### WHITE LAKE TOWNSHIP PLANNING COMMISSION

### REPORT OF THE COMMUNITY DEVELOPMENT DEPARTMENT

TO:	Planning Commission	
FROM:	Sean O'Neil, AICP, Community Development Direct	
	Justin Quagliata, Staff Planner	
DATE:	October 14, 2022	
RE:	Section 61 Reviews	

The Township Board plans to authorize construction and financing of a Public Safety Building to house both the Police and Fire departments, as well as a Civic Center (Township Hall) for municipal offices on Parcel Number 12-22-351-006 ("Township Property"). Additionally, Stanley Park development is slated to commence Spring/Summer of 2023 at 10785 Elizabeth Lake Road (Parcel Number 12-27-100-014). The ability of the Township to maintain acceptable levels of service and quality of life for existing and new residents is the focus of these development efforts. While the Township Board is committed to pursuing the aforementioned projects on its Elizabeth Lake Road properties, a Section 61 review must be completed by the Planning Commission. At its October 18, 2022 meeting the Township Board will consider referring these projects to the Planning Commission to review the location, character, and extent of the properties.

Section 61 of the Michigan Planning Enabling Act (the "MPEA," Public Act 33 of 2008) requires Planning Commission review and approval of the location, character, and extent for the construction/purchase of new public streets, parks, open space, buildings, and other public facilities. This process is called a Section 61 Review. The MPEA does not require a public hearing for Section 61 reviews. If the Planning Commission denies a request and the Township Board disagrees with the decision, it can overrule the Planning Commission by a 2/3 majority vote. If the Planning Commission fails to act within 35 days after submission of the proposal to the Planning Commission, the project(s) are considered to be approved by the Planning Commission.

Planning Commission (October 20, 2022) Section 61 Reviews Page 2

#### Master Plan

The Future Land Use Map from the Master Plan designates both properties in the Planned Community category, which is characterized by a mix of uses including higher residential densities and a variety of housing product types as well as a core area with retail, dining, entertainment, governmental, recreational, institutional, office, and personal service establishments. Residential elements of a Planned Community may take the form of a freestanding neighborhood, or may be permitted on the upper floors of nonresidential development in the community core area. Multi-use/story buildings are expected to have two or three stories, however open space must be provided. Connections to and segments of the Township community-wide pathway system are required as an integral part of all developments.

The Master Plan includes the following guidelines for physical form in the Lakes Town Center Focus Area:

- Higher density residential, often in the form of upper floors in mixed use retail or office development.
- Unifying visual development features, such as: special pedestrian pavements, light fixtures, landscaping, way-finding sign systems, highest quality architecture, timeless design that avoids "theme" concepts, and the like.
- Unique and attractive roadway features that also promote pedestrian safety, such as: landscaped boulevards, special crossing features, refuge areas in the center of wide crossings, mast-arm signals incorporating lighting and signage systems, and on-street parking.
- Terminated Vistas that provide attractive locations for civic anchors, such as major retailers or institutional, civic, museum, or religious uses.
- Terminated Vistas also can be used to: screen less attractive elements, such as parking lots; and draw residents and visitors toward a destination, thereby encouraging pedestrians to walk and enjoy all that Lakes Town Center has to offer.
- Parking should be provided both on-street, to enhance the appearance of convenience and improve safety for pedestrians, and in convenient but thoughtfully-screened parking lots or parking structures that include landscaping for beauty and to provide shade, thereby reducing the "heat island" effect.
- Compact development allows buildings to be concentrated into a form that is more walkable.
- Sidewalk, alleys, and mid-block connections all contribute to a walkable area that is easy to navigate.



#### FUTURE LAND USE MAP

#### Zoning

The Stanley Park property is zoned R1-B (Single-Family Residential) and the Township Property has split zoning; a majority of the site is zoned AG (Agricultural) and approximately an acre at the southeast side of the site is zoned R1-B. Outdoor recreation uses, other public and private parks and similar outdoor recreation uses are permitted principal uses in the R1-B zoning district. Government (Township only) offices, buildings and uses without service or storage yards is a special land use in the AG and R1-B zoning districts. The Township Board intends to rezone both properties in the future. Stanley Park will be rezoned to ROS (Recreation and Open Space). The Township Property will likely be rezoned to TC (Town Center) and/or PD (Planned Development) or PB (Planned Business), or a combination of the districts. Note at its meeting on February 15, 2022 the Township Board approved the final adoption for the rezoning of the parcels west of the park property and Township Property from AG to RM-2 (Multiple-Family).



#### **ZONING MAP**

Planning Commission (October 20, 2022) Section 61 Reviews Page 4

#### Physical Features

Both properties are currently undeveloped. Stanley Park is the site of the former Brendel Lake Campground. According to previous natural features inventory of the park, significant hardwood trees are located on the property. There are also a number of wetlands on the park property. The Township Property is also encumbered by a wetland complex on the west side of the site.

#### Staff Analysis

It is anticipated the Township Board will refer to the Planning Commission the construction of a Public Safety Building and Civic Center (Township Hall) on Parcel Number 12-22-351-006, as well as the development of Stanley Park at 10785 Elizabeth Lake Road (Parcel Number 12-27-100-014). Section 61 of the MPEA requires Planning Commission review and approval of the location, character, and extent for the construction/purchase of new public streets, parks, open space, buildings, and other public facilities. **Location** refers to a site's placement in the Township and its surroundings. **Character** includes a site's distinguishing features. **Extent** includes the dimensions of a site; Stanley Park is approximately 59 acres in size (32.42 acres of wetland) and the Township Property is approximately 26 acres in size (15.25 acres of developable area).

When reviewing a proposed project, the Planning Commission should at a minimum consider the following issues:

- Is the project consistent with adopted plans?
- Is the project consistent with the adopted Capital Improvement Plan (CIP)?
- Is the project consistent with other Township governmental management plans?

The Planning Commission should conduct a formal review of the proposed projects and act by adoption of a motion that include findings of fact, recitation of reasons, and the action.

Construction of a new Public Safety Building and Civic Center is consistent with the Public Services goal of the Master Plan, which states, "Provide efficient public services that adequately and safely support the existing and future population of White Lake Township." Strategy #2 listed in the Master Plan to achieve the aforementioned goal is, "Analyze the number and size of Township fire, police, and EMS facilities and allocate new facilities to provide appropriate geographic coverage and response times." Strategy #3 listed in the Master Plan to achieve the aforementioned goal is, "Expand or relocate the Township Hall to provide the space and facilities necessary to administer Township business and properly serve residents and businesses." It is not feasible to expand and renovate existing facilities to support operations of the Township. The CIP has included new facilities in some form since 2010.

Planning Commission (October 20, 2022) Section 61 Reviews Page 5

The Parks and Recreation Master Plan identified the acquisition of the Brendel Lake Campground property as a high priority since 2009. Goal 2 of the current 5-Year Recreation Plan is, "Pursue the acquisition or expansion of local land for park and recreation facilities." The Brendel Lake Campground acquisition was in the CIP since 2010 and in 2018 the Township received a grant from the Michigan Natural Resources Trust Fund (MNRTF) to acquire the property (the property ownership transferred to the Township in 2019). Stanley Park construction has been in the CIP since 2021, and in 2021 the Township received a \$500,000 Land and Water Conservation Fund (LWCF) grant for development of Phase 1.

#### **Planning Commission Options**

The Planning Commission may approve or deny the Section 61 Reviews. <u>Staff</u> recommends approval of the Section 61 Reviews for both projects.

#### Attachments

- 1. Stanley Park Conceptual Master Plan.
- 2. Stanley Park Conceptual Site Plan Phase 1.
- 3. Stanley Park Survey.
- 4. Stanley Park Wetland Delineation Report.
- 5. Township Property Concept Plan.



White Lake Township Stanley Park Improvements Conceptual Site Plan

February 2021

CONNECTION TO CIVIC CENTER-CONCRETE SIDEWALK, TYP.-UNOBSTRUCTED HILLSIDE FOR SLEDDING (CLOSE PARK ROAD FOR SAFETY) PARK SECURITY GATE EXISTING BUILDING REMNANT -

BITUMINOUS PAVEMENT-W/ CURB & GUTTER BITUMINOUS TRAIL, TYP -WOODEN BOLLARDS

B R i Beckett&Raeder

ELEMBERTING REROAD

- PARK ENTRANCE SIGN







# Wetland Delineation & Water Resource Identification

Brendel Lake Campground 10785 Elizabeth Lake Road White Lake Township Oakland County, Michigan

**Project Number 221016** 

Prepared for:

Kem-Tec, Inc. 22556 Gratiot Avenue Eastpointe, Michigan 48021

Prepared by:



111 W. Berry Street, Suite 211 Fort Wayne, Indiana, 46802

April 25, 2022

#### **TABLE OF CONTENTS**

Section		Page	
LIST	ГOFА	PPENDICES	II
EXE	CUTIV	/E SUMMARY	III
1.0	INT	RODUCTION	1
2.0	SIT	'E DESCRIPTION	2
3.0	ME	THODOLOGY	2
4.0	RE	SULTS	2
4.1	Desktop Review		2
	4.1.1	USGS Topographic Quadrangle Map	2
	4.1.2	USFWS NWI Data	
	4.1.3	NRCS Soils Data	
	4.1.4	Floodplains	
4.2	Fie	ld Observations	5
	4.2.1	Wetlands	5
	4.2.2	Watercourses	8
	4.2.3	Other Water Resource Features	8
	4.2.4	Uplands	
5.0	CO	NCLUSIONS	9
REF	EREN	CES	
GLC	<b>SSAR</b>	Y OF TERMS AND DEFINITIONS	

Wetland Delineation and Water Resource Identification Report Brendel Lake Campground 10785 Elizabeth Lake Road White Lake Township, Oakland County, Michigan April 25, 2022

#### LIST OF APPENDICES

#### Appendix A – Maps

Figure 1.	Project Site Location Map
Figure 2.	Land Use and Land Cover Map
Figure 3.	USGS 7.5-Minute Topographic Maps Highland (1968) and Clarkston (1968) Quadrangles
Figure 4.	National Wetlands Inventory Map
Figure 5.	NRCS Soils Map
Figure 6.	FEMA FIRM Map
Figure 7.	Delineated Wetlands and Water Resources Map

Appendix B – Photographic Log

#### Appendix C – Wetland Determination Data Forms

#### **EXECUTIVE SUMMARY**

Brendel Lake Campground is commonly known to be located at 10785 Elizabeth Lake Road in White Lake Township, Oakland County, Michigan (Project Site); and, the coordinates of the approximate center are 42.640848, -83.498577.

Kem-Tec, Inc. (Client) hired nulnventa, LLC (nul) to identify and delineate wetlands, streams, and other kinds of water resources that may exist with the limits of the Project Site. nul's activities pertaining to this project focused on identifying potentially regulated wetlands, watercourses, and floodplains within the boundaries of the Project Site.

The wetland delineation and water resources identification involved a desktop review of publicly-available background information and data, which included U.S. Geological Survey USGS 7.5-Minute Topographic Quadrangle maps, U.S. Fish and Wildlife Service National Wetlands Inventory data, and Natural Resources Conservation Service soils data. Such information is routinely assessed to gain a perspective of where wetlands, streams, and other waters may be expected to occur on a site, which helps in planning fieldwork. A review of Federal Emergency Management Agency Flood Insurance Rate Maps was also conducted to determine the locations of floodplains.

Following completion of the desktop review, nul conducted fieldwork at the Project Site April 6 and 7, 2022 to determine the presence and delineate the boundaries of wetlands using methodologies of the *Corps of Engineers Wetland Delineation Manual* (1987 Manual) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual, Midwest, Version 2.0.* For an area to support wetlands, three criteria must be present, which include a.) a dominance or prevalence of hydrophytic vegetation, b.) hydric soils, and c.) wetland hydrology. During the site visit, nul also evaluated the Project Site for watercourses.

In general, wetlands in Michigan may fall under the jurisdiction of the Michigan Department of Environment, Great Lakes, and Energy (EGLE) by Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451 (NREPA), as amended, and/or the U.S. Army Corps of Engineers (USACE). USACE authority is often associated with the Great Lakes and their connecting waterways and is authorized by Section 404 of the Federal Water Pollution Control Act of 1972 (Clean Water Act). A wetland is considered regulated by the EGLE if it is five acres in size or larger, and/or if it is connected to or located within 500 feet of a lake, pond, river, or stream. A Part 303 permit is required by the EGLE for any proposed work (e.g., filling, dredging, construction, draining, and/or other development) that takes place within the boundaries of a regulated wetland, watercourse, or floodplain. Most construction activities that take place outside of these boundaries do not require a permit from the EGLE.

Watercourses (e.g., streams, rivers, drains, ditches) that meet the requirements of Part 301, Inland Lakes and Streams, of the NREPA, and floodplains that meet the requirements of Part 31, Water Resources Protection, of the NREPA, fall under the jurisdiction of the EGLE.

Four wetlands and one intermittent stream that is hydrologically connected to the wetlands were identified within the limits of the Project Site. The wetlands, which were all likely historically a single wetland prior to the time site was developed as a campground, extend offsite to the east, south, and west. The wetland complex is, for all practical purposes, connected to Brendel Lake, which is located in the southwest corner of the Project Site.

It is nul's opinion that all identified wetlands meet the requirements of Part 303, Wetlands Protection, of the NREPA, as amended, because:

- The wetlands are connected to an inland lake, Brendel Lake; and,
- with and/or without offsite acreages considered, the individual sizes of Wetlands B, C, and D exceed five acres; and,
- Wetlands B, C, and D are located within 500 feet of an inland lake, Brendel Lake.

Part 31, Water Resources Protection, of NREPA regulates activities within the 100-year floodplain and floodway of a river, stream, or drain, and within the floodplain of any watercourse with an upstream drainage area of two square miles or larger. Federal Emergency Management, Flood Insurance Rate Map data indicate Brendel Lake is located in Zone AE, a "zone with a one percent chance of annual flooding".

Please be advised that EGLE has the final authority on the extent, shape, size, location, and regulatory statuses of regulated wetlands, lakes, streams, and designated natural areas in the State of Michigan. White Lake Township and Oakland County should be contacted to determine if ordinances exist that affect activities conducted in wetlands and watercourses and their buffers.



#### **1.0 INTRODUCTION**

Brendel Lake Campground is commonly known to be located at 10785 Elizabeth Lake Road in White Lake Township, Oakland County, Michigan (Project Site); the location of the Project Site is shown in **Figure 1**, **Project Site Location Map** in Appendix A.

Under the Public Land Survey System, the Project Site is said to be located in the following parts of Township 3 North; Range 8 East:

- South <sup>1</sup>/<sub>2</sub>; Southwest <sup>1</sup>/<sub>4</sub>; Section 22
- North <sup>1</sup>/<sub>2</sub>; Northwest <sup>1</sup>/<sub>4</sub>; Section 27

The coordinates of the approximate center of the Project Site are 42.640848, -83.498577.

Kem-Tec, Inc. (Client) hired nuInventa, LLC (nuI) to identify and delineate wetlands and other water resources that may exist with the limits of the Project Site. nul's activities pertaining to this project focused on identifying potentially regulated wetlands, watercourses, and floodplains within the boundaries of the Project Site.

In general, wetlands in Michigan may fall under the jurisdiction of the Michigan Department of Environment, Great Lakes, and Energy (EGLE) by Part 303, Wetlands Protection, of the *Natural Resources and Environmental Protection Act, 1994 PA 451* (NREPA), as amended, and/or the U.S. Army Corps of Engineers (USACE). USACE authority is often associated with the Great Lakes and their connecting waterways and is authorized by Section 404 of the *Federal Water Pollution Control Act of 1972 (Clean Water Act)*. The federal definition of wetlands are "...those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas."

Watercourses (e.g., streams, rivers, drains, ditches) that meet the requirements of Part 301, Inland Lakes and Streams, of the NREPA, and floodplains that meet the requirements of Part 31, Water Resources Protection, of the NREPA, fall under the jurisdiction of the EGLE.

Activities that may impact regulated or protected wetlands, watercourses, and floodplains must be permitted or cleared by authorizing agencies prior to project activities taking place. This report summarizes the natural features found on the Project Site and permits or clearances that may be required prior to the commencement of project activities.



Wetland Delineation and Water Resource Identification Report Brendel Lake Campground 10785 Elizabeth Lake Road White Lake Township, Oakland County, Michigan April 25, 2022

#### 2.0 SITE DESCRIPTION

The north and south boundaries of the Project Site are defined by Elizabeth Lake Road and Brendel Lake, respectively. As is evident in **Figure 2**, **Land Use and Land Cover Map** in Appendix A, a driveway extends from Elizabeth Lake Road, meanders southward through the Project Site, and terminates at the shoreline of Brendel Lake. Based on nul's review of available information, the Project Site has been used as a campground for several decades; and, this land use is consistent with features that are evident on aerial imagery. Beyond area near the driveway that has been developed as a campground, land cover is a mix of old field and forest. Saturated and inundated ground is evident in significant parts of this undeveloped area, which indicates wetlands are likely present.

#### **3.0 METHODOLOGY**

The wetland determination and delineation involved a desktop review of publicly-available background information and data, which included U.S. Geological Survey (USGS) 7.5-Minute Topographic Quadrangle maps, U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) data, and Natural Resources Conservation Service (NRCS) soils data. Such information is routinely assessed to gain a perspective of where wetlands, streams, and other waters may be expected to occur on a site, which helps in planning fieldwork. A review of Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) was also conducted to determine the location of floodplains.

Following completion of the desktop review, nul conducted fieldwork necessary to determine the presence and delineate the boundaries of wetlands on the Project Site using methodologies of the *Corps of Engineers Wetland Delineation Manual* (1987 Manual) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual, Midwest Region, Version 2.0.* For an area to support wetlands, three criteria must be present, which include a.) a dominance or prevalence of hydrophytic vegetation, b.) hydric soils, and c.) wetland hydrology. During the site visit, nul also evaluated the Project Site for watercourses.

#### 4.0 RESULTS

Below is a summary of findings with regard to the desktop review.

#### 4.1 Desktop Review

#### 4.1.1 USGS Topographic Quadrangle Map

USGS topographic maps with coverage for the Project Site were reviewed; see **Figure 3**, **USGS 7.5-Minute Topographic Maps, Highland (1968) and Clarkston (1968) Quadrangles** in Appendix A. An unimproved road is depicted and its location is generally consistent with the location of the driveway that is evident on the aerial imagery. A majority of the Project Site is shown to be forested; and, symbology indicates that wetlands are present in large portions of the forested area. Brendel Lake is located in the southwest corner of the Project Site. The southeast end of the lake drains to the Huron River.

The elevation is highest at 970 feet along Elizabeth Lake Road and drops to 940 feet approximately 500 feet from the road – a slope of six percent. From this point, the ground is flat at 940 feet; and, this elevation is where wetlands are shown to occur.

#### 4.1.2 USFWS NWI Data

With respect to site-specific wetland determinations, USFWS NWI data are useful primarily for project planning purposes. NWI maps were compiled more than two decades ago and are known to sometimes contain erroneous information. The data are useful, however, when combined with other secondary source information to gain an understanding of where wetlands are likely to occur, and provide insight as to where wetlands may have *historically* occurred. The USACE and the EGLE do not accept the use of NWI data as a substitute for an onsite wetland determination and delineation.

The NWI map indicates the presence of four wetland types occurring within the limits of the Project Site, which have the Cowardin classifications listed in Table 1, below; see **Figure 4**, **National Wetlands Inventory Map** in Appendix A.

Table 1. List of NWI Wetlands			
Symbol	Cowardin Classification		
L1UBH	Lacustrine, Limnetic, Unconsolidated Bottom, Permanently Flooded		
PEM1C	Palustrine, Emergent, Persistent, Seasonally Flooded		
PF01C	Palustrine, Forested, Broad-Leaved Deciduous, Seasonally Flooded		
PSS1C	Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded		

Nearly the entire Project Site is shown to be wetlands albeit for a small area along Elizabeth Lake Road, where the elevation is above 940 feet.

#### 4.1.3 NRCS Soils Data

Hydric soils form under conditions of saturation, flooding, or ponding that occur long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile. Presence of hydric soils is one of three criteria required for an area to be considered a wetland. Wetland Delineation and Water Resource Identification Report Brendel Lake Campground 10785 Elizabeth Lake Road White Lake Township, Oakland County, Michigan April 25, 2022

The Web Soil Survey published by the United States Department of Agriculture, Natural Resources Conservation Service was accessed to determine what soil series for Oakland County, Michigan occur on the Project Site. Eight soil series are shown to occur on the Project Site; refer to **Figure 5**, **NRCS Soils Map** in Appendix A. The soil series are listed in Table 2, below.

Table 2. List of Mapped Soil Series			
Map Unit Symbol	Map Unit Name	Status	
11B	Capac sandy loam, 0 to 4 percent slopes	Non-Hydric*	
12	Brookston and Colwood loams	Hydric*	
17A	Wasepi sandy loam, 0 to 3 percent slopes	Non-Hydric*	
18B	Fox sandy loam, till plain, 2 to 6 percent slopes	Non-Hydric*	
27	Houghton and Adrian mucks	Hydric*	
44B	Riddles sandy loam, 1 to 6 percent slopes	Non-Hydric*	
44C	Riddles sandy loam, 6 to 12 percent slopes	Non-Hydric*	
54A	Matherton sandy loam, 0 to 3 percent slopes	Non-Hydric*	

\* Soil unit includes one or more minor hydric soil components.

#### 4.1.4 Floodplains

A review of FEMA FIRMs was conducted to determine the existence, location, and zone of floodplains on and within the vicinity of the Project Site. The FIRMs show floodplain areas along lakes, rivers, and tributaries. These maps record the following data: 100-year (1% chance of annual flooding) and 500-year (0.2% annual chance of flooding) floodplains, the height of the base flood elevation, and the risk of premium zones developed from topographical information across the floodplain. The FEMA Map Service Center was accessed; and, data coverage for the Project Site was accessed by address query. See **Figure 6**, **FEMA FIRM Map** in Appendix A. Brendel Lake is located in Zone AE, a "zone with a one percent chance of annual flooding".



#### 4.2 Field Observations

Fieldwork required to complete the wetland delineation was conducted April 6 and 7, 2022. The temperature ranged between 40 and 50 degrees Fahrenheit; rain showers were intermittent.

Identified wetlands are depicted in **Figure 7**, **Delineated Wetlands and Water Resource Map** in Appendix A. Photographs of the general physical landscape and wetlands, and/or other relevant features are provided in the **Photographic Log** in Appendix B.

#### 4.2.1 Wetlands

Data forms for data collected at points representing wetlands and non-wetlands (uplands) are provided in Appendix C. Summary data of wetlands identified and delineated are provided in Table 3, below

Table 3. Summary of Delineated Wetlands					
Wetland ID	Туре	Size (acres)	Wetland Data Points		
Wetland A	Palustrine, forested	0.328	1		
Wetland B	Palustrine, mixed	7.26	3, 6, 16		
Wetland C	Palustrine, mixed	20.39	5, 8, 10		
Wetland D	Palustrine, forested/scrub-shrub	4.44	12, 15		

#### Wetland A

Data Point (DP) 1 is situated in the northwest corner of Wetland A, a forested wetland located near the northeast corner of the Project Site. Silver maple (*Acer saccharinum*, FACW) was observed throughout the tree, sapling/shrub, and herbaceous strata. Swamp white oak (*Quercus bicolor*, FACW) was identified as a dominant hydrophytic species in the tree and shrub/sapling shrub strata, as well.

The soils exhibited a depleted matrix (F3 hydric soil indicator) and depletion was observed below a dark surface (A11). These hydric soil characteristics are not consistent with the mapped soil unit, Wasepi sandy loam, a non-hydric soil, and appear to be more closely aligned with that of Houghton muck, which is shown to be the predominant soil unit occurring in other wetlands throughout the Project Site. Surface water was observed at a depth of three inches at the data point. Primary indicators of wetland hydrology observed include surface water, a high water table and saturated soils within 12 inches of the surface, water marks on trees, and water-stained leaves. Inundation is visible on aerial imagery reviewed throughout most of the wetland area albeit not in the vicinity of the data point. The soil does appear saturated on aerial imagery in the vicinity of the data point, which is a secondary wetland hydrology indicator; other such indicators that are applicable for Wetland A include the geomorphic position of the wetland in a depression and the FAC-Neutral Test.

#### <u>Wetland B</u>

DPs 3, 6, and 16 are located near the northeast and south edges of Wetland B. The wetland extends offsite to the south and west; and, the size of the onsite portion is 7.26 acres. The wetland is separated from Wetland C by a man-made berm that appears to have been constructed to create a stable base on which to install the campground driveway through the Project Site prior to 1968. Prior to the time the berm was constructed, Wetlands B and C very likely were a single contiguous wetland.

Vegetation cover throughout the wetland consists of interspersed herbaceous, scrub-shrub, and forest communities. Typical hydrophytic species observed include eastern cottonwood (*Populus deltoides*, FAC); yellow birch (*Betula alleghaniensis*, FAC); American hornbeam (*Carpinus caroliniana*, FAC); swamp white oak; and, silver maple in the tree stratum. Red osier dogwood (*Cornus sericea*, FACW); common hackberry (*Celtis occidentalis*, FAC); *Carpinus caroliniana*, FAC; and, swamp white oak were dominant throughout the sapling/shrub stratum. In the herbaceous stratum, narrow-leaf cattail (*Typha angustifolia*, OBL); shoreline sedge (*Carex hyalinolepis*, OBL); and, skunk cabbage (*Symplocarpus foetidus*, OBL) were observed as dominant species.

One or more hydric soil criteria were observed at the data points, including a hydrogen sulfide odor (A4) at DPs 3 and 16 and sandy mucky mineral (S1) at DPs 3, 6, and 16. Soil characteristics observed at the data points are consistent with the mapped soil unit shown to be present at all data points, which is Houghton and Adrian mucks, a hydric soil.

The soil was saturated at the surface at DP 3 and surface water was observed at depths of one and three inches at DPs 6 and 16, respectively. Other primary wetland hydrology indicators observed at one or more of these data points include water marks on trees, inundation visible on aerial imagery, water-stained leaves, and a hydrogen sulfide odor. Secondary wetland hydrology indicators applicable for all data points include the geomorphic position of the wetland in a depression or swale and the FAC-Neutral Test.



#### Wetland C

DPs 5, 8, and 10 are located near the north and west edges of Wetland C. The wetland extends offsite to the east and south. The west edge of the wetland abuts the shoreline of Brendel Lake. The size of the onsite portion is 20.39 acres. The wetland is separated from Wetland D by a man-made berm that appears to have been constructed to create a stable base on which to install the campground driveway through the Project Site prior to 1968. Prior to the time the berm was constructed, Wetlands C and D very likely were a single contiguous wetland.

The north half of the wetland is predominantly interspersed herbaceous and scrub-shrub communities (see DPs 5 and 8) while a more significant forest community is present in the south half of the wetland (see DP 10). Typical hydrophytic species observed include peach-leaf willow (*Salix amygdaloides*, FACW); swamp white oak, yellow birch, and common hackberry in the tree stratum. Red osier dogwood, American hornbeam, swamp white oak, and common hackberry were present throughout the sapling/shrub stratum. In the herbaceous stratum, celery-leaved buttercup (*Ranunculus sceleratus*, OBL), shoreline sedge, skunk cabbage, and narrow-leaf cattail were dominant species observed.

Hydric soil criteria were met at all wetland data points; applicable hydric soil indicators include sandy mucky mineral (S1) and a hydrogen sulfide odor (A4). Soil characteristics observed at DPs 8 and 10 are consistent with the mapped soil unit, which is Houghton and Adrian mucks, a hydric soil. Regarding DP 5, these hydric soil characteristics are not consistent with the mapped soil unit, Wasepi sandy loam, a non-hydric soil.

Approximately one inch of surface water was present at all data points. Additional primary wetland hydrology indicators observed at one or more of these data points include water marks on trees, inundation visible on aerial imagery, water-stained leaves, and a hydrogen sulfide odor. Secondary wetland hydrology indicators applicable for all data points include the geomorphic position of the wetland in a depression or swale and the FAC-Neutral Test. As described in Section 4.2.2, intermittent Stream A flows into the northeast side of Wetland C. Surface water and groundwater is generally expected to flow south and southwest to Brendel Lake.

#### <u>Wetland D</u>

DPs 12 and 15 are located at the east and west ends of Wetland D, respectively. This wetland extends offsite to the west, is boarded at the south by Brendel Lake, and is separated from Wetland C by an elevated gravel driveway that was constructed atop a man-made berm. A small two-track path located approximately 150 feet west southwest of DP 6 separates the wetland from Wetland B.

The wetland is primarily forested with an appreciable scrub-shrub community. Typical hydrophytic species observed include swamp white oak, silver maple, and eastern cottonwood in the tree stratum. Red osier dogwood, American hornbeam, and swamp white oak were observed throughout the sapling/shrub stratum. In the herbaceous stratum, Indian hemp (*Apocynum cannabidum*, FAC), shoreline sedge, and skunk cabbage were dominant.

Hydric soil indicators observed include a hydrogen sulfide odor (A4) at DP 15 and a sandy mucky mineral (S1) soil at DPs 10 and 15. Soil characteristics observed at the data points are consistent with the mapped soil unit shown to be present at all data points, which is Houghton and Adrian mucks, a hydric soil.

Approximately one inch of surface water was present at all data points. Additional primary wetland hydrology indicators observed at one or more of these data points include water marks on trees, inundation visible on aerial imagery, water-stained leaves, and a hydrogen sulfide odor. Secondary wetland hydrology indicators applicable for all data points include the geomorphic position of the wetland in a depression or swale and the FAC-Neutral Test. Surface and groundwater is expected to flow south to Brendel Lake.

#### 4.2.2 Watercourses

Intermittent Stream A flows onto the Project Site from the east; and, the approximate length of the onsite portion is 100 feet. The stream conveys surface water to the northeast edge of Wetland C.

#### 4.2.3 Other Water Resource Features

Brendel Lake is located in the southwest corner of the Project Site. A majority of the lake shoreline is contiguous to Wetlands C and D albeit for developed campground area between the two wetlands. Here, the lake shoreline is abrupt and defined by beach and mowed turf grass.

#### 4.2.4 Uplands

Data collected at DPs 2, 4, 7, 9, 11, 13, 14, and 17 represent upland areas surrounding the wetlands observed. Although hydric soils, hydrology indicators, and hydrophytic vegetation were observed at several upland data points, a combination of all three wetland criteria could not be established. These data points generally represent areas of the Project Site where the ground elevations are slightly higher than that around the wetlands. Typical upland plant species observed include shagbark hickory (*Carya ovata*, FACU); white oak (*Quercus alba*, FACU); northern red oak (*Quercus rubra*, FACU); American beech (*Fagus grandifolia*, FACU); black cherry (*Prunus serotina*, FACU); and, Canada goldenrod (*Solidago canadensis*, FACU).



#### **5.0 CONCLUSIONS**

Four wetlands and one intermittent stream were identified within the limits of the Project Site. The wetlands, which were all likely historically a single wetland prior to the time site was developed as a campground, extend offsite to the east, south, and west. The wetland complex is, for all practical purposes, connected to Brendel Lake, which is located in the southwest corner of the Project Site.

EGLE has the final authority on the extent, shape, size, location, and regulatory statuses of regulated wetlands, lakes, streams, and designated natural areas in the State of Michigan. A request may be submitted to EGLE to conduct a "Level 3 Review" of the findings presented in this report, which nul can facilitate the review upon request.

Part 303, Wetlands Protection, of the NREPA, as amended, provides several criteria for a wetland to be considered regulated by the EGLE. Most commonly, a wetland is regulated by EGLE if it is five acres in size or larger, and/or if it is connected to or located within 500 feet of an inland lake, pond, river, or stream. It is nul's opinion that all identified wetlands are regulated by EGLE because:

- The wetlands are connected to an inland lake, Brendel Lake; and,
- with and/or without offsite acreages considered, the individual sizes of Wetlands B, C, and D exceed five acres; and,
- Wetlands B, C, and D are located within 500 feet of an inland lake, Brendel Lake.

Watercourses (e.g., streams, rivers, drains, ditches) that meet the requirements of Part 301, Inland Lakes and Streams, of the NREPA fall under the jurisdiction of the EGLE. Intermittent Stream A flows onto the Project Site from the east and conveys surface water directly to the north edge of Wetland C. The length of Stream A within the limits of the Project Site is approximately 100 feet.

Part 31, Water Resources Protection, of NREPA regulates activities within the 100-year floodplain and floodway of a river, stream, or drain, and within the floodplain of any watercourse with an upstream drainage area of two square miles or larger. Activities requiring a permit within regulated floodplains include the installation of permanent structures, permanent bridges, and/or culverts. Temporary crossings of regulated floodplains are generally exempt from permitting if the floodplain will be restored to existing elevations; however, temporary watercourse crossings would require a permit from the EGLE. FEMA data indicate that Brendel Lake is located in Zone AE, a "zone with a one percent chance of annual flooding".

Wetland Delineation and Water Resource Identification Report Brendel Lake Campground 10785 Elizabeth Lake Road White Lake Township, Oakland County, Michigan April 25, 2022

Permits are required for any work (e.g., filling, dredging, construction, draining and/or other development) that is proposed to be conducted in water resources that are regulated under Part 303, Part 301, or Part 31, Water Resources Protection, of NREPA. Additionally, the White Lake Township and Oakland County should be contacted to determine if ordinances exist that affect activities conducted in wetlands and watercourses and their buffers.

#### REFERENCES

- Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-79/31. U.S. Department of Interior, Fish and Wildlife Service, Office of Biological Services. Washington, D.C.
- Newcomb, L. 1977. *Newcomb's Wildflower Guide*. Little, Brown and Company. New York, New York.
- Petrides, G. A. and Peterson, R. T. 1973. *Trees and Shrubs* (2<sup>nd</sup> Edition). Houghton Mifflin Company. New York, New York.
- U.S. Army Corps of Engineers. 1987. *Corps of Engineers Wetland Delineation Manual: Wetlands Research Program Technical Report Y-87-1*. Vicksburg, Missouri: Environmental Laboratory, Waterways Experiment Section.
- U.S. Army Corps of Engineers. 2012 Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Midwest (Version 2.0). Vicksburg, Missouri: Army Engineer Research and Development Center.
- U.S. Department of Agriculture. Lists of Hydric Soils. Natural Resources Conservation Services. <u>http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/</u>. accessed 1 April 2022).
- U.S. Department of Agriculture. 1982. *National List of Scientific Plant Names*. Natural Resources Conservation Service. Washington, D.C.
- U.S. Department of Agriculture. Web Soil Survey. Natural Resources Conservation Service. <u>http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx</u>. (accessed 1 April 2022).
- U.S. Federal Emergency Management Agency. Flood Map Service Center. http:// https://msc.fema.gov/portal/home. (accessed 1 April 2022).
- U.S. Fish and Wildlife Service. National Wetland Inventory. <u>http://www.fws.gov/wetlands/data/State-Downloads.html</u>. (accessed 1 April 2022).
- U.S. Geological Survey. EarthExplorer. <u>https://earthexplorer.usgs.gov/</u>. (accessed 1 April 2022).



Wetland Delineation and Water Resource Identification Report Brendel Lake Campground 10785 Elizabeth Lake Road White Lake Township, Oakland County, Michigan April 25, 2022

- U.S. Geological Survey. U.S.G.S. Topographic Map, Clarkston 7.5-Minute Quadrangle. National Geospatial Program. <u>https://ngmdb.usgs.gov/topoview/viewer/</u>. (accessed 1 April 2022).
- U.S. Geological Survey. U.S.G.S. Topographic Map, Highland 7.5-Minute Quadrangle. National Geospatial Program. <u>https://ngmdb.usgs.gov/topoview/viewer/</u>. (accessed 1 April 2022).
- U.S. National Archives and Records Administration. 2004. *Code of Federal Regulations*. Title 40. Guidelines for Specification of Disposal Study Areas for Dredges or Fill Material.



#### **GLOSSARY OF TERMS AND DEFINITIONS**

<u>Atypical wetland</u>: This term refers to areas in which one or more parameters (vegetation, soil and/or hydrology) have been sufficiently altered by human activities or natural events to preclude the presence of wetland indicators of the parameter.

*Emergent Wetland*: Vegetative classification of a wetland system based on the dominant vegetation consisting of rooted herbaceous plant species that have parts extending above a water surface.

*<u>100-year Flood</u>*: A flood with a magnitude that has a 1% chance of occurring or being exceeded in any given year.

*<u>Floodplain</u>*: The area of land adjoining a river or stream that will be inundated by a 100-year flood.

*<u>Floodway</u>*: The channel of a river or stream and the portions of the floodplain adjoining the channel, which are reasonably required to carry and discharge a 100-year flood.

*Hydric Soil*: Soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part (1991 National Technical Committee on Hydric Soils definition).

<u>*Hydrophytic Vegetation*</u>: Plant species that grow in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content; plants typically found in wet habitats.

<u>Ordinary High Water Mark</u>: The point on a stream bank to which the presence and action of surface water is so continuous as to leave a district marked by erosion; destruction or prevention of woody terrestrial vegetation; predominance of aquatic vegetation; or other easily recognized characteristic.

<u>Scrub-Shrub Wetland</u>: Vegetative classification of a wetland system based on the dominant vegetation consisting of woody plants less than three inches in diameter but greater than three feet in height.

*<u>Typical Situation</u>*: That, which normally, usually, or commonly occurs.

<u>*Wooded (Forested) Wetland*</u>: Vegetative classification of a wetland system based on the dominant vegetation consisting of woody plants three inches in diameter or greater regardless of height.

<u>*Wetland*</u>: "...land characterized by the presence of water at a frequency and duration sufficient to support and that under normal circumstances does support, wetland vegetation or aquatic life and is commonly referred to as a bog, swamp, or marsh..."

*Wetland Hydrology*: Hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season.

#### Wetland Indicator Status:

OBL: Obligate wetland plant that occurs almost always, 99% of the time, in wetlands under natural conditions, but which rarely occur in non-wetlands.

FACW: Facultative wetland plant that occurs usually, 67% to 99% of the time, in wetlands, but also occurs 1% to 33% of the time in non-wetlands.

FAC: Facultative plant that occurs in both wetlands and non-wetlands 33% to 67% of the time.

FACU: Plant that occurs sometimes, 1% to 33% of the time, in wetlands but occurs more often, 67% to 99% of the time, in non-wetlands.

<u>APPENDIX A</u> Maps





## Figure 2

Project No. 221016

### Land Use and Land Cover Map

Brendel Lake Campground 10785 Elizabeth Lake Road, White Lake, Oakland County, Michigan



Drawn By: R. Newkirk

Date: 4-1-2022

Reviewed By: C. Appleman Rev: 0







**NRCS Soils Map** Brendel Lake Campground 10785 Elizabeth Lake Road, White Lake, Oakland County, Michigan

## nu Inventa

Drawn By: R. Newkirk

Date: 4-1-2022

Rev: 0 Reviewed By: C. Appleman



Brendel Lake Campground 10785 Elizabeth Lake Road, White Lake, Oakland County, Michigan



## nu Inventa

Drawn By: R. Newkirk

Date: 4-1-2022

Reviewed By: C. Appleman R

Rev: 0







Project Site **Oakland County Parcels** Data Point

Delineated Wetlands

Stream



## nu Inventa

Drawn By: R. Newkirk

Date: 4-21-2022

Reviewed By: C. Appleman

Rev: 0

### <u>APPENDIX B</u>

Photographic Log


## **PHOTOGRAPHIC LOG**



Photo: 2	
<b>Date:</b> 4-7-2022	
Direction: South	
<b>Description:</b> View of upland DP 2, which is located beside a gravel campground drive that separates Wetlands A and B.	



## **PHOTOGRAPHIC LOG**

Photo: 3Date: 4-7-2022Direction: SouthDescription: DP 3 is located in<br/>the northeastern most extent of<br/>Wetland B. The vegetation<br/>community around the data<br/>point is primarily herbaceous,<br/>which transitions to a forested<br/>community in the background.



Date: 4-7-2022

**Direction:** South **Description:** DP 4 is located on a hillside, in an upland forest near the northeast edge of Wetland C and along the east boundary of the Project Site.





## **PHOTOGRAPHIC LOG**

Date: 4-7-2022         Direction: South         Description: Wetland DP 5 is located near the north edge of Wetland C.	Photo: 5	
Direction: South Description: Wetland DP 5 is located near the north edge of Wetland C.	Date: 4-7-2022	
Description: Wetland DP 5 is located near the north edge of Wetland C.	Direction: South	
	<b>Description:</b> Wetland DP 5 is located near the north edge of Wetland C.	

Date: 4-7-2022

**Direction:** West **Description:** DP 6 is situated in the southern extent of Wetland B where the vegetation consists of a nearly monotypic stand of narrowleaf cattail (*Typha angustifolia*, OBL). A contiguous forested wetland community is evident in the background.





## **PHOTOGRAPHIC LOG**

Photo: 7	
<b>Date:</b> 4-7-2022	
Direction: East	
<b>Description:</b> DP 7 is located near and south of Wetland B in an upland forested area with mowed turf grass.	

Photo: 8	
Date: 4-7-2022	
Direction: East	
Description: View of wetland	
DP 8, which is located along the	
west boundary of Wetland C.	



## **PHOTOGRAPHIC LOG**

Photo: 9	
Date: 4-7-2022	
Direction: North	
<b>Description:</b> DP 9 is located in upland, south of DP 8 and west of Wetland C, which is evident in the background.	
L	1
<b>Photo:</b> 10	
Date: 4-7-2022	
Direction: West	

**Description:** DP 10 is located in the far west side of Wetland C.





## **PHOTOGRAPHIC LOG**



#### **Photo:** 12

Date: 4-7-2022

Direction: West

**Description:** Wetland DP 12 is located in the southeast corner of Wetland D. Here, the vegetation community is predominantly forested. A driveway that separates the wetland from Wetland C is evident to the left in the photograph.





### **PHOTOGRAPHIC LOG**

<b>Photo:</b> 13	
Date: 4-7-2022	
Direction: South	
<b>Description:</b> DP 13 is located in upland approximately 25 feet north of Wetland D.	

Photo: 14	
Date: 4-7-2022	
Direction: South	
<b>Description:</b> DP 14 is located in upland on the north side of Wetland D, which is evident in the background where standing water is present.	



### **PHOTOGRAPHIC LOG**



<b>Photo:</b> 16	
<b>Date:</b> 4-7-2022	
Direction: North	
<b>Description:</b> DP 16 is located in	
a forested portion of Wetland B.	



### **PHOTOGRAPHIC LOG**



Photo:	18
--------	----

Date: 4-7-2022

**Direction:** Northeast **Description:** Upstream view of intermittent Stream A. The stream flows onto the Project Site from land to the east.





### **PHOTOGRAPHIC LOG**



Photo: 20	
<b>Date:</b> 4-7-2022	Station of the second second second
Direction: Ground View	
<b>Description:</b> View of the bottom of intermittent Stream A.	



## **PHOTOGRAPHIC LOG**

<b>Photo:</b> 21	
Date: 4-7-2022	
Direction: North	
Description: View of a sand	La construction of the second s
beach at the shoreline of	
Brendel Lake.	A CONTRACTOR OF THE OWNER OF THE
	and the second and the second at the
	and the second and the second
	All and a second second second
	1 Martin States and a state of the states

A REVIEW AND TOUCH
A le la Muno I del

# <u>APPENDIX C</u>

Wetland Determination Data Forms

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016) City/County: White Lake Twp/Oakland Sampling Date: 4-6-2022									022	
Applicant/Owner:	Kem-Tec, Inc. (client)					State:	MI Samplir	ng Point:		)P1
Investigator(s): R. Ne	wkirk			Section, To	wnship, Ran	ige: SW 1/4	; SW 1/4; Section 2	2; T3N; R8	BE	
Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave										
Slope (%): 0 Lat: 42.642731 Long: -83.498049 Dat							Datum: V	VGS84		
Soil Map Unit Name:	17A - Wasepi sandy loa	am, 0 to 3 perce	ent slopes			<u> </u>	IWI classification: F	FO1C		
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)										
Are Vegetation No	, Soil No , or Hydrold	gy <u>No</u> signifi	cantly distu	rbed? Are	e "Normal Ci	ircumstances	' present? Yes	X No		_
Are Vegetation No	, Soil No , or Hydrold	gy <u>No</u> natura	ally problem	atic? (If	needed, exp	lain any ansv	vers in Remarks.)			
SUMMARY OF F	INDINGS – Attach	site map sl	howing s	ampling	point loc	ations, tra	insects, import	ant feat	ures,	etc.
Hydrophytic Vegetation Present?       Yes       X       No       Is the Sampled Area         Hydric Soil Present?       Yes       X       No       within a Wetland?       Yes       X       No         Wetland Hydrology Present?       Yes       X       No       within a Wetland?       Yes       X       No										
Data point is located	l in the northwest corne	<sup>·</sup> of Wetland A, a	a forested v	vetland.						
VEGETATION -	Use scientific name	es of plants.								
Tree Stratum	(Plot size: 30	Abs ) % (	solute Do Cover Sp	ominant l pecies?	Indicator Status	Dominance	e Test worksheet:			
1. Acer saccharinu	т		35	Yes	FACW	Number of	Dominant Species T	<sup>-</sup> hat		
2. Quercus bicolor			30	Yes	FACW	Are OBL, F	ACW, or FAC:		5	(A)
3. 4.						Total Numb	er of Dominant Spe Strata:	cies	5	(B)
5.			65 =Tot	tal Cover		Percent of I Are OBL, F	Dominant Species T ACW, or FAC:	hat 100	0.0%	(A/B)
Sapling/Shrub Stratu	um (Plot size:	15)								
1. Acer saccharinu	m		18	Yes	FACW	Prevalence	Index worksheet:			

Yes

=Total Cover

Yes

5 =Total Cover

=Total Cover

FACW

FACW

Total % Cover of:

0

98

0

0

0

98

1 - Rapid Test for Hydrophytic Vegetation

Prevalence Index = B/A =

X 2 - Dominance Test is >50% X 3 - Prevalence Index is ≤3.0<sup>1</sup>

Hydrophytic Vegetation Indicators:

**OBL** species

FAC species

UPL species

Hydrophytic

Vegetation

Present?

FACU species

Column Totals:

**FACW** species

10

28

5

Remarks:	(Include photo numbers here or on a separate sheet.)	

(Plot size:

\_\_\_\_\_

(Plot size:

5

)

15

2. Quercus bicolor

Herb Stratum

1. Acer saccharinum

Woody Vine Stratum

3.

4.

5.

2.

3. 4.

5.

6.

7. 8.

9.

10.

2.

1. None

Multiply by:

0

196

0

0

0

196

2.00

(B)

x 1 =

x 2 =

x 3 =

x4 =

x 5 =

(A)

\_4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

No

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must

be present, unless disturbed or problematic.

Yes X

Profile Desc	cription: (Descri	be to the dep	th needed to doc	ument t	he indica	tor or c	onfirm the absence o	of indicators.)			
Depth	Matrix	(	Redo	ox Featur	res						
(inches)	Color (moist)	%	Color (moist)	%	Type	Loc <sup>∠</sup>	Texture	Remarks			
0-9	10YR 3/2	100					Loamy/Clayey				
9-17	10YR 5/2	85	10YR 5/4	15	С	М	Loamy/Clayey	Distinct redox concentrations			
			-Doducod Matrix			Craina	<sup>2</sup> l agation	DI - Doro Liping M-Motrix			
Hydric Soil	Indicators:			vio-ivias	keu Sand	Grains	. Location.	PL-Pole Lining, M-Maurx.			
Histosol			Sandy Gle	wed Mat	riv (S1)		Coast	Proirie Redox (A16)			
Histic Er	(AT) vinedon (A2)		Sandy Be	dov (S5)	IIX (34)			Aanganese Masses (E12)			
Black Hi	stic (A3)		Stringod M	uux (33) Aatrix (Si	3)		IIOII-N	Parent Material (E21)			
	$\sin (A3)$		Oark Surf	au (S7)	)		Verv 9	Shallow Dark Surface (E22)			
Stratified				icky Min	eral (F1)		Other	(Explain in Remarks)			
2 cm Mu	r Layers (A3)		Loamy Gl		triv $(E2)$						
	Helow Dark Surf	ace (A11)	X Depleted	Matrix (F	3)						
Thick Da	ark Surface (A12)		Bedox Da	rk Surfac	c) ce (F6)		<sup>3</sup> Indicators	s of hydrophytic vegetation and			
Sandy M	lucky Mineral (S1)		 Depleted	Dark Sur	face (F7)		wetlar	nd hydrology must be present			
5 cm Mu	icky Peat or Peat	(S3)	Redox De	pression	s (F8)		unles	s disturbed or problematic.			
Restrictive	l aver (if observe	d).		•	( )			•			
Type <sup>.</sup>		а).									
Depth (ir	nches).						Hydric Soil Present	? Yes X No			
Errata (http:/	//www.nrcs.usda.g	ov/Internet/Fs	SE_DOCUMENTS	/nrcs142 ton serie	p2_0512 s.	93.docx	).				
HYDROLC	<b>DGY</b>										
Wetland Hy	drology Indicato	rs:									
Primary India	<u>cators (minimum c</u>	of one is requi	red; check all that	apply)			Secondar	y Indicators (minimum of two required)			
X Surface	Water (A1)		X Water-Sta	ined Lea	ives (B9)		Surface Soil Cracks (B6)				
X High Wa	iter Table (A2)		Aquatic Fa	auna (B1	3)		Drainage Patterns (B10)				
X Saturatio	on (A3)		True Aqua	atic Plant	s (B14)		Dry-S	eason Water Table (C2)			
X Water M	arks (B1)		Hydrogen	Sulfide (	Jdor (C1)	)	Crayfi	ish Burrows (C8)			
Sedimer	t Deposits (B2)			Rhizosph	ieres on l	LIVING RO	oots (C3) X Satura	ation Visible on Aerial Imagery (C9)			
	DOSITS (B3)		Presence	of Reduc	cea Iron (	C4) Nad Cail		ed or Stressed Plants (D1)			
	at or Crust (B4)		Recent In	n Reduc		lied Solis	s (C6) <u>X</u> Georr	Neutral Test (D5)			
Iron Dep	IOSIIS (BD) an Vicible an Acriv	l Imagany (P						Neutral Test (D5)			
		ai iiiageiy (Di	Gauge of Gau	vveli Dal	a (D9) Somarka)						
					(enarks)						
Field Obser	vations:	Voc V	No	Donth /	nchoc);	2					
Motor T-L	Brogent?	Vec V			nches):	<u> </u>					
Saturation P	resent?	Ves V		Depth (I	nches):	0	Watland Hydrolog	Ny Prosent? Vec Y No			
(includes capillary fringe)											
Describe Re	corded Data (stre	am daude mo	nitoring well aeria	al photos	previou	sinspec	tions) if available				
Describerte		an gaage, m			, proviou.						
Remarks:											

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016)			City/Co	ounty:	White Lake	Twp/Oakla	and	Sampling Date:	4-6-2022
Applicant/Owner:	Kem	-Tec, Inc. (client)				State:	MI	Sampling Point:	DP2
Investigator(s): R. Ne	Section,	Town	ship, Range:	SW 1/4	SW 1/4	; Section 22; T3N; R	8E		
Landform (hillside, te	rrace	, etc.): hillside		Loca	al relief (conca	ave, conve	x, none)	: convex	
Slope (%): 7	Lat:	42.642713	Long:	-83.4	98356			Datum: WGS84	
Soil Map Unit Name:	17A	- Wasepi sandy loam, 0 to 3 percent slopes				N	WI class	ification: PFO1C	
Are climatic / hydrolo	gic co	onditions on the site typical for this time of ye	ear?	Yes	X N	o	(If no, e	xplain in Remarks.)	
Are Vegetation No	, Soi	<u>No</u> , or Hydrology <u>No</u> significantly dist	urbed?	Are "I	Normal Circu	mstances"	present	? Yes <u>X</u> No	) <u> </u>
Are Vegetation No	matic?	(If ne	eded, explair	any answ	ers in R	emarks.)			
SUMMARY OF	IND	INGS – Attach site map showing	sampli	ng p	oint locati	ons, tra	nsects	, important feat	ures, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes X Yes Yes	No NoX NoX	Is the Sampled Area within a Wetland?	Yes	No <u>X</u>
Remarks: Data point is located beside a grav	/el campground	road that separates V	Vetlands A and B.		

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:
1. Quercus bicolor	25	Yes	FACW	Number of Dominant Species That
2. Carya ovata	20	Yes	FACU	Are OBL, FACW, or FAC: 5 (A)
3. Acer saccharinum	15	Yes	FACW	Total Number of Dominant Species
4. Populus deltoides	5	No	FAC	Across All Strata: 8 (B)
5.				Percent of Dominant Species That
	65	=Total Cover		Are OBL, FACW, or FAC: 62.5% (A/B)
Sapling/Shrub Stratum (Plot size: 15 )				
1. Populus deltoides	8	Yes	FAC	Prevalence Index worksheet:
2. Quercus bicolor	5	Yes	FACW	Total % Cover of: Multiply by:
3.				OBL species 0 x 1 = 0
4.				FACW species 52 x 2 = 104
5.				FAC species 13 x 3 = 39
	13	=Total Cover		FACU species 34 x 4 = 136
Herb Stratum (Plot size: 5)				UPL species 0 x 5 = 0
1. Solidago canadensis	10	Yes	FACU	Column Totals: 99 (A) 279 (B)
2. Taraxacum officinale	4	Yes	FACU	Prevalence Index = B/A = 2.82
3.				
4.				Hydrophytic Vegetation Indicators:
5.				1 - Rapid Test for Hydrophytic Vegetation
6.				X 2 - Dominance Test is >50%
7.				X 3 - Prevalence Index is ≤3.0 <sup>1</sup>
8.				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
9.				data in Remarks or on a separate sheet)
10.				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
	14	=Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must
<u>Woody Vine Stratum</u> (Plot size: 15 )				be present, unless disturbed or problematic.
1. Vitis riparia	7	Yes	FACW	Hydrophytic
2				Vegetation
	7	=Total Cover		Present? Yes X No
Remarks: (Include photo numbers here or on a separa	ate sheet.)			

Profile Desc	cription: (Describe	to the dept	h needed to doc	ument t	he indica	tor or c	onfirm the absence o	of indicators.)
Depth	Matrix		Redo	x Featu	res			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-10	10YR 4/2	100					Loamy/Clayey	Gravelly mix
10-16	10YR 5/3	95	10YR 5/4	5	С	М	Loamy/Clayey	Faint redox concentrations
1		• <u> </u>						
'Type: C=C	oncentration, D=Dep	oletion, RM=	Reduced Matrix, N	MS=Mas	ked Sand	d Grains	Location:	PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:		O an sha O la				Indicator	s for Problematic Hydric Soils":
HISTOSOI	(A1)		Sandy Gle	yed Mat	rix (54)			Approprie Redox (A16)
	stic (A2)		Sanuy Red	10X (33) Intriv (Si	8)		ITON-N	Parent Material (E21)
	suc (A3) n Sulfide (A1)		Surpped iv	aux (30	0)			Shallow Dark Surface (E22)
Stratified				cky Min	eral (F1)		Other	(Explain in Remarks)
2 cm Mu	r Eayers (A3)		Loamy Gle	eved Ma	trix (F2)			
2 cm wa	Below Dark Surfac	e (A11)	Depleted N	Jatrix (F	(1 Z)			
Thick Da	ark Surface (A12)	0 (/ 11 / )	Redox Da	rk Surfac	ce (F6)		<sup>3</sup> Indicators	s of hydrophytic vegetation and
Sandy M	luckv Mineral (S1)		Depleted [	Dark Sur	face (F7)		wetla	nd hvdrology must be present.
5 cm Mu	cky Peat or Peat (S	3)	Redox Dep	pression	is (F8)		unles	s disturbed or problematic.
Restrictive	aver (if observed)				. ,			· · · · · · · · · · · · · · · · · · ·
Type <sup>.</sup>	_ujo: (ii obcorrou)	•						
Depth (ir	nches):						Hydric Soil Present	? Yes No X
Dementer	,							
This data for	m is revised from M	idwest Reain	nal Supplement \	/ersion 2	2 0 to incl	ude the	NRCS Field Indicators	of Hydric Soils, Version 7.0, 2015
Errata (http:/	/www.nrcs.usda.go	/Internet/FS	E DOCUMENTS/	/nrcs142	2p2 0512	93.docx	).	
、 I	Ū		—		• _		,	
HYDROLC	GY							
Wetland Hv	drology Indicators							
Primary Indi	cators (minimum of o	one is require	ed; check all that a	apply)			Secondar	y Indicators (minimum of two required)
Surface	Water (A1)		Water-Stai	ined Lea	aves (B9)		Surfa	ce Soil Cracks (B6)
High Wa	ter Table (A2)		Aquatic Fa	una (B1	3)		Drain	age Patterns (B10)
Saturatio	on (A3)		True Aqua	tic Plant	is (B14)		eason Water Table (C2)	
Water M	arks (B1)		Hydrogen	Sulfide (	Odor (C1)	)	Crayf	ish Burrows (C8)
Sedimer	nt Deposits (B2)		Oxidized F	Rhizosph	neres on l	iving Ro	oots (C3) Satur	ation Visible on Aerial Imagery (C9)
Drift Dep	oosits (B3)		Presence	of Redu	ced Iron (	C4)	Stunt	ed or Stressed Plants (D1)
Algal Ma	it or Crust (B4)		Recent Iro	n Reduc	tion in Ti	led Soil	s (C6) Geom	orphic Position (D2)
Iron Dep	osits (B5)		Thin Muck	Surface	e (C7)		X FAC-I	Neutral Test (D5)
Inundatio	on Visible on Aerial	magery (B7)	Gauge or	Well Dat	a (D9)			
Sparsely	Vegetated Concave	e Surface (B	8)Other (Exp	plain in F	Remarks)			
Field Obser	vations:							
Surface Wat	er Present? Yo	es	No <u>X</u>	Depth (i	nches):			
Water Table	Present? Ye	es	No <u>X</u>	Depth (i	nches):			
Saturation P	resent? Yo	es	No <u>X</u>	Depth (i	nches):		Wetland Hydrolog	y Present? Yes No X
(includes capillary fringe)								
Describe Re	corded Data (strean	n gauge, moi	nitoring well, aeria	I photos	, previou	s inspec	tions), if available:	
Remarks								
. tomanto.								

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016)	City/County:	White Lake T	wp/Oakla	nd	Sampling Date:	4-6-2022
Applicant/Owner: Kem-Tec, Inc. (client)			State:	MI	Sampling Point:	DP3
Investigator(s): R. Newkirk	Section, Town	iship, Range:	SW 1/4;	SW 1/4;	Section 22; T3N; R	3E
Landform (hillside, terrace, etc.): depression	Loca	al relief (concav	ve, conve	x, none):	concave	
Slope (%): 0 Lat: 42.642627	Long: <u>-83.4</u>	98579			Datum: WGS84	
Soil Map Unit Name: 17A - Wasepi sandy loam, 0 to 3 percent slopes			N	WI classi	fication: PFO1C	
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes	X No	)	(If no, ex	plain in Remarks.)	
Are Vegetation <u>No</u> , Soil <u>No</u> , or Hydrology <u>No</u> significantly dist	urbed? Are "	Normal Circum	nstances"	present?	Yes <u>X</u> No	
Are Vegetation <u>No</u> , Soil <u>No</u> , or Hydrology <u>No</u> naturally problem	matic? (If ne	eded, explain a	any answ	ers in Re	marks.)	
SUMMARY OF FINDINGS – Attach site map showing	sampling p	oint locatio	ons, tra	nsects,	important feat	ures, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes X Yes X Yes X	No No No	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No
Remarks:	actorn most ov	iont of Wotland P			

Data point is located in the northeastern most extent of Wetland B.

	Absolute	Dominant	Indicator				
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test worksheet:			
1. Quercus bicolor	25	Yes	FACW	Number of Dominant Species That			
2. Populus deltoides	15	Yes	FAC	Are OBL, FACW, or FAC:	7 (A)		
3. Acer saccharinum	10	No	FACW	Total Number of Dominant Species			
4. Prunus serotina	7	No	FACU	Across All Strata:	7 (B)		
5.				Percent of Dominant Species That			
	57	=Total Cover		Are OBL, FACW, or FAC: 10	0.0% (A/B)		
Sapling/Shrub Stratum (Plot size: 15							
1. Cornus sericea	8	Yes	FACW	Prevalence Index worksheet:			
2. Quercus bicolor	5	Yes	FACW	Total % Cover of: Multiply	/ by:		
3.				OBL species 44 x 1 =	44		
4.				FACW species 58 x 2 =	116		
5.				FAC species 15 x 3 =	45		
	13	=Total Cover		FACU species 7 x 4 =	28		
Herb Stratum (Plot size: 5 )				UPL species 0 x 5 =	0		
1. Typha angustifolia	25	Yes	OBL	Column Totals 124 (A)	233 (B)		
2. Carex hyalinolepis	15	Yes	OBL	Prevalence Index = B/A = 1.88	3		
3. Onoclea sensibilis	5	No	FACW				
4. Symplocarpus foetidus	4	No	OBL	Hydrophytic Vegetation Indicators:			
5.				1 - Rapid Test for Hydrophytic Veget	tation		
6.				X 2 - Dominance Test is >50%			
7.				X 3 - Prevalence Index is $\leq 3.0^1$			
8.				4 - Morphological Adaptations <sup>1</sup> (Prov	vide supporting		
9.				data in Remarks or on a separate	sheet)		
10.				Problematic Hydrophytic Vegetation	<sup>1</sup> (Explain)		
	49	=Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hyd	trology must		
Woody Vine Stratum (Plot size: 15				be present, unless disturbed or problema	atic.		
1. Vitis riparia	5	Yes	FACW	Hydrophytic			
2.				Vegetation			
	5	=Total Cover		Present? Yes X No	_		
Remarks: (Include photo numbers here or on a separ	ate sheet.)			•			

Profile Des	cription: (Describe	to the dep	th needed to doc	ument tl	ne indica	tor or o	confirm the absence o	of indicators.)		
Depth	Matrix		Redo	ox Featur	es					
(inches)	Color (moist)	%	Color (moist)	%	Type'	Loc <sup>2</sup>	Texture	Remarks		
0-6	10YR 3/1	100					Mucky Sand			
6-11	10YR 3/2	100					Sandy			
11-17	10YR 5/3	90	10YR 6/4	10	С	М	Loamy/Clayey	Faint redox concentrations		
		·								
		<u> </u>					2,			
Type: C=C	oncentration, D=Dep	letion, RM=	Reduced Matrix,	MS=Mas	ked Sand	Grains	Location:	PL=Pore Lining, M=Matrix.		
Hydric Soll			Sandy Cl	wod Mat	riv (81)		Indicator	s for Problematic Hydric Solis :		
	(AI)		Sandy Ge	eyeu Mat	fix (54)					
	(A2)		Sanuy Re	uux (33) Actrix (S6	2)		IIOII-IN	Parant Matarial (E21)		
	Suc(A3)		2 Dark Surf	/iau ix (30	)			Shallow Dark Surface (E22)		
Stratific	d Lavors (A5)			ace (Sr)	oral (E1)		Very .	(Explain in Pomarka)		
	Layers(A3)			oved Met	riv (E2)					
2 cm Mc	d Below Dark Surfac	ς (Δ11)	Loaniy Gi	Matrix (E	3)					
Depleted	ark Surface (A12)	5 (711)	Beday Da	rk Surfac	5) 56 (E6)		<sup>3</sup> Indicator	s of hydrophytic vegetation and		
X Sandy M	Aucky Mineral (S1)			Dark Sur	face (F7)		wetla	nd hydrology must be present		
5 cm Mi	icky Peat or Peat (S	3)	Redox De	pression	s (F8)		unles	s disturbed or problematic		
Postrictivo					- ()					
Type	Layer (II Observed)									
Type. Denth (i	nches):						Hydric Soil Present	2 Ves X No		
Deptil (i	<u> </u>						Hyunc Son Fresent			
Remarks:	rm is revised from Mi	durant Dani	anal Cumplement	Varaian (	) () to incl	uda tha	NDCC Field Indicators	of Lludric Soils Version 7.0.2015		
Frrata (http:	//www.nrcs.usda.dov	/Internet/FS	SE DOCUMENTS	/nrcs142	n2 0512	93 docx				
	,				p=_00.1		,.			
HYDROLO	DGY									
Wetland Hy	drology Indicators									
Primary Indi	cators (minimum of c	one is reauir	ed: check all that	apply)			Secondar	v Indicators (minimum of two required)		
Surface	Water (A1)		X Water-Sta	ined Lea	ves (B9)		Surface Soil Cracks (B6)			
X High Wa	ater Table (A2)		Aquatic Fa	auna (B1	3)		Drain	age Patterns (B10)		
X Saturatio	on (A3)		True Aqua	atic Plant	, s (B14)		Dry-S	eason Water Table (C2)		
X Water M	larks (B1)		X Hydrogen	Sulfide 0	Odor (C1)	)	Crayf	ish Burrows (C8)		
Sedimer	nt Deposits (B2)		Oxidized I	Rhizosph	eres on L	iving R	oots (C3) Satur	ation Visible on Aerial Imagery (C9)		
Drift Dep	posits (B3)		Presence	of Reduc	ed Iron (	C4)	Stunt	ed or Stressed Plants (D1)		
Algal Ma	at or Crust (B4)		Recent Irc	n Reduc	tion in Ti	led Soil	s (C6) X Geom	norphic Position (D2)		
Iron Dep	oosits (B5)		Thin Muck	Surface	(C7)		X FAC-	Neutral Test (D5)		
X Inundati	on Visible on Aerial I	magery (B7	) Gauge or	Well Dat	a (D9)					
Sparsel	y Vegetated Concave	e Surface (E	88) Other (Ex	olain in R	Remarks)					
Field Obser	rvations:									
Surface Wat	ter Present? Ye	es	No <u>X</u>	Depth (i	nches):					
Water Table	Present? Ye	es X	No	Depth (i	nches):	0				
Saturation Present? Yes X No Depth (inches): 0 Wetland Hydrology Present? Yes X No										
(includes ca	pillary fringe)									
Describe Re	ecorded Data (stream	i gauge, mo	nitoring well, aeria	al photos	, previous	s inspec	tions), if available:			
Remarke:										
i temaina.										

Project/Site: Brendel	Lake	Campground / Elizabeth Lake Road (221016)	City/Co	ounty: White Lake	Fwp/Oakla	and	Sampling Date:	4-6-2022
Applicant/Owner:	Kem	Tec, Inc. (client)			State:	MI	Sampling Point:	DP4
Investigator(s): R. Newkirk			Section,	, Township, Range:	NW 1/4	; NW 1/4;	Section 27; T3N; R	3E
Landform (hillside, te	rrace	etc.): hillside		Local relief (conca	ive, conve	ex, none):	convex	
Slope (%): 8	Lat:	42.641693	Long:	-83.497696			Datum: WGS84	
Soil Map Unit Name:	17A -	Wasepi sandy loam, 0 to 3 percent slopes			N	WI classi	fication: PFO1C	
Are climatic / hydrolo	gic co	nditions on the site typical for this time of ye	ar?	Yes <u>X</u> N	o	(If no, ex	plain in Remarks.)	
Are Vegetation No	, Soil	No , or Hydrology No significantly dist	urbed?	Are "Normal Circur	nstances"	present?	Yes <u>X</u> No	ı <u> </u>
Are Vegetation <u>No</u> , Soil <u>No</u> , or Hydrology <u>No</u> naturally problem				natic? (If needed, explain any answers in Remarks.)				
SUMMARY OF		INGS – Attach site map showing	sampli	ing point location	ons, tra	nsects	, important feat	ures, etc.

Hydrophytic Vegetation Present?	Yes	No <u>X</u>	Is the Sampled Area	Vac	
Hydric Soll Present?	res		within a wetland?	res	NO <u>X</u>
Wetland Hydrology Present?	Yes	No <u>X</u>			
Remarks:					

Data point is located on a hillside, in an upland forest near the north edge of Wetland C and along the east boundary of the Project Site.

	Absolute	Dominant	Indicator		
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test worksheet:	
1. Quercus alba	50	Yes	FACU	Number of Dominant Species That	
2. Quercus rubra	20	Yes	FACU	Are OBL, FACW, or FAC: 1 (A)	
3. Carya ovata	5	No	FACU	Total Number of Dominant Species	
4				Across All Strata: 5 (B)	
5				Percent of Dominant Species That	
	75	=Total Cover		Are OBL, FACW, or FAC: 20.0% (A/	B)
Sapling/Shrub Stratum (Plot size: 15 )					
1. Quercus alba	20	Yes	FACU	Prevalence Index worksheet:	
2. Fagus grandifolia	15	Yes	FACU	Total % Cover of: Multiply by:	
3. Quercus bicolor	15	Yes	FACW	OBL species 0 x 1 = 0	
4.				FACW species 15 x 2 = 30	
5.				FAC species 0 x 3 = 0	
	50	=Total Cover		FACU species 110 x 4 = 440	
Herb Stratum (Plot size: 5 )				UPL species 0 x 5 = 0	
1. Carex sp.				Column Totals: 125 (A) 470 (B)	)
2.				Prevalence Index = B/A = 3.76	
3.					
4.				Hydrophytic Vegetation Indicators:	
5.				1 - Rapid Test for Hydrophytic Vegetation	
6.				2 - Dominance Test is >50%	
7.				3 - Prevalence Index is ≤3.0 <sup>1</sup>	ļ
8.				4 - Morphological Adaptations <sup>1</sup> (Provide support	ting
9.				data in Remarks or on a separate sheet)	
10.				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
		=Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology mus	st
<u>Woody Vine Stratum</u> (Plot size: 15 )				be present, unless disturbed or problematic.	
1. None				Hydrophytic	
2.				Vegetation	
		=Total Cover		Present? Yes No X	
Remarks: (Include photo numbers here or on a separa	ate sheet.)				

Profile Desc	ription: (Describe	to the dept	h needed to doc	ument t	he indica	itor or c	onfirm the absence o	of indicators.)
Depth	Matrix		Redo	x Featur	res	2		
(inches)	Color (moist)	%	Color (moist)	%	Type'	Loc	Texture	Remarks
0-11	10YR 3/2	100					Loamy/Clayey	
11-17	10YR 5/3	95	10YR 5/4	5	С	М	Loamy/Clayey	Faint redox concentrations
1								
'Type: C=Co	oncentration, D=De	oletion, RM=	Reduced Matrix, N	/IS=Mas	ked Sand	d Grains	Location:	PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:				· (04)		Indicator	s for Problematic Hydric Soils":
Histosol	(A1)		Sandy Gle	yed Mat	rix (S4)		Coasi	Prairie Redox (A16)
	apedon (A2)		Sandy Red	10X (SS)	0)		Iron-N	
	STIC (A3)		Stripped IV	atrix (Se	0)			Parent Material (F21)
Hydroge	n Sullide (A4)			ce (S7)	aral (E1)		Very :	Shallow Dark Surface (F22)
	Layers (AS)				triv $(E2)$			
	I Below Dark Surfac	ο (Δ11)		/yeu ivia ∕latriv (⊏	ui∧ (F∠) (3)			
	rk Surface (A12)		Bedox Da	k Surfa	5) Se (E6)		<sup>3</sup> Indicator	s of hydrophytic vegetation and
Sandy M	ucky Mineral (S1)			)ark Sur	face (F7)		wetla	nd hydrology must be present
5 cm Mu	cky Peat or Peat (S	3)	Bedox Der	pression	idee (i 7) is (F8)		unles	s disturbed or problematic
	over (if cheer ed)	•						
Type	Layer (II observed)	1						
Depth (in	ches):						Hydric Soil Present	2 Vas No X
Deptil (il	<u> </u>		_				riyune son Fresent	
Remarks:	m is revised from M	idwoot Dogic	and Supplement )	lorgion (	2 0 to incl	uda tha	NPCS Field Indicators	of Hydria Saila Marajan 7.0. 2015
Frrata (http:/	/www.nrcs.usda.do	/Internet/FS	F DOCUMENTS	nrcs142	2.0 10 mci 2n2 0512	93 docx	)	of Hydric Solis, version 7.0, 2015
Endia (http://	www.mos.uodu.go			11100142	.pz_0012	00.000	).	
HYDROLO	GY							
Wetland Hy	drology Indicators							
Primary India	cators (minimum of	one is reauir	ed: check all that a	(vlage			Secondar	v Indicators (minimum of two required)
Surface	Water (A1)		Water-Stai	ned Lea	aves (B9)		Surfa	ce Soil Cracks (B6)
High Wa	ter Table (A2)		Aquatic Fa	una (B1	3)		Drain	age Patterns (B10)
Saturatio	on (A3)		True Aqua	tic Plant	, s (B14)		Dry-S	eason Water Table (C2)
Water M	arks (B1)		Hydrogen	Sulfide (	Odor (C1)	)	Crayf	ish Burrows (C8)
Sedimen	t Deposits (B2)		Oxidized F	Rhizosph	neres on l	iving R	oots (C3) Satur	ation Visible on Aerial Imagery (C9)
Drift Dep	osits (B3)		Presence	of Redu	ced Iron (	C4)	Stunte	ed or Stressed Plants (D1)
Algal Ma	t or Crust (B4)		Recent Iro	n Reduc	tion in Ti	led Soil	s (C6) Geom	norphic Position (D2)
Iron Dep	osits (B5)		Thin Muck	Surface	e (C7)		FAC-I	Neutral Test (D5)
Inundatio	on Visible on Aerial	Imagery (B7)	)Gauge or V	Nell Dat	a (D9)			
? Sparsely	Vegetated Concav	e Surface (B	8)Other (Exp	lain in F	Remarks)			
Field Obser	vations:							
Surface Wate	er Present? Y	es	No <u>X</u>	Depth (i	nches):			
Water Table	Present? Y	es	No <u>X</u>	Depth (i	nches):			
Saturation P	resent? Y	es	No <u>X</u>	Depth (i	nches):		Wetland Hydrolog	y Present? Yes No X
(includes cap	(includes capillary fringe)							
Describe Re	corded Data (strear	n gauge, moi	nitoring well, aeria	l photos	, previou	s inspec	tions), if available:	
Remarks:								

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016	) City/County:	White Lake 1	「wp/Oakla	ind	Sampling Date:	4-6-2022
Applicant/Owner: Kem-Tec, Inc. (client)			State:	MI	Sampling Point:	DP5
Investigator(s): R. Newkirk	Section, Towr	Section, Township, Range: NW 1/4; NW 1/4; Section 27; T3N; F				8E
Landform (hillside, terrace, etc.): depression	Loca	al relief (conca	ve, conve	x, none):	concave	
Slope (%): 1 Lat: <u>42.641799</u>	Long: <u>-83.4</u>	9799			Datum: WGS84	
Soil Map Unit Name: 17A - Wasepi sandy loam, 0 to 3 percent slope	s		N	WI class	ification: PFO1C	
Are climatic / hydrologic conditions on the site typical for this time of	year? Yes	s <u>X</u> No	o	(If no, ex	plain in Remarks.)	
Are Vegetation <u>No</u> , Soil <u>No</u> , or Hydrology <u>No</u> significantly di	sturbed? Are "	Normal Circur	nstances"	present	? Yes <u>X</u> No	) <u> </u>
Are Vegetation No , Soil No , or Hydrology No naturally problem	matic? (If needed, explain any answers in Remarks.)					
SUMMARY OF FINDINGS – Attach site map showing	g sampling p	oint locatio	ons, tra	nsects	, important feat	ures, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes X Yes X Yes X	No No No	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No
Remarks:	noor ito north (	adaa			

Data point is located in Wetland C near its north edge.

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test worksheet:
1. Quercus bicolor	35	Yes	FACW	Number of Dominant Species That
2. Betula lenta	20	Yes	FACU	Are OBL, FACW, or FAC: 4 (A)
3. Populus deltoides	10	No	FAC	Total Number of Dominant Species
4. Celtis occidentalis	10	No	FAC	Across All Strata: 5 (B)
5				Percent of Dominant Species That
	75	=Total Cover		Are OBL, FACW, or FAC: 80.0% (A/B)
Sapling/Shrub Stratum (Plot size: 15				
1. Quercus bicolor	20	Yes	FACW	Prevalence Index worksheet:
2. Celtis occidentalis	15	Yes	FAC	Total % Cover of: Multiply by:
3. Populus deltoides	8	No	FAC	OBL species 25 x 1 = 25
4.				FACW species 58 x 2 = 116
5.				FAC species 43 x 3 = 129
	43	=Total Cover		FACU species 20 x 4 = 80
Herb Stratum (Plot size: 5 )				UPL species 0 x 5 = 0
1. Carex hyalinolepis	20	Yes	OBL	Column Totals: 146 (A) 350 (B)
2. Symplocarpus foetidus	5	No	OBL	Prevalence Index = B/A = 2.40
3. Cornus sericea	3	No	FACW	
4.				Hydrophytic Vegetation Indicators:
5				1 - Rapid Test for Hydrophytic Vegetation
6.				X 2 - Dominance Test is >50%
7.				X 3 - Prevalence Index is ≤3.0 <sup>1</sup>
8.				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
9.				data in Remarks or on a separate sheet)
10.				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
	28	=Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size: 15	)			be present, unless disturbed or problematic.
1. None				Hydrophytic
2.				Vegetation
		=Total Cover		Present? Yes X No
Remarks: (Include photo numbers here or on a separ	ate sheet.)			

Profile Desc	cription: (Describe	to the dep	th needed to doc	ument ti	he indica	tor or o	confirm the absence o	of indicators.)
Depth		0/	Redo	x Featur	es 1	1 2	Tartura	Demender
(Incnes)	Color (moist)	<u>%</u>	Color (moist)	<u>%</u>	Туре	LOC	Texture	Remarks
0-7	10YR 3/1	100					Mucky Sand	
7-16	10YR 5/3	90	10YR 5/1	10	D	Μ	Sandy	
·								
		·						
17 0.0		<u> </u>					2	
Type: C=C	oncentration, D=Dep	pletion, RM=	Reduced Matrix, N	/IS=Mas	ked Sand	Grains		PL=Pore Lining, M=Matrix.
Hydric Soll			Sandy Cla	vad Mat	riv (C1)		Indicator	s for Problematic Hydric Solis :
	(AI)		Sandy Gie	yeu wat	fix (34)		Coas	
	$A^{2}$		Sandy Red	JOX (SS)	2)			Parent Material (E21)
	slic (A3) n Sulfido (A4)		2 Dark Surfa	anx (50	)			Shallow Dark Surface (E22)
					orol (E1)		very	(Explain in Remarka)
	ak (A10)							
	L (AIU) Below Dark Surfac	o (A11)		yeu wa ∕atriv /⊏	uux (⊏∠) 3)			
	a Below Dark Sullad	e (ATT)	Depleted in	viauix (F	3) 20 (E6)		<sup>3</sup> Indicator	a of hydrophytic vegetation and
	lucky Minoral (S1)				е (го) faco (Е7)		mulcator	s of hydrophytic vegetation and
	cky Peat or Peat (S1)	3)	Depieted L		ace (F7)		wella	s disturbed or problematic
		5)		516331011	3 (1 0)		unes	s disturbed of problematic.
Restrictive	Layer (if observed)	:						
Туре:								• • • • •
Depth (ir	nches):						Hydric Soil Present	? Yes <u>X</u> NO
Errata (http:/	/www.nrcs.usda.gov	/Internet/FS	SE_DOCUMENTS/	nrcs142	p2_0512	93.docx	).	
HYDROLC	GY							
Wetland Hy	drology Indicators:							
Primary India	cators (minimum of o	one is reaui	red: check all that a	(vlage			Secondar	v Indicators (minimum of two required)
X Surface	Water (A1)		X Water-Stai	ined Lea	ves (B9)		Surfa	ce Soil Cracks (B6)
X High Wa	ter Table (A2)		Aquatic Fa	iuna (B1	3)		Drain	age Patterns (B10)
X Saturatio	on (A3)		True Aqua	tic Plant	s (B14)		Dry-S	Season Water Table (C2)
X Water M	arks (B1)		X Hydrogen	Sulfide (	Odor (C1)	)	Crayf	ish Burrows (C8)
Sedimer	nt Deposits (B2)		Oxidized F	Rhizosph	eres on l	_iving R	oots (C3) X Satur	ation Visible on Aerial Imagery (C9)
Drift Dep	oosits (B3)		Presence	of Reduc	ced Iron (	C4)	Stunt	ed or Stressed Plants (D1)
Algal Ma	it or Crust (B4)		Recent Iro	n Reduc	tion in Ti	lled Soil	s (C6) X Geon	norphic Position (D2)
Iron Dep	osits (B5)		Thin Muck	Surface	e (C7)		X FAC-	Neutral Test (D5)
Inundatio	on Visible on Aerial I	magery (B7	)Gauge or V	Well Dat	a (D9)			
Sparsely	Vegetated Concave	e Surface (E	38)Other (Exp	olain in F	Remarks)			
Field Obser	vations:							
Surface Wat	er Present? Ye	es X	No	Depth (i	nches):	1		
Water Table	Present? Ye	es X	No	Depth (i	nches):	0		
Saturation P	resent? Ye	es X	No	Depth (i	nches):	0	Wetland Hydrolog	gy Present? Yes X No
(includes ca	oillary fringe)							
Describe Re	corded Data (stream	n gauge, mo	onitoring well, aeria	l photos	, previou	s inspec	tions), if available:	
Remarks:								

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016)		16) City/Cou	nty: White Lake	Twp/Oakla	and	Sampling Date:	4-6-2022	
Applicant/Owner:	Kem	-Tec, Inc. (client)			State:	MI	Sampling Point:	DP6
Investigator(s): R. Newkirk				ownship, Range:	NW 1/4	; NW 1/4	; Section 27; T3N; R	8E
Landform (hillside, te	rrace	, etc.): depression		Local relief (conca	ive, conve	ex, none)	: concave	
Slope (%): 2	Lat:	42.640925	Long: -	83.499864			Datum: WGS84	
Soil Map Unit Name:	27 -	Houghton and Adrian mucks			N	IWI class	sification: PFO1C	
Are climatic / hydrolo	gic co	onditions on the site typical for this time	of year?	Yes <u>X</u> N	o	(If no, e	xplain in Remarks.)	
Are Vegetation No	, Soi	I <u>No</u> , or Hydrology <u>No</u> significantly	disturbed? A	Are "Normal Circur	mstances"	' present	? Yes <u>X</u> No	) <u> </u>
Are Vegetation <u>No</u> , Soil <u>No</u> , or Hydrology <u>No</u> naturally problem				lf needed, explain	any answ	vers in R	emarks.)	
SUMMARY OF	IND	NNGS – Attach site map showi	ng samplin	g point locati	ons, tra	nsects	s, important feat	ures, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes X Yes X Yes X	No No No	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No
Remarks: Data point is situated in the southe	ern extent of W	etland C			

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test worksheet:
1. Quercus bicolor	20	Yes	FACW	Number of Dominant Species That
2. Quercus rubra	15	Yes	FACU	Are OBL, FACW, or FAC: 4 (A)
3.				Total Number of Dominant Species
4.				Across All Strata: 5 (B)
5				Percent of Dominant Species That
	35	=Total Cover		Are OBL, FACW, or FAC: 80.0% (A/B)
Sapling/Shrub Stratum (Plot size: 15 )				
1. Quercus bicolor	8	Yes	FACW	Prevalence Index worksheet:
2. Cornus sericea	5	Yes	FACW	Total % Cover of: Multiply by:
3.				OBL species 30 x 1 = 30
4.				FACW species 36 x 2 = 72
5.				FAC species 0 x 3 = 0
	13	=Total Cover		FACU species 15 x 4 = 60
Herb Stratum (Plot size: 5)				UPL species 0 x 5 = 0
1. Typha angustifolia	25	Yes	OBL	Column Totals: 81 (A) 162 (B)
2. Symplocarpus foetidus	5	No	OBL	Prevalence Index = B/A = 2.00
3. Cornus sericea	3	No	FACW	
4.				Hydrophytic Vegetation Indicators:
5.				1 - Rapid Test for Hydrophytic Vegetation
6.				X 2 - Dominance Test is >50%
7.				X 3 - Prevalence Index is ≤3.0 <sup>1</sup>
8.				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
9				data in Remarks or on a separate sheet)
10.				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
	33	=Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size: 15				be present, unless disturbed or problematic.
1 None				
2				Hydrophytic
		=Total Cover		Present? Yes X No
Remarks: (Include photo numbers here or on a separ	ate sheet.)	ail (Typha and		
vegetation consists of a nearly monotypic stand of ha	nowlear call	aii (Typria arig	ustiiolia, Obt	L).

Profile Des	cription: (Descri	be to the dep	th needed to doc	ument tl	he indica	tor or o	onfirm the absence	of indicators.)
Depth	Matri	x	Redo	x Featur	res	<u> </u>		
(inches)	Color (moist)	%	Color (moist)	%	Туре	Loc <sup>2</sup>	Texture	Remarks
0-15	10YR 2/1	100					Mucky Sand	
17							21	DL Dana Lining M. Matrix
Type: C=C	oncentration, D=L	Depletion, RIVI=	Reduced Matrix, I	vi5=ivias	ked Sand	Grains	Location	1: PL=Pore Lining, M=Matrix.
Histosol			Sandy Cle	wed Mat	riv (S4)		Indicato	rs for Problematic Hydric Solls :
Histic Fr	$(\Lambda I)$		Sandy Be	dox (S5)	IIX (04)			Manganese Masses (F12)
Black Hi	(A2)		Stripped M	Aatrix (SP	3)		Red	Parent Material (F21)
Hydroge	an Sulfide ( $\Delta 4$ )		2 Dark Surfa	ace (S7)	))			Shallow Dark Surface (F22)
Tryuroge	d Lavers (A5)		Loamy Mu	ice (07)	aral (E1)		Very	r (Explain in Remarks)
2 cm Mi	Layers(A0)			oved Mat	triv $(F2)$		Ouic	
2 on Mic	d Below Dark Surf	ace (A11)	Denleted I	Matrix (F	3)			
Thick D	ark Surface (A12)		Bedox Da	rk Surfac	5) 29 (F6)		<sup>3</sup> Indicator	rs of hydrophytic vegetation and
X Sandy M	Aucky Mineral (S1	)	Depleted I	Dark Sur	face (F7)		wetla	and hydrology must be present
5 cm Mi	ucky Peat or Peat	, (S3)	Redox De	pression	s (F8)		unles	ss disturbed or problematic.
Postrictivo	Lavor (if obsorve	()			- ()			
Type.	Layer (II Observe	u).						
Depth (i	nches) <sup>.</sup>						Hydric Soil Presen	t? Yes X No
Dopui (i								
Remarks:	rm is revised from	Midwest Regi	onal Supplement \	Version (	0 to incl	uda tha	NRCS Field Indicator	s of Hydric Soils, Version 7.0, 2015
Errata (http:	//www.nrcs.usda.c	ov/Internet/FS	E DOCUMENTS	/nrcs142	p2 0512	93.docx		
X I Y							/	
HYDROLO	DGY							
Wetland Hy	drology Indicato	rs'						
Primary Indi	cators (minimum o	of one is requi	ed check all that	apply)			Seconda	ry Indicators (minimum of two required)
X Surface	Water (A1)		X Water-Sta	ined Lea	ves (B9)		<u> </u>	ace Soil Cracks (B6)
X High Wa	ater Table (A2)		Aquatic Fa	auna (B1	3)		Drain	age Patterns (B10)
X Saturatio	on (A3)		True Aqua	tic Plant	s (B14)		Drv-S	Season Water Table (C2)
X Water M	larks (B1)		Hvdroaen	Sulfide (	Ddor (C1)		Crav	fish Burrows (C8)
Sedimer	nt Deposits (B2)		Oxidized F	Rhizosph	eres on L	iving R	oots (C3) X Satu	ration Visible on Aerial Imagery (C9)
Drift Dep	posits (B3)		Presence	of Reduc	ced Iron (	C4)	Stun	ted or Stressed Plants (D1)
Algal Ma	at or Crust (B4)		Recent Iro	n Reduc	tion in Til	led Soil	s (C6) X Geor	morphic Position (D2)
Iron Dep	posits (B5)		Thin Muck	Surface	e (C7)		X FAC	-Neutral Test (D5)
Inundati	on Visible on Aeri	al Imagery (B7	) Gauge or	Well Dat	a (D9)			
Sparsel	y Vegetated Conc	ave Surface (E	8) Other (Exp	olain in F	Remarks)			
Field Obser	rvations:							
Surface Wat	ter Present?	Yes X	No	Depth (i	nches):	1		
Water Table	Present?	Yes X	No	Depth (i	nches):	0		
Saturation F	Present?	Yes X	No	Depth (i	nches):	0	Wetland Hydrolo	gy Present? Yes <u>X</u> No
(includes ca	pillary fringe)					_		
Describe Re	ecorded Data (stre	am gauge, mo	nitoring well, aeria	al photos	, previous	s inspec	tions), if available:	
<u> </u>								
Remarks:								

Project/Site: Brendel	Lake Campground / Elizabeth Lake Road (221016)	City/County: White Lake T		wp/Oakla	and	Sampling Date:	4-6-2022	
Applicant/Owner:	Kem-Tec, Inc. (client)		State:	MI	Sampling Point:	DP7		
Investigator(s): R. Ne	wkirk	Section, Tow	Section 27; T3N; R	8E				
Landform (hillside, te	rrace, etc.): upland	Loc	al relief (concav	ve, conve	x, none):	none		
Slope (%): 0	Lat: <u>42.640848</u>	Long: <u>-83.</u>	Datum: WGS84					
Soil Map Unit Name:	27 - Houghton and Adrian mucks		NWI classification:			fication: PFO1C		
Are climatic / hydrolo	gic conditions on the site typical for this time of ye	ar? Ye	Yes X No (If no, explain in Remarks.)					
Are Vegetation No	, Soil <u>No</u> , or Hydrology <u>No</u> significantly dist	urbed? Are	Are "Normal Circumstances" present? Yes X No					
Are Vegetation No	, Soil <u>No</u> , or Hydrology <u>No</u> naturally probler	natic? (If n	(If needed, explain any answers in Remarks.)					
SUMMARY OF F	FINDINGS – Attach site map showing	sampling p	ooint locatio	ons, tra	nsects,	important feat	ures, etc.	

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No No No	X X X	Is the Sampled Area within a Wetland?	Yes	No_	<u></u>			
Remarks:										
Data point is located near and sour	th of Wetland E	in an	upland forested	area with mowed turf grass.						

	Absolute	Dominant	Indicator		
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:	
1. Quercus rubra	35	Yes	FACU	Number of Dominant Species That	
2. Populus deltoides	15	Yes	FAC	Are OBL, FACW, or FAC:	2 (A)
3				Total Number of Dominant Species	
4				Across All Strata:	5 (B)
5				Percent of Dominant Species That	
	50	=Total Cover		Are OBL, FACW, or FAC:	40.0% (A/E
Sapling/Shrub Stratum (Plot size: 15 )					
1. Cornus sericea	5	Yes	FACW	Prevalence Index worksheet:	
2. Quercus bicoor	5	Yes		Total % Cover of: Mu	tiply by:
3.				OBL species 0 x 1 =	0
4.				FACW species 5 x 2 =	10
5.				FAC species 15 x 3 =	45
	10	=Total Cover		FACU species 43 x 4 =	172
Herb Stratum (Plot size: 5)				UPL species 0 x 5 =	0
1. Solidago canadensis	8	Yes	FACU	Column Totals: 63 (A)	227 (B)
2. Carex sp.				Prevalence Index = B/A =	3.60
3					
4				Hydrophytic Vegetation Indicators	
5				1 - Rapid Test for Hydrophytic V	
6				2 Dominance Test is >50%	Syciation
7				2 - Dominance rest is $> 30%$	
7				3 - Frevalence index is  3.0	
8				4 - Morphological Adaptations (	rovide supporti
9					
10				Problematic Hydrophytic Vegeta	tion' (Explain)
Woody Vine Stratum (Plot size: 15 )	8	= I otal Cover		<sup>1</sup> Indicators of hydric soil and wetland be present, unless disturbed or probl	hydrology must ematic.
1. None				Hydrophytic	
2.				Vegetation	
		=Total Cover		Present? Yes No	Х
Remarks: (Include photo numbers here or on a separ				<b>_</b>	=
( , ···································	ate sheet.)				
	ate sheet.)				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)	
Depth Matrix Redox Features	
(inches) Color (moist) % Color (moist) % Type <sup>1</sup> Loc <sup>2</sup> Texture Remarks	
0-10 10YR 3/1 100 Sandy	
10-1710YR 4/2100SandySandy	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix	ix.
Hydric Soil Indicators: Indicators for Problematic Hydric	Soils':
Histosol (A1) Sandy Gleyed Matrix (S4) Coast Prairie Redox (A16)	
Histic Epipedon (A2) Sandy Redox (S5) Iron-Manganese Masses (F12)	
Black Histic (A3)Stripped Matrix (S6)Red Parent Material (F21)	
Hydrogen Sulfide (A4) <u>?</u> Dark Surface (S7) Very Shallow Dark Surface (F2	2)
Stratified Layers (A5) Loamy Mucky Mineral (F1) Other (Explain in Remarks)	
2 cm Muck (A10) Loamy Gleyed Matrix (F2)	
Depleted Below Dark Surface (A11) Depleted Matrix (F3)	and
Hilck Dark Surface (A12) Redox Dark Surface (F6) Indicators of hydrophytic Vegetation	i anu
Sandy Midcky Milleral (ST)Depleted Dark Sunace (F7) wetland hydrology must be pres	,em,
	·
Restrictive Layer (if observed):	
lype:	
Depth (inches):     Hydric Soil Present?     Yes	
Remarks:	0.0045
Finis data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field indicators of Hydric Solis, Version /	.0, 2015
HYDROLOGY	
Primary Indicators (minimum of one is required: check all that apply)	wo required)
Surface Water (A1) Water-Stained Leaves (B9) Surface Soil Cracks (B6)	wo required)
High Water Table (A2) Aquatic Fauna (B13) Drainage Patterns (B10)	
Saturation (A3) True Aquatic Plants (B14) Drv-Season Water Table (C2)	
Water Marks (B1) Hvdrogen Sulfide Odor (C1) Cravfish Burrows (C8)	
Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Saturation Visible on Aerial Ima	gery (C9)
Drift Deposits (B3) Presence of Reduced Iron (C4) Stunted or Stressed Plants (D1	)
Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) Geomorphic Position (D2)	
Iron Deposits (B5) Thin Muck Surface (C7) FAC-Neutral Test (D5)	
Inundation Visible on Aerial Imagery (B7) Gauge or Well Data (D9)	
Sparsely Vegetated Concave Surface (B8) Other (Explain in Remarks)	
Field Observations:	
Surface Water Present? Yes No X Depth (inches):	
Water Table Present? Yes No X Depth (inches):	
Saturation Present?     Yes     No     X     Depth (inches):     Wetland Hydrology Present?     Yes	No <u>X</u>
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

Project/Site: Brendel Lake Campground / Elizabeth Lake Ro	oad (221016)	City/Cou	nty: White La	ke Twp/Oakland	Sampling Date	e: <u>4-6-</u> 2	2022
Applicant/Owner: Kem-Tec, Inc. (client)				State: MI	Sampling Poin	t:	DP8
Investigator(s): R. Newkirk		Section, T	ownship, Ran	ge: <u>NW 1/4; NW 1/4;</u>	Section 27; T3N	R8E	
Landform (hillside, terrace, etc.): depression			Local relief (co	oncave, convex, none):	concave		
Slope (%): 1 Lat: 42.639996		Long: -	83.498403		Datum: WGS84		
Soil Map Unit Name: 27 - Houghton and Adrian mucks				NWI classifi	cation: PFO1C		
Are climatic / hydrologic conditions on the site typical for	this time of y	/ear?	Yes X	No (If no, exp	lain in Remarks.	)	
Are Vegetation No , Soil No , or Hydrology No sig	inificantly dis	sturbed?	Are "Normal Ci	rcumstances" present?	Yes X	No	
Are Vegetation <u>No</u> , Soil <u>No</u> , or Hydrology <u>No</u> na	turally proble	ematic? (	If needed, exp	lain any answers in Rer	narks.)		-
SUMMARY OF FINDINGS – Attach site mar	showing	samplin	a point loc	ations, transects.	important fe	atures	etc.
			3	<b>une,</b>			,
Hydrophytic Vegetation Present? Yes X No		Is the	Sampled Are	ea			
Hydric Soil Present? Yes X No		withi	n a Wetland?	Yes X	No		
Wetland Hydrology Present? Yes X No							
Remarks:							
Data point is located within and along the west boundary	y of Wetland	C.					
VEGETATION - Use scientific names of plant	IS.						
,	Absolute	Dominant	Indicator				
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test wor	ksheet:		
1. Salix amygdaloides	30	Yes	FACW	Number of Dominant S	Species That		
2. Betula lenta	15	Yes	FACU	Are OBL, FACW, or F	AC:	5	(A)
3. Quercus bicolor	10	No	FACW	Total Number of Domi	nant Species		
4				Across All Strata:		6	(B)
5				Percent of Dominant S	Species That		
-	55 =T	otal Cover		Are OBL, FACW, or F	AC:	83.3%	(A/B)
Sapling/Shrub Stratum (Plot size: 15)							
1. Carpinus caroliniana	20	Yes	FAC	Prevalence Index wo	rksheet:		
2. Quercus bicolor	10	Yes	FACW	Total % Cover of:	Multi	ply by:	_
3				OBL species 24	1 x 1 =	24	_
4				FACW species 54	<u>x2=</u>	108	_
5				FAC species 20	) x 3 =	60	_
-	30 =1	otal Cover		FACU species 15	5 x4=	60	-
Herb Stratum (Plot size: 5)	10	.,	0.51	UPL species U	x 5 =	0	-
1. Typha angustifolia	18	Yes	OBL	Column Totals: 11	<u>3</u> (A)	252	_(B)

1. Typha angustifolia	18	Yes	OBL	Column Totals: 113 (A) 252 (B)						
2. Symplocarpus foetidus	6	Yes	OBL	Prevalence Index = B/A = 2.23						
3. Onoclea sensibilis	4	No	FACW							
4.				Hydrophytic Vegetation Indicators:						
5.				1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% X 3 - Prevalence Index is ≤3.0 <sup>1</sup>						
6.										
7.										
8				4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)						
10.				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)						
Woody Vine Stratum (Plot size: 15	28	=Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.						
1. None 2.				Hydrophytic Vegetation						
		=Total Cover		Present? Yes X No						
Remarks: (Include photo numbers here or on a sepa	arate sheet.	)		•						

Profile Des	cription: (Descri	be to the dept	h needed to doc	ument tl	he indica	tor or c	confirm the absence	of indicators.)
Depth	Matrix	x	Redo	x Featur	res			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-17	10YR 2/1	100					Mucky Sand	
4	·							
'Type: C=C	concentration, D=D	epletion, RM=	Reduced Matrix, I	MS=Mas	ked Sand	Grains	Location	n: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:				· (0.1)		Indicato	rs for Problematic Hydric Soils":
Histosol	(A1)		Sandy Gle	eyed Mat	rix (S4)		Coas	st Prairie Redox (A16)
	pipedon (A2)		Sandy Re	dox (55) Antria (6)	2)		Iron-	Manganese Masses (F12)
	ISUC (A3)			atrix (St	)			Parent Material (F21)
					aral (E1)		Very	Shallow Dark Surface (F22)
	u Layers (AS)							
	d Below Dark Surf	ace (Δ11)		∋yeu ivia Matriv (⊏	un⊼ (⊏∠) 3)			
Thick D	ark Surface (Δ12)		Depieted 1	rk Surfac	5) Se (E6)		<sup>3</sup> Indicator	rs of hydrophytic vegetation and
X Sandy M	Aucky Mineral (S1)	)		Dark Sur	face (F7)		wetla	and hydrology must be present
5 cm Mi	icky Peat or Peat	/ (S3)	Bedox De	pression	s (F8)		unles	ss disturbed or problematic
Bestrictive	Lover (if observe	(00) (d):			0 (1 0)			
Type	Layer (II Observe	u).						
Denth (i	nches):						Hydric Soil Presen	t? Yes X No
							riyune oon riesen	
Remarks: This data for	rm is rovisod from	Midwoot Pogi	anal Supplement	Vorsion (	0 to incl	udo tho	NPCS Field Indicator	s of Hydric Soils, Vorsion 7.0, 2015
Errata (http:	//www.nrcs.usda.c	iov/Internet/FS		/nrcs142	p2 0512	93.docx		
							,-	
HYDROLO	DGY							
Wetland Hy	drology Indicato	rs:						
Primary Indi	cators (minimum o	of one is requir	ed; check all that	apply)			Seconda	ry Indicators (minimum of two required)
X Surface	Water (A1)	•	X Water-Sta	ined Lea	ves (B9)		Surfa	ace Soil Cracks (B6)
X High Wa	ater Table (A2)		Aquatic Fa	auna (B1	3)		Drair	nage Patterns (B10)
X Saturati	on (A3)		True Aqua	tic Plant	s (B14)		Dry-S	Season Water Table (C2)
X Water M	larks (B1)		X Hydrogen	Sulfide (	Odor (C1)	)	Cray	fish Burrows (C8)
Sedime	nt Deposits (B2)		Oxidized F	Rhizosph	eres on L	iving R	oots (C3) Satu	ration Visible on Aerial Imagery (C9)
Drift De	posits (B3)		Presence	of Reduc	ced Iron (	C4)	Stun	ted or Stressed Plants (D1)
Algal Ma	at or Crust (B4)		Recent Iro	n Reduc	tion in Til	led Soil	s (C6) X Geor	morphic Position (D2)
Iron Dep	posits (B5)		Thin Muck	Surface	e (C7)		X FAC	-Neutral Test (D5)
X Inundati	on Visible on Aeria	al Imagery (B7	) Gauge or	Well Dat	a (D9)			
Sparsel	y Vegetated Conca	ave Surface (B	8)Other (Exp	olain in F	Remarks)		•	
Field Obser	rvations:	V V		<b>D</b>				
Surface Wa	ter Present?	Yes X	No	Depth (i	nches):	1		
Water Table	e Present?	Yes X	No	Depth (i	nches):	0		
Saturation F	resent?	res X		Depth (I	ncnes):	U	wetiand Hydrolo	gy Present? Yes X NO
(Includes ca	piliary tringe)	om dourse	nitoring wall as is	l nhata -	providence	inenee	tiona) if available:	
Describe Re	ecorded Data (stre	am gauge, mo	moring well, aeria		, previous	sinspec	aons), il avallable:	
Remarks:								

Project/Site: Brendel Lake Ca	mpground / Elizabeth Lake Road (221016)	City/Coun	County: White Lake T		and	Sampling Date:	4-6-2022	
Applicant/Owner: Kem-Te	ec, Inc. (client)			State:	MI	Sampling Point:	DP9	
Investigator(s): R. Newkirk		Section, To	ownship, Range:	NW 1/4; NW 1/4; Section 27; T3N; R8E				
Landform (hillside, terrace, et	tc.): upland	L	ocal relief (conca	ve, conve	x, none):	none		
Slope (%): 0 Lat: 42	2.639783	Long:8	Datum: WGS84					
Soil Map Unit Name: <u>12 - Bro</u>	ookston and Colwood loams			N	WI class	ification: PFO1C		
Are climatic / hydrologic conc	ditions on the site typical for this time of yea	ar? `	Yes <u>X</u> No	> <u></u>	(If no, ex	plain in Remarks.)		
Are Vegetation No , Soil I	<u>No</u> , or Hydrology <u>No</u> significantly distu	Irbed? A	re "Normal Circun	nstances"	present	Yes <u>X</u> No	) <u> </u>	
Are Vegetation No , Soil I	<u>No</u> , or Hydrology <u>No</u> naturally problem	natic? (If	needed, explain	any answ	ers in Re	emarks.)		
SUMMARY OF FINDIN	IGS – Attach site map showing s	sampling	g point locatio	ons, tra	nsects	, important feat	ures, etc.	

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes X	No No No	X X	Is the Sampled Area within a Wetland?	Yes	No_	<u></u>				
Remarks:											
Data point is located in upland, so	Data point is located in upland, south of DP 8 and west of Wetland C.										

	Absolute	Dominant	Indicator		
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test worksheet:	
1. Quercus rubra	25	Yes	FACU	Number of Dominant Species That	
2. Quercus bicolor	20	Yes	FACW	Are OBL, FACW, or FAC:	2 (A)
3. Populus deltoides	10	No	FAC	Total Number of Dominant Species	
4.				Across All Strata:	6 (B)
5.				Percent of Dominant Species That	
	55	=Total Cover		Are OBL, FACW, or FAC:	33.3% (A/B)
Sapling/Shrub Stratum (Plot size: 15 )					
1. Quercus rubra	12	Yes	FACU	Prevalence Index worksheet:	
2. Carpinus caroliniana	10	Yes	FAC	Total % Cover of: Mu	ltiply by:
3. Fagus grandifolia	5	No	FACU	OBL species 0 x 1 =	0
4.				FACW species 20 x 2 =	40
5.				FAC species 20 x 3 =	60
	27	=Total Cover		FACU species 52 x 4 =	208
Herb Stratum (Plot size: 5)				UPL species 0 x 5 =	0
1. Solidago canadensis	10	Yes	FACU	Column Totals: 92 (A)	308 (B)
2. Carex sp.	4	Yes		Prevalence Index = B/A =	3.35
3.					
4.				Hydrophytic Vegetation Indicators	:
5.				1 - Rapid Test for Hydrophytic V	egetation
6.				2 - Dominance Test is >50%	
7.				3 - Prevalence Index is ≤3.0 <sup>1</sup>	
8.				4 - Morphological Adaptations <sup>1</sup> (F	Provide supporting
9.				data in Remarks or on a separ	rate sheet)
10.				Problematic Hydrophytic Vegeta	tion <sup>1</sup> (Explain)
10	14	=Total Cover		Problematic Hydrophytic Vegeta	tion <sup>1</sup> (Explain) hvdrology must
10 <u>Woody Vine Stratum</u> (Plot size: 15 )	14	=Total Cover		Problematic Hydrophytic Vegeta <sup>1</sup> Indicators of hydric soil and wetland be present, unless disturbed or probl	tion <sup>1</sup> (Explain) hydrology must ematic.
10(Plot size:	14	=Total Cover		Problematic Hydrophytic Vegeta <sup>1</sup> Indicators of hydric soil and wetland be present, unless disturbed or probl Hydrophytic	tion <sup>1</sup> (Explain) hydrology must ematic.
10.           Woody Vine Stratum         (Plot size: 15 )           1.         None           2.	14	=Total Cover		Problematic Hydrophytic Vegeta <sup>1</sup> Indicators of hydric soil and wetland be present, unless disturbed or probl Hydrophytic Vegetation	tion <sup>1</sup> (Explain) hydrology must ematic.
10. <u>Woody Vine Stratum</u> (Plot size: 15 )           1.         None           2.		=Total Cover		Problematic Hydrophytic Vegeta <sup>1</sup> Indicators of hydric soil and wetland be present, unless disturbed or probl Hydrophytic Vegetation Present? Yes No	tion <sup>1</sup> (Explain) hydrology must ematic. X
10. <u>Woody Vine Stratum</u> (Plot size: 15 )         1. <u>None</u> 2.         Remarks: (Include photo numbers here or on a separate)	14	=Total Cover =Total Cover		Problematic Hydrophytic Vegeta <sup>1</sup> Indicators of hydric soil and wetland be present, unless disturbed or probl Hydrophytic Vegetation Present? Yes No	tion <sup>1</sup> (Explain) hydrology must ematic. X
10.	14	=Total Cover		Problematic Hydrophytic Vegeta <sup>1</sup> Indicators of hydric soil and wetland be present, unless disturbed or probl Hydrophytic Vegetation Present? Yes <u>No</u>	tion <sup>1</sup> (Explain) hydrology must ematic. X

Profile Desc	ription: (Describ	e to the dept	h needed to doc	ument ti	he indica	tor or c	onfirm the absence	e of indicators.)		
Depth	Matrix		Redo	x Featur	es					
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks	
0-15	10YR 3/1	100					Loamy/Clayey			
								<u> </u>		
<sup>1</sup> Type: C=Co	oncentration, D=De	pletion, RM=	Reduced Matrix, N	/IS=Mas	ked Sano	d Grains	. <sup>2</sup> Locatio	on: PL=Pore Lini	ing, M=Matrix.	•
Hydric Soil I	ndicators:						Indicate	ors for Problem	atic Hydric Soils	°:
Histosol	(A1)		Sandy Gle	yed Mat	rix (S4)		Coa	ast Prairie Redox	(A16)	
Histic Ep	ipedon (A2)		Sandy Red	lox (S5)				-Manganese Ma	isses (F12)	
Black His	stic (A3)		Stripped M	latrix (Se	5)			d Parent Materia	l (F21)	
Hydroger	n Sulfide (A4)		Dark Surfa	ce (S7)			Ver	y Shallow Dark	Surface (F22)	
Stratilied	Layers (A5)						Oth	er (Explain in Re	emarks)	
	Below Dark Surfa	CO (A11)		yeu iviai Aatriv / E	uux (⊏∠) 3)					
Depieted	rk Surface (A12)		Depieted in	k Surfac	5) 56 (E6)		<sup>3</sup> Indicat	ore of hydrophyti	c vegetation and	
Sandy M	ucky Mineral (S1)			)ark Sur	face (F7)		wet	land hydrology n	nust he present	
0	cky Peat or Peat (S	53)	Redox Der	pression	s (F8)		unle	ess disturbed or	problematic	
e oni indi	aver (if observed				0 (. 0)				p	
Type:	ayer (il observed	l):								
Depth (in	ches).						Hydric Soil Prese	nt?	Yes No	x
Doput (in									<u> </u>	<u></u>
Remarks:	m is revised from N	Aidwest Reain	nal Sunnlement \	/ersion (	0 to incl	udo tho	NRCS Field Indicate	ore of Hydric Soil	s Version $7.0, 20^{\circ}$	15
Errata (http://	www.nrcs.usda.go	v/Internet/FS	E DOCUMENTS/	nrcs142	p2 0512	93.docx			s, version 7.0, 20	15
X I I	5						/			
HYDROLO	GY									
Wetland Hyd	Irology Indicators									
Primary Indic	ators (minimum of	one is require	ed: check all that a	(vlage			Second	arv Indicators (m	ninimum of two rec	uired)
Surface \	Nater (A1)		Water-Stai	ned Lea	ves (B9)		Sur	face Soil Cracks	(B6)	
X High Wat	ter Table (A2)		Aquatic Fa	una (B1	3)		Dra	inage Patterns (	B10)	
X Saturatio	n (A3)		True Aqua	tic Plant	s (B14)		Dry	-Season Water	Table (C2)	
Water Ma	arks (B1)		Hydrogen	Sulfide (	Odor (C1)	)	Cra	yfish Burrows (C	(8)	
Sedimen	t Deposits (B2)		Oxidized F	Rhizosph	eres on l	_iving R	oots (C3) Sat	uration Visible o	n Aerial Imagery (	C9)
Drift Dep	osits (B3)		Presence	of Reduc	ced Iron (	C4)	Stu	nted or Stressed	Plants (D1)	
Algal Mat	t or Crust (B4)		Recent Iro	n Reduc	tion in Ti	lled Soil	s (C6) Geo	omorphic Positio	n (D2)	
Iron Dep	osits (B5)		Thin Muck	Surface	e (C7)		FA0	C-Neutral Test (E	05)	
Inundatio	n Visible on Aerial	Imagery (B7)	)Gauge or V	Nell Dat	a (D9)					
Sparsely	Vegetated Concav	/e Surface (B	8)Other (Exp	lain in F	Remarks)		-			
Field Observ	vations:									
Surface Wate	er Present? Y	′es	No <u>X</u>	Depth (i	nches):					
Water Table	Present? Y	′es <u>X</u>	No	Depth (i	nches):	9				
Saturation Pr	resent? Y	es X	No	Depth (i	nches):	5	Wetland Hydrol	ogy Present?	Yes X No	·
(includes cap	ollary tringe)		aitoring	ا مام ا		- In	tions) if such the			
Describe Red	corded Data (strea	m gauge, moi	nitoring well, aeria	i photos	, previou	s inspec	tions), if available:			
Remarks:										

Project/Site: Brendel	Lake (	Campground / Elizabeth La	ke Road (221016)	City/Co	unty:	White Lake T	wp/Oakla	ind	Sampling Date:	4-6-2022
Applicant/Owner:	Kem-	Tec, Inc. (client)					State:	MI	Sampling Point:	DP10
Investigator(s): R. Ne	wkirk			Section,	Towns	hip, Range:	NW 1/4;	NW 1/4;	Section 27; T3N; R	8E
Landform (hillside, te	rrace,	etc.): depression			Local	relief (concav	/e, conve	x, none):	concave	
Slope (%): 1	Lat:	42.639381		Long:	-83.50	0259			Datum: WGS84	
Soil Map Unit Name:	27 - H	loughton and Adrian muc	ks				N	WI classi	fication: PFO1C	
Are climatic / hydrolo	gic co	nditions on the site typica	I for this time of ye	ar?	Yes	X No		(If no, ex	olain in Remarks.)	
Are Vegetation No	, Soil	No , or Hydrology No	significantly distu	urbed?	Are "N	lormal Circum	istances"	present?	Yes <u>X</u> No	) <u> </u>
Are Vegetation No	, Soil	<u>No</u> , or Hydrology <u>No</u>	naturally problem	natic?	(If nee	ded, explain a	any answ	ers in Re	marks.)	
SUMMARY OF F		NGS – Attach site	map showing	sampliı	ng po	oint locatio	ons, tra	nsects,	important feat	ures, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	X X X	No No No	Is the Sampled Area within a Wetland?	Yes_	<u>x</u>	No
Remarks:							

Data point is located in a forested portion of Wetland C, near its northwest edge.

	Absolute	Dominant	Indicator		
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:	
1. Betula alleghaniensis	30	Yes	FAC	Number of Dominant Species That	
2. Quercus bicolor	20	Yes	FACW	Are OBL, FACW, or FAC: 9 (A	)
3. Celtis occidentalis	15	Yes	FAC	Total Number of Dominant Species	
4. Quercus rubra	5	No	FACU	Across All Strata: 9 (B)	)
5.				Percent of Dominant Species That	
	70	=Total Cover		Are OBL, FACW, or FAC: 100.0% (A	/B)
Sapling/Shrub Stratum (Plot size: 15 )					
1. Cornus sericea	20	Yes	FACW	Prevalence Index worksheet:	
2. Carpinus caroliniana	12	Yes	FAC	Total % Cover of: Multiply by:	
3. Quercus bicolor	7	No	FACW	OBL species 16 x 1 = 16	
4. Celtis occidentalis	5	No	FAC	FACW species 54 x 2 = 108	
5.				FAC species 62 x 3 = 186	
	44	=Total Cover		FACU species 5 x 4 = 20	
Herb Stratum (Plot size: 5 )				UPL species 0 x 5 = 0	
1. Ranunculus sceleratus	7	Yes	OBL	Column Totals: 137 (A) 330 (B)	)
2. Carex hyalinolepis	5	Yes	OBL	Prevalence Index = B/A = 2.41	
3. Symplocarpus foetidus	4	Yes	OBL		
4.				Hydrophytic Vegetation Indicators:	
5.				1 - Rapid Test for Hydrophytic Vegetation	
6.				X 2 - Dominance Test is >50%	
7.				X 3 - Prevalence Index is $\leq 3.0^{1}$	
8.				4 - Morphological Adaptations <sup>1</sup> (Provide suppor	ting
9.				data in Remarks or on a separate sheet)	0
10.				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
	16	=Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology mus	st
Woody Vine Stratum (Plot size: 15 )				be present, unless disturbed or problematic.	~
1. Vitis riparia	7	Yes	FACW	Hydrophytic	
2.				Vegetation	
	7	=Total Cover		Present? Yes X No	
Remarks: (Include photo numbers here or on a separate	ate sheet.)			•	

Profile Dese	cription: (Describ	e to the dept	h needed to doc	ument t	he indica	tor or c	onfirm the absence	of indicators.)
Depth	Matrix		Redo	ox Featu	res			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-17	10YR 2/1	100					Mucky Sand	
<sup>1</sup> Type: C=C	oncentration, D=D	epletion, RM=l	Reduced Matrix,	MS=Mas	ked Sand	l Grains	2Location	n: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:						Indicato	rs for Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Sandy Gle	eyed Mat	rix (S4)		Coas	st Prairie Redox (A16)
Histic Ep	oipedon (A2)		Sandy Re	dox (S5)			Iron-	Manganese Masses (F12)
Black Hi	stic (A3)		Stripped N	/latrix (Se	6)		Red	Parent Material (F21)
X Hydroge	n Sulfide (A4)		? Dark Surfa	ace (S7)			Very	Shallow Dark Surface (F22)
Stratified	l Layers (A5)		Loamy Mu	ucky Min	eral (F1)		Othe	er (Explain in Remarks)
2 cm Mu	ıck (A10)		Loamy Gl	eyed Ma	trix (F2)			
Depleted	d Below Dark Surfa	ace (A11)	Depleted	Matrix (F	3)		2	
Thick Da	ark Surface (A12)		Redox Da	rk Surfac	ce (F6)		°Indicator	rs of hydrophytic vegetation and
X Sandy M	X Sandy Mucky Mineral (S1)			Dark Sur	face (F7)		wetla	and hydrology must be present,
5 cm Mu	icky Peat or Peat (	S3)	Redox De	pression	s (F8)		unles	ss disturbed or problematic.
Restrictive	Layer (if observe	d):						
Туре:								
Depth (ii	nches):						Hydric Soil Presen	t? Yes <u>X</u> No
Remarks:								
This data for	m is revised from	Midwest Regio	nal Supplement	Version 2	2.0 to incl	ude the	NRCS Field Indicator	s of Hydric Soils, Version 7.0, 2015
Errata (http:/	/www.nrcs.usda.g	ov/Internet/FS	E_DOCUMENTS	/nrcs142	p2_0512	J3.docx	).	
HIDROLU	JGT							
Wetland Hy	drology Indicator	s:						
Primary Indi	<u>cators (minimum o</u>	f one is require	ed; check all that	apply)	(50)		<u>Seconda</u>	ry Indicators (minimum of two required)
X Surface	Water (A1)		X Water-Sta	ined Lea	ives (B9)		Surfa	ace Soil Cracks (B6)
X High Wa	iter Table (A2)			auna (B1	3)		Drain	hage Patterns (B10)
X Saturatio	on (A3)			atic Plant	s (B14)		Dry-s	Season Water Table (C2)
X Water M	arks (BT)			Suilide (		iving D	Cray	rish Burrows (C8)
Sedimer	(B2)		Oxidized i	of Podu	eres on L		Salu	ted or Strossed Plants (D1)
	at or Crust (B4)		Presence		tion in Til	led Soil		morphic Position (D2)
	(B5)		Thin Muck	Surface	(C7)		x EAC.	-Neutral Test (D5)
X Inundatio	on Visible on Aeria	l Imagery (B7)	Gauge or	Well Dat	a (D9)		<u></u>	
Sparsel	Vegetated Conca	ve Surface (B	B) Other (Ex	plain in F	Remarks)			
Field Obser	vations:	,	, <u> </u>		,			
Surface Wat	er Present?	Yes X	No	Depth (i	nches) <sup>.</sup>	1		
Water Table	Present?	Yes X	No	Depth (i	nches)	0		
Saturation P	resent?	Yes X	No	Depth (i	nches):	0	Wetland Hvdrolo	gy Present? Yes X No
(includes ca	pillary fringe)			. (	, <u> </u>			*
Describe Re	corded Data (strea	am gauge, mor	nitoring well, aeria	al photos	, previous	s inspec	tions), if available:	
			-		·		-	
Remarks:								

Project/Site: Brende	el Lake Campgro	und / Elizabet	h Lake Road (22101	16) City/Coι	unty: White Lake	Twp/Oakl	and	Sampling Date:	4-6-2022
Applicant/Owner:	Kem-Tec, Inc	. (client)			State:	MI	Sampling Point:	DP11	
Investigator(s): R. Newkirk					Township, Range:				
Landform (hillside, t	terrace, etc.): <u>u</u>	bland			Local relief (conca	ave, conve	ex, none)	: none	
Slope (%): 0	Lat: <u>42.6394</u>	99		Long:	-83.500041			Datum: WGS84	
Soil Map Unit Name	e: 27 - Houghtor	n and Adrian	mucks			11	√WI class	sification: PFO1C	
Are climatic / hydrol	logic conditions	on the site ty	pical for this time c	of year?	Yes <u>X</u> N	o	(If no, e	xplain in Remarks.)	
Are Vegetation No	, Soil <u>No</u> , o	or Hydrology	No significantly	disturbed?	Are "Normal Circu	mstances	" present	.? Yes <u>X</u> No	o
Are Vegetation No	, Soil <u>No</u> , o	or Hydrology	No naturally pro	blematic?	(If needed, explair	any ans	vers in R	emarks.)	
SUMMARY OF	FINDINGS -	· Attach si	te map showii	ng samplir	ng point locati	ons, tra	insects	s, important feat	tures, etc.
Hydrophytic Veget	ation Present?	Yes	No X	Is the	e Sampled Area				
Hydric Soil Presen	ıt?	Yes	No X	withi	n a Wetland?	١	/es	<u>No X</u>	
Wetland Hydrology	y Present?	Yes	No <u>X</u>						
Remarks:									

Data point is located in upland approximately 50 feet north of Wetland C.

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test worksheet:
1. Quercus alba	35	Yes	FACU	Number of Dominant Species That
2. Quercus rubra	20	Yes	FACU	Are OBL, FACW, or FAC: 1 (A)
3				Total Number of Dominant Species
4				Across All Strata: 4 (B)
5				Percent of Dominant Species That
	55	=Total Cover		Are OBL, FACW, or FAC: 25.0% (A/B)
Sapling/Shrub Stratum (Plot size: 15	)			
1. None				Prevalence Index worksheet:
2				Total % Cover of: Multiply by:
3				OBL species 0 x 1 = 0
4.				FACW species 0 x 2 = 0
5.				FAC species 8 x 3 = 24
		=Total Cover		FACU species 63 x 4 = 252
Herb Stratum (Plot size: 5 )				UPL species 5 x 5 = 25
1. Carex sp.	15	Yes		Column Totals: 76 (A) 301 (B)
2. Symphyotrichum lanceolatum	8	Yes	FAC	Prevalence Index = B/A = 3.96
3. Solidago canadensis	5	No	FACU	
4. Daucus carota	5	No	UPL	Hydrophytic Vegetation Indicators:
5. Glechoma hederacea	3	No	FACU	1 - Rapid Test for Hydrophytic Vegetation
6.				2 - Dominance Test is >50%
7.				3 - Prevalence Index is ≤3.0 <sup>1</sup>
8.				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
9.				data in Remarks or on a separate sheet)
10.				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
	36	=Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size: 15	)			be present, unless disturbed or problematic.
1. None				Hydrophytic
2				Vegetation
		=Total Cover		Present? Yes <u>No X</u>
Remarks: (Include photo numbers here or on a separ	ate sheet.)			
	,			

Profile Desc	cription: (Describe	to the dept	h needed to doc	ument t	he indica	tor or c	onfirm the absence o	of indicators.)			
Depth	Matrix		Redo	x Featu	res						
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>∠</sup>	Texture	Remarks			
0-8	10YR 3/2	100					Sandy				
8-17	10YR 4/2	95	10YR 5/4	5	С	М	Sandy	Distinct redox concen	trations		
———											
1							2				
Type: C=C	oncentration, D=Dep	letion, RM=	Reduced Matrix, N	/IS=Mas	ked Sand	Grains	Location:	: PL=Pore Lining, M=Matrix	K. Relle <sup>3</sup> :		
Hydric Soll	Indicators:		Sandy Cla	ved Met			Indicator	s for Problematic Hydric :	Solis :		
Histosoi	(AT) vinadan (A2)		Sandy Gie	yeu wai	IIX (34)			Vanganoso Massos (E12)			
Black Hi	stic (A2)		Sanuy Red	10X (33) Intriv (Si	3)		IIOI-N	Darant Matorial (E21)			
	siic (A3) In Sulfide (A1)		Surpped iv	aux (30	5)			Shallow Dark Surface (F22)	)		
Stratified				cky Min	oral (E1)		Very ·	(Explain in Remarks)	)		
2 cm Mu	$\Delta Layers (A3)$		Loamy Gle		trix $(F2)$						
	Below Dark Surface	e (A11)	Depleted M	/atrix (⊑	3)						
Thick Da	ark Surface (A12)	,,,,,,	Bedox Da	k Surfac	c) ce (F6)		<sup>3</sup> Indicator	s of hydrophytic vegetation	and		
Sandy M	lucky Mineral (S1)		Depleted [	Dark Sur	face (F7)		wetla	nd hydrology must be prese	ent.		
5 cm Mu	icky Peat or Peat (S3	5)	Redox Dep	oression	s (F8)		unless disturbed or problematic.				
Restrictive	l aver (if observed):	,			~ /			•			
Type											
Depth (ir	nches):						Hvdric Soil Present	? Yes	No X		
							,				
Errata (http:/	m is revised from Mi //www.nrcs.usda.gov	dwest Regio /Internet/FS	E_DOCUMENTS	/ersion 2 /nrcs142	2.0 to incl p2_0512	ude the 93.docx	).	s of Hydric Soils, Version 7.	0, 2015		
HYDROLC	OGY										
Wetland Hy	drology Indicators:										
Primary India	<u>cators (minimum of o</u>	ne is requir	ed; check all that a	apply)			Secondar	y Indicators (minimum of tw	<u>vo required)</u>		
Surface	Water (A1)		Water-Stai	ned Lea	ives (B9)		Surfa	ce Soil Cracks (B6)			
High Wa	iter Table (A2)		Aquatic Fa	iuna (B1	3)		Drain	age Patterns (B10)			
Saturatio	on (A3)		True Aqua	tic Plant	s (B14)		Dry-S	Season Water Table (C2)			
Water M	arks (B1)		Hydrogen	Sulfide (	Jdor (C1)		Crayf	ish Burrows (C8)	(00)		
Sedimer	nt Deposits (B2)			(hizospr	ieres on L		oots (C3) Satur	ation Visible on Aerial Imag	jery (C9)		
	oosiis (B3)		Presence (	n Reduc	cea Iron ( stion in Til	U4) lad Saik		ed of Stressed Plants (DT)			
	at of Clust (D4)		Thin Muck	Surface				Noutral Test (D5)			
	on Visible on Aerial II	magery (B7	Gauge or V		(07) a (D9)						
Sparsely	Vegetated Concave	Surface (B	8) Other (Exc	plain in F	Remarks)						
Field Obser	vations:	(-	-)		,						
Surface Wat	er Present? Ye	s	No X	Depth (i	nches) <sup>.</sup>						
Water Table	Present? Ye	<u> </u>		Depth (i	nches):						
Saturation P	resent? Ye	s		Depth (i	nches):		Wetland Hydrolog	v Present? Yes	No X		
(includes car	oillarv fringe)				, <u> </u>		, , , , , , , , , , , , , , , , , , ,				
Describe Re	corded Data (stream	gauge, mo	nitoring well, aeria	l photos	, previous	s inspec	tions), if available:				
	``````````````````````````````````````		<u> </u>	·			,-				
Remarks:							-				
1											

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016)			City/Co	ity/County: White Lake T		e Twp/Oakl	and	Sampling Date:	4-6-2022
Applicant/Owner:	Kem	-Tec, Inc. (client)				State:	MI	Sampling Point:	DP12
Investigator(s): R. Nev	Section,	Town	iship, Rang	e: <u>NW 1/4</u>	NW 1/4; NW 1/4; Section 27; T3N; R8E				
Landform (hillside, ter	race	, etc.): depression		Loca	al relief (cor	ncave, conv	ex, none)	: concave	
Slope (%): 2	Lat:	42.6397	Long:	-83.5	00453			Datum: WGS84	
Soil Map Unit Name:	27 -	Houghton and Adrian mucks				11	WI class	sification: PEM1C	
Are climatic / hydrolog	gic co	onditions on the site typical for this time of ye	ear?	Yes	X	No	(If no, e	xplain in Remarks.)	
Are Vegetation No	, Soil	<u>No</u> , or Hydrology <u>No</u> significantly dist	urbed?	Are "	Normal Cire	cumstances	" present	? Yes <u>X</u> No	<u></u>
Are Vegetation No	, Soil	<u>No</u> , or Hydrology <u>No</u> naturally problem	matic?	(If ne	eded, expla	ain any ans	wers in R	emarks.)	
SUMMARY OF F	IND	INGS – Attach site map showing	sampli	ng p	oint loca	tions, tra	ansects	s, important feat	ures, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes X Yes X Yes X	No No No	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No
Remarks:	ast corpor of M	latland D	•		

Data point is located in the southeast corner of Wetland D.

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test worksheet:
1. Quercus bicolor	35	Yes	FACW	Number of Dominant Species That
2. Acer saccharinum	15	Yes	FACW	Are OBL, FACW, or FAC: 6 (A)
3. Quercus rubra	10	No	FACU	Total Number of Dominant Species
4				Across All Strata: 6 (B)
5				Percent of Dominant Species That
	60	=Total Cover		Are OBL, FACW, or FAC: 100.0% (A/B)
Sapling/Shrub Stratum (Plot size: 15 )				
1. Carpinus caroliniana	20	Yes	FAC	Prevalence Index worksheet:
2. Quercus bicolor	7	Yes	FACW	Total % Cover of: Multiply by:
3.				OBL species 16 x 1 = 16
4.				FACW species 61 x 2 = 122
5.				FAC species 25 x 3 = 75
	27	=Total Cover		FACU species 10 x 4 = 40
Herb Stratum (Plot size: 5)				UPL species 0 x 5 = 0
1. Carex hyalinolepis	12	Yes	OBL	Column Totals: <u>112</u> (A) <u>253</u> (B)
2. Apocynum cannabinum	5	Yes	FAC	Prevalence Index = B/A = 2.26
3. Symplocarpus foetidus	4	No	OBL	
4. Onoclea sensibilis	4	No	FACW	Hydrophytic Vegetation Indicators:
5.				1 - Rapid Test for Hydrophytic Vegetation
6.				X 2 - Dominance Test is >50%
7.				X 3 - Prevalence Index is $\leq 3.0^1$
8.				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
9.				data in Remarks or on a separate sheet)
10.				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
	25	=Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must
<u>Woody Vine Stratum</u> (Plot size: 15 )				be present, unless disturbed or problematic.
1. <u>None</u>				Hydrophytic
2.				Vegetation
				•
		=Total Cover		Present? Yes X No
Remarks: (Include photo numbers here or on a separate	ate sheet.)	=Total Cover		Present? Yes X No
Remarks: (Include photo numbers here or on a separa	ate sheet.)	=Total Cover		Present? Yes X No

Profile Des	cription: (Descrit	e to the dept	h needed to doc	ument tl	he indica	tor or c	confirm the absence	of indicators.)
Depth	Matrix		Redo	ox Featur	res			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-16	10YR 2/1	100					Mucky Sand	
	· · · · · · · · · · · · · · · · · · ·							
	·							
1							2	
'Type: C=C	Concentration, D=D	epletion, RM=	Reduced Matrix, I	MS=Mas	ked Sand	Grains	Location	n: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:		Canada Cla				Indicato	rs for Problematic Hydric Solls":
HISLOSOI	(AI)		Sandy Ge	eyed Mat	rix (54)			Manganaga Magaga (E12)
	pipedon (A2)		Sanuy Re	uux (SS) Actrix (SC	2)		IIOII-	Derent Meterial (F21)
	ISUC (A3)		2 Dark Surf	/auix (50	)			Shellow Dark Surface (E22)
Hyuroge Stratifio	d Lovors (A5)			ace (37) Joky Ming	oral (E1)		Otho	stration Dark Sufface (FZZ)
	u Layers (A3)			oved Met	triv $(E2)$			
	d Relow Dark Surf	ace (A11)		Jyeu iviai Matriv /⊏	3)			
Thick D	a Below Bark Garia ark Surface (Δ12)		Bedox Da	rk Surfac	5) 29 (F6)		<sup>3</sup> Indicator	rs of hydrophytic vegetation and
X Sandy A	Aucky Mineral (S1)			Dark Sur	face (F7)		wetla	and hydrology must be present
5 cm Mi	5 cm Mucky Peat or Peat (S3)				s (F8)		unles	ss disturbed or problematic
Bostrictivo					- ()			
Type	Layer (II Observe	u).						
Denth (i	nches):						Hydric Soil Presen	t? Yes X No
Remarks:	rm is revised from	Midwoot Pogi	and Supplement	Voraion	0 to incl	uda tha	NPCS Field Indicator	a of Hydria Saila Varaian 7.0, 2015
Errata (http:	//www.nrcs.usda.d	ov/Internet/FS	E DOCUMENTS	/nrcs142	2.0 10 mici	93.docx		
	g						,-	
HYDROLO	DGY							
Wetland Hy	drology Indicator	.e.						
Primary Indi	icators (minimum o	s. f one is requir	ed: check all that	apply)			Seconda	ry Indicators (minimum of two required)
Surface	Water (A1)	r one is requi	X Water-Sta	ined Lea	ves (B9)		<u> </u>	ace Soil Cracks (B6)
X High Wa	ater Table (A2)		Aquatic Fa	auna (B1	3)		Orair	age Patterns (B10)
X Saturati	on (A3)		True Aqua	atic Plant	s (B14)		Drv-S	Season Water Table (C2)
X Water M	larks (B1)		Hydrogen	Sulfide (	Odor (C1)	)	Cray	fish Burrows (C8)
Sedimer	nt Deposits (B2)		Oxidized F	Rhizosph	eres on L	iving R	oots (C3) Satu	ration Visible on Aerial Imagery (C9)
Drift De	posits (B3)		Presence	of Reduc	ced Iron (	C4)	Stun	ted or Stressed Plants (D1)
Algal Ma	at or Crust (B4)		Recent Irc	n Reduc	tion in Til	led Soil	s (C6) X Geor	morphic Position (D2)
Iron Dep	posits (B5)		Thin Muck	Surface	e (C7)		X FAC	-Neutral Test (D5)
X Inundati	on Visible on Aeria	l Imagery (B7	) Gauge or	Well Dat	a (D9)			
Sparsel	y Vegetated Conca	ve Surface (B	8) Other (Exp	plain in R	Remarks)			
Field Obser	rvations:							
Surface Wat	ter Present?	Yes	No <u>X</u>	Depth (i	nches):			
Water Table	e Present?	Yes <u>X</u>	No	Depth (i	nches):	1		
Saturation F	Present?	Yes <u>X</u>	No	Depth (i	nches):	0	Wetland Hydrolo	gy Present? Yes X No
(includes ca	pillary fringe)							
Describe Re	ecorded Data (strea	am gauge, mo	nitoring well, aeria	al photos	, previous	s inspec	tions), if available:	
Democriter								
Remarks:								
Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221010	6) City/Count	ty: White Lake	Twp/Oakla	nd	Sampling Da	te: 4-6-	-2022	
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------	----------------------------	---------------------------	-------------------------	-------------------------	----------	---------	
Applicant/Owner: Kem-Tec, Inc. (client)			State:	MI	Sampling Poi	int:	DP13	
Investigator(s): R. Newkirk	Section, To	wnship, Range	NW 1/4;	NW 1/4; 5	Section 27; T3	N; R8E		
Landform (hillside, terrace, etc.): upland	Lo	ocal relief (conc	ave, conve	x, none): r	none			
Slope (%): 1 Lat: 42.639987	Long: -8	3.50035		[	Datum: WGS84	4		
Soil Map Unit Name: 12 - Brookston and Colwood loams			N	WI classifi	cation: PEM10	2		
Are climatic / hydrologic conditions on the site typical for this time of	year? Y	∕es X N	lo	(If no, exp	lain in Remark	s.)		
Are Vegetation No , Soil No , or Hydrology No significantly d	isturbed? Ar	e "Normal Circu	mstances"	present?	Yes X	No		
Are Vegetation No , Soil No , or Hydrology No naturally prob	lematic? (If	needed, explai	n any answ	ers in Ren	narks.)		_	
SUMMARY OF FINDINGS – Attach site map showin	g sampling	point locat	ions, tra	nsects,	important f	eatures	s, etc.	
Hydrophytic Vegetation Present?       Yes       No       X         Hydric Soil Present?       Yes       No       X         Wetland Hydrology Present?       Yes       X       No	Is the S within	Sampled Area a Wetland?	Y	es	No <u>X</u>			
Remarks: Data point is located in upland approximately 25 feet north of Wetla	and D.							
VEGETATION – Use scientific names of plants.								
Absolute	Dominant	Indicator						
<u>Tree Stratum</u> (Plot size: <u>30</u> ) <u>% Cover</u>	Species?	Status D	ominance	Test worl	ksheet:			
1. Quercus rubra     30       2. Retula alleghaniansis     15	Yes		umber of D	)ominant S	Species That	2	(A)	
2. Defuid allegitarilensis 15	No			(CVV, OF F		2	_(^)	
4.			cross All S	er of Domir trata:	nant Species	4	(B)	
5	Total Cover	F	ercent of D re OBL, FA	ominant S ACW, or F/	- pecies That AC:	50.0%	_(A/B)	
Sapling/Shrub Stratum (Plot size: 15)			- ,	,				
1 Carpinus caroliniana 10	Ves	FAC P	rovalonco	Index wo	rkshoot.			

J				Percent of Dominant Specie	es That		
	55	=Total Cover		Are OBL, FACW, or FAC:	!	50.0%	(A/B)
Sapling/Shrub Stratum (Plot size: 15 )							_
1. Carpinus caroliniana	10	Yes	FAC	Prevalence Index worksho	eet:		
2.				Total % Cover of:	Multip	oly by:	_
3.				OBL species 0	x 1 =	0	-
4.				FACW species 10	x 2 =	20	_
5.				FAC species 25	x 3 =	75	_
	10	=Total Cover		FACU species 30	x 4 =	120	-
Herb Stratum (Plot size: 5 )		_		UPL species 0	x 5 =	0	_
1. Carex sp.	5	Yes		Column Totals: 65	(A)	215	(B)
2.				Prevalence Index = B/A	= 3.3	31	-
3.							-
4.				Hydrophytic Vegetation Ir	ndicators:		
5.				1 - Rapid Test for Hydro	ophytic Veg	etation	
6.				2 - Dominance Test is >	>50%		
7.				3 - Prevalence Index is	≤3.0 <sup>1</sup>		
8.				4 - Morphological Adap	tations <sup>1</sup> (Prc	ovide sup	porting
9.				data in Remarks or o	n a separat	e sheet)	
10.				Problematic Hydrophyti	c Vegetatio	n <sup>1</sup> (Expla	ain)
	5	=Total Cover		<sup>1</sup> Indicators of hydric soil and	d wetland h	/droloav	must
Woody Vine Stratum (Plot size: 15 )		_		be present, unless disturbed	d or problem	natic.	
1. None				Hydrophytic			
2.				Vegetation			
		=Total Cover		Present? Yes	No >	<	
Remarks: (Include photo numbers here or on a separat	e sheet.	)					
		/					

Profile Desc	cription: (Describe	to the dept	h needed to doc	ument ti	he indica	tor or c	onfirm the absence o	of indicators.)	
Depth	Matrix		Redo	x Featur	res				
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
0-10	10YR 4/3	100					Loamy/Clayey		
10-17	10YR 6/2	95	10YR 5/6	5	С	Μ	Loamy/Clayey	Prominent redox conce	ntrations
<u> </u>									
———									
			<u> </u>						
1									
'Type: C=C	oncentration, D=Dep	letion, RM=	Reduced Matrix, N	/IS=Mas	ked Sand	d Grains	. <sup>2</sup> Location:	PL=Pore Lining, M=Matrix	(.
Hydric Soil	Indicators:						Indicator	s for Problematic Hydric S	Soils":
Histosol	(A1)		Sandy Gle	yed Mat	rix (S4)		Coast	t Prairie Redox (A16)	
Histic Ep	opedon (A2)		Sandy Red	lox (S5)			Iron-N	Aanganese Masses (F12)	
Black Hi	stic (A3)		Stripped M	latrix (Se	5)			Parent Material (F21)	
Hydroge	n Sulfide (A4)		Dark Surfa	ice (S7)			Very S	Shallow Dark Surface (F22)	
	Layers (A5)		Loamy Mu	CKY Mine	eral (F1)		Other	(Explain in Remarks)	
2 cm Mu	CK (ATU)	(111)	Loamy Gle	yea Mai	unx (F2)				
	Below Dark Surface	e (A11)		/latrix (F	3) 		31		a
	ark Surface (A12)			K Suriac	се (го) face (Г7)			s of hydrophylic vegetation	and
	iucky Millerai (ST) sky Post or Post (S3	2)	Depieted L	Dark Sur			wella	na nyarology must be prese s disturbed or problematic	fil,
	cky real of real (SC	)		16551011	5 (10)		umes	s disturbed of problematic.	
Restrictive	Layer (if observed):								
Туре:									
Depth (ir	nches):						Hydric Soil Present	? Yes	No <u>X</u>
Errata (http:/	/www.nrcs.usda.gov	/Internet/FS	E_DOCUMENTS/	nrcs142	p2_0512	93.docx	).		
HYDROLC	GY								
Wetland Hv	drology Indicators:								
Primary Indi	cators (minimum of o	ne is requir	ed; check all that a	apply)			Secondar	y Indicators (minimum of tw	o required)
Surface	Water (A1)		Water-Stai	ned Lea	ives (B9)		Surfa	ce Soil Cracks (B6)	
High Wa	ter Table (A2)		Aquatic Fa	una (B1	3)		Drain	age Patterns (B10)	
X Saturatio	on (A3)		True Aqua	tic Plant	s (B14)		Dry-S	eason Water Table (C2)	
Water M	arks (B1)		Hydrogen	Sulfide (	Odor (C1)	)	Crayf	ish Burrows (C8)	
Sedimer	t Deposits (B2)		Oxidized F	Rhizosph	ieres on L	iving Ro	oots (C3) Satur	ation Visible on Aerial Imag	ery (C9)
Drift Dep	oosits (B3)		Presence	of Reduc	ced Iron (	C4)	Stunte	ed or Stressed Plants (D1)	
Algal Ma	it or Crust (B4)		Recent Iro	n Reduc	tion in Ti	led Soil	s (C6) Geom	norphic Position (D2)	
Iron Dep	osits (B5)		Thin Muck	Surface	e (C7)		FAC-I	Neutral Test (D5)	
Inundatio	on Visible on Aerial I	magery (B7	)Gauge or	Nell Dat	a (D9)				
Sparsely	Vegetated Concave	Surface (B	8)Other (Exp	olain in F	Remarks)				
Field Obser	vations:								
Surface Wat	er Present? Ye	S	No <u>X</u>	Depth (i	nches):				
Water Table	Present? Ye	s	No <u>X</u>	Depth (i	nches):				
Saturation P	resent? Ye	s <u>X</u>	No	Depth (I	nches):	10	Wetland Hydrolog	jy Present? Yes X	No
(includes ca	oillary fringe)			1 1 4			(, , , , ) ( <b>f</b> , , , , , )) -  ,   ,		
Describe Re	corded Data (stream	gauge, mo	nitoring well, aeria	i pnotos	, previous	s inspec	uons), if available:		
Remarks									

		••••							
Project/Site: Brendel Lake Campground / Elizabeth Lake Re	oad (221016)	City/Coun	ity: White Lak	e Twp/Oa	akland	Samp	oling Date:	4-6-2	:022
Applicant/Owner: Kem-Tec, Inc. (client)				State	e: MI	Samp	ling Point:	D	P14
Investigator(s): R. Newkirk		_Section, To	ownship, Rang	e: NW	1/4; NW	1/4; Section	27; T3N; F	₹8E	
Landform (hillside, terrace, etc.): hillside		L	.ocal relief (cor	ncave, co	nvex, no	ne): <u>convex</u>			
Slope (%): <u>5</u> Lat: <u>42.641022</u>		Long: <u>-8</u>	3.501859			Datum:	WGS84		
Soil Map Unit Name: 11B - Capac sandy loam, 0 to 4 pe	rcent slopes				NWI cl	lassification:	PEM1C		
Are climatic / hydrologic conditions on the site typical for	this time of y	/ear?	Yes X	No	– (lf no	o, explain in F	Remarks.)		
Are Vegetation No , Soil No , or Hydrology No sig	unificantly dis	sturbed? A	re "Normal Ciro	cumstanc	` ces" pres	ent? Yes	X N	0	
Are Vegetation No. Soil No. or Hydrology No. na	turally proble	matic? (If	f needed, expla	ain anv ar	nswers ir	n Remarks.)			-
OUMANARY OF FINDINGS Attach site mar					4	-1- impo	-tant foo	<u>+</u>	<u></u>
SUMMART OF FINDINGS – Attach site map	) snowing	sampling	j point ioca	itions,	Iranse	cts, impoi	rtant iea	tures,	etc.
Hydrophytic Vegetation Present? Yes X No		Is the	Sampled Area	а					
Hydric Soil Present? Yes No	X	within	a Wetland?		Yes_	No	X		
Wetland Hydrology Present? Yes No	X								
Remarks:									
Data point is located in upland approximatley 25 feet no	rth of Wetlan	ıd D.							
VEGETATION – Use scientific names of plant	ts.								
Tree Stratum (Plot size: 30)	Absolute I	Dominant	Indicator	Domina	nco Test	t worksheet			
1. Quercus rubra	50	Yes	FACU	Number	of Domir	ant Species	• That		
2. Quercus bicolor	25	Yes	FACW	Are OBL	, FACW,	, or FAC:	That	3	(A)
3. Carya ovata	10	No	FACU	Total Nu	mber of	, Dominant Sp	necies		-`´
4. Carpinus caroliniana	5	No	FAC	Across A	All Strata:	:		5	(B)
5.				Percent	of Domin	nant Species	That		-
-	90 =T	otal Cover		Are OBL	., FACW,	, or FAC:	6	0.0%	(A/B)
Sapling/Shrub Stratum (Plot size: 15 )					<u> </u>				
1. Carpinus caroliniana	<u> </u>	Yes	FAC	Prevaler	nce Inde	x workshee	t: Multiple	·	
2. Fraxinus pennsylvanica	<u> </u>	res	FACVV					y by. 0	-
З			<u> </u>	FACW s	necies	30	x 1	60	-
5.				FAC spe	cies	15	x 3 =	45	-
·		otal Cover		FACU sr	becies	60	x 4 =	240	-
 <u>Herb Stratum</u> (Plot size: 5 )				UPL spe	cies	0	x 5 =	0	-
1. Carex sp.	5	Yes		Column <sup>-</sup>	Totals:	105 (A	4)	345	(B)
2.				Preva	lence Ind	dex = B/A =	3.29	9	
3.		,	L						
4		·		Hydroph	nytic Veç	getation Ind	icators:		İ
5		,	.	1 - R	apid Tes	st for Hydrop	hytic Vege	tation	İ
6		·	.	<u>X</u> 2-D	)ominanc	ce Test is >5	0%		
7		·	·	3-P	revalenc	ce Index is ≤:	3.0'		··
8		<i>.</i>	·	4 - IV	/lorpholog	gical Adaptat marks or on	tions' (Prov	/ide sup	porting
9		·	<u> </u>	Proh	la in rici		Vocotation	<sup>1</sup> /Evol	nin)
10		Total Cover	·						ilii)
- Woodv Vine Stratum (Plot size: 15 )				be prese	rs of nyu nt. unles	s disturbed c	vetiand nyc	atic.	musi
1. None			<u> </u>	Hydroph	hytic				
2.				Vegetati	ion				

=Total Cover

Present?

Yes X

Remarks: (Include photo numbers here or on a separate sheet.)

No

Profile Desc	ription: (Describe	to the dept	h needed to doc	ument t	he indica	tor or c	onfirm the absence o	of indicators.)
Depth	Matrix		Redo	x Featu	res	0		
(inches)	Color (moist)	%	Color (moist)	%	Туре	Loc <sup>2</sup>	Texture	Remarks
0-9	10YR 3/2	100					Sandy	
9-16	10YR 5/2	95	10YR 5/4	5	С	Μ	Sandy	Distinct redox concentrations
'Type: C=Co	oncentration, D=Dep	letion, RM=	Reduced Matrix, I	MS=Mas	ked Sand	Grains	Location	: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:		Querrate Ola				Indicator	's for Problematic Hydric Soils":
Histosol	(A1) incden (A2)		Sandy Gle	eyed Mai	rix (54)			t Prairie Redox (A16)
HISUC EP	npedon (AZ)		Sandy Re	dox (55) Actrix (S)	2)		Iron-N	Derent Meterial (F21)
	SIIC (A3) n Sulfida (A4)		Stripped N	atrix (5)	0)			Shellow Dark Surface (E22)
				ace (S7)	orol (E1)		Very	Shallow Dark Sunace (F22)
	ak (A10)				triv $(E2)$			
2 cm Mu	CK (ATU) I Below Dark Surface	- (Δ11)	Loany Gr	eyeu ivia Matrix (E	uix (r∠) '3)			
	rk Surface (Δ12)	5 (711)	Bedox Da	rk Surfa	5) Se (E6)		<sup>3</sup> Indicator	s of hydrophytic vegetation and
Sandy M	lucky Mineral (S1)			Dark Sur	face (F7)		wetla	nd hydrology must be present
5 cm Mu	ckv Peat or Peat (S3	3)	Redox De	pression	idee (i 7) is (F8)		unles	s disturbed or problematic.
	aver (if observed)							
Type.	Layer (II Observed)							
Depth (in	iches).		_				Hydric Soil Present	2 Yes No X
Dopui (ii								
Remarks:	m is rovised from Mi	dwoot Pogic	anal Supplement	Vorsion '	2 0 to incl	uda tha	NPCS Field Indicators	of Hydric Soils, Vorsion 7.0, 2015
Errata (http://	/www.nrcs.usda.gov	/Internet/FS	E DOCUMENTS	/nrcs142	2.0 10 me	93.docx	).	
	5						,	
HYDROLO	GY							
Wotland Hw	drology Indicators:							
Primary India	cators (minimum of c	ne is requir	ed: check all that	annly)			Secondar	v Indicators (minimum of two required)
Surface	Water (A1)		Water-Sta	ined Lea	ives (B9)		<u>Surfa</u>	ce Soil Cracks (B6)
High Wa	ter Table (A2)		Aquatic Fa	auna (B1	3)		Drain	age Patterns (B10)
Saturatio	on (A3)		True Aqua	tic Plant	s (B14)		Drv-S	Season Water Table (C2)
Water M	arks (B1)		Hydrogen	Sulfide (	Odor (C1)	)	Cravf	ish Burrows (C8)
Sedimen	t Deposits (B2)		Oxidized F	Rhizosph	ieres on l	iving Ro	oots (C3) Satur	ation Visible on Aerial Imagery (C9)
Drift Dep	osits (B3)		Presence	of Redu	ced Iron (	C4)	Stunt	ed or Stressed Plants (D1)
Algal Ma	t or Crust (B4)		Recent Iro	n Reduc	tion in Ti	led Soils	s (C6) Geon	norphic Position (D2)
Iron Dep	osits (B5)		Thin Muck	Surface	e (C7)		X FAC-	Neutral Test (D5)
Inundatio	on Visible on Aerial I	magery (B7)	) Gauge or	Well Dat	a (D9)			
Sparsely	Vegetated Concave	e Surface (B	8)Other (Exp	olain in F	Remarks)			
Field Obser	vations:							
Surface Wate	er Present? Ye	es	No <u>X</u>	Depth (i	nches):			
Water Table	Present? Ye	es	No <u>X</u>	Depth (i	nches):			
Saturation P	resent? Ye	es	No <u>X</u>	Depth (i	nches):		Wetland Hydrolog	gy Present? Yes <u>No X</u>
(includes cap	oillary fringe)							
Describe Re	corded Data (stream	i gauge, moi	nitoring well, aeria	al photos	, previou	s inspec	tions), if available:	
Domester								
Remarks:								

Project/Site: Brendel	I Lake Campground / Elizabeth Lake Road (221016	<ol> <li>City/County: Wh</li> </ol>	nite Lake T	wp/Oakla	nd	Sampling Date:	4-6-2022
Applicant/Owner:	Kem-Tec, Inc. (client)			State:	MI	Sampling Point:	DP15
Investigator(s): R. Ne	ewkirk	Section, Township	, Range:	NW 1/4;	NW 1/4;	Section 27; T3N; R	8E
Landform (hillside, te	errace, etc.): <u>depression</u>	Local rel	ief (conca	ve, conve	x, none):	concave	
Slope (%): 0	Lat: 42.64092	Long: <u>-83.5019</u>	94			Datum: WGS84	
Soil Map Unit Name	27 - Houghton and Adrian Mucks			N	WI classi	ification: PEM1C	
Are climatic / hydrolo	ogic conditions on the site typical for this time of	year? Yes X	<u>(</u> No	)	(If no, ex	plain in Remarks.)	
Are Vegetation No	_, Soil <u>No</u> , or Hydrology <u>No</u> significantly d	isturbed? Are "Norr	nal Circun	nstances"	present?	Yes <u>X</u> No	) <u> </u>
Are Vegetation No	_, Soil <u>No</u> , or Hydrology <u>No</u> naturally prob	lematic? (If needed	d, explain	any answ	ers in Re	emarks.)	
SUMMARY OF	FINDINGS – Attach site map showin	g sampling poin	t locatio	ons, tra	nsects	, important feat	ures, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes X Yes X Yes X	No No No	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No
Remarks:	n most oxtand	of Wotland D. poar the	west houndary of the Project S	Sito	

Data point is located in the western most extend of Wetland D, near the west boundary of the Project Site.

### **VEGETATION** – Use scientific names of plants.

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:
1. Populus deltoides	30	Yes	FAC	Number of Dominant Species That
2. Quercus bicolor	20	Yes	FACW	Are OBL, FACW, or FAC: 6 (A)
3. Salix amygdaloides	15	No	FACW	Total Number of Dominant Species
4. Acer saccharinum	10	No	FACW	Across All Strata: 6 (B)
5. Quercus rubra	10	No	FACU	Percent of Dominant Species That
	85	=Total Cover		Are OBL, FACW, or FAC: 100.0% (A/B)
Sapling/Shrub Stratum (Plot size: 15 )				
1. Cornus sericea	15	Yes	FACW	Prevalence Index worksheet:
2. Quercus bicolor	8	Yes	FACW	Total % Cover of: Multiply by:
3. Carpinus caroliniana	5	No	FAC	OBL species 12 x 1 = 12
4.				FACW species 68 x 2 = 136
5.				FAC species 35 x 3 = 105
	28	=Total Cover		FACU species 10 x 4 = 40
Herb Stratum (Plot size: 5)				UPL species 0 x 5 = 0
1. Carex hyalinolepis	7	Yes	OBL	Column Totals: 125 (A) 293 (B)
2. Symplocarpus foetidus	5	Yes	OBL	Prevalence Index = B/A = 2.34
3.				
4.				Hydrophytic Vegetation Indicators:
5.				1 - Rapid Test for Hydrophytic Vegetation
6.				X 2 - Dominance Test is >50%
7.				X 3 - Prevalence Index is ≤3.0 <sup>1</sup>
8.				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
9.				data in Remarks or on a separate sheet)
10.				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
	12	=Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must
<u>Woody Vine Stratum</u> (Plot size: 15 )				be present, unless disturbed or problematic.
1. None				Hydrophytic
2.				Vegetation
		=Total Cover		Present? Yes X No
Remarks: (Include photo numbers here or on a separa	ate sheet.)			
	,			

Profile Des	cription: (Descri	be to the dept	h needed to doc	ument tl	he indica	tor or c	onfirm the absence	of indicators.)
Depth	Matrix	x	Redo	ox Featur	res			
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-18	10YR 2/1	100					Mucky Sand	
1 <del>.</del>				<u> </u>		<u> </u>	21	
Type: C=C	oncentration, D=L	epletion, RM=	Reduced Matrix, I	MS=Mas	ked Sand	Grains	Location	1: PL=Pore Lining, M=Matrix.
Histosol			Sandy Cle	wed Mat	riv (S4)		Indicato	st Prairie Redox (A16)
Histic Fr	(AT) ninedon (A2)		Sandy Be	dox (S5)	IIX (34)		Coas	Manganese Masses (F12)
Black Hi	istic (A3)		Stripped M	Aatrix (Sf	3)		Red	Parent Material (F21)
X Hydroge	en Sulfide (A4)		? Dark Surfa	ace (S7)	5)		Verv	Shallow Dark Surface (F22)
Stratified	d Lavers (A5)		Loamv Mu	uckv Mine	eral (F1)		Othe	r (Explain in Remarks)
2 cm Mu	uck (A10)		Loamy Gle	eved Ma	trix (F2)			. (,
Deplete	d Below Dark Surf	ace (A11)	Depleted I	, Matrix (F	3)			
Thick Da	ark Surface (A12)		 Redox Da	rk Surfac	, e (F6)		<sup>3</sup> Indicator	rs of hydrophytic vegetation and
X Sandy M	/lucky Mineral (S1)	)	Depleted I	Dark Sur	face (F7)		wetla	and hydrology must be present,
5 cm Mu	ucky Peat or Peat	(S3)	Redox De	pression	s (F8)		unles	ss disturbed or problematic.
Restrictive	Layer (if observe	d):						
Type:								
Depth (i	nches):						Hydric Soil Presen	t? Yes <u>X</u> No
Remarks:								
This data for	rm is revised from	Midwest Regi	onal Supplement V	Version 2	2.0 to incl	ude the	NRCS Field Indicator	s of Hydric Soils, Version 7.0, 2015
Errata (http:	//www.nrcs.usda.g	jov/Internet/FS	E_DOCUMENTS	/nrcs142	p2_0512	93.docx	).	
HYDROLO	DGY							
Wetland Hy	drology Indicato	rs:						
Primary Indi	<u>cators (minimum c</u>	of one is requir	ed; check all that	apply)			Seconda	ry Indicators (minimum of two required)
X Surface	Water (A1)		X Water-Sta	ined Lea	ves (B9)		Surfa	ace Soil Cracks (B6)
X High Wa	ater Table (A2)		Aquatic Fa	auna (B1	3)		Drair	nage Patterns (B10)
X Saturati	on (A3)		True Aqua	tic Plant	s (B14)		Dry-S	Season Water Table (C2)
X Water M	larks (B1)		X Hydrogen	Sulfide (	Odor (C1)		Cray	fish Burrows (C8)
Sedimer	nt Deposits (B2)			Rhizosph	eres on L	iving Re	oots (C3) Satu	ration Visible on Aerial Imagery (C9)
Drift Dep	posits (B3)		Presence	of Reduc	ced Iron (	U4) Ind Sail		ted or Stressed Plants (D1)
	at or Crust (B4)		Recent Iro	n Reduc		ied Soll	s (Co) <u>X</u> Geor	Noutrol Test (D5)
IIOII Dep	on Visible on Aori	al Imagory (B7			$(\mathbf{U}^{\prime})$			-Neutral Test (D5)
<u> </u>	Vegetated Conc	ai intagery (Dr ave Surface (B	8) Other (Ex	olain in R	a (D9) ?emarks)			
Eiold Obsor	vations:			Sidin In I	(emarke)			
Surface Wat	ter Present?	Yes X	No	Depth (i	nches).	1		
Water Table	Present?	Yes X	No	Depth (i	nches).	0		
Saturation F	Present?	Yes X	No	Depth (i	nches):	0	Wetland Hvdrolo	gy Present? Yes X No
(includes ca	pillary fringe)				-/-	-		
Describe Re	ecorded Data (stre	am gauge, mo	nitoring well, aeria	al photos	, previous	s inspec	tions), if available:	
	· · · · · ·			-	-	-		
Remarks:								

Project/Site: Brendel	Lake	Campground / Elizabeth La	ake Road (221016)	City/Cou	nty: White Lake	Twp/Oakla	and	Sampling Date:	4-6-2022
Applicant/Owner:	Kem	-Tec, Inc. (client)				State:	MI	Sampling Point:	DP16
Investigator(s): R. Ne	ewkirk			Section, 1	Township, Range	: <u>NW 1/4</u>	; NW 1/4	; Section 27; T3N; R	8E
Landform (hillside, te	errace	, etc.): depression			Local relief (conc	ave, conve	ex, none)	: concave	
Slope (%): 0	Lat:	42.641543		Long: -	83.500687			Datum: WGS84	
Soil Map Unit Name	27 -	Houghton and Adrian mu	cks			<u> </u>	WI class	sification: PFO1C	
Are climatic / hydrolo	ogic co	onditions on the site typic	al for this time of ye	ear?	Yes <u>X</u>	No	(If no, e	xplain in Remarks.)	
Are Vegetation No	, Soi	I <u>No</u> , or Hydrology <u>No</u>	significantly dist	urbed?	Are "Normal Circu	imstances'	' present	? Yes <u>X</u> No	» <u> </u>
Are Vegetation No	, Soi	I <u>No</u> , or Hydrology <u>N</u> o	naturally probler	matic? (	If needed, explai	n any ansv	vers in R	emarks.)	
SUMMARY OF	FIND	INGS – Attach site	map showing	samplin	g point locat	ions, tra	nsects	s, important feat	ures, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes X Yes X Yes X	No No No	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No
Remarks:					

Data point is located in a forested portion of Wetland B.

### **VEGETATION** – Use scientific names of plants.

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size: 30)	% Cover	Species?	Status	Dominance Test worksheet:
1. Betula alleghaniensis	25	Yes	FAC	Number of Dominant Species That
2. Quercus bicolor	15	Yes	FACW	Are OBL, FACW, or FAC: 6 (A)
3. Carpinus caroliniana	10	Yes	FAC	Total Number of Dominant Species
4.				Across All Strata: 7 (B)
5				Percent of Dominant Species That
	50	=Total Cover		Are OBL, FACW, or FAC: 85.7% (A/B)
Sapling/Shrub Stratum (Plot size: 15 )				
1. Carpinus caroliniana	20	Yes	FAC	Prevalence Index worksheet:
2. Celtis occidentalis	8	Yes	FAC	Total % Cover of: Multiply by:
3. Quercus bicolor	5	No	FACW	OBL species 3 x 1 = 3
4.				FACW species 20 x 2 = 40
5.				FAC species 63 x 3 = 189
	33	=Total Cover		FACU species 0 x 4 = 0
Herb Stratum (Plot size: 5 )				UPL species 0 x 5 = 0
1. Carex sp.	5	Yes		Column Totals: 86 (A) 232 (B)
2. Symplocarpus foetidus	3	Yes	OBL	Prevalence Index = B/A = 2.70
3.				
4				Hydrophytic Vegetation Indicators:
5.				1 - Rapid Test for Hydrophytic Vegetation
6.				X 2 - Dominance Test is >50%
7.				X 3 - Prevalence Index is ≤3.0 <sup>1</sup>
8.				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
9.				data in Remarks or on a separate sheet)
10.				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
	8	=Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must
Woody Vine Stratum (Plot size: 15 )				be present, unless disturbed or problematic.
1. None				Hydrophytic
2.				Vegetation
		=Total Cover		Present? Yes X No
Remarks: (Include photo numbers here or on a separa	ate sheet.)			
	,			

Profile Des	cription: (Describ	e to the dept	h needed to doc	ument t	he indica	tor or c	onfirm the absence	of indicators.)			
Depth	Matrix		Redo	ox Featu	res						
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks			
0-16	10YR 2/1	100					Mucky Sand				
<sup>1</sup> Type: C=C	oncentration, D=D	epletion, RM=I	Reduced Matrix,	MS=Mas	ked Sand	d Grains	. <sup>2</sup> Location	: PL=Pore Lining, M=Matrix.			
Hydric Soil	Indicators:						Indicator	rs for Problematic Hydric Soils <sup>3</sup> :			
Histosol	(A1)		Sandy Gle	eyed Mat	rix (S4)		Coas	t Prairie Redox (A16)			
Histic Ep	oipedon (A2)		Sandy Re	dox (S5)			Iron-Manganese Masses (F12)				
Black Hi	stic (A3)		Stripped N	/latrix (Se	6)		Red Parent Material (F21)				
X Hydroge	n Sulfide (A4)		? Dark Surfa	ace (S7)			Very Shallow Dark Surface (F22)				
Stratified	l Layers (A5)		Loamy Mu	ucky Min	eral (F1)		Othe	r (Explain in Remarks)			
2 cm Mu	ıck (A10)		Loamy Gl	eyed Ma	trix (F2)						
Depleted	d Below Dark Surfa	ice (A11)	Depleted	Matrix (F	3)		2				
Thick Da	ark Surface (A12)		Redox Da	rk Surfac	ce (F6)		<sup>3</sup> Indicators of hydrophytic vegetation and				
X Sandy M	lucky Mineral (S1)		Depleted	Dark Sur	face (F7)		wetla	ind hydrology must be present,			
5 cm Mu	icky Peat or Peat (	\$3)	Redox De	pression	is (⊦8)		unles	s disturbed or problematic.			
Restrictive	Layer (if observe	:									
Type:											
Depth (ii	nches):						Hydric Soil Presen	t? Yes <u>X</u> No			
Remarks:											
This data for	m is revised from I	Midwest Regio	nal Supplement	Version 2	2.0 to incl	ude the	NRCS Field Indicators	s of Hydric Soils, Version 7.0, 2015			
Errata (http:/	//www.nrcs.usda.go	ov/Internet/FSI	E_DOCUMENTS	/nrcs142	2p2_0512	93.docx	).				
HIDROLU	JGY										
Wetland Hy	drology Indicator	s:									
Primary Indi	<u>cators (minimum o</u>	f one is require	ed; check all that	apply)			Seconda	ry Indicators (minimum of two required)			
X Surface	Water (A1)		X Water-Sta	ined Lea	aves (B9)		Surfa	ace Soil Cracks (B6)			
X High Wa	iter Table (A2)		Aquatic Fa	auna (B1	3)		Drain	hage Patterns (B10)			
X Saturatio	on (A3)		True Aqua	atic Plant	is (B14)		Dry-8	Season Water Table (C2)			
X Water W	arks (B1)		X Hydrogen		Jaor (C1)		ClayIISH Bullows (Co)				
Sedimer	(B2)			Anizospr	ieres on L		Salui	ration Visible on Aerial Imagery (C9)			
	ousius (DS)		Presence	o Reduc	tion in Til	64) Iod Soili		norphic Position (D2)			
	(D4)		Thin Much			ieu Solis		Noutral Test (D5)			
Inundati	on Visible on Aeria	l Imagery (B7)	Gauge or	Well Dat	; (C7) a (D9)		<u></u> TAC				
Sparsely	Vegetated Conca	ve Surface (B	B) Other (Ex	plain in F	Remarks)						
Operation	vations			piani ini i	(omano)		1				
Surface Wat	valions. er Present?	Ves X	No	Denth (i	nches).	з					
Water Table	Present?	Yes X	No	Denth /i	nchee).	0					
Saturation Present? Yes X No				Depth (i	nches)	0	Wetland Hydrolog	Netland Hydrology Present? Yes X No			
(includes ca	(includes capillary fringe)										
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:											
		5 5 ,	J,			1.20	,,				
Remarks:											

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016)					6) City/Co	ounty: White L	_ake T	wp/Oakla	and	Sampling Da	ite:	4-6-2022
Applicant/Owner:	Wher: Kem-Tec, Inc. (client)							State:	MI	Sampling Poi	int:	DP17
Investigator(s): <u>R. N</u>	Section,	Section, Township, Range:			NW 1/4; NW 1/4; Section 27; T3N; R8E							
Landform (hillside, t	errace, etc.): <u>u</u>	oland				Local relief (	concav	/e, conve	ex, none):	none		
Slope (%): 0	be (%): 0 Lat: <u>42.641543</u>				Long:	-83.500486			Datum: WGS84			
Soil Map Unit Name	Soil Map Unit Name: 11B - Capac sandy loam, 0 to 4 percent slopes NWI classification: PFO1C											
Are climatic / hydrol	ogic conditions	on the site t	ypical for	this time of	year?	Yes X	No	· <u></u>	(If no, ex	plain in Remark	s.)	
Are Vegetation No	, Soil <u>No</u> , o	or Hydrology	No się	gnificantly d	isturbed?	Are "Normal (	Circum	istances'	present?	Yes X	No	
Are Vegetation No	_, Soil <u>No</u> , o	or Hydrology	<u>No</u> na	turally prob	lematic?	(If needed, ex	xplain a	any answ	ers in Re	emarks.)		
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.												
Hydrophytic Vegeta	ation Present?	Yes	No	х	ls ti	ne Sampled A	rea					
Hydric Soil Present?         Yes         No         X         within a Wetland?         Yes         No         X												
Wetland Hydrology	Present?	Yes	No	Х								
Remarks: Data point is locate	ed in upland app	proximately 7	75 feet so	outh of Wetl	and B.							
<b>VEGETATION</b> -	- Use scienti	fic names	of plan	ts.								
Tree Stratum	(Plot size:	30	)	Absolute % Cover	Dominant Species?	Indicator Status	Do	minance	e Test wo	orksheet:		

Tree Stratum (	Plot size:	30 )	% Cover	Species?	Status	Dominance Test worksheet:					
1. Quercus rubra			40 Yes		FACU	Number of Dominant Species That					
2. Prunus serotina			20	Yes FACU Are OBL, FACW, or FAC:			or FAC:	_	2	(A)	
3. Carpinus carolinia	na		15	Yes	FAC	Total Number of Dominant Species				_	
4.						Across All Strata:		· _	5	(B)	
5.						Percent of Domin	ant Specie	es That		_	
			75	5 =Total Cover Are OBL, FACW, or FAC:				_	40.0%	(A/B)	
Sapling/Shrub Stratum	<u>n</u> (Plot :	size: 15	)	-							
1. Carpinus carolinia	าล		20	Yes	FAC	Prevalence Index worksheet:					
2. Quercus rubra			10	Yes	FACU	Total % Cov	tiply by:				
3.						OBL species	0	x 1 =	0	-	
4.						FACW species	0	x 2 =	0	-	
5.						FAC species	35	x 3 =	105	-	
			30	=Total Cover		FACU species	70	x 4 =	280	_	
Herb Stratum (	Plot size:	5)		•		UPL species	0	x 5 =	0	-	
1. None						Column Totals:	105	(A) –	385	(B)	
2.						Prevalence Inc	dex = B/A	= -	3.67	- ` <i>`</i>	
3.				<u> </u>						-	
4.				- <u> </u>		Hydrophytic Vec	etation In	dicators	:		
5.				· ·		1 - Rapid Tes	st for Hvdro	ophytic Ve	egetation		
6.				· ·		2 - Dominance Test is >50%					
7.				· ·		3 - Prevalence Index is ≤3.0 <sup>1</sup>					
8.				· ·		4 - Morpholog	nical Adapt	tations <sup>1</sup> (F	Provide su	oportina	
9.				· ·		data in Rei	marks or o	n a separ	ate sheet)	1 3	
10.				· ·		Problematic I	Hvdrophyti	c Vegetat	tion <sup>1</sup> (Expl	ain)	
				=Total Cover		<sup>1</sup> Indicators of byd	ric soil and	wetland	hydrology	must	
Woodv Vine Stratum	(Plot :	size: 15	)	-		be present. unles	s disturbed	d or proble	ematic.	must	
1. None	,		,								
2.				· ·		Vegetation					
				=Total Cover		Present?	х				
Remarks: (Include ph	oto numbere	here or on a sona	rate sheet )	-		1					
include pri		nele of off a sepa	ale sheel.)								

I

Profile Des	Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)											
Depth	Matrix		Redo	ox Featur	res							
(inches)	Color (moist)	%	Color (moist)	%	Type'	Loc	Texture	Remarks				
0-10	10YR 3/2	100					Loamy/Clayey					
10-17	10YR 4/4	70	10YR 5/8	30	С	М	Loamy/Clayey	Prominent redox concentrations				
	<u></u>											
<sup>1</sup> Type: C=C	Concentration, D=Dep	letion, RM=	Reduced Matrix, I	MS=Mas	ked Sano	d Grains	. <sup>2</sup> Location:	: PL=Pore Lining, M=Matrix.				
Hydric Soil	Indicators:				Indicator	s for Problematic Hydric Soils <sup>3</sup> :						
Histoso	I (A1)		Sandy Gle	eyed Mat	rix (S4)		Coas	t Prairie Redox (A16)				
Histic E	pipedon (A2)		Sandy Re	dox (S5)			Iron-Manganese Masses (F12)					
Black H	istic (A3)		Stripped N	/latrix (S6	5)		Red Parent Material (F21)					
Hydroge	en Sulfide (A4)		Dark Surfa	ace (S7)			Very Shallow Dark Surface (F22)					
Stratifie	d Layers (A5)		Loamy Mu	icky Mine	eral (F1)		Other (Explain in Remarks)					
2 cm M	uck (A10)		Loamy Gle	eyed Mat	trix (F2)							
Deplete	d Below Dark Surface	e (A11)	Depleted I	Matrix (F	3)		2					
Thick D	ark Surface (A12)		Redox Da	rk Surfac	ce (F6)		<sup>3</sup> Indicators of hydrophytic vegetation and					
Sandy I	Mucky Mineral (S1)		Depleted I	Dark Sur	face (F7)		wetla	nd hydrology must be present,				
5 cm M	ucky Peat or Peat (St	3)	Redox De	pression	s (⊦8)		unles	s disturbed or problematic.				
Restrictive	Layer (if observed)											
Type:												
Depth (i	inches):						Hydric Soil Present?     Yes     No     X					
Remarks:												
This data fo	rm is revised from Mi	dwest Regi	onal Supplement	Version 2	2.0 to incl	ude the	NRCS Field Indicators	s of Hydric Soils, Version 7.0, 2015				
Errata (http:	://www.nrcs.usda.gov	/Internet/FS	SE_DOCUMENTS	/nrcs142	p2_0512	93.docx	).					
	/											
HYDROLO	JGY											
Wetland Hy	drology Indicators:											
Primary Ind	icators (minimum of c	ne is requir	red; check all that	apply)			Secondar	y Indicators (minimum of two required)				
Surface	Water (A1)		Water-Sta	ined Lea	ives (B9)		Surface Soil Cracks (B6)					
High Wa	ater Table (A2)		Aquatic Fa	auna (B1	3)		Drainage Patterns (B10)					
Saturati	ion (A3)		True Aqua	atic Plant	s (B14)		Dry-Season Water Table (C2)					
Water N	/larks (B1)		Hydrogen	Sulfide (	Odor (C1)	)	Crayfish Burrows (C8)					
Sedime	nt Deposits (B2)			Rhizosph	eres on L	iving Ro	oots (C3) Satur	ation Visible on Aerial Imagery (C9)				
Drift De	posits (B3)		Presence	of Reduc	ced Iron (	C4)	Stunt	ed or Stressed Plants (D1)				
Algal M	at or Crust (B4)		Recent Iro	n Reduc	tion in Ti	led Soil	s (C6) Geon	norphic Position (D2)				
Iron De	posits (B5)	(0)		Surface	(C7)		FAC-	Neutral Test (D5)				
	Ion Visible on Aerial I	magery (B/	Gauge or	Well Dat	a (D9)							
? Sparsel	y Vegetated Concave	e Surface (E	38)Other (Exp	plain in R	(emarks)							
Field Obse	rvations:											
Surface Wa	iter Present? Ye	es	No <u>X</u>	Depth (I	nches):							
vvater i able Present?         Yes         No         X         Depth (inches):           Saturation Present?         Vac         No         X         Depth (inches):							- Wetland Ibidualami Disasti () Mas					
Saturation I	resent? Ye			Depth (I	ncnes):		wetiand Hydrolog	gy Present? Yes NO X				
(Includes capillary tringe)												
Describe Re	ecorded Data (stream	gauge, mo	mitoring well, aeria	ai priotos	, previous	sinspec	uons), ii avallable:					
Remarks <sup>.</sup>												
. ternanter												

PAGE INTENTIONALLY LEFT BLANK

