



June 4, 2024

Mr. Marc Rider
Ulster County Resource Recovery Agency
999 Flatbush Road, Kingston
Ulster County, New York 12401

Re: Ulster County Landfill Site Selection Study

Dear Mr. Rider:

Ulster County Resources Recovery Agency (UCRRA) is the agency responsible for managing waste and recyclable materials in Ulster County. The Agency, instituted in 1986, owns and operates facilities in Kingston and New Paltz and accepts materials from throughout Ulster County.

UCRRA currently manages municipal solid waste (MSW), construction and demolition debris (C&D), recyclables, organics, electronic waste (e-waste), tires, metals, textiles, and biosolids. UCRRA has two main transfer stations that it operates and oversees daily, the Ulster Transfer Station and the New Paltz Transfer Station. UCRRA has implemented MSW flow control for the entire county which was signed into law by the Ulster County Executive on December 18, 2012. This means that any and all MSW produced within the County must be brought to one of the two UCRRA owned transfer stations for disposal. C&D, organics, and recyclables are not regulated through flow control and can be sent to any facility within or outside of the County. UCRRA also accepts material from neighboring counties. MSW and C&D materials are brought to either transfer station by public or private haulers and residents. The materials are dumped on the tipping floor and then loaded into long haul trailers for final disposal out of the county at the currently contracted landfill which is approximately 500 miles round trip. MSW can also be dropped off by residents at any of the 19 municipal residential drop-off centers (MRDC) located within the towns and villages. UCRRA provides carting services for many of the MRDCs. MSW and C&D brought to the facility transfer stations by local haulers, commercial construction companies, and residents are recorded separately when brought into the facilities; however, the waste is combined into the same trailers for landfilling.

All involved recognize that transport of waste materials to an out-of-county landfill annually accrues millions of transportation miles and generates a large quantity of greenhouse gas emissions. There is a significant desire among stakeholders within Ulster County to establish and implement a local, in-county, waste management solution, a solution that would significantly reduce, if not eliminate, the current magnitude of transportation miles and greenhouse gas emissions.

UCRRA, on behalf of Ulster County also spearheaded an effort to collaborate with the adjacent counties of Greene and Sullivan to create a new, three county solid waste authority. A feasibility study for development of the new authority indicated that significant cost savings could be achieved in the transport and disposal of waste materials, the collective quantity of recyclable materials would give the new authority a better position to market these materials, and the overall increased quantity of waste materials could provide the economy of scale necessary to make alternative waste management technologies more feasible for these three Counties. Creation

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of a new solid waste authority requires an act of the state legislature. As such it would require the full intentional commitment of each of the counties involved. Although there is some continued discussion of a new authority, to date the necessary county commitments have not been made.

On April 27, 2020, NYSDEC approved Ulster County's Local Solid Waste Management Plan (LSWMP). The LSWMP was subsequently adopted by the County Legislature on February 16, 2021. The LSWMP provides the guiding framework for waste and recyclable material management within the county and defines the county's objectives for waste reduction and the diversion of materials from landfills. The LSWMP also includes an evaluation of known alternative waste management technologies to determine if an alternative approach to material management could be implemented within the county or cooperatively among Ulster County and one or more adjacent counties. The alternatives evaluation determined that no practical, cost-effective alternative to landfilling is currently available to manage the limited quantity of material now generated within Ulster County. As the county has success reducing the quantity of waste generated within the county, alternative technologies will become increasingly less financially viable.

In keeping with the county's interest in local self-reliance, the LSWMP includes a recommendation to perform a feasibility study for the development of a local landfill to manage the portion of the county's waste that cannot be repurposed, recycled or diverted. To address this recommendation UCRRA commissioned HydroQuest to perform a high-level screening of property in Ulster County. HydroQuest produced a report dated January 5, 2022, which identified individual parcels utilizing available property mapping and global information system (GIS) tools and evaluated these parcels based upon known solid waste facility (landfill) regulations. HydroQuest identified nine potential candidate sites, and upon further review of the sites and comparison to regulations, ultimately proposed only two sites for continued evaluation.

Recognizing the limitations of the scope of the HydroQuest report UCRRA engaged Cornerstone Engineering and Geology, PLLC (Cornerstone) to advance and refine the assessment of local landfill feasibility. Cornerstone's scope of work includes the following three tasks:

1. Review HydroQuest's *Landfill Site Selection Study in Ulster County, New York* Report dated January 5, 2022 (Task 1);
2. Review existing Ulster County landfill sites for potential landfill reclamation and use as a future in-County waste disposal site (Task 2), and;
3. Review potential groupings of adjacent properties within Ulster County which in aggregate would provide 100 or more acres suitable for landfill development (Task 3).

Collectively the above tasks provide a more complete picture with respect to the feasibility of siting and developing a local landfill in Ulster County. Summaries of the three tasks are attached for reference. Task 1 is intended to confirm the observations of HydroQuest with respect to the availability of single parcel sites. Task 2 focuses on the known existing solid waste landfills in the county in an effort to determine whether any of the existing landfill sites could be repurposed to the benefit of the County. Task 3, as there are so few large eligible parcels within the county, seeks to aggregate multiple open parcels to obtain land area large enough for landfill development.

The work completed to date is limited to the identification of property where a local landfill may potentially be constructed in the future. In order to develop a local landfill a final site must be determined, an engineering design and permit application prepared and submitted to NYSDEC, and once approved by NYSDEC, the new facility can be constructed. Implementing a new landfill is a long-term process that requires a long-term commitment on the part of the county. While there is no precise time frame for the activities required to site, design and permit a new landfill, a minimum 10-year long process should be expected from the time a commitment is made to the time that the landfill can be opened for waste disposal.

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Thank you for this opportunity to support the advancement of Ulster County's waste and materials management strategy. We are available at your convenience to discuss any questions or comments that you have on the enclosed documents.

Sincerely,

CORNERSTONE ENGINEERING AND GEOLOGY, PLLC



Mark Swyka, P.E.
Vice President



John Giuliano
Project Manager

Enclosure:

cc: Kyle Rogers, Cornerstone
Brittany Connelly, Cornerstone

TASK 1 – REVIEW OF HYDROQUEST REPORT



March 6, 2024

Mr. Marc Rider
Ulster County Resource Recovery Agency
999 Flatbush Road, Kingston
Ulster County, New York 12401

Re: Ulster County Landfill Site Selection Study
Review of HydroQuest January 5, 2022 Report

Dear Mr. Rider:

Cornerstone Engineering and Geology, PLLC (Cornerstone) has completed the requested review of the *Landfill Site Selection Study in Ulster County, New York* prepared by HydroQuest and dated January 5, 2022 (The Report). The Report was reviewed in light of NYSDEC Part 360 siting criteria, Cornerstone's background and experience with landfill siting, design and permitting, as well as our knowledge of the geography in Ulster County.

Our review indicated that HydroQuest provided a substantive screening of the land in Ulster County utilizing available Global Information System (GIS) resources. It should be noted however that screening tools utilized within the Report were considered to be fully exclusionary with no consideration for landfill development within the areas identified by each of the screening criteria. Full exclusion for all screening criteria, while eliminating contention over sites that could be acceptable under certain circumstances, may have eliminated potential sites from consideration.

An example of how a criterion may have been applied in an overbroad manner would be potential Environmental Justice areas. Environmental Justice areas exist in an effort to provide heightened sensitivity to portions of the county which meet established socioeconomic criteria. The Environmental Justice designation does not in and of itself preclude the development of environmental facilities. Rather, this designation adds an extra layer of consideration affording involvement in the process to the local residents.

After processing each of the screening criteria the Report identified a list of multiple candidate landfill sites which was further short-listed to two candidate sites. The identified sites are discussed in greater detail below.

Our review indicates that additional candidate sites might manifest themselves if full exclusionary criteria is removed from the overall evaluation. The details of our observations appertaining to the Report are presented below.

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Overview of HydroQuest Report

HydroQuest's Report utilized GIS analysis and search methodology in addition to the firm's prior experience and knowledge of Ulster County's geography and geology. The Report also utilized several online databases or data sets "(i.e., NYS GIS Clearinghouse, NYS Museum, Ulster County GIS, EPA, FEMA, NYSDEC, CUGIR, NYRWA)". The Report represented that the firm utilized in-depth knowledge of bedrock geology and the above data sets to eliminate areas which could be impossible or very difficult to permit a new landfill site.

Cornerstone found the Report to cover a significant body of information, and the analysis of bedrock geology in particular went beyond what a typical surface-level review might entail. HydroQuest's Report integrated the expected prohibitive factors regarding landfill siting, except the newly implemented requirements for proximity to schools and residences. Proximity to schools and residences is now regulated under an update to the Part 360 rules, which was released by NYSDEC after the date of the HydroQuest Report.

HydroQuest may have been too strict with siting requirements and guidelines. For example, the Report excluded landfill construction in wetland and wetland buffer areas, and also prohibited landfill siting over bedrock considered to have a "high potential for groundwater and contaminant migration". However, the US Army Corp of Engineers (USACE) may issue permits for construction in wetland areas provided appropriate wetland restoration is performed. For groundwater flow, Part 363-5.1(a)(1) states that "Bedrock underlying the site must not be subject to rapid or unpredictable groundwater flow, unless it can be demonstrated to the department that a containment failure of the landfill would not result in contamination entering the bedrock system." While NYSDEC may scrutinize potential sites with these features, Cornerstone recommends further evaluation and discussion with NYSDEC prior to eliminating these sites from consideration, as a potential site may otherwise be very favorable despite the presence of a wetland or other permitting issue.

Cornerstone's review of the potential landfill sites presented within the Report found that six of the nine sites were appropriately removed from consideration. Based upon our review of the information presented within the Report, Potential Landfill Site E, Site H (former Hertel Landfill) and Site I (Lake Sunset Area) may warrant further consideration.

Regulatory Guidelines

Siting of Solid Waste Facilities in New York State is governed by the New York State Department of Environmental Conservation. Regulations appertaining to landfill siting and development are contained in 6 NYCRR Part 360 Solid Waste Management Facility regulations and 6 NYCRR Part 363: Landfills.

The following table presents the criteria utilized within the HydroQuest report in the "Stepwise Elimination of Features" to eliminate potential landfill siting areas and compares these criteria to the applicable regulatory citations:

TABLE 1: REGULATORY OR DISCRETIONARY BASIS FOR ELIMINATING FACTORS

HYDROQUEST STEP-WISE ELIMINATING FACTOR	APPLICABLE REGULATORY SECTION OF 6 NYCRR PART 360 REGULATIONS
<ul style="list-style-type: none"> • Special Flood Hazard Areas • Known threatened or endangered species habitat • NYS and federal wetlands and buffer areas 	Section 360.8 – Prohibited Actions
<ul style="list-style-type: none"> • Bedrock subject to rapid or unpredictable groundwater flow • Karst/Carbonate Bedrock Geology • Primary aquifers • Proximity to public water supplies • Unstable Areas • Sites underlain by active faults or located in Seismic Impact Zones • Steeply Sloping land • High permeability soils (“large scale permeable deposits”) • Airports • Agricultural Lands (not listed in HydroQuest’s step-wise list, but this was considered in HydroQuest’s Search) 	Section 363-5.1 – Siting Requirements
<ul style="list-style-type: none"> • Archaeological sites • Potential Environmental Justice Areas (PEJAs) 	Under 6 NYCRR Part 617 Regulation, may affect permitting and development based on State Environmental Quality Review (SEQR)
<ul style="list-style-type: none"> • Parcel sizes less than 100 acres • Proximal to reservoirs, lakes, or major water bodies 	Discretionary criteria based on desirable siting & logistics

Note -- Part 360 regulates Solid Waste Management Facilities General Requirements. Part 363 regulates Landfills Specifically.

In addition to those eliminating factors listed in Table 1, HydroQuest also made considerations based on “Key Desirable Features and Criteria in Landfill Site Selection”, as listed on Pages 2 and 3 of the Report. This includes “protected land criteria (e.g., potential environmental justice areas, NYS and NYC lands, preserved lands, aquifers, wetlands)”, which were integrated into HydroQuest’s GIS screening.

As mentioned above, the Report includes some discretionary criteria that include proximity to reservoirs, lakes, or major water bodies. These criteria may be loosely based on the requirements regarding wetlands and proximity to public water supplies, as many water bodies are in proximity to wetlands or are a part of public water resources. These various eliminating factors are further discussed below.

Evaluation of Stepwise Elimination of Features

The identifiers and siting criteria listed in Table 1 were included within HydroQuest's "Stepwise Elimination of Features". If one of these siting criteria was identified within a data set, this resulted in the area being removed from further evaluation as a potential site.

Cornerstone found that HydroQuest's list is representative of the Part 360 prohibited siting requirements in effect at the time of the Report's writing. As stated previously, one feature not evaluated that would prohibit siting is proximity to a school or residence, as landfills are prohibited within 1000 feet of a school or residence as defined in Part 363-5.1(k). This requirement has been introduced subsequent to the issuance of the HydroQuest Report.

Multiple factors listed in the Table strictly prohibit landfill siting by law or would be difficult to permit a site with these features despite not being explicitly prohibited (i.e. New York State owned lands, which would most likely not be sold to the County). Each of the criteria presented by HydroQuest is listed below along with an evaluation of whether or not that criteria should be utilized as a strict eliminating factor for a potential site:

- 1) Special Flood Hazard Areas: Part 360.8(a) is explicit that siting in these areas is prohibited.
- 2) Known threatened or endangered species habitat: Part 360.8(b) is explicit that siting in these areas is prohibited.
- 3) NYS and federal wetlands and buffer areas: Part 360.8(c) states that "A new facility or the lateral expansion of an existing facility must not occur within the boundary of either state or federally-regulated wetlands, unless the required permits are obtained from the U.S. Army Corps of Engineers and/or the department." While encroaching on wetlands will add additional permitting requirements, this criterion is not a strict eliminating factor.
- 4) Bedrock subject to rapid or unpredictable groundwater flow: Although the definition for "rapid or unpredictable" groundwater flow is not explicitly outlined in the Part 360 regulations; a certified Geologist is able to evaluate whether a given site poses this risk. HydroQuest eliminated areas of Ulster County from potential siting based on "experience with aquifer tests, contaminant migration cases, and litigation support in Ulster County". Part 363-5.1(a)(1) states that "Bedrock underlying the site must not be subject to rapid or unpredictable groundwater flow, unless it can be demonstrated to the department that a containment failure of the landfill would not result in contamination entering the bedrock system". In addition, part 363-5.1(a)(2) states that "a minimum of 10 feet of unconsolidated deposits must exist beneath the proposed landfill site to minimize the migration of contaminants from the facility". A site that meets 363-5.1(a)(2) may still be considered for use with an appropriate hydrogeological evaluation. An individual site may be studied to determine groundwater flow and hydrogeologic characteristics, especially if that site is otherwise ideal for a landfill. It may be demonstrable that a containment failure would not contaminate the groundwater aquifer.
- 5) Karst/Carbonate Bedrock Geology: Part 363-5.1(f)(2) explicitly prohibits siting where this type of geology is present. Karst/Carbonate bedrock may cause structural issues for a landfill and prone to a high uncertainty related to groundwater flow.
- 6) Primary aquifers & Proximity to public water supplies: Part 363-5.1(d) explicitly prohibits landfill development within certain distances of these established and mapped features.
- 7) Unstable Areas, Sites underlain by active faults or located in Seismic Impact Zones, and Steeply Sloping Land: Part 363-5.1(f) prohibits development in "Unstable Areas", which would include sites underlain by active faults or in Seismic Impact Zones. While a specific slope is not provided, Part 363-5.1(f) also prohibits landfills in locations that "may result in downslope transport of soil or rock by means of gravitational influence", which would include areas with a steep slope. In order to create a stable landfill, the base of the landfill must be limited to a slope that results in a favorable stability analysis. As a result, a site that has an overall slope of greater than 10 to 15 percent would not be suitable. A potential

candidate site may contain discrete areas of steeper slopes understanding that these areas will likely be regraded to support landfill development.

- 8) High permeability soils (“large scale permeable deposits”): Part 363-5.1(a)(2)(i) explicitly prohibits sites with these deposits “present”. A site may not need to be strictly eliminated if large deposits of high permeability soils are found. The site may still be redeveloped for use, or these may be worked around. Sites with this characteristic must be considered on an individual basis.
- 9) Airports: Part 363-5.1(e) strictly prohibits a landfill within 5,000 feet of an airport used by piston-powered fixed-wing aircraft or 10,000 feet of an airport used by turbine-powered fixed-wing aircraft. Additional requirements in proximity to airports are listed in Part 363-5.1(e). HydroQuest’s Report is unclear regarding whether proximity to airports was actually considered, or if no potential sites were close enough to an airport to be eliminated from consideration. Airports were not depicted in the Figures presented in HydroQuest’s Report, but the selected sites suggested in the Report were not in proximity to an airport, so it is possible that Airports were simply not depicted as they were not relevant to eliminating selected sites.
- 10) Agricultural Lands: Part 363-5.1(c) strictly prohibits a landfill within designated Agricultural Districts or on land with certain soil properties.
- 11) Archaeological sites: Archeological sites are considered as part of the State Environmental Quality Review (SEQR) for potential development. While each development and relevant archeological site is considered on an individual basis, a known Archeological site would most likely not be approved by the NYSDEC to permit a landfill.
- 12) Potential Environmental Justice Areas (PEJAs): Similar to archeological sites, potential developments within PEJAs are considered on an individual basis. PEJAs may be considered when evaluating potential landfill sites and are not a strict eliminating factor for potential consideration.
- 13) Parcel sizes less than 100 acres: A search of every property in Ulster County would be unrealistic and not financially sensible. This criterion was used by HydroQuest, as it is assumed at least 100 acres will be required to create a landfill that meets established requirements. Likely, more than 100 acres will be required in order to provide the appropriate footprint for landfill cells, infrastructure, buffers and provide a site large enough to provide sufficient capacity to address Ulster County’s longer-term waste management needs. It should be noted that a smaller acreage filter may help find potential sites where multiple properties could be purchased together to create one larger landfill site. However, a minimum acreage filter would likely still be desirable during a GIS search.
- 14) Proximal to reservoirs, lakes, or major water bodies: While a landfill may not be sited in proximity to public water supplies, proximity to any given water body does not strictly prohibit siting of a landfill. A potential site must be evaluated on an individual basis with regard to proximity to reservoirs, lakes, or major water bodies.

While HydroQuest’s Report did not evaluate sites based on the newer requirements in Part 363-5.1(k) regarding proximity to residences and schools, the Report did make considerations based on a site being “Physically removed from densely populated areas, ideally with a surrounding buffer zone”. This is likely to have served a similar basis of consideration, especially as this would be a difficult criterion to integrate into a GIS search.

The basis above served as the criteria for HydroQuest’s siting search, which resulted in the identification of 9 sites that HydroQuest further evaluated. The criteria utilized by HydroQuest may have resulted in the elimination of potential landfill sites. Further evaluation would be required to determine if additional suitable sites exist within the county. The 9 sites that met HydroQuest’s filtering criteria and were enumerated in the Report are evaluated in the following section.

Review of Selected Site

HydroQuest's Report identified 9 sites, A through I, which met the parcel size requirements, and which were not eliminated by the "Stepwise Elimination of Features" list presented in the prior section. Of these 9 sites, sites A through G were eliminated from consideration by HydroQuest, while sites H and I were selected for potential further evaluation.

Cornerstone reviewed the criteria used to eliminate sites A through G and summarized the findings below.

- Site A (SBL 55.2-3-17.121) was eliminated from consideration for being too steep and narrow. In addition, Cornerstone determined that adjacent parcels which would be attractive to purchase for siting purposes are State-owned. Cornerstone recommends that this parcel should not be considered.
- Site B (SBL 71.1-1-32) was eliminated from consideration for being adjacent to the Wallkill River. The site also has an irregular configuration for a landfill and is partially composed of the "Sturgeon Pool" portion of the Wallkill River. Cornerstone recommends that this parcel should not be considered.
- Site C (SBL 72.1-2-13.100) is presently developed by a religious foundation and is immediately adjacent to the Hudson River. Cornerstone recommends that this parcel should not be considered.
- Site D (SBL 87.3-5-15.100) was eliminated from consideration by HydroQuest for several reasons; the site is partially developed, likely contains wetlands, and contains some steep topography in the undeveloped areas. Cornerstone identified that part of the property is developed as a golf course. While Cornerstone identified some adjacent properties that may make development more attractive, the overall regrading requirements and proximity to farmland, commercial properties, and residential developments make this a difficult siting choice. Cornerstone recommends that this parcel should not be considered.
- Site E (SBL 94.2-1-3 and adjacent parcels) was eliminated from consideration by HydroQuest due to the proximity of housing developments in the area, the expected continued development of this land, and the site being partially located over sand and gravel deposits. However, this site may warrant further consideration. While further consideration of planned housing developments, wetlands, and site layout regarding the sand and gravel deposits would need to be undertaken, the parcels in this area could be combined to create a 200+ acre site that is still buffered from nearby developments. Inquiry with the owner of the main parcel, "Ohioville Acres Corp.", should be undertaken first to determine whether this land would be sold before further evaluation is recommended.
- Site F (SBL 99.3-1-11.245) was eliminated from consideration due to two sections of the Verkeerder Kill River running through the property, in addition to related wetlands. Redevelopment of this land to form a suitable landfill site would be challenging even without permitting difficulties. Cornerstone recommends that this parcel should not be considered.
- Site G (SBL 91.-1-20) was eliminated from consideration as this parcel consists of steeply sloping land in immediate proximity to the Shawangunk Escarpment. The parcel also borders lands owned by the Palisades Interstate Park Commission. Cornerstone recommends that this parcel should not be considered.
- Site H (SBL 95.3-4-36.1 and adjacent parcels) was listed as a potential site of interest by HydroQuest. The site would include the former Hertel, Inc. remediation site parcel which is 73.9 acres and contains a former waste mass that has been remediated according to HydroQuest's report. It is assumed that the nearby parcel with SBL 95.3-4-36.1, which is about 166 acres and appears undeveloped, would be included along with other parcels to form a project area that meets the size requirements. As HydroQuest noted, the site would be a fair distance from nearby residences. Onsite regrading would be required to create an engineered landfill. HydroQuest identified an area of roughly 108 acres that would be suitable for landfill construction, which did not include the Hertel site. However, the available space may actually be greater than this, as it may be possible to obtain wetland permits and obtain additional useful landfill

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areas. The Hertel Site, lands to the west of the parcel with SBL 95.3-3-15, and lands to the south may provide significant areas for expansion to the target size of 200+ acres. It is unclear whether Landfill Reclamation would be an option at the Hertel site, but further study may be warranted.

- Site I (SBL 101.2-2-12.92 and adjacent parcels) was listed as a potential site of interest by HydroQuest. As HydroQuest described, the target area consists of three parcels that total roughly 307 acres, with Lake Sunset at the northern end of the properties. As shown on Figures 15 and 16 of the Report, a potential landfill in this area would likely be bounded to the east by a power line corridor, while a large wetland area runs south of Sunset Lake and through the entire site towards the center. HydroQuest identified this as headwaters of Black Creek and delineated about 96 acres useful for a potential landfill site. Like Site H, Site I may offer a larger useful area than these 96 acres if the proper wetland permits can be obtained. However, as the identified wetlands are presented in GIS imaging as one long continuous wetland, it may be desirable to avoid breaking the wetlands into segments, meaning that additional useful site area could be limited. The closest residences (at the north, south, and east sides) are also closer to some parts of the proposed Site I configuration than those at Site H. It would likely be more difficult to create a contiguous 200+ acre site at this location.

As stated previously, sites identified as Site E, Site H, and Site I in HydroQuest's Report may warrant further investigation. Sites H and E in particular may offer opportunities for each area to create a site over 200 acres. Further evaluation of these three sites can be undertaken upon request if UCRRA is interested in potentially developing one of these locations.

The above presents Cornerstone's evaluation of HydroQuest's Report based upon the review of publicly available search tools, knowledge of landfill siting, New York State regulations, and information provided within the Report. Please feel free to contact us if you have any questions, or comments, or would like to discuss the details presented within this summary. If UCRRA is interested in pursuing any of the three sites identified above or evaluating additional parcels or site search criteria, Cornerstone remains available to discuss options for pursuing these further evaluations.

Sincerely,

CORNERSTONE ENGINEERING AND GEOLOGY, PLLC



Mark Swyka, P.E.
Vice President



John Giuliano
Project Manager

Enclosure:

cc: Kyle Rogers, Cornerstone

TASK 2 – REVIEW OF EXISTING ULSTER COUNTY LANDFILL SITES



March 14, 2024

Mr. Marc Rider
Executive Director
Ulster County Resource Recovery Agency
999 Flatbush Road, Kingston
Ulster County, New York 12401

Re: Ulster County Landfill Site Selection Study
Potential Reclamation of Existing Ulster County Landfill Sites

Dear Mr. Rider:

Cornerstone Engineering and Geology, PLLC (Cornerstone) is pleased to present our review of existing Ulster County landfill sites for potential landfill reclamation and use as a future in-County waste disposal site. The Ulster County Resource Recovery Agency (UCRRA) has shown interest in understanding whether one or more former, in-County landfill or cleanup sites, may be redeveloped to serve future County waste disposal needs.

While Ulster County is in the process of executing their established Local Solid Waste Management Plan (LSWMP) that includes waste reduction and diversion goals, for the foreseeable future some fraction of the waste generated by County residents will require landfilling. Currently, waste to be landfilled is transported over 200 miles by truck to an out-of-County facility. Annually, these waste transport vehicles travel several million miles resulting in significant cost in terms of labor and equipment, as well as the consumption of fuel and the generation of greenhouse gases from diesel emissions that would not be necessary, or could be significantly reduced, if an in-County disposal solution were available. An in-County disposal solution would also be expected to ease the burden of waste management at the existing County Waste Transfer Station Facilities and potentially support increased investment in recycling and diversion. Redevelopment of an existing landfill facility would, in addition to the environmental benefits of elimination of long-haul trucking, could provide additional environmental benefit through the full containment of the existing waste that now resides in an uncontained state.

In order to identify candidate landfill sites and their general environs, Cornerstone utilized Geographic Information System (GIS) resources, online mapping tools and resources, Google Earth, and experience and knowledge of Ulster County's geography and history. In total, forty-five (45) former candidate sites were identified and evaluated using the aforementioned tools. Observations are provided for each site on whether they are unsuitable for use or considered for potential further study.

SUMMARY OF DATA, METHODS, AND REGULATION

Landfill siting requirements are dictated primarily by 6 NYCRR Part 360 – Solid Waste Management Facilities, and Part 363 – Landfills. Specifically, Sections 360.8 – Prohibited Actions, and 363-5.1 – Siting Requirements provide many of the regulations governing landfill siting. However, other regulations, such as Part 617 – State Environmental Quality Review (SEQR) may affect the viability of a proposed development as well. Additional

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considerations may be applied while not being definitively stated within the regulations. For instance, protected lands such as State Parks or land owned by NYSDEC are very unlikely to be sold to the County for use as a landfill. Rules regarding Landfill Reclamation are provided in Part 363-11. Where applicable, criteria related to these regulations or considerations used by Cornerstone are listed in Attachment 1.

Landfill sites that were evaluated were identified by the “Inactive Solid Waste Landfills” dataset published by NYSDEC and accessed through the NYS GIS Clearinghouse website. The data set was screened for Ulster County and utilized within Cornerstone’s GIS Model for landfill siting. Cornerstone’s GIS model uses data from publicly available sources, including the NYS GIS Clearinghouse and the Cornell University Geographic Information Repository (CUGIR).

The primary criterion for landfill reclamation and reuse is size. Based upon the current population and waste generation within Ulster County, a landfill meeting the County’s disposal needs for a period of at least 20 years would need to have at a minimum of 100 contiguous and usable acres, preferably 200+ contiguous acres, in order to have the appropriate waste capacity, area for operations infrastructure, and facility buffer from property boundary and/or receptors.

Using a minimum of 100 acres of land area as the primary screening criteria there are no landfills within Ulster County meeting this minimum size. As a result, reclamation of an existing landfill alone would not be adequate to provide the needed disposal capacity. In order to be considered for potential landfill development, the existing inactive landfill would need to have adjacent unincumbered land that together would meet the minimum acreage requirements.

Four of the sites reviewed could meet the minimum size requirement with the addition of adjacent land area. Cornerstone utilized parcel mapping in the GIS model in order to determine where adjacent land may help to provide additional development space. Sites that were deemed too small, and which lacked large adjacent undeveloped parcels, were not noted for further study.

Sites that were not immediately eliminated from evaluation using spatial data in the GIS model were checked in Google Earth, Google Maps, and NYSDEC’s InfoLocator online GIS tool to ensure that they were not in proximity to schools, known archaeological sites, or other features which may not be viewed in the GIS model but which would impact siting eligibility. Both the GIS model and online Google tools also display public roads, allowing proximity to major transportation corridors to be measured and considered when evaluating a site. Proximity to major transportation corridors is preferable for a potential landfill site to allow for easier access for large trucks and trailer. While the majority of the eligible areas in Ulster County are close in proximity to Interstate 87 (NYS Thruway) and state highways, preference for further study would be given to sites that are close to one of these major transportation corridors.

FORMER WASTE SITES

The Inactive Landfill data set contained 45 former landfill sites within Ulster County. These sites are displayed on Figure 1 (attached to this letter) and labeled 1 through 45 as presented below in Table 1. Table 1 groups these sites based on whether they were eliminated from consideration or are noted for further consideration. Groups of candidate sites are in the left column with the evaluation on the right. While at least one elimination criterion is noted for each site that was eliminated from consideration, in reality a given candidate site may have had multiple reasons to be removed from consideration. The size of a site and available acreage for expansion were considered first, with subsequent evaluation performed based on the criteria in Attachment 1 if the site appeared to meet the desired size requirements. Details of each site location are summarized in Attachment 2.

Table 1 – Inactive Landfill Sites

SITE NAME	EVALUATION
<ol style="list-style-type: none"> 1. Pine Hill Landfill 2. Hurley (Town) Landfill 3. Town of Olive Landfill 4. Woodstock 5. Woodstock Landscaping (Upper and Lower) 6. Beesmer Road 7. Dug Hill – Rt 28A Dump 8. Minnewaska State Park Landfill 9. Jockey Hill / aka Darwick 	<p>Eliminated from consideration – Site is located within the NYC Watershed Region, the Catskill State Park, or land owned by the Palisades Interstate Park Commission</p>
<ol style="list-style-type: none"> 10. Constantino 11. Marbletown 12. Village of Ellenville Landfill 13. Village of Saugerties Landfill 14. Kingston Point 15. Town of Shawangunk Landfill 16. Plattekill 17. Town of Marlborough Landfill 18. Goat Hill / Karolys 19. Ellenville Scrap 20. Rock Haven 21. Springtown Road 22. Timperio 23. Trocilloto 24. Griffio Landfill 25. Route 32 26. Cafaldo River Road 27. Robert Johnson Landfill 28. Mauro 29. Venditti 30. Town of New Paltz Landfill 31. Mountain View Acres 32. Boice's 33. Town of Rochester Landfill 34. Town of Saugerties Landfill 35. Town of Ulster Landfill 36. Town of Esopus Landfill 37. Town of Gardiner Landfill 38. Wawarsing Landfill 	<p>Eliminated from consideration – Site is too small, and does not have sufficient opportunity for expansion</p>
<ol style="list-style-type: none"> 39. VAW of America 40. Town of Lloyd Landfill 41. Nevele Hotel 	<p>Eliminated from Consideration – Located too close to existing developments (airports, schools, residences, etc.)</p>
<ol style="list-style-type: none"> 42. Town of Rosendale Landfill 43. Williams Lake Dump Site (with Rosendale LF) 44. Environmental Landfill, Inc (Hertel) 45. Hercules, Inc. 	<p>Potential for Further Study – Site is eligible for reclamation efforts and has a footprint for at least 100 acres of contiguous landfill area within the site or adjacent properties</p>

Mr. Marc Rider
March 14, 2024

As noted in the above table, four sites were identified to have potential to reclaim an existing landfill site and surrounding area for future in-county waste disposal needs. In the case of the Town of Rosendale Landfill and Williams Lake Dump Site, the two sites may be considered jointly, as they both appear to be located on the same parcel of land. In each case, the actual inactive landfill area does not meet the size requirements, but potential for expansion on the same parcel or adjacent parcels could create enough space to develop an in-county landfill.

The above presents Cornerstone's evaluation of inactive solid waste landfills based upon our agreed upon scope of services. The work performed represents an initial screening and paper review of the identified sites. Further, site specific investigation of the four identified sites will be required should UCRRA desire to advance this effort. Please feel free to contact us if you have any questions, or comments, or would like to discuss the details presented within this summary. If UCRRA is interested in pursuing any of the sites identified above or evaluating additional parcels or site search criteria, Cornerstone remains available to discuss options for pursuing these further evaluations.

Sincerely,

CORNERSTONE ENGINEERING AND GEOLOGY, PLLC



Mark Swyka, P.E.
Vice President



John Giuliano
Project Manager

Enclosure:

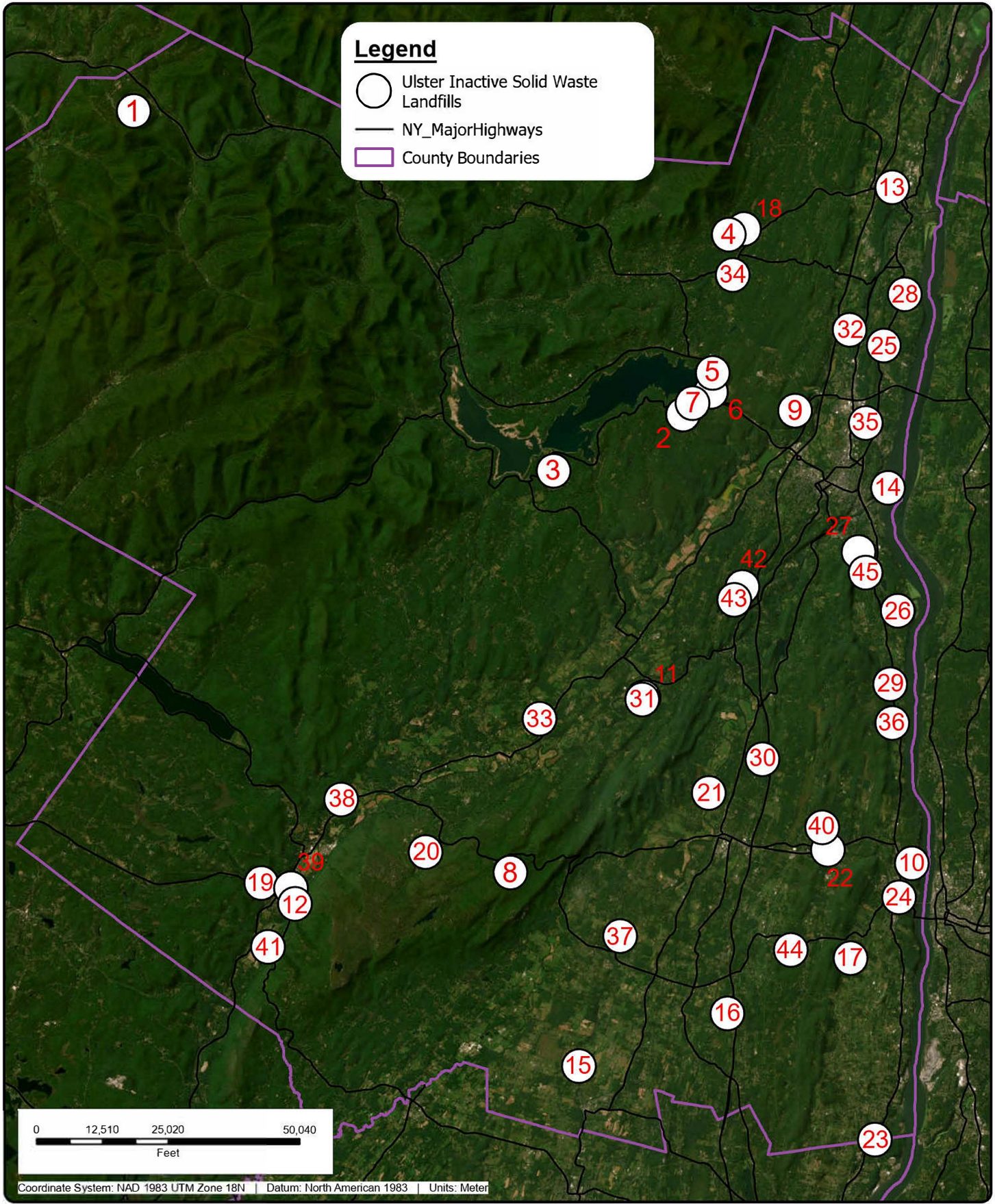
cc: Kyle Rogers, Cornerstone

ATTACHMENT 1 – Evaluation Criteria

- A. NYSDEC or Other publicly owned lands and parklands (with the exception of those public lands which contained the inactive landfills being evaluated)
- B. New York City Watershed Lands
- C. Special Flood Hazard Areas: Part 360.8(a) is explicit that siting in these areas is prohibited.
- D. Known threatened or endangered species habitat: Part 360.8(b) is explicit that siting in these areas is prohibited.
- E. NYS and federal wetlands and buffer areas: Part 360.8(c) states that “A new facility or the lateral expansion of an existing facility must not occur within the boundary of either state or federally-regulated wetlands, unless the required permits are obtained from the U.S. Army Corps of Engineers and/or the department.”
- F. Karst/Carbonate Bedrock Geology: Part 363-5.1(f)(2) explicitly prohibits siting where this type of geology is present. Karst/Carbonate bedrock may cause structural issues for a landfill and prone to a high uncertainty related to groundwater flow.
- G. Primary aquifers & Proximity to public water supplies: Part 363-5.1(d) explicitly prohibits landfill development within certain distances of these established and mapped features.
- H. Unstable Areas, Sites underlain by active faults or located in Seismic Impact Zones, and Steeply Sloping Land: Part 363-5.1(f) prohibits development in “Unstable Areas”, which would include sites underlain by active faults or in Seismic Impact Zones. While a specific slope is not provided, Part 363-5.1(f) also prohibits landfills in locations that “may result in downslope transport of soil or rock by means of gravitational influence”, which would include areas with a steep slope. While a potential landfill site may be regraded to provide a better construction surface, only so much regrading is economically and physically viable. The vast majority of sites that mainly consist of steep slopes should not be considered for landfills.
- I. High permeability soils (“large scale permeable deposits”): Part 363-5.1(a)(2)(i) explicitly prohibits sites with these deposits “present”. In Cornerstone’s experience, A site may not need to be strictly eliminated if large deposits of high permeability soils are found. The site may still be redeveloped for use, or these may be worked around. Sites with this characteristic must be considered on an individual basis.
- J. Airports: Part 363-5.1(e) strictly prohibits landfills within certain distances of airports, depending on the type of aircraft using the airport.
- K. Agricultural Lands: Part 363-5.1(c) strictly prohibits a landfill within designated Agricultural Districts or on land with certain soil properties.
- L. Archaeological sites: Archeological sites are considered as part of the State Environmental Quality Review (SEQR) for a potential development. While each development and relevant archeological site is considered on an individual basis, a known Archeological site would most likely not be approved by the NYSDEC to permit a landfill.
- M. Potential Environmental Justice Areas (PEJAs): Similar to archeological sites, potential developments within PEJAs are considered on an individual basis. PEJAs may be considered when evaluating potential landfill sites, and is not a strict eliminating factor for potential consideration.
- N. Proximity to Schools and Residences: Part 363-5.1(k) dictates minimum separation requirements for landfill waste mass to schools and residences.
- O. Critical Environmental Areas: Critical Environmental Areas (CEAs) are considered as part of the State Environmental Quality Review (SEQR) for a potential development. While each development and relevant CEA is considered on an individual basis, a known CEA would most likely not be permitted as part of a landfill footprint

Attachment 2 - Site Information from the Inactive Landfill Database

List Number	Site Name from Inactive Landfill Database	Site Address (if provided)	Municipality	EPA Hazardous Waste Site Class	EPA Hazardous Waste Site Registration Number
1	Pine Hill Landfill	Woodchuck Hollow Road	Shandaken	N/A	N/A
2	Hurley (Town) Landfill	1043 Dug Hill Rd	Hurley	Class P	356062
3	Town of Olive Landfill	580 Beaverkill Rd	Olive	N/A	N/A
4	Woodstock	100 West Saugerties Road	Woodstock	N/A	N/A
5	Woodstock Landscaping (Upper & Lower)	Basin Rd	Woodstock	N/A	N/A
6	Beesmer Road	< Not provided by database>	Woodstock	N/A	N/A
7	Dug Hill - Rt 28A Dump	Dug Hill Rd and Rt28A, property accessed from 523 Rt 28A	Hurley	N/A	N/A
8	Minnewaska State Park Landfill	Lake Minnewaska Carriage Road	Rochester	N/A	N/A
9	Jockey Hill (aka Darwack)	Wood Road	Kingston	N/A	N/A
10	Constantino	Clearwater Road	Highland	Class N	356013
11	Marbletown	135 Canal Road	High Falls	N/A	N/A
12	Village of Ellenville Landfill	Berme Rd, adjacent to Village of Ellenville Highway Department Garage	Ellenville	N/A	N/A
13	Village of Saugerties Landfill	North St	Saugerties	N/A	N/A
14	Kingston Point	Deleware Ave	Kingston (C)	N/A	N/A
15	Town of Shawangunk Landfill	Dug Rd	Shawangunk	N/A	N/A
16	Plattekill	Venuto Rd and Freetown Rd	Plattekill	N/A	N/A
17	Town of Marlborough Landfill	20 Bailey's Gap Rd	Marlborough	N/A	N/A
18	Goat Hill/Karolys	90 Goat Hill Rd	Saugerties	N/A	N/A
19	Ellenville Scrap	34 Cape Road	Ellenville	Class 2	356022
20	Rock Haven	Rock Haven Road	Rochester	Class N	356015
21	Springtown Road	Springtown Road	New Paltz	N/A	N/A
22	Timperio	81 Kiser Road (Rear)	Lloyd	N/A	N/A
23	Trocillito	Route 9W	Marlborough	N/A	N/A
24	Griffo Landfill	Route 9W	Highland	N/A	N/A
25	Route 32	1448 Route 32	Lake Katrine	N/A	N/A
26	Cafaldo River Road	311 River Rd	Esopus	N/A	N/A
27	Robert Johnson Landfill	140 Station Rd	Esopus	N/A	N/A
28	Mauro	1921 Flatbush Road	Saugerties	N/A	N/A
29	Venditti	< Not provided by database>	Esopus	N/A	N/A
30	Town of New Paltz Landfill	end of Clearwater Rd	New Paltz	N/A	N/A
31	Mountain View Acres	Mountain View Acres	Marbletown	N/A	N/A
32	Boice's	Thruview Farm Rd	Kingston	N/A	N/A
33	Town of Rochester Landfill	100 Airport Rd	Accord	N/A	N/A
34	Town of Saugerties Landfill	1765 Rt 121	Saugerties	Class N	356003
35	Town of Ulster Landfill	Frank Scottie Blvd	Ulster	N/A	N/A
36	Town of Esopus Landfill	Floyd Ackert Rd near Penn Central Railraod	Esopus	N/A	N/A
37	Town of Gardiner Landfill	end of Steve's Lane	Gardiner	N/A	N/A
38	Wawarsing Landfill	204 Landfill Rd, off NYS Rt. 55	Wawarsing	N/A	N/A
39	VAW of America	Route 209	Ellenville	Class N	356004
40	Town of Lloyd Landfill	Lily Lake Rd	Lloyd	N/A	N/A
41	Nevele Hotel	1100 Arrowhead Rd.	Wawarsing	N/A	N/A
42	Town of Rosendale Landfill	Hickory Bush Rd	Rosendale	N/A	N/A
43	Williams Lake Dumpsite 4	Williams Lake Rd	Rosendale	N/A	N/A
44	Environmental Landfill Inc. (Hertel)	Route 44 and Route 55	Plattekill	Class 4	356006
45	Hercules, Inc	161 Ulster Avenue	Port Ewen	Class 2	356001



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KRR
APPROVED BY:
JG
DATE CREATED:
3/14/2024

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ULSTER COUNTY RESOURCE RECOVERY AGENCY
999 FLATBUSH ROAD, KINGSTON
ULSTER COUNTY, NY

LANDFILL RECLAMATION SITE STUDY
INACTIVE LANDFILL SITES

FIGURE NO.
1
PROJECT NO.
4243139

TASK 3 – COUNTY WIDE PARCEL REVIEW



May 15, 2024

Mr. Marc Rider
Executive Director
Ulster County Resource Recovery Agency
999 Flatbush Road, Kingston
Ulster County, New York 12401

Re: Ulster County Landfill Site Selection Study
County Wide Site Evaluation

Dear Mr. Rider:

The Ulster County Resource Recovery Agency (UCRRA or Agency) is motivated to determine what the potential is for identifying a candidate site within Ulster County that may be redeveloped as a Sanitary Landfill to serve future County waste disposal needs. Cornerstone Engineering and Geology, PLLC (Cornerstone) was retained by UCRRA to review Ulster County in its entirety to identify potential land areas within the County that may be suitable for landfill development (Task 3, this report). Cornerstone previously completed evaluations of the HydroQuest Report (Task 1), *Landfill Site Selection Study in Ulster County, New York* dated January 5, 2022, and potential for reclaiming a closed landfill within the County (Task 2).

BACKGROUND, METHODS, AND REGULATIONS

Based upon the current population and waste generation within Ulster County, a landfill meeting the County's disposal needs for a period of at least 20 years would need to have at a minimum of 100 contiguous and usable acres, preferably 200+ contiguous acres, in order to have the appropriate waste capacity, area for operations infrastructure, and facility buffer from the property boundary and/or receptors. By continuing to increase education efforts to maximize diversion from the waste stream, the life expectancy of a landfill should also be expected to increase over time. In addition to size, proximity to major transportation corridors is preferable for a potential landfill site. This allows for easier access for large trucks and trailers to travel more directly to and from their destinations while not incumbering small towns and villages with increased traffic and where roadway infrastructure may not be in place to handle the larger vehicle sizes and weight requirements.

In order to identify candidate landfill sites and their general environs, Cornerstone utilized Geographic Information System (GIS) resources, online mapping tools and resources, Google Earth, and experience and knowledge of Ulster County's geography and history. In addition, a limited field reconnaissance from roadways adjacent to candidate sites (discussed in detail below) was conducted on April 23, 2024.

Landfill siting requirements are dictated primarily by 6 NYCRR Part 360 – Solid Waste Management Facilities, and Part 363 – Landfills. Specifically, Sections 360.8 – Prohibited Actions, and 363-5.1 – Siting Requirements provide many of the regulations governing landfill siting. Other regulations, such as Part 617 – State Environmental Quality Review (SEQR) may affect the viability of a proposed development as well. Additional considerations may be applied while not being definitively stated within the regulations.

Mr. Marc Rider
May 15, 2024

COUNTY WIDE CANDIDATE SITE EVALUATION

As discussed previously, a landfill requires a substantial footprint to allow for adequate capacity and infrastructure to be developed. Using a 50-acre minimum as our first search criteria, approximately 775 sites were identified. The sites were further refined by eliminating areas within local, state, or federal parks and watersheds. Next, using the NYSDEC regulations as a continued guide, the original 775 sites were filtered to 11 candidate sites, 5 of which were identified under previous evaluations by HydroQuest and/or Cornerstone. A closer evaluation was then undertaken to determine if suitable properties immediately adjacent to one another (preferably no more than three adjacent parcels) could be combined in a manner compliant with the regulation requirements in order to achieve a minimum of 100-acres.

The 11 candidate sites are shown on the Key Map Figure and also individually depicted on Figures 1-11 (respectively). The areas shown in purple represent the estimated footprint of usable landfill acreage after incorporating a 1,000 ft buffer from residential or commercial buildings. The dark green represents state regulated wetlands and the light green represents the state regulated freshwater wetlands check zone. Although the buffer from a wetland is only 100 ft, using the 500 ft buffer check zone was a more conservative approach. The "check zone" is an area around the mapped wetland in which the actual wetland may occur. If proposing a project that may encroach into this area, the applicant will need to coordinate with the regional DEC office and may be required to perform a field delineation to help avoid impacts in the wetland or the regulated 100-foot buffer zone.

The 11 Candidate Sites are listed as follows:

Candidate Site A (Figure 1)

Location: Wawarsing

Adjacent Road: Milk Road

Acreage: 247

Description: These parcels are located on the southwestern side of Ulster County along the Sullivan County border. Property within Sullivan County immediately adjacent is also vacant. Residential houses in the area are limited. Primary access to this Site would be State Route 52. Further evaluation of this property will be required to confirm its suitability.

Candidate Site B (Figure 2)

Location: Wawarsing

Adjacent Road: Brown Road

Acreage: 596

Description: These parcels are located on the southwestern side of Ulster County near the border of Sullivan County. Primary access to the parcels would be from State Route 52 and State Route 55. Smaller "back roads" would be traveled from 52/55 to access the exact location of the site. During the site visit, garbage and recycling totes on these roads were observed so while the connecting roads to the site are narrow, unstriped roads, it is evident that garbage trucks are currently able to travel these routes. Also of note, four contiguous parcels totaling 191 acres of the Candidate Site were currently for sale with ample road frontage. Further evaluation of this property will be required to confirm site suitability.

Mr. Marc Rider
May 15, 2024

Candidate Site C (Figure 3)

Location: Wawarsing

Adjacent Road: Otens Road

Acreage: 594

Description: These parcels are located on the southwestern side of Ulster County near the border of Sullivan County. A wetland divides the parcel in half and terrain is steep and hilly with rock visible at the ground surface. Due to these observations this site has been eliminated for further consideration.

Candidate Site D (Figure 4)

Location: Wawarsing

Adjacent Road: Tampaloni Road

Acreage: 498

Description: These parcels are located on the southwestern side of Ulster County near the border of Sullivan County slightly southeast of Candidate Site C. The terrain is steep and hilly with rock visible at the ground surface. Due to these observations this site has been eliminated for further consideration.

Candidate Site E (Figure 5) Site E from HydroQuest Report

Location: Gardiner

Adjacent Road: South Ohioville Road

Acreage: 119

Description: A stream is located to the west of the site, a utility corridor cuts through the center of the site limiting the developable area. The site also contains agricultural fields. Due to these observations this site has been eliminated for further consideration.

Candidate Site F (Figure 6)

Location: Marbletown

Adjacent Road: Vly Atwood Road

Acreage: 200

Description: There is a limited number of houses bordering the property. However, the Site appears to have rock near the surface and a stream that cuts through the parcels. Due to these observations this site has been eliminated for further consideration.

Candidate Site G (Figure 7) Site H from HydroQuest Report

Location: Plattekill

Adjacent Road: Route 44/55

Usable acreage: 127

Description: This site was listed as a potential site of interest by HydroQuest and identified as part of Task 2 by Cornerstone. The site would include the former Hertel, Inc. remediation site parcel which is 73.9 acres (SBL 95.3-4-37 and contains a former waste mass that has been remediated according to HydroQuest's report. It is assumed that the nearby parcel with SBL 95.3-4-36.1. Access to the site would most likely be from State Route 44/55. A buffer to residential properties appears to exist but would require a view shed analysis. Further evaluation of this property will be required to confirm its suitability.

Mr. Marc Rider
May 15, 2024

Candidate Site H (Figure 8) Site I from HydroQuest Report

Location: Plattekill

Adjacent Road: Camp Sunset Road

Acreage: 86

Description: The site is close in proximity to Interstate 87, but more likely access would be from Route 44 and 32, then to surface roads to access the site. The site has adequate road frontage and access from Camp Sunset Road. A few residential homes are located directly around from this parcel. A potential landfill in this area would likely be bounded to the east by a power line corridor, while a large wetland area runs south of Lake Sunset. Further evaluation of this property will be required to confirm its suitability.

Candidate Site I (Figure 9)

Location: Ulster Park

Adjacent Road: Hercules Drive

Acreage: 196

Description: Access to the property is from Route 9W. There are no residential houses in the immediate area. The property itself is hidden and could not be viewed. The back of the property is a steep slope and several hundred acres of wooded parcels which would shield a landfill from sight. A portion of the property is currently occupied by Independent Explosive but land to the north is vacant and wooded. Further evaluation of this property will be required to confirm its suitability.

Candidate Site J (Figure 10) Town of Rosendale Landfill and Williams Lake Dumpsite

Location: Rosendale

Adjacent Road: Hickory Bush Road

Acreage: 272

Description: This property is located near the Rosendale Transfer Station. The old Town of Rosendale Landfill and Williams Lake Dumpsite identified in Task 2 are in close proximity to this site. Route 87 is a main travel corridor close to the site. However, there are several lakes and wetlands in the approximate area as well as what appears to be remnants of former mining operations and rock near the ground surface. Due to these observations this site has been eliminated for further consideration.

Candidate Site K (Figure 11) UCRRA – Kingston

Location: Kingston

Adjacent Road:

Acreage: 21

Description: UCRRA currently operates a transfer station, organics composting facility and materials recovery facility in Kingston, NY. This property is approximately 140 acres. The property is already utilized for waste transfer and operations and has easy access for vehicles off of Route 32. However, based on the regulations of 1,000 ft buffer for landfill waste placement, only 21 acres would be available based on the proximity to houses/buildings. Due to these observations this site has been eliminated for further consideration.

Mr. Marc Rider
May 15, 2024

Based on our review of available resources and site reconnaissance, Sites A, B, G, H, and I have been identified as requiring further review to determine their suitability as a potential site for landfill development. Figures 12-16 depict travel routes for the five sites noted for further review from both UCRRA transfer stations. Travel routes were selected based on shortest mileage and would need to be confirmed that truck access is feasible (no low bridges or weight restrictions, etc.)

The above presents Cornerstone's evaluation of potential landfill sites in Ulster County based on our agreed upon scope of services. The work performed represents an initial screening and paper review of the identified sites. Further, site specific investigation of the five identified sites will be required should UCRRA desire to advance this effort. Please feel free to contact us if you have any questions, or comments, or would like to discuss the details presented within this summary. If UCRRA is interested in pursuing any of the sites identified above, Cornerstone remains available to discuss options for pursuing these further evaluations.

Sincerely,

CORNERSTONE ENGINEERING AND GEOLOGY, PLLC



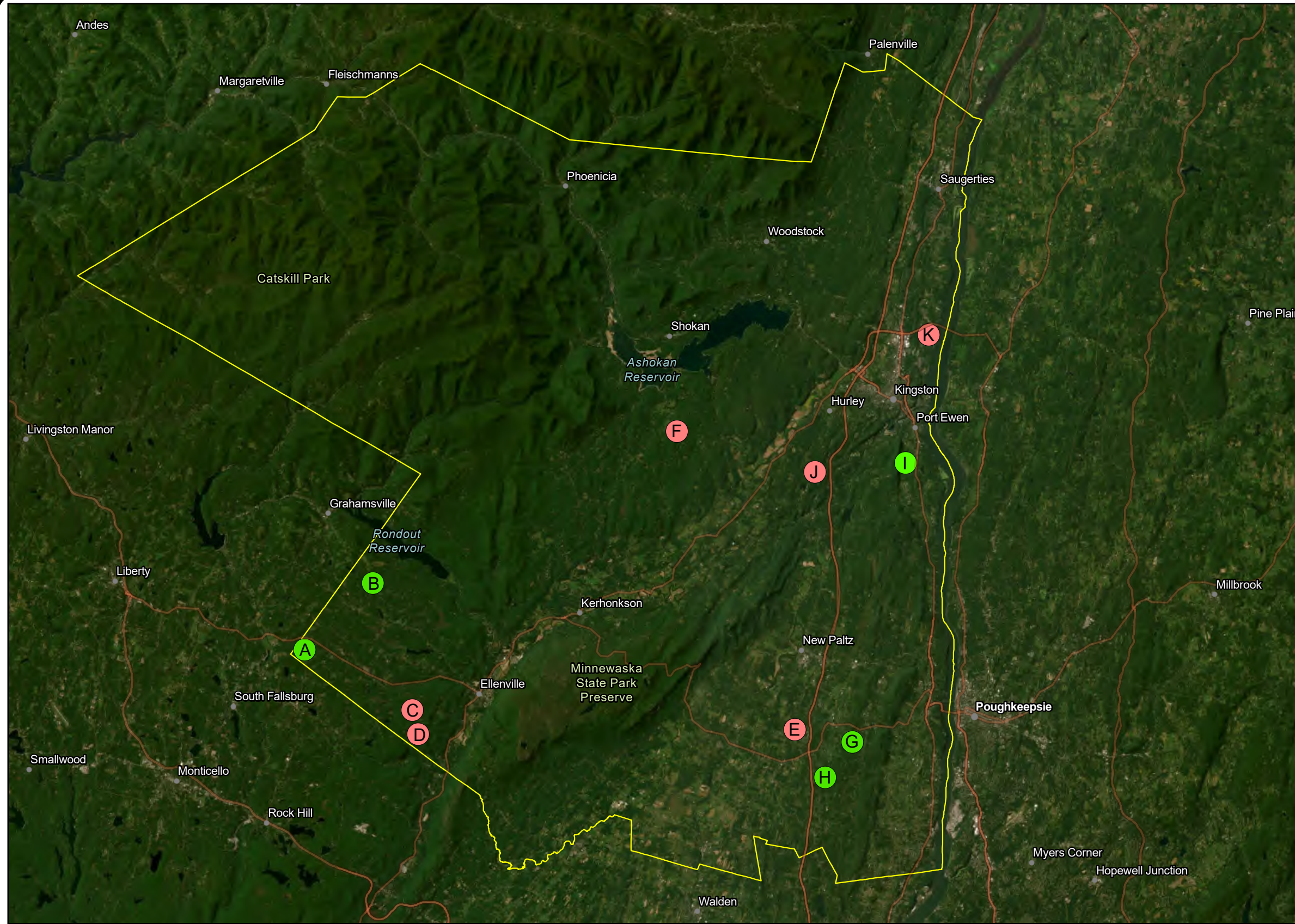
Mark Swyka, P.E.
Vice President






John Giuliano
Project Manager

Enclosure:

cc: Kyle Rogers, Cornerstone
Brittany Connelly, Cornerstone

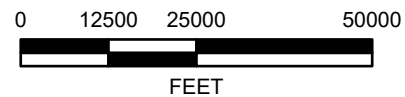
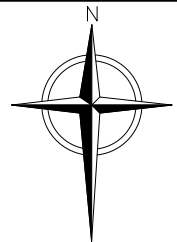


Legend

-  Ulster County Border
- Areas of Potential Site Placement**
-  Yes
-  No

DATA SOURCE:
The Parcel source is the County of Ulster, NY

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REV	DATE	DESCRIPTION	DES BY	DWN BY	CHK BY	APP BY

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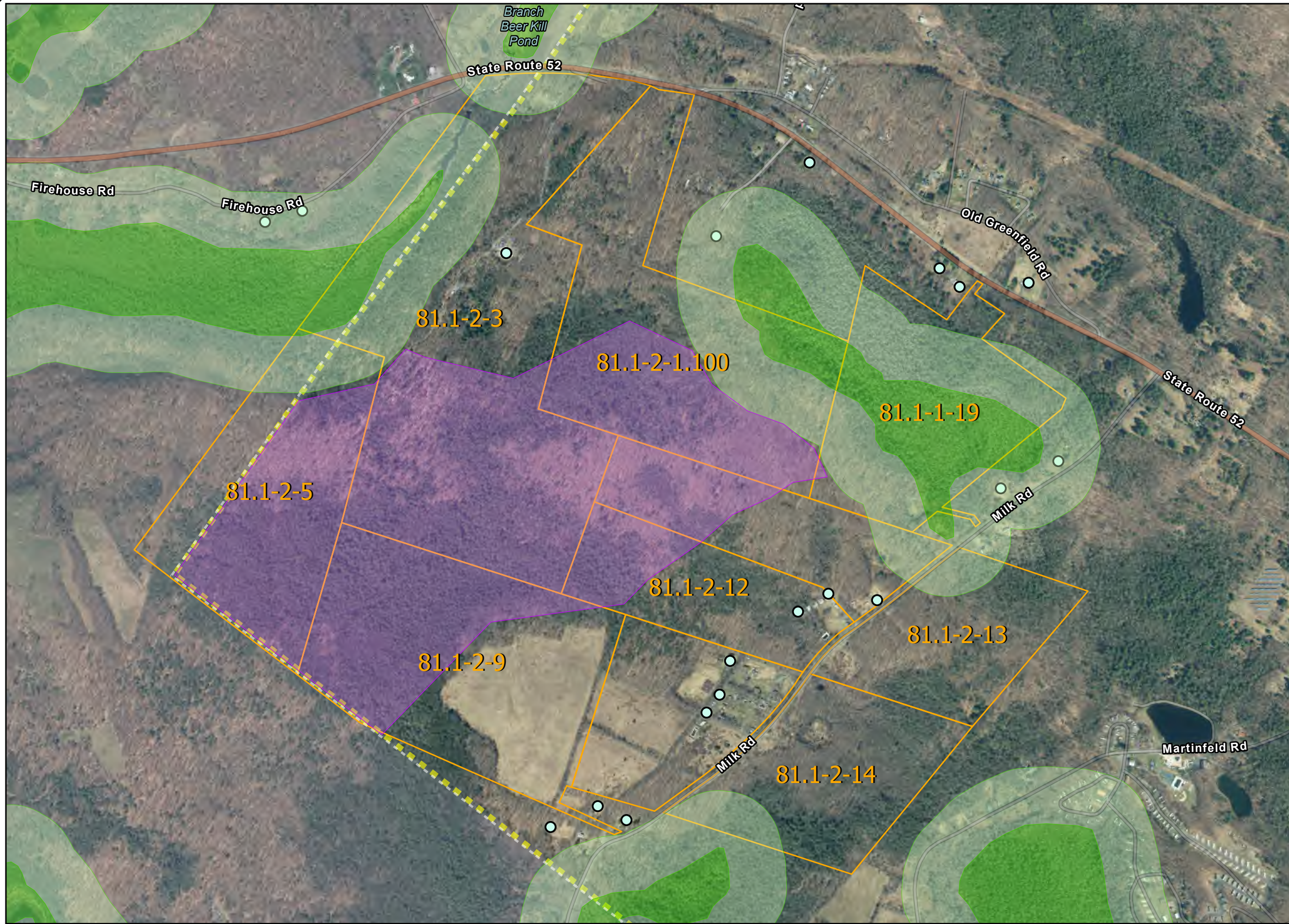


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Ulster County Resource Recovery Agency
Ulster County Feasibility Study
Potential Site Placement Locations

KEY MAP
 PROJECT NO. 4243139

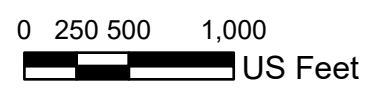
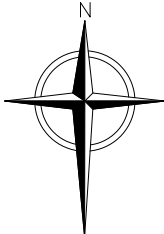


Legend

- Houses
- State Regulated Freshwater Wetlands Checkzone
- State Regulated Freshwater Wetlands
- Usable Area
- Area A Tax Parcels
- Ulster County Border

- NOTES:**
1. There are approximately 247 acres of potential Usable Area to use for Candidate Site A.
 2. There is a 1,000 ft offset between nearby houses and potential Usable Area.
 3. Wetlands data is from NYSDEC.
 4. Tax Parcel data is from GIS NYS Clearinghouse for Warwarsing, NY. Boundaries are approximate.

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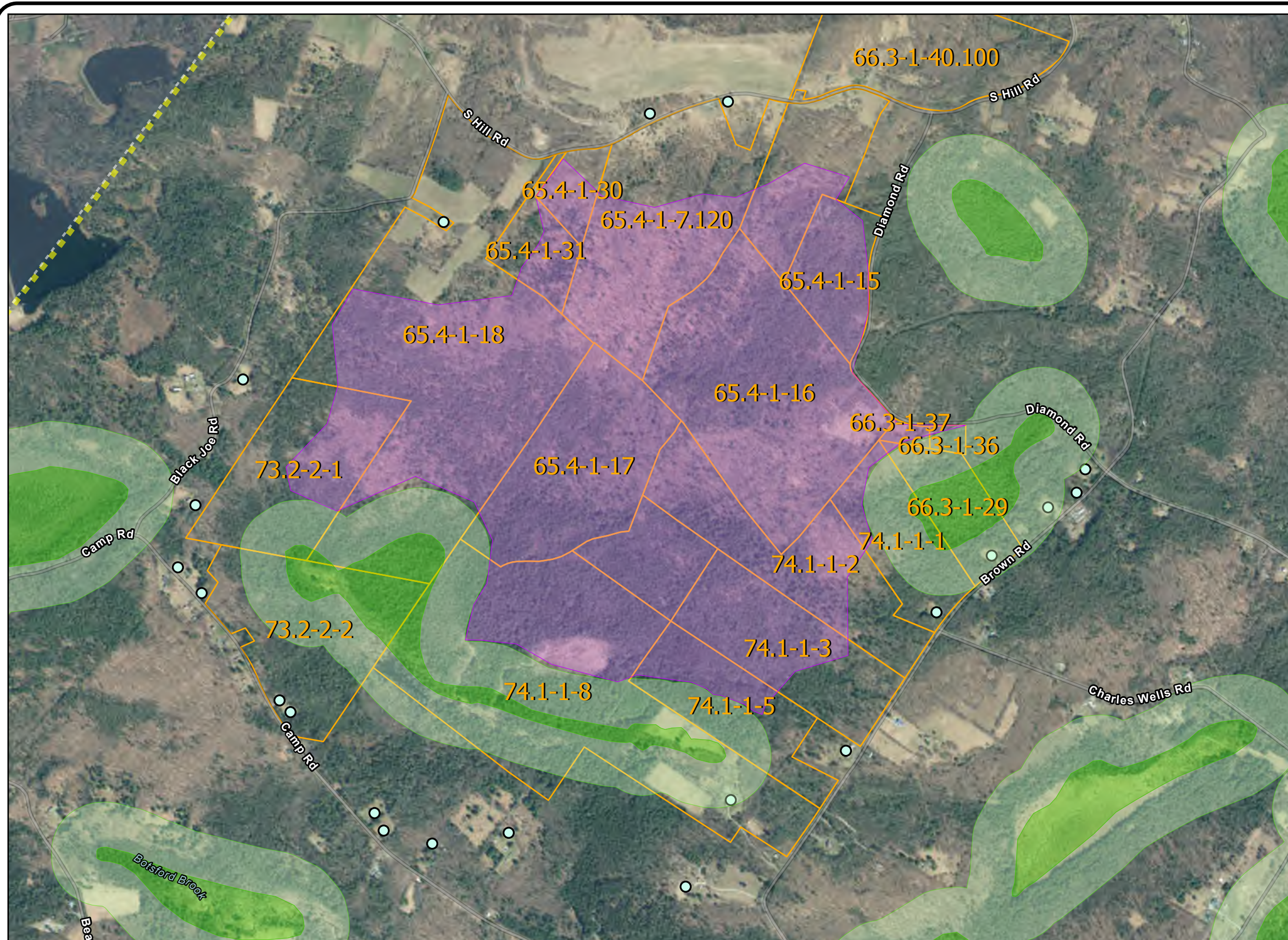
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Ulster County Resource Recovery Agency
Ulster County Landfill Feasibility Study
Candidate Site A

FIGURE NO.
1
 PROJECT NO.
 4243139

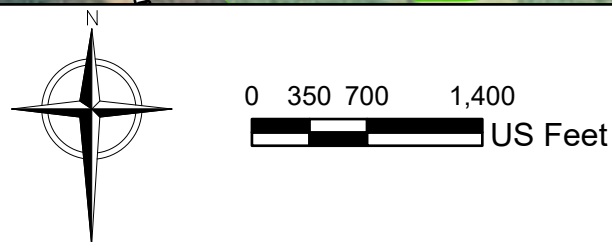


Legend

- Houses
- State Regulated Freshwater Wetlands Checkzone
- State Regulated Freshwater Wetlands
- Usable Area
- Area B Tax Parcels
- Ulster County Border

- NOTES:**
1. There are approximately 596 acres of potential Usable Area to use for Candidate Site B.
 2. There is a 1,000 ft offset between nearby houses and potential Usable Area.
 3. Wetlands data is from NYSDEC.
 4. Tax Parcel data is from GIS NYS Clearinghouse for Warwarsing, NY. Boundaries are approximate.

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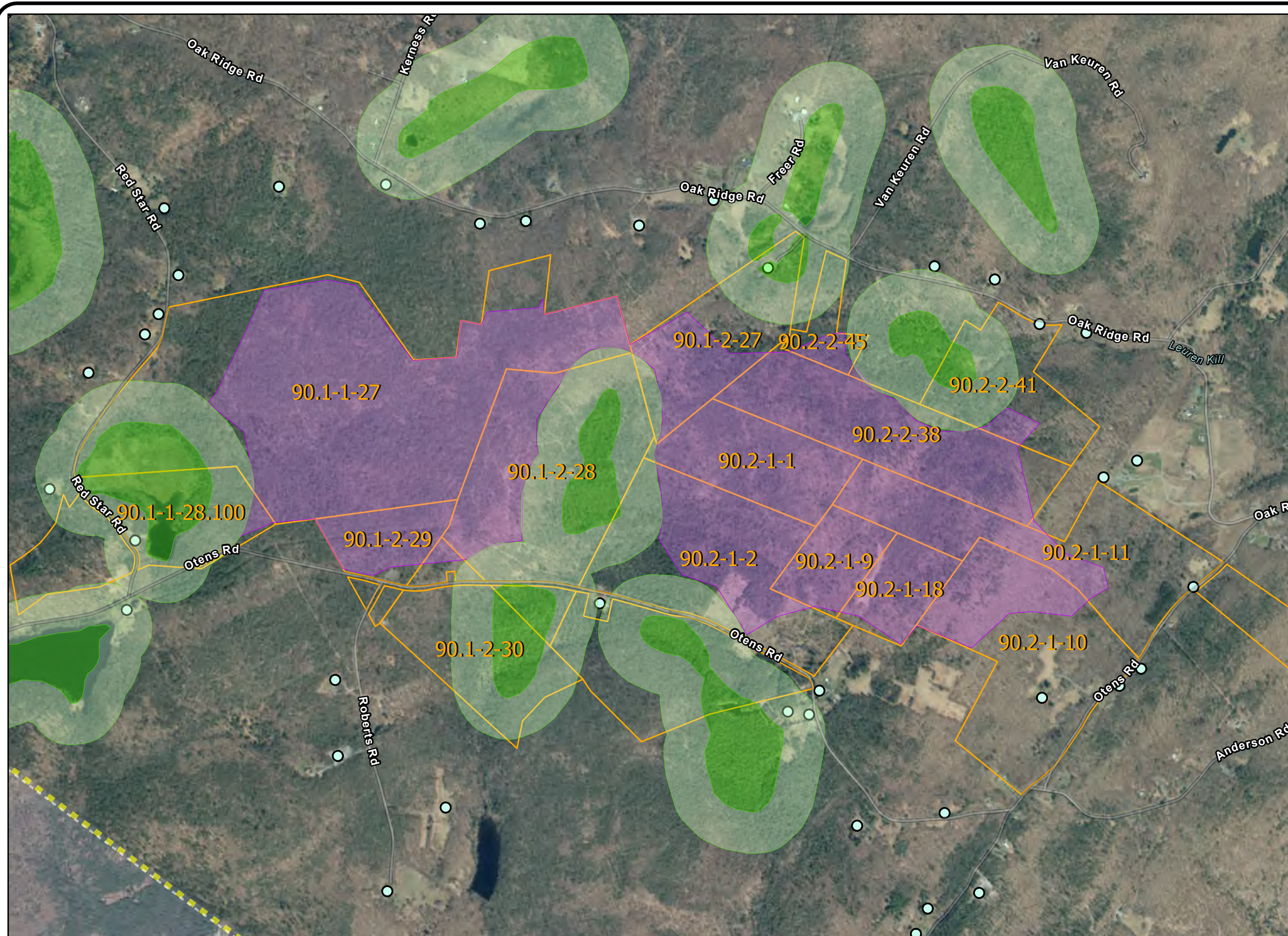
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Ulster County Resource Recovery Agency
Ulster County Landfill Feasibility Study
Candidate Site B

FIGURE NO.
2
 PROJECT NO.
 4243139

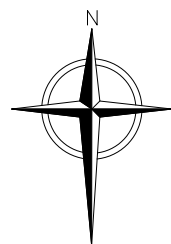


Legend

- Houses
- State Regulated Freshwater Wetlands Checkzone
- State Regulated Freshwater Wetlands
- Usable Area
- Area C Tax Parcels
- Ulster County Border

NOTES:
 1. There are approximately 564 acres of Usable Area to use for Candidate Site C.
 2. There is a 1,000 ft offset between nearby houses and potential Usable Area.
 3. Wetlands data is from NYSDEC.
 4. Tax Parcel data is from GIS NYS Clearinghouse for Warwarsing, NY. Boundaries are approximate.

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0 350 700 1,400
 US Feet

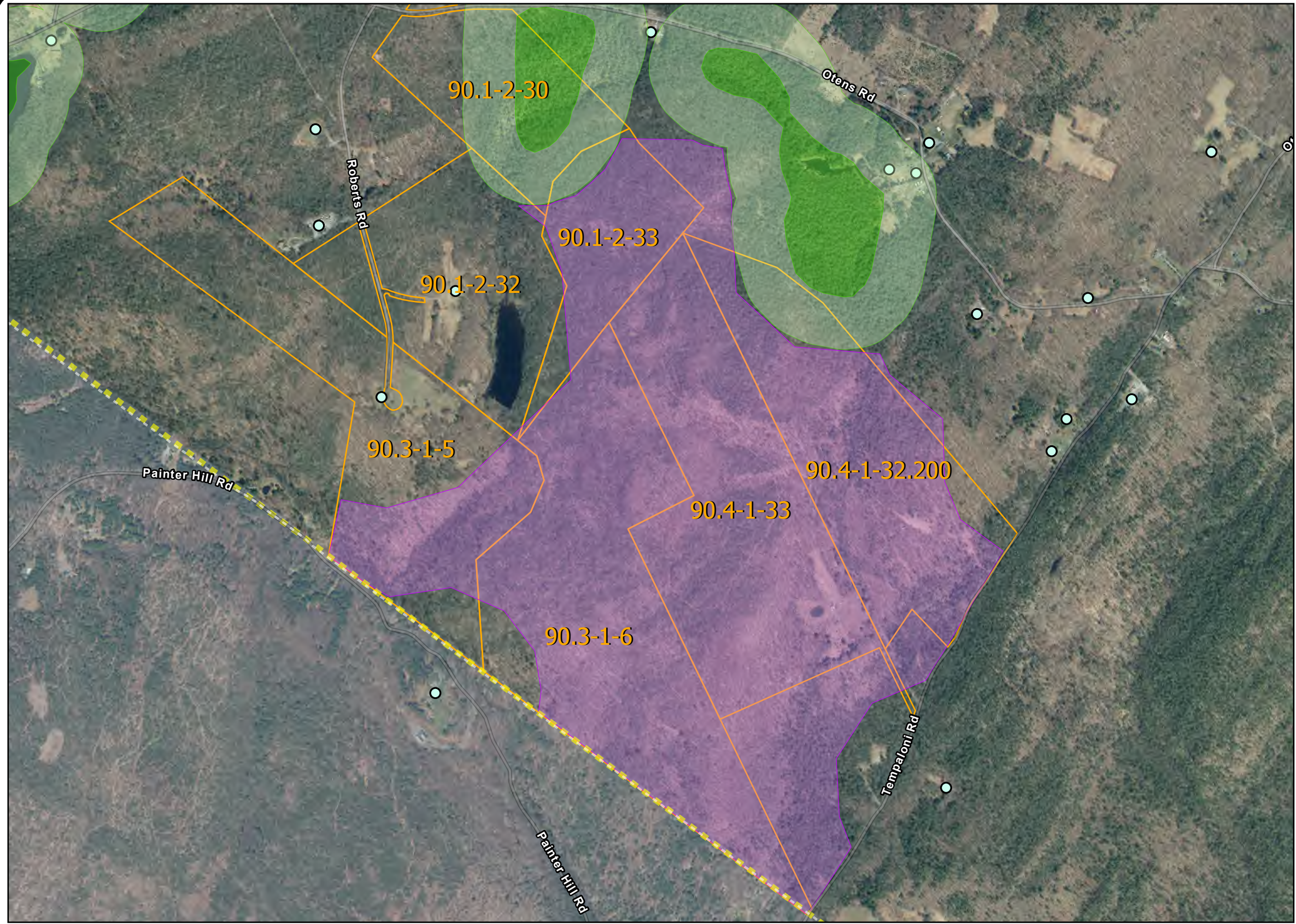
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Ulster County Resource Recovery Agency
Ulster County Landfill Feasibility Study
Candidate Site C

FIGURE NO.
3
 PROJECT NO.
 4243139

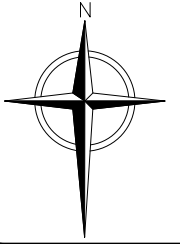


Legend

- Houses
- State Regulated Freshwater Wetlands Checkzone
- State Regulated Freshwater Wetlands
- Usable Area
- Area D Tax Parcels
- Ulster County Border

- NOTES:**
1. There are approximately 498 acres of potential Usable Area to use for Candidate Site D.
 2. There is a 1,000 ft offset between nearby houses and potential Usable Area.
 3. Wetlands data is from NYSDEC.
 4. Tax Parcel data is from GIS NYS Clearinghouse for Warwarsing, NY. Boundaries are approximate.

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0 250 500 1,000

 US Feet

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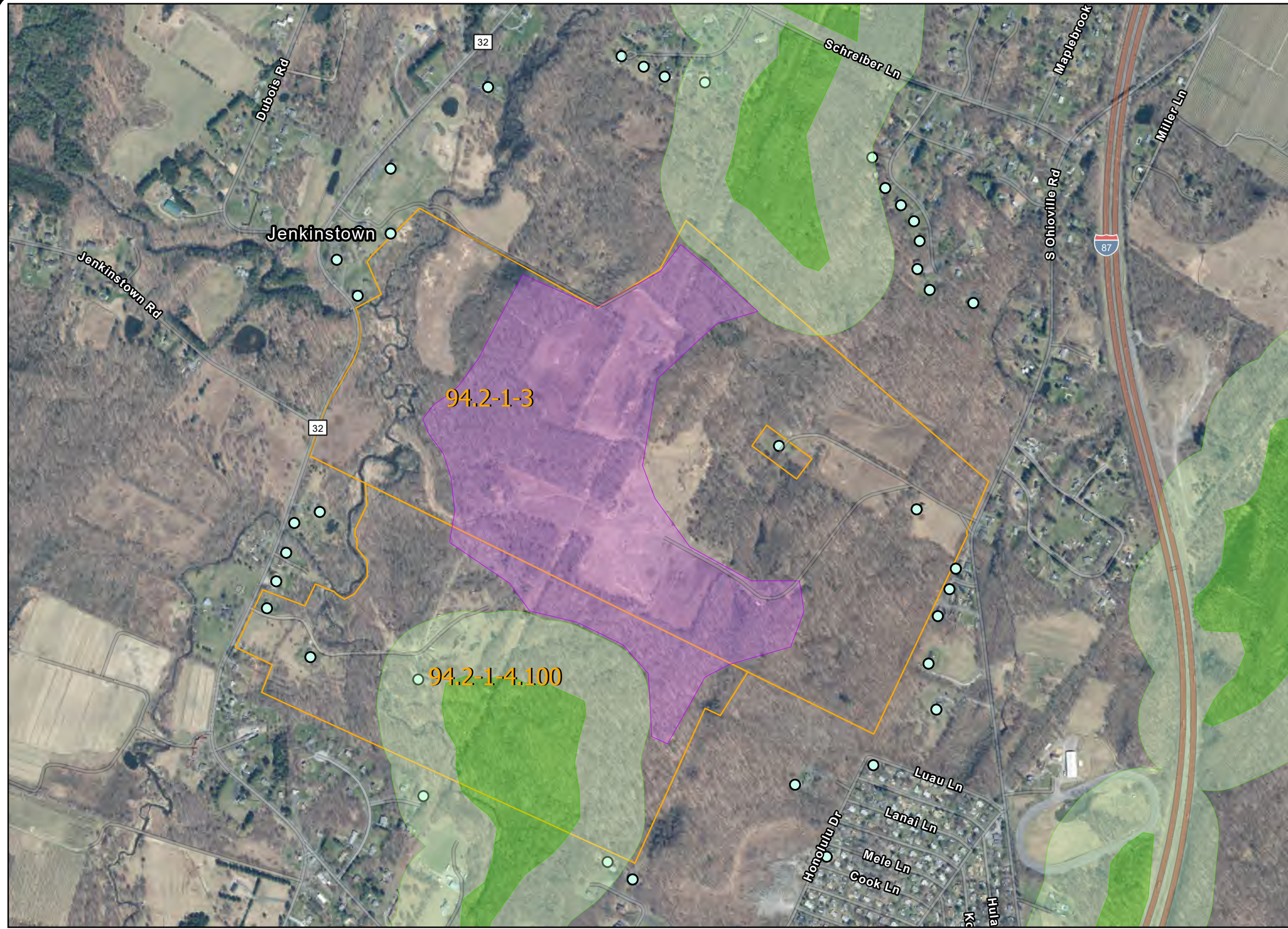
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Ulster County Resource Recovery Agency
Ulster County Landfill Feasibility Study
Candidate Site D

FIGURE NO.
4
 PROJECT NO.
 4243139



Legend

- Houses
- State Regulated Freshwater Wetlands Checkzone
- State Regulated Freshwater Wetlands
- Usable Area
- Area E Tax Parcels

- NOTES:**
1. There are approximately 119 acres of potential Usable Area to use for Candidate Site E.
 2. There is a 1,000 ft offset between nearby houses and potential Usable Area.
 3. Wetlands data is from NYSDEC.
 4. Tax Parcel data is from GIS NYS Clearinghouse for Gardiner, NY. Boundaries are approximate.

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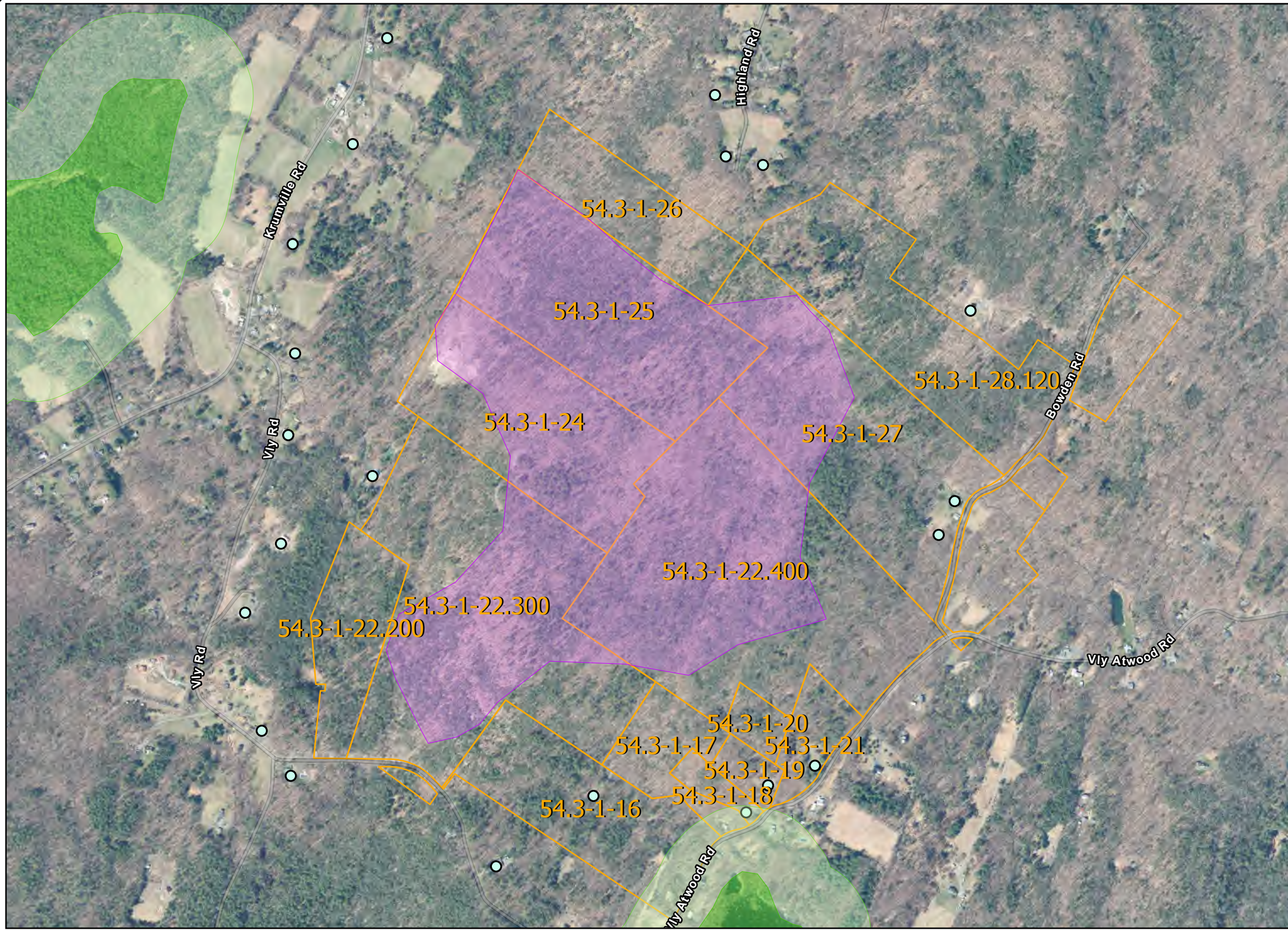
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Ulster County Landfill Feasibility Study
Candidate Site E

FIGURE NO.
5
 PROJECT NO.
 4243139



Legend

- Houses
- State Regulated Freshwater Wetlands Checkzone
- State Regulated Freshwater Wetlands
- Usable Area
- Area F Tax Parcels

- NOTES:**
1. There are approximately 200 acres of potential Usable Area to use for Candidate Site F.
 2. There is a 1,000 ft offset between nearby houses and potential Usable Area.
 3. Wetlands data is from NYSDEC.
 4. Tax Parcel data is from GIS NYS Clearinghouse for Marletown, NY. Boundaries are approximate.

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Ulster County Landfill Feasibility Study
Candidate Site F

FIGURE NO.
6
 PROJECT NO.
 4243139



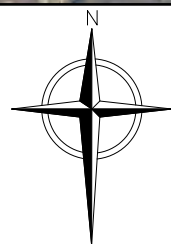
Legend

- Houses
- State Regulated Freshwater Wetlands Checkzone
- State Regulated Freshwater Wetlands
- Usable Area
- Area G Tax Parcels

NOTES:

1. There are approximately 127 acres of potential Usable Area to use within Candidate Site G.
2. There is a 1,000 ft offset between nearby houses and potential Usable Area.
3. Wetlands data is from NYSDEC.
4. Tax Parcel data is from GIS NYS Clearinghouse for Plattekill, NY. Boundaries are approximate.
5. This candidate site includes the Hertel Landfill property.

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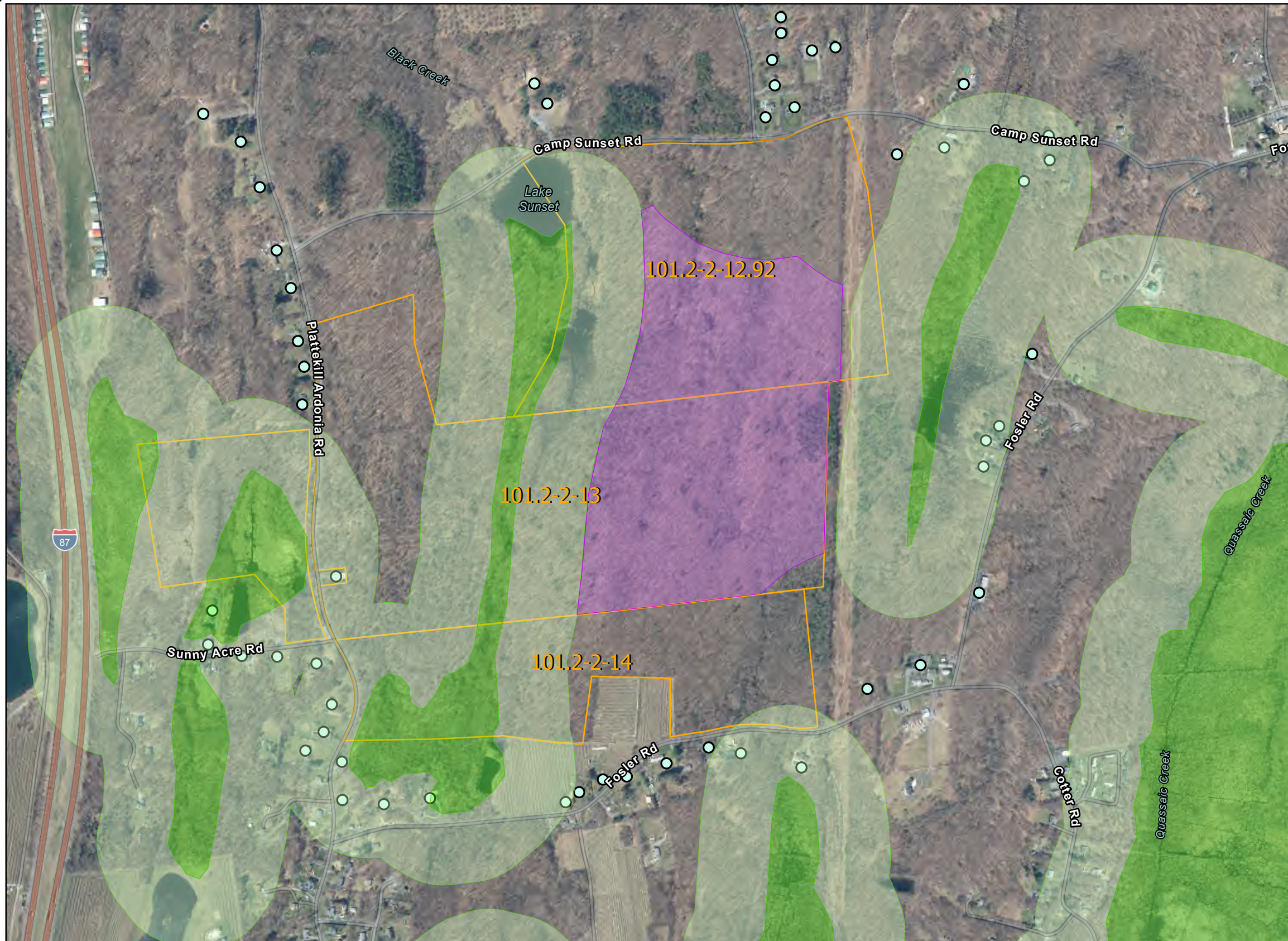
Ulster County Landfill Feasibility Study

Candidate Site G






FIGURE NO.

7

PROJECT NO.
4243139



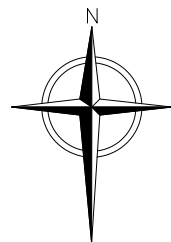
Legend

-  Houses
-  State Regulated Freshwater Wetlands Checkzone
-  State Regulated Freshwater Wetlands
-  Usable Area
-  Area H Tax Parcels

NOTES:

1. There are approximately 86.58 acres of potential Usable Area to use for Candidate Site H.
2. There is a 1,000 ft offset between nearby houses and potential Usable Area.
3. Wetlands data is from NYSDEC.
4. Tax Parcel data is from GIS NYS Clearinghouse for Plattekill, NY. Boundaries are approximate.
5. This candidate site includes the Camp Sunset property.

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0 250 500 1,000
US Feet

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Ulster County Resource Recovery Agency

Ulster County Landfill Feasibility Study

Candidate Site H

FIGURE NO.

8

PROJECT NO.
4243139



Legend

- Houses
- State Regulated Freshwater Wetlands Checkzone
- State Regulated Freshwater Wetlands
- Usable Area
- Area I Tax Parcels

NOTES:

1. There are approximately 196 acres of potential Usable Area to use for Candidate Site I.
2. There is a 1,000 ft offset between nearby houses and potential Usable Area.
3. Wetlands data is from NYSDEC.
4. Tax Parcel data is from GIS NYS Clearinghouse for Ulster Park, NY. Boundaries are approximate.
5. This candidate site includes the Hercules Inc./Dyno-Nobel property.

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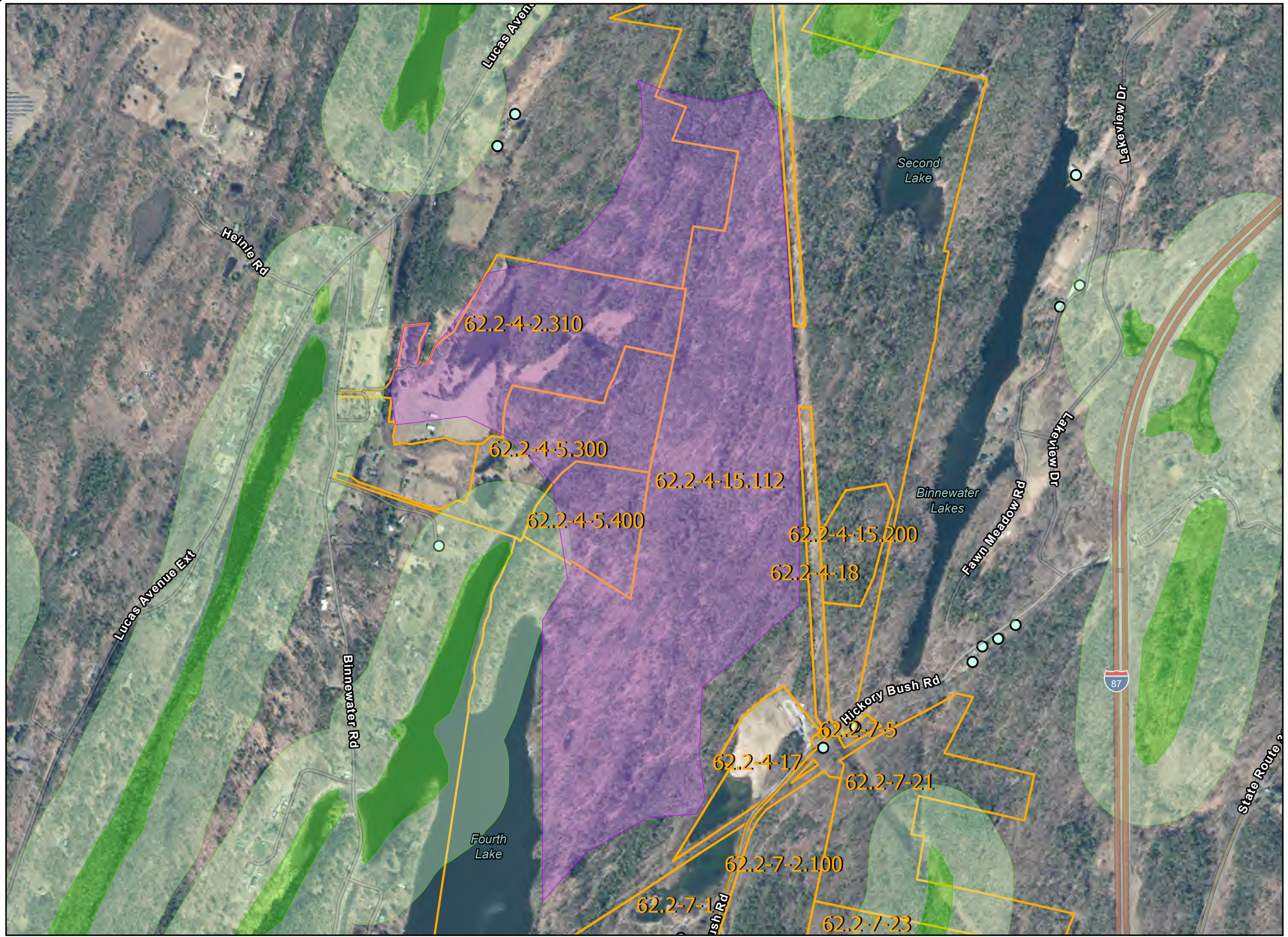
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Ulster County Resource Recovery Agency
Ulster County Landfill Feasibility Study
Candidate Site I

FIGURE NO.
9
 PROJECT NO.
 4243139



Legend

- Houses
- State Regulated Freshwater Wetlands Checkzone
- State Regulated Freshwater Wetlands
- Usable Area
- Area J Tax Parcels

- NOTES:**
1. There are approximately 272 acres of potential Usable Area to use for Candidate Site J.
 2. There is a 1,000 ft offset between nearby houses and potential Usable Area.
 3. Wetlands data is from NYSDEC.
 4. Tax Parcel data is from GIS NYS Clearinghouse for Kingston, NY. Boundaries are approximate.
 5. This candidate site includes the Town of Rosendale Transfer Station.

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Ulster County Resource Recovery Agency

Ulster County Landfill Feasibility Study

Candidate Site J

FIGURE NO.

10

PROJECT NO.
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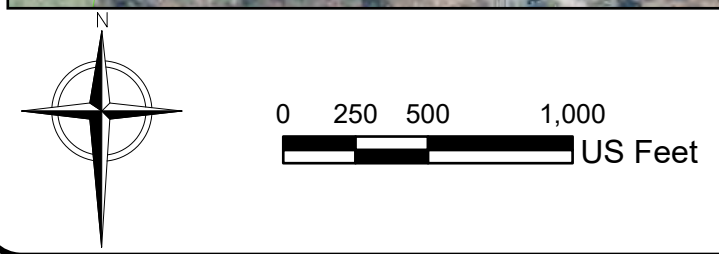


Legend

- Houses
- State Regulated Freshwater Wetlands Checkzone
- State Regulated Freshwater Wetlands
- Usable Area
- Area K Tax Parcels
- Ulster County Border

- NOTES:**
1. There are approximately 21.74 acres of potential Useable Area to use for Candidate Site K.
 2. There is a 1,000 ft offset between nearby houses and potential Usable Area.
 3. Wetlands data is from NYSDEC.
 4. Tax Parcel data is from GIS NYS Clearinghouse for Kingston, NY. Boundaries are approximate.
 5. This candidate site includes the Ulster County Resource Recovery Agency property.

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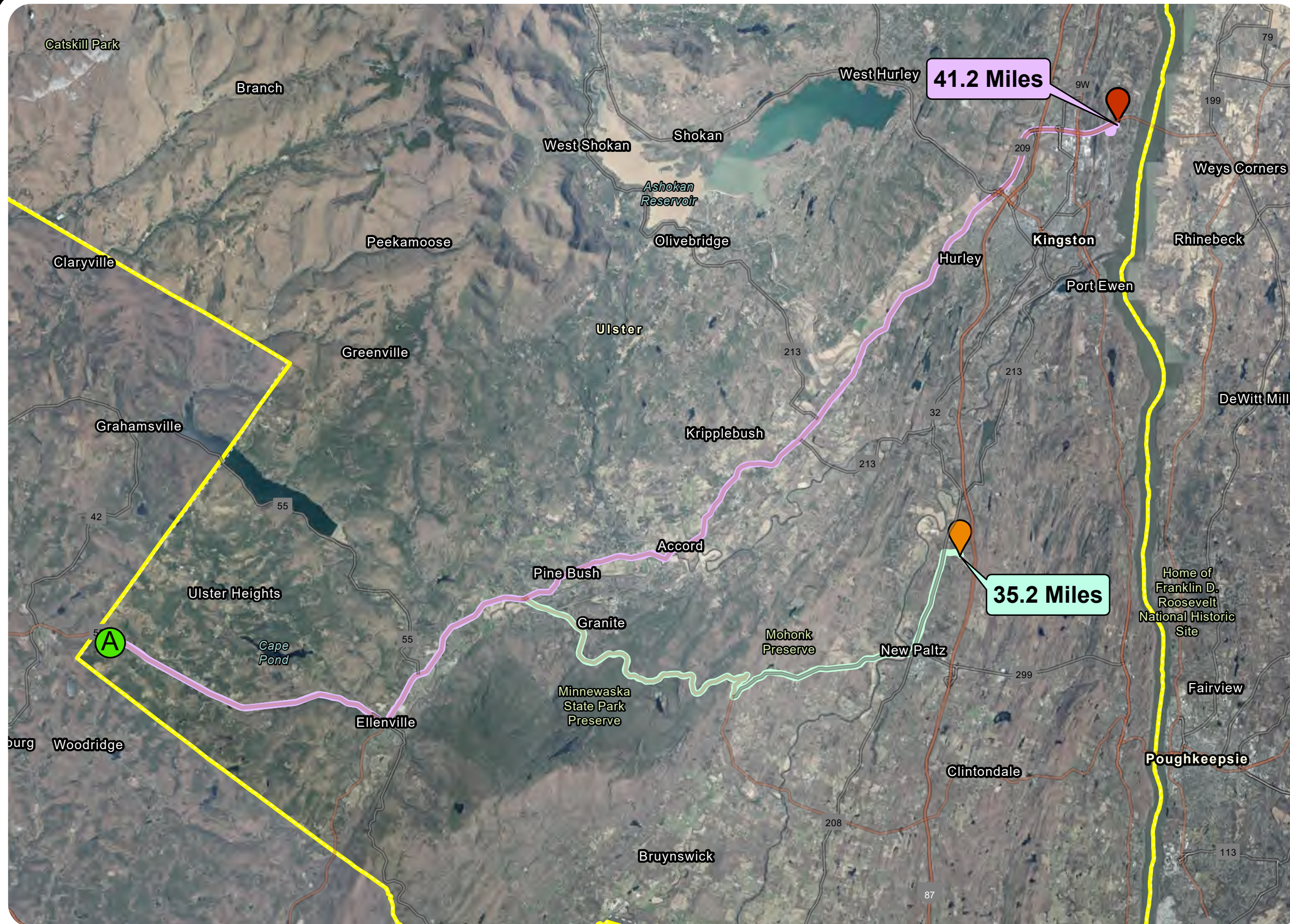
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




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Ulster County Landfill Feasibility Study
Candidate Site K

FIGURE NO.
11
 PROJECT NO.
 4243139

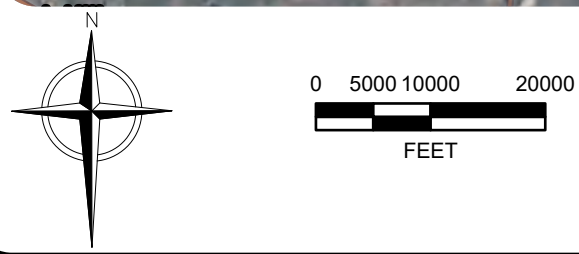


Legend

-  Ulster County Border
-  Route to UCRRA Kingston Transfer Station
-  Route to UCRRA New Paltz Transfer Station
-  UCRRA Kingston Transfer Station
-  UCRRA New Paltz Transfer Station

- NOTES:**
1. Travel route is shortest distance and has not been field verified for truck access.
 2. Travel route mileage is approximate.
 3. The parcel source is the County of Ulster, NY.

Coordinate System: NAD 1983 2011 StatePlane New York East FIPS 3101 Ft US Datum: NAD 1983 2011



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Ulster County Resource Recovery Agency

Ulster County Landfill Feasibility Study

Travel Routes for Candidate Site A

FIGURE NO.






12

PROJECT NO.
4243139

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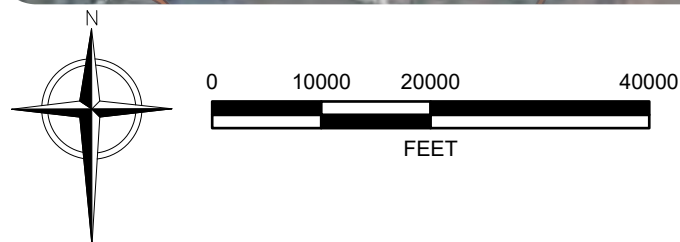


Legend

-  Ulster County Border
-  Route to UCRRA Kingston Transfer Station
-  Route to UCRRA New Paltz Transfer Station
-  UCRRA Kingston Transfer Station
-  UCRRA New Paltz Transfer Station

- NOTES:**
1. Travel route is shortest distance and has not been field verified for truck access.
 2. Travel route mileage is approximate.
 3. The Parcel source is the County of Ulster, NY.

Coordinate System: NAD 1983 2011 StatePlane New York East FIPS 3101 Ft US
Datum: NAD 1983 2011



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




Ulster County Resource Recovery Agency
Ulster County Landfill Feasibility Study
Travel Routes for Candidate Site B

FIGURE NO.
13
 PROJECT NO.
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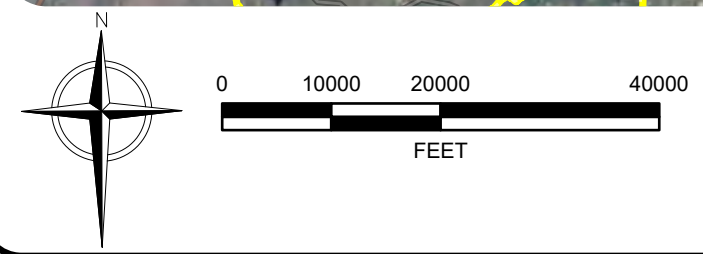
Legend

-  Ulster County Border
-  Route to UCRRA Kingston Transfer Station
-  Route to UCRRA New Paltz Transfer Station
-  UCRRA Kingston Transfer Station
-  UCRRA New Paltz Transfer Station

NOTES:
 1. Travel route is shortest distance and has not been field verified for truck access.
 2. Travel route mileage is approximate.
 3. The Parcel source is the County of Ulster, NY.

Coordinate System: NAD 1983 2011 StatePlane New York East FIPS 3101 Ft US
 Datum: NAD 1983 2011

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Ulster County Resource Recovery Agency
Ulster County Landfill Feasibility Study
Travel Routes for Candidate Site G

FIGURE NO.
14
 PROJECT NO.
 4243139



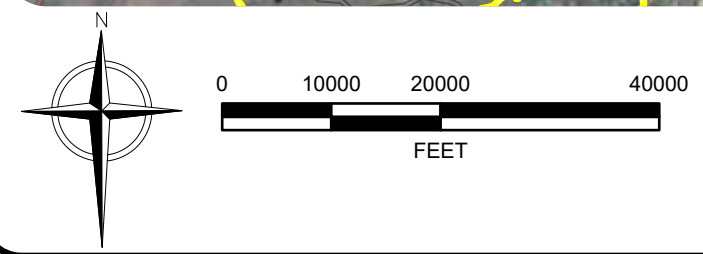
Legend

- Ulster County Border
- Route to Kingston UCRRA Transfer Station
- Route to New Paltz UCRRA Transfer Station
- UCRRA Kingston Transfer Station
- UCRRA New Paltz Transfer Station

- NOTES:**
1. Travel route is shortest distance and has not been field verified for truck access.
 2. Travel route mileage is approximate.
 3. The Parcel source is the County of Ulster, NY.

Coordinate System: NAD 1983 2011 StatePlane New York East FIPS 3101 Ft US
Datum: NAD 1983 2011

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Ulster County Landfill Feasibility Study
Travel Routes for Candidate Site H

FIGURE NO.
15
 PROJECT NO.
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Legend

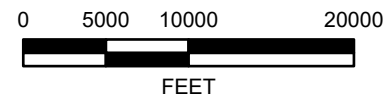
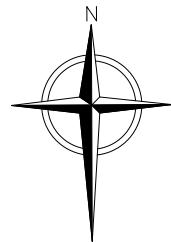
- Ulster County Border
- Route to UCRRA Kingston Transfer Station
- Route to UCRRA New Paltz Transfer Station
- 📍 UCRRA Kingston Transfer Station
- 📍 UCRRA New Paltz Transfer Station

NOTES:

1. Travel route is shortest distance and has not been field verified for truck access.
2. Travel route mileage is approximate.
3. The Parcel source is the County of Ulster, NY.

Coordinate System: NAD 1983 2011 StatePlane New York East FIPS 3101 Ft US Datum: NAD 1983 2011

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Ulster County Landfill Feasibility Study

Travel Routes for Candidate Site I

FIGURE NO.
16

PROJECT NO.
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