Appendix G-6
Youngs Creek Surveys

G-6 Summary of Environmental Surveys of Youngs Creek

This appendix provides supplemental information on aquatic life at the Micron Campus site. Surveys were conducted of Youngs Creek to establish a baseline for the conditions of the Proposed Project's potential upstream, downstream, and on-site effects on aquatic resources, specifically macroinvertebrates and fish. The initial survey, conducted in December 2023 and summarized in the *Qualitative Environmental Survey of Youngs Creek* (Appendix G-6-1), included a desktop review and field studies. These efforts gathered information on the site's history, its environmental resources, and the habitat characteristics of its stream features to assess their potential to support fish and other biological communities. The second survey, conducted in June 2024 and detailed in the *Quantitative Environmental Survey of Youngs Creek Report* (Appendix G-6-2), built upon the findings of the qualitative survey. Its objective was to quantitatively assess benthic macroinvertebrate and fish communities, as well as water quality.

Fish and benthic macroinvertebrate communities are essential biological indicators of stream health because they reflect the cumulative effects of environmental changes, including pollution, habitat destruction, and other stressors (Barbour et al. 1999). Species diversity and abundance of biological indicators can signal the overall health of the aquatic environment and, because different species have varying tolerances to pollutants and habitat alterations, the presence or absence of environmentally sensitive species can indicate the quality of the habitat.

Maintaining healthy fish and macroinvertebrate communities is critical to the functionality and recovery potential of the aquatic environment. Aquatic biota serve as a primary food source within aquatic and terrestrial food webs, and their decomposition contributes to nutrient cycling, supporting primary producers like algae and aquatic plants. Moreover, streams are part of a larger network of aquatic habitats, and the dispersal of organisms between connected water bodies and adjacent watersheds supports biodiversity and ecological functions; healthy populations in one stream can facilitate natural recolonization and ecosystem restoration in nearby streams (Poff et al. 1997, Cardinale et al. 2012). Streams and wetlands also serve as important wildlife corridors for migration between habitat patches.

For the qualitative survey, methods included a desktop review of unmanned aerial vehicle (UAV) imagery, historical aerial images and topographic maps, online environmental resources, and a prior wetland delineation, as well as an environmental field survey of Youngs Creek and its associated tributaries within the boundary of the Micron Campus site. The field survey focused on documenting visual observations of stream habitats in 22 locations within five stream reaches by using NYSDEC's Rapid Assessment of Habitat Conditions in Low and High Gradient Streams from the NYSDEC Division of Water 2021 document, Standard Operating Procedure: Biological Monitoring of Surface Waters in New York State, and by calculating Habitat Model Affinity (HMA) scores to compare sites to a reference condition. HMA scores fall into four habitat condition categories: 'natural', 'altered', 'moderately altered', and 'severely altered', all of which were observed on-site. Based on the qualitative survey, a limited quantitative assessment of the macroinvertebrate and fish communities was recommended for select intermittent and perennial stream reaches within the Youngs Creek stream network. The results of the rapid habitat assessment are shown in Table 1 of the first survey (Appendix G-6-1). Detailed methods and additional survey results are included in the second survey (Appendix G-6-2).

For the quantitative survey, methods included sampling fish and benthic macroinvertebrate communities using backpack electroshocking and dip-netting protocols, respectively, and collecting water quality data at eight locations. All locations were categorized as 'natural' or 'altered' and represented multiple Cowardin classification types (PEM, Intermittent/Riverine Stream Bed (R4SB), and Perennial/Upper Perennial Unconsolidated Bottom (R3UB) (Cowardin et al., 1979), which describe the aquatic system, type of substrate, and water regime of wetlands. Sampling results are shown in Tables 2, 3, and 6 of the second survey (Appendix G-6-2). The fish and benthic macroinvertebrate communities documented in the sampled reaches within the Youngs Creek system were consistent with those often associated with low energy streams and lentic habitats. Fish communities were dominated by brook stickleback (*Culaea inconstans*) and central mudminnow (*Umbra limi*), both of which are tolerant of hypoxic conditions. Environmentally sensitive benthic macroinvertebrate taxa that indicate high-quality conditions, including ephemeroptera (mayflies), plecoptera (stoneflies), and trichoptera (caddisflies) (Barbour et al., 1999), were largely absent from the Youngs Creek ecosystem, with only one mayfly identified from 276 benthic macroinvertebrate individuals. Likewise, there were few hirudinea (leeches) and odonata (dragonflies/damselflies), both of which are indicators of healthy wetlands.

The qualitative and quantitative surveys indicate that fish and benthic macroinvertebrates are present on-site and representative of low energy streams and lentic habitats, as would be expected in a stream/wetland complex such as Youngs Creek. Samples included several tolerant species. However, biotic indices, which are a metric used to describe the quality of an environment based on the types and quantities of organisms present, were not calculated from fish and macroinvertebrate sample data as part of the surveys conducted by Ramboll. Therefore, conclusions about overall Youngs Creek ecosystem health cannot be extrapolated from the surveys. In addition to the observed aquatic biota, there is also significant evidence for the presence of American beaver, a semi-aquatic mammal, at the Micron Campus site.

References

Barbour, M. T., Gerritsen, J., Snyder, B. D., & Stribling, J. B. (1999). Rapid Bioassessment Protocols for Use in Streams and Rivers: Periphyton, Benthic Macroinvertebrates, and Fish. U.S. Environmental Protection Agency.

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Poff, N. L., Allan, J. D., Bain, M. B., Karr, J. R., Prestegaard, K. L., Richter, B. D., & Warner, R. E. (1997). The natural flow regime: A paradigm for river conservation and restoration. BioScience, 47(11), 769-784

Appendix G-6-1
Qualitative Environmental Survey of Youngs Creek

RAMBOLL

ENVIRONMENT
& HEALTH

Micron Semiconductor Fabrication Facility (Clay, NY)

Qualitative Environmental Survey of Youngs Creek

Project name	**Micron Semiconductor Fabrication Facility (Clay, NY)**
Client	**Micron New York Semiconductor Manufacturing, LLC**
Project no.	**1950100687; DEC ID 7-3124-00575**
Recipient(s)	**Kevin Balduzzi (NYSDEC); Ian Drew (USFWS)**
From	**Ramboll Americas Engineering Solutions, Inc.**
Document type	**Technical Memo**
Date	**February 26, 2024**
Prepared by	**Christopher C. Nack**
Checked by	**Mike Rondinelli**
Approved by	**Kenneth P. Lynch**

Project Background

From December 12 and December 21, 2023, Ramboll Americas Engineering Solutions, Inc. (Ramboll) conducted a qualitative environmental survey of Youngs Creek within the proposed Micron Site in the Town of Clay, New York (the Site; **Figure 1**), as requested by the New York State Department of Environmental Conservation (NYSDEC) and the United States Fish & Wildlife Service (USFWS). Additional characterization of Youngs Creek was requested in separate comment letters from these agencies on Onondaga County's Notice of Positive Declaration, Availability of Draft Scope and Public Scoping Session regarding Micron's proposed semiconductor fabrication project in Clay, New York. The additional characterization request included a desktop review and performing field studies to obtain information on the physical, biological and chemical characteristics of streams on the Site. In order to determine the need and scope for a quantitative survey, a desktop review and qualitative survey was conducted that focuses on characterizing the Youngs Creek system and identifies the potential of the creek to support fish and other biological communities.

Results from the survey will be incorporated into the Existing Conditions section of the Draft Environmental Impact Statement (DEIS) that is currently under development for the project. The information included in this letter report will be used as the framework for conducting the quantitative survey, which will focus on the water quality, benthic macroinvertebrate and fish communities within the Youngs Creek system. The following attachments are provided in this letter report:

1. Site Figures
2. Historical Aerial Imaging
3. Environmental Resource Mapper
4. Field Sheets for Rapid Assessment of Habitat Conditions
5. Photograph Log

Methodology

Desktop Evaluation

Ramboll compiled and evaluated available historical aerial images (**Attachment 1**), online environmental resources (**Attachment 2**), historic topographic maps, previous field evaluations (e.g., wetland delineation; **Figure 2**), and recent unmanned aerial vehicle (UAV) imagery as part of the desktop assessment. These data were used to identify the extent of the project area (e.g., the on-site portions of Youngs Creek and its tributaries) and the partitioning of these aquatic features into "study reaches" based on natural break points within and along the Youngs Creek system. Segregating the stream habitats into reaches provides the greatest clarity to the descriptions to be incorporated into the working DEIS and can help inform potential future quantitative environmental surveys that will focus on additional characterization of the biological communities that may inhabit the stream features.

Data and information reviewed as part of the desktop review included the following:

- National Wetland Inventory (NWI) Maps, as presented in the NWI Wetland Mapper. *https://www.fws.gov/wetlands/Data/Mapper.html* (USFWS 2023)
- New York State Freshwater Wetland (NYSFW) Maps and mapped streams, as presented in the NYSDEC Environmental Resource Mapper. *http://www.dec.ny.gov/gis/erm/* (NYSDEC 2023)
- Micron Semiconductor Fabrication Facility (Clay, NY), Aquatic Resources Supplemental Delineation Report (Ramboll 2023)
- Historical Aerial Photograph Imagery obtained from United States Geological Survey (USGS) Earth Explorer (USGS 2023) *https://earthexplorer.usgs.gov/*.
- Historic Topographic Mapping obtained from USGS topoView (USGS 2023) *https://ngmdb.usgs.gov/topoview/viewer/#15/43.1964/-76.1504.*

Qualitative Field Survey

Ramboll conducted an environmental field survey of Youngs Creek and its associated tributaries within the confines of the Micron property. Ramboll conducted field surveys of Youngs Creek and its tributaries on December 12, 14, 15, and 21. Field surveys were focused on streams identified during previous wetland delineation efforts and with adjoining features having a continuous surface connection to Youngs Creek. The survey entailed accessing the Youngs Creek stream continuum in multiple areas and documenting visual observations of the stream habitats on NYSDEC's Field Sheets for Rapid Assessment of Habitat Conditions in Low and High Gradient Streams, which are available in NYSDEC's Division of Water 2021 document, Standard Operating Procedure: Biological Monitoring of Surface Waters in New York State. Field sheets were completed at representative locations for each study reach to support characterization of the environmental conditions and quality of the Youngs Creek system. The habitat scoring conducted for each reach will support the development of a "baseline" environmental condition of the stream and tributaries, which in turn will support the overall assessment of project impacts, if any, on the stream features.

Interpretation of habitat assessment results is based on the calculation of Habitat Model Affinity (HMA) scores, as described in NYSDEC's Division of Water 2021 document Standard Operating Procedure: Biological Monitoring of Surface Waters in New York State (NYSDEC 2021). HMA scores are based on comparison to a reference condition habitat model developed by Tran et al. (2010). The calculated HMA scores fall into broader habitat condition categories which include: natural, altered, moderately altered, and severely altered.

The information included in this letter report will be used as the framework for conducting the quantitative survey, which will focus on water quality and the benthic macroinvertebrate and fish communities within the Youngs Creek system.

Results

Desktop Evaluation

The Aquatic Resources Supplemental Delineation Report (Ramboll 2023), which summarized wetland and stream delineation activities within the Site, identified one perennial, four intermittent, and 20 ephemeral streams (**Table 1**). These streams are depicted on **Figure 2** as P1, IS1-4a and ES1-21. Stream Survey Forms that provide the observed physical characteristics (e.g., bed width, bank height, substrate) were completed and used in conjunction with onsite observations to complete the NYSDEC's Field Sheets for Rapid Assessment of Habitat Conditions in Low and High Gradient Streams. The majority of Youngs Creek, as depicted in historic and current published mapping reviewed, has been identified as wetland habitat (**Figure 2**). It appears that Youngs Creek on the project site has been historically altered from past human activities (agricultural, residential and transportation/utility corridors) and beaver activity.

Table 1: Previously delineated stream resources within the Micron Site.

Stream ID	*Cowardin Classification/Flow Regime*	*Length (LF)*	*OHW Width (LF)*
IS1	Intermittent/Riverine Stream Bed (R4SB)	1,411	10
IS2	Intermittent/Riverine Stream Bed (R4SB)	1,532	25
IS3	Intermittent/Riverine Stream Bed (R4SB)	1,355	70
IS4	Intermittent/Riverine Stream Bed (R4SB)	337	5
IS4A	Intermittent/Riverine Stream Bed (R4SB)	150	2
ES1	Ephemeral/Riverine, Ephemeral (R6)	144	3
ES2	Ephemeral/R6	239	1
ES3	Ephemeral/R6	257	1
ES4	-	-	
ES5	Ephemeral/R6	143	4
ES6	Ephemeral/R6	324	6
ES7	Ephemeral/R6	237	4
ES8	Ephemeral/R6	1,045	2
ES8a	Ephemeral/R6	134	3
ES9	Ephemeral/R6	260	2
ES10	Ephemeral/R6	398	4
ES11	Ephemeral/R6	490	2
ES12	Ephemeral/R6	193	3
ES13	Ephemeral/R6	30	3
ES14	Ephemeral/R6	57	3
ES15	Ephemeral/R6	298	2
ES16	Ephemeral/R6	430	5
ES17	-	-	
ES18	-	-	
ES19	Ephemeral/R6	149	3
ES20	Ephemeral/R6	795	5
ES21	Ephemeral/R6	209	3
PS1 (Young's Creek)	Perennial/Upper Perennial Unconsolidated Bottom (R3UB)	120	20
TOTALS		**10,737**	OHW=Ordinary High Water

*Source - Aquatic Resources Supplemental Delineation Report (Ramboll 2023)

Based on the desktop review described above and from pre-survey reconnaissance level observations, Youngs Creek within the project area was partitioned into 5 study reaches. Reaches are shown in **Figure 2** and described below.

Reach 1: This reach consists of the headwaters and tributaries of Youngs Creek located in the southeast portion of the project area. Habitat assessments were conducted at nine locations which included ephemeral and intermittent streams previously identified during wetland and stream delineation efforts. These tributaries have been historically impacted by agricultural and residential activities.

Reach 2: This reach is perennial in nature and is continuously flooded by beaver activity. The reach is physically separated from downstream reaches by a beaver dam, which is located as shown in **Figure 2**. Based on historical aerial images (**Attachment 1**), this reach of Youngs Creek had minor alterations due to agricultural activities. Based on aerial imagery and historic topographic maps, this reach has been historically flooded. Four representative sampling locations were selected for habitat assessment within Reach 2.

Reach 3: This reach is physically separated from downstream reaches by a utility right-of-way access road and from upstream reaches by a beaver dam. The reach was historically channelized by agricultural activities prior to 1952. The historic drainage channel now consists of a series of beaver dams which has diffused channel flow through a wetland area. Four representative sampling locations were selected for habitat assessment within Reach 3.

Reach 4: The northern reach of Youngs Creek is physically separated from upstream reaches by a utility right-of-way access road. The stream is diffuse and runs through a large emergent wetland complex. Historically, this area was altered by agricultural activities, including the channelization and diversion of surface flows to tributaries to the west of the main channel as shown in the 1976 historical image (**Attachment 1**) and historic topographic mapping. Due to the lack of a defined channel within Reach 4, two representative locations were selected for habitat assessment.

Reach 5: This reach consists of tributaries of Youngs Creek located in the northwest portion of the Site. Locations include intermittent streams previously identified during wetland and stream delineation efforts. Based on historical aerial images (**Attachment 1**), these tributaries have been impacted by agricultural activities, including channelization prior to 1972. Habitat assessments were conducted at three representative sampling locations along the two tributaries within this reach.

Qualitative Field Survey Summary

Ramboll biologists conducted the qualitative habitat assessment of Youngs Creek and associated tributaries on December 12, 14, 15 and 21, 2023. A total of 22 locations were assessed during the field survey. Assessments were completed using the NYSDEC's Field Sheets for Rapid Assessment of Habitat Conditions in Low Gradient Streams due to the low gradient, nominal flows, and relatively quiescent conditions observed. Field sheets and photographs of each location are provided in **Attachment 3** and **Attachment 4**, respectively.

Table 2 provides the summary of habitat conditions observed for each location. A habitat assessment for location T-R1-06 was not completed due to a lack of a defined stream channel at that location.

Table 2: Results of the rapid assessment of habitat condition in low gradient streams and calculated habitat condition.

Station Name	*Date*	*Delineated Steam*	*Epifaunal Substrate/ Available Cover*	*Pool Substrate Characterization*	*Pool Variability*	*Sediment Deposition*	*Channel Flow Status*	*Channel Alteration*	*Channel Sinuosity*	*Bank Stability*	*Vegetative Protection*	*Riparian Vegetative Zone Width*	*Habitat Model Affinity*
T-R1-01	12/12/2023	Tributary	10	13	8	4	15	15	5	20	20	20	Natural
T-R1-02	12/12/2023	Tributary	5	6	3	1	5	16	8	18	20	20	Moderate
T-R1-03	12/12/2023	Tributary	5	11	8	3	18	9	5	18	18	16	Altered
T-R1-04	12/12/2023	Tributary	9	7	4	7	6	13	8	18	20	20	Moderate
T-R1-05	12/12/2023	Tributary	7	11	2	2	6	5	2	10	12	20	Severe
T-R1-06	12/14/2023	Tributary	--	--	--	--	--	--	--	--	--	--	--
T-R1-07	12/14/2023	Tributary	6	6	2	1	1	14	6	20	20	20	Severe
T-R1-08	12/14/2023	Tributary	6	6	1	3	1	6	6	20	20	20	Severe
T-R1-09	12/14/2023	Tributary	6	6	2	2	0	16	8	20	20	20	Moderate
YC-R2-01	12/12/2023	Youngs Creek	6	11	1	5	18	18	6	20	20	20	Altered
YC-R2-02	12/15/2023	Youngs Creek	6	13	12	5	20	16	8	20	20	20	Natural
YC-R2-03	12/14/2023	Youngs Creek	6	15	12	5	20	16	8	20	20	20	Natural
YC-R2-04	12/14/2023	Youngs Creek	6	13	10	5	20	19	10	20	20	20	Natural
YC-R3-01	12/15/2023	Youngs Creek	15	12	10	8	20	11	6	20	20	20	Natural
YC-R3-02	12/15/2023	Youngs Creek	12	11	8	8	20	11	8	20	20	20	Natural
YC-R3-03	12/15/2023	Youngs Creek	11	11	5	6	20	11	8	20	20	20	Altered
YC-R3-04	12/15/2023	Youngs Creek	16	15	13	13	20	10	8	20	16	16	Natural
YC-R4-01	12/15/2023	Youngs Creek	10	11	5	5	5	11	6	20	20	20	Moderate
YC-R4-02	12/15/2023	Youngs Creek	11	6	0	5	5	11	6	20	20	20	Moderate
T-R5-01	12/21/2023	Tributary	11	11	8	8	10	16	10	20	20	20	Natural
T-R5-02	12/21/2023	Tributary	8	8	8	5	8	13	8	20	20	20	Altered
T-R5-03	12/21/2023	Tributary	13	10	10	8	10	16	10	20	20	20	Natural

Reach 1: This reach consisted of seven ephemeral and two intermittent (T-R1-01 and T-R1-03) stream locations (**Figure 2**). The ephemeral stream locations were observed to have moderately to severely altered habitat conditions. These streams were observed to go dry in September (**Attachment 4;** Photos 5,6,11,12,19,20,25,26) and being ephemeral in nature are not expected to support macroinvertebrate and fish communities. Habitat capable of supporting sustained populations of fish and aquatic macroinvertebrates was not observed at ephemeral stream locations. Habitat conditions observed at the intermittent stream locations are considered natural or altered. Habitat conditions within the intermittent stream locations are likely suitable for the colonization of fish and macroinvertebrates associated with streams.

Reach 2: Although habitat conditions throughout this reach were generally assessed as natural, epifaunal substrate and available cover for the colonization of macroinvertebrates and fishes are limited due to high sedimentation rates within the beaver pond area. Emergent vegetation was present throughout the reach and was dominated by arrow arum (*Peltandra virginica*), which inhabits shallow water areas of ponds, lakes, streams, and rivers, we well as wetlands and wet woodlands. The reach is flooded due to a beaver dam located downstream and has no defined stream channel, resulting in the reach functioning primarily as wetland habitat as shown in **Figure 2** and **Attachment 4** (Photos 26 through 34).

Reach 3: Similar to Reach 2, this reach is heavily impacted by beaver activity. Several beaver dams were located along the historical agricultural channel, which has diffused the stream flow through a wetland dominated by reed canary grass (*Phalaris arundinacea*). A perennial channel is located at the downstream end of the reach, near the right-of-way access road (**Figure 2**). Epifaunal substrate and available cover for the colonization of macroinvertebrates and fishes are limited within this reach due to the lack of a defined channel, low water conditions and high sedimentation rates of organic material (**Attachment 4**; Photos 35 through 42).

Reach 4: No defined channel of Youngs Creek was observed in this reach downstream (north) of the utility right-of-way access road. Stream flow disperses through a wetland area dominated by common reed (*Phragmites australis*), cattail (*Typha latifolia*) and reed canary grass (**Figure 2**; **Attachment 4**; Photos 43 through 46). Although water levels within the wetland area were approximately 2 feet deep during the habitat assessment, water levels are likely lower during drier conditions. Habitat within this reach was not considered suitable for the colonization of fish and macroinvertebrates.

Reach 5: This reach consists of two intermittent tributary streams located in the northwest section of the Site (**Figure 2**). Habitat conditions within these streams is suitable for limited colonization of fish and macroinvertebrate communities. Habitat for these communities is limited and potentially inviable during dry periods due to low water depths or absence of water under these conditions (**Attachment 4**; Photos 44 through 58).

Conclusions and Recommendations

The majority of the Youngs Creek system within the Site has been altered by historic agricultural, utilities, road corridors and recent beaver activities. Channelization, draining and ponding of the creek has diffused or flooded the main channel of Youngs Creek as mapped on the Environmental Resource Mapper, resulting in a system functioning primarily as a wetland habitat (**Figure 2**). Stable stream habitat that may support fish and macroinvertebrate colonization was observed in previously delineated intermittent streams

(**Figure 2**). A limited quantitative assessment of the macroinvertebrate and fish communities in select stream reaches within the Youngs Creek system of the Site is recommended. It is recommended that the quantitative assessment focuses on the intermittent tributaries and the perennial portion of Youngs Creek where benthic macroinvertebrate and fish communities may be present.

References

Ramboll. 2023. Micron Semiconductor Fabrication Facility (Clay, NY), Aquatic Resources Supplemental Delineation Report

NYSDEC. 2021. Division of Water 2021 document, Standard Operating Procedure: Biological Monitoring of Surface Waters in New York State.

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Tran, C.P., R.W. Bode, A.J. Smith, and G. S. Kleppel. 2010. Land-use proximity as a basis for assessing stream water quality in New York State (USA). Ecological Indicators 10:727-733.

USFWS. 2023. National Wetland Inventory (NWI) Maps, as presented in the NWI Wetland Mapper. https ://www.fws.gov/wetlands/Data/Mapper.html.

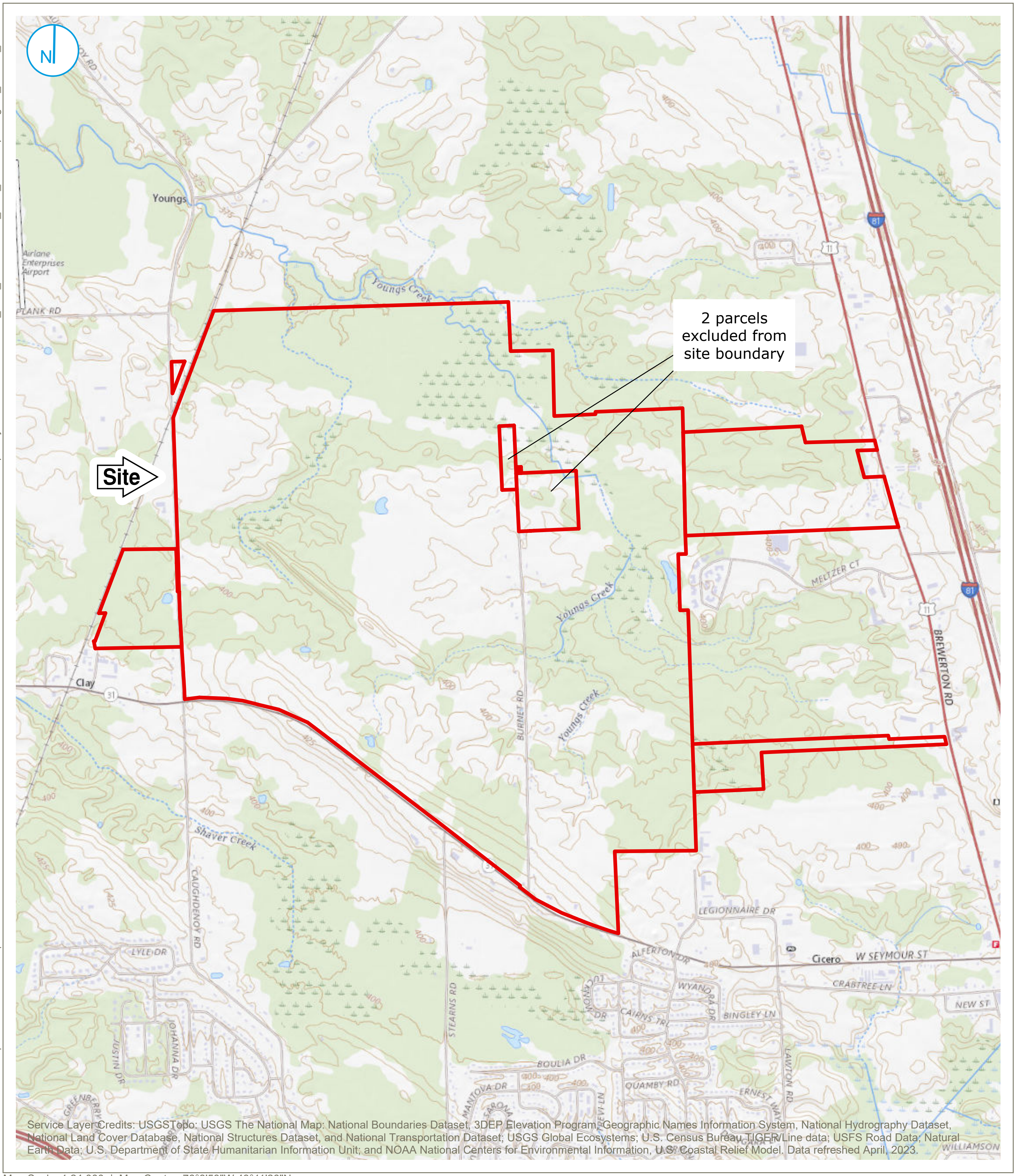
USGS. 2023. Historical Aerial Photograph Imagery obtained from United States Geological Survey (USGS) Earth Explorer. *https://earthexplorer.usgs.gov/*.

USGS. 2023. Historic Topographic Mapping obtained from USGS topoView. *https://ngmdb.usgs.gov/topoview/viewer/#15/43.1964/-76.1504.*

FIGURES

PROJECT: 1940071270 | DATED: 12/8/2023 | DESIGNER: SSOULE

C:\Users\SSOULE\OneDrive - Ramboll\Desktop\Projects\Micron\PRO\White_Pine_Micron\White_Pine_Micron.aprx\Figure_01-Site_Location



Map Scale: 1:24,000 | Map Center: 76°8'53"W 43°11'26"N

SITE LOCATION

FIGURE 01

KEY MAP (not to scale)

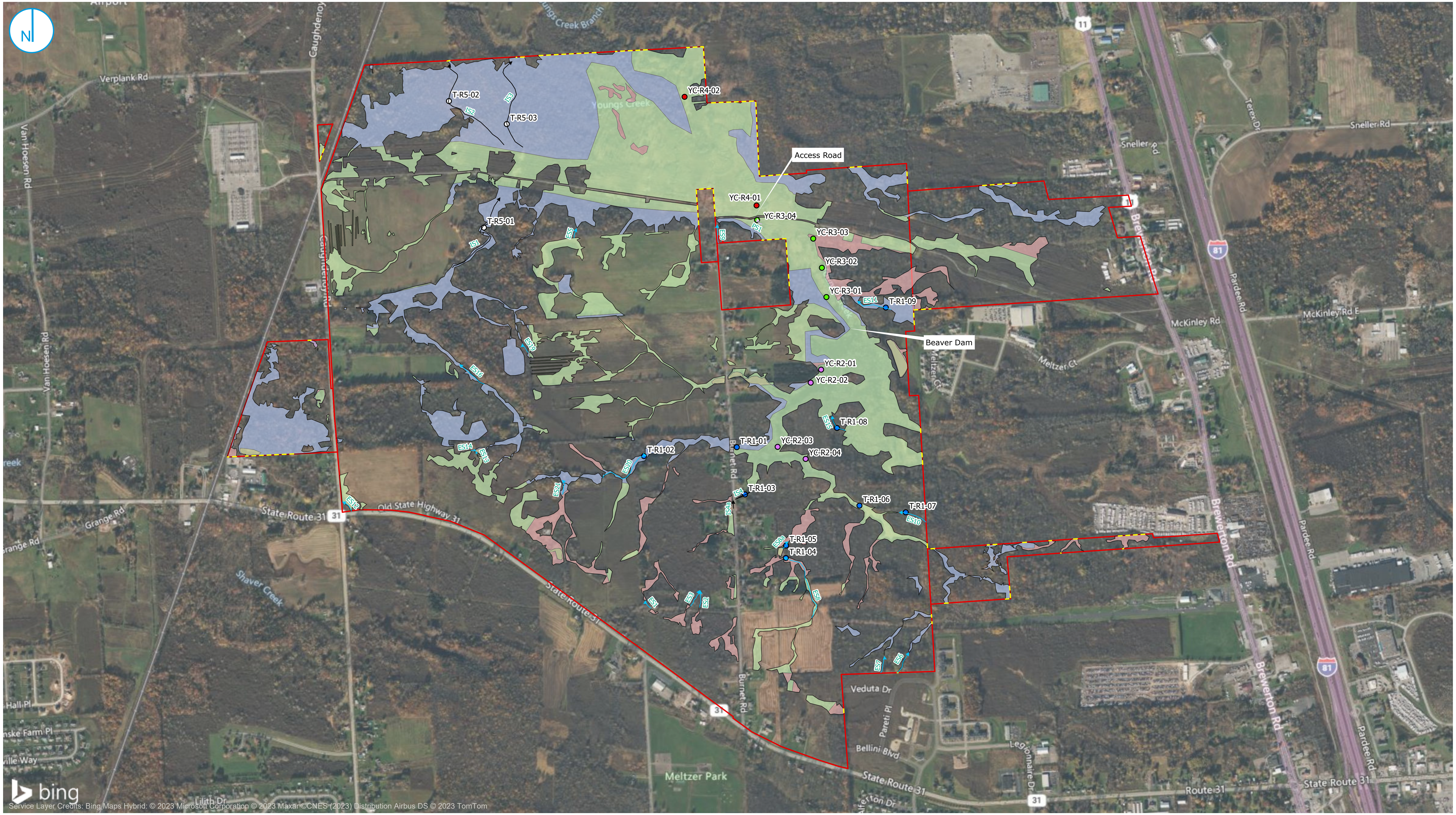
0 1,000 2,000 Feet

Micron Semiconductor Fabrication Facility
Clay, New York

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

C:\Users\SSOULE\OneDrive - Ramboll\Desktop\Projects\Micron\PRO\White_Pine_Micron\White_Pine_Micron.aprx\Figure_02-Youngs_Creek_Habitat

PROJECT: 1950100716-001 | DATED: 1/4/2024 | DESIGNER: SSOULE



Stream Assessment Location
- Reach 1
- Reach 2
- Reach 3
- Reach 4
- Reach 5

Delineated Stream Flow Direction
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Wetland Delineation Boundaries

Wetland Cover Type
- Palustrine Emergent (PEM)
- Palustrine Forested (PFO)
- Palustrine Open Water (POW)
- Palustrine Shrub Scrub (PSS)
- Palustrine Unconsolidated Bottom (PUB)

- Wetland Extends Beyond Site Boundary
- Site Boundary/Limits of JD Request

0 600 1,200 Feet

YOUNGS CREEK HABITAT ASSESSMENT

Micron Semiconductor Fabrication Facility
Clay, New York

FIGURE 02

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

ATTACHMENT 1
HISTORICAL AERIAL IMAGING

75430 KODAK AEROGRAPHIC SAFETY FILM 1A 75431 KODAK AEROGRAPHIC SAFETY FILM 1A 75432 KODAK AEROGRAPHIC

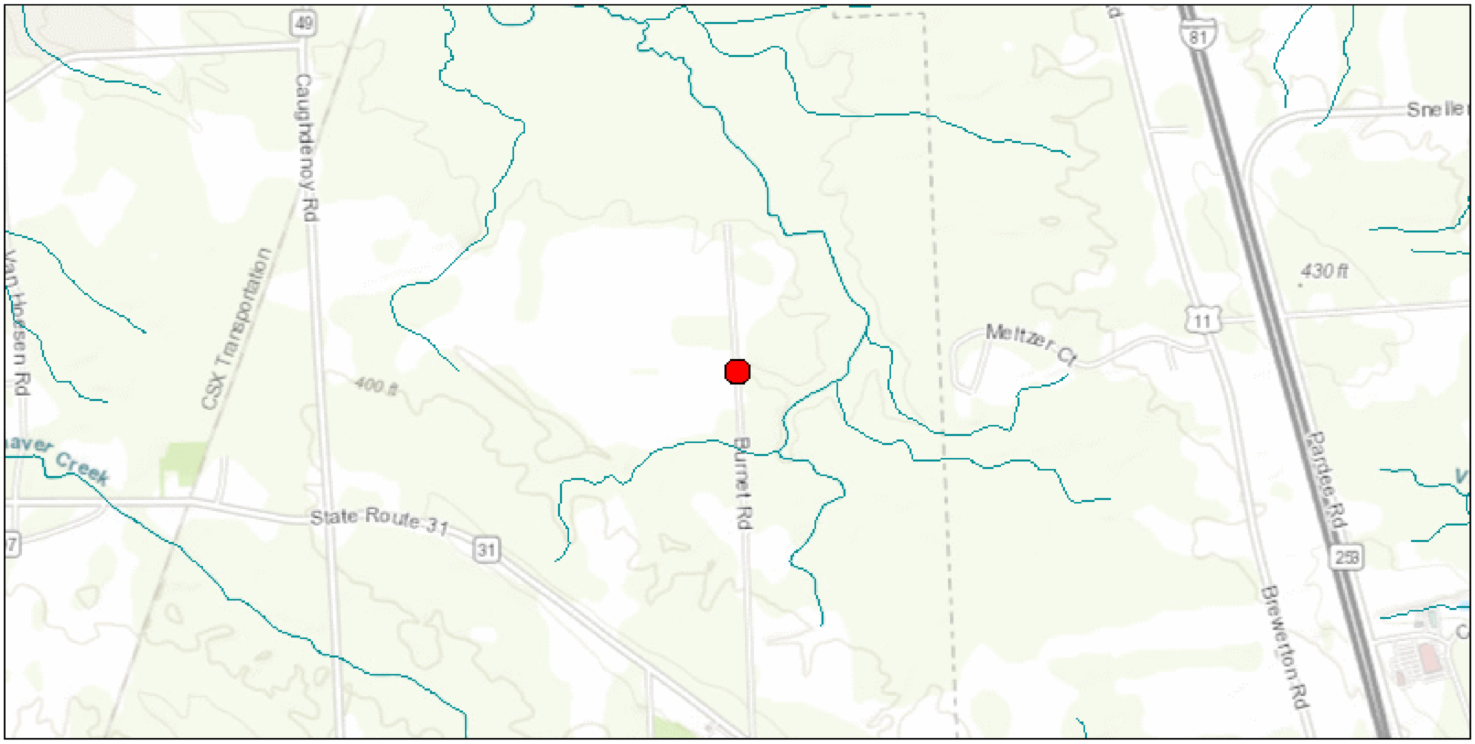

GS-SWGI
1 63
5-6-72
Ca640
SAg83
f=88.36
KODAK SAFETY FILM


4-16-81
7-151
GS-VEQX
UAgI 6016 153.03


NYS_Y3 DOT 162 86 04-25-03 1: 28800
NWG MK061 016 -0037 43-12-58N 076-08-01W 5023m 14:28:36 04-25-2003 45.4
FS160 1/ 360 f/4.0 FF2.0 EC+2/3* SP- v/h.02875 00% dt018.9 ds012 26.7V -60mb ER00 CAM5281
USGS

ATTACHMENT 2
ENVIRONMENTAL RESOURCE MAPPER

Environmental Resource Mapper



The coordinates of the point you clicked on are:

UTM 18	**Easting:**	406788.49875274836	**Northing:**	4782596.763676624
Longitude/Latitude	**Longitude:**	-76.1471278114065	**Latitude:**	43.19040268100736

The approximate address of the point you clicked on is:
8668 Burnet Rd, Clay, New York, 13041

County: Onondaga
Town: Clay
USGS Quad: BREWERTON

Freshwater Wetlands Checkzone

This location is in the vicinity of one or more Regulated Freshwater Wetlands.

Rare Plants and Rare Animals

This location is in the vicinity of Bats Listed as Endangered or Threatened -- Contact NYSDEC Regional Office

National Wetands Inventory

Attribute: PUBFh
Type: Freshwater Pond
Acres: 0.23542293092239608

For more information about the National Wetands Inventory wetlands visit http://www.fws.gov/wetlands/

If your project or action is within or near an area with a rare animal, a permit may be required if the species is listed as endangered or threatened and the department determines the action may be harmful to the species or its habitat.

If your project or action is within or near an area with rare plants and/or significant natural communities, the environmental impacts may need to be addressed.

The presence of a unique geological feature or landform near a project, unto itself, does not trigger a requirement for a NYS DEC permit. Readers are advised, however, that there is the chance that a unique feature may also show in another data layer (ie. a wetland) and thus be subject to permit jurisdiction.

Please refer to the "Need a Permit?" tab for permit information or other authorizations regarding these natural resources.

Disclaimer: If you are considering a project or action in, or near, a wetland or a stream, a NYS DEC permit may be required. The Environmental Resources Mapper does not show all natural resources which are regulated by NYS DEC, and for which permits from NYS DEC are required. For example, Regulated Tidal Wetlands, and Wild, Scenic, and Recreational Rivers, are currently not included on the maps.

Print Preview

ATTACHMENT 3
FIELD SHEETS FOR RAPID ASSESSMENT OF HABITAT CONDITIONS

18.4 FIELDSHEET FOR RAPID ASSESSMENT OF HABITAT CONDITION IN LOW GRADIENT STREAMS

New York State Department of Environmental Conservation

Field Sheet for Rapid Assessment of Habitat Condition (Low Gradient)

Stream Name: Youngs Creek Tributary 12/12/2023

4-letter Identifier/Station Number: T-R1-01

Collectors: CCN, RPC, KWB

Biological Sample: Y N

Site Type: Screening Intensive Multi-Site

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e. logs/snags that are not new fall and not transient)	30 – 50% mix of stable habitat; well-suited for full colonization potential, adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	10 – 30 % mix of stable habitat; habitat availability less than desirable, substrate frequently disturbed or removed.	Less than 10 % stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderated deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	**Suboptimal**	**Marginal**	**Poor**
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note – channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long time.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable, infrequent, small areas of erosion; mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion potential during floods.	Unstable, many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9.Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation very high vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Note: determine left or right side by facing downstream.

18.4 FIELDSHEET FOR RAPID ASSESSMENT OF HABITAT CONDITION IN LOW GRADIENT STREAMS

New York State Department of Environmental Conservation
Field Sheet for Rapid Assessment of Habitat Condition (Low Gradient)

Stream Name: Youngs Creek Tributary 12/12/2023
4-letter Identifier/Station Number: T-R1-02 (ES20)
Collectors: CCN, RPC, KWB
Biological Sample: Y N
Site Type: Screening Intensive Multi-Site

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	**Suboptimal**	**Marginal**	**Poor**
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e. logs/snags that are not new fall and not transient)	30 – 50% mix of stable habitat; well-suited for full colonization potential, adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	10 – 30 % mix of stable habitat; habitat availability less than desirable, substrate frequently disturbed or removed.	Less than 10 % stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderated deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note – channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long time.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable, infrequent, small areas of erosion; mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion potential during floods.	Unstable, many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE___(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE___(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation very high vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE___(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE___(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE___(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE___(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Note: determine left or right side by facing downstream.

18.4 FIELDSHEET FOR RAPID ASSESSMENT OF HABITAT CONDITION IN LOW GRADIENT STREAMS

New York State Department of Environmental Conservation
Field Sheet for Rapid Assessment of Habitat Condition (Low Gradient)

Stream Name: Youngs Creek Tributary 12/12/2023
4-letter Identifier/Station Number: T-R1-03 (IS4)
Collectors: CCN, RPC, KWB
Biological Sample: Y N
Site Type: Screening Intensive Multi-Site

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e. logs/snags that are not new fall and not transient)	30 – 50% mix of stable habitat; well-suited for full colonization potential, adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	10 – 30 % mix of stable habitat; habitat availability less than desirable, substrate frequently disturbed or removed.	Less than 10 % stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderated deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	**Suboptimal**	**Marginal**	**Poor**
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note – channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long time.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable, infrequent, small areas of erosion; mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion potential during floods.	Unstable, many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9.Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation very high vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Note: determine left or right side by facing downstream.

18.4 FIELDSHEET FOR RAPID ASSESSMENT OF HABITAT CONDITION IN LOW GRADIENT STREAMS

New York State Department of Environmental Conservation
Field Sheet for Rapid Assessment of Habitat Condition (Low Gradient)

12/12/2023

Stream Name: Youngs Creek Tributary
4-letter Identifier/Station Number: T-R1-04 (ES8)
Collectors: RPC, KWB
Biological Sample: Y N
Site Type: Screening Intensive Multi-Site

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e. logs/snags that are not new fall and not transient)	30 – 50% mix of stable habitat; well-suited for full colonization potential, adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	10 – 30 % mix of stable habitat; habitat availability less than desirable, substrate frequently disturbed or removed.	Less than 10 % stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderated deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note – channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long time.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable, infrequent, small areas of erosion; mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion potential during floods.	Unstable, many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9.Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation very high vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Note: determine left or right side by facing downstream.

18.4 FIELDSHEET FOR RAPID ASSESSMENT OF HABITAT CONDITION IN LOW GRADIENT STREAMS

New York State Department of Environmental Conservation
Field Sheet for Rapid Assessment of Habitat Condition (Low Gradient)

Stream Name: Youngs Creek Tributary 12/12/2023
4-letter Identifier/Station Number: T-R1-05 (ES8a)
Collectors: RPC, KWB
Biological Sample: Y N
Site Type: Screening Intensive Multi-Site

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	**Suboptimal**	**Marginal**	**Poor**
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e. logs/snags that are <u>not</u> new fall and <u>not</u> transient)	30 – 50% mix of stable habitat; well-suited for full colonization potential, adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	10 – 30 % mix of stable habitat; habitat availability less than desirable, substrate frequently disturbed or removed.	Less than 10 % stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderated deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note – channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long time.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable, infrequent, small areas of erosion; mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion potential during floods.	Unstable, many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9.Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation very high vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Note: determine left or right side by facing downstream.

18.4 FIELDSHEET FOR RAPID ASSESSMENT OF HABITAT CONDITION IN LOW GRADIENT STREAMS

New York State Department of Environmental Conservation
Field Sheet for Rapid Assessment of Habitat Condition (Low Gradient)

Stream Name: Youngs Creek Tributary 12/14/2023
4-letter Identifier/Station Number: T-R1-07 (ES10)
Collectors: CCN, KWB
Biological Sample: Y N
Site Type: Screening Intensive Multi-Site

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e. logs/snags that are not new fall and not transient)	30 – 50% mix of stable habitat; well-suited for full colonization potential, adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	10 – 30 % mix of stable habitat; habitat availability less than desirable, substrate frequently disturbed or removed.	Less than 10 % stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderated deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note – channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long time.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable, infrequent, small areas of erosion; mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion potential during floods.	Unstable, many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9.Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation very high vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Note: determine left or right side by facing downstream.

18.4 FIELDSHEET FOR RAPID ASSESSMENT OF HABITAT CONDITION IN LOW GRADIENT STREAMS

New York State Department of Environmental Conservation
Field Sheet for Rapid Assessment of Habitat Condition (Low Gradient)

12/14/2023

Stream Name: Youngs Creek Tributary
4-letter Identifier/Station Number: T-R1-08 (ES15)
Collectors: CCN, KWB
Biological Sample: Y N
Site Type: Screening Intensive Multi-Site

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e. logs/snags that are <u>not</u> new fall and <u>not</u> transient)	30 – 50% mix of stable habitat; well-suited for full colonization potential, adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	10 – 30 % mix of stable habitat; habitat availability less than desirable, substrate frequently disturbed or removed.	Less than 10 % stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderated deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note – channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long time.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable, infrequent, small areas of erosion; mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion potential during floods.	Unstable, many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9.Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation very high vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Note: determine left or right side by facing downstream.

18.4 FIELDSHEET FOR RAPID ASSESSMENT OF HABITAT CONDITION IN LOW GRADIENT STREAMS

New York State Department of Environmental Conservation

Field Sheet for Rapid Assessment of Habitat Condition (Low Gradient)

Stream Name: Youngs Creek Tributary 12/14/2023
4-letter Identifier/Station Number: T-R1-09 (ES11)
Collectors: CCN, RPC, KWB
Biological Sample: Y N
Site Type: Screening Intensive Multi-Site

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	**Suboptimal**	**Marginal**	**Poor**
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e. logs/snags that are not new fall and not transient)	30 – 50% mix of stable habitat; well-suited for full colonization potential, adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	10 – 30 % mix of stable habitat; habitat availability less than desirable, substrate frequently disturbed or removed.	Less than 10 % stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderated deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	**Suboptimal**	**Marginal**	**Poor**
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note – channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long time.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable, infrequent, small areas of erosion; mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion potential during floods.	Unstable, many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE___(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE___(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9.Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation very high vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE___(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE___(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE___(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE___(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Note: determine left or right side by facing downstream.

18.4 FIELDSHEET FOR RAPID ASSESSMENT OF HABITAT CONDITION IN LOW GRADIENT STREAMS

New York State Department of Environmental Conservation
Field Sheet for Rapid Assessment of Habitat Condition (Low Gradient)

12/12/2023

Stream Name: Youngs Creek
4-letter Identifier/Station Number: YC-R2-01
Collectors: CCN, RPC, KWB
Biological Sample: Y N
Site Type: Screening Intensive Multi-Site

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e. logs/snags that are not new fall and not transient)	30 – 50% mix of stable habitat; well-suited for full colonization potential, adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	10 – 30 % mix of stable habitat; habitat availability less than desirable, substrate frequently disturbed or removed.	Less than 10 % stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderated deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	**Suboptimal**	**Marginal**	**Poor**
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note – channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long time.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable, infrequent, small areas of erosion; mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion potential during floods.	Unstable, many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9.Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation very high vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Note: determine left or right side by facing downstream.

18.4 FIELDSHEET FOR RAPID ASSESSMENT OF HABITAT CONDITION IN LOW GRADIENT STREAMS

New York State Department of Environmental Conservation
Field Sheet for Rapid Assessment of Habitat Condition (Low Gradient)

12/15/2023

Stream Name: Youngs Creek
4-letter Identifier/Station Number: YC-R2-02
Collectors: CCN, NJT
Biological Sample: Y N
Site Type: Screening Intensive Multi-Site

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	**Suboptimal**	**Marginal**	**Poor**
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e. logs/snags that are <u>not</u> new fall and <u>not</u> transient)	30 – 50% mix of stable habitat; well-suited for full colonization potential, adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	10 – 30 % mix of stable habitat; habitat availability less than desirable, substrate frequently disturbed or removed.	Less than 10 % stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderated deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note – channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long time.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable, infrequent, small areas of erosion; mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion potential during floods.	Unstable, many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9.Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation very high vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Note: determine left or right side by facing downstream.

18.4 FIELDSHEET FOR RAPID ASSESSMENT OF HABITAT CONDITION IN LOW GRADIENT STREAMS

New York State Department of Environmental Conservation
Field Sheet for Rapid Assessment of Habitat Condition (Low Gradient)

12/14/2023

Stream Name: Youngs Creek
4-letter Identifier/Station Number: YC-R2-03
Collectors: CCN, KWB
Biological Sample: Y N
Site Type: Screening Intensive Multi-Site

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	**Suboptimal**	**Marginal**	**Poor**
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e. logs/snags that are not new fall and not transient)	30 – 50% mix of stable habitat; well-suited for full colonization potential, adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	10 – 30 % mix of stable habitat; habitat availability less than desirable, substrate frequently disturbed or removed.	Less than 10 % stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderated deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note – channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long time.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable, infrequent, small areas of erosion; mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion potential during floods.	Unstable, many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9.Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation very high vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Note: determine left or right side by facing downstream.

18.4 FIELDSHEET FOR RAPID ASSESSMENT OF HABITAT CONDITION IN LOW GRADIENT STREAMS

New York State Department of Environmental Conservation
Field Sheet for Rapid Assessment of Habitat Condition (Low Gradient)

Stream Name: Youngs Creek 12/14/2023
4-letter Identifier/Station Number: YC-R2-04
Collectors: CCN, KWB
Biological Sample: Y N
Site Type: Screening Intensive Multi-Site

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e. logs/snags that are not new fall and not transient)	30 – 50% mix of stable habitat; well-suited for full colonization potential, adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	10 – 30 % mix of stable habitat; habitat availability less than desirable, substrate frequently disturbed or removed.	Less than 10 % stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderated deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	**Suboptimal**	**Marginal**	**Poor**
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note – channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long time.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable, infrequent, small areas of erosion; mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion potential during floods.	Unstable, many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE___(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE___(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9.Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation very high vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE___(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE___(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE___(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE___(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Note: determine left or right side by facing downstream.

18.4 FIELDSHEET FOR RAPID ASSESSMENT OF HABITAT CONDITION IN LOW GRADIENT STREAMS

New York State Department of Environmental Conservation

Field Sheet for Rapid Assessment of Habitat Condition (Low Gradient)

Stream Name: Youngs Creek 12/15/2023

4-letter Identifier/Station Number: YC-R3-01

Collectors: CCN, NJT

Biological Sample: Y N

Site Type: Screening Intensive Multi-Site

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e. logs/snags that are <u>not</u> new fall and <u>not</u> transient)	30 – 50% mix of stable habitat; well-suited for full colonization potential, adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	10 – 30 % mix of stable habitat; habitat availability less than desirable, substrate frequently disturbed or removed.	Less than 10 % stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderated deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	**Suboptimal**	**Marginal**	**Poor**
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note – channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long time.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable, infrequent, small areas of erosion; mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion potential during floods.	Unstable, many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9.Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation very high vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Note: determine left or right side by facing downstream.

18.4 FIELDSHEET FOR RAPID ASSESSMENT OF HABITAT CONDITION IN LOW GRADIENT STREAMS

New York State Department of Environmental Conservation
Field Sheet for Rapid Assessment of Habitat Condition (Low Gradient)

Stream Name: Youngs Creek 12/15/2023
4-letter Identifier/Station Number: YC-R3-02
Collectors: CCN, NJT
Biological Sample: Y N
Site Type: Screening Intensive Multi-Site

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e. logs/snags that are not new fall and not transient)	30 – 50% mix of stable habitat; well-suited for full colonization potential, adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	10 – 30 % mix of stable habitat; habitat availability less than desirable, substrate frequently disturbed or removed.	Less than 10 % stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderated deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note – channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long time.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable, infrequent, small areas of erosion; mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion potential during floods.	Unstable, many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9.Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation very high vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Note: determine left or right side by facing downstream.

18.4 FIELDSHEET FOR RAPID ASSESSMENT OF HABITAT CONDITION IN LOW GRADIENT STREAMS

New York State Department of Environmental Conservation

Field Sheet for Rapid Assessment of Habitat Condition (Low Gradient)

12/15/2023

Stream Name: Youngs Creek

4-letter Identifier/Station Number: YC-R3-03

Collectors: CCN, NJT

Biological Sample: Y N

Site Type: Screening Intensive Multi-Site

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e. logs/snags that are <u>not</u> new fall and <u>not</u> transient)	30 – 50% mix of stable habitat; well-suited for full colonization potential, adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	10 – 30 % mix of stable habitat; habitat availability less than desirable, substrate frequently disturbed or removed.	Less than 10 % stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderated deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note – channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long time.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable, infrequent, small areas of erosion; mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion potential during floods.	Unstable, many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9.Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation very high vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Note: determine left or right side by facing downstream.

18.4 FIELDSHEET FOR RAPID ASSESSMENT OF HABITAT CONDITION IN LOW GRADIENT STREAMS

New York State Department of Environmental Conservation
Field Sheet for Rapid Assessment of Habitat Condition (Low Gradient)

12/15/2023

Stream Name: Youngs Creek
4-letter Identifier/Station Number: YC-R3-04 (PS1)
Collectors: CCN, NJT
Biological Sample: Y N
Site Type: Screening Intensive Multi-Site

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e. logs/snags that are <u>not</u> new fall and <u>not</u> transient)	30 – 50% mix of stable habitat; well-suited for full colonization potential, adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	10 – 30 % mix of stable habitat; habitat availability less than desirable, substrate frequently disturbed or removed.	Less than 10 % stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderated deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note – channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long time.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable, infrequent, small areas of erosion; mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion potential during floods.	Unstable, many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9.Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation very high vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Note: determine left or right side by facing downstream.

18.4 FIELDSHEET FOR RAPID ASSESSMENT OF HABITAT CONDITION IN LOW GRADIENT STREAMS

New York State Department of Environmental Conservation
Field Sheet for Rapid Assessment of Habitat Condition (Low Gradient)

Stream Name: Youngs Creek Tributary 12/21/2023
4-letter Identifier/Station Number: T-R5-01 (IS1)
Collectors: CCN, RPC, KWB
Biological Sample: Y N
Site Type: Screening Intensive Multi-Site

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e. logs/snags that are <u>not</u> new fall and <u>not</u> transient)	30 – 50% mix of stable habitat; well-suited for full colonization potential, adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	10 – 30 % mix of stable habitat; habitat availability less than desirable, substrate frequently disturbed or removed.	Less than 10 % stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderated deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	**Suboptimal**	**Marginal**	**Poor**
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note – channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long time.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable, infrequent, small areas of erosion; mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion potential during floods.	Unstable, many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9.Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation very high vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Note: determine left or right side by facing downstream.

18.4 FIELDSHEET FOR RAPID ASSESSMENT OF HABITAT CONDITION IN LOW GRADIENT STREAMS

New York State Department of Environmental Conservation
Field Sheet for Rapid Assessment of Habitat Condition (Low Gradient)

12/21/2023

Stream Name: Youngs Creek Tributary
4-letter Identifier/Station Number: T-R5-01 (IS2)
Collectors: CCN, NJT
Biological Sample: Y N
Site Type: Screening Intensive Multi-Site

Parameters to be evaluated in sampling reach

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
	Condition Category			
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e. logs/snags that are not new fall and not transient)	30 – 50% mix of stable habitat; well-suited for full colonization potential, adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	10 – 30 % mix of stable habitat; habitat availability less than desirable, substrate frequently disturbed or removed.	Less than 10 % stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderated deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note – channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long time.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable, infrequent, small areas of erosion; mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion potential during floods.	Unstable, many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE___(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE___(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation very high vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE___(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE___(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE___(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE___(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Note: determine left or right side by facing downstream.

18.4 FIELDSHEET FOR RAPID ASSESSMENT OF HABITAT CONDITION IN LOW GRADIENT STREAMS

New York State Department of Environmental Conservation
Field Sheet for Rapid Assessment of Habitat Condition (Low Gradient)

12/21/2023

Stream Name: Youngs Creek Tributary
4-letter Identifier/Station Number: T-R5-01 (IS3)
Collectors: CCN, NJT
Biological Sample: Y N
Site Type: Screening Intensive Multi-Site

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/ Available Cover	Greater than 50% of substrate favorable for epifaunal colonization and fish cover, mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e. logs/snags that are not new fall and not transient)	30 – 50% mix of stable habitat; well-suited for full colonization potential, adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale).	10 – 30 % mix of stable habitat; habitat availability less than desirable, substrate frequently disturbed or removed.	Less than 10 % stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Pool Substrate Characterization	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Pool Variability	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 20% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools.	Moderated deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constructions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Parameters to be evaluated in sampling reach

Habitat Parameter	Condition Category			
	Optimal	**Suboptimal**	**Marginal**	**Poor**
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Channel Sinuosity	The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note – channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas.	The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line.	The bends in the stream increase the stream length 1 to 2 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long time.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank)	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable, infrequent, small areas of erosion; mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion potential during floods.	Unstable, many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9.Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation very high vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE____(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE____(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Note: determine left or right side by facing downstream.

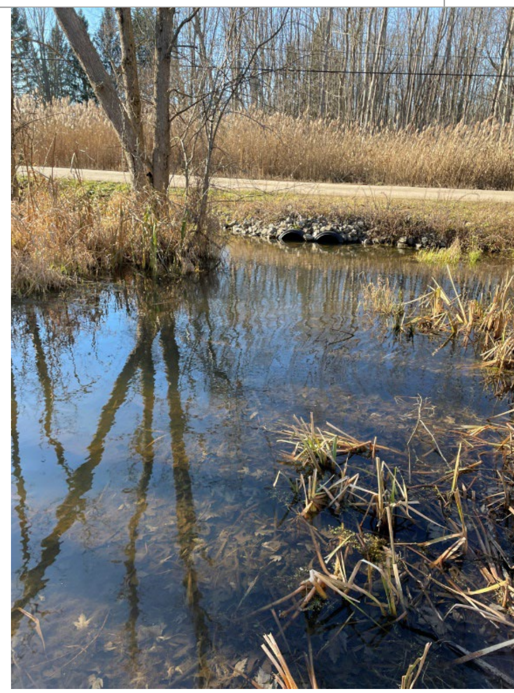
ATTACHMENT 4
PHOTOGRAPH LOG

Client Name:	Site Location:	Project No.
Micron Technology	White Pine Commerce Park, Onondaga County, NY	1161164|1950100716

Photo No.	Date:
1	12/12/2023

Description

Looking upstream at T-R1-01.

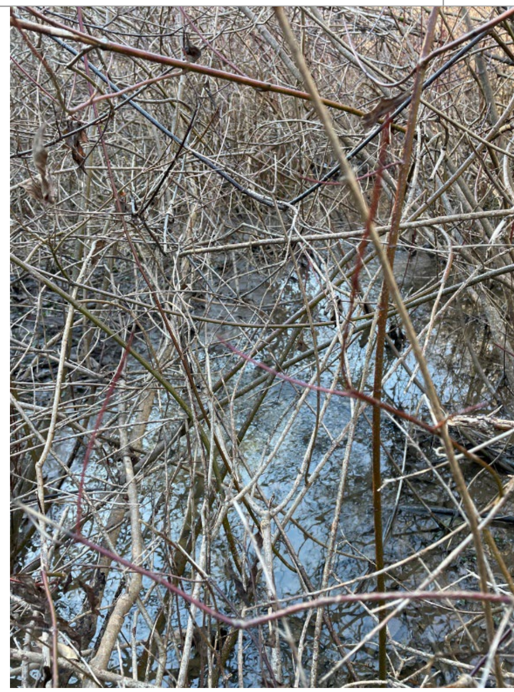


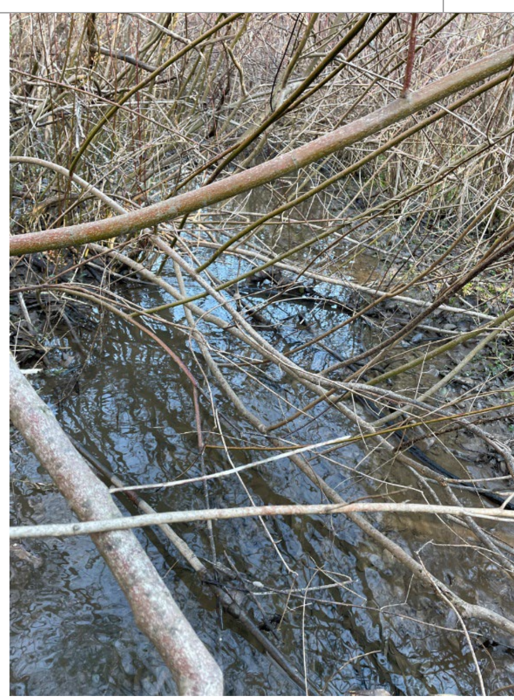
Client Name:	Site Location:	Project No.
Micron Technology	White Pine Commerce Park, Onondaga County, NY	1161164|1950100716

Photo No.	Date:
2	12/12/2023

Description

Looking downstream at T-R1-01.

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 3	**Date:** 12/12/2023		
Description Looking upstream at T-R1-02 (ES20).			

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 4	**Date:** 12/12/2023		
Description Looking downstream at T-R1-02 (ES20).			

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:	
5	9/20/2023	
Description Looking upstream at ES20 near T-R1-02 during dry conditions.		

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:	
6	9/20/2023	
Description Looking downstream at ES20 near T-R1-02 during dry conditions.		

<table>
<tr><td colspan="2">Client Name:

Micron Technology</td><td colspan="2">Site Location:

White Pine Commerce Park, Onondaga County, NY</td><td>Project No.

1161164|1950100716</td></tr>
<tr><td>Photo No.

7</td><td>Date:

12/12/2023</td><td colspan="3" rowspan="2"></td></tr>
<tr><td colspan="2">Description

Looking upstream at T-R1-03 (IS4).</td></tr>
<tr><td colspan="2">Client Name:

Micron Technology</td><td colspan="2">Site Location:

White Pine Commerce Park, Onondaga County, NY</td><td>Project No.

1161164|1950100716</td></tr>
<tr><td>Photo No.

8</td><td>Date:

12/12/2023</td><td colspan="3" rowspan="2"></td></tr>
<tr><td colspan="2">Description

Looking downstream at T-R1-03 (IS4).</td></tr>
</table>

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:
9	12/12/2023

Description

Looking upstream at T-R1-04 (ES8).

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:
10	12/12/2023

Description

Looking downstream at T-R1-04 (ES8).

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 11	**Date:** 9/21/2023		
Description Looking downstream at ES8 near T-R1-04 during dry conditions.			

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 12	**Date:** 9/21/2023		
Description Looking upstream at ES8 near T-R1-04 during dry conditions.			

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 13	**Date:** 12/12/2023		
Description Looking upstream at T-R1-05 (ES8a).			

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 14	**Date:** 12/12/2023		
Description Looking downstream at T-R1-05 (ES8a).			

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:
15	12/14/2023

Description

Looking upstream at T-R1-06.

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:
16	12/14/2023

Description

Looking downstream at T-R1-06.

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:
17	12/14/2023

Description

Looking upstream at T-R1-07 (ES10).

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:
18	12/14/2023

Description

Looking downstream at T-R1-07 (ES10).

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 19	**Date:** 9/21/2023		
Description Looking downstream at ES10 near T-R1-07 during dry conditions.			

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 20	**Date:** 9/21/2023		
Description Looking upstream at ES10 near T-R1-07 during dry conditions.			

Client Name:	Site Location:	Project No.
Micron Technology	White Pine Commerce Park, Onondaga County, NY	1161164|1950100716

Photo No.	Date:
21	12/14/2023

Description

Looking upstream at T-R1-08 (ES15).

Client Name:	Site Location:	Project No.
Micron Technology	White Pine Commerce Park, Onondaga County, NY	1161164|1950100716

Photo No.	Date:
22	12/14/2023

Description

Looking downstream at T-R1-08 (ES15).

Client Name: Micron Technology	**Site Location:** White Pine Commerce Park, Onondaga County, NY	**Project No.** 1161164|1950100716

Photo No. 23	**Date:** 12/14/2023

Description

Looking upstream at T-R1-09 (ES11).

Client Name: Micron Technology	**Site Location:** White Pine Commerce Park, Onondaga County, NY	**Project No.** 1161164|1950100716

Photo No. 24	**Date:** 12/14/2023

Description

Looking downstream at T-R1-09 (ES11).

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 25	**Date:** 9/8/2023		
Description Looking upstream at ES11 near T-R1-09 during dry conditions.			

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 26	**Date:** 9/8/2023		
Description Beaver dam located between reach 2 and reach 3.			

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:
27	12/12/2023

Description

Looking upstream at YC-R2-01.

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:
28	12/12/2023

Description

Looking downstream at YC-R2-01.

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 29	**Date:** 12/15/2023		
Description Looking upstream at YC-R2-02.			

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 30	**Date:** 12/15/2023		
Description Looking downstream at YC-R2-02.			

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 31	**Date:** 12/14/2023		
Description Looking upstream at YC-R2-03.			

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 32	**Date:** 12/14/2023		
Description Looking downstream at YC-R2-03.			

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:
33	12/14/2023

Description

Looking downstream at YC-R2-04.

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:
34	12/14/2023

Description

Looking upstream at YC-R2-04.

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:
35	12/15/2023

Description

Looking downstream at YC-R3-01.

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:
36	12/15/2023

Description

Looking upstream at YC-R3-01.

Client Name: Micron Technology		Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716
Photo No. 37	**Date:** 12/15/2023		
Description Looking upstream at YC-R3-02.			

Client Name: Micron Technology		Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716
Photo No. 38	**Date:** 12/15/2023		
Description Looking downstream at YC-R3-02.			

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 39	**Date:** 12/15/2023		
Description Looking downstream at YC-R3-03.			

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 40	**Date:** 12/15/2023		
Description Looking upstream at YC-R3-03.			

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:	
41	12/15/2023	
Description Looking downstream at YC-R3-04 (P1).		

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:	
42	12/15/2023	
Description Looking upstream at YC-R3-04 (P1).		

Client Name:	Site Location:	Project No.
Micron Technology	White Pine Commerce Park, Onondaga County, NY	1161164|1950100716

Photo No.	Date:
43	12/15/2023

Description

Looking downstream at YC-R4-01.

Client Name:	Site Location:	Project No.
Micron Technology	White Pine Commerce Park, Onondaga County, NY	1161164|1950100716

Photo No.	Date:
44	12/15/2023

Description

Looking upstream at YC-R4-01.

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:
45	12/15/2023

Description

Looking downstream at YC-R4-02.

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:
46	12/15/2023

Description

Looking upstream at YC-R4-02.

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 47	**Date:** 12/15/2023		
Description Looking downstream at YC-R5-01 (IS1).			

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 48	**Date:** 12/15/2023		
Description Looking upstream at YC-R5-01 (IS1).			

Client Name: Micron Technology		Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716
Photo No. 49	**Date:** 9/14/2023		
Description Looking upstream at IS1 near YC-R5-01 during dry conditions.			

Client Name: Micron Technology		Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716
Photo No. 50	**Date:** 9/14/2023		
Description Looking downstream at IS1 near YC-R5-01 during dry conditions.			

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:
51	12/15/2023

Description

Looking downstream at YC-R5-02 (IS2).

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:
52	12/15/2023

Description

Looking upstream at YC-R5-02 (IS2).

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 53	**Date:** 9/15/2023		
Description Looking upstream at IS2 near YC-R5-02.			

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 54	**Date:** 9/15/2023		
Description Looking downstream at IS2 near YC-R5-02.			

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 55	**Date:** 12/15/2023		
Description Looking downstream at YC-R5-03 (IS3).			

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 56	**Date:** 12/15/2023		
Description Looking upstream at YC-R5-03 (IS3).			

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:
57	9/15/2023

Description

Looking upstream at IS3 near YC-R5-03.

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:
58	9/15/2023

Description

Looking downstream at IS3 near YC-R5-03.

Appendix G-6-2
Quantitative Environmental Survey of Youngs Creek Report

ENVIRONMENT
& HEALTH

Micron Semiconductor Fabrication Facility (Clay, NY)

Quantitative Environmental Survey of Youngs Creek Report

Project name	**Micron Semiconductor Fabrication Facility (Clay, NY)**
Client	**Micron New York Semiconductor Manufacturing, LLC**
Project no.	**1950100687; DEC ID 7-3124-00575**
Recipient(s)	**Kevin Balduzzi (NYSDEC); Ian Drew (USFWS)**
From	**Ramboll Americas Engineering Solutions, Inc.**
Document type	**Report**
Date	**June 28, 2024**
Prepared by	**Christopher C. Nack**
Checked by	**Mike Rondinelli**
Approved by	**Kenneth P. Lynch**

In their reviews of the September 2023 Draft State Environmental Quality Review Act (SEQRA) Proposed Scope and Full Environmental Assessment Form (FEAF) and Addendum documents for the proposed Micron Semiconductor Fabrication project (Project) in Clay, New York, the New York State Department of Environmental Conservation (NYSDEC) and United States Fish and Wildlife Service (USFWS) indicated that the Draft Environmental Impact Statement (DEIS) should include a biological survey of Youngs Creek in support of the assessment of the Project's potential upstream and downstream impacts to aquatic resources. Accordingly, in December 2023, Ramboll conducted a qualitative environmental survey of Youngs Creek within the proposed Project site limits that qualitatively characterized the quality of the habitats associated with the Youngs Creek system and identified reaches that potentially support benthic macroinvertebrate and fish communities. The results of this qualitative survey were presented in a letter report to NYSDEC and USFWS dated February 26, 2024 (Ramboll 2024). To fully address agency comments regarding characterization of biological communities within the Youngs Creek system, a follow-on quantitative survey was conducted from June 5 through June 7, 2024 that focused on the reaches identified as potentially supporting benthic macroinvertebrates and fishes. This report summarizes the activities conducted during the quantitative biological sampling and presents and describes the results of the survey.

Quantitative Field Survey Methods

As discussed above, Ramboll conducted biological sampling of fish and aquatic macroinvertebrates along multiple sections of Youngs Creek and its associated tributaries within the confines of the Micron property (Table 1; Figures 1-1b). Field surveys focused on perennial and intermittent reaches of Youngs Creek and adjoining features having a continuous surface connection to Youngs Creek. Sampling locations were identified based on information provided in the *Micron Semiconductor Fabrication Facility (Clay, NY), Aquatic Resources Supplemental Delineation Report* (Ramboll 2023) and the *Qualitative Environmental Survey of Youngs Creek* technical memorandum prepared in February 2024 (Ramboll 2024). Site images were taken during the biological survey and are provided in Attachment 1.

Table 1: Sample locations with associated midpoint geographic coordinates.

Sample Location	Latitude, Longitude	Cowardin Classification / Flow Regime
T-R1-01	43.1878, -76.1463	Palustrine Emergent Wetland (PEM)
T-R1-03	43.1861, -76.1464	Intermittent/Riverine Stream Bed (R4SB)
T-R5-01	43.1957, -76.1591	Intermittent/Riverine Stream Bed (R4SB)
T-R5-02	43.2003, -76.1591	Intermittent/Riverine Stream Bed (R4SB)
T-R5-03	43.1999, -76.1579	Intermittent/Riverine Stream Bed (R4SB)
YC-R2-01a	43.1918, -76.1410	Palustrine Emergent Wetland (PEM)
YC-R2-01	43.1908, -76.1422	Palustrine Emergent Wetland (PEM)
YC-R2-03	43.1891, -76.1444	Palustrine Emergent Wetland (PEM)
YC-R3-04	43.1960, -76.1455	Perennial/Upper Perennial Unconsolidated Bottom (R3UB)

The survey entailed accessing the Youngs Creek stream continuum at the locations in Table 1 and conducting backpack electroshocking of fish, dip netting for benthic macroinvertebrates and collecting water quality data. Sampling generally followed the NYSDEC's Division of Water 2021 document, *Standard Operating Procedure: Biological Monitoring of Surface Waters in New York State (SOP #103-04 (ny.gov)*. Water quality data were collected at the various sampling locations with a Horiba U52-2M Multimeter and included the following parameters: water temperature (°C), dissolved oxygen (mg/L), conductivity (uS/cm), turbidity (NTU), and pH (Table 2).

Approximately 75-meters of stream was sampled for fish at each reach location. All collected fish were identified to species in the field. Fish counts (Table 3) were recorded and the lengths of up to 25 representative fish were measured to the nearest millimeter (mm) for each species (Table 4) and recorded on field datasheets (Attachment 2). Representative fish collected during the electroshocking were imaged and are provided in Attachment 1. Tissue samples were collected and transferred to the NYSDEC for tissue contaminant analysis as part of the License to Collect and Possess (LCP) requirements (Table 5). The NYSDEC provided materials needed for the fish to be transferred. Each fish sample transferred to the NYSDEC for tissue analysis was imaged (Attachment 1).

Benthic macroinvertebrates sampling was conducted by "net jabbing" of the available habitat (banks, submerged aquatic vegetation, woody debris and substrates) and "net sweeping" the surrounding water to capture dislodged organisms. Benthic macroinvertebrate sampling was conducted for at least 5 minutes at each sampling reach. Organisms were identified to the lowest taxonomic level possible in the field and returned to the sample location (Table 6). Types of habitats sampled and organisms observed were recorded on field datasheets (Attachment 2).

Quantitative Field Survey Results

Water Quality

Water quality measurements are provided in Table 2. Dissolved oxygen at the sample reaches ranged from 0.51 mg/L to 7.35 mg/L. Oxygen levels were generally low throughout the Youngs Creek system during the biological survey, with the ponded wetland locations (YC-R2-01a, YC-R2-01 and YC-R2-03) having the lowest levels observed (0.51-6.52 mg/L). The highest dissolved oxygen was observed (7.35 mg/L) at the perennial stream portion of Youngs Creek within the site. Temperature (°C) at the sample reaches ranged from 18.09 to 26.71 and pH ranged from 5.70 to 8.35. Temperature was highest in the ponded wetland location (YC-R2-01a, YC-R2-01).

Table 2: Water quality at each sampling location.

Location	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (uS/cm)	Turbidity (NTU)	pH
T-R1-01	24.40	4.60	0.825	24.8	5.70
T-R1-03	21.81	4.47	0.596	80.5	8.03
YC-R2-01a	26.71	6.52	0.501	64.8	7.95
YC-R2-1	26.16	2.80	0.451	162	7.54
YC-R2-03	19.66	0.51	0.583	102	7.32
YC-R3-04	24.22	7.35	0.852	0	7.44
T-R5-01	18.09	6.60	0.503	0	8.11
T-R5-03	18.50	6.47	0.511	0	8.35

Fish Community

A total of 196 fish, represented by six species (Table 3), were collected during the biological survey. Fish were collected at seven of the eight selected sites. Note that location T-R5-02, located within an intermittent stream, was not sampled due to the location being dry during the sampling period. The fish community at all locations collectively was dominated brook stickleback (77%) and central mudminnow (18%). Brook stickleback were present at six of the seven stream reaches where fish were collected. Fish communities consisted of forage species only except at the perennial stream location (YC-3-04), where two juvenile northern pike and two green sunfish were observed. One large dead smallmouth bass (*Micropterus dolomieu*) was observed at location YC-R2-01. The smallmouth bass observation was attributed to great blue heron (*Ardea herodias*) activity since the smallmouth bass had damage consistent with bird feeding and was located under a great blue heron rookery. The largest fish collected was a central mudminnow (115 mm) at location YC-R2-03. Mean lengths (in mm) and length ranges at each sample reach are provided in Table 4. A total of 20 tissue samples consisting largely of composite fish were transferred to the NYSDEC following each day of sampling. Tissue sample data are provided in Table 5. In general, fishes recorded at the stream system locations are generally typical of those inhabiting lentic habitats (i.e., ponds, lakes, wetlands) and/or low gradient streams or rivers.

Table 3: Fish species and counts from each stream reach location.

Common Name	Scientific Name	T-R1-01	T-R1-03	YC-R2-01a	YC-R2-1	YC-R2-03	YC-R3-04	T-R5-01	T-R5-03
Northern Pike	*Esox lucius*	--	--	--	--	--	2	--	--
Central Mudminnow	*Umbra limi*	--	--	--	1	2	32	--	--
Brook Stickleback	*Culaea inconstans*	--	6	19	45	51	28	2	--
Creek Chub	*Semotilus atromaculatus*	--	--	--	2	--	--	--	--
Golden Shiner	*Notemigonus crysoleucas*	3	--	1	--	--	--	--	--
Green Sunfish	*Lepomis cyanellus*	--	--	--	--	--	2	--	--

Table 4: Mean fish length (mm) for each species at each stream reach location. Size range is shown in parentheses.

Common Name	Scientific Name	T-R1-01	T-R1-03	YC-R2-01a	YC-R2-1	YC-R2-03	YC-R3-04	T-R5-01	T-R5-03
Northern Pike	*Esox lucius*	--	--	--	--	--	101.5 (93-110)	--	--
Central Mudminnow	*Umbra limi*	--	--	--	98	102.5 (97-108)	89.2 (75-115)	--	--
Brook Stickleback	*Culaea inconstans*	--	55.7 (52-59)	25.4 (17-33)	28.2 (18-50)	24.9 (18-29)	24.8 (17-28)	55.5 (55-56)	--
Creek Chub	*Semotilus atromaculatus*	--	--	--	21.5 (21-22)	--	--	--	--
Golden Shiner	*Notemigonus crysoleucas*	64.3 (59-67)	--	18	--	--	--	--	--
Green Sunfish	*Lepomis cyanellus*	--	--	--	--	--	67.5 (55-80)	--	--

Table 5: Tissue samples collected for the NYSDEC with associated fish lengths (mm) and sample weight (g). For composite samples, the length range is provided.

Sample Name	Location	Species	Number	Length (mm)	Weight (g)
ATRU01331	T-R1-01	Golden Shiner	3	59-67	7.0
ATRU01382	T-R5-01	Brook Stickleback	2	55-56	3.0
ATRU01383	YC-R2-03	Brook Stickleback	51	18-28	5.2
ATRU01384	YC-R2-03	Central Mudminnow	2	97-108	23.7
ATRU01385	T-R1-03	Brook Stickleback	3	52-57	4.7
ATRU01386	T-R1-04	Brook Stickleback	3	54-59	4.7
ATRU01387	YC-R2-01a	Brook Stickleback	19	17-33	2.8
ATRU01388	YC-R2-01	Creek Chub	2	21-22	0.1
ATRU01389	YC-R2-01	Brook Stickleback	2	41-50	7.2
ATRU01390	YC-R2-01	Brook Stickleback	43	18-32	12.2
ATRU01391	YC-R2-01	Central Mudminnow	1	98	10.2
ATRU01392	YC-R3-04	Brook Stickleback	28	17-28	4.2
ATRU01393	YC-R3-04	Green Sunfish	2	55-80	12.2
ATRU01394	YC-R3-04	Central Mudminnow	2	105-115	31.2
ATRU01395	YC-R3-04	Northern Pike	2	93-110	8.2
ATRU01396	YC-R3-04	Central Mudminnow	1	97	11.2
ATRU01397	YC-R3-04	Central Mudminnow	2	80-81	13.2
ATRU01398	YC-R3-04	Central Mudminnow	1	112	15.2
ATRU01399	YC-R3-04	Central Mudminnow	2	86-87	15.2
ATRU01400	YC-R3-04	Central Mudminnow	2	78-81	12.2

Benthic Macroinvertebrate Community

A total of 276 benthic macroinvertebrate individuals were collected and identified during the sampling period (Table 6). The most abundant organisms observed were fingernail clams (21.0%), Chironomidae (midge) larvae (14.9%), Amphipoda (scuds) (13.8%) and water boatmen (11.6%). The macroinvertebrate community observed was consistent with those typically inhabiting low energy steams and wetland or ponded habitats (lentic habitats).

Table 6: Macroinvertebrates collected at each stream reach location.

Scientific Name	Common Name	T-R1-01	T-R1-03	YC-R2-01a	YC-R2-1	YC-R2-03	YC-R3-04	T-R5-01	T-R5-03
Oligochaeta	Worms	--	5	--	--	--	--	--	8
Hirudinea	Leech	--	2	1	--	1	2	--	--
Mollusca	--	--	--	--	--	--	--	--	--
Sphaerium	Fingernail clam	5	2	20	25	5	--	1	--
Stagnicola	Common pond snail	2	2	--	--	--	--	1	--
Planorbella	Rams-horn snail	--	5	5	20	--	--	--	--
Pseudosuccinea	Fluke snail	--	--	--	--	--	--	3	2
Crustacea	--	--	--	--	--	--	--	--	--
Cambaridae	Crayfish	--	--	1		--	--	--	--
Amphipoda	Scud	--	10	20	5	3	--	--	--
Isopoda	Aquatic pillbug	--	10	--	--	5	--	--	--
Arthropoda	--	--	--	--	--	--	--	--	--
Dolomedes triton	Six-spotted fishing spider	--	--	--	1	--	--	--	--
Diptera	--	--	--	--	--	--	--	--	--
Chironomidae	Midges	--	18	--	20	--	--	3	--
Tipulidae	Crane flies	--	--	--	--	--	--	1	--
Simuliidae	Black flies	--	--	--	--	--	3	--	--
Ephemeroptera	Mayflies	--	--	--	1	--	--	--	--
Odonata	Dragonflies/damselflies	--	--	--	--	--	2	2	--
Coleoptera	--	--	--	--	--	--	--	--	--
Dytiscidae	Diving beetle	4	--	3	--	--	--	1	--
Other larvae	--	--	--	3	2	--	--	--	--
Megaloptera	--	1	--	--	--	--	--	--	--
Hemiptera	--	--	--	--	--	--	--	--	--
Corixidae	Water boatmen	--	2	5	15	5	5	--	--
Lethocerus	Giant water bug	--	--	2	2	1	--	--	--
Gerridae	Water strider	--	--	2	--	--	--	--	--
Nepidae	Water scorpion	--	--	--	--	--	1	--	--

Conclusions

The fish and benthic macroinvertebrate communities documented in the sampled reaches within the Youngs Creek system were consistent with those often associated with low energy streams and shallow ponded habitats (lentic habitats). Fish communities were dominated by brook stickleback and central mudminnow, both of which are tolerant of hypoxic or low oxygen conditions (Klinger et al. 1982; Stewart et al. 2007) such as those observed within the ponded wetland area (YC-R2-01 and YC-R2-03). Communities consisted solely of insectivorous forage species at all locations except for the perennial stream portion (YC-R3-04) of the Youngs Creek system, where juvenile northern pike and green sunfish were observed. Location YC-R3-04 was unique compared to other locations, with higher dissolved oxygen levels and reduced abundances of duckweed (*Lemna perpusilla*) and sago pondweed (*Stuckenia pectinata*), aquatic surface-oriented plants that often form floating mats on ponded surface water features (see photos in Attachment 1). As noted in the *Qualitative Environmental Survey of Youngs Creek* conducted in December 2023 (as document in Ramboll 2024), the perennial portion of Youngs Creek (YC-R3-04) is separated from the ponded wetland area to the south by a series of beaver dams that significantly restrict fish movements upstream.

References

Klinger, S.A., Magnuson, J.J. and Gallepp, G.W. 1982. Survival mechanisms of the central mudminnow (*Umbra limi*), fathead minnow (*Pimephales promelas*) and brook stickleback (*Culaea inconstans*) for low oxygen in winter. Environmental Biology of Fishes, 7, pp.113-120.

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Ramboll. 2024. Micron Semiconductor Fabrication Facility (Clay, NY), Qualitative Environmental Survey of Youngs Creek. Technical memorandum dated February 26, 2024.

Stewart, D.B., Reist, J.D., Carmichael, T.J., Sawatzky, C.D. and Mochnacz, N.J., 2007. Fish life history and habitat use in the Northwest Territories: brook stickleback (*Culaea inconstans*). Can. Manuscr. Rep. Fish. Aquat. Sci, 2799, p.38.

FIGURES

PROJECT: 1950100716-001 | DATED: 6/20/2024 | DESIGNER: SSOULE

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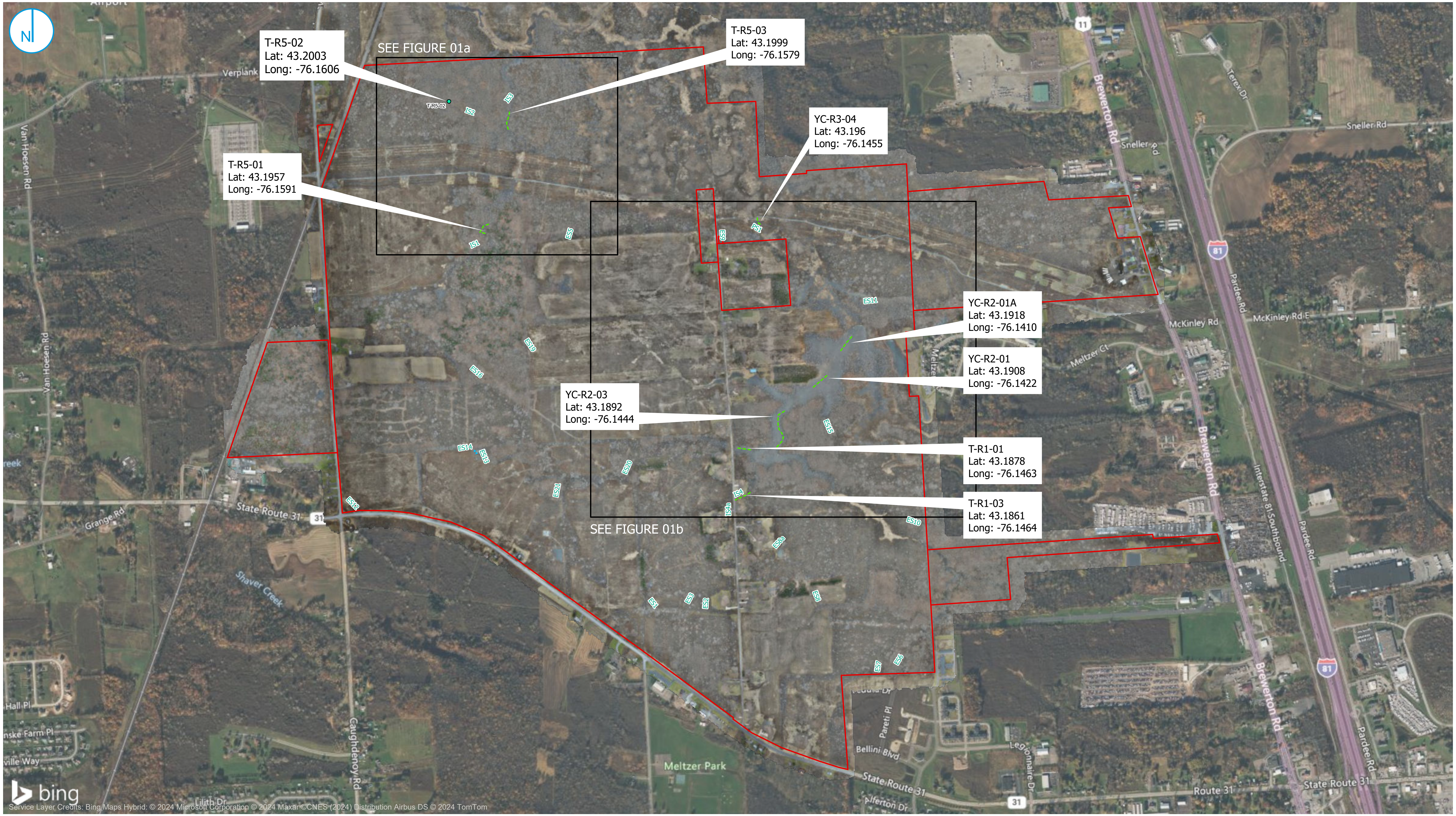


Assessment Location

Delineated Stream Flow Direction

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream

Approximate Centerline of Survey Extent

Site Boundary / Limits of JD Request

Notes

- Site aerial imagery collected by Ramboll on 01/02/2024.

0 600 1,200 Feet

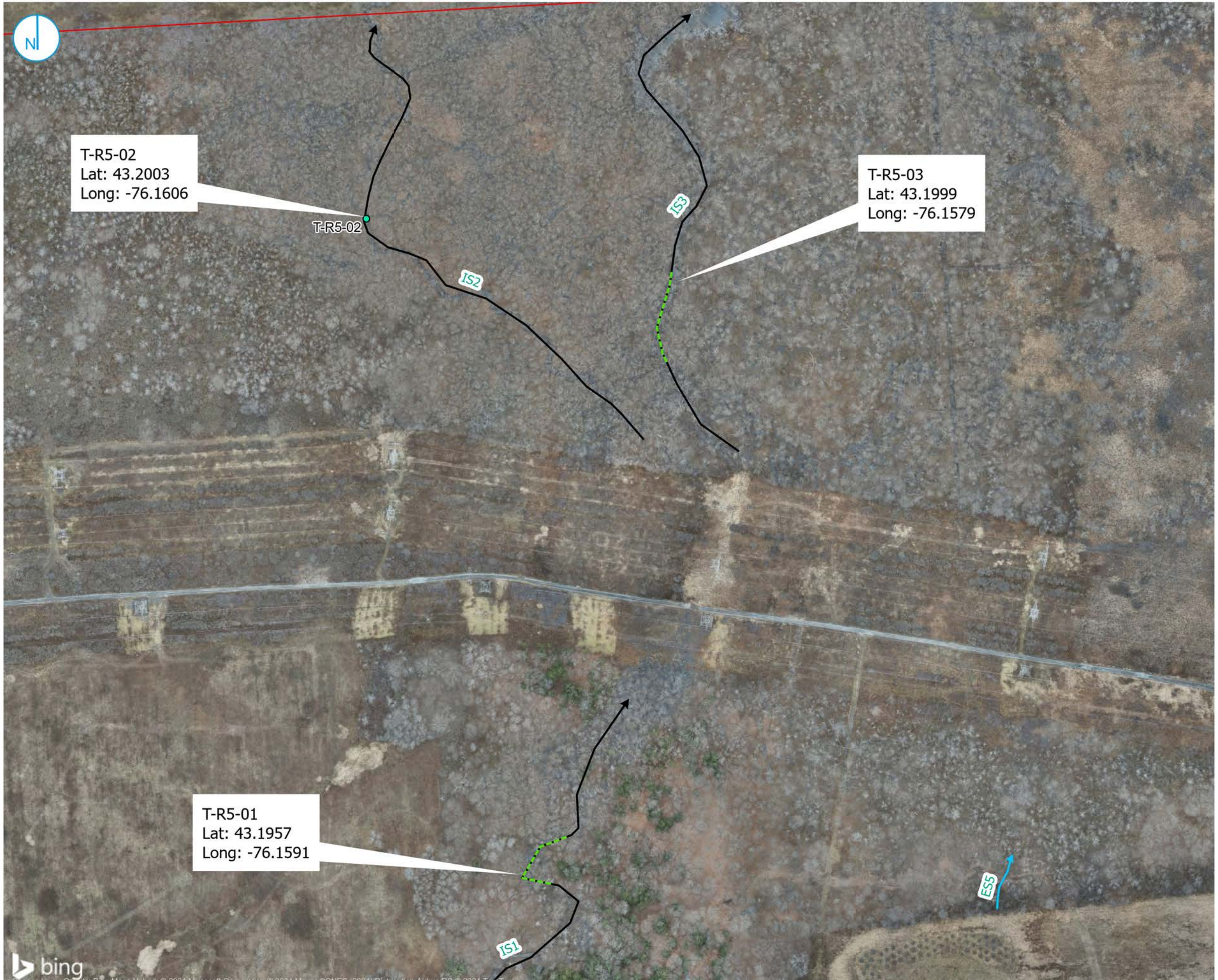
YOUNGS CREEK QUANTITATIVE ASSESSMENT

Micron Semiconductor Fabrication Facility
Clay, New York

FIGURE 01

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL



Assessment Location
Approximate Centerline of Survey Extent
Delineated Stream Flow Direction
Ephemeral Stream
Intermittent Stream
Site Boundary / Limits of JD Request

Notes
- Site aerial imagery collected by Ramboll on 01/02/2024.

0 125 250 Feet

YOUNGS CREEK QUANTITATIVE ASSESSMENT WEST

Micron Semiconductor Fabrication Facility
Clay, New York

FIGURE 01a

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

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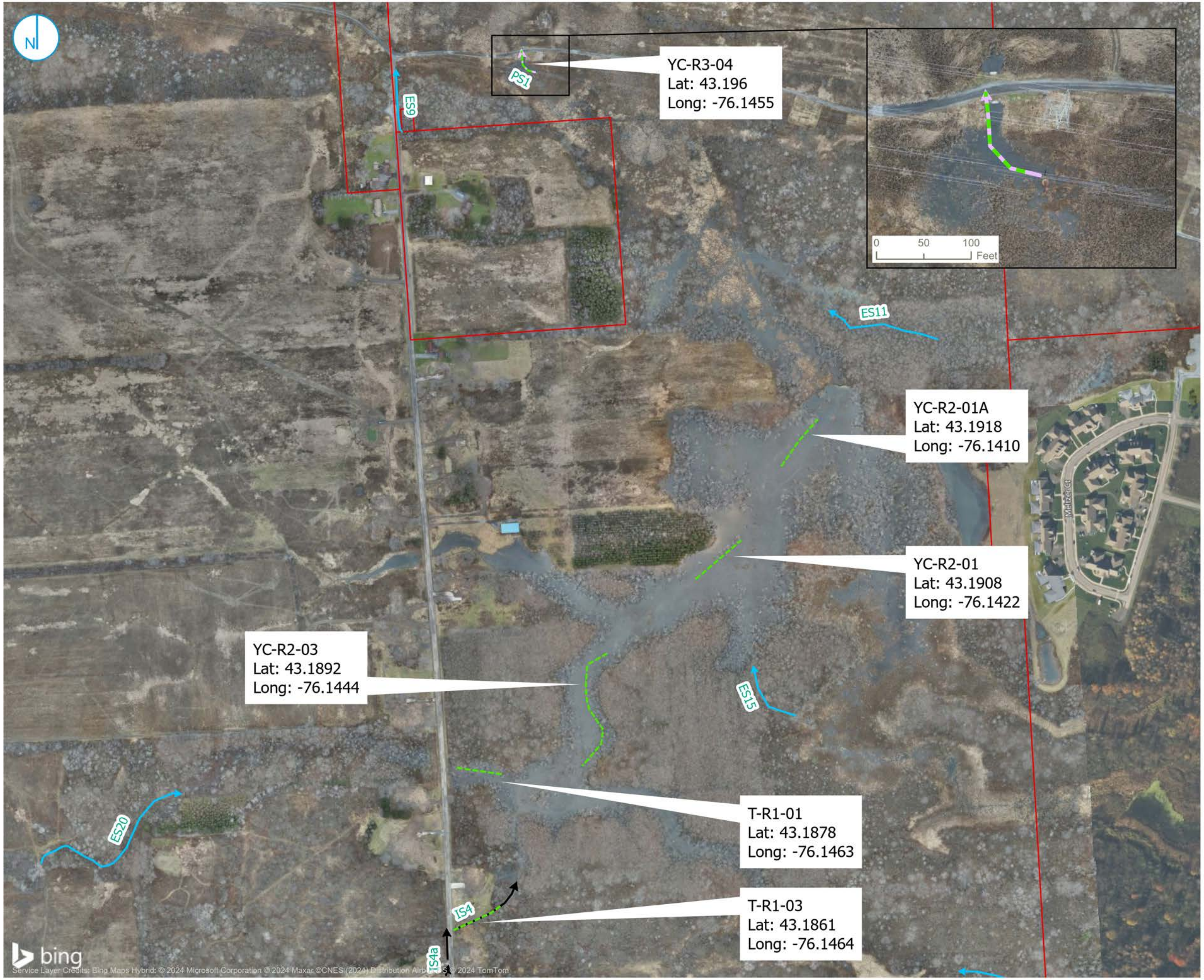
PROJECT: 1950100716-001 | DATED: 6/18/2024 | DESIGNER: SSOULE



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PROJECT: 1950100716-001 | DATED: 6/18/2024 | DESIGNER: SSOULE

Service Layer Credits: Bing Maps Hybrid: © 2024 Microsoft Corporation © 2024 Maxar ©CNES (2024) Distribution Airbus DS © 2024 TomTom

Approximate Centerline of Survey Extent

Delineated Stream Flow Direction

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Site Boundary / Limits of JD Request

Notes

- Site aerial imagery collected by Ramboll on 01/02/2024.

0 200 400 Feet

YOUNGS CREEK QUANTITATIVE ASSESSMENT EAST

Micron Semiconductor Fabrication Facility
Clay, New York

FIGURE 01b

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

ATTACHMENT 1
PHOTOGRAPH LOG

SAMPLING LOCATIONS

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 1	**Date:** 6/5/2024		
Description Looking upstream at T-R1-01.			

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 2	**Date:** 6/5/2024		
Description Looking downstream at T-R1-01.			

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 3	**Date:** 6/6/2024		
Description Looking upstream at T-R1-03 (IS4).			

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 4	**Date:** 6/6/2024		
Description Looking downstream at T-R1-03 (IS4).			

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:	
5	6/6/2024	
Description Looking upstream at YC-R2-01a.		

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:	
6	6/6/2024	
Description Looking downstream at YC-R2-01a.		

Client Name: Micron Technology	**Site Location:** White Pine Commerce Park, Onondaga County, NY	**Project No.** 1161164|1950100716
Photo No. 7	**Date:** 6/6/2024	
Description Looking upstream at YC-R2-03.		

Client Name: Micron Technology	**Site Location:** White Pine Commerce Park, Onondaga County, NY	**Project No.** 1161164|1950100716
Photo No. 8	**Date:** 6/6/2024	
Description Looking downstream at YC-R2-03.		

Client Name: Micron Technology	**Site Location:** White Pine Commerce Park, Onondaga County, NY	**Project No.** 1161164|1950100716

Photo No.	**Date:**	
9	6/7/2024	
Description Looking upstream at YC-R2-03.		

Client Name: Micron Technology	**Site Location:** White Pine Commerce Park, Onondaga County, NY	**Project No.** 1161164|1950100716

Photo No.	**Date:**	
10	6/7/2024	
Description Looking downstream at YC-R2-03.		

Client Name:	Site Location:	Project No.
Micron Technology	White Pine Commerce Park, Onondaga County, NY	1161164|1950100716

Photo No.	Date:
11	6/5/2024

Description

Looking downstream at YC-R3-04 (P1).

Client Name:	Site Location:	Project No.
Micron Technology	White Pine Commerce Park, Onondaga County, NY	1161164|1950100716

Photo No.	Date:
12	6/5/2024

Description

Looking upstream at YC-R3-04 (P1).

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:
13	6/7/2024

Description

Looking upstream at T-R5-01 (IS1).

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:
14	6/7/2024

Description

Looking downstream at T-R5-01 (IS1).

Client Name: Micron Technology		**Site Location:** White Pine Commerce Park, Onondaga County, NY	**Project No.** 1161164|1950100716
Photo No. 15	**Date:** 6/7/2024		
Description Looking upstream at T-R5-02 (IS2).			

Client Name: Micron Technology		**Site Location:** White Pine Commerce Park, Onondaga County, NY	**Project No.** 1161164|1950100716
Photo No. 16	**Date:** 6/7/2024		
Description Looking downstream at T-R5-02 (IS2).			

Client Name: Micron Technology		Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716
Photo No. 17	**Date:** 6/7/2024		
Description Looking upstream at T-R5-03 (IS3).			

Client Name: Micron Technology		Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716
Photo No. 18	**Date:** 6/7/2024		
Description Looking downstream at T-R5-03 (IS3).			

REPRESENTATIVE FISH

Client Name:		**Site Location:**	**Project No.**
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 1	**Date:** 6/5/2024		
Description Central mudminnow collected at YC-R3-04.			

Client Name:		**Site Location:**	**Project No.**
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 2	**Date:** 6/5/2024		
Description Green sunfish collected at YC-R3-04.			

Client Name:	Site Location:	Project No.
Micron Technology	White Pine Commerce Park, Onondaga County, NY	1161164|1950100716

Photo No.	Date:
3	12/14/2023

Description

Northern Pike collected at YC-R3-04.

Client Name:	Site Location:	Project No.
Micron Technology	White Pine Commerce Park, Onondaga County, NY	1161164|1950100716

Photo No.	Date:
4	6/6/2024

Description

Brook stickleback collected from T-R1-03.

Client Name: Micron Technology		Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716
Photo No. 5	Date: 12/14/2023		
Description Brook stickleback and central mudminnow collected at YC-R2-01.			

Client Name: Micron Technology		Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716
Photo No. 6	Date: 6/5/2024		
Description Golden shiners and tadpoles collected at T-R1-01.			

TISSUE SAMPLES

Client Name:	Site Location:	Project No.
Micron Technology	White Pine Commerce Park, Onondaga County, NY	1161164|1950100716

Photo No.	Date:	
1	6/5/2024	
Description		
ATRU01331: Golden shiner from T-R1-01.		

Client Name:	Site Location:	Project No.
Micron Technology	White Pine Commerce Park, Onondaga County, NY	1161164|1950100716

Photo No.	Date:	
2	6/6/2024	
Description		
ATRU01386: Brook stickleback from T-R1-03.		

Client Name:	Site Location:	Project No.
Micron Technology	White Pine Commerce Park, Onondaga County, NY	1161164|1950100716

RAMBOLL

Photo No.	Date:	
3	6/6/2024	
Description ATRU01285: Brook stickleback from T-R1-03.		

Client Name:	Site Location:	Project No.
Micron Technology	White Pine Commerce Park, Onondaga County, NY	1161164|1950100716

Photo No.	Date:	
4	6/6/2024	
Description ATRU01387: Brook stickleback from YC-R2-01a.		

Client Name: Micron Technology	**Site Location:** White Pine Commerce Park, Onondaga County, NY	**Project No.** 1161164|1950100716

Photo No.	**Date:**
29	6/6/2024

Description

ARTU01391: Central mudminnow from YC-R2-01.

Client Name: Micron Technology	**Site Location:** White Pine Commerce Park, Onondaga County, NY	**Project No.** 1161164|1950100716

Photo No.	**Date:**
6	6/6/2024

Description

ATRU01390: Brook stickleback from YC-R2-01.

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:	
7	6/6/2024	
Description ATRU01389: Brook stickleback from YC-R2-01.		

Client Name: Micron Technology	Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716

Photo No.	Date:	
8	6/6/2024	
Description ATRU01388: Creek chub from YC-R2-01.		

Client Name:	Site Location:	Project No.
Micron Technology	White Pine Commerce Park, Onondaga County, NY	1161164|1950100716

Photo No.	Date:
9	6/7/2024

Description

ARTU01384: Central mudminnow

ARTU01383: Brook stickleback

Tissue samples from YC-R2-03.

Client Name:	Site Location:	Project No.
Micron Technology	White Pine Commerce Park, Onondaga County, NY	1161164|1950100716

Photo No.	Date:
10	6/5/2024

Description

ARTU01392: Brook stickleback from YC-R3-04.

Client Name: Micron Technology	**Site Location:** White Pine Commerce Park, Onondaga County, NY	**Project No.** 1161164|1950100716

Photo No.	**Date:**	
11	6/5/2024	
Description ARTU01393: Green sunfish from YC-R3-04.		

Client Name: Micron Technology	**Site Location:** White Pine Commerce Park, Onondaga County, NY	**Project No.** 1161164|1950100716

Photo No.	**Date:**	
12	6/5/2024	
Description ATRU01394: Central mudminnow from YC-R3-04.		

Client Name:	Site Location:	Project No.
Micron Technology	White Pine Commerce Park, Onondaga County, NY	1161164|1950100716

Photo No.	Date:
13	6/5/2024

Description

ATRU01395: Northern pike from YC-R3-04.

Client Name:	Site Location:	Project No.
Micron Technology	White Pine Commerce Park, Onondaga County, NY	1161164|1950100716

Photo No.	Date:
14	6/5/2024

Description

ATRU01396: Central mudminnow from YC-R3-04.

Client Name:	Site Location:	Project No.
Micron Technology	White Pine Commerce Park, Onondaga County, NY	1161164|1950100716

Photo No.	Date:
15	6/5/2024

Description

ATRU01397: Central mudminnow from YC-R3-04.

Client Name:	Site Location:	Project No.
Micron Technology	White Pine Commerce Park, Onondaga County, NY	1161164|1950100716

Photo No.	Date:
16	6/5/2024

Description

ATRU01398: Central mudminnow from YC-R3-04.

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Client Name: Micron Technology		Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716
Photo No. 17	**Date:** 6/5/2024		
Description ATRU01399: Central mudminnow from YC-R3-04.			

Client Name: Micron Technology		Site Location: White Pine Commerce Park, Onondaga County, NY	Project No. 1161164|1950100716
Photo No. 18	**Date:** 6/5/2024		
Description ATRU01400: Central mudminnow from YC-R3-04.			

Client Name:		Site Location:	Project No.
Micron Technology		White Pine Commerce Park, Onondaga County, NY	1161164|1950100716
Photo No. 19	**Date:** 6/7/2024		
Description ATRU01382: Brook stickleback from T-R5-01.			

RAMBOLL

ATTACHMENT 2
FIELD DATASHEETS

FISH SAMPLING FIELD DATASHEETS

FISH SAMPLING FIELD DATA SHEET (FRONT)

page ____ of ____

STREAM NAME T-R1-01	LOCATION Young's creek, clay, onondaga co
STATION # ________ RIVERMILE ________	STREAM CLASS Bever Pond
LAT ____________ LONG ____________	RIVER BASIN Oneida
STORET #	AGENCY Kambell
GEAR electroshocking	INVESTIGATORS IM, CCM, NJT
FORM COMPLETED BY	DATE 6/5/24 TIME 11:13 AM PM — REASON FOR SURVEY Reg. ldry

SAMPLE COLLECTION	**How were the fish captured?** ☑ back pack ❑ tote barge ❑ other ________ **Block nets used?** ☒ YES ❑ NO **Sampling Duration** Start time 1115 End time 1207 Duration ________ **Stream width (in meters)** 5 Max 15 Mean 4
Water Quality	Temperature (F) 24.4 Turbidity 24.8 PH 5.70 DO 4.60 Conductivity .825mS ORP 110
GENERAL COMMENTS	

SPECIES	TOTAL (COUNT)	LENGTH (mm) (25 SPECIMEN MAX SUBSAMPLE)					ANOMALIES* D	E	F	L	M	S	T	Z
Golden Shiner	3	67	67	59										
							7g ATRU01331							

FISH SAMPLING FIELD DATA SHEET (FRONT)

page 1 of 1

STREAM NAME Youngs Creek	LOCATION T. R1 - 03
STATION # ________ RIVERMILE ________	STREAM CLASS
LAT ____________ LONG ____________	RIVER BASIN Orcutt
STORET #	AGENCY Kemball
GEAR Electrofishing.	INVESTIGATORS IM, CCN, NJT
FORM COMPLETED BY	DATE 6/6/24 TIME 3:21 AM [✓ PM] REASON FOR SURVEY Regulatory

SAMPLE COLLECTION	**How were the fish captured?** [✓ back pack] ❑ tote barge ❑ other ________ **Block nets used?** ❑ YES [✓ NO] **Sampling Duration** Start time 3:31 End time 4:15 Duration 44 **Stream width (in meters)** Max 2.5 Mean 2
Water Quality	Temperature (F) 21.81 Turbidity 805 000 ... DO 4.49 pH 8.03 Conductivity 0.505
GENERAL COMMENTS	

SPECIES	TOTAL (COUNT)	LENGTH (mm) (25 SPECIMEN MAX SUBSAMPLE)					ANOMALIES*							
							D	E	F	L	M	S	T	Z
Brook Stickleback		55 ①	59 ①	54 ①	52 ②	57 ②								
① 4.7g - ATRU01386		57 ②												
② 4.9g - ATRU01385														

FISH SAMPLING FIELD DATA SHEET (FRONT)

page ____ of ____

STREAM NAME YC-R2-01a	LOCATION Youngs Creek
STATION # ____ RIVERMILE ____	STREAM CLASS
LAT ____ LONG ____	RIVER BASIN
STORET #	AGENCY
GEAR	INVESTIGATORS JM, CCN, NJT, RPC
FORM COMPLETED BY	DATE 06-06-24 TIME 11:00 AM PM — REASON FOR SURVEY

SAMPLE COLLECTION	**How were the fish captured?** ☒ back pack ☐ tote barge ☐ other ____ **Block nets used?** ☐ YES ☒ NO **Sampling Duration** Start time 11:00 am End time 12:00 pm Duration 1 hr **Stream width (in meters)** Max ____ Mean ____
Water Quality	Temperature (F) 26.71 Turbidity 64.8 DO 8.52 pH 7.95 Conductivity 0.501 ORP 161
GENERAL COMMENTS	

SPECIES	TOTAL (COUNT)	LENGTH (mm) (25 SPECIMEN MAX SUBSAMPLE)					ANOMALIES*							
							D	E	F	L	M	S	T	Z
Golden Shiner	1	18												
Stickleback	19	27	26	25	25	25								
(1) 8.8g - ATRU 01387		26	24	27	26	17								
		28	29	22	26	25								
		24	33	24	21									

FISH SAMPLING FIELD DATA SHEET (FRONT)

page ______ of ______

STREAM NAME YC-R2-01	LOCATION Youngs Creek, Clay, Onondaga Co
STATION #________ RIVERMILE________	STREAM CLASS
LAT ____________ LONG ____________	RIVER BASIN Oneida
STORET #	AGENCY
GEAR	INVESTIGATORS JM, CCN, NJT, RPC
FORM COMPLETED BY	DATE 06-06-24 TIME 9:05 AM PM — REASON FOR SURVEY Regulatory

SAMPLE COLLECTION	**How were the fish captured?** ☒ back pack ☐ tote barge ☐ other __________ **Block nets used?** ☐ YES ☒ NO **Sampling Duration** Start time 9:10 End time 10:00 Duration 50 min **Stream width (in meters)** Max________ Mean________
Water Quality	Temperature (F) 26.16 Turbidity 162 DO 2.80 pH 7.54 Conductivity 0.451 ORP mV 152
GENERAL COMMENTS	

SPECIES	TOTAL (COUNT)	LENGTH (mm) (25 SPECIMEN MAX SUBSAMPLE)					ANOMALIES* D	E	F	L	M	S	T	Z
Central Mudminnow	1	98①												
① 10.2g-ATRU01391														
Brook Stickleback	45	41①	50①	26	26	22								
① 1.2g-ATRU01390 ② 12.2g-ATRU01389		30	26	30	19	25	if not labeled as #1 all fish are in bag #2							
		32	26	29	30	30								
		30	27	22	25	25								
		18	18	25	27	29								
Creek Chub	2	22	21											
① 0.1g-ATRU01388														

first 2 fish measured

FISH SAMPLING FIELD DATA SHEET (FRONT)

page ____ of ____

STREAM NAME YC-R2-03	LOCATION Youngs Creek, Clay, Onondaga Co.
STATION # ______ RIVERMILE ______	STREAM CLASS
LAT ______ LONG ______	RIVER BASIN
STORET #	AGENCY
GEAR	INVESTIGATORS IM, CCN, WST
FORM COMPLETED BY	DATE 06-07-24 TIME 9:00 AM PM — REASON FOR SURVEY

SAMPLE COLLECTION	**How were the fish captured?** ☒ back pack ☐ tote barge ☐ other ______ **Block nets used?** ☐ YES ☒ NO **Sampling Duration** Start time 8:50 End time 9:45 Duration 55 mins **Stream width (in meters)** Max 15m Mean 4.0 m
Water Quality	Temperature (F) 19.66°C Turbidity 102 DO 0.51 pH 9.32 Conductivity 0.583 ORP -92
GENERAL COMMENTS	

SPECIES	TOTAL (COUNT)	LENGTH (mm) (25 SPECIMEN MAX SUBSAMPLE)					ANOMALIES*							
							D	E	F	L	M	S	T	Z
Central Mudminnow	2	105(1)	970											
(1) 23.7g - ATRU01384														
Brook Stickleback	51	27	25	27	26	27								
(1) 5.2g - ATRU01383		25	23	18	24	22								
		25	25	25	15	26								
		23	25	28	21	27								
		29	25	26	24	18								

Range 15 - 25

FISH SAMPLING FIELD DATA SHEET (FRONT)

page ____ of ____

STREAM NAME YC-R3-04	LOCATION Youngs Creek, Clay, Onondaga Co.
STATION # ____ RIVERMILE ____	STREAM CLASS Wetland area
LAT ____ LONG ____	RIVER BASIN Oneida
STORET #	AGENCY Ramboll
GEAR	INVESTIGATORS JM, CCN, NST
FORM COMPLETED BY	DATE 6/5/24 TIME 1:45 AM (PM) — REASON FOR SURVEY Regulatory

SAMPLE COLLECTION	**How were the fish captured?** ☒ back pack ❑ tote barge ❑ other ____ **Block nets used?** ❑ YES ☒ NO **Sampling Duration** Start time 1:45 End time 2:45 Duration 1hr **Stream width (in meters)** Max 4 Mean 2.5
Water Quality	Temperature (F) 24.22 Turbidity 0 NTU DO 7.35 pH 7.44 Conductivity 0.852 ORP 101
GENERAL COMMENTS	Shocker setting: frequency 60, voltage 200, cycle 40

SPECIES	TOTAL (COUNT)	LENGTH (mm) (25 SPECIMEN MAX SUBSAMPLE)					ANOMALIES* D	E	F	L	M	S	T	Z
Central Mudminnow	32	78	81	86	87	80 (2)								
(1) 10.2g - ATRU01400		81 (3)	112 (4)	97 (5)	100	85	(5) 11.2g - ATRU01396							
(2) 15.2g - ATRU01399		115 (6)	105 (6)	98	93	84	(6) 31.2g - ATRU01394							
(3) 13.2g - ATRU01397		84	75	104	83	82								
(4) 15.2 - ATRU01398		92	78	82	83	82								
Northern Pike	2	110 (1)	73 (1)											
(1) 8.2g - ATRU01395														
Green Sunfish	2	55 (1)	80 (1)											
(1) 12.2g - ATRU01393														
Brook Stickleback	28	28	28	25	27	26								
(1) 4.2g - ATRU01392		26	20	22	23	25								
all in one sample bag		20	25	25	22	17								
		28	22	27	27	27								
		28	23	27	24	28								

FISH SAMPLING FIELD DATA SHEET (FRONT)

STREAM NAME Youngs Creek	LOCATION 9-RS-01
STATION #______ RIVERMILE______	STREAM CLASS S
LAT ______ LONG ______	RIVER BASIN
STORET #	AGENCY
GEAR	INVESTIGATORS JM, CN, NJT
FORM COMPLETED BY	DATE 10:45 TIME 06-05-24 AM PM / REASON FOR SURVEY

SAMPLE COLLECTION	**How were the fish captured?** ☒ back pack ❑ tote barge ❑ other ______ **Block nets used?** ❑ YES ☒ NO **Sampling Duration** Start time 10:45 End time 11:15 Duration ______ **Stream width (in meters)** Max 1m Mean 0.75 m
Water Quality	Temperature (F) 18.09 Turbidity 0 DO 6.6 pH 8.11 Conductivity 0.503 ORP 127
GENERAL COMMENTS	

SPECIES	TOTAL (COUNT)	LENGTH (mm) (25 SPECIMEN MAX SUBSAMPLE)					ANOMALIES* D	E	F	L	M	S	T	Z
Brook stickleback		55	56											
(1) 3.0g – ATKU01382														

FISH SAMPLING FIELD DATA SHEET (FRONT)

STREAM NAME	LOCATION T-RS-03
STATION # ________ RIVERMILE ________	STREAM CLASS
LAT ____________ LONG ____________	RIVER BASIN
STORET #	AGENCY
GEAR	INVESTIGATORS
FORM COMPLETED BY	DATE 26-Jun TIME ______ AM PM REASON FOR SURVEY

SAMPLE COLLECTION	**How were the fish captured?** ☒ back pack ❑ tote barge ❑ other ____________ **Block nets used?** ❑ YES ☒ NO **Sampling Duration** Start time 11:45 End time 12:15 Duration 30 **Stream width (in meters)** Max 2 Mean 1.5
Water Quality	Temperature (F) 18.50 Turbidity 0 DO 6.47 pH 8.35 Conductivity 0.591 ORP 147
GENERAL COMMENTS	

SPECIES	TOTAL (COUNT)	LENGTH (mm) (25 SPECIMEN MAX SUBSAMPLE)					ANOMALIES*							
							D	E	F	L	M	S	T	Z

BENTHIC MACROINVERTABRATE FIELD DATASHEETS

Macroinverebrate Field Datasheet (double sided when printed).

River Stream:	Youngs Creek
Sample Location:	T-RI-01
Date:	6/5/14
Sample Type:	dip netting
Investigators:	CCN, TM, NJT
Sampled Habitat:	☑ Benthic Substrate ☑ Woody Debris ☑ Stream Bank ☒ Aquatic Vegetation ☐ Other ___________

	Taxon Count	*Genus (when applicable)*	Count	Total
Ephemeroptera	III			
Plecoptera				
Trichoptera				
Coleoptera				
Dytiscidae Diving Beetle	IIII	Dytiscidae		
Megaloptera				
	I			
Other Diptera				
Chiro. Larvae				

Pupae				
Other Insecta				
Mollusca				
Snail	||	Staynacola		
Muscolena Fingernail clams	||||	~~Muscolea~~ Sphaerium		
Crustacea				
Nemertea				
Platyhelminthes				
Oligochaeta				
Hirudinea				

Sample Processing Notes

Macroinverebrate Field Datasheet (double sided when printed).

River Stream:	T-R1-03			
Sample Location:				
Date:	06-06-24			
Sample Type:	Macroinvert Net			
Investigators:	IM, CCN, AJT			
Sampled Habitat:	☒ Benthic Substrate ☒ Woody Debris ☒ Stream Bank ☒ Aquatic Vegetation ❑ Other ________			
	Taxon Count	*Genus (when applicable)*	Count	Total
Ephemeroptera				
Plecoptera				
Trichoptera				
Coleoptera				
Megaloptera				
Other Diptera				
Chiro. Larvae			18	

Pupae				
Other Insecta				
Mollusca				
		Stanhorn Snail (Planorbella)	5	
		Pond Snail - Stagnacola	2	
		Fingernail Clams ~~(muscular)~~ Sphaerium	2	
Crustacea				
Nemertea				
Platyhelminthes				
Oligochaeta				
		general	5	
Hirudinea				
		Leech	2	

Sample Processing Notes

Heminiptera water boatman (Corixidae 2

Isopoda general 10

Amphopoda general 10

Macroinverebrate Field Datasheet (double sided when printed).

River Stream:	YC-R2-01a
Sample Location:	
Date:	06-06-24
Sample Type:	Macroinvert net
Investigators:	IM, CCN, TJN
Sampled Habitat:	❑ Benthic Substrate ☑ Woody Debris ❑ Stream Bank ❑ Aquatic Vegetation ❑ Other ____________

	Taxon Count	*Genus (when applicable)*	Count	Total
Ephemeroptera				
Plecoptera				
Trichoptera				
Coleoptera				
		Diving Beetle (Dytiscidae)	3	
		Coleoptera (larvae)	3	
Megaloptera				
Other Diptera				
Chiro. Larvae				

Pupae				
Other Insecta				
Mollusca				
		Ramshorn snail (Planorbella)	5	
		Finger nail clam ~~(Musculium)~~ Sphaeriid	20	
Crustacea				
		Crayfish ~~(Faxonius)~~ (Cambaridae)	1	
Nemertea				
Platyhelminthes				
Oligochaeta				
Hirudinea				
		Leech	1	

Sample Processing Notes

Hemiptera — Water Boatman (Corixidae) 5
Water strider (Gerridae) 2
Giant Water Bug (Lethocerus) 2

Amphipoda — Amphipods 20

Macroinverebrate Field Datasheet (double sided when printed).

River Stream:	YC-R2-01
Sample Location:	Youngs Creek, Clay, Onondaga Co
Date:	06-06-24
Sample Type:	Macroinverts
Investigators:	IM, CCN, NJT, RPC
Sampled Habitat:	☒ Benthic Substrate ☒ Woody Debris ☒ Stream Bank ☒ Aquatic Vegetation ☐ Other ________

	Taxon Count	*Genus (when applicable)*	Count	Total
Ephemeroptera				
larvae			I	
Plecoptera				
Trichoptera				
Coleoptera				
Beetle larva			II	
Megaloptera				
Other Diptera				
Chiro. Larvae			20	

Pupae				
Other Insecta				
Amphipods			5	
6-Spotted Fishing Spider	Dolomedes triton		1	
Mollusca				
fingernail Clam		~~[illegible]~~ Sphaerium	25	
Snails - [illegible]		Planorbella + Tribulvis	20	
Crustacea				
Nemertea				
Platyhelminthes				
Oligochaeta				
Hirudinea				
Leech			1	

Sample Processing Notes

Giant Water Bug (Lethocerus) 2

Hemiptera water boatman (Corixidae) 15

Macroinverebrate Field Datasheet (double sided when printed).

River Stream:	Youngs Creek
Sample Location:	YC-RS-04
Date:	06-05-24
Sample Type:	Macroinver - Dipnet
Investigators:	IM, NJT, CCN
Sampled Habitat:	☒ Benthic Substrate ☐ Woody Debris ☒ Stream Bank ☒ Aquatic Vegetation ☐ Other ________

	Taxon Count	Genus *(when applicable)*	Count	Total
Ephemeroptera				
Plecoptera				
Trichoptera				
Coleoptera				
Giant Water bug		Lethocerus	I	
Megaloptera				
Other Diptera				
simulidae		Simulidae	III	
Chiro. Larvae				

Pupae				
Other Insecta				
Hemiptera (Corixidae)		Corixidae	~~IIII~~	
Isopods			~~IIII~~	
Mollusca		~~Muscaelea~~ Sphaerium	~~IIII~~	
Crustacea				
Nemertea				
Platyhelminthes				
Oligochaeta				
Hirudinea				
Leeches			II	

Sample Processing Notes

Amphipods III

Odonata-Damsel (Zygoptera) II

Heminiptena I

↳ water scorpion (Nepidae)

Macroinverebrate Field Datasheet (double sided when printed).

River Stream:				
Sample Location:	T-R5-01			
Date:	06-07-21			
Sample Type:	Macroinvert net			
Investigators:	IM, CCN, NJT			
Sampled Habitat:	☒ Benthic Substrate ☒ Woody Debris ☒ Stream Bank ☐ Aquatic Vegetation ☐ Other ____________			
	Taxon Count	*Genus (when applicable)*	Count	Total
Ephemeroptera				
Plecoptera				
Trichoptera				
Coleoptera				
		Diving beetle (Dytiscidae)	1	
Megaloptera				
Other Diptera				
		Tipulidae	1	
Chiro. Larvae				

larvae 3

Pupae				
Other Insecta				
		Odonata	2	
Mollusca				
		Pseudosuccinia	3	
		Pond snail (Stagnocola)	1	
		Fingernail clam (~~Musculium~~) Sphaerium	1	
Crustacea				
Nemertea				
Platyhelminthes				
Oligochaeta				
Hirudinea				

Sample Processing Notes

Macroinverebrate Field Datasheet (double sided when printed).

River Stream:				
Sample Location:	T-R5-03			
Date:	06-07-24			
Sample Type:	Macroinvert net			
Investigators:	IM, NJT, CN			
Sampled Habitat:	☒ Benthic Substrate ☐ Woody Debris ☒ Stream Bank ☐ Aquatic Vegetation ☐ Other ____			
	Taxon Count	*Genus (when applicable)*	Count	Total
Ephemeroptera				
Plecoptera				
Trichoptera				
Coleoptera				
Megaloptera				
Other Diptera				
Chiro. Larvae				

Pupae				
Other Insecta				
Mollusca				
		Pcetdosuccia(?)	2	
Crustacea				
Nemertea				
Platyhelminthes				
Oligochaeta				
			7	
Hirudinea				

Sample Processing Notes

Amphipoda 13

Anelics Co.th[illegible] 1

Macroinverebrate Field Datasheet (double sided when printed).

River Stream:	YC-R2-03
Sample Location:	Youngs Creek
Date:	06-07-24
Sample Type:	Handnet net Grab
Investigators:	IM, CCN, NJT
Sampled Habitat:	❑ Benthic Substrate ❑ Woody Debris ❑ Stream Bank ❑ Aquatic Vegetation ❑ Other ___________

	Taxon Count	*Genus (when applicable)*	Count	Total
Ephemeroptera				
Plecoptera				
Trichoptera				
Coleoptera				
Megaloptera				
Other Diptera				
Chiro. Larvae				

Pupae				
Other Insecta				
Mollusca				
		Ramshorn Snails (Planorbella)	3	
		Pseudosuccinea	13	
Crustacea				
Nemertea				
Platyhelminthes				
Oligochaeta				
		general	2	
Hirudinea				

Sample Processing Notes

Amphipods (General) 17

Isopoda (General) 7

Hemiptera giant water bug (Lethocerus) 4

Appendix G-7
USFWS IPaC System Results

Proposed Project

- Micron Campus
- Rail Spur Site
- Childcare Site

Micron Campus

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
Email Address: fw5es_nyfo@fws.gov

In Reply Refer To: 06/13/2025 20:30:55 UTC
Project Code: 2025-0109097
Project Name: Micron Semiconductor Manufacturing Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. **Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.**

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

PROJECT SUMMARY

Project Code: 2025-0109097
Project Name: Micron Semiconductor Manufacturing Project
Project Type: Commercial Development
Project Description: Micron New York Semiconductor Manufacturing LLC (Micron) proposes to construct a semiconductor manufacturing facility within the White Pine Commerce Park in Clay, New York on 1,377 acres. The proposed Micron Campus would consist of a semiconductor manufacturing facility with four DRAM production fabs, ancillary support facilities, driveways, parking, and ingress and egress roads with access from NYS Route 31, U.S. Route 11, and Caughdenoy Road in Clay and would be constructed in phases over a 16-year period. Micron filed an application with the CHIPS Program Office (CPO) for direct funding under the CHIPS Incentives Program's February 28, 2023, and the U.S. Department of Commerce approved Micron's application for an award under the NOFO.

To supply telecommunication and broadband internet connectivity to the Micron Campus, Micron would make use of two existing fiber optic lines along Caughdenoy Road and NYS Route 31 in Clay, NY accessible via two fiber optic connection entry points within a mile of the White Pine Commerce Park in Clay, New York, one at the intersection of Caughdenoy and Verplank Roads in Clay, NY, and one at the intersection of Caughdenoy Road and NYS Route 31 in Clay, NY.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.18927565,-76.15214895800815,14z

Counties: Onondaga County, New York

ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

REPTILES

NAME	STATUS
Eastern Massasauga (=rattlesnake) *Sistrurus catenatus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2202	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Michael Ray
Address: 440 Park Ave S
Address Line 2: 7th Floor
City: New York
State: NY
Zip: 10016
Email mray@akrf.com
Phone: 6463889724

LEAD AGENCY CONTACT INFORMATION

Lead Agency: National Institute of Standards and Technology

Rail Spur Site

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
Email Address: fw5es_nyfo@fws.gov

In Reply Refer To: 06/13/2025 20:16:23 UTC
Project Code: 2025-0109102
Project Name: Micron Semiconductor Manufacturing Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. **Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.**

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

PROJECT SUMMARY

Project Code: 2025-0109102
Project Name: Micron Semiconductor Manufacturing Project
Project Type: Commercial Development
Project Description: Micron proposes to construct a rail spur and construction material conveyance facility on approximately 38 acres west of 8625 Caughdenoy Road, Clay, NY (Rail Spur Site) for the Micron Semiconductor Manufacturing Project. The Rail Spur Site will be used to economically transport fill and other aggregate construction material to the proposed Micron Campus by rail.
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.18951405,-76.16877386205519,14z

Counties: Onondaga County, New York

ENDANGERED SPECIES ACT SPECIES

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Michael Ray
Address: 440 Park Ave S
Address Line 2: 7th Floor
City: New York
State: NY
Zip: 10016
Email mray@akrf.com
Phone: 6463889724

LEAD AGENCY CONTACT INFORMATION

Lead Agency: National Institute of Standards and Technology

Childcare Site

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
Email Address: fw5es_nyfo@fws.gov

In Reply Refer To: 06/13/2025 20:22:47 UTC
Project Code: 2025-0109109
Project Name: Micron Semiconductor Manufacturing Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. **Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.**

Attachment(s):

- Official Species List

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This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

PROJECT SUMMARY

Project Code: 2025-0109109

Project Name: Micron Semiconductor Manufacturing Project

Project Type: Commercial Development

Project Description: Micron proposes to construct a childcare center, healthcare center, and recreation center (collectively "Childcare Site"), along with associated workforce amenities and site infrastructure, on an approximately 31-acre parcel three quarters of a mile northwest of the proposed Micron Campus, at 9100 Caughdenoy Road, Brewerton, NY (Town of Clay tax parcel 042-01-13.0) for the Micron Semiconductor Manufacturing Project. The Childcare Site would serve the childcare, healthcare, and recreational needs of the anticipated 9,300-member labor force that would commute to and from the proposed Micron Campus at its full operational capacity in 2045.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.212884900000006,-76.17231757728453,14z

Counties: Onondaga County, New York

ENDANGERED SPECIES ACT SPECIES

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency:	Private Entity
Name:	Michael Ray
Address:	440 Park Ave S
Address Line 2:	7th Floor
City:	New York
State:	NY
Zip:	10016
Email	mray@akrf.com
Phone:	6463889724

LEAD AGENCY CONTACT INFORMATION

Lead Agency: National Institute of Standards and Technology

Connected Actions

- Natural Gas Infrastructure
- Clay Substation Expansion
- IWWTP at Oak Orchard
- Industrial Wastewater Conveyance
- Water Supply

Natural Gas Line Infrastructure

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
Email Address: fw5es_nyfo@fws.gov

In Reply Refer To: 06/13/2025 20:36:59 UTC
Project Code: 2025-0109121
Project Name: Micron Semiconductor Manufacturing Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

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(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

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It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/library/collections/threats-birds.

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We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. **Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.**

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

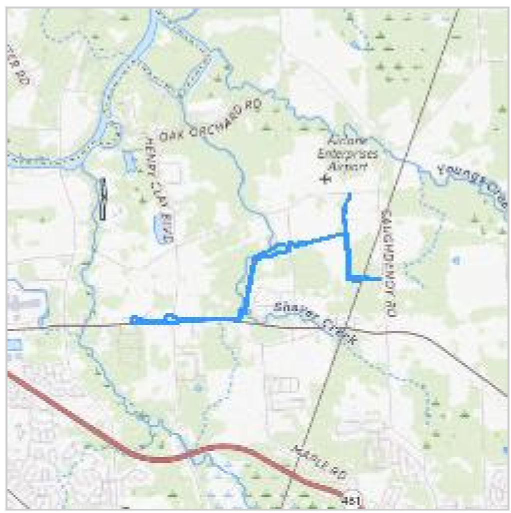
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

PROJECT SUMMARY

Project Code: 2025-0109121
Project Name: Micron Semiconductor Manufacturing Project
Project Type: Commercial Development
Project Description: To supply the estimated natural gas demands of the Micron Semiconductor Manufacturing Project, National Grid proposes to construct an approximately 3.1-mile long, 16-inch diameter below-grade (underground) natural gas distribution line from its existing GRS 147 at 4459 NYS Route 31, in Clay, NY (tax parcel 029.-01-13.1) to the proposed Micron Campus and to construct a new GRS 147A at the same address.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.19165205,-76.16840718638058,14z



Counties: Onondaga County, New York

ENDANGERED SPECIES ACT SPECIES

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency:	Private Entity
Name:	Michael Ray
Address:	440 Park Ave S
Address Line 2:	7th Floor
City:	New York
State:	NY
Zip:	10016
Email	mray@akrf.com
Phone:	6463889724

LEAD AGENCY CONTACT INFORMATION

Lead Agency: National Institute of Standards and Technology

Clay Substation Expansion

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
Email Address: fw5es_nyfo@fws.gov

In Reply Refer To: 06/13/2025 21:02:11 UTC
Project Code: 2025-0109144
Project Name: Micron Semiconductor Manufacturing Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. **Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.**

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

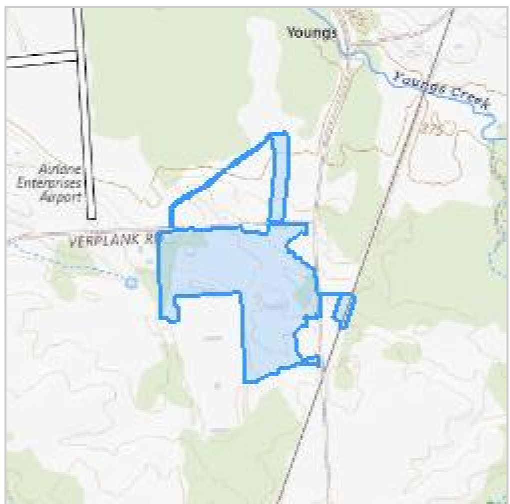
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

PROJECT SUMMARY

Project Code: 2025-0109144
Project Name: Micron Semiconductor Manufacturing Project
Project Type: Commercial Development
Project Description: To supply the estimated electricity needs of the Micron Semiconductor Manufacturing Project, National Grid proposes to expand the existing footprint of the Clay Substation (Clay, NY) toward the north and east by approximately 10 acres. This expansion would enable the installation of four new 345 kV electric transmission lines that would run from the Clay Substation through eight new underground duct banks to four new 345kV substations on the proposed Micron Campus.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.1993792,-76.16880182179261,14z



Counties: Onondaga County, New York

ENDANGERED SPECIES ACT SPECIES

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Michael Ray
Address: 440 Park Ave S
Address Line 2: 7th Floor
City: New York
State: NY
Zip: 10016
Email mray@akrf.com
Phone: 6463889724

LEAD AGENCY CONTACT INFORMATION

Lead Agency: National Institute of Standards and Technology

Industrial Wastewater

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
Email Address: fw5es_nyfo@fws.gov

In Reply Refer To: 06/13/2025 21:17:56 UTC
Project Code: 2025-0109154
Project Name: Micron Semiconductor Manufacturing Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. **Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.**

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

PROJECT SUMMARY

Project Code: 2025-0109154
Project Name: Micron Semiconductor Manufacturing Project
Project Type: Commercial Development
Project Description: The Onondaga County Department of Water Environment Protection (OCDWEP) proposes to undertake wastewater infrastructure and capacity improvements to serve the Micron Semiconductor Manufacturing Project. This would involve interim "bridging" projects at the existing Oak Orchard Wastewater Treatment Plant (Clay, NY) to receive startup industrial wastewater flows and potentially initial manufacturing industrial flows from construction of the first phase (Phase 1) of the proposed Micron Campus while OCDWEP constructs a new industrial wastewater treatment plant and reclaimed water facilities at its 76-acre Oak Orchard Waste Water Treatment Plant site.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.2027614,-76.20966731870365,14z

Counties: Onondaga County, New York

ENDANGERED SPECIES ACT SPECIES

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency:	Private Entity
Name:	Michael Ray
Address:	440 Park Ave S
Address Line 2:	7th Floor
City:	New York
State:	NY
Zip:	10016
Email	mray@akrf.com
Phone:	6463889724

LEAD AGENCY CONTACT INFORMATION

Lead Agency: National Institute of Standards and Technology

Industrial Wastewater

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
Email Address: fw5es_nyfo@fws.gov

In Reply Refer To: 06/13/2025 21:11:10 UTC
Project Code: 2025-0109146
Project Name: Micron Semiconductor Manufacturing Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

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(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

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It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/library/collections/threats-birds.

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This species list is provided by:

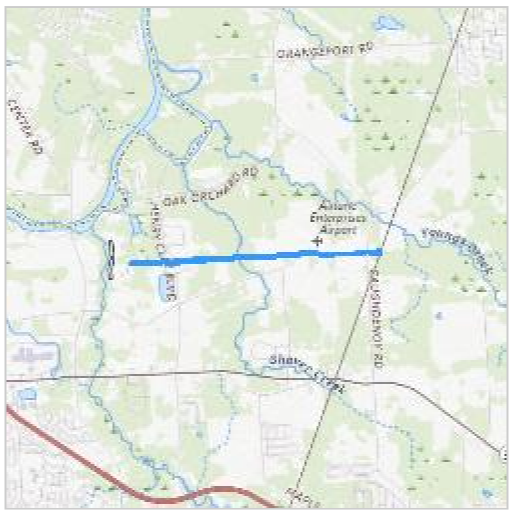
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

PROJECT SUMMARY

Project Code: 2025-0109146
Project Name: Micron Semiconductor Manufacturing Project
Project Type: Commercial Development
Project Description: The Onondaga County Department of Water Environment Protection (OCDWEP) proposes to undertake wastewater infrastructure and capacity improvements to serve the Micron Semiconductor Manufacturing Project. OCDWEP would oversee the design, construction, operation, and maintenance of a new two-mile-long industrial wastewater and reclaimed water conveyance between the Oak Orchard Wastewater Treatment Plant site and the proposed Micron Campus.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.20081275,-76.19130777190688,14z



Counties: Onondaga County, New York

ENDANGERED SPECIES ACT SPECIES

There is a total of 4 threatened, endangered, or candidate species on this species list.

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NAME	STATUS
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INSECTS

NAME	STATUS
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CRITICAL HABITATS

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YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Michael Ray
Address: 440 Park Ave S
Address Line 2: 7th Floor
City: New York
State: NY
Zip: 10016
Email mray@akrf.com
Phone: 6463889724

LEAD AGENCY CONTACT INFORMATION

Lead Agency: National Institute of Standards and Technology

Water Supply Infrastructure

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
Email Address: fw5es_nyfo@fws.gov

In Reply Refer To: 06/13/2025 20:55:50 UTC
Project Code: 2025-0109138
Project Name: Micron Semiconductor Manufacturing Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

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Attachment(s):

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This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

PROJECT SUMMARY

Project Code:	2025-0109138
Project Name:	Micron Semiconductor Manufacturing Project
Project Type:	Commercial Development
Project Description:	To supply the estimated water demands of the Micron Semiconductor Manufacturing Project, Onondaga County Water Authority proposes to undertake two phases of water system capacity and transmission upgrades to supply water to the proposed Micron Campus. Phase 1 would involve upgrading the Raw Water Pump Station and Lake Ontario Wastewater Treatment Plant in Oswego and the Terminal Campus in Clay and constructing new water transmission mains. Phase 2 would involve additional upgrades and transmission lines based on future needs.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.3197857,-76.3826769364149,14z

Counties: Onondaga and Oswego counties, New York

ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

INSECTS

NAME	STATUS
Bog Buck Moth *Hemileuca maia menyanthevora (=H. iroquois)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8023	Endangered
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency:	Private Entity
Name:	Michael Ray
Address:	440 Park Ave S
Address Line 2:	7th Floor
City:	New York
State:	NY
Zip:	10016
Email	mray@akrf.com
Phone:	6463889724

LEAD AGENCY CONTACT INFORMATION

Lead Agency: National Institute of Standards and Technology

Appendix G-8
NYSDEC EAF Mapper Results

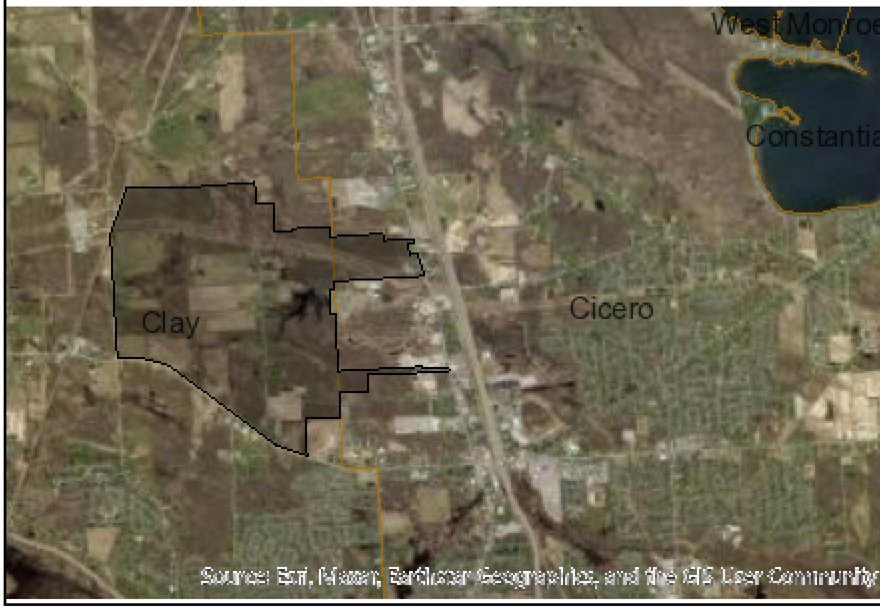
Proposed Project

- Micron Campus
- Rail Spur Site
- Childcare Site

Micron Campus

EAF Mapper Summary Report

Monday, February 10, 2025 9:18 AM



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B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	Yes
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Stream Name]	899-10
E.2.h.iv [Surface Water Features - Stream Classification]	C
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters, NYS Wetland
E.2.h.iv [Surface Water Features - Wetlands Size]	NYS Wetland (in acres):36.2, NYS Wetland (in acres):313.8
E.2.h.iv [Surface Water Features - DEC Wetlands Number]	BRE-14, BRE-11
E.2.h.v [Impaired Water Bodies]	No

E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	No
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	Yes
E.2.o. [Endangered or Threatened Species - Name]	Sedge Wren, Indiana Bat
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	Yes
E.3.a. [Agricultural District]	ONON003
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

EAF Mapper Summary Report

Monday, February 10, 2025 9:33 AM

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B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	Yes
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	No
E.2.h.ii [Surface Water Features]	No
E.2.h.iii [Surface Water Features]	No
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	No
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	Yes
E.2.o. [Endangered or Threatened Species - Name]	Sedge Wren, Indiana Bat

E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	No
E.3.i. [Designated River Corridor]	No

Rail Spur Site

EAF Mapper Summary Report

Thursday, February 13, 2025 11:05 AM

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B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	Yes
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	No
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	Yes

E.2.o. [Endangered or Threatened Species - Name]	Indiana Bat
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

Childcare Site

EAF Mapper Summary Report

Monday, February 10, 2025 9:42 AM

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B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	Yes
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Wetlands Name]	NYS Wetland
E.2.h.iv [Surface Water Features - Wetlands Size]	NYS Wetland (in acres):361.6
E.2.h.iv [Surface Water Features - DEC Wetlands Number]	BRE-7
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	No

E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	Yes
E.2.o. [Endangered or Threatened Species - Name]	Sedge Wren, Indiana Bat
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	Yes
E.3.a. [Agricultural District]	ONON003
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	No
E.3.i. [Designated River Corridor]	No

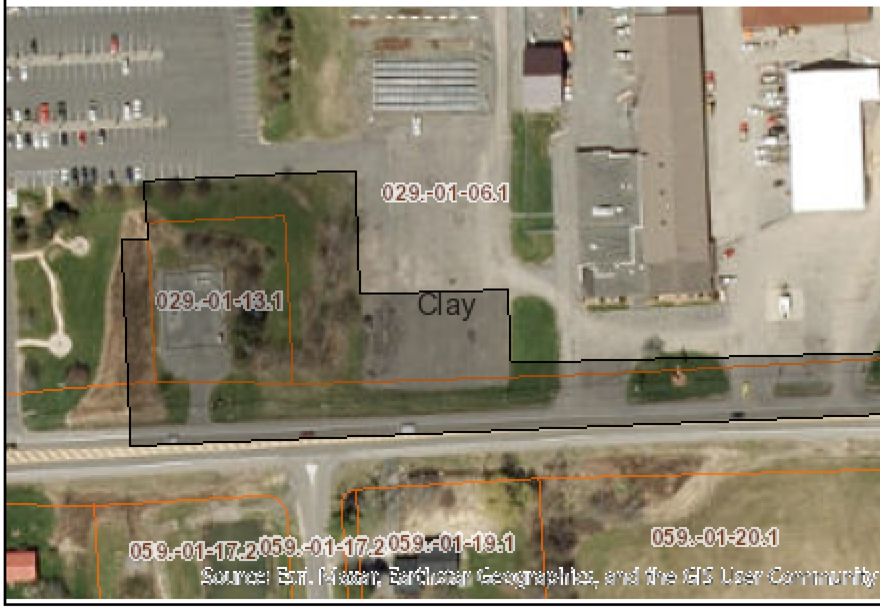
Connected Actions

- Natural Gas Infrastructure
- Clay Substation Expansion
- IWWTP at Oak Orchard
- Industrial Wastewater Conveyance
- Water Supply

Natural Gas Infrastructure

EAF Mapper Summary Report

Monday, February 10, 2025 10:33 AM



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B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	Yes
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Stream Name]	899-10
E.2.h.iv [Surface Water Features - Stream Classification]	C
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	No

E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	Yes
E.2.o. [Endangered or Threatened Species - Name]	Indiana Bat
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Yes - Digital mapping data for archaeological site boundaries are not available. Refer to EAF Workbook.
E.3.e.ii [National or State Register of Historic Places or State Eligible Sites - Name]	Eligible property:RESIDENCE
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

EAF Mapper Summary Report

Monday, February 10, 2025 10:54 AM

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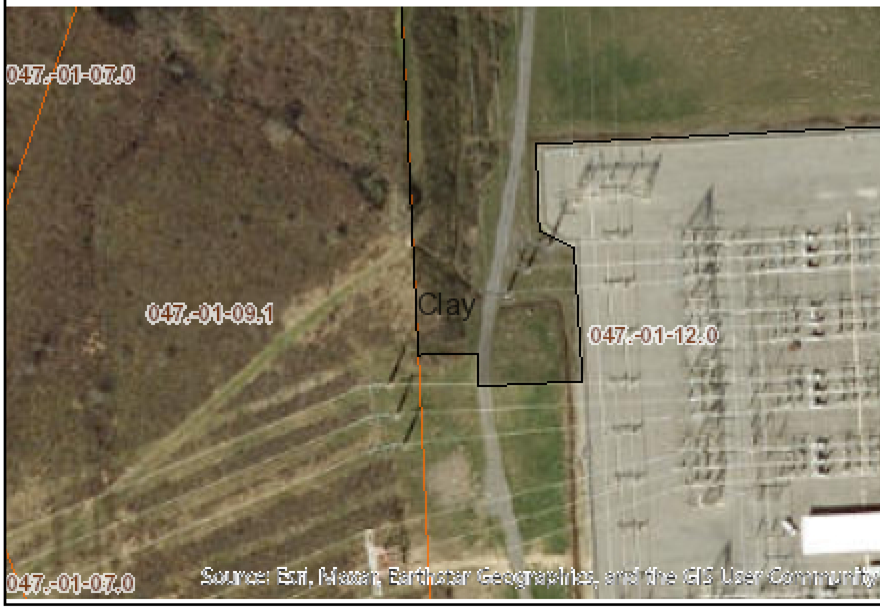
B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	Yes
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	No
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	No
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	Yes
E.2.o. [Endangered or Threatened Species - Name]	Sedge Wren, Indiana Bat

E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	No
E.3.i. [Designated River Corridor]	No

Clay Substation Expansion

EAF Mapper Summary Report

Friday, June 13, 2025 6:05 PM



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B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	Yes
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.2.h.ii [Surface Water Features]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	No
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No

E.2.o. [Endangered or Threatened Species]	Yes
E.2.o. [Endangered or Threatened Species - Name]	Indiana Bat, Sedge Wren
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

IWWTP at Oak Orchard

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B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	Yes
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
E.2.h.ii [Surface Water Features]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
E.2.h.iv [Surface Water Features - Stream Name]	899-10
E.2.h.iv [Surface Water Features - Stream Classification]	C
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	No

E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	Yes
E.2.k. [500 Year Floodplain]	Yes
E.2.l. [Aquifers]	Yes
E.2.l. [Aquifer Names]	Principal Aquifer
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	Yes
E.2.o. [Endangered or Threatened Species - Name]	Hairy Small-leaved Tick Trefoil, Pied-billed Grebe, Indiana Bat, Lake Sturgeon, Bald Eagle
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Yes - Digital mapping data for archaeological site boundaries are not available. Refer to EAF Workbook.
E.3.e.ii [National or State Register of Historic Places or State Eligible Sites - Name]	New York State Barge Canal Historic District
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

Industrial Wastewater Conveyance

EAF Mapper Summary Report

Wednesday, March 5, 2025 1:50 PM

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B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	Yes
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Stream Name]	899-10
E.2.h.iv [Surface Water Features - Stream Classification]	C
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters, NYS Wetland
E.2.h.iv [Surface Water Features - Wetlands Size]	NYS Wetland (in acres):34.1, NYS Wetland (in acres):483.6
E.2.h.iv [Surface Water Features - DEC Wetlands Number]	BRE-13, BRE-9
E.2.h.v [Impaired Water Bodies]	No

E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	No
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	Yes
E.2.o. [Endangered or Threatened Species - Name]	Pied-billed Grebe, Indiana Bat, Sedge Wren, Lake Sturgeon, Bald Eagle
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	Yes
E.3.a. [Agricultural District]	ONON003
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	No
E.3.i. [Designated River Corridor]	No

Water Supply

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B.i.i [Coastal or Waterfront Area]	Yes
B.i.ii [Local Waterfront Revitalization Area]	Yes
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	Yes
E.1.h.iii [Within 2,000' of DEC Remediation Site - DEC ID]	738010
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Lake/Pond Name]	847-4
E.2.h.iv [Surface Water Features - Lake/Pond Classification]	A
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	Yes
E.2.h.v [Impaired Water Bodies - Name and Basis for Listing]	Name - Pollutants - Uses:Lake Ontario Shoreline, Central – Pesticides;Priority Organics – Fish Consumption

E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	Yes
E.2.k. [500 Year Floodplain]	Yes
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	No
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	Yes
E.3.a. [Agricultural District]	OSWE011
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Yes - Digital mapping data for archaeological site boundaries are not available. Refer to EAF Workbook.
E.3.e.ii [National or State Register of Historic Places or State Eligible Sites - Name]	, Sheldon Hall
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

EAF Mapper Summary Report

Monday, February 10, 2025 4:19 PM

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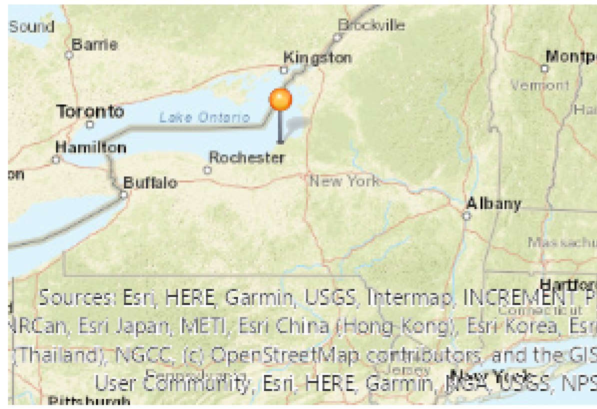

B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	No
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	No

E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	Yes
E.3.a. [Agricultural District]	OSWE011
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	No
E.3.i. [Designated River Corridor]	No

EAF Mapper Summary Report

Tuesday, February 11, 2025 3:15 PM

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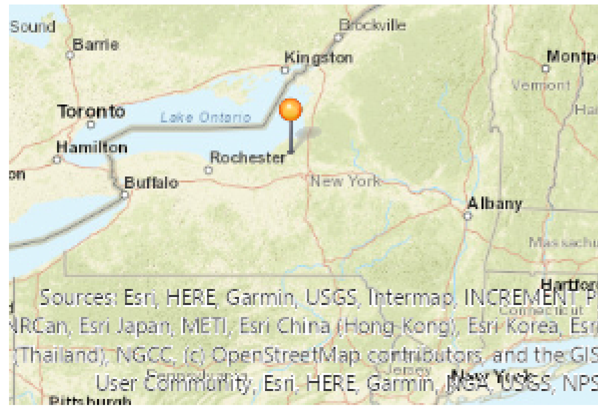

B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	Yes
E.1.h.iii [Within 2,000' of DEC Remediation Site - DEC ID]	738012, V00047
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Stream Name]	899-2, 897-25, 897-22, 899-2.1, 897-2.2, 897-8, 897-9, 899-1
E.2.h.iv [Surface Water Features - Stream Classification]	C, B
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters, NYS Wetland

E.2.h.iv [Surface Water Features - Wetlands Size]	NYS Wetland (in acres):2695.2, NYS Wetland (in acres):15.1, NYS Wetland (in acres):16.1, NYS Wetland (in acres):94.0, NYS Wetland (in acres):21.3, NYS Wetland (in acres):9.0, NYS Wetland (in acres):18.0, NYS Wetland (in acres):43.6, NYS Wetland (in acres):208.1
E.2.h.iv [Surface Water Features - DEC Wetlands Number]	PE-6, FU-40, OE-5, OE-8, FU-3, OE-9, PE-26, PE-21, PE-7
E.2.h.v [Impaired Water Bodies]	Yes
E.2.h.v [Impaired Water Bodies - Name and Basis for Listing]	Name - Pollutants - Uses:Oswego River, Lower, Main Stem – Priority Organics – Fish Consumption
E.2.i. [Floodway]	Yes
E.2.j. [100 Year Floodplain]	Yes
E.2.k. [500 Year Floodplain]	Yes
E.2.l. [Aquifers]	Yes
E.2.l. [Aquifer Names]	Principal Aquifer, Primary Aquifer
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	Yes
E.2.o. [Endangered or Threatened Species - Name]	Indiana Bat, Bald Eagle, Black Tern, Pied-billed Grebe
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	Yes
E.3.a. [Agricultural District]	OSWE011
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Yes - Digital mapping data for archaeological site boundaries are not available. Refer to EAF Workbook.
E.3.e.ii [National or State Register of Historic Places or State Eligible Sites - Name]	New York State Barge Canal Historic District, Van Buren, Volkert, House
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

EAF Mapper Summary Report

Tuesday, February 11, 2025 3:48 PM

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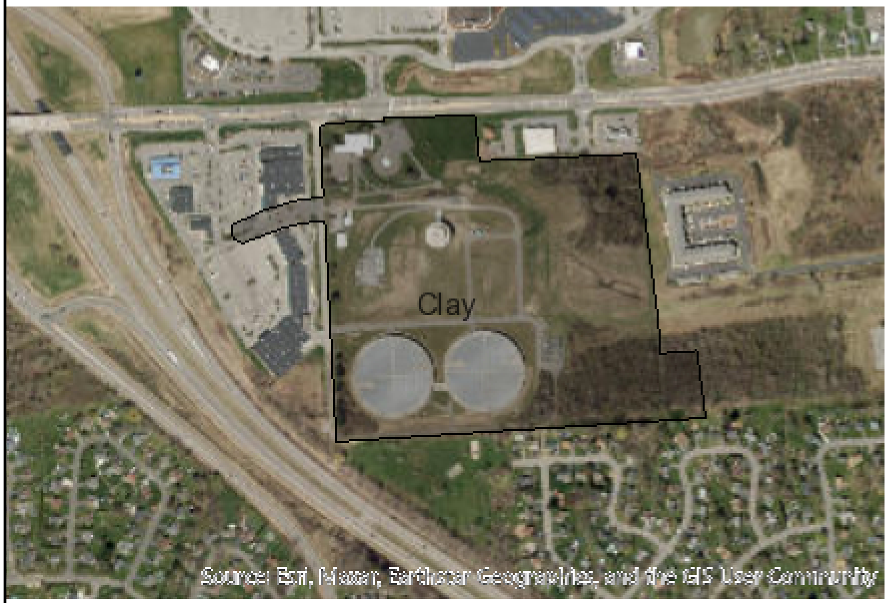
B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	Yes
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Stream Name]	899-10
E.2.h.iv [Surface Water Features - Stream Classification]	C, B
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	Yes
E.2.j. [100 Year Floodplain]	Yes
E.2.k. [500 Year Floodplain]	Yes

E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	Yes
E.2.o. [Endangered or Threatened Species - Name]	Indiana Bat
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	Yes
E.3.a. [Agricultural District]	ONON003
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Yes - Digital mapping data for archaeological site boundaries are not available. Refer to EAF Workbook.
E.3.e.ii [National or State Register of Historic Places or State Eligible Sites - Name]	Eligible property:4182 NY-31, New York State Barge Canal Historic District
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

EAF Mapper Summary Report

Tuesday, February 11, 2025 4:03 PM



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B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	Yes
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	No
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	Yes

E.2.o. [Endangered or Threatened Species - Name]	Indiana Bat
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Yes - Digital mapping data for archaeological site boundaries are not available. Refer to EAF Workbook.
E.3.e.ii [National or State Register of Historic Places or State Eligible Sites - Name]	Eligible property:4182 NY-31
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

EAF Mapper Summary Report

Tuesday, February 11, 2025 4:31 PM

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B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	Yes
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Stream Name]	899-10
E.2.h.iv [Surface Water Features - Stream Classification]	C
E.2.h.iv [Surface Water Features - Wetlands Name]	NYS Wetland, Federal Waters
E.2.h.iv [Surface Water Features - Wetlands Size]	NYS Wetland (in acres):2184.0
E.2.h.iv [Surface Water Features - DEC Wetlands Number]	BRE-17
E.2.h.v [Impaired Water Bodies]	No

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

Appendix G-9
Draft Invasive Species Management Plan

MICRON SITE
INVASIVE SPECIES MANAGEMENT PLAN

PART 1 GENERAL

1.1 SUMMARY

A. This plan includes guidance to follow during site work (i.e., clearing, earthwork, vegetative seeding, and planting, etc.) to control and minimize establishment, and spread of invasive species (i.e., Main, Rail Spur, and Childcare Sites).

Separate Mitigation Site Invasive Species Management Plans will be provided for each mitigation site by The Wetland Trust.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. This plan will be referred to in other Micron Site specifications as they are developed. These may include:
   a. Vegetative Clearing
   b. Earthwork
   c. Restoration of Surfaces
   d. Topsoil and Seeding
   e. Planting

1.3 REGULATORY REFERENCES

A. Restoration activities shall be performed in compliance with the following:
   1. 6 NYCRR Part 575 - Prohibited and Regulated Invasive Species.
   2. NYSDEC Guidelines for Disposing of Invasive Plant Material (https://extapps.dec.ny.gov/docs/lands_forests_pdf/disposinginvasiveplantfs.pdf).
   3. New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001.
   4. Sections 401 and 404 of the Clean Water Act.
   5. Conditions of permits issued by the U.S. Army Corps of Engineers (USACE), NYSDEC, and others.
   6. New York State Invasive Species Comprehensive Management Plan (NYSDEC 2018).

1.4 PERFORMANCE REQUIREMENTS

A. The Contractor shall comply with all applicable federal, State and local codes, ordinances, regulations, statutes and standards.

1.5 SUBMITTALS

A. The following items shall be submitted:

1. The source location and data for off-site topsoil and subgrade fill. Samples and test reports of each material shall include pH, organic matter, particle size distribution and analysis that complies with Part 375 Unrestricted Use Soil Cleanup Objectives.
2. Source and content data for all seed mixes, plants, and trees to be used in temporary and final site stabilization. Data for each container of seed used shall be submitted; data submitted as representative of multiple containers will not be accepted.
3. Description of seed application method. Should hydroseeding be used, the Contractor shall submit all data including material and application rates.
4. Submit certificates from plant nursery stock supplier for each group of live plant stock required, stating botanical name, common name, origin, age, date of packaging, and name and address of supplier. Submit at least 4 weeks prior to planting.
5. Invoices for all plants and seed procured for the project shall be submitted.
6. Source and content data for organic mulch (e.g., straw). If synthetic mulch is used, catalog data that includes the manufacturer, materials, and installation procedures, shall be submitted.
7. Pesticide applicator shall submit proof of insurance meeting the minimum requirements of the Owner as well as licensure in New York State. Pesticide applicator shall submit a safety plan detailing anticipated pesticides, treatment methods, weather considerations, personal protective gear, and other applicable safety practices.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Topsoil

1. All imported topsoil shall satisfy the Unrestricted Use and/or Protection of Ecological Resources Soil Cleanup Objectives, established in NYCRR Part 375-6.7(d), as applicable.
2. Imported topsoil shall be from a commercial source. The source and topsoil shall be approved by an Owner's Representative and Micron prior to use.
3. Topsoil shall be stored a minimum of 50-feet from areas that contain significant stands of invasive species as identified by an Owner's Representative and Micron.

B. Seed mixtures shall be of commercial stock of the current or prior season's crop and shall be delivered in unopened containers bearing the guaranteed analysis of the mix. Seed shall be labeled true to species and variety. The percent of pure live strain of the seed shall be submitted with the seed mixture.

C. The seed supplier shall provide a seed analysis report including certified analyses of percent viability, percent weed seeds, and percent of other crop seed. The certifying laboratory shall be indicated on the seed tag or on associated submittals.

D. The state of origin of the seed shall be indicated on the seed tag or on associated submittals.

E. Seeds, stems or rhizomes from species identified in 6 NYCRR Part 575 - Prohibited and Regulated Invasive Species shall not be present in any seed mix.

F. All seed shall meet the standards of germination and purity set by New York State or the Association of Official Seed Certifying Agencies (AOSCA).

G. Plantings

1. All plant materials shall comply with state and federal laws with respect to inspection for plant diseases and insect infestations.
2. Plants shall be in accordance with the current edition of the American Standard for Nursery Stock (ANSI Z60.1-2004) unless otherwise specified.
3. Existing live trees and shrubs that are located within the limits of disturbance (LOD) may be salvaged to the extent practicable prior to clearing and grading for use within restoration areas when grading is complete. Species included on the "New York State Prohibited and Regulated Invasive Plants" shall not be salvaged, including but not limited to:

   A. European alder (*Alnus glutinosa*)
   B. Honeysuckle (*Lonicera spp.*)
   C. Japanese barberry (*Berberis thunberghii*)
   D. Multiflora rose (*Rosa multiflora*)
   E. Glossy buckthorn (*Frangula alnus*)
   F. Common buckthorn (*Rhamnus cathartica*)
   G. Norway maple (*Acer platanoides*)
   H. Norway spruce (*Picea abies*)
   I. Olive (Elaeagnus spp.)

2. Salvaging may include staging of shrub or tree clumps complete with root systems or collecting cuttings from willow (*Salix spp.*) and dogwood (*Cornus spp.*) to be used as live stakes. Methods of material staging to promote survival is the Contractor's responsibility. Clumps shall be stockpiled adjacent to the work area to minimize transport distance. Materials shall be placed in the restoration areas as soon as practicable after completion of grading. Clumps shall not be separated but shall be moved as an individual unit.

3. The Contractor shall remove and maintain the full root ball (i.e., extending outward to the drip line and downward to the extent of fibrous root network) of the salvaged plants to the extent practicable.

H. Mulch shall be stalks of oats, wheat, cereal rye or other approved crops which are free from noxious weeds. Mulch may also be hydromulch with tackifier that is made of bio-degradable material. Photodegradable blankets or plastic blankets cannot be used.

PART 3 – EXECUTION

3.1. GENERAL

A. Soil and vegetative debris that could harbor seeds, rhizomes, and cuttings of invasive species shall be removed and disposed of off-site in accordance with local, State, and federal regulations, including the NYSDEC Guidelines for Disposing of Invasive Plant Material (https://extapps.dec.ny.gov/docs/lands_forests_pdf/disposinginvasiveplantfs.pdf).
B. Cleaning shall consist of spraying with a power washer or equivalent until invasive species parts or seed are not identified with thorough visual inspection of the equipment or vehicle.
C. Equipment and vehicles shall be inspected and cleaned of soil and vegetative debris prior to being brought on site.
D. Equipment and vehicles that have operated on-site shall be cleaned of soil and vegetative debris before exiting the site to prevent off-site spread of invasive species.
E. The Contractor shall create "clean" (i.e., invasive-free) and "dirty" (i.e., areas containing greater than 5% invasive species coverage) zones during earthwork. Equipment and vehicles shall be cleaned before moving from a dirty zone to a clean zone. This practice shall continue until invasive species have been controlled (e.g., sprayed or excavated and stockpiled).
F. Equipment and machinery shall not be washed in existing streams or wetlands nor shall the Contractor permit water from such activities to enter the streams or wetlands.

3.2. BIOLOGICAL SURVEY

A. An approved project biologist shall perform a biological survey within the LOD with the Contractor prior to commencement of the project phase. Tasks to be completed prior to topsoil stripping include the following:
   1. Identify preferred locations for staging and stockpiling.
   2. Identify (with flagging and boundary survey) areas with greater than 5% total aerial coverage of invasive species included on the "New York State Prohibited and Regulated Invasive Plants" list.
   3. Identify sensitive areas that are susceptible to invasive species (e.g., Youngs Creek and the downstream wetlands and riparian zones) in the vicinity of the LOD.
      i. If necessary, place protections as needed for these areas during earthwork to control spread of invasive species
B. If invasive species are observed during the vegetative surveys, actions will be taken to eliminate invasive species, including but not limited to:
   1. The species, location and size of the population will be recorded, as well as the control method and date of control action.
   2. If the population is of manageable size (e.g., less than approximately 500 stems or 0.1 acres):
      i. Invasive plants will be manually removed by excavating roots, pulling or clipping until the population is eliminated.

3. If the population is considered to be too large for manual control methods, a NYSDEC-approved herbicide will be used according to manufacturer's instructions.
4. With agreement from NYSDEC, control methods can be adapted over time given outcomes of initial control efforts. The timing and methods for control measures will be specifically designed for each species observed.
5. Efforts to eliminate invasive species will continue throughout the construction period as needed.

3.3. EARTHWORK

A. Soil staging activities shall be coordinated with the Engineer, Construction Manager, Owner's Representative and Micron prior to placement. Excess select fill or topsoil shall be disposed of/reused on-site in an approved location or disposed of off-site in an identified upland location (i.e., outside of the boundaries of wetlands, streams, and their regulated buffers) through appropriate regulatory means. Silt fence or equivalent shall be installed around the perimeter of the soil storage area(s) until storage activities are completed, and the area(s) is graded, seeded, and mulched. Silt fence or equivalent shall be removed after a minimum of 80% of vegetative coverage is achieved.

B. Topsoil shall be removed, including vegetative cover material, to full depth and stockpiled in an approved area. The Contractor shall field-verify topsoil depth and quantity of usable topsoil.

C. Topsoil from areas identified in Section 3.2.A.2 as containing invasive species shall be stockpiled separately and reused only as a subgrade material and be buried to the following minimum depths pending Engineer approval:

Minimum 3-ft depth

1. Japanese knotweed (*Polygonum cuspidatum*)
2. Garlic mustard (*Alliaria petiolata*)
3. Japanese stiltgrass (*Microstegium vimineum*)
4. Swallowort (*Cynanchum* spp.)
5. Cattail (*Typha* spp.)
6. Reed canary grass (*Phalaris arundacea*)
7. Knapweed (*Centaurea* spp.)
8. Purple loosestrife (*Lythrum salicaria*)
9. Olive (*Elaeagnus* spp.)

Minimum 5-ft depth

1. Common reed (*Phragmites australis*)

D. Imported topsoil, mulch, and other organic materials shall be free of rock, limbs of woody vegetation, hazardous waste, or seeds or rhizomes from invasive species.

E. Habitat structure (i.e., coarse woody debris, brush piles and rock piles) may be stockpiled for use at identified off-site mitigation areas in accordance with the following:

1. Coarse woody debris shall consist of cleared site trees obtained from materials cleared as part of on-site construction activities from areas free of invasive species.
2. Only native species shall be used. Preference shall be given to willow trees since they have the potential to resprout growth, thereby enhancing vegetative restoration.

3.3 MONITORING AND MAINTENANCE OF VEGETATED AREAS AFTER CONSTRUCTION

A. The Contractor shall warranty the plantings and seed for a period of one year from the date of planting or until the end of the next growing season, whichever is later. The Contractor shall replace deceased planted stock or reseed areas based on the following criteria:

1. Minimum 90% survival of planted stock
2. Minimum 80% ground coverage of seeded areas
3. Plants and/or seeds shall be replaced during the optimal season for plant survival.

B. Replacements shall be of the same size originally planted and subject to the first-year maintenance efforts prescribed herein.

C. Alternative species and/or seed mixes may be used during replacement with Engineer approval only.

D. Plantings and seeded areas shall be monitored for a period of five years after construction is complete.

E. Monitoring events will be performed during the growing season (i.e., April through October).

F. In Years 2 through 5 of the monitoring period, deceased planted stock will be replaced, or bare areas reseeded based on the following criteria:
1. Maintain 80% relative ground coverage of native species within restored areas. Species that are observed to be successful (i.e., are growing vigorously) may be substituted for less successful species.
2. Invasive species cover within the LOD shall be no more than 5% by the end of year 5.
3. Vigorously growing non-invasive volunteer species may be included in the density and percent cover calculations.
4. Plants and/or seeds shall be replaced during the optimal season for plant survival.

G. The following additional information will be recorded during monitoring events for the five-year monitoring period. These items will be incorporated into the Vegetative Monitoring Plan.
1. Date and time of data collection efforts, as well as recent weather information

2. Comparison of site conditions to pre-disturbance conditions
3. Species identification of deceased and survived restoration plants
4. Enumeration of deceased and surviving restoration plants
5. Percent vegetative cover
6 Identification of pioneer (volunteer) species
7. Percent cover and identification of invasive species
8. Surface water levels
9. Photographs from fixed reference points of each restoration area showing representative portions of the restoration areas
10. Observed fish and wildlife

Appendix G-10
Preliminary Landscape Drawings

LANDSCAPE NOTES

GENERAL NOTES

1. CLEARING OF TREES GREATER THAN 2.5 INCH DIAMETER AT BREAST HEIGHT (DBH) TO BE COMPLETED BETWEEN NOVEMBER 1 AND MARCH 31 TO AVOID POTENTIAL IMPACTS TO THE INDIANA BAT AND NORTHERN LONG-EARED BAT.

2. VERIFY ALL DIMENSIONS OF PERTINENT WORK IN THE FIELD.

3. RESTORE TO THEIR ORIGINAL CONDITION, ALL EXISTING PHYSICAL FEATURES DAMAGED BY THE UNAUTHORIZED ACT OR OMISSION OF THE CONTRACTOR. ORIGINAL CONDITION SHALL MEAN THE CONDITION IN WHICH THE FEATURE WAS FOUND AT THE START OF THE WORK.

4. MINIMIZE TREE AND SHRUB DISTURBANCE TO THAT WHICH IS NECESSARY FOR SAFE ACCESS TO THE PROJECT AREA.

5. ALL TREES TO BE REMOVED SHALL BE FIELD MARKED BY THE CONTRACTOR FOR APPROVAL PRIOR TO FELLING.

6. NO TREES SHALL BE REMOVED UNTIL APPROVED IN THE FIELD BY THE ENGINEER AND PROJECT ARBORIST.

7. TREES THAT ARE NOT DEPICTED ON THE PLAN AS DESIGNATED FOR REMOVAL SHALL BE PROTECTED FROM CONSTRUCTION. ACTIVITIES AS INDICATED ON THE EXISTING CONDITION AND DEMOLITION PLANS.

8. THOSE AREAS ADJACENT TO THE CONSTRUCTION ACTIVITIES SHALL BE RESTORED IN-KIND TO, OR AS NEAR TO, THEIR ORIGINALCONDITION AS DIRECTED BY THE ENGINEER AND AS SHOWN ON THE PLANS.

9. FOLLOW EROSION CONTROL PLAN AND ALL REQUIREMENTS OF SOIL AND EROSION AND CONTROL PERMIT. AND LOCAL, COUNTY, STATE AND FEDERAL REQUIREMENTS.

10. ALL EXCESS MATERIALS AND DEBRIS DUE TO THE CONTRACTOR'S OPERATION SHALL BE REMOVED BY THE CONTRACTOR AS PART OF THE SITE RESTORATION AT NO ADDITIONAL COST TO OWNER. ALL SOIL DIMINISHED AND/OR CONTAMINATED WITH EXCESS MATERIAL AND DEBRIS, AS DETERMINED BY THE ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION, SHALL ALSO BE REMOVED TO CLEAN SOIL AND SHALL BE REPLACED WITH SUFFICIENT TOPSOIL MEETING WITH TOPSOIL AS SPECIFIED IN SECTION ALSO AT NO ADDITIONAL COST TO OWNER. IF IT IS DETERMINED BY THE ENGINEER THAT THE SOIL HAS BEEN COMPACTED DURING THE COURSE OF THE PROJECT, IT SHALL BE UNCOMPACTED AND LOOSENED TO THE DEPTH OF 12 INCHES PRIOR TO GRASS SEEDING OR OTHER RESTORATION AT NO ADDITIONAL COST TO OWNER. DECOMPACTION WITHIN THE DRIPLINE OF EXISTING TREES MUST BE DONE BY HAND USING ONLY LIGHT EQUIPMENT SUCH AS AN AIRSPADE OR OTHER METHOD, APPROVED BY THE ENGINEER, WHICH WILL MINIMIZE DAMAGE TO TREE ROOTS. UNDER NO CIRCUMSTANCES MAY HEAVY EQUIPMENT (I.E. PAYLOADERS) BE USED TO ACCOMPLISH SITE RESTORATION WITHIN THE DRIPLINE OF TREES.

11. WORK SHALL INCLUDE, BUT NOT BE LIMITED TO CONSTRUCTION OF PLANTING, AND OTHER ELEMENTS, DAILY CLEAN-UP, MAINTENANCE AND GUARANTEE. REFER TO PLANS AND SPECIFICATIONS FOR PROJECT WORK SCOPE.

12. NOTIFY THE ENGINEER 5 WORKING DAYS PRIOR TO THE COMMENCEMENT OF WORK. PROVIDE THE ENGINEER WITH A PROPOSED SCHEDULE PRIOR TO BEGINNING WORK. KEEP THE ENGINEER INFORMED OF THE PROGRESS OF WORK AND REPORT IMMEDIATELY ANY DIFFICULTIES, DISCREPANCIES, OR PROBLEMS WITH THE INSTALLATION OF THE JOB.

13. THE CONTRACTOR SHALL TAKE CARE DURING CONSTRUCTION TO AVOID DISTURBING OR DAMAGING ADJACENT STRUCTURES, EITHER SUB-GRADE OR ABOVE-GRADE. ANY DAMAGE TO EXISTING STRUCTURES RESULTING FROM CONSTRUCTION SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE RESTORED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.

14. NO CHANGES SHALL BE MADE TO THE DESIGN OR LAYOUT WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER. THE CONTRACTOR SHALL LAYOUT THE WORK AS DIMENSIONED ON THE PLANS. WRITTEN DIMENSIONS SHALL GOVERN. DO NOT SCALE DISTANCES.

15. ALL WORK AND MATERIALS REJECTED BY THE ENGINEER AS FAILING TO COMPLY WITH THE CONTRACT DOCUMENTS SHALL BE PROMPTLY REMOVED, REPLACED, AND/OR RE-EXECUTED BY THE CONTRACTOR TO BRING INTO COMPLIANCE WITH THE REQUIREMENTS. THIS SHALL BE DONE AT THE EXPENSE OF THE CONTRACTOR WITHOUT ADDITIONAL COST TO THE OWNER AND SHALL INCLUDE MAKING GOOD ALL WORK OF THE CONTRACTOR AND OTHER CONTRACTORS DESTROYED, DAMAGED, OR OTHERWISE IMPACTED BY SUCH REMOVAL OR REPLACEMENT.

PLANTING NOTES

1. NOTIFY THE ENGINEER A MINIMUM OF (5) WORKING DAYS TO THE COMMENCEMENT OF WORK.

2. ANY AREAS DISTURBED OUTSIDE OF THE LIMIT OF WORK, SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE CLIENT.

3. ALL PLANTS SHALL BE PLANTED AT THE TIME OF DELIVERY. PLANTS IN THE SAME PLANTING BED SHALL BE PLANTED AT THE SAME TIME. ANY PLANTS REMAINING UNPLANTED ON THE SITE FOR MORE THAN 24 HOURS SHALL BE PROTECTED AND MAINTAINED INCLUDING BUT NOT LIMITED TO PROVIDING WATER AND SHADE. ANY PLANTS THAT DECLINE OR ARE DAMAGED DUE TO ON-SITE STORAGE SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

4. THE CONTRACTOR SHALL INSTALL PLANTS GROWN AND ACCLIMATED TO THE PROPER USDA CLIMATIC ZONE AND HYDROLOGIC REGIME FOR THE PROJECT SITE AS INDICATED IN THE CONTRACT SPECIFICATIONS. PLANTS SHALL BE ACCLIMATED PRIOR TO PLANTING.

5. THERE WILL BE NO SUBSTITUTIONS OF PLANT MATERIAL WITHOUT PRIOR WRITTEN APPROVAL BY THE ENGINEER.

6. MATERIAL WILL BE INSPECTED AND APPROVED AT PLACE OF GROWTH BY THE ENGINEER. HOWEVER, PLANT MATERIAL WHICH HAS BECOME DAMAGED OR DISEASED OR WHICH IS UNACCEPTABLE TO THE ENGINEER MAY BE REJECTED UPON DELIVERY TO THE SITE.

7. SHOULD THERE BE ANY DISCREPANCIES BETWEEN THE QUANTITIES CALLED FOR ON THE PLANT LIST AND THOSE INDICATED ON THE PLAN, NOTIFY ENGINEER FOR CLARIFICATION.

8. AT ALL TIMES, THE SITE SHALL BE KEPT NEAT AND FREE OF DEBRIS LEFT FROM THE PLANTING OPERATION.

9. ALL PLANT MATERIAL SHALL BE KEPT VIGOROUS, AND FREE OF ANY INJURY AND DEFECTS. ALL PLANT MATERIAL SHALL BE A TRUE REPRESENTATION OF THEIR SPECIES.

10. PLANT GROUPINGS AND LOCATIONS ARE DIAGRAMMATIC. THE LOCATION OF PLANTS SHALL BE APPROVED IN THE FIELD BY THE ENGINEER PRIOR TO INSTALLATION. THE ENGINEER RESERVES THE RIGHT TO MAKE ADJUSTMENTS TO ANY AND ALL PLANTING LAYOUT IN THE FIELD AT NO ADDITIONAL COST TO THE OWNER.

11. ALL PLANT TAGS MUST REMAIN ON THE PLANT MATERIAL UNTIL THE ENGINEER REVIEWS THE LAYOUT AND APPROVES THE QUANTITIES.

12. THE CONTRACTOR SHALL VERIFY CONDITIONS PRIOR TO COMMENCING PLANTING WORK. NOTIFY THE ENGINEER IMMEDIATELY IF CONDITIONS DETRIMENTAL TO NEW OR EXISTING PLANT MATERIAL ARE ENCOUNTERED.

13. THE CONTRACTOR SHALL STAKE AND LABEL LOCATIONS OF ALL PLANT MATERIAL PRIOR TO DELIVERY OF PLANTS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER WHEN STAKING IS COMPLETE AND SCHEDULE A MEETING AT THE SITE AT WHICH TIME LOCATIONS WILL BE APPROVED.

14. ALL AREAS WITHIN THE PROPERTY LINE WHICH ARE DAMAGED DURING CONSTRUCTION SHALL BE RECONDITIONED WITH SPECIFIED TOPSOIL AND SEED.

FRONT PERIMETER LANDSCAPE PLANTING SCHEDULE							
CANOPY TREES							
QTY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	CONDITION	NOTES
	ACR	Acer rubrum	Red maple	3" CALIPER	AS SHOWN		
	CAD	Castanea dentata	American chestnut	5 GAL.	AS SHOWN		
	QUR	Qurcus rubra	Red oak	3" CALIPER	AS SHOWN		
	ULA	Ulmus Americana	American Elm	3" CALIPER	AS SHOWN		
UNDERSTORY TREES							
QTY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	CONDITION	NOTES
	HAV	Hamamelis virginiana	American Witch-hazel	7 GAL.	AS SHOWN		
	NYS	Nyssa sylvatica	Black tupelo	7 GAL.	AS SHOWN		
EVERGREEN TREES							
QTY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	CONDITION	NOTES
	JUV	Juniperus virginiana	Easterr red cedar	10' HT	AS SHOWN		
	TSC	Tsuga Canadensis	Canadian Hemlock	10' HT	AS SHOWN		
SHRUBS							
QTY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	CONDITION	NOTES
	CEO	Cephalanthus occidentalis	Common buttonbush	3 GAL.	AS SHOWN		
	COA	Cornus amomum	Silky dogwood	5 GAL.	AS SHOWN		
	COS	Cornus sericea	Red oiser dogwood	5 GAL.	AS SHOWN		
	LIB	Lindera benzoin	Northern spicebush	3 GAL.	AS SHOWN		
	VIN	Viburnum nudum	Wild raisin	3 GAL.	AS SHOWN		
PERENNIALS							
QTY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	CONDITION	NOTES
	ASI	Asclepias incarnata	Swamp Milkweed	PLUG	24" O.C.		
	ASS	Asclepias syracia	Common milkweed	PLUG	24" O.C.		
	COT	Coreopsis Tinctoria	Plains coreopsis	PLUG	24" O.C.		
	HEH	Heliopsis helianthoides	Oxeye sunflower	PLUG	24" O.C.		
	LOS	Lobelia spicata var. spicata	Great blue lobelia	PLUG	24" O.C.		
	MOF	Monarda fistulosa var. fistulosa	Wild bergamont	PLUG	24" O.C.		
	RUH	Rudbeckia hirta	Black eyed susan	PLUG	24" O.C.		

SCREENING TYPICAL PLANTING SCHEDULE							
EVERGREEN TREES							
QTY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	CONDITION	NOTES
	JUV	Juniperus virginiana	Easterr red cedar	10' HT	AS SHOWN		
	PIR	Pinus Rigida	Pitch Pine	8' HT	AS SHOWN		
	PIS	Pinus strobus	Easterr white pine	6' HT	AS SHOWN		
	THO	Thuja Occidentalis	Arborvitae	10' HT	AS SHOWN		
	TSC	Tsuga canadensis	Easterr hemlock	5' HT	AS SHOWN		

FLOODPLAIN FOREST TYPICAL PLANTING SCHEDULE							
CANOPY TREES							
QTY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	CONDITION	NOTES
	ACR	Acer rubrum	Red maple	3" CALIPER	AS SHOWN		
	ACS	Acer saccharinum	Silver maple	3" CALIPER	AS SHOWN		
	CCA	Carpinus caroliniana	American hornbeam	3" CALIPER	AS SHOWN		
	CCO	Carya cordiformis	Bitternut hickory	3" CALIPER	AS SHOWN		
	CAD	Castanea dentata	American chestnut	5 GAL.	AS SHOWN		
	COC	Celtis occidentalis	Hackberry	3" CALIPER	AS SHOWN		
	LIT	Liridodendron tulipifera	Tulip tree	3" CALIPER	AS SHOWN		
UNDERSTORY TREES							
QTY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	CONDITION	NOTES
	ALI	Alnus incana	Grey alder	7 GAL.	AS SHOWN		
	BEN	Betula nigra	River birch	7 GAL.	AS SHOWN		
	COA	Cornus amomum	Silky dogwood	7 GAL.	AS SHOWN		
	VIL	Viburnum lentago	Viburnum lentago	7 GAL.	AS SHOWN		
SHRUBS							
QTY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	CONDITION	NOTES
	COR	Cornus racemosa	Gray dogwood	5 GAL.	AS SHOWN		
	LIB	Lindera benzoin	Northern spicebush	3 GAL.	AS SHOWN		
	VID	Viburnum dentatum	Arrowwood viburnum	5 GAL.	AS SHOWN		
PERENNIALS							
QTY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	CONDITION	NOTES
	AGA	Ageratina altissima	White snakeroot	PLUG	24" O.C.		
	BOC	Boehmeria cylindrica	False nettle	PLUG	24" O.C.		
	CAL	Carex lupulina	Carex lupulina	PLUG	24" O.C.		
	CAS	Carex stricta	Tussock sedge	PLUG	24" O.C.		
	GEC	Geum canadense	White avens	PLUG	24" O.C.		
	LAC	Laportea canadensis	Canadian wood nettle	PLUG	24" O.C.		
	LEO	Leersia oryzoides	Leersia oryzoides	PLUG	24" O.C.		
	ONS	Onoclea sensibilis	Sensitive fern	PLUG	24" O.C.		
	SOC	Solidago canadensis	Canada goldenrod	PLUG	24" O.C.		
	SOG	Solidago gigantea	Swamp goldenrod	PLUG	24" O.C.		

YOUNG FOREST AND SHRUBLANDS TRANSITION PLANTING SCHEDULE							
CANOPY TREES							
QTY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	CONDITION	NOTES
	POD	Populus deltoides	Easterr Cottonwood	7 GAL.	AS SHOWN		
UNDERSTORY TREES							
QTY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	CONDITION	NOTES
	ALR	Alnus rugosa	Speckled Alder	3 GAL.	AS SHOWN		
	BEP	Betula populifolia	Grey birch	3 GAL.	AS SHOWN		
	HAV	Hamamelis virginiana	American Witch-hazel	5 GAL.	AS SHOWN		
	SAN	Salix nigra	Black willow	3 GAL.	AS SHOWN		
SHRUBS							
QTY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	CONDITION	NOTES
	CEO	Cephalanthus occidentalis	Common buttonbush	1 GAL.	AS SHOWN		
	COA	Cornus amomum	Silky dogwood	1 GAL.	AS SHOWN		
	COS	Cornus sericea	Red -iser dogwood	1 GAL.	AS SHOWN		
	CRC	Crategus crus-galli	Cockspur Hawthorn	1 GAL.	AS SHOWN		
	VAC	Vaccinium corymbosum	High bush blueberry	1 GAL.	AS SHOWN		
PERENNIALS							
QTY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	CONDITION	NOTES
	CAL	Carex lacustris	Lake sedge	PLUG	24" O.C.		
	CAP	Carex pensylvanica	Pennsyvania sedge	PLUG	24" O.C.		
	CAS	Carex stricta	Tussock sedge	PLUG	24" O.C.		
	EUD	Eurybia divaricata	White wood-aster	PLUG	24" O.C.		

BIORETENTION TYPICAL PLANTING SCHEDULE							
PERENNIALS							
QTY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	CONDITION	NOTES
	ACA	Acorus americanus	Sweetflag	PLUG	24" O.C.		
	BIF	Bidens frondosa	Devil's beggarticks	PLUG	24" O.C.		
	CAC	Calamagrostis canadensis	Bluejoint grass	PLUG	24" O.C.		
	CAL	Carex lacustris	Lake sedge	PLUG	24" O.C.		LOWER
	CAS	Carex stricta	Tussock sedge	PLUG	24" O.C.		
	CED	Ceratophyllum demersum	Coontail	PLUG	24" O.C.		
	DEV	Decodon verticillatus	Water willow	PLUG	24" O.C.		
	ELC	Elodea canadensis	Water weed	PLUG	24" O.C.		
	EUM	Eupatorium maculatum	Joe-pye-weed	PLUG	24" O.C.		
	HED	Heteranthera dubia	Water stargrass	PLUG	24" O.C.		
	JUE	Juncus effusus	Softrush	PLUG	24" O.C.		
	NUL	Nuphar lutea	Yellow waterlily	PLUG	24" O.C.		
	NYO	Nymphaea odorata	White waterlily	PLUG	24" O.C.		
	POC	Pontederia cordata	Pickerel weed	PLUG	24" O.C.		
	SAL	Sagittaria latifolia	Arrowhead	PLUG	24" O.C.		
	SCP	Schoenoplectus pungens	Common threesquare	PLUG	24" O.C.		
	SCT	Schoenoplectus tabernaemontani	Softstem bulrush	PLUG	24" O.C.		
	STP	Stuckenia pectinata	Sago pondweed	PLUG	24" O.C.		

STORMWATER MANAGEMENT AREA PLANTING SCHEDULE TYPE A							
	PERENNIALS						
	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	CONDITION	NOTES
	ACA	Acorus americanus	Sweetflag	PLUG	24" O.C.		
	ASI	Asclepias Incarnata	Swamp milkweed	PLUG	24" O.C.		
	BIF	Bidens frondosa	Devil's beggarticks	PLUG	24" O.C.		
	CAC	Calamagrostis canadensis	Bluejoint grass	PLUG	24" O.C.		
	CAL	Carex lacustris	Lake sedge	PLUG	24" O.C.		
	CAS	Carex stricta	Tussock sedge	PLUG	24" O.C.		
	CED	Ceratophyllum demersum	Coontail	PLUG	24" O.C.		
	DEV	Decodon verticillatus	Water willow	PLUG	24" O.C.		
	ELC	Elodea canadensis	Water weed	PLUG	24" O.C.		
	EUM	Eupatorium maculatum	Joe-pye-weed	PLUG	24" O.C.		
	HED	Heteranthera dubia	Water stargrass	PLUG	24" O.C.		
	HIM	Hibiscus moscheutos	Swamp rose mallow	PLUG	24" O.C.		
	JUE	Juncus effusus	Softrush	PLUG	24" O.C.		
	NUL	Nuphar lutea	Yellow waterlily	PLUG	24" O.C.		
	NYO	Nymphaea odorata	White waterlily	PLUG	24" O.C.		
	PAC	Panicum Clandestinum	Deertongue tioga	PLUG	24" O.C.		
	PEV	Peltandra virginica	Arrow arum	PLUG	24" O.C.		
	POP	Poa Palustris	Fowl bluegrass	PLUG	24" O.C.		
	POC	Pontederia cordata	Pickerel weed	PLUG	24" O.C.		
	PON	Potamogeton nodosus	Pondweed	PLUG	24" O.C.		
	SAL	Sagittaria latifolia	Arrowhead	PLUG	24" O.C.		
	SCP	Schoenoplectus pungens	Common threesquare	PLUG	24" O.C.		
	SCT	Schoenoplectus tabernaemontani	Softstem bulrush	PLUG	24" O.C.		
	SCC	Scirpus cyperinus	Woolgrass	PLUG	24" O.C.		
	SOC	Solidago canadensis	Canada goldenrod	PLUG	24" O.C.		
	SPE	Sparganium eurycarpum	Giant bur-reed	PLUG	24" O.C.		
	SPP	Spartina pectinata	Freshwater cordgrass	PLUG	24" O.C.		
	STP	Stuckenia pectinata	Sago pondweed	PLUG	24" O.C.		
	TYL	Typha latifolia	Broad leaf cattail	PLUG	24" O.C.		
	VAA	Vallisneria americana	Wild celery	PLUG	24" O.C.		

STORMWATER MANAGEMENT AREA PLANTING SCHEDULE TYPE B							
PERENNIALS							
QTY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	CONDITION	NOTES
	HIM	Hibiscus moscheutos	Swamp rose mallow	PLUG	24" O.C.		
	HOJ	Hordeum jubatum	Foxtail barley	PLUG	24" O.C.		
	JUG	Juncus gerardi	Black needle rush	PLUG	24" O.C.		
	SCA	Schoenoplectus americanus	Chairmaker's bulrush	PLUG	24" O.C.		
	SCM	Schoenoplectus maritimus	Sea clubrush	PLUG	24" O.C.		
	SCP	Schoenoplectus pungens	Common threesquare	PLUG	24" O.C.		
	SCR	Schoenoplectus robustus	Sturdy bulrush	PLUG	24" O.C.		
	SOS	Solidago sempervirens	Seaside goldenrod	PLUG	24" O.C.		
	SPA	Spartina alterniflora	Saltmarsh cordgrass	PLUG	24" O.C.		
	SPE	Spartina pectinata	Prairie cordgrass tall marshgras	PLUG	24" O.C.		

WET MEADOW SEED MIX		
CONTENT %	BOTANICAL NAME	COMMON NAME
15	Agrostis alba	Red Top Grass
12	Elymus virginicus	Virginia Wild Rye
5	Juncus effusus	Soft Rush
5	Impatiens capensis	Spotted Touch Me Not
5	Impatiens pallida	Pale Touch Me Not
5	Bidens frondosa	Beggar Ticks
5	Cyperus strigosus	Umbrella Sedge
5	Verbena hastata	Blue Vervain
5	Helianthus tuberosus	Jerusalem Artichoke
5	Euthamia graminifolia	Grass Leaved Goldenrod
5	Asclepias incarnata	Swamp Milkweed
5	Aster puniceus	Purple Stemmed Aster
5	Eutrochium maculatum	Joe Pye Weed
5	Eupatorium perfoliatum	Boneset
4	Carex vulpinoidea	Fox Sedge
4	Bidens cernua	Nodding Bur Marigold
1	Apocynum cannabinum	Indian Hemp
1	Lycopus americanus	Water Horehound
1	Mimulus ringens	Monkey Flower
1	Carex stipata	Awl Sedge
1	Boehmaria cylindrica	False Nettle

WETLAND SEED MIX		
CONTENT %	BOTANICAL NAME	COMMON NAME
40	Avena sativa	Oats
30	Elymus virginicus	Virginia wild rye
5	Desmodium canadense	Showy ticktrefoil
4	Senna hebecarpa	American senna
3	Bidens cernua	Nodding beggar-ticks
2	Panicum dichotomiflorum	Smooth panicgrass
2	Juncus effusus	Soft rush
2	Poa palustris	Fowl bluegrass
2	Agrostis alba	Redtop
2	Panicum dichotomiflorum	Smooth Panic Grass
2	Bidens frondosa	Devil's beggar-ticks
1	Sparganium americanum	Eastern Bur Reed
1	Carex vulpinoidea	Fox Sedge
1	Leersia oryzoides	Rice Cutgrass
1	Euthamia graminifolia	Grass-leaved goldenrod
1	Solidago rugosa	Wrinkled goldenrod
0.5	Glyceria canadensis	Rattlesnake grass
0.5	Dulichium arundinaceum	Three Way Sedge

UPLAND SEED MIX		
CONTENT %	BOTANICAL NAME	COMMON NAME
35	Avena sativa	Oats
12	Sorghastrum nutans	Indiangrass
12	Elymus virginicus	Virginia wildrye
6	Elymus canadensis	Canada wildrye
6	Schizachyrium scoparium	Little bluestem
4	Aster novae-angliae	New England aster
3	Verbesina alternifolia	Wingstem
3	Panicum virgatum	Switchgrass
2	Mimulus ringens	Monkey flower
2	Senna hebecarpa	American senna
2	Euthamia graminifolia	Grass-leaved goldenrod
2	Poa palustris	Fowl bluegrass
1.5	Tridens flavus	Purpletop
1.5	Agrostis scabra	Ticklegrass
1	Chamaecrista fasciculata	Partridge pea
1	Penstemon digitalis	Tall white beardtongue
1	Helianthus annuus	Annual sunflower
1	Agrostis perennans	Autumn bentgrass
1	Monarda media	Purple bergamot
1	Rudbeckia hirta	Blackeyed Susan
1	Rudbeckia laciniata	Cutleaf coneflower
0.5	Oenothera biennis	Common evening primrose

YOUNG FOREST AND SHRUBLANDS OLD FIELD SEED MIX		
CONTENT %	BOTANICAL NAME	COMMON NAME
32	Oats	Avena sativa
13	Indiangrass	Sorghastrum nutans
9	Switchgrass	Panicum virgatum
8	Canada wildrye	Elymus canadensis
8	Big bluestem	Andropogon gerardii
5	Little bluestem	Schizachyrium scoparium
4	American senna	Senna hebecarpa
4	Autumn bentgrass	Agrostis perennans
4	Blackeyed Susan	Rudbeckia hirta
4	Purple bergamot	Monarda media
3	Grass Leaved goldenrod	Euthamia graminifolia
2	New England aster	Aster novae-angliae
2	Annual sunflower	Helianthus annuus
1	Partridge pea	Chamaecrista fasciculata
1	Maximilan's Susan	Helianthus maximilianii

FLOODPLAIN FOREST SEED MIX		
CONTENT %	BOTANICAL NAME	COMMON NAME
30	Big Bluestem	Andropogon gerardii
20	Switchgrass	Panicum virgatum
10	Virginia Wildrye	Elymus virginicus
10	Purpletop	Tridens flavus
3	Indiangrass	Sorghastrum nutans
5	Partridge Pead	Chamaecrista fasciculata
5	Blackeyed Susan	Rudbeckia hirta
5	Swamp Milkweed	Asclepias incarnata
2	Showy Ticktrefoil	Desmodium canadense
5	Oxeye Sunflower	Heliopsis helianthoides
5	Plains Coreopsis	Coreopsis tinctoria

OWNER / DEVELOPER

6360 South Federal Way
Post Office Box 6
Boise, ID 83716
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P: +1.503.235.5000
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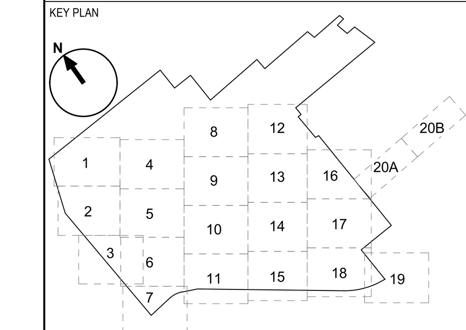
CONTRACTOR

PROJECT ADDRESS

KEY PLAN



REV	DATE	DESCRIPTION	ISSUED BY
B	[illegible]	ISSUE FOR PERMIT	[illegible]
A	[illegible]	ISSUE FOR PERMIT	[illegible]

Revisions

PROJECT TITLE

Yankee

PROJECT PHASE

DRAWING TITLE

PERMIT SCOPE DRAWINGS
ARCHITECTURAL
LANDSCAPE NOTES AND SCHEDULE

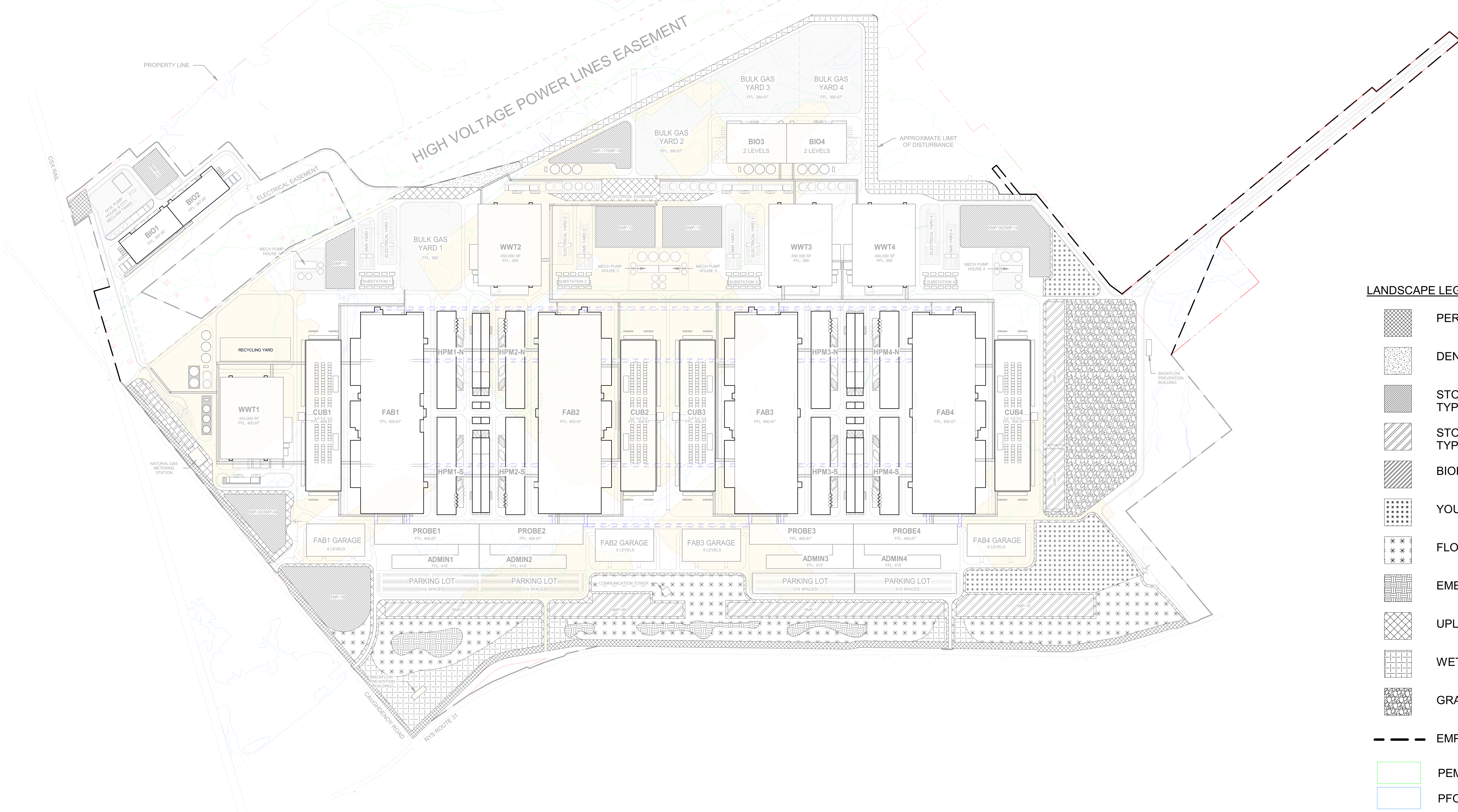
DESIGNED : | DRAWN : | CHECKED :

DATE | JOB NO : | SCALE :

DRAWING NO. PMTA0-0006-1 REV B

PERMIT DRAWINGS
NOT FOR CONSTRUCTION

SHEET: SIZE E0



1 SITE MASTER PLAN - LANDSCAPING
1" = 400'-0"

LANDSCAPE LEGEND

- PERIMETER LANDSCAPE PLANTING
- DENSE SCREENING PLANTING
- STORMWATER MANAGEMENT AREA TYPE A PLANTING
- STORMWATER MANAGEMENT AREA TYPE B PLANTING
- BIORETENTION AREA PLANTING
- YOUNG FOREST PLANTING
- FLOODPLAIN FOREST PLANTING
- EMERGENT WETLAND
- UPLAND SEED MIX
- WET MEADOW SEED MIX
- GRAVEL YARD
- EMPLOYEE WALKING PATHS
- PEM WETLANDS
- PFO WETLANDS
- POW WETLANDS
- PSS WETLANDS
- PUB WETLANDS
- USACE JURISDICTIONAL STREAMS

400 0 400 800 1200
Scale: 1 INCH = 400 FEET

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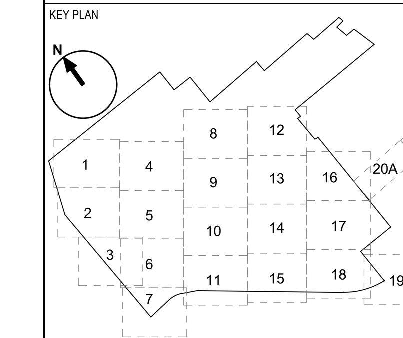
KEY PLAN



REV	DATE	DESCRIPTION	ISSUED BY
C	12/12/24	ISSUE FOR PERMIT	TS
B	10/24/24	ISSUE FOR PERMIT	TS
A	10/11/24	ISSUE FOR PERMIT	TS

Revisions

PROJECT TITLE

Yankee

PROJECT PHASE

DRAWING TITLE

PERMIT SCOPE DRAWINGS
ARCHITECTURAL
LANDSCAPE GENERAL PLAN

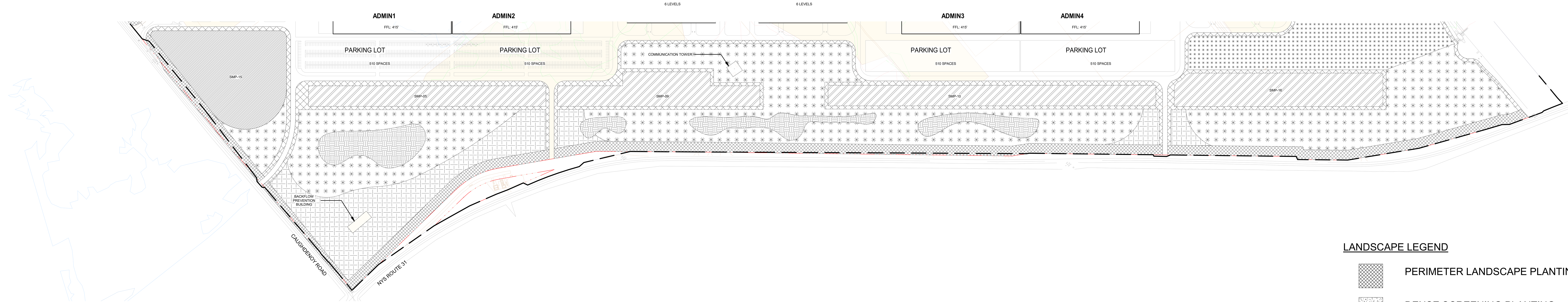
DESIGNED :	DRAWN :	CHECKED :
DATE :	JOB NO. :	SCALE :

DRAWING NO. PMTA0-0006-2 | REV C

PERMIT DRAWINGS
NOT FOR CONSTRUCTION

SHEET:

SIZE E0



FRONT YARD DESIGN

NOT TO SCALE

LANDSCAPE LEGEND

- PERIMETER LANDSCAPE PLANTING
- DENSE SCREENING PLANTING
- STORMWATER MANAGEMENT AREA TYPE A PLANTING
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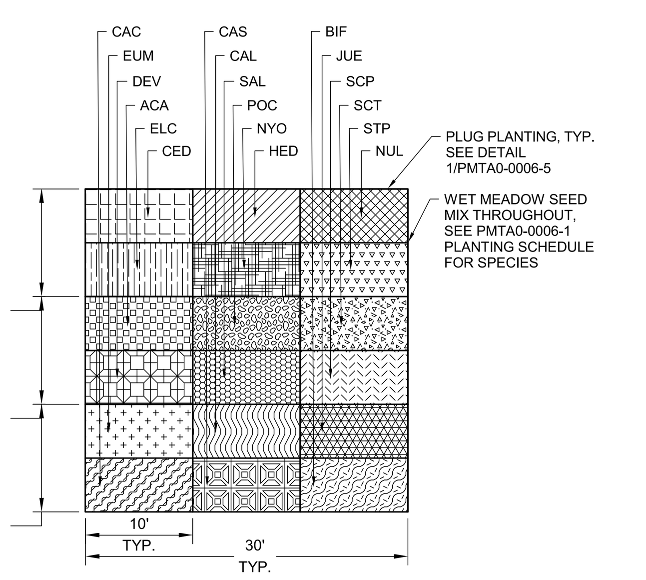
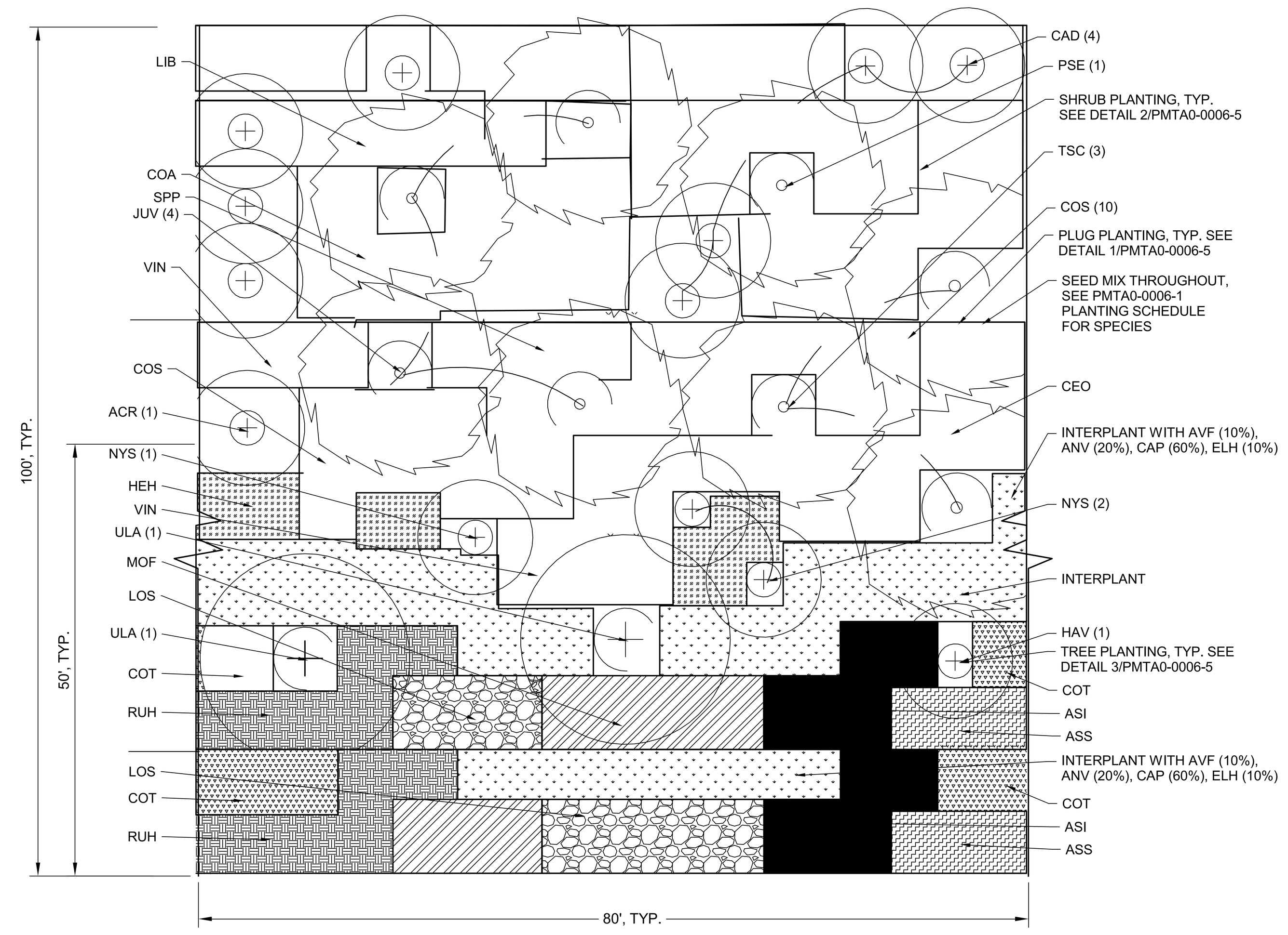
- PEM WETLANDS
- PFO WETLANDS
- POW WETLANDS
- PSS WETLANDS
- PUB WETLANDS
- USACE JURISDICTIONAL STREAMS



NOTES:
1. FOR SPECIES INFORMATION, SEE PLANTING SCHEDULE ON PMTA0-0006-1.
2. FOR TYPICAL SPACING, SEE PLANTING SCHEDULE ON PMTA0-0006-1.
3. FOR PLANTING LOCATION, SEE LANDSCAPE GENERAL PLAN.

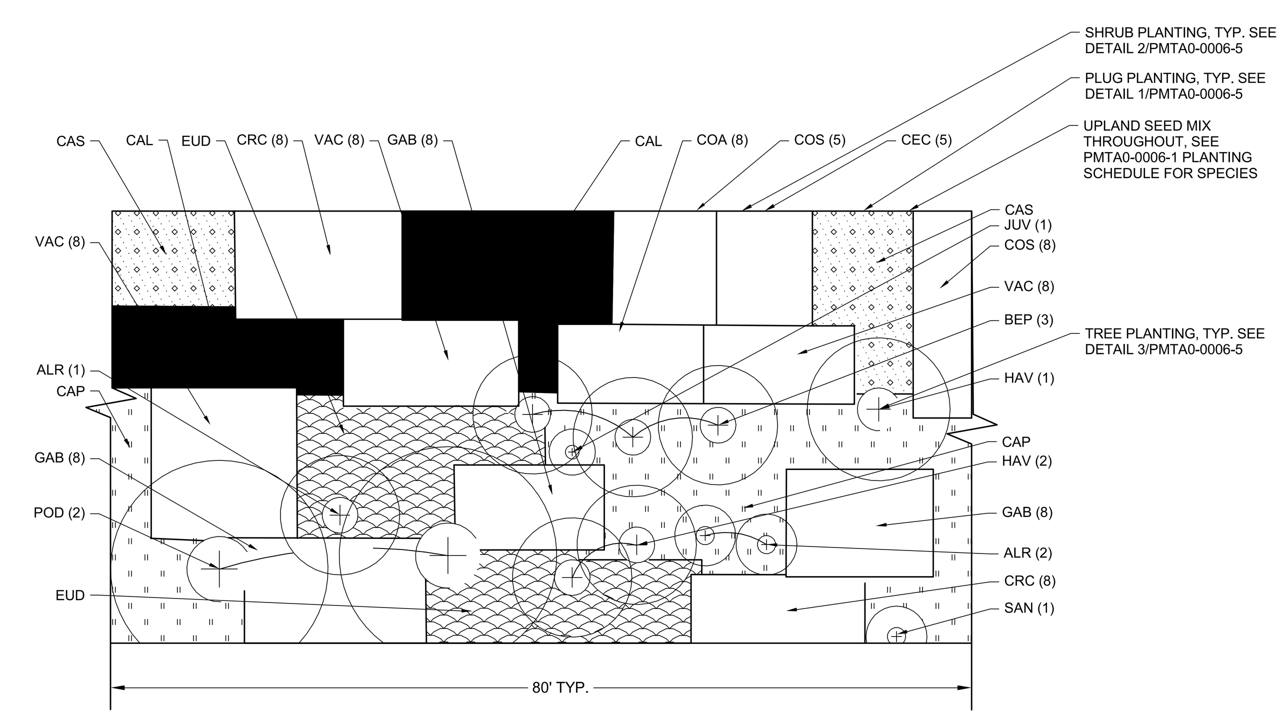
5 BIORETENTION TYP PLANTING LAYOUT

NOT TO SCALE



7 PERIMETER LANDSCAPE TYP PLANTING LAYOUT

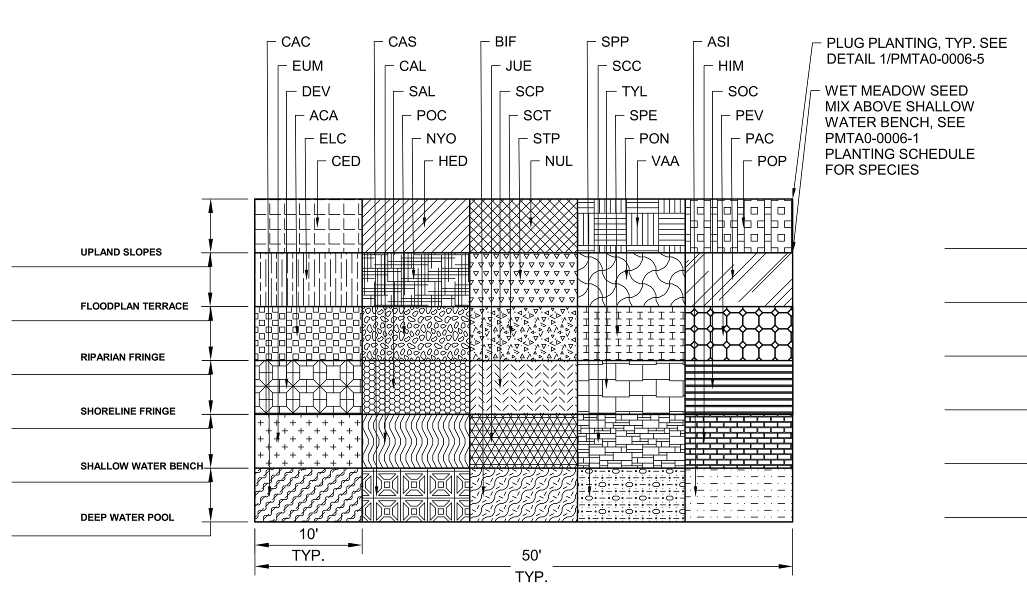
NOT TO SCALE



NOTES:
1. FOR SPECIES INFORMATION, SEE PLANTING SCHEDULE ON PMTA0-0006-1.
2. FOR TYPICAL SPACING, SEE PLANTING SCHEDULE ON PMTA0-0006-1.
3. FOR PLANTING LOCATION, SEE LANDSCAPE GENERAL PLAN.

8 YOUNG FOREST AND SHRUBLANDS TYP PLANTING LAYOUT

NOT TO SCALE



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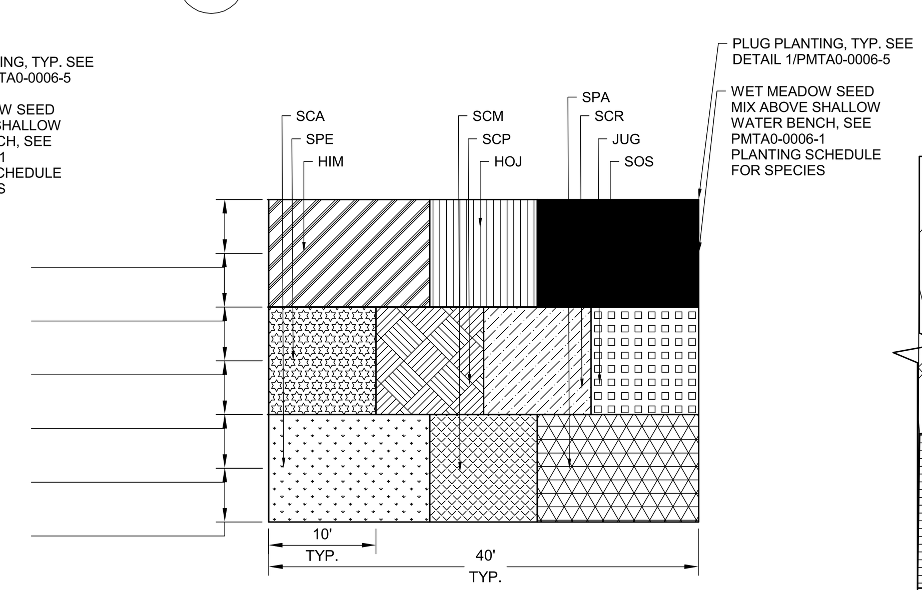
1. FOR SPECIES INFORMATION, SEE PLANTING SCHEDULE ON PMTA0-0006-1.
2. FOR TYPICAL SPACING, SEE PLANTING SCHEDULE ON PMTA0-0006-1.
3. FOR PLANTING LOCATION, SEE LANDSCAPE GENERAL PLAN.

1 STORMWATER MANAGEMENT AREA TYPE A TYP PLANTING LAYOUT

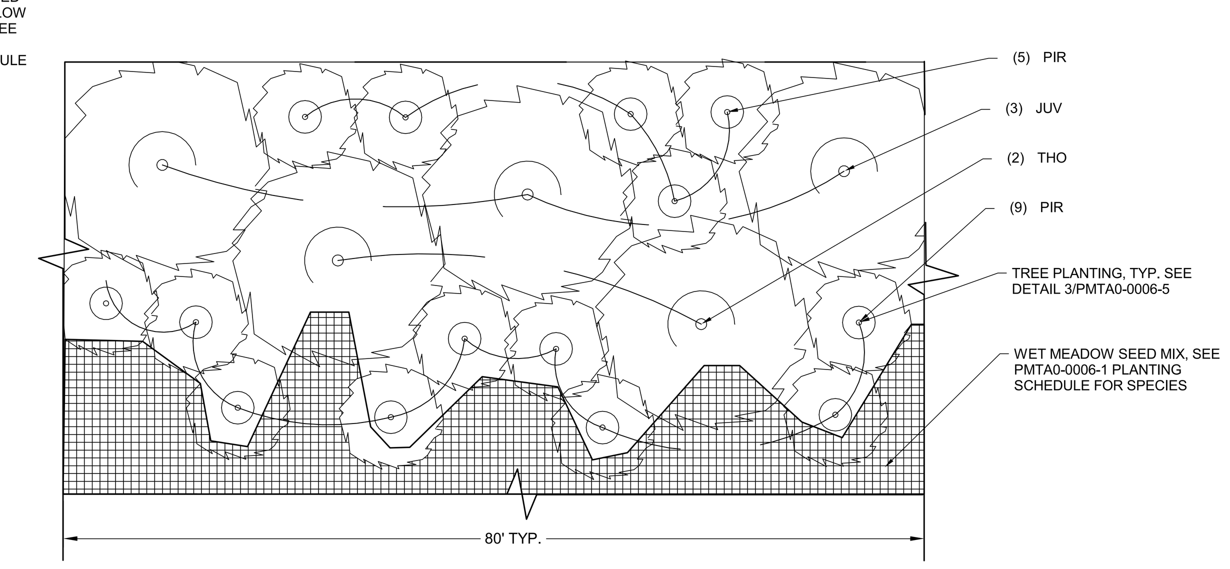
NOT TO SCALE



NOTES:
1. FOR SPECIES INFORMATION, SEE PLANTING SCHEDULE ON PMTA0-0006-1.
2. FOR TYPICAL SPACING, SEE PLANTING SCHEDULE ON PMTA0-0006-1.
3. FOR PLANTING LOCATION, SEE LANDSCAPE GENERAL PLAN.

2 STORMWATER MANAGEMENT AREA TYPE B TYP PLANTING LAYOUT

NOT TO SCALE



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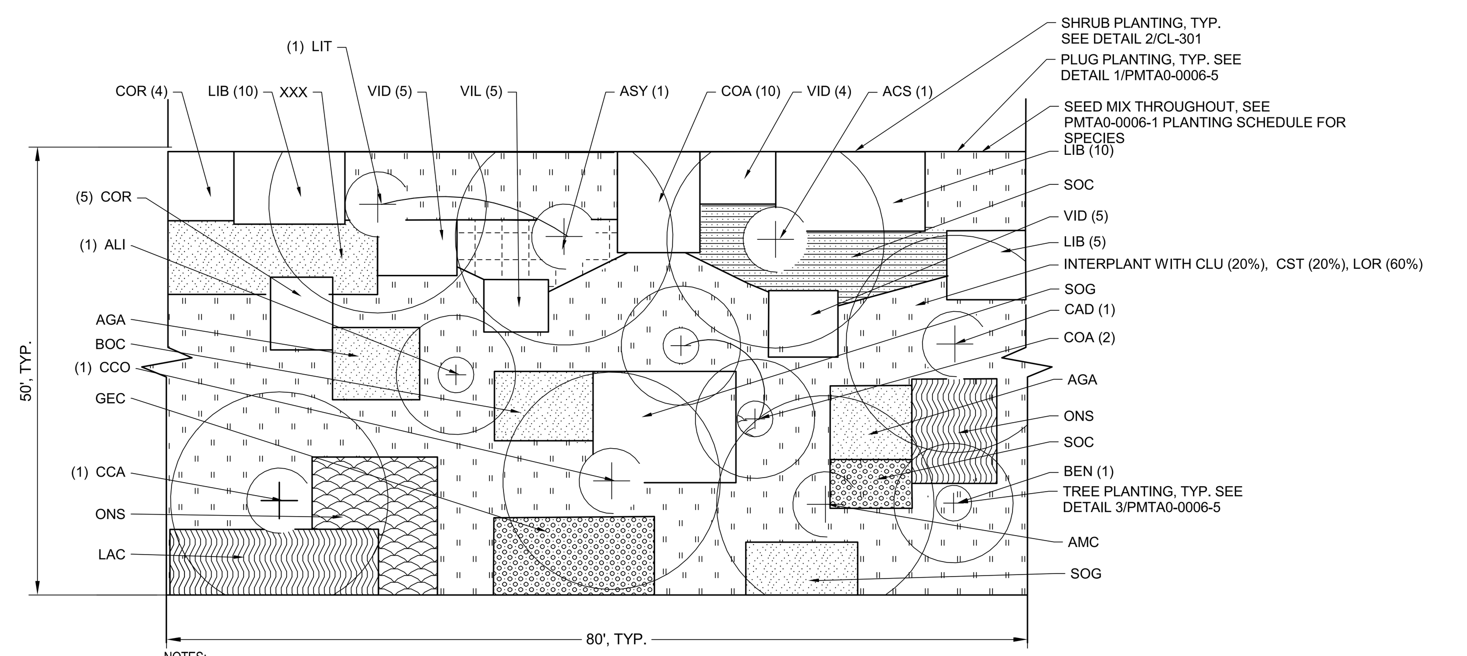
1. FOR SPECIES INFORMATION, SEE PLANTING SCHEDULE ON PMTA0-0006-1.
2. FOR TYPICAL SPACING, SEE PLANTING SCHEDULE ON PMTA0-0006-1
3. FOR PLANTING LOCATION, SEE LANDSCAPE GENERAL PLAN.

3 DENSE SCREENING TYP PLANTING LAYOUT

NOT TO SCALE



NOTES:
1. FOR SPECIES INFORMATION, SEE PLANTING SCHEDULE ON PMTA0-0006-1.
2. FOR TYPICAL SPACING, SEE PLANTING SCHEDULE ON PMTA0-0006-1.
3. FOR PLANTING LOCATION, SEE LANDSCAPE GENERAL PLAN.

4 FLOODPLAIN FOREST TYP PLANTING LAYOUT

NOT TO SCALE

OWNER / DEVELOPER

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www.Micron.com

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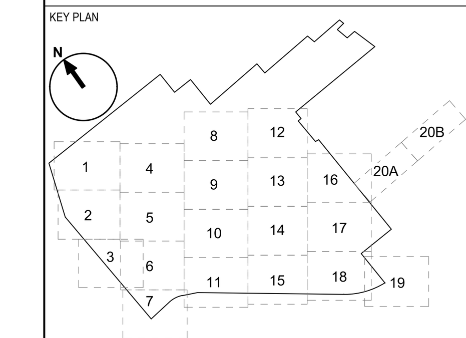
CONTRACTOR

PROJECT ADDRESS

KEY PLAN



REV	DATE	DESCRIPTION	ISSUED BY
B	10/24/24	ISSUE FOR PERMIT	TS
A	10/11/24	ISSUE FOR PERMIT	TS

Revisions

PROJECT TITLE

Yankee

PROJECT PHASE

DRAWING TITLE

PERMIT SCOPE DRAWINGS
ARCHITECTURAL
LANDSCAPE ENLARGEMENT DETAILS

DESIGNED: DRAWN: CHECKED:
DATE: JOB NO: SCALE:

DRAWING NO. PMTA0-0006-3 REV B

PERMIT DRAWINGS
NOT FOR CONSTRUCTION

SHEET: SIZE E0

GENERAL NOTES

1. SITE ADDRESS: 9100 CAUGHDENOY ROAD, CLAY, NY 13039
2. TAX PARCEL NUMBER: 042-01-13.0
3. OWNER: MICRON NY SEMI MFG, LLC
4. OWNER CONTACT: JENNA QUINLAN, JQUINLAN@MICRON.COM, (916) 813-2459
5. BASE MAP FOR SITE PLAN FROM SURVEY PERFORMED BY THEW ASSOCIATES
6. HORIZONTAL DATUM: NAD '83 VERTICAL DATUM: NAVD 88
7. PROJECT INCLUDES:
   a. CHILD CARE CENTER - ALLOWED USE WITH PLANNING BOARD SPECIAL PERMIT APPROVAL
   b. HEALTH CARE CENTER/MEDICAL OFFICE - NOT AN ALLOWED USE UNDER RA-100 ZONING. ZONE CHANGE REQUIRED.
   c. RECREATION CENTER/OUTDOOR RECREATION - ALLOWED USE WITH TOWN BOARD SPECIAL PERMIT APPROVAL
8. PARKING REQUIREMENTS:
   a. CHILD CARE CENTER - 60 SPACES PROVIDED + 20 DROP OFF/PICK UP SPACES
   b. HEALTH CARE CENTER - 6/1,000 SQ. FT. x 10,000 SQ. FT. = 60 SPACES. 60 PROVIDED
   c. RECREATION CENTER - ACTIVE AREA - 10/ACRE x 4.2 ACRES = 42 SPACES. 68 PROVIDED

ZONING BULK REGULATION INFORMATION

SITE ZONING: RA-100 RESIDENTIAL/AGRICULTURAL

DIMENSIONAL REQUIREMENTS	REQUIRED (2)	PROVIDED [1]
MINIMUM LOT SIZE	5 ACRES	31.31 ACRES
MINIMUM LOT WIDTH	125 FEET	1,509 FEET
MINIMUM FRONT YARD SETBACK	100 FEET	100 FEET
MINIMUM SIDE YARD SETBACK	50 FEET	129 FEET
MINIMUM REAR YARD SETBACK	50 FEET	50 FEET
MAXIMUM HEIGHT	50 FEET	LESS THAN 50 FEET

(1) INCLUDES SETBACKS FOR PROPOSED STRUCTURES ONLY.
(2) REQUIRED INFORMATION BASED ON NONRESIDENTIAL USE REQUIREMENTS.

100 0 100 200
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PRELIMINARY NOT FOR CONSTRUCTION
DATE: 07/19/2024

CLIENT
MICRON

NO.	DATE	REVISION	INT.
A	07/19/2024	REVISED PER UPDATED WETLAND DELINEATION	MCP

DESIGNER / PROFESSIONAL ENGINEER RESPONSIBLE
A. PHILLIPS
DESIGNED BY
M. PARRISH
PROJECT NO.
1950100687
CHECKED BY
M. PARRISH
DATE
DRAWN BY
C. ERICKSON

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.
333 W. WASHINGTON ST., SYRACUSE, NY 13202

PROJECT
MICRON CHILD AND HEALTH CARE/RECREATION FACILITY
ADDRESS
9100 CAUGHDENOY ROAD
TOWN OF CLAY, NY 13039

SHEET DESCRIPTION
PRELIMINARY SITE PLAN

C-100

SAVED: 7/19/24 2:10 PM

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DESIGNER / PROFESSIONAL ENGINEER RESPONSIBLE
A. PHILLIPS

DESIGNED BY
M. PARRISH

PROJECT NO.
1950100687

CHECKED BY
M. PARRISH

DATE

DRAWN BY
C. ERICKSON

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.
333 W. WASHINGTON ST., SYRACUSE, NY 13202

RAMBOLL

PROJECT
MICRON CHILD AND HEALTH CARE/RECREATION FACILITY

ADDRESS
9100 CAUGHDENOY ROAD
TOWN OF CLAY, NY 13039

SHEET DESCRIPTION
PRELIMINARY GRADING PLAN

C-101

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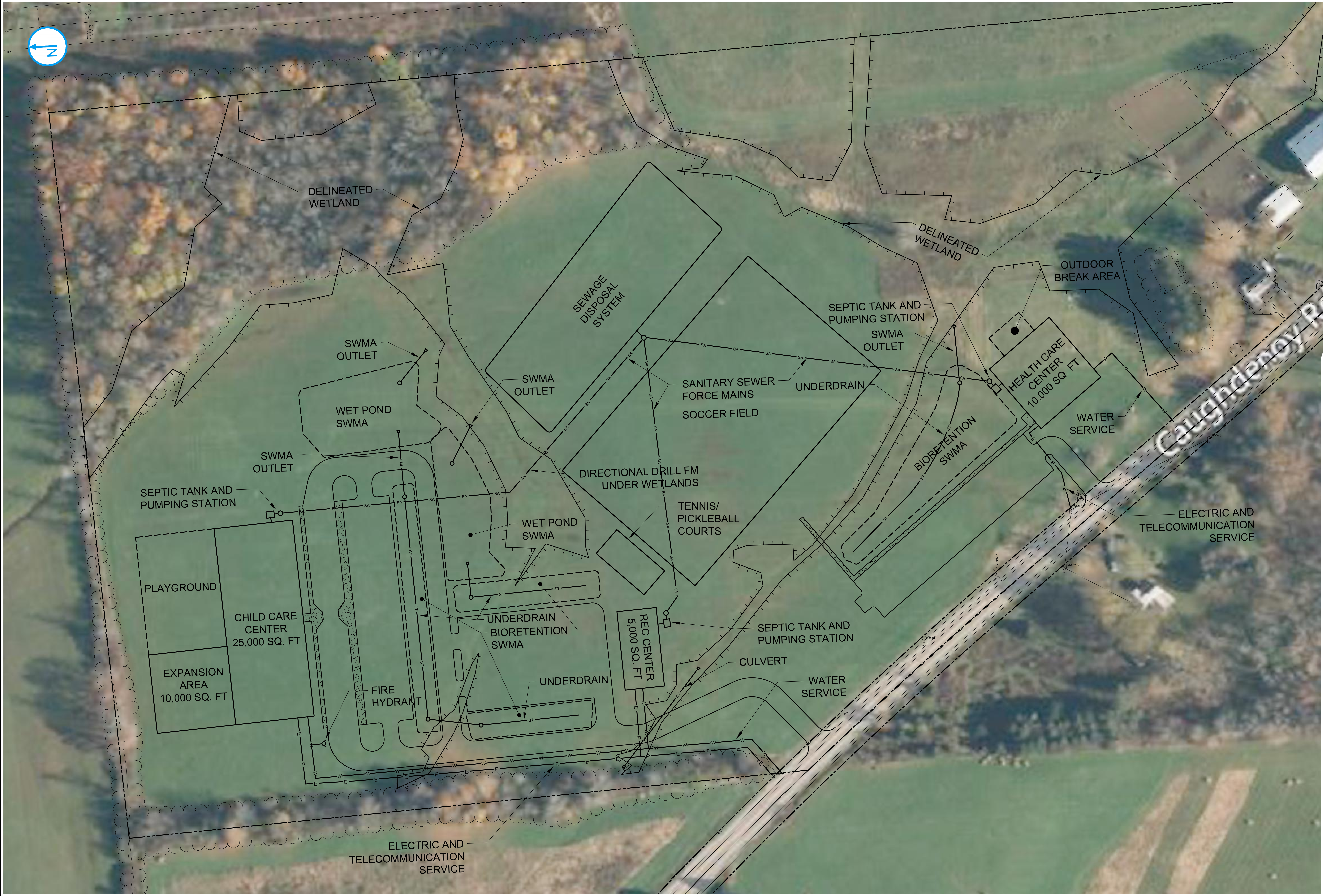

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DESIGNED BY
M. PARRISH
CHECKED BY
M. PARRISH
DRAWN BY
C. ERICKSON
PROJECT NO.
1950100687
DATE

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.
333 W. WASHINGTON ST., SYRACUSE, NY 13202
RAMBOLL

PROJECT
MICRON CHILD AND HEALTH CARE/RECREATION FACILITY
ADDRESS
9100 CAUGHDENOY ROAD
TOWN OF CLAY, NY 13039

SHEET DESCRIPTION
PRELIMINARY UTILITY PLAN

C-102

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TABLE 1: POLLINATOR GARDEN PLANT SCHEDULE

Common name	Latin name	Form
Eastern redbud	*Cercis canadensis*	Tree
White spruce	*Picea glauca*	Tree
Highbush blueberry	*Vaccinium corymbosum*	Shrub
American elderberry	*Sambucus nigra ssp. canadensis*	Shrub
Redosier dogwood	*Cornus sericea*	Shrub
Little bluestem	*Schizachyrium scoparium*	Graminoid
Big bluestem	*Andropogon gerardii*	Graminoid
Switchgrass	*Panicum vigatum*	Graminoid
Lanceleaf coreopsis	*Coreopsis lanceolata*	Forb
Wild bergamot	*Monarda fistulosa*	Forb
Black-eyed susan	*Rudbeckia hirta*	Forb
Purple coneflower	*Echinacea purpurea*	Forb
Butterfly milkweed	*Asclepias tuberosa*	Forb
Tall white beardtongue	*Penstemon digitalis*	Forb
Great blue lobelia	*Lobelia siphilitica*	Forb
New England Aster	*Symphyotrichum novae-angliae*	Forb

TABLE 2: SHADE AND STREET TREE PLANT SCHEDULE

Common name	Latin name	Form
Red maple	*Acer rubrum*	Tree
American linden	*Tilia americana*	Tree
Northern red oak	*Quercis rubra*	Tree

TABLE 3: TREE ISLAND PLANT SCHEDULE

Common name	Latin name	Form
River birch	*Betula nigra*	Tree
Red maple	*Acer rubrum*	Tree
Eastern redbud	*Cercis canadensis*	Tree
Inkberry	*Ilex glabra*	Shrub
Red chokeberry	*Aronia arbutifolia*	Shrub

TABLE 4: STORMWATER MANAGEMENT AREA PLANT SCHEDULE

Common name	Latin name	Form
River birch	*Betula nigra*	Tree (medium)
Shadbush	*Amelanchier canadensis*	Tree (small)
Red maple	*Acer rubra*	Tree (large)
Silver maple	*Acer saccharinum*	Tree (large)
Blackgum	*Nyssa sylvatica*	Tree (large)
Sycamore/London plane	*Platanus occidentalis / Platanus × acerifolia*	Tree (large)
Red chokeberry	*Aronia arbutifolia*	Shrub
Winterberry	*Ilex verticillata*	Shrub
Blackhaw viburnum	*Viburnum prunifolium*	Shrub
Nannyberry	*Viburnum lentago*	Shrub
Redosier dogwood	*Cornus sericea*	Shrub
Bluejoint grass	*Calamagrostis canadensis*	Graminoid
Switchgrass	*Panicum virgatum*	Graminoid
Woolgrass	*Scirpus cyperinus*	Graminoid
Soft rush	*Juncus effusus*	Graminoid
Boneset	*Eupatorium perfoliatum*	Forb
Blue vervain	*Verbena hastata*	Forb
Swamp milkweed	*Asclepias incarnata*	Forb
New England aster	*Aster novae-angliae*	Forb
Ernst Rain Garden Mix (ERNMX-180) or Retention Basin Wildlife Mix (ERNMX-127)		Seed mix

TABLE 5: FOUNDATION PLANTINGS AND PARKLING LOT SCREEN PLANT SCHEDULE

Common name	Latin name	Form
Inkberry	*Ilex glabra*	Shrub
Blackhaw viburnum	*Viburnum prunifolium*	Shrub
Shadbush	*Amelanchier canadensis*	Shrub
Little bluestem	*Schizachyrium scoparium*	Graminoid
Switchgrass	*Panicum vigatum*	Graminoid

GENERAL NOTES

1. EXISTING TREES AND VEGETATION TO REMAIN OUTSIDE LIMITS OF DISTURBANCE.

100 0 100 200
SCALE IN FEET

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PRELIMINARY NOT FOR CONSTRUCTION
DATE: 07/19/2024

CLIENT
MICRON

NO.	DATE	REVISION	INT.
A	07/19/2024	REVISED PER UPDATED WETLAND DELINEATION	MCP

DESIGNER / PROFESSIONAL ENGINEER RESPONSIBLE
A. PHILLIPS
DESIGNED BY
M. PARRISH
CHECKED BY
M. PARRISH
DRAWN BY
C. ERICKSON
PROJECT NO.
1950100687
DATE

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.
333 W. WASHINGTON ST., SYRACUSE, NY 13202
RAMBOLL

PROJECT
MICRON CHILD AND HEALTH CARE/RECREATION FACILITY
ADDRESS
9100 CAUGHDENOY ROAD
TOWN OF CLAY, NY 13039

SHEET DESCRIPTION
PRELIMINARY LANDSCAPING PLAN

C-103

SAVED: 7/19/24 2:10 PM

C:\DCACCDOCS\RAMBOLL GRUPPEN AS\RUS-1950100687 MICRON CLAY NY SEMICONDUCTOR FAB\PROJECT FILES\00_BRIDGE ENGINEERING & CONSULTING\03_DOCUMENTS & WIP\CIVIL\CHILDCARE FACILITY\DRAWINGS\SITE PLAN.DWG

Schedule

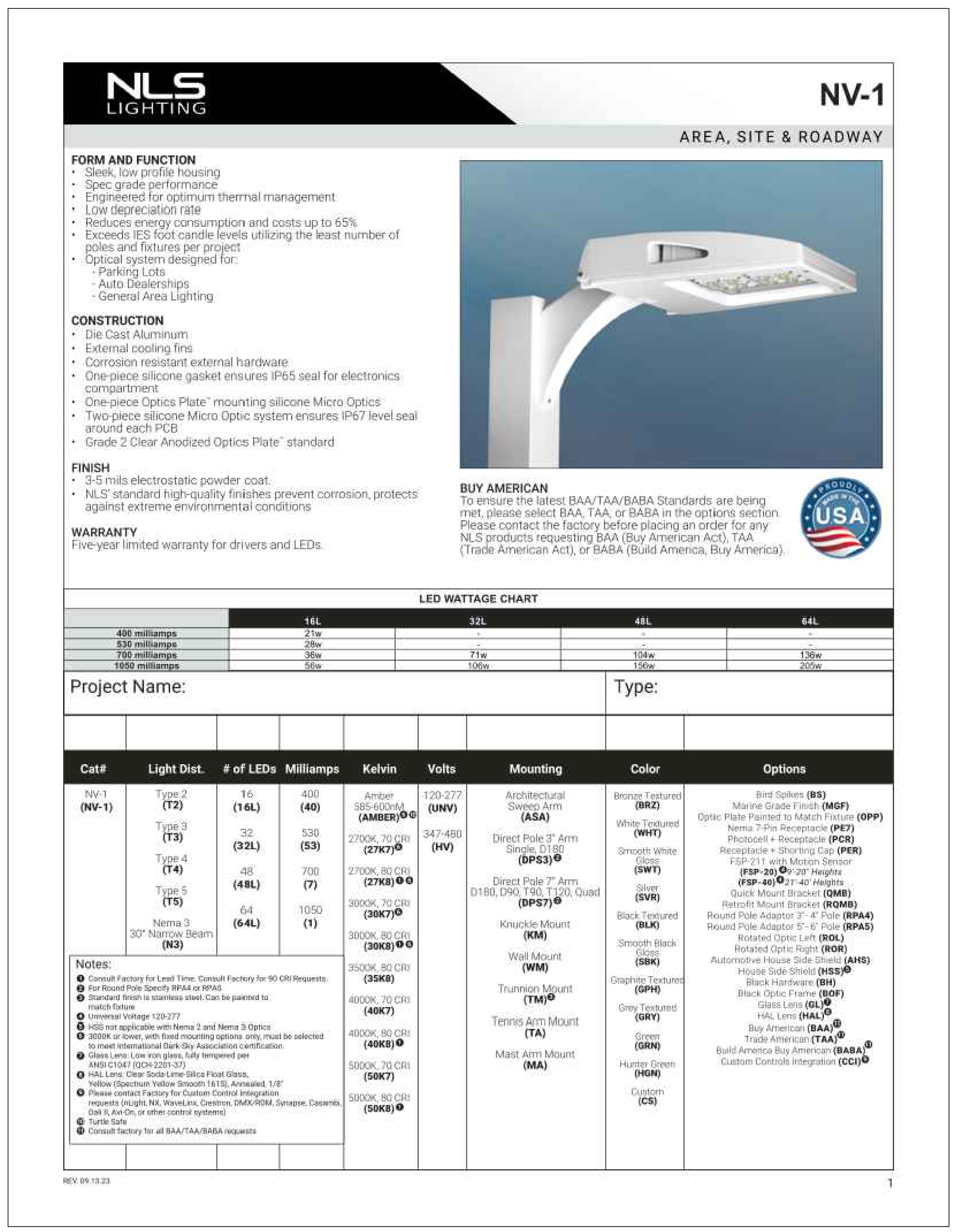
Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Light Loss Factor	Wattage
	SL1	7	NLS Lighing LLC	FIXTURE: NV1 T4 48L 1 40K7 UNV ASA BRZ POLE: SSSP 25 4S 12BC SGL BRZ 136	NV Series Area Lighting Fixture	0.9	156
	SL12	3	NLS Lighing LLC	FIXTURE: NV1 T4 48L 1 40K7 UNV ASA BRZ POLE: SSSP 25 4S 12BC D-180 BRZ 136	NV Series Area Lighting Fixture	0.9	312
	SL2	3	NLS Lighting, LLC	FIXTURE: NV1 T3 48L 1 40K7 UNV ASA BRZ POLE: SSSP 25 4S 12BC SGL BRZ 136	T3 silicone optics	0.9	156
	SL2HS	6	NLS Lighting LLC	FIXTURE: NV1 T3 48L 1 40K7 UNV ASA BRZ HSS POLE: SSSP 25 4S 12BC SGL BRZ 136	NV SERIES WITH T3 OPTICS, BLACK HOUSE SIDE SHIELD	0.9	156

Note

1. FIXTURE TYPES SL1, SL12, SL2 AND SL2HS ARE SHOWN POLE MOUNTED AT 27' ABOVE FINISHED GRADE (25' POLE AND 2' ABOVE GRADE BASE).

Statistics

Description	Symbol	Avg	Max/Min	Avg/Min	Min	Max
DAYCARE PARKING	+	2.0 fc	76.0:1	20.0:1	0.1 fc	7.6 fc
SOCCER FIELD PARKING	+	1.8 fc	7.0:1	3.0:1	0.6 fc	4.2 fc
Calc Zone #3	+	0.0 fc	N/A	N/A	0.0 fc	0.4 fc
Calc Zone #4	+	0.0 fc	N/A	N/A	0.0 fc	1.2 fc
Calc Zone #5	+	0.1 fc	N/A	N/A	0.0 fc	2.4 fc



100 0 100 200
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PROJECT
MICRON CHILD AND HEALTH CARE/RECREATION FACILITY
ADDRESS
9100 CAUGHDENOY ROAD
TOWN OF CLAY, NY 13039

SHEET DESCRIPTION
PRELIMINARY SITE LIGHTING PLAN

C-104

SAVED: 7/19/24 2:10 PM

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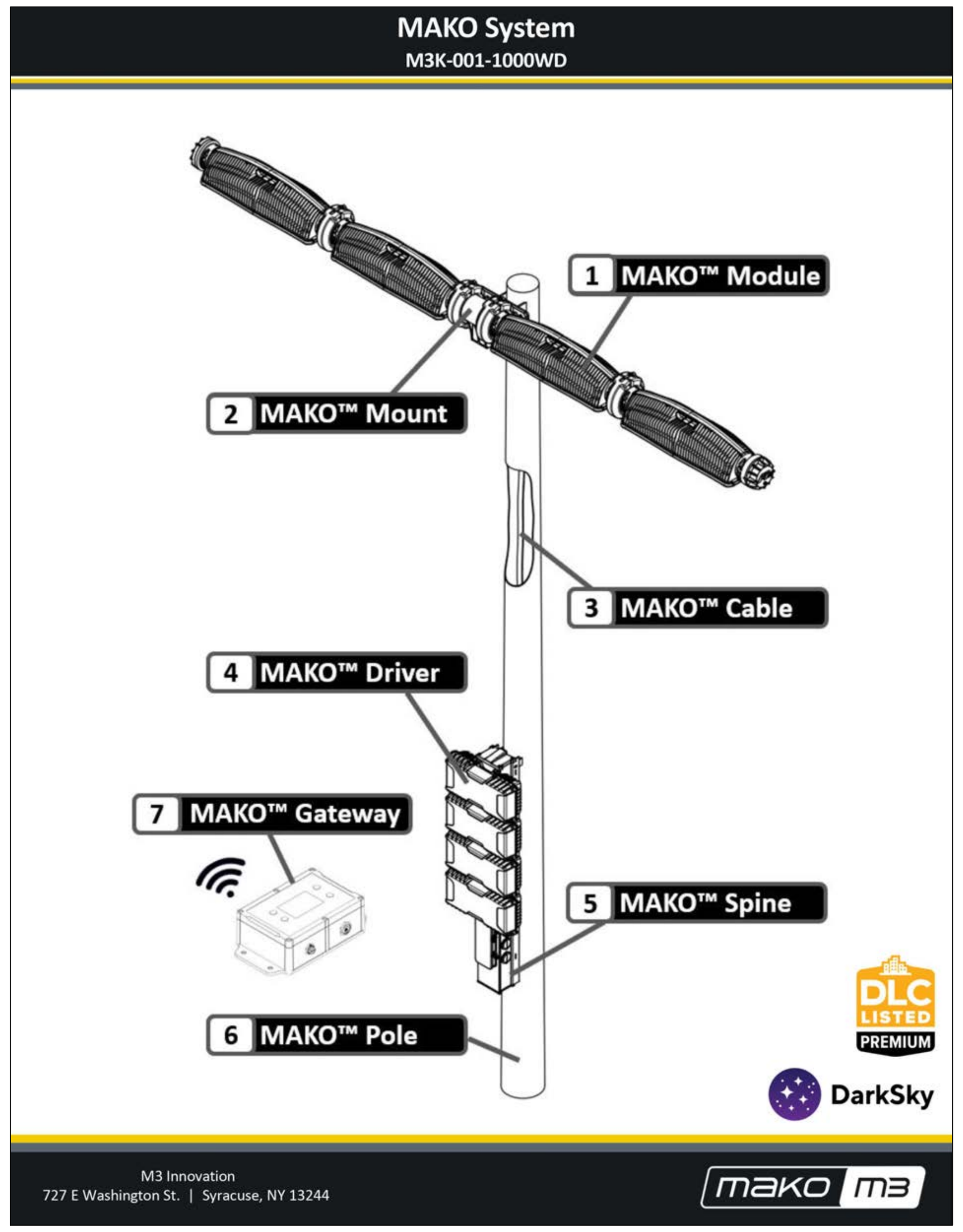

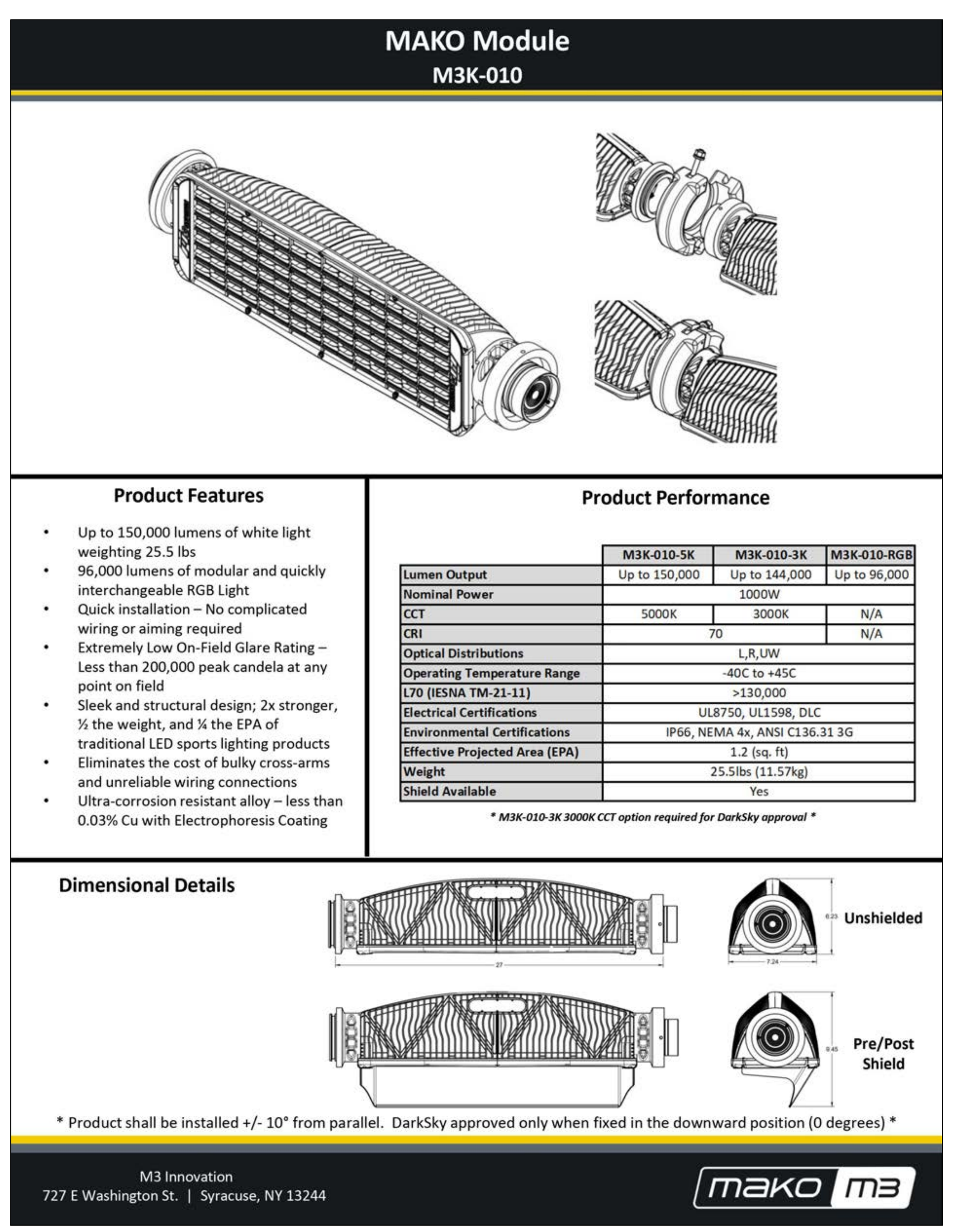

MAKO Module
M3K-010

Product Features

- Up to 150,000 lumens of white light weighting 25.5 lbs
- 96,000 lumens of modular and quickly interchangeable RGB Light
- Quick installation – No complicated wiring or aiming required
- Extremely Low On-Field Glare Rating – Less than 200,000 peak candela at any point on field
- Sleek and structural design; 2x stronger, ½ the weight, and ¼ the EPA of traditional LED sports lighting products
- Eliminates the cost of bulky cross-arms and unreliable wiring connections
- Ultra-corrosion resistant alloy – less than 0.03% Cu with Electrophoresis Coating

Product Performance

	M3K-010-5K	M3K-010-3K	M3K-010-RGB
Lumen Output	Up to 150,000	Up to 144,000	Up to 96,000
Nominal Power	1000W		
CCT	5000K	3000K	N/A
CRI	70		N/A
Optical Distributions	L,R,UW		
Operating Temperature Range	-40C to +45C		
L70 (IESNA TM-21-11)	>130,000		
Electrical Certifications	UL8750, UL1598, DLC		
Environmental Certifications	IP66, NEMA 4x, ANSI C136.31 3G		
Effective Projected Area (EPA)	1.2 (sq. ft)		
Weight	25.5lbs (11.57kg)		
Shield Available	Yes		

** M3K-010-3K 3000K CCT option required for DarkSky approval **

Dimensional Details

Unshielded

Pre/Post Shield

* Product shall be installed +/- 10° from parallel. DarkSky approved only when fixed in the downward position (0 degrees) *

M3 Innovation
727 E Washington St. | Syracuse, NY 13244

mako m3

Calculation Summary						
Label	CalcType	Units	Avg	Max	Min	Max/Min
Entire Area	Illuminance	Fc	1.32	52.2	0.0	N.A.
Property Line	Illuminance	Fc	0.02	0.1	0.0	N.A.
Soccer	Illuminance	Fc	46.05	59	34	1.74
Tennis	Illuminance	Fc	48.13	65	35	1.86

FIXTURE MOUNTING HEIGHT - 80 FEET

100 0 100 200
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SHEET DESCRIPTION
PRELIMINARY SPORTS FACILITIES LIGHTING PLAN

C-105