

FLORISTIC QUALITY ANALYSIS MARQUETTE GREENWAY TRAIL

CALUMET SECTION – LAKE SHORE COUNTY RD TO SR 49

Soil Solutions, Inc.

A Soil and Environmental Consulting Company

360 Indiana Avenue, Suite B
P. O. Box 229
Valparaiso, Indiana 46384



Report Information

Client: Glenn Peterson
SEH of Indiana, LLC
9200 Calumet Avenue, Suite N300
Munster, Indiana 46321

Project Name: Marquette Greenway Trail
Calumet Segment

Project Number: 17-10A(21)W1

SSI Contact: Lydia Miramontes Loyd

Report Date: February 2023

Contents

Report Information	2
Floristic Quality Assessment	4
Marquette Greenway Trail, Calumet Section	4
1.0 Introduction	4
2.0 Methods.....	5
2.1 Floristic Quality Assessment and Coefficient of Conservation	6
2.2 National Wetland Categories	7
2.3 Summary Data	7
3.0 Results.....	9
3.1 Floristic Quality Assessment	9
3.1.1 Dune Forest.....	9
3.1.2 Swamp Forest	12
3.1.3 Wet Prairie	13
3.1.4 Forested Wetland	15
3.1.5 Roadbed	18
3.1.6 Dry Prairie	20
3.2 Threatened and Endangered Species.....	22
3.2.1 Sensitive Plant Species.....	23
3.2.2 Federally Listed Species	24
4.0 Summary and Conclusions	25
4.1 Summary	25
4.2 Conclusions.....	25
5.0 REFERENCES	27
APPENDIX A.....	28
APPENDIX B.....	29
APPENDIX C.....	30

Floristic Quality Assessment

Marquette Greenway Trail, Calumet Section

1.0 Introduction

Soil Solutions, Inc. completed a floristic quality assessment of a 170-acre project area associated with the Marquette Greenway Trail project, Calumet Section (Appendix A, Figures 1 – 2). Porter County plans to develop about 6.8 miles of trail that will run between the Dune Park Train Station on State Road 149 and Lake Shore County Road along the NIPSCO/Calumet Trail corridor. A 200 to 300-foot corridor was assessed around the planned trail route. This area included the Great Marsh interdunal wetland complex and the Glenwood – Calumet Dunes Forest system just to the south. Within the Glenwood – Calumet Dunes are interdunal wetlands, depressional forested wetlands, and a mesic/floodplain forest complex along Dunes Creek/Munson Ditch. The project area has been divided into seven sections (Appendix A, Figure 3.0).

The west end of the project area is the most disturbed. This area is found between State Road 49 to Hadenfelt Road (Sections 1 – 3; Appendix A, Figure 3.0). This area has been impacted in the past with either residential development or possibly agricultural use. It was clear that some of the area had either been farmed or clearcut. Much of the dune forest in this area is heavily degraded. A tributary of Dunes Creek, Munson Ditch (Stream 3) runs through this area (Section 3). The creek meanders through a stream valley with diverse species along the floodplain and adjacent seeps. This area though diverse, is also threatened by invasive species (Japanese barberry, *Berberis thunbergii*). Overall, the west end of the project area is the most disturbed.

The central portion of the project area, between Highway 12 and Furnessville Road (Sections 4 and 5; Appendix A, Figure 3.0), encompasses dune forest along the Calumet Dunes as well as the interdunal wetland system to the south. Portions of this dune forest community were developed with roads and houses which fragmented the landscape. The areas around the USGS office on Kemil Road and east towards Oakwood Street (Section 6) have extensive areas dominated by invasive shrubs such as burning bush (*Euonymus alatus*). The portions of dune forest outside of the areas that were formerly residential development are still high quality with a largely open understory. Many locations of sensitive species have been identified within this portion of the project area.

The eastern end of the project area and trail route runs through the Great Marsh wetland complex from Lake Shore County Road to Kemil Road (Section 7; Appendix A, Figure 3.0). An extensive network of roads was developed and abandoned within the marsh over the past 100 years. The east end of the project area largely runs along these old roadbeds or within the existing NIPSCO utility corridor. Where the roadbeds run through forested wetland (hydromesophytic swamp forest), the adjacent wetlands are high quality with limited invasive species. However, the roadbeds within the wetlands are overgrown with a mixture of native and non-native shrubs. Where the roadbeds run through upland forest, the

roadbeds and adjacent dune forest are dominated by Asian bittersweet (*Celastrus orbiculatus*) and non-native shrubs such as autumn olive (*Elaeagnus umbellata*) or multiflora rose (*Rosa multiflora*).

This floristic quality assessment includes vegetation surveys for the hydromesophytic swamp forest, wet prairie and old field/dry prairie along the Calumet Trail, dune forest, forested wetland, and roadbeds. The hydromesophytic swamp forest is only found at the east end of the project area in Beverly Shores. Within the project area, the wet prairie community is only found along the Calumet Trail. Dry prairie/old field includes dry prairie along the trail as well as small prairie openings within dune forest or areas that are open because of past development. Dune forest includes all upland forest within the project area. Forested wetland includes the interdunal wetlands south of the Calumet Dunes, forested wetland seeps adjacent to Munson Ditch, and forested wetland found along narrow drainage ways. The final community type is roadbed which includes the filled roadbeds within the Great Marsh wetland system as well as roadbeds that were developed and abandoned throughout the rest of the project area. Areas with grass lawn are mapped in the plant community maps but these areas were not surveyed.

Maps with locations of sensitive species found within the project area have been shared with Indiana Dunes National Park Resource Management staff. Details on species found are included in Section 3.2 below but mapped locations are not included in this report.

2.0 Methods

The project area is 170 acres in size but only about 157 acres was vegetated and surveyed (Appendix A). Areas developed with roadways, buildings, and adjacent lawns were not included. Six community types were identified on site. Dune forest makes up the largest percentage of the project area at 60%. Hydromesophytic swamp forest encompasses 20%, wet prairie is 7%, vegetated roadbeds are 6%, forested wetland is 4%, and dry prairie makes up the remaining 2% of the project area. Communities were surveyed using a meander survey within each community type during visits from May through October 2022. Photos were taken of each community type and are included in this report. The community types are mapped in Appendix A. The Floristic Quality Index (FQI) was calculated for each community type using the U.S. Army Corps of Engineers – Chicago Districts’ FQA Calculator (November 2017; Appendix B).

A review of the Indiana Department of Natural Resources, Natural Heritage Database identified a long list of species found within a half mile of the project area (Appendix C). The list includes amphibians, arachnids, birds, insects, mammals, reptiles, plants, and natural communities. Soil Solutions, Inc. met with U.S. Geological Survey (USGS) and National Park Service (NPS) staff to review known threatened, endangered, and sensitive plant species locations near the project area. These combined lists were used to survey for threatened and endangered plant species within the project area.

2.1 Floristic Quality Assessment and Coefficient of Conservation

The Floristic Quality Assessment includes data on the coefficient of conservation (C value) for each plant species. The C value is an integral value from 0 to 10 that was initially developed by Floyd Swink and Gerould Wilhelm in the 4th edition of *Plants of the Chicago Region*, 1996. The C value is based on the fact that remnant natural plant communities (prairie, savanna, forest, etc.) tend to be inhabited by groups of species faithful to those specific community types. Plants have varying degrees of fidelity to specific community types and varying tolerances to habitat disturbance. The floristic quality of an area is reflected by the inhabitation of higher quality (higher value) plant species. Plants and animals live in places where they have adapted or evolved to grow. If the habitat changes the groups of plants and animals living there will change as well.

The C value is a number assigned to indicate how certain one can be that a specific plant species was found in a remnant natural plant community. Plants that have a higher fidelity to a certain community type are assigned a higher value on a scale of 1 to 10. For example, flowering dogwood (*Cornus florida*) is assigned a C value of 8. It is a characteristic species of mesic forests. If flowering dogwood is observed in a forest, one can be reasonably sure that the forest is part of a remnant natural community. If this species is observed with a variety of other high C value species, it indicates that this area has had limited disturbance since European settlement. On the other hand, a species like poison ivy (*Rhus radicans*) has a C value of 2. This species can tolerate disturbance and grows in a variety of community types. If this species was observed growing in a forest community with a variety of other low C value species, it would indicate that the forest had a significant amount of disturbance from events such as clear cutting, cattle grazing, land clearing and subsequent re-growth, etc. Non-native plants are assigned a C value of 0 because they did not evolve in a native landscape. Weedy, ruderal species are assigned C values at the lowest end of the scale; species that would grow in a sidewalk crack, an industrial site, or along the edge of a highway would have a C value of 0 or 1. A middle value of 5 would be applied to species that are generally found in high quality areas but can tolerate higher levels of disturbance than some of the higher quality species.

Assignment of C values allows for the use of the Floristic Quality Index (FQI), a tool to assess the quality of natural or remnant plant communities. The FQI allows for a comparison between plant communities, between sites, or at an individual site over time. The FQI is a single number that can be used to compare floristic quality and is calculated by multiplying the mean C value (C) by the square root of the total number (N) of species observed: $FQI = C\sqrt{N}$. According to *Plants of the Chicago Region*:

“Generally, if the C value for the site is 3.5 or higher or has an I value of 35 or more, one can be fairly confident that the site has sufficient floristic quality to be at least of marginal natural area quality. If the C value is 4.5 or higher, or has an I value of 45 or more, then it is almost certain that the remnant has natural area potential.”

2.2 National Wetland Categories

The U.S. Fish and Wildlife Service has assigned national wetland categories to each plant species. Plants are designated as obligate wetland, facultative wetland, facultative, facultative upland, or upland. The wetland category indicates the percent probability of the species occurrence in wetlands as follows:

- OBL – Obligate Wetland, occurs with an estimated 99 percent probability of occurrence in wetlands
- FACW - Facultative Wetland, estimated 67 to 99 percent probability of occurrence in wetlands
- FAC – Facultative equally likely to occur in wetlands and non-wetlands (34 to 66 percent probability)
- FACU – Facultative Upland, 67 to 99 percent probability in non-wetlands, 1 to 33 percent in wetlands
- UPL – Obligate upland, greater than 99 percent probability in non-wetlands in this region.

For purposes of calculating an average wetness value, a numerical value is assigned for each wetland category ranging from -2 for obligate wetland species to +2 for upland species. This number is represented as W in the data tables below. Plant communities with an average wetland value in the FAC, FACW, to OBL (0 to -2) range would likely be classified as wetland.

2.3 Summary Data

Each plant community type is summarized in the Results section below. All of the species observed in each plant community are listed Appendix B. The data for each community also includes summary data on the floristic quality measures as calculated by the Chicago District's USACE Chicago Region Floristic Quality Assessment Calculator (version 11 – November 17, 2017). The table below defines each measure.

TABLE 1. FLORISTIC QUALITY SUMMARY DATA

FLORISTIC QUALITY DATA	DEFINITION
Native species	Total number of native species observed
Total Species	Total number of plant species observed
% Native	The percent of native species observed out of the total number of species observed
Mean C (native species)	The mean coefficient of conservatism(C) value for the plant community. This number is calculated without including the non-native (adventive) species observed.
Mean C (all species)	The mean coefficient of conservatism(C) value for the plant community. This number is calculated with all of the non-native (adventive) species included.
FQAI (native species)	The FQI value calculated using only the native species observed.
FQAI (all species)	The FQI value calculated using all the species observed.
Species Richness (all)	Total number of species observed.

FLORISTIC QUALITY DATA	DEFINITION
Species Richness (native)	Total number of native species observed.
% Non-native	Percent of non-native species observed.
Wet Indicator (native)	The mean wetness value of the community. Calculated excluding all non-native (adventive) species.
Wet Indicator (all)	The mean wetness value of the community. Calculated including all species.

3.0 Results

3.1 Floristic Quality Assessment

3.1.1 Dune Forest

The Dune Forest community type makes up the majority of the project area (60% of the total). This community type includes intact dune woodland forest dominated by oak (*Quercus*) species with a native understory, disturbed upland forest with a canopy of native tree species but a disturbed understory, as well as upland forest that has little native integrity left and is almost completely dominated by non-native species. This community type is primarily found south of U.S. Highway 12 within the Calumet Dune/Glenwood Dune system (Appendix A, Figures 3.1 – 3.4). Each of the plant communities was assigned a quality value of either high, moderate, or low quality (Appendix A, Figures 4.1 – 4.4).

Dune forest with an intact canopy of oaks with a diverse native understory with limited invasive species was categorized as high quality (Photo 1 below). High quality dune forest had a canopy of oaks (*Quercus* spp.), hickory (*Carya ovata*), sassafras (*Sassafras albidum*), and red maple (*Acer rubrum*) with a variety of small trees and shrubs in the understory including American witch-hazel (*Hamamelis virginiana*), Maplewood viburnum (*Viburnum acerifolium*), and blueberry (*Vaccinium* spp.).

Dune forest with an intact canopy and understory but with moderate levels of invasive species was considered moderate quality (Photo 2). This forest had similar diversity of species but the understory had invasive species such as Asian bittersweet (*Celastrus orbiculatus*), burning bush (*Euonymus alatus*), or multiflora rose (*Rosa multiflora*). Native understory trees, shrubs, as well as native herbaceous species are still present in these areas.

Dune forest that was dominated by non-native or ruderal species (Photo 3) or areas that had intact canopy but an understory that was dominated by non-native species (Photo 4) were categorized as low quality. These areas had been significantly disturbed in the past. Some of the low quality dune forest areas had a forest canopy dominated by black locust (*Robinia pseudoacacia*) with a groundcover of common periwinkle (*Vinca minor*) or climbing euonymus (*Euonymus hederaceus*). Other areas of low quality dune forest still had some canopy of native trees such as red oak (*Quercus rubra*) and black cherry (*Prunus serotina*) but had an understory dominated by invasive shrubs or vines such as burning bush or Asian bittersweet.



Photo 1. Representative view of high quality dune forest with an intact understory and limited invasive species (facing W; October 14, 2022).



Photo 2. Moderate quality dune forest along Furnessville Road (facing N; June 1, 2022).



Photo 3. Low quality dune forest in an area that had been cleared in the past. Black locust and invasive ground cover species dominate here (facing N; October 20, 2022).



Photo 4. Low quality dune forest in an area where the understory is dominated by a thicket of burning bush (facing S; October 14, 2022).

3.1.2 Swamp Forest

The Swamp Forest community type makes up the next largest percentage of the project area (20%). Swamp Forest is found north of U.S. Highway 12 (Appendix A, Figures 3.5 – 3.7). This community type includes the hydromesophytic swamp forest within the Great Marsh wetland complex. This diverse community type is almost all considered high quality within the project area (Photo 1 below). Within the high quality swamp forest, the canopy included species such as pin oak (*Quercus palustris*), black tupelo (*Nyssa sylvatica*), and red maple (*Acer rubrum*). Common understory shrubs included spice bush (*Lindera benzoin*) and winterberry holly (*Ilex verticillata*). A small amount of Swamp Forest near the Beverly Shores town buildings is degraded with an understory of reed canary grass (*Phalaris arundinacea*) (Photo 2). The floristic quality data for this community type is included in Appendix B. Representative photos of the swamp forest community type are below.



Photo 5. Representative view of high quality Swamp Forest with an understory of lizard tail (*Saururus cernuus*), royal fern (*Osmunda spectabilis*), sedges (*Carex* spp.) and rushes (*Juncus* spp.) (facing W; June 17, 2022).



Photo 6. Low quality swamp forest adjacent to Service Avenue and near the Beverly Shores town buildings. Here the understory was dominated by reed canary grass (*Phalaris arundinacea*) with a canopy of green ash (*Fraxinus pennsylvanica*) (facing N; June 2, 2022).

3.1.3 Wet Prairie

The Wet Prairie community type cover about 7% of the project area and includes wet-mesic prairie. This community type is found exclusively along the existing Calumet Trail and south of the hydromesophytic swamp forest (Appendix A, Figures 3.5 – 3.7). This is a diverse community type but much of it within the project area is degraded. It is adjacent to the Calumet Trail on land owned by NIPSCO. Installation of a utility line within the past five years disturbed portions of the project area. Wet prairie was assigned a quality value of either high, moderate, or low quality (Appendix A, Figures 4.5 – 4.7). Wet prairie with a diversity of herbaceous species but with moderate levels of invasive species is considered moderate quality (Photo 6).

Moderate quality wet prairie was dominated by a variety of species in the Asteraceae including parasol white-top (*Doellingeria umbellata*), flat-top goldentop (*Euthamia graminifolia*), spotted trumpetweed (*Eupatorium maculatum*), sunflowers (*Helianthus* spp.), goldenrods (*Solidago* spp.), and asters (*Symphyotrichum* spp.). Other dominant species included rushes (*Juncus* spp.), sedges (*Carex* spp.), and

the invasive species purple loosestrife (*Lythrum salicaria*), common reed (*Phragmites australis* ssp. *australis*), and cattail (*Typha x glauca*).

Wet prairie that was dominated by non-native/invasive species was categorized as low quality (Photo 7). The floristic quality data for this community type is included in Appendix B. These areas were dominated by either cattail, common reed, purple loosestrife, or a combination thereof.



Photo 7. Representative view of moderate quality wet prairie along the Calumet Trail (facing NW; October 4, 2022).



Photo 8. Low quality wet prairie along the Calumet Trail is dominated by either cattail (*Typha x glauca*) or common reed (*Phragmites australis*) (facing N; June 2, 2022).

3.1.4 Forested Wetland

The Forested Wetland community type covers about 4% of the project area. This includes small areas of forested wetland located in depressional areas between dunes, forested wetlands along streams and drainage ways and forested seeps along the base of hill slopes (Appendix A, Figures 3.1 – 3.4). Most of the forested wetland on site was moderate quality. The most degraded forested wetland was in Section 1 at the far west end of the project area near State Road 49. This community type was assigned a quality value of either high, moderate, or low quality (Appendix A, Figures 4.1 – 4.4).

Forested Wetland with a diversity of species and limited cover of invasive species was considered high quality (Photo 8). This community type was dominated by red maple, button bush (*Cephalanthus occidentalis*), sedges, and rushes and ferns such as cinnamon fern (*Osmunda cinnamomeum*) and royal fern (*Osmunda spectabilis*).

Areas with limited herbaceous diversity or moderate invasive species cover were considered moderate quality (Photo 9). Moderate quality forested wetland included similar species but with less diversity,

cover, or with moderate levels of invasive species present.

Forested Wetland that was dominated by non-native species was categorized as low quality (Photo 10). This forested wetland (see Section 1; Figure 4.1, Appendix A) was dominated by invasive species in the understory with limited floristic diversity. Floristic quality data for the forested wetland community type is included in Appendix B. Representative photos of each are below.



Photo 9. Representative view of high-quality forested wetland within an interdunal wetland system south of the Calumet Dunes and north of Furnessville Road (facing SW; May 4, 2022).



Photo 10. Moderate quality forested wetland in a depression between Highway 12 and the Calumet Dune system (facing W; June 3, 2022).



Photo 11. Low quality forested wetland along an ephemeral stream channel near SR 49. The understory was dominated by reed canary grass (*Phalaris arundinacea*) (facing W; June 3, 2022).

3.1.5 Roadbed

The Roadbed community type includes vegetated and abandoned road beds within the project area. The community makes up about 6% of the project area. This includes Wendell Street, Manning Avenue, Service Avenue, and Mertz Avenue in Beverly Shores and Teale Drive between the Tremont and Furnessville areas. (Appendix A, Figures 3.3 – 3.7). The roadbeds within Beverly Shores have a sandy/gravel/slag surface and have some native vegetation mixed with invasive/non-native species. Teale Drive has a more solid, compacted gravel surface and so is more sparsely vegetated with non-native and weedy species. This community type is considered low quality throughout the project area aside from a small section of moderate quality roadbed along Wendell Street in Beverly Shores (Appendix A, Figures 4.0 – 4.7). Photos along different sections of roadbed are included below. The floristic quality data for this community type is included in Appendix B.



Photo 12. Representative view of moderate quality roadbed running through hydromesophytic swamp forest in Beverly Shores along Wendell Street. Vegetation in this area included a mixture of native species as well as non-natives. Spice bush (*Lindera benzoin*) was a dominant shrub in this section of roadbed along with multiflora rose (*Rosa multiflora*), and autumn olive (*Elaeagnus umbellata*) (facing E; October 5, 2022).



Photo 13. A short section of paved roadway within Beverly Shores and the trail route (Manning Avenue) (facing N; October 5, 2022).

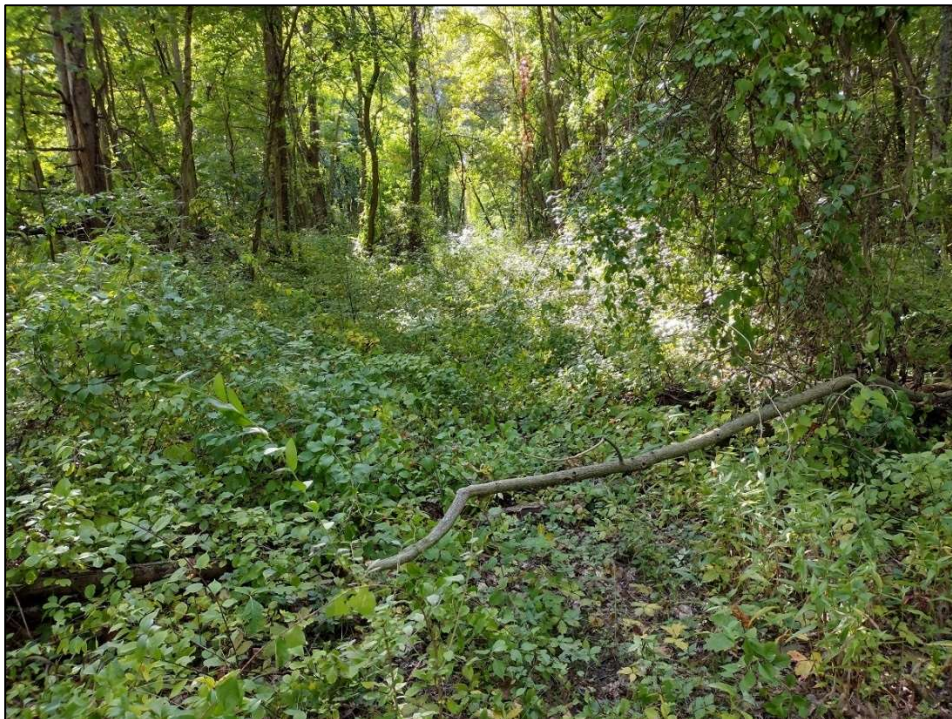


Photo 14. Representative view of low-quality roadbed community type on Service Avenue in Beverly Shores. The adjacent community is dune forest, and the roadbed and adjacent upland forest is dominated by Asian bittersweet (*Celastrus orbiculatus*) (October 5, 2022).



Photo 15. A representative view of low-quality roadbed community type along Teale Drive (facing SE; October 14, 2022).

3.1.6 Dry Prairie

The Dry Prairie community type covers about 2% of the project area. This community type is found along the Calumet Trail and in open clearings or old homesite areas within dune forest (Appendix A, Figures 3.1 – 3.7). This community type has only moderate diversity as much of this dry community is dominated by Asian bittersweet (*Celastrus orbiculatus*). Dry prairie was assigned a quality value of either moderate or low quality (Appendix A, Figures 4.0 – 4.7). Dry prairie that was not dominated by invasive species is considered moderate quality (Photo 15). Dry prairie that was dominated by non-native/invasive species was categorized as low quality (Photo 16). The floristic quality data for this community type is included in Appendix B. Representative photos of each are below.



Photo 16. Representative view of moderate quality dry prairie along the Calumet Trail (facing SW; October 5, 2022).



Photo 17. Low quality dry prairie in a former homesite along Hadenfelt Road (facing S; October 20, 2022).

3.2 Threatened and Endangered Species

An Indiana DNR Natural Heritage Database review request returned a list of 62 Endangered, Threatened, and Rare (ETR) plants documented within 0.5 miles of the project area. Plants on this list are identified in Table 2 below and in Appendix C.

TABLE 2. ETR SPECIES DOCUMENTED WITHIN 0.5 MILES OF THE PROJECT AREA.

Scientific Name	Common Name	State Listing
<i>Aralia hispida</i>	bristly sarsaparilla	SE
<i>Carex atherodes</i>	awned sedge	SE
<i>Carex leptoneuria</i>	finely-nerved sedge	SE
<i>Cornus rugosa</i>	roundleaf dogwood	SE
<i>Dryopteris clintoniana</i>	Clinton's woodfern	SE
<i>Juncus pelocarpus</i>	brown-fruited rush	SE
<i>Lathyrus japonicus</i>	beach peavine	SE
<i>Lathyrus ochroleucus</i>	pale vetchling peavine	SE
<i>Lycopodiella inundata</i>	northern bog clubmoss	SE
<i>Lycopodiella subappressa</i>	northern appressed bog clubmoss	SE
<i>Orobanche fasciculata</i>	clustered broomrape	SE
<i>Piptatheropsis pungens</i>	slender mountain-ricegrass	SE
<i>Polygala paucifolia</i>	gay-wing milkwort	SE
<i>Populus balsamifera</i>	balsam poplar	SE
<i>Schoenoplectiella hallii</i>	Hall's bulrush	SE
<i>Scirpus expansus</i>	bulrush	SE
<i>Sisyrinchium montanum</i>	strict blue-eyed-grass	SE
<i>Trillium cernuum</i> var. <i>macranthum</i>	nodding trillium	SE
<i>Actaea rubra</i> ssp. <i>rubra</i>	red baneberry	ST
<i>Arctostaphylos uva-ursi</i>	bearberry	ST
<i>Aristida tuberculosa</i>	seabeach needlegrass	ST
<i>Botrychium matricariifolium</i>	chamomile grape-fern	ST
<i>Carex flava</i>	yellow sedge	ST
<i>Carex folliculata</i>	long sedge	ST
<i>Carex seorsa</i>	weak stellate sedge	ST
<i>Chrysosplenium americanum</i>	American golden-saxifrage	ST
<i>Circaea alpina</i>	small enchanter's nightshade	ST
<i>Cypripedium candidum</i>	small white lady's-slipper	ST
<i>Dichanthelium boreale</i>	northern witchgrass	ST
<i>Dichanthelium lucidum</i>	shining panic-grass	ST
<i>Diphasiastrum tristachyum</i>	deep-root clubmoss	ST

Scientific Name	Common Name	State Listing
<i>Eleocharis geniculata</i>	capitate spike-rush	ST
<i>Eleocharis melanocarpa</i>	black-fruited spike-rush	ST
<i>Epigaea repens</i>	trailing arbutus	ST
<i>Eurybia furcata</i>	forked aster	ST
<i>Hudsonia tomentosa</i>	sand-heather	ST
<i>Juglans cinerea</i>	butternut	ST
<i>Juncus scirpoides</i>	scirpus-like rush	ST
<i>Milium effusum</i>	tall millet-grass	ST
<i>Myosotis laxa</i>	smaller forget-me-not	ST
<i>Pinus banksiana</i>	jack pine	ST
<i>Pinus strobus</i>	eastern white pine	ST
<i>Piptochaetium avenaceum</i>	blackseed needlegrass	ST
<i>Platanthera psycodes</i>	small purple-fringe orchid	ST
<i>Poa paludigena</i>	bog bluegrass	ST
<i>Polygonum articulatum</i>	eastern jointweed	ST
<i>Potamogeton pulcher</i>	spotted pondweed	ST
<i>Potentilla anserina</i>	silverweed	ST
<i>Prunus pensylvanica</i>	fire cherry	ST
<i>Pyrola americana</i>	American wintergreen	ST
<i>Rhexia mariana</i> var. <i>mariana</i>	Maryland meadow beauty	ST
<i>Schoenoplectiella purshiana</i>	weakstalk bulrush	ST
<i>Schoenoplectiella smithii</i>	Smith's Bulrush	ST
<i>Scleria reticularis</i>	reticulated nutrush	ST
<i>Sparganium angrocladum</i>	branching bur-reed	ST
<i>Symphyotrichum boreale</i>	rushlike aster	ST
<i>Thalictrum pubescens</i>	tall meadowrue	ST
<i>Viola primulifolia</i>	primrose-leaf violet	ST
<i>Clintonia borealis</i>	Clinton's lily	SX
<i>Dichanthelium mattamuskeetense</i>	panic-grass	SX
<i>Platanthera hookeri</i>	Hooker's orchid	SX
<i>Sceptridium multifidum</i>	leathery grape-fern	SX

3.2.1 Sensitive Plant Species

Several threatened, endangered, or sensitive plant species were found within the project area during site visits in 2022 (Table 3 below). The largest concentration of sensitive species was found in the Calumet Dunes and Furnessville areas (Sections 4 and 6) where multiple populations have been mapped

and monitored in the past. Plant locations have been shared with NPS staff and coordination is ongoing for trail routing near and around the species within the impact area.

TABLE 3. THREATENED, ENDANGERED, AND SENSITIVE SPECIES IDENTIFIED DURING FIELD SURVEYS IN 2022.

SPECIES NAME (NWPL/MOHLENBROCK)	COMMON NAME	C VALUE	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)
<i>Adiantum pedatum</i>	Northern Maidenhair fern	10	FACU	1
<i>Aristida tuberculosa</i>	Beach Three-Awn	9	UPL	2
<i>Asplenium platyneuron</i>	Ebony Spleenwort	3	FACU	1
<i>Botrypus virginianus</i>	Rattlesnake Fern	5	FACU	1
<i>Carex folliculata</i>	Northern Long Sedge	10	OBL	-2
<i>Chimaphila maculata</i>	Spotted Wintergreen	10	UPL	2
<i>Chrysosplenium americanum</i>	American Golden-Saxifrage	10	OBL	-2
<i>Gaultheria procumbens</i>	Eastern Teaberry	9	FACU	1
<i>Heserostipa spartea</i>	Porcupine Grass	8	UPL	2
<i>Mitchella repens</i>	Partridge-Berry	10	FACU	1
<i>Pyrola americana</i>	American Wintergreen	10	FAC	1
<i>Pyrola elliptica</i>	Shinleaf	10	FACU	1
<i>Tradescantia subaspera</i>	Broad-Leaf Spiderwort	7	UPL	2

3.2.2 Federally Listed Species

According to the U.S. Fish and Wildlife Service’s Information for Planning and Consultation website, the federally listed threatened and endangered species present in the project area includes the Indiana bat, northern long-eared bat, and eastern massasauga. About 5.5 miles of the route will run through forest which includes potential roosting habitat for both bat species. The wet prairie habitat along the existing Calumet Trail is the appropriate habitat for the eastern massasauga and this species has been identified along the trail in Beverly Shores within the last 20 year (personal communication, USGS).

4.0 Summary and Conclusions

4.1 Summary

TABLE 4. COMPARISON OF MEAN C VALUES AND FQI VALUES FOR ALL COMMUNITIES.

CONSERVATISM- BASED METRICS	Dune Forest	Swamp Forest	Wet/Mesic Prairie	Forested Wetland	Roadbed	Dry Prairie
ACRES	94	31	11	9	7	4
MEAN C (NATIVE SPECIES)	4.80	6.05	4.39	5.04	3.52	3.97
MEAN C (ALL SPECIES)	3.75	5.77	3.73	4.41	2.42	2.54
FQAI (NATIVE SPECIES)	54.36	48.00	39.04	46.42	30.88	22.45
FQAI (ALL SPECIES)	48.02	46.90	35.98	43.46	25.61	17.96
SPECIES RICHNESS (ALL)	164	66	93	97	112	50
SPECIES RICHNESS (NATIVE)	128	63	79	85	77	32
% NON-NATIVE	22%	5%	15%	12%	31%	36%
WET INDICATOR (ALL)	0.69	-0.62	-0.90	-0.46	0.41	0.78
WET INDICATOR (NATIVE)	0.54	-0.68	-1.04	-0.54	0.16	0.59

4.2 Conclusions

Soil Solutions, Inc. completed a floristic quality analysis of a 200 – 300 foot wide corridor along the planned route for the Marquette Greenway Trail – Calumet Section. The trail project runs through the Great Marsh interdunal wetland complex and then south through the Calumet-Glenwood Dunes system. The vegetation inventory identified six community types: dune forest, swamp forest, wet/mesic prairie, forested wetland, roadbeds, and dry prairie. Each community type was then classified based on quality as either high, moderate, or low quality where diverse communities with limited invasive species cover were considered high quality; diverse or moderately diverse communities with moderate invasive species cover were considered moderate quality; and plant communities dominated by invasive or non-native species were considered low quality.

Dune forest made up the largest percentage of the survey area at 94 acres. This community type had the highest floristic quality assessment index value (48.02) and the highest concentration of known ETR and sensitive species. The swamp forest (31 acres), forested wetland (9 acres), and wet mesic prairie (11 acres) were also diverse all with FQI values over 35.0 which is the minimum value to be considered natural area quality. The two lowest quality communities, roadbeds (7 acres) and dry prairie (4 acres), are found in disturbed, fragmented landscapes. These areas are dominated by invasive, non-native, and ruderal species and have the lowest FQI values. The Indiana Dunes National Park was originally protected and dedicated in part because of the floristic diversity here and that is reflected in the vegetation survey within the project area.

Quality varies across each of the community types with the highest quality areas found furthest from past disturbance. It appears based on the areas surveyed within the project limits that the areas with the most coverage of non-native and invasive species were found near and around areas that were formerly residential development. Additionally, wet/mesic prairie along the existing Calumet Trail has been repeatedly disturbed because of its location within a utility line corridor. Large sections of wetland within this area were dominated by invasive species while wetland outside of this corridor (swamp forest, forested wetland) was higher quality.

The highest quality areas were located in the eastern half of the project area within Sections 6 and 7 and included dune forest south of U.S. Highway 12 and the hydromesophytic swamp forest in Beverly Shores. The largest concentration of ETR and sensitive species were found in high and moderate quality dune forest in Sections 4 and 6. The project engineer has been coordinating closely with the National Park Service to minimize impacts to these high quality plant communities and sensitive species as much as possible.

5.0 REFERENCES

Homoya, Michael A., D. Brian Abrell, James R. Aldrich, and T. Post. 1984. *The Natural Regions of Indiana*. Indiana Academy of Science 94: 245 – 268.

Jacquart, E., M. Homoya, and L. Casebere. July 1, 2002 *Working Draft. Natural communities of Indiana*.

Lichvar, R.W., M. Butterwick, N.C. Melvin, and W.N. Kirchner. 2014. *The National Wetland Plant List: 2014 Update of Wetland Ratings*. Phytoneuron 2014-41.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016.

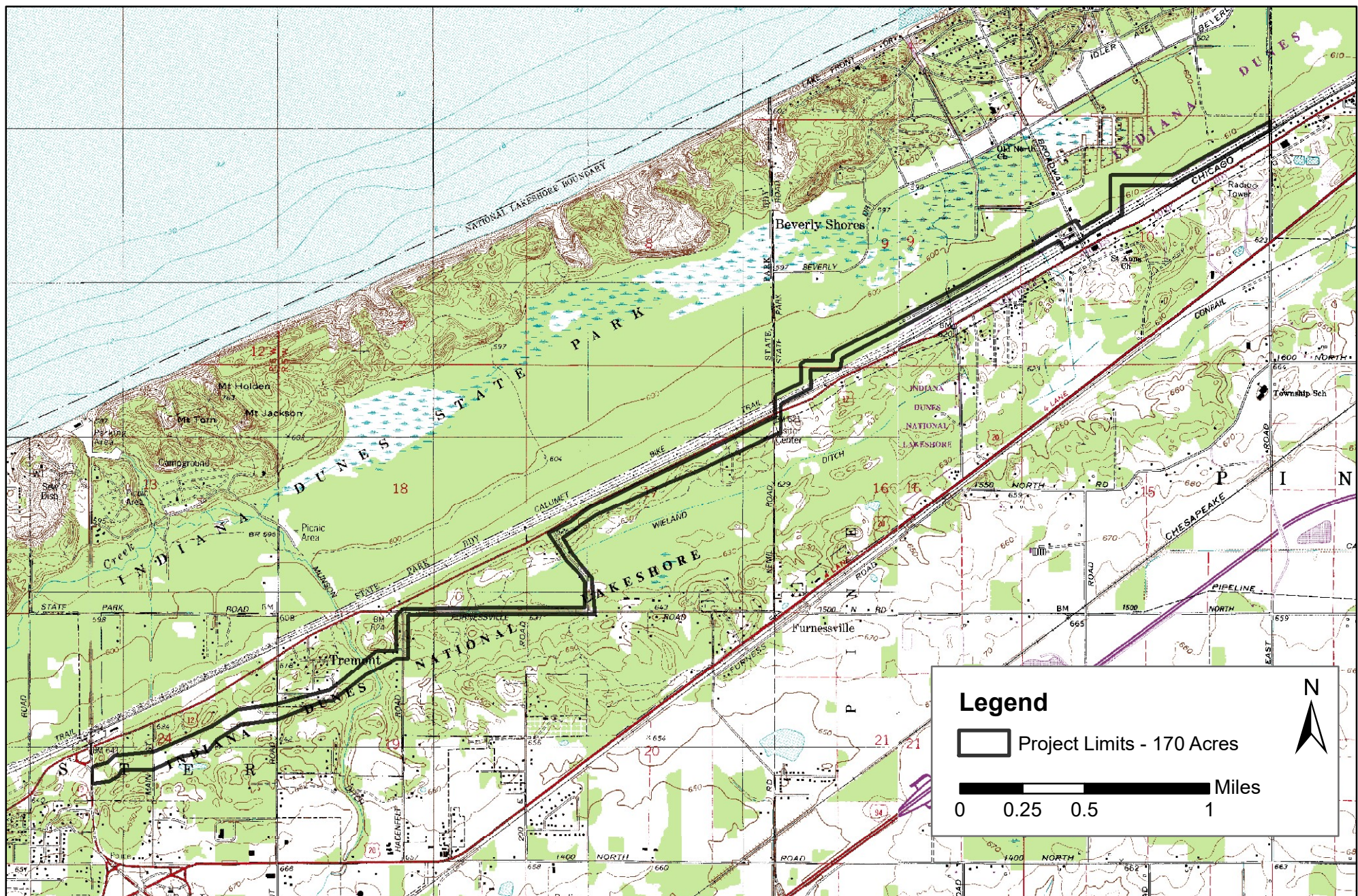
Resource Management Group, *National List of Plant Species that Occur in Wetland Region 3, North Central*, 1995.

Swink, Floyd and G. Wilhelm. Plants of the Chicago Region, 4th Ed. 1994. Indiana Academy of Science.

U.S. Geological Survey, *Chesterton, IN, 7.5 Minute Series (Topographic) Maps*.

Wilhelm, G., and L. Rericha. 2017. Flora of the Chicago region: a floristic and ecological synthesis. Indiana Academy of Science, Indianapolis, Indiana.

APPENDIX A
REPORT FIGURES



360 Indiana Avenue
P.O. Box 229
Valparaiso, Indiana 46384
phone: (219) 465-5885
www.soilsolutions-inc.com

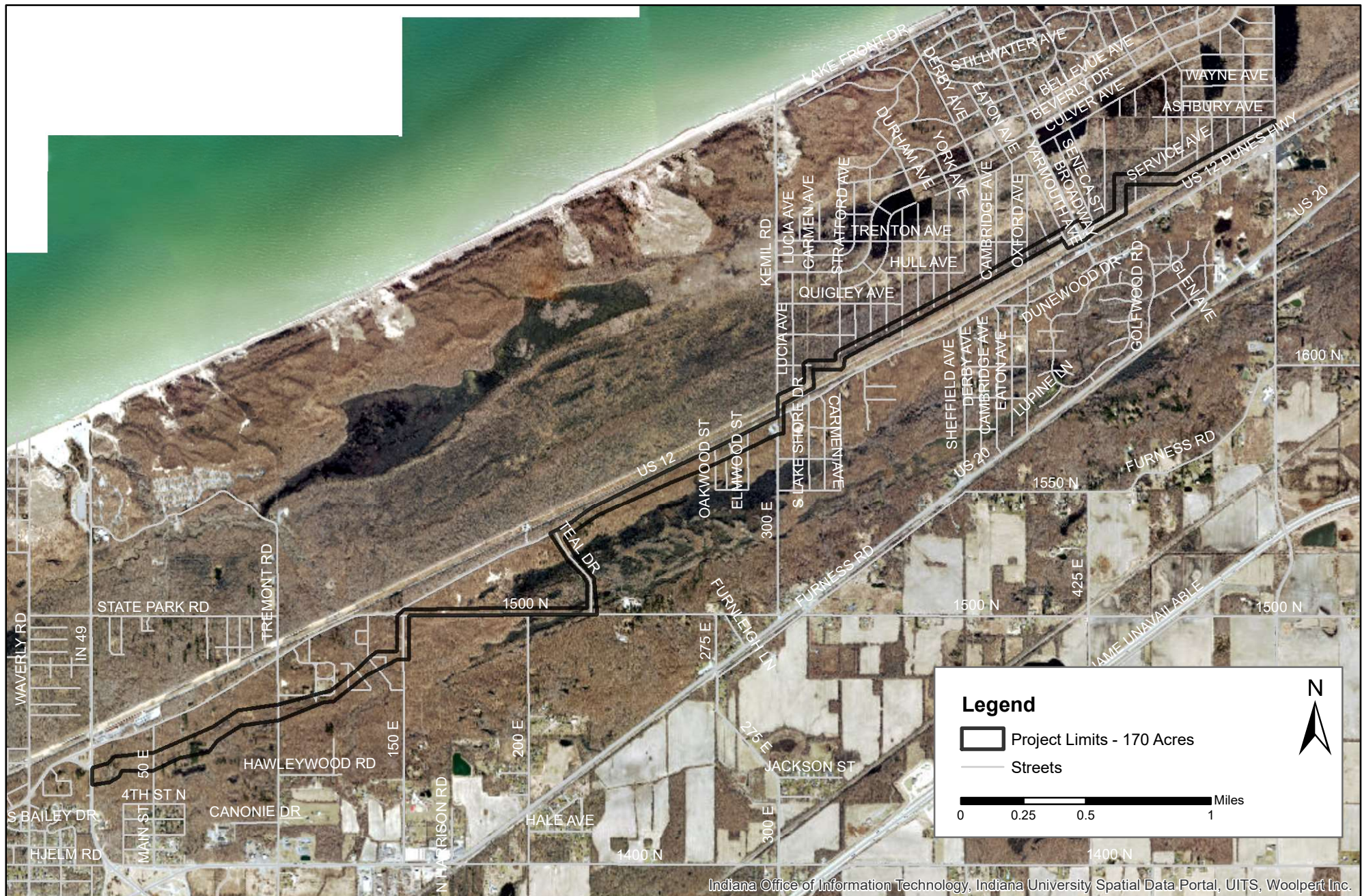
SSI Project #: 17-10A(21)
Print Date: 11/28/2022

Lat: 41.660356 Long: -87.015803
Westchester and Pine Townships
Porter County, Indiana

Floristic Quality Assessment Project Limits

Marquette Greenway Trail - Calumet Section
Porter County, Indiana

Figure
1



360 Indiana Avenue
P.O. Box 229
Valparaiso, Indiana 46384
phone: (219) 465-5885
www.soilsolutions-inc.com

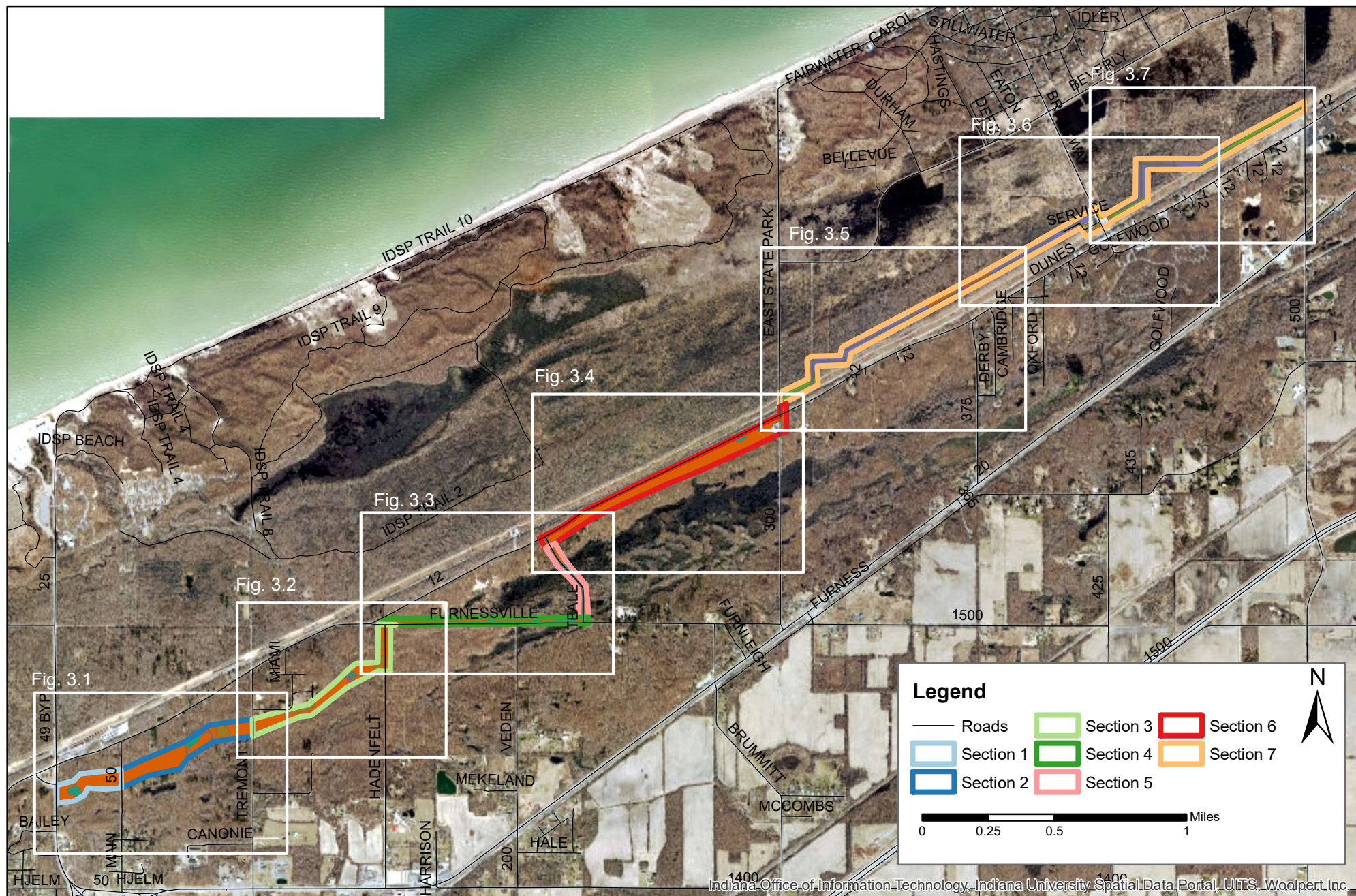
SSI Project #: 17-10A(21)
Print Date: 11/28/2022

Lat: 41.660356 Long: -87.015803
Westchester and Pine Townships
Porter County, Indiana

Floristic Quality Assessment Project Limits

Marquette Greenway Trail - Calumet Section
Porter County, Indiana

Figure
2



360 Indiana Avenue
P.O. Box 229
Valparaiso, Indiana 46384
phone: (219) 465-5885
www.soilsolutions-inc.com

SSI Project #: 17-10A(21)

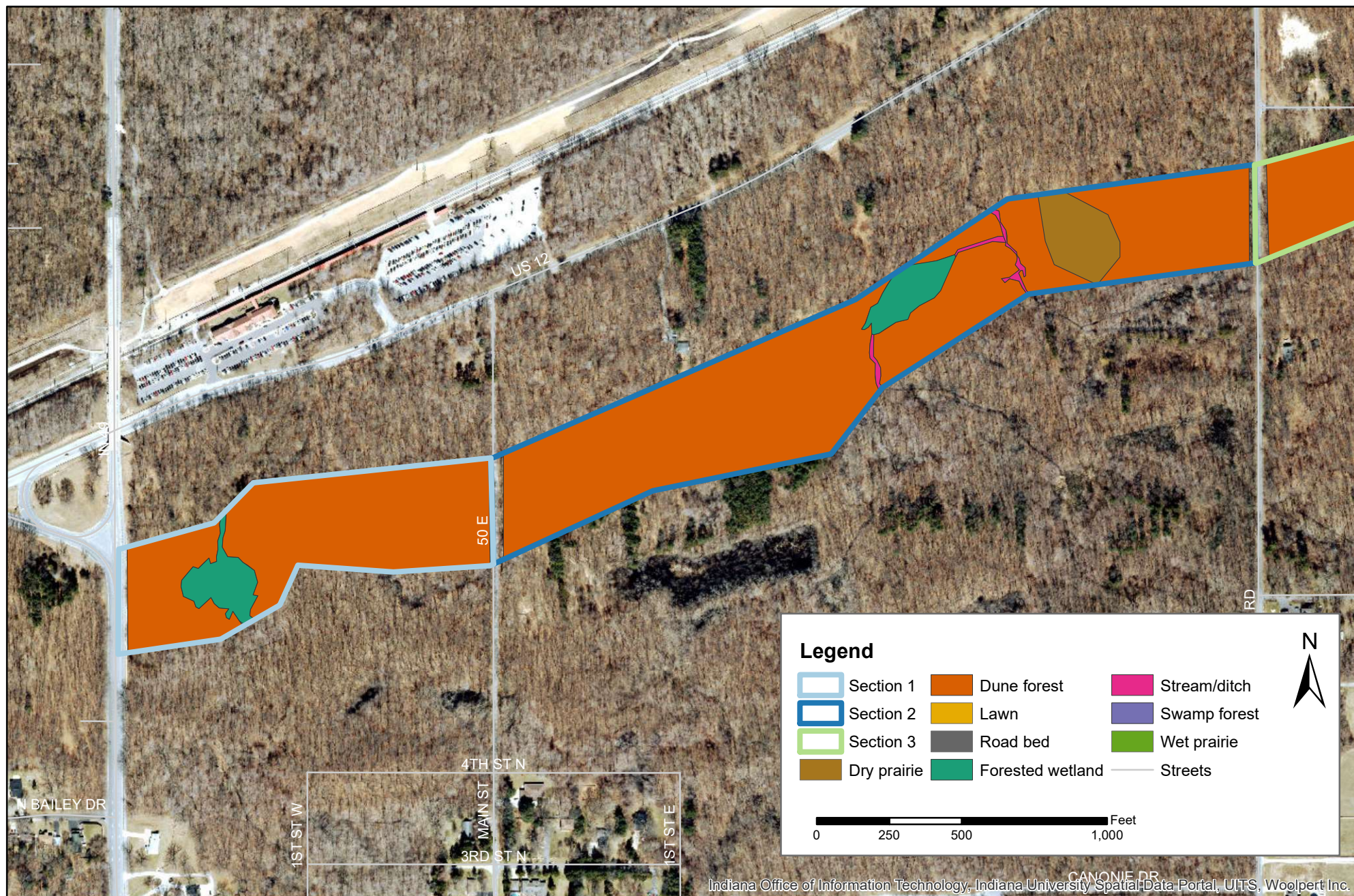
Print Date: 1/26/2023

Lat: 41.660356 Long: -87.015803
Westchester and Pine Townships
Porter County, Indiana

Plant Community Types

Marquette Greenway Trail - Calumet Section
Porter County, Indiana

Figure
3.0



360 Indiana Avenue
P.O. Box 229
Valparaiso, Indiana 46384
phone: (219) 465-5885
www.soilsolutions-inc.com

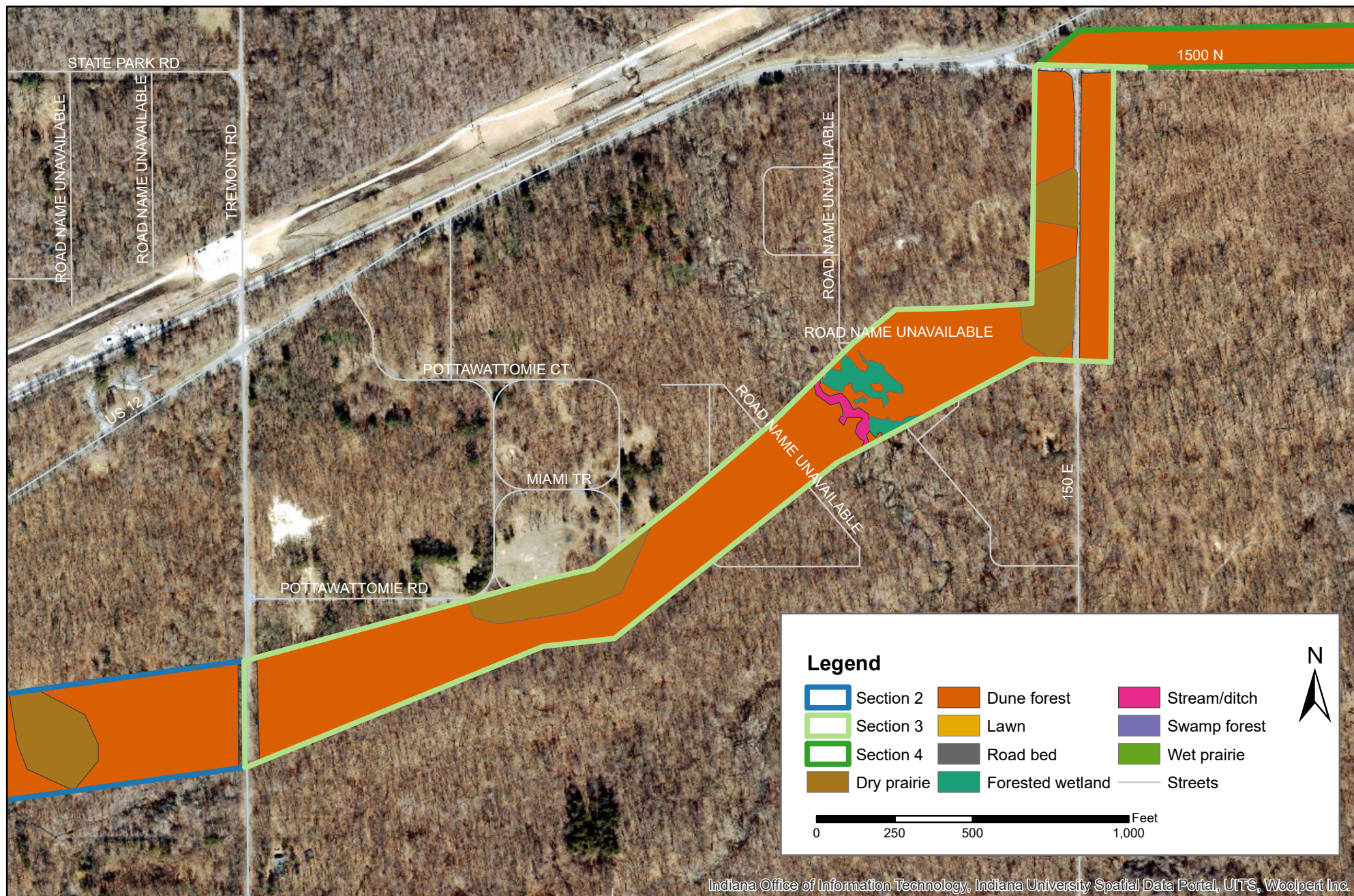
SSI Project #: 17-10A(21)
Print Date: 1/26/2023

Lat: 41.660356 Long: -87.015803
Westchester and Pine Townships
Porter County, Indiana

Plant Community Types

Marquette Greenway Trail - Calumet Section
Porter County, Indiana

Figure
3.1



360 Indiana Avenue
P.O. Box 229
Valparaiso, Indiana 46384
phone: (219) 465-5885
www.soilsolutions-inc.com

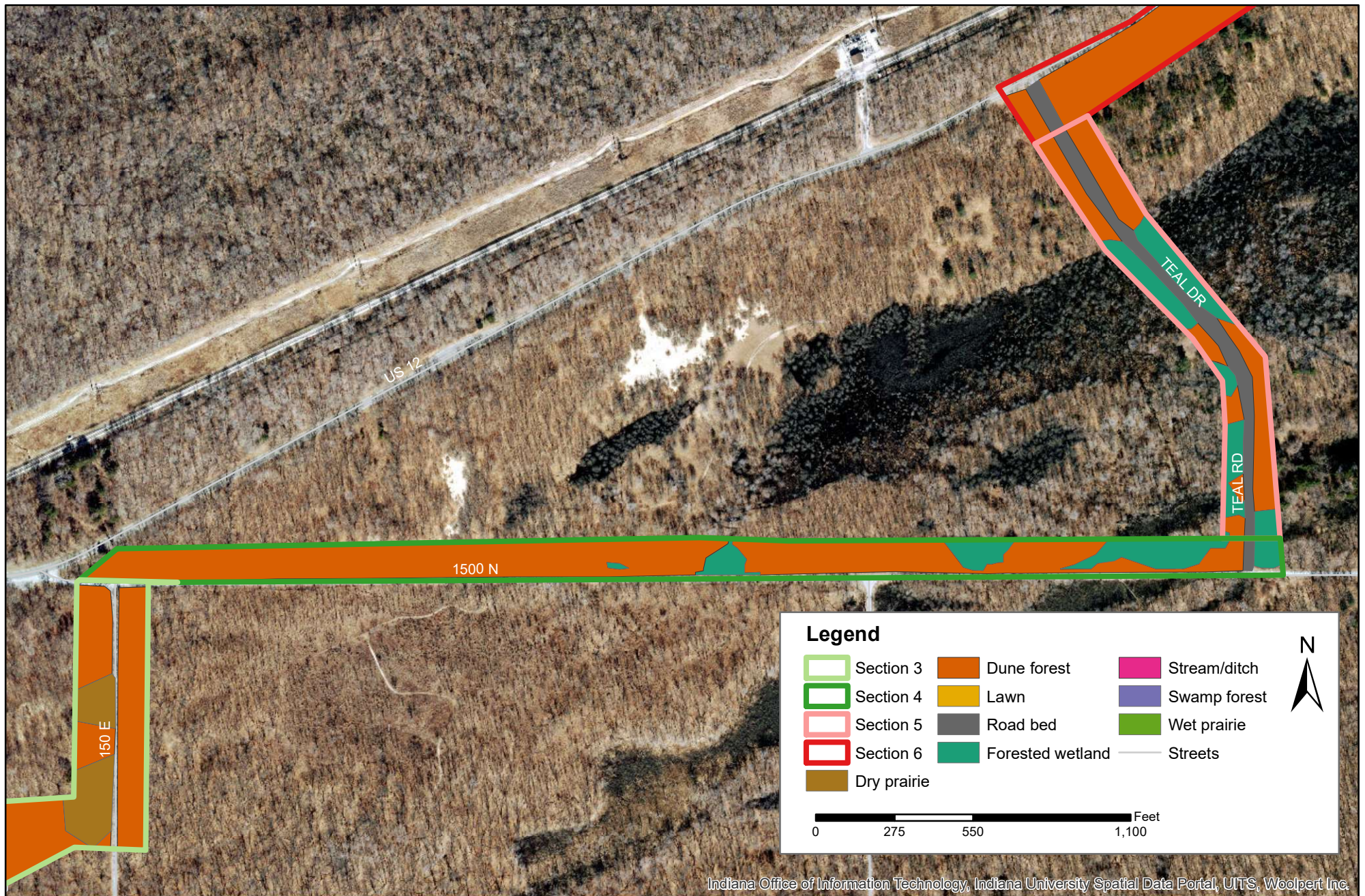
SSI Project #: 17-10A(21)
Print Date: 1/26/2023

Lat: 41.660356 Long: -87.015803
Westchester and Pine Townships
Porter County, Indiana

Plant Community Types

Marquette Greenway Trail - Calumet Section
Porter County, Indiana

Figure
3.2



360 Indiana Avenue
P.O. Box 229
Valparaiso, Indiana 46384
phone: (219) 465-5885
www.soilsolutions-inc.com

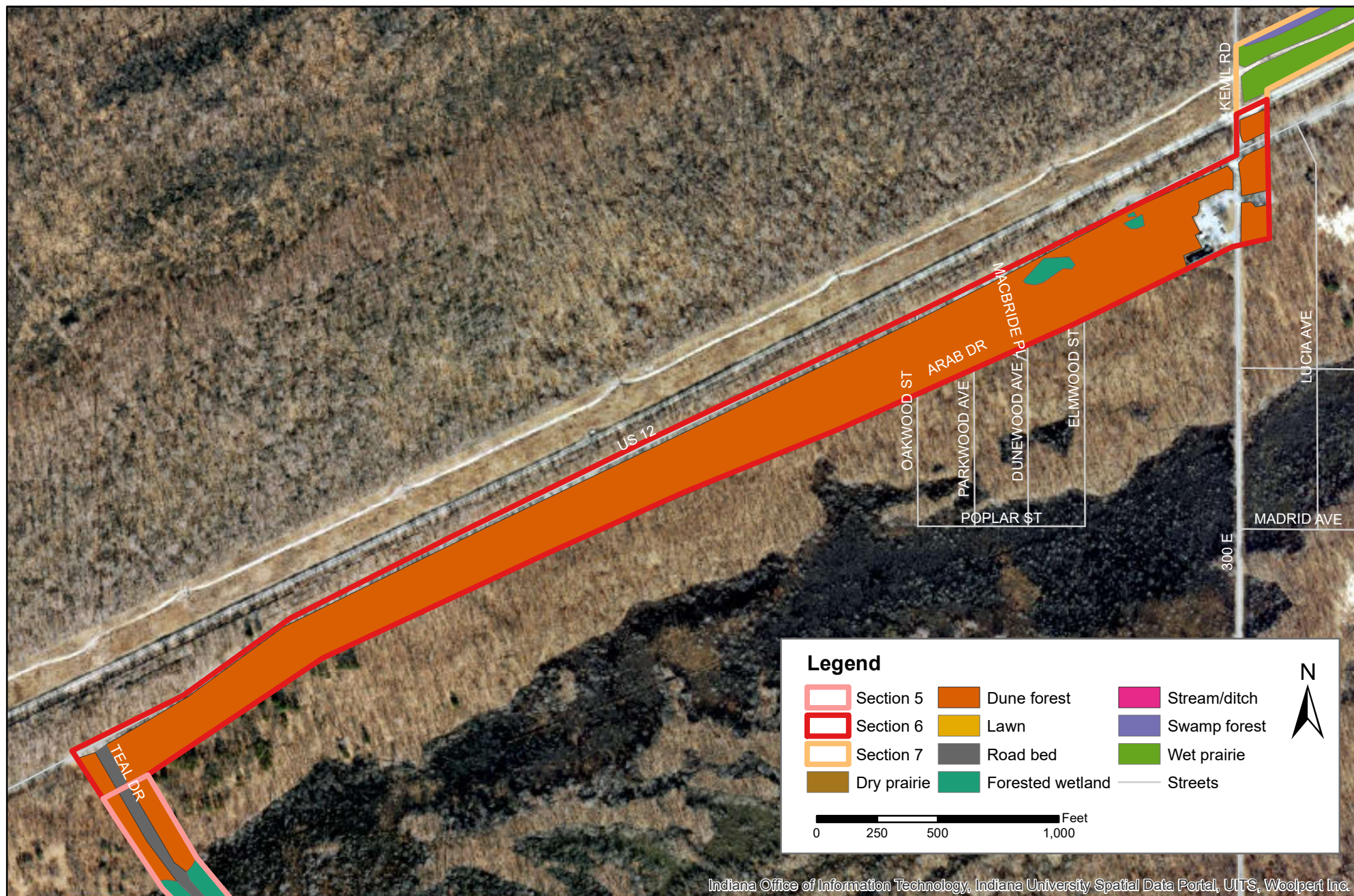
SSI Project #: 17-10A(21)
Print Date: 1/26/2023

Lat: 41.660356 Long: -87.015803
Westchester and Pine Townships
Porter County, Indiana

Plant Community Types

Marquette Greenway Trail - Calumet Section
Porter County, Indiana

Figure
3.3



Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.



360 Indiana Avenue
P.O. Box 229
Valparaiso, Indiana 46384
phone: (219) 465-5885
www.soilsolutions-inc.com

SSI Project #: 17-10A(21)

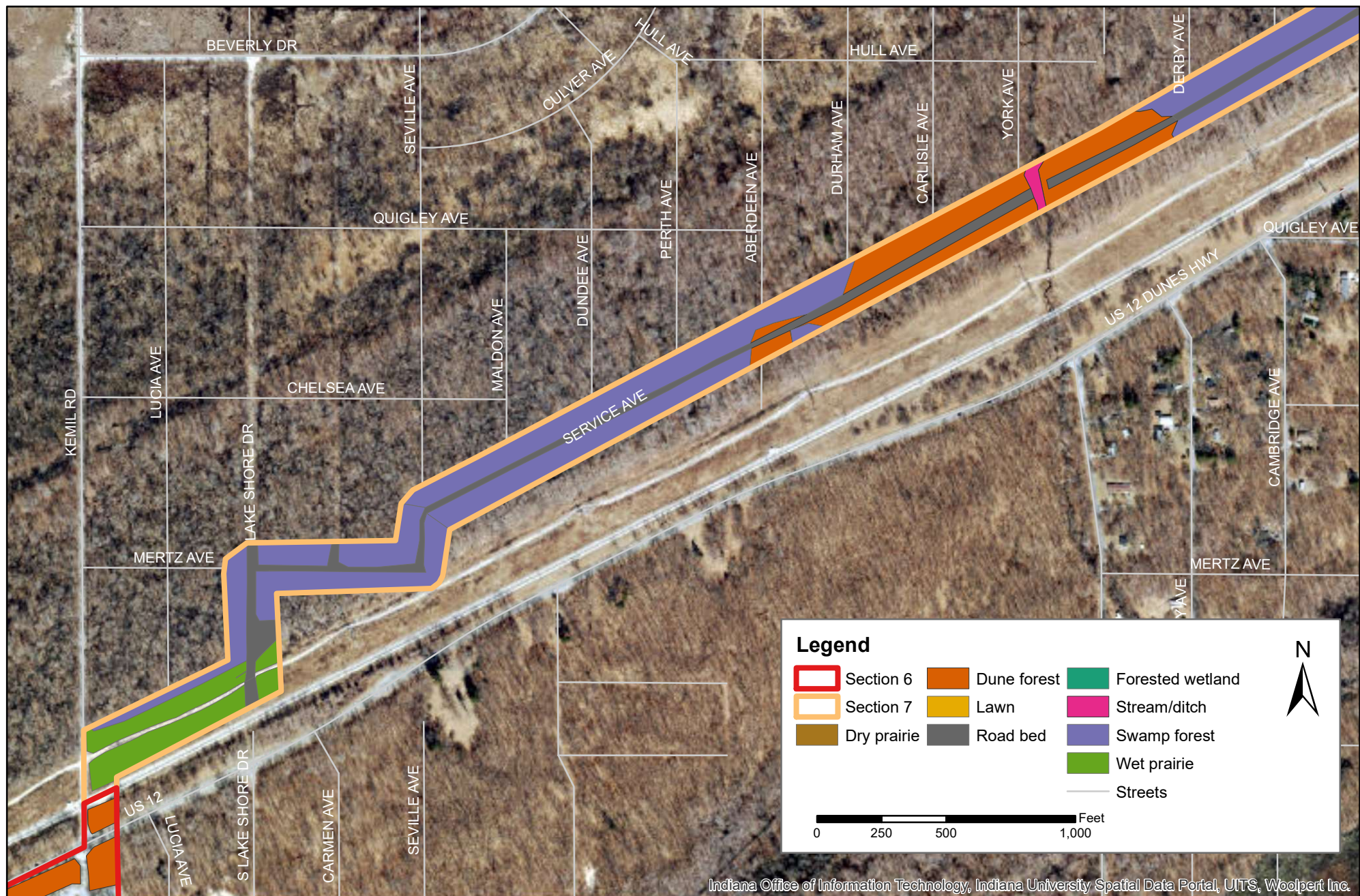
Print Date: 1/26/2023

Lat: 41.660356 Long: -87.015803
Westchester and Pine Townships
Porter County, Indiana

Plant Community Types

Marquette Greenway Trail - Calumet Section
Porter County, Indiana

Figure
3.4



360 Indiana Avenue
P.O. Box 229
Valparaiso, Indiana 46384
phone: (219) 465-5885
www.soilsolutions-inc.com

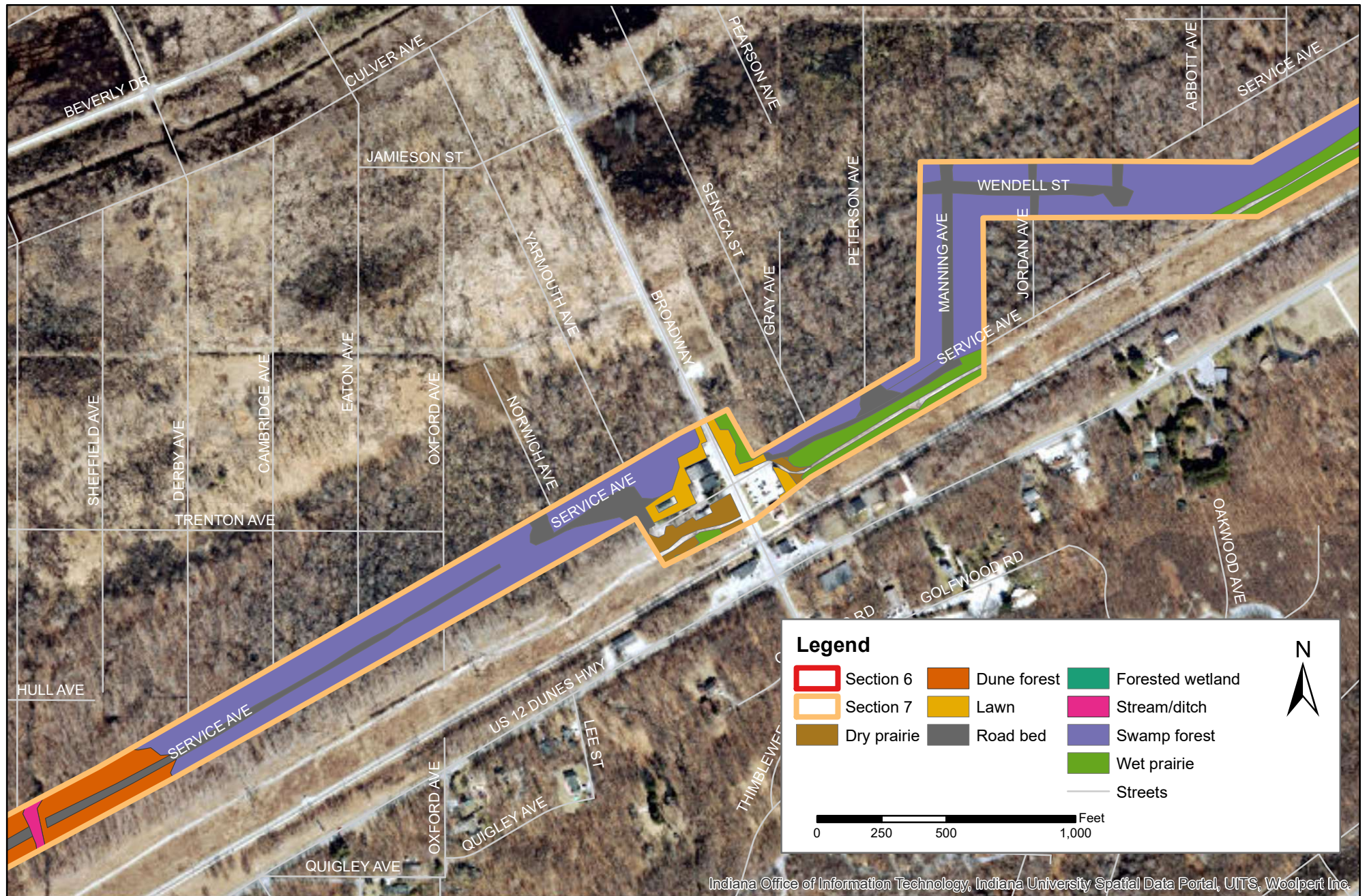
SSI Project #: 17-10A(21)
Print Date: 2/2/2023

Lat: 41.660356 Long: -87.015803
Westchester and Pine Townships
Porter County, Indiana

Plant Community Types

Marquette Greenway Trail - Calumet Section
Porter County, Indiana

Figure
3.5



Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.



360 Indiana Avenue
P.O. Box 229
Valparaiso, Indiana 46384
phone: (219) 465-5885
www.soilsolutions-inc.com

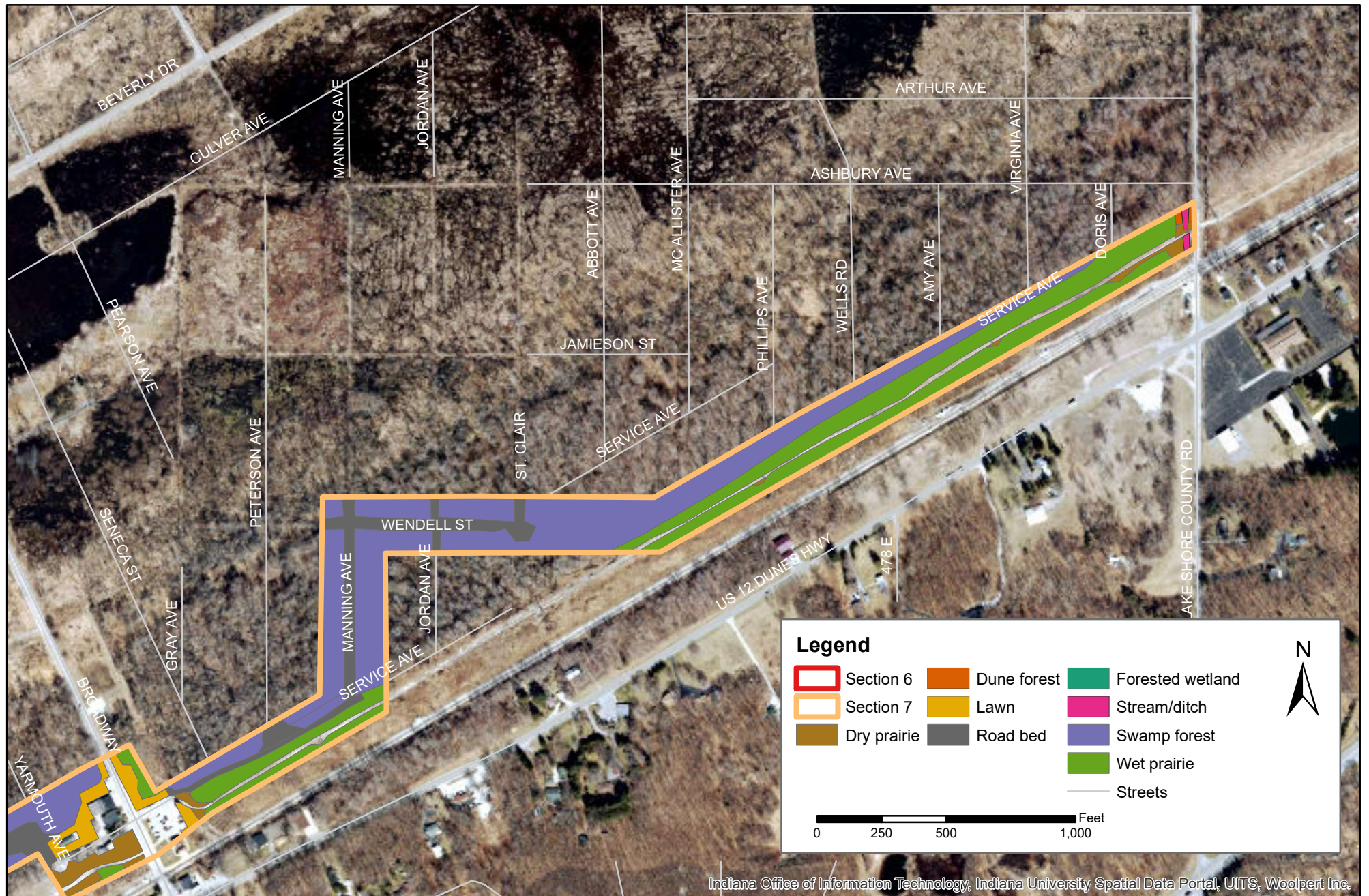
SSI Project #: 17-10A(21)
Print Date: 2/2/2023

Lat: 41.660356 Long: -87.015803
Westchester and Pine Townships
Porter County, Indiana

Plant Community Types

Marquette Greenway Trail - Calumet Section
Porter County, Indiana

Figure
3.6



360 Indiana Avenue
P.O. Box 229
Valparaiso, Indiana 46384
phone: (219) 465-5885
www.soilsolutions-inc.com

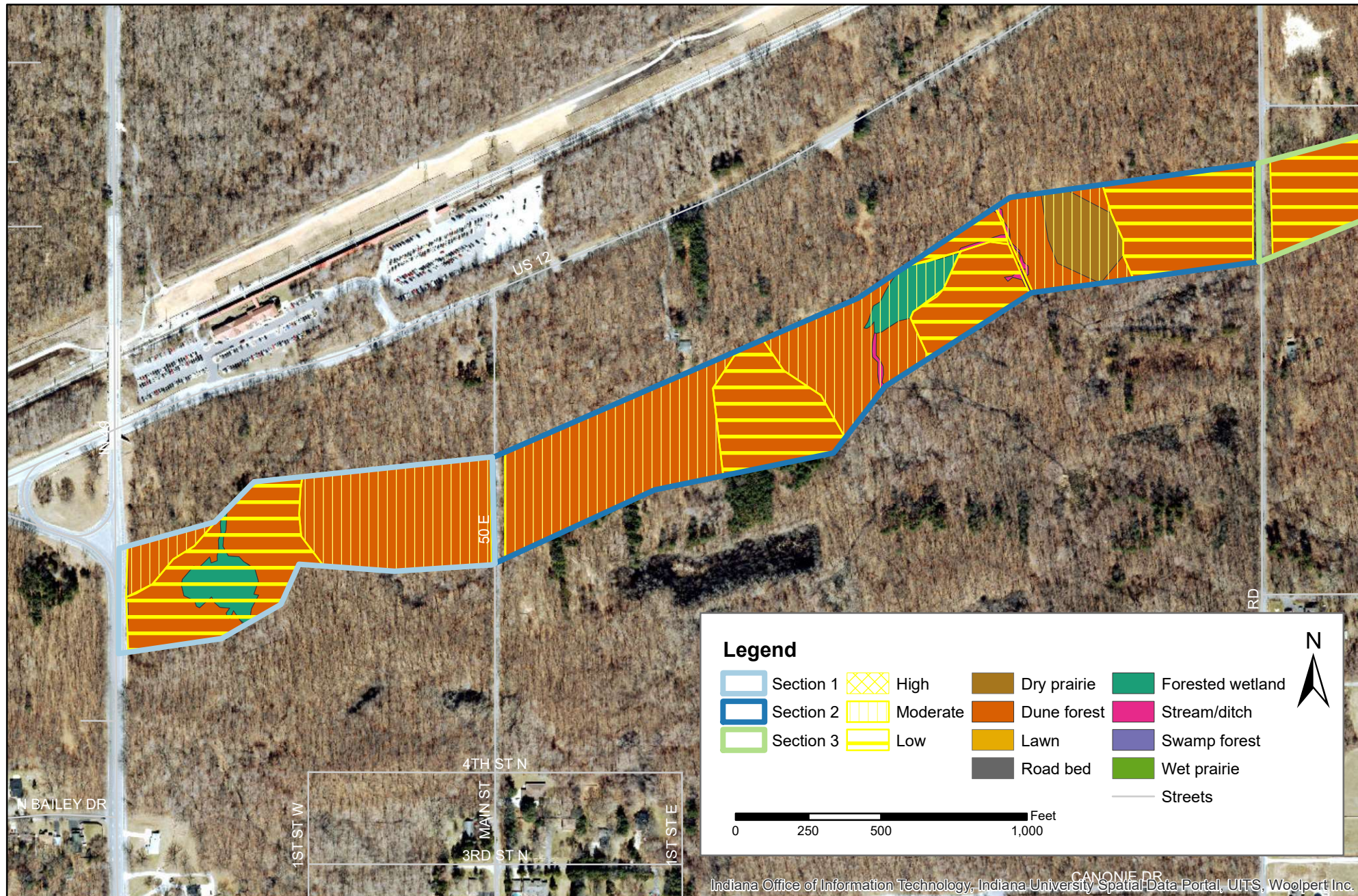
SSI Project #: 17-10A(21)
Print Date: 2/2/2023

Lat: 41.660356 Long: -87.015803
Westchester and Pine Townships
Porter County, Indiana

Plant Community Types

Marquette Greenway Trail - Calumet Section
Porter County, Indiana

Figure
3.7



360 Indiana Avenue
P.O. Box 229
Valparaiso, Indiana 46384
phone: (219) 465-5885
www.soilsolutions-inc.com

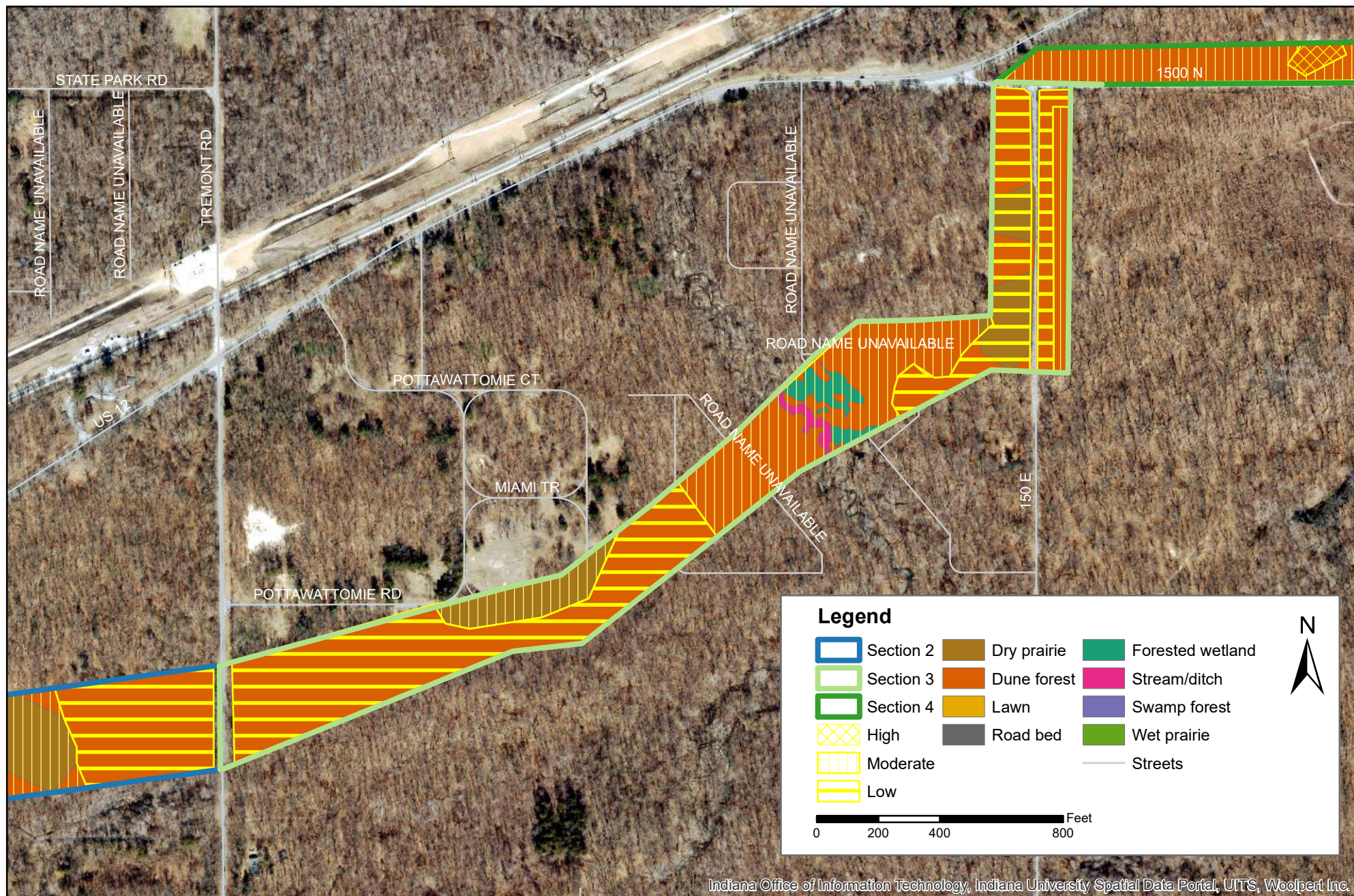
SSI Project #: 17-10A(21)
Print Date: 1/26/2023

Lat: 41.660356 Long: -87.015803
Westchester and Pine Townships
Porter County, Indiana

Plant Community Quality

Marquette Greenway Trail - Calumet Section
Porter County, Indiana

Figure
4.1



360 Indiana Avenue
P.O. Box 229
Valparaiso, Indiana 46384
phone: (219) 465-5885
www.soilsolutions-inc.com

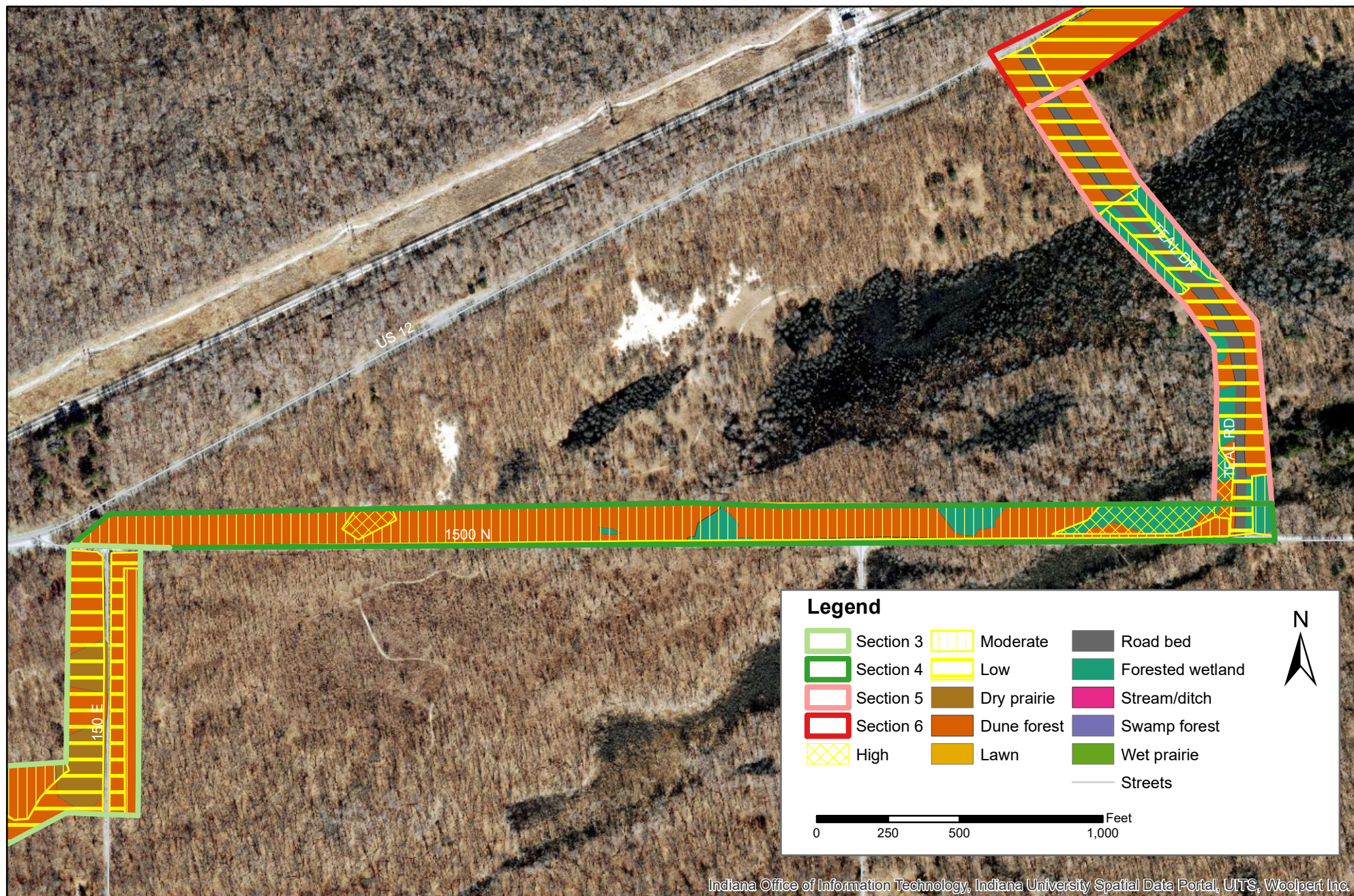
SSI Project #: 17-10A(21)
Print Date: 1/26/2023

Lat: 41.660356 Long: -87.015803
Westchester and Pine Townships
Porter County, Indiana

Plant Community Quality

Marquette Greenway Trail - Calumet Section
Porter County, Indiana

Figure
4.2



360 Indiana Avenue
P.O. Box 229
Valparaiso, Indiana 46384
phone: (219) 465-5885
www.soilsolutions-inc.com

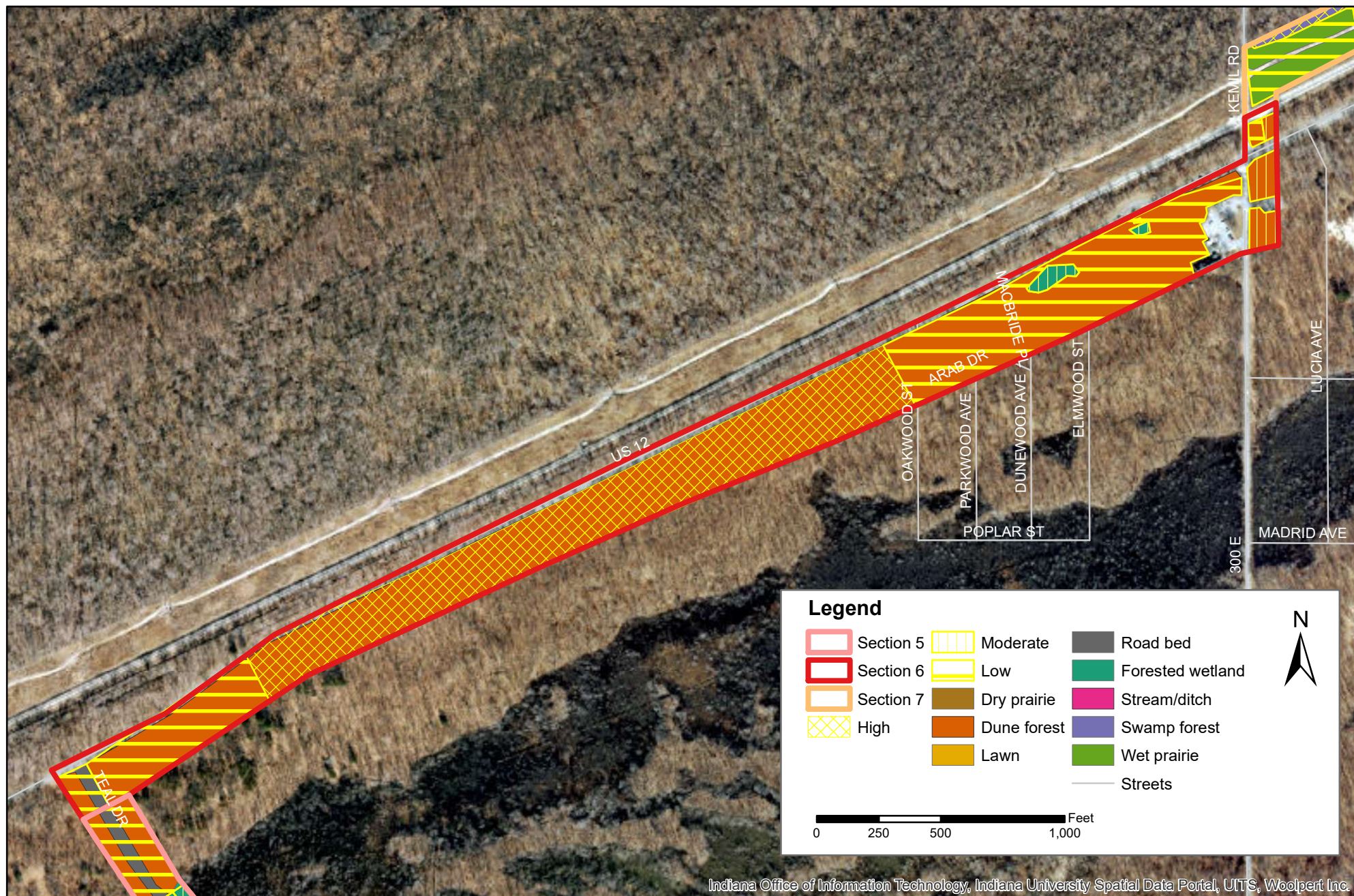
SSI Project #: 17-10A(21)
Print Date: 1/26/2023

Lat: 41.660356 Long: -87.015803
Westchester and Pine Townships
Porter County, Indiana

Plant Community Quality

Marquette Greenway Trail - Calumet Section
Porter County, Indiana

Figure
4.3



360 Indiana Avenue
P.O. Box 229
Valparaiso, Indiana 46384
phone: (219) 465-5885
www.soilsolutions-inc.com

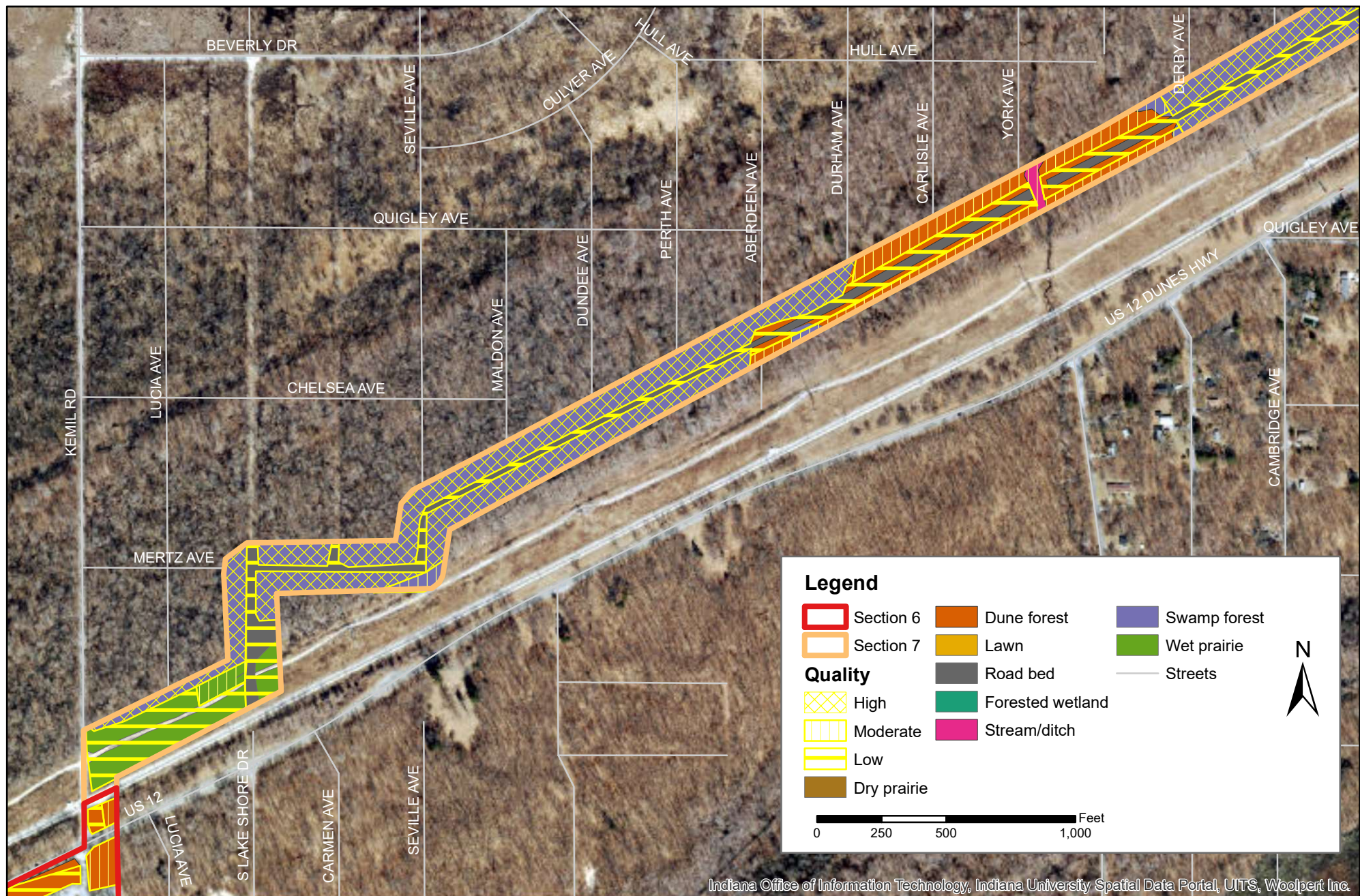
SSI Project #: 17-10A(21)
Print Date: 1/26/2023

Lat: 41.660356 Long: -87.015803
Westchester and Pine Townships
Porter County, Indiana

Plant Community Quality

Marquette Greenway Trail - Calumet Section
Porter County, Indiana

Figure
4.4



360 Indiana Avenue
P.O. Box 229
Valparaiso, Indiana 46384
phone: (219) 465-5885
www.soilsolutions-inc.com

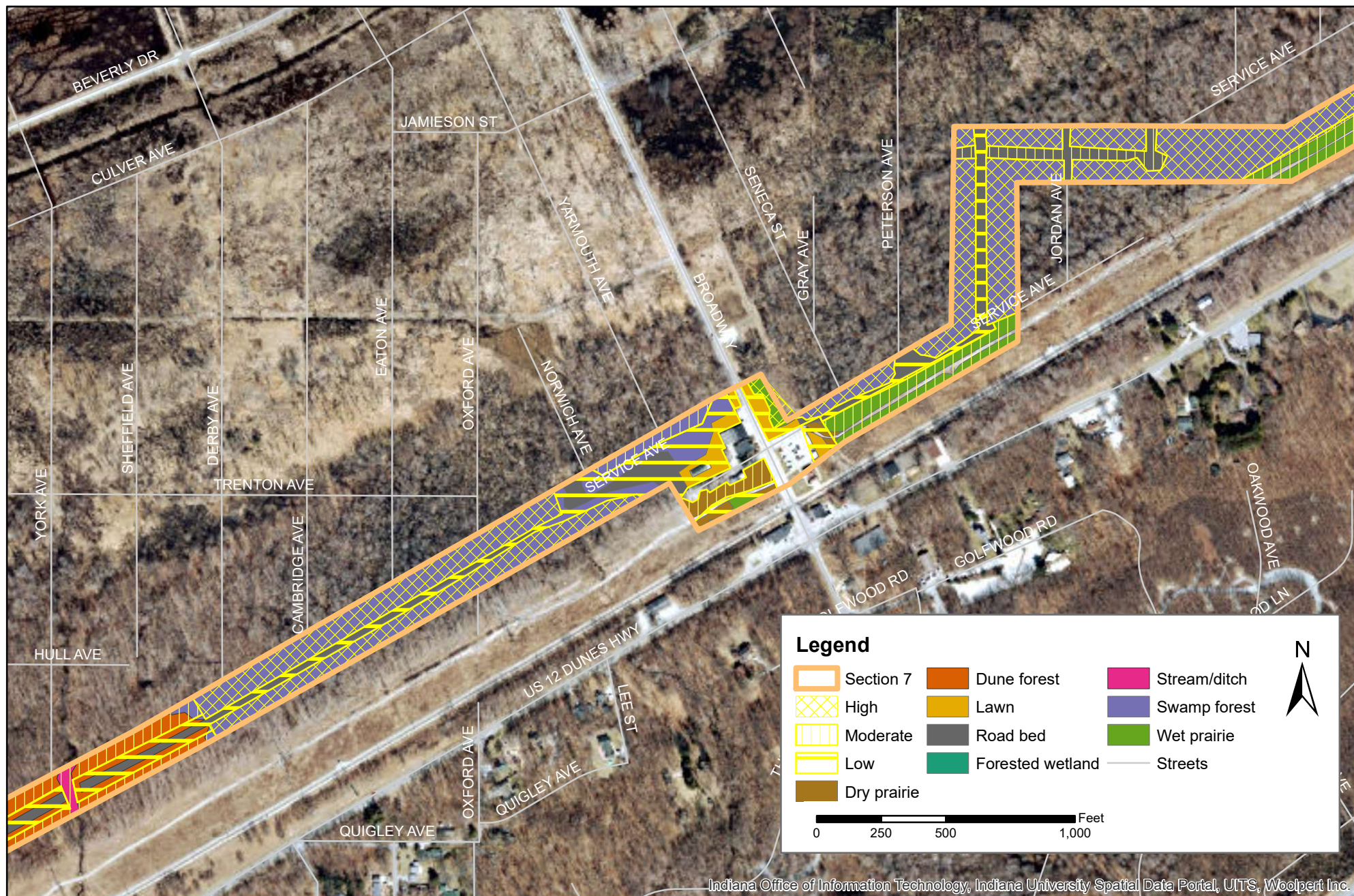
SSI Project #: 17-10A(21)
Print Date: 2/2/2023

Lat: 41.660356 Long: -87.015803
Westchester and Pine Townships
Porter County, Indiana

Plant Community Quantity

Marquette Greenway Trail - Calumet Section
Porter County, Indiana

Figure
4.5



360 Indiana Avenue
P.O. Box 229
Valparaiso, Indiana 46384
phone: (219) 465-5885
www.soilsolutions-inc.com

SSI Project #: 17-10A(21)

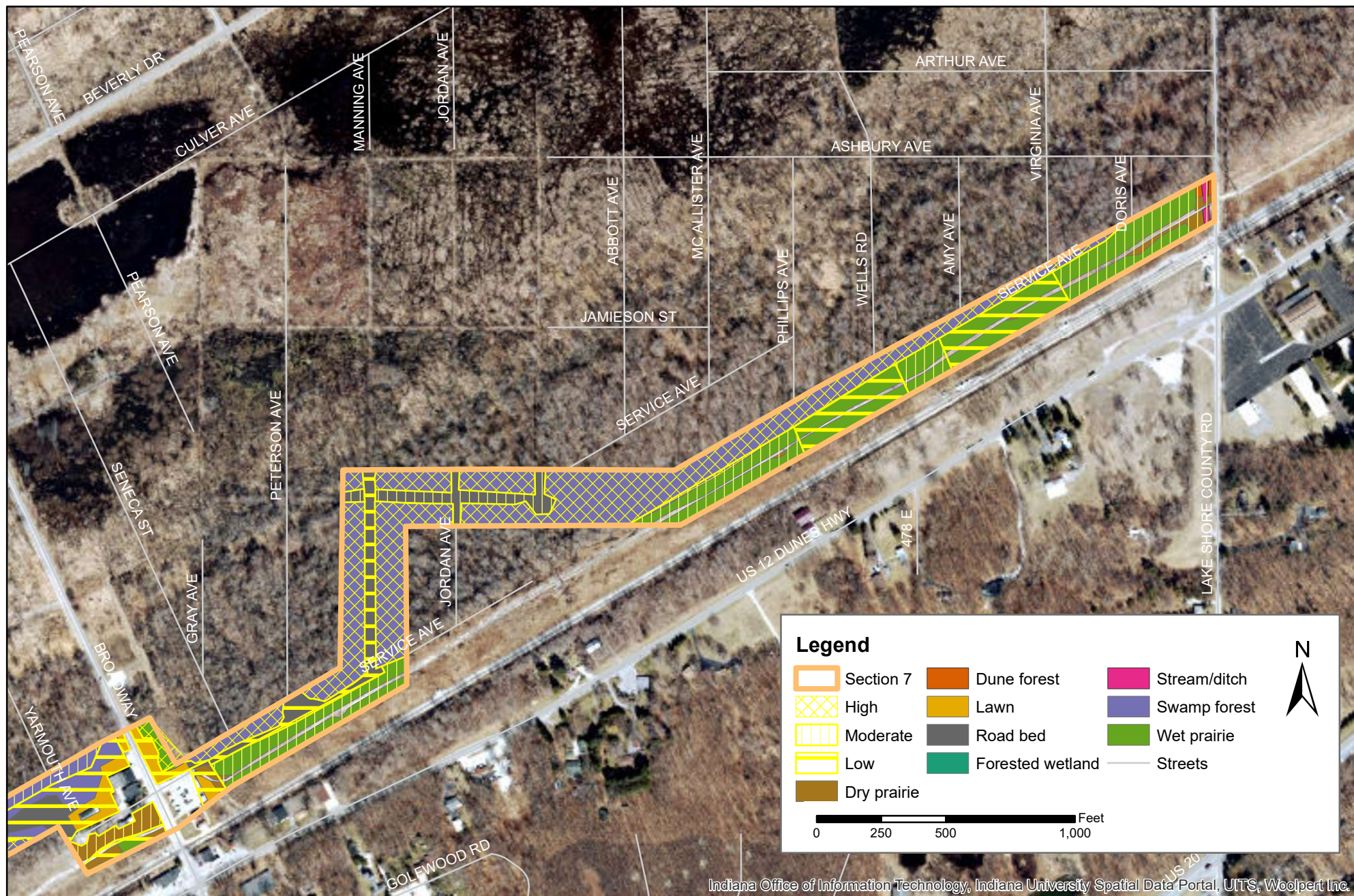
Print Date: 1/26/2023

Lat: 41.660356 Long: -87.015803
Westchester and Pine Townships
Porter County, Indiana

Plant Community Quantity

Marquette Greenway Trail - Calumet Section
Porter County, Indiana

Figure
4.6



360 Indiana Avenue
P.O. Box 229
Valparaiso, Indiana 46384
phone: (219) 465-5885
www.soilsolutions-inc.com

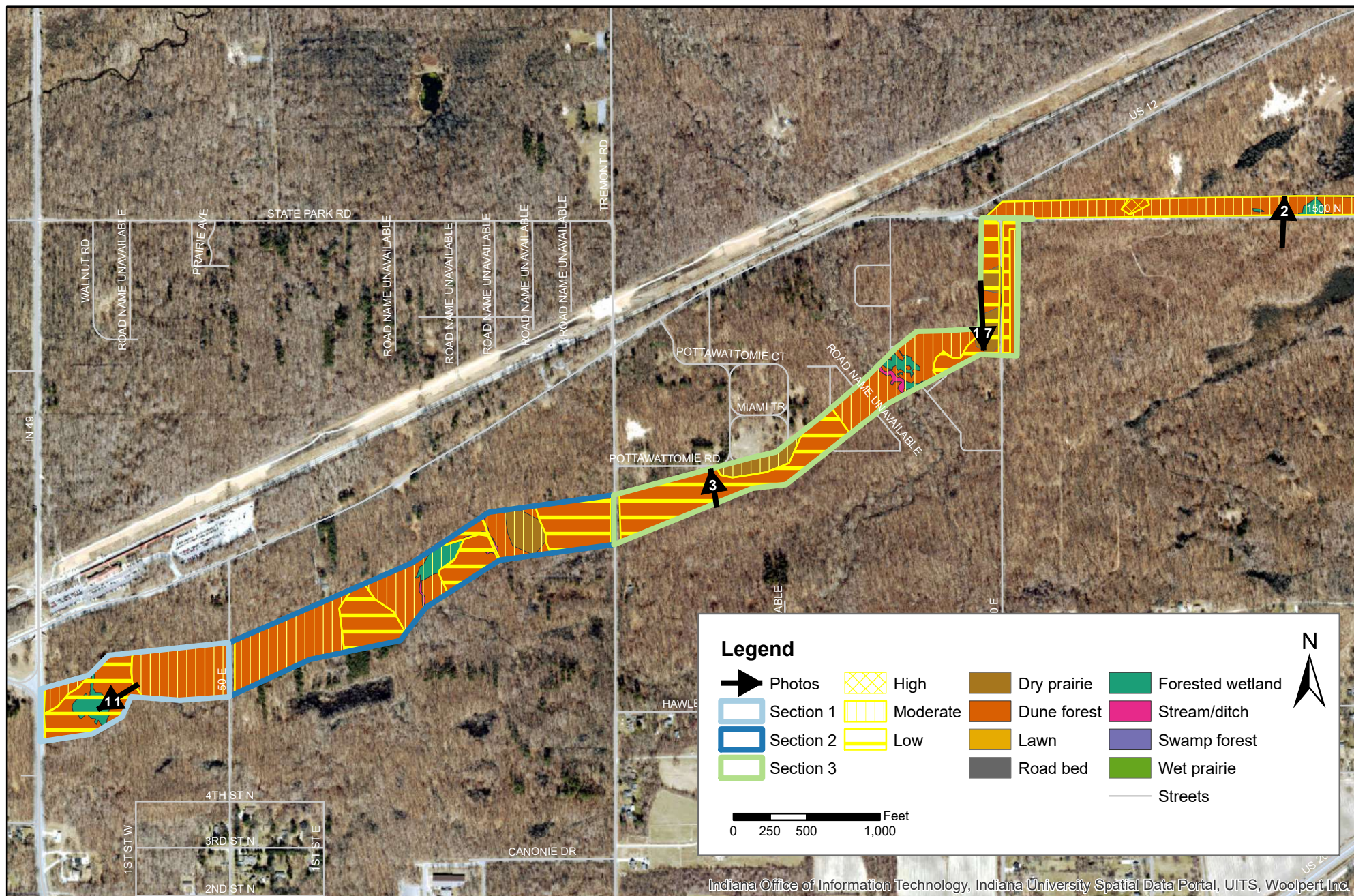
SSI Project #: 17-10A(21)
Print Date: 1/26/2023

Lat: 41.660356 Long: -87.015803
Westchester and Pine Townships
Porter County, Indiana

Plant Community Quantity

Marquette Greenway Trail - Calumet Section
Porter County, Indiana

Figure
4.7



360 Indiana Avenue
P.O. Box 229
Valparaiso, Indiana 46384
phone: (219) 465-5885
www.soilsolutions-inc.com

SSI Project #: 17-10A(21)

Print Date: 2/1/2023

Lat: 41.660356 Long: -87.015803
Westchester and Pine Townships
Porter County, Indiana

Plant Community Quality

Marquette Greenway Trail - Calumet Section
Porter County, Indiana

Figure
5.1



360 Indiana Avenue
P.O. Box 229
Valparaiso, Indiana 46384
phone: (219) 465-5885
www.soilsolutions-inc.com

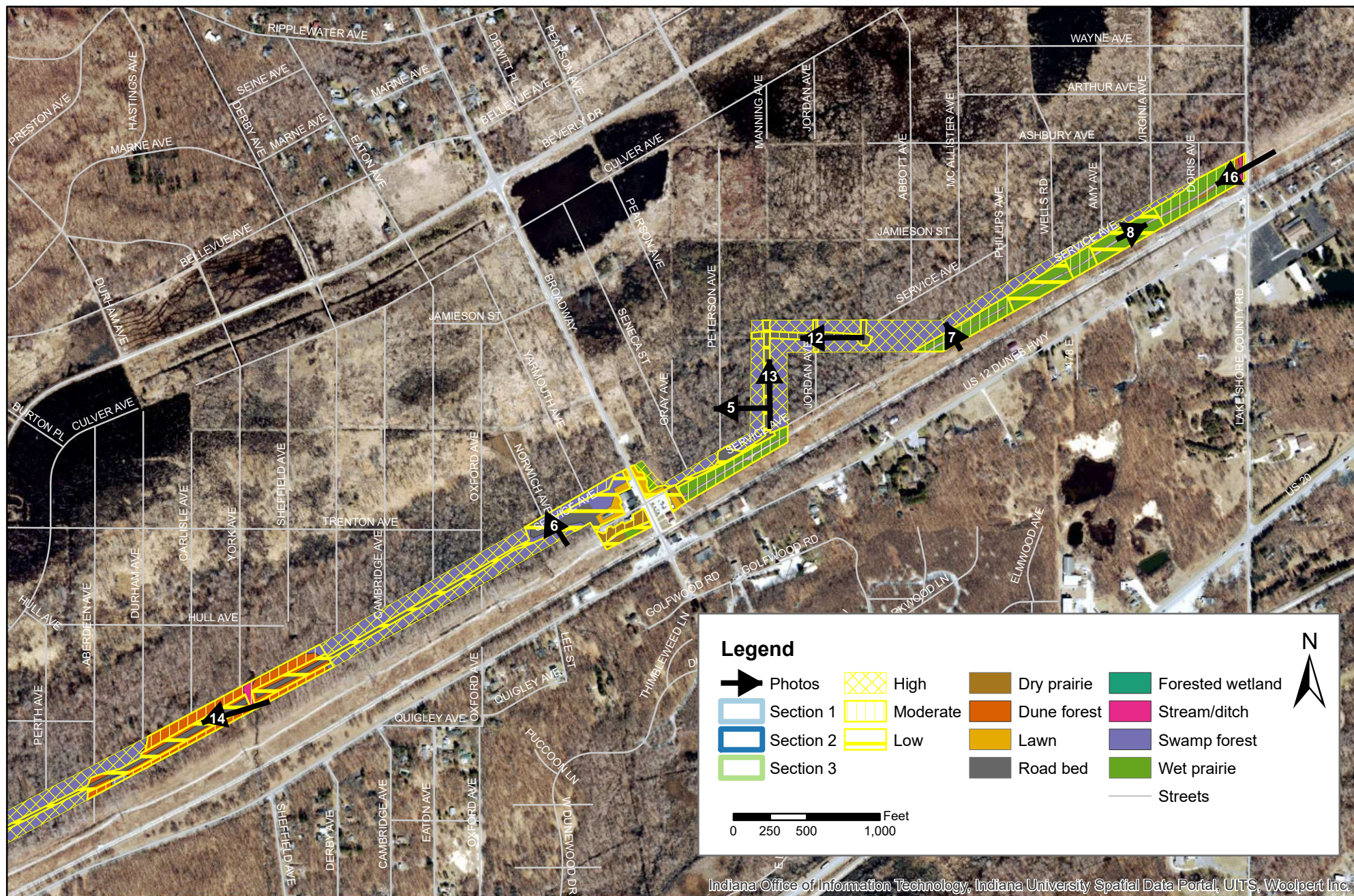
SSI Project #: 17-10A(21)
Print Date: 2/1/2023

Lat: 41.660356 Long: -87.015803
Westchester and Pine Townships
Porter County, Indiana

Plant Community Quality

Marquette Greenway Trail - Calumet Section
Porter County, Indiana

Figure
5.2



360 Indiana Avenue
P.O. Box 229
Valparaiso, Indiana 46384
phone: (219) 465-5885
www.soilsolutions-inc.com

SSI Project #: 17-10A(21)

Print Date: 2/1/2023

Lat: 41.660356 Long: -87.015803
Westchester and Pine Townships
Porter County, Indiana

Plant Community Quality

Marquette Greenway Trail - Calumet Section
Porter County, Indiana

Figure
5.3

APPENDIX B
FLORISTIC QUALITY DATA

1. Dune Forest

SITE:	Marquette Greenway Project - Upland forest, includes dune forest and disturbed 2nd growth forest
LOCALE:	Porter Co
BY:	Lydia Miramontes Loyd
NOTES:	June - October, 2022

CONSERVATISM-BASED METRICS			ADDITIONAL METRICS
MEAN C (NATIVE SPECIES)	4.80	SPECIES RICHNESS (ALL)	164
MEAN C (ALL SPECIES)	3.75	SPECIES RICHNESS (NATIVE)	128
MEAN C (NATIVE TREES)	5.40	% NON-NATIVE	0.22
MEAN C (NATIVE SHRUBS)	5.69	WET INDICATOR (ALL)	0.69
MEAN C (NATIVE HERBACEOUS)	4.53	WET INDICATOR (NATIVE)	0.54
FQAI (NATIVE SPECIES)	54.36	% HYDROPHYTE (MIDWEST)	0.34
FQAI (ALL SPECIES)	48.02	% NATIVE PERENNIAL	0.75
ADJUSTED FQAI	42.45	% NATIVE ANNUAL	0.02
% C VALUE 0	0.29	% ANNUAL	0.02
% C VALUE 1-3	0.16	% PERENNIAL	0.96
% C VALUE 4-6	0.34		
% C VALUE 7-10	0.21		

Dominant species are listed in bold below.

SPECIES ACRONYM	SPECIES NAME (NWPL/MOHLNBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	NC-NE WET INDICATOR	INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
acerub	Acer rubrum	rubrum	Red Maple	5	FAC	0	Tree	Perennial	Native
actpac	Actaea pachypoda	Actaea pachypoda	White Baneberry	8	UPL	1	Forb	Perennial	Native
agrpar	Agrimonia parviflora	Agrimonia parviflora	Harvestlice	4	FAC	-1	Forb	Perennial	Native
ailalt	Ailanthus altissima	AILANTHUS ALTISSIMA	Tree-of-Heaven	0	UPL	1	Tree	Perennial	Adventive
allpet	Alliaria petiolata	ALLIARIA PETIOLATA	Garlic-Mustard	0	FACU	0	Forb	Biennial	Adventive
allcan	Allium canadense	Allium canadense	Meadow Garlic	3	FACU	1	Forb	Perennial	Native
ambart	Ambrosia artemisiifolia	Ambrosia artemisiifolia	Annual Ragweed	0	FACU	1	Forb	Annual	Native
amearb	Amelanchier arborea	Amelanchier arborea	Downy Service-Berry	8	FACU	1	Tree	Perennial	Native
ampbra	Amphicarpaea bracteata	Amphicarpaea bracteata	American Hog-Peanut	5	FAC	0	Vine	Annual	Native
anequi	Anemone quinquefolia	Anemone quinquefolia	Nightcaps	7	FACU	0	Forb	Perennial	Native
aritri	Arisaema triphyllum	Arisaema triphyllum ssp. pusillum;	Jack-In-The-Pulpit	5	FAC	-1	Forb	Perennial	Native
aromel	Aronia melanocarpa	Aronia melanocarpa	Black Chokeberry	7	FACW	-1	Shrub	Perennial	Native
artvul	Artemisia vulgaris	ARTEMISIA VULGARIS	Common Mugwort	0	UPL	2	Forb	Perennial	Adventive
asitri	Asimina triloba	Asimina triloba	Common Pawpaw	10	FAC	0	Tree	Perennial	Native
asppla	Asplenium platyneuron	Asplenium platyneuron	Ebony Spleenwort	3	FACU	1	Fern	Perennial	Native
berthu	Berberis thunbergii	BERBERIS THUNBERGII	Japanese Barberry	0	FACU	1	Shrub	Perennial	Adventive
betnig	Betula nigra	Betula nigra	River Birch	5	FACW	-1	Tree	Perennial	Native
botvir	Botrypus virginianus	Botrypus virginianus	Rattlesnake Fern	5	FACU	1	Fern	Perennial	Native
broine	Bromus inermis	BROMUS INERMIS	Smooth Brome	0	UPL	1	Grass	Perennial	Adventive
bropub	Bromus pubescens	Bromus pubescens; Bromus nottowanus	Hairy Woodland Brome	5	FACU	1	Grass	Perennial	Native

camrad	Campsis radicans	CAMP SIS RADICANS	Trumpet-Creeper	0	FAC	1	Vine	Perennial	Adventive
cxblan	Carex blanda	Carex blanda	Eastern Woodland Sedge	1	FAC	0	Sedge	Perennial	Native
cxpens	Carex pensylvanica	Carex pensylvanica	Pennsylvania Sedge	5	UPL	2	Sedge	Perennial	Native
cxswan	Carex swanii	Carex swanii	Swan's Sedge	5	FACU	1	Sedge	Perennial	Native
carcar	Carpinus caroliniana ssp. virginiana	Carpinus caroliniana virginiana	American Hornbeam	8	FAC	0	Tree	Perennial	Native
carcor	Carya cordiformis	Carya cordiformis	Bitter-Nut Hickory	5	FAC	1	Tree	Perennial	Native
catbig	Catalpa bignonioides	Catalpa bignonioides	Southern Catalpa	0	FACU	1	Tree	Perennial	Adventive
celorb	Celastrus orbiculatus	CELASTRUS ORBICULAT US	Asian Bittersweet	0	UPL	2	Vine	Perennial	Adventive
chimac	Chimaphila maculata	Chimaphila maculata	Spotted Wintergreen	10	UPL	2	Shrub	Perennial	Native
circan	Circaea canadensis	Circaea lutetiana canadensis	Broad-Leaf Enchanter's- Nightshade	3	FACU	1	Forb	Perennial	Native
clivul	Clinopodium vulgare	Satureja vulgaris neogaea	Wild Basil	4	UPL	2	Forb	Perennial	Native
comumb	Comandra umbellata	Comandra umbellata	Bastard-Toadflax	9	FACU	1	Forb	Perennial	Native
coname	Conopholis americana	Conopholis americana	Cancer-Root	8	UPL	2	Forb	Perennial	Native
conmaj	Convallaria majalis	CONVALLARI A MAJALIS	Lily-of-the-Valley	0	UPL	2	Forb	Perennial	Adventive
corflo	Cornus florida	Cornus florida	Flowering Dogwood	8	FACU	1	Tree	Perennial	Native
corrac	Cornus racemosa	Cornus racemosa	Gray Dogwood	1	FAC	0	Shrub	Perennial	Native
corame	Corylus americana	Corylus americana	American Hazelnut	5	FACU	1	Shrub	Perennial	Native
dacglo	Dactylis glomerata	DACTYLIS GLOMERATA	Orchard Grass	0	FACU	1	Grass	Perennial	Adventive
desnud	Desmodium nudiflorum	Hylodesmum nudiflorum	Bare-Stem Tick- Trefoil	9	UPL	2	Forb	Perennial	Native
despan	Desmodium paniculatum	Desmodium paniculatum	Panicled-Leaf Tick- Trefoil	6	FACU	1	Forb	Perennial	Native
dicacu	Dichanthelium acuminatum	Panicum implicatum;	Tapered Rosette Grass	4	FAC	0	Grass	Perennial	Native
dichua	Dichanthelium huachucae	Dichanthelium huachucae	Old-Field Rosette Grass	2	UPL	2	Grass	Perennial	Native
elaumb	Elaeagnus umbellata	ELAEAGNUS UMBELLATA	Autumn-Olive	0	UPL	2	Shrub	Perennial	Adventive
equarv	Equisetum arvense	Equisetum arvense	Field Horsetail	0	FAC	0	Fern	Perennial	Native
equhye	Equisetum hyemale	Equisetum hyemale	Tall Scouring-Rush	1	FAC	-1	Fern	Perennial	Native
eriann	Erigeron annuus	Erigeron annuus	Eastern Daisy Fleabane	0	FACU	1	Forb	Biennial	Native
euoala	Euonymus alatus	EUONYMUS ALATUS	Winged Euonymus	0	UPL	2	Shrub	Perennial	Adventive
euofor	Euonymus hederaceus	EUONYMUS FORTUNEI	Climbing Euonymus	0	UPL	2	Shrub	Perennial	Adventive
astmac	Eurybia macrophylla	Aster macrophyllus	Large-Leaf Wood- Aster	9	UPL	1	Forb	Perennial	Native
eutgra	Euthamia graminifolia	Solidago graminifolia;	Flat-Top Goldentop	4	FAC	-1	Forb	Perennial	Native
faggra	Fagus grandifolia	Fagus grandifolia	American Beech	5	FACU	1	Tree	Perennial	Native
forsus	Forsythia suspensa	FORSYTHIA SUSPENS A	Japanese Golden Bell	0	UPL	2	Shrub	Perennial	Adventive
fravir	Fragaria virginiana	Fragaria virginiana	Virginia Strawberry	0	FACU	1	Forb	Perennial	Native
fraame	Fraxinus americana	Fraxinus americana biltmoreana; Fraxinus biltmoreana	White Ash	5	FACU	1	Tree	Perennial	Native
frapen	Fraxinus pennsylvanica	Fraxinus pennsylvanica subintegerrima; Fraxinus lanceolata	Green Ash	4	FACW	-1	Tree	Perennial	Native
galapa	Galium aparine	Galium spurium	Sticky-Willy	0	FACU	1	Forb	Annual	Native
galcir	Galium circaeazans	Galium circaeazans hypomalacum	Licorice Bedstraw	5	FACU	1	Forb	Perennial	Native

gaupro	Gaultheria procumbens	Gaultheria procumbens	Eastern Teaberry	9	FACU	1	Shrub	Perennial	Native
germac	Geranium maculatum	Geranium maculatum	Spotted Crane's-Bill	5	FACU	1	Forb	Perennial	Native
geucan	Geum canadense	Geum canadense	White Avens	1	FAC	0	Forb	Perennial	Native
hamvir	Hamamelis virginiana	Hamamelis virginiana	American Witch-Hazel	8	FACU	1	Shrub	Perennial	Native
helhir	Helianthus hirsutus	Helianthus hirsutus	Hispid Sunflower	7	UPL	2	Forb	Perennial	Native
heltub	Helianthus tuberosus	Helianthus tuberosus	Jerusalem-Artichoke	3	FACU	1	Forb	Perennial	Native
hemful	Hemerocallis fulva	HEMEROCALLIS FULVA	Orange Day-Lily	0	UPL	2	Forb	Perennial	Adventive
hesmat	Hesperis matronalis	HESPERIS MATRONALIS	Mother-of-the-Evening	0	FACU	1	Forb	Perennial	Adventive
hibsyr	Hibiscus syriacus	HIBISCUS SYRIACUS	Rose-of-Sharon	0	UPL	2	Shrub	Perennial	Adventive
hyppun	Hypericum punctatum	Hypericum punctatum	Spotted St. John's-Wort	4	FAC	0	Forb	Perennial	Native
ileopa	Ilex opaca	ILEX OPACA	American Holly	0	FACU	1	Shrub	Perennial	Adventive
jugnig	Juglans nigra	Juglans nigra	Black Walnut	3	FACU	1	Tree	Perennial	Native
jundud	Juncus dudleyi	Juncus dudleyi	Dudley's Rush	2	FACW	-1	Forb	Perennial	Native
juntun	Juncus tenuis	Juncus tenuis	Lesser Poverty	0	FAC	0	Forb	Perennial	Native
leevir	Leersia virginica	Leersia virginica	White Grass	5	FACW	-1	Grass	Perennial	Native
ligvul	Ligustrum vulgare	LIGUSTRUM VULGARE	European Privet	0	FACU	1	Shrub	Perennial	Adventive
lilmic	Lilium michiganense	Lilium michiganense	Michigan Lily	8	FACW	-1	Forb	Perennial	Native
linben	Lindera benzoin	Lindera benzoin	Northern Spicebush	5	FACW	-1	Shrub	Perennial	Native
lirtul	Liriodendron tulipifera	Liriodendron tulipifera	Tuliptree	5	FACU	1	Tree	Perennial	Native
lonjap	Lonicera japonica	LONICERA JAPONICA	Japanese Honeysuckle	0	FACU	1	Vine	Perennial	Adventive
lonbel	Lonicera X bella	LONICERA X BELLA	Showy Fly Honeysuckle	0	FACU	1	Shrub	Perennial	Adventive
luzbul	Luzula bulbosa	Luzula bulbosa	Bulbous Wood-Rush	8	FACU	1	Forb	Perennial	Native
maican	Maianthemum canadense	Maianthemum canadense	False Lily-of-the-Valley	7	FACU	0	Forb	Perennial	Native
smirac	Maianthemum racemosum	Smilacina racemosa	Feathery False Solomon's-Seal	5	FACU	1	Forb	Perennial	Native
smiste	Maianthemum stellatum	Smilacina stellata	Starry False Solomon's-Seal	5	FAC	0	Forb	Perennial	Native
malpru	Malus prunifolia	MALUS PRUNIFOLIA	Plum-Leaf Crab Apple	0	UPL	2	Tree	Perennial	Adventive
mitrep	Mitchella repens	Mitchella repens	Partridge-Berry	10	FACU	1	Shrub	Perennial	Native
mondid	Monarda didyma	MONARDA DIDYMA	Scarlet Beebalm	0	FACU	2	Forb	Perennial	Adventive
monfis	Monarda fistulosa	Monarda fistulosa	Oswego-Tea	4	FACU	1	Forb	Perennial	Native
monuni	Monotropa uniflora	Monotropa uniflora	One-Flower Indian-Pipe	7	FACU	1	Forb	Perennial	Native
muhmex	Muhlenbergia mexicana	Muhlenbergia mexicana	Mexican Muhly	5	FACW	-1	Grass	Perennial	Native
nabalb	Nabalus albus	Prenanthes alba	White Rattlesnake-Root	5	FACU	1	Forb	Perennial	Native
nyssyl	Nyssa sylvatica	Nyssa sylvatica	Black Tupelo	7	FAC	0	Tree	Perennial	Native
oenbie	Oenothera biennis	Oenothera biennis	King's-Cureall	0	FACU	1	Forb	Biennial	Native
onosen	Onoclea sensibilis	Onoclea sensibilis	Sensitive Fern	5	FACW	-1	Fern	Perennial	Native
osmcli	Osmorhiza claytonii	Osmorhiza claytonii	Hairy Sweet-Cicely	4	FACU	1	Forb	Perennial	Native
osmcin	Osmunda cinnamomeum	Osmunda cinnamomea	Cinnamon Fern	8	FACW	-1	Fern	Perennial	Native
osmspe	Osmunda spectabilis	Osmunda regalis	Royal Fern	8	OBL	-2	Fern	Perennial	Native
ostvir	Ostrya virginiana	Ostrya virginiana	Eastern Hop-Hornbeam	5	FACU	1	Tree	Perennial	Native
oxadil	Oxalis dillenii	Oxalis dillenii	Slender Yellow Wood-Sorrel	0	FACU	1	Forb	Perennial	Native
pacaur	Packera aurea	Senecio aureus	Golden Groundsel	8	FACW	-1	Forb	Perennial	Native
panvir	Panicum virgatum	Panicum virgatum	Wand Panic Grass	3	FAC	0	Grass	Perennial	Native
parqui	Parthenocissus quinquefolia	Parthenocissus quinquefolia	Virginia-Creeper	4	FACU	1	Vine	Perennial	Native

pedcan	Pedicularis canadensis	Pedicularis canadensis	Canadian Lousewort	9	FACU	1	Forb	Perennial	Native
pervir	Persicaria virginiana	Polygonum virginianum	Jumpseed	4	FAC	0	Forb	Perennial	Native
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	-1	Grass	Perennial	Adventive
phlpra	Phleum pratense	PHLEUM PRATENSE	Common Timothy	0	FACU	1	Grass	Perennial	Adventive
phlpan	Phlox paniculata	PHLOX PANICULATA	Fall Phlox	1	FACU	1	Forb	Perennial	Native
PHRLEP	Phryma leptostachya	Phryma leptostachya	Lopseed	6	FACU	2	Forb	Perennial	Native
phyame	Phytolacca americana	Phytolacca americana	American Pokeweed	0	FACU	1	Forb	Perennial	Native
picabi	Picea abies	PICEA ABIES	Norway Spruce	0	UPL	2	Tree	Perennial	Adventive
pinres	Pinus resinosa	Pinus resinosa	Red Pine	10	FACU	1	Tree	Perennial	Native
pinstr	Pinus strobus	Pinus strobus	Eastern White Pine	10	FACU	1	Tree	Perennial	Native
plamaj	Plantago major	PLANTAGO MAJOR	Great Plantain	0	FACU	0	Forb	Perennial	Adventive
poacom	Poa compressa	POA COMPRESSA	Flat-Stem Blue Grass	0	FACU	1	Grass	Perennial	Adventive
poapra	Poa pratensis	POA PRATENSIS	Kentucky Blue Grass	0	FACU	0	Grass	Perennial	Adventive
polcan	Polygonatum biflorum	Polygonatum canaliculatum	King Solomon's-Seal	4	FACU	1	Forb	Perennial	Native
popdel	Populus deltoides	Populus deltoides	Eastern Cottonwood	0	FAC	0	Tree	Perennial	Native
poptre	Populus tremuloides	Populus tremuloides	Quaking Aspen	3	FAC	0	Tree	Perennial	Native
potsim	Potentilla simplex	Potentilla simplex argyrisma	Oldfield Cinquefoil	3	FACU	1	Forb	Perennial	Native
pruvull	Prunella vulgaris ssp. lanceolata	Prunella vulgaris lanceolata	Common Selfheal	1	FAC	0	Forb	Perennial	Native
pruser	Prunus serotina	Prunus serotina	Black Cherry	0	FACU	1	Shrub	Perennial	Native
pruvir	Prunus virginiana	Prunus virginiana	Choke Cherry	3	FACU	1	Shrub	Perennial	Native
pteagu	Pteridium aquilinum var. latiusculum	Pteridium aquilinum latiusculum	Northern Bracken Fern	5	FACU	1	Fern	Perennial	Native
pyrell	Pyrola elliptica	Pyrola elliptica	Shinleaf	10	FACU	1	Forb	Perennial	Native
quealb	Quercus alba	Quercus alba	Northern White Oak	5	FACU	1	Tree	Perennial	Native
quepau	Quercus palustris	Quercus palustris	Pin Oak	5	FACW	-1	Tree	Perennial	Native
querub	Quercus rubra	Quercus rubra	Northern Red Oak	5	FACU	1	Tree	Perennial	Native
quevel	Quercus velutina	Quercus velutina	Black Oak	5	UPL	2	Tree	Perennial	Native
rhutyp	Rhus hirta	Rhus typhina	Staghorn Sumac	1	UPL	2	Tree	Perennial	Native
ribmis	Ribes missouriense	Ribes missouriense	Missouri Gooseberry	2	UPL	2	Shrub	Perennial	Native
robpse	Robinia pseudoacacia	ROBINIA PSEUDOACACIA	Black Locust	0	FACU	1	Tree	Perennial	Adventive
rosmul	Rosa multiflora	ROSA MULTIFLORA	Rambler Rose	0	FACU	1	Shrub	Perennial	Adventive
ruball	Rubus allegheniensis	Rubus allegheniensis	Allegheny Blackberry	3	FACU	1	Shrub	Perennial	Native
rubhis	Rubus hispidus	Rubus hispidus	Bristly Dewberry	7	FACW	-1	Shrub	Perennial	Native
sangre	Sanicula odorata	Sanicula gregaria	Clustered Black-Snakeroot	3	FAC	0	Forb	Perennial	Native
sapoff	Saponaria officinalis	SAPONARIA OFFICINALIS	Bouncing-Bett	0	FACU	1	Forb	Perennial	Adventive
sasalb	Sassafras albidum	Sassafras albidum	Sassafras	3	FACU	1	Tree	Perennial	Native
scharu	Schedonorus arundinaceus	SCHEDONORUS ARUNDINACEUS	Tall False Rye Grass	0	FACU	1	Grass	Perennial	Adventive
schsco	Schizachyrium scoparium	Andropogon scoparius	Little False Bluestem	5	FACU	1	Grass	Perennial	Native
smitam	Smilax hispida	Smilax tamnoides hispida	Chinaroot	4	FAC	0	Vine	Perennial	Native
smilas	Smilax lasioneuron	Smilax lasioneura	Common Carrion Flower	5	UPL	2	Vine	Perennial	Native
smirot	Smilax rotundifolia	Smilax rotundifolia	Horsebrier	5	FAC	0	Vine	Perennial	Native

solcae	Solidago caesia	Solidago caesia	Wreath Goldenrod	8	FACU	1	Forb	Perennial	Native
solcan	Solidago canadensis	Solidago canadensis	Canadian Goldenrod	1	FACU	1	Forb	Perennial	Native
solgig	Solidago gigantea	Solidago gigantea	Late Goldenrod	4	FACW	-1	Forb	Perennial	Native
solrug	Solidago rugosa	Solidago rugosa	Wrinkle-Leaf Goldenrod	6	FAC	0	Forb	Perennial	Native
astsim	Symphotrichum lanceolatum	Aster simplex	White Panicked American-Aster	3	FACW	0	Forb	Perennial	Native
astlat	Symphotrichum lateriflorum	Aster lateriflorus	Farewell-Summer	4	FAC	-1	Forb	Perennial	Native
astpra	Symphotrichum praealtum	Aster praealtus	Willow-Leaf American-Aster	7	FACW	-1	Forb	Perennial	Native
symfoe	Symplocarpus foetidus	Symplocarpus foetidus	Skunk-Cabbage	8	OBL	-2	Forb	Perennial	Native
syrvul	Syringa vulgaris	SYRINGA VULGARIS	Common Lilac	0	UPL	2	Shrub	Perennial	Adventive
tilame	Tilia americana	Tilia americana	American Basswood	5	FACU	1	Tree	Perennial	Native
toxrad	Toxicodendron radicans	Rhus radicans	Eastern Poison-Ivy	2	FAC	0	Vine	Perennial	Native
traohi	Tradescantia ohimensis	Tradescantia ohimensis	Bluejacket	3	FACU	1	Forb	Perennial	Native
trasub	Tradescantia subaspera	Tradescantia subaspera	Broad-Leaf Spiderwort	7	UPL	2	Forb	Perennial	Native
trigra	Trillium grandiflorum	Trillium grandiflorum	Large White Trillium	9	UPL	2	Forb	Perennial	Native
trirec	Trillium recurvatum	Trillium recurvatum	Bloody-Butcher	5	FACU	1	Forb	Perennial	Native
vacang	Vaccinium angustifolium	Vaccinium angustifolium	Late Lowbush Blueberry	6	FACU	1	Shrub	Perennial	Native
vacpal	Vaccinium pallidum	Vaccinium pallidum	Low-Bush Blueberry	6	UPL	2	Shrub	Perennial	Native
vibace	Viburnum acerifolium	Viburnum acerifolium	Maple-Leaf Arrow-Wood	9	UPL	2	Shrub	Perennial	Native
vibden	Viburnum dentatum	VIBURNUM DENTATUM VAR. SCABRELLUM	Southern Arrow-Wood	0	FAC	0	Shrub	Perennial	Adventive
vinmin	Vinca minor	VINCA MINOR	Common Periwinkle	0	UPL	2	Shrub	Perennial	Adventive
viopub	Viola pubescens	Viola pubescens var. scabriuscula	Downy Yellow Violet	5	FACU	1	Forb	Perennial	Native
vitaes	Vitis aestivalis	Vitis aestivalis	Summer Grape	5	FACU	1	Vine	Perennial	Native
vitrip	Vitis riparia	Vitis riparia var. syrticola	River-Bank Grape	1	FAC	-1	Vine	Perennial	Native
vitvul	Vitis vulpina	Vitis vulpina	Frost Grape	5	FAC	0	Vine	Perennial	Native

2. Swamp Forest

SITE:	Hydromesophytic swamp forest
LOCALE:	Porter County, INDP
BY:	Lydia Miramontes Loyd
NOTES:	June - October, 2022

CONSERVATISM-BASED METRICS				ADDITIONAL METRICS
MEAN C (NATIVE SPECIES)	6.05		SPECIES RICHNESS (ALL)	66
MEAN C (ALL SPECIES)	5.77		SPECIES RICHNESS (NATIVE)	63
MEAN C (NATIVE TREES)	5.36		% NON-NATIVE	0.05
MEAN C (NATIVE SHRUBS)	5.43		WET INDICATOR (ALL)	-0.62
MEAN C (NATIVE HERBACEOUS)	6.40		WET INDICATOR (NATIVE)	-0.68
FQAI (NATIVE SPECIES)	48.00		% HYDROPHYTE (MIDWEST)	0.76
FQAI (ALL SPECIES)	46.90		% NATIVE PERENNIAL	0.89
ADJUSTED FQAI	59.09		% NATIVE ANNUAL	0.06
% C VALUE 0	0.06		% ANNUAL	0.08
% C VALUE 1-3	0.06		% PERENNIAL	0.92
% C VALUE 4-6	0.45			
% C VALUE 7-10	0.42			

Dominant species listed in bold below.

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	NC-NE WET INDICATOR	WET INDICATOR	HABIT	DURATION	NATIVITY
acerub	Acer rubrum	Acer	Red Maple	5	FAC	0	Tree	Perennial	Native
apiame	Apios americana	Apios americana	Groundnut	5	FACW	-1	Forb	Perennial	Native
aritri	Arisaema triphyllum	Arisaema triphyllum ssp. pusillum; Arisaema triphyllum ssp. stewardsonii	Jack-In-The-Pulpit	5	FAC	-1	Forb	Perennial	Native
boecyl	Boehmeria cylindrica	Boehmeria cylindrica drummondiana	Small-Spike False Nettle	5	OBL	-2	Forb	Perennial	Native
calcan	Calamagrostis canadensis	Calamagrostis canadensis	Bluejoint	6	OBL	-2	Grass	Perennial	Native
calpal	Caltha palustris	Caltha palustris	Yellow Marsh-Marigold	8	OBL	-2	Forb	Perennial	Native
cxagua	Carex aquatilis	Carex aquatilis altior	Leafy Tussock Sedge	8	OBL	-2	Sedge	Perennial	Native
cxbrom	Carex bromoides	Carex bromoides	Brome-Like Sedge	10	FACW	-1	Sedge	Perennial	Native
cxcrin	Carex crinita	Carex crinita	Fringed Sedge	7	OBL	-2	Sedge	Perennial	Native
cxfall	Carex folliculata	Carex folliculata	Northern Long Sedge	10	OBL	-2	Sedge	Perennial	Native
cxgray	Carex grayi	Carex grayi	Gray's Sedge	7	FACW	-1	Sedge	Perennial	Native
cxintu	Carex intumescens	Carex intumescens	Greater Bladder Sedge	8	FACW	-1	Sedge	Perennial	Native
cxlacu	Carex lacustris	Carex lacustris	Lakebank Sedge	5	OBL	-2	Sedge	Perennial	Native
cxradi	Carex radiata	Carex radiata	Eastern Star Sedge	5	FAC	2	Sedge	Perennial	Native
cxrose	Carex rosea	Carex rosea	Rosy Sedge	5	UPL	2	Sedge	Perennial	Native
cxstip	Carex stipata	Carex stipata	Stalk-Grain Sedge	4	OBL	-2	Sedge	Perennial	Native
carcar	Carpinus caroliniana ssp. virginiana	Carpinus caroliniana virginiana	American Hornbeam	8	FAC	0	Tree	Perennial	Native
chegla	Chelone glabra	Chelone glabra	White Turtlehead	8	OBL	-2	Forb	Perennial	Native
chrame	Chrysosplenium americanum	Chrysosplenium americanum	American Golden-Saxifrage	10	OBL	-2	Forb	Perennial	Native
cicmac	Cicuta maculata	Cicuta maculata	Spotted Water-Hemlock	6	OBL	-2	Forb	Perennial	Native

clevir	Clematis virginiana	Clematis virginiana	Devil's-Darning-Needles	4	FAC	0	Vine	Perennial	Native
corrac	Cornus racemosa	Cornus racemosa	Gray Dogwood	1	FAC	0	Shrub	Perennial	Native
cusgro	Cuscuta gronovii	Cuscuta gronovii	Common Dodder	5	UPL	2	Vine	Annual	Native
dicacu	Dichanthelium acuminatum	Panicum implicatum;	Tapered Rosette Grass	4	FAC	0	Grass	Perennial	Native
astumb	Doellingeria umbellata	Aster umbellatus	Parasol White-Top	8	FACW	-1	Forb	Perennial	Native
drycar	Dryopteris carthusiana	Dryopteris spinulosa	Spinulose Wood Fern	8	FACW	-1	Fern	Perennial	Native
elaumb	Elaeagnus umbellata	ELAEAGNUS UMBELLATA	Autumn-Olive	0	UPL	2	Shrub	Perennial	Adventive
faggra	Fagus grandifolia	Fagus grandifolia	American Beech	5	FACU	1	Tree	Perennial	Native
frabil	Fraxinus americana	Fraxinus americana biltmoreana; Fraxinus biltmoreana; Fraxinus smallii	White Ash	5	FACU	1	Tree	Perennial	Native
frapen	Fraxinus pennsylvanica	Fraxinus pennsylvanica subintegerrima; Fraxinus lanceolata	Green Ash	4	FACW	-1	Tree	Perennial	Native
galtrl	Galium triflorum	Galium triflorum	Fragrant Bedstraw	5	FACU	1	Forb	Perennial	Native
geucan	Geum canadense	Geum canadense	White Avena	1	FAC	0	Forb	Perennial	Native
glystr	Glyceria striata	Glyceria striata var. stricta	Fowl Manna Grass	4	OBL	-2	Grass	Perennial	Native
ilever	Ilex verticillata	Ilex verticillata	Common Winterberry	10	FACW	-1	Shrub	Perennial	Native
leeroy	Leersia oryzoides	Leersia oryzoides	Rice Cut Grass	3	OBL	-2	Grass	Perennial	Native
lilmic	Lilium michiganense	Lilium michiganense	Michigan Lily	8	FACW	-1	Forb	Perennial	Native
linben	Lindera benzoin	Lindera benzoin	Northern Spicebush	5	FACW	-1	Shrub	Perennial	Native
lirtul	Liriodendron tulipifera	Liriodendron tulipifera	Tuliptree	5	FACU	1	Tree	Perennial	Native
maican	Maianthemum canadense	Maianthemum canadense interius	False Lily-of-the-Valley	7	FACU	0	Forb	Perennial	Native
mitrep	Mitchella repens	Mitchella repens	Partridge-Berry	10	FACU	1	Shrub	Perennial	Native
nyssyl	Nyssa sylvatica	Nyssa sylvatica	Black Tupelo	7	FAC	0	Tree	Perennial	Native
onosen	Onoclea sensibilis	Onoclea sensibilis	Sensitive Fern	5	FACW	-1	Fern	Perennial	Native
osmcin	Osmunda cinnamomeum	Osmunda cinnamomea	Cinnamon Fern	8	FACW	-1	Fern	Perennial	Native
osmregs	Osmunda spectabilis	Osmunda regalis spectabilis	Royal Fern	8	OBL	-2	Fern	Perennial	Native
pacgla	Packera glabella	SENECTIO GLABELLUS	Cress-Leaf Groundsel	0	FACW	-1	Forb	Annual	Adventive
perari	Persicaria arifolia	Polygonum arifolium pubescens; Tracaulon arifolium	Halberd-Leaf Tearthumb	9	OBL	-2	Forb	Annual	Native
persag	Persicaria sagittata	Polygonum sagittatum; Tracaulon sagittatum	Arrow-Leaf Tearthumb	7	OBL	-2	Forb	Annual	Native
pervir	Persicaria virginiana	Polygonum virginianum	Jumpseed	4	FAC	0	Forb	Perennial	Native
pilpum	Pilea pumila	Pilea pumila	Canadian Clearweed	2	FACW	-1	Forb	Annual	Native
podpel	Podophyllum peltatum	Podophyllum peltatum	May-Apple	4	FACU	1	Forb	Perennial	Native
pruser	Prunus serotina	Prunus serotina	Black Cherry	0	FACU	1	Shrub	Perennial	Native
quealb	Quercus alba	Quercus alba	Northern White Oak	5	FACU	1	Tree	Perennial	Native
quepau	Quercus palustris	Quercus palustris	Pin Oak	5	FACW	-1	Tree	Perennial	Native
rosmul	Rosa multiflora	ROSA MULTIFLORA	Rambler Rose	0	FACU	1	Shrub	Perennial	Adventive
rubfla	Rubus flagellaris	Rubus enslenii	Whiplash Dewberry	5	FACU	1	Shrub	Perennial	Native

rubhis	Rubus hispidus	Rubus hispidus	Bristly Dewberry	7	FACW	-1	Shrub	Perennial	Native
salnig	Salix nigra	Salix nigra	Black Willow	5	OBL	-2	Tree	Perennial	Native
saucer	Saururus cernuus	Saururus cernuus	Lizard's-Tail	7	OBL	-2	Forb	Perennial	Native
siumua	Sium suave	Sium suave	Hemlock Water-Parsnip	7	OBL	-2	Forb	Perennial	Native
solpat	Solidago patula	Solidago patula	Round-Leaf Goldenrod	9	OBL	-2	Forb	Perennial	Native
solrug	Solidago rugosa	Solidago rugosa	Wrinkle-Leaf Goldenrod	6	FAC	0	Forb	Perennial	Native
astlat	Symphyotrichum lateriflorum	Aster lateriflorus	Farewell-Summer	4	FAC	-1	Forb	Perennial	Native
symfoe	Symplocarpus foetidus	Symplocarpus foetidus	Skunk-Cabbage	8	OBL	-2	Forb	Perennial	Native
thenov	Thelypteris noveboracensis	Dryopteris noveboracensis	New York Fern	10	UPL	2	Fern	Perennial	Native
thepal	Thelypteris palustris var. pubescens	Dryopteris thelypteris pubescens	Eastern Marsh Fern	7	FACW	-2	Fern	Perennial	Native
tilame	Tilia americana	Tilia americana	American Basswood	5	FACU	1	Tree	Perennial	Native

3. Wet Prairie

SITE:	Marquette Greenway Project - Mesic prairie along the Calumet Trail
LOCALE:	Porter Co
BY:	Lydia Miramontes Loyd
NOTES:	June - October, 2022

CONSERVATISM-BASED METRICS			ADDITIONAL METRICS
MEAN C (NATIVE SPECIES)	4.39	SPECIES RICHNESS (ALL)	93
MEAN C (ALL SPECIES)	3.73	SPECIES RICHNESS (NATIVE)	79
MEAN C (NATIVE TREES)	3.33	% NON-NATIVE	0.15
MEAN C (NATIVE SHRUBS)	4.40	WET INDICATOR (ALL)	-0.90
MEAN C (NATIVE HERBACEOUS)	4.58	WET INDICATOR (NATIVE)	-1.04
FQAI (NATIVE SPECIES)	39.04	% HYDROPHYTE (MIDWEST)	0.86
FQAI (ALL SPECIES)	35.98	% NATIVE PERENNIAL	0.76
ADJUSTED FQAI	40.48	% NATIVE ANNUAL	0.09
% C VALUE 0	0.19	% ANNUAL	0.10
% C VALUE 1-3	0.22	% PERENNIAL	0.89
% C VALUE 4-6	0.45		
% C VALUE 7-10	0.14		

Dominant species listed in bold below.

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
acerub	Acer rubrum	Acer rubrum	Red Maple	5	FAC	0	Tree	Perennial	Native
achmil	Achillea millefolium	ACHILLEA MILLEFOLIUM	Common Yarrow	0	FACU	1	Forb	Perennial	Adventive
agapur	Agalinis purpurea	Agalinis purpurea	Purple False Foxglove	6	FACW	-1	Forb	Annual	Native
agrgig	Agrostis gigantea	AGROSTIS ALBA	Black Bent	0	FACW	-1	Grass	Perennial	Adventive
alnglu	Alnus glutinosa	ALNUS GLUTINOSA	European Alder	0	FACW	-1	Tree	Perennial	Adventive
ampbra	Amphicarpaea bracteata	Amphicarpaea bracteata	American Hog-Peanut	5	FAC	0	Vine	Annual	Native
apiame	Apios americana	Apios americana	Groundnut	5	FACW	-1	Forb	Perennial	Native
apocan	Apocynum cannabinum	Apocynum sibiricum	Indian-Hemp	2	FAC	0	Forb	Perennial	Native
ascinc	Asclepias incarnata	Asclepias incarnata	Swamp Milkweed	3	OBL	-2	Forb	Perennial	Native
ascsy	Asclepias syriaca	Asclepias syriaca	Common Milkweed	0	UPL	1	Forb	Perennial	Native
bidcer	Bidens cernua	Bidens cernua	Nodding Burr-Marigold	3	OBL	-2	Forb	Annual	Native
boecyl	Boehmeria cylindrica	Boehmeria cylindrica drummondiana	Small-Spike False Nettle	5	OBL	-2	Forb	Perennial	Native
calcan	Calamagrostis canadensis	Calamagrostis canadensis	Bluejoint	6	OBL	-2	Grass	Perennial	Native
calsep	Calystegia sepium	Convolvulus sepium	Hedge False Bindweed	1	FAC	0	Forb	Perennial	Native
cxlacu	Carex lacustris	Carex lacustris	Lakebank Sedge	5	OBL	-2	Sedge	Perennial	Native
cxlupn	Carex lupulina	Carex lupulina	Hop Sedge	6	OBL	-2	Sedge	Perennial	Native
cxstri	Carex stricta	Carex stricta	Upright Sedge	5	OBL	-2	Sedge	Perennial	Native
celorb	Celastrus orbiculatus	CELASTRUS ORBICULATUS	Asian Bittersweet	0	UPL	2	Vine	Perennial	Adventive
cenpul	Centaurium pulchellum	CENTAURIUM PULCHELLUM	Branched Centaury	0	FAC	1	Forb	Annual	Adventive
chegla	Chelone glabra	Chelone glabra	White Turtlehead	8	OBL	-2	Forb	Perennial	Native
cicmac	Cicuta maculata	Cicuta maculata	Spotted Water-Hemlock	6	OBL	-2	Forb	Perennial	Native

circan	Circaea canadensis	Circaea lutea canadensis	Broad-Leaf Enchanter's- Nightshade	3	FACU	1	Forb	Perennial	Native
clevir	Clematis virginiana	Clematis virginiana	Devil's-Darning- Needles	4	FAC	0	Vine	Perennial	Native
corrac	Cornus racemosa	Cornus racemosa	Gray Dogwood	1	FAC	0	Shrub	Perennial	Native
corame	Corylus americana	Corylus americana	American Hazelnut	5	FACU	1	Shrub	Perennial	Native
dicacu	Dichanthelium acuminatum	Panicum implicatum;	Tapered Rosette Grass	4	FAC	0	Grass	Perennial	Native
diccla	Dichanthelium clandestinum	Panicum clandestinum	Deer-Tongue Rosette Grass	4	FACW	-1	Grass	Perennial	Native
diovil	Dioscorea villosa	Dioscorea villosa	Wild Yam	5	FAC	0	Vine	Perennial	Native
astumb	Doellingeria umbellata	Aster umbellatus	Parasol White-Top	8	FACW	-1	Forb	Perennial	Native
echlob	Echinocystis lobata	Echinocystis lobata	Wild Cucumber	4	FACW	-1	Vine	Annual	Native
eupper	Eupatorium perfoliatum	Eupatorium perfoliatum	Common Boneset	4	FACW	-2	Forb	Perennial	Native
eupser	Eupatorium serotinum	Eupatorium serotinum	Late-Flowering Thoroughwort	0	FAC	0	Forb	Perennial	Native
eutgra	Euthamia graminifolia	Solidago graminifolia; Solidago graminifolia nuttallii; Euthamia nuttallii	Flat-Top Goldentop	4	FAC	-1	Forb	Perennial	Native
eupmac	Eutrochium maculatum	Eupatorium maculatum	Spotted Trumpetweed	5	OBL	-2	Forb	Perennial	Native
frapen	Fraxinus pennsylvanica	Fraxinus pennsylvanica subintegerrima; Fraxinus lanceolata	Green Ash	4	FACW	-1	Tree	Perennial	Native
helgro	Helianthus grosseserratus	Helianthus grosseserratus	Saw-Tooth Sunflower	4	FACW	-1	Forb	Perennial	Native
heltub	Helianthus tuberosus	Helianthus tuberosus	Jerusalem- Artichoke	3	FACU	1	Forb	Perennial	Native
impcap	Impatiens capensis	Impatiens capensis	Spotted Touch- Me-Not	3	FACW	-1	Forb	Annual	Native
irivir	Iris virginica var. shrevei	Iris virginica shrevei	Virginia Blueflag	5	OBL	-2	Forb	Perennial	Native
junacu	Juncus acuminatus	Juncus acuminatus	Knotty-Leaf Rush	4	OBL	-2	Forb	Perennial	Native
junart	Juncus articulatus	Juncus articulatus	Joint-Leaf Rush	8	OBL	-2	Forb	Perennial	Native
juncan	Juncus canadensis	Juncus canadensis	Canadian Rush	5	OBL	-2	Forb	Perennial	Native
jundud	Juncus dudleyi	Juncus dudleyi	Dudley's Rush	2	FACW	-1	Forb	Perennial	Native
juneff	Juncus effusus ssp. solutus	Juncus effusus	Lamp Rush	5	OBL	-2	Forb	Perennial	Native
juntor	Juncus torreyi	Juncus torreyi	Torrey's Rush	2	FACW	-1	Forb	Perennial	Native
lapcan	Laportea canadensis	Laportea canadensis	Canadian Wood- Nettle	5	FACW	-1	Forb	Perennial	Native
leeory	Leersia oryzoides	Leersia oryzoides	Rice Cut Grass	3	OBL	-2	Grass	Perennial	Native
linben	Lindera benzoin	Lindera benzoin	Northern Spicebush	5	FACW	-1	Shrub	Perennial	Native
lobcar	Lobelia cardinalis	Lobelia cardinalis	Cardinal-Flower	7	OBL	-2	Forb	Perennial	Native
lobsip	Lobelia siphilitica	Lobelia siphilitica	Great Blue Lobelia	4	FACW	-2	Forb	Perennial	Native
ludalt	Ludwigia alternifolia	Ludwigia alternifolia	Seedbox	6	OBL	-2	Forb	Perennial	Native
lycame	Lycopus americanus	Lycopus americanus	Cut-Leaf Water- Horehound	4	OBL	-2	Forb	Perennial	Native
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	-2	Forb	Perennial	Adventive
melalb	Melilotus albus	MELILOTUS ALBA	White Sweet-Clover	0	UPL	2	Forb	Biennial	Adventive
mimir	Mimulus ringens	Mimulus ringens	Allegheny Monkey- Flower	4	OBL	-2	Forb	Perennial	Native
onosen	Onoclea sensibilis	Onoclea sensibilis	Sensitive Fern	5	FACW	-1	Fern	Perennial	Native
osmspe	Osmunda spectabilis	Osmunda regalis spectabilis	Royal Fern	8	OBL	-2	Fern	Perennial	Native
senaur	Packera aurea	Senecio aureus	Golden Groundsel	8	FACW	-1	Forb	Perennial	Native

panvir	Panicum virgatum	Panicum virgatum	Wand Panic Grass	3	FAC	0	Grass	Perennial	Native
parqui	Parthenocissus quinquefolia	Parthenocissus quinquefolia	Virginia-Creeper	4	FACU	1	Vine	Perennial	Native
peramp	Persicaria amphibia	Polygonum coccineum; Polygonum amphibium stipulaceum	Water Smartweed	4	OBL	-2	Forb	Perennial	Native
persag	Persicaria sagittata	Polygonum sagittatum; Tracaulon sagittatum	Arrow-Leaf Tearthumb	7	OBL	-2	Forb	Annual	Native
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0	FACW	-1	Grass	Perennial	Adventive
phrausu	Phragmites australis ssp. australis	PHRAGMITES AUSTRALIS	Common Reed	0	FACW	-1	Grass	Perennial	Adventive
pilpum	Pilea pumila	Pilea pumila	Canadian Clearweed	2	FACW	-1	Forb	Annual	Native
popdel	Populus deltoides	Populus deltoides	Eastern Cottonwood	0	FAC	0	Tree	Perennial	Native
poptre	Populus tremuloides	Populus tremuloides	Quaking Aspen	3	FAC	0	Tree	Perennial	Native
quepau	Quercus palustris	Quercus palustris	Pin Oak	5	FACW	-1	Tree	Perennial	Native
rosmul	Rosa multiflora	ROSA MULTIFLORA	Rambler Rose	0	FACU	1	Shrub	Perennial	Adventive
rospal	Rosa palustris	Rosa palustris	Swamp Rose	8	OBL	-2	Shrub	Perennial	Native
saldis	Salix discolor	Salix discolor	Pussy Willow	3	FACW	-1	Shrub	Perennial	Native
sciatv	Scirpus atrovirens	Scirpus atrovirens	Dark-Green Bulrush	4	OBL	-2	Sedge	Perennial	Native
scicyp	Scirpus cyperinus	Scirpus cyperinus	Cottongrass Bulrush	6	OBL	-2	Sedge	Perennial	Native
sculat	Scutellaria lateriflora	Scutellaria lateriflora	Mad Dog Skullcap	4	OBL	-2	Forb	Perennial	Native
erehie	Senecio hieraciifolius	Erechtites hieraciifolia	American Burnweed	0	FACU	0	Forb	Annual	Native
soldul	Solanum dulcamara	SOLANUM DULCAMARA	Climbing Nightshade	0	FAC	0	Vine	Perennial	Adventive
solcan	Solidago canadensis	Solidago canadensis	Canadian Goldenrod	1	FACU	1	Forb	Perennial	Native
solpat	Solidago patula	Solidago patula	Round-Leaf Goldenrod	9	OBL	-2	Forb	Perennial	Native
solrug	Solidago rugosa	Solidago rugosa	Wrinkle-Leaf Goldenrod	6	FAC	0	Forb	Perennial	Native
sonarv	Sonchus arvensis	SONCHUS ARVENSIS	Field Sow-Thistle	0	FACU	1	Forb	Perennial	Adventive
spicer	Spiranthes cernua	Spiranthes cernua	White Nodding Ladies'-Tresses	4	FACW	-1	Forb	Perennial	Native
astsim	Symphyotrichum lanceolatum	Aster simplex	White Panicked American-Aster	3	FACW	0	Forb	Perennial	Native
astlat	Symphyotrichum lateriflorum	Aster lateriflorus	Farewell-Summer	4	FAC	-1	Forb	Perennial	Native
astpra	Symphyotrichum praealtum	Aster praealtus	Willow-Leaf American-Aster	7	FACW	-1	Forb	Perennial	Native
astpun	Symphyotrichum puniceum	Aster puniceus; Aster puniceus firmus	Purple-Stem American-Aster	8	OBL	-2	Forb	Perennial	Native
symfoe	Symplocarpus foetidus	Symplocarpus foetidus	Skunk-Cabbage	8	OBL	-2	Forb	Perennial	Native
drythe	Thelypteris palustris var. pubescens	Dryopteris thelypteris pubescens	Eastern Marsh Fern	7	FACW	-2	Fern	Perennial	Native
toxrad	Toxicodendron radicans	Rhus radicans	Eastern Poison-Ivy	2	FAC	0	Vine	Perennial	Native
typang	Typha angustifolia	TYPHA ANGUSTIFOLIA	Narrow-Leaf Cat-Tail	0	OBL	-2	Forb	Perennial	Adventive
typgla	Typha X glauca	TYPHA X GLAUCA	Hybrid Cat-Tail	0	OBL	-2	Forb	Perennial	Adventive
ulmame	Ulmus americana	Ulmus americana	American Elm	3	FACW	-1	Tree	Perennial	Native
vitlab	Vitis labrusca	Vitis labrusca	Fox Grape	5	FACU	1	Vine	Perennial	Native
vitrip	Vitis riparia	Vitis riparia var. syrticola	River-Bank Grape	1	FAC	-1	Vine	Perennial	Native

4. Forested Wetland

SITE:	Marquette Greenway Project - Forested wetlands not including hydromesophytic swamp forest in the Great Marsh
LOCALE:	Porter Co
BY:	Lydia Miramontes Loyd
NOTES:	June - October, 2022

CONSERVATISM-BASED METRICS			ADDITIONAL METRICS
MEAN C (NATIVE SPECIES)	5.04	SPECIES RICHNESS (ALL)	97
MEAN C (ALL SPECIES)	4.41	SPECIES RICHNESS (NATIVE)	85
MEAN C (NATIVE TREES)	4.94	% NON-NATIVE	0.12
MEAN C (NATIVE SHRUBS)	5.78	WET INDICATOR (ALL)	-0.46
MEAN C (NATIVE HERBACEOUS)	5.07	WET INDICATOR (NATIVE)	-0.54
FQAI (NATIVE SPECIES)	46.42	% HYDROPHYTE (MIDWEST)	0.73
FQAI (ALL SPECIES)	43.46	% NATIVE PERENNIAL	0.80
ADJUSTED FQAI	47.14	% NATIVE ANNUAL	0.07
% C VALUE 0	0.14	% ANNUAL	0.08
% C VALUE 1-3	0.14	% PERENNIAL	0.91
% C VALUE 4-6	0.48		
% C VALUE 7-10	0.23		

Dominant species are listed in bold.

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
acerub	Acer rubrum	Acer	Red Maple	5	FAC	0	Tree	Perennial	Native
acesai	Acer saccharinum	Acer saccharinum	Silver Maple	1	FACW	-1	Tree	Perennial	Native
adiped	Adiantum pedatum	Adiantum pedatum	Northern Maidenhair	10	FACU	1	Fern	Perennial	Native
allpet	Alliaria petiolata	ALLIARIA PETIOLATA	Garlic-Mustard	0	FACU	0	Forb	Biennial	Adventive
amearb	Amelanchier arborea	Amelanchier arborea	Downy Service-Berry	8	FACU	1	Tree	Perennial	Native
ampbra	Amphicarpaea bracteata	Amphicarpaea bracteata	American Hog-Peanut	5	FAC	0	Vine	Annual	Native
apiame	Apios americana	Apios americana	Groundnut	5	FACW	-1	Forb	Perennial	Native
aritri	Arisaema triphyllum	Arisaema triphyllum ssp. pusillum; Arisaema triphyllum ssp. stewardsonii	Jack-In-The-Pulpit	5	FAC	-1	Forb	Perennial	Native
berthu	Berberis thunbergii	BERBERIS THUNBERGII	Japanese Barberry	0	FACU	1	Shrub	Perennial	Adventive
bidfro	Bidens frondosa	Bidens frondosa	Devil's-Pitchfork	1	FACW	-1	Forb	Annual	Native
boecyl	Boehmeria cylindrica	Boehmeria cylindrica drummondiana	Small-Spike False Nettle	5	OBL	-2	Forb	Perennial	Native
bropub	Bromus pubescens	Bromus pubescens; Bromus nottowanensis	Hairy Woodland Brome	5	FACU	1	Grass	Perennial	Native
cxblan	Carex blanda	Carex blanda	Eastern Woodland Sedge	1	FAC	0	Sedge	Perennial	Native
cxbrom	Carex bromoides	Carex bromoides	Brome-Like Sedge	10	FACW	-1	Sedge	Perennial	Native
cxradi	Carex radiata	Carex radiata	Eastern Star Sedge	5	FAC	2	Sedge	Perennial	Native
cxrose	Carex rosea	Carex rosea	Rosy Sedge	5	UPL	2	Sedge	Perennial	Native
cxstip	Carex stipata	Carex stipata	Stalk-Grain Sedge	4	OBL	-2	Sedge	Perennial	Native

carcar	Carpinus caroliniana ssp. virginiana	Carpinus caroliniana virginiana	American Hornbeam	8	FAC	0	Tree	Perennial	Native
carcor	Carya cordiformis	Carya cordiformis	Bitter-Nut Hickory	5	FAC	1	Tree	Perennial	Native
celorb	Celastrus orbiculatus	CELASTRUS ORBICULATUS	Asian Bittersweet	0	UPL	2	Vine	Perennial	Adventive
cepocc	Cephalanthus occidentalis	Cephalanthus occidentalis	Common Buttonbush	5	OBL	-2	Shrub	Perennial	Native
cinaru	Cinna arundinacea	Cinna arundinacea	Sweet Wood-Reed	5	FACW	-1	Grass	Perennial	Native
cirarv	Cirsium arvense	CIRSIIUM ARVENSE	Canadian Thistle	0	FACU	1	Forb	Perennial	Adventive
corrac	Cornus racemosa	Cornus racemosa	Gray Dogwood	1	FAC	0	Shrub	Perennial	Native
crycan	Cryptotaenia canadensis	Cryptotaenia canadensis	Canadian Honewort	4	FAC	0	Forb	Perennial	Native
dicacu	Dichanthelium acuminatum	Panicum implicatum;	Tapered Rosette Grass	4	FAC	0	Grass	Perennial	Native
diovil	Dioscorea villosa	Dioscorea villosa	Wild Yam	5	FAC	0	Vine	Perennial	Native
drycar	Dryopteris carthusiana	Dryopteris spinulosa	Spinulose Wood Fern	8	FACW	-1	Fern	Perennial	Native
equarv	Equisetum arvense	Equisetum arvense	Field Horsetail	0	FAC	0	Fern	Perennial	Native
astmac	Eurybia macrophylla	Aster macrophyllus	Large-Leaf Wood-Aster	9	UPL	1	Forb	Perennial	Native
eupmac	Eupatorium maculatum	Eupatorium maculatum	Spotted Trumpetweed	5	OBL	-2	Forb	Perennial	Native
faggra	Fagus grandifolia	Fagus grandifolia	American Beech	5	FACU	1	Tree	Perennial	Native
frapen	Fraxinus pennsylvanica	Fraxinus pennsylvanica subintegerrima; Fraxinus lanceolata	Green Ash	4	FACW	-1	Tree	Perennial	Native
galpal	Galium palustre	Galium palustre	Common Marsh Bedstraw	10	OBL	-2	Forb	Perennial	Native
geucan	Geum canadense	Geum canadense	White Avena	1	FAC	0	Forb	Perennial	Native
glystr	Glyceria striata	Glyceria striata var. stricta	Fowl Manna Grass	4	OBL	-2	Grass	Perennial	Native
hacvir	Hackelia virginiana	Hackelia virginiana	Beggar's-Lice	1	FACU	1	Forb	Perennial	Native
hamvir	Hamamelis virginiana	Hamamelis virginiana	American Witch-Hazel	8	FACU	1	Shrub	Perennial	Native
irivir	Iris virginica var. shrevei	Iris virginica shrevei	Virginia Blueflag	5	OBL	-2	Forb	Perennial	Native
juneff	Juncus effusus ssp. solutus	Juncus effusus	Lamp Rush	5	OBL	-2	Forb	Perennial	Native
leeory	Leersia oryzoides	Leersia oryzoides	Rice Cut Grass	3	OBL	-2	Grass	Perennial	Native
leevir	Leersia virginica	Leersia virginica	White Grass	5	FACW	-1	Grass	Perennial	Native
linben	Lindera benzoin	Lindera benzoin	Northern Spicebush	5	FACW	-1	Shrub	Perennial	Native
lirtul	Liriodendron tulipifera	Liriodendron tulipifera	Tuliptree	5	FACU	1	Tree	Perennial	Native
lobsip	Lobelia siphilitica	Lobelia siphilitica	Great Blue Lobelia	4	FACW	-2	Forb	Perennial	Native
lonbel	Lonicera X bella	LONICERA X BELLA	Showy Fly Honeysuckle	0	FACU	1	Shrub	Perennial	Adventive
lysnum	Lysimachia nummularia	LYSIMACHIA NUMMULARIA	Creeping-Jenny	0	FACW	-1	Forb	Perennial	Adventive
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	-2	Forb	Perennial	Adventive
medvir	Medeola virginiana	Medeola virginiana	Indian Cucumber-Root	10	UPL	1	Forb	Perennial	Native
mitrep	Mitchella repens	Mitchella repens	Partridge-Berry	10	FACU	1	Shrub	Perennial	Native
nyssyl	Nyssa sylvatica	Nyssa sylvatica	Black Tupelo	7	FAC	0	Tree	Perennial	Native
onosen	Onoclea sensibilis	Onoclea sensibilis	Sensitive Fern	5	FACW	-1	Fern	Perennial	Native
osmcli	Osmorhiza claytonii	Osmorhiza claytonii	Hairy Sweet-Cicely	4	FACU	1	Forb	Perennial	Native
osmcin	Osmunda cinnamomeum	Osmunda cinnamomea	Cinnamon Fern	8	FACW	-1	Fern	Perennial	Native
osmspe	Osmunda spectabilis	Osmunda regalis spectabilis	Royal Fern	8	OBL	-2	Fern	Perennial	Native

sengla	Packera glabella	SENECIO GLABELLUS	Cress-Leaf Groundsel	0	FACW	-1	Forb	Annual	Adventive
peramp	Persicaria amphibia	Polygonum coccineum; Polygonum amphibium stipulaceum	Water Smartweed	4	OBL	-2	Forb	Perennial	Native
perpen	Persicaria pennsylvanica	Polygonum pennsylvanicu m	Pinkweed	0	FACW	-1	Forb	Annual	Native
perpun	Persicaria punctata	Polygonum punctatum	Dotted Smartweed	4	OBL	-2	Forb	Annual	Native
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACE A	Reed Canary Grass	0	FACW	-1	Grass	Perennial	Adventive
phldiv	Phlox divaricata	Phlox divaricata	Wild Blue Phlox	5	FACU	1	Forb	Perennial	Native
pilpum	Pilea pumila	Pilea pumila	Canadian Clearweed	2	FACW	-1	Forb	Annual	Native
quealb	Quercus alba	Quercus alba	Northern White Oak	5	FACU	1	Tree	Perennial	Native
quepau	Quercus palustris	Quercus palustris	Pin Oak	5	FACW	-1	Tree	Perennial	Native
querub	Quercus rubra	Quercus rubra	Northern Red Oak	5	FACU	1	Tree	Perennial	Native
ranfla	Ranunculus flabellaris	Ranunculus flabellaris	Greater Yellow Water Buttercup	5	OBL	-2	Forb	Perennial	Native
ranrec	Ranunculus recurvatus	Ranunculus recurvatus	Blisterwort	5	FACW	-1	Forb	Annual	Native
ransce	Ranunculus sceleratus	Ranunculus sceleratus	Cursed Buttercup	4	OBL	-2	Forb	Annual	Native
ribcyn	Ribes cynosbati	Ribes cynosbati	Eastern Prickly Gooseberry	5	FACU	0	Shrub	Perennial	Native
rosmul	Rosa multiflora	ROSA MULTIFLORA	Rambler Rose	0	FACU	1	Shrub	Perennial	Adventive
rospal	Rosa palustris	Rosa palustris	Swamp Rose	8	OBL	-2	Shrub	Perennial	Native
rubfla	Rubus flagellaris	Rubus enslenii	Whiplash Dewberry	5	FACU	1	Shrub	Perennial	Native
rumver	Rumex verticillatus	Rumex verticillatus	Swamp Dock	8	OBL	-2	Forb	Perennial	Native
salamy	Salix amygdaloides	Salix amygdaloides	Peach-Leaf Willow	4	FACW	-1	Tree	Perennial	Native
salnig	Salix nigra	Salix nigra	Black Willow	5	OBL	-2	Tree	Perennial	Native
saucer	Saururus cernuus	Saururus cernuus	Lizard's-Tail	7	OBL	-2	Forb	Perennial	Native
sculat	Scutellaria lateriflora	Scutellaria lateriflora	Mad Dog Skullcap	4	OBL	-2	Forb	Perennial	Native
siusua	Sium suave	Sium suave	Hemlock Water- Parsnip	7	OBL	-2	Forb	Perennial	Native
smirot	Smilax rotundifolia	Smilax rotundifolia	Horsebrier	5	FAC	0	Vine	Perennial	Native
soldul	Solanum dulcamara	SOLANUM DULCAMARA	Climbing Nightshade	0	FAC	0	Vine	Perennial	Adventive
solcan	Solidago canadensis	Solidago canadensis	Canadian Goldenrod	1	FACU	1	Forb	Perennial	Native
solfle	Solidago flexicaulis	Solidago flexicaulis	Zigzag Goldenrod	7	FACU	1	Forb	Perennial	Native
solgig	Solidago gigantea	Solidago gigantea	Late Goldenrod	4	FACW	-1	Forb	Perennial	Native
astsim	Symphyotrichum lanceolatum	Symphyotrichum lanceolatum	White Panicked American-Aster	3	FACW	0	Forb	Perennial	Native
astlat	Symphyotrichum lateriflorum	Symphyotrichum lateriflorum	Farewell-Summer	4	FAC	-1	Forb	Perennial	Native
astpra	Symphyotrichum praealtum	Symphyotrichum praealtum	Willow-Leaf American-Aster	7	FACW	-1	Forb	Perennial	Native
symfoe	Symplocarpus foetidus	Symplocarpus foetidus	Skunk-Cabbage	8	OBL	-2	Forb	Perennial	Native
thadas	Thalictrum dasycarpum	Thalictrum dasycarpum hypoglaucom	Purple Meadow-Rue	6	FACW	-1	Forb	Perennial	Native
thepal	Thelypteris palustris var. pubescens	Dryopteris thelypteris pubescens	Eastern Marsh Fern	7	FACW	-2	Fern	Perennial	Native
toxrad	Toxicodendron radicans	Rhus radicans	Eastern Poison-Ivy	2	FAC	0	Vine	Perennial	Native
tribor	Trientalis borealis	Trientalis borealis	Maystar	10	FAC	0	Forb	Perennial	Native
ulname	Ulmus americana	Ulmus americana	American Elm	3	FACW	-1	Tree	Perennial	Native
ulmrub	Ulmus rubra	Ulmus rubra	Slippery Elm	4	FAC	0	Tree	Perennial	Native
vibopu	Viburnum opulus var. opulus	VIBURNUM OPULUS	Highbush- Cranberry	0	FACW	0	Shrub	Perennial	Adventive
vibpru	Viburnum prunifolium	Viburnum prunifolium	Smooth Blackhaw	5	FACU	1	Shrub	Perennial	Native
viosor	Viola sororia	Viola priceana	Hooded Blue Violet	3	FAC	0	Forb	Perennial	Native

vitrip	Vitis riparia	Vitis riparia var. syrticola	River-Bank Grape	1	FAC	-1	Vine	Perennial	Native
--------	---------------	---------------------------------	------------------	---	-----	----	------	-----------	--------

5. Road Beds

SITE:	Marquette Greenway Project - Road beds
LOCALE:	Porter Co
BY:	Lydia Miramontes Loyd
NOTES:	June - October, 2022

CONSERVATISM-BASED METRICS				ADDITIONAL METRICS
MEAN C (NATIVE SPECIES)	3.52		SPECIES RICHNESS (ALL)	112
MEAN C (ALL SPECIES)	2.42		SPECIES RICHNESS (NATIVE)	77
MEAN C (NATIVE TREES)	4.31		% NON-NATIVE	0.31
MEAN C (NATIVE SHRUBS)	2.50		WET INDICATOR (ALL)	0.41
MEAN C (NATIVE HERBACEOUS)	3.40		WET INDICATOR (NATIVE)	0.16
FQAI (NATIVE SPECIES)	30.88		% HYDROPHYTE (MIDWEST)	0.47
FQAI (ALL SPECIES)	25.61		% NATIVE PERENNIAL	0.62
ADJUSTED FQAI	29.18		% NATIVE ANNUAL	0.06
% C VALUE 0	0.43		% ANNUAL	0.08
% C VALUE 1-3	0.21		% PERENNIAL	0.88
% C VALUE 4-6	0.27			
% C VALUE 7-10	0.09			

Dominant species for this community type are listed in bold below.

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
acarho	Acalypha rhomboidea	Acalypha rhomboidea	Common Three-Seed-Mercury	0	FACU	1	Forb	Annual	Native
acerub	Acer rubrum	Acer rubrum	Red Maple	5	FAC	0	Tree	Perennial	Native
acesai	Acer saccharinum	Acer saccharinum	Silver Maple	1	FACW	-1	Tree	Perennial	Native
achmil	Achillea millefolium	ACHILLEA MILLEFOLIUM	Common Yarrow	0	FACU	1	Forb	Perennial	Adventive
agrgr	Agrimonia gryposepala	Agrimonia gryposepala	Tall Hairy Grooveburr	2	FACU	1	Forb	Perennial	Native
agrper	Agrostis perennans	Agrostis perennans	Upland Bent	5	FACU	0	Grass	Perennial	Native
ajurep	Ajuga reptans	AJUGA REPTANS	Carpet Bugleweed	0	UPL	2	Forb	Perennial	Adventive
allpet	Alliaria petiolata	ALLIARIA PETIOLATA	Garlic-Mustard	0	FACU	0	Forb	Biennial	Adventive
alnglu	Alnus glutinosa	ALNUS GLUTINOSA	European Alder	0	FACW	-1	Tree	Perennial	Adventive
ambart	Ambrosia artemisiifolia	Ambrosia artemisiifolia elatior	Annual Ragweed	0	FACU	1	Forb	Annual	Native
anecyl	Anemone cylindrica	Anemone cylindrica	Thimbleweed	8	UPL	2	Forb	Perennial	Native
artvul	Artemisia vulgaris	ARTEMISIA VULGARIS	Common Mugwort	0	UPL	2	Forb	Perennial	Adventive
ascinc	Asclepias incarnata	Asclepias incarnata	Swamp Milkweed	3	OBL	-2	Forb	Perennial	Native
berthu	Berberis thunbergii	BERBERIS THUNBERGII	Japanese Barberry	0	FACU	1	Shrub	Perennial	Adventive
betpap	Betula papyrifera	Betula papyrifera	Paper Birch	8	FACU	1	Tree	Perennial	Native
bropub	Bromus pubescens	Bromus pubescens; Bromus nottowayanus	Hairy Woodland Brome	5	FACU	1	Grass	Perennial	Native
cxblan	Carex blanda	Carex blanda	Eastern Woodland Sedge	1	FAC	0	Sedge	Perennial	Native
cxintu	Carex intumescens	Carex intumescens	Greater Bladder Sedge	8	FACW	-1	Sedge	Perennial	Native
celorb	Celastrus orbiculatus	CELASTRUS ORBICULATUS	Asian Bittersweet	0	UPL	2	Vine	Perennial	Adventive
cercan	Cercis canadensis	Cercis canadensis	Redbud	5	FACU	1	Tree	Perennial	Native

clivul	Clinopodium vulgare	Satureja vulgaris neogaea	Wild Basil	4	UPL	2	Forb	Perennial	Native
concoe	Conoclinium coelestinum	EUPATORIUM COELESTINUM	Blue Mistflower	0	FAC	-1	Forb	Perennial	Adventive
corame	Corylus americana	Corylus americana	American Hazelnut	5	FACU	1	Shrub	Perennial	Native
cusgro	Cuscuta gronovii	Cuscuta gronovii	Common Dodder	5	UPL	2	Vine	Annual	Native
dacglo	Dactylis glomerata	DACTYLIS GLOMERATA	Orchard Grass	0	FACU	1	Grass	Perennial	Adventive
daucar	Daucus carota	DAUCUS CAROTA	Queen Anne's Lace	0	UPL	2	Forb	Biennial	Adventive
dicacu	Dichanthelium acuminatum	Panicum implicatum;	Tapered Rosette Grass	4	FAC	0	Grass	Perennial	Native
pancla	Dichanthelium clandestinum	Panicum clandestinum	Deer-Tongue Rosette Grass	4	FACW	-1	Grass	Perennial	Native
astumb	Doellingeria umbellata	Aster umbellatus	Parasol White-Top	8	FACW	-1	Forb	Perennial	Native
elaumb	Elaeagnus umbellata	ELAEAGNUS UMBELLATA	Autumn-Olive	0	UPL	2	Shrub	Perennial	Adventive
equarv	Equisetum arvense	Equisetum arvense	Field Horsetail	0	FAC	0	Fern	Perennial	Native
eraspe	Eragrostis spectabilis	Eragrostis spectabilis	Purple Love Grass	3	UPL	2	Grass	Perennial	Native
concan	Erigeron canadensis	Conyza canadensis	Canadian Horseweed	0	FACU	1	Forb	Annual	Native
euoala	Euonymus alatus	EUONYMUS ALATUS	Winged Euonymus	0	UPL	2	Shrub	Perennial	Adventive
eutgra	Euthamia graminifolia	Solidago graminifolia; Solidago graminifolia nuttallii; Euthamia nuttallii	Flat-Top Goldentop	4	FAC	-1	Forb	Perennial	Native
eupmac	Eutrochium maculatum	Eupatorium maculatum	Spotted Trumpetweed	5	OBL	-2	Forb	Perennial	Native
fravir	Fragaria virginiana	Fragaria virginiana	Virginia Strawberry	0	FACU	1	Forb	Perennial	Native
frapen	Fraxinus pennsylvanica	Fraxinus pennsylvanica subintegerrima ; Fraxinus lanceolata	Green Ash	4	FACW	-1	Tree	Perennial	Native
geucan	Geum canadense	Geum canadense	White Avens	1	FAC	0	Forb	Perennial	Native
glehed	Glechoma hederacea	GLECHOMA HEDERACEA	Groundivy	0	FACU	1	Forb	Perennial	Adventive
glystr	Glyceria striata	Glyceria striata var. stricta	Fowl Manna Grass	4	OBL	-2	Grass	Perennial	Native
hacvir	Hackelia virginiana	Hackelia virginiana	Beggar's-Lice	1	FACU	1	Forb	Perennial	Native
hyppun	Hypericum punctatum	Hypericum punctatum	Spotted St. John's-Wort	4	FAC	0	Forb	Perennial	Native
ileopa	Ilex opaca	ILEX OPACA	American Holly	0	FACU	1	Shrub	Perennial	Adventive
impcap	Impatiens capensis	Impatiens capensis	Spotted Touch-Me-Not	3	FACW	-1	Forb	Annual	Native
jundud	Juncus dudleyi	Juncus dudleyi	Dudley's Rush	2	FACW	-1	Forb	Perennial	Native
junvir	Juniperus virginiana	Juniperus virginiana crebra	Eastern Red-Cedar	0	FACU	1	Tree	Perennial	Native
leevir	Leersia virginica	Leersia virginica	White Grass	5	FACW	-1	Grass	Perennial	Native
ligvul	Ligustrum vulgare	LIGUSTRUM VULGARE	European Privet	0	FACU	1	Shrub	Perennial	Adventive
linben	Lindera benzoin	Lindera benzoin	Northern Spicebush	5	FACW	-1	Shrub	Perennial	Native
lirtul	Liriodendron tulipifera	Liriodendron tulipifera	Tuliptree	5	FACU	1	Tree	Perennial	Native
lonbel	Lonicera X bella	LONICERA X BELLA	Showy Fly Honeysuckle	0	FACU	1	Shrub	Perennial	Adventive
melalb	Melilotus albus	MELILOTUS ALBA	White Sweet-Clover	0	UPL	2	Forb	Biennial	Adventive
moralb	Morus alba	MORUS ALBA VAR. TATARICA	White Mulberry	0	FACU	0	Tree	Perennial	Adventive
muhmex	Muhlenbergia mexicana	Muhlenbergia mexicana	Mexican Muhly	5	FACW	-1	Grass	Perennial	Native
muhsch	Muhlenbergia schreberi	Muhlenbergia schreberi	Nimblewill	0	FAC	0	Grass	Perennial	Native
nyssyl	Nyssa sylvatica	Nyssa sylvatica	Black Tupelo	7	FAC	0	Tree	Perennial	Native

oenbie	Oenothera biennis	Oenothera biennis	King's-Cureall	0	FACU	1	Forb	Biennial	Native
onosen	Onoclea sensibilis	Onoclea sensibilis	Sensitive Fern	5	FACW	-1	Fern	Perennial	Native
oxadil	Oxalis dillenii	Oxalis dillenii	Slender Yellow Wood-Sorrel	0	FACU	1	Forb	Perennial	Native
senaur	Packera aurea	Senecio aureus	Golden Groundsel	8	FACW	-1	Forb	Perennial	Native
parqui	Parthenocissus quinquefolia	Parthenocissus quinquefolia	Virginia-Creeper	4	FACU	1	Vine	Perennial	Native
perlon	Persicaria longisetata	POLYGONUM CESPITOSUM LONGISETUM	Bristly Lady's-Thumb	0	FAC	0	Forb	Annual	Adventive
pervir	Persicaria virginiana	Polygonum virginianum	Jumpseed	4	FAC	0	Forb	Perennial	Native
phrausu	Phragmites australis ssp. australis	PHRAGMITES AUSTRALIS	Common Reed	0	FACW	-1	Grass	Perennial	Adventive
phyhet	Physalis heterophylla	Physalis heterophylla	Clammy Ground-Cherry	3	UPL	2	Forb	Perennial	Native
picabi	Picea abies	PICEA ABIES	Norway Spruce	0	UPL	2	Tree	Perennial	Adventive
pilpum	Pilea pumila	Pilea pumila	Canadian Clearweed	2	FACW	-1	Forb	Annual	Native
pinstr	Pinus strobus	Pinus strobus	Eastern White Pine	10	FACU	1	Tree	Perennial	Native
plamaj	Plantago major	PLANTAGO MAJOR	Great Plantain	0	FACU	0	Forb	Perennial	Adventive
plaocc	Platanus occidentalis	Platanus occidentalis	American Sycamore	5	FACW	-1	Tree	Perennial	Native
poapra	Poa pratensis	POA PRATENSIS	Kentucky Blue Grass	0	FACU	0	Grass	Perennial	Adventive
popdel	Populus deltoides	Populus deltoides	Eastern Cottonwood	0	FAC	0	Tree	Perennial	Native
poptre	Populus tremuloides	Populus tremuloides	Quaking Aspen	3	FAC	0	Tree	Perennial	Native
pruvull	Prunella vulgaris ssp. lanceolata	Prunella vulgaris lanceolata	Common Selfheal	1	FAC	0	Forb	Perennial	Native
pruser	Prunus serotina	Prunus serotina	Black Cherry	0	FACU	1	Shrub	Perennial	Native
pteaqu	Pteridium aquilinum var. latiusculum	Pteridium aquilinum latiusculum	Northern Bracken Fern	5	FACU	1	Fern	Perennial	Native
quealb	Quercus alba	Quercus alba	Northern White Oak	5	FACU	1	Tree	Perennial	Native
querub	Quercus rubra	Quercus rubra	Northern Red Oak	5	FACU	1	Tree	Perennial	Native
ribmis	Ribes missouriense	Ribes missouriense	Missouri Gooseberry	2	UPL	2	Shrub	Perennial	Native
robpse	Robinia pseudoacacia	ROBINIA PSEUDOACACIA	Black Locust	0	FACU	1	Tree	Perennial	Adventive
rosmul	Rosa multiflora	ROSA MULTIFLORA	Rambler Rose	0	FACU	1	Shrub	Perennial	Adventive
rubocc	Rubus occidentalis	Rubus occidentalis	Black Raspberry	0	UPL	2	Shrub	Perennial	Native
rudtri	Rudbeckia triloba	Rudbeckia triloba	Brown-Eyed-Susan	1	FACU	1	Forb	Annual	Native
saldis	Salix discolor	Salix discolor	Pussy Willow	3	FACW	-1	Shrub	Perennial	Native
sasalb	Sassafras albidum	Sassafras albidum	Sassafras	3	FACU	1	Tree	Perennial	Native
scharu	Schedonorus arundinaceus	SCHEDONORUS ARUNDINACEUS	Tall False Rye Grass	0	FACU	1	Grass	Perennial	Adventive
schsco	Schizachyrium scoparium	Andropogon scoparius	Little False Bluestem	5	FACU	1	Grass	Perennial	Native
setvir	Setaria viridis	SETARIA VIRIDIS	Green Foxtail	0	UPL	2	Grass	Annual	Adventive
solcae	Solidago caesia	Solidago caesia	Wreath Goldenrod	8	FACU	1	Forb	Perennial	Native
solcan	Solidago canadensis	Solidago canadensis	Canadian Goldenrod	1	FACU	1	Forb	Perennial	Native
solgig	Solidago gigantea	Solidago gigantea	Late Goldenrod	4	FACW	-1	Forb	Perennial	Native
solpat	Solidago patula	Solidago patula	Round-Leaf Goldenrod	9	OBL	-2	Forb	Perennial	Native
solrug	Solidago rugosa	Solidago rugosa	Wrinkle-Leaf Goldenrod	6	FAC	0	Forb	Perennial	Native
astsim	Symphyotrichum lanceolatum	Symphyotrichum lanceolatum	White Panicked American-Aster	3	FACW	0	Forb	Perennial	Native
astlat	Symphyotrichum lateriflorum	Aster lateriflorus	Farewell-Summer	4	FAC	-1	Forb	Perennial	Native
astpil	Symphyotrichum pilosum	Aster pilosus	White Oldfield American-Aster	0	FACU	1	Forb	Perennial	Native
astpra	Symphyotrichum praealtum	Aster praealtus	Willow-Leaf American-Aster	7	FACW	-1	Forb	Perennial	Native

toxrad	Toxicodendron radicans	Rhus radicans	Eastern Poison-Ivy	2	FAC	0	Vine	Perennial	Native
trifla	Tridens flavus	TRIODIA FLAVA	Purple-Top	0	UPL	2	Grass	Perennial	Adventive
tripra	Trifolium pratense	TRIFOLIUM PRATENSE	Red Clover	0	FACU	1	Forb	Perennial	Adventive
trirep	Trifolium repens	TRIFOLIUM REPENS	White Clover	0	FACU	1	Forb	Perennial	Adventive
ulmame	Ulmus americana	Ulmus americana	American Elm	3	FACW	-1	Tree	Perennial	Native
vertha	Verbascum thapsus	VERBASCUM THAPSUS	Woolly Mullein	0	UPL	2	Forb	Biennial	Adventive
verurt	Verbena urticifolia	Verbena urticifolia var. leiocarpa	White Vervain	2	FAC	0	Forb	Perennial	Native
vibden	Viburnum dentatum	VIBURNUM DENTATUM VAR. SCABRELLUM	Southern Arrow-Wood	0	FAC	0	Shrub	Perennial	Adventive
vinmaj	Vinca major	VINCA MAJOR	Large Periwinkle	0	UPL	2	Shrub	Perennial	Adventive
vinmin	Vinca minor	VINCA MINOR	Common Periwinkle	0	UPL	2	Shrub	Perennial	Adventive
viosor	Viola sororia	Viola priceana	Hooded Blue Violet	3	FAC	0	Forb	Perennial	Native
vitaes	Vitis aestivalis	Vitis aestivalis	Summer Grape	5	FACU	1	Vine	Perennial	Native
vitrip	Vitis riparia	Vitis riparia var. syrticola	River-Bank Grape	1	FAC	-1	Vine	Perennial	Native
wisfru	Wisteria frutescens	WISTERIA MACROSTACHYA	American Wisteria	0	FACW	-1	Vine	Perennial	Adventive

6. Dry Prairie

SITE:	Marquette Greenway Project - Dry prairie. Includes sand barrens, old field, and dry prairie along Calumet Trail
LOCALE:	Porter Co
BY:	Lydia Miramontes Loyd
NOTES:	June - October, 2022

CONSERVATISM-BASED METRICS				ADDITIONAL METRICS
MEAN C (NATIVE SPECIES)	3.97		SPECIES RICHNESS (ALL)	50
MEAN C (ALL SPECIES)	2.54		SPECIES RICHNESS (NATIVE)	32
MEAN C (NATIVE TREES)	5.00		% NON-NATIVE	0.36
MEAN C (NATIVE SHRUBS)	1.50		WET INDICATOR (ALL)	0.78
MEAN C (NATIVE HERBACEOUS)	3.91		WET INDICATOR (NATIVE)	0.59
FQAI (NATIVE SPECIES)	22.45		% HYDROPHYTE (MIDWEST)	0.26
FQAI (ALL SPECIES)	17.96		% NATIVE PERENNIAL	0.52
ADJUSTED FQAI	31.75		% NATIVE ANNUAL	0.06
% C VALUE 0	0.46		% ANNUAL	0.06
% C VALUE 1-3	0.14		% PERENNIAL	0.80
% C VALUE 4-6	0.30			
% C VALUE 7-10	0.10			

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	NC-NE WET INDICATOR	WET INDICATOR	HABIT	DURATION	NATIVITY
achmil	Achillea millefolium	ACHILLEA MILLEFOLIUM	Common Yarrow	0	FACU	1	Forb	Perennial	Adventive
allpet	Alliaria petiolata	ALLIARIA PETIOLATA	Garlic-Mustard	0	FACU	0	Forb	Biennial	Adventive
ampbra	Amphicarpaea bracteata	Amphicarpaea bracteata	American Hog-Peanut	5	FAC	0	Vine	Annual	Native
apiame	Apios americana	Apios americana	Groundnut	5	FACW	-1	Forb	Perennial	Native
apocan	Apocynum cannabinum	Apocynum sibiricum	Indian-Hemp	2	FAC	0	Forb	Perennial	Native
aritub	Aristida tuberculosa	Aristida tuberculosa	Beach Three-Awn	9	UPL	2	Grass	Annual	Native
ascsy	Asclepias syriaca	Asclepias syriaca	Common Milkweed	0	UPL	1	Forb	Perennial	Native
calcan	Calamagrostis canadensis	Calamagrostis canadensis	Bluejoint	6	OBL	-2	Grass	Perennial	Native
celorb	Celastrus orbiculatus	CELASTRUS ORBICULATUS	Asian Bittersweet	0	UPL	2	Vine	Perennial	Adventive
circan	Circaea canadensis	Circaea lutetiana canadensis	Broad-Leaf Enchanter's-Nightshade	3	FACU	1	Forb	Perennial	Native
clevir	Clematis virginiana	Clematis virginiana	Devil's-Darning-Needles	4	FAC	0	Vine	Perennial	Native
daucar	Daucus carota	DAUCUS CAROTA	Queen Anne's Lace	0	UPL	2	Forb	Biennial	Adventive
eupes	Euphorbia esula	EUPHORBIA VIRGATA	Leafy Spurge	0	UPL	2	Forb	Perennial	Adventive
eupmac	Eutrochium maculatum	Eutrochium maculatum	Spotted Trumpetweed	5	OBL	-2	Forb	Perennial	Native
glehed	Glechoma hederacea	GLECHOMA HEDERACEA	Groundivy	0	FACU	1	Forb	Perennial	Adventive
helgro	Helianthus grosseserratus	Helianthus grosseserratus	Saw-Tooth Sunflower	4	FACW	-1	Forb	Perennial	Native
junvir	Juniperus virginiana	Juniperus virginiana crebra	Eastern Red-Cedar	0	FACU	1	Tree	Perennial	Native
laccan	Lactuca canadensis	Lactuca canadensis	Canadian Blue Lettuce	1	FACU	1	Forb	Biennial	Native
laccser	Lactuca serriola	LACTUCA SERRIOLA	Prickly Lettuce	0	FACU	1	Forb	Biennial	Adventive

lescap	Lespedeza capitata	Lespedeza capitata	Round-Head Bush-Clover	4	FACU	1	Forb	Perennial	Native
liaasp	Liatris aspera	Liatris aspera	Rough Gayfeather	8	UPL	2	Forb	Perennial	Native
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0	OBL	-2	Forb	Perennial	Adventive
melalb	Melilotus albus	MELILOTUS ALBA	White Sweet-Clover	0	UPL	2	Forb	Biennial	Adventive
muhmex	Muhlenbergia mexicana	Muhlenbergia mexicana	Mexican Muhly	5	FACW	-1	Grass	Perennial	Native
oenbie	Oenothera biennis	Oenothera biennis	King's-Cureall	0	FACU	1	Forb	Biennial	Native
oencle	Oenothera clelandii	Oenothera clelandii	Sand Evening-Primrose	5	UPL	2	Forb	Biennial	Native
oxadil	Oxalis dillenii	Oxalis dillenii	Slender Yellow Wood-Sorrel	0	FACU	1	Forb	Perennial	Native
parqui	Parthenocissus quinquefolia	Parthenocissus quinquefolia	Virginia-Creeper	4	FACU	1	Vine	Perennial	Native
picabi	Picea abies	PICEA ABIES	Norway Spruce	0	UPL	2	Tree	Perennial	Adventive
picgla	Picea glauca	PICEA GLAUCA	White Spruce	0	FACU	1	Tree	Perennial	Adventive
picpun	Picea pungens	PICEA PUNGENS	Colorado Blue Spruce	0	UPL	2	Tree	Perennial	Adventive
pinstr	Pinus strobus	Pinus strobus	Eastern White Pine	10	FACU	1	Tree	Perennial	Native
pinsyl	Pinus sylvestris	PINUS SYLVESTRIS	Scots Pine	0	UPL	2	Tree	Perennial	Adventive
gnamac	Pseudognaphalium macounii	Gnaphalium macounii	Clammy Cudweed	5	UPL	2	Forb	Annual	Native
quevel	Quercus velutina	Quercus velutina	Black Oak	5	UPL	2	Tree	Perennial	Native
ruball	Rubus allegheniensis	Rubus allegheniensis	Allegheny Blackberry	3	FACU	1	Shrub	Perennial	Native
rubida	Rubus idaeus ssp. idaeus	RUBUS IDAEUS	Common Red Raspberry	0	FAC	1	Shrub	Perennial	Adventive
rubocc	Rubus occidentalis	Rubus occidentalis	Black Raspberry	0	UPL	2	Shrub	Perennial	Native
rudhir	Rudbeckia hirta	Rudbeckia hirta var. pulcherrima	Black-Eyed-Susan	1	FACU	1	Forb	Perennial	Native
rumcri	Rumex crispus	RUMEX CRISPUS	Curly Dock	0	FAC	0	Forb	Perennial	Adventive
scharu	Schedonorus arundinaceus	SCHEDONORUS ARUNDINACEUS	Tall False Rye Grass	0	FACU	1	Grass	Perennial	Adventive
schsco	Schizachyrium scoparium	Andropogon scoparius	Little False Bluestem	5	FACU	1	Grass	Perennial	Native
solcan	Solidago canadensis	Solidago canadensis	Canadian Goldenrod	1	FACU	1	Forb	Perennial	Native
solnem	Solidago nemoralis	Solidago nemoralis	Gray Goldenrod	3	UPL	2	Forb	Perennial	Native
sonarv	Sonchus arvensis	SONCHUS ARVENSIS	Field Sow-Thistle	0	FACU	1	Forb	Perennial	Adventive
astpra	Symphyotrichum praealtum	Aster praealtus	Willow-Leaf American-Aster	7	FACW	-1	Forb	Perennial	Native
taroff	Taraxacum officinale	TARAXACUM OFFICINALE	Common Dandelion	0	FACU	1	Forb	Perennial	Adventive
drythe	Thelypteris palustris var. pubescens	Dryopteris thelypteris pubescens	Eastern Marsh Fern	7	FACW	-2	Fern	Perennial	Native
vitaes	Vitis aestivalis	Vitis aestivalis	Summer Grape	5	FACU	1	Vine	Perennial	Native
vitlab	Vitis labrusca	Vitis labrusca	Fox Grape	5	FACU	1	Vine	Perennial	Native

APPENDIX C
NATURAL HERITAGE DATABASE RESULTS



Division of Nature Preserves
402 W. Washington St., Rm W267
Indianapolis, IN 46204-2739

November 29, 2022

Lydia Miramontes-Loyd
Soil Solutions, Inc.
360 Indiana Avenue, Suite B
Valparaiso, IN 46383

Dear Lydia Miramontes-Loyd:

I am responding to your request for information on the threatened or endangered (T&E) species, high quality natural communities, and natural areas for the Marquette Greenway Trail Project - Calumet Segment located within Porter County, Indiana. The Indiana Natural Heritage Data Center has been checked and included you will find a geospatial with information on the tracked species documented within the requested project area. By accepting this spatial data from us you agree to the terms and conditions included as an enclosure of this letter.

The project site overlaps with the Indiana Dunes National Park which is a property that is owned and managed by the U.S. National Park Service. Due to the proximity of the project site to the protected natural area, it is expected that all precautions will be taken to not impact the systems and features protected therein. For more information concerning this property and further coordination prior to any ground disturbance within the Park, contact U.S. National Park Service property management.

To protect any arachnid or insect occurrences that are documented from within or adjacent to the projected impact zone footprint, it is preferred that project work occur outside of peak wildlife nesting season (May, June, and July) and/or that proper best management practices (BMPs) are utilized to reduce impact to the rare invertebrate species. It is expected that all precautions will be taken to not negatively impact the systems and features containing appropriate habitat immediately adjacent to the project sites. The remaining rare arachnid and insect occurrences do not occur precisely at the project sites. Therefore, if project activities are limited to only within the proposed project right-of-way, no impacts are expected on these occurrences.

For any high-quality natural communities located within or adjacent to the projected impact zone footprint, it is expected that all precautions will be taken to not impact the systems and features protected therein. BMPs for soil erosion and runoff should be utilized during the project to minimize direct impacts to any habitat occurrences. Proper dust control measures should be implemented. Otherwise, it appears that if project activities are limited to only within the proposed project right-of-way, no impacts are expected on the remaining high-quality natural community occurrences.

There are multiple T&E vascular plant occurrences, including the state endangered *Schoenoplectiella hallii*, that are documented from within the projected impact zone footprint. Any development project activities,

specifically the paving of the new trail, within the provided project boundaries would degrade or potentially destroy these vascular plant occurrences. Surveys should be conducted by qualified personnel for the species prior to work zones being occupied or equipment movement within. If any of the rare plant species are identified in an area of permanent impact, it is recommended that impacted individuals be relocated into appropriate, protected habitat after consultation with Indiana DNR Division of Nature Preserves and U.S. National Park Service. For additional project coordination please contact DNR Regional Ecologist, Derek Nimetz dnimetz@dnr.in.gov. The remaining T&E vascular plant occurrence are historical or do not occur precisely at the project site. Therefore, if project activities are limited to only within the proposed project area and no additional individuals are observed in appropriate habitat within the project area, no impacts are expected on these occurrences.

If you need a review of the impacts to the animal species mentioned or a general environmental review, you can submit the project information to Christie Stanifer, DNR Environmental Coordinator, at environmentalreview@dnr.in.gov (preferred), or send to the street address below. For more help or guidance contact Christie Stanifer at cstanifer@dnr.in.gov.

Department of Natural Resources
Environmental Review
Division of Fish and Wildlife
402 W. Washington Street, Room W273
Indianapolis, IN 46204

The information I am providing does not preclude the requirement for further consultation with the U.S. Fish and Wildlife Service as required under Section 7 of the Endangered Species Act of 1973. If you have concerns about potential Endangered Species Act issues you should contact the Service at their Bloomington, Indiana office.

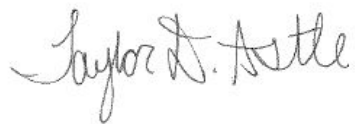
U.S. Fish and Wildlife Service
620 South Walker St.
Bloomington, Indiana 47403-2121
812-334-4261

Please note that the Indiana Natural Heritage Data Center relies on the observations of many individuals for our data. In most cases, the information is not the result of comprehensive field surveys conducted at particular sites. Therefore, our statement that there are no documented significant natural features at a site should not be interpreted to mean that the site does not support special plants or animals.

Due to the dynamic nature and sensitivity of the data, this information should not be used for any project other than that for which it was originally intended. It may be necessary for you to request updated material from us in order to base your planning decisions on the most current information.

Thank you for contacting the Indiana Natural Heritage Data Center. You may reach me at (317)233-2558 if you have any questions or need additional information.

Sincerely,

A handwritten signature in cursive script that reads "Taylor D. Astle". The ink is dark and the signature is fluid.

Taylor Davis Astle
Indiana Natural Heritage Data Center

Enclosure: Terms and Conditions
 shapefile
 datasheet

November 29, 2022

INDIANA HERITAGE DATA WITHIN 0.5 MILE OF: *Marquette Greenway Trail - Calumet Segment, Porter County*

Sci. Name	Com. Name	State	Fed.	Date	Site
Amphibian					
<i>Ambystoma laterale</i>	blue-spotted salamander	SSC		1987	
<i>Ambystoma laterale</i>	blue-spotted salamander	SSC		1987	
<i>Ambystoma laterale</i>	blue-spotted salamander	SSC		2005	INDIANA DUNES STATE PARK
<i>Hemidactylum scutatum</i>	four-toed salamander	SSC		1985	
<i>Hemidactylum scutatum</i>	four-toed salamander	SSC		2005	
<i>Hemidactylum scutatum</i>	four-toed salamander	SSC		2020	GREAT MARSH INDNP
Arachnida					
<i>Scironis tarsalis</i>	Tarsal sheet-web weaver	SE		1977	TREMONT
Bird					
<i>Buteo platypterus</i>	Broad-winged Hawk	SSC		1979	
<i>Circus hudsonius</i>	Northern Harrier	SE		1930	
<i>Cistothorus palustris</i>	marsh wren	SE		1994	KEMIL BEACH
<i>Cistothorus palustris</i>	marsh wren	SE		2021	INDIANA DUNES STATE PARK
<i>Cistothorus stellaris</i>	sedge wren	SE		2000	
<i>Dendroica virens</i>	Black-throated Green Warbler			2002	FURNESSVILLE
<i>Dendroica virens</i>	Black-throated Green Warbler			2000	
<i>Dendroica virens</i>	Black-throated Green Warbler			2000	BEVERLY SHORES
<i>Empidonax alnorum</i>	Alder Flycatcher			1998	BEVERLY SHORES
<i>Gallinula galeata</i>	Common gallinule	SE		2021	GREAT MARSH - IDNP
<i>Ixobrychus exilis</i>	Least Bittern	SE		2000	
<i>Ixobrychus exilis</i>	Least Bittern	SE		2021	GREAT MARSH

Fed: E = Federal endangered; T = Federal threatened; C = Federal candidate species

State: SE = State endangered; ST= State threatened; SR = State rare; SSC = State species of special concern; SG = State significant; no rank - not ranked but tracked to monitor status

Sci. Name	Com. Name	State	Fed.	Date	Site
<i>Ixobrychus exilis</i>	Least Bittern	SE		1986	
<i>Ixobrychus exilis</i>	Least Bittern	SE		1985	
<i>Lanius ludovicianus</i>	loggerhead shrike	SE		1916	
<i>Lanius ludovicianus</i>	loggerhead shrike	SE		1915	
<i>Mniotilta varia</i>	Black-and-white Warbler	SSC		1992	
<i>Nycticorax nycticorax</i>	Black-crowned Night-heron	SE		2020	GREAT MARSH - IDNP
<i>Rallus elegans</i>	King Rail	SE		1978	
<i>Rallus elegans</i>	King Rail	SE		1941	
<i>Rallus limicola</i>	Virginia Rail	SE		1994	KEMIL BEACH
<i>Rallus limicola</i>	Virginia Rail	SE		2021	BEVERLY DRIVE
<i>Rallus limicola</i>	Virginia Rail	SE		1997	
<i>Setophaga cerulea</i>	Cerulean Warbler	SE		2008	INDIANA DUNES STATE PARK
<i>Setophaga citrina</i>	Hooded Warbler	SSC		1980	BEVERLY SHORES
<i>Setophaga citrina</i>	Hooded Warbler	SSC		2002	FURNESSVILLE WOODS
<i>Setophaga citrina</i>	Hooded Warbler	SSC		2000	FURNESSVILLE
<i>Setophaga citrina</i>	Hooded Warbler	SSC		1989	
<i>Setophaga citrina</i>	Hooded Warbler	SSC		1979	BEVERLY SHORES
<i>Vermivora chrysoptera</i>	Golden-winged Warbler	SE	C	1980	
<i>Vermivora chrysoptera</i>	Golden-winged Warbler	SE	C	1984	
<i>Wilsonia canadensis</i>	Canada Warbler			2002	
<i>Wilsonia canadensis</i>	Canada Warbler			1991	KEISER WOODS
<i>Wilsonia canadensis</i>	Canada Warbler			1990	

High Quality Natural Community

Wetland - marsh	Marsh	SG		1980	
-----------------	-------	----	--	------	--

Fed: E = Federal endangered; T = Federal threatened; C = Federal candidate species

State: SE = State endangered; ST= State threatened; SR = State rare; SSC = State species of special concern; SG = State significant; no rank - not ranked but tracked to monitor status

Sci. Name	Com. Name	State	Fed.	Date	Site
<i>Wetland - swamp shrub</i>	Shrub Swamp	SG		1980	
Insect Coleoptera					
<i>Nicrophorus americanus</i>	American Burying Beetle	SX	E	1934	
Insect Lepidoptera					
<i>Callophrys irus</i>	Frosted Elfin	SE	C	1959	INDIANA DUNES NATIONAL PARK
<i>Lycaeides melissa samuelis</i>	Karner Blue	SE	E	1977	DUNES SITE
<i>Poanes viator viator</i>	Big Broad-winged Skipper	ST		1977	
Mammal					
<i>Mustela nivalis</i>	Least Weasel	SSC		2020	IDNL - KEISER UNIT
<i>Taxidea taxus</i>	American Badger	SSC		1991	
Reptile					
<i>Clemmys guttata</i>	spotted turtle	SE	C	2021	INDIANA DUNES NATIONAL LAKESHORE - NIPSCO RIGHT-OF-WAY
<i>Clemmys guttata</i>	spotted turtle	SE	C	2018	INDIANA DUNES NATIONAL PARK
<i>Clemmys guttata</i>	spotted turtle	SE	C	1929	
<i>Clemmys guttata</i>	spotted turtle	SE	C	1983	OLD CHICAGO ROAD SITE
<i>Clonophis kirtlandii</i>	Kirtland's snake	SE		1948	
<i>Emydoidea blandingii</i>	Blanding's turtle	SE	C	1986	
<i>Emydoidea blandingii</i>	Blanding's turtle	SE	C	2010	IDNP - KEISER UNIT
<i>Opheodrys vernalis</i>	smooth green snake	SE		1945	
<i>Sistrurus catenatus</i>	eastern massasauga	SE	T	1987	
<i>Sistrurus catenatus</i>	eastern massasauga	SE	T	2002	
<i>Sistrurus catenatus</i>	eastern massasauga	SE	T	1986	
<i>Sistrurus catenatus</i>	eastern massasauga	SE	T	1950	
<i>Terrapene carolina</i>	woodland box turtle	SSC		2021	NICTD SOUTH SHORE LINE

Fed: E = Federal endangered; T = Federal threatened; C = Federal candidate species

State: SE = State endangered; ST= State threatened; SR = State rare; SSC = State species of special concern; SG = State significant; no rank - not ranked but tracked to monitor status

Sci. Name	Com. Name	State	Fed.	Date	Site
<i>carolina</i>					
<i>Thamnophis proximus proximus</i>	western ribbon snake	SSC		1987	
<i>Thamnophis proximus proximus</i>	western ribbon snake	SSC		0	
Vascular Plant					
<i>Actaea rubra ssp. rubra</i>	red baneberry	ST		1935	
<i>Aralia hispida</i>	bristly sarsaparilla	SE		1930	
<i>Arctostaphylos uva-ursi</i>	bearberry	ST		1934	
<i>Arctostaphylos uva-ursi</i>	bearberry	ST		1927	
<i>Aristida tuberculosa</i>	seabeach needlegrass	ST		1988	
<i>Botrychium matricariifolium</i>	chamomile grape-fern	ST		2004	DUNES STATE PARK
<i>Botrychium matricariifolium</i>	chamomile grape-fern	ST		1992	SURVEY AREA E
<i>Carex atherodes</i>	awned sedge	SE		1934	
<i>Carex flava</i>	yellow sedge	ST		1988	
<i>Carex folliculata</i>	long sedge	ST		1989	
<i>Carex folliculata</i>	long sedge	ST		2021	CALUMET BIKE TRAIL
<i>Carex folliculata</i>	long sedge	ST		2014	CALUMET BIKE TRAIL
<i>Carex folliculata</i>	long sedge	ST		1999	CALUMET BIKE TRAIL
<i>Carex folliculata</i>	long sedge	ST		1994	NIPSCO ROW
<i>Carex folliculata</i>	long sedge	ST		1999	CALUMET BIKE TRAIL
<i>Carex folliculata</i>	long sedge	ST		1999	CALUMET BIKE TRAIL
<i>Carex folliculata</i>	long sedge	ST		1999	CALUMET BIKE TRAIL
<i>Carex folliculata</i>	long sedge	ST		1999	CALUMET BIKE TRAIL
<i>Carex folliculata</i>	long sedge	ST		1999	CALUMET BIKE TRAIL
<i>Carex folliculata</i>	long sedge	ST		2021	NIPSCO ROW ALONG CALULMENT TRAIL

Fed: E = Federal endangered; T = Federal threatened; C = Federal candidate species

State: SE = State endangered; ST= State threatened; SR = State rare; SSC = State species of special concern; SG = State significant; no rank - not ranked but tracked to monitor status

Sci. Name	Com. Name	State	Fed.	Date	Site
<i>Carex folliculata</i>	long sedge	ST		1979	SURVEY AREA C
<i>Carex folliculata</i>	long sedge	ST		1979	
<i>Carex folliculata</i>	long sedge	ST		1929	
<i>Carex folliculata</i>	long sedge	ST		1924	
<i>Carex folliculata</i>	long sedge	ST		1979	INDIANA DUNES NATIONAL PARK
<i>Carex leptoneura</i>	finely-nerved sedge	SE		1986	
<i>Carex leptoneura</i>	finely-nerved sedge	SE		1989	
<i>Carex leptoneura</i>	finely-nerved sedge	SE		1986	CALUMET BIKE TRAIL
<i>Carex seorsa</i>	weak stellate sedge	ST		1979	
<i>Carex seorsa</i>	weak stellate sedge	ST		1979	
<i>Carex seorsa</i>	weak stellate sedge	ST		1979	
<i>Carex seorsa</i>	weak stellate sedge	ST		1930	
<i>Chrysosplenium americanum</i>	American golden-saxifrage	ST		1990	
<i>Chrysosplenium americanum</i>	American golden-saxifrage	ST		2014	IDNL KEISER UNIT, DUNES NATURE PRESERVE
<i>Chrysosplenium americanum</i>	American golden-saxifrage	ST		1992	INDIANA DUNES NATIONAL PARK
<i>Circaea alpina</i>	small enchanter's nightshade	SX		1925	
<i>Clintonia borealis</i>	Clinton's lily	SE		1929	
<i>Cornus rugosa</i>	roundleaf dogwood	ST		1923	
<i>Cornus rugosa</i>	roundleaf dogwood	ST		1924	
<i>Cypripedium candidum</i>	small white lady's-slipper	ST		1939	
<i>Dichanthelium boreale</i>	northern witchgrass	ST		1980	
<i>Dichanthelium lucidum</i>	shining panic-grass	SE		1989	INDIANA DUNES NATIONAL PARK
<i>Dichanthelium lucidum</i>	shining panic-grass	SE		1987	INDIANA DUNES NATIONAL PARK

Fed: E = Federal endangered; T = Federal threatened; C = Federal candidate species

State: SE = State endangered; ST= State threatened; SR = State rare; SSC = State species of special concern; SG = State significant; no rank - not ranked but tracked to monitor status

Sci. Name	Com. Name	State	Fed.	Date	Site
<i>Dichanthelium mattamuskeetense</i>	panic-grass	SX		1924	
<i>Diphasiastrum tristachyum</i>	deep-root clubmoss	ST		1991	FURNESSVILLE
<i>Diphasiastrum tristachyum</i>	deep-root clubmoss	ST		1985	
<i>Dryopteris clintoniana</i>	Clinton's woodfern	SE		1935	
<i>Eleocharis geniculata</i>	capitate spike-rush	ST		2019	CALUMET BIKE TRAIL
<i>Eleocharis melanocarpa</i>	black-fruited spike-rush	ST		2017	IDNL-VISITOR CENTER UNIT
<i>Epigaea repens</i>	trailing arbutus	ST		1980	FURNESSVILLE
<i>Eurybia furcata</i>	forked aster	ST		1931	
<i>Hudsonia tomentosa</i>	sand-heather	ST		1979	INDIANA DUNES NATIONAL PARK
<i>Juglans cinerea</i>	butternut	ST		1992	DUNE PARK STATION
<i>Juncus pelocarpus</i>	brown-fruited rush	SE		1917	
<i>Juncus scirpoides</i>	scirpus-like rush	ST		1959	
<i>Lathyrus japonicus</i>	beach peavine	SE		1930	
<i>Lathyrus ochroleucus</i>	pale vetchling peavine	SE		1916	
<i>Lycopodiella inundata</i>	northern bog clubmoss	SE		1984	COWLES BOG (DUNE ACRES) E
<i>Lycopodiella inundata</i>	northern bog clubmoss	SE		1995	KEISER F
<i>Lycopodiella inundata</i>	northern bog clubmoss	SE		1987	
<i>Lycopodiella subappressa</i>	northern appressed bog clubmoss	SE		1995	IDNP - AREA F
<i>Milium effusum</i>	tall millet-grass	ST		1989	
<i>Milium effusum</i>	tall millet-grass	ST		2020	INDIANA DUNES STATE PARK
<i>Milium effusum</i>	tall millet-grass	ST		1923	
<i>Myosotis laxa</i>	smaller forget-me-not	ST		2021	CALUMET BIKE TRAIL
<i>Myosotis laxa</i>	smaller forget-me-not	ST		1935	

Fed: E = Federal endangered; T = Federal threatened; C = Federal candidate species

State: SE = State endangered; ST= State threatened; SR = State rare; SSC = State species of special concern; SG = State significant; no rank - not ranked but tracked to monitor status

Sci. Name	Com. Name	State	Fed.	Date	Site
<i>Myosotis laxa</i>	smaller forget-me-not	ST		1922	
<i>Orobanche fasciculata</i>	clustered broomrape	SE		1929	
<i>Pinus banksiana</i>	jack pine	ST		1980	PITCHER PRAIRIE
<i>Pinus strobus</i>	eastern white pine	ST		0	
<i>Piptatheropsis pungens</i>	slender mountain-ricegrass	SE		1929	
<i>Piptochaetium avenaceum</i>	blackseed needlegrass	ST		1989	
<i>Piptochaetium avenaceum</i>	blackseed needlegrass	ST		1989	
<i>Platanthera hookeri</i>	Hooker's orchid	SX		1979	
<i>Platanthera psycodes</i>	small purple-fringe orchid	ST		1990	
<i>Platanthera psycodes</i>	small purple-fringe orchid	ST		1990	
<i>Poa paludigena</i>	bog bluegrass	ST		1988	
<i>Polygala paucifolia</i>	gay-wing milkwort	SE		1929	
<i>Polygonum articulatum</i>	eastern jointweed	ST		1980	INDIANA DUNES NATIONAL PARK
<i>Polygonum articulatum</i>	eastern jointweed	ST		1933	
<i>Populus balsamifera</i>	balsam poplar	SE		1919	
<i>Potamogeton pulcher</i>	spotted pondweed	ST		2017	DUNES NATURE PRESERVE
<i>Potentilla anserina</i>	silverweed	ST		2020	ST. CLAIR AVE
<i>Potentilla anserina</i>	silverweed	ST		1989	
<i>Prunus pensylvanica</i>	fire cherry	ST		1994	
<i>Prunus pensylvanica</i>	fire cherry	ST		1980	
<i>Prunus pensylvanica</i>	fire cherry	ST		1919	
<i>Pyrola americana</i>	American wintergreen	ST		1979	PITCHER PRAIRIE
<i>Pyrola americana</i>	American wintergreen	ST		1986	

Fed: E = Federal endangered; T = Federal threatened; C = Federal candidate species

State: SE = State endangered; ST= State threatened; SR = State rare; SSC = State species of special concern; SG = State significant; no rank - not ranked but tracked to monitor status

Sci. Name	Com. Name	State	Fed.	Date	Site
<i>Rhexia mariana</i> var. <i>mariana</i>	Maryland meadow beauty	ST		2014	NIPSCO ROW
<i>Sceptridium multifidum</i>	leathery grape-fern	SX		2007	VISITOR CENTER AREA
<i>Sceptridium multifidum</i>	leathery grape-fern	SX		2007	KEISER C
<i>Sceptridium multifidum</i>	leathery grape-fern	SX		1935	
<i>Schoenoplectiella hallii</i>	Hall's bulrush	SE		2017	FURNESSVILLE
<i>Schoenoplectiella purshiana</i>	weakstalk bulrush	ST		2019	CALUMET BIKE TRAIL
<i>Schoenoplectiella smithii</i>	Smith's Bulrush	ST		2017	VISITOR CENTER UNIT IDNL
<i>Scirpus expansus</i>	bulrush	SE		1999	NIPSCO ROW
<i>Scirpus expansus</i>	bulrush	SE		1995	NIPSCO RIGHT-OF-WAY
<i>Scirpus expansus</i>	bulrush	SE		2009	CALUMET TRAIL
<i>Scleria reticularis</i>	reticulated nutrush	ST		1917	
<i>Sisyrinchium montanum</i>	strict blue-eyed-grass	SE		1935	
<i>Sparganium androcladum</i>	branching bur-reed	ST		1953	
<i>Symphyotrichum boreale</i>	rushlike aster	ST		1926	
<i>Thalictrum pubescens</i>	tall meadowrue	ST		1924	
<i>Trillium cernuum</i> var. <i>macranthum</i>	nodding trillium	SE		2021	KEISER UNIT OF INDIANA DUNES NATIONAL LAKESHORE
<i>Viola primulifolia</i>	primrose-leaf violet	ST		2002	CALUMET BIKE TRAIL
<i>Viola primulifolia</i>	primrose-leaf violet	ST		2008	KEISER B
<i>Viola primulifolia</i>	primrose-leaf violet	ST		1930	
<i>Viola primulifolia</i>	primrose-leaf violet	ST		1929	

Fed: E = Federal endangered; T = Federal threatened; C = Federal candidate species

State: SE = State endangered; ST= State threatened; SR = State rare; SSC = State species of special concern; SG = State significant; no rank - not ranked but tracked to monitor status