522

Sincerely,

Nicola LaPiana
Associate District Director, Business Development

284 South Avenue
Poughkeepsie, NY 12601

(845) 452-2000
Direct: (845) 486-5474
email: jdoane@cenhud.com
www.CentralHudson.com

N

November 11, 2022

Kim White
Project Manager
Kampgrounds of America Inc. d/b/a Terramor Outdoor Resort
550 N 31st St.
Billings, MT 59101
kwhite@koa.net

RE: Noise Assessment Report – Terramor Catskills Project
Alliance Project No. AQM-2022-0033

Dear Ms. White,

Alliance Technical Group (Alliance) is pleased to provide Terramor this noise assessment for the proposed Terramor Catskills Project (Project) in Saugerties, NY. We understand the proposed Project will consist of operating outdoor camp units on a land parcel adjacent to NY Route 212. The goal of this noise assessment was to evaluate sound from Project operation with respect to noise impact significance criteria at the Project property line and nearest noise-sensitive receptors. Noise-sensitive receptors (NSRs) are areas where human activity may be adversely affected by noise such as residences, schools, churches, and public recreation areas.

Project Description

The Project will consist of operating an approximately 77-acre camping facility featuring 75 camping units and associated facilities including a welcome center, lodge, pavilion and event area, pool, grill areas, dog parks (2), wellness facility, maintenance area/building, general manager's house, employee housing, and wastewater treatment plant. Camping units and associated facilities will operate within a 50-foot setback from the site perimeter except for along the northwest property line which has a 100-foot setback. The overall Project site plan is presented in Figure 1.

The Project site will be open seasonally each year from May through October, operating 7 days per week, with quiet hours from 10 pm to 8 am. Operation will include arrival and departure of guest vehicles (Peak hour: AM-17; PM-22), and use of guest pull carts for on-site luggage transport. Additional vehicles onsite will include box truck deliveries (2 to 3 per day), garbage truck visits (Peak season: 3 per week), and electric golf carts for staff maintenance and housekeeping. The primary location for daily food and activity will be the lodge, but sound-generating activity will also take place at a welcome center, pavilion, pool and cabana area, two dog parks, several guest grill stations, and campfires at each camping unit site. In addition, operations support areas will include a maintenance area, wastewater treatment plant (WWTP), employee housing area, and general manager's house.

Noise Impact Significance Criteria

The Town of Saugerties Zoning Code Section 245-11.I standard limits sound levels to 70 A-weighted decibels (dBA) at the property line. Otherwise, there are no New York State or Federal decibel level limits on noise applicable to the Project. Therefore, noise significance of project operational sources was evaluated at the nearest property line for compliance with the 70 dBA limit. Project sound sources predicted to be 70 dBA or below at the nearest property line would indicate compliance with the Town of Saugerties limit. Sound source predicted to be above 70 dBA would indicate need for mitigation.

In addition to the local property line limit, further guidance to assess noise impact significance in the community is provided by the New York State Department of Environmental Conservation (NYSDEC) in its program policy document "Assessing and Mitigating Noise Impacts."[1] The policy document evaluates community noise impacts at noise-sensitive receptor areas according to the increase in existing ambient A-weighted (dBA) sound pressure level (SPL) at the receptor due to the noise source. A noise-sensitive receptor is a location such as an occupied residence, church, hospital or public facility where excess noise can negatively impact activities. The policy states "In non-

[1] New York State Department of Environmental Conservation (NYSDEC) in its Program Policy document "Assessing and Mitigating Noise Impacts", NYSDEC, October 76, 2000; revised February 2, 2001.

industrial settings, the SPL should probably not exceed ambient noise by more than 6 dBA at the receptor." Therefore, noise impact significance of Project operations in the surrounding community was evaluated using this NYSDEC 6 dBA increase guidance. Predicted increases in the ambient sound level over 6 dBA at a noise-sensitive receptor due to Project operations would indicate a potential significant adverse noise impact and recommendation for mitigation. Predicted increases in the ambient sound level of 6 dBA or lower would indicate no significant adverse noise impact or need for mitigation.

Community Receptors and Existing Ambient Sound Levels

The nearest noise-sensitive receptor areas to the Project are adjacent properties with residences within approximately 100 feet of the Project property line located on three sides of the Project site as identified in Figure 1 and described as follows:

- NSR-SE: Residences along Route 212 and on Osnas Lane, southeast of the Project site
- NSR-NE: Residences along Glasco Turnpike and on Cottontail Lane, northeast of the Project site
- NSR-NW: Residences along Raybrook Drive, northwest of the Project site

A sound survey was conducted on August 25, 2022 to document existing ambient sound levels near the Project property line in the direction of each receptor area and to be used with predicted Project operational sound levels to assess potential community noise impacts using NYSDEC guidance. Measurements of existing ambient sound levels were conducted at three monitoring locations and characterize the acoustical environment adjacent to each receptor. Monitoring locations (ML-S, ML-E, and ML-NW) are identified in Figure 1. At each monitoring location, A-weighted sound levels were continuously measured during a daytime and evening period of 30-minutes each using a Type I integrating sound level analyzer. The analyzer was field-calibrated before and after each monitoring period. Field forms and calibration certificates are presented in Enclosure A.

During each measurement period, winds were calm to light (≤3 mph), and there was no rain. Prominent background sounds consisted of distant traffic sound, insect sound (especially in the evening), and construction vehicle sound during the daytime at location ML-NW. Other major noise sources identified during the measurements included leaf movement in the wind, airplane traffic, a dog barking (ML-NW) and an electric string trimmer at an adjacent residence on Cottontail Lane (ML-E).

Sound levels for each monitoring period were summarized in terms of the following two descriptors: 1) the background sound level (L_{90}) and 2) the average sound level (L_{eq}). The L_{90} is the near-minimum residual sound level exceeded 90 percent of the monitoring period and excludes loud but short-duration sounds. The L_{eq} is the energy-equivalent steady-state sound level equal to the time-varying sound over the monitoring period, considering short duration and loud intrusive sounds. Existing ambient sound survey results for the proposed Project site are presented in Table 1.

Table 1. *Existing Ambient Sound Survey Results – August 25, 2022*

Monitoring Location ID	NSR Characterized	Type	Survey Time (EDT)	Existing Ambient Sound Level (dBA)	
				Background (L_{90})[a]	Average (L_{eq})[b]
ML-S	NSR-SE	Day	1519 to 1549	43	47
		Night	1959 to 2029	50[c]	55
ML-E	NSR-WE	Day	1606 to 1636	50[c]	55
		Night	2042 to 2112	58[c]	58
ML-NW	NSR-NW	Day	1420 to 1450	34	42
		Night	1900 to 1930	31	37

[a] Near-minimum (residual) sound level exceeded 90 percent of the monitoring period (L_{90}).
[b] Energy-equivalent average sound level for the monitoring period (L_{eq}).
[c] Prominent insect sound.

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Operational Sound Survey

To predict sound levels during Project operations, a sound survey was conducted on September 9 and 10 at the Terramor facility located in Bar Harbor Maine (Bar Harbor). The Bar Harbor site is a similar-sized model for and the same type of outdoor use as the Catskills Project. Measurements were conducted at four monitoring locations identified in Figure 2 selected to characterize onsite sound levels in specific areas of the proposed Project site and Project receptor areas as follows:

- BH-E and BH-D: Bar Harbor/Project entrance, lodge and primary parking areas (Project NSR-SE)
- BH-M: Bar Harbor/Project maintenance, waste/water management and employee housing areas (Project NSR-NE)
- BH-D : Bar Harbor/Project parking, camping unit and guest activity areas (Project NSR-NW)

At each monitoring location, A-weighted sound levels were continuously measured during a morning, afternoon and evening period of 30-minutes each using a Type I integrating sound level analyzer. The analyzer was field-calibrated before and after each monitoring period. Field forms are presented in Enclosure B.

During each monitoring period, winds were calm to light (≤2 mph), and there was no rain. At each monitoring location, continuous background sounds consisted of distant offsite traffic sound. Intermittent onsite operational sound was audible at times and included vehicle, golf cart or pull cart sound primarily tires on the gravel, guest/employee conversations, campfires and activities such as the Yoga instruction and music at the lodge.

Consistent with the existing ambient sound levels measured at the proposed Project site, sound levels for each monitoring period were summarized in terms of the L_{90} and L_{eq}. The operational sound survey results are presented in Table 2.

Table 2. *Operational Sound Survey Results – September 9 and 10, 2022*

Bar Harbor Monitoring Location ID	Community Receptor Characterized	Type	Survey Time (EDT)	Operational Sound Level (dBA)	
				Background (L_{90})[a]	Average (L_{eq})[b]
BH-E	NSR-SE	Morning	0830-0900	45	50
		Afternoon	1611-1641	48	52
		Night	1925-1955	45	50
BH-M	NSR-WE	Morning	1023-1053	39	44
		Afternoon	1533-1603	42	45
		Night	2123-2153	45	47
BH-D	NSR-SE	Morning	0906-0936	40	45
		Afternoon	1654-1724	38	44
		Night	1830-1900	38	44
BH-B	NSR-NW	Morning	0940-1010	39	45
		Afternoon	1731-1801	39	45
		Night	2040-2110	39	43

[a] Near-minimum (residual) sound level exceeded 90 percent of the monitoring period (L_{90}).
[b] Energy-equivalent average sound level for the monitoring period (L_{eq}).

Both the L_{90} and L_{eq} may both be used for evaluating increases in ambient sound levels. For continuous sound sources, increases in the L_{90} are generally evaluated. For short-duration or intermittent sound sources, evaluating increases in the L_{eq} is often appropriate. Project operation will primarily consist of mostly intermittent sources; however, Project operation will include a few continuous sound sources consisting of the wastewater treatment system blower, pool-house pumps, and building HVAC units including staff housing air conditioners. Therefore, to assess both continuous and intermittent ambient sound levels, predicted increases to both the L_{90} and L_{eq} were evaluated.

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Project Source Sound Levels and Predicted Property Line Compliance

Anticipated major sound sources for the Project are presented in Table 2. With the exception of the Welcome Center[2] and WWTP, these same types of sound sources are also located at the Terramor Bar Harbor facility since it is the base model for the approach and design of the Project. Therefore, sound levels of operational sources were measured at the Bar Harbor facility and used as reference sound levels for Project source sound level predictions at the property line.

Measurements were conducted using a Type 1 sound level meter at a distance of 10 to 100 feet away from the source and were recorded as the maximum A-weighted sound level as observed from the instrument display. Since sources were measured at various distances, the maximum sound level measured for each source was corrected to a standard 50-foot reference sound level for use in modeling predictions of the sound source to the Project property line. Observations at Bar Harbor indicated overall Project sound will be generated from a mix of multiple sources. With some exceptions, maximum sound levels from the Project sources are normally brief at any given location and do not typically occur simultaneously at the same location at the same moment. The exceptions are those sources identified as continuous, which consist of the WWTP compressor/blower, pool-house motor, and at times the lodge HVAC and employee housing air conditioner units.

Project sound source maximum sound levels at 50 feet and predicted sound levels at the nearest property line for each Project area type (Developmental Component) are summarized in Table 3. Predicted sound level modeling results for each individual Project sound source are presented in Table A, in Attachment A. Field data sheets are presented in Enclosure C. Predicted sound levels modeling calculation included only reductions due to standard distance attenuation due to hemispherical radiation, which is 6 dBA per doubling of the reference distance. Conservatively, modeling of additional sound reductions where applicable due to vegetative attenuation (trees) and intervening topography was excluded.

Table 3. *Predicted Maximum Project Sound Levels at Property Lines*

Development Component	Primary Sound Sources	Operating Quantity/Period	Maximum Sound Level @50 feet (dBA)	Minimum Distance (ft) to Property Line (ID)	Predicted Sound Level at Property Line (dBA)	Comments
Entrance	Guest vehicles, Delivery/garbage trucks	12-15 cars/hr @ peak; 3-4 trucks/day@ peak	59-62	20 (SE)	67-70	Predicted max sound levels from entrance pass-bys near Rt 212.
Welcome Center	Guest vehicles, golf carts (electric)	2-15 cars/hr @ peak; 3-4 buses/day@ peak	53-63	60-470 (SE)	45-59	Golf cart: tires on gravel; Guest vehicle: arrive/leave/doors
Lodge	Golf carts, pull carts, delivery trucks, music, conversations, lodge HVAC	Deliveries during day; music - selected evenings	52-63	70-170 (NW/SW)	25-60	Delivery trucks incl. backup alarm sound at lodge; Lodge HVAC: 31 dBA at NW PL
Tent Loops	Pull carts, guest vehicles, fire pit	Non-quiet hours: 8 AM to 10 PM	43-63	80-370 (NW)	35-54	No TVs, radios or other amplified sounds permitted
Activity Areas	Conversations/voices, yoga instructor/ music, pool-house motor, pool waterfall/ bubbler, dog parks	Non-quiet hours: 8 AM to 10 PM; Pool-house motor and waterfall/bubbler continuous	48-65	70-700 (NW/SE)	25-59	Pool-house motor and waterfall/ bubbler: ≤29 dBA at NW PL
Maintenance	Garbage truck, golf carts	Garbage pickup 4x/week peak season	59-63	170-200 (NW)	47-52	Garbage pickup 2x/month off-season
WWTP	Compressor/blower package	Compressor/blower operates continuously	52	130 (NE)	44	Compress./blower: 44 dBA NE PL
Employee Housing	Golf carts; conversations in gathering area, staff vehicles, trailer air conditioning	Trailer air conditioning (AC) is episodic and continuous at times	43-65	70-150 (NW/NE)	40-57	Trailer AC: 40 dBA at NW PL
Sitewide	Guest vehicles, golf carts, mowers/trimmers, gas chainsaw	Daytime landscaping as needed	59-67, and 85 (chainsaw)	50-200 (All)	47-67 and 85 (chainsaw)	Chainsaw is ≤70 dBA at ≥200 feet from PL assuming 100' of woods

[2] At Bar Harbor the welcome center activities are performed at the lodge.

As indicated in Table 3, maximum sound levels from Project sources ranged from 43 to 67 dBA at 50 feet and 25 to 70 dBA at the nearest property line except for gas chainsaw use which is anticipated to be 85 dBA at 50 feet and nearest property line[3]. Therefore, the Table 3 indicates maximum sound levels from project sound source will be within and thus comply with the 70 dBA limit for all Project sources except use of the gas chainsaw. Maximum sound levels from operation of the chainsaw are predicted to comply with the 70 dBA property line limit when activity is at least 200 feet away from the property lines assuming woods assuming 100 feet of intervening woods is present. Mitigation of noise when removing tree within 200 feet of the property line could potentially be accomplished using alternative cutting methods (e.g., battery-powered electric chainsaw).

Community Sound Level Prediction and Noise Impact Assessment

At each receptor, potential noise impacts from the Project were assessed by evaluating the predicted increase of the existing ambient L_{90} and L_{eq} at each receptor using onsite Project operational sound levels from the Bar Harbor sound survey. Daytime and evening (non-quiet-time) levels were evaluated as the times experiencing the highest potential sound levels. Overnight sound levels during quiet time at the resort (10 pm to 8 am), would be quietest since most sound source are not operating.

Onsite Project operational sound levels were acoustically modeled to each receptor using the standard distance attenuation due to hemispherical radiation, which reduces the reference sound level by 6 dBA per doubling of the reference distance to the receptor. Additional reductions in sound were also predicted due to vegetative screening of the forested areas and barrier insertion loss from intervening topography for NSR-SE. Predicted Project sound levels at each receptor were added to the existing ambient sound level for each receptor resulting in the predicted total sound level at each receptor. Both the L_{90} and L_{eq} were evaluated at each receptor. The decibel increase of total sound level over the existing ambient sound level at each receptor was then compared with the 6 dBA noise impact criteria. Acoustical modeling results for each receptor are presented in Table 4. Nearest receptor distances represent the distance of each receptor to the nearest area of onsite Project operations and were used to determine the sound reduction due to hemispherical radiation assuming operational sound sources to be within a radius of 200 feet of that onsite location. Additional sound reduction was also predicted as follows:

- *Vegetative Screening* - Sound attenuation due to screening from woods between the Project land the property line is based on the NYSDEC program policy stating 100 feet of woods results in 3 to 7 dBA of sound attenuation. Conservatively, the minimum 3 dBA per 100 feet was used for this assessment.
- *Intervening Topography* – Barrier insertion loss, where applicable, from line-of-sight intervening topography between the Project source location and nearest property line.[4]

Table 4. *Community Noise Assessment Results – Predicted Project Sound Increase at Receptors*

Receptor ID	Eval. Type	Onsite Sound Level[a] (dBA)	Nearest Receptor Distance[a] (feet)	Sound Reductions (dBA) Hemispheric Radiation (Distance)[b]	Sound Reductions (dBA) Vegetative Screening Attenuation	Sound Reductions (dBA) Intervening Topography Insertion Loss	Predicted Sound Level at Receptor (dBA)	Existing Ambient Sound Level[c] (dBA)	Total Sound Level at Receptor[d] (dBA)	Sound Level Increase at Receptor (dBA)
NSR-SE	L_{90}	48	250	-2	-6[e]	-5[f]	35	43	44	1
	L_{eq}	52	250	-2	-6[e]	-5[f]	39	47	48	1
NSR-NE	L_{90}	42	400	-6	-9[e]	0	27	50	50	0
	L_{eq}	45	400	-6	-9[e]	0	30	55	55	0
NSR-NW	L_{90}	39	250	-2	-6[e]	0	31	31	35	3
	L_{eq}	43	250	-2	-6[e]	0	35	37	40	2

[a] Highest measurement period recorded at Bar Harbor survey for a similar period measurement
[b] 6 dBA reduction per doubling of distance =-20Log(Receptor Distance/Reference Distance). Assumes operational source reference distance of 200 feet.
[c] From existing ambient sound survey results; the lowest measured sound level (L_{90}/L_{eq}) was conservatively used.
[d] Decibel sum of predicted Project sound level and existing ambient sound level.
[e] Attenuation due to intervening woods (-3 dBA per 100 feet).
[f] Insertion loss for intervening line-of-sight topography barrier between NSR-SE and the Project sound sources (0.01 foot barrier path length difference).

[3] Assumes normal chainsaw cutting activity is not performed within the 50-foor property line buffer.
[4] Hoover, Robert M. and Reginald H. Keith, *Noise Control for Buildings, Manufacturing Plants, Equipment and Products*, Hoover and Keith, Inc., 1994. A minimum barrier path-length difference of 0.01 feet was conservatively assumed.

As indicated in Table 4, the predicted increase in ambient sound levels was 3 dBA or less at all receptors, which is well within the noise impact significance criteria of 6 dBA. Therefore, Project operations are predicted to result in no significant adverse noise impact on the community and no mitigation is needed.

Sincerely,
Alliance Technical Group

Scott Manchester
Director, Ambient Services

Figure 1. Catskills Project Site Layout, Sound Survey Locations and Receptor Areas
Figure 2. Bar Harbor Sound Survey Locations

Attachment A. Table A. Catskills Project Sound Sources and Predicted Property Line Sound Level

Enclosure A. Catskills Sound Survey Field Forms and Calibration Certificates
Enclosure B. Bar Harbor Sound Survey Field Forms
Enclosure C. Bar Harbor Source Sound Field Data Sheets

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Figures

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Figure 1. Catskills Project Sound Survey and Receptor Areas – August 25, 2022

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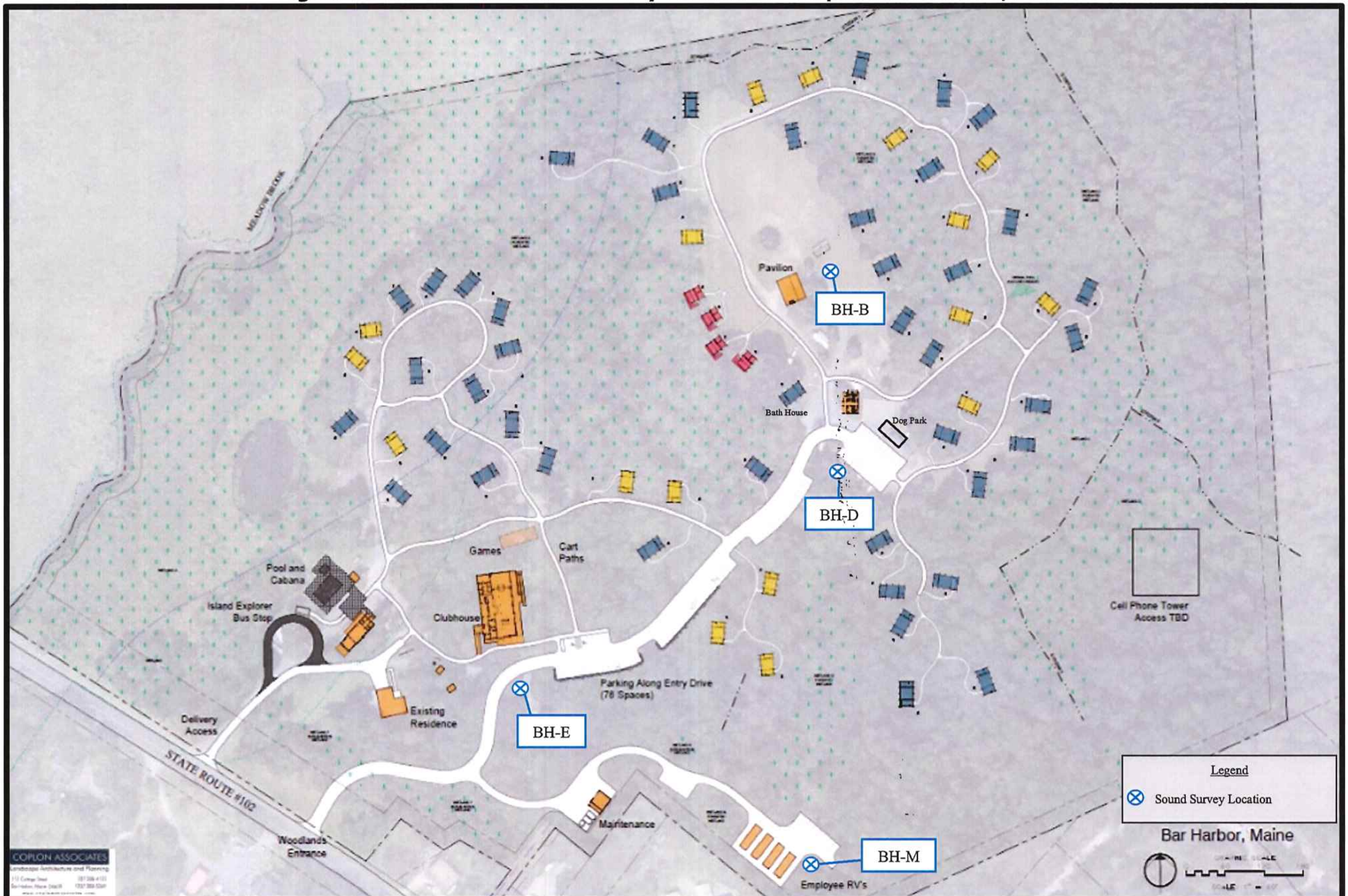
Figure 2. Bar Harbor Sound Survey Locations – September 9 to 10, 2022



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Attachment A.
Table A. Catskills Project Sound Sources and Predicted Property Line Sound Level

Table A. Catskills Project Sound Sources and Predicted Property Line Sound Level

Development Component	Sound Types	Source	Type	Time Period	Quantity or Frequency (if not daily)	Max SPL @50' (dBA)[a]	Min Distance to PL (ft)	Nearest PL	Distance Attenuation (dBA)	SPL @PL (dBA)	Notes/ Empirical Reference
Entrance	Vehicle	Passby	Intermittent	See sitewide general		59	20	SE	-8	67	
Entrance	Delivery	Passby	Intermittent	See sitewide general		62	20	SE	-8	70	Proximal to Rt 212
Welcome Center	Guest Vehicle	Arrive/Leave	Intermittent			52	70	SE	3	49	
Welcome Center	Guest Vehicle	Arrive/Leave	Intermittent	peaks @ 10:30-11:15 and 3:30-5:30	12-15 cars/hour @ peaks	62	70	SE	3	59	From Lodge at Bar Harbor
Welcome Center	Guest Vehicle	Door Open/Close	Intermittent			54	70	SE	3	51	
Welcome Center	Electric Golf Cart	Tires on gravel	Intermittent			62	130	SE	8	53	
Welcome Center	Guests	Conversation	Intermittent			56	170	SE	11	45	
Lodge Area	Guest Vehicle	Arrive/Leave	Intermittent			52	400	NW	18	34	
Lodge Area	Guest Vehicle	Door Open/Close	Intermittent			54	400	NW	18	36	
Lodge Area	Guests	Conversation	Intermittent			56	400	NW	18	38	
Lodge Area	Walker	Shoes on gravel path	Intermittent			44	450	NW	19	25	
Lodge Area	Recreation/ Entertainment	Acoustic Music - open doors	Episodic	6-8pm	1-2x/week Indoor/Outdoor	60	400	NW	18	42	Guitar with amp within 10' of door
Lodge Area	Recreation/ Entertainment	Acoustic Music - closed doors	Episodic			51	400	NW	18	33	
Lodge Area	Ventilation Units	HVAC + Roof Kitchen Exhaust	Steady			49	400	NW	18	31	
Lodge Area	Guest Vehicle	Deliveries (box trucks, propane)	Intermittent		2-3 per day	62	470	NW	19	42	
Lodge Area	Guest Vehicle	Garbage pickup - commercial sevice	Intermittent		1 commercial truck; 4x/wk peak season	63	470	NW	19	43	
Lodge Area	Delivery Truck	Deliveries	Episodic	Before 9am	3-4 Days/Week	62	60	SW	2	60	Motor Sound
Lodge Area	Delivery Truck	Back up alarms	Episodic			63	170	SW	11	52	Side exposure
Tents	Guests	Campfire Conversations and Fire Crackling	Intermittent	Quiet Hrs 10pm-8am	Max 5 people @ a site	55	80	NW	4	50	no TVs, radios, amplified sounds allowed
Tents	Guest Vehicle	Car tires on parking lot gravel	Intermittent			60	100	NW	6	54	
Tents	Guests	Walking on gravel path	Intermittent			43	130	NW	8	35	
Tents	Guests	Talking Child on Path	Intermittent			58	130	NW	8	50	
Tents	Guests	Conversation in Parking Lot	Intermittent			49	100	NW	6	43	
Tents	Guests	Child Conversation in Parking Lot	Intermittent			58	100	NW	6	52	
Tents	Guest Vehicle	Car Door Open/Close	Intermittent			50	100	NW	6	44	
Tents	Guest Vehicle	Car Door Open/Close	Intermittent			49	100	NW	6	43	
Tents	Guest Vehicle	Car Beep	Intermittent			56	100	NW	6	50	
Tents	Pull Cart	Cart Rattling	Intermittent			54	100	NW	6	48	
Tents	Pull Cart	Cart Bang	Intermittent			59	100	NW	6	53	
Tents	Pull Cart	Cart Bang	Intermittent			63	370	NW	17	45	
Tents	Guests	Child Crying	Intermittent			58	80	NW	4	54	
Tents	Pull Cart	2 Carts on Path	Intermittent			58	130	NW	8	50	
Activity Area	Pavillion Event	Yoga - Music and Instructor	Episodic			56	600	NW	22	34	
Activity Area	Grill Stations	Outdoor Conversations	Intermittent	5pm-9pm	6 stations; 80% booked peak season	48	70	NW	3	45	
Activity Area	Pool	Guest Adult Conversation	Intermittent	4pm-7pm		58	700	NW	23	35	Peak: 12; Avg 4-8/slow day
Activity Area	Pool	Guest Kids Voices	Intermittent			61	700	NW	23	38	
Activity Area	Pool	Guest Combined Voices	Intermittent			65	700	NW	23	42	
Activity Area	Pool	Waterfall and bubblers	Intermittent	continuous	1	52	700	NW	23	29	
Activity Area	Pool	Poolhouse Motors/Pump	Intermittent	continuous	1	50	700	NW	23	27	
Activity Area	Pool	Poolhouse Motors/Pump	Intermittent	continuous	1	48	700	NW	23	25	
Activity Area	Dog Parks	Barking	Occasional		2	63	80	SE	4	59	
Maintenance Facility	Trash Pick Up	Garbage Truck Motor	Episodic		4x wk Peak Season	62	170	NW	11	51	
Maintenance Facility	Trash Pick Up	Garbage Truck Backup Alarm	Episodic		4x wk Peak Season	63	170	NW	11	52	
Maintenance Facility	Electric Golf Cart	Tires on gravel	Intermittent			59	200	NW	12	47	golf cart trips in/out for supplies, garbage, etc.
Maintenance Facility	Staff Vehicle	Garbage pickup	Episodic			59	200	NW	12	47	
WWTP	Maintenance	Wastewater Compresser/Blower	Steady			52	130	NE	8	44	Refr: Manufacturer (Kaeser) PWL: 84 dBA + H&K Table 6-3 DT @50' (-32 dBA)
Employee Housing	Staff	outdoor gathering area	Intermittent	Quiet Hrs: 10pm-8am		52	150	NW	10	42	
Employee Housing	Vehicle	Golf Cart	Intermittent			55	120	NW	8	47	
Employee Housing	Housing	Trailer AC	Intermittent			43	70	NW	3	40	
Employee Housing	Staff	Staff Talking	Intermittent	Two staff		52	70	NW	3	49	
Employee Housing	Vehicle	Car In Parking Area	Intermittent			55	130	NW	8	46	
Employee Housing	Vehicle	Car Beep	Occasional			65	130	NW	8	57	
Sitewide	Guest Vehicles	On-site	Intermittent	overall: 6AM-10 PM; peaks @ 10:30-11:15 and 3:30-5:30	12-15 cars/hour @ peaks	59	60	SW	2	57	
Sitewide	Landscaping	Grounds Maintenance	As-needed	10am-3pm	riding & push mower + trimmer	67	50	NW	0	67	As needed, 1 day/week; Mower Refr: JASA, Aug, 2005
Sitewide	Landscaping	Chainsaw work	As-needed	10am-3pm	chainsaw - gas	85	50	All	0	85	As needed, 1 day/week; Refr: H&K Table 8-6
Sitewide	Electric Golf Cart	Site operations	Intermittent	7:30am-10pm	2 carts/day	59	200	NW	12	47	
Sitewide	Electric Golf Cart	Site operations	Intermittent	9am-5pm		59	200	NW	12	47	Avg: 20 tents per day, 3 Golf Carts
References:	H&K	Hoover & Keith, Inc., 1994. Noise Control for Buildings and Manufacturing Plants									
	JASA	Journal of The Acoustical Society of America, Vol 55, NO. 536, 1974									
	Kaeser	Kaeser Compressors, 2018. Manufacturer compressor data for Com-pak Series Rotary Lobe Blower Packages									
Notes:	[a] from measurements at Terramor Bar Harbor Outdoor Resort unless otherwise referenced										

Enclosure A.
Catskills Sound Survey Field Forms and Calibration Certificates

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Sound Level Survey Field Form

Client/Location	Project Number	Date	Conducted By
Tenianor - Catskills	Apm-2022-0833	8/25/22	S. Manchester

	Sound Level Meter	Microphone	Calibrator	Pre-Amp ~~Pistonphone~~
Model	LD824	377B20	CAL 200	PRM 902
Serial Number	A2585	LW 134525	8779	2544

Calibration Results	1000 hz (94.0 db, 93.8 dBA ^0.5dB)	250 hz (124.0 dB, 115.0 dBA^0.5dB)
Initial	94.0	
Final	94.0	

Winds	Temperature	Humidity	Precipitation
Calm	~~83~~ 84	56	Non

Site Location	Test ID	Time Period
ML-NW	18	1420 - 1450

SPL Descriptor	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500

1/1 or 1/3 (circle one) Octave Band Sound Levels (dB)

	630	800	1K	1.3K	1.6K	2K	2.5K	3.2K	4K	5K	6.3K	8K	10K

Total Sound Levels (dB, dBA, or dBC)

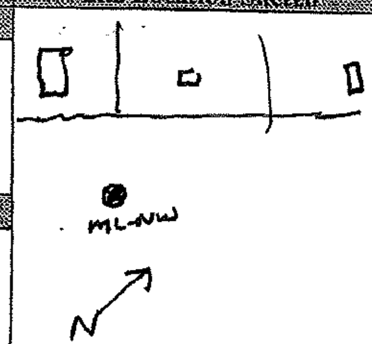
Weighting (Lin/A/C)	L_{max}	L_{eq}	L_{10}	L_{50}	L_{90}	L_{dn}	L_{min}	L_{xx}	L_{xx}

Intrusive Events: Source	dBA
Construction vehicle Sound to N	40-44, 45
Airplane upto	57
Jet (distant) upto	43-44
Airplane	48.
(Lowered) Wooshing near NW residence	36-38
Distant traffic toward 212	37-38

Traffic Information: Street	Count

Background Sources	Rank
Construction vehicle sound to North. (motor) + occasion bangs	

Site Location Sketch



Comments: Sound levels @ 39 dBA when construction sound was lowest

Construction sound stops ~12 minutes into Run. dBA dropped to ~32-33 dBA

~~House visible to~~ NW @ est. 120 to 150 yds.; House visible to N @ next 150 to 200 yds.

Light wooshing to NW toward residence - wind possible in tree tops or water sound.

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Sound Level Survey Field Form

Client/Location	Project Number	Date	Conducted By
Terravint	ARM-2022-0033	8/26/22	S. Manchester

	Sound Level Meter	Microphone	Calibrator	Pre-Amp ~~Microphone~~
Model	LD824	377B20	CAL200	PRM 902
Serial Number	A2585	LW 134525	8779	2544

Calibration Results	1000 hz (94.0 dB, 93.8 dBA ~0.5dB)	250 hz (124.0 dB, 115.0 dBA ~0.5dB)
Initial	94.1	
Final	94.0	

Winds	Temperature	Humidity	Precipitation
Calm	84	61	None

Site Location	Test ID	Time Period
ML-5	20	~~~1520~~ 1519-1549

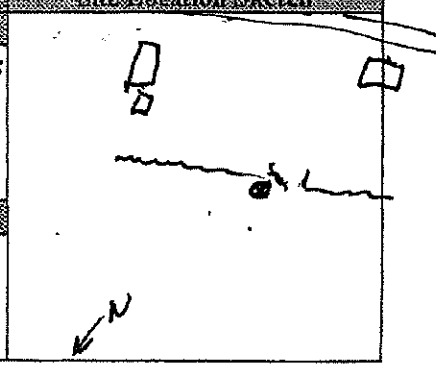
SPL Descriptor	1/1 or 1/3 (circle one) Octave Band Sound Levels (dB)													
	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
	630	800	1K	1.3K	1.6K	2K	2.5K	3.2K	4K	5K	6.3K	8K	10K	

Weighting (Lin/A/C)	Total Sound Levels (dB, dBA, or dBC)								
	L_{max}	L_{01}	L_{10}	L_{50}	L_{90}	L_{99}	L_{min}	L_{eq}	L_{dn}

Intrusive Events		Traffic Information	
Source	dBA	Street	Count
Rt212 traffic	45, 49, 52, 53	Rt 212 traffic. ~~[illegible]~~ visible barely Sm through trees to SE	14 in 2 minutes
Distant airplane then nearer	up to 52		

Background Sources	Rank
Rt 212 traffic. active passbys + distant.	1

Site Location Sketch



Comments: Along stone wall. maybe 130-150 yds from RT 212. (EST) A piece of vet clinic is visible. as is a piece of residence to E.

Recycled Paper, Soy-based Inks

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Sound Level Survey Field Form

Client/Location	Project Number	Date	Conducted By
Terrance Catskills	AOM-2022-0233	8/15/22	S. Manchester

	Sound Level Meter	Microphone	Calibrator	~~Pistonphone~~ Pre-Amp
Model	LD824	377B20	CAL 200	PRM 902
Serial Number	A2585	LW 134525	8779	2544

Calibration Results	1000 hz (94.0 dB, 93.8 dBA ±0.5dB)	250 hz (124.0 dB, 115.0 dBA ±0.5dB)
Initial	94.1	
Final	94.0	

Winds	Temperature	Humidity	Precipitation
Calm to 3	83	67	None

Site Location	Test ID	Time Period
ML E	21	1606–1636

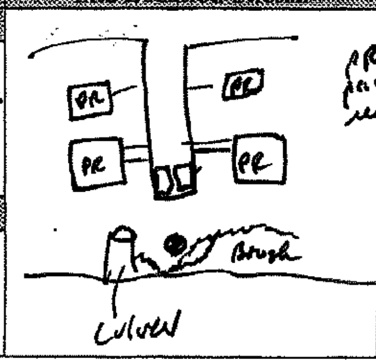
SPL Descriptor	1/1 or 1/3 (circle one) Octave Band Sound Levels (dB)													
	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
	630	800	1K	1.3K	1.6K	2K	2.5K	3.2K	4K	5K	6.3K	8K	10K	

Weighting (Lin/A/C)	Total Sound Levels (dB, dBA, or dBC)								
	L_{max}	L_{01}	L_{10}	L_{50}	L_{90}	L_{99}	L_{min}	L_{eq}	L_{dn}

Intrusive Events: Source	dBA	Traffic Information: Street	Count
Electric (DC) Weedwacker	~~64~~ 58, 60, 55 (not continuous)		~~||||~~ ~~||||~~ || in 5 min
Car passing on	57, 56, 58, ~~60~~		
distant jet X-ing	55		
Airplane	55, 57		

Background Sources	Rank
Traffic passing + distant insect sound @ 8000 hz.	

Site Location Sketch



PR private residence

Comments: Resident weed wacking in closest residence to N (of Cottontail Lane)

Mic position ~5' from nearest brush

Recycled Paper/Soy-based Inks

Alliance

Sound Level Survey Field Form

Client/Location	Project Number	Date	Conducted By
Tenamor	AQM-2022-0033	8/25/22	S Manchester

	Sound Level Meter	Microphone	Calibrator	~~Pistonphone~~ Pre-Amp
Model	LD824	377B20	CAL 200	PRM 902
Serial Number	A2585	LW 134525	8779	2544

Calibration Results	1000 hz (94.0 dB, 93.8 dBA ^0.5dB)	250 hz (124.0 dB, 115.0 dBA ^0.5dB)
Initial	94.0	
Final	94.0	

Winds	Temperature	Humidity	Precipitation
Calm	81	62	None

Site Location	Test ID	Time Period
ML-NW	23	1900 - 1930

SPL Decriptor	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
	630	800	1K	1.3K	1.6K	2K	2.5K	3.2K	4K	5K	6.3K	8K	10K	

1/1 or 1/3 (circle one) Octave Band Sound Levels (dB)

Weighting (Lin/A/C)	L_{max}	L_{01}	L_{10}	L_{50}	L_{90}	L_{99}	L_{min}	L_{eq}	L_{dn}

Total Sound Levels (dB, dBA, or dBC)

Intrusive Events: Source	dBA
Dog N residence	39 (41)
Traffic on Raybrook	40
Dog 4 NW residence	34 (42)
Crow	32 (38)
	35 (15)
Voice to NW residence + dog	34

Traffic Information: Street	Count
Raybrook (not visible)	

Background Sources	Rank
Insects part of period then faint bird chirps and distant sound to N or NW. (Vehicles?)	

Site Location Sketch

Comments
Insects @ 6300 Hz + 8000 Hz

Recycled Paper/Soy-based Inks

Alliance Sound Level Survey Field Form

Client/Location	Project Number	Date	Conducted By
Terramor - Catskills	AEM-2022-0037	8/25/22	S. Manchester

	Sound Level Meter	Microphone	Calibrator	~~Pistonphone~~ Pre-Amp
Model	LD824	377B20	CAL 200	PRM 902
Serial Number	A2585	LW 134525	8779	2544

Calibration Results	1000 hz (94.0 dB, 93.8 dBA ^0.5dB)	250 hz (124.0 dB, 115.0 dBA ^0.5dB)
Initial	94.1	
Final	93.9	

Winds	Temperature	Humidity	Precipitation
Calm	76	84	~~1958~~ None

Site Location	Test ID	Time Period
ML-5	24	1959 - 2029

SPL Descriptor	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
	630	800	1K	1.3K	1.6K	2K	2.5K	3.2K	4K	5K	6.3K	8K	10K	

1/1 or 1/3 (circle one) Octave Band Sound Levels (dB)

Weighting (Lin/A/C)	L_{max}	L_{01}	L_{10}	L_{50}	L_{90}	L_{99}	L_{min}	L_{eq}	L_{dn}

Total Sound Levels (dB, dBA, or dBC)

Intrusive Events Source	dBA	Traffic Information Street	Count
Rt 212 traffic	52, 53 55	Rt. 212	13 in 5 min
Jet	58 dBA (no increase in dBA)		

Background Sources	Rank
Traffic - Rt 212 (passbys + distant) (Low) + Insects (High). Sporadic intermittent synchronous	1

Site Location Sketch

Comments: Insects 3150 peak Sm to 12800 Hz peak

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Alliance

Sound Level Survey Field Form

Client/Location	Project Number	Date	Conducted By
Terrawatt - Catskills	AEM-2022-0233	8/25/22	S. Manchester

	Sound Level Meter	Microphone	Calibrator	~~Pistonphone~~ Pre-Amp
Model	LD824	377B20	CAL 200	PRM 902
Serial Number	A2585	LW 134525	8779	2544

Calibration Results	1000 hz (94.0 db, 93.8 dBA ^0.5dB)	250 hz (124.0 dB, 115.0 dBA ^0.5dB)
Initial	94.0	
Final	94.0	

Winds	Temperature	Humidity	Precipitation
Calm	73	91	None

Site Location	Test ID	Time Period
ML-E	25	2042-2112

SPL Descriptor	1/1 or 1/3 (circle one) Octave Band Sound Levels (dB)												
	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
	630	800	1K	1.3K	1.6K	2K	2.5K	3.2K	4K	5K	6.3K	8K	10K	

Weighting (Lin/A/C)	Total Sound Levels (dB, dBA, or dBC)								
	L_{max}	L_{01}	L_{10}	L_{50}	L_{90}	L_{99}	L_{min}	L_{eq}	L_{dn}

Intrusive Events		Traffic Information	
Source	dBA	Street	Count
Jet (no increase)	59	Cottontail Ln	~~HH~~ 5m 0
Cars on main rd.	~59, 58, 60	Main Rd (TPK)	HH 1111 in 10 minute
Siren - no increase to South in dBA	~58-59		
Car on Cottontail	59		

Background Sources	Rank
~~Cat~~ Insects Continuous	1

Site Location Sketch

Comments: Insects 2,000-6300 & 12600 to 20,000
Traffic on 212 clearly audible at times

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CalSource, Inc.
1005 West Fayette St
Suite 4D
Syracuse, NY 13204
866-895-8648
calsource.com

CERTIFICATE OF CALIBRATION

ISSUED TO	
ALLIANCE SOURCE TESTING 6515 BASILE ROWE EAST SYRACUSE NY 13057	
CUSTOMER PO NUMBER:	CREDIT CARD

EQUIPMENT INFORMATION	
ASSET NUMBER	824A2585
MANUFACTURER	LARSON
MODEL NUMBER	824
DESCRIPTION	SOUND LEVEL METER
SERIAL NUMBER	824A2585

TEST RESULTS

CERTIFICATE NUMBER	715728	PROCEDURE	33K3-4-2895-1
AS RECEIVED	IN TOLERANCE	INTERVAL	12 MONTHS
AS RETURNED	PASS	CALIBRATION DATE	8/4/2022
LAB TEMPERATURE	73.0 F	CALIBRATION DUE DATE	8/4/2023
LAB HUMIDITY	39.0 %	TECHNICIAN	ZACK VAN VORST

COMMENTS

CALIBRATION STANDARDS

ASSET NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DESCRIPTION	CAL DATE	CAL DUE
CAL-00039	GENRAD	1986	02061	SOUND LEVEL CALIBRATOR	1/4/2022	1/4/2023

CalSource certifies this instrument to have been calibrated using standards with accuracies traceable to the National Institute of Standards and Technology, derived from natural physical constants, derived from ratio measurements, or compared to consensus standards. CalSources' calibration system complies to the requirements of ISO-9001, ISO/IEC 17025, ISO/TS 16949, ANSI/NCSL Z540-1-1994 and MIL-STD-45662A Unless otherwise indicated, the Test Uncertainty Ratio (TUR) for each calibrated parameter is at least 4:1. The results contained are valid only for the unit listed above.

CERTIFIED BY Zach Van Vorst 8/4/2022
ZACK VAN VORST

CALSOURCE
Metrology Solutions
1005 W. Fayette Street
Syracuse, NY 13204
(315) 425-1151

Larson Davis 824 Sound Level Meter with 377C20 Microphone

ID Number	824A2585
Certificate Number	715728
Technician	Zack Van Vorst
Date	08/04/22

Section 1: Range and Linearity Tests @ 1 KHz.

UUT Range	Standard	Minimum	As Found	As Left	Maximum	Cal Result
Normal	114.0 dB	113.3 dB	114.1 dB		114.7 dB	Pass
Normal	104.0 dB	103.0 dB	104.0 dB		105.0 dB	Pass
Normal	94.0 dB	93.0 dB	94.0 dB		95.0 dB	Pass
Normal	84.0 dB	83.0 dB	84.0 dB		85.0 dB	Pass
Low	84.0000	83.0 dB	84.2 dB		85.0 dB	Pass

Section 3: System "A" Weighting

Frequency	Standard	Minimum	As Found	As Left	Maximum	Cal Result
4 KHz	94.0 dB	94.0 dB	94.5 dB		96.0 dB	Pass
2 KHz	94.0 dB	94.2 dB	94.5 dB		96.2 dB	Pass
1 KHz	94.0 dB	93.0 dB	94.0 dB		95.0 dB	Pass
500 Hz	94.0 dB	89.8 dB	91.2 dB		91.8 dB	Pass
250 Hz	94.0 dB	84.4 dB	86.0 dB		86.4 dB	Pass
125 Hz	94.0 dB	76.9 dB	77.0 dB		78.9 dB	Pass

Section 4: System "C" Weighting

Frequency	Standard	Minimum	As Found	As Left	Maximum	Cal Result
4 KHz	94.0 dB	92.2 dB	93.7 dB		94.2 dB	Pass
2 KHz	94.0 dB	92.8 dB	93.8 dB		94.8 dB	Pass
1 KHz	94.0 dB	93.0 dB	93.9 dB		95.0 dB	Pass
500 Hz	94.0 dB	93.0 dB	94.0 dB		95.0 dB	Pass
250 Hz	94.0 dB	93.0 dB	94.3 dB		95.0 dB	Pass
125 Hz	94.0 dB	92.8 dB	93.4 dB		94.8 dB	Pass

Notes:
- Out of Tolerance Readings Highlighted
- All Transferred Values Reviewed for Accuracy
- Unless otherwise stated, As Left = As Found

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CalSource, Inc.
1005 West Fayette St
Suite 4D
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866-895-8648
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CERTIFICATE OF CALIBRATION

ISSUED TO	
ALLIANCE SOURCE TESTING 6515 BASILE ROWE EAST SYRACUSE NY 13057	
CUSTOMER PO NUMBER:	CREDIT CARD

EQUIPMENT INFORMATION	
ASSET NUMBER	8779
MANUFACTURER	LARSON
MODEL NUMBER	CAL200
DESCRIPTION	SOUND LEVEL CALIBRATOR
SERIAL NUMBER	8779

TEST RESULTS

CERTIFICATE NUMBER	715729	PROCEDURE	33K3-4-2945-1
AS RECEIVED	IN TOLERANCE	INTERVAL	12 MONTHS
AS RETURNED	PASS	CALIBRATION DATE	8/4/2022
LAB TEMPERATURE	73.0 F	CALIBRATION DUE DATE	8/4/2023
LAB HUMIDITY	39.0 %	TECHNICIAN	ZACK VAN VORST

COMMENTS

Calibrated with Larson 824 SLM AN: 824A2585

CALIBRATION STANDARDS

ASSET NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DESCRIPTION	CAL DATE	CAL DUE
CAL-00030	AGILENT TECHNOLOGIES	34401A	MY47009293	DIGITAL MULTIMETER	5/3/2022	5/3/2023
CAL-00039	GENRAD	1986	02061	SOUND LEVEL CALIBRATOR	1/4/2022	1/4/2023

CalSource certifies this instrument to have been calibrated using standards with accuracies traceable to the National Institute of Standards and Technology, derived from natural physical constants, derived from ratio measurements, or compared to consensus standards. CalSources' calibration system complies to the requirements of ISO-9001, ISO/IEC 17025, ISO/TS 16949, ANSI/NCSL Z540-1-1994 and MIL-STD-45662A Unless otherwise indicated, the Test Uncertainty Ratio (TUR) for each calibrated parameter is at least 4:1. The results contained are valid only for the unit listed above.

CERTIFIED BY Zack Van Vorst 8/4/2022
ZACK VAN VORST

CALSOURCE
Metrology Solutions
1005 W. Fayette Street
Syracuse, NY 13204
(315) 425-1151

Larson Davis CAL200 Sound Level Calibrator

ID Number	8779
Certificate Number	715729
Technician	Zack Van Vorst
Date	08/04/22

Section 1: Sound Level (TUR = 1:1)

Nominal	Minimum	As Found	As Left	Maximum	Cal Result
94.0 dB	93.8 dB	94.0 dB		94.2 dB	Pass
114.0 dB	113.8 dB	114.1 dB		114.2 dB	Pass

Section 2: Frequency

Frequency	Minimum	As Found	As Left	Maximum	Cal Result
1.000 kHz	0.990 kHz	1.00020 kHz		1.010 kHz	Pass

Notes:

Sound Level Compared Directly Against Calsource Standard SLC (TUR = 1:1)
Out of Tolerance Readings Highlighted
All Transferred Values Reviewed for Accuracy
Unless otherwise stated, As Left = As Found

Alliance
TECHNICAL GROUP

Enclosure B.
Bar Harbor Sound Survey Field Forms

Alliance

Sound Level Survey Field Form

Client/Location	Project Number	Date	Conducted By
Tenanco	AAM-2022-0133	7/9/22	S Manchester

	Sound Level Meter	Microphone	Calibrator	~~Pistonphone~~ Pre-Amp
Model	LD824	377B20	CAL200	PRM 902
Serial Number	A2585	LW 184525	8779	2544

Calibration Results	1000 hz (94.0 db, 93.8 dBA ±0.5dB)	250 hz (124.0 dB, 115.0 dBA ±0.5dB)
Initial	94.0	
Final	93.9	

Winds	Temperature	Humidity	Precipitation
Calm-2 W.	78	53	None

Site Location	Test ID	Time Period
BH-M	Day #29	8am

SPL Decriptor	1/1 or 1/3 (circle one) Octave Band Sound Levels (dB)													
	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
	630	800	1K	1.3K	1.6K	2K	2.5K	3.2K	4K	5K	6.3K	8K	10K	

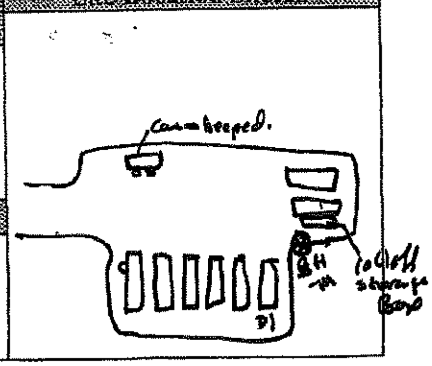
Weighting (Lin/A/C)	Total Sound Levels (dB, dBA, or dBC)								
	L_{max}	L_{01}	L_{10}	L_{eq}	L_{d50}	L_{90}	L_{min}	L_{50}	L_{dn}

Intrusive Events: Source	dBA
Jet/Airplane	52, 47
clipboard (1st minute)	54+2
Highway	
Staff Vehicle Enters	45
Bumped tripod ~record 324	56
Staff - Golf Cart ~100' out	49
Car beep -	59

Traffic Information: Street	Count
Air traffic	||||
Motorcycle on highway ~~56~~ 58 dBA;	
Vehicle on highway: 49	50

Background Sources	Rank
Highway Sound Continuing	1

Site Location Sketch



Comments

Recycled Paper, Soy-based Inks

1

Alliance

Sound Level Survey Field Form

Client/Location	Project Number	Date	Conducted By
Terranova Bar Harbor	AQM-2022-0033	9/9/22	S. Manchester

	Sound Level Meter	Microphone	Calibrator	~~Pistonphone~~ Pre-Amp
Model	LD824	377B20	CAL200	PRM 902
Serial Number	A2585	LW 134525	8779	2544

Calibration Results	1000 hz (94.0 dB, 93.8 dBA ±0.5dB)	250 hz (124.0 dB, 115.0 dBA ±0.5dB)
Initial	93.9	
Final	94.1	

Winds	Temperature	Humidity	Precipitation
Calm	79	62	None

Site Location	Test ID	Time Period
BH-E	Day #30	8:50 1611

SPL Descriptor	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
	630	800	1K	1.3K	1.6K	2K	2.5K	3.2K	4K	5K	6.3K	8K	10K	

1/1 or 1/3 (circle one) Octave Band Sound Levels (dB)

Weighting (Lin/A/C)	L_{max}	L_{01}	L_{10}	L_{50}	L_{90}	L_{99}	L_{min}	L_{eq}	L_{dn}

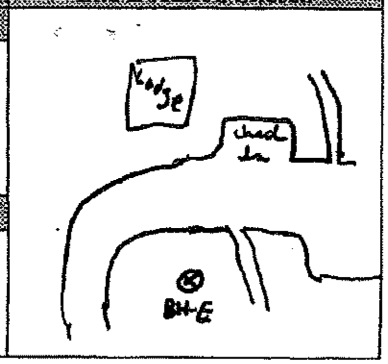
Total Sound Levels (dB, dBA, or dBC)

Intrusive Events: Source	dBA
Check-in - Drive off / Drive in/out	57 / 54, 56, 58
Highway traffic	54, 56, 63
clipboard (572)	60
airplane	50+
Cars in/out, check-in	52, 55, 56, 54
clipboard 1592	66
Staff Walker ~20'	52

Traffic Information: Street	Count
Check-in area & Drive in + out	HH HH III

Background Sources	Rank
Highway traffic - continuous	1

Site Location Sketch



Comments

Recycled Paper, Soy-based Inks

Alliance

Sound Level Survey Field Form

Client/Location	Project Number	Date	Conducted By
Tenaumor · Bar Harbor	ARM-2022-0033	9/9/22	S. Manchester

	Sound Level Meter	Microphone	Calibrator	Pre-Amp ~~Pistonphone~~
Model	LD824	377B20	CAL200	PRM 902
Serial Number	A2585	LW 134525	8779	2544

Calibration Results	1000 hz (94.0 db, 93.8 dBA ^0.5dB)	250 hz (124.0 dB, 115.0 dBA ^0.5dB)
Initial	94.1	
Final	94.0	

Winds	Temperature	Humidity	Precipitation
Calm	79	62	None

Site Location	Test ID	Time Period
BH-D	Day 31	1654

SPL Decriptor	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
	630	800	1K	1.3K	1.6K	2K	2.5K	3.2K	4K	5K	6.3K	8K	10K	

1/1 or 1/3 (circle one) Octave Band Sound Levels (dB)

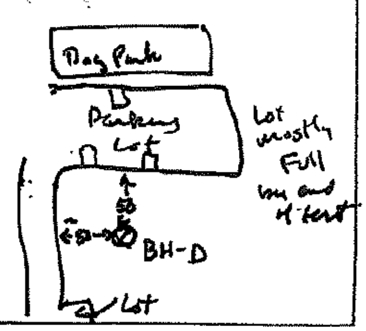
Weighting (Lin/A/C)	L_{max}	L_{01}	L_{10}	L_{33}	L_{50}	L_{90}	L_{min}	L_{eq}	L_{dn}

Total Sound Levels (dB, dBA, or dBC)

Intrusive Events: Source	dBA	Traffic Information: Street	Count
Backpack + clipboard (70) (130)	53, 61	Vehicle Enters Lot (54 dBA) + parks Car 2 - 54 dBA, Car 3 - 54 "	///
Voices (Guest children)	54		
Door shut	53		
Highway Motorcycle	58		
Vehicles	41, 44,		
Airplane	47		
Walkers on Road (2)	40-41		
Cart bang? (Cart area)	53		
Door close at 75'	45, 43		

Background Sources	Rank
Distant Highway Sound Continuous	1

Site Location Sketch



Comments: Cart rattling - 50 ; Car beep 53 dBA (1119) @ ~75' (across Lot)

Door close at 50' - 50 dBA No dogs observed in Dog Park

Recycled Paper, Soy-based inks

1

Alliance Sound Level Survey Field Form

Client/Location	Project Number	Date	Conducted By
Terramor Bar Harbor	ASM-2022-0893	9/9/22	S. Manchester

	Sound Level Meter	Microphone	Calibrator	~~Pistonphone~~ Pre-Amp
Model	LD824	377B20	CAL200	PRM 902
Serial Number	A2585	LW 134525	8779	2544

Calibration Results	1000 hz (94.0 dB, 93.8 dBA ^0.5dB)	250 hz (124.0 dB, 115.0 dBA^0.5dB)
Initial	94.0	
Final	94.0	

Winds	Temperature	Humidity	Precipitation
Calm	74	.83	None

Site Location	Test ID	Time Period
BH-B	Day #32	1731

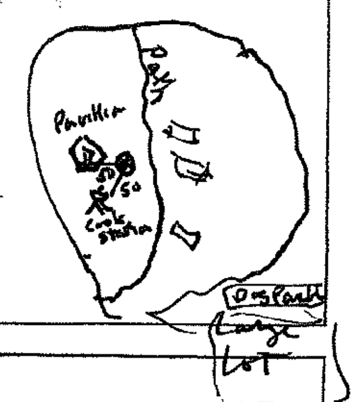
SPL Descriptor	1/1 or 1/3 (circle one) Octave Band Sound Levels (dB)													
	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
	630	800	1K	1.3K	1.6K	2K	2.5K	3.2K	4K	5K	6.3K	8K	10K	

Weighting (Lin/A/C)	Total Sound Levels (dB, dBA, or dBC)								
	L_{max}	L_{01}	L_{10}	L_{10}	L_{50}	L_{90}	L_{min}	L_{eq}	L_{dn}

Intrusive Events: Source	dBA	Traffic Information: Street	Count
Airplanes	42, 54-57	Airplane	111
2 Carter path - talking (59)	58		
traffic on highway	40-44, 45		
Cook station bang + guest talking at step	45-47, 50,52		
voices in Large Lot	45		

Background Sources	Rank
Distant Traffic on highway	1

Site Location Sketch



Comments: Guest @ Cook Station @ ~2020 4 men

Recycled Paper, Soy-based Inks

Alliance

Sound Level Survey Field Form

Client/Location	Project Number	Date	Conducted By
Tenneco Bar Harbor	AEM-2022-0033	9/9/22	S Manchester

	Sound Level Meter	Microphone	Calibrator	Pre-Amp ~~Pistonphone~~
Model	LD824	377B20	CAL 200	PRM 902
Serial Number	A2585	LW 134525	8779	2544

Calibration Results	1000 hz (94.0 dB, 93.8 dBA ^0.5dB)	250 hz (124.0 dB, 115.0 dBA^0.5dB)
Initial	94.0	
Final	93.8	

Winds	Temperature	Humidity	Precipitation
Calm	70	84	None

Site Location	Test ID	Time Period
BH-D	~~Extended~~ ~~Day~~ Evening #33	

SPL Descriptor	1/1 or 1/3 (circle one) Octave Band Sound Levels (dB)												
	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
	630	800	1K	1.3K	1.6K	2K	2.5K	3.2K	4K	5K	6.3K	8K	10K	

Weighting (Lin/A/C)	Total Sound Levels (dB, dBA, or dBC)								
	L_{max}	L_{01}	L_{10}	L_{eq}	L_{50}	L_{90}	L_{min}	L_{99}	L_{dn}

Intrusive Events: Source	dBA
Car enters lot	55
Door close	47
Car enters/idle car enters lot	56+
Distant bark-like sound to south	43-44
Airplane	43-44

Traffic Information: Street	Count
Cars Enter Lot	111
Exit Lot	1

Background Sources	Rank
Highway sound. with voices to north.	1

Site Location Sketch

Comments

Recycled Paper, Soy-based Inks

Alliance

Sound Level Survey Field Form

Client/Location	Project Number	Date	Conducted By
Zenamor Bar Harbor	AQM-2022-0033	9/9/22	S Manchester

	Sound Level Meter	Microphone	Calibrator	~~Pistonphone~~ Pre-Amp
Model	LD824	377B20	CAL200	PRM902
Serial Number	A2585	LW 134525	8779	2544

Calibration Results	1000 hz (94.0 dB, 93.8 dBA ^+0.5dB)	250 hz (124.0 dB, 115.0 dBA ^+0.5dB)
Initial	93.9	
Final	94.0	

Winds	Temperature	Humidity	Precipitation
Calm	67	95	None

Site Location	Test ID	Time Period
BH-E	Evening #35	1924

SPL Descriptor	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
	630	800	1K	1.3K	1.6K	2K	2.5K	3.2K	4K	5K	6.3K	8K	10K	

1/1 or 1/3 (circle one) Octave Band Sound Levels (dB)

Weighting (Lin/A/C)	L_{max}	L_{01}	L_{10}	L_{50}	L_{eq}	L_{90}	L_{min}	L_{xx}	L_{xx}

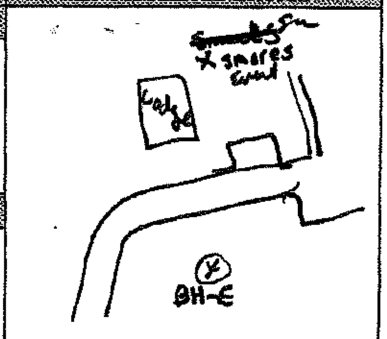
Total Sound Levels (dB, dBA, or dBC)

Intrusive Events: Source	dBA
Car Event	58,55 48,53
Highway traffic	50,57
Voices of guest passing by check in + entering lodge	50
Car door	48
Car idling in front of Lodge	45-46

Traffic Information: Street	Count
Car passing or check in	8 (tally)

Background Sources	Rank
Highway traffic	1

Site Location Sketch



Comments: Music inside Lodge is not audible. Distant voices at Smores Event at corner of Lodge (outside) discernible at times of lower traffic levels

Recycled Paper/Soy-based Inks

Alliance

Sound Level Survey Field Form

Client/Location	Project Number	Date	Conducted By
Terramor Bar Harbor	AAM-2022-0033	9/9/21	S. Manchester

	Sound Level Meter	Microphone	Calibrator	Pre-Amp ~~Pistonphone~~
Model	LD824	377B20	CAL200	PRM 902
Serial Number	A2585	LW 134525	8779	2544

Calibration Results	1000 hz (94.0 dB, 93.8 dBA ^0.5dB)	250 hz (124.0 dB, 115.0 dBA^0.5dB)
Initial	94.0	
Final	93.9	

Winds	Temperature	Humidity	Precipitation
Calm	65	85	None

Site Location	Test ID	Time Period
BH-B	Evening 36	2039

SPL Descriptor	1/1 or 1/3 (circle one) Octave Band Sound Levels (dB)													
	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
	630	800	1K	1.3K	1.6K	2K	2.5K	3.2K	4K	5K	6.3K	8K	10K	

Weighting (Lin/A/C)	Total Sound Levels (dB, dBA, or dBC)								
	L_{max}	L_{eq}	L_{10}	L_{50}	L_{90}	L_{99}	L_{min}	L_{eq}	L_{dn}

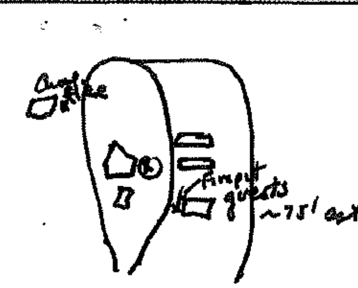
Intrusive Events: Source	dBA
Clapboard + bag	56, 51
airplane	48, 50 50
Car on Highway	52
Guests at fire ~75' voices - children	42-43
fire snaps	48-50, 51
walker on path	43
operative noise (421)	51.6
BLA door closed	47-48

Traffic Information: Street	Count
Car @ Lot	45
Car @ LA	43
Car @ Lot	45

44-50

Background Sources	Rank
Distant traffic US+NN	1
Campfires crackling	2
Voices at times - intermittent	1

Site Location Sketch



Cont Burning at Campfire to ~55 : 55 dBA

Comments a couple campfires visible. Most tents in loop are lit inside.

Recycled Paper, Soy-based inks

1

Alliance

Sound Level Survey Field Form

Client/Location	Project Number	Date	Conducted By
Terramar Bar Harbor	AQM-2022-0033	9/9/22	S. Manchester

	Sound Level Meter	Microphone	Calibrator	Pre-Amp ~~Pistonphone~~
Model	LD824	377B20	CAL200	PRM 902
Serial Number	A2585	LW 134525	8779	2544

Calibration Results	1000 hz (94.0 db, 93.8 dBA ^0.5dB)	250 hz (124.0 dB, 115.0 dBA ^0.5dB)
Initial	93.9	
Final	93.8	

Winds	Temperature	Humidity	Precipitation
Calm	65	87	None

Site Location	Test ID	Time Period
BH-M	Evening 37	

SPL Descriptor	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
	630	800	1K	1.3K	1.6K	2K	2.5K	3.2K	4K	5K	6.3K	8K	10K	

1/1 or 1/3 (circle one) Octave Band Sound Levels (dB)

Weighting (Lin/A/C)	L_{max}	L_{01}	L_{10}	L_{50}	L_{90}	L_{99}	L_{min}	L_{eq}	L_{dn}

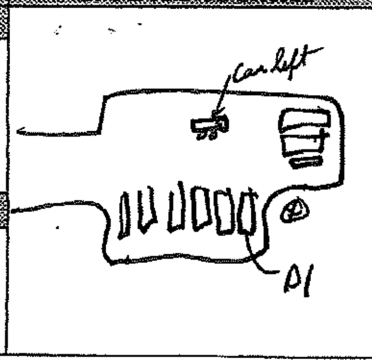
Total Sound Levels (dB, dBA, or dBC)

Intrusive Events: Source	dBA
2 Staff leaving trailer (~50) D1 to west - voices	47
cough	50
Car leaving staff area ~75' away	50 @ idle to 48
	48-51 leaving
2 Staff return to D1	46-48
Staff @ D1 on phone	45-49
Vehicle arrives	48-50
Unknown sound to west	53

Traffic Information: Street	Count
Cars in/out	11(1)
Golf Cart ?	1

Background Sources	Rank
Highway traffic	1

Site Location Sketch



Comments	
Paused @ 27 min to answer question from Staff. Check data prior to pause.	

Recycled Paper, Soy-based inks

Alliance

Sound Level Survey Field Form

Client/Location	Project Number	Date	Conducted By
Tenamor Bin Harbor	AQM-2022-0033	9/10/22	S. Manchester

	Sound Level Meter	Microphone	Calibrator	~~Pistonphone~~ Pre-Amp
Model	LD824	377B20	CAL200	PRM902
Serial Number	A2585	LW 134525	8779	2544

Calibration Results	1000 hz (94.0 dB, 93.8 dBA ^0.5dB)	250 hz (124.0 dB, 115.0 dBA^0.5dB)
Initial	94.0	
Final	94.1	

Winds	Temperature	Humidity	Precipitation
Calm	68	93	None

Site Location	Test ID	Time Period
BH-E	Am. 38	0830-0900

SPL Descriptor	1/1 or 1/3 (circle one) Octave Band Sound Levels (dB)													
	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
	630	800	1K	1.3K	1.6K	2K	2.5K	3.2K	4K	5K	6.3K	8K	10K	

Weighting (Lin/A/C)	Total Sound Levels (dB, dBA, or dBC)								
	L_{max}	L_{01}	L_{10}	L_{50}	L_{90}	L_{99}	L_{min}	L_{eq}	L_{dn}

Intrusive Events: Source	dBA	Traffic Information: Street	Count
Vehicles passby	53,58 (50)	Vehicle Passbys	~~||||~~ ~~||||~~
Dog Bark behind Lodge	48	Air traffic	1
Crow	54		
Highway Traffic	55,58 (59) (50)		
Golf Cart passby ~75' (main site road)	58,56		

Background Sources	Rank
Highway Traffic	1

Site Location Sketch

Comments
SLM Operator Sound 59.5 (Record #47)

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Alliance

Sound Level Survey Field Form

Client/Location	Project Number	Date	Conducted By
Terramor Bar Harbor	ARM-2022-0833	9/10/22	S. Manchester

	Sound Level Meter	Microphone	Calibrator	Pre-Amp ~~Pistonphone~~
Model	LD824	377B20	CAL200	PRM 902
Serial Number	A2585	LW 134525	8779	2544

Calibration Results	1000 hz (94.0 db, 93.8 dBA ±0.5dB)	250 hz (124.0 dB, 115.0 dBA ±0.5dB)
Initial	94.1	
Final	94.0	

Winds	Temperature	Humidity	Precipitation
Calm	70	87	None

Site Location	Test ID		Time Period
BH-D	AM	#39	0906

SPL Decriptor	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
	630	800	1K	1.3K	1.6K	2K	2.5K	3.2K	4K	5K	6.3K	8K	10K	

1/1 or 1/3 (circle one) Octave Band Sound Levels (dB)

Weighting (Lin/A/C)	L_{max}	L_{01}	L_{10}	L_{50}	L_{90}	L_{99}	L_{min}	L_{eq}	L_{dn}

Total Sound Levels (dB, dBA, or dBC)

Intrusive Events

Source	dBA
Vehicle Passby/Park	52, 54, 55, 56
Airplane/jet	51
Guest voices in lot ~75'	45
Dog Bark on B Loop	No increase @ 39 dBA

Traffic Information

Street	Count
Vehicle passby/Park/leave	~~HH~~ ~~HH~~
Air traffic	1

Background Sources	Rank
Highway traffic	1

Site Location Sketch

Comments Vehicle sound is primarily from tires going over stone. and not engine sound
Gravel on main driving roads is larger than Acadia gravel on paths.
Operator Sound #1527, 1533, 1539 (up to 64.5)

Alliance

Sound Level Survey Field Form

Client/Location	Project Number	Date	Conducted By
Terramor Bar Harbor	ARM-2002-0033	9/10/22	S. Manchester

	Sound Level Meter	Microphone	Calibrator	Pre-Amp ~~Pistonphone~~
Model	LD824	377B20	CAL200	PRM 902
Serial Number	A2585	LW 134525	8779	2544

Calibration Results	1000 hz (94.0 dB; 93.8 dBA ±0.5dB)	250 hz (124.0 dB; 115.0 dBA ±0.5dB)
Initial	94.0	
Final	94.0	

Winds	Temperature	Humidity	Precipitation
Calm to 2 Variable SW	73	83	~~Eita~~ See None

Site Location	Test ID	Time Period
BH-B	AM #40	0940

SPL Descriptor	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
	630	800	1K	1.3K	1.6K	2K	2.5K	3.2K	4K	5K	6.3K	8K	10K	

1/1 or 1/3 (circle one) Octave Band Sound Levels (dB)

Weighting (Lin/A/C)	L_{max}	L_{01}	L_{10}	L_{50}	L_{90}	L_{99}	L_{min}	L_{eq}	L_{dn}

Total Sound Levels (dB, dBA, or dBC)

Intrusive Events: Source	dBA
Golf Cart over bump	60, 63
Yoga Instructor voice ~85' away in Pavillion	42-51
Child crying @ ~100'	~52
operator clip board (1046)	61.3
Post yoga talking (mostly instructor)	mid 40's
Guest voices on path (child)	58

Traffic Information: Street	Count
Vehicles @ Lot 40	IIII
Golf carts on path	II

19 Cars in lot 40 at end of test. By 1130 - 11 remain

Background Sources	Rank
Yoga session instructor	1
Highway Sound	

Site Location Sketch

Comments: Yoga in Pavillion ~~~10~~ 11 participants including instructor. Background music discernable. Grill pit not in use. Yoga completed ~1003 (participants lingering) Instructor does not ~~look to be~~ mic'd. Yoga guests + instructor gone at ~28:00 into run.
Pause 27:29 A talk to Guest. Continued @ 1008 EDT Check SPL just prior to pause.

Alliance

Sound Level Survey Field Form

Client/Location	Project Number	Date	Conducted By
Terramor Bar Harbor	AQM-2022-0033	9/10/22	S Manchester

	Sound Level Meter	Microphone	Calibrator	~~Pistonphone~~ Pre-Amp
Model	LD824	377B20	CAL 200	PRM 902
Serial Number	A2585	LW 134525	8779	2544

Calibration Results	1000 hz (94.0 db, 93.8 dBA ±0.5dB)	250 hz (124.0 dB, 115.0 dBA ±0.5dB)
Initial	94.0	
Final	94.0	

Winds	Temperature	Humidity	Precipitation
Calm to 2 SW/W variable	74	72	None

Site Location	Test ID	Time Period
BH-M	Am. #41	1023-1053

SPL Descriptor	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500
	630	800	1K	1.3K	1.6K	2K	2.5K	3.2K	4K	5K	6.3K	8K	10K	

1/1 or 1/3 (circle one) Octave Band Sound Levels (dB)

Weighting (Lin/A/C)	L_{max}	L_1	L_{10}	L_{50}	L_{90}	L_{99}	L_{min}	L_{eq}	L_{dn}

Total Sound Levels (dB, dBA, or dBC)

Intrusive Events Source	dBA
Crow	53
Highway 102/198	45
airplane	44
Golf cart (~2800+) into run	49

Traffic Information Street	Count
Airplane	1
Golf Cart	1

Background Sources	Rank
Highway Sound (198/102)	1

Site Location Sketch

Comments: Slow operator sound #120 51.4 dBA : clipboard #157 (64.1 dBA) (63.6 slow)

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Alliance
TECHNICAL GROUP

Enclosure C.
Bar Harbor Source Sound Field Data Sheets

Alliance

NOISE SURVEY DATA SHEET

CLIENT: Terramor LOCATION: Bar Harbor CLIENT NO. ASM.2022.0033 SURVEY DATE: 9/10/22

INSTRUMENT	MANUFACTURER	MODEL	SERIAL NUMBER	AST [redacted] NUMBER
Sound Level Meter:	Larson Davis	Model 824	~~377 B~~ A2585	
Octave Band Analyzer:				
Sound Level Calibrator:	Larson Davis	CAL200	8779	Initial - Cal check 94.0 (1453)
Other:				93.9 (1434) 94.1 (1818)

Test No.	Time Measurements Taken	Location of Measurement and Comments	°F No. of People Exposed	% RH Daily Exposure In Hours	Weighting ~~A~~ A	Weighting Dist (Feet)	Weighting Flat	Note / Octave Band Center Frequencies in HERTZ: 63	125	250	500	1000	2000	4000	8000	Peak Impact Level
1	0815	Pool - 4 in HT + ~~2~~ 3 in Pool	65	600	59	40		Splash jumping in.								
~~2~~	~~1059~~	~~Trailer AC wall~~	~~8~~		65	30		Voices of children								
2	1059	Trailer AC-wall			57	10'										
3	1121	Back of Boathouse - Pumps/Exhaust			60	-15'		Louvers on exhaust fan								
5	1437	Lodge air handler @ 2nd use and roof vents ~ 50'	~~49~~		~~BO~~ <49	50		Includes some bkgd sound from highway								
6	1440	Pool + Hot tub.	78°F	61%	58 to mid 60's	~~30~~ 30 to 60 feet		At North fence - Most sound from kids voices Three kids in Pool. Several (people) in hot tub.								
7	1818	Lodge Dinner / music inside			<45	100		Music barely discernible @ 45 dBA overall								
8		2 Dogs in Dog Park - Barking	64°F	77%	60-63	50										
9	0745	Guitar Music in Lodge - singer mic'd. to amp speaker	~~8~~		53-58	60'		From open door in E side of Lodge								

Manager: | Hygienist: | Sampler:

R 10-27-88

Alliance

NOISE SURVEY DATA SHEET

CLIENT: Terramor LOCATION: Bar Harbor CLIENT NO. ABM. 2022. 0033 SURVEY DATE: 9/9/22

INSTRUMENT	MANUFACTURER	MODEL	SERIAL NUMBER	[redacted] NUMBER Calibration check
Sound Level Meter:	Larson Davis	829	A2585	
Octave Band Analyzer:				
Sound Level Calibrator:	Larson Davis	Cal200	8779	1363 - 93.9 1500 - 94.1
Other:				Calm wind

Test No.	Time Measurements Taken	Source / Location of Measurement and Comments	°F ~~No. of People Exposed~~	% RH Daily Exposure In Hours	A	Dist (ft)	Flat	63	125	250	500	1000	2000	4000	8000	Peak Impact Level
					SOUND PRESSURE LEVEL (In dB re: 20 Micropascals) — Weighting			Octave Band Center Frequencies in HERTZ								
1	1302	Golf Cart - House keeping Lodge Deck - observed	78	61	57	~65	Driveby.									
2	1329	Car Entering (suv) check-in			58	50										
3	1332	Golf Cart - House keeping			59	50										
4	1333	Car leaving check-in area			54	50-75'										
5	1336	Golf Cart			53	50'	All Gravel Sound - Electric Golf carts									
6	~1440	Fence of Pool - Water bubbling - No guest		<52,	<57	40'	Some traffic sound - from Waterfall + Bubblers (Hot tub)									
7.	1453	Pool pumphouse - Louver			62	10'	Left side of pumphouse + Bathroom.									
8		Pool - 3 guests			62	~30'	Person talking - Peak (max) (traffic 55)									
9	1420	Pump Bld. Maint Bldg			<45	-	outside building not audible @ 45 dBA.									
10	1425-30	ICE Truck driving away			65	~35	Engine Sound									
11	1448	Bus - Motor			65	~30'	Engine Sound									
12	1448	Bus - Backup beeper	78	53	67	30'	Backup beeper.									
13	1647	Pool - Kids (young)			57-62	~30	Adults - 62 dBA.									
14	1911	Hydroseeding truck watering			68	50	Non-routine service due to new plants + lack of rain									

Manager: Hygienist: Sampler:

R 10-27-88

Last Page of Report