APPENDIX G QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT

Honeywell

Qualitative Human Health Exposure Assessment

Former Oak Materials John Street
Hoosick Falls, NY
NYSDEC Site Number 442049

15 April 2022

Document details	
Document title	Qualitative Human Health Exposure Assessment
Document subtitle	Former Oak Materials John Street Hoosick Falls, NY NYSDEC Site Number 442049
Project No.	0378075.002
Date	15 April 2022
Version	**FINAL**
Author	Laura Judd
Client Name	Honeywell

Signature Page

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Former Oak Materials John Street
Hoosick Falls, NY
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ACRONYMS AND ABBREVIATIONS

1,1,1-TCA	1,1,1-trichloroethane
COPCs	Compounds of Potential Concern
CSM	Conceptual Site Model
ERM	Environmental Resources Management
IRM	Interim Remedial Measure
ng/L	Nanograms per liter (parts per trillion)
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	Operations and Maintenance
ng/L	Nanograms per liters
PCBs	Polychlorinated Biphenyls
PFAS	Per- and Polyfluoroalkyl Substances
PFOS	Perfluorooctanesulfonic Acid
PFOA	Perfluorooctanoic Acid
QHHEA	Qualitative Human Health Exposure Assessment
RI	Remedial Investigation
SC	Site Characterization
SCGs	Standards, Criteria, and Guidance
SSDS	Sub-slab Depressurization System
SVI	Soil Vapor Intrusion
TCE	Trichloroethene
VOC	Volatile Organic Compound

1. INTRODUCTION

This Qualitative Human Health Exposure Assessment (QHHEA) Report has been prepared by ERM Consulting and Engineering, Inc. (ERM) on behalf of Honeywell International for the Former Oak Materials John Street property (the Site) located at 3 Lyman Street, in the Village of Hoosick Falls, Rensselaer County, New York ("Site"; **Figure 1**). The Site Characterization (SC) and Remedial Investigation (RI) Site investigation were completed under an Order on Consent and Administrative Settlement with the New York State Department of Environmental Conservation (NYSDEC) dated 3 June 2016 (the Order; Index Number CO 4-20160415-79). Information regarding the Site's background and investigative history is presented in the accompanying Remedial Investigation (RI) Report.

The QHHEA was conducted in accordance with the requirements in DER-10 paragraph 3.3(c) 4 and Appendix 3B to evaluate and document how people may be exposed to Site-related contaminants and to identify and characterize potentially exposed population(s) under current conditions and under reasonably anticipated future use of the Site. The QHHEA focuses on the evaluation of five elements associated with exposure pathways:

- Source of Contamination - a description of the potential contaminant source(s) and potentially impacted environmental media;
- Environmental Release & Transport Mechanisms - an explanation of the contaminant release and transport mechanisms to potential human receptor populations;
- Point of Exposure - identification of potential exposure point(s) where actual or potential human contact with a contaminated medium may occur;
- Route of Exposure - description(s) of the route(s) of exposure (i.e., ingestion, inhalation, dermal absorption); and
- Receptor Population - a characterization of the receptor populations who may be exposed to contaminants at a point of exposure.

If the QHHEA concludes that complete exposure pathways consisting of all five elements above are potentially present at the Site, recommendations on additional exposure analysis and/or other actions appropriate to mitigate the exposure pathway will be provided. If the QHHEA concludes that complete exposure pathways do not exist under current or reasonably anticipated future use of the Site, further human health exposure assessment is not warranted.

The exposure assessment based on the data collected during the SC/ RI activities is presented below.

2. EXPOSURE ASSESSMENT

2.1 Site Setting

The Site is a 0.6-acre parcel that is centrally located in the Village of Hoosick Falls in an area of mixed commercial and residential use (**Figure 1**). The Site is bounded to the west by Lyman Street, to the north by John Street, and to the south by a residential property. The east side of the Site is bounded by an open concrete culvert (an engineered flood control structure) that conveys an intermittent stream known as Woods Brook. The concrete culvert conveys Woods Brook in a north-northeast direction approximately 300 feet where it discharges to the Hoosic River.

Per County tax records, the property is zoned commercial-vacant and there are currently no structures on the property. The past uses of the property were commercial and industrial. A three-story brick, mortar and wood building constructed in the 1890s historically occupied the Site, and was demolished in 2012. The property is generally flat, largely covered with crushed stone and surrounded by a locked fenced to prevent unauthorized access. While there are currently no plans for future property use, future land use is likely to be commercial or recreational with restrictions against residential use.

Land use in the surrounding area consists of a mosaic of residential, commercial, industrial properties, in addition to roadways, a railroad bed (public service) and vacant lots. All occupied properties are connected to the Village public water system.

2.2 Identification of Contaminant Sources

The SC/RI investigation data indicate the potential historic release of contaminants from former manufacturing processes that used volatile organic compounds (VOCs) and per- and poly-fluoroalkyl substances (PFAS) (specifically, perfluorooctanoic acid [PFOA]) , and as established in the RI, these constituents represent the Site-related contaminants of potential concern (COPCs)[1]. The historic release mechanisms are not known but may have included on-Site releases to the ground surface, or on-Site releases to soils beneath the former building, and air emissions, as discussed in the accompanying RI conceptual site model (CSM).

A full discussion of constituents detected in on-Site and off-Site environmental media, and a comparison of these data to applicable New York State (NYS) recommended Standards, Criteria and Guidance (SCGs) is provided in the accompanying RI report, and analytical data for these media compared to applicable SCGs are presented in the accompanying RI report tables. A summary of COPCs in each medium is provided below for the purposes of the QHHEA.

2.2.1 Surface Soil (0 – 2 feet)

PFOA and perfluorooctanesulfonic acid (PFOS) were detected above potentially applicable draft SCOs in surface soil on-Site and off-Site with similar concentrations detected in on-Site and off-Site soils.

2.2.2 Subsurface Soil (> 2 feet)

PFOA and PFOS were detected above SCGs in subsurface soil on-Site and off-Site. Concentrations of VOCs, primarily trichloroethene (TCE) and 1,1,1-trichloroethene (1,1,1-TCA), were also detected above applicable SCGs in on-Site and off-Site subsurface soil.

[1] The SC and RI evaluated a wider group of analytes during Site investigation activities, including semi-VOCs (SVOCs), polychlorinated biphenyls (PCBs), pesticides and metals; however, as discussed in the accompanying RI report, all but VOCs and PFAS were eliminated as Site-related COPCs.

2.2.3 Groundwater

PFOA was detected in on-Site and off-Site groundwater at concentrations exceeding the SCG. PFOS was detected in off-Site groundwater at concentrations exceeding the SCG, but not in on-Site groundwater. Concentrations of VOCs, primarily TCE and 1,1,1-TCA, were detected above applicable SCGs in on-Site and off-Site groundwater.

2.2.4 Soil Vapor

Although no NYS SCGs are available for soil vapor, concentrations of VOCs, primarily TCE and 1,1,1-TCE, were detected in on-Site and off-Site soil vapor samples.

2.2.5 Surface Water

VOCs were detected in surface water from the Hoosic River but, with the exception of one marginal exceedance of 1,1-dichlorethene, were below the applicable SCGs. No VOCs were detected in off-Site samples collected from Woods Brook.

PFOA was detected in surface water from the Hoosic River and off-Site samples from Woods Brook at concentrations exceeding the SCG. Although detected, PFOS in surface water from the Hoosic River did not exceed the applicable SCG (10 nanograms per liter [ng/L]). PFOS was not detected in samples from Woods Brook.

No surface water is present on-Site.

2.2.6 Off-Site Sources

PFOA is present in shallow groundwater up-gradient and cross-gradient of the Site at concentrations similar to those found on the southern end of the Site and indicate an off-Site source. The range of PFOA concentrations in the deeper sand and gravel unit are generally consistent with an off-Site, upgradient contribution of PFOA in groundwater.

PFOS, which is present at higher concentrations in groundwater off-Site than on-Site, also shows an off-Site contribution in groundwater.

2.3 Release and Transport Mechanisms

As noted, the original release mechanisms are not known but may have included on-Site releases to soil at the ground surface, or on-Site releases to soils beneath the former building, as well as off-Site contributions of PFOA and PFOS. The potential release and transport mechanisms for COPCs in Site media include the following.

2.3.1 Fugitive Dust Generation

Surface and subsurface soil may be a source of fugitive dust upon physical disturbance. However, the Site has been commercially developed since the late 1890s and, when the building was demolished in 2012, several feet of compacted crushed stone were placed on the Site surface. Therefore, under current conditions, the generation of fugitive dust emissions from impacted soils at the Site is unlikely. Fugitive dusts generated during future Site redevelopment should be evaluated if the Site is redeveloped.

2.3.2 Volatilization

VOCs in surface and subsurface soil and groundwater may be a source of vapor within soil air spaces that subsequently migrate into indoor air. The presence of VOCs in on-Site and off-Site soil vapor samples confirm this is a relevant transport pathway for COPCs in on-Site soil and groundwater and off-Site groundwater.

2.3.3 Surface Water Runoff

Surface soil particulates may be transported via overland surface flow during storm events. However, the presence of several feet of compact gravel at the surface of the Site limits the potential for soil particulate transport through storm water runoff. The potential for overland runoff historically would have also been limited since the Site has been developed since the late 1890s. Therefore, under current conditions, particulate transport via storm water runoff from the Site is considered unlikely. Storm water runoff during future Site redevelopment may be a relevant transport pathway, however, and controlled accordingly.

2.3.4 Leaching

Infiltrating precipitation from the ground surface, or density driven mechanisms, may result in the downward migration of COPCs in soil to groundwater. Site investigations confirm that COPCs in soil beneath the former building appear to have migrated through or leached from unsaturated soils to shallow groundwater. In addition, VOCs have penetrated into the silt and clay unit through density-driven migration at the Site and appear to have penetrated through the silt and clay at select locations on or adjacent to the Site to the deeper sand and gravel unit and diamict above bedrock.

2.3.5 Groundwater Transport

COPCs in groundwater may migrate laterally or vertically with groundwater flow. In addition, groundwater may discharge to sediment and/or surface water. Site investigations confirm that COPCs in shallow and deep groundwater have migrated off-Site to the north/northwest. In addition, sampling data presented in the RI confirms that groundwater in the unconsolidated overburden flows toward and discharges to the Hoosic River north/northwest of the Site. The Hoosic River is the receptor of comingled shallow and deep groundwater flow, and represents the groundwater flow boundary. It should be noted that there is no evidence of significant connection between Site groundwater and Woods Brook based on potentiometric mapping which is due to presence of the concrete structure through which Woods Brook flows adjacent to the Site.

2.3.6 Air Deposition

The degree to which air emissions historically may have resulted in the deposition of PFAS to surface soil or surface water locally is unknown. This is not a potential release or transport mechanism under current or potential future Site conditions.

2.3.7 Preferential Pathways

In addition to the potential release and transport mechanisms described above, it should be noted that prior to the 1950s, Woods Brook was channelized underneath the former on-Site building and John Street. Woods Brook was re-routed to its current alignment in the 1950s; however, the former channel beneath the former building, as well as the former culvert beneath John Street, may have acted as a preferential pathway for COPC migration from the subsurface into groundwater and the off-Site migration of groundwater.

2.4 Interim Remedial Measures (IRMs)

During the period from 2017 to 2020, three interim remedial measure (IRM) projects were completed that influence the QHHEA evaluation.

- Vapor Intrusion Mitigation IRM: This IRM consisted of off-Site soil vapor intrusion (SVI) screening and mitigation for VOCs in residences and one commercial property in the vicinity of the Site under NYSDEC and NYS Department of Health (NYSDOH) oversight. A

combination of passive (i.e., structural improvements) and active mitigation activities (i.e., sub-slab depressurization systems [SSDS] or air recirculation systems with activated carbon purification) were completed as warranted where access was granted. For all residential properties, these actions were performed as preventative steps against any potential future vapor intrusion. Operation and maintenance activities are on-going, and future screening and mitigation will be performed as required as part of a final Site Management Plan.

- Shallow Groundwater IRM: This IRM consisted of the installation of a permeable barrier to address the VOC impacts to shallow groundwater leaving the Site. Performance monitoring confirms that the Shallow Groundwater IRM is operating as designed and effectively removing VOCs from shallow groundwater before it moves off-Site. In addition, the IRM is removing PFAS including PFOA from shallow groundwater before it moves off-Site.
- John Street Culvert IRM: This IRM consisted of the investigation and subsequent removal of VOC-impacted soil within the old concrete culvert beneath the John Street roadway immediately adjacent to the Site. The IRM resulted in the removal of a substantial mass of residual contaminants in the remaining culvert that may have been contributing COPC mass to shallow groundwater

More detailed summaries of these actions are provided in Section 3 of the accompanying RI report.

2.5 Potential Human Exposure Points, Exposure Routes and Receptor Populations

Based on the information presented above, potentially exposed human receptor populations and complete exposure pathways to Site-related COPCs are identified. This information is summarized in the table below.

Environmental Media & Exposure Route	Human Exposure Assessment
Direct contact with surface soils (and incidental ingestion)	■ Under current conditions, people are not coming into contact with surface soil at the Site because the Site is vacant (no buildings or Site operations) and covered with several feet of compacted crushed stone. In addition, access to the Site is restricted by perimeter fencing that is locked, prohibiting trespassing. ■ Under future conditions, people could contact surface soil if they are involved in ground-intrusive activities.
Direct contact with subsurface soils (and incidental ingestion)	■ People can come into contact with subsurface soil at the Site if they complete ground-intrusive work at the site.
Ingestion of groundwater	■ Contaminated groundwater is not being used for drinking water because Hoosick Falls is served by the public water supply which is treated for PFAS. ■ There are no known private domestic water supply wells in the area of the Site. ■ The public water supply uses groundwater in the area as its source; however, the water is treated through granular activated carbon to remove PFAS and tested on at least monthly basis toverify that it meets drinking water standards prior to distribution to area consumers.

Environmental Media & Exposure Route	Human Exposure Assessment
Direct contact with groundwater	■ On-site workers can come into contact with shallow groundwater if they complete ground-intrusive work at the Site.
Inhalation of air (exposures related to soil vapor intrusion)	■ The on-going shallow groundwater IRM is effectively removing VOCs from shallow groundwater before it leaves the Site. In addition, passive and active mitigation activities were completed as warranted in off-Site buildings under NYSDEC and NYSDOH oversight. Therefore, vapor intrusion in indoor air is no longer an exposure point of potential concern under current conditions in off-Site areas. ■ O&M of active mitigation systems is on-going, and future activities will be specified in a final SMP to ensure that additional actions are implemented as needed to address exposures related to soil vapor intrusion in on-Site and off-Site buildings in the future.
Direct contact with surface water or sediment (and incidental ingestion)	■ The Hoosic River in the vicinity of the Site is classified as C(T), a Class C waterbody, suitable for general recreation use and support of aquatic life, but not as a water supply or for public bathing. People wading along the shoreline of the Hoosic River near or within the groundwater discharge zones may come into contact with sediment and surface water impacted by COPCs in off-Site groundwater.
Fish consumption	■ The Hoosic River in the vicinity of the Site is designated as a cold water (trout) fishery. However, fish advisories on the Hoosic River include a “Don’t Eat” determination for women under 50 and children under 15 years throughout Rensselaer and Washington Counties due to elevated levels of polychlorinated biphenyls (PCBs) (NYSDEC 2016b; 2016a). Effective July 24, 2017, NYSDOH also recommended people do not consume fish from water bodies around Newburgh and Hoosick Falls areas until testing for PFOA, PFOS, and other PFAS is complete (NYSDOH 2017). In addition to these institutional controls, VOCs are not bioaccumulative contaminants. Therefore, the fish consumption pathway is incomplete for this Site.

2.5.1 On-Site Receptors

The Site is owned by Honeywell and is currently vacant (no buildings or Site operations). The property is surrounded by a locked fence, which limits access, and is covered with several feet of compacted crushed stone, which eliminates direct contact with impacted soil or the generation of wind-blown particulates from soil. Therefore, there are no receptor populations who may be exposed to contaminants in surface soil, subsurface soil or groundwater on-Site under current conditions.

Future land use is likely to be commercial or recreational with restrictions against residential use Therefore, exposure to the general public due to on-site soils is not presently a complete exposure pathway.

Water will be provided from the Village public water system; therefore, exposure to groundwater via drinking water is not, and will not be a complete exposure pathway.

Potential on-Site receptor groups and complete exposure pathways under potential future conditions include:

- Commercial/Industrial Workers: If the Site is redeveloped for commercial purposes, adult workers may potentially be exposed to surface soil if left exposed (i.e., not covered by a building, paving or other barrier). Exposure pathways to surface soil could include incidental ingestion, dermal contact and inhalation of particulates. If a commercial building is erected on-Site, workers may also be exposed to VOCs in subsurface soil and groundwater through the migration of vapors into indoor air, and subsequent inhalation.
- Recreational Users: If the Site is redeveloped for recreational purposes, adults, adolescents and children may be exposed to surface soil if left exposed (i.e., not covered by a building, paving or other barrier). Exposure pathways to surface soil could include incidental ingestion, dermal contact and inhalation of particulates. If a recreational building is erected on-Site, recreators may also be exposed to VOCs in subsurface soil and groundwater through the migration of vapors into indoor air, and subsequent inhalation unless a suitable engineering control is in place.
- Construction Workers: Adult construction workers may potentially be exposed to surface and subsurface soils during intrusive construction activities. Exposure pathways to surface and subsurface soils could include incidental ingestion, dermal contact and inhalation of particulates and volatiles. Direct exposure to shallow groundwater may also occur during intrusive construction activities, including incidental ingestion, dermal contact and inhalation of volatiles.

The upcoming Feasibility Study will address potential remedial actions to limit future exposure. The final remedy may include actions such as active remediation, an engineered cover, other engineering controls and deed restrictions, as well as a Site Management Plan.

2.5.2 Off-Site Receptors

The surrounding land use is currently mixed commercial/residential. A former nearby industrial property at First Street is expected to be redeveloped in the near future for recreational use.

Under current conditions, Site-related groundwater impacts are present in off-Site areas, specifically to the north/northwest of the Site. As part of the Vapor Intrusion Mitigation IRM, passive and active mitigation activities were completed as warranted in off-Site buildings under NYSDEC and NYSDOH oversight. Therefore, vapor intrusion in indoor air is no longer an exposure point of potential concern under current conditions in off-Site areas.

Water is provided to off-Site receptors by the Village public water system within Hoosick Falls; therefore, exposure to groundwater via drinking water is not, and will not be, a complete exposure pathway in off-Site areas.

Were contaminants in impacted surface soil able to become airborne, off-Site receptors could also be exposed to the inhalation of particulates; however, since this condition is not currently present, this exposure pathway is incomplete.

Therefore, the off-Site receptor populations who may be exposed to contaminants in off-Site groundwater under current and potential future conditions include:

- Recreational Users: People wading along the shoreline of the Hoosic River near or within groundwater discharge zones may come into contact with sediment and surface water impacted by Site-related COPCs in off-Site groundwater. Exposure pathways to sediment and surface water could include incidental ingestion and dermal contact.

In addition, potential off-Site receptor groups and complete exposure pathways under potential future conditions include:

- Residents: If a residence is erected in a formerly vacant property off-Site, or an off-Site property is redeveloped (changing the configuration of an existing residence) within the plume of VOC-impacted groundwater, adults, adolescents and children may be exposed to VOCs in subsurface groundwater through the migration of vapors into indoor air, and subsequent inhalation. This situation will be addressed in the SMP with vapor intrusion evaluations and mitigation as warranted.
- Commercial/Industrial Workers: If a commercial building is erected in a formerly vacant property off-Site, or an off-Site property is redeveloped (changing the configuration of an existing building, or property land use [e.g., from commercial to residential use]) within the plume of VOC-impacted groundwater, adult workers may be exposed to VOCs in subsurface groundwater through the migration of vapors into indoor air, and subsequent inhalation. This situation will be addressed in the SMP with vapor intrusion evaluations and mitigation as warranted.
- Construction Workers: Adult construction workers may potentially be exposed to Site-related shallow groundwater impacts in off-Site are during intrusive construction activities, including incidental ingestion, dermal contact and inhalation of volatiles.

As noted for on-Site receptors, the upcoming Feasibility Study will address potential remedial actions to limit future exposure. The final remedy may include active remediation, an engineered cover, other engineering controls and deed restrictions with a Site Management Plan.

3. SUMMARY

As discussed in the preceding sections, the QHHEA identified potential human receptors to on-Site and off-Site media impacted by Site-related COPCs. There are no potentially exposed on-Site receptors under current conditions. Under potential future conditions, on-Site receptors include commercial/industrial workers (direct contact with surface soil and inhalation of soil vapor), recreational users (direct contact with surface soil and inhalation of soil vapor), and construction workers (direct contact with surface and subsurface soil, direct contact with shallow groundwater and inhalation of soil vapor). Under current and potential future conditions, off-Site receptors include recreational users in the Hoosic River (direct contact with sediment and surface water); in addition, under potential future conditions, off-Site receptors include residents (inhalation of soil vapor), commercial/industrial worker (inhalation of soil vapor), and construction workers (direct contact with shallow groundwater and inhalation of soil vapor).

The upcoming Feasibility Study will address potential remedial actions to limit future exposure. The final remedy may include active remediation, an engineered cover, other engineering controls and deed restrictions with a Site Management Plan.

4. REFERENCES

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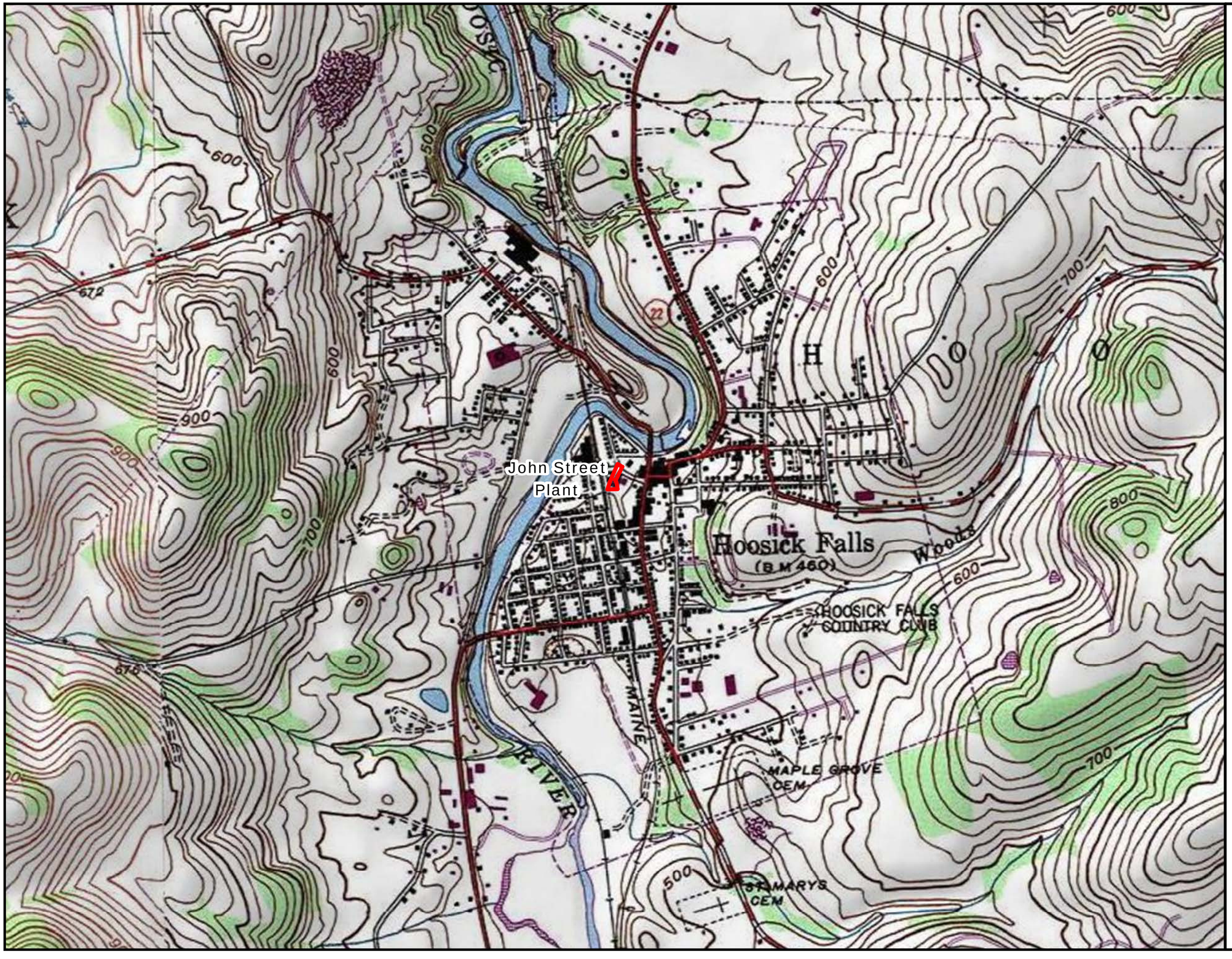

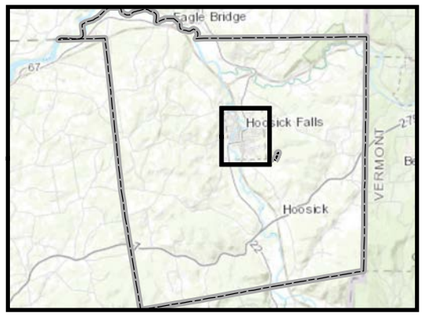

Legend

Approximate Property Boundary

N

0 0.05 0.1 0.2 0.3
Miles

Figure 1: **Property Locations**
Village of Hoosick Falls
Town of Hoosick, New York

ERM

Q:\Boston\Team\DMM\Clients_A_E\Arnold and Porter\Hoosick Falls\MXD\Ecological Risk Assessment\Jan\SitFigure1_PropertyLocations_20210825.mxd - nathan roberts - 8/25/2021

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APPENDIX H FISH AND WILDLIFE RESOURCES IMPACT ANALYSIS

Honeywell

Fish and Wildlife Resource Impact Analysis

Former Oak Materials John Street
Hoosick Falls, NY
NYSDEC Site Number 442049

15 April 2022

Project No.: 0378075.002

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Document details	
Document title	Fish and Wildlife Resource Impact Analysis
Document subtitle	Former Oak Materials John Street Hoosick Falls, NY NYSDEC Site Number 442049
Project No.	0378075.002
Date	15 April 2022
Version	FINAL
Author	Laura Judd, Maureen Leahy, Chris Wenczel
Client Name	Honeywell

15 April 2022

Fish and Wildlife Resource Impact Analysis

Former Oak Materials John Street
Hoosick Falls, NY
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Acronyms and Abbreviations

1,1,1-TCA	1,1,1-trichloroethane
amsl	Above Mean Sea Level
BCP	Brownfield Cleanup Program
CRWQCB	California San Francisco Regional Water Quality Board
CVOCs	Chlorinated Volatile Organic Compound
COPCs	Compounds of Potential Ecological Concern
CSM	Conceptual Site Model
DER	Division of Environmental Remediation
ESV	Ecological Screening Values
ECOS	Environmental Conservation Online System
ERP	Environmental Restoration Program
ERM	Environmental Resources Management
FWRIA	Fish and Wildlife Resources Impact Analysis
FDEP	Florida Department of Environmental Protection
GIS	Geographic Information System
GLI	Great Lakes Initiative
IRM	Interim Remedial Measure
IUCN	International Union for the Conservation of Nature
µg/kg	Micrograms per kilogram (parts per billion)
µg/L	Micrograms per liter (parts per billion)
ng/L	Nanograms per liter (parts per trillion)
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSFW	New York State Freshwater Wetlands
NYNHP	New York State Natural Heritage Program
NOAEL	No Observed Adverse Effect Level
PCBs	Polychlorinated Biphenyls
PFAS	Per- and Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctanesulfonic Acid
ppb	Parts Per Billion
ppt	Parts Per Trillion
RI	Remedial Investigation
SCOs	Soil Cleanup Objectives
SGCN	Species of Greatest Conservation Need
SPDES	State Pollution Disposal Elimination System
SSF	State Superfund Program
SWAP	State Wildlife Action Plan
SSC	Subsurface Clearance
TCE	Trichloroethene
USEPA	United States Environmental Protection Agency
USFWS	US Fish and Wildlife Service
VOC	Volatile Organic Compound
VCP	Voluntary Cleanup Program

1. INTRODUCTION

This Fish and Wildlife Resources Impact Analysis (FWRIA) Report has been prepared by Environmental Resources Management (ERM) on behalf of Honeywell for the Former Oak Materials Fluorglas Division - John Street Site ("the Site") located at 3 Lyman Street, in the Village of Hoosick Falls, Rensselaer County, New York (**Figure 1**). The Site investigation was completed under an Order on Consent and Administrative Settlement with the New York State Department of Environmental Conservation (NYSDEC) dated 3 June 2016 (the Order; Index Number CO 4-20160415-79). Information regarding the Site's background and investigative history is presented in the accompanying Remedial Investigation (RI) Report.

The FWRIA was conducted in accordance with the Fish and Wildlife Impact Analysis (FWIA) for Inactive Hazardous Waste Sites (NYSDEC, 1994) and DER-10 Technical Guidance for Site Investigation and Remediation (NYSDEC, 2010). Following the DER-10, Appendix 3C Decision Key in the NYSDEC's FWRIA guidance, a FWRIA was required (**Appendix A**).The DER-10 guidance divides a FWRIA into two parts, Part 1: Resource Characterization (Section 3.10.1), and Part 2: Ecological Impact Assessment (Section 3.10.2). The purpose of the FWRIA Part 1 is to identify actual or potential impacts to fish and wildlife resources that presently exist at and in the vicinity of the Site[1]. The findings of the FWRIA Part 1 are presented below and will be used by the NYSDEC to determine the need for a FWRIA Part 2 analysis.

Per DER-10, Part 1 of the FWRIA involves the following five steps:

- Step I – Fish and Wildlife Resource Identification;
- Step II – Identified Fish and Wildlife Resource Ecological Characterization;
- Step III – Contaminant Migration/Exposure Pathway Identification;
- Step IV – Identification of Contaminants of Ecological Concern; and
- Step V – Conclusions Regarding Impacts, Potential or Actual, to Identified Resources.

Steps I and II of the FWRIA Part 1 include the identification of the fish and wildlife resources within one-half mile radius around the Site and a detailed description of those resources within one-quarter mile, including a discussion of rare, threatened and endangered species or communities. Following this evaluation, the contaminant migration and exposure pathways are identified as part of an ecological Conceptual Site Model (CSM) (Step III). The ecological CSM depicts the relationship between sources, migration pathways, receptor populations, and the potential exposure pathways and routes associated with the contaminants at the Site. Step IV of the Resource Characterization identifies the contaminants of potential ecological concern (COPECs). This step is accomplished by comparing detected concentrations in each medium of concern to ecological risk-based screening levels. Step V draws conclusions as to the potential for impacts to fish and wildlife resources identified to determine the need for a FWRIA Part 2 analysis.

The results of the FWRIA in accordance with the Steps outlined above are presented in the following sections.

[1] The NYSDEC DER-10 Part 1 FWRIA guidance (NYSDEC, 2010) refers to and generally satisfies the requirements of Step 1, 2A, and 2B of a FWIA for Inactive Hazardous Waste Sites (NYSDEC, 1994); every effort has been made herein to meet the requirements of both.

2. STEP I - FISH AND WILDLIFE RESOURCE IDENTIFICATION

The first step of the FWRIA is to assess whether or not fish or wildlife resources are present in the affected areas based upon current available knowledge of the Site. If no resources are present or no migration pathway exists for COPECs to impact resources, then no further analysis is required. If resources are determined to be present within a 0.5-mile radius, and a migration pathway is present (either currently or historically) then all five steps of the FWRIA Part 1 must be completed.

2.1 Site Description

The Site is a 0.6-acre parcel that is centrally located in the Village of Hoosick Falls in an area of mixed commercial and residential use (**Figure 1**). Per County tax records, the property is zoned commercial-vacant. A three-story brick, mortar and wood building constructed in the 1890s historically occupied the Site, and was demolished in 2012; there are currently no structures on the property. The property is generally flat, gently sloping northward, covered with crushed stone and fenced to prevent unauthorized access. The past uses of the property were commercial and industrial. There are currently no plans for future property use. The Site is bounded to the west by Lyman Street, to the north by John Street, and to the south by a residential property. The east side of the Site is bounded by an open concrete culvert (an engineered flood control structure) that conveys an intermittent stream known as Woods Brook.

Woods Brook is an intermittent stream that originates on the eastern side of the Village of Hoosick Falls. Just north of Estabrook Avenue, it enters a closed culvert system through the center of the Village, and daylights flowing northward into an open drainage channel approximately 450 feet upgradient of the Site. Adjacent to the Site, Woods Brook enters an open concrete culvert, which, as noted above, is an engineered flood control structure that forms the eastern Site boundary. The concrete culvert conveys Woods Brook in a north-northeast direction approximately 300 feet where it discharges to the Hoosic River. The major habitat feature near the Site is the Hoosic River, which is a tributary to the Hudson River and is a designated Inland Waterway under Article 42 of the NYS Executive Law (Waterfront Revitalization of Coastal Areas and Inland Waterways).

Topography in the area of the Village of Hoosick Falls and the surrounding Town of Hoosick is characterized by upland hilly areas on either side of the Hoosic River valley, which generally trends from south-southeast to north-northwest. Elevations in this area range from approximately 400 to 1,200 feet above mean sea level (amsl) with the lowest elevations found along the Hoosic River. The elevation of the Site is approximately 430 feet amsl. Localized runoff on the east side of the railroad tracks that runs north-south through the Village to the west of the Site is towards Woods Brook, as it is for other developed properties adjacent to Woods Brook. A topographical map of local drainage depicting surface flows after hydrological events is provided in **Figure 2**.

The 0.6-acre Site is largely covered by crushed stone and does not contain any ecological habitat. Documented fish and wildlife resources within a 0.5-mile radius of the Site are depicted on **Figure 3**[2]. Covertypes within a 0.5-mile radius of the Site are depicted on **Figure 4**. Covertypes were mapped using the NYSDEC geographic information system (GIS) clearinghouse and within 0.5-miles include: 1) developed, 2) forested, 3) open field, 4) shrub/scrub, and 5) freshwater riverine and wetlands.

Within a 0.5-mile radius of the Site, there are no significant habitats or protected species, other than those associated with the Hoosic River. The identified fish and wildlife resources and covertypes within a 0.25-mile radius of the Site are described in more detail below.

[2] Based on current and historic Site information as presented in the RI, there is no evidence of Site-related COPEC migration either up to or beyond a 0.25-mile radius of the Site.

3. STEP II - IDENTIFIED FISH AND WILDLIFE RESOURCE ECOLOGICAL CHARACTERIZATION

Based on aerial imagery, land use classification inventories, and Site work completed as part of the RI/FS, areas within 0.25-miles of the Site support developed, forested, and riverine covertypes. The Site itself is located within a commercially zoned district in the center of the Village of Hoosick Falls. There are no habitat areas within or immediately adjacent to the Site (as noted previously, Woods Brook is conveyed in an engineered flood control concrete culvert adjacent to the Site and does not contain ecological habitat).

3.1 Terrestrial Covertypes

The terrestrial covertypes on and surrounding the Site are a mixture of cultural (manmade) and natural systems that are highly influenced by human disturbance. The developed land observed in the area consists of a mosaic of residential, commercial, industrial properties, in addition to roadways and a railroad bed (public service) and vacant lots. The natural terrestrial covertype is forested, and is located predominantly on the opposite side of the Hoosic River from the Site.

3.1.1 Developed Land

The developed lands on and in the vicinity of the Site consist of residential, commercial, industrial covertypes, in addition to roadways, a railroad bed, vacant lots and lots used for recreation or open space (parks). This covertype is dominated by structures (metal, wood, or concrete) such as commercial/industrial buildings, houses, bridges, etc. in a densely populated urban/suburban area (Edinger et al., 2014). Within the developed land area, some lots used for community parks, ballfields, picnicking, etc. A segment of the Hoosick River Greenway is present along the eastern shore of the Hoosic River within 0.25-miles of the Site and provides a recreational hiking trail atop a berm constructed for flood control purposes. Vegetation within the developed land covertypes is generally limited to mowed grasses, weeds, isolated or isolated patches of ornamental and/or native shrubs and trees, and vegetative species typical of disturbed urban areas. These areas are unranked cultural covertypes by the New York Natural Heritage Program (Edinger et al., 2014). Typical wildlife species that may be present in this covertype consist of those adapted to urban and suburban landscapes such as (but not limited to) gray squirrel, woodchuck, mice, rabbits and passerine birds.

3.1.2 Forested Land

The only natural terrestrial covertype within 0.25-miles of the Site is the forested covertype. This covertype predominantly occurs on the opposite side of the Hoosic River from the Site, although a small portion of a forested area also occurs east/southeast of the Site. Although not directly surveyed, typical in this region is the successional northern hardwood forest covertype (rank G5 S5). This community occurs on lands that were once cleared or otherwise disturbed. Characteristic trees and shrubs may include aspen, poplar, birch, pine and ash. This is a broadly defined and widespread community, with several regional and edaphic variants (Edinger et al., 2014). Typical wildlife species that may be present in this covertype may include (but not limited to): amphibians (salamanders, toads and frogs); reptiles (turtles and snakes); various avian species (songbirds, upland gamebirds and raptors); small mammals (shrews, mice, bats, rabbits, chipmunk, and squirrels), carnivores/omnivores (opossum, weasels, raccoon, skunk, fox, coyote), and large mammals such as white-tailed deer.

3.2 Aquatic Covertypes

3.2.1 Riverine

The Hoosic River is located approximately 800 feet to the west and northwest, 500 feet to the north and 300 feet to the northeast of the Site. The Hoosic River (as well as Rensselaer County in which the Site is located and the Hudson River downstream) is classified as a confined riverine community (rank G4 S3S4)

by the New York Natural Heritage Program (Edinger et al., 2014). According to 6 NYCRR §701 and §940.4, the reach of the Hoosic River nearest to the site is classified as a Class C waterbody, meaning that it is suitable for general recreation and supports aquatic life, but not as a water supply or bathing without treatment (NYSDEC, 2016b). Traits typical of confined river aquatic communities (as described in Edinger et al., 2014) include:

- Relatively large, fast-flowing moderate to gentle-gradient streams.
- Alternating pools, riffles, runs, and channel islands and bars (low sinuosity).
- Autochthonous river systems, meaning that energy supply is created in-situ in the form of photosynthesis from large plants and algae.
- Moderate fish diversity.
- Species assemblages characteristic of riffles and rock bottoms.
- Clear, well-oxygenated water surrounded by upland riverside communities such as riverside sand/gravel bar or cobble shore outcrop communities.

Observed fish populations in Hoosick Falls are mostly non-native/introduced species such as brown trout (*Salmo trutta*), rainbow trout (*Oncorhynchus mykiss*), white sucker (*Catostomus commersonii*), carp (*Cyprinus carpio*), and smallmouth bass (*Micropterus dolomieu*) (Fontana, 2012). Aquatic macroinvertebrate populations are present and are monitored by the Hoosic River Watershed Association (HRWA). Macroinvertebrate species found in the vicinity of Hoosick Falls include (but are not limited to):

- Arthropods: Ephemeroptera (mayflies), Coleoptera (beetles), Megaloptera (the order containing alderflies, dobsonflies & fishflies), Trichoptera (caddisfly), Diptera ('true flies')
- Decapoda (crustaceans)
- Nemertea ('ribbon worms')
- Oligochaeta (annelid worms)

Macroinvertebrate communities in the area of Hoosick Falls are classified by the HRWA as 'slightly impacted' (Nolan, 2008).

In addition to aquatic vertebrate and macroinvertebrate species, the Hoosic River corridor is known to host white-tailed deer (*Odocoileus virginianus*), muskrat (*Ondatra zibethicus*), bird species including the great blue heron (*Ardea herodias*) and smaller heron species, kingfishers (*Alcedinidae*), bank swallows (*Riparia riparia*), common yellowthroats (*Geothlypis trichas*), catbirds (*Dumetella carolinensis*), killdeer (*Charadrius vociferous*), sandpipers (*family Scolopacidae*), red-tailed hawk (*Buteo jamaicensis*), and bald eagle (*Haliaeetus leucocephalus*) (Fontana, 2012). The bald eagle is listed as a threatened species by NYSDEC (NYSDEC, 2015).

Woods Brook is also located within 0.25 miles of the Site; however, it is predominantly enclosed in a closed culvert system within this area, only daylighting into an open drainage channel for approximately 450 feet upgradient of the Site, after which it is conveyed in an open concrete culvert. There are no known assemblages of fish or macroinvertebrate communities associated with the limited open portion of Woods Brook, which can be defined as a low value resource due to its isolated daylighting, intermittency and subjectivity to storm water scour. Woods Brook has been subject to flooding during extreme storm events, causing material and infrastructure damage to properties in the Village adjacent to the Brook (Barton & Loguidice et al., 2019).

3.3 Potential Endangered Species, Threatened Species, and Species of Special Concern

The presence of significant habitats and protected species within 0.5-miles of the Site were evaluated by searching the following federal and state online databases:

- US Fish and Wildlife Service (USFWS) Environmental Conservation Online System (ECOS), which lists current species identified as threatened, endangered, or special status, along with critical habitat that may support such species. Information is grouped geographically by region. New York State is within Region 5.
- New York State Natural Heritage Program (NYNHP)
- New York State Freshwater Wetlands (NYSFW)
- NYSDEC Environmental Conservation Nature Explorer Database
- NYSDEC Environmental Resources Mapper

Table 1 provides an alphabetical listing of 73 federally listed threatened and endangered species in New York according to USFWS's ECOS database. Table 2 provides a listing of nearly 300 state-listed species associated with Rensselaer County, including extirpated, historically confirmed, possible but not confirmed, and recently confirmed species.

The following are highlights of the search results relevant to the Site:

- The USFWS ECOS reports critical habitats in Region 5 for special status species of birds, clams, crustaceans, fish, mammals, and reptiles. Areas of critical habitat for total of 11 species are listed for New York, none of which are in the vicinity of the Site.
- According to reports prepared by NYNHP, in New York currently three federally endangered plants and five federally threatened plants, one historical (but probably extirpated species) and two extirpated species exist. Of these, NYSDEC's Environmental Conservation Nature Explorer databases lists one of the threatened plant species in Rensselaer County, NY, a fern called Mountain Spleenwort (*Asplenium montanum*) (see Table 2).
- NYSDEC's Environmental Conservation Nature Explorer Database lists seven endangered species with a distribution status of "recently confirmed" in Rensselaer County (see Table 2): peregrine falcon (2000-2005); shortnose sturgeon (2013); two grasses (*Bouteloua curtipendula* in 1999; *Dichanthelium leibergii* in 2000); one flowering plant (*Polygonum buxiforme*, no date); and two sedges (*Carex stylofexa* in 1986; *Carex Typhina*, no date).
- Eighteen state-listed threatened species recently confirmed as present in Rensselaer County include four birds (pied-billed grebe in 2000-2005, northern harrier in 2005, bald eagle in 2016, least bittern in 2014), one mammal (northern long-eared bat in 1985), and 13 flowering plants (see Table 2) observed over approximately a 30-year period. The bald eagle was downlisted from endangered to threatened in New York in 1999 and the state continues management based on a Bald Eagle Conservation Plan (NYSDEC, 2016).
- NYSDEC determines whether habitat is occupied habitat for jurisdictional purposes based on whether there are verified reports of a protected species engaging in one or more essential behaviors in the geographic area in question. The NYNHP database has no records of known occurrences of rare or state-listed animals, plants, or significant habitats on or in the vicinity of the Site.
- Similarly, the NYSDEC Environmental Resources Mapper has no records of state regulated freshwater wetlands, significant natural communities, or rare plants or animals within a 0.25-mile or a 0.5-mile radius of the Site.

3.4 Observations of Stress

There is no evidence of physical or chemical stressors to flora or fauna, stained soils or leachate seeps observed within or adjacent to the Site.

3.5 Value of Habitat to Fish and Wildlife and Humans

The value of the covertypes to wildlife and society was evaluated based on habitat requirements of identified wildlife species and potential resource utilization by humans. The Site and immediate surrounding areas in the Village are developed, and do not provide ecological habitat other than small pockets of isolated vegetation, thus are of little value to wildlife. However, small forested areas within a 0.25-mile radius of the Site and the Hoosic River are natural resources that may support a variety of suburban-adapted wildlife due to the ability of these areas to provide food, cover, breeding and resting areas for aquatic, semi-aquatic, and terrestrial wildlife species.

According to 6 NYCRR §701 and §940.4, the water use classification for the Hoosic River for reaches near the Site is Class C, meaning that it is suitable for general recreation and supports the propagation and survival of aquatic life, but not as a water supply or bathing without treatment. The waterbody is also designated as a cold water (trout) fishery. (NYSDEC, 2016b). A 2-mile long nature trail known as the Village Greenway Trail system is located on the eastern bank of the Hoosic River, which provides public access to the river, fitness stations, and picnic tables.

Fish advisories on the Hoosic River include a “Don’t Eat” determination for women under 50 and children under 15 years throughout Rensselaer and Washington Counties due to elevated levels of polychlorinated biphenyls (PCBs) (NYSDEC, 2016b; 2016a). Effective July 24, 2017, NYS Department of Health (NYSDOH) also recommended people do not consume fish from water bodies around Newburgh and Hoosick Falls areas until testing for perfluorooctanoic acid (PFOA), PFOS, and other per- and polyfluoroalkyl substances (PFAS) is complete (NYSDOH, 2017).

3.6 Applicable Fish and Wildlife Regulatory Criteria

The following New York State laws, rules, regulations, and criteria have been identified for this FWRIA.

New York State Environmental Conservation Law (ECL)

§11-0535 – State Endangered Species Act – 6 NYCRR Part 182 provides lists of species of fish, shellfish, crustacea, and wildlife designated for protection based on a classification system that includes endangered species, threatened species, and species of special concern (i.e., in danger of becoming threatened) (NYSDEC, 2020a). The ECL regulates the taking, importation, transportation, possession, or sale of listed species. NYSDEC determines whether habitat is occupied habitat for jurisdictional purposes based on whether there are verified reports of a protected species engaging in one or more essential behaviors in the geographic area in question. NYSDEC proposed amendments to its regulations on September 11, 2019 to encourage identifying and addressing potential impacts to species and habitats early in the planning process of construction and development projects. NYSDEC utilizes its authority under the State Environmental Quality Review Act (6 NYCRR Part 617) and other permitting authorities to assess potential environmental impacts and make recommendations to project proponents on how to avoid or reduce those impacts (NYSDEC, 2019).

§9-1503 – Protected Native Plants – New York created the Protected Native Plants Program in 1989 to protect plants that are endangered, threatened, rare, or exploitably vulnerable. Current lists are provided by 6 NYCRR Part 193.3 (Chapter 2 – Lands and Forests). Endangered species are defined as native plants in danger of extirpation throughout all or a significant portion of their ranges within the State and requiring remedial action to prevent such extinction. Threatened species are defined as likely to become endangered within the foreseeable future throughout all or a significant portion of their ranges within the State (NYSDEC, 2020b, p. 193).

Wildlife Action Plan

New York develops a State Wildlife Action Plan (SWAP) every 10 years in coordination with the USFWS and the Association of Fish and Wildlife Agencies (AFWA). The most recent plan (2015) summarizes an assessment of 597 species and focuses on protecting Species of Greatest Conservation Need (SGCN) in the state by identifying important habitats, population trends, and the scope and severity of threats using

the International Union for the Conservation of Nature (IUCN) threat classification system (NYSDEC, 2015b).

Ambient Water Quality Standards and Guidance Values and Ground Water Effluent Limitations, TOGS 1.1.1

Ambient water quality guidance values and groundwater effluent limitations for compiled by the Division of Water for use where there are no standards (in 6 NYCRR 703.5) or regulatory effluent limitations (in 703.6). Values are used by state Department programs, including the State Pollution Disposal Elimination System (SPDES) permit program. TOGS 1.1.1 provides ambient values and TOGS 1.1.2 provides groundwater effluent standards. Standards are values that have been promulgated and placed into regulation. Guidance values are used when a standard has not been established (NYSDEC, 1998).

Use and Protection of Waters (6 NYCRR Part 608)

New York's Environmental Regulations, Chapter V (Resource Management Services), Part 608 provides for a regulated permit system whereby the basis for permit issuance is a determination that the proposal is in the public interest by being reasonable and necessary; will not endanger the health, safety, or welfare of the people; and will not cause unreasonable, uncontrolled, or unnecessary damage to the natural resources of the state (NYSDEC, 2020c, p. 608).

Freshwater Wetlands Act (6 NYCRR Parts 663-665)

New York created the Freshwater Wetlands Act in 1975, under Article 24 of the ECL, in response to uncontrolled losses of wetlands. The Act protects wetlands larger than 12.4 acres (5 hectares), and certain smaller wetlands of unusual local importance by requiring permits (under 6 NYCRR Part 663) for defined activities in state-regulated wetlands, limiting activities such as filling or draining that may cause adverse effects (NYSDEC, 2020d, p. 663). Outside the Adirondack Park, DEC classifies wetlands according to 6 NYCRR Part 664, Wetlands Mapping and Classification Regulations, from Class 1, which provide the most benefits, to Class IV, which provide the fewest benefits (NYSDEC, 2020e, p. 664). A process for local governments to assume permitting authority is provided in 6 NYCRR Part 665 (NYSDEC, 2020f, p. 665).

Soil Cleanup Objectives for the Protection of Ecological Resources (6 NYCRR Part 375-6.6 and 6.8)

Part 375 is the development and implementation of remedial programs for inactive hazardous waste disposal sites, brownfield sites and environmental restoration sites. During the investigation of the site, the presence and impact of ecological resources should be determined. Soil cleanup objectives (SCOs) are provided in Tables 375-6.8. If SCOs are not developed for certain contaminants, they should be calculated (NYSDEC, 2006).

NYSDEC Commissioner's Policy 60 (CP-60) Screening and Assessment of Contaminated Sediment

This policy adopts the methods and procedures described in the NYSDEC Division of Fish, Wildlife and Marine Resources, Bureau of Habitat publication entitled "Screening and Assessment of Contaminated Sediment" dated 24 June 2014 as appropriate guidance to be followed when conducting assessments of the toxic risks to natural resources from chemical contaminants in sediment (NYSDEC, 2014).

Technical Guidance for Site Investigation and Remediation (DER-10)

This program policy provides guidance on how to conduct acceptable investigation and remediation activities involving remedial programs administered by the Division of Environmental Remediation (DER) (i.e., Environmental Restoration Program (ERP), Brownfield Cleanup Program (BCP), State Superfund Program (SSF), Voluntary Cleanup Program (VCP), and certain petroleum releases) (NYSDEC, 2010).

4. STEP III – CONTAMINANT MIGRATION / EXPOSURE PATHWAY IDENTIFICATION

Both historically and currently, the Site has not and does not support fish and wildlife resources or ecological habitats. The former building on-Site was constructed in the late 1890s and it was at that time that Woods Brook was culverted underground until reaching the Hoosic River. In the 1950s, Woods Brook was re-routed to its present location and converted to an open concrete culvert adjacent to the Site as part of a larger flood control system for the Village. As noted, the building was demolished in 2012 and currently the surface of the property consists predominantly of several feet of compacted crushed stone. This condition limited the ability to collect discrete surface or near-surface soil samples at the Site. Where present, surface soil at the Site is primarily fill material from grade to between eight and 17 feet below grade. The southern portion of the Site shows some re-growth of weeds and ruderal grasses.

Because there are no habitats present on-Site, there are no complete exposure pathways between ecological receptors and constituents in surface soil. The presence of several feet of compact gravel at the surface of the Site limits the potential for soil particulate transport through storm water runoff. The potential for overland runoff historically would have also been limited as the Site has been developed since the late 1890s. There is no connection between overburden groundwater and Woods Brook adjacent to the southern end of the Site (prior to where Woods Brook enters the concrete culvert) based on potentiometric mapping, and beyond that due to the concrete structure in which it is contained adjacent to the Site. In addition, fish and wildlife resources are absent from Woods Brook.

However, sampling data presented in the RI confirms that groundwater in the unconsolidated overburden flows toward and discharges to the Hoosic River to the northeast of the Site where fish and wildlife resources are present. The Hoosic River is the primary receptor of groundwater flow, and also represents the groundwater flow boundary.

5. STEP IV – IDENTIFICATION OF CONTAMINANTS OF ECOLOGICAL CONCERN

The findings of the Site investigations demonstrated that potentially Site-related COPECs are volatile organic compounds (VOCs) in shallow and deep overburden groundwater (primarily 1,1,1-trichloroethane [1,1,1-TCA] and trichloroethene [TCE]), and to a lesser extent per- and polyfluoroalkyl substances (PFAS) (primarily perfluorooctanoic acid [PFOA]) in in shallow overburden groundwater. Based on extensive delineation activities as described in the RI, VOCs and PFAS (in shallow groundwater) are believed to have originated as accidental releases from separate locations within the footprint of the former on-Site building. Interim remedial measures (IRMs) were implemented at the Site in 2019 to address VOCs in shallow overburden groundwater, including the installation of a PlumeStop™ barrier and the removal of an abandoned subsurface box culvert (associated with the historic route of Woods Brook). The PlumeStop™ IRM has been shown to be effective in addressing the migration of both VOCs and PFAS in shallow overburden groundwater. It should be noted that sampling completed as part of the RI determined that PFAS present in deep overburden groundwater originate from an upgradient source.

Groundwater discharge areas in the Hoosic River were established and sampled for VOCs and PFAS during activities completed as part of the RI. Results for VOCs and PFAS in paired groundwater (porewater) and surface water samples are compared to surface water screening benchmarks to determine whether they represent contaminants of potential ecological concern. Surface water screening benchmarks for PFOS and PFOA are based on an evaluation of benchmarks published by SERDP (2020), which were also adopted as recommended interim final environmental screening levels (ESLs) by California San Francisco Regional Water Quality Board in May 2020 (CRWQCB-SFB, 2020), as well as benchmarks published by Florida Department of Environmental Protection (FDEP) in 2019 (FDEP, 2019a). The PFOS screening level developed by SERDP (2020) is a NOAEL protective of reproduction and survival of piscivorous birds (75 nanogram per liter [ng/L]). The PFOA provisional screening level developed by Florida is a chronic Tier II (secondary) value derived using United States Environmental Protection Agency (USEPA) Great Lakes Initiative (GLI) methods (1,300,000 ng/L) (FDEP, 2019b). Perfluorooctane sulfonate (PFOS) measured in porewater ranged from 3.1 to 6.7 ng/L and in surface water from 2.7 to 4.6 ng/L; PFOA measured in porewater ranged from 7.2 to 1,500 ng/L and in surface water from 11 to 130 ng/L. The measured values of PFOS and PFOA in surface water and groundwater are well below conservative surface water screening levels protective of aquatic life and upper trophic level wildlife.

Total VOCs measured in porewater ranged from below the detection limit to 149.1 micrograms per liter (µg/L) and in surface water from below the detection limit to 10.5 µg/L. Concentrations of the primary individual CVOCs comprising the total are shown below compared to chronic freshwater ecological screening values (ESVs) protective of aquatic organisms (ESV source: USEPA GLI values from USEPA Region 4, 2018). All concentrations are well below levels of potential ecological concern:

Chemical	Ecological Screening Value (µg/L)	Porewater Concentrations (µg/L)	Surface Water Concentrations (µg/L)
trichloroethene	220	0.88 to 71	0.4 to 4.1
1,1-dichloroethane	410	1.0 to 44	1.5 to 4.0
1,1,1-trichloroethane	76	0.53 to 25	1.2 to 1.2
cis-1,2-dichloroethene	620	1.6 to 11	0.31 to 0.31
trans-1,2-dichloroethene	558	0.28 to 0.44	Not detected
1,1-dichloroethene	130	7.0 to 7.9	0.55 to 0.91

The measured values of total VOCs in both groundwater and surface water are well below the lowest of the conservative surface water screening levels protective of aquatic life and upper trophic level wildlife.

In addition, the lack of any exceedances of VOC or PFAS in pore water indicates there are no potential impacts to aquatic communities in the hyporheic zone at the groundwater-surface water interface.

Lastly, although there are no ecological habitats of concern in Woods Brook, for completeness, off-Site surface water and sediment data collected from Woods Brook during the RI confirm the lack of a connection between the Site and this channel. With respect to VOCs and PFAS, low levels of PFOA relative to above identified screening criteria were detected in surface water (210 – 350 ng/L) and sediment (0.66 to 0.89 micrograms per kilogram [µg/kg]) at comparable levels both upgradient and downgradient of the Site, and VOCs were not detected in either media (noting that due to the concrete culvert, sediment samples could only be collected from two locations in Woods Brook, upgradient and side-gradient of the Site).

6. STEP V – CONCLUSIONS REGARDING IMPACTS, POTENTIAL OR ACTUAL, TO IDENTIFIED RESOURCES

The only complete migration pathway between Site COPECs and fish and wildlife resources is migration of impacted groundwater, which flows toward and discharges to the Hoosic River. The Hoosic River is the primary receptor of groundwater flow and also represents the groundwater flow boundary. No fish and wildlife resource present beyond the groundwater discharge areas in the Hoosic River are influenced by Site COPECs. Site COPECs in overburden groundwater include VOCs and to a lesser extent PFAS. Measured concentrations of VOCs and PFAS in surface water and groundwater (porewater) from locations within groundwater discharge areas in the Hoosic River are well below conservative surface water screening levels protective of aquatic life and upper trophic level wildlife. Therefore, it is concluded that there are no impacts, potential or actual, to identified fish and wildlife resources as a result of the Site, and a Part 2: Ecological Impact Assessment is not recommended nor required.

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TABLES

TABLE 1
Federally Listed Threatened and Endangered Species in NYS
John Street Site, Hoosick Falls, New York

	Scientific Name	Common Name	Current Distribution in the U.S.	Footnote
1	*Acronicta albarufa*	Barrens Dagger Moth	AR, CO, CT, DE, GA, MA, MO, NC, NJ, NM, NY, OH, PA	
2	*Agalinis acuta*	Sandplain gerardia	CT, MA, MD, NY, RI	1
3	*Alasmidonta heterodon*	Dwarf wedgemussel	CT, MA, MD, NC, NH, NJ, NY, PA, VA, VT	
4	*Amelanchier nantucketensis*	[Unnamed] service-berry	MA, NY	
5	*Ammocrypta pellucida*	Eastern sand darter	IL, IN, KY, MI, NY, OH, PA, VT, WV	
6	*Asplenium scolopendrium var. americanum*	American hart's-tongue fern	AL, MI, NY, TN	
7	*Atrytone arogos arogos*	Eastern beard grass Skipper	AL, DE, FL, GA, MS, NC, NJ, NY, PA, SC, VA	
8	*Bidens bidentoides bidentoides*	[Unnamed] bur-marigold	DE, NJ, NY, PA	
9	*Bombus terricola*	Yellow banded bumble bee	CT, IL, KY, MA, MD, ME, MI, MN, MT, NC, ND, NH, NY, OH, PA, RI, SD, TN, VA, VT, WI, WV	2
10	*Calamagrostis perplexa*	Wood reedgrass	NY	
11	*Calidris canutus rufa*	Red knot	AL, AR, CT, DE, FL, GA, IL, IN, KS, LA, MA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NY, OH, OK, PA, RI, SC, SD, TX, VA, WI, WV	3
12	*Callophrys irus irus, C. i. hadros, C. i. arsace*	Frosted Elfin	AL, AR, CT, DE, FL, GA, IN, KY, LA, MA, MD, MI, NC, NH, NJ, NY, OH, PA, RI, SC, TN, TX, VA, VT, WI, WV	4
13	*Cardamine longii*	Long's bittercress	DE, MA, MD, ME, NC, NH, NJ, NY, RI, VA	
14	*Carex barrattii*	Barratt's sedge	AL, CT, DE, MD, NC, NJ, NY, PA, TN, VA	
15	*Carex polymorpha*	Variable sedge	CT, DE, MA, MD, ME, NH, NJ, NY, PA, RI, VA, WV	
16	*Carex schweinitzii*	[Unnamed] sedge	CT, DE, MA, MO, NC, NJ, NY, PA, VA, VT, WI	
17	*Catharus bicknelli*	Bicknell's thrush	MA, ME, NH, NY, VT	
18	*Catocala pretiosa pretiosa*	Precious underwing	CT, DE, MA, MD, NH, NJ, NY, OH, PA, VA	
19	*Charadrius melodus*	Piping Plover	AL, AR, CO, CT, DE, FL, GA, IA, KS, LA, MA, MD, ME, MS, MT, NC, ND, NE, NH, NJ, NM, NY, OK, RI, SC, SD, TX, VA, WY	
20	*Cicindela marginipennis*	Cobblestone tiger beetle	AL, CT, DE, IN, KY, MA, ME, NH, NJ, NY, OH, PA, RI, VT, WV	5
21	*Clemmys muhlenbergii*	bog turtle	VA, TN, SC, PA, NY, NJ, NC, MD, MA, GA, DE, CT	
22	*Desmodium humifusum*	Ground-spreading tick-trefoil	CT, DE, MA, MD, NJ, NY, PA	
23	*Dichanthelium scabriusculum*	woolly rosette grass	DC, NY, RI, VA	
24	*Elodea schweinitzii*	Schweinitz's waterweed	NY, PA	6
25	*Enallagma laterale*	Lateral bluet	DE, IN, MA, ME, NJ, NY, PA	
26	*Enallagma recurvatum*	Barrens bluet damselfly	DE, MA, NJ, NY	
27	*Epioblasma torulosa rangiana*	Northern rifflesheIl	IL, IN, KY, MI, NY, OH, PA, WV	
28	*Eriocaulon parkeri*	Parker's pipewort	CT, DC, DE, MA, MD, ME, NC, NJ, NY, PA, VA	
29	*Etheostoma maculatum*	Spotted darter	NY	
30	*Eupatorium resinosum*	Pine barrens boneset	DE, NC, NJ, NY, SC	7
31	*Glyptemys insculpta*	Wood turtle	CT, DC, DE, IA, MA, MD, ME, MI, MN, NH, NJ, NY, OH, PA, VA, VT, WI, WV	7
32	*Gomphus adelphus*	Hudson clubtail dragonfly	MA, NY	
33	*Helianthemum dumosum*	Bushy rush-rose	CT, MA, NY, RI	
34	*Hemileuca sp.*	bog buckmoth	NY, WI	
35	*Hypericum adpressum*	No common name	AL, CT, DE, GA, IL, IN, KY, MA, MD, NJ, NY, PA, RI, SC, TN, VA	
36	*Incisalia lanoraieensis*	Bog elfin butterfly	ME, NH, NY	
37	*Isoetes eatonii*	Eaton's quillwort	CT, DE, MA, NH, NJ, NY	
38	*Isotria medeoloides*	Small whorled pogonia	CT, DE, GA, IL, MA, MD, ME, MI, MO, NC, NH, NJ, NY, OH, PA, RI, SC, TN, VA, WV	
39	*Lambdina canitiaria*	[Unnamed] looper moth	NY	8
40	*Liatris borealis*	[Unnamed] blazingstar	CT, DE, MA, ME, NH, NJ, NY, PA, RI	
41	*Listera auriculata*	Auricled twayblade	ME, MI, MN, NH, NY, VT, WI	
42	*Lordithon niger*	Black lordithon rove beetle	AR, CT, DC, GA, IL, KY, MI, MO, NC, NY, OH, PA, TX, VA, WV	8
43	*Malaclemys terrapin terrapin*	Northern diamondback terrapin	CT, DE, MA, MD, NC, NJ, NY, RI, VA	
44	*Martes americana americana*	Eastern marten	MA, ME, MI, ND, NH, NY, OH, PA, VT, WI	
45	*Merolonche dolli*	Doll's merolonche	DE, MI, MN, NJ, NY, PA	
46	*Micranthemum micranthemoides*	Nuttall's micranthemum	DC, DE, MD, NJ, NY, PA, VA	6
47	*Microsorex hoyi thompsoni*	Northeastern pygmy shrew	MA, ME, MI, NH, NY, OH, PA, VT, WI, WV	

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	Scientific Name	Common Name	Current Distribution in the U.S.	Footnote
48	*Muhlenbergia torreyana*	Torrey's muhly	DE, GA, MD, NC, NJ, NY, TN	
49	*Papaipema aerata*	[Unnamed] noctuid moth	DE, IL, MI, NH, NJ, NY, PA	
50	*Percina macrocephala*	Longhead darter	KY, NY, OH, PA, TN, WV	
51	*Perimyotis subflavus*	Tricolored bat	AL, AR, CO, CT, DE, FL, GA, IA, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, NC, NE, NH, NJ, NM, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, WV, WY	7
52	*Pleurobema clava*	Clubshell	IL, IN, KY, MI, MS, NY, OH, PA, TN, WV	
53	*Polemonium vanbruntiae*	[Unnamed] jacob's ladder	CT, DE, MD, ME, NJ, NY, PA, VT, WV	
54	*Potamogeton hillii*	Hill's pondweed	CT, MA, MI, NY, OH, PA, VT	
55	*Potamogeton lateralis*	No common name	CT, MA, MI, MN, NH, NY, VT	
56	*Potamogeton ogdenii*	[Unnamed] pondweed	MA, NY, VT	
57	*Prenanthes boottii*	Boott's rattlesnake root	ME, NH, NY, VT	
58	*Pseudemys rubriventris*	Northern Red-bellied cooter	DC, DE, MA, MD, NC, NJ, NY, PA, VA	7
59	*Pyrgus centaureae*	Grizzled skipper	DE, KY, MD, MI, NC, NJ, NY, OH, PA, VA, WV	
60	*Schizaea pusilla*	Curly-grass fern	DE, NJ, NY	
61	*Scirpus ancistrochaetus*	Northeastern bulrush	MA, MD, NH, NY, PA, VA, VT, WV	
62	*Scirpus longii*	Long's bulrush	CT, DE, MA, ME, NH, NJ, NY, RI	
63	*Siphlonisca aerodromia*	Tomah mayfly	ME, NY	
64	*Sorex dispar*	Long-tailed shrew	DE, MA, MD, ME, NC, NH, NJ, NY, PA, TN, VA, VT, WV	
65	*Spongilla heteroslerifa*	Oneida sponge	NY	
66	*Sterna dougallii dougallii*	Roseate tern	CT, MA, ME, NC, NH, NJ, NY, RI, VA	
67	*Stygobromus allegheniensis*	Allegheny cave amphipod	MD, NY, PA	
68	*Suaeda rolandii*	No common name	DE, NJ, NY	
69	*Succinea chittenangoensis*	Chittenango ovate amber snail	NY	9
70	*Sylvilagus transitionalis*	New England cottontail	ME, NY	
71	*Thamnophis brachystoma*	Short-headed garter snake	NY, PA	
72	*Trollius laxus laxus*	No common name	CT, DE, NJ, NY, OH, PA	
73	*Williamsonia lintneri*	Banded bog skimmer	CT, DE, MA, NH, NJ, NY, RI	

Footnotes

(1) The current range for this species extends northward from MD to MA, specifically within each of these five states (RI, NY, MD, MA, CT)

(2) Historic distribution included the northeast southward into the higher elevations of the Appalachians, the upper Midwest extending west to the Rocky Mountains, most of southeastern Canada (Cameron, et al., 2011 at 663-64) and northwest into British Columbia (Stephen, 1957 at 81).

(3) The rufa red knot migrates annually between its breeding grounds in the Canadian Arctic and several wintering regions, including the southeast U.S., the northwest Gulf of Mexico, northern Brazil and Tierra del Fuego at the southern tip of South America. During both the northbound (spring) and southbound (fall) migrations, groups of a few individuals to thousands of rufa red knots can be found anywhere along the coastal and inland U.S. migration corridors from Argentina to Canada. In the spring, key staging and stopover areas include Patagonia, Argentina; eastern and northern Brazil; the southeast U.S.; the Virginia barrier islands; and Delaware Bay. In the fall, key migration stopovers include Hudson Bay, James Bay, the St. Lawrence River, the Mingan Archipelago, and the Bay of Fundy in Canada; the Massachusetts and New Jersey coasts; the Altamaha River in Georgia; the Caribbean; and the northern coast of South America from Brazil to Guyana.

(4) The distribution of the frosted elfin once extended from southern Ontario and the northeastern United States, south to FL, and west to TX and WI (Allen 1997, p. 93; Opler and Krizek 1984, p. 100). The frosted elfin has a wide range (25 states) in North America. However, the species is likely extirpated from Ontario, Canada, and the District of Columbia, GA, IL, and VT due to loss of host plants as a result of incompatible vegetation management, loss of frosted elfin populations and habitat from catastrophic fire, and residential development.

(5) The historical range of the CTB has been recorded from New Brunswick, Canada into the United States with populations in ME, NH, VT, MA, NY, NJ, PA, WV, IN, OH, KT, AL, MS, in riverine habitats with cobble substrates. The exception is the Grand Lake, New Brunswick population that occurs along similar substrates on the lake's shoreline.

(6) Possibly extinct

(7) Under review.

(8) Possibly extinct,not reported since 1965.

(9) Chittenango Falls State Park.

TABLE 2
Special Status Species in Rensselaer County, NY
John Street Site, Hoosick Falls, New York

Type	Group	Subgroup	Scientific Name	Common Name	Distribution Status	Year Last Documented	State Protection Status
			Amphibians				
Animal	Amphibians	Salamanders	*Ambystoma jeffersonianum*	Jefferson Salamander	RC	1990-1999	SC
Animal	Amphibians	Salamanders	*Ambystoma laterale*	Blue-spotted Salamander	RC	1990-1999	SC
			Birds				
Animal	Birds	Blackbirds and Orioles	*Agelaius phoeniceus*	Red-winged Blackbird	RC	2000-2005	PB
Animal	Birds	Blackbirds and Orioles	*Dolichonyx oryzivorus*	Bobolink	RC	2000-2005	PB
Animal	Birds	Blackbirds and Orioles	*Icterus galbula*	Baltimore Oriole	RC	2000-2005	PB
Animal	Birds	Blackbirds and Orioles	*Icterus spurius*	Orchard Oriole	RC	2000-2005	PB
Animal	Birds	Blackbirds and Orioles	*Molothrus ater*	Brown-headed Cowbird	RC	2000-2005	PB
Animal	Birds	Blackbirds and Orioles	*Quiscalus quiscula*	Common Grackle	RC	2000-2005	PB
Animal	Birds	Blackbirds and Orioles	*Sturnella magna*	Eastern Meadowlark	RC	2000-2005	PB
Animal	Birds	Cardinals and Buntings	*Cardinalis cardinalis*	Northern Cardinal	RC	2000-2005	PB
Animal	Birds	Cardinals and Buntings	*Passerina cyanea*	Indigo Bunting	RC	2000-2005	PB
Animal	Birds	Cardinals and Buntings	*Pheucticus ludovicianus*	Rose-breasted Grosbeak	RC	2000-2005	PB
Animal	Birds	Cardinals and Buntings	*Piranga olivacea*	Scarlet Tanager	RC	2000-2005	PB
Animal	Birds	Chickadees and Titmice	*Baeolophus bicolor*	Tufted Titmouse	RC	2000-2005	PB
Animal	Birds	Chickadees and Titmice	*Poecile atricapillus*	Black-capped Chickadee	RC	2000-2005	PB
Animal	Birds	Cormorants	*Phalacrocorax auritus*	Double-crested Cormorant	RC	2000-2005	PB
Animal	Birds	Creepers	*Certhia americana*	Brown Creeper	RC	2000-2005	PB
Animal	Birds	Crows and Jays	*Corvus brachyrhynchos*	American Crow	RC	2000-2005	PB - open
Animal	Birds	Crows and Jays	*Corvus corax*	Common Raven	RC	2000-2005	PB
Animal	Birds	Crows and Jays	*Corvus ossifragus*	Fish Crow	RC	2000-2005	PB - open
Animal	Birds	Crows and Jays	*Cyanocitta cristata*	Blue Jay	RC	2000-2005	PB
Animal	Birds	Cuckoos	*Coccyzus americanus*	Yellow-billed Cuckoo	RC	2000-2005	PB
Animal	Birds	Cuckoos	*Coccyzus erythropthalmus*	Black-billed Cuckoo	RC	2000-2005	PB
Animal	Birds	Ducks Geese Waterfowl	*Aix sponsa*	Wood Duck	RC	2000-2005	PB - open
Animal	Birds	Ducks Geese Waterfowl	*Anas crecca*	Green-winged Teal	RC	2000-2005	PB - open
Animal	Birds	Ducks Geese Waterfowl	*Anas platyrhynchos*	Mallard	RC	2000-2005	PB - open
Animal	Birds	Ducks Geese Waterfowl	*Anas platyrhynchos x rubripes*	Mallard x Am. Black Duck	RC	2000-2005	PB - open
Animal	Birds	Ducks Geese Waterfowl	*Anas rubripes*	American Black Duck	RC	2000-2005	PB - open
Animal	Birds	Ducks Geese Waterfowl	*Branta canadensis*	Canada Goose	RC	2000-2005	PB - open
Animal	Birds	Ducks Geese Waterfowl	*Cygnus olor*	Mute Swan	RC	2000-2005	PB
Animal	Birds	Ducks Geese Waterfowl	*Lophodytes cucullatus*	Hooded Merganser	RC	2000-2005	PB - open
Animal	Birds	Ducks Geese Waterfowl	*Mergus merganser*	Common Merganser	RC	2000-2005	PB - open
Animal	Birds	Finches and Crossbills	*Coccothraustes vespertinus*	Evening Grosbeak	RC	2000-2005	PB
Animal	Birds	Finches and Crossbills	*Haemorhous mexicanus*	House Finch	RC	2000-2005	PB
Animal	Birds	Finches and Crossbills	*Haemorhous purpureus*	Purple Finch	RC	2000-2005	PB
Animal	Birds	Finches and Crossbills	*Loxia leucoptera*	White-winged Crossbill	RC	2000-2005	PB
Animal	Birds	Finches and Crossbills	*Spinus pinus*	Pine Siskin	RC	2000-2005	PB
Animal	Birds	Finches and Crossbills	*Spinus tristis*	American Goldfinch	RC	2000-2005	PB
Animal	Birds	Flycatchers	*Contopus cooperi*	Olive-sided Flycatcher	RC	2000-2005	PB
Animal	Birds	Flycatchers	*Contopus virens*	Eastern Wood-Pewee	RC	2000-2005	PB
Animal	Birds	Flycatchers	*Empidonax alnorum*	Alder Flycatcher	RC	2000-2005	PB
Animal	Birds	Flycatchers	*Empidonax minimus*	Least Flycatcher	RC	2000-2005	PB
Animal	Birds	Flycatchers	*Empidonax traillii*	Willow Flycatcher	RC	2000-2005	PB
Animal	Birds	Flycatchers	*Myiarchus crinitus*	Great Crested Flycatcher	RC	2000-2005	PB
Animal	Birds	Flycatchers	*Sayornis phoebe*	Eastern Phoebe	RC	2000-2005	PB
Animal	Birds	Flycatchers	*Tyrannus tyrannus*	Eastern Kingbird	RC	2000-2005	PB
Animal	Birds	Gnatcatchers	*Polioptila caerulea*	Blue-gray Gnatcatcher	RC	2000-2005	PB
Animal	Birds	Grebes	*Podilymbus podiceps*	Pied-billed Grebe	RC	2000-2005	T

TABLE 2
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John Street Site, Hoosick Falls, New York

Type	Group	Subgroup	Scientific Name	Common Name	Distribution Status	Year Last Documented	State Protection Status
Animal	Birds	Grouse Pheasants Turkeys	*Bonasa umbellus*	Ruffed Grouse	RC	2000-2005	PB - open
Animal	Birds	Grouse Pheasants Turkeys	*Colinus virginianus*	Northern Bobwhite	RC	2000-2005	PB - open
Animal	Birds	Grouse Pheasants Turkeys	*Meleagris gallopavo*	Wild Turkey	RC	2000-2005	PB - open
Animal	Birds	Grouse Pheasants Turkeys	*Phasianus colchicus*	Ring-necked Pheasant	RC	2000-2005	PB - open
Animal	Birds	Gulls Terns Plovers Shorebirds	*Actitis macularius*	Spotted Sandpiper	RC	2000-2005	PB
Animal	Birds	Gulls Terns Plovers Shorebirds	*Charadrius vociferus*	Killdeer	RC	2000-2005	PB
Animal	Birds	Gulls Terns Plovers Shorebirds	*Gallinago delicata*	Wilson's Snipe	RC	2000-2005	PB - open
Animal	Birds	Gulls Terns Plovers Shorebirds	*Scolopax minor*	American Woodcock	RC	2000-2005	PB - open
Animal	Birds	Hawks Falcons Eagles Vultures	*Accipiter cooperii*	Cooper's Hawk	RC	2000-2005	SC
Animal	Birds	Hawks Falcons Eagles Vultures	*Accipiter gentilis*	Northern Goshawk	RC	2000-2005	SC
Animal	Birds	Hawks Falcons Eagles Vultures	*Accipiter striatus*	Sharp-shinned Hawk	RC	2000-2005	SC
Animal	Birds	Hawks Falcons Eagles Vultures	*Buteo jamaicensis*	Red-tailed Hawk	RC	2000-2005	PB
Animal	Birds	Hawks Falcons Eagles Vultures	*Buteo lineatus*	Red-shouldered Hawk	RC	2000-2005	SC
Animal	Birds	Hawks Falcons Eagles Vultures	*Buteo platypterus*	Broad-winged Hawk	RC	2000-2005	PB
Animal	Birds	Hawks Falcons Eagles Vultures	*Circus cyaneus*	Northern Harrier	RC	2005	T
Animal	Birds	Hawks Falcons Eagles Vultures	*Falco peregrinus*	Peregrine Falcon	RC	2000-2005	E
Animal	Birds	Hawks Falcons Eagles Vultures	*Falco sparverius*	American Kestrel	RC	2000-2005	PB
Animal	Birds	Hawks Falcons Eagles Vultures	*Haliaeetus leucocephalus*	Bald Eagle	RC	2016	T
Animal	Birds	Hawks Falcons Eagles Vultures	*Pandion haliaetus*	Osprey	RC	2000-2005	SC
Animal	Birds	Herons Bitterns Egrets Pelicans	*Ardea herodias*	Great Blue Heron	RC	2000-2005	PB
Animal	Birds	Herons Bitterns Egrets Pelicans	*Botaurus lentiginosus*	American Bittern	RC	2000-2005	SC
Animal	Birds	Herons Bitterns Egrets Pelicans	*Butorides virescens*	Green Heron	RC	2000-2005	PB
Animal	Birds	Herons Bitterns Egrets Pelicans	*Ixobrychus exilis*	Least Bittern	RC	2014	T
Animal	Birds	Herons Bitterns Egrets Pelicans	*Nycticorax nycticorax*	Black-crowned Night-Heron	RC	2000-2005	PB
Animal	Birds	Hummingbirds and Swifts	*Archilochus colubris*	Ruby-throated Hummingbird	RC	2000-2005	PB
Animal	Birds	Hummingbirds and Swifts	*Chaetura pelagica*	Chimney Swift	RC	2000-2005	PB
Animal	Birds	Kingfishers	*Megaceryle alcyon*	Belted Kingfisher	RC	2000-2005	PB
Animal	Birds	Kinglets	*Regulus calendula*	Ruby-crowned Kinglet	RC	2000-2005	PB
Animal	Birds	Kinglets	*Regulus satrapa*	Golden-crowned Kinglet	RC	2000-2005	PB
Animal	Birds	Mockingbirds and Thrashers	*Dumetella carolinensis*	Gray Catbird	RC	2000-2005	PB
Animal	Birds	Mockingbirds and Thrashers	*Mimus polyglottos*	Northern Mockingbird	RC	2000-2005	PB
Animal	Birds	Mockingbirds and Thrashers	*Toxostoma rufum*	Brown Thrasher	RC	2000-2005	PB
Animal	Birds	Nightbirds	*Antrostomus vociferus*	Whip-poor-will	HC		SC
Animal	Birds	Nightbirds	*Chordeiles minor*	Common Nighthawk	RC	2000-2005	SC
Animal	Birds	Nuthatches	*Sitta canadensis*	Red-breasted Nuthatch	RC	2000-2005	PB
Animal	Birds	Nuthatches	*Sitta carolinensis*	White-breasted Nuthatch	RC	2000-2005	PB
Animal	Birds	Owls	*Aegolius acadicus*	Northern Saw-whet Owl	RC	2000-2005	PB
Animal	Birds	Owls	*Asio otus*	Long-eared Owl	RC	2000-2005	PB
Animal	Birds	Owls	*Bubo virginianus*	Great Horned Owl	RC	2000-2005	PB
Animal	Birds	Owls	*Megascops asio*	Eastern Screech-Owl	RC	2000-2005	PB
Animal	Birds	Owls	*Strix varia*	Barred Owl	RC	2000-2005	PB
Animal	Birds	Owls	*Tyto alba*	Barn Owl	RC		PB
Animal	Birds	Pigeons and Doves	*Zenaida macroura*	Mourning Dove	RC	2000-2005	PB
Animal	Birds	Rails Coots and Cranes	*Gallinula galeata*	Common Moorhen	RC	2000-2005	PB - open
Animal	Birds	Rails Coots and Cranes	*Porzana carolina*	Sora	RC	2000-2005	PB - open
Animal	Birds	Rails Coots and Cranes	*Rallus limicola*	Virginia Rail	RC	2000-2005	PB - open
Animal	Birds	Swallows	*Hirundo rustica*	Barn Swallow	RC	2000-2005	PB
Animal	Birds	Swallows	*Petrochelidon pyrrhonota*	Cliff Swallow	RC	2000-2005	PB
Animal	Birds	Swallows	*Progne subis*	Purple Martin	RC	2000-2005	PB
Animal	Birds	Swallows	*Riparia riparia*	Bank Swallow	RC	2000-2005	PB

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Special Status Species in Rensselaer County, NY
John Street Site, Hoosick Falls, New York

Type	Group	Subgroup	Scientific Name	Common Name	Distribution Status	Year Last Documented	State Protection Status
Animal	Birds	Swallows	*Stelgidopteryx serripennis*	Northern Rough-winged	RC	2000-2005	PB
Animal	Birds	Swallows	*Tachycineta bicolor*	Tree Swallow	RC	2000-2005	PB
Animal	Birds	Thrushes and Bluebirds	*Catharus fuscescens*	Veery	RC	2000-2005	PB
Animal	Birds	Thrushes and Bluebirds	*Catharus guttatus*	Hermit Thrush	RC	2000-2005	PB
Animal	Birds	Thrushes and Bluebirds	*Catharus ustulatus*	Swainson's Thrush	RC	2000-2005	PB
Animal	Birds	Thrushes and Bluebirds	*Hylocichla mustelina*	Wood Thrush	RC	2000-2005	PB
Animal	Birds	Thrushes and Bluebirds	*Sialia sialis*	Eastern Bluebird	RC	2000-2005	PB
Animal	Birds	Thrushes and Bluebirds	*Turdus migratorius*	American Robin	RC	2000-2005	PB
Animal	Birds	Vireos	*Vireo flavifrons*	Yellow-throated Vireo	RC	2000-2005	PB
Animal	Birds	Vireos	*Vireo gilvus*	Warbling Vireo	RC	2000-2005	PB
Animal	Birds	Vireos	*Vireo olivaceus*	Red-eyed Vireo	RC	2000-2005	PB
Animal	Birds	Vireos	*Vireo solitarius*	Blue-headed Vireo	RC	2000-2005	PB
Animal	Birds	Waxwings	*Bombycilla cedrorum*	Cedar Waxwing	RC	2000-2005	PB
Animal	Birds	Woodpeckers	*Colaptes auratus*	Northern Flicker	RC	2000-2005	PB
Animal	Birds	Woodpeckers	*Dryocopus pileatus*	Pileated Woodpecker	RC	2000-2005	PB
Animal	Birds	Woodpeckers	*Melanerpes carolinus*	Red-bellied Woodpecker	RC	2000-2005	PB
Animal	Birds	Woodpeckers	*Melanerpes erythrocephalus*	Red-headed Woodpecker	HC	2000-2005	SC
Animal	Birds	Woodpeckers	*Picoides pubescens*	Downy Woodpecker	RC	2000-2005	PB
Animal	Birds	Woodpeckers	*Picoides villosus*	Hairy Woodpecker	RC	2000-2005	PB
Animal	Birds	Woodpeckers	*Sphyrapicus varius*	Yellow-bellied Sapsucker	RC	2000-2005	PB
Animal	Birds	Wood-Warblers	*Cardellina canadensis*	Canada Warbler	RC	2000-2005	PB
Animal	Birds	Wood-Warblers	*Geothlypis philadelphia*	Mourning Warbler	RC	2000-2005	PB
Animal	Birds	Wood-Warblers	*Geothlypis trichas*	Common Yellowthroat	RC	2000-2005	PB
Animal	Birds	Wood-Warblers	*Mniotilta varia*	Black-and-white Warbler	RC	2000-2005	PB
Animal	Birds	Wood-Warblers	*Oreothlypis ruficapilla*	Nashville Warbler	RC	2000-2005	PB
Animal	Birds	Wood-Warblers	*Parkesia motacilla*	Louisiana Waterthrush	RC	2000-2005	PB
Animal	Birds	Wood-Warblers	*Parkesia noveboracensis*	Northern Waterthrush	RC	2000-2005	PB
Animal	Birds	Wood-Warblers	*Seiurus aurocapilla*	Ovenbird	RC	2000-2005	PB
Animal	Birds	Wood-Warblers	*Setophaga americana*	Northern Parula	RC	2000-2005	PB
Animal	Birds	Wood-Warblers	*Setophaga caerulescens*	Black-throated Blue Warbler	RC	2000-2005	PB
Animal	Birds	Wood-Warblers	*Setophaga cerulea*	Cerulean Warbler	RC	2000-2005	SC
Animal	Birds	Wood-Warblers	*Setophaga coronata*	Yellow-rumped Warbler	RC	2000-2005	PB
Animal	Birds	Wood-Warblers	*Setophaga discolor*	Prairie Warbler	RC	2000-2005	PB
Animal	Birds	Wood-Warblers	*Setophaga fusca*	Blackburnian Warbler	RC	2000-2005	PB
Animal	Birds	Wood-Warblers	*Setophaga magnolia*	Magnolia Warbler	RC	2000-2005	PB
Animal	Birds	Wood-Warblers	*Setophaga pensylvanica*	Chestnut-sided Warbler	RC	2000-2005	PB
Animal	Birds	Wood-Warblers	*Setophaga petechia*	Yellow Warbler	RC	2000-2005	PB
Animal	Birds	Wood-Warblers	*Setophaga pinus*	Pine Warbler	RC	2000-2005	PB
Animal	Birds	Wood-Warblers	*Setophaga ruticilla*	American Redstart	RC	2000-2005	PB
Animal	Birds	Wood-Warblers	*Setophaga virens*	Black-throated Green	RC	2000-2005	PB
Animal	Birds	Wood-Warblers	*Vermivora cyanoptera*	Blue-winged Warbler	RC	2000-2005	PB
Animal	Birds	Wrens	*Cistothorus palustris*	Marsh Wren	RC	2000-2005	PB
Animal	Birds	Wrens	*Thryothorus ludovicianus*	Carolina Wren	RC	2000-2005	PB
Animal	Birds	Wrens	*Troglodytes aedon*	House Wren	RC	2000-2005	PB
Animal	Birds	Wrens	*Troglodytes hiemalis*	Winter Wren	RC	2000-2005	PB
			Fish				
Animal	Fish	Sturgeons and Paddlefish	*Acipenser brevirostrum*	Shortnose Sturgeon	RC	2013	E
Animal	Fish	Sturgeons and Paddlefish	*Acipenser oxyrinchus*	Atlantic Sturgeon	RC		PB - not open
			Mammals				
Animal	Mammals	Bats	*Myotis septentrionalis*	Northern Long-eared Bat	RC	1985	T

TABLE 2
Special Status Species in Rensselaer County, NY
John Street Site, Hoosick Falls, New York

Type	Group	Subgroup	Scientific Name	Common Name	Distribution Status	Year Last Documented	State Protection Status
Animal	Mammals	Rabbits and Hares	*Sylvilagus transitionalis*	New England Cottontail	HC	1954	SC
Other Animals							
Animal	Other Animals	Other Animals	*Ammodramus savannarum*	Grasshopper Sparrow	RC	2000-2005	SC
Animal	Other Animals	Other Animals	*Cathartes aura*	Turkey Vulture	RC	2000-2005	PB
Animal	Other Animals	Other Animals	*Coragyps atratus*	Black Vulture	RC	2000-2005	PB
Animal	Other Animals	Other Animals	*Junco hyemalis*	Dark-eyed Junco	RC	2000-2005	PB
Animal	Other Animals	Other Animals	*Melospiza georgiana*	Swamp Sparrow	RC	2000-2005	PB
Animal	Other Animals	Other Animals	*Melospiza melodia*	Song Sparrow	RC	2000-2005	PB
Animal	Other Animals	Other Animals	*Passerculus sandwichensis*	Savannah Sparrow	RC	2000-2005	PB
Animal	Other Animals	Other Animals	*Pipilo erythrophthalmus*	Eastern Towhee	RC	2000-2005	PB
Animal	Other Animals	Other Animals	*Pooecetes gramineus*	Vesper Sparrow	RC	2000-2005	SC
Animal	Other Animals	Other Animals	*Spizella passerina*	Chipping Sparrow	RC	2000-2005	PB
Animal	Other Animals	Other Animals	*Spizella pusilla*	Field Sparrow	RC	2000-2005	PB
Animal	Other Animals	Other Animals	*Zonotrichia albicollis*	White-throated Sparrow	RC	2000-2005	PB
Reptiles							
Animal	Reptiles	Snakes	*Crotalus horridus*	Timber Rattlesnake	Ex		T
Animal	Reptiles	Turtles	*Apalone spinifera*	Spiny Softshell	HC		SC
Animal	Reptiles	Turtles	*Clemmys guttata*	Spotted Turtle	RC	1990-1999	SC
Animal	Reptiles	Turtles	*Glyptemys insculpta*	Wood Turtle	RC	1990-1999	SC
Animal	Reptiles	Turtles	*Glyptemys muhlenbergii*	Bog Turtle	HC	1853	E
Animal	Reptiles	Turtles	*Terrapene carolina*	Eastern Box Turtle	RC	1990-1999	SC
Plants							
Plant	Ferns and Fern	Ferns	*Asplenium montanum*	Mountain Spleenwort	HC		T
Plant	Ferns and Fern	Quillworts	*Isoetes septentrionalis*	Northern Quillwort	HC		E
Plant	Flowering Plants	Asters Goldenrods and Daisies	*Bidens bidentoides*	Delmarva Beggar-ticks	RC	2002	R
Plant	Flowering Plants	Asters Goldenrods and Daisies	*Bidens laevis*	Smooth Beggar-ticks	PNC		T
Plant	Flowering Plants	Asters Goldenrods and Daisies	*Lactuca hirsuta*	Downy Lettuce	HC		E
Plant	Flowering Plants	Asters Goldenrods and Daisies	*Oclemena nemoralis*	Bog Aster	RC		R
Plant	Flowering Plants	Asters Goldenrods and Daisies	*Petasites frigidus var. palmatus*	Sweet Coltsfoot	HC		E
Plant	Flowering Plants	Asters Goldenrods and Daisies	*Solidago ohioensis*	Ohio Goldenrod	Ex	1935	T
Plant	Flowering Plants	Asters Goldenrods and Daisies	*Solidago ptarmicoides*	Upland Goldenrod	RC		R
Plant	Flowering Plants	Grasses	*Bouteloua curtipendula var. curtipendula*	Side-oats Grama	RC	1999	E
Plant	Flowering Plants	Grasses	*Dichanthelium leibergii*	Leiberg's Panic Grass	RC	2000	E
Plant	Flowering Plants	Orchids	*Arethusa bulbosa*	Dragon's Mouth Orchid	HC		T
Plant	Flowering Plants	Orchids	*Cypripedium parviflorum var. parviflorum*	Small Southern Yellow Lady's Slipper	HC		E
Plant	Flowering Plants	Orchids	*Liparis liliifolia*	Large Twayblade	HC	1856	E
Plant	Flowering Plants	Orchids	*Platanthera ciliaris*	Orange Fringed Orchid	Ex		E
Plant	Flowering Plants	Orchids	*Platanthera hookeri*	Hooker's Orchid	HC	1933	E
Plant	Flowering Plants	Orchids	*Triphora trianthophoros ssp. trianthophoros*	Nodding Pogonia	PNC		T
Plant	Flowering Plants	Other Flowering Plants	*Agastache nepetoides*	Yellow Giant-hyssop	RC	2014	T
Plant	Flowering Plants	Other Flowering Plants	*Agrimonia parviflora*	Swamp Agrimony	HC		R
Plant	Flowering Plants	Other Flowering Plants	*Angelica venenosa*	Hairy Angelica	PNC		R
Plant	Flowering Plants	Other Flowering Plants	*Asclepias verticillata*	Whorled Milkweed	HC		R
Plant	Flowering Plants	Other Flowering Plants	*Blephilia ciliata*	Downy Wood Mint	HC		E
Plant	Flowering Plants	Other Flowering Plants	*Boechera grahamii*	Purple Rock Cress	RC		T
Plant	Flowering Plants	Other Flowering Plants	*Borodinia missouriensis*	Green Rock Cress	HC	1817	T
Plant	Flowering Plants	Other Flowering Plants	*Campanula americana*	Tall Bellflower	PNC		E

TABLE 2
Special Status Species in Rensselaer County, NY
John Street Site, Hoosick Falls, New York

Type	Group	Subgroup	Scientific Name	Common Name	Distribution Status	Year Last Documented	State Protection Status
Plant	Flowering Plants	Other Flowering Plants	*Celastrus scandens*	American Bittersweet	HC		R
Plant	Flowering Plants	Other Flowering Plants	*Chamaelirium luteum*	Fairywand	HC		E
Plant	Flowering Plants	Other Flowering Plants	*Crotalaria sagittalis*	Rattlebox	PNC	1924	E
Plant	Flowering Plants	Other Flowering Plants	*Elatine americana*	American Waterwort	HC	1936	E
Plant	Flowering Plants	Other Flowering Plants	*Geum virginianum*	Rough Avens	PNC		T
Plant	Flowering Plants	Other Flowering Plants	*Hedeoma hispida*	Rough Pennyroyal	RC	1999	T
Plant	Flowering Plants	Other Flowering Plants	*Heteranthera reniformis*	Kidney-leaved Mud Plantain	RC		R
Plant	Flowering Plants	Other Flowering Plants	*Heuchera americana var. americana*	American Alumroot	RC		R
Plant	Flowering Plants	Other Flowering Plants	*Hydrastis canadensis*	Goldenseal	RC	2004	T
Plant	Flowering Plants	Other Flowering Plants	*Hypericum ascyron ssp. pyramidatum*	Great St. John's Wort	PNC		R
Plant	Flowering Plants	Other Flowering Plants	*Jeffersonia diphylla*	Twinleaf	RC		T
Plant	Flowering Plants	Other Flowering Plants	*Lemna perpusilla*	Minute Duckweed	PNC		E
Plant	Flowering Plants	Other Flowering Plants	*Lespedeza frutescens*	Violet Bush Clover	RC		R
Plant	Flowering Plants	Other Flowering Plants	*Linum medium var. texanum*	Southern Yellow Flax	RC	1991	T
Plant	Flowering Plants	Other Flowering Plants	*Lupinus perennis ssp. perennis*	Wild Lupine	HC		R
Plant	Flowering Plants	Other Flowering Plants	*Myriophyllum farwellii*	Farwell's Water Milfoil	RC	2012	T
Plant	Flowering Plants	Other Flowering Plants	*Orontium aquaticum*	Golden Club	RC	2012	T
Plant	Flowering Plants	Other Flowering Plants	*Oxalis violacea*	Violet Wood Sorrel	RC		T
Plant	Flowering Plants	Other Flowering Plants	*Oxybasis rubra var. rubra*	Red Pigweed	PNC	1836	T
Plant	Flowering Plants	Other Flowering Plants	*Pedicularis lanceolata*	Swamp Lousewort	HC		T
Plant	Flowering Plants	Other Flowering Plants	*Persicaria careyi*	Carey's Smartweed	PNC		E
Plant	Flowering Plants	Other Flowering Plants	*Phlox maculata ssp. maculata*	Wild Sweet William	HC		E
Plant	Flowering Plants	Other Flowering Plants	*Physalis virginiana var. virginiana*	Virginia Ground Cherry	HC		E
Plant	Flowering Plants	Other Flowering Plants	*Plantago cordata*	Heart-leaved Plantain	HC		R
Plant	Flowering Plants	Other Flowering Plants	*Polygonum buxiforme*	Small's Knotweed	RC		E
Plant	Flowering Plants	Other Flowering Plants	*Polygonum tenue*	Slender Knotweed	RC		R
Plant	Flowering Plants	Other Flowering Plants	*Potamogeton confervoides*	Algae-like Pondweed	RC		R
Plant	Flowering Plants	Other Flowering Plants	*Potamogeton diversifolius*	Southern Snailseed Pondweed	HC		E
Plant	Flowering Plants	Other Flowering Plants	*Pterospora andromedea*	Pinedrops	PNC		E
Plant	Flowering Plants	Other Flowering Plants	*Pycnanthemum muticum*	Blunt Mountain Mint	PNC		T
Plant	Flowering Plants	Other Flowering Plants	*Pycnanthemum verticillatum var. verticillatum*	Whorled Mountain Mint	HC	1870	E
Plant	Flowering Plants	Other Flowering Plants	*Pyrola asarifolia ssp. asarifolia*	Pink Wintergreen	PNC		T
Plant	Flowering Plants	Other Flowering Plants	*Ranunculus micranthus*	Small-flowered Crowfoot	HC		R
Plant	Flowering Plants	Other Flowering Plants	*Rhododendron canadense*	Rhodora	PNC	1964	T
Plant	Flowering Plants	Other Flowering Plants	*Sagittaria subulata*	Strap-leaf Arrowhead	PNC		R
Plant	Flowering Plants	Other Flowering Plants	*Scheuchzeria palustris*	Pod Grass	HC		R
Plant	Flowering Plants	Other Flowering Plants	*Silene caroliniana ssp. pensylvanica*	Wild Pink	PNC		T
Plant	Flowering Plants	Other Flowering Plants	*Sisyrinchium mucronatum*	Sharp-tipped Blue-eyed Grass	HC	1957	E
Plant	Flowering Plants	Other Flowering Plants	*Stellaria longipes ssp. longipes*	Goldie's starwort	PNC		T
Plant	Flowering Plants	Other Flowering Plants	*Trichostema brachiatum*	False Pennyroyal	RC		R

TABLE 2
Special Status Species in Rensselaer County, NY
John Street Site, Hoosick Falls, New York

Type	Group	Subgroup	Scientific Name	Common Name	Distribution Status	Year Last Documented	State Protection Status
Plant	Flowering Plants	Other Flowering Plants	*Triglochin palustris*	Marsh Arrow Grass	PNC	1894	T
Plant	Flowering Plants	Other Flowering Plants	*Utricularia minor*	Lesser Bladderwort	HC		R
Plant	Flowering Plants	Other Flowering Plants	*Valerianella umbilicata*	Navel Corn Salad	HC	1905	E
Plant	Flowering Plants	Other Flowering Plants	*Veronicastrum virginicum*	Culver's Root	RC		T
Plant	Flowering Plants	Other Flowering Plants	*Viola hirsutula*	Southern Wood Violet	HC	1910	E
Plant	Flowering Plants	Other Flowering Plants	*Viola nephrophylla*	Northern Bog Violet	HC		E
Plant	Flowering Plants	Sedges	*Carex bicknellii*	Bicknell's Sedge	RC		R
Plant	Flowering Plants	Sedges	*Carex bushii*	Bush's Sedge	RC		R
Plant	Flowering Plants	Sedges	*Carex buxbaumii*	Brown Bog Sedge	HC	1885	T
Plant	Flowering Plants	Sedges	*Carex conjuncta*	Soft Fox Sedge	HC		E
Plant	Flowering Plants	Sedges	*Carex davisii*	Davis' Sedge	RC	2002	T
Plant	Flowering Plants	Sedges	*Carex formosa*	Handsome Sedge	HC		T
Plant	Flowering Plants	Sedges	*Carex glaucodea*	Glaucous Sedge	HC	1934	T
Plant	Flowering Plants	Sedges	*Carex merritt-fernaldii*	Fernald's Sedge	HC		T
Plant	Flowering Plants	Sedges	*Carex mesochorea*	Midland Sedge	RC	1995	T
Plant	Flowering Plants	Sedges	*Carex molesta*	Troublesome Sedge	RC		T
Plant	Flowering Plants	Sedges	*Carex nigra*	Black Sedge	PNC	1836	E
Plant	Flowering Plants	Sedges	*Carex oligosperma*	Few-fruited Sedge	HC		R
Plant	Flowering Plants	Sedges	*Carex retroflexa*	Reflexed Sedge	PNC		T
Plant	Flowering Plants	Sedges	*Carex schweinitzii*	Schweinitz's Sedge	HC	1936	T
Plant	Flowering Plants	Sedges	*Carex styloflexa*	Bent Sedge	RC	1986	E
Plant	Flowering Plants	Sedges	*Carex tincta*	Tinged Sedge	Ex	1936	E
Plant	Flowering Plants	Sedges	*Carex typhina*	Cat-tail Sedge	RC		E
Plant	Flowering Plants	Sedges	*Cyperus odoratus*	Fragrant Flat Sedge	HC		R
Plant	Flowering Plants	Sedges	*Cyperus schweinitzii*	Schweinitz's Flat Sedge	HC		R
Plant	Flowering Plants	Sedges	*Cyperus subsquarrosus*	Dwarf Bulrush	HC		E
Plant	Flowering Plants	Sedges	*Eleocharis diandra*	Wright's Spike Rush	HC		E
Plant	Flowering Plants	Sedges	*Eleocharis ovata*	Ovate Spike Rush	HC	1926	E

Abbreviations

EX = Extirpated
HC = Historically confirmed
PNC = Possible but not confirmed
RC = Recently confirmed

E = Endangered
R = Rare
SC = Special Concern
T = Threatened

PB = Protected Bird
PB - open = Protected Bird with open season
PB - not open = Protected Bird with no open

Footnotes

(1) Based on online search of New York Department of Environmental Conservation Nature Explorer database.

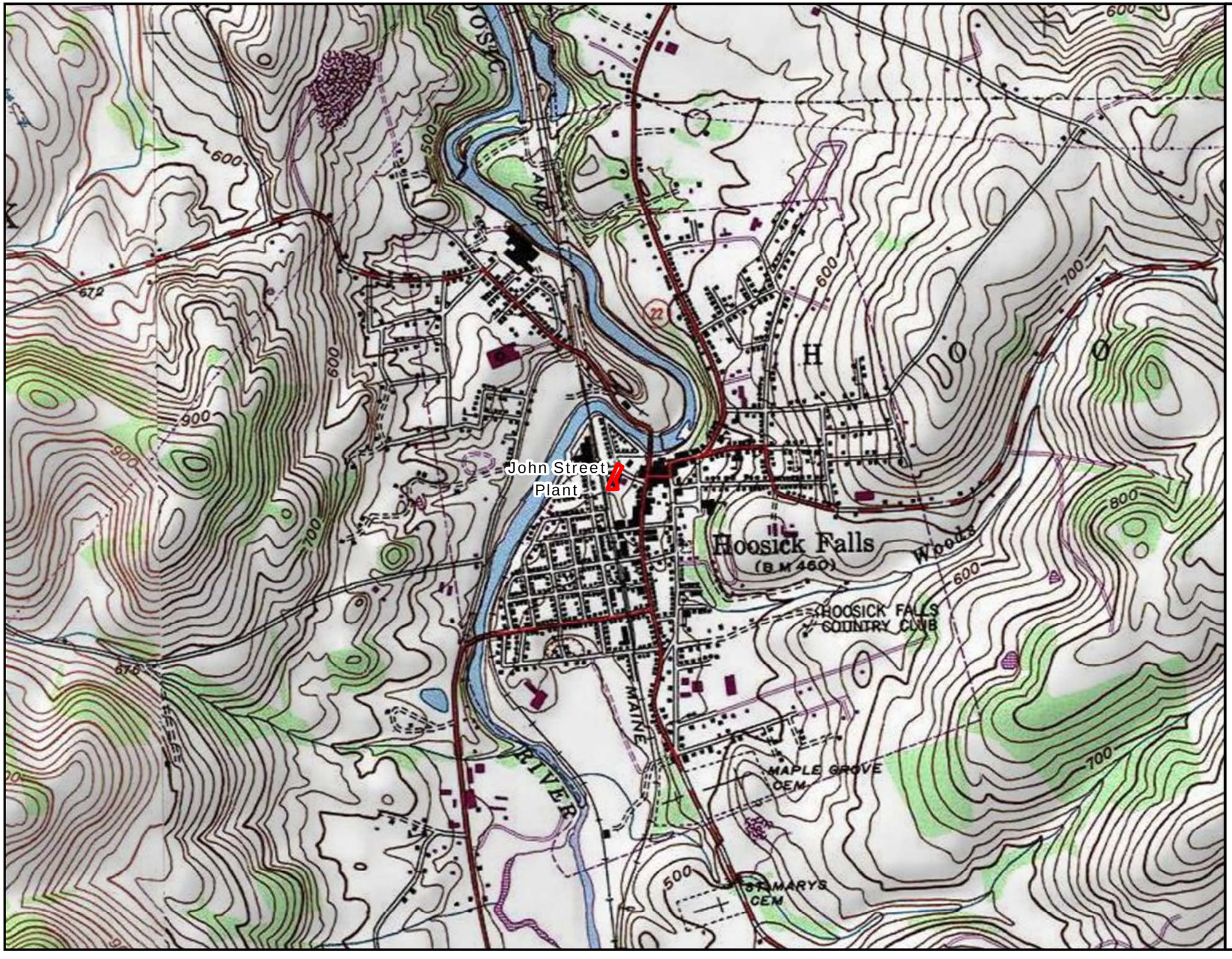
(2) New York State Legal Status Categories per 6 NYCRR Part 193.3

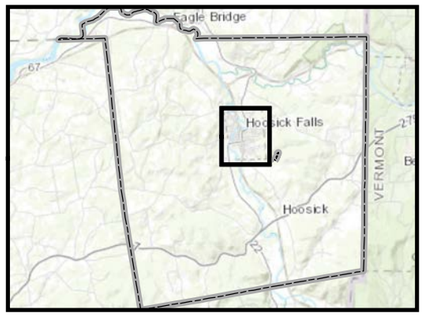
E = Endangered
1) 5 or fewer extant sites, or
2) fewer than 1,000 individuals, or
3) restricted to fewer than 4 U.S.G.S 7 1/2 minute topo maps, or
4) species listed as endangered by the U.S. Dept of Interior (50 CFR 17.11)

T = Threatened
1) 6 to fewer than 20 extant sites, or
2) 1,000 to fewer than 3,000 individuals, or
3) restricted to no less than 4 or more than 7 U.S.G.S. 7 1/2 minute topo maps, or
4) listed as threatened by the U.S. Dept of Interior (50 CFR 17.11)

R = Rare
1) 20 to 35 extant sites, or
2) 3,000 to 5,000 individuals statewide.

FIGURES





Legend

Approximate Property Boundary

N

0 0.05 0.1 0.2 0.3
Miles

Figure 1: Property Locations
Village of Hoosick Falls
Town of Hoosick, New York

ERM

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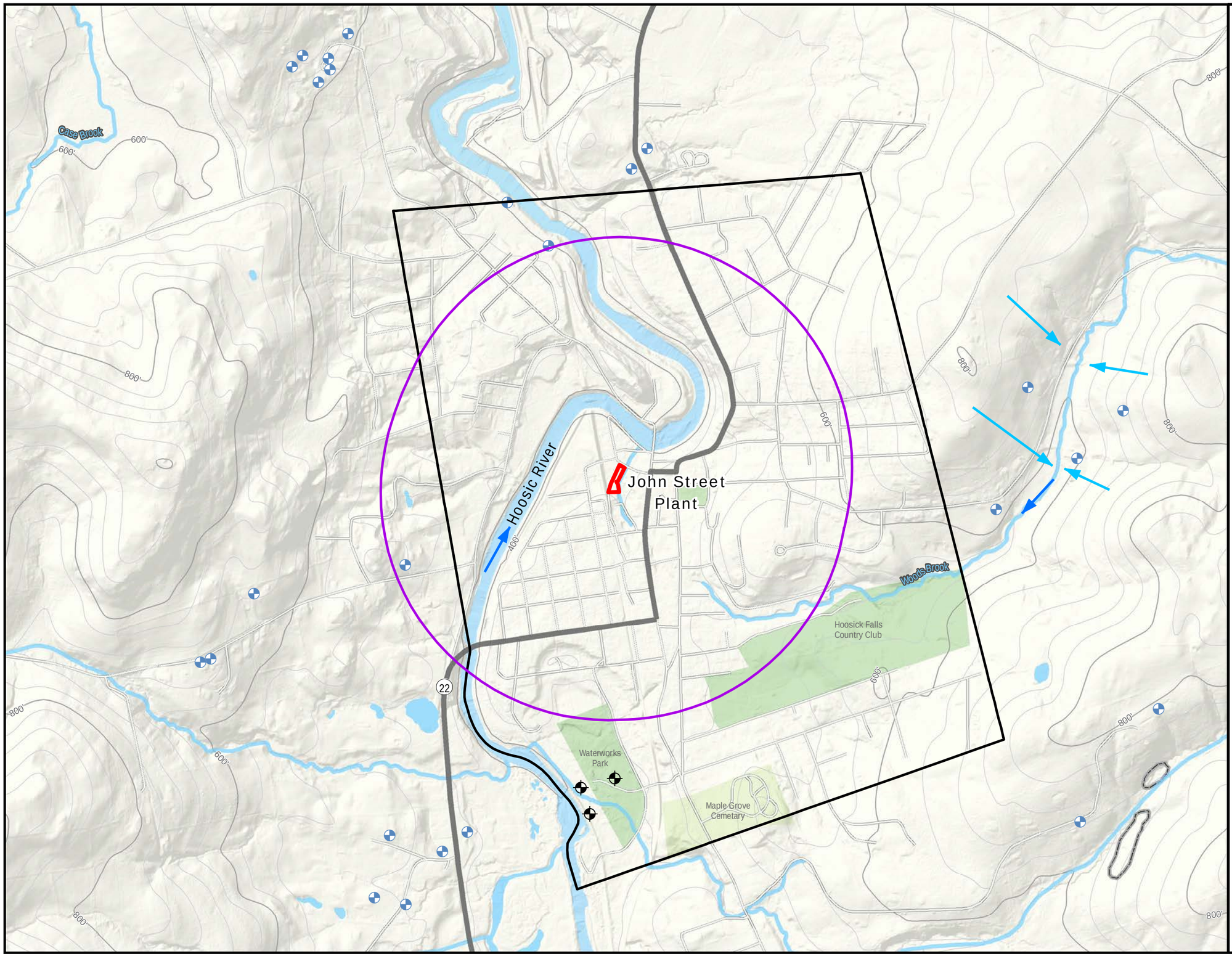

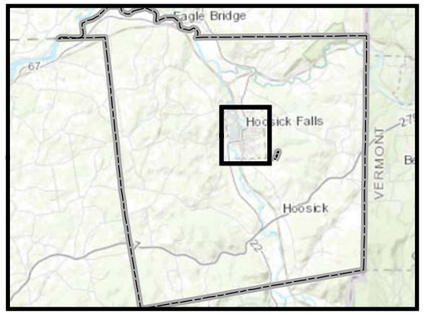

Legend

- Village of Hoosick Falls - Municipal Well Locations
- DEC-Reported Water Supply Wells
- Surface Water
- Stream (NHD)
- Surface Flow Direction
- River Flow Direction
- State Route
- Half-Mile Buffer Zone
- Village of Hoosick Falls Boundary
- Approximate Property Boundaries

NOTES:

1. Stream data obtained from the National Hydrology Database (NHD) and digitized from 2014 New York State orthoimagery.

N

0 0.05 0.1 0.2 0.3
Miles

Figure 2: Potable Water Supply Well Locations, Topography, and Hydrology
Village of Hoosick Falls
Town of Hoosick, New York

ERM

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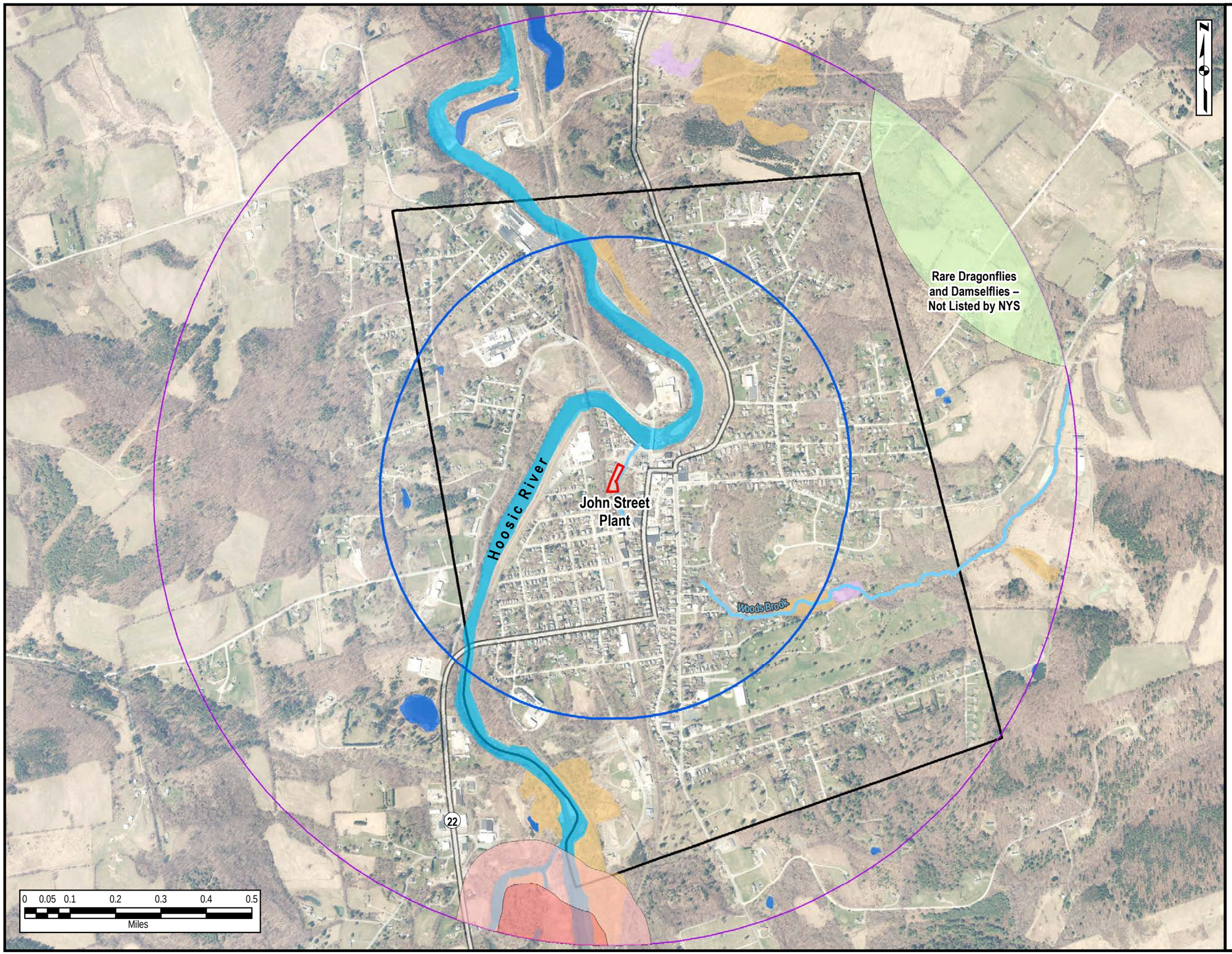
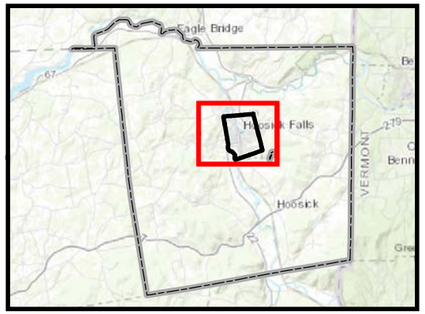




Legend

- Facility Parcel
- 1 Mile Buffer Zone
- Half-Mile Buffer Zone
- Village of Hoosick Falls Boundary
- State Route 22
- State Regulated Wetlands
- State Regulated Wetlands Checkzone
- Rare Animal Habitat

NWI Wetlands

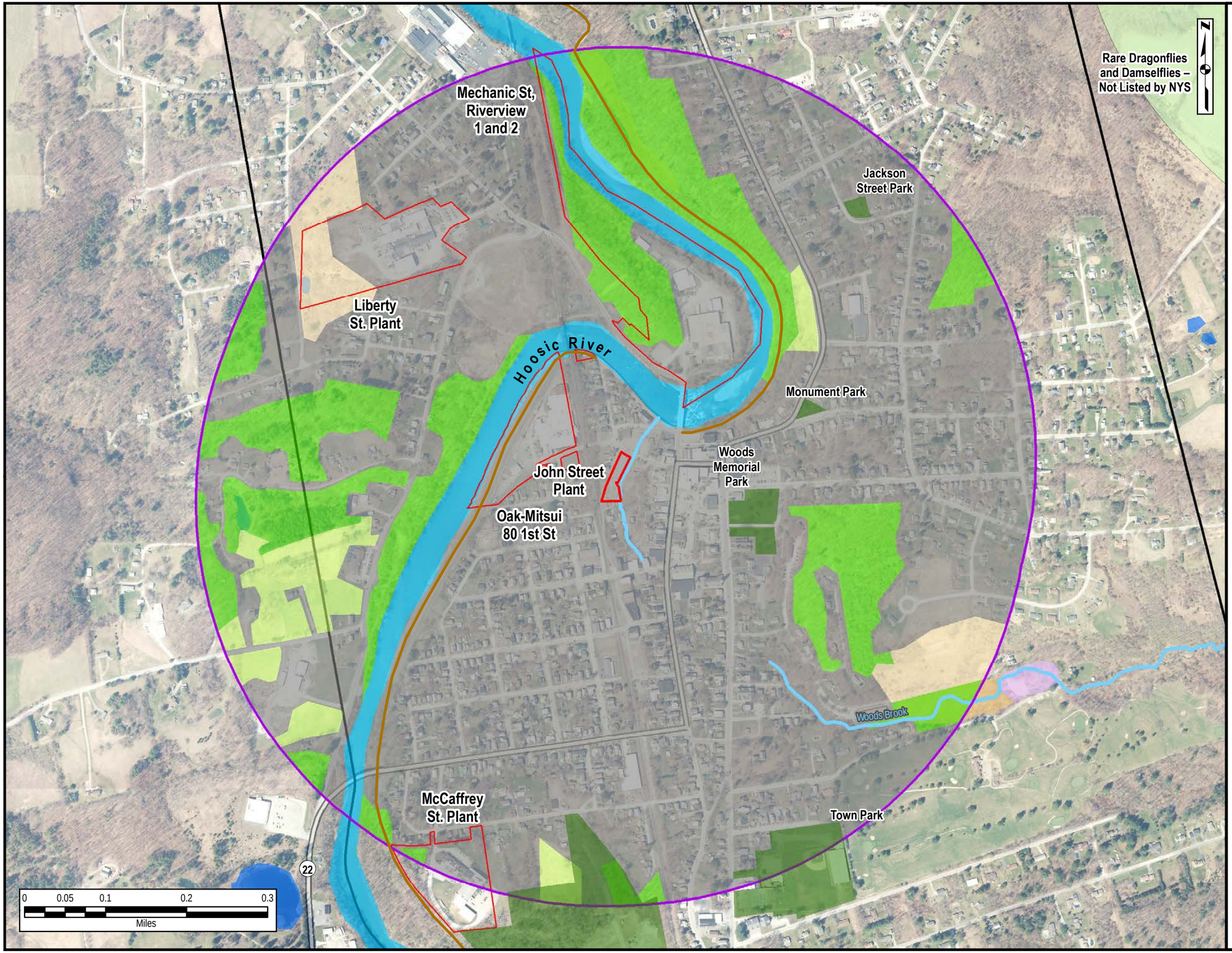
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

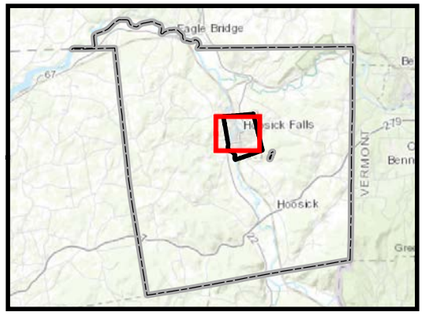
Notes:

- Other databases referenced include IPAC Endangered Species, IPAC Migratory Birds, and NY State Significant Natural Communities
- No endangered species or significant natural communities exist within the study area
- Migratory birds that have been observed within the study area include:
-- Bald Eagle and Golden Eagle (Not birds of conservation concern but regulated by the Eagle Act)
-- Black-billed Cuckoo, Bobolink, Canada Warbler, Lesser Yellowlegs, Prairie Warbler, and Wood Thrush (Birds of Conservation Concern)

Figure 3: NLCD Land Cover
Village of Hoosick Falls
Town of Hoosick, New York

ERM





Legend

- Facility Parcels
- Half-Mile Buffer Zone
- Village of Hoosick Falls Boundary
- Greenway Trail
- Stream (NHD)
- State Route 22
- Park
- Rare Animal Habitat

Habitat Classification Zones

- Developed
- Forested
- Open Field
- Shrub/Scrub

NWI Wetlands

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

NOTES:

1. Habitat classification zones were digitized from the 2014 New York State orthoimagery.

Figure 4: Habitat Cover Type Map
Village of Hoosick Falls
Town of Hoosick, New York

ERM

APPENDIX A DER-10 APPENDIX 3C DECISION KEY IN THE NYSDEC'S FWRIA GUIDANCE

Appendix 3C Fish and Wildlife Resources Impact Analysis Decision Key		If YES Go to:	If NO Go to:
1.	Is the site or area of concern a discharge or spill event? **Release to groundwater**	13	2
2.	Is the site or area of concern a point source of contamination to the groundwater which will be prevented from discharging to surface water? Soil contamination is not widespread, or if widespread, is confined under buildings and paved areas.	13	3
3.	Is the site and all adjacent property a developed area with buildings, paved surfaces and little or no vegetation?	4	9
4.	Does the site contain habitat of an endangered, threatened or special concern species?	Section 3.10.1	5
5.	Has the contamination gone off-site?	6	14
6.	Is there any discharge or erosion of contamination to surface water or the potential for discharge or erosion of contamination?	7	14
7.	Are the site contaminants PCBs, pesticides or other persistent, bioaccumulable substances?	Section 3.10.1	8
8.	Does contamination exist at concentrations that could exceed ecological impact SCGs or be toxic to aquatic life if discharged to surface water?	Section 3.10.1	14
9.	Does the site or any adjacent or downgradient property contain any of the following resources? i. Any endangered, threatened or special concern species or rare plants or their habitat ii. Any DEC designated significant habitats or rare NYS Ecological Communities iii. Tidal or freshwater wetlands iv. Stream, creek or river v. Pond, lake, lagoon vi. Drainage ditch or channel vii. Other surface water feature viii. Other marine or freshwater habitat ix. Forest x. Grassland or grassy field xi. Parkland or woodland xii. Shrubby area xiii. Urban wildlife habitat xiv. Other terrestrial habitat	11	10
10.	Is the lack of resources due to the contamination?	3.10.1	14
11.	Is the contamination a localized source which has not migrated and will not migrate from the source to impact any on-site or off-site resources?	14	12
12.	Does the site have widespread surface soil contamination that is not confined under and around buildings or paved areas?	Section 3.10.1	12
13.	Does the contamination at the site or area of concern have the potential to migrate to, erode into or otherwise impact any on-site or off-site habitat of endangered, threatened or special concern species or other fish and wildlife resource? (See #9 for list of potential resources. Contact DEC for information regarding endangered species.) **Groundwater discharge to Hoosic River**	Section 3.10.1	14
14.	No Fish and Wildlife Resources Impact Analysis needed.		

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