APPENDIX G – USACE WOTUS DELINEATION REPORTS & JD VERIFICATION LETTERS



DEPARTMENT OF THE ARMY U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVENUE SAVANNAH, GEORGIA 31401-3604

24 JAN 2020

Regulatory Branch SAS-2018-00554

Steven R. Ingle (single@twinpinesminerals.com)
Twin Pines Minerals, LLC
2100 Southbridge Parkway,
Birmingham, Alabama 35209

Dear Mr. Ingle:

I refer to the request submitted on your behalf by TTL, requesting a delineation of aquatic resources for your Adirondack and TIAA sites located West of the town of Saint George, and North of State Route 94, in Charleston County, Georgia (Adirondack: Latitude 30.524, Longitude -82.098, TIAA; Latitude 30.529, Longitude -82.138). This project has been assigned number SAS-2018-00554 and it is important that you refer to this number in all communication concerning this matter.

The enclosed exhibits entitled, "Waters of the U.S. Delineation Map (Verified), Twin Pines Minerals – Adirondack Tract", dated November 6, 2019, and "Waters of the U.S. Delineation Map (Verified), Twin Pines Minerals – TIAA Tract", dated November 6, 2019, identifies the delineation limits of all aquatic resources within these review areas. The wetlands were delineated in accordance with criteria contained in the 1987 "Corps of Engineers Wetland Delineation Manual," as amended by the most recent regional supplements to the manual. This delineation will remain valid for a period of 5-years unless new information warrants revision prior to that date.

If you intend to sell property that is part of a project that requires Department of the Army Authorization, it may be subject to the Interstate Land Sales Full Disclosure Act. The Property Report required by Housing and Urban Development Regulation must state whether, or not a permit for the development has been applied for, issued or denied by the U.S. Army Corps of Engineers (Part 320.3(h) of Title 33 of the Code of Federal Regulations).

This communication does not convey any property rights, either in real estate or material, or any exclusive privileges. It does not authorize any injury to property, invasion of rights, or any infringement of federal, state or local laws, or regulations. It does not obviate your requirement to obtain state or local assent required by law for the development of this property. If the information you have submitted, and on which the

U.S. Army Corps of Engineers has based its decision is later found to be in error, this decision may be revoked.

A copy of this letter is being provided to the following parties: Cindy House-Pearson chpearson@ttlusa.com, and Christopher Terrell cterrell@ttlusa.com.

Thank you in advance for completing our on-line Customer Survey Form located at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey. We value your comments and appreciate your taking the time to complete a survey each time you have interaction with our office.

If you have any questions, please call Holly Ross, at (678) 422-2727.

Sincerely,

METIVIER.STEV Digitally signed by METIVIER.STEVEN.V.1228803 185 Date: 2020.01.24 08:52:03

Steven V. Metivier Acting Chief, Regulatory Division

Enclosures

SAS-2018-00554: Twin Pines Minerals Adirondack Tract Field Verification. Site visit OCTOBER 2019, Issued January 2020





WATERS OF THE U.S. DELINEATION MAP (VERIFIED) TWIN PINES MINERALS - ADIRONDACK TRACT ST. GEORGE, CHARLTON COUNTY, GEORGIA BASEMAP: DigitalGlobe, 3/24/2018 (0.46 m Resolution)

SAS-2018-00554: Twin Pines Minerals TIAA Tract Field Verification Site visit OCTOBER 2019, Issued January 2020





DEPARTMENT OF THE ARMY U.S. ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT 100 W. OGLETHORPE AVENUE SAVANNAH, GEORGIA 31401-3604

December 18, 2018

Regulatory Branch SAS-2018-00554

Mr. Steve Ingle Twin Pines Minerals, LLC 2100 Southbridge Parkway, Ste. 540 Birmingham, Alabama 35209

Dear Mr. Ingle:

I refer to a letter dated October 3, 2018, submitted on your behalf by Ms. Cindy House-Pearson of Resource and TTL Inc., requesting a delineation of aquatic resources for your 1,034 acre and 1,012 acre sites located in Charlton County, Georgia (Latitude 30.5266, Longitude -81.1157). This project has been assigned number SAS-2018-00554 and it is important that you refer to this number in all communication concerning this matter.

The enclosed exhibits entitled "Figure 6: Waters of the U.S. Delineation Map, Twin Pines Minerals - Loncala Tract, Charlton County, Georgia" and "Figure 6: Waters of the US Delineation Map - Keystone Properties, Waters of the U.S. Delineation", dated December 6, 2018; identifies the delineation limits of all aquatic resources within the review area. The wetlands were delineated in accordance with criteria contained in the 1987 "Corps of Engineers Wetland Delineation Manual," as amended by the most recent regional supplements to the manual. This delineation will remain valid for a period of 5-years unless new information warrants revision prior to that date.

If you intend to sell property that is part of a project that requires Department of the Army Authorization, it may be subject to the Interstate Land Sales Full Disclosure Act. The Property Report required by Housing and Urban Development Regulation must state whether, or not a permit for the development has been applied for, issued or denied by the U.S. Army Corps of Engineers (Part 320.3(h) of Title 33 of the Code of Federal Regulations).

This communication does not convey any property rights, either in real estate or material, or any exclusive privileges. It does not authorize any injury to property, invasion of rights, or any infringement of federal, state or local laws, or regulations. It does not obviate your requirement to obtain state or local assent required by law for the development of this property. If the information you have submitted, and on which the U.S. Army Corps of Engineers has based its determination is later found to be in error, this decision may be revoked.

A copy of this letter is being provided to the following party:

Ms. Cindy House-Pearson of TTL Inc., 3516 Greensboro Avenue, Tuscaloosa, Alabama 35401.

Thank you in advance for completing our on-line Customer Survey Form located at http://corpsmapu.usace.army.mil/cm apex/f?p=regulatory survey. We value your comments and appreciate your taking the time to complete a survey each time you have interaction with our office.

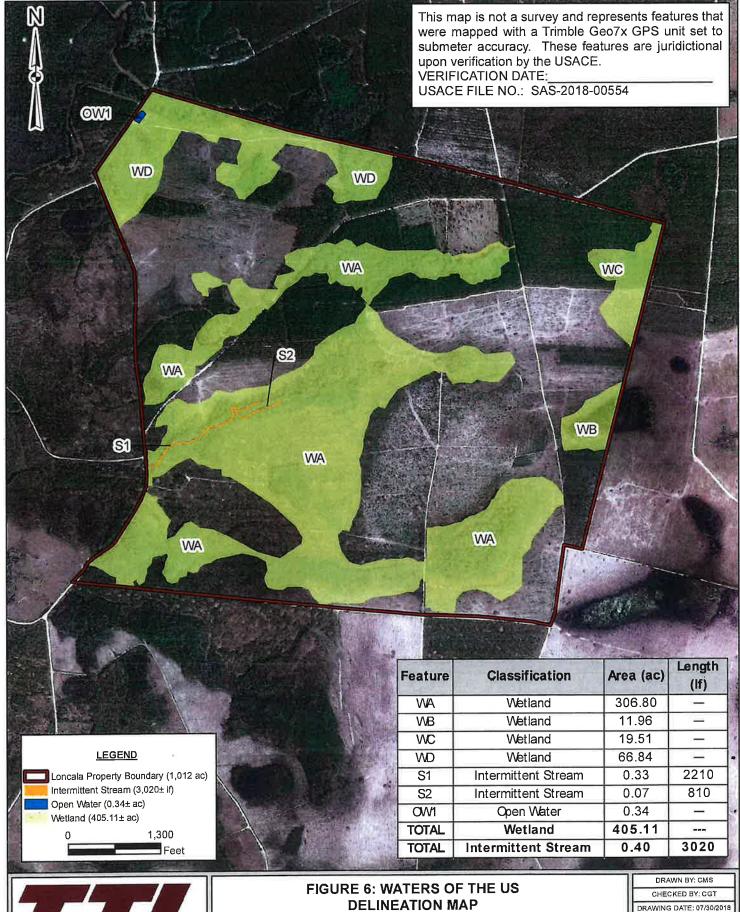
If you have any questions, please call me at (912) 652-5022.

Sincerely,

Scott Guinn

Regulatory Specialist, Coastal Section

Enclosures

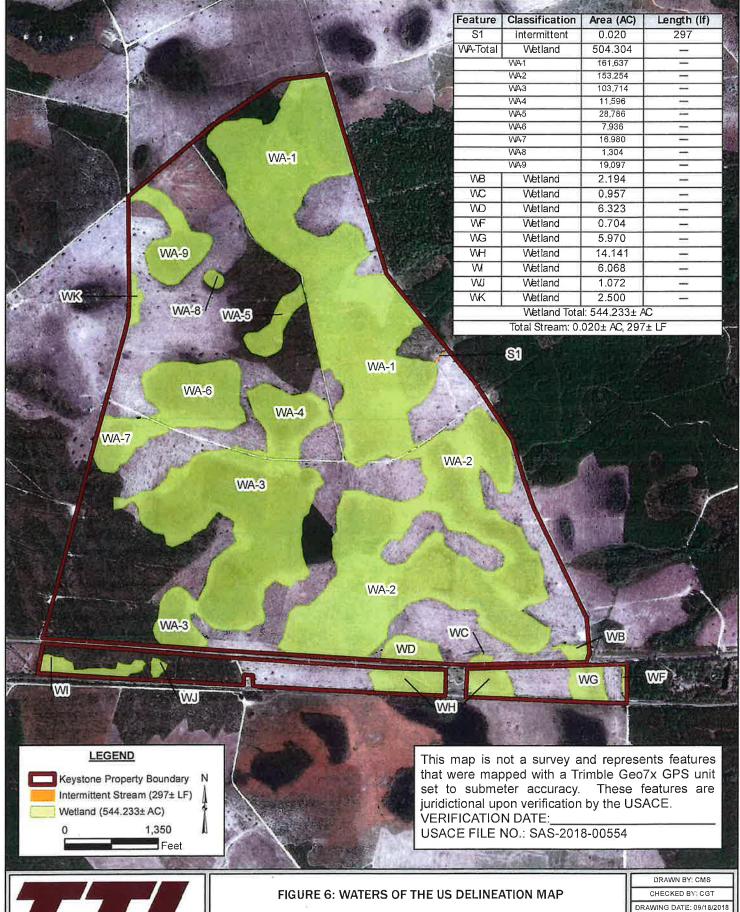




TWIN PINES MINERALS - LONCALA TRACT CHARLTON COUNTY, GEORGIA

BASEMAP: Geogle Earth & Eurpoa Technologies (3/6/2018)

DRAWN BY: CMS
CHECKED BY: CGT
DRAWING DATE: 07/30/2018
REVISION DATE: 12/06/2018
TTL JOB NO. 000180200804.00
APPROX SCALE: 1" = 1,300"



TTL

TWIN PINES MINERALS - KEYSTONE PROPERTIES
WATERS OF THE U.S. DELINEATION

BASEMAP: Google Earth, Europa Technologies (C) 2018, Image Date: 3/6/2018

DRAWN BY: CMS

CHECKED BY: CGT

DRAWING DATE: 09/18/2018

REVISION DATE: 12/06/2018

TTL JOB NO. 000180200804.00

APPROX. SCALE: 1" = 2,000'

WATERS OF THE UNITED STATES DELINEATION REPORT

APPROXIMATELY 551.1-ACRE ADIRONDACK TRACT SAINT GEORGE, CHARLTON COUNTY, GEORGIA

Submitted to:



Twin Pines Minerals, LLC

Attn: Mr. Steve Ingle, P.E. 2100 Southbridge Parkway Birmingham, Alabama 35209

Prepared by:

TTL, Inc. 2743-B Gunter Park Drive West Montgomery, Alabama 36109

Project No. 000180200804.00

July 3, 2019



Senior Natural Resources

Client Manager

SIGNATURE OF ENVIRONMENTAL PROFESSIONALS

TTL, Inc. has performed a waters of the United States (U.S.) delineation in general conformance with the scope and limitations of the *U. S. Army Corps of Engineers Wetland Delineation Manual,* 1987 *Edition,* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region Version* 2.0 (2010). Identification of ephemeral, intermittent and perennial streams has been performed in general conformance with methodology outlined in *Methodology for Identification of Intermittent and Perennial Streams and their Origins, Version* 4.11 (2010).

Mestophen Sevell	July 3, 2019	
Christopher Terrell Environmental Professional	Date	
CA House Reason	July 3, 2019	
Cindy House-Pearson	Date	

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APPENDICES

Appendix A	Normal Weather Conditions Table Agricultural Applied Climate Information System (AgACIS) Data U.S. Drought Monitor – Georgia
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Appendix B	Selected Site Photographs
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Appendix D	North Carolina (NC) Division of Water Quality (DWQ) Stream Identification Forms
Appendix E	USACE Savannah District Request for Corps of Engineers Jurisdictional Determination (JD) and/or Delineation Review Form

1.0 INTRODUCTION

TTL, Inc. (TTL) was contracted by Twin Pines Minerals, LLC (Twin Pines) to perform a delineation of the waters of the United States (WOTUS) associated with a proposed development of a heavy mineral mining operation in Saint George, Charlton County, Georgia (Figure 1). TTL conducted the field activities for this project from March 8, 2019 to March 22, 2019. The U.S. Army Corps of Engineers (USACE) project number is SAS-2018-00554.

Activities within jurisdictional waters of the U.S. are regulated by the USACE. Authority to permit discharges (fill) within jurisdictional wetlands or non-navigable waters of the U.S. is granted under Section 404 of the Clean Water Act (CWA) of 1972. Authority to permit work and placement of structures in navigable waters of the U.S. is granted under Sections 9 and 10 of the Rivers and Harbors Act of 1899. For regulatory purposes under the CWA, wetlands are defined by the USACE as:

Those areas that are inundated or saturated by surface or groundwater 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.

2.0 SITE DESCRIPTION

The site is an approximately 551.1-acre area depicted on the U.S. Geological Survey (USGS) 7.5-minute Topographic Map of Saint George, Georgia (Figure 1). The center of the site is located near latitude 30.537849 and longitude -82.099831. According to the USGS Topographic Map, the elevation at the site ranges from approximately 120 to 170 feet above mean sea level.

The western delineation area boundary follows a portion of Trail Ridge Road. The delineation area has historically been used for silvicultural activities. The primary sources of hydrology for the delineation area are onsite rainfall and surface water flow.

Driving directions to the site are as follows: from the intersection of GA-23 and GA-94 (in St. George, GA), travel west along GA-94 for approximately 6.93 miles to the intersection of GA-94 and Trail Ridge Road (dirt road). Turn north (right) onto Trail Ridge Road and the western boundary of the delineation area is located immediately east.

3.0 LITERATURE AND RECORDS REVIEW

Prior to conducting the field effort, TTL performed a literature and records review to develop an understanding of the potential for the presence of waters of the U.S. on the subject site or surrounding properties. These data sources and the review findings are described below.

3.1 Hydric Soils

The Natural Resources Conservation Service (NRCS) maintains a database of soil types (map units) for most areas of the U.S. (NRCS, 2017). The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit which represents a large area dominated by one or more major types of soil. Map units are further classified with a rating of hydric, partially hydric or non-hydric. Map units are useful for planning purposes to provide an overall understanding of the soils that occur in a general area. However, due to the natural variability of the landscape, direct observation of the soils profile is necessary to identify hydric soil indicators.

A classification of hydric means that the soil components listed for a given map unit are rated as being hydric. "Predominantly hydric" means that more than 66 percent to less than 100 percent of soil components are hydric. "Partially hydric" means that more than 33 percent to less than 65 percent of soil components are hydric. "Predominantly non-hydric" means that more than 0 percent and less than 32 percent of soil components are hydric. "Not hydric" means that all soil components are rated as not hydric. "Unknown hydric" indicates that at least one component is not rated so a definitive rating for the map unit cannot be made. A NRCS map of the soils located on the site with the associated hydric rating is presented in Figure 3 and summarized in Table 1 below.

Table 1: Soil Map Units Classifications

Map Unit Symbol	Description	Hydric Rating	Hydric Description
LeA	Leon fine sand, 0 to 2 percent slopes	97	Predominantly hydric
LvA	Lynn Haven fine sand, 0 to 2 percent slopes	90	Predominantly hydric
LYA	Lynn Haven, Allanton and Kingsferry soils, ponded, 0 to 1 percent slopes	97	Predominantly hydric
MaA	Mandarin fine sand, 0 to 2 percent slopes	6	Predominantly non- hydric
KJA	Kinston and Johnston soils, 0 to 2 percent slopes, frequently flooded	100	Hydric

3.2 National Wetland Inventory

The U.S. Fish and Wildlife Service (USFWS) created and maintains the National Wetland Inventory (NWI) database of information on the characteristics, extent, and status of the wetlands and deepwater habitats within the U.S. This information is useful for planning purposes and provides an overall understanding of the habitats that may be present in or around the site. The NWI classifies habitat types as marine, estuarine, riverine, lacustrine or palustrine with additional modifiers as appropriate to identify the water regime, water chemistry, soil or other characteristics based on *Classification of Wetlands and Deepwater Habitats of the U.S.* (Cowardin, 1979).

TTL reviewed the NWI data for the site using the USFWS NWI Wetlands Mapper web-based tool to determine the potential for wetlands to exist on the site. The USFWS NWI Mapper identified numerous wetland and stream features within the delineation area boundary. Figure 4 depicts the NWI Map, and Table 2 summarizes the habitat below.

Table 2: NWI Classifications

Map Unit Symbol	Description of Habitat
PFO1/4C	Palustrine; Forested; Broad-leaved Deciduous; Needle-Leaved Evergreen,
	Seasonally Flooded.
PFO1C	Palustrine; Forested; Broad-leaved Deciduous; Seasonally Flooded.
PF06/4C	Palustrine; Forested; Deciduous; Needle-Leaved Evergreen, Seasonally Flooded.
PF06F	Palustrine; Forested; Deciduous; Semipermanently Flooded.
R4SBC	Riverine; Intermittent; Streambed; Seasonally flooded.
R5UBH	Riverine; Unknown Perennial; Unconsolidated Bottom; Permanently Flooded.

3.3 Hydrologic Unit Code

The U.S. is divided and sub-divided into successively smaller hydrologic units which are classified into six levels: regions, sub-regions, accounting units, watershed, sub-watershed, and cataloging units. The hydrologic units are arranged within each other, from the smallest (cataloging unit) to the largest (regions). Each hydrologic unit is identified by a unique hydrologic unit code (HUC) consisting of two to 12 digits based on the six levels of classification in the hydrologic system (Seaber, Kapinos, Knapp, 1987). The site is located within the Boone Creek cataloging unit 12-Digit HUC 030702040603. This cataloging unit is located within the Middle Saint Mary's River sub-watershed, 10-Digit HUC 0307020406. The Middle Saint Mary's River sub-watershed is located within the St Mary's River watershed, 8-Digit HUC 03070204 (Figure 5).

3.4 Normal Weather Conditions

TTL calculates a subject site's normal weather conditions before performing site work to understand whether aquatic features in the landscape may exhibit certain characteristics related to current and near past hydrologic regime. TTL calculates data obtained from an on-line NRCS climactic database, Agricultural Applied Climate Information System (AgACIS), and derives its calculation method from the Tennessee Department of Environment and Conservation's guide for making hydrologic determinations (TDEC, 2011). An evaluation of weather conditions was performed for the three-month period prior to the field activities. Calculations for the site indicate that the weather conditions were drier than normal for the time of year that field work was performed.

The Palmer Drought Severity Index provided by National Oceanic and Atmospheric Administration (NOAA) is accessed at http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/palmer.html and was used to cross-reference the results calculated. The Palmer Drought Severity Index indicates that the region of the site experienced no drought conditions during the weeks prior to the site visit.

As an additional cross-reference, the U.S. Drought Monitor was accessed and evaluated. The U.S. Drought Monitor is produced through a partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture (USDA), and NOAA. The most recent update of the U.S. Drought Monitor (March 12, 2019) Map of Georgia exhibited no drought conditions in the vicinity of the review area.

The Normal Weather Conditions Table, AgACIS data, Palmer Drought Severity Index Map, and U.S Drought Monitor Map of Georgia are included in Appendix A.

4.0 WETLAND AND WATERS DELINEATION

4.1 Wetland Identification Methodology

TTL utilizes the *U.S. Army Corps of Engineers Wetland Delineation Manual* (USACE, 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region* (USACE, 2010) technical guidelines for determining the presence of wetlands. This determination requires that a positive wetland indicator be present for each of the three parameters (hydrology, soil, and vegetation), with the exception of areas altered by recent human activities or natural events. During field activities, TTL assessed the project area for the presence of hydrophytic vegetation and used a Dutch hand-auger to evaluate the project area for the presence of hydric soils. TTL examined the soil for hydric soil indicators as identified in the *Field Indicators of Hydric Soils in the United States, V. 8.1* (NRCS, 2017). Additionally, TTL observed the project area

for indications of inundated or saturated soils, water marks, drift lines, crayfish burrows, sediment deposits and other wetland hydrology indicators. TTL used *Wetland Determination Data Forms – Atlantic and Gulf Coastal Plain Region* (2010) to record field conditions for the soil, vegetation and hydrology for wetlands and uplands located on the site. At least one data point was established in each habitat type observed within the review area.

TTL traversed the delineation area on foot and placed orange flagging labeled with Upland Data Point (UDP) or Wetland Data Point (WDP) point identification at the data point location. The location of the data point flagging was mapped with a Trimble Geo7x Global Positioning System (GPS) unit, which was set to sub-meter tolerances. Field data was post-processed using Trimble PathfinderOffice V 5.3 and exported to ESRI's ArcMap 10.2. Area features were manually digitized in ArcGIS using the flag locations; geographic coordinates and area quantities were calculated using ArcGIS "area" function.

4.2 Wetland Findings

The delineation area contains five wetland areas (WA-WE) consisting of approximately 149.602 acres. The boundaries of the wetland areas and data point locations are depicted on Figure 6. Selected site photographs of our field observations are provided in Appendix B. Wetland Determination Data Forms are included in Appendix C. Table 3 summarizes the wetland findings below.

Table 3: Wetland Summary

Wetland ID	Cowardin Habitat Description	Area (acres)
WA	Palustrine; Forested; Broad-leaved Deciduous; Needle-Leaved Evergreen, Seasonally Flooded	105.552
WB	Palustrine; Forested; Broad-leaved Deciduous; Needle-Leaved Evergreen, Seasonally Flooded	8.915
WC	Palustrine; Forested; Broad-leaved Deciduous; Needle-Leaved Evergreen, Seasonally Flooded	2.555
WD	Riverine; Unknown Perennial; Unconsolidated bottom; Permanently flooded	15.568
WE	Palustrine; Forested; Deciduous; Needle- Leaved Evergreen, Seasonally Flooded	4.233
WF	Palustrine; Forested; Deciduous; Semipermanently Flooded	4.055
WG	Palustrine; Forested; Deciduous; Semipermanently Flooded	5.544
WH	Palustrine; Forested; Deciduous; Semipermanently Flooded	3.180

Wetland WA is the largest wetland within the delineation area. Wetland WA is located in the central portion of the delineation area. Wetland WD is located along the northwestern portion of the delineation area. Wetlands WB, WE, WF, WG and WH are located in the northern portion of the delineation area. Wetland WC is located in the southwestern portion of the delineation area. The soils textures within the wetland areas are comprised of a sand content that meets hydric soil indicator S8 – Stripped Matrix, and a peat/mucky mineral content that meets hydric soil indicator A7 - 5cm Mucky Mineral. The hydrology for this area is supported by localized stormwater and a shallow water table. The wetland vegetation communities within the delineation area vary from large areas of hipped and benched, planted pine habitat [dominated by slash pine (*Pinus elliottii*) whose growth has been stunted due to hydric conditions, inkberry (*Ilex glabra*), red maple (Acer rubrum), Carolina redroot (*Lachnanthes caroliniana*), loblolly bay (*Gordonia* lasianthus), broomsedge (*Andropogon virginicus*) and Virginia chain fern (*Woodwardia virginica*)], to forested pocosin habitat that exhibited few signs of silvicultural activities [dominated by pond cypress (*Taxodium ascendens*), swamp tupelo

(*Nyssa biflora*), large gallberry (*Ilex coriacea*), myrtle leaf holly (*Ilex myrtifolia*), manyhead rush (Juncus polycephalus) and Virginia chain fern.

4.3 Streams Identification and Methodology

TTL used the North Carolina Division of Water Quality – Methodology for Identification of Intermittent and Perennial Streams and Their Origins v. 4.11, September 1, 2010 (NC Method) technical guideline to determine the most appropriate classification of each subject stream. This technical guideline for stream identification is the preferred methodology for distinguishing between intermittent and perennial streams in the southeast United States and requires evaluation of 26 attributes of the stream and assigning a numeric score to each on the NC DWQ Stream Identification Form Version 4.11. A four-tiered, weighted scale is utilized for evaluating and scoring the features categorized in sets of geomorphic, hydrologic, and biological attributes. Additionally, TTL utilized the Regulatory Guidance Letter No. 05-05: Ordinary High Water Mark Identification (USACE, 2005) as the basis for the delineation, mapping, and linear footage/areal estimations of on-site streams.

Identified streams were mapped using the method described in Section 4.1. Stream Identification Forms (v. 4.11) were used to classify streams that were not clearly perennial (i.e. flowing water at greater than 48 hours since rainfall, strong morphology and obvious biological presence). TTL traversed the stream channels on foot and placed blue flagging labeled with stream data point identifications near the observed ordinary high water mark (OHWM). The locations of the boundary flags were mapped with a Trimble Geo7x Global Positioning System (GPS) unit, which was set to submeter tolerances. Field data was post-processed using Trimble Pathfinder Office V 5.3 and exported to ESRI's ArcMap 10.2. Area features were manually digitized in ArcGIS using the flag locations; geographic coordinates and area quantities were calculated using ArcGIS "area" function.

4.4 Stream and Ditch Findings

TTL identified eleven channels within the delineation area consisting of approximately 8,658 linear feet (1.454 acres) of channels (S-1-S-11). The channels consist of three non-jurisdictional ditches as well as ephemeral, intermittent, and perennial streams. These channels are located throughout the delineation area. Stream S-1 has an intermittent flow regime along one reach and ephemeral flow along another reach. Stream S-11 has an intermittent flow regime along one reach and perennial flow along another reach. All streams drain to Boone Creek. Table 4 summarizes the stream findings below.

Table 4: Stream and Ditch Summary

Stream ID	Cowardin Habitat Description	Length (linear feet)/ Area (acres)
S-1	Riverine; Perennial; Streambed; Mud	387/ 0.064
S-1	Riverine; Intermittent; Streambed; Mud	3,043/ 0.307
S-2	Ditch	3,239/ 0.265
S-3	Riverine; Intermittent; Streambed; Mud	2,161/ 0.156
S-4	Ditch	39/ 0.004
S-5	Riverine; Intermittent; Streambed; Mud	638/ 0.052
S-6	Riverine; Intermittent; Streambed; Mud	646/ 0.055
S-6A	Riverine; Intermittent; Streambed; Mud	486/0.027
S-7	Riverine; Intermittent; Streambed; Mud	755/ 0.053
S-8	Ditch	524/ 0.065
S-9	Ditch	3,530/ 0.363
S-10	Riverine; Intermittent; Streambed; Mud	198/ 0.019
S-11i	Riverine; Intermittent; Streambed; Mud	71/ 0.005
S-11e	Riverine; Ephemeral; Streambed; Mud	273/0.019

4.5 Jurisdictional Determination Request

The USACE has the sole authority to determine whether wetlands or water features are "jurisdictional." Under certain circumstances, wetland areas are considered non-jurisdictional because they lack a significant nexus with other wetlands or waters of the U.S. TTL utilized the USACE Jurisdictional Determination Form Instructional Guidebook (USACE and EPA, 2007) to complete a SAS APPENDIX 1: Request for Corps of Engineers Jurisdictional Determination (JD) and/or Delineation Review Form (Appendix E).

It is TTL's opinion that with the exception of the ditches (S-2, S-4, S-8, S-9), all observed tributaries and wetlands within the delineation area are jurisdictional features due to their significant nexus to nearby relatively permanent waters. Copies of tables of the aquatic features details and flag locations are also included in Appendix E. The ditches that occur within wetlands have been included and calculated as part of the wetland total acreage.

TTL recommends that a delineation review of aquatic resources of the potentially jurisdictional site features be requested from the USACE Savannah District. If the USACE is not engaged regarding a jurisdictional determination or delineation review of aquatic resources, TTL is neither responsible for the final determination of jurisdictional features within the review corridor, nor responsible for

violations associated with unauthorized activities that may occur within areas deemed jurisdictional by the USACE at a later time.

5.0 CONCLUSIONS

- Approximately 149.602 acres of forested wetland were identified within the delineation area.
- Approximately 387 linear feet (0.064 acres) of perennial stream were identified within the delineation area.
- Approximately 7,998 linear feet (0.674 acres) of intermittent stream were identified within the delineation area.
- Approximately 273 linear feet (0.019 acre) of ephemeral stream were identified within the delineation area.
- Approximately 7,332 linear feet (0.697 acre) of non-jurisdictional ditches were identified within the delineation area.
- Upon approval by the client, TTL will submit a request for a delineation review of aquatic resources from the USACE of all aquatic features within the delineation area.

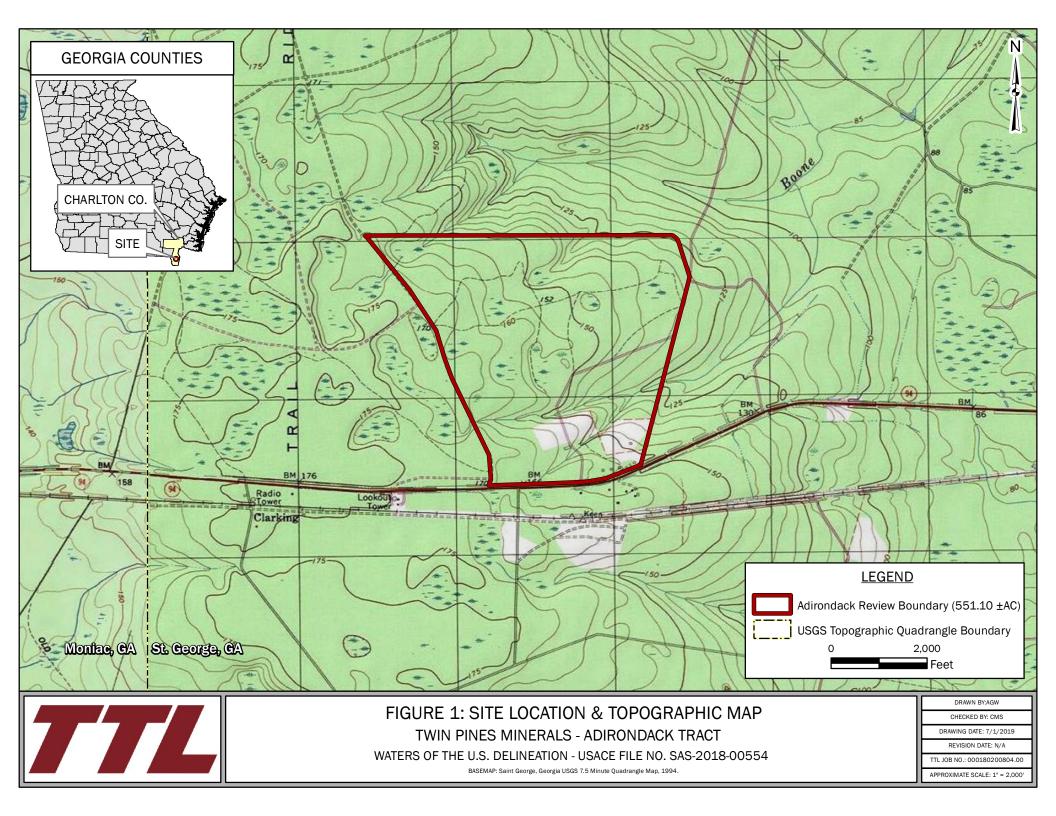
5.0 REFERENCES

- Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. *Classification of wetlands and deepwater habitats of the United States*. U. S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Home Page. http://www.npwrc.usgs.gov/resource/1998/classwet/classwet.html (Version 04DEC98).
- NC Division of Water Quality. 2010. *Methodology for Identification of Intermittent a Perennial Streams and their Origins*, Version 4.11. North Carolina Department of Environment and Natural Resources, Division of Water Quality. Raleigh, NC.
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FIGURES

Figure 1	Site Location and Topographic Map
Figure 2	Site Location & Aerial Photograph
Figure 3	Natural Resources Conservation Service (NRCS) Soil Map w/Hydric Rating
Figure 4	National Wetland Inventory (NWI) Classification Map
Figure 5	Hydrologic Unit Code (HUC) Map
Figure 6	Waters of the U.S. Delineation Map



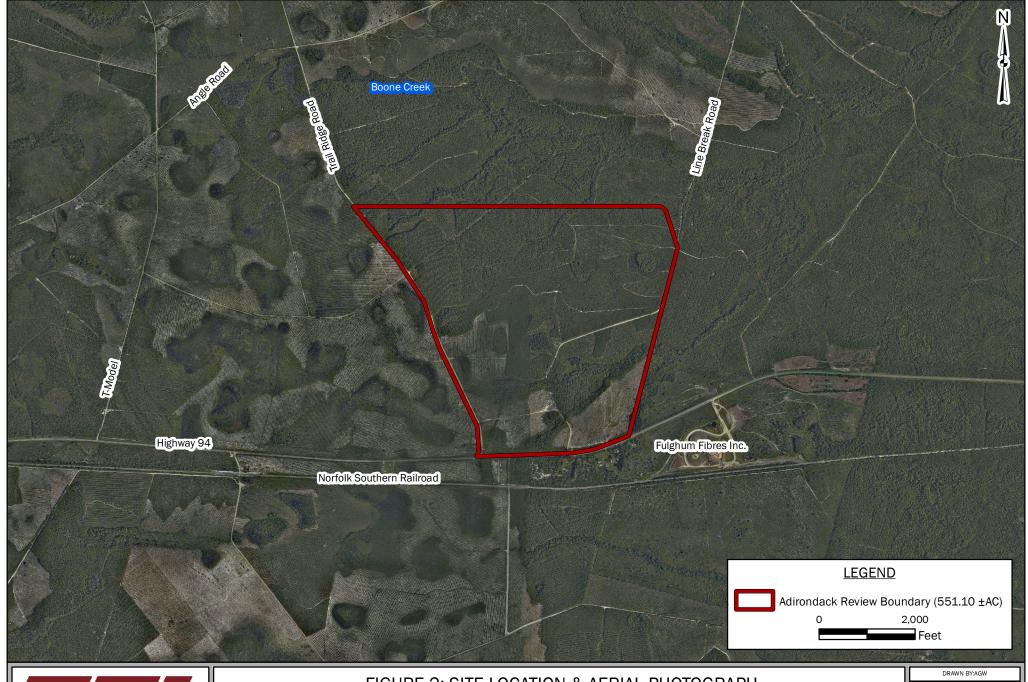




FIGURE 2: SITE LOCATION & AERIAL PHOTOGRAPH TWIN PINES MINERALS - ADIRONDACK TRACT

WATERS OF THE U.S. DELINEATION - USACE FILE NO. SAS-2018-00554

BASEMAP: Twin Pines Ortho Imagery, 09/2018.

CHECKED BY: CMS

DRAWING DATE: 7/1/2019

REVISION DATE: N/A

TTL JOB NO.: 000180200804.00

APPROXIMATE SCALE: 1" = 2,000'

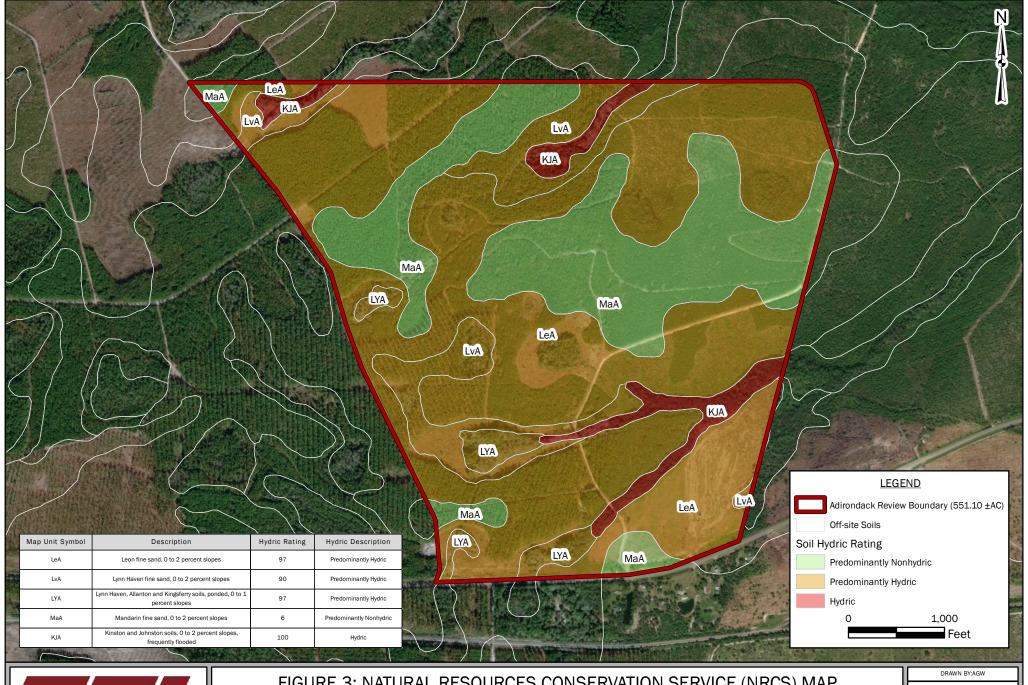




FIGURE 3: NATURAL RESOURCES CONSERVATION SERVICE (NRCS) MAP WITH HYDRIC RATING

TWIN PINES MINERALS - ADIRONDACK TRACT

WATERS OF THE U.S. DELINEATION - USACE FILE NO. SAS-2018-00554

CHECKED BY: CMS

DRAWING DATE: 7/1/2019 REVISION DATE: N/A

TTL JOB NO.: 000180200804.00

APPROXIMATE SCALE: 1" = 1,000'

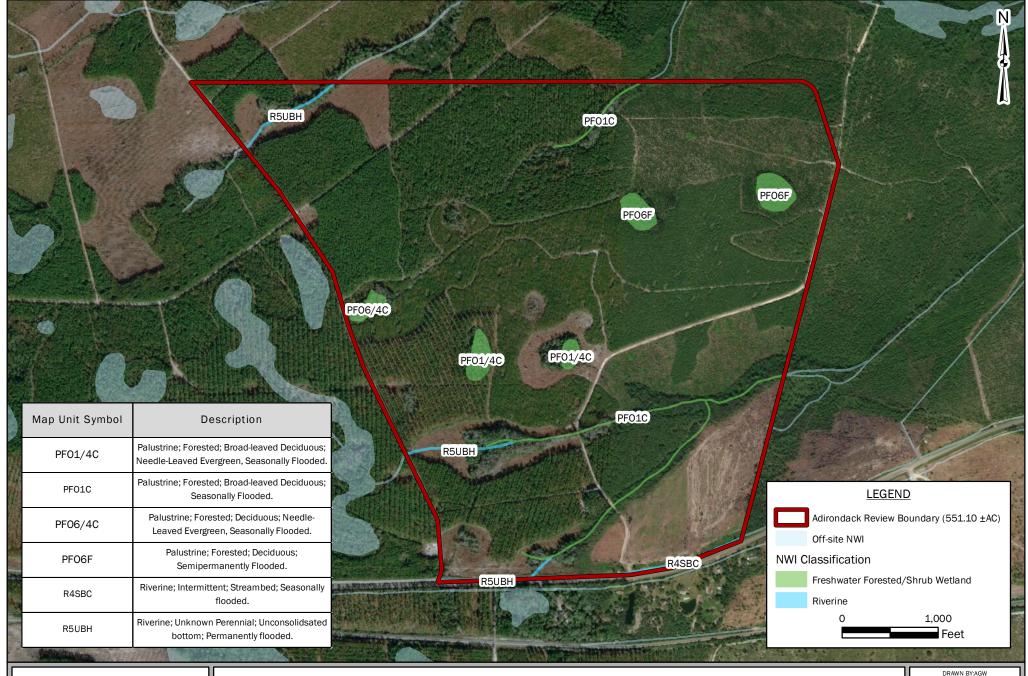




FIGURE 4: NATIONAL WETLAND INVENTORY (NWI) MAP
TWIN PINES MINERALS - ADIRONDACK TRACT

WATERS OF THE U.S. DELINEATION - USACE NO. SAS-2018-00554

BASEMAP: DigitalGlobe, 1/24/2017 & 9/17/2017.

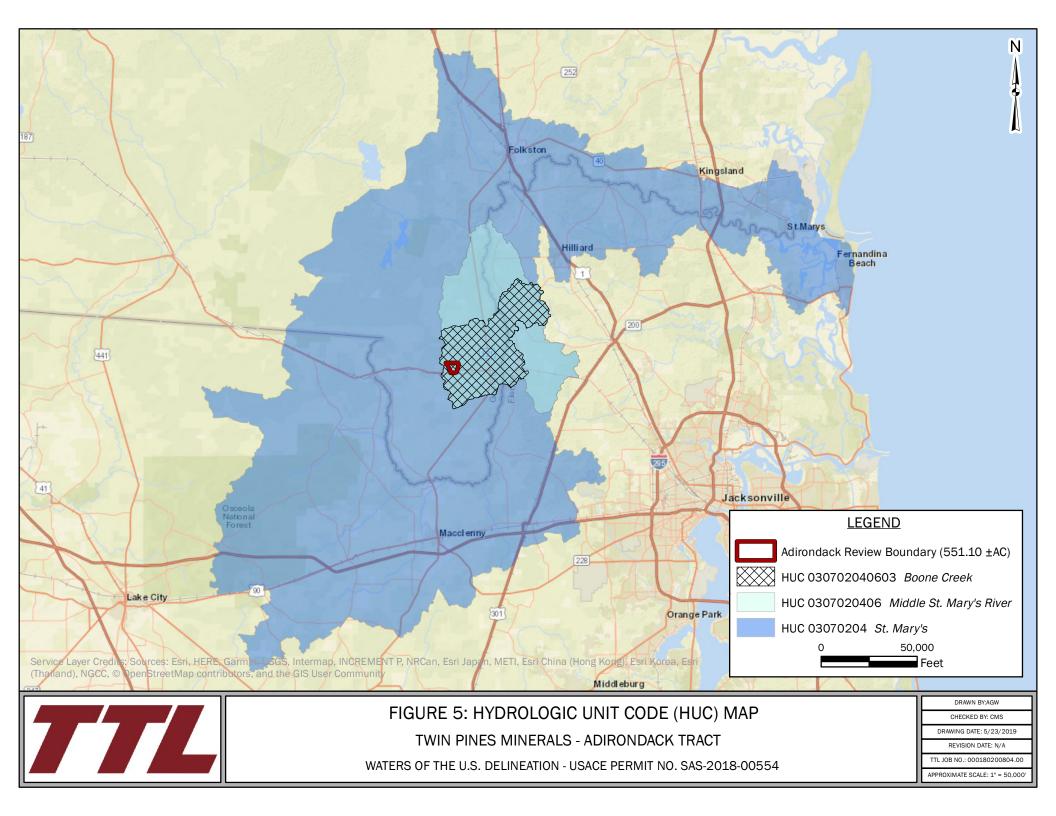
DRAWN BY:AGW
CHECKED BY: CMS

DRAWING DATE: 7/1/2019

REVISION DATE: N/A

TTL JOB NO.: 000180200804.00

APPROXIMATE SCALE: 1" = 1.000'



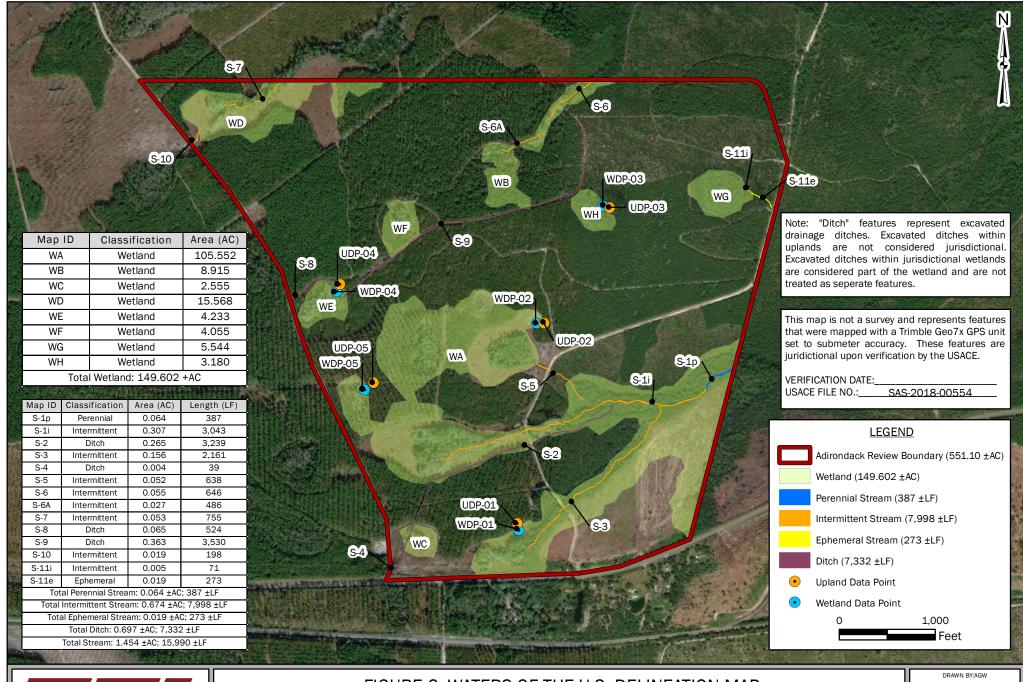




FIGURE 6: WATERS OF THE U.S. DELINEATION MAP
TWIN PINES MINERALS - ADIRONDACK TRACT

WATERS OF THE U.S. DELINEATION - USACE PERMIT NO. SAS-2018-00554

BASEMAP: DigitalGlobe, 1/24/2017 & 9/17/2017.

CHECKED BY: CMS

DRAWING DATE: 7/1/2019

REVISION DATE: N/A

TTL JOB NO.: 000180200804.00

APPROXIMATE SCALE: 1" = 1,000'

APPENDIX A

Normal Weather Conditions Table AgACIS Data Palmer Drought Index U.S. Drought Monitor – Georgia

Calculation of Normal Weather Conditions General Project Location: Folkston, Georgia Analysis for March 2019 Site Visits

			Long-Term Rainfall Records							
			Minus One		Plus One					
			Standard		Standard		Condition		Month	
		Standard	Deviation	Normal* (Mean	Deviation	Actual	(wet, normal,	Condition	Weight	Weighted
	Month	Deviation*	(Dry)	Inches)	(Wet)	Rainfall**	dry)	Value***	Value	Value
1st prior month	2/8/2019 - 3/8/2019	1.89	1.79	3.68	5.57	1.58	Dry	1	3	3
2nd prior month	1/7/2019 - 2/7/2019	2.48	1.04	3.52	6.00	2.07	Normal	2	2	4
3rd prior month	12/6/2018 - 1/6/2019	1.68	1.32	3.00	4.68	2.18	Normal	2	1	2
			<u>. </u>						Sum:	9

Sum:	Conclusion:
6-9	prior period has been drier than normal
10-14	prior period has been normal
15-18	prior period has been wetter than normal

^{*} Standard Deviation and Mean Values can be found through the National Oceanic and Atmospheric Associations Earth System Research Laboratory: http://www.esrl.noaa.gov/psd/data/usstation/

^{**} Rainfall data can be found through AgACIS

^{***} Condition Values: 1 = dry, 2 = normal, 3 = wet

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2018-12-01	72	46	59.0	19	9	0.12	М	М
2018-12-02	M	M	M	М	М	М	М	М
2018-12-03	М	М	M	М	М	М	М	М
2018-12-04	М	М	М	М	М	М	М	М
2018-12-05	64	42	53.0	13	3	0.00	М	М
2018-12-06	56	38	47.0	7	0	0.00	М	М
2018-12-07	М	М	M	М	М	М	М	М
2018-12-08	М	М	М	М	М	М	М	М
2018-12-09	66	54	60.0	20	10	0.91	М	М
2018-12-10	73	43	58.0	18	8	0.02	М	М
2018-12-11	М	М	M	М	М	М	М	М
2018-12-12	55	39	47.0	7	0	0.00	М	М
2018-12-13	61	45	53.0	13	3	0.00	М	М
2018-12-14	67	45	56.0	16	6	0.86	М	М
2018-12-15	М	М	M	М	М	М	М	М
2018-12-16	68	51	59.5	20	10	0.06	М	М
2018-12-17	М	М	M	М	М	М	М	М
2018-12-18	M	M	M	М	М	М	М	М
2018-12-19	65	44	54.5	15	5	0.00	М	М
2018-12-20	64	52	58.0	18	8	0.02	М	М
2018-12-21	64	56	60.0	20	10	0.15	М	М
2018-12-22	М	М	М	М	М	М	М	М
2018-12-23	М	М	M	М	М	М	М	М
2018-12-24	64	47	55.5	16	6	0.00	М	М
2018-12-25	М	М	М	М	М	М	М	М
2018-12-26	64	44	54.0	14	4	0.00	М	М
2018-12-27	66	52	59.0	19	9	0.00	М	М
2018-12-28	М	М	М	М	М	М	М	М
2018-12-29	М	М	M	М	М	М	М	М
2018-12-30	79	61	70.0	30	20	0.01	М	М
2018-12-31	М	М	M	М	М	М	М	М
Average Sum	65.5	47.4	56.5	265	111	2.15	М	М

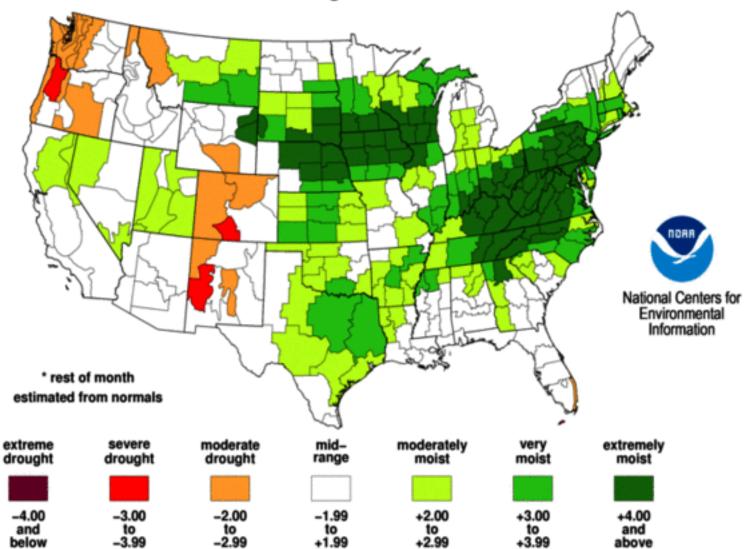
Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2019-01-01	М	М	М	М	М	М	М	М
2019-01-02	M	М	M	М	М	М	М	М
2019-01-03	77	62	69.5	30	20	0.00	М	М
2019-01-04	76	63	69.5	30	20	0.15	М	М
2019-01-05	M	М	M	М	М	М	М	М
2019-01-06	M	М	M	М	М	M	М	М
2019-01-07	M	М	M	М	М	М	М	М
2019-01-08	75	52	63.5	24	14	0.00	М	М
2019-01-09	M	М	M	М	М	М	М	М
2019-01-10	61	42	51.5	12	2	0.00	М	М
2019-01-11	M	М	M	М	М	М	М	М
2019-01-12	62	35	48.5	9	0	Т	М	М
2019-01-13	M	М	M	М	М	М	М	М
2019-01-14	М	М	М	М	М	М	М	М
2019-01-15	52	47	49.5	10	0	0.00	М	М
2019-01-16	М	М	М	М	М	М	М	М
2019-01-17	M	М	M	М	М	М	М	М
2019-01-18	67	48	57.5	18	8	0.00	М	М
2019-01-19	M	М	M	М	М	М	М	М
2019-01-20	M	M	M	М	М	М	М	М
2019-01-21	M	М	M	М	М	М	М	М
2019-01-22	M	M	M	М	М	М	М	М
2019-01-23	66	48	57.0	17	7	0.01	М	М
2019-01-24	78	58	68.0	28	18	1.60	М	М
2019-01-25	М	М	M	М	М	М	М	М
2019-01-26	М	М	М	М	М	М	М	М
2019-01-27	57	44	50.5	11	1	0.00	М	М
2019-01-28	М	М	М	М	М	М	М	М
2019-01-29	М	М	М	М	М	М	М	М
2019-01-30	М	М	М	М	М	0.03	М	М
2019-01-31	47	34	40.5	1	0	0.00	М	М
Average Sum	65.3	48.5	56.9	190	90	1.79	М	М

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2019-02-01	М	М	М	М	М	М	М	М
2019-02-02	61	52	56.5	17	7	0.19	М	М
2019-02-03	М	M	М	М	М	М	М	М
2019-02-04	64	55	59.5	20	10	0.24	М	М
2019-02-05	70	50	60.0	20	10	0.00	М	М
2019-02-06	M	M	M	М	М	М	М	М
2019-02-07	М	M	M	М	М	М	М	М
2019-02-08	М	M	М	М	М	М	М	М
2019-02-09	М	M	M	М	М	М	М	М
2019-02-10	M	M	M	М	М	М	М	М
2019-02-11	М	M	M	М	М	М	М	М
2019-02-12	M	М	M	М	М	0.00	М	М
2019-02-13	82	50	66.0	26	16	0.13	М	М
2019-02-14	M	M	M	М	М	М	М	М
2019-02-15	M	M	M	М	М	М	М	М
2019-02-16	73	41	57.0	17	7	0.00	М	М
2019-02-17	M	M	M	М	М	М	М	М
2019-02-18	M	М	M	М	М	М	М	М
2019-02-19	М	M	М	М	М	М	М	М
2019-02-20	79	51	65.0	25	15	0.07	М	М
2019-02-21	М	M	М	М	М	М	М	М
2019-02-22	М	М	М	М	М	М	М	М
2019-02-23	М	M	М	М	М	М	М	М
2019-02-24	М	М	М	М	М	М	М	М
2019-02-25	М	M	М	М	М	М	М	М
2019-02-26	М	М	М	М	М	М	М	М
2019-02-27	М	М	М	М	М	М	М	М
2019-02-28	74	57	65.5	26	16	0.13	М	М
Average Sum	71.9	50.9	61.4	151	81	0.76	М	М

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2019-03-01	М	М	М	М	М	М	М	М
2019-03-02	76	59	67.5	28	18	0.96	М	М
2019-03-03	М	М	M	М	М	М	М	М
2019-03-04	81	53	67.0	27	17	0.29	М	М
2019-03-05	М	М	M	М	М	М	М	М
2019-03-06	M	М	M	М	М	М	М	М
2019-03-07	М	М	M	М	М	М	М	М
2019-03-08	M	М	M	М	М	М	М	М
2019-03-09	78	52	65.0	25	15	0.00	М	М
2019-03-10	83	61	72.0	32	22	0.00	М	М
2019-03-11	M	М	M	М	М	М	М	М
2019-03-12	М	М	М	М	М	М	М	М
2019-03-13	86	54	70.0	30	20	0.00	М	М
2019-03-14	M	M	M	М	М	М	М	М
2019-03-15	М	М	M	М	М	М	М	М
2019-03-16	М	М	М	М	М	М	М	М
2019-03-17	М	М	M	М	М	М	М	М
2019-03-18	M	M	M	М	М	М	М	М
2019-03-19	M	М	M	М	М	М	М	М
2019-03-20	M	M	M	М	М	М	М	М
2019-03-21	M	М	M	М	М	М	М	М
2019-03-22	М	М	М	М	М	М	М	М
2019-03-23	M	М	М	М	М	М	М	М
2019-03-24	M	M	M	М	М	М	М	М
2019-03-25	М	М	М	М	М	М	М	М
2019-03-26	М	М	М	М	М	М	М	М
2019-03-27	M	М	M	М	М	М	М	М
2019-03-28	М	М	М	М	М	М	М	М
2019-03-29	М	М	M	М	М	М	М	М
2019-03-30	М	М	М	М	М	М	М	М
2019-03-31	М	М	M	М	М	М	М	М
Average Sum	80.8	55.8	68.3	142	92	1.25	М	М

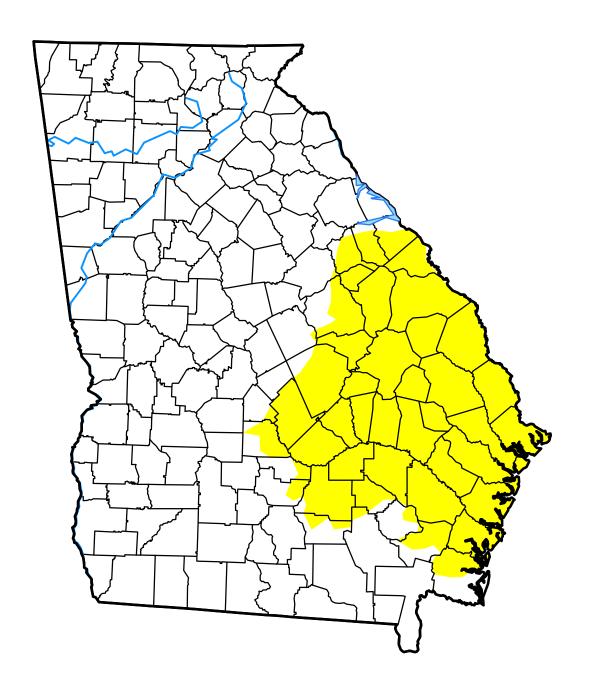
Palmer Hydrological Drought Index Long-Term (Hydrological) Conditions

March 2019: through March 9 2019*



U.S. Drought Monitor

Georgia



March 12, 2019

(Released Thursday, Mar. 14, 2019)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	72.77	27.23	0.00	0.00	0.00	0.00
Last Week 03-05-2019	98.19	1.81	0.00	0.00	0.00	0.00
3 Months Ago 12-11-2018	100.00	0.00	0.00	0.00	0.00	0.00
Start of Calendar Year 01-01-2019	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year 09-25-2018	70.95	29.05	6.72	0.00	0.00	0.00
One Year Ago 03-13-2018	31.80	68.20	51.71	7.46	0.00	0.00

Intensity:

D0 Abnormally Dry
D3 Extreme Drought
D1 Moderate Drought
D2 Severe Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

Jessica Blunden NCEI/NOAA









http://droughtmonitor.unl.edu/

APPENDIX B

Site Photographs



Photograph 1: View of perennial Stream 1 (S1).



Photograph 2: View of non-jurisdictional ditch (S2).





Photograph 3: View of intermittent Stream 3 (S3).



Photograph 4: View of non-jurisdictional ditch (S4).





Photograph 5: View of intermittent Stream 5 (S5).



Photograph 6: View of intermittent Stream 6 (S6).





Photograph 7: View of intermittent Stream 7 (S7).



Photograph 8: View of non-jurisdictional ditch (S8).





Photograph 9: View of non-jurisdictional ditch (S9).



Photograph 10: View of intermittent Stream 10 (S10).





Photograph 11: View of ephemeral portion of Stream 11 (S11).



Photograph 12: View of intermittent portion of Stream 11 (S11).





Photograph 13: View of the Wetland Data Point 1 (WDP-1) location.



Photograph 14: View of the Upland Data Point 1 (UDP-1) location.





Photograph 15: View of the Wetland Data Point 2 (WDP-2) location.



Photograph 16: View of the Upland Data Point 2 (UDP-2) location.





Photograph 17: View of the Wetland Data Point 3 (WDP-3) location.



Photograph 18: View of the Upland Data Point 3 (UDP-3) location.





Photograph 19: View of the Wetland Data Point 4 (WDP-4) location.



Photograph 20: View of the Upland Data Point 4 (UDP-4) location.





Photograph 21: View of the Wetland Data Point 5 (WDP-5) location.



Photograph 22: View of the Upland Data Point 5 (UDP-5) location.



APPENDIX C U.S. Army Corps of Engineers Wetland Determination Data Forms

Project/Site: Adirondack Tract	_ City/County: Charlto	on County	Sampling Date: <u>03/22/2019</u>
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: UDP-1
Investigator(s): C. Terrell / C. Stanford (TTL)	_ Section, Township, Ra	ange: Not Available	
Landform (hillslope, terrace, etc.): Flatwoods	_ Local relief (concave,	convex, none): None	Slope (%): 0-2%
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.5	191001892089	Long:82.098098754882	Datum: NAD83
Soil Map Unit Name: Leon fine sand, 0 to 2 percent slopes		NWI classific	ation: none
Are climatic / hydrologic conditions on the site typical for this time of	year? Yes No _	✓ (If no, explain in R	emarks.)
Are Vegetation $\underline{\underline{\text{Yes}}}$, Soil $\underline{\underline{\text{Yes}}}$, or Hydrology $\underline{\underline{\text{Yes}}}$ significant	ly disturbed? Are	"Normal Circumstances" p	oresent? Yes No
Are Vegetation No , Soil No , or Hydrology No naturally p		needed, explain any answe	
SUMMARY OF FINDINGS – Attach site map showing			
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: - Vegetation historically impacted by silvicultural active Soils/Hydrology historically impacted by silvicultural		and? Yes	No <u> </u>
- Drier than normal, but not drought conditions.			
HYDROLOGY			
Wetland Hydrology Indicators:			tors (minimum of two required)
Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9)	B13) B15) (LRR U) e Odor (C1) spheres along Living Rod duced Iron (C4) luction in Tilled Soils (C6) ace (C7)	Drainage Par Moss Trim Li ots (C3) Dry-Season \ Crayfish Buri 6) Saturation Vi Geomorphic Shallow Aqui FAC-Neutral	getated Concave Surface (B8) tterns (B10) nes (B16) Water Table (C2) rows (C8) sible on Aerial Imagery (C9) Position (D2) ttard (D3)
Field Observations:	,		
Surface Water Present? Yes No Depth (inche Water Table Present? Yes No Depth (inche Present)	20		
Saturation Present? Yes No Depth (inche (includes capillary fringe)		etland Hydrology Presen	t? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial pho	otos, previous inspection	ns), if available:	
Remarks: FAC-Neutral Test Results: Negative FACW and C	DBL: 1 to FACU and	d UPL: 2	

	Absolute		Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>) 1		Species?		Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant Species Across All Strata: 4 (B)
4				
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)
6.				That Ale OBE, I AOW, OI I AO.
7.				Prevalence Index worksheet:
50% of total cover: 35.00 20% of total cover: 14.00 Sapling Stratum (30 ft radius)	0.0	= Total Co	over	Total % Cover of: Multiply by: OBL species x 1 =
1. Pinus elliottii	30.0	ves	FACW	FACW species 30 $\times 2 = 60$
2.				FAC species 20 x 3 = 60
				FACU species 20 x 4 = 80
3				UPL species x 5 =
4				70 000
5				Column Totals:
6				Prevalence Index = B/A =2.85
7				Hydrophytic Vegetation Indicators:
50% of total cover: 15.00 20% of total cover: 6.00 Shrub Stratum (30 ft radius)	30.0	= Total Co	over	1 - Rapid Test for Hydrophytic Vegetation
· · · · · · · · · · · · · · · · · · ·				2 - Dominance Test is >50%
1				$\sqrt{3}$ - Prevalence Index is $\leq 3.0^{1}$
2				Problematic Hydrophytic Vegetation¹ (Explain)
3				
4				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5				Бо р. сост.,
6				
7				Definitions of Vegetation Strata:
50% of total cover: 20% of total cover:	0.0	= Total Co	over	_
Herb Stratum (30 ft radius)			540	Tree – Woody plants, excluding woody vines,
1. Andropogon virginicus		_yes	FAC	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast
2. Smilax auriculata	<u>10.0</u>	yes	FACU	height (DBH).
3. Dichanthelium aciculare	_ <u>10.0</u>	_yes	<u>FACU</u>	
4. Eleocharis sp.		_no	<u>NI</u>	Sapling – Woody plants, excluding woody vines,
5				approximately 20 ft (6 m) or more in height and less
6				than 3 in. (7.6 cm) DBH.
7				
8				Shrub – Woody plants, excluding woody vines,
9				approximately 3 to 20 ft (1 to 6 m) in height.
10				Herb – All herbaceous (non-woody) plants, including
11.				herbaceous vines, regardless of size AND
12.				woody plants, except woody vines, less than
50% of total cover: 22.50 20% of total cover: 9.00 Woody Vine Stratum (30 ft radius)	45.0	= Total Co	over	approximately 3 ft (1 m) in height.
1				Woody vine – All woody vines, regardless of height.
2.				
3				
4				Hydrophytic
5 50% of total cover: 20% of total cover:	0.0	= Total Co	over	Vegetation Present? Yes No
Remarks: (If observed, list morphological adaptations be	low). *Plants	not idendi	fied to spec	lies are not used in dominance calculations.

Indicators of hydrology and hydric soils were not observed although the prevalence index was less than 3.

SOIL Sampling Point: UDP-1

Profile Desc	ription: (Describe	to the dept	h needed to docur	nent the	indicator o	r confirm	the absen	ce of indicato	ors.)	
Depth	Matrix			x Feature						
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	_	Remarks	
0-18"	10YR 3/1	60					Sa		I sand graii	
	10YR 6/1	40					Sa	unmask	ed sand gi	ains
						-		_		
				-				_		
				-						
		oletion, RM=	Reduced Matrix, M	S=Masked	d Sand Gra	ins.		Location: PL: ors for Proble		
Hydric Soil I			Dalamaka Da	l 0 ((00) (1.5				-	3011S :
Histosol	(A1) pipedon (A2)		Polyvalue Be Thin Dark Su					n Muck (A9) (I n Muck (A10)	,	
Black Hi			Loamy Muck							MLRA 150A,B)
	n Sulfide (A4)		Loamy Gleye			,) (LRR P, S, T)
	Layers (A5)		Depleted Ma	trix (F3)				malous Bright	Loamy Soils	(F20)
	Bodies (A6) (LRR I		Redox Dark					/ILRA 153B)	/===:	
	icky Mineral (A7) (L esence (A8) (LRR I		Depleted Da Redox Depre					l Parent Mater y Shallow Darl		12)
	ick (A9) (LRR P, T)	J)	Marl (F10) (L		0)			er (Explain in		12)
	d Below Dark Surface	ce (A11)	Depleted Oc		(MLRA 15	1)	0111	ei (Expiaiii iii	ixemarks)	
	ark Surface (A12)		Iron-Mangar				, T) 3 _{ln}	dicators of hyd	Irophytic vege	tation and
			Umbric Surfa			U)	١	wetland hydrol		
	lucky Mineral (S1) (LRR O, S)	Delta Ochric			A 150D)		unless distur	bed or proble	matic.
	edox (S5)		Reduced Ve							
	Matrix (S6)		Anomalous E					3C, 153D)		
	rface (S7) (LRR P,	S, T, U)				, ,		,		
Restrictive I	ayer (if observed)):								
Туре:										,
Depth (inc							Hydric S	oil Present?	Yes	No
Remarks: *S	oil abbreviations: C	CI=Clay; Lo=	Loam; Mu=Muck;	Pe- Peat	; Sa= Sand	d; Si=Silt				

Project/Site: Adirondack Tra	ct	City/C	ounty: Charlton Co	unty	Sampling Date: <u>03/22/2019</u>
Applicant/Owner: Twin Pines	Minerals, LLC			State: GA	Sampling Point: UDP-2
Investigator(s): C. Terrell / C.	Stanford (TTL)	Section	on, Township, Range: <u>I</u>	Not Available	
Landform (hillslope, terrace, etc.)	Flatwoods	Local	relief (concave, convex	x, none): None	Slope (%): 0-2%
Subregion (LRR or MLRA): LRR	T / MLRA 153A	Lat: _30.52490043	364013 Long:	-82.097198486328	Datum: NAD83
Soil Map Unit Name: Leon fine s	and, 0 to 2 percent	slopes		NWI classific	cation: none
Are climatic / hydrologic condition	s on the site typical	for this time of year? Y	es No	(If no, explain in R	Remarks.)
Are Vegetation Yes, Soil Yes	, or Hydrology Y	es significantly distur	bed? Are "Norm	al Circumstances" r	oresent? Yes ✓ No
Are Vegetation No , Soil No				explain any answe	
					s, important features, etc.
Hydrophytic Vegetation Present Hydric Soil Present? Wetland Hydrology Present? Remarks: - Vegetation historically in	Yes Yes		• •	Yes	No
- Soils/Hydrology historic - Drier than normal, but r			es (bedding for pia	anted pine).	
HYDROLOGY					
Wetland Hydrology Indicators	:			Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Water-Stained Leaves (B9)		eck all that apply) Aquatic Fauna (B13) Marl Deposits (B15) (LR Hydrogen Sulfide Odor (Oxidized Rhizospheres of Reduced Interest Iron Reduction in Thin Muck Surface (C7) Other (Explain in Remains)	C1) along Living Roots (C3) on (C4) n Tilled Soils (C6)	Drainage Pa Moss Trim L Dry-Season Crayfish Bur Saturation V Geomorphic Shallow Aqu FAC-Neutral	getated Concave Surface (B8) tterns (B10) ines (B16) Water Table (C2) rows (C8) isible on Aerial Imagery (C9) Position (D2) itard (D3)
	Ves No ✓	Depth (inches):			
Water Table Present?	Yes ✓ No	Depth (inches): 21			
	Yes No No		Wetland	Hydrology Preser	nt? Yes No
Describe Recorded Data (stream	m gauge, monitorino	g well, aerial photos, pre	vious inspections), if av	vailable:	
Remarks: FAC-Neutral Test Res	ults: Negative	FACW and OBL: 1	to FACU and UPL:	4	

00.0	Absolute	Dominant		Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>)		Species?		Number of Dominant Species
1. Pinus elliottii	60.0	_yes	FACW	That Are OBL, FACW, or FAC: 1 (A)
2				Total Number of Dominant
3				Species Across All Strata: 3 (B)
4.				(=/
				Percent of Dominant Species That Are OBL_FACW_or FAC: 33% (A/B)
5				That Are OBL, FACW, or FAC: 33% (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
50% of total cover: 30.00 20% of total cover: 12.00	60.0	= Total Co	over	
Sapling Stratum (30 ft radius)				OBL species x 1 =
1				FACW species <u>60</u> x 2 = <u>120</u>
2				FAC species x 3 =
3				FACU species <u>80</u> x 4 = <u>320</u>
4				UPL species x 5 =
5				Column Totals: <u>140</u> (A) <u>440</u> (B)
6				Prevalence Index = B/A = 3.14
7				Hydrophytic Vegetation Indicators:
50% of total cover: 20% of total cover: Shrub Stratum (30 ft radius)	_0.0	= Total Co	ver	1 - Rapid Test for Hydrophytic Vegetation
1. Serenoa repens	50.0	yes	FACU	2 - Dominance Test is >50%
-				3 - Prevalence Index is ≤3.0 ¹
2. Vaccinium myrsinites	10.0	<u>no</u>	<u>FACU</u>	I
3				Problematic Hydrophytic Vegetation ¹ (Explain)
4				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5				be present, unless disturbed of problematic.
6				
7.				Definitions of Vegetation Strata:
50% of total cover: 30.00 20% of total cover: 12.00	60.0	= Total Co		Ü
Herb Stratum (30 ft radius)		- Total Oc	7701	Tree – Woody plants, excluding woody vines,
1. Smilax smallii	10.0	yes	FACU	approximately 20 ft (6 m) or more in height and
2. Smilax auriculata	10.0	yes	FACU	3 in. (7.6 cm) or larger in diameter at breast
				height (DBH).
3				
4				Sapling – Woody plants, excluding woody vines,
5				approximately 20 ft (6 m) or more in height and less
6				than 3 in. (7.6 cm) DBH.
7				
8				Shrub – Woody plants, excluding woody vines,
9.				approximately 3 to 20 ft (1 to 6 m) in height.
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12 50% of total cover: 10.00 20% of total cover: 4.00				woody plants, except woody vines, less than
	20.0	= Total Co	over	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				Moody vino
1				Woody vine – All woody vines, regardless of height.
2				
3				
4				
F				Hydrophytic
50% of total cover: 20% of total cover:	0.0	= Total Co		Vegetation Present? Yes No _✓
Remarks: (If observed, list morphological adaptations be	elow). *Plants	not idendif	fied to spec	cies are not used in dominance calculations.
			•	

SOIL Sampling Point: UDP-2

Profile Desc	ription: (Describe	to the dept	h needed to docur	nent the i	ndicator o	or confirm	the absen	ce of indicators.)	
Depth	Matrix			x Feature			_		
(inches) 0-6"	Color (moist)		Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	
<u>U-0</u>	10YR 3/1	_ 50					Sa	masked sand grain	-
0.40"	10YR 7/1	_ <u>50</u> .					Sa	unmasked sand gra	ains
6-16"	10YR 7/1	_ 100		·	-		Sa	_	
16-18"	10YR 3/3	100					Sa	spodic horizon	
							-		
		oletion, RM=	Reduced Matrix, MS	S=Masked	Sand Gra	ins.		Location: PL=Pore Lining, N	
Hydric Soil I	ndicators:							ors for Problematic Hydric	Soils ³ :
Histosol	` '		Polyvalue Be					n Muck (A9) (LRR O)	
Histic Ep	pipedon (A2)		Thin Dark Su Loamy Muck					n Muck (A10) (LRR S) luced Vertic (F18) (outside l '	MI RA 150A B)
	n Sulfide (A4)		Loamy Gleye			0)		dmont Floodplain Soils (F19)	
	Layers (A5)		Depleted Ma		/			malous Bright Loamy Soils (
Organic	Bodies (A6) (LRR I	P, T, U)	Redox Dark	Surface (F	- 6)		(M	ILRA 153B)	
	cky Mineral (A7) (L		Depleted Dar					Parent Material (TF2)	
	esence (A8) (LRR I ck (A9) (LRR P, T)	J)	Redox Depre Marl (F10) (L		8)			/ Shallow Dark Surface (TF1	2)
	l Below Dark Surfa	ce (A11)	Nan (F10) (L		(MLRA 15	1)	Oth	er (Explain in Remarks)	
	rk Surface (A12)	(* (*)	Iron-Mangar				, T) 3 _{Inc}	dicators of hydrophytic veget	ation and
) Umbric Surfa	ce (F13)	(LRR P, T,	U)		vetland hydrology must be p	
	lucky Mineral (S1) (LRR O, S)	Delta Ochric					unless disturbed or problen	natic.
	leyed Matrix (S4) edox (S5)		Reduced Ver						
	Matrix (S6)		Anomalous E					3C 153D)	
	face (S7) (LRR P,	S, T, U)	/	g =0 a	, (.	_0) (<u>_</u>		, 1002/	
Restrictive L	ayer (if observed)	:							
Туре:									,
Depth (inc	ches):						Hydric S	oil Present? Yes	No
Remarks: *S	oil abbreviations: C	l=Clay; Lo=	Loam; Mu=Muck;	Pe- Peat	Sa= San	d; Si=Silt			

Project/Site: Adirondack Tract	City/County: Charlt	on County	Sampling Date: <u>03/22/2019</u>
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: UDP-3
Investigator(s): C. Terrell / C. Stanford (TTL)	Section, Township, F	Range: Not Available	
Landform (hillslope, terrace, etc.): Flatwoods	Local relief (concave	, convex, none): None	Slope (%): 0-2%
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.52	:82001495361	Long:82.09500122070	Datum: NAD83
Soil Map Unit Name: Leon fine sand, 0 to 2 percent slopes		NWI classific	cation: none
Are climatic / hydrologic conditions on the site typical for this time of y	ear? Yes No	(If no, explain in R	Remarks.)
Are Vegetation $\underline{\underline{\text{Yes}}}$, Soil $\underline{\underline{\text{Yes}}}$, or Hydrology $\underline{\underline{\text{Yes}}}$ significantle	y disturbed? Are	e "Normal Circumstances"	oresent? Yes <u>√</u> No
Are Vegetation No , Soil No , or Hydrology No naturally p		needed, explain any answe	
SUMMARY OF FINDINGS - Attach site map showin	g sampling point	locations, transects	s, important features, etc.
Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No Remarks: - Vegetation historically impacted by silvicultural activity	Is the Sample within a Wetl	and? Yes	No <u> </u>
- Soils/Hydrology historically impacted by silvicultural - Drier than normal, but not drought conditions.	activities (bedding	for planted pine).	
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indica	ators (minimum of two required)
Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9)	813) 15) (LRR U) e Odor (C1) pheres along Living Ro uced Iron (C4) uction in Tilled Soils (C ce (C7)	Drainage Pa Moss Trim L pots (C3) Dry-Season Crayfish Bur Saturation V Geomorphic Shallow Aqu FAC-Neutral	getated Concave Surface (B8) Itterns (B10) ines (B16) Water Table (C2) rows (C8) isible on Aerial Imagery (C9) Position (D2) itard (D3)
Field Observations:	,		
Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Yes No Depth (inchest production) Yes No Depth (inchest production) Depth (inchest production)	s): 23 s): 20	Vetland Hydrology Preser	nt? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial pho	.os, previous inspectioi	ns), ii avallable.	
Remarks: FAC-Neutral Test Results: Negative FACW and O	BL: 2 to FACU an	nd UPL: 3	

	Absolute		t Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>) 1. <i>Pinus elliottii</i>	<u>% Cover</u> 50.0	Species?	Status FACW	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
		<u> </u>	IAOW	That Ale OBL, FACW, of FAC. (A)
2				Total Number of Dominant Species Across All Strata: 7 (B)
4.				
5.				Percent of Dominant Species That Are OBL, FACW, or FAC: 43% (A/B)
6				
7.				Prevalence Index worksheet:
50% of total cover: 25.00 20% of total cover: 10.00	50.0	- Total C	ovor	Total % Cover of: Multiply by:
Sapling Stratum (30 ft radius)		- Total Ci	ovei	OBL species x 1 =
1				FACW species 55 x 2 = 110
				FAC species 40 x 3 = 120
2				
3				FACU species <u>40</u> x 4 = <u>160</u>
4				UPL species x 5 =
5				Column Totals: <u>135</u> (A) <u>390</u> (B)
6				
7.				Prevalence Index = B/A =
50% of total cover: 20% of total cover: Shrub Stratum (30 ft radius)	0.0	= Total Co	over	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation
1. Serenoa repens	20.0	Ves	FACU	2 - Dominance Test is >50%
2. Ilex glabra	5.0	yes	FACW	√ 3 - Prevalence Index is ≤3.0 ¹
				Problematic Hydrophytic Vegetation¹ (Explain)
3				
4		-		¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5		-		be present, unless distarbed of problematic.
6				
7.				Definitions of Vegetation Strata:
50% of total cover: 12.50 20% of total cover: 5.00	25.0	= Total C	over	
Herb Stratum (30 ft radius)		Total	0001	Tree – Woody plants, excluding woody vines,
1. Gelsemium sempervirens	30.0	yes	FAC	approximately 20 ft (6 m) or more in height and
2. Smilax auriculata	10.0	yes	FACU	3 in. (7.6 cm) or larger in diameter at breast
Pubus cuneifolius		yes	FACU	height (DBH).
			IACO	
4				Sapling – Woody plants, excluding woody vines,
5				approximately 20 ft (6 m) or more in height and less
6				than 3 in. (7.6 cm) DBH.
7				
8				Shrub – Woody plants, excluding woody vines,
9				approximately 3 to 20 ft (1 to 6 m) in height.
10.				
				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12 50% of total cover: ^{25.00} 20% of total cover: ^{10.00}				woody plants, except woody vines, less than
Woody Vine Stratum (30 ft radius)	50.0	= Total C	over	approximately 3 ft (1 m) in height.
	40.0		E40	Woody vino. All woody vinos regardless of height
1. Vitis rotundifolia		yes		Woody vine – All woody vines, regardless of height.
2		-		
3				
4				
5				Hydrophytic Vegetation
50% of total cover: 5.00 20% of total cover: 2.00	10.0	= Total C	over	Present? Yes No
Remarks: (If observed, list morphological adaptations be	elow). *Plants	not idend	ified to spec	cies are not used in dominance calculations.

SOIL Sampling Point: UDP-3

	ription. (Describ	e to the depth	needed to document th	e marcator or commin	the absen	ce of illuicators.)	I
Depth	Matrix		Redox Featu	res			
(inches)	Color (moist)	%	Color (moist) %	Type ¹ Loc ²	Texture		
0-6"	10YR 2/1	60			Sa	masked sand gra	ins
	10YR 5/1	40			Sa	unmasked sand g	grains
6-18"	10YR 6/2	100			Sa		
	-						
						_	
						_	
¹ Type: C=Co	oncentration, D=De	epletion, RM=R	educed Matrix, MS=Mask	ed Sand Grains.	2	Location: PL=Pore Lining	, M=Matrix.
Hydric Soil I	ndicators:				Indicato	rs for Problematic Hydri	c Soils ³ :
Histosol	(A1)		Polyvalue Below Sur	face (S8) (LRR S, T, U) 1 cn	n Muck (A9) (LRR O)	
	pipedon (A2)		Thin Dark Surface (S	89) (LRR S, T, U)		n Muck (A10) (LRR S)	
Black Hi			Loamy Mucky Miner			uced Vertic (F18) (outside	· .
	n Sulfide (A4)		Loamy Gleyed Matri			Imont Floodplain Soils (F1	
	Layers (A5)	5 7 11	Depleted Matrix (F3)			malous Bright Loamy Soil	s (F20)
_	Bodies (A6) (LRR		Redox Dark Surface			ILRA 153B)	
	cky Mineral (A7) (lesence (A8) (LRR		Depleted Dark SurfaRedox Depressions	, ,		Parent Material (TF2) Shallow Dark Surface (T	F12)
	ck (A9) (LRR P, T		Marl (F10) (LRR U)	(1 0)		er (Explain in Remarks)	1 14)
	Below Dark Surfa		Depleted Ochric (F1	1) (MLRA 151)	0	er (Explain in Remarks)	
	ark Surface (A12)	, ,		sses (F12) (LRR O, P,	T) 3 _{Inc}	licators of hydrophytic veg	etation and
Coast Pi	rairie Redox (A16)	(MLRA 150A)	Umbric Surface (F13	B) (LRR P, T, U)		vetland hydrology must be	
	lucky Mineral (S1)	(LRR O, S)	Delta Ochric (F17) (I			unless disturbed or probl	
	leyed Matrix (S4)		Reduced Vertic (F18				
	edox (S5)			Soils (F19) (MLRA 149			
	Matrix (S6)	8 T II)	Anomalous Bright Lo	bamy Soils (F20) (MLRA	A 149A, 15	3C, 153D)	
	face (S7) (LRR P, ayer (if observed				1		
	ayer (ii observed	4).					
Type:	ahaa).				Usalvia C	oil Draggart? Vac	No ✓
Depth (inc				1 0 0 1 0: 0:11	Hyaric S	oil Present? Yes	NO
Remarks: "S	oii abbreviations:	CI=Clay; Lo=L	oam; Mu=Muck; Pe-Pe	at; Sa= Sand; SI=SIIt			
ı							

Project/Site: Adirondack Tract	City/County: Charlton	County	Sampling Date: 03/22/2019
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: UDP-4
Investigator(s): C. Terrell / C. Stanford (TTL)	Section, Township, Rang	_{je:} Not Available	
Landform (hillslope, terrace, etc.): Flatwoods	Local relief (concave, cor	nvex, none): None	Slope (%): 0-2%
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.52	59990692138 Loi	ng:82.103897094726	Datum: NAD83
Soil Map Unit Name: Leon fine sand, 0 to 2 percent slopes		NWI classific	ation: none
Are climatic / hydrologic conditions on the site typical for this time of y	ear? Yes <u>√</u> No <u></u>	(If no, explain in R	emarks.)
Are Vegetation Yes_, Soil Yes_, or Hydrology Yes_ significantly	/ disturbed? Are "No	ormal Circumstances" p	oresent? Yes <u>√</u> No
Are Vegetation No , Soil No , or Hydrology No naturally pr	oblematic? (If need	ded, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing	g sampling point loo	cations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes	Is the Sampled A within a Wetland ties (planted pine).		No
- Soils/Hydrology historically impacted by silvicultural a - Drier than normal, but not drought conditions.		planted pine).	
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indica	tors (minimum of two required)
Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9)	ot13) (15) (LRR U) Odor (C1) Oheres along Living Roots (uced Iron (C4) uction in Tilled Soils (C6) ce (C7)	Drainage Pa Moss Trim Li (C3) Dry-Season Crayfish Buri Saturation Vi Geomorphic Shallow Aqu FAC-Neutral	getated Concave Surface (B8) tterns (B10) ines (B16) Water Table (C2) rows (C8) isible on Aerial Imagery (C9) Position (D2) itard (D3)
Field Observations: Surface Water Present? Yes No _ ✓ Depth (inches	۸۱.		
Water Table Present? Saturation Present? (includes capillary fringe) Yes Ves No Depth (inches Depth (inches Depth (inches Depth (inches No Depth (inches Depth (inches	s): 18 s): 16 Wetla	and Hydrology Presen	nt? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial phot	os, previous inspections), i	if available:	
Remarks: FAC-Neutral Test Results: Positive FACW and Ol	BL: 3 to FACU and U	PL: 1	

00 ft and live	Absolute	Dominant		Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>)		Species?		Number of Dominant Species
1. Pinus elliottii	70.0	_yes	<u>FACW</u>	That Are OBL, FACW, or FAC:5 (A)
2				Total Number of Dominant
3				Species Across All Strata: 6 (B)
4.				
				Percent of Dominant Species That Are OBL FACW or FAC: 83% (A/B)
5				That Are OBL, FACW, or FAC: 83% (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
50% of total cover: 35.00 20% of total cover: 10.00	70.0	= Total Co	ver	
Sapling Stratum (30 ft radius)				OBL species x 1 =
1. Acer rubrum	10.0	_yes	<u>FAC</u>	FACW species x 2 =
2				FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5.				Column Totals: (A) (B)
				(-)
6				Prevalence Index = B/A =
7				Hydrophytic Vegetation Indicators:
50% of total cover: 5.00 20% of total cover: 2.00	_10.0	= Total Co	ver	1 - Rapid Test for Hydrophytic Vegetation
Shrub Stratum (30 ft radius)	40.0		E4011	✓ 2 - Dominance Test is >50%
1. Serenoa repens	40.0	yes	FACU	
2. Ilex glabra	5.0	no	<u>FACW</u>	3 - Prevalence Index is ≤3.0 ¹
3				Problematic Hydrophytic Vegetation ¹ (Explain)
4				¹ Indicators of hydric soil and wetland hydrology must
5.				be present, unless disturbed or problematic.
6				Definitions of Vegetation Strate:
7				Definitions of Vegetation Strata:
	45.0	= Total Co	ver	Tree W. I. I. I. I. I. I.
Herb Stratum (30 ft radius)			- 40	Tree – Woody plants, excluding woody vines,
1. Andropogon virginicus		yes	FAC	approximately 20 ft (6 m) or more in height and
2. Scleria triglomerata	10.0	_yes	<u>FACW</u>	3 in. (7.6 cm) or larger in diameter at breast height (DBH).
3				neight (DDH).
4				Sapling – Woody plants, excluding woody vines,
5.				approximately 20 ft (6 m) or more in height and less
**				than 3 in. (7.6 cm) DBH.
6				than o m. (7.0 om) BBT.
7				Shrub – Woody plants, excluding woody vines,
8				approximately 3 to 20 ft (1 to 6 m) in height.
9				approximately a to 20 it (1 to 6 iii) iii noight.
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12.				woody plants, except woody vines, less than
	40.0	= Total Co		approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)	_ +0.0	- Total Co	1001	
1. Vitis rotundifolia	10.0	yes	FAC.	Woody vine – All woody vines, regardless of height.
· · ·				
2				
3				
4				Hydrophytic
5				Vegetation
50% of total cover: $\underline{5.00}$ 20% of total cover: $\underline{2.00}$	10.0	= Total Co	ver	Present? Yes No
Demontro. (If shoomed list manufacturing a desired				
Remarks: (If observed, list morphological adaptations be	low). *Plants	not idendif	ied to spec	cies are not used in dominance calculations.

SOIL Sampling Point: UDP-4

Profile Desc	ription: (Describe	to the dept	h needed to docur	nent the	indicator c	r confirm	the absen	ce of indicator	s.)	
Depth	Matrix			x Feature		. 2	_			
(inches)	Color (moist)		Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
0-4"	10YR 3/1	_ <u>30</u>					Sa		sand grain	-
	10YR 7/1	70					Sa	unmaske	d sand gra	nins
4-18"	10YR 6/2	100					Sa			
				-						
				-	·					
1Type: C=C	ncentration D-De	nletion PM-	Reduced Matrix, MS	S-Masker	d Sand Gra	ine		Location: PL=F	Pore Lining M	1-Matriy
Hydric Soil		pietion, ixivi–	rteduced Matrix, Mi	J-Masket	Janu Gra			ors for Problem		
Histosol			Polyvalue Be	low Surfa	ice (S8) (Li	RR S, T, U		n Muck (A9) (LF	-	
Histic Ep	pipedon (A2)		Thin Dark Su	ırface (S9) (LRR S, 1	Γ, U)	2 cr	m Muck (A10) (L		
Black Hi			Loamy Muck			O)		luced Vertic (F1	, .	
	n Sulfide (A4) I Layers (A5)		Loamy Gleye		(F2)			dmont Floodplai malous Bright L		
	Bodies (A6) (LRR	P. T. U)	Depleted Ma Redox Dark		- 6)			//////////////////////////////////////	oarry Soils (F20)
	icky Mineral (A7) (L		Depleted Dai					Parent Materia	l (TF2)	
Muck Pr	esence (A8) (LRR	U)	Redox Depre	essions (F	. ,			y Shallow Dark		2)
	ick (A9) (LRR P, T)		Marl (F10) (L			43	Oth	er (Explain in R	emarks)	
	d Below Dark Surfa ark Surface (A12)	ce (A11)	Depleted Oct Iron-Mangar				T) 3.			
		MLRA 150A) Umbric Surfa				1110	dicators of hydro wetland hydrolog		
	lucky Mineral (S1)		Delta Ochric			,	V	unless disturb		
	lleyed Matrix (S4)		Reduced Ver						·	
	edox (S5)		Piedmont Flo							
	Matrix (S6) rface (S7) (LRR P,	S T II/	Anomalous E	Bright Loa	my Soils (F	·20) (MLR	A 149A, 15	3C, 153D)		
	_ayer (if observed						1			
Type:	, , , , , , , , , , , , , , , , , , , ,	,								
Depth (inc	ches):						Hydric S	oil Present?	Yes	No ✓
Remarks: *S	oil abbreviations: (CI=Clay; Lo=	Loam; Mu=Muck;	Pe- Peat	; Sa= Sand	d; Si=Silt				

Project/Site: Adirondack Tract	City/County: Charlt	on County	Sampling Date: <u>03/22/2019</u>
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: UDP-5
Investigator(s): C. Terrell / C. Stanford (TTL)	_ Section, Township, R	Range: Not Available	
Landform (hillslope, terrace, etc.): Flatwoods	Local relief (concave,	, convex, none): None	Slope (%): 0-2%
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.52	231990814208	Long: -82.102798461914	Datum: NAD83
Soil Map Unit Name: Leon fine sand, 0 to 2 percent slopes		NWI classific	cation: none
Are climatic / hydrologic conditions on the site typical for this time of y	vear? Yes No	✓ (If no, explain in R	emarks.)
Are Vegetation $\underline{\underline{\text{Yes}}}$, Soil $\underline{\underline{\text{Yes}}}$, or Hydrology $\underline{\underline{\text{Yes}}}$ significant	y disturbed? Are	e "Normal Circumstances" p	oresent? Yes <u>√</u> No
Are Vegetation No , Soil No , or Hydrology No naturally p		needed, explain any answe	
SUMMARY OF FINDINGS - Attach site map showin	g sampling point	locations, transects	, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: - Vegetation historically impacted by silvicultural activity		and? Yes	No
 Soils/Hydrology historically impacted by silvicultural Drier than normal, but not drought conditions. 	activities (bedding	for planted pine).	
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply Surface Water (A1) Aquatic Fauna (Base) High Water Table (A2) Marl Deposits (Base) Saturation (A3) Hydrogen Sulfide Oxidized Rhizos Water Marks (B1) Oxidized Rhizos Sediment Deposits (B2) Presence of Red Drift Deposits (B3) Recent Iron Red Algal Mat or Crust (B4) Thin Muck Surfa Iron Deposits (B5) Other (Explain in Mater-Stained Leaves (B9)	Drainage Pa Moss Trim Li ots (C3) Dry-Season	getated Concave Surface (B8) tterns (B10) ines (B16) Water Table (C2) rows (C8) isible on Aerial Imagery (C9) Position (D2) itard (D3)	
Field Observations:	,		
Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Yes No Depth (inche Yes No	s): 22	Vetland Hydrology Presen	nt? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial pho	tos, previous inspection	ns), if available:	
Remarks: FAC-Neutral Test Results: Negative FACW and O	BL: 1 to FACU an	d UPL: 3	

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>)		Species?		Number of Dominant Species
1				That Are OBL, FACW, or FAC: 4 (A)
2				Total Number of Dominant
3				Species Across All Strata: 5 (B)
4.				(-/
				Percent of Dominant Species That Are OBL FACW or FAC: 80% (A/B)
5				That Are OBL, FACW, or FAC: 80% (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
50% of total cover: 20% of total cover:	0.0	= Total Co	ver	
Sapling Stratum (30 ft radius)				OBL species x 1 =
1. Pinus elliottii			<u>FAC</u>	FACW species x 2 =
2				FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5.				Column Totals: (A) (B)
				(5)
6				Prevalence Index = B/A =
7				Hydrophytic Vegetation Indicators:
50% of total cover: 15.00 20% of total cover: 6.00 Shrub Stratum (30 ft radius)	30.0	= Total Co	ver	1 - Rapid Test for Hydrophytic Vegetation
	40.0		EAOLI	✓ 2 - Dominance Test is >50%
1. Serenoa repens			<u>FACU</u>	
2				3 - Prevalence Index is ≤3.0 ¹
3				Problematic Hydrophytic Vegetation ¹ (Explain)
4				¹ Indicators of hydric soil and wetland hydrology must
5				be present, unless disturbed or problematic.
6				Definitions of Vegetation Strata:
7				Definitions of Vegetation Strata.
Herb Stratum (30 ft radius)	10.0	= Total Co	ver	Troo Weedy plants, evaluding weedy vines
	20.0	VOC		Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and
1. Andropogon virginicus		_yes	FAC_	3 in. (7.6 cm) or larger in diameter at breast
2. Lachnanthes caroliniana	<u>10.0</u>	_yes	<u>OBL</u>	height (DBH).
3. Dichanthelium aciculare	5.0	_no	<u>FACU</u>	neight (BBH).
4. Eupatorium capillifolium	5.0	no	<u>FACU</u>	Sapling – Woody plants, excluding woody vines,
5				approximately 20 ft (6 m) or more in height and less
6.				than 3 in. (7.6 cm) DBH.
_				
7				Shrub – Woody plants, excluding woody vines,
8				approximately 3 to 20 ft (1 to 6 m) in height.
9				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
50% of total cover: 20.00 20% of total cover: 8.00	40.0	= Total Co	ver	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)		rotal oc	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
1. Vitis rotundifolia	10.0	yes	FAC	Woody vine – All woody vines, regardless of height.
2.				
3				
4				Hydrophytic
5				Vegetation
50% of total cover: 5.00 20% of total cover: 2.00	10.0	= Total Co	over	Present? Yes Vo No
Demarks: (If channed list marchalogical adoptations by	alow) - .			
Remarks: (If observed, list morphological adaptations be	*Plants	not idendif	ried to spec	cies are not used in dominance calculations.

SOIL Sampling Point: UDP-5

Profile Desc	ription: (Describe	to the depth	needed to document t	he indicator or confirm	the absence of ir	ndicators.)	
Depth	Matrix		Redox Fea	tures			
(inches)	Color (moist)		Color (moist) %	Type ¹ Loc ²	Texture	Remarks	
0-5"	10YR 5/1	_ <u>100</u> _			<u>Sa</u>		
5-12"	10YR 7/1	100					
12-18"	10YR 3/3	100			Sa		
		pletion, RM=R	educed Matrix, MS=Mas	sked Sand Grains.		on: PL=Pore Lining, I	
Hydric Soil I						Problematic Hydric	Soils*:
Histosol				urface (S8) (LRR S, T, U			
Histic Ep	pipedon (A2)		Thin Dark Surface Loamy Mucky Mine			(A10) (LRR S) Vertic (F18) (outside	MI RA 150A R)
	n Sulfide (A4)		Loamy Gleyed Mat			Floodplain Soils (F19	
	Layers (A5)		Depleted Matrix (F			Bright Loamy Soils	
	Bodies (A6) (LRR	P, T, U)	Redox Dark Surface		(MLRA 1		()
_	cky Mineral (A7) (L		Depleted Dark Sur			t Material (TF2)	
Muck Pr	esence (A8) (LRR	U)	Redox Depression	s (F8)	Very Shallo	ow Dark Surface (TF	12)
	ck (A9) (LRR P, T)		Marl (F10) (LRR U		Other (Exp	lain in Remarks)	
	Below Dark Surfa	ce (A11)	Depleted Ochric (F		_		
· · · · · · · · · · · · · · · · · · ·	rk Surface (A12)	(BAL DA 450A)	_	lasses (F12) (LRR O, P,	maioatoro	of hydrophytic vege	
	airie Redox (A16) lucky Mineral (S1)		Umbric Surface (F ⁻ Delta Ochric (F17)			hydrology must be p	
	leyed Matrix (S4)	(LKK 0, 3)		(MLRA 150A, 150B)		s disturbed or proble	nauc.
	edox (S5)			in Soils (F19) (MLRA 14			
	Matrix (S6)			_oamy Soils (F20) (MLR		BD)	
	face (S7) (LRR P,	S, T, U)				,	
Restrictive L	ayer (if observed):					
Type:							,
Depth (inc	ches):				Hydric Soil Pres	sent? Yes	No <u>✓</u>
Remarks: *S	oil abbreviations: (CI=Clay; Lo=L	oam; Mu=Muck; Pe-P	eat; Sa= Sand; Si=Silt	1		

Project/Site: Adirondack Tract	City/County: Charlton	n County	Sampling Date: <u>03/22/2019</u>
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: WDP-1
Investigator(s): C. Terrell / C. Stanford (TTL)			
Landform (hillslope, terrace, etc.): Depression			
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat:	30.5188999176025	ong:82.097999572753	9 Datum: NAD83
Soil Map Unit Name: Lynn Haven, Allanton and Kingsferry soils	s, ponded, 0 to 1 percent slope	NWI classific	ation: none
Are climatic / hydrologic conditions on the site typical for this time	e of year? Yes No	✓ (If no, explain in R	emarks.)
Are Vegetation Yes_, Soil No_, or Hydrology No_ signif	icantly disturbed? Are "N	Normal Circumstances" p	resent? Yes <u>√</u> No
Are Vegetation No , Soil No , or Hydrology No natur			
SUMMARY OF FINDINGS - Attach site map sho	owing sampling point lo	ocations, transects	, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: - Vegetation historically impacted by silvicultural a price of the property of the	within a Wetlan	d? Yes <u>√</u>	No e to hydric conditions.
, ,			
HYDROLOGY			
Wetland Hydrology Indicators:		•	tors (minimum of two required)
Primary Indicators (minimum of one is required; check all that Surface Water (A1) Aquatic Far High Water Table (A2) Marl Depose Saturation (A3) Hydrogen S Water Marks (B1) Oxidized R Sediment Deposits (B2) Presence of Recent Iror Algal Mat or Crust (B4) Thin Muck Iron Deposits (B5) Other (Exp Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9)	Drainage Pat Moss Trim Li s (C3) Dry-Season \ Crayfish Burr Saturation Vi Geomorphic Shallow Aqui FAC-Neutral	petated Concave Surface (B8) Iterns (B10) Ines (B16) Water Table (C2) Irows (C8) Isible on Aerial Imagery (C9) Position (D2) Itard (D3)	
Field Observations:			
Surface Water Present? Yes No Depth (Water Table Present? Yes No Depth (inches):		
Saturation Present? Yes V No Depth ((includes capillary fringe)	inches): 8" Wet	tland Hydrology Presen	t? Yes No
Describe Recorded Data (stream gauge, monitoring well, aeria	l photos, previous inspections)), if available:	
Remarks: FAC-Neutral Test Results: Positive FACW a	and OBL: 9 to FACU and U	UPL: 0	

Sampling	Point:	WDP-1

Tree Stratum (Plot sizes: _30 ft radius)	Absolute % Cover	Dominant Species?		Dominance Test worksheet:
1. Pinus elliottii	25.0	yes	FACW	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: 7 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100% (A/B)
6				Bassalana Indonesia Indonesia
7				Prevalence Index worksheet:
50% of total cover: 12.50 20% of total cover: 5.00 Sapling Stratum (30 ft radius)	25.0	= Total Co	ver	
1. Gordonia lasianthus	10.0	yes	FACW	FACW species x 2 =
2. Acer rubrum	10.0	yes	FAC	FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5				Column Totals: (A) (B)
6				5
7				Prevalence Index = B/A =
50% of total cover: 10.00 20% of total cover: 4.00 Shrub Stratum (30 ft radius)	20.0	= Total Co	ver	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation
1. Cliftonia monophyla	10.0	yes	OBL	✓ 2 - Dominance Test is >50%
2. Ilex glabra	10.0	yes	FACW	3 - Prevalence Index is ≤3.0 ¹
3. Lyonia lucida		yes	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
4.				¹ Indicators of hydric soil and wetland hydrology must
5.				be present, unless disturbed or problematic.
6.				
7.				Definitions of Vegetation Strata:
50% of total cover: 12.50 20% of total cover: 5.00	25.0	= Total Co	ver	
Herb Stratum (30 ft radius)				Tree – Woody plants, excluding woody vines,
1. Andropogon virginicus	40.0	yes	<u>FAC</u>	approximately 20 ft (6 m) or more in height and
2. Lachnanthes caroliniana	10.0	no	<u>OBL</u>	3 in. (7.6 cm) or larger in diameter at breast height (DBH).
3. Woodwardia virginica	10.0	no	<u>OBL</u>	Height (DBH).
4. Scleria triglomerata	10.0	no	<u>FACW</u>	Sapling – Woody plants, excluding woody vines,
5. Woodwardia areolata		_no	<u>OBL</u>	approximately 20 ft (6 m) or more in height and less
6				than 3 in. (7.6 cm) DBH.
7				Observe
8				Shrub – Woody plants, excluding woody vines,
9				approximately 3 to 20 ft (1 to 6 m) in height.
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
50% of total cover: 37.50 20% of total cover: 15.00	75.0	= Total Co	over	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				Moody vino. All was twin a grandless of bright
1				Woody vine – All woody vines, regardless of height.
2				
3				
4				Hydrophytic
5				Vegetation
50% of total cover: 20% of total cover:	0.0	= Total Co	over	Present? Yes No
Remarks: (If observed, list morphological adaptations be	elow). *Plants	not idendif	ied to spec	ies are not used in dominance calculations
			- 1	

SOIL Sampling Point: WDP-1

Profile Desc	cription: (Describe	e to the dep	th needed to docur	nent the	indicator o	or confirm	the absen	nce of indicat	ors.)	
Depth	Matrix	0/		x Feature	1	Loc ²	T		Damanla	
(inches) 0-18"	Color (moist) 10YR 3/1	<u>%</u> 75	Color (moist)	%	Type'	LOC	Texture Sa	·	Remarks	
0-10										
	10YR 5/1	25		·			Sa	strippe	d areas	
					-					_
1- 0.0			5					2,		
Hydric Soil		pletion, RM=	Reduced Matrix, MS	S=Masked	d Sand Gra	iins.			=Pore Lining, Nematic Hydric	
Histosol			Polyvalue Be	low Surfa	oo (S9) (I I	DD C T I		m Muck (A9) (•	JOIIS .
	oipedon (A2)		Thin Dark Su					m Muck (A9) (,	
	stic (A3)		Loamy Muck							MLRA 150A,B)
	en Sulfide (A4)		Loamy Gleye			,				(LRR P, S, T)
Stratified	d Layers (A5)		Depleted Ma	trix (F3)			And	omalous Brigh	t Loamy Soils ((F20)
_	Bodies (A6) (LRR		Redox Dark					VILRA 153B)		
	ucky Mineral (A7) (L		Depleted Da		, ,			d Parent Mate		
	resence (A8) (LRR		Redox Depre		8)			-	k Surface (TF1	2)
	ıck (A9) (LRR P, T) d Below Dark Surfa		Marl (F10) (L Depleted Oct		(MI RA 15	(1)	Oth	ner (Explain in	Remarks)	
	ark Surface (A12)	(/ (/ (/)	Iron-Mangar				T) 3 _{In}	diagtors of by	drophytic veget	ection and
		(MLRA 150 <i>A</i>	A) Umbric Surfa						logy must be p	
	Mucky Mineral (S1)		Delta Ochric						rbed or probler	
	Bleyed Matrix (S4)		Reduced Ver							
	Redox (S5)		Piedmont Flo							
	Matrix (S6)	0 = 11	Anomalous E	Bright Loa	my Soils (F	(MLR	A 149A, 15	3C, 153D)		
	rface (S7) (LRR P, Layer (if observed						T			
Type:		,.								
Depth (in							Hydric S	Soil Present?	Yes ✓	No
		Cl=Clav: Lo=	Loam; Mu=Muck;	Do Doot	· Sa= San	d. Ci=Cilt	Tiyane c	Jon i resent:	103	
rtomano. O	on approviduono.	51 Glay, 20	Loam, wa waok,		, ou our	u, o. o				

Project/Site: Adirondack Tract	City/County: Cha	rlton County	Sampling Date: 03/22/2019
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: WDP-2
Investigator(s): C. Terrell / C. Stanford (TTL)	_ Section, Township	, Range: Not Available	
Landform (hillslope, terrace, etc.): Depression	_ Local relief (conca	ve, convex, none): Concav	e Slope (%): 0-1%
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.52	249004364013	Long:82.097396850	5859 Datum: NAD83
Soil Map Unit Name: Leon fine sand, 0 to 2 percent slopes		NWI class	ification: none
Are climatic / hydrologic conditions on the site typical for this time of y	year? Yes N	No / _ (If no, explain in	n Remarks.)
Are Vegetation $\underline{\text{Yes}}$, Soil $\underline{\text{No}}$, or Hydrology $\underline{\text{No}}$ significant	ly disturbed?	Are "Normal Circumstances	s" present? Yes <u>√</u> No
Are Vegetation No , Soil No , or Hydrology No naturally p		(If needed, explain any ans	
SUMMARY OF FINDINGS – Attach site map showin	ıg sampling poi	nt locations, transec	ts, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Ves ✓ No Remarks: - Vegetation historically impacted by silvicultural active Drier than normal, but not drought conditions.	within a We	etland? Yes	✓ No due to hydric conditions.
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Inc	licators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply Surface Water (A1) Aquatic Fauna (I High Water Table (A2) Marl Deposits (E Saturation (A3) Hydrogen Sulfide Water Marks (B1) Oxidized Rhizos Presence of Rec Presence of Rec Algal Mat or Crust (B4) Thin Muck Surfa Iron Deposits (B5) Other (Explain in Water-Stained Leaves (B9)	Sparsely \ Drainage Moss Trin Roots (C3) Dry-Sease Crayfish E (C6) Saturatior Geomorpl Shallow A FAC-Neut	oil Cracks (B6) Vegetated Concave Surface (B8) Patterns (B10) n Lines (B16) on Water Table (C2) Surrows (C8) n Visible on Aerial Imagery (C9) nic Position (D2) quitard (D3) ral Test (D5) n moss (D8) (LRR T,U)	
Field Observations: Surface Water Present? Yes No _✓ _ Depth (inche	ne).		
Water Table Present? Saturation Present? (includes capillary fringe) Yes ✓ No Depth (inche	es): <u>8.5"</u> 6"	Wetland Hydrology Pres	sent? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial pho	itos, previous inspect	tions), if available:	
Remarks: FAC-Neutral Test Results: Positive FACW and C	BL: 5 to FACU	and UPL: 0	

Sampling	Doint:	WDF	-2
Sampling	Point.	V V D I	

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>)		Species?		Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)
1				That Are OBL, FACW, OF FAC.
2				Total Number of Dominant Species Across All Strata:6 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100% (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
50% of total cover: 20% of total cover: Sapling Stratum (_30 ft radius)		= Total Co	ver	OBL species x 1 =
1. Pinus elliottii	25.0	yes	FACW	FACW species x 2 =
2.				FAC species x 3 =
3.				FACU species x 4 =
4.				UPL species x 5 =
5.				Column Totals: (A) (B)
6				Prevalence Index = B/A =
7				Hydrophytic Vegetation Indicators:
50% of total cover: 12.50 20% of total cover: 5.00	25.0	= Total Co	ver	1 - Rapid Test for Hydrophytic Vegetation
Shrub Stratum (30 ft radius)				✓ 2 - Dominance Test is >50%
1				3 - Prevalence Index is ≤3.0 ¹
2				Problematic Hydrophytic Vegetation ¹ (Explain)
3				
4				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5				
6				Definitions of Vegetation Strata:
7				Definitions of Vegetation Strata.
Herb Stratum (30 ft radius)	0.0	= Total Co	over	Tree – Woody plants, excluding woody vines,
1. Juncus polycephalus	30.0	yes	OBL	approximately 20 ft (6 m) or more in height and
2. Lachnanthes caroliniana	10.0	yes	OBL	3 in. (7.6 cm) or larger in diameter at breast
3. Woodwardia virginica	10.0	yes	OBL	height (DBH).
4. Xyris elliottii	10.0	yes	OBL	Copling Westerlands and discuss during
5. Andropogon virginicus	10.0	yes	FAC	Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less
6.			<u>. , , , , , , , , , , , , , , , , , , ,</u>	than 3 in. (7.6 cm) DBH.
7				
8.				Shrub – Woody plants, excluding woody vines,
9.				approximately 3 to 20 ft (1 to 6 m) in height.
10				Herb – All herbaceous (non-woody) plants, including
11.				herbaceous vines, regardless of size AND
12.				woody plants, except woody vines, less than
50% of total cover: 35.00 20% of total cover: 14.00	70.0	= Total Co	ver	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				
1				Woody vine – All woody vines, regardless of height.
2				
3				
4				Livedra a level e
5				Hydrophytic Vegetation
50% of total cover: 20% of total cover:	0.0	= Total Co	over	Present? Yes No
Remarks: (If observed, list morphological adaptations be	low). *Plants	not idendif	ied to spec	ties are not used in dominance calculations
, , , , , , , , , , , , , , , , , , , ,	, i idille	. not lacriali	iou to spec	no not accominante calculations.

SOIL Sampling Point: WDP-2

Profile Desc	ription: (Describe	to the depti	n needed to docum	nent the i	ndicator c	r confirm	the absen	ce of indicate	ors.)	
Depth	Matrix			x Feature						
(inches)	Color (moist)		Color (moist)	%	Type ¹	Loc ²	Texture	_	Remarks	
0-12"	10YR 2/1	_ <u>60</u> _					Sa			
	10YR 6/1	_ 40					Sa	stripped	areas	
12-18"	10YR 7/1	100		<u> </u>			Sa			
1Typo: C-Co	ncontration D-Do	nlotion PM-I	Reduced Matrix, MS	S-Maskoo	L Sand Gra	inc		Location: DL	=Pore Lining, N	I_Matrix
Hydric Soil I		pietion, itivi–i	veduced Matrix, Mc	J-IVIASKEC	i Sanu Gra				matic Hydric \$	
Histosol			Polyvalue Be	low Surfa	ce (S8) (Li	RR S, T, U		n Muck (A9) (I	-	
Histic Ep	pipedon (A2)		Thin Dark Su	rface (S9	(LRR S, 1	Γ, U)	2 cm	m Muck (A10)		
Black His			Loamy Muck			O)			18) (outside N	
	n Sulfide (A4) I Layers (A5)		Loamy Gleye		F2)				ain Soils (F19) Loamy Soils (I	
	Bodies (A6) (LRR I	P. T. U)	Depleted Ma		- 6)			//////////////////////////////////////	Loanly Solis (I	-20)
	cky Mineral (A7) (L		Depleted Dar				•	Parent Mater	ial (TF2)	
	esence (A8) (LRR		Redox Depre		8)		Very	y Shallow Darl	k Surface (TF1	2)
	ck (A9) (LRR P, T)		Marl (F10) (L				Oth	er (Explain in	Remarks)	
	l Below Dark Surfa irk Surface (A12)	ce (A11)	Depleted Och	. ,	•	,	T) 3.			
		MLRA 150A	Umbric Surfa		. , .		, 1110		Irophytic vegeta ogy must be pr	
	lucky Mineral (S1)		Delta Ochric			-,	V		bed or problem	
	leyed Matrix (S4)		Reduced Ver							
	edox (S5)		Piedmont Flo					00 4500)		
✓ Stripped	Matrix (S6) face (S7) (LRR P,	S T II)	Anomalous B	Bright Loai	my Soils (F	·20) (MLR	A 149A, 15	3C, 153D)		
	ayer (if observed									
Type:		,								
Depth (inc	ches):						Hydric S	oil Present?	Yes ✓	No
Remarks: *So	oil abbreviations: (CI=Clay; Lo=I	_oam; Mu=Muck;	Pe- Peat;	Sa= Sand	d; Si=Silt			<u> </u>	

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Adirondack Tr	act	Citv/C	ounty: Charlton Cou	ınty	Sampling Date: 03/22/2019
Applicant/Owner: Twin Pines					Sampling Point: WDP-3
Investigator(s): C. Terrell / C					
Landform (hillslope, terrace, etc					Slope (%): 0-1%
Subregion (LRR or MLRA): LR					
Soil Map Unit Name: Leon fine			Long.		
Are climatic / hydrologic condition					
Are Vegetation 103, Soil No.	, or Hydrology	significantly disturb	ped? Are "Norma	al Circumstances"	present? Yes <u>√</u> No
Are Vegetation No Soil No	, or Hydrology _	naturally problema	tic? (If needed,	explain any answe	ers in Remarks.)
SUMMARY OF FINDING	S - Attach site	map showing sam	pling point location	ons, transects	s, important features, etc.
Hydrophytic Vegetation Prese	n+2 Vac /	No			
Hydric Soil Present?	Yes ✓	/ No	Is the Sampled Area		•
Wetland Hydrology Present?		/No	within a Wetland?	Yes	No
Remarks:					
- Vegetation historically	impacted by silv	ricultural activities (p	lanted pine) which	are stunted du	e to hydric conditions.
v ogotation motorioany	impacted by onv	roditarai aotivitico (p	iditiod pilio, willon	aro otaritoa aa	o to riyano conamone.
HYDROLOGY					
Wetland Hydrology Indicato	rs:			Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of	of one is required; ch	eck all that apply)		Surface Soil	Cracks (B6)
✓ Surface Water (A1)		Aquatic Fauna (B13)		Sparsely Ve	getated Concave Surface (B8)
✓ High Water Table (A2)		Marl Deposits (B15) (LR	R U)	Drainage Pa	
✓ Saturation (A3)		Hydrogen Sulfide Odor (C1)	Moss Trim L	ines (B16)
Water Marks (B1)		Oxidized Rhizospheres a	along Living Roots (C3)	Dry-Season	Water Table (C2)
Sediment Deposits (B2)		Presence of Reduced Iro	on (C4)	Crayfish Bur	rows (C8)
Drift Deposits (B3)	_	Recent Iron Reduction in	Tilled Soils (C6)	Saturation V	isible on Aerial Imagery (C9)
✓ Algal Mat or Crust (B4)	_	Thin Muck Surface (C7)		Geomorphic	Position (D2)
Iron Deposits (B5)		Other (Explain in Remar	ks)	Shallow Aqu	itard (D3)
Inundation Visible on Aeri				✓ FAC-Neutral	Test (D5)
Water-Stained Leaves (B	9)			✓ Sphagnum r	moss (D8) (LRR T,U)
Field Observations:		011			
Surface Water Present?	Yes No	Depth (inches): 6"			
Water Table Present?	Yes _ V No	Depth (inches): 2"			/
Saturation Present? (includes capillary fringe)	Yes <u></u> No	Depth (inches): 0"	Wetland	Hydrology Preser	nt? Yes No
Describe Recorded Data (stre	am gauge monitorin	a well serial photos prev	vious inspections) if av	ailahla:	
Describe Necorded Data (Stre	am gauge, monitorin	g well, aerial priotos, pre-	vious irispections), ii avi	allable.	
Daniel FAC Neutral Tast D	t Desitive	E4014/ 1 0DL - 9	t- FAOU (UD) -	0	
Remarks: FAC-Neutral Test Re	suits: Positive	FACW and OBL: 8	to FACU and UPL:	U	

Complina	Doint	WDP-3
samniina	Point:	VVDF -3

000	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot sizes: 30 ft radius)		Species?		Number of Dominant Species
1. Pinus elliottii	50.0	yes	FACW	That Are OBL, FACW, or FAC:8 (A)
2. Taxodium ascendens	20.0	yes	<u>OBL</u>	Total Number of Dominant
3				Species Across All Strata: 8 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100% (A/B)
6				Prevalence Index worksheet:
7				
50% of total cover: 35.00 20% of total cover: 14.00	70.0	= Total Co	ver	Total % Cover of: Multiply by:
Sapling Stratum (30 ft radius)				OBL species x 1 =
1				FACW species x 2 =
2				FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5				Column Totals: (A) (B)
6				
7.				Prevalence Index = B/A =
50% of total cover: 12.50 20% of total cover: 5.00	0.0	= Total Co	ver	Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)				✓ 1 - Rapid Test for Hydrophytic Vegetation
1. Ilex myrtifolia	20.0	yes	<u>FACW</u>	✓ 2 - Dominance Test is >50%
2. Hypericum tetrapetalum	10.0	yes	<u>OBL</u>	3 - Prevalence Index is ≤3.0 ¹
3				Problematic Hydrophytic Vegetation ¹ (Explain)
4				¹ Indicators of hydric soil and wetland hydrology must
5.				be present, unless disturbed or problematic.
6				
7.				Definitions of Vegetation Strata:
50% of total cover: 15.00 20% of total cover: 6.00	30.0	= Total Co	VOr	
Herb Stratum (30 ft radius)	_00.0	- Total 00	7701	Tree – Woody plants, excluding woody vines,
1. Juncus polycephalus	10.0	yes	OBL	approximately 20 ft (6 m) or more in height and
2. Lachnanthes caroliniana	10.0	yes	OBL	3 in. (7.6 cm) or larger in diameter at breast
3. Sagitaria graminea	10.0	yes	OBL	height (DBH).
4. Xyris elliottii	10.0	yes	OBL	Conline W. L. L. C. L. I.
5				Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less
6.				than 3 in. (7.6 cm) DBH.
				than o iii. (7.5 din) BBT.
7				Shrub – Woody plants, excluding woody vines,
8				approximately 3 to 20 ft (1 to 6 m) in height.
9				
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12 50% of total cover: 20.00 20% of total cover: 8.00				woody plants, except woody vines, less than
Woody Vine Stratum (30 ft radius)	40.0	= Total Co	ver	approximately 3 ft (1 m) in height.
				Woody vine – All woody vines, regardless of height.
1				Troody time 7 iii weedy times, regardiese et neight.
2				
3				
4				Hydrophytic
5.				Vegetation
50% of total cover: 20% of total cover:	0.0	= Total Co	ver	Present? Yes No
Remarks: (If observed, list morphological adaptations be	low). *Plants	not idendif	ied to spec	cies are not used in dominance calculations
, , , , , , , , , , , , , , , , , , , ,	, i idillo		.su to opoc	2.55 S. 5 . 15t dood in dominanto outstitutions.

SOIL Sampling Point: WDP-3

Profile Desc	ription: (Describe	to the dept	h needed to docur	nent the i	ndicator c	r confirm	the absen	ce of indicato	rs.)	
Depth	Matrix			x Feature						
(inches)	Color (moist)		Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
0-6"	10YR 3/1	60					Sa			
	10YR 5/1	<u>40</u>					Sa	stripped	areas	
6-18"	10YR 6/1	100					Sa			
1 _{Type:} C-C	noontration D_Do	nlotion PM	Reduced Matrix, MS	- Maakas	L Cond Cro	ino		Location: PL=	Doro Lining M	I_Motriy
Hydric Soil I		pietion, Kivi=	Reduced Matrix, Mi	5=IVIA5KEC	i Saliu Gia	1115.		ors for Probler		
Histosol			Polyvalue Be	low Surfa	ce (S8) (Li	RR S. T. U		m Muck (A9) (L	-	
	pipedon (A2)		Thin Dark Su	rface (S9)	(LRR S, 1	Γ, U)		m Muck (A10) (
Black His			Loamy Muck			O)		duced Vertic (F		
	n Sulfide (A4)		Loamy Gleye		F2)			dmont Floodpla	. ,	
	Layers (A5)	D T II)	Depleted Ma		-G)			malous Bright	Loamy Soils (I	-20)
	Bodies (A6) (LRR cky Mineral (A7) (L		Redox Dark : Depleted Dark :					/ILRA 153B) d Parent Materi	al (TF2)	
	esence (A8) (LRR		Redox Depre		, ,			y Shallow Dark	. ,	2)
1 cm Mu	ck (A9) (LRR P, T)		Marl (F10) (L	RR U)				er (Explain in F		
	Below Dark Surfa	ce (A11)	Depleted Ocl	, ,	•		_			
	rk Surface (A12)	(MI DA 150A)	Iron-Mangar) Umbric Surfa		. , .		, 1110	dicators of hydi		
	lucky Mineral (S1)		Delta Ochric			U)	\	wetland hydrolo	ogy must be proed or problem	
	leyed Matrix (S4)	(=:::: 0, 0)	Reduced Ver			A, 150B)		unicaa diaturi	oca or problem	iatio.
Sandy R	edox (S5)		Piedmont Flo							
✓ Stripped	, ,		Anomalous E	Bright Loar	my Soils (F	20) (MLR	A 149A, 15	3C, 153D)		
	face (S7) (LRR P,						1			
	ayer (if observed):								
Type:	haa).						Liveria C	oil Present?	Yes ✓	No
Depth (inc		CI=Clove Lo=	Loam; Mu=Muck;	Do Doot:	So= Son	4. Ci=Cilt	Hyunc 3	on Fresent:	162	140
Kelliaiks. S	on appreviations. C	DI-Clay, LU-	Loam, wu-wuck,	re-real,	Sa- San	u, 31–311t				

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Adirondack Tra	act	City/C	county: Charlton Cou	nty	Sampling Date	: 03/22/2019
Applicant/Owner: Twin Pines		,		State: GA		
Investigator(s): C. Terrell / C		Section			- , 0	
Landform (hillslope, terrace, etc		Local			Slo	ne (%)· 0-1%
Subregion (LRR or MLRA): LRI						
Soil Map Unit Name: Lynn Hav						
						<u>*</u>
Are climatic / hydrologic condition	ons on the site typica	No state of year?	esNo	(if no, explain in i	Remarks.)	./ N:
Are Vegetation No , Soil No Are Vegetation No , Soil No	, or Hydrology	Significantly distur	bed? Are "Normal	l Circumstances"	present? Yes _	<u>▼</u> No
Are Vegetation, Soil	, or Hydrology _	naturally problema	atic? (If needed, e	explain any answe	ers in Remarks.)	
SUMMARY OF FINDING	S - Attach site	map showing sam	pling point location	ons, transects	s, important f	features, etc.
Hydrophytic Vegetation Preser	nt? Voc v	No				
Hydric Soil Present?	Yes ✓	/ No	Is the Sampled Area		/	
Wetland Hydrology Present?		,	within a Wetland?	Yes	No	_
Remarks:						
- Drier than normal, but	not drought con	ditions.				
HYDROLOGY						
Wetland Hydrology Indicator	rs:			Secondary Indic	ators (minimum c	of two required)
Primary Indicators (minimum c	of one is required; ch	eck all that apply)		Surface Soi	l Cracks (B6)	
Surface Water (A1)	_	Aquatic Fauna (B13)		Sparsely Ve	getated Concave	Surface (B8)
✓ High Water Table (A2)		Marl Deposits (B15) (LR			atterns (B10)	
✓ Saturation (A3)		Hydrogen Sulfide Odor (Moss Trim L		
Water Marks (B1)		Oxidized Rhizospheres			Water Table (C2	<u>'</u>)
Sediment Deposits (B2)		Presence of Reduced Iro		Crayfish Bu		(0.5)
Drift Deposits (B3)		Recent Iron Reduction in			/isible on Aerial I	nagery (C9)
Algal Mat or Crust (B4)		Thin Muck Surface (C7) Other (Explain in Remai			Position (D2)	
Iron Deposits (B5) Inundation Visible on Aeri		Other (Explain in Remai	iks)	Shallow Aquestra ✓ FAC-Neutra		
Water-Stained Leaves (B)					moss (D8) (LRR	T.U)
Field Observations:				opaga	(20) (2.1.1	.,07
Surface Water Present?	Yes No ✔	Depth (inches):				
Water Table Present?	Yes ✓ No	Depth (inches): 0"				
Saturation Present?	Yes No	Depth (inches): 0"	Wetland F	lydrology Prese	nt? Yes ✓	No
(includes capillary fringe)						
Describe Recorded Data (stream	am gauge, monitorin	g well, aerial photos, pre	vious inspections), if ava	ailable:		
Remarks: FAC-Neutral Test Re	esults: Positive	FACW and OBL: 9	to FACU and UPL: ()		
Duttropped trunk hopes	and multiply true	akatad aanany traas				
Buttressed trunk bases	and multiply trui	ikaleu canopy liees	•			

Sampling	Point:	WDP-4

	Absolute		nt Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>)	% Cover		? Status	Number of Dominant Species
1. Taxodium ascendens	40.0	_yes_	OBL	That Are OBL, FACW, or FAC:(A)
2. Acer rubrum	20.0	_yes	<u>FAC</u>	Total Number of Dominant
3. Nyssa biflora		_yes	<u>OBL</u>	Species Across All Strata: 10 (B)
4. Magnolia virginiana	<u>10.0</u>	no	<u>FACW</u>	Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100% (A/B)
6				Dravelance Index worksheets
7				Prevalence Index worksheet:
50% of total cover: 45.00 20% of total cover: 18.00 Sapling Stratum (30 ft radius)	90.0	= Total C	Cover	
1				FACW species x 2 =
2.				FAC species x 3 =
				FACU species x 4 =
3				UPL species x 5 =
4				' -
5				Column Totals: (A) (B)
6				Prevalence Index = B/A =
7		-		Hydrophytic Vegetation Indicators:
50% of total cover: 12.50 20% of total cover: 5.00 Shrub Stratum (30 ft radius)	0.0	= Total C	Cover	√ 1 - Rapid Test for Hydrophytic Vegetation
1. Ilex myrtifolia	10.0	yes	FACW	✓ 2 - Dominance Test is >50%
2. Lyonia lucida	10.0		FACW	3 - Prevalence Index is ≤3.0 ¹
3. Morella caroliniensis	_ 10.0	yes		Problematic Hydrophytic Vegetation ¹ (Explain)
·	<u>10.0</u>	_yes	<u>FACW</u>	
4				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5				,
6				
7				Definitions of Vegetation Strata:
50% of total cover: 15.00 20% of total cover: 6.00	30.0	= Total C	Cover	_
Herb Stratum (30 ft radius)	40.0		E40	Tree – Woody plants, excluding woody vines,
1. Toxicodendron radicans	10.0	_yes	FAC	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast
2. Woodwardia areolata	_ <u>10.0</u>	yes	OBL	height (DBH).
3. Woodwardia virginica	<u>10.0</u>	yes	<u>OBL</u>	
4. Smilax laurifolia	10.0	yes	<u>FACW</u>	Sapling – Woody plants, excluding woody vines,
5				approximately 20 ft (6 m) or more in height and less
6				than 3 in. (7.6 cm) DBH.
7				
8				Shrub – Woody plants, excluding woody vines,
9				approximately 3 to 20 ft (1 to 6 m) in height.
10				Herb – All herbaceous (non-woody) plants, including
11.				herbaceous vines, regardless of size AND
12.				woody plants, except woody vines, less than
50% of total cover: 20.00 20% of total cover: 8.00	40.0	= Total C	Cover	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				
1				Woody vine – All woody vines, regardless of height.
2				
3.				
4.				
5.				Hydrophytic
50% of total cover: 20% of total cover:	0.0	= Total C	Cover	Vegetation Present? Yes No
Remarks: (If observed, list morphological adaptations be				

SOIL Sampling Point: WDP-4

Profile Desc	ription: (Describe	to the deptr	needed to docun	nent the indicat	tor or confirm	the absence of ind	icators.)	
Depth	Matrix			x Features	4 0			
(inches)	Color (moist)	%	Color (moist)	%Type	e ¹ Loc ²	<u>Texture</u>	Remarks	
0-18"	10YR 2/1	100				Mu Mi		
								
	oncentration, D=Dep	letion, RM=F	Reduced Matrix, MS	S=Masked Sand	Grains.		PL=Pore Lining, M=Ma	
Hydric Soil I	ndicators:					Indicators for Pr	oblematic Hydric Soils	·:
Histosol	` '		Polyvalue Be				, ,	
	ipedon (A2)			rface (S9) (LRR		2 cm Muck (/		
Black Hi				/ Mineral (F1) (L	.RR O)		tic (F18) (outside MLRA	
	n Sulfide (A4)		Loamy Gleye				oodplain Soils (F19) (LRI	R P, S, T)
	Layers (A5)	T 11)	Depleted Mat				Bright Loamy Soils (F20)	
	Bodies (A6) (LRR P cky Mineral (A7) (LI		Redox Dark S			(MLRA 153		
	esence (A8) (LRR U		Redox Depre	k Surface (F7)			Material (TF2) Dark Surface (TF12)	
	ck (A9) (LRR P, T)	')	Marl (F10) (L					
	Below Dark Surfac	e (A11)		nric (F11) (MLRA	A 151)	Other (Expla	in in Remarks)	
	rk Surface (A12)	(/ 1. 1 /	Iron-Mangan			T) ³ Indicators of	f hydrophytic vegetation	and
	airie Redox (A16) (I	MLRA 150A)				illaloatoro c	ydrology must be preser	I
	lucky Mineral (S1) (I		Delta Ochric				disturbed or problematic.	,
Sandy G	leyed Matrix (S4)		Reduced Ver	tic (F18) (MLRA	150A, 150B)		·	
	edox (S5)		Piedmont Flo	odplain Soils (F	19) (MLRA 14	9A)		
	Matrix (S6)		Anomalous B	right Loamy Soi	ls (F20) (MLR	A 149A, 153C, 153D))	
	face (S7) (LRR P, S							
Restrictive I	ayer (if observed)	:						
Type:							/	
Depth (inc	ches):					Hydric Soil Prese	nt? Yes <u> </u>	
Remarks: *S	oil abbreviations: C	l=Clay; Lo=L	oam; Mu=Muck;	Pe- Peat; Sa= \$	Sand; Si=Silt;	Mi=Mineral		

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Adirondack Tra	act	City/C	ounty: Charlton Cou	nty	Sampling Date:	03/22/2019
Applicant/Owner: Twin Pines					Sampling Point	
Investigator(s): C. Terrell / C		Section				
Landform (hillslope, terrace, etc.		Local			Slo	nne (%)· 0-1%
Subregion (LRR or MLRA): LRF						
Soil Map Unit Name: Lynn Hav			Long.			atum
Are climatic / hydrologic conditio						/
Are Vegetation No , Soil No Are Vegetation No , Soil No	, or Hydrology	significantly disturb	oed? Are "Normal	Circumstances"	present? Yes	<u>▼</u> No
Are Vegetation, Soil	, or Hydrology	naturally problema	itic? (If needed, e	explain any answ	ers in Remarks.)	
SUMMARY OF FINDINGS	S - Attach site	map showing sam	pling point location	ns, transects	s, important f	eatures, etc.
Lludranhutia Vagatatian Dragar		, No				
Hydrophytic Vegetation Preser Hydric Soil Present?	Yes V	No	Is the Sampled Area		,	
Wetland Hydrology Present?		,	within a Wetland?	Yes	No	_
Remarks:						
-Drier than normal, but r	not drought cond	itions				
Bilet triair florifiai, bat i	iot drought cond	itionio.				
HYDROLOGY						
Wetland Hydrology Indicator	rs:			Secondary Indic	ators (minimum c	f two required)
Primary Indicators (minimum o	of one is required; ch	eck all that apply)		Surface Soi	l Cracks (B6)	
Surface Water (A1)	_	Aquatic Fauna (B13)		Sparsely Ve	egetated Concave	Surface (B8)
✓ High Water Table (A2)	_	Marl Deposits (B15) (LR	R U)	Drainage Pa	atterns (B10)	
✓ Saturation (A3)		Hydrogen Sulfide Odor (Moss Trim I	Lines (B16)	
Water Marks (B1)		Oxidized Rhizospheres a		Dry-Season	Water Table (C2	.)
Sediment Deposits (B2)		Presence of Reduced Iro		Crayfish Bu		
Drift Deposits (B3)		Recent Iron Reduction in	Tilled Soils (C6)	Saturation \	isible on Aerial Ir	nagery (C9)
Algal Mat or Crust (B4)		Thin Muck Surface (C7)			c Position (D2)	
Iron Deposits (B5)		Other (Explain in Remar	·ks)	Shallow Aqu		
Inundation Visible on Aeria Water-Stained Leaves (B9				✓ FAC-Neutra		T 1.1\
	") ————			Spnagnum	moss (D8) (LRR	1,0)
Field Observations: Surface Water Present?	Vaa Na 🗸	Donth (inches)				
Water Table Present?	Yes No No	Depth (inches): Depth (inches):				
Saturation Present?	Yes V No	Depth (inches): 0"	Wotland H	lydrology Prese	nt? Vos	No
(includes capillary fringe)	res <u> </u>	Deptil (iliches)	wetland n	iyarology Frese	iit: 165	_ NO
Describe Recorded Data (stream	am gauge, monitoring	g well, aerial photos, pre	I vious inspections). if ava	ilable:		
	ga.a.g.,	g, p, p	,,			
Remarks: FAC-Neutral Test Re	eulte: Positive	FACW and OBL: 9	to FACU and UPL: 0)		
				,		
Buttressed trunk bases	and multiply trun	ikated canopy trees	•			

	Absolute		Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>)	% Cover	Species?		Number of Dominant Species
1. Taxodium ascendens	40.0	yes	OBL	That Are OBL, FACW, or FAC:(A)
2. Acer rubrum	<u>20.0</u>	_yes	<u>FAC</u>	Total Number of Dominant
3. Nyssa biflora	20.0	_yes	<u>OBL</u>	Species Across All Strata: (B)
4. Magnolia virginiana	10.0	no	FACW	Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100% (A/B)
6				
7				Prevalence Index worksheet:
50% of total cover: 45.00 20% of total cover: 18.00 Sapling Stratum (30 ft radius	90.0	= Total Co	over	
1				FACW species x 2 =
2.				FAC species x 3 =
3				FACU species x 4 =
				UPL species x 5 =
4				Column Totals: (A) (B)
5				Column Totals (A) (B)
6		-		Prevalence Index = B/A =
7				Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)	0.0	= Total Co	over	✓ 1 - Rapid Test for Hydrophytic Vegetation
1. Ilex myrtifolia	10.0	yes	FACW	√ 2 - Dominance Test is >50%
2. Lyonia lucida	10.0	yes	FACW	3 - Prevalence Index is ≤3.0 ¹
3. Morella caroliniensis	10.0	yes	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
			IAOV	¹ Indicators of hydric soil and wetland hydrology must
		-		be present, unless disturbed or problematic.
5				
6				Definitions of Vegetation Strata:
7				Deminions of Vegetation Strata.
Herb Stratum (30 ft radius)	30.0	= Total C	over	Tree – Woody plants, excluding woody vines,
1. Toxicodendron radicans	10.0	yes	FAC	approximately 20 ft (6 m) or more in height and
2. Woodwardia areolata	10.0	yes	OBL	3 in. (7.6 cm) or larger in diameter at breast
3. Woodwardia virginica	10.0	yes	OBL	height (DBH).
4. Smilax laurifolia	10.0	yes	FACW	
-			IACW	Sapling – Woody plants, excluding woody vines,
5				approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
6		-		than 3 in. (7.6 cm) DBH.
7		-		Shrub – Woody plants, excluding woody vines,
8				approximately 3 to 20 ft (1 to 6 m) in height.
9				
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12.				woody plants, except woody vines, less than
50% of total cover: 20.00 20% of total cover: 8.00 Woody Vine Stratum (30 ft radius)	40.0	= Total C	over	approximately 3 ft (1 m) in height.
				Woody vine – All woody vines, regardless of height.
1				vvoody virie – All woody viries, regardless of fleight.
2				
3				
4				Hydrophytic
5				Vegetation
50% of total cover: 20% of total cover:	0.0	= Total Co	over	Present? Yes No
Remarks: (If observed, list morphological adaptations be	elow). *Plants	not idendi	fied to spec	ies are not used in dominance calculations.

SOIL Sampling Point: WDP-5

	ription: (Describe		i needed to docui				the absence o	i iii diodioioi,	
Depth (in all and)	Matrix (Section 1)	0/		x Features	- 1	1 2	T t	Damada	
(inches)	Color (moist)		Color (moist)	<u> </u>	Type'	Loc ²	Texture Na. Na:	Remarks	
0-18"	10YR 2/1	_ <u>100</u>					Mu Mi		
		pletion, RM=l	Reduced Matrix, M	S=Masked S	and Grain	ns.		ation: PL=Pore Lining, M=Ma	
Hydric Soil I	ndicators:						Indicators for	or Problematic Hydric Soils	³ :
Histosol	` '		Polyvalue Be					uck (A9) (LRR O)	
	pipedon (A2)		Thin Dark Su					uck (A10) (LRR S)	
Black Hi			Loamy Muck)		d Vertic (F18) (outside MLR	
	n Sulfide (A4)		Loamy Gleye		2)			nt Floodplain Soils (F19) (LR	R P, S, T)
	Layers (A5)	D T II)	Depleted Ma					ous Bright Loamy Soils (F20)	
	Bodies (A6) (LRR lacky Mineral (A7) (L		Redox Dark Depleted Da					A 153B) rent Material (TF2)	
	esence (A8) (LRR		Redox Depre	,	")			allow Dark Surface (TF12)	
	ick (A9) (LRR P, T)	-	Marl (F10) (L				-	Explain in Remarks)	
	d Below Dark Surfa		Depleted Oc		ILRA 151)	0.1101 (2	explain in reomane)	
	ark Surface (A12)		Iron-Mangar		. , .		T) ³ Indicat	ors of hydrophytic vegetation	and
) Umbric Surfa			J)		and hydrology must be preser	
	lucky Mineral (S1)	(LRR O, S)	Delta Ochric				unl	ess disturbed or problematic	
	Sleyed Matrix (S4)		Reduced Ve				0.43		
	edox (S5)		Piedmont Flo					4E2D)	
	Matrix (S6)	C T II)	Anomalous E	stignt Loamy	5011S (F2	20) (IVILIA	A 149A, 153C,	(ענסו)	
Dark Su									
	rface (S7) (LRR P,								
Restrictive I	ayer (if observed):							
Restrictive I	ayer (if observed						Hydric Soil F	Present? Yes ✓ No	<u> </u>
Type: Depth (inc	_ayer (if observed):		Do- Doat S	Sa= Sand	· Si=Silt·	-	Present? Yes No)
Type: Depth (inc	_ayer (if observed):	Loam; Mu=Muck;	Pe-Peat; S	Sa= Sand	; Si=Silt;	-	Present? Yes No)
Type: Depth (inc	_ayer (if observed):		Pe- Peat; S	Sa= Sand	; Si=Silt;	-	Present? Yes <u>√</u> No)
Type: Depth (inc	_ayer (if observed):		Pe- Peat; S	Sa= Sand	; Si=Silt;	-	Present? Yes <u> </u>)
Type: Depth (inc	_ayer (if observed):		Pe- Peat; S	Sa= Sand	; Si=Silt;	-	Present? Yes <u>✓</u> No)
Type: Depth (inc	_ayer (if observed):		Pe- Peat; S	∂a= Sand;	; Si=Silt;	-	Present? Yes <u>√</u> No)
Type: Depth (inc	_ayer (if observed):		Pe- Peat; S	6a= Sand;	; Si=Silt;	-	Present? Yes <u>√</u> No)
Type: Depth (inc	_ayer (if observed):		Pe- Peat; S	Sa= Sand	; Si=Silt;	-	Present? Yes <u>√</u> No)
Type: Depth (inc	_ayer (if observed):		Pe- Peat; S	Sa= Sand	; Si=Silt;	-	Present? Yes <u>√</u> No)
Type: Depth (inc	_ayer (if observed):		Pe- Peat; S	Sa= Sand,	; Si=Silt;	-	Present? Yes <u>✓</u> No)
Type: Depth (inc	_ayer (if observed):		Pe-Peat; S	6a= Sand;	; Si=Silt;	-	Present? Yes <u>√</u> No)
Type: Depth (inc	_ayer (if observed):		Pe-Peat; S	6a= Sand	; Si=Silt;	-	Present? Yes <u>√</u> No)
Type: Depth (inc	_ayer (if observed):		Pe- Peat; S	6a= Sand	; Si=Silt;	-	Present? Yes <u> </u>)
Type: Depth (inc	_ayer (if observed):		Pe- Peat; S	Sa= Sand	; Si=Silt;	-	Present? Yes <u>√</u> No)
Type: Depth (inc	_ayer (if observed):		Pe- Peat; S	Sa= Sand,	; Si=Silt;	-	Present? Yes V)
Type: Depth (inc	_ayer (if observed):		Pe-Peat; S	6a= Sand	; Si=Silt;	-	Present? Yes V)
Type: Depth (inc	_ayer (if observed):		Pe-Peat; S	6a= Sand	; Si=Silt;	-	Present? Yes <u>√</u> No)
Type: Depth (inc	_ayer (if observed):		Pe- Peat; S	6a= Sand	; Si=Silt;	-	Present? Yes <u> </u>	
Type: Depth (inc	_ayer (if observed):		Pe- Peat; S	Sa= Sand	; Si=Silt;	-	Present? Yes V)
Type: Depth (inc	_ayer (if observed):		Pe- Peat; S	Sa= Sand	; Si=Silt;	-	Present? Yes V	
Type: Depth (inc	_ayer (if observed):		Pe-Peat; S	6a= Sand	; Si=Silt;	-	Present? Yes V	
Type: Depth (inc	_ayer (if observed):		Pe-Peat; S	6a= Sand	; Si=Silt;	-	Present? Yes V)
Type: Depth (inc	_ayer (if observed):		Pe-Peat; S	6a= Sand	; Si=Silt;	-	Present? Yes V	

APPENDIX D
North Carolina (NC) Division of Water Quality (DWQ) Stream Identification Forms

Project/Site:

Adirondack Tract

Stream ID: S1

30.5233993530273

Latitude:

NC DWQ Stream Identification Form Version 4.11

03/09/2019

Total Points: Stream is at least intermittent 30.50 if ≥ 19 or perennial if $\geq 30^*$	at least intermittent 30.50 Perennial Perennial St. Get			St. George, GA
A. Geomorphology (Subtotal = 13.50	Absent	Weak	Moderate	Strong
1 ^{a.} Continuity of channel bed and bank	0	1	2 ✓	3
Sinuosity of channel along thalweg	0	1	2 ✓	3
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2 ✓	3
Particle size of stream substrate	0	1 ✓	2	3
5. Active/relict floodplain	0	1	2 ✓	3
6. Depositional bars or benches	0	1 ✓	2	3
7. Recent alluvial deposits	0	1 ✓	2	3
8. Headcuts	0	1 ✓	2	3
9. Grade control	0	0.5	1 ✓	1.5
10. Natural valley	0	0.5 ✓	1	1.5
11. Second or greater order channel a artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = 8.00)	N	o = 0 ✓	Yes	= 3
12. Presence of Baseflow	0	1	2 🗸	3
13. Iron oxidizing bacteria	0	1 🗸	2	3
14. Leaf litter	1.5	1 🗸	0.5	0
15. Sediment on plants or debris	0	0.5 ✓	1	1.5
16. Organic debris lines or piles	0	0.5 ✓	1	1.5
17. Soil-based evidence of high water table?	N	0 = 0		= 3 √
C. Biology (Subtotal = 9.00)	ı		1	
18. Fibrous roots in streambed	3	2 🗸	1	0
19. Rooted upland plants in streambed	3 ✓	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1 🗸	2	3
21. Aquatic Mollusks	0 🗸	1	2	3
22. Fish	0	0.5 ✓	1	1.5
23. Crayfish	0	0.5 ✓	1	1.5
24. Amphibians	0	0.5 ✓	1	1.5
25. Algae	0 🗸	0.5	1	1.5
26. Wetland plants in streambed		FACW = 0.75	✓ OBL = 1.5 Oth	er = 0
*perennial streams may also be identified using other meth	nods. See p. 35 of manua	al.		
Notes:				
Sketch:				

Project/Site:

Adirondack Tract

Stream ID: S3

30.520299911499

Latitude:

NC DWQ Stream Identification Form Version 4.11

03/09/2019

Evaluator:	TTL, Inc./C. Terrell	County:	Charlton	Longitude: -8	32.0955963134765
Total Points: Stream is at least in if ≥ 19 or perennial i		Stream Determination:	Intermittent	e.g. Quad Name:	St. George, GA
A. Geomorpho	logy (Subtotal = <u>8.00</u>)	Absent	Weak	Moderate	Strong
	nannel bed and bank	0	1 ✓	2	3
	annel along thalweg	0	1 ✓	2	3
In-channel structure ripple-pool sequence	cture: ex. riffle-pool, step-pool, uence	0	1 🗸	2	3
4. Particle size of	stream substrate	0	1 ✓	2	3
5. Active/relict floo	•	0	1 ✓	2	3
6. Depositional ba	ars or benches	0	1 ✓	2	3
7. Recent alluvial	deposits	0	1 ✓	2	3
8. Headcuts		0 ✓	1	2	3
9. Grade control		0	0.5 ✓	1	1.5
10. Natural valley		0	0.5 ✓	1	1.5
	eater order channel	N	0 = 0 ✓	Yes:	= 3
^a artificial ditches are B. Hydrology (e not rated; see discussions in manual (Subtotal = 7.50)				
12. Presence of B	,	0	1	2 ✓	3
13. Iron oxidizing		0	1 🗸	2	3
14. Leaf litter	Bacteria	1.5	1	0.5 ✓	0
15. Sediment on p	plants or debris	0	0.5 ✓	1	1.5
16. Organic debris		0	0.5 ✓	1	1.5
	idence of high water table?		0 = 0		= 3 ✓
C. Biology (Su					
18. Fibrous roots	,	3	2 🗸	1	0
	d plants in streambed	3 ✓	2	1	0
-	s (note diversity and abundance)	0	1 🗸	2	3
21. Aquatic Mollus		0 🗸	1	2	3
22. Fish		0	0.5 ✓	1	1.5
23. Crayfish		0	0.5 ✓	1	1.5
24. Amphibians		0	0.5 ✓	1	1.5
25. Algae		0	0.5 ✓	1	1.5
26. Wetland plant	s in streambed		FACW = 0.75	OBL = 1.5 Oth	er = 0
	may also be identified using other methods	. See p. 35 of manua	al.		
Notes:					
Sketch:					
ı					

Project/Site:

Adirondack Tract

Stream ID: S5

30.5233001708984

Latitude:

NC DWQ Stream Identification Form Version 4.11

03/09/2019

otal Points: tream is at least intermittent 22.00 ≥ 19 or perennial if ≥ 30*	Stream Determination:	Intermittent	e.g. Quad Name	St. George, GA
Geomorphology (Subtotal = 6.00)	Absent	Weak	Moderate	Strong
Continuity of channel bed and bank	0	1 ✓	2	3
Sinuosity of channel along thalweg	0 🗸	1	2	3
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0 🗸	1	2	3
Particle size of stream substrate	0	1 ✓	2	3
Active/relict floodplain	0	1 ✓	2	3
Depositional bars or benches	0	1 ✓	2	3
Recent alluvial deposits	0	1 ✓	2	3
Headcuts	0 🗸	1	2	3
Grade control	0	0.5 ✓	1	1.5
0. Natural valley	0	0.5 ✓	1	1.5
Second or greater order channel artificial ditches are not rated; see discussions in manual Hydrology (Subtotal = 7.50)	No.	o = 0 ✓	Yes	= 3
2. Presence of Baseflow	0	1	2 🗸	3
3. Iron oxidizing bacteria	0	1 🗸	2	3
4. Leaf litter	1.5	1	0.5 ✓	0
5. Sediment on plants or debris	0	0.5 ✓	1	1.5
6. Organic debris lines or piles	0	0.5 ✓	1	1.5
7. Soil-based evidence of high water table?		0 = 0		= 3 🗸
S. Biology (Subtotal = $\frac{8.50}{}$)			<u> </u>	
8. Fibrous roots in streambed	3	2 🗸	1	0
9. Rooted upland plants in streambed	3 ✓	2	1	0
Macrobenthos (note diversity and abundance)	0	1 🗸	2	3
1. Aquatic Mollusks	0 🗸	1	2	3
2. Fish	0 🗸	0.5	1	1.5
3. Crayfish	0	0.5 ✓	1	1.5
4. Amphibians	0	0.5 ✓	1	1.5
5. Algae	0 🗸	0.5	1	1.5
6. Wetland plants in streambed		FACW = 0.75	✓ OBL = 1.5 Oth	er = 0
perennial streams may also be identified using other methods.	. See p. 35 of manua	al.		

Project/Site:

Adirondack Tract

Stream ID: S6

30.5312995910644

Latitude:

NC DWQ Stream Identification Form Version 4.11

03/09/2019

Evaluator:	TTL, Inc./C. Terrell	County:	Charlton	Longitude: -8	32.0962982177734
Total Points: Stream is at least int if ≥ 19 or perennial in		Stream Determination:	Intermittent	e.g. Quad Name:	St. George, GA
A. Geomorpho	logy (Subtotal = 10.00)	Absent	Weak	Moderate	Strong
1 ^{a.} Continuity of ch	nannel bed and bank	0	1	2 ✓	3
	annel along thalweg	0	1	2 ✓	3
In-channel structure ripple-pool sequence	cture: ex. riffle-pool, step-pool, uence	0	1 🗸	2	3
4. Particle size of	stream substrate	0	1 ✓	2	3
5. Active/relict floo	•	0	1 ✓	2	3
6. Depositional ba		0	1 ✓	2	3
7. Recent alluvial	deposits	0	1 ✓	2	3
8. Headcuts		0 ✓	1	2	3
9. Grade control		0	0.5 ✓	1	1.5
10. Natural valley		0	0.5 ✓	1	1.5
	ater order channel	N	0 = 0 ✓	Yes	= 3
^a artificial ditches are B. Hydrology (e not rated; see discussions in manual Subtotal = 8.00				
12. Presence of B	,	0	1	2 ✓	3
13. Iron oxidizing I		0	1 🗸	2	3
14. Leaf litter	odotona	1.5	1 🗸	0.5	0
15. Sediment on p	plants or debris	0	0.5 ✓	1	1.5
16. Organic debris		0	0.5 ✓	<u>.</u> 1	1.5
	dence of high water table?	N	0 = 0		= 3 ✓
C. Biology (Su			J		
18. Fibrous roots i	,	3	2 🗸	1	0
19. Rooted upland	d plants in streambed	3 ✓	2	1	0
	(note diversity and abundance)	0	1 🗸	2	3
21. Aquatic Mollus		0 🗸	1	2	3
22. Fish		0	0.5 ✓	1	1.5
23. Crayfish		0	0.5 ✓	1	1.5
24. Amphibians		0	0.5 ✓	1	1.5
25. Algae		0 🗸	0.5	1	1.5
26. Wetland plants	s in streambed		FACW = 0.75	OBL = 1.5 Oth	er = 0
	may also be identified using other methods	. See p. 35 of manua	al.		
Notes:					
Sketch:					

Project/Site:

County:

Adirondack Tract

Charlton

Stream ID: S7

Longitude: -82.1066970825195

30.5312995910644

Latitude:

NC DWQ Stream Identification Form Version 4.11

03/13/2019

TTL, Inc./C. Terrell

Date:

Evaluator:

Evaluator. TTL, IIIC./C. Terrell	County.	Chanton	Longitude	02.1000970025195
Total Points:Stream is at least intermittent 26.00 if ≥ 19 or perennial if $\geq 30^*$	Stream Determination:	Intermittent	e.g. Quad Name	St. George, GA
A. Geomorphology (Subtotal = $\frac{9.00}{}$)	Absent	Weak	Moderate	Strong
1 ^{a.} Continuity of channel bed and bank	0	1	2 ✓	3
Sinuosity of channel along thalweg	0	1 ✓	2	3
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1 🗸	2	3
Particle size of stream substrate	0	1 ✓	2	3
5. Active/relict floodplain	0	1 ✓	2	3
6. Depositional bars or benches	0	1 🗸	2	3
7. Recent alluvial deposits	0	1 ✓	2	3
8. Headcuts	0 ✓	1	2	3
9. Grade control	0	0.5 ✓	1	1.5
10. Natural valley	0	0.5 ✓	1	1.5
11. Second or greater order channel	-	o = 0 ✓	Yes	1
^a artificial ditches are not rated; see discussions in manual	IN IN	0 - 0 •	163	_ 3
B. Hydrology (Subtotal = 8.00)				
12. Presence of Baseflow	0	1	2 🗸	3
13. Iron oxidizing bacteria	0	1 🗸	2	3
14. Leaf litter	1.5	1 🗸	0.5	0
15. Sediment on plants or debris	0	0.5 ✓	1	1.5
16. Organic debris lines or piles	0	0.5 ✓	1	1.5
17. Soil-based evidence of high water table?		0 = 0		= 3 ✓
C. Biology (Subtotal = 9.00)				
18. Fibrous roots in streambed	3	2 🗸	1	0
19. Rooted upland plants in streambed	3 ✓	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1 🗸	2	3
21. Aquatic Mollusks	0 ✓	1	2	3
22. Fish	0	0.5 ✓	1	1.5
23. Crayfish	0	0.5 ✓	1	1.5
24. Amphibians	0	0.5 ✓	1	1.5
25. Algae	0 🗸	0.5	1	1.5
26. Wetland plants in streambed	0 7	FACW = 0.75	l	ner = 0
*perennial streams may also be identified using other meth	anda Saan 25 of manu		▼ OBL = 1.5 OII	iei = 0
	1005. See μ. 33 01 manu	al		
Notes:				
Sketch:				
Sketch.				

Project/Site:

Adirondack Tract

Stream ID: S10

30.5301990509033

Latitude:

NC DWQ Stream Identification Form Version 4.11

03/10/2019

otal Points:	Stream	Intermittent		St. George, GA
Stream is at least intermittent 23.00 $\stackrel{?}{>} 19$ or perennial if $\stackrel{>}{>} 30^*$	Determination:	intermittent	e.g. Quad Nam	
	<u>'</u>			
A. Geomorphology (Subtotal = 7.00)	Absent	Weak	Moderate	Strong
a. Continuity of channel bed and bank	0	1 🗸	2	3
. Sinuosity of channel along thalweg	0	1 ✓	2	3
. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1 🗸	2	3
. Particle size of stream substrate	0	1 ✓	2	3
. Active/relict floodplain	0	1 ✓	2	3
. Depositional bars or benches	0 🗸	1	2	3
. Recent alluvial deposits	0	1 ✓	2	3
. Headcuts	0 ✓	1	2	3
. Grade control	0	0.5 ✓	1	1.5
0. Natural valley	0	0.5 ✓	1	1.5
Second or greater order channel	No	o = 0 ✓	Ye	S = 3
artificial ditches are not rated; see discussions in manual 3. Hydrology (Subtotal = 7.00)				
2. Presence of Baseflow	0	1 🗸	2	3
3. Iron oxidizing bacteria	0	1 ✓	2	3
4. Leaf litter	1.5	1 🗸	0.5	0
5. Sediment on plants or debris	0	0.5 ✓	1	1.5
6. Organic debris lines or piles	0	0.5 ✓	1	1.5
7. Soil-based evidence of high water table?	No	O = 0	Ye	s = 3 ✓
C. Biology (Subtotal = 9.00)			-1	
8. Fibrous roots in streambed	3	2 🗸	1	0
9. Rooted upland plants in streambed	3 ✓	2	1	0
Macrobenthos (note diversity and abundance)	0	1 🗸	2	3
Aquatic Mollusks	0 🗸	1	2	3
2. Fish	0	0.5 ✓	1	1.5
3. Crayfish	0	0.5 ✓	1	1.5
4. Amphibians	0	0.5 ✓	1	1.5
5. Algae	0 🗸	0.5	1	1.5
6. Wetland plants in streambed		FACW = 0.75	✓ OBL = 1.5 Of	:her = 0
or rectained practice in our cannot be		sl.		
perennial streams may also be identified using other methods	ods. See p. 35 of manua	di.		

Project/Site:

County:

Adirondack Tract

Charlton

Stream ID: S11e

Longitude: -82.0898971557617

30.5284004211425

Latitude:

NC DWQ Stream Identification Form Version 4.11

03/21/2019

TTL, Inc./C. Terrell

Date:

Evaluator:

TTE, IIIC./O. TCITCII			3	-02.003037 1337017
Total Points: Stream is at least intermittent 16.00 if \geq 19 or perennial if \geq 30*	Stream Determination:	Ephemeral	e.g. Quad Name	St. George, GA
A. Geomorphology (Subtotal = $\frac{6.00}{}$)	Absent	Weak	Moderate	Strong
1 ^{a.} Continuity of channel bed and bank	0	1 ✓	2	3
2. Sinuosity of channel along thalweg	0	1 ✓	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1 🗸	2	3
Particle size of stream substrate	0	1 ✓	2	3
5. Active/relict floodplain	0	1 ✓	2	3
6. Depositional bars or benches	0 🗸	1	2	3
7. Recent alluvial deposits	0 🗸	1	2	3
8. Headcuts	0 🗸	1	2	3
9. Grade control	0	0.5 ✓	1	1.5
10. Natural valley	0	0.5 ✓	1	1.5
11. Second or greater order channel	N	o = 0 <	Yes	5 = 3
a artificial ditches are not rated; see discussions in manual	1		- 1	
B. Hydrology (Subtotal = <u>3.00</u>)				
12. Presence of Baseflow	0 🗸	1	2	3
13. Iron oxidizing bacteria	0	1 ✓	2	3
14. Leaf litter	1.5	1 🗸	0.5	0
15. Sediment on plants or debris	0	0.5 ✓	1	1.5
16. Organic debris lines or piles	0	0.5 ✓	1	1.5
17. Soil-based evidence of high water table?	N	0 = 0 ✓	Yes	
C. Biology (Subtotal = 7.00)	l			
18. Fibrous roots in streambed	3	2 🗸	1	0
19. Rooted upland plants in streambed	3	2	1 🗸	0
20. Macrobenthos (note diversity and abundance)	0	1 🗸	2	3
21. Aquatic Mollusks	0 🗸	1	2	3
22. Fish	0	0.5 ✓	1	1.5
23. Crayfish	0	0.5 ✓	1	1.5
24. Amphibians	0	0.5 ✓	1	1.5
25. Algae	0 🗸	0.5	1	1.5
26. Wetland plants in streambed		FACW = 0.75	✓ OBL = 1.5 Oth	ner = 0
*perennial streams may also be identified using other meth	nods. See p. 35 of manua			
Notes:				
ivotes.				
Sketch:				

Project/Site:

Adirondack Tract

Stream ID: S11i

30.528600692749

Latitude:

NC DWQ Stream Identification Form Version 4.11

03/21/2019

Total Points:Stream is at least intermittent20.00if ≥ 19 or perennial if ≥ 30^*	Stream Determination:	Intermittent	e.g. Quad Name	St. George, GA
	Alegant		o.g. quad riamo	:
	A la a a sa t			
A. Geomorphology (Subtotal = 7.00	Absent	Weak	Moderate	Strong
1 ^{a.} Continuity of channel bed and bank	0	1 ✓	2	3
Sinuosity of channel along thalweg	0	1 ✓	2	3
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1 🗸	2	3
Particle size of stream substrate	0	1 ✓	2	3
5. Active/relict floodplain	0	1 ✓	2	3
6. Depositional bars or benches	0 🗸	1	2	3
7. Recent alluvial deposits	0	1 ✓	2	3
8. Headcuts	0 🗸	1	2	3
9. Grade control	0	0.5 ✓	1	1.5
10. Natural valley	0	0.5 ✓	1	1.5
11. Second or greater order channel	N	O = 0 ✓	Yes	= 3
^a artificial ditches are not rated; see discussions in manual				
B. Hydrology (Subtotal = $\frac{4.00}{}$)				
12. Presence of Baseflow	0	1 🗸	2	3
13. Iron oxidizing bacteria	0	1 🗸	2	3
14. Leaf litter	1.5	1 🗸	0.5	0
15. Sediment on plants or debris	0	0.5 ✓	1	1.5
16. Organic debris lines or piles	0	0.5 ✓	1	1.5
17. Soil-based evidence of high water table?	-	0 = 0 🗸	Yes	
C. Biology (Subtotal = 9.00		•		
18. Fibrous roots in streambed	3	2 🗸	1	0
19. Rooted upland plants in streambed	3	2 🗸	1	0
20. Macrobenthos (note diversity and abundance)	0	1 🗸	2	3
21. Aquatic Mollusks	0 ✓	1	2	3
22. Fish	0	0.5 ✓	1	1.5
23. Crayfish	0	0.5 ✓	1	1.5
24. Amphibians	0	0.5 ✓	1	1.5
25. Algae	0	0.5	1 🗸	1.5
26. Wetland plants in streambed	0	FACW = 0.75	1	er = 0
*perennial streams may also be identified using other method	ds See n 35 of manus		• ODE = 1.0 Ott	C1 = 0
Notes:	аз. Осс р. 33 от manae	AI.		
Notes.				
Sketch:				

APPENDIX E

USACE Savannah District Request for Corps of Engineers Jurisdictional Determination (JD) and/or Delineation Review Form



SAS APPENDIX 1: Request for Corps of Engineers Jurisdictional Determination (JD) and/or Delineation Review

I. Reason for request: (check as many as applicable)
I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all aquatic resources.
I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all jurisdictional aquatic resources under Corps authority.
✓ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.
I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permittin process.
I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is include on the district Section 10 list and/or is subject to the ebb and flow of the tide.
A Corps JD is required in order to obtain my local/state authorization.
I intend to contest jurisdiction over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.
I believe that the site may be comprised entirely of dry land.
Other:
II. I am requesting that the U.S. Army Corps of Engineers, Savannah District, provide me with the following:
Delineation Review of Aquatic Resources - Concurrence with an aquatic resource delineation is a written notification from the Corps concurring, not concurring, or commenting on the aquatic resource boundaries, or limits, delineated on a property.
Preliminary Jurisdictional Determination - (PJD). A PJD is defined in Corps regulations at 33 CFR 331.2, as "written indications that there may be waters of the United States on a parcel". When the Corps provides a PJD, the Corps is making no legally binding determination of any type regarding whether jurisdiction exists over the particular aquatic resource in question.
Approved Jurisdictional Determination - (AJD) An AJD is defined in Corps regulations at 33 CFR 331.2. A definitive, official determination that there are, or that there are not, jurisdictional aquatic resources on a parcel.
I am unclear as to what I would like to request and require additional information to inform my decision.

SECTION 1

Parcel Number of Property:

Lat. 30.537849

Long. - 82.099831

(in decimal degrees)

Parcel Address:

Parcel City: Saint George

Parcel County: Charlton

Zip:

Size of Review Area: 551.1

Acre(s) Variable

Linear feet

SECTION 2

AUTHORIZED AGENT'S NAME LANDOWNER NAME

First: Cindy First: Steven

Last: House-Pearson Last: Ingle

Company: TTL, Inc. Company: Twin Pines Minerals, LLC

Email Address: chpearson@ttlusa.com Email Address: single@greenfuelsenergy.com

Address: 3516 Greensboro Avenue Address: 2100 Southbridge Parkway, Ste. 540

City: Tuscaloosa City: Birmingham

Zip: 35401 Zip: 35209 State: AL State: AL

Phone: 251-327-6153 Phone: 205-545-8759

PROPERTY ACCESS PERMISSION, AKNOWLEDGEMENT OF 18 U.S.C. SECTION 10001 AND STATEMENT OF AGENT AUTHORIZATION

Initial ONLY One:

By signing below, I certify that I am the owner of record of the property referenced in III, Section 1 above, and I hereby authorize representatives of the U.S. Army Corps of Engineers, Savannah District, to enter the property for purposes of conducting on-site inspections, and issuing an aquatic resource delineation concurrence and/or a jurisdictional determination. My signature shall also be an affirmation that I possess the requisite property rights to request a delineation review and/or a jurisdictional determination on the property referenced in III - Section 1. Further, I authorize the agent in III - Section 2, to act on my behalf in the processing of this request and to furnish supplemental information in support of this request.

By signing below, I certify that I am acting as the duly authorized agent of the owner of record of the property referenced in III, Section 1 above, and N/A have been given the authority to: 1) request a delineation review and/or a jurisdictional determination (JD) on the property referenced in III - Section 1, and 2) authorize representatives of the U.S. Army Corps of Engineers, Savannah District, to enter the property for purposes of conducting on-site inspections, and issuing an aquatic resource delineation concurrence and/or a jurisdictional determination. I understand that I may be required to provide documentary evidence of my authority to request a delineation review and/or JD, and/or to grant Corps of Engineers personnel access to the property.

Please Print Name Legibly: Steven R. Ingle

Signature

Date: 07/03/2019

Attithorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103,

33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332. Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.

Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made

US Army Corps of Engineers Savannah District, Regulatory Division Global Positioning Systems (GPS) Datasheet Delineation of Wetlands, Streams and Other Waters Within the State of Georgia

Date of Delineation 3/8-3/22/2019 USACE File Number_SAS-2018-00554 Name of Delineator Present Chris Terrell & Chris Stanford Make and Model of GPS Device Used (must be capable of sub-meter accuracy) Trimble Geo7x GPS (model 88161) Geographic Coordinate System Used US State Plane GA East - NAD 1983 (Conus) Name of Continually Operated Reference Station Used for Post-processing CORS, Jacksonville 1 (ZJX1), Florida $_{Date\ Post-processing\ Performed}\,5/23/2019$ Percent Dilution of Position (PDOP) (6 or less is required) NA (use Trimble Smart Settings) Name and Coordinates of Known Property Corner and/or Monument GPS Reading of Known Property Corner and/or Monument Frequency of Waypoints Taken During Survey as needed per field observations

GPS Datasheet 19 Mar 2008

Note: GPS data must be provided, if requested. If GPS data and/or a GPS delineation is determined unacceptable by the Savannah District, a survey sealed by a surveyor licensed in

Georgia will be required.



November 7, 2019

Transmitted Via: Email (Holly.A.Ross@usace.army.mil)

Ms. Holly Ross, Sr. Project Manager U.S. Army Corps of Engineers Savannah District - Regulatory Division 1104 N. Westover Blvd. Unit 9 Albany, Georgia 31707

Subject: Waters of the U.S. Delineation Field Verification – Revisions Submittal (Revision 01)

Approximately 551.1-Acre Adirondack Tract

Twin Pines, LLC

Saint George, Charlton County, Georgia USACE Project No.: SAS-2018-00554 TTL Project No.: 000180200804.00

Dear Ms. Ross.

In response to the field verification conducted by the United States Army Corps of Engineers (USACE) and TTL on October 21-25, 2019 and the original field verification submittal letter dated November 1, 2019, TTL provides the following summary of revisions. Attachment A provides the revised Waters of the U.S. Delineation Map per the USACE field verification. This Revision 01 submittal includes corrections for the following:

- a. Wetland A (WA) acreage was revised from 105.947 acres to 105.798 acres. This correction was to account for removing the acreage of Stream 2 (S-2) from WA.
- b. Wetland B (WB) acreage was revised from 105.947 acres to 105.798 acres. This correction was to account for removing the acreage of Stream 6 (S-6 & S-6A) from WB.
- c. Wetland C (WC) acreage was revised from 2.555 acres to 2.523 acres. This correction was to account for removing the acreage of S-2 from WC.
- d. Wetland E (WE) acreage was revised from 4.233 acres to 4.218 acres. This correction was to account for removing the acreage of Stream 9 (S-9e) from WE.
- e. Wetland G (WG) acreage was revised from 5.544 acres to 5.550 acres. This correction was to account for removing the acreage of Stream 11 (S-11i) from Wetland WG.

- f. Stream 11 (S-11) was removed due to it being reclassified as a non-jurisdictional ditch.
- g. Overall, the total intermittent stream measurement was revised from 0.663 acre and 7,891 linear feet to 0.657 acre and 7,784 linear feet.
- h. Overall, the total ephemeral stream measurement was revised from 0.340 acre and 3,924 linear feet to 0.321 acre and 3,669 linear feet.
- i. Overall, the total stream acreage (which originally included ditches and streams) was revised from 1.067 acres and 12,202 linear feet to 1.042 acres and 11,840 linear feet.
- j. Overall, the total wetland acreage was revised from 150.008 acres to 149.602 acres.

A separate letter for the other delineated property that was field verified (TIAA) at the same time has been prepared and sent separately.

Please let TTL representatives know if additional information or revisions are needed for the project.

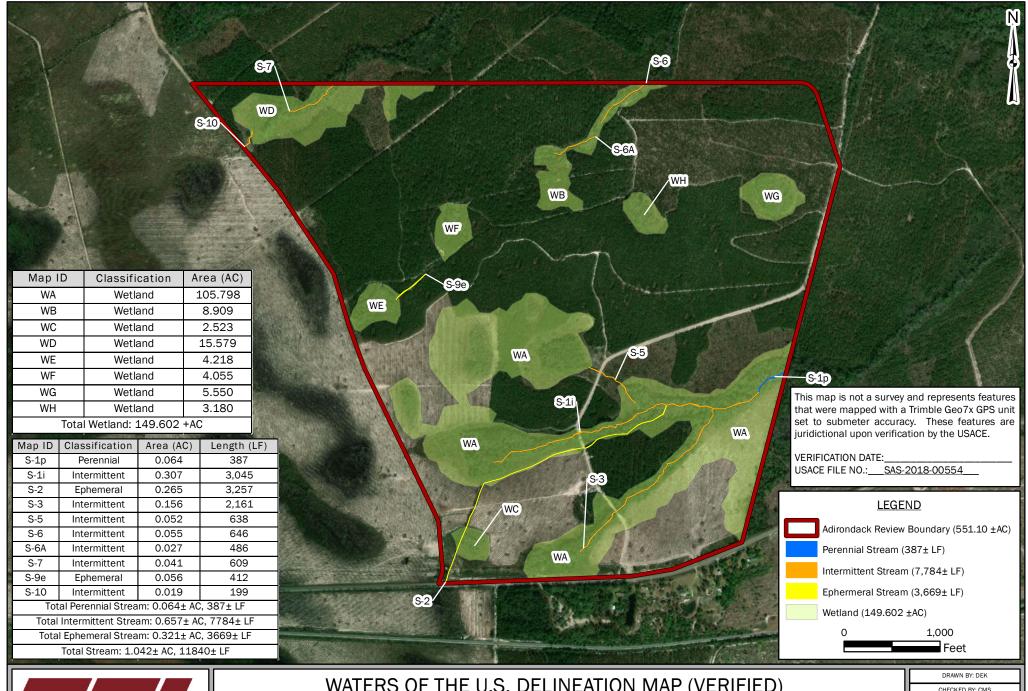
Sincerely,

TTL, Inc.

Christopher Terrell Project Professional Cindy House-Pearson
Senior Natural Resources

Client Manager

ATTACHMENT A REVISED WATERS OF THE US DELINEATION MAP



WATERS OF THE U.S. DELINEATION MAP (VERIFIED) TWIN PINES MINERALS - ADIRONDACK TRACT ST. GEORGE, CHARLTON COUNTY, GEORGIA

BASEMAP: DigitalGlobe, 3/24/2018 (0.46 m Resolution)

DRAWING DATE: 7/1/2019

REVISION DATE: 11/6/2019 TTL JOB NO.: 000180200804.00

APPROXIMATE SCALE: 1" = 1,000'

WATERS OF THE UNITED STATES DELINEATION REPORT

APPROXIMATELY 1,034-ACRE KEYSTONE TRACT SAINT GEORGE, CHARLTON COUNTY, GEORGIA

Submitted to:

Twin Pines Minerals, LLC Attn: Mr. Steve Ingle, P.E. 2100 Southbridge Parkway Birmingham, Alabama 35209

Prepared by:

TTL, Inc. 2743-B Gunter Park Drive West Montgomery, Alabama 36109

Project No. 000180200804.00

September 28, 2018



SIGNATURE OF ENVIRONMENTAL PROFESSIONALS

TTL, Inc. has performed a waters of the United States (U.S.) delineation in general conformance with the scope and limitations of the *U. S. Army Corps of Engineers Wetland Delineation Manual,* 1987 *Edition,* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region Version* 2.0 (2010). Identification of ephemeral, intermittent and perennial streams has been performed in general conformance with methodology outlined in *Methodology for Identification of Intermittent and Perennial Streams and their Origins, Version* 4.11 (2010).

Chatopher Sevel	September 28, 2018
Christopher Terrell Environmental Professional	Date

September 28, 2018

Date

Cirply House-Pearson Senior Natural Resources Client Manager

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	Agricultural Applied Climate Information System (AgACIS) Data
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Appendix B	Selected Site Photographs
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Appendix D	North Carolina (NC) Division of Water Quality (DWQ) Stream Identification Forms
Appendix E	USACE Savannah District Request for Corps of Engineers Jurisdictional Determination (JD) and/or Delineation Review Form

1.0 INTRODUCTION

TTL, Inc. (TTL) was contracted by Twin Pines Minerals, LLC (Twin Pines) to perform a delineation of the waters of the United States (WOTUS) associated with a proposed development of a heavy mineral mining operation in Saint George, Charlton County, Georgia (Figure 1). TTL conducted the field activities for this project from August 20-31, 2018.

Activities within jurisdictional waters of the U.S. are regulated by the U.S. Army Corps of Engineers (USACE). Authority to permit discharges (fill) within jurisdictional wetlands or non-navigable waters of the U.S. is granted under Section 404 of the Clean Water Act (CWA) of 1972. Authority to permit work and placement of structures in navigable waters of the U.S. is granted under Sections 9 and 10 of the Rivers and Harbors Act of 1899. For regulatory purposes under the CWA, wetlands are defined by the USACE as:

Those areas that are inundated or saturated by surface or groundwater 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.

2.0 SITE DESCRIPTION

The site is an approximately 1,034-acre area depicted on the U.S. Geological Survey (USGS) 7.5-minute Topographic Maps of Moniac, Georgia and Saint George, Georgia (Figure 1). The center of the site is located near latitude 30.526662 and longitude -82.115773. According to the USGS Topographic Map, the elevation at the site ranges from approximately 170 to 175 feet above mean sea level.

The delineation area is located near the eastern limits of the Okefenokee National Wildlife Refuge The western delineation area boundary follows a portion of T-Model Road. The eastern delineation area boundary follows a portion of Trail Ridge Road. Although not well-defined, the historic Trail Ridge is located along the eastern portion of the delineation area. The delineation area has historically been used for silvicultural activities. The primary sources of hydrology for the delineation area are onsite rainfall and surface water flow.

Driving directions to the site are as follows: from the intersection of GA-23 and GA-94 (in St. George, GA), travel west along GA-94 for approximately 3.9 miles to the intersection of GA-94 and Trail Ridge Road (dirt road). This location is near the southeast corner of the delineation area.

3.0 LITERATURE AND RECORDS REVIEW

Prior to conducting the field effort, TTL performed a literature and records review to develop an understanding of the potential for the presence of waters of the U.S. on the subject site or surrounding properties. These data sources and the review findings are described below.

3.1 Hydric Soils

The Natural Resources Conservation Service (NRCS) maintains a database of soil types (map units) for most areas of the U.S. (NRCS, 2017). The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit which represents a large area dominated by one or more major types of soil. Map units are further classified with a rating of hydric, partially hydric or non-hydric. Map units are useful for planning purposes to provide an overall understanding of the soils that occur in a general area. However, due to the natural variability of the landscape, direct observation of the soils profile is necessary to identify hydric soil indicators.

A classification of hydric means that the soil components listed for a given map unit are rated as being hydric. "Predominantly hydric" means that more than 66 percent to less than 100 percent of soil components are hydric. "Partially hydric" means that more than 33 percent to less than 65 percent of soil components are hydric. "Predominantly non-hydric" means that more than 0 percent and less than 32 percent of soil components are hydric. "Not hydric" means that all soil components are rated as not hydric. "Unknown hydric" indicates that at least one component is not rated so a definitive rating for the map unit cannot be made. A NRCS map of the soils located on the site with the associated hydric rating is presented in Figure 3 and summarized in Table 1 below.

Map Unit Symbol	Description	Hydric Rating
LeA	Leon fine sand, 0-2% slopes	Predominantly Hydric
LoA	Leon fine sand, frequently ponded, 0-2% slopes	Hydric
LvA	Lynn Haven fine sand, 0-2% slopes	Predominantly Hydric
LYA	Lynn Haven, Allanton and Kingsferry soils, ponded, 0-1% slopes	Predominantly Hydric
MaA	Mandarin fine sand, 0-2% slopes	Predominantly Nonhydric

Table 1: Soil Map Units Classifications

3.2 **National Wetland Inventory**

The U.S. Fish and Wildlife Service (USFWS) created and maintains the National Wetland Inventory (NWI) database of information on the characteristics, extent, and status of the wetlands and deepwater habitats within the U.S. This information is useful for planning purposes and provides an overall understanding of the habitats that may be present in or around the site. The NWI classifies habitat types as marine, estuarine, riverine, lacustrine or palustrine with additional modifiers as appropriate to identify the water regime, water chemistry, soil or other characteristics based on *Classification of Wetlands and Deepwater Habitats of the U.S.* (Cowardin, 1979).

TTL reviewed the NWI data for the site using the USFWS NWI Wetlands Mapper web-based tool to determine the potential for wetlands to exist on the site. The USFWS NWI Mapper identified numerous wetland, stream, and open water features within the delineation area boundary. Figure 4 depicts the NWI Map, and Table 2 summarizes the habitat below.

Table 2: NWI Classifications

Map Unit Symbol	Description of Habitat
PEM1C	Palustrine; Emergent; Persistent; Seasonally Flooded
PFO4C	Palustrine; Forested; Needle-Leaved Evergreen; Seasonally Flooded
PFO3/4B	Palustrine; Forested; Broad-Leaved Evergreen/Needle-Leaved Evergreen; Seasonally Saturated
PFO3/4C	Palustrine; Forested; Broad-Leaved Evergreen/Needle-Leaved Evergreen; Seasonally Flooded
PF06/4C	Palustrine; Forested; Deciduous/Needle-Leaved Evergreen; Seasonally Flooded
PF06F	Palustrine; Forested; Deciduous; Semipermanently Flooded
PSS3B	Palustrine; Scrub-shrub; Broad-leaved Evergreen; Seasonally Saturated
R4SBC	Riverine; Intermittent; Streambed; Seasonally Flooded
R5UBH	Riverine; Unknown Perennial; Unconsolidated Bottom; Permanently Flooded

3.3 Hydrologic Unit Code

The U.S. is divided and sub-divided into successively smaller hydrologic units which are classified into six levels: regions, sub-regions, accounting units, watershed, sub-watershed, and cataloging units. The hydrologic units are arranged within each other, from the smallest (cataloging unit) to the largest (regions). Each hydrologic unit is identified by a unique hydrologic unit code (HUC) consisting of two to 12 digits based on the six levels of classification in the hydrologic system (Seaber, Kapinos, Knapp, 1987). The western portion of the delineation area is located within the Soldiers Camp Island watershed, cataloging unit 12-Digit HUC 030702040303. The eastern portion of the delineation area is located within the Boone Creek watershed, cataloging unit 12-Digit HUC 030702040602. Both cataloging units are located within the St Marys watershed, cataloging unit 8-Digit HUC 03070204 (Figure 5).

3.4 Normal Weather Conditions

TTL calculates a subject site's normal weather conditions before performing site work to understand whether aquatic features in the landscape may exhibit certain characteristics related to current and near past hydrologic regime. TTL calculates data obtained from an on-line NRCS climactic database, Agricultural Applied Climate Information System (AgACIS), and derives its calculation method from the Tennessee Department of Environment and Conservation's guide for making hydrologic determinations (TDEC, 2011). An evaluation of weather conditions was performed for the three-month period prior to the field activities. Calculations for the site indicate that the weather conditions were wetter than normal for the time of year that field work was performed.

The Palmer Drought Severity Index provided by National Oceanic and Atmospheric Administration (NOAA) is accessed at http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/palmer.html and was used to cross-reference the results calculated. The Palmer Drought Severity Index indicates that the region of the site experienced "mid-range" conditions during the weeks prior to the site visit.

As an additional cross-reference, the U.S. Drought Monitor was accessed and evaluated. The U.S. Drought Monitor is produced through a partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture (USDA), and NOAA. The most recent update of the U.S. Drought Monitor (August 21, 2018) Map of Georgia exhibited no drought conditions in the vicinity of the review area.

The Normal Weather Conditions Table, AgACIS data, Palmer Drought Severity Index Map, and U.S Drought Monitor Map of Georgia and are included in Appendix A.

4.0 WETLAND AND WATERS DELINEATION

4.1 Wetland Identification Methodology

TTL utilizes the *U.S. Army Corps of Engineers Wetland Delineation Manual* (USACE, 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (USACE, 2010) technical guidelines for determining the presence of wetlands. This determination requires that a positive wetland indicator be present for each of the three parameters (hydrology, soil, and vegetation), with the exception of areas altered by recent human activities or natural events. During field activities, TTL assessed the project area for the presence of hydrophytic vegetation and used a Dutch hand-auger to evaluate the project area for the presence of hydric soils. TTL examined the soil for hydric soil indicators as identified in the *Field Indicators of Hydric Soils in the United States, V. 8.1* (NRCS, 2017). Additionally, TTL observed the project area

for indications of inundated or saturated soils, water marks, drift lines, crayfish burrows, sediment deposits and other wetland hydrology indicators. TTL used *Wetland Determination Data Forms – Atlantic and Gulf Coastal Plain Region* (2010) to record field conditions for the soil, vegetation and hydrology for wetlands and uplands located on the site. At least one data point was established in each habitat type observed within the review area.

TTL traversed the project area on foot and placed orange flagging labeled with Upland Data Point (UDP) or Wetland Data Point (WDP) identification at the data point location. The location of the data point flagging was mapped with a Trimble Geo7x Global Positioning System (GPS) unit, which was set to sub-meter tolerances. Field data was post-processed using Trimble PathfinderOffice V 5.3 and exported to ESRI's ArcMap 10.2. Area features were manually digitized in ArcGIS using the flag locations; geographic coordinates and area quantities were calculated using ArcGIS "area" function.

4.2 Wetland Findings

The project area contains twelve wetland areas (WA-WL) consisting of approximately 631.105 acres. The boundaries of the wetland areas and data point locations are depicted on Figure 6. Selected photographs of our field observations are provided in Appendix B. Wetland Determination Data Forms are included in Appendix C. Table 3 summarizes the wetland findings below.

Table 3: Wetland Summary

Wetland ID	Cowardin Habitat Description	Area (acres)
WA	Palustrine; Forested, Broad-Leaved Evergreen/Needle-Leaved Evergreen; Seasonally & Semi permanently Flooded	580.475
WB	Palustrine; Forested, Broad-Leaved Evergreen/Needle-Leaved Evergreen; Seasonally Saturated	2.041
WC	Palustrine; Forested, Broad-Leaved Evergreen/Needle-Leaved Evergreen; Seasonally Saturated	0.957
WD	Palustrine; Forested, Broad-Leaved Evergreen/Needle-Leaved Evergreen; Seasonally Saturated	6.323
WE	Palustrine; Forested, Broad-Leaved Deciduous/Needle-Leaved Evergreen; Seasonally Saturated	10.400
WF	Palustrine; Forested, Broad-Leaved Deciduous/Needle-Leaved Evergreen; Seasonally Saturated	0.704
WG	Palustrine; Forested, Broad-Leaved Deciduous/Needle-Leaved Evergreen; Seasonally Saturated	5.957
WH	Palustrine; Forested, Broad-Leaved Deciduous/Needle-Leaved Evergreen; Seasonally Saturated	14.562
WI	Palustrine; Forested, Broad-Leaved Deciduous/Needle-Leaved Evergreen; Seasonally Saturated	6.068
WJ	Palustrine; Forested, Broad-Leaved Deciduous/Needle-Leaved Evergreen; Seasonally Saturated	1.072
WK	Palustrine; Forested, Broad-Leaved Deciduous/Needle-Leaved Evergreen; Seasonally Saturated	2.500
WL	Palustrine; Forested, Broad-Leaved Deciduous/Needle-Leaved Evergreen; Seasonally Saturated	0.046

Wetland A is the largest wetland and is located throughout the delineation area. Wetlands B, C, D, F, G, and H are located along the southeastern portion of the delineation area. Wetlands E, I, J, and L are located along the southwestern portion of the delineation area. Wetland K is located along the northwestern portion of the delineation area. The soils textures within the wetland areas are comprised of a sand content that meets hydric soil indicators S7 – Dark Surface, S8 – Polyvalue Below Surface, A5 - Stratified Layers, A4 – Hydrogen Sulfide, and/or A7 - 5cm Mucky Mineral. The hydrology for this area is supported by localized stormwater and a shallow water table. The wetland vegetation communities within the delineation area vary from large areas of hipped and benched, planted pine habitat [dominated by slash pine (*Pinus elliottii*), inkberry (*Ilex glabra*), Carolina redroot (*Lachnanthes caroliniana*), and Virginia chain fern (*Woodwardia virginica*)] to forested pocosin habitat that exhibited no signs of silvicultural activities [dominated by pond pine (*Pinus serotina*),

pond cypress (*Taxodium ascendens*), loblolly bay (*Gordonia lasianthus*), swamp tupelo (*Nyssa biflora*), large gallberry (*Ilex coriacea*), and Virginia chain fern.

4.3 Streams Identification and Methodology

TTL used the North Carolina Division of Water Quality – Methodology for Identification of Intermittent and Perennial Streams and Their Origins v. 4.11, September 1, 2010 (NC Method) technical guideline to determine the most appropriate classification of each subject stream. This technical guideline for stream identification is the preferred methodology for distinguishing between intermittent and perennial streams in the southeast United States and requires evaluation of 26 attributes of the stream and assigning a numeric score to each on the NC DWQ Stream Identification Form Version 4.11. A four-tiered, weighted scale is utilized for evaluating and scoring the features categorized in sets of geomorphic, hydrologic, and biological attributes. Additionally, TTL utilized the Regulatory Guidance Letter No. 05-05: Ordinary High Water Mark Identification (USACE, 2005) as the basis for the delineation, mapping, and linear footage/areal estimations of on-site streams.

Identified streams were mapped using the method described in Section 4.1. Stream Identification Forms (v. 4.11) were used to classify streams that were not clearly perennial (i.e. flowing water at greater than 48 hours since rainfall, strong morphology and obvious biological presence). TTL traversed the stream channels on foot and placed blue flagging labeled with stream data point identifications near the observed ordinary high water mark (OHWM). The locations of the boundary flags were mapped with a Trimble Geo7x Global Positioning System (GPS) unit, which was set to submeter tolerances. Field data was post-processed using Trimble Pathfinder Office V 5.3 and exported to ESRI's ArcMap 10.2. Area features were manually digitized in ArcGIS using the flag locations; geographic coordinates and area quantities were calculated using ArcGIS "area" function.

4.4 Streams Findings

TTL identified four tributaries within the delineation area consisting of approximately 1,977 linear feet of intermittent stream (S1-S3) and 600 linear feet of perennial stream (S4). Streams S1 and S2 are located within the northeastern portion of the delineation area. Stream S3 is located along the southwestern portion of the delineation area. Stream S4 is located along the southeastern portion of the delineation area. Table 4 summarizes the stream findings below.

Table 4: Stream Summary

Wetland ID	Cowardin Habitat Description	Length (linear feet)/ Area (acres)
S1	Riverine; Intermittent; Streambed; Mud	297/ 0.020
S2	Riverine; Intermittent; Streambed; Mud	1268/ 0.233
S3	Riverine; Intermittent; Streambed; Mud	412/ 0.112
S4	Riverine; Lower Perennial; Unconsolidated Bottom; Mud	600/ 0.194

4.5 Jurisdictional Determination Request

The USACE has the sole authority to determine whether wetlands or water features are "jurisdictional." Under certain circumstances, wetland areas are considered non-jurisdictional because they lack a significant nexus with other wetlands or waters of the U.S. TTL utilized the USACE Jurisdictional Determination Form Instructional Guidebook (USACE and EPA, 2007) to complete a SAS APPENDIX 1: Request for Corps of Engineers Jurisdictional Determination (JD) and/or Delineation Review Form (Appendix E).

It is TTL's opinion that all observed tributaries, wetlands, and open waters within the delineation area are jurisdictional features due to their significant nexus to nearby relatively permanent waters.

TTL recommends that a delineation review of aquatic resources of the potentially jurisdictional site features be requested from the USACE Savannah District. If the USACE is not engaged regarding a jurisdictional determination or delineation review of aquatic resources, TTL is neither responsible for the final determination of jurisdictional features within the review corridor, nor responsible for violations associated with unauthorized activities that may occur within areas deemed jurisdictional by the USACE at a later time.

5.0 CONCLUSIONS

- Approximately 631.105 acres of forested wetland were identified within the delineation area.
- Approximately 1,977 linear feet (0.365 acres) of intermittent stream were identified within the delineation area.
- Approximately 600 linear feet (0.194 acres) of perennial stream were identified within the delineation area.
- Upon approval by the client, TTL will submit a request for a delineation review of aquatic resources from the USACE of all aquatic features within the site.

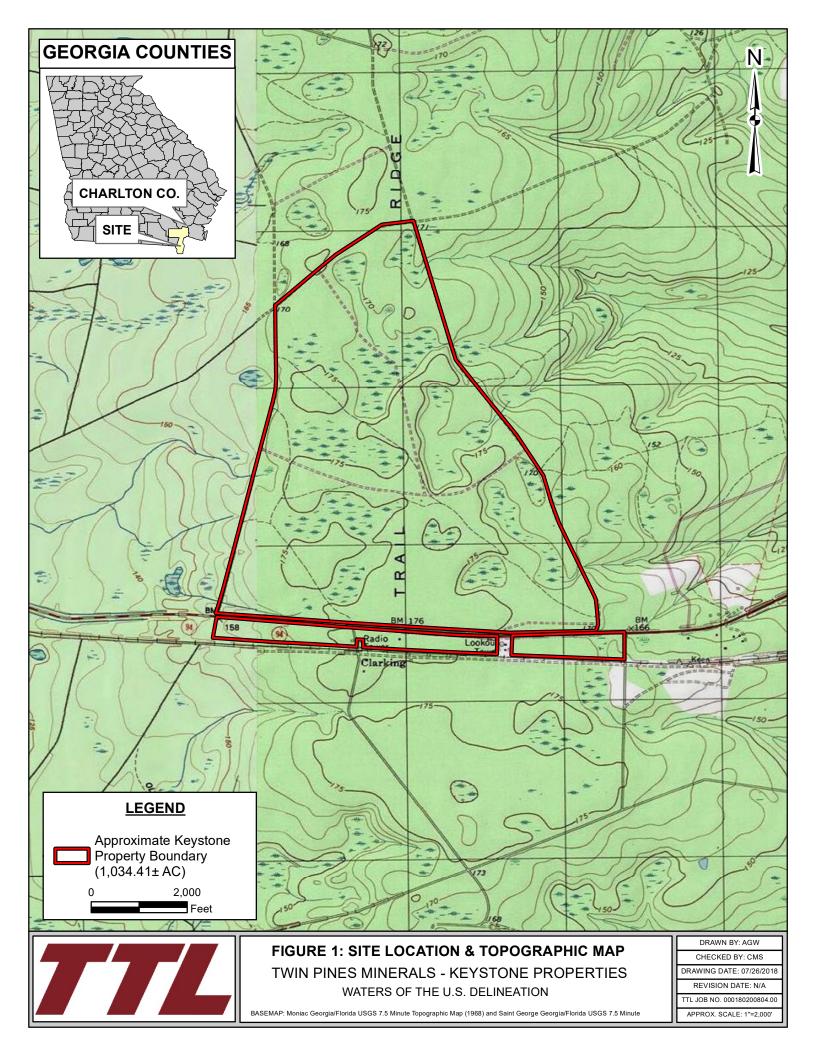
6.0 REFERENCES

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- U.S. Fish and Wildlife. National Wetland Inventory Mapper. Accessed at: https://www.fws.gov/wetlands/data/mapper.HTML=. Accessed August 2018.

FIGURES

Figure 1	Project Location and Topographic Map
Figure 2	Site Location & Aerial Photograph
Figure 3	Natural Resources Conservation Service (NRCS) Soil Map w/Hydric Rating
Figure 4	National Wetland Inventory (NWI) Classification Map
Figure 5	Hydrologic Unit Code (HUC) Map
Figure 6	Waters of the U.S. Delineation Map



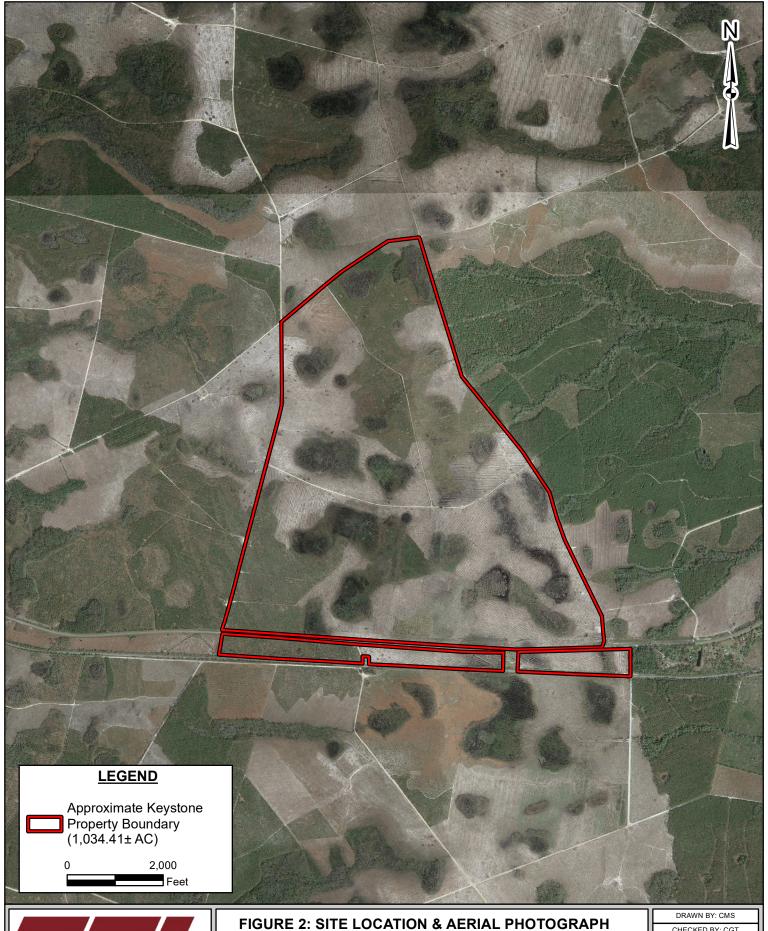


FIGURE 2: SITE LOCATION & AERIAL PHOTOGRAPH

TWIN PINES MINERALS - KEYSTONE PROPERTIES

WATERS OF THE U.S. DELINEATION

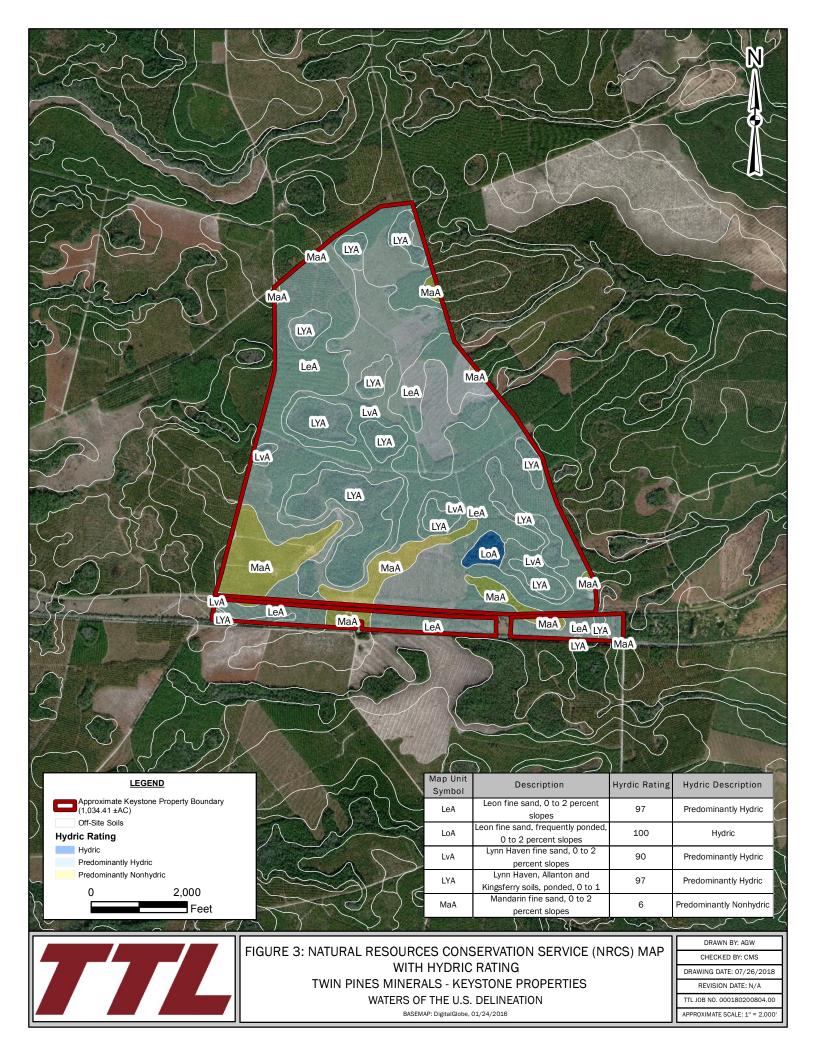
BASEMAP: Google Earth, Europa Technologies (C) 2018. Image Date: 3/6/201

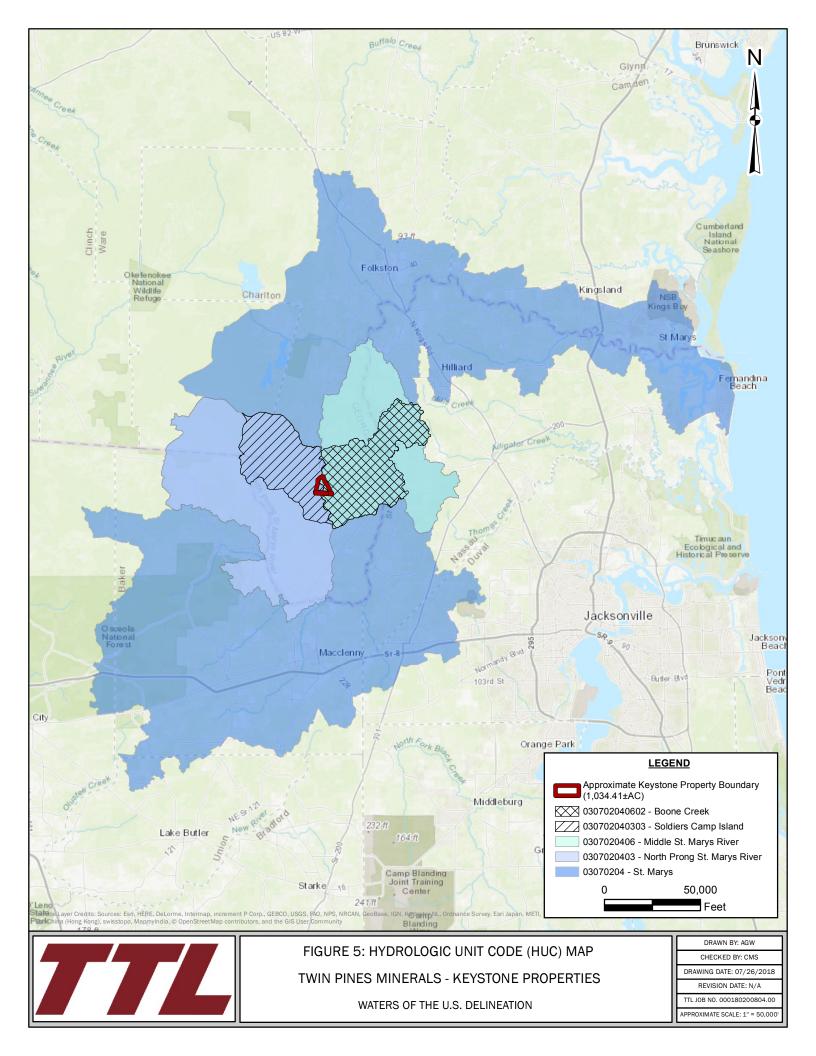
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DRAWING DATE: 09/25/2018

REVISION DATE: N/A

TTL JOB NO. 000180200804.00

APPROX SCALE: 1"=2,000'





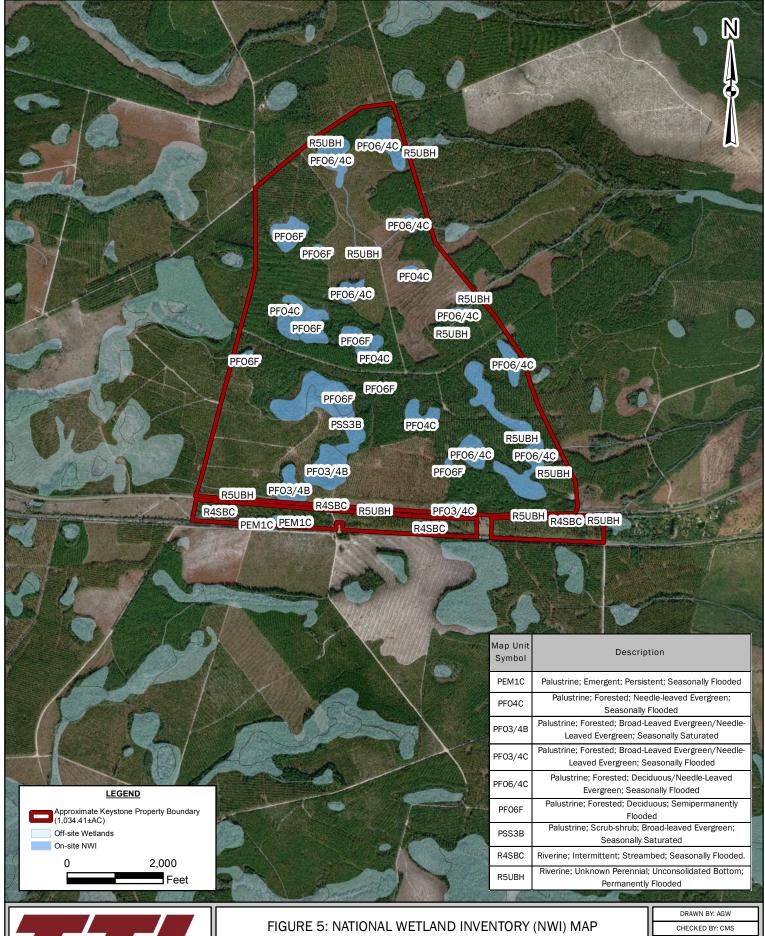


FIGURE 5: NATIONAL WETLAND INVENTORY (NWI) MAP
TWIN PINES MINERALS - KEYSTONE PROPERTIES

WATERS OF THE U.S. DELINEATION

BASEMAP: DigitalGlobe, 01/24/2016

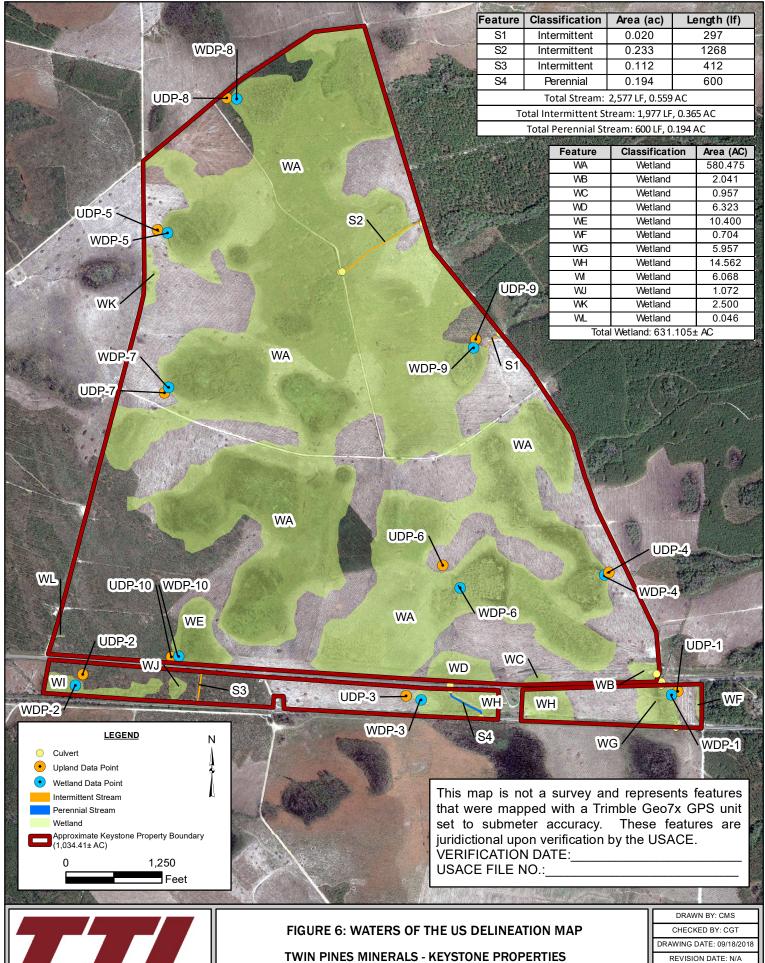
CHECKED BY: CMS

DRAWING DATE: 07/26/2018

REVISION DATE: N/A

TTL JOB NO. 000180200804.00

APPROXIMATE SCALE: 1" = 2,000'



TWIN PINES MINERALS - KEYSTONE PROPERTIES WATERS OF THE U.S. DELINEATION

BASEMAP: Google Earth, Europa Technologies (C) 2018. Image Date: 3/6/2018

TTL JOB NO. 000180200804.00

APPROX. SCALE: 1" = 2,000

APPENDIX A

Normal Weather Conditions Table AgACIS Data U.S. Drought Monitor – Alabama Palmer Drought Index

Calculation of Normal Weather Conditions General Project Location: Folkston, Georgia Analysis for August 2018 Site Visit

			Long-Term Rainfall Records							
			Minus One		Plus One					
			Standard		Standard		Condition		Month	
		Standard	Deviation	Normal* (Mean	Deviation	Actual	(wet, normal,	Condition	Weight	Weighted
	Month	Deviation*	(Dry)	Inches)	(Wet)	Rainfall**	dry)	Value***	Value	Value
1st prior month	Jul 20 - Aug 20	3.06	3.64	6.70	9.76	13.56	wet	3	3	9
2nd prior month	Jun 20 - Jul 20	2.91	4.32	7.23	10.14	5.38	normal	2	2	4
3rd prior month	May 20 - Jun 20	2.76	3.14	5.90	8.66	7.00	normal	2	1	2
•	•	•	•	•	-	•	•		Sum:	15

15-18	prior period has been wetter than normal	Ī
10-14	prior period has been normal	
6-9	prior period has been drier than normal	
Sum:	Conclusion:	

^{*} Standard Deviation and Mean Values can be found through the National Oceanic and Atmospheric Associations Earth System Research Laboratory: http://www.esrl.noaa.gov/psd/data/usstation/

^{**} Rainfall data can be found through Natural Resources Conservation Service, Agricultural Applied Climate Information System

^{***} Condition Values: 1 = dry, 2 = normal, 3 = wet

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2018-05-01	85	53	69.0	29	19	0.00	М	М
2018-05-02	85	54	69.5	30	20	0.00	М	М
2018-05-03	84	55	69.5	30	20	0.00	М	М
2018-05-04	87	58	72.5	33	23	0.00	М	М
2018-05-05	88	57	72.5	33	23	0.00	М	М
2018-05-06	87	63	75.0	35	25	0.00	М	М
2018-05-07	88	59	73.5	34	24	0.00	М	М
2018-05-08	89	58	73.5	34	24	0.00	М	М
2018-05-09	87	59	73.0	33	23	0.00	М	М
2018-05-10	94	61	77.5	38	28	0.00	М	М
2018-05-11	96	64	80.0	40	30	0.00	М	М
2018-05-12	96	63	79.5	40	30	0.00	М	М
2018-05-13	95	63	79.0	39	29	0.00	М	М
2018-05-14	93	62	77.5	38	28	0.00	М	М
2018-05-15	85	70	77.5	38	28	0.48	М	М
2018-05-16	85	66	75.5	36	26	0.14	М	М
2018-05-17	83	68	75.5	36	26	1.72	М	М
2018-05-18	88	69	78.5	39	29	0.43	М	М
2018-05-19	89	67	78.0	38	28	0.01	М	М
2018-05-20	89	69	79.0	39	29	0.87	М	М
2018-05-21	81	67	74.0	34	24	0.56	М	М
2018-05-22	85	69	77.0	37	27	0.79	М	М
2018-05-23	89	67	78.0	38	28	0.04	М	М
2018-05-24	91	69	80.0	40	30	0.61	М	М
2018-05-25	93	70	81.5	42	32	0.06	М	М
2018-05-26	89	69	79.0	39	29	0.20	М	М
2018-05-27	85	72	78.5	39	29	0.35	М	М
2018-05-28	88	73	80.5	41	31	0.80	М	М
2018-05-29	90	73	81.5	42	32	0.46	М	М
2018-05-30	86	71	78.5	39	29	0.44	М	М
2018-05-31	91	72	81.5	42	32	0.25	М	М
Average Sum	88.4	64.8	76.6	1145	835	8.21	М	М

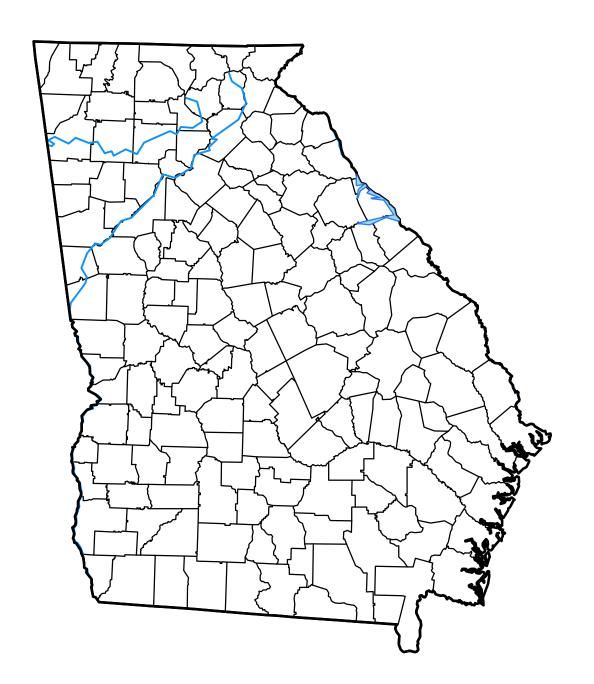
Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2018-06-01	92	74	83.0	43	33	0.75	М	М
2018-06-02	94	74	84.0	44	34	0.06	М	М
2018-06-03	М	M	M	М	М	М	М	М
2018-06-04	95	75	85.0	45	35	0.00	М	М
2018-06-05	М	M	M	М	М	М	М	М
2018-06-06	87	72	79.5	40	30	0.00	М	М
2018-06-07	М	M	М	М	М	М	М	М
2018-06-08	83	71	77.0	37	27	0.00	М	М
2018-06-09	93	72	82.5	43	33	0.00	М	М
2018-06-10	М	M	М	М	М	М	М	М
2018-06-11	91	69	80.0	40	30	0.00	М	М
2018-06-12	88	72	80.0	40	30	0.65	М	М
2018-06-13	М	M	М	М	М	М	М	М
2018-06-14	94	71	82.5	43	33	0.00	М	М
2018-06-15	93	72	82.5	43	33	0.00	М	М
2018-06-16	М	M	М	М	М	М	М	М
2018-06-17	93	73	83.0	43	33	0.09	М	М
2018-06-18	М	M	М	М	М	0.02	М	М
2018-06-19	М	M	M	М	М	0.00	М	М
2018-06-20	98	75	86.5	47	37	0.00	М	М
2018-06-21	98	73	85.5	46	36	0.09	М	М
2018-06-22	99	76	87.5	48	38	0.00	М	М
2018-06-23	М	M	М	М	М	М	М	М
2018-06-24	96	77	86.5	47	37	0.00	М	М
2018-06-25	98	75	86.5	47	37	0.00	М	М
2018-06-26	99	72	85.5	46	36	1.25	М	М
2018-06-27	95	73	84.0	44	34	0.00	М	М
2018-06-28	97	73	85.0	45	35	0.60	М	М
2018-06-29	94	74	84.0	44	34	0.36	М	М
2018-06-30	М	M	М	М	М	М	М	М
Average Sum	93.9	73.2	83.5	875	675	3.87	М	М

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2018-07-01	93	71	82.0	42	32	0.36	М	М
2018-07-02	93	72	82.5	43	33	0.00	М	М
2018-07-03	93	73	83.0	43	33	0.00	М	М
2018-07-04	90	73	81.5	42	32	0.02	М	М
2018-07-05	89	71	80.0	40	30	0.57	М	М
2018-07-06	88	73	80.5	41	31	0.03	М	М
2018-07-07	92	71	81.5	42	32	0.00	М	М
2018-07-08	88	70	79.0	39	29	0.00	М	М
2018-07-09	92	72	82.0	42	32	0.00	М	М
2018-07-10	95	73	84.0	44	34	0.00	М	М
2018-07-11	96	72	84.0	44	34	0.00	М	М
2018-07-12	98	73	85.5	46	36	0.00	М	М
2018-07-13	98	74	86.0	46	36	0.00	М	М
2018-07-14	98	75	86.5	47	37	0.00	М	М
2018-07-15	95	73	84.0	44	34	0.61	М	М
2018-07-16	93	73	83.0	43	33	0.50	М	М
2018-07-17	93	74	83.5	44	34	0.10	М	М
2018-07-18	94	75	84.5	45	35	0.06	М	М
2018-07-19	95	75	85.0	45	35	0.75	М	М
2018-07-20	89	75	82.0	42	32	0.08	М	М
2018-07-21	90	72	81.0	41	31	0.35	М	М
2018-07-22	91	72	81.5	42	32	0.02	М	М
2018-07-23	87	69	78.0	38	28	0.00	М	М
2018-07-24	92	70	81.0	41	31	0.00	М	М
2018-07-25	93	70	81.5	42	32	3.46	М	М
2018-07-26	92	73	82.5	43	33	0.01	М	М
2018-07-27	95	75	85.0	45	35	0.00	М	М
2018-07-28	97	71	84.0	44	34	1.02	М	М
2018-07-29	97	74	85.5	46	36	0.13	М	М
2018-07-30	93	72	82.5	43	33	0.63	М	М
2018-07-31	89	75	82.0	42	32	0.09	М	М
Average Sum	92.8	72.6	82.7	1331	1021	8.79	М	М

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2018-08-01	83	73	78.0	38	28	1.08	М	М
2018-08-02	90	75	82.5	43	33	0.72	М	М
2018-08-03	92	72	82.0	42	32	1.96	М	М
2018-08-04	92	73	82.5	43	33	1.32	М	М
2018-08-05	М	M	M	М	М	М	М	М
2018-08-06	95	75	85.0	45	35	0.00	М	М
2018-08-07	95	74	84.5	45	35	0.21	М	М
2018-08-08	94	76	85.0	45	35	0.00	М	М
2018-08-09	97	77	87.0	47	37	0.00	М	М
2018-08-10	93	74	83.5	44	34	0.25	М	М
2018-08-11	95	74	84.5	45	35	0.00	М	М
2018-08-12	М	M	М	М	М	М	М	М
2018-08-13	M	M	М	М	М	М	М	М
2018-08-14	95	76	85.5	46	36	0.02	М	М
2018-08-15	95	76	85.5	46	36	0.00	М	М
2018-08-16	90	73	81.5	42	32	1.00	М	М
2018-08-17	96	73	84.5	45	35	1.21	М	М
2018-08-18	M	M	М	М	М	М	М	М
2018-08-19	M	M	М	М	М	М	М	М
2018-08-20	M	M	М	М	М	М	М	М
2018-08-21	M	M	М	М	М	М	М	М
2018-08-22	М	М	М	М	М	М	М	М
2018-08-23	93	74	83.5	44	34	0.01	М	М
2018-08-24	93	76	84.5	45	35	0.00	М	М
2018-08-25	M	M	М	М	М	М	М	М
2018-08-26	93	75	84.0	44	34	0.00	М	М
2018-08-27	94	74	84.0	44	34	0.00	М	М
2018-08-28	94	74	84.0	44	34	0.01	М	М
2018-08-29	M	M	М	М	М	М	М	М
2018-08-30	91	72	81.5	42	32	0.06	М	М
2018-08-31	91	72	81.5	42	32	0.15	М	М
Average Sum	92.9	74.2	83.5	921	711	8.00	М	М

U.S. Drought Monitor

Georgia



August 21, 2018

(Released Thursday, Aug. 23, 2018)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	100.00	0.00	0.00	0.00	0.00	0.00
Last Week 08-14-2018	100.00	0.00	0.00	0.00	0.00	0.00
3 Months Ago 05-22-2018	66.63	33.37	0.00	0.00	0.00	0.00
Start of Calendar Year 01-02-2018	12.14	87.86	40.66	0.00	0.00	0.00
Start of Water Year 09-26-2017	100.00	0.00	0.00	0.00	0.00	0.00
One Year Ago 08-22-2017	100.00	0.00	0.00	0.00	0.00	0.00

Intensity:

D0 Abnormally Dry
D1 Moderate Drought
D2 Severe Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

Jessica Blunden NCEI/NOAA





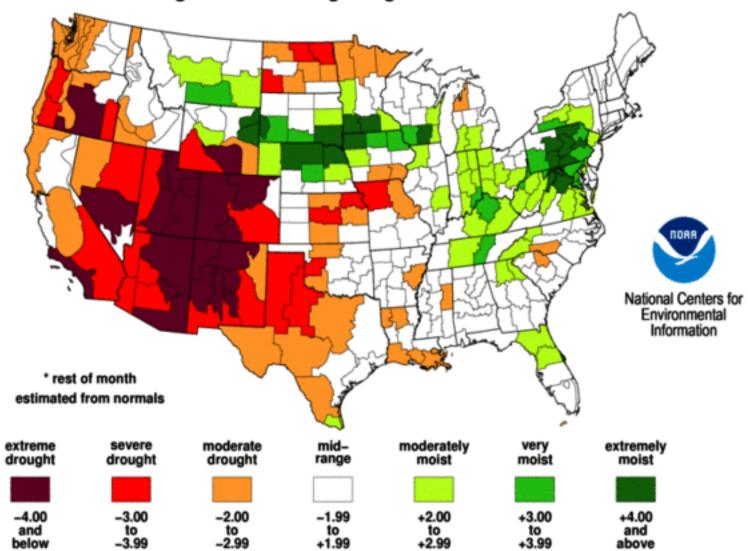




http://droughtmonitor.unl.edu/

Palmer Hydrological Drought Index Long-Term (Hydrological) Conditions

August 2018: through August 18 2018*



APPENDIX B

Site Photographs



Photograph 1: View of the typical planted pine habitat within Wetland A (WA).



Photograph 2: View of the intermittent Stream 1 (S1).





Photograph 3: View of the intermittent Stream 2 (S2).



Photograph 4: View of the Upland Data Point 1 (UDP-1) location.





Photograph 5: View of the Wetland Data Point 1 (WDP-1) location within Wetland G (WG).



Photograph 6: View of the Upland Data Point 2 (UDP-2) location.





Photograph 7: View of the Wetland Data Point 2 (WDP-2) location within a forested (planted pine) portion of Wetland I (WI).



Photograph 8: View of the Upland Data Point 3 (UDP-3) location.





Photograph 9: View of the Wetland Data Point 3 (WDP-3) location within Wetland H (WH).



Photograph 10: View of the Wetland Data Point 4 (WDP-4) location within Wetland A (WA).





Photograph 11: View of the Upland Data Point 4 (UDP-4) location.



Photograph 12: View of the Upland Data Point 5 (UDP-5) location.





Photograph 13: View of the Wetland Data Point 5 (WDP-5) location within Wetland A (WA).



Photograph 14: View of the Upland Data Point 6 (UDP-6) location.





Photograph 15: View of the Wetland Data Point 6 (WDP-6) location within Wetland A (WA).



Photograph 16: View of the Upland Data Point 7 (UDP-7) location.





Photograph 17: View of the Wetland Data Point 7 (WDP-7) location within Wetland A (WA).



Photograph 18: View of the Upland Data Point 8 (UDP-8) location.





Photograph 19: View of the Wetland Data Point 8 (WDP-8) location within Wetland A (WA).



Photograph 20: View of the Upland Data Point 9 (UDP-9) location.





Photograph 21: View of the Wetland Data Point 9 (WDP-9) location within Wetland A (WA).



Photograph 22: View of the Upland Data Point 10 (UDP-10) location.





Photograph 23: View of the Wetland Data Point 10 (WDP-10) location within Wetland E (WE).



Photograph 24: View of the perennial Stream 4 (S4).





Photograph 25: View of the intermittent Stream 3 (S3).



APPENDIX C U.S. Army Corps of Engineers Wetland Determination Data Forms

Project/Site: Keystone Tract	City/County: Char	Iton County	Sampling Date: <u>08/27/2018</u>
Applicant/Owner: Twin Pines Minerals, LLC	State: GA	Sampling Point: UDP-1	
Investigator(s): C. Terrell / C. Stanford (TTL)	Section, Township,	Range: Not Available	
			Slope (%): 0-2%
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.	51715391350	Long: -82.10152815020	Datum: NAD83
Soil Map Unit Name: Leon fine sand, 0-2% slopes		NWI classific	
Are climatic / hydrologic conditions on the site typical for this time o	f year? YesN	o ✓ (If no, explain in R	emarks.)
Are Vegetation Yes , Soil Yes , or Hydrology Yes significa			oresent? Yes No
Are Vegetation No , Soil No , or Hydrology No naturally			
SUMMARY OF FINDINGS – Attach site map show			
Hydrophytic Vegetation Present? Yes ✓ No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	Is the Samp		No
Remarks:			
 Site observations and local hydrological data supp Vegetation historically impacted by silvicultural act Soils/Hydrology historically impacted by silvicultural 	ivities (planted pine	e).	
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indica	tors (minimum of two required)
Primary Indicators (minimum of one is required; check all that app		Surface Soil	I
Surface Water (A1) Aquatic Fauna			getated Concave Surface (B8)
High Water Table (A2) Saturation (A3) Marl Deposits Hydrogen Sulf		Drainage Pat	
	ospheres along Living R	Moss Trim Li	Water Table (C2)
<u> </u>	educed Iron (C4)	oots (C3) Dry-Season \ Crayfish Buri	
	eduction in Tilled Soils (isible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin Muck Sur		Geomorphic	I
Iron Deposits (B5) Other (Explain		Shallow Aqui	
Inundation Visible on Aerial Imagery (B7)	,	FAC-Neutral	
Water-Stained Leaves (B9)			noss (D8) (LRR T,U)
Field Observations:			
Surface Water Present? Yes No Depth (incl			
	nes):		
Saturation Present? Yes No _▼ Depth (includes capillary fringe)	nes):	Wetland Hydrology Presen	it? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial pl	notos, previous inspecti	ons), if available:	
Remarks: FAC-Neutral Test Results: Negative FACW and	OBL: 2 to FACU a	and UPL: 3	
Tromand. Tro House Foot House. Hoggs To	052 10 171000		

EGETATION – Use scientific names of plants				Sampling Point: UDP	-1
20 ft radius	Absolute			Dominance Test worksheet:	
ree Stratum (Plot sizes: 30 ft radius)	% Cover	Species?		Number of Dominant Species That Are OBL, FACW, or FAC: 3	(A)
				Total Number of Dominant Species Across All Strata: 4	(D)
					(B)
				Percent of Dominant Species That Are OBL, FACW, or FAC:	(A/B)
				Prevalence Index worksheet:	
				Total % Cover of: Multiply by:	
50% of total cover: 35.00 20% of total cover: 14.00 apling Stratum (30 ft radius)	0.0	= Total Co	over	OBL species x 1 =	
Pinus elliottii	20.0	yes	FACW	FACW species x 2 =	
Quercus pumila	5.0		UPL	FAC species x 3 =	
			OI L	FACU species x 4 =	
				UPL species x 5 =	
-				Column Totals: (A)	
				Column Totals (A)	_ (D)
				Prevalence Index = B/A =	_
50% of total cover: 12.50 20% of total cover: 5.00	25.0	= Total Co	over	Hydrophytic Vegetation Indicators:	
hrub Stratum (30 ft radius)				1 - Rapid Test for Hydrophytic Vegetation	
				✓ 2 - Dominance Test is >50%	
				3 - Prevalence Index is ≤3.0 ¹	
				Problematic Hydrophytic Vegetation ¹ (Expla	
				¹ Indicators of hydric soil and wetland hydrology m	ust
				be present, unless disturbed or problematic.	
•				Definitions of Vegetation Strata:	
50% of total cover: 22.50 20% of total cover: 9.00	0.0	= Total Co	over	_	
erb Stratum (30 ft radius)	00.0		E40	Tree – Woody plants, excluding woody vines,	
Euphorbia curtisii	20.0	yes	FAC	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast	
Kyllinga brevifolia	_ <u>15.0</u>	yes	FACW	height (DBH).	
Smilax auriculata	10.0	no	FACU FAC		
Andropogon virginicus	_ <u>10.0</u>	no	FAC	Sapling – Woody plants, excluding woody vines	S,
Paspalum dilatatum	5.0	no	FAC	approximately 20 ft (6 m) or more in height and le	ess
Smilax pumila		no	UPL	than 3 in. (7.6 cm) DBH.	
				Shrub – Woody plants, excluding woody vines,	
				approximately 3 to 20 ft (1 to 6 m) in height.	
				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
0				Herb – All herbaceous (non-woody) plants, inclu	uding
1				herbaceous vines, regardless of size AND	
2				woody plants, except woody vines, less than	
50% of total cover: 32.50 20% of total cover: 13.00 /oody Vine Stratum (30 ft radius)	65.0	= Total Co	over	approximately 3 ft (1 m) in height.	
· · · · · · · · · · · · · · · · · · ·				Woody vine – All woody vines, regardless of h	eiaht
					J. 9116
-					
			-	Hydrophytic	
50% of total cover: 20% of total cover:				Vegetation	
	U.U	= Lotal Co	over	Present? Yes No	

Profile Desc	ription: (Describe	to the dept	h needed to docun	nent the i	ndicator o	r confirm	the absence of i	ndicators.)	
Depth	Matrix			x Feature					
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	Texture	Remar	ks
0-5"	10YR 5/1	100					Sa		
5-18"	10YR 7/1	100					Sa		
				· <u></u>					
¹ Type: C=Co	oncentration, D=Dep	oletion, RM=	Reduced Matrix, MS	S=Masked	Sand Gra	ins.	² Location	on: PL=Pore Linin	g, M=Matrix.
Hydric Soil I	ndicators:						Indicators for	Problematic Hyd	ric Soils³:
Histosol	(A1)		Polyvalue Be	low Surfa	ce (S8) (L l	RR S, T, U) 1 cm Mucl	(A9) (LRR O)	
	pipedon (A2)		Thin Dark Su					(A10) (LRR S)	
Black Hi			Loamy Muck			O)			de MLRA 150A,B)
	n Sulfide (A4)		Loamy Gleye		F2)				(19) (LRR P, S, T)
	l Layers (A5) Bodies (A6) (LRR F	P T 11\	Depleted Mar Redox Dark S		- 6)		Anomaiou:	s Bright Loamy So	iis (F20)
_	cky Mineral (A7) (L		Depleted Dar	`	,			nt Material (TF2)	
	esence (A8) (LRR L		Redox Depre					ow Dark Surface (TF12)
1 cm Mu	ck (A9) (LRR P, T)		Marl (F10) (L	RR U)			-	olain in Remarks)	,
	Below Dark Surfac	ce (A11)	Depleted Oct						
	ark Surface (A12)		Iron-Mangan				T) ³ Indicators	s of hydrophytic ve	getation and
	airie Redox (A16) (lucky Mineral (S1) () Umbric Surfa			U)		d hydrology must b	
	ileyed Matrix (S4)	LKK 0, 3)	Delta Ochric Reduced Ver			A 150B)	unies	s disturbed or prol	piematic.
	edox (S5)		Piedmont Flo				9A)		
	Matrix (S6)						, A 149A, 153C, 15	3D)	
	face (S7) (LRR P,								
Restrictive I	ayer (if observed)	:							
Type:									./
Depth (inc	ches):						Hydric Soil Pre	sent? Yes	No
Remarks: *S	oil abbreviations: C	l=Clay; Lo=	Loam; Mu=Muck;	Pe- Peat;	Sa= San	d; Si=Silt			

Project/Site: Keystone Tract	City/County: Cha	rlton County	Sampling Date: <u>08/27/2018</u>			
Applicant/Owner: Twin Pines Minerals, LLC	win Pines Minerals, LLC					
Investigator(s): C. Terrell / C. Stanford (TTL)		Range: Not Available				
			Slope (%): 0-2%			
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat:						
Soil Map Unit Name: Leon fine sand, 0-2% slopes		NWI classifi				
Are climatic / hydrologic conditions on the site typical for this tim	e of year? Yes N	lo (If no, explain in F	Remarks.)			
Are Vegetation $\underline{\underline{\mbox{Yes}}}$, Soil $\underline{\underline{\mbox{Yes}}}$, or Hydrology $\underline{\underline{\mbox{Yes}}}$ signif	icantly disturbed?	Are "Normal Circumstances"	present? Yes <u>√</u> No			
Are Vegetation No , Soil No , or Hydrology No natur						
SUMMARY OF FINDINGS – Attach site map sho						
Hydrophytic Vegetation Present? Yes ✓ No						
Hydric Soil Present? Yes No	√ Is the Samp		/			
Hydrophytic Vegetation Present? Yes ✓ NoNo	within a We	etland? Yes	No <u>√</u>			
Remarks:						
- Site observations and local hydrological data su	pport moderately we	conditions present du	ring site visit.			
- Vegetation historically impacted by silvicultural a	activities (planted pind	e).				
- Soils/Hydrology historically impacted by silvicult	ural activities (hipping	benching for planted	pine).			
LIVED OLOV						
HYDROLOGY						
Wetland Hydrology Indicators:			ators (minimum of two required)			
Primary Indicators (minimum of one is required; check all that a Surface Water (A1) Aquatic Fat			Cracks (B6)			
\ <u> </u>	its (B15) (LRR U)		getated Concave Surface (B8) atterns (B10)			
1 -	Sulfide Odor (C1)	Moss Trim L				
1 <u> </u>	hizospheres along Living F		Water Table (C2)			
	f Reduced Iron (C4)	Crayfish Bu				
Drift Deposits (B3) Recent Iron	Reduction in Tilled Soils	(C6) Saturation \	/isible on Aerial Imagery (C9)			
	Surface (C7)	 ·	Position (D2)			
	lain in Remarks)	Shallow Aqu				
Inundation Visible on Aerial Imagery (B7)		FAC-Neutra	` '			
Water-Stained Leaves (B9)		Spnagnum	moss (D8) (LRR T,U)			
Field Observations:						
Surface Water Present? Yes No _ ✓ Depth (Water Table Present? Yes No _ ✓ Depth (
	inches):	W-41 d Hdl B	No. ✓			
Saturation Present? Yes No _ V _ Depth (includes capillary fringe)	inches):	Wetland Hydrology Prese	nt? Yes No*_			
Describe Recorded Data (stream gauge, monitoring well, aeria	l photos, previous inspect	ions), if available:				
Remarks: FAC-Neutral Test Results: Negative FACW a	and OBL: 3 to FACU	and UPL: 4				

YEGETATION - Use scientific names of plants	3.			Sampling Point: UDP-2
T Out (Division 20 ft reading)	Absolute		Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>) 1. <i>Pinus elliottii</i>	<u>% Cover</u> <u>70.0</u>	yes	FACW	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata:(B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 60% (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
50% of total cover: 35.00 20% of total cover: 14.00 Sapling Stratum (30 ft radius)	70.0	= Total Co	over	OBL species x 1 =
1				FACW species x 2 =
2.				FAC species x 3 =
3.				FACU species x 4 =
4.				UPL species x 5 =
5.		-		Column Totals: (A) (B)
6.				(2)
7.		-		Prevalence Index = B/A =
50% of total cover: 15.00 20% of total cover: 6.00	0.0	= Total Co		Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)	0.0	- Total Ct	ovei	1 - Rapid Test for Hydrophytic Vegetation
1. Ilex glabra	10.0	yes	FACW	✓ 2 - Dominance Test is >50%
2. Serenoa repens	10.0	yes	FACU	3 - Prevalence Index is ≤3.0 ¹
3. Gaylussacia dumosa	10.0	yes	FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Rhus copallinum		yes	FACU	¹ Indicators of hydric soil and wetland hydrology must
5				be present, unless disturbed or problematic.
6.				
7				Definitions of Vegetation Strata:
50% of total cover: 20.00 20% of total cover: 8.00	40.0	= Total Co	over	
Herb Stratum (30 ft radius)		. 0.0		Tree – Woody plants, excluding woody vines,
1. Dichanthelium aciculare	10.0	yes	FACU	approximately 20 ft (6 m) or more in height and
2. Andropogon virginicus	10.0	yes	FAC	3 in. (7.6 cm) or larger in diameter at breast
3. Scleria triglomerata	10.0	yes	FACW	height (DBH).
4. Pteridium aquilinum	10.0	yes	FACU	Sapling – Woody plants, excluding woody vines,
5				approximately 20 ft (6 m) or more in height and less
6.				than 3 in. (7.6 cm) DBH.
7				
8.				Shrub – Woody plants, excluding woody vines,
9.				approximately 3 to 20 ft (1 to 6 m) in height.
10.				
11.				Herb – All herbaceous (non-woody) plants, including
12.				herbaceous vines, regardless of size AND woody plants, except woody vines, less than
50% of total cover: 20.00 20% of total cover: 8.00	40.0	= Total Co	0.401	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)	40.0	- Total Ci	ovei	
1. Vitis rotundifolia	10.0	yes	FAC	Woody vine – All woody vines, regardless of height.
2.				
3.				
4				
5.				Hydrophytic
50% of total cover: 5.00 20% of total cover: 2.00	10.0	= Total Co	over	Vegetation Present? Yes No
Remarks: (If observed, list morphological adaptations be	low). *Planto	not idondi	ified to choo	sine are not used in dominance calculations

	Depth	Matrix		oth needed to doc Red	dox Feature				,
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Variable Variabl	(inches)		%				Loc ²		Remarks
Hydric Soil Indicators: Histosol (A1) Histosol (A2) Histic Epipedon (A10) H	0-18"	10YR 3/1	60	10YR 5/1	40	MS	M	Sa	
Hydric Soil Indicators: Histosol (A1) Histosol (A2) Histic Epipedon (A2) Histic Epipedon (A2) Histic Epipedon (A2) Histic Epipedon (A2) Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) Depleted Matrix (F3) For Mucky Mineral (A7) (LRR P, T, U) Howk Presence (A8) (LRR P, T) Depleted Dark Surface (F7) Howk (A9) (LRR P, T) Depleted Below Dark Surface (F1) (MLRA 151) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes I cm Muck (A9) (LRR O, 2 Thin Dark Surface (S8) (LRR S, T, U) Loamy Surface (S9) (LRR S, T, U) Loamy Surface (F10 (LRR O) Reduced Vertic (F18) Mark (F13) Loamy Surface (F7) Reduced Vertic (F18) MLRA 153B) Reduced Vertic (F12) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Depleted Dark Surface (A12) Loamy Surface (F13) (LRR O, P, T) Surface (F13) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Hydric Soil Present? Yes No Hydric Soil Pres									
Hydric Soil Indicators: Histosol (A1) Histosol (A2) Histic Epipedon (A2) Histic Epipedon (A2) Histic Epipedon (A2) Histic Epipedon (A2) Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) Depleted Matrix (F3) For Mucky Mineral (A7) (LRR P, T, U) Howk Presence (A8) (LRR P, T) Depleted Dark Surface (F7) Howk (A9) (LRR P, T) Depleted Below Dark Surface (F1) (MLRA 151) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes I cm Muck (A9) (LRR O, 2 Thin Dark Surface (S8) (LRR S, T, U) Loamy Surface (S9) (LRR S, T, U) Loamy Surface (F10 (LRR O) Reduced Vertic (F18) Mark (F13) Loamy Surface (F7) Reduced Vertic (F18) MLRA 153B) Reduced Vertic (F12) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Depleted Dark Surface (A12) Loamy Surface (F13) (LRR O, P, T) Surface (F13) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Hydric Soil Present? Yes No Hydric Soil Pres							-	-	
Hydric Soil Indicators: Histosol (A1) Histosol (A2) Histic Epipedon (A2) Histic Epipedon (A2) Histic Epipedon (A2) Histic Epipedon (A2) Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) Depleted Matrix (F3) For Mucky Mineral (A7) (LRR P, T, U) Howk Presence (A8) (LRR P, T) Depleted Dark Surface (F7) Howk (A9) (LRR P, T) Depleted Below Dark Surface (F1) (MLRA 151) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes I cm Muck (A9) (LRR O, 2 Thin Dark Surface (S8) (LRR S, T, U) Loamy Surface (S9) (LRR S, T, U) Loamy Surface (F10 (LRR O) Reduced Vertic (F18) Mark (F13) Loamy Surface (F7) Reduced Vertic (F18) MLRA 153B) Reduced Vertic (F12) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Depleted Dark Surface (A12) Loamy Surface (F13) (LRR O, P, T) Surface (F13) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Hydric Soil Present? Yes No Hydric Soil Pres				-		-			
Hydric Soil Indicators: Histosol (A1) Histosol (A2) Histic Epipedon (A10) H									
Hydric Soil Indicators: Histosol (A1) Histosol (A2) Histic Epipedon (A10) H									
Hydric Soil Indicators: Histosol (A1) Histosol (A2) Histic Epipedon (A10) H									
Hydric Soil Indicators: Histosol (A1) Histosol (A2) Histic Epipedon (A10) H				•		-		·	
Hydric Soil Indicators: Histosol (A1) Histosol (A2) Histic Epipedon (A2) Histic Epipedon (A2) Histic Epipedon (A2) Histic Epipedon (A2) Histic (A3) Loamy Mucky Mineral (F1) (LRR O) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) Depleted Matrix (F3) For Mucky Mineral (A7) (LRR P, T, U) Howk Presence (A8) (LRR P, T) Depleted Dark Surface (F7) Howk (A9) (LRR P, T) Depleted Below Dark Surface (F1) (MLRA 151) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Redox (S5) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes I cm Muck (A9) (LRR O, 2 Thin Dark Surface (S8) (LRR S, T, U) Loamy Surface (S9) (LRR S, T, U) Loamy Surface (F10 (LRR O) Reduced Vertic (F18) Mark (F13) Loamy Surface (F7) Reduced Vertic (F18) MLRA 153B) Reduced Vertic (F12) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Depleted Dark Surface (A12) Loamy Surface (F13) (LRR O, P, T) Surface (F13) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Hydric Soil Present? Yes No Hydric Soil Pres									
Histosol (A1)			epletion, RM	=Reduced Matrix, I	MS=Maske	d Sand Gr	ains.		
Histic Epipedon (A2)	•								•
Black Histic (A3)									
Hydrogen Sulfide (A4)									
Stratified Layers (A5)							R (O)		
Organic Bodies (A6) (LRR P, T, U)					-	(F2)		·	
			D T II\			E6)			• • • • • •
Muck Presence (A8) (LRR U)	_								
1 cm Muck (A9) (LRR P, T) Marl (F10) (LRR U) Other (Explain in Remarks) Depleted Below Dark Surface (A11) Depleted Ochric (F11) (MLRA 151) Thick Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, T) * Indicators of hydrophytic vegetation and Umbric Surface (F13) (LRR P, T, U) wetland hydrology must be present, unless disturbed or problematic Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151) wetland hydrology must be present, unless disturbed or problematic Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Sardy Redox (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No Hydric Soil Present? Yes No				. — .		. ,			
Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Depleted Ochric (F11) (MLRA 0.7) Coast Prairie Redox (A16) (MLRA 150A) Depleted Ochric (F13) (LRR 0, P, T) Sandy Mucky Mineral (S1) (LRR 0, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Sandy Redox (S5) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR 0, P, T) Iron-Manganese Mas						0)		•	• •
Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Iron-Manganese Masses (F12) (LRR O, P, T) Umbric Surface (F13) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Wetland hydrology must be present, unless disturbed or problematic. Wetland hydrology must be present, unless disturbed or problematic. Wetland hydrology must be present, unless disturbed or problematic. Wetland hydrology must be present, unless disturbed or problematic. Wetland hydrology must be present, unless disturbed or problematic. Metland hydrology must be present, unless disturbed or problematic. Metland hydrology must be present, unless disturbed or problematic. Metland hydrology must be present, unless disturbed or problematic. Metland hydrology must be present, unless disturbed or problematic. Metland hydrology must be present, unless disturbed or problematic. Metland hydrology must be present, unless disturbed or problematic. Metland hydrology must be present, unless disturbed or problematic. Metland hydrology must be present, unless disturbed or problematic. Metland hydrology must be present, unless disturbed or problematic. Metland hydrology must be present, unless disturbed or problematic. Metland hydrology must be present, unless disturbed or problematic. Hydrology must be present, unless disturbed or problematic. Metland hydrology must be present, unless disturbed or problematic. Metland hydrology must be present, unless disturbed or problematic. Metland hydrology must be present, unless disturbed or problematic. Metland hydrology must be present, unless disturbed or problematic. Metland hydrology must be present, unless disturbed or problematic.		. , .	•			(MLRA 1	51)	Other (t	-xpiaiii iii Keiliaiks)
Coast Prairie Redox (A16) (MLRA 150A) Umbric Surface (F13) (LRR P, T, U) wetland hydrology must be present, unless disturbed or problematic. Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151) unless disturbed or problematic. Sandy Gleyed Matrix (S4) Reduced Vertic (F18) (MLRA 150A, 150B) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No✓			()					P, T) 3 _{Indicat}	tors of hydrophytic vegetation and
Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151) unless disturbed or problematic. Sandy Gleyed Matrix (S4) Reduced Vertic (F18) (MLRA 150A, 150B) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No \(\)			(MLRA 150	_				inaloa	
Sandy Gleyed Matrix (S4) Reduced Vertic (F18) (MLRA 150A, 150B) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No ✓	Sandy N	Mucky Mineral (S1)	(LRR O, S)	Delta Ochr	ic (F17) (M I	LRA 151)			
Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No ✓	Sandy C	Gleyed Matrix (S4)		Reduced V	ertic (F18)	(MLRA 15	0A, 150B		
Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No	Sandy F	Redox (S5)		Piedmont F	Floodplain S	Soils (F19)	(MLRA 1	49A)	
Restrictive Layer (if observed): Type:	Stripped	d Matrix (S6)		Anomalous	Bright Loa	my Soils (F20) (MLF	RA 149A, 153C,	153D)
Type:									
Depth (inches): No	Restrictive	Layer (if observed	d):						
	Type:								/
Remarks: *Soil abbreviations: Cl=Clay; Lo=Loam; Mu=Muck; Pe-Peat; Sa= Sand; Si=Silt	Depth (in	ches):						Hydric Soil F	Present? Yes No _▼
	Remarks: *S	Soil abbreviations:	Cl=Clay; Lo	=Loam; Mu=Muck	; Pe-Peat	; Sa= Sar	nd; Si=Silt	t	

Project/Site: Keystone Tract	City/County: Cha	rlton County	Sampling Date: <u>08/27/2018</u>
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: UDP-3
	Section, Township		
			Slope (%): 0-2%
Subregion (LRR or MLRA): LRR T / MLRA 153A			
Soil Map Unit Name: Leon fine sand, 0-2% slopes		NWI classifi	
Are climatic / hydrologic conditions on the site typical for this	time of year? Yes N	lo <u>√</u> (If no, explain in F	Remarks.)
Are Vegetation Yes , Soil Yes , or Hydrology Yes si			
Are Vegetation No , Soil No , or Hydrology No na			
SUMMARY OF FINDINGS – Attach site map s			
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No Hydrophytic Vegetation Present?	Is the Sam within a Wo		No _ √
	<u> </u>		
Remarks: - Site observations and local hydrological data support mo - Vegetation historically impacted by silvicultural activities -Soils/Hydrology historically impacted by silvicultural activities	(planted pine)	-	
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indic	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all the	at apply)		l Cracks (B6)
\ <u> </u>	Fauna (B13)		egetated Concave Surface (B8)
<u> </u>	posits (B15) (LRR U)		atterns (B10)
_ ` ' /	en Sulfide Odor (C1)	Moss Trim L	
	d Rhizospheres along Living I e of Reduced Iron (C4)	· · · · — ·	Water Table (C2)
· · · / —	Iron Reduction in Tilled Soils	Crayfish Bu	/isible on Aerial Imagery (C9)
<u> </u>	ck Surface (C7)	· 	Position (D2)
<u> </u>	Explain in Remarks)	Shallow Aqu	
Inundation Visible on Aerial Imagery (B7)	,	✓ FAC-Neutra	
Water-Stained Leaves (B9)			moss (D8) (LRR T,U)
Field Observations:			
Surface Water Present? Yes No _ ✓ Dep			
Water Table Present? Yes No Dep			./
Saturation Present? Yes No _✓ Dep (includes capillary fringe)	th (inches):	Wetland Hydrology Prese	nt? Yes No
Describe Recorded Data (stream gauge, monitoring well, a	erial photos, previous inspect	ions), if available:	
D. J. FAON J. J.T. J.D. W. Davilla		11101 0	
Remarks: FAC-Neutral Test Results: Positive FAC	W and OBL: 3 to FACU	and UPL: 2	

1	Species = Total (Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: Total Number of Dominant Species Across All Strata: Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)
1	= Total (That Are OBL, FACW, or FAC: 2 (A) Total Number of Dominant Species Across All Strata: 2 (B) Percent of Dominant Species
33	= Total (Species Across All Strata: 2 (B) Percent of Dominant Species
4	= Total (
6	= Total (That Aic OBE, I AOV, OI I AO. (A/D)
7	= Total (
Sapling Stratum (30 ft radius) 1. Pinus elliottii 40.0 2.			Prevalence Index worksheet:
1. Pinus elliottii 40.0		Cover	
2	1/00	E A C) A /	OBL species x 1 =
			FACW species x 2 =
			FAC species x 3 =
3			FACU species x 4 =
4			UPL species x 5 =
5			Column Totals: (A) (B)
6			Prevalence Index = B/A =
7	= Total 0	Cover	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation
			✓ 2 - Dominance Test is >50%
1			3 - Prevalence Index is ≤3.0 ¹
2			Problematic Hydrophytic Vegetation ¹ (Explain)
3			¹ Indicators of hydric soil and wetland hydrology must
5			be present, unless disturbed or problematic.
6			
7	· ·		Definitions of Vegetation Strata:
50% of total cover: 20% of total cover: 0.0	= Total (Cover	
Herb Stratum (30 ft radius)		- 40	Tree – Woody plants, excluding woody vines,
1. Andropogon virginicus 60.0		FAC	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast
2. Lachnanthes caroliniana 10.0	no	OBL	height (DBH).
3. Kyllinga pumila 5.0	no	OBL	
4. Erechtites hieraciifolius 5.0	no	UPL	Sapling – Woody plants, excluding woody vines,
5. Eupatorium compositifolium 5.0	no	FAC	approximately 20 ft (6 m) or more in height and less
6. Smilax aciculare 5.0	no	<u>FACU</u>	than 3 in. (7.6 cm) DBH.
7			Shrub – Woody plants, excluding woody vines,
8			approximately 3 to 20 ft (1 to 6 m) in height.
9			
10			Herb – All herbaceous (non-woody) plants, including
11			herbaceous vines, regardless of size AND
12	- Total (woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)	_ = Total (Jover	
1			Woody vine – All woody vines, regardless of height.
2			
3.			
4			
5.			Hydrophytic
50% of total cover: 20% of total cover: 0.0 Remarks: (If observed, list morphological adaptations below). *Plant			Vegetation Present? Yes No

Profile Desc	ription: (Describe	to the dept	h needed to docu	ment the	indicator	or confir	n the absence	of indicators	s.)	
Depth	Matrix			x Feature						
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
0-6"	10YR 3/1	90	10YR 5/1	10	D	M	Sa			
6-11"	10YR 5/1	100					Sa			
11-13"	10YR 2/1	100		_			Sa			
13-18"	10YR 2.5/2	100					Lo	Spodic H	orizon	
	ncentration, D=Dep	oletion, RM=	Reduced Matrix, M	S=Masked	d Sand Gr	ains.		cation: PL=P		
Hydric Soil I	ndicators:						Indicators	for Problem	atic Hydric S	ioils ³ :
Histosol	(A1)		Polyvalue B	elow Surfa	ce (S8) (L	RR S, T,	U) 1 cm l	Muck (A9) (LR	R O)	
Histic Ep	ipedon (A2)		Thin Dark S	urface (S9) (LRR S,	T, U)	2 cm l	Muck (A10) (L	RR S)	
Black His			Loamy Muck			O)	Reduc	ced Vertic (F18	B) (outside M	ILRA 150A,B)
	n Sulfide (A4)		Loamy Gley		(F2)			ont Floodplair		
· 	Layers (A5)		Depleted Ma					alous Bright L	oamy Soils (F	⁷ 20)
_	Bodies (A6) (LRR P		Redox Dark	•	•			RA 153B)		
· 	cky Mineral (A7) (L		Depleted Da					arent Material	, ,	
	esence (A8) (LRR L	J)	Redox Depr		8)		-	Shallow Dark S		2)
	ck (A9) (LRR P, T) Below Dark Surfac	o (Δ11)	Marl (F10) (I	,	(MI DA 1	51)	Other	(Explain in Re	emarks)	
	rk Surface (A12)	C (ATT)	Iron-Manga	, ,	•	-) T) 3, ,,			
	airie Redox (A16) (MLRA 150A	_				indio	ators of hydro		
	ucky Mineral (S1) (Delta Ochric			, -,		tland hydrolog ınless disturbe		
	leyed Matrix (S4)	, ,	Reduced Ve			0A, 150B			ou or problem.	
	edox (S5)		Piedmont Fl							
Stripped	Matrix (S6)		Anomalous	Bright Loa	my Soils (20) (MLF	RA 149A, 1530	;, 153D)		
	face (S7) (LRR P, \$									
Restrictive L	ayer (if observed)	:								
Туре:										
Depth (inc	hes):						Hydric Soil	Present?	Yes	No <u></u> ✓
Remarks: *So	oil abbreviations: C	l=Clay; Lo=	Loam; Mu=Muck;	Pe- Peat	; Sa= Sar	d; Si=Silt	i			

Project/Site: Keystone Tract	City/County: Cha	rlton County	Sampling Date: <u>08/27/2018</u>			
Applicant/Owner: Twin Pines Minerals, LLC	ant/Owner: Twin Pines Minerals, LLC					
Investigator(s): C. Terrell / C. Stanford (TTL)	Section, Township,	, Range: Not Available				
			Slope (%): <u>0-2%</u>			
Subregion (LRR or MLRA): LRR T / MLRA 153A La	t: 30.52142007510	Long:82.10437138440	Datum: NAD83			
Soil Map Unit Name: Leon fine sand, 0-2% slopes		NWI classific				
Are climatic / hydrologic conditions on the site typical for this	time of year? Yes N	lo <u>√</u> (If no, explain in R	emarks.)			
Are Vegetation Yes , Soil Yes , or Hydrology Yes sig			oresent? Yes No			
Are Vegetation No , Soil No , or Hydrology No na		If needed, explain any answe				
SUMMARY OF FINDINGS – Attach site map s						
Hydrophytic Vegetation Present? Yes No	✓					
Hydric Soil Present? Yes No	Is the Samp		No √			
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	within a We	etiand? Yes	NO <u>\</u>			
Remarks:						
 Site observations and local hydrological datas Vegetation/Soils/Hydrology historically impact 	• •	·	•			
HYDROLOGY						
Wetland Hydrology Indicators:		Secondary Indica	tors (minimum of two required)			
Primary Indicators (minimum of one is required; check all the		Surface Soil	I			
	Fauna (B13)		getated Concave Surface (B8)			
<u> </u>	posits (B15) (LRR U)	Drainage Par				
l -	n Sulfide Odor (C1) I Rhizospheres along Living F	Moss Trim Li				
\ <u> </u>	e of Reduced Iron (C4)	Roots (C3) Dry-Season Crayfish Buri	Water Table (C2)			
	ron Reduction in Tilled Soils		sible on Aerial Imagery (C9)			
	ck Surface (C7)	Geomorphic	I			
	xplain in Remarks)	Shallow Aqui				
Inundation Visible on Aerial Imagery (B7)		FAC-Neutral	Test (D5)			
Water-Stained Leaves (B9)		Sphagnum m	noss (D8) (LRR T,U)			
Field Observations:						
Surface Water Present? Yes No Deptl						
	h (inches):		1			
Saturation Present? Yes No _▼ Depti (includes capillary fringe)	h (inches):	Wetland Hydrology Presen	t? Yes No _ *			
Describe Recorded Data (stream gauge, monitoring well, as	erial photos, previous inspect	ions), if available:				
Remarks: FAC-Neutral Test Results: Negative FACV	V and OBL: 2 to FACU	and UPL: 4				

Tree Stratum (Plot sizes: 30 ft radius) % 1.	.0 5.0	= Total Co	<u>Status</u> wer FACW	Dominance Test worksheet: Number of Dominant Species 2 (A) Total Number of Dominant 5 (B) Percent of Dominant Species 40% (A/B) Percent of Dominant Species 40% (A/B) Prevalence Index worksheet: Multiply by: 0BL OBL species x 1 = 40% FACW species 30 x 2 = 60 FAC species 25 x 3 = 75 FACU species 35 x 4 = 140 UPL species x 5 = Column Totals: 90 (A) 275 (B)
1	.0	= Total Co	ver	That Are OBL, FACW, or FAC: 2 (A) Total Number of Dominant Species Across All Strata: 5 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B) Prevalence Index worksheet:
3	.0	= Total Co	ver FACW	Species Across All Strata: 5 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B) Prevalence Index worksheet:
5	5.0	= Total Co	ver FACW	That Are OBL, FACW, or FAC: 40% 40% (A/B) Prevalence Index worksheet:
5	5.0	= Total Co	ver FACW	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species x 1 = FACW species 30 x 2 = 60 FAC species 25 x 3 = 75 FACU species 35 x 4 = 140 UPL species x 5 =
50% of total cover: 20% of total cover: 0. Sapling Stratum (30 ft radius) 1. Pinus elliottii	5.0	yes	FACW	Total % Cover of: Multiply by: OBL species x 1 = FACW species 30 x 2 = 60 FAC species 25 x 3 = 75 FACU species 35 x 4 = 140 UPL species x 5 =
Sapling Stratum (30 ft radius) 2. 1. Pinus elliottii 2. 2	5.0	yes	FACW	OBL species x 1 = FACW species 30 x 2 = 60 FAC species 25 x 3 = 75 FACU species 35 x 4 = 140 UPL species x 5 =
1. Pinus elliottii 2: 2				FACW species 30 x 2 = 60 FAC species 25 x 3 = 75 FACU species 35 x 4 = 140 UPL species x 5 =
2				FAC species 25 x 3 = 75 FACU species 35 x 4 = 140 UPL species x 5 =
3				FACU species x 4 =
4				UPL species x 5 =
5				
6				Column rotals. Co
7				
				Prevalence Index = B/A = 3.1
50% of total cover: 12.50 20% of total cover: 5.00 20%	5 O	= Total Co		Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)	5.0	= Total Co	vei	1 - Rapid Test for Hydrophytic Vegetation
	0.0	yes	FACU	2 - Dominance Test is >50%
2.				3 - Prevalence Index is ≤3.0 ¹
3				Problematic Hydrophytic Vegetation ¹ (Explain)
4				¹ Indicators of hydric soil and wetland hydrology must
5				be present, unless disturbed or problematic.
6				
7.				Definitions of Vegetation Strata:
500/ 5111 500 000/ 5111 300	0.0	= Total Co	ver	Ŭ
Herb Stratum (30 ft radius)				Tree – Woody plants, excluding woody vines,
1. Andropogon virginicus 2	0.0	yes	FAC	approximately 20 ft (6 m) or more in height and
2. Pteridium aquilinum1	0.0	yes	<u>FACU</u>	3 in. (7.6 cm) or larger in diameter at breast
3. Cyperus retrorsus 10	0.0	yes	<u>FACU</u>	height (DBH).
4. Smilax auriculata 5.	.0	no	<u>FACU</u>	Sapling – Woody plants, excluding woody vines,
5. Sabatia brevifolia 5.	.0	no	<u>FACW</u>	approximately 20 ft (6 m) or more in height and less
6. Gratiola hispida 5.	.0	no	FAC	than 3 in. (7.6 cm) DBH.
7				
8				Shrub – Woody plants, excluding woody vines,
9				approximately 3 to 20 ft (1 to 6 m) in height.
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
50% of total cover: 27.50 20% of total cover: 11.00 55	5.0	= Total Co	ver	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				Mandayina All I i II for the
1				Woody vine – All woody vines, regardless of height
2				
3				
4				Hydrophytic
5				Vegetation
50% of total cover: 20% of total cover: 0	.0	= Total Co	ver	Present? Yes No
Remarks: (If observed, list morphological adaptations below).	*Dlanta	not idandif	ind to ance	ios are not used in dominance calculations

Profile Desc	ription: (Describe	to the depti	n needed to docu	ment the i	indicator	or confirm	the absence of inc	licators.)	
Depth	Matrix			ox Feature					
(inches)	Color (moist)		Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Remarks	
0-6"	10YR 3/1	50	10YR 7/1	50			Sa		
6-10"	10YR 6/1	100					Sa		
10-18"	10YR 7/1	100					Sa		
		- <u> </u>							
	_								
1		 -					2.		
Type: C=Co	oncentration, D=Dep	letion, RM=I	Reduced Matrix, M	IS=Masked	d Sand Gra	ains.		: PL=Pore Lining, roblematic Hydric	
Histosol			Polyvalue B	olow Surfa	nce (S8) (I	DD C T II		-	Jones .
	vipedon (A2)		Thin Dark S					A10) (LRR S)	
Black His			Loamy Mucl					rtic (F18) (outside	MLRA 150A,B)
	n Sulfide (A4)		Loamy Gley			,		oodplain Soils (F1	
	Layers (A5)		Depleted Ma					Bright Loamy Soils	s (F20)
	Bodies (A6) (LRR P		Redox Dark	,	,		(MLRA 15		
	cky Mineral (A7) (Li esence (A8) (LRR U		Depleted Da		. ,			Material (TF2)	512)
	ck (A9) (LRR P, T)	')	Kedox Depi		0)			v Dark Surface (TF iin in Remarks)	-12)
	Below Dark Surfac	e (A11)	Depleted Oc		(MLRA 15	51)	Other (Expla	iii iii Kemaiks)	
Thick Da	rk Surface (A12)		Iron-Manga	nese Mass	ses (F12) (LRR O, P,	T) ³ Indicators of	of hydrophytic veg	etation and
	airie Redox (A16) (I					U)	wetland h	ydrology must be	present,
	lucky Mineral (S1) (I	LRR O, S)	Delta Ochrid			0A 1EOD)		disturbed or proble	ematic.
	leyed Matrix (S4) edox (S5)		Reduced Ve						
	Matrix (S6)						A 149A, 153C, 153[D)	
Dark Sur	face (S7) (LRR P, S	S, T, U)		_					
Restrictive L	ayer (if observed):								
Туре:									/
Depth (inc							Hydric Soil Prese	ent? Yes	No
Remarks: *So	oil abbreviations: C	l=Clay; Lo=l	_oam; Mu=Muck;	Pe- Peat	; Sa= San	d; Si=Silt			

Project/Site: Keystone Tract	City/County: Cha	rlton County	Sampling Date: <u>08/27/2018</u>
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: UDP-5
Investigator(s): C. Terrell / C. Stanford (TTL)	Section, Township	Range: Not Available	
			Slope (%): <u>0-2%</u>
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat:	30.53366975150	Long:82.12302731820	Datum: NAD83
Soil Map Unit Name: Leon fine sand, 0-2% slopes		NWI classific	
Are climatic / hydrologic conditions on the site typical for this time	e of year? Yes N	lo <u>√</u> (If no, explain in R	emarks.)
Are Vegetation $\underline{\underline{\ \ \ \ \ \ \ \ \ \ \ \ \ }}$, Soil $\underline{\underline{\ \ \ \ \ \ \ \ \ }}$, or Hydrology $\underline{\underline{\ \ \ \ \ \ \ \ }}$ signifi	cantly disturbed?	Are "Normal Circumstances" p	oresent? Yes No
Are Vegetation No , Soil No , or Hydrology No natura		If needed, explain any answe	
SUMMARY OF FINDINGS – Attach site map sho			
Hydrophytic Vegetation Present? Yes ✓ No			
Hydric Soil Present? Yes No	✓ Is the Samp		No √
Hydrophytic Vegetation Present? Yes ✓ No No No No No	within a We	etiand? Yes	NO <u>V</u>
Remarks:			
- Site observations and local hydrological data sup	pport moderately wet	conditions present duri	ing site visit.
- Vegetation/Soils/Hydrology historically impacted	by silvicultural activi	ties (hipping/benching f	or planted pine).
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that a	(ylage	Surface Soil	
Surface Water (A1) Aquatic Fau			getated Concave Surface (B8)
<u> </u>	its (B15) (LRR U)	Drainage Par	
	sulfide Odor (C1)	Moss Trim Li	
	nizospheres along Living F		Water Table (C2)
Sediment Deposits (B2) Presence of	Reduced Iron (C4)	Crayfish Buri	
	Reduction in Tilled Soils	(C6) Saturation Vi	sible on Aerial Imagery (C9)
	Surface (C7)	Geomorphic	Position (D2)
Iron Deposits (B5) Other (Expl	ain in Remarks)	Shallow Aqui	tard (D3)
Inundation Visible on Aerial Imagery (B7)		FAC-Neutral	ı
Water-Stained Leaves (B9)		Sphagnum m	noss (D8) (LRR T,U)
Field Observations:			
Surface Water Present? Yes No/ Depth (i			
	nches):		✓
Saturation Present? Yes No _▼ Depth (i (includes capillary fringe)	nches):	Wetland Hydrology Presen	it? Yes No
Describe Recorded Data (stream gauge, monitoring well, aeria	I photos, previous inspect	ions), if available:	
		,.	
Remarks: FAC-Neutral Test Results: Negative FACW a	ind OBL: 3 to FACU	and UPL: 5	
Tromano. Trio Troutai Foot Toodio. Troganio	114 022.	and or E.	

= Total Co	FACW	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A) Total Number of Dominant Species Across All Strata: 3 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B) Prevalence Index worksheet: Multiply by: (A/B) OBL species x 1 = FACW species x 2 = FACW species x 4 = UPL species x 4 = UPL species (A) (B) Prevalence Index = B/A = Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation ✓ 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 1
= Total Co	over FACW	That Are OBL, FACW, or FAC:3 (A) Total Number of Dominant Species Across All Strata:3 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B) Prevalence Index worksheet: Multiply by: OBL species x 1 = FACW species x 2 = FAC species x 3 = FACU species x 4 = UPL species x 5 = Column Totals: (A) (B) Prevalence Index = B/A = Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 1
= Total Co	over FACW Over	Species Across All Strata: 3 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B) Prevalence Index worksheet:
= Total Co	FACW	Percent of Dominant Species That Are OBL, FACW, or FAC: Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species x 1 = FACW species x 2 = FAC species x 4 = UPL species x 5 = Column Totals: A) Prevalence Index = B/A = Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 1
= Total Co	FACW	That Are OBL, FACW, or FAC:
= Total Co	FACW	That Are OBL, FACW, or FAC:
= Total Co	FACW	Total % Cover of: Multiply by: OBL species x 1 = FACW species x 2 = FAC species x 3 = FACU species x 4 = UPL species x 5 = Column Totals: (A) Multiply by: (A) (B) Prevalence Index = B/A = Multiply by: Multiply by: Multiply by: Multiple FAC Multiple Multiple Multiple Multiple Multiple Multiple
yes = Total Co	FACW	Total % Cover of: Multiply by: OBL species x 1 = FACW species x 2 = FAC species x 3 = FACU species x 4 = UPL species x 5 = Column Totals: (A) Multiply by: (A) (B) Prevalence Index = B/A = Multiply by: Multiply by: Multiply by: Multiple FAC Multiple Multiple Multiple Multiple Multiple Multiple
yes = Total Co	FACW	OBL species $x 1 = $ FACW species $x 2 = $ FAC species $x 3 = $ FACU species $x 4 = $ UPL species $x 5 = $ Column Totals: $x 5 = $ Column Totals: $x 5 = $ Column Totals: $x 5 = $ Thydrophytic Vegetation Indicators: $x 5 = $ Thydrophytic Vegetati
= Total Co	over	FACW species x 2 =
= Total Co	over	FAC species x 3 =
= Total C	over	FACU species x 4 =
= Total C	over	UPL species x 5 = (A) (B) Prevalence Index = B/A = Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 1
= Total Co	over	Column Totals: (A) (B) Prevalence Index = B/A = Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 1
= Total C	over	Prevalence Index = B/A = Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 1
= Total C	over	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation ✓ 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹
		1 - Rapid Test for Hydrophytic Vegetation ✓ 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹
		 ✓ 2 - Dominance Test is >50% _ 3 - Prevalence Index is ≤3.0¹
		3 - Prevalence Index is ≤3.0 ¹
		Problematic Hydrophytic Vegetation ¹ (Explain)
		¹Indicators of hydric soil and wetland hydrology must
		be present, unless disturbed or problematic.
		Definitions of Vegetation Strata:
= Total C	over	T
V00	ГЛС	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and
		3 in. (7.6 cm) or larger in diameter at breast
-		height (DBH).
		Sapling – Woody plants, excluding woody vines,
		approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
		than 3 in. (7.0 din) DBH.
		Shrub – Woody plants, excluding woody vines,
		approximately 3 to 20 ft (1 to 6 m) in height.
		Hart was a second of the secon
		Herb – All herbaceous (non-woody) plants, including
		herbaceous vines, regardless of size AND woody plants, except woody vines, less than
= Total C	over	approximately 3 ft (1 m) in height.
		Woody vine – All woody vines, regardless of height.
		vivoday virios virios, regulareos or neight.
		Hydrophytic
= Total C	over	Vegetation Present? Yes No
	= Total C yes yes no no no no no = Total C	= Total Cover yes FAC yes FACW no OBL no FACU no FACU no FACU no FACU = Total Cover

(inches)	Matrix	0/		lox Feature		12	T 4	5 :	
0_4"	Color (moist) 10YR 7/1	30	Color (moist) 10YR 4/1	<u>%</u> 70	Type ¹ MS	Loc ²	<u>Texture</u> Sa	Remarks	}
0-4" 4-18"	-		10117.4/1		IVIO	IVI			
4-18	10YR 6/1	100	-		· ——		Sa		
		epletion, RM	=Reduced Matrix, I	MS=Maske	d Sand Gr	ains.		cation: PL=Pore Lining	
Hydric Soil I								for Problematic Hydri	c Soils":
Histosol			Polyvalue E					uck (A40) (LRR O)	
Histic Ep Black Hi	oipedon (A2)		Thin Dark S Loamy Mud					luck (A10) (LRR S) ed Vertic (F18) (outside	MI RA 150A R
	n Sulfide (A4)		Loamy Gle			. •,		ont Floodplain Soils (F1	
	Layers (A5)		Depleted M		,			lous Bright Loamy Soils	, ,
Organic	Bodies (A6) (LRR	P, T, U)	Redox Dar	k Surface (I	- 6)		(MLR	A 153B)	
	icky Mineral (A7) (rent Material (TF2)	
	esence (A8) (LRR		Redox Dep		8)		-	nallow Dark Surface (TF	-12)
	ick (A9) (LRR P, T d Below Dark Surfa		Marl (F10) Depleted C		(MI RA 1	51)	Other (Explain in Remarks)	
	ark Surface (A12)	(7111)	Iron-Mang				P, T) 3 _{Indica}	tors of hydrophytic veg	etation and
	rairie Redox (A16)	(MLRA 150			, ,		indica	and hydrology must be	
	lucky Mineral (S1)	(LRR O, S)					un	less disturbed or proble	
	Bleyed Matrix (S4)		Reduced V						
	ledox (S5) Matrix (S6)		Piedmont F					452D)	
	rface (S7) (LRR P ,	S. T. U)	Anomaious	Биди соа	my Solis (-20) (WILF	RA 149A, 153C,	1530)	
Restrictive L	_ayer (if observed	l):							
Restrictive L Type:	_ayer (if observed	I):							,
		l):					Hydric Soil I	Present? Yes	No✓
Type: Depth (inc	ches):		 =Loam; Mu=Muck	Pe- Peat	; Sa= Sar	ıd; Si=Silt	-	Present? Yes	No✓
Type: Depth (inc	ches):		=Loam; Mu=Muck	Pe- Peat	; Sa= Sar	id; Si=Silt	-	Present? Yes	
Type: Depth (inc	ches):		=Loam; Mu=Muck	Pe- Peat	; Sa= Sar	d; Si=Silt	-	Present? Yes	No✓
Type: Depth (inc	ches):		=Loam; Mu=Muck	Pe- Peat	; Sa= Sar	id; Si=Silt	-	Present? Yes	No √
Type: Depth (inc	ches):		=Loam; Mu=Muck	Pe- Peat	; Sa= Sar	d; Si=Silt	-	Present? Yes	No <u>√</u>
Type: Depth (inc	ches):		=Loam; Mu=Muck	Pe- Peat	; Sa= Sar	d; Si=Silt	-	Present? Yes	
Type: Depth (inc	ches):		=Loam; Mu=Muck	Pe- Peat	; Sa= Sar	d; Si=Silt	-	Present? Yes	No V
Type: Depth (inc	ches):		=Loam; Mu=Muck	Pe- Peat	; Sa= Sar	id; Si=Silt	-	Present? Yes	No <u>√</u>
Type: Depth (inc	ches):		=Loam; Mu=Muck	Pe- Peat	; Sa= Sar	id; Si=Silt	-	Present? Yes	_ No <u>√</u>
Type: Depth (inc	ches):		=Loam; Mu=Muck	Pe- Peat	; Sa= Sar	d; Si=Silt	-	Present? Yes	_ No <u>√</u>
Type: Depth (inc	ches):		=Loam; Mu=Muck	Pe- Peat	; Sa= Sar	d; Si=Silt	-	Present? Yes	No V
Type: Depth (inc	ches):		=Loam; Mu=Muck	Pe- Peat	; Sa= Sar	id; Si=Silt	-	Present? Yes	No V
Type: Depth (inc	ches):		=Loam; Mu=Muck	Pe- Peat	; Sa= Sar	d; Si=Silt	-	Present? Yes	_ No <u>√</u>
Type: Depth (inc	ches):		=Loam; Mu=Muck	Pe- Peat	; Sa= Sar	d; Si=Silt	-	Present? Yes	No V
Type: Depth (inc	ches):		=Loam; Mu=Muck	Pe- Peat	; Sa= Sar	d; Si=Silt	-	Present? Yes	No V
Type: Depth (inc	ches):		=Loam; Mu=Muck	Pe- Peat	; Sa= Sar	id; Si=Silt	-	Present? Yes	No 🗸
Type: Depth (ind	ches):		=Loam; Mu=Muck	Pe- Peat	; Sa= Sar	d; Si=Silt	-	Present? Yes	_ No _✓
Type: Depth (inc	ches):		=Loam; Mu=Muck	Pe- Peat	; Sa= Sar	d; Si=Silt	-	Present? Yes	No ✓
Type: Depth (inc	ches):		=Loam; Mu=Muck	Pe- Peat	; Sa= Sar	d; Si=Silt	-	Present? Yes	No ✓
Type: Depth (inc	ches):		=Loam; Mu=Muck	Pe- Peat	; Sa= Sar	d; Si=Silt	-	Present? Yes	No V
Type: Depth (inc	ches):		=Loam; Mu=Muck	Pe- Peat	; Sa= Sar	d; Si=Silt	-	Present? Yes	_ No _✓
Type: Depth (inc	ches):		=Loam; Mu=Muck	Pe- Peat	; Sa= Sar	d; Si=Silt	-	Present? Yes	No V

Project/Site: Keystone Tract City/County: Charlton Cour	nty	Sampling Date: 08/27/2018
Applicant/Owner: Twin Pines Minerals, LLC	State: GA	Sampling Point: UDP-6
Investigator(s): C. Terrell / C. Stanford (TTL) Section, Township, Range: No.		
Landform (hillslope, terrace, etc.): Flatwoods Local relief (concave, convex, r		Slope (%): 0-2%
Subregion (LRR or MLRA): <u>LRR T / MLRA 153A</u> Lat: <u>30.52167257060</u> Long: <u>-</u> 8	32.11123142050	Datum: NAD83
Soil Map Unit Name: Leon fine sand, 0-2% slopes		
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (I	If no, explain in R	Remarks.)
	Circumstances" ¡	oresent? Yes <u>√</u> No
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, ex		
SUMMARY OF FINDINGS – Attach site map showing sampling point location		
Hydrophytic Vegetation Present? Yes No Is the Sampled Area		
Hydric Soil Present? Yes No Is the Sampled Area		
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No Yes No No Yes No Yes No Yes No Yes No Yes No	Yes	No <u> </u>
Remarks:		
- Site observations and local hydrological data support abnormally dry conditions present during site	visit.	
- Vegetation/Soils/Hydrology historically impacted by silvicultural activities (hipping/benching for plan	nted pine).	
HYDROLOGY		
Wetland Hydrology Indicators:	Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil	Cracks (B6)
Surface Water (A1) Aquatic Fauna (B13)	Sparsely Ve	getated Concave Surface (B8)
High Water Table (A2) Marl Deposits (B15) (LRR U)	Drainage Pa	tterns (B10)
Saturation (A3) Hydrogen Sulfide Odor (C1)	Moss Trim L	
Water Marks (B1) Oxidized Rhizospheres along Living Roots (C3)		Water Table (C2)
Sediment Deposits (B2) Presence of Reduced Iron (C4)	Crayfish Bur	` '
Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6)		isible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin Muck Surface (C7) Iron Deposits (B5) Other (Explain in Remarks)	Geomorphic Shallow Aqu	Position (D2)
	Shallow Aqu	
1 		noss (D8) (LRR T,U)
Field Observations:		, , , , ,
Surface Water Present? Yes No _ ✓ Depth (inches):		
Water Table Present? Yes <u>✓</u> No Depth (inches): <u>13</u>		
/	ydrology Preser	nt? Yes No
(includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if avail	lable:	
Remarks: FAC-Neutral Test Results: Negative FACW and OBL: 3 to FACU and UPL: 5		

EGETATION – Use scientific names of plants	S.			Sampling Point: UDP-6
Tree Stratum (Plot sizes: 30 ft radius) 1.	Absolute % Cover	Dominant Species?		Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC:
2.				Total Number of Dominant
3				Species Across All Strata: 5 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 40% (A/B)
6 7.				Prevalence Index worksheet:
50% of total cover: 20% of total cover: Sapling Stratum (30 ft radius)	0.0	= Total Co	over	
1. Pinus elliottii	25.0	ves	FACW	FACW species 35 $x 2 = 70$
2. Quercus pumila	5.0	yes	UPL	FAC species 65 x 3 = 195
3.				FACU species 25 x 4 = 100
4.				UPL species <u>5</u> x 5 = <u>25</u>
5				Column Totals: <u>135</u> (A) <u>395</u> (B)
6				Prevalence Index = B/A = 2.9
7				Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)	30.0	= Total Co	over	1 - Rapid Test for Hydrophytic Vegetation
1. Ilex glabra	10.0	yes	FACU	2 - Dominance Test is >50%
2. Serenoa repens		yes	FACU	✓ 3 - Prevalence Index is ≤3.0 ¹
3.				Problematic Hydrophytic Vegetation ¹ (Explain)
4				¹ Indicators of hydric soil and wetland hydrology must
5				be present, unless disturbed or problematic.
6				Definitions of Variable Charles
7	45.0			Definitions of Vegetation Strata:
Herb Stratum (30 ft radius)	15.0	= Total Co	over	Tree – Woody plants, excluding woody vines,
1. Andropogon virginicus	60.0	yes	FAC	approximately 20 ft (6 m) or more in height and
2. Scleria triglomerata	10.0	no	FACW	3 in. (7.6 cm) or larger in diameter at breast
3. Dichanthelium commutatum	5.0	no	FAC	height (DBH).
4. Dichanthelium aciculare	5.0	no	FACU	Sapling – Woody plants, excluding woody vines,
5. Cyperus retrorsus	5.0	no	FACU	approximately 20 ft (6 m) or more in height and less
6. Woodwardia virginica	5.0	no	<u>OBL</u>	than 3 in. (7.6 cm) DBH.
7				Shrub – Woody plants, excluding woody vines,
8a				approximately 3 to 20 ft (1 to 6 m) in height.
9 10				
11.				Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size AND
12.				woody plants, except woody vines, less than
50% of total cover: 45.00 20% of total cover: 18.00 Woody Vine Stratum (30 ft radius)	90.0	= Total Co	over	approximately 3 ft (1 m) in height.
1				Woody vine – All woody vines, regardless of height.
2.				
3.				
4.				Hadran bada
5				Hydrophytic Vegetation
50% of total cover: 20% of total cover:	0.0	= Total Co	over	Present? Yes ✓ No
Remarks: (If observed, list morphological adaptations be	elow). *Plants	not idendi	fied to spec	ies are not used in dominance calculations.

Profile Desc	ription: (Describe	to the dept	h needed to docu	ment the	indicator	or confirn	n the absence	e of indicators.)
Depth	Matrix			ox Feature				
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Remarks
0-6"	10YR 6/1	40	10YR 3/1	60	MS	M	Sa	
6-15"	10YR 7/1	100					Sa	
15-18"	7.5YR 2.5/2	100					Lo	Spodic Horizon
					· 	-		
				_				
¹Type: C=Co	oncentration, D=Dep	oletion RM=	Reduced Matrix M	S=Masked	d Sand Gr	ains	2	ocation: PL=Pore Lining, M=Matrix.
Hydric Soil I		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	. roddodd mann, n	·······································		<u> </u>		s for Problematic Hydric Soils ³ :
Histosol			Polyvalue B	elow Surfa	ce (S8) (L	.RR S. T. I		Muck (A9) (LRR O)
	pipedon (A2)		Thin Dark S					Muck (A10) (LRR S)
Black His	stic (A3)		Loamy Muc					iced Vertic (F18) (outside MLRA 150A,B)
	n Sulfide (A4)		Loamy Gley	ed Matrix	(F2)		Piedr	mont Floodplain Soils (F19) (LRR P, S, T)
	Layers (A5)		Depleted Ma					nalous Bright Loamy Soils (F20)
_	Bodies (A6) (LRR P		Redox Dark				•	_RA 153B)
	cky Mineral (A7) (LI		Depleted Da					Parent Material (TF2)
	esence (A8) (LRR U ck (A9) (LRR P, T)	J)	Redox Depr Marl (F10) (•	8)		•	Shallow Dark Surface (TF12)
	Below Dark Surfac	e (A11)	Depleted Oc	•	(MI RA 1	51)	Otnei	r (Explain in Remarks)
	ark Surface (A12)	(/ (/)	Iron-Manga				P, T) 3 _{Indi}	cators of hydrophytic vegetation and
	airie Redox (A16) (I	MLRA 150A	_				illan	etland hydrology must be present,
	lucky Mineral (S1) (LRR O, S)	Delta Ochrid	(F17) (M l	RA 151)			unless disturbed or problematic.
	leyed Matrix (S4)		Reduced Ve					
	edox (S5)		Piedmont FI					
	Matrix (S6)		Anomalous	Bright Loa	my Soils (F20) (MLF	RA 149A, 1530	C, 153D)
	face (S7) (LRR P, S -ayer (if observed)						1	
	-ayer (ii observed)							
Type:	-h \.						Uhrahain Chi	il Present? Yes No
Depth (inc				D D 1	0 0	1 0: 0:11	_	il Present? Yes No
Remarks: ^S	oil abbreviations: C	I=Clay; Lo=	Loam; Mu=Muck;	Pe- Peat	; Sa= Sar	na; SI=SIIt		

Applicant/Owner: Twin Pines Minerals, LLC Investigator(s): C. Terrell / C. Stanford (TTL) Section, Township, Range: Not Available Local relief (concave, convex, none): None Slope (%): 0-	018
Investigator(s): C. Terrell / C. Stanford (TTL) Section, Township, Range: Not Available	
Landform (hillslope, terrace, etc.): Flatwoods Local relief (concave, convex, none): None Slope (%): 0-	
	2%
Subregion (LRR or MLRA): <u>LRR T / MLRA 153A</u> Lat: <u>30.52785688430</u> Long: <u>-82.12274658110</u> Datum: <u>NAE</u>	83
Soil Map Unit Name: Lynn Haven fine sand, 0-2% slopes NWI classification: Upland	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No	
Are Vegetation Yes_, Soil Yes_, or Hydrology Yes_ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ _ No_	
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)	
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features,	etc.
Hydrophytic Vegetation Present? Yes ✓ No Is the Sampled Area	
Hydric Soil Present? Yes No Is the Sampled Area	
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No No No No No Within a Wetland? Yes No Within a Wetland?	
Remarks:	
- Site observations and local hydrological data support moderately wet conditions present during site visit.	
- Vegetation/Soils/Hydrology historically impacted by silvicultural activities (hipping/benching for planted pine).	
HYDROLOGY	
Wetland Hydrology Indicators: Secondary Indicators (minimum of two requi	ed)
Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6)	
Surface Water (A1) Aquatic Fauna (B13) Sparsely Vegetated Concave Surface (B13)	38)
High Water Table (A2) Marl Deposits (B15) (LRR U) Drainage Patterns (B10)	- /
Saturation (A3) Hydrogen Sulfide Odor (C1) Moss Trim Lines (B16)	
Water Marks (B1) Oxidized Rhizospheres along Living Roots (C3) Dry-Season Water Table (C2)	
Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8)	
Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin Muck Surface (C7) Geomorphic Position (D2)	
Iron Deposits (B5) Other (Explain in Remarks) Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5)	
Water-Stained Leaves (B9) Sphagnum moss (D8) (LRR T,U)	
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No Depth (inches):	,
Saturation Present? Yes No Ves Depth (inches): Wetland Hydrology Present? Yes No Ves N	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
(
3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Remarks: FAC-Neutral Test Results: Negative FACW and OBL: 3 to FACU and UPL: 3	

EGETATION – Use scientific names of plants				Sampling Point: UDP-7
Tree Stratum (Plot sizes: 30 ft radius) 1.	Absolute % Cover		Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC:3 (A)
2				Total Number of Dominant Species Across All Strata:5 (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)
6				Prevalence Index worksheet:
7	0.0	= Total Co	over	
1. Pinus elliottii	20.0	yes	FACW	FACW species x 2 =
2				FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5				Column Totals: (A) (B)
6				Prevalence Index = B/A =
7	20.0	= Total Co		Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)	20.0	- Total Ct	JVGI	1 - Rapid Test for Hydrophytic Vegetation
_{1.} Ilex glabra	10.0		<u>FACW</u>	✓ 2 - Dominance Test is >50%
2. Serenoa repens			FACU	3 - Prevalence Index is ≤3.0 ¹
3				Problematic Hydrophytic Vegetation¹ (Explain)
4 5				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6.				
7				Definitions of Vegetation Strata:
50% of total cover: 10.00 20% of total cover: 4.00	20.0	= Total Co	over	Troo Westernlands and discuss decides
Herb Stratum(_30 ft radius 1. Cyperus retrorsus	10.0	yes	FACU	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and
2. Pteridium aquilinum	10.0	no	FACU	3 in. (7.6 cm) or larger in diameter at breast
3. Sabatia brevifolia		no	FACW	height (DBH).
4.				Sapling – Woody plants, excluding woody vines,
5.				approximately 20 ft (6 m) or more in height and less
6				than 3 in. (7.6 cm) DBH.
7				Shrub – Woody plants, excluding woody vines,
8a				approximately 3 to 20 ft (1 to 6 m) in height.
9 10				Horb All I () I () I () I
11.				Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size AND
12.				woody plants, except woody vines, less than
50% of total cover: 12.50 20% of total cover: 5.00 20% of total cover:	25.0	= Total Co	over	approximately 3 ft (1 m) in height.
_{1.} Vitis rotundifolia		yes		Woody vine – All woody vines, regardless of height.
2				
3 4				
5.				Hydrophytic
50% of total cover: 2.50	5.0	= Total Co	over	Vegetation Present? Yes No

Profile Desc	ription: (Describe	to the dept	h needed to docu	ment the	indicator	or confirm	m the absence of i	ndicators.)	
Depth	Matrix			ox Feature					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	<u> </u>
0-5"	10YR 6/1	40	10YR 3/1	60	MS	M	Sa		
5-18"	10YR 6/1	100					Sa		
0 10	10111 0/1			_					
									_
							· 		_
				_					
							. <u></u>		
¹ Type: C=Co	ncentration, D=Dep	oletion, RM=	Reduced Matrix, M	IS=Maske	d Sand Gr	ains.	² Locatio	on: PL=Pore Lining	, M=Matrix.
Hydric Soil I		,	•					Problematic Hydri	
Histosol	(A1)		Polyvalue B	elow Surfa	ce (S8) (L	RR S. T.	U) 1 cm Muck	(A9) (LRR O)	
	ipedon (A2)		Thin Dark S					(A10) (LRR S)	
Black His			Loamy Mucl					/ertic (F18) (outside	MLRA 150A,B)
	n Sulfide (A4)		Loamy Gley			,		Floodplain Soils (F1	-
Stratified	Layers (A5)		Depleted Ma		, ,		Anomalou	s Bright Loamy Soils	s (F20)
Organic	Bodies (A6) (LRR P	P, T, U)	Redox Dark	Surface (I	- 6)		(MLRA 1	153B)	
5 cm Mu	cky Mineral (A7) (L	RR P, T, U)	Depleted Da	ark Surface	e (F7)		Red Parer	nt Material (TF2)	
Muck Pre	esence (A8) (LRR L	J)	Redox Depr	essions (F	8)		Very Shall	ow Dark Surface (Th	=12)
1 cm Mu	ck (A9) (LRR P, T)		Marl (F10) (LRR U)			Other (Exp	olain in Remarks)	
Depleted	Below Dark Surface	e (A11)	Depleted Oc	chric (F11)	(MLRA 1	51)			
	rk Surface (A12)		Iron-Manga				P, T) ³ Indicators	s of hydrophytic veg	etation and
	airie Redox (A16) (', U)	wetland	d hydrology must be	present,
	ucky Mineral (S1) (LRR O, S)	Delta Ochrid					s disturbed or proble	ematic.
	leyed Matrix (S4)		Reduced Ve						
	edox (S5)		Piedmont FI						
	Matrix (S6)		Anomalous	Bright Loa	my Soils (F20) (MLF	RA 149A, 153C, 15	3D)	
	face (S7) (LRR P, S								
	.ayer (if observed)	:							
Туре:									/
Depth (inc	:hes):						Hydric Soil Pre	sent? Yes	No
Remarks: *So	oil abbreviations: C	l=Clay; Lo=	Loam; Mu=Muck;	Pe- Peat	; Sa= Sar	nd; Si=Silt	t '		

Project/Site: Keystone Tract	City/County: Char	rlton County	Sampling Date: 08/28/2018
Applicant/Owner: Twin Pines Minerals, LLC	, ,		Sampling Point: UDP-8
	Section, Township,	Range: Not Available	
			Slope (%): 0-2%
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.53			
Soil Map Unit Name: Leon fine sand, 0-2% slopes		Long NWI classific	
			•
Are climatic / hydrologic conditions on the site typical for this time of your services. Yes			
Are Vegetation Yes, Soil Yes, or Hydrology Yes significantly			
Are Vegetation No , Soil No , or Hydrology No naturally pr	oblematic? (If needed, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	g sampling poir	nt locations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes _ ✓ No			
Hydric Soil Present? Yes No _✓	Is the Samp		/
Hydrophytic Vegetation Present? Yes ✓ No Hydric Soil Present? Yes No ✓ Wetland Hydrology Present? Yes No ✓	within a We	etland? Yes	No <u>√</u>
Remarks:			
- Site observations and local hydrological data support	t abnormally dry	conditions present duri	ng site visit.
- Vegetation/Soils/Hydrology historically impacted by s		•	-
		· · · · · · ·	. , ,
HYDROLOGY			
Wetland Hydrology Indicators:			tors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		Surface Soil	
Surface Water (A1) Aquatic Fauna (B			getated Concave Surface (B8)
High Water Table (A2) Marl Deposits (B'		Drainage Pa	
Saturation (A3) Hydrogen Sulfide	pheres along Living F	Moss Trim Li	
<u> </u>		Crayfish Bur	Water Table (C2)
· · · / —	uction in Tilled Soils (sible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin Muck Surface			Position (D2)
Iron Deposits (B5) Other (Explain in		Shallow Aqu	` '
Inundation Visible on Aerial Imagery (B7)	,	✓ FAC-Neutral	
Water-Stained Leaves (B9)			noss (D8) (LRR T,U)
Field Observations:			
	s):		
Water Table Present? Yes No _✓ Depth (inches	s):		./
Saturation Present? Yes No Depth (inches (includes capillary fringe)	3):	Wetland Hydrology Presen	it? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial phot	os, previous inspect	ions), if available:	
Remarks: FAC-Neutral Test Results: Positive FACW and Of	BL: 5 to FACU	and UPL: 3	

EGETATION - Use scientific names of plants	S.			Sampling Point: UDP-8
Tree Stratum (Plot sizes: 30 ft radius) 1.	Absolute % Cover		Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC:3 (A)
2				Total Number of Dominant Species Across All Strata: 4 (B)
45				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
6				Prevalence Index worksheet:
7	0.0	= Total Co	over	
1. Pinus elliottii	60.0	yes	FACW	FACW species x 2 =
2.				FAC species x 3 =
3.				FACU species x 4 =
4.				UPL species x 5 =
5				Column Totals: (A) (B)
6				Prevalence Index = B/A =
7				Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)	60.0	= Total Co	over	1 - Rapid Test for Hydrophytic Vegetation
1. Serenoa repens	20.0	ves	FACU	✓ 2 - Dominance Test is >50%
2. Ilex glabra	20.0		FACW	3 - Prevalence Index is ≤3.0 1
Kalmia hirsuta		no	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
4				¹ Indicators of hydric soil and wetland hydrology must
5				be present, unless disturbed or problematic.
6				
7				Definitions of Vegetation Strata:
50% of total cover: 22.50 20% of total cover: 9.00	45.0	= Total Co	over	Trocky
Herb Stratum (30 ft radius) 1. Scleria triglomerata	25.0	VAC	EAC\A/	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and
2. Sabatia brevifolia		yes	FACW	3 in. (7.6 cm) or larger in diameter at breast
	5.0	no	FACU	height (DBH).
3. <u>Dichanthelium aciculare</u> 4. Pterocaulon pyncnostachyum	5.0	no no	FACU FACU	
5.	3.0	110	FACU	Sapling – Woody plants, excluding woody vines,
6			-	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
7				alan o III. (7.5 oiii) BBTI.
8.				Shrub – Woody plants, excluding woody vines,
9.				approximately 3 to 20 ft (1 to 6 m) in height.
10.				Horb All harbassaus (non woods) plants including
11.				Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size AND
 12.				woody plants, except woody vines, less than
50% of total cover: 20.00 20% of total cover: 8.00 Woody Vine Stratum (30 ft radius)	40.0	= Total Co	over	approximately 3 ft (1 m) in height.
1				Woody vine – All woody vines, regardless of height.
2				
3				
4				Hadran bada
5				Hydrophytic Vegetation
50% of total cover: 20% of total cover:	0.0	= Total Co	- Over	Present? Yes No

Profile Desc	ription: (Describe	to the dept	th needed to docu	ment the	indicator	or confire	m the absence of	indicators.)	
Depth	Matrix			ox Feature					
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Remarks	
0-4"	10YR 7/1	40	10YR 3/1	60	MS	M	Sa		
4-18"	10YR 7/1	100					Sa		
							<u> </u>		
						-	·		
				_	-		· 		
	-						·		
							. <u> </u>		
¹ Type: C=C	oncentration, D=Dep	letion RM-	-Reduced Matrix M	IS-Masker	d Sand Gr	aine	² l oca	tion: PL=Pore Lining,	M-Matriy
Hydric Soil		iction, raivi=	Treduced Matrix, M	IO-IVIASICO	a Garia Gi	airis.		r Problematic Hydri	
Histosol			Polyvalue B	elow Surfa	ce (S8) (I	RRST		ck (A9) (LRR O)	
	pipedon (A2)		Thin Dark S					ck (A10) (LRR S)	
Black Hi			Loamy Mucl					Vertic (F18) (outside	MLRA 150A,B)
	n Sulfide (A4)		Loamy Gley					t Floodplain Soils (F1	
Stratified	Layers (A5)		Depleted Ma	atrix (F3)			Anomalo	us Bright Loamy Soils	(F20)
Organic	Bodies (A6) (LRR P	, T, U)	Redox Dark	Surface (I	- 6)		(MLRA	153B)	
	cky Mineral (A7) (LI		Depleted Da					ent Material (TF2)	
	esence (A8) (LRR U	J)	Redox Depr		(8)		-	llow Dark Surface (TF	F12)
	ck (A9) (LRR P, T)	- (044)	Marl (F10) ((MI DA 4	E4\	Other (Ex	kplain in Remarks)	
	l Below Dark Surfac ark Surface (A12)	e (ATT)	Depleted Od Iron-Manga				D T\ 3		
	airie Redox (A16) (I	MI RA 1504	_				indicato	rs of hydrophytic veg	
	lucky Mineral (S1) (I		Delta Ochric			, 0,		nd hydrology must be ess disturbed or proble	
	leyed Matrix (S4)	-,-,	Reduced Ve			0A, 150B		oo alotarboa or probit	ornado.
	edox (S5)		Piedmont FI						
	Matrix (S6)		Anomalous	Bright Loa	my Soils (F20) (MLF	RA 149A, 153C, 1	53D)	
	rface (S7) (LRR P, S								
Restrictive I	ayer (if observed)	:							
Type:									./
Depth (inc	ches):						Hydric Soil Pr	esent? Yes	No
Remarks: *S	oil abbreviations: C	l=Clay; Lo=	Loam; Mu=Muck;	Pe- Peat	; Sa= Sar	nd; Si=Silt	t		

Project/Site: Keystone Tract	City/County: Cha	rlton County	Sampling Date: 08/28/2018
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: UDP-9
Investigator(s): C. Terrell / C. Stanford (TTL)	Section, Township		
	Local relief (concav		Slope (%): <u>0-2%</u>
Subregion (LRR or MLRA): LRR T / MLRA 153A	Lat: 30.52975621760	Long:82.10986383050	Datum: NAD83
Soil Map Unit Name: Lynn Haven fine sand, 0-2% slopes		NWI classific	
Are climatic / hydrologic conditions on the site typical for th	is time of year? Yes N	lo <u>√</u> (If no, explain in R	emarks.)
Are Vegetation Yes , Soil Yes , or Hydrology Yes	significantly disturbed?	Are "Normal Circumstances" p	oresent? Yes No
Are Vegetation No , Soil No , or Hydrology No			
SUMMARY OF FINDINGS – Attach site map			
Hydrophytic Vegetation Present? Yes <u>✓</u> N	No.		
Hydric Soil Present? Yes N	No ✓ Is the Sam		/
Hydrophytic Vegetation Present? Yes ✓ N Hydric Soil Present? Yes N Wetland Hydrology Present? Yes N	No within a We	etland? Yes	No
Remarks:			
- Site observations and local hydrological data	a support moderately we	t conditions present dur	ing site visit.
- Vegetation/Soils/Hydrology historically impa		•	_
	,	(11 0 0	
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indica	tors (minimum of two required)
Primary Indicators (minimum of one is required; check all	that apply)	Surface Soil	Cracks (B6)
_ ` '	ic Fauna (B13)	Sparsely Veg	getated Concave Surface (B8)
	Deposits (B15) (LRR U)	Drainage Pa	tterns (B10)
<u> </u>	gen Sulfide Odor (C1)	Moss Trim Li	
<u> </u>	ed Rhizospheres along Living I	_ ,	Water Table (C2)
, _	nce of Reduced Iron (C4)	Crayfish Bur	
	t Iron Reduction in Tilled Soils		sible on Aerial Imagery (C9)
	Muck Surface (C7)	Geomorphic	
	(Explain in Remarks)	Shallow Aqu	
Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9)		FAC-Neutral	noss (D8) (LRR T,U)
		Spriagrium ii	1055 (D0) (LNN 1,0)
Field Observations: Surface Water Present? Yes No ✓ De	epth (inches):		
	epth (inches):		
	epth (inches):	Wetland Hydrology Presen	t? Yes No ✓
(includes capillary fringe)	pur (monos).	Troduction Try at Ology 1 10001	100
Describe Recorded Data (stream gauge, monitoring well,	aerial photos, previous inspect	ions), if available:	
Remarks: FAC-Neutral Test Results: Negative FA	CW and OBL: 5 to FACU	and UPL: 2	

EGETATION – Use scientific names of plants.				Sampling Point: UDP-9
70 ft radius	Absolute	Dominant		Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>) 1. <i>Pinus elliottii</i>	40.0		FACW	Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
2				Total Number of Dominant Species Across All Strata: 6 (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)
6				Providence Indonesia Indonesia
7				Prevalence Index worksheet:
50% of total cover: 20.00 20% of total cover: 8.00 Sapling Stratum (30 ft radius)	40.0	= Total Co	over	
1				FACW species x 2 =
2				FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5				Column Totals: (A) (B)
6	·			Prevalence Index = B/A =
7				Hydrophytic Vegetation Indicators:
50% of total cover: 20% of total cover: Shrub Stratum (30 ft radius)	0.0	= Total Co	over	1 - Rapid Test for Hydrophytic Vegetation
· Caranaa ranana	5.0	yes	FACU	✓ 2 - Dominance Test is >50%
		no	FACW	3 - Prevalence Index is ≤3.0 ¹
2. Ilex glabra 3. Rhus copallinum	5.0	no	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
4			171011	¹ Indicators of hydric soil and wetland hydrology must
5				be present, unless disturbed or problematic.
6.				
7.				Definitions of Vegetation Strata:
50% of total cover: 7.50 20% of total cover: 3.00	15.0	= Total Co	over	Ŭ
Herb Stratum (30 ft radius)		1014100	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Tree – Woody plants, excluding woody vines,
1. Rubus cuneifolius	20.0	yes	FACU	approximately 20 ft (6 m) or more in height and
2. Eupatorium compositifolium	10.0	yes	FAC	3 in. (7.6 cm) or larger in diameter at breast
3. Scleria triglomerata	10.0	yes	FACW	height (DBH).
4. Sabatia brevifolia	5.0	no	FACW	Sapling – Woody plants, excluding woody vines,
5				approximately 20 ft (6 m) or more in height and less
6				than 3 in. (7.6 cm) DBH.
7				
8				Shrub – Woody plants, excluding woody vines,
9				approximately 3 to 20 ft (1 to 6 m) in height.
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
50% of total cover: 22.50 20% of total cover: 9.00 Woody Vine Stratum (30 ft radius)	45.0	= Total Co	over	approximately 3 ft (1 m) in height.
1. Vitis rotundifolia	5.0	yes	FAC	Woody vine – All woody vines, regardless of height.
2.				
3.				
4.				
5.				Hydrophytic Vegetation
50% of total cover: 2.50 20% of total cover: 1.00				Present? Yes No
Remarks: (If observed, list morphological adaptations below	ow). *Plants	not idendi	fied to spec	ies are not used in dominance calculations.

D 41		to the dep	th needed to docu	ment the	indicator	or commr	m the absence	of indicators.)	I
Depth	Matrix			ox Feature					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Rema	rks
0-6"	10YR 6/1	30	10YR 3/1	70	MS	M	Sa		
6-18"	10YR 5/1	100							
				-		-			
		_					·		
		_					<u> </u>		
1Typo: C-C	oncentration, D=Dep	olotion DM	- Paduaad Matrix M	IS_Maaka	d Sand Cr	oine	21.0	cation: PL=Pore Lini	og M-Motriy
Hydric Soil		Jietion, Kivi=	-Neduced Matrix, M	IS=IVIASKE	J Sanu Gi	all is.		for Problematic Hyd	
Histosol			Polyvalue B	olow Surfa	ce (S8) (I	DD Q T		-	
	oipedon (A2)		Thin Dark S					Muck (A9) (LRR O) Muck (A10) (LRR S)	
Black Hi			Loamy Mucl					ed Vertic (F18) (outs	ide MLRA 150A.B)
	n Sulfide (A4)		Loamy Gley			/		ont Floodplain Soils (-
	Layers (A5)		Depleted Ma		` ,			alous Bright Loamy So	
Organic	Bodies (A6) (LRR F	P, T, U)	Redox Dark	Surface (F	- 6)		(MLF	RA 153B)	
5 cm Mu	icky Mineral (A7) (L	RR P, T, U)	Depleted Da	ark Surface	e (F7)		Red Pa	arent Material (TF2)	
	esence (A8) (LRR l	J)	Redox Depr		8)		Very S	hallow Dark Surface	(TF12)
	ick (A9) (LRR P, T)		Marl (F10) (Other	(Explain in Remarks)	
	Below Dark Surface	ce (A11)	Depleted Oc				• • •		
	ark Surface (A12) rairie Redox (A16) (MI DA 1507	Iron-Manga A) Umbric Surf				indioc	ators of hydrophytic v	_
	lucky Mineral (S1) (A) Umbric Surf Delta Ochric			, 0)		land hydrology must l	
	ileyed Matrix (S4)	Likik O, O,	Reduced Ve			0A. 150B		nless disturbed or pro	bblematic.
	edox (S5)		Piedmont FI						
	Matrix (S6)		Anomalous					. 153D)	
Dark Su	rface (S7) (LRR P,	S, T, U)	_	3	, (, ,		,,	
	rface (S7) (LRR P, s _ayer (if observed)		<u> </u>						
					,				
Restrictive I	_ayer (if observed)						Hydric Soil		
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		No✓
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		No✓
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		No
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		No✓
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		No✓
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		No <u></u> ✓
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		No <u></u>
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		No <u> </u>
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		No✓
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		No✓
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		No <u></u> ✓
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		No <u></u>
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		No✓
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		No✓
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		No
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		No
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		No✓
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		No
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		No
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		No✓
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		No
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		

Project/Site: Keystone Tract	City/County: Cha	arlton County	Sampling Date: 08/28/2018		
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: UDP-10		
Investigator(s): C. Terrell / C. Stanford (TTL)	Section, Townshi				
			Slope (%): 0-2%		
Subregion (LRR or MLRA): LRR T / MLRA 153A	_at: 30.51839983580	Long: -82.12246140230	Datum: NAD83		
Soil Map Unit Name: Leon fine sand, 0-2% slopes		NWI classifi			
Are climatic / hydrologic conditions on the site typical for thi	s time of year? Yes	No ✓ (If no, explain in F	Remarks.)		
Are Vegetation Yes, Soil Yes, or Hydrology Yes	ignificantly disturbed?	Are "Normal Circumstances"	present? Yes ✓ No		
Are Vegetation No , Soil No , or Hydrology No r					
SUMMARY OF FINDINGS – Attach site map					
Hydrophytic Vegetation Present? Yes _ ✓ _ N	0				
Hydric Soil Present? Yes N	o Is the San	npled Area	/		
Hydrophytic Vegetation Present? Yes ✓ N Hydric Soil Present? Yes N Wetland Hydrology Present? Yes N	o within a W	Vetland? Yes	No <u> </u>		
Remarks:					
- Site observations and local hydrological data support m	oderately wet conditions pres	ent during site visit.			
- Vegetation/Soils/Hydrology historically impacted by silvi	cultural activities (hipping/ber	nching for planted pine).			
HYDROLOGY					
Wetland Hydrology Indicators:		Secondary Indic	ators (minimum of two required)		
Primary Indicators (minimum of one is required; check all	hat apply)	Surface Soi	Cracks (B6)		
Surface Water (A1) Aquation	Fauna (B13)	Sparsely Ve	Sparsely Vegetated Concave Surface (B8)		
· · · · · · · · · · · · · · · · · · ·	eposits (B15) (LRR U)	Drainage Pa	atterns (B10)		
\	gen Sulfide Odor (C1)	Moss Trim L	ines (B16)		
<u> </u>	ed Rhizospheres along Living	Roots (C3) Dry-Season	Water Table (C2)		
Sediment Deposits (B2) Preser	ice of Reduced Iron (C4)	Crayfish Bu	rrows (C8)		
<u> </u>	Iron Reduction in Tilled Soils	S (C6) Saturation \	/isible on Aerial Imagery (C9)		
, , ,	uck Surface (C7)		Position (D2)		
	(Explain in Remarks)	Shallow Aqu			
Inundation Visible on Aerial Imagery (B7)		FAC-Neutra	` ,		
Water-Stained Leaves (B9)		Sphagnum	moss (D8) (LRR T,U)		
Field Observations:					
	oth (inches):				
	oth (inches):				
Saturation Present? Yes No _▼ De (includes capillary fringe)	oth (inches):	Wetland Hydrology Prese	nt? Yes No*_		
Describe Recorded Data (stream gauge, monitoring well,	aerial photos, previous insper	tions), if available:			
		,			
Remarks: FAC-Neutral Test Results: Negative FAC	CW and OBL: 9 to FACU	J and UPL: 2			
Tremano. The reduction regulars. Regulars	777 dia 052. 0 10 17100	, and or E. =			

 Tree Stratum
 (Plot sizes: 30 ft radius)
 % Cover (Species? Status)

 1. Pinus elliottii
 50.0 yes FACW

50% of total cover: $\frac{25.00}{20\%}$ 20% of total cover: $\frac{10.00}{20\%}$ = Total Cover Sapling Stratum ($\frac{30}{30\%}$ ft radius)

1. Magnolia virginiana 5.0 yes FACW

2. Gordonia lasianthus 5.0 yes FACW

6. _____ ___ ____

Sampling Point: <u>UDP</u> -	-10					
Dominance Test worksheet:						
Number of Dominant Species That Are OBL, FACW, or FAC: 6	(A)					
Fotal Number of Dominant Species Across All Strata: 8	(B)					
Percent of Dominant Species That Are OBL, FACW, or FAC:75%	(A/B)					
Prevalence Index worksheet:						
Total % Cover of: Multiply by:	.					
DBL species x 1 =						
FACW species x 2 =						
FAC species x 3 =						
FACU species x 4 =						
JPL species x 5 =						
Column Totals: (A)	(B)					
Prevalence Index = B/A =	-					
Hydrophytic Vegetation Indicators:						
1 - Rapid Test for Hydrophytic Vegetation						
✓ 2 - Dominance Test is >50%						
3 - Prevalence Index is ≤3.0 ¹						
Problematic Hydrophytic Vegetation ¹ (Expla	in)					
Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.						
Definitions of Vegetation Strata:						
Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).						
Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.						
Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.						
Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size AND woody plants, except woody vines, less than approximately 3 ft (1 m) in height.						
Woody vine – All woody vines, regardless of h	eight.					

50% of total cover: 5.00 20% of total cover: 2.00 20% of total cover: 2	10.0	_ = Total (Cover	1 - Rapid Test for Hydrophytic Vegetation
Caranaa ranana	30.0	yes	FACU	✓ 2 - Dominance Test is >50%
1. <u>Serenoa repens</u> 2. Ilex coriacea	10.0		FACW	3 - Prevalence Index is ≤3.0 ¹
3. Hypericum cistifolium	5.0	no	FACW	Problematic Hydrophytic Vegetation¹ (Explain)
		-	IACV	¹ Indicators of hydric soil and wetland hydrology must
4				be present, unless disturbed or problematic.
5				
6				Definitions of Vegetation Strate:
50% of total cover: ^{22.50} 20% of total cover: ^{9.00}	45.0			Definitions of Vegetation Strata:
Herb Stratum (30 ft radius)	45.0	_ = Total (Cover	Tree – Woody plants, excluding woody vines,
1. Dichanthelium aciculare	20.0	ves	FACU	approximately 20 ft (6 m) or more in height and
2. Andropogon virginicus	20.0		FAC	3 in. (7.6 cm) or larger in diameter at breast
3. Lachnanthes caroliniana	10.0	<u> </u>	OBL	height (DBH).
4. Xyris jupicai	10.0		OBL	
5. Woodwardia virginica			OBL	Sapling – Woody plants, excluding woody vines,
	10.0			approximately 20 ft (6 m) or more in height and less
			FACW_	than 3 in. (7.6 cm) DBH.
7.				Shrub – Woody plants, excluding woody vines,
8				approximately 3 to 20 ft (1 to 6 m) in height.
9				
10				Herb – All herbaceous (non-woody) plants, including
11		_		herbaceous vines, regardless of size AND
12.				woody plants, except woody vines, less than
50% of total cover: 40.00 20% of total cover: 16.00 Woody Vine Stratum (30 ft radius)	80.0	_ = Total (Cover	approximately 3 ft (1 m) in height.
1. Vitis rotundifolia	5.0	Ves	FAC	Woody vine – All woody vines, regardless of height.
				Trocky time yim moody times, regardless or meight
2				
3				
4		_		Hydrophytic
50% of total cover: 20% of total cover:		- 		Vegetation Present? Yes No
		_		
Remarks: (If observed, list morphological adaptations be	elow). *Plan	ts not iden	dified to spec	cies are not used in dominance calculations.

Absolute Dominant Indicator

Depth	ofile Description: (Describe to the depth needed to document the indicator or confinent Matrix Redox Features						,		
(inches)	Color (moist)	%	Color (moist)		Type ¹	Loc ²	<u>Texture</u>	Rema	arks
0-2"	10YR 6/1	70	10YR 4/1	30	MS	M	Sa		
2-18"	10YR 6/1	100					Sa		
_				· ·	-				
					-				
	-					-			
					-				
	oncentration, D=De	epletion, RM	=Reduced Matrix,	MS=Maske	d Sand Gr	ains.		cation: PL=Pore Lin	
•			Dobarduo I	Polovy Curfe	200 (CO) (I	DD C T I		-	unc sons .
Histosol	pipedon (A2)		Polyvalue I Thin Dark S					luck (A9) (LRR O) luck (A10) (LRR S)	
	istic (A3)		Loamy Mu					ed Vertic (F18) (outs	side MLRA 150A,B
	en Sulfide (A4)		Loamy Gle					ont Floodplain Soils	
	d Layers (A5)		Depleted N	, ,				lous Bright Loamy S	Soils (F20)
-	Bodies (A6) (LRR		Redox Dar	•	,			RA 153B)	
	ucky Mineral (A7) (I resence (A8) (LRR) Depleted D Redox Dep					arent Material (TF2) nallow Dark Surface	(TF12)
	uck (A9) (LRR P, T		Marl (F10)		0)		-	Explain in Remarks	
	d Below Dark Surfa		Depleted C		(MLRA 1	51)	0 (_xpram m remaine,	,
	ark Surface (A12)			anese Mas	, ,	•	, T) ³ Indica	tors of hydrophytic	egetation and
	rairie Redox (A16)					, U)		and hydrology must	
	Mucky Mineral (S1) Gleyed Matrix (S4)	(LRR U, S)	Delta Ochr Reduced V			0Δ 150B		nless disturbed or pr	oblematic.
	Redox (S5)		Piedmont F						
	d Matrix (S6)						, RA 149A, 153C,	153D)	
	ırface (S7) (LRR P,								
	Layer (if observed	d):							
Type:									1
Depth (in	-						Hydric Soil	Present? Yes	No
(emarks: "S	Soil abbreviations:	CI=Clay; Lo	=Loam; Mu=Muck	; Pe-Peai	; Sa= Sar	ia; SI=SIII			

Project/Site: Keystone Tract	City/County: Charlton Co	unty	Sampling Date: 08/27/2018		
Applicant/Owner: Twin Pines Minerals, LLC			Sampling Point: WDP-1		
Investigator(s): C. Terrell / C. Stanford (TTL)			Camping Forms		
Landform (hillslope, terrace, etc.): Depression			Slone (%): 0-1%		
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.51					
Soil Map Unit Name: Lynn Haven, Allanton, and Kingsferry soils, pon					
Are climatic / hydrologic conditions on the site typical for this time of ye					
Are Vegetation No , Soil No , or Hydrology No significantly	disturbed? Are "Norm	al Circumstances" p	oresent? Yes No		
Are Vegetation No , Soil No , or Hydrology No naturally pr	oblematic? (If needed	, explain any answe	rs in Remarks.)		
SUMMARY OF FINDINGS - Attach site map showing	g sampling point locat	ions, transects	, important features, etc.		
Hadrada Ca Vanda Ca Burando Van de Na					
Hydrophytic Vegetation Present? Yes Yes No Hydric Soil Present? Yes No No No No No No No N	10 4110 04111		,		
Wetland Hydrology Present? Yes ✓ No	within a Wetland?	Yes <u>√</u>	No		
Remarks:					
- Site observations and local hydrological data support	moderately wet conditi	one present dur	ing eite vieit		
- Site observations and local hydrological data support	. moderately wet conditi	ons present dur	ing site visit.		
HYDROLOGY					
Wetland Hydrology Indicators:		Secondary Indica	ators (minimum of two required)		
Primary Indicators (minimum of one is required; check all that apply)		Surface Soil			
✓ Surface Water (A1) Aquatic Fauna (B	13)		getated Concave Surface (B8)		
✓ High Water Table (A2) Marl Deposits (B1		Drainage Patterns (B10)			
✓ Saturation (A3) Hydrogen Sulfide		Moss Trim Li			
<u> </u>	heres along Living Roots (C3		Water Table (C2)		
Sediment Deposits (B2) Presence of Redu	uced Iron (C4)	Crayfish Bur	rows (C8)		
Drift Deposits (B3) Recent Iron Redu	ction in Tilled Soils (C6)	Saturation Vi	isible on Aerial Imagery (C9)		
Algal Mat or Crust (B4) Thin Muck Surfac	e (C7)	Geomorphic	Position (D2)		
Iron Deposits (B5) Other (Explain in	Remarks)	Shallow Aqu			
Inundation Visible on Aerial Imagery (B7)		✓ FAC-Neutral	ı		
Water-Stained Leaves (B9)		Sphagnum n	noss (D8) (LRR T,U)		
Field Observations:	. 1"				
Surface Water Present? Yes No Depth (inches	0.11				
Water Table Present? Yes No Depth (inches			✓		
Saturation Present? Yes <u>✓</u> No Depth (inches (includes capillary fringe)): U Wetland	Hydrology Presen	nt? Yes No		
Describe Recorded Data (stream gauge, monitoring well, aerial phot	os, previous inspections), if a	vailable:			
Remarks: FAC-Neutral Test Results: Positive FACW and OF	BL: 13 to FACU and UPL:	1			

Sampling	Daint	W/DP ₋ 1
Sampling	Point:	VVDF-1

OBL OBL FACW	Number of Deminent Chasins
OBL	Number of Dominant Species
	That Are OBL, FACW, or FAC: 8 (A)
FACW	Total Number of Dominant
171011	Species Across All Strata: 9 (B)
OBL	Descrit of Descinant Consider
	Percent of Dominant Species That Are OBL, FACW, or FAC: 89% (A/B)
	(1) That 7 to 0 5 E, 17 to 17, 51 17 to 1
	Prevalence Index worksheet:
over	Total % Cover of: Multiply by:
0101	OBL species x 1 =
	FACW species x 2 =
	FAC species x 3 =
	FACU species x 4 =
	UPL species x 5 =
	Column Totals: (A) (B)
	Column Totals (A) (B)
	Prevalence Index = B/A =
	Hydrophytic Vegetation Indicators:
over	1 - Rapid Test for Hydrophytic Vegetation
UPL	✓ 2 - Dominance Test is >50%
OFL	3 - Prevalence Index is ≤3.0 ¹
-	Problematic Hydrophytic Vegetation¹ (Explain)
	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
	Торгозом,
	Definitions of Vegetation Strata:
over	
	Tree – Woody plants, excluding woody vines,
OBL	approximately 20 ft (6 m) or more in height and
	3 in. (7.6 cm) or larger in diameter at breast height (DBH).
OBL	neight (DBH).
FAC	Sapling – Woody plants, excluding woody vines,
FACW	approximately 20 ft (6 m) or more in height and less
FACW	than 3 in. (7.6 cm) DBH.
OBL	
	Shrub – Woody plants, excluding woody vines,
	approximately 3 to 20 ft (1 to 6 m) in height.
171011	Herb – All herbaceous (non-woody) plants, including
· ——	herbaceous vines, regardless of size AND
·	woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
over	approximately 5 ft (1 m) in height.
	Woody vine – All woody vines, regardless of height.
	Troody vinos, regularese of holym
	
	Hydrophytic
	Vegetation
over	Present? Yes No
	OBL OBL FAC FACW

Profile Desc	ription: (Describe	to the dep	th needed to docu	ment the	indicator	or confirn	n the absence	e of indicators.)
Depth (inches)	Matrix Color (moist)	%		ox Feature		Loc ²	Texture	Remarks
(inches) 0-6"	10YR 2/1	100	Color (moist)	%	Type ¹	LUC	Mu	Mucky mineral
6-18"	10YR 4/1	60	10YR 3/1	40	MS		Sa	Widoky Hillieral
0-10	1011 4/1		10113/1	40	IVIO	IVI	Sa	
		_						
	-		-					
¹Type: C=Co	oncentration, D=Dep	oletion, RM	=Reduced Matrix, M	IS=Masked	d Sand Gra	ains.	² Lo	ocation: PL=Pore Lining, M=Matrix.
Hydric Soil I	ndicators:							s for Problematic Hydric Soils ³ :
Histosol			Polyvalue B					Muck (A9) (LRR O)
	pipedon (A2)		Thin Dark S					Muck (A10) (LRR S)
Black His	stic (A3) n Sulfide (A4)		Loamy Muc Loamy Gley			(0)		ced Vertic (F18) (outside MLRA 150A,B) nont Floodplain Soils (F19) (LRR P, S, T)
	Layers (A5)		Depleted Ma		(1 2)			alous Bright Loamy Soils (F20)
Organic	Bodies (A6) (LRR F		Redox Dark		- 6)			RA 153B)
	cky Mineral (A7) (L							Parent Material (TF2)
	esence (A8) (LRR L	J)	Redox Depr		8)		-	Shallow Dark Surface (TF12)
	ck (A9) (LRR P, T) Below Dark Surface	e (A11)	Marl (F10) (Depleted O	-	(MI RA 1	51)	Other	(Explain in Remarks)
	ark Surface (A12)	(/ 1. 1)	Iron-Manga				, T) 3 _{Indic}	cators of hydrophytic vegetation and
	airie Redox (A16) (, U)		tland hydrology must be present,
	lucky Mineral (S1) (LRR O, S)	Delta Ochrid				ι	unless disturbed or problematic.
	leyed Matrix (S4) edox (S5)		Reduced Ve Piedmont Fl					
	Matrix (S6)		Anomalous					C. 153D)
	rface (S7) (LRR P,	S, T, U)	/ #1011141040	Diigin Loa	iny cono (i	20) (IIII 2 1		,, 1992)
	ayer (if observed)							
Type:								
Depth (inc	ches):						Hydric Soi	I Present? Yes <u></u> No
Remarks: *S	oil abbreviations: C	l=Clay; Lo	=Loam; Mu=Muck;	Pe- Peat	; Sa= San	d; Si=Silt		

Project/Site: Keystone Tract	City/County: Charlton Co	unty	Sampling Date: 08/27/2018		
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: WDP-2		
	Section, Township, Range: _				
	Local relief (concave, convex		Slope (%): 0-1%		
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: _3	0.51736651820 Long:	-82.12642134890	Datum: NAD83		
Soil Map Unit Name: Lynn Haven, Allanton and Kingsferry soils,					
Are climatic / hydrologic conditions on the site typical for this time	of year? Yes No	(If no, explain in R	Remarks.)		
Are Vegetation Yes_, Soil No_, or Hydrology No_ signific	antly disturbed? Are "Norm	al Circumstances" p	oresent? Yes <u>√</u> No		
Are Vegetation No , Soil No , or Hydrology No natura					
SUMMARY OF FINDINGS – Attach site map show	wing sampling point locat	ions, transects	s, important features, etc.		
Hydrophytic Vegetation Present? Yes ✓ No					
Hydric Soil Present? Yes ✓ No	is the Sampled Area				
Wetland Hydrology Present? Yes ✓ No		Yes	No		
Remarks:	I				
- Site observations and local hydrological data sup	port moderately wet conditi	ons present dur	ing site visit.		
- Vegetation historically impacted by silvicultural a	•	·			
LIVERGLOOV					
HYDROLOGY					
Wetland Hydrology Indicators:			ators (minimum of two required)		
Primary Indicators (minimum of one is required; check all that a		Surface Soil Cracks (B6)			
Surface Water (A1) Aquatic Faul		Sparsely Vegetated Concave Surface (B8)			
1 -	s (B15) (LRR U) ulfide Odor (C1)	Drainage Pa			
	zospheres along Living Roots (C3	Moss Trim Li			
	Reduced Iron (C4)) Dry-Season Crayfish Bur	Water Table (C2)		
· · · / —	Reduction in Tilled Soils (C6)	_ ,	isible on Aerial Imagery (C9)		
Algal Mat or Crust (B4) Thin Muck S			Position (D2)		
Iron Deposits (B5) Other (Expla		Shallow Aqui			
Inundation Visible on Aerial Imagery (B7)	,	✓ FAC-Neutral			
Water-Stained Leaves (B9)			noss (D8) (LRR T,U)		
Field Observations:					
Surface Water Present? Yes No _ ✓ _ Depth (ir	ches):				
Water Table Present? Yes No Depth (in	iches): 6"				
Saturation Present? Yes No Depth (ir		Hydrology Presen	nt? Yes No		
(includes capillary fringe)					
Describe Recorded Data (stream gauge, monitoring well, aerial	photos, previous inspections), if a	vailable:			
Remarks: FAC-Neutral Test Results: Positive FACW ar	nd OBL: 10 to FACU and UPL:	0			

		WDD 2
Sampling	Point.	WDP-2

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot sizes: 30 ft radius)		Species?		Number of Dominant Species
1. Pinus elliottii	70.0	yes	<u>FACW</u>	That Are OBL, FACW, or FAC: 8 (A)
2				Total Number of Dominant
3				Species Across All Strata: 8 (B)
4				Dancart of Danisart Charles
5				Percent of Dominant Species That Are OBL, FACW, or FAC:100% (A/B)
6				(11)
7.				Prevalence Index worksheet:
50% of total cover: 35.00 20% of total cover: 14.00	70.0	= Total Co	over	Total % Cover of: Multiply by:
Sapling Stratum (30 ft radius)		1010100	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	OBL species x 1 =
1. Taxodium ascendens	5.0	yes	OBL	FACW species x 2 =
2. Gordonia lasianthus	5.0	yes	FACW	FAC species x 3 =
3.				FACU species x 4 =
4				UPL species x 5 =
				Column Totals: (A) (B)
5				Column rotals (A) (B)
6				Prevalence Index = B/A =
7				Hydrophytic Vegetation Indicators:
50% of total cover: 5.00 20% of total cover: 2.00 Shrub Stratum (30 ft radius)	10.0	= Total Co	over	✓ 1 - Rapid Test for Hydrophytic Vegetation
llov globro	45.0	V/00	E A C\A/	✓ 2 - Dominance Test is >50%
		yes	FACW	3 - Prevalence Index is ≤3.0 ¹
2				
3				Problematic Hydrophytic Vegetation¹ (Explain)
4				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5				be present, unless disturbed of problematic.
6				
7				Definitions of Vegetation Strata:
50% of total cover: 10.00 20% of total cover: 4.00	15.0	= Total Co	over	
Herb Stratum (30 ft radius)				Tree – Woody plants, excluding woody vines,
1. Woodwardia virginica	20.0	yes	OBL	approximately 20 ft (6 m) or more in height and
2. Andropogon glomeratus	15.0	yes	FACW	3 in. (7.6 cm) or larger in diameter at breast
3. Lachnanthes caroliniana	15.0	yes	OBL	height (DBH).
4. Xyris ambigua	5.0	no	OBL	Capling Weath plants avaluating woods wines
5. Rhnchospora fascicularis	5.0	no	FACW	Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less
6. Rhexia mariana	5.0	no	FACW	than 3 in. (7.6 cm) DBH.
		no	FAC	than o m. (1.0 om) bbm.
				Shrub – Woody plants, excluding woody vines,
8				approximately 3 to 20 ft (1 to 6 m) in height.
9				
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
50% of total cover: 35.00 20% of total cover: 14.00	70.0	= Total Co	over	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				Manda di caina an a
1. Vitis rotundifolia	10.0	yes	FAC	Woody vine – All woody vines, regardless of height.
2				
3				
4				
_				Hydrophytic Vegetation
50% of total cover: 20% of total cover:	10.0	= Total Co	over	Present? Yes No
Remarks: (If observed, list morphological adaptations be	low). *Plants	not idendi	fied to spec	ies are not used in dominance calculations.

Depth	Matrix	e to the dep	oth needed to docu Red	lox Feature		or commi	ii tile absellee t	or maleators.,
(inches)	Color (moist)	%	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks
0-3"	10YR 2/1	100					Sa	
3-18"	10YR 2/1	80	10YR 6/1	20	D	М	Sa	
	-		-					
		epletion, RM	=Reduced Matrix, N	MS=Maske	d Sand G	ains.		cation: PL=Pore Lining, M=Matrix.
•	Indicators:		/ 5		(00) (for Problematic Hydric Soils ³ :
Histosol			✓ Polyvalue E					uck (A9) (LRR O)
	pipedon (A2) istic (A3)		Thin Dark S Loamy Mud					uck (A10) (LRR S) ed Vertic (F18) (outside MLRA 150A,B)
	en Sulfide (A4)		Loamy Gle			(0)		ont Floodplain Soils (F19) (LRR P, S, T)
	d Layers (A5)		Depleted M		(1 2)		·	lous Bright Loamy Soils (F20)
	Bodies (A6) (LRR	P, T, U)	Redox Darl		F6)			A 153B)
_	ucky Mineral (A7) (rent Material (TF2)
Muck P	resence (A8) (LRR	U)	Redox Dep	ressions (F	8)		Very Sh	nallow Dark Surface (TF12)
	uck (A9) (LRR P, T	•	Marl (F10)	` ,			Other (Explain in Remarks)
	d Below Dark Surfa	ace (A11)	Depleted O					
	ark Surface (A12)		Iron-Manga				', T) ³Indica	tors of hydrophytic vegetation and
	Prairie Redox (A16)							and hydrology must be present,
	Mucky Mineral (S1) Gleyed Matrix (S4)	(LKK U, S)	Delta Ochri Reduced V					lless disturbed or problematic.
	Redox (S5)		Piedmont F					
	d Matrix (S6)		Anomalous					153D)
	ırface (S7) (LRR P,	S, T, U)	<u> </u>	g	,	(,
	Layer (if observed							
Type:								,
Depth (in	ches):						Hydric Soil I	Present? Yes <u>√</u> No
Remarks: *S	Soil abbreviations:	CI=Clay; Lo	=Loam; Mu=Muck;	Pe- Peat	; Sa= Sa	nd; Si=Silt		

Project/Site: Keystone Tract	_ City/County: Charlt	ton County	Sampling Date: <u>08/27/2018</u>
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: WDP-3
Investigator(s): C. Terrell / C. Stanford (TTL)	_ Section, Township, F	Range: Not Available	
Landform (hillslope, terrace, etc.): Flatwoods	_ Local relief (concave	, convex, none): None	Slope (%): <u>0-1%</u>
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.51	1685402610	Long: -82.11213264830	Datum: NAD83
		NWI classific	
Are climatic / hydrologic conditions on the site typical for this time of y	/ear? Yes No	(If no, explain in R	emarks.)
Are Vegetation $\underline{\underline{\ \ \ \ \ \ \ \ \ \ \ \ }}$, Soil $\underline{\underline{\ \ \ \ \ \ \ \ }}$, or Hydrology $\underline{\underline{\ \ \ \ \ \ \ }}$ significantl	ly disturbed? Are	e "Normal Circumstances" p	resent? Yes <u>√</u> No
Are Vegetation No , Soil No , or Hydrology No naturally p			
SUMMARY OF FINDINGS – Attach site map showin			
Hydrophytic Vegetation Present? Yes ✓ No			
Hydric Soil Present? Yes ✓ No	is the Sample	_	
Wetland Hydrology Present? Yes ✓ No	within a Wetl	land? Yes <u>▼</u>	No
Remarks:			
- Site observations and local hydrological data suppor	rt moderately wet	conditions present duri	ng site visit.
- Vegetation/hydrology/soils impacted by historical siv	-	•	_
		() !	' '
LIVEROLOGY			
HYDROLOGY Mother d Hydrology In disperse		Casaadamiladisa	to up (pointing one of the up as in all)
Wetland Hydrology Indicators:	A		tors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply		Surface Soil	
✓ Surface Water (A1) Aquatic Fauna (B ✓ High Water Table (A2) Marl Deposits (B			etated Concave Surface (B8)
✓ High Water Table (A2) Marl Deposits (B ✓ Saturation (A3) Hydrogen Sulfide		Drainage Pat Moss Trim Li	
_ ` '	pheres along Living Ro		Nater Table (C2)
Sediment Deposits (B2) — Presence of Red		Crayfish Burr	l l
<u> </u>	luction in Tilled Soils (C		sible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin Muck Surfa		Geomorphic	
Iron Deposits (B5) Other (Explain ir		Shallow Aqui	` '
Inundation Visible on Aerial Imagery (B7)	•	FAC-Neutral	
Water-Stained Leaves (B9)			ioss (D8) (LRR T,U)
Field Observations:			
Surface Water Present? Yes No Depth (inche			
Water Table Present? Yes <u>✓</u> No Depth (inche			
Saturation Present? Yes No Depth (inche includes capillary fringe)	s): v	Vetland Hydrology Presen	t? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial pho	tos, previous inspectio	ns), if available:	
Remarks: FAC-Neutral Test Results: Negative FACW and O	DBL: 0 to FACU an	nd UPL: 1	

VEGETATION – Use scientific names of plants.

EGETATION – Use scientific names of plants	3.			Sampling Point: WDP-3
- O G and the	Absolute		t Indicator	Dominance Test worksheet:
Tree Stratum (Plot sizes: <u>30 ft radius</u>) 1			? Status	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant Species Across All Strata: 1 (B)
4 5				Percent of Dominant Species
6.				That Are OBL, FACW, or FAC: (A/B)
7				Prevalence Index worksheet:
50% of total cover: 20.00 20% of total cover: 8.00 Sapling Stratum (30 ft radius)	0.0	= Total C	Cover	Total % Cover of: Multiply by: OBL species x 1 =
1.				FACW species x 2 =
2.				FAC species x 3 =
3.				FACU species x 4 =
4.				UPL species x 5 =
5.				Column Totals: (A) (B)
6				
7.				Prevalence Index = B/A =
50% of total cover: 20% of total cover:	0.0	= Total C	Cover	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation
Shrub Stratum (30 ft radius)				✓ 2 - Dominance Test is >50%
1				3 - Prevalence Index is ≤3.0 ¹
3				Problematic Hydrophytic Vegetation ¹ (Explain)
4			_	¹ Indicators of hydric soil and wetland hydrology must
5.				be present, unless disturbed or problematic.
6				
7				Definitions of Vegetation Strata:
50% of total cover: 10.00 20% of total cover: 4.00	0.0	= Total C	Cover	
Herb Stratum (30 ft radius)	=		E40	Tree – Woody plants, excluding woody vines,
1. Andropogon virginicus	70.0	yes	FAC	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast
2. Dichanthelium aciculare	10.0	no	<u>FACU</u>	height (DBH).
3. Eupatorium compositifolium	5.0	no	<u>FAC</u>	
4				Sapling – Woody plants, excluding woody vines,
5		-		approximately 20 ft (6 m) or more in height and less
6				than 3 in. (7.6 cm) DBH.
7				Shrub – Woody plants, excluding woody vines,
8				approximately 3 to 20 ft (1 to 6 m) in height.
9				
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12	85.0	= Total C	Cover	woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
- 1				Woody vine – All woody vines, regardless of height.
1				
			_	
3				
4				Hydrophytic
5 50% of total cover: 20% of total cover:	0.0	= Total C	Cover	Vegetation Present? Yes No
Remarks: (If observed, list morphological adaptations be	elow). *Plants	not idend	dified to spec	cies are not used in dominance calculations.

US Army Corps of Engineers

Profile Desc	ription: (Describe	to the dept	th needed to docu	ment the	indicator	or confir	m the absence	of indicators.)	
Depth	Matrix			ox Feature					
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	_Loc ²	Texture	Remarks	
0-4"	10YR 3/1	60	10YR 2/1	40	MS	M	Sa		
4-7"	10YR 2/1	100							
7-11	10YR 5/1	100							
11-18	7.5 YR 2.5/2	100					Lo	Spodic Horizon	
				_					
	-	·							
1 _{Turnou} C. Co	oncentration, D=Dep	lotion DM	Dadwood Motrix M	- Maaka	d Cond Cr		21.0	section: DL Doro Lining M Matrix	
Hydric Soil I		ietion, Rivi=	Reduced Matrix, M	iS=iviasked	a Sand Gr	airis.		cation: PL=Pore Lining, M=Matrix. for Problematic Hydric Soils ³ :	
Histosol			Polyvalue B	elow Surfa	ice (S8) (I	RRST		Muck (A9) (LRR O)	
	pipedon (A2)		Thin Dark S					Muck (A10) (LRR S)	
Black His			Loamy Mucl	ky Mineral	(F1) (LRF	(O)		ced Vertic (F18) (outside MLRA 150	-
	n Sulfide (A4)		Loamy Gley		(F2)			ont Floodplain Soils (F19) (LRR P, \$	S, T)
	Layers (A5)	T 11)	Depleted Ma		- 0)			alous Bright Loamy Soils (F20)	
	Bodies (A6) (LRR P cky Mineral (A7) (LF		Redox Dark Depleted Dark	,	,			RA 153B) arent Material (TF2)	
	esence (A8) (LRR U		Redox Depr		, ,			Shallow Dark Surface (TF12)	
	ck (A9) (LRR P, T)	•	Marl (F10) (,		-	(Explain in Remarks)	
	Below Dark Surfac	e (A11)	Depleted Oc						
	ark Surface (A12)	AL DA 4504	Iron-Manga				indio	ators of hydrophytic vegetation and	
	airie Redox (A16) (M lucky Mineral (S1) (L		Delta Ochric			, 0)		tland hydrology must be present, inless disturbed or problematic.	
	leyed Matrix (S4)	0, 0,	Reduced Ve			0A, 150B		illess disturbed of problematic.	
	edox (S5)		Piedmont FI						
	Matrix (S6)		Anomalous	Bright Loa	my Soils (F20) (MLI	RA 149A, 153C	i, 153D)	
	face (S7) (LRR P, S						ı		
	_ayer (if observed):								
Type:	.l \						Usadala Osli	Present? Yes ✓ No	
Depth (inc	oil abbreviations: Cl	-Clay# 1 a-	L com: Mu=Muok	Do Doot	. Co- Con	اران (داران) الاداران	Hydric Soil	Present? Yes No	
Remarks: 5	on appreviations. Ci	=Clay, L0=	Loam, Mu-Muck,	Pe- Peat	, Sa= Sai	iu, SI=SII	l		

Project/Site: Keystone Tract	City/County: Charlt	on County	Sampling Date: 08/27/2018
Applicant/Owner: Twin Pines Minerals, LLC			Sampling Point: WDP-4
Investigator(s): C. Terrell / C. Stanford (TTL)	Section Township F		
Landform (hillslope, terrace, etc.): Depression			Slone (%): 0-1%
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.52			
Soil Map Unit Name: Lynn Haven, Allanton, and Kingsferry soils, pon			
Are climatic / hydrologic conditions on the site typical for this time of ye			
Are Vegetation Yes, Soil No, or Hydrology No significantly			
Are Vegetation No , Soil No , or Hydrology No naturally pr	oblematic? (If	needed, explain any answei	's in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing	g sampling point	locations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes ✓ No			
Hydrophytic Vegetation Present? Yes Yes No Hydric Soil Present? Yes No No No No No No No N	is the dumple	_	
Wetland Hydrology Present? Yes ✓ No	within a Wetl	and? Yes <u>√</u>	No
Remarks:			
- Site observations and local hydrological data support	t moderately wet	conditions present duri	na site visit.
- Vegetation historically affected by silvicultural activitie	•	•	
	· 11 3	01 1 /	
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indica	tors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		Surface Soil	
Surface Water (A1) Aquatic Fauna (B			getated Concave Surface (B8)
High Water Table (A2) Marl Deposits (B1		Drainage Pat	
✓ Saturation (A3) ✓ Hydrogen Sulfide		Moss Trim Li	1 1
<u> </u>	oheres along Living Ro		Water Table (C2)
Sediment Deposits (B2) Presence of Redu	uced from (C4) uction in Tilled Soils (C	Crayfish Burr	sible on Aerial Imagery (C9)
		Geomorphic	
Algal Mat or Crust (B4) Thin Muck Surfact Iron Deposits (B5) Other (Explain in		Shallow Aqui	1 1
Inundation Visible on Aerial Imagery (B7)	romano)	✓ FAC-Neutral	
Water-Stained Leaves (B9)			noss (D8) (LRR T,U)
Field Observations:			
Surface Water Present? Yes ✓ No Depth (inches	s): <u>2"</u>		
Water Table Present? Yes <u>✓</u> No Depth (inches	s): <u>6"</u>		,
Saturation Present? Yes No Depth (inches	s): <u>0"</u> v	Vetland Hydrology Presen	t? Yes No
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial phot	os, previous inspection	ns), if available:	
Remarks: FAC-Neutral Test Results: Positive FACW and OB	BL: 7 to FACU an	nd UPL: 0	

VEGETATION – Use scientific names of plants.

EGETATION – Use scientific names of plants				Sampling Point: WDP-4
Tree Stratum (Plot sizes: 30 ft radius) 1.		Species?	Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)
2				Total Number of Dominant Species Across All Strata:5 (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC:100% (A/B)
6				Prevalence Index worksheet:
50% of total cover: 20% of total cover: Sapling Stratum (30 ft radius)	0.0	= Total Co	over	Total % Cover of: Multiply by: OBL species x 1 =
1. Pinus elliottii				FACW species x 2 =
2				FAC species x 3 = FACU species x 4 =
4 5				UPL species x 5 = Column Totals: (A) (B)
6				Prevalence Index = B/A =
7	25.0	= Total Co	over	Hydrophytic Vegetation Indicators: ✓ 1 - Rapid Test for Hydrophytic Vegetation
1				 ✓ 2 - Dominance Test is >50% _ 3 - Prevalence Index is ≤3.0¹
2				Problematic Hydrophytic Vegetation ¹ (Explain)
4 5				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6 7.				Definitions of Vegetation Strata:
50% of total cover: 20% of total cover: Herb Stratum (30 ft radius)	0.0	= Total Co	over	Tree – Woody plants, excluding woody vines,
1. Lachnanthes caroliniana 2. Andropogon virginicus		yes	OBL	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast
3. Ludwigia decurrens	25.0 10.0	yes yes	FAC OBL	height (DBH).
4. Woodwardia virginica 5. Sagitaria lancifolia	10.0 5.0	yes no	OBL OBL	Sapling – Woody plants, excluding woody vines,
Rhynchospora fascicularis	5.0	no	FACW	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
7. Fimbristylis dichotoma 8. Xyris jupicai		no	OBL OBL	Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
9				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND woody plants, except woody vines, less than
50% of total cover: 47.50 20% of total cover: 19.00 Woody Vine Stratum (30 ft radius)	95.0		over	approximately 3 ft (1 m) in height.
1				Woody vine – All woody vines, regardless of height.
3 4				Hydrophytic
5 20% of total cover: 20% of total cover:	0.0	= Total Co		Vegetation Present? Yes No

Profile Des	cription: (Describ	e to the depth	needed to document the indicator or confir	m the absence o	of indicators.)
Depth	Matrix	%	Redox Features Color (moist) % Type¹ Loc²		Damadia
(inches) 0-6"	Color (moist) 10YR 2/1	%	Color (moist) % Type ¹ Loc ²	<u>Texture</u> Sa	Remarks
					·
6-18"	10YR 6/1	100		Sa	
	-				
	-			<u> </u>	
	-				
¹ Type: C=C	oncentration, D=De	epletion, RM=Re	educed Matrix, MS=Masked Sand Grains.	² Loc	ation: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:			Indicators f	or Problematic Hydric Soils ³ :
Histosol	(A1)		Polyvalue Below Surface (S8) (LRR S, T,	U) 1 cm Mu	uck (A9) (LRR O)
	pipedon (A2)		Thin Dark Surface (S9) (LRR S, T, U)		uck (A10) (LRR S)
	istic (A3)		Loamy Mucky Mineral (F1) (LRR O)		d Vertic (F18) (outside MLRA 150A,B)
	en Sulfide (A4)		Loamy Gleyed Matrix (F2)		nt Floodplain Soils (F19) (LRR P, S, T)
	d Layers (A5)	D T 11)	Depleted Matrix (F3)		ous Bright Loamy Soils (F20)
	Bodies (A6) (LRR ucky Mineral (A7) (Redox Dark Surface (F6)Depleted Dark Surface (F7)		A 153B) rent Material (TF2)
	resence (A8) (LRR		Redox Depressions (F8)		allow Dark Surface (TF12)
	uck (A9) (LRR P, T		Marl (F10) (LRR U)	-	Explain in Remarks)
	d Below Dark Surfa		Depleted Ochric (F11) (MLRA 151)	Other (E	-xpiair iir Remarks)
	ark Surface (A12)	, ,	Iron-Manganese Masses (F12) (LRR O,	P, T) ³ Indicat	tors of hydrophytic vegetation and
Coast P	rairie Redox (A16)	(MLRA 150A)	Umbric Surface (F13) (LRR P, T, U)		and hydrology must be present,
Sandy N	Mucky Mineral (S1)	(LRR O, S)	Delta Ochric (F17) (MLRA 151)		less disturbed or problematic.
	Gleyed Matrix (S4)		Reduced Vertic (F18) (MLRA 150A, 150E		
	Redox (S5)		Piedmont Floodplain Soils (F19) (MLRA 1		4
	Matrix (S6)		Anomalous Bright Loamy Soils (F20) (ML	RA 149A, 153C,	153D)
	rface (S7) (LRR P, Layer (if observed				
	Layer (II Observed	4).			
Type:	ah a a \		_	Unadaia Cail F	Present? Yes ✓ No
Depth (in	·		_	Hydric Soil F	Present? Yes No
Remarks: "S	on appreviations:	CI=Clay; Lo=Lo	pam; Mu=Muck; Pe-Peat; Sa=Sand; Si=Si	it	

Project/Site: Keystone Tract	_ City/County: Charlton Cou	unty	Sampling Date:	08/27/2018
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	· -	
Investigator(s): C. Terrell / C. Stanford (TTL)	Section, Township, Range:			
	Local relief (concave, convex		Slop	oe (%): 0-2%
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.5				
Soil Map Unit Name: Lynn Haven, Allanton and Kingsferry soils, po	nded, 0-1% slopes	NWI classific	cation Upland	
Are climatic / hydrologic conditions on the site typical for this time of				
Are Vegetation Yes , Soil No , or Hydrology No significant				✓ No
Are Vegetation No , Soil No , or Hydrology No naturally	problematic? (If peeded	avalain any anavy	produit: 103	<u>· </u>
SUMMARY OF FINDINGS – Attach site map showing				eatures, etc.
			, I	
Hydrophytic Vegetation Present? Yes ✓ No Hydric Soil Present? Yes ✓ No				
Hydric Soil Present? Yes ✓ No Wetland Hydrology Present? Yes ✓ No	within a welland?	Yes <u>√</u>	No	_
Remarks:	<u>- </u>			
- Site observations and local hydrological data suppo	ort moderately wet condition	one present dur	rina site visit	
 Woody vegetation impacted form recent forest fire. 	Trinoderately wet condition	nis present dui	ing site visit.	
- woody vegetation impacted form recent forest fire.				
HYDROLOGY				
Wetland Hydrology Indicators:		Secondary Indica	ators (minimum of	two required)
Primary Indicators (minimum of one is required; check all that appl	y)	Surface Soil	Cracks (B6)	
✓ Surface Water (A1) Aquatic Fauna		Sparsely Ve	getated Concave	Surface (B8)
✓ High Water Table (A2) Marl Deposits (Drainage Pa		
✓ Saturation (A3) Hydrogen Sulfic		Moss Trim L		
<u> </u>	spheres along Living Roots (C3)		Water Table (C2)	
· · · / —	duced Iron (C4) duction in Tilled Soils (C6)	Crayfish Bur	rrows (C8) 'isible on Aerial Im	2000 (CO)
Drift Deposits (B3) Recent Iron Re Algal Mat or Crust (B4) Thin Muck Surf.				lagery (C9)
Iron Deposits (B5) Other (Explain		Shallow Aqu	Position (D2)	
Initial Deposits (B5) Strict (Explain) Inundation Visible on Aerial Imagery (B7)	in remarks)	✓ FAC-Neutral		
Water-Stained Leaves (B9)			noss (D8) (LRR T	,U)
Field Observations:				
Surface Water Present? Yes No Depth (inch	es): <u>3"</u>			
Water Table Present? Yes ✓ No Depth (inch	es): 0"		/	
Saturation Present? Yes ✓ No Depth (inch includes capillary fringe)	es): 0" Wetland	Hydrology Preser	nt? Yes <u>*</u>	No
Describe Recorded Data (stream gauge, monitoring well, aerial ph	l otos, previous inspections), if av	ailable:		
Remarks: FAC-Neutral Test Results: Positive FACW and 0	OBL: 7 to FACU and UPL:	0		

0 1'	Delat	WIDD	=
Sampling	Point:	VVDP-(2

	Absolute	Dominant		Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>) 1		Species?		Number of Dominant Species That Are OBL, FACW, or FAC:4 (A)
2				Total Number of Dominant Species Across All Strata: 4 (B)
3				Species Across All Strata: 4 (B)
4				Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
50% of total cover: 20% of total cover: Sapling Stratum (_30 ft radius)	0.0	= Total Co	ver	OBL species x 1 =
1. Taxodium ascendens	10.0	yes	OBL	FACW species x 2 =
2. Nyssa biflora		yes	OBL	FAC species x 3 =
3.				FACU species x 4 =
4.				UPL species x 5 =
5.				Column Totals: (A) (B)
6.				
7				Prevalence Index = B/A =
50% of total cover: 7.50 20% of total cover: 3.00 Shrub Stratum (30 ft radius)	15.0	= Total Co	ver	Hydrophytic Vegetation Indicators: ✓ 1 - Rapid Test for Hydrophytic Vegetation
1. Ilex cassine	10.0	yes	FACW	✓ 2 - Dominance Test is >50%
2.				3 - Prevalence Index is ≤3.0 ¹
3.				Problematic Hydrophytic Vegetation ¹ (Explain)
4.				¹ Indicators of hydric soil and wetland hydrology must
5.				be present, unless disturbed or problematic.
6				
7				Definitions of Vegetation Strata:
50% of total cover: 15.00 20% of total cover: 6.00	10.0	= Total Co	ver	
Herb Stratum (30 ft radius)				Tree – Woody plants, excluding woody vines,
1. Panicum hemitomon	70.0	yes	<u>OBL</u>	approximately 20 ft (6 m) or more in height and
2. Lachnanthes caroliniana	10.0	no	OBL	3 in. (7.6 cm) or larger in diameter at breast height (DBH).
3. Ludwigia decurrens		no	<u>OBL</u>	neight (BBH).
4. Rhynchospora corniculata	5.0	no	<u>OBL</u>	Sapling – Woody plants, excluding woody vines,
5				approximately 20 ft (6 m) or more in height and less
6				than 3 in. (7.6 cm) DBH.
7				Shrub Woody plants, evaluding woody vines
8				Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
9				approximatory of to 20 it (1 to 0 iii) iii iioigiit.
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
50% of total cover: 45.00 20% of total cover: 18.00 Woody Vine Stratum (30 ft radius)	90.0	= Total Co	ver	approximately 3 ft (1 m) in height.
				Woody vine – All woody vines, regardless of height.
1				l
3				
4 5.				Hydrophytic
50% of total cover: 20% of total cover:			ver	Vegetation Present? Yes No
Remarks: (If observed, list morphological adaptations be	low). *Plants	not idendif	ied to spec	Lies are not used in dominance calculations
	· · · · · · · · · · · · · · · · · · · ·		32 10 Spot	30.000

Profile Desc	ription: (Describe	to the depth	needed to docum	ent the in	dicator o	r confirm	the absence of indi	cators.)	
Depth	Matrix			K Features		2			
(inches)	Color (moist)		Color (moist)	%	Type'	Loc ²	<u>Texture</u>	Remarks	
0-2"	10YR 2/1	100					Sa		
2-5"	10YR 5/1	100					Sa		_
5-7"	10YR 3/1	100					Sa		
7-18"	10YR 6/1	100					Sa		
		· —— —							_
1							2.		
Type: C=Co	ncentration, D=Dep	oletion, RM=R	deduced Matrix, MS	=Masked S	Sand Gra	ins.	Location:	PL=Pore Lining, N	
•			Dobarduo Do	ou Curton	- (CO) /I F	D C T II		-	Solis .
Histosol	ipedon (A2)		Polyvalue Be Thin Dark Su				J) 1 cm Muck (A 2 cm Muck (A	, ,	
Black His			Loamy Mucky					ic (F18) (outside l	/ILRA 150A,B)
	n Sulfide (A4)		Loamy Gleye			,		odplain Soils (F19)	
✓ Stratified	Layers (A5)		Depleted Mat	rix (F3)			Anomalous B	ight Loamy Soils (F20)
Organic	Bodies (A6) (LRR P	, T, U)	Redox Dark S	Surface (F6	5)		(MLRA 153	В)	
	cky Mineral (A7) (Ll		Depleted Dar				Red Parent M		
· 	esence (A8) (LRR U	J)	Redox Depre)			Dark Surface (TF1	2)
	ck (A9) (LRR P, T) Below Dark Surfac	- (Δ11)	Marl (F10) (L Depleted Och		MI DA 15	1)	Other (Explain	n in Remarks)	
	rk Surface (A12)	e (ATT)	Iron-Mangan				T) 31	hd	-4:
	airie Redox (A16) (I	MLRA 150A)	_				indicators of	hydrophytic veget drology must be p	
	ucky Mineral (S1) (I		Delta Ochric			,		sturbed or problen	
	leyed Matrix (S4)		Reduced Ver						
	edox (S5)		Piedmont Flo						
	Matrix (S6)		Anomalous B	right Loam	y Soils (F	20) (MLR	A 149A, 153C, 153D)		
	face (S7) (LRR P, § .ayer (if observed)						T		
Type:		-							
Depth (inc							Hydric Soil Presei	nt? Yes ✓	No
	oil abbreviations: C	l=Clav: Lo=l	oam: Mu=Muck:	Pe- Peat	Sa= Sano	l: Si=Silt	11,4110 00111 10001		
rtemants. Ot	on abbreviations. O	i-Olay, LO-L	oam, wa-wack,	i C-i Cat,	oa- oanc	ı, OI–OIII			

Project/Site: Keystone Tract	City/County: Charlton Cour	nty	Sampling Date: 08/28/2018	
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: WDP-6	
Investigator(s): C. Terrell / C. Stanford (TTL)	Section, Township, Range: No			
	Local relief (concave, convex, r		Slope (%): 0-2%	
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.568	61580650 Long: -{	82.13525025140	Datum: NAD83	
Soil Map Unit Name: Leon fine sand, frequently ponded, 0-2% slopes				
Are climatic / hydrologic conditions on the site typical for this time of year				
Are Vegetation Yes , Soil No , or Hydrology No significantly			oresent? Yes <u>√</u> No	
Are Vegetation No , Soil No , or Hydrology No naturally pro				
SUMMARY OF FINDINGS – Attach site map showing				
Hydrophytic Vegetation Present? Yes _ ✓ No				
Hydric Soil Present? Yes ✓ No	Is the Sampled Area within a Wetland?	V /	No	
Wetland Hydrology Present? Yes No	within a wetiand?	res v _	NO	
Remarks:	-			
- Site observations and local hydrological data support	moderately wet conditior	ns present duri	ng site visit.	
- Vegetation historically affected by silvicultural activities	s (hipping/benching plan	ted pine) and i	recently affected by	
forest fire during drought conditions resulting in high mo	ortality in canopy species	3.		
HYDROLOGY			+	
Wetland Hydrology Indicators:		Secondary Indica	tors (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)		Surface Soil (
Surface Water (A1) Aquatic Fauna (B1)	3)		getated Concave Surface (B8)	
✓ High Water Table (A2) Marl Deposits (B15		Drainage Pat		
✓ Saturation (A3) Hydrogen Sulfide (Moss Trim Li		
<u> </u>	l III D ((00)			
Sediment Deposits (B2) Presence of Reduc		Crayfish Burr		
	tion in Tilled Soils (C6)	Saturation Vi	sible on Aerial Imagery (C9)	
Algal Mat or Crust (B4) Thin Muck Surface	(C7)	Geomorphic	Position (D2)	
Iron Deposits (B5) Other (Explain in F	Remarks)	Shallow Aqui	tard (D3)	
Inundation Visible on Aerial Imagery (B7)		✓ FAC-Neutral	Test (D5)	
Water-Stained Leaves (B9)		Sphagnum m	noss (D8) (LRR T,U)	
Field Observations:				
Surface Water Present? Yes No Depth (inches):	0"			
Water Table Present? Yes ✓ No Depth (inches):	2"		√	
Saturation Present? Yes No Depth (inches): (includes capillary fringe)	Wetland H	ydrology Presen	t? Yes No	
Describe Recorded Data (stream gauge, monitoring well, aerial photos		lable:		
	. ,			
Remarks: FAC-Neutral Test Results: Positive FACW and OBI	L: 11 to FACU and UPL: 1			

Sampling Point: WI	JP-6
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70 ft radius	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot sizes: 30 ft radius)		Species?		Number of Dominant Species
1. Pinus elliottii	60.0	yes	FACW	That Are OBL, FACW, or FAC: 10 (A)
2				Total Number of Dominant
3				Species Across All Strata: 10 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100% (A/B)
6				Prevalence Index worksheet:
7				
50% of total cover: 30.00 20% of total cover: 12.00 Sapling Stratum (30 ft radius)	60.0	= Total Co	ver	
1. Magnolia virginiana	5.0	yes	FACW	FACW species x 2 =
2. Nyssa biflora	5.0	yes	OBL	FAC species x 3 =
3. Acer rubrum		yes	FAC	FACU species x 4 =
4.				UPL species x 5 =
5				Column Totals: (A) (B)
6.			-	, ,,
7.				Prevalence Index = B/A =
50% of total cover: 7.50 20% of total cover: 3.00 Shrub Stratum (30 ft radius)	15.0	= Total Co	ver	Hydrophytic Vegetation Indicators: √ 1 - Rapid Test for Hydrophytic Vegetation
. Hyporiaum aiatifalium	15.0	yes	FACW	✓ 2 - Dominance Test is >50%
1. Hypericum cistilolium 2. Ilex glabra	10.0	yes	FACW	3 - Prevalence Index is ≤3.0 ¹
3. Rhus copallinum		no	UPL	Problematic Hydrophytic Vegetation¹ (Explain)
			UFL	¹Indicators of hydric soil and wetland hydrology must
4			-	be present, unless disturbed or problematic.
5				
6			-	Definitions of Variation Strate:
7				Definitions of Vegetation Strata:
50% of total cover: 15.00 20% of total cover: 6.00 Herb Stratum (_30 ft radius)	30.0	= Total Co	ver	Troo Weeds plants evaluding weeds since
1. Scleria triglomerata	25.0	yes	FACW	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and
2. Woodwardia virginica 2. Woodwardia virginica	25.0		OBL	3 in. (7.6 cm) or larger in diameter at breast
2. Voodwardia virgiriica 3. Lachnanthes caroliniana	20.0	yes		height (DBH).
· ·	20.0	yes	OBL_	
4. Carex glaucescens	10.0	no	OBL	Sapling – Woody plants, excluding woody vines,
5. Smilax laurifolia	10.0	no	FACW	approximately 20 ft (6 m) or more in height and less
6. Rhexia mariana	5.0	no	FACW	than 3 in. (7.6 cm) DBH.
7				Chrub Waadu planta avaluding waadu iina
8				Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
9				approximately 3 to 20 ft (1 to 6 fff) in height.
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
50% of total cover: 45.00 20% of total cover: 18.00	90.0	= Total Co	ver	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				
1. Vitis rotundifolia	10.0	yes	FAC	Woody vine – All woody vines, regardless of height.
2				
3				
4				
5				Hydrophytic Vegetation
50% of total cover: 20% of total cover:	10.0	= Total Co	ver	Present? Yes No
Remarks: (If observed, list morphological adaptations bel	ow). *Plants	not idendif	ied to spec	ies are not used in dominance calculations.

Profile Desc	cription: (Describe	to the depth	needed to document the indicator or con	firm the absence	of indicators.)
Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist) % Type¹ Loc	Texture	Remarks
0-16"	10YR 2/1	100	Color (moist) /6 Type Loc	Sa	Kemarks
16-18"	7.5YR 2.5/2	100		Lo	Spodic Horizon
10-10	7.51K 2.5/Z	100			Spoule Horizon
¹Type: C=C	oncentration. D=De	letion. RM=R	educed Matrix, MS=Masked Sand Grains.	2Lo	ocation: PL=Pore Lining, M=Matrix.
Hydric Soil		, , , , , , , , , , , , , , , , , , , ,			for Problematic Hydric Soils ³ :
Histosol	(A1)		Polyvalue Below Surface (S8) (LRR S,	T, U) 1 cm N	Muck (A9) (LRR O)
Histic Ep	oipedon (A2)		Thin Dark Surface (S9) (LRR S, T, U)	2 cm N	Muck (A10) (LRR S)
	stic (A3)		Loamy Mucky Mineral (F1) (LRR O)		ed Vertic (F18) (outside MLRA 150A,B)
	en Sulfide (A4)		Loamy Gleyed Matrix (F2)	·	ont Floodplain Soils (F19) (LRR P, S, T)
	d Layers (A5)	. T II	Depleted Matrix (F3)		alous Bright Loamy Soils (F20)
_	Bodies (A6) (LRR F		Redox Dark Surface (F6)		RA 153B)
	ucky Mineral (A7) (L esence (A8) (LRR l		Depleted Dark Surface (F7)Redox Depressions (F8)		arent Material (TF2) Shallow Dark Surface (TF12)
	uck (A9) (LRR P, T)	-,	Marl (F10) (LRR U)	-	(Explain in Remarks)
	d Below Dark Surfac	ce (A11)	Depleted Ochric (F11) (MLRA 151)	Other	(Explain in Remarks)
Thick Da	ark Surface (A12)		Iron-Manganese Masses (F12) (LRR (D, P, T) ³ Indic	ators of hydrophytic vegetation and
	rairie Redox (A16) (Umbric Surface (F13) (LRR P, T, U)		tland hydrology must be present,
	Mucky Mineral (S1) (LRR O, S)	Delta Ochric (F17) (MLRA 151)	u	nless disturbed or problematic.
	Gleyed Matrix (S4)		Reduced Vertic (F18) (MLRA 150A, 15		
	Redox (S5)		Piedmont Floodplain Soils (F19) (MLR		453D)
	l Matrix (S6) rface (S7) (LRR P, 3	S T II)	Anomalous Bright Loamy Soils (F20) (VILKA 149A, 153C	, 1930)
	Layer (if observed)				
Type:					
Depth (in	ches):			Hydric Soil	Present? Yes No
	*	:I=Clav: Lo=L	— oam; Mu=Muck; Pe-Peat; Sa=Sand; Si=	_	
		, , -	, ,		

Project/Site: Keystone Tract	City/County: Charl	Iton Cou	nty	Sampling Date: 08/28/2018
Applicant/Owner: Twin Pines Minerals, LLC			State: GA	Sampling Point: WDP-7
Investigator(s): C. Terrell / C. Stanford (TTL)	Section, Township,	Range: N	ot Available	
Landform (hillslope, terrace, etc.): Depression	Local relief (concave	e, convex,	none): Concave	Slope (%): 0-2%
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.	52804336850	Long:	82.12257029810	Datum: NAD83
Soil Map Unit Name: Lynn Haven, Allanton and Kingsferry soils, po				
Are climatic / hydrologic conditions on the site typical for this time of	year? Yes No	o_ √ _ ((If no, explain in Re	emarks.)
Are Vegetation $\underline{\text{Yes}}$, Soil $\underline{\text{No}}$, or Hydrology $\underline{\text{No}}$ significant	ntly disturbed? A	re "Normal	Circumstances" pr	resent? Yes <u>√</u> No
Are Vegetation ${\color{red}No}$, Soil ${\color{red}No}$, or Hydrology ${\color{red}No}$ naturally				
SUMMARY OF FINDINGS – Attach site map showi	ng sampling poin	t locatio	ns, transects,	important features, etc.
Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes No No No No No No No N	within a Wet	tland?		No ng site visit.
HYDROLOGY				
Wetland Hydrology Indicators:			Secondary Indicat	ors (minimum of two required)
Primary Indicators (minimum of one is required; check all that app	lv)		Surface Soil C	
Surface Water (A1) Aquatic Fauna				etated Concave Surface (B8)
✓ High Water Table (A2) Marl Deposits (Drainage Patt	
✓ Saturation (A3) Hydrogen Sulfi			Moss Trim Lir	
	spheres along Living R	oots (C3)		Vater Table (C2)
	educed Iron (C4)		Crayfish Burro	
	duction in Tilled Soils (0	C6)	✓ Saturation Vis	sible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin Muck Surf	ace (C7)		Geomorphic F	Position (D2)
Iron Deposits (B5) Other (Explain	in Remarks)		Shallow Aquit	ard (D3)
Inundation Visible on Aerial Imagery (B7)			✓ FAC-Neutral 7	Test (D5)
Water-Stained Leaves (B9)			Sphagnum mo	oss (D8) (LRR T,U)
Field Observations:				
Surface Water Present? Yes No _ ✓ Depth (inch	OII			
Water Table Present? Yes No Depth (inch				1
Saturation Present? Yes No Depth (inch includes capillary fringe)	es):	Wetland H	lydrology Present	? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial ph	otos, previous inspection	ons), if ava	ilable:	
Remarks: FAC-Neutral Test Results: Positive FACW and	OBL: 10 to FACU a	nd UPL: 0)	

		WDD 7	,
Sampling	Point.	VVDP-/	

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>)		Species?		Number of Dominant Species
1				That Are OBL, FACW, or FAC: 4 (A)
2				Total Number of Dominant
3				Species Across All Strata: 4 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100% (A/B)
6				
7				Prevalence Index worksheet:
50% of total cover: 20% of total cover:	0.0	= Total Co	ver	Total % Cover of: Multiply by:
Sapling Stratum (30 ft radius)				OBL species x 1 =
1. Taxodium ascendens			OBL	FACW species x 2 =
2. Magnolia virginiana	10.0	yes	<u>FACW</u>	FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5				Column Totals: (A) (B)
6.				
7.				Prevalence Index = B/A =
50% of total cover: 10.00 20% of total cover: 4.00	20.0	= Total Co	ver	Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)	20.0	- Total Oc	7701	√ 1 - Rapid Test for Hydrophytic Vegetation
1. Ilex cassine	10.0	yes	FACW	√ 2 - Dominance Test is >50%
2.				3 - Prevalence Index is ≤3.0 ¹
3.				Problematic Hydrophytic Vegetation ¹ (Explain)
				¹ Indicators of hydric soil and wetland hydrology must
4				be present, unless disturbed or problematic.
5				
6				Definitions of Veretain Chate.
7				Definitions of Vegetation Strata:
50% of total cover: 5.00 20% of total cover: 2.00	10.0	= Total Co	over	Troo Meady plants analysiss woody visas
Herb Stratum (30 ft radius) 1. Lachnanthes caroliniana	00.0	V00	ODI	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and
	60.0	yes	OBL	3 in. (7.6 cm) or larger in diameter at breast
2. Andropogon glomeratus	10.0	no	FACW	height (DBH).
3. Woodwardia virginica	5.0	no	<u>OBL</u>	
4. Juncus effusus	<u>5.0</u>	no	<u>OBL</u>	Sapling – Woody plants, excluding woody vines,
_{5.} Xyris jupicai	5.0	no	<u>OBL</u>	approximately 20 ft (6 m) or more in height and less
6. Panicum virgatum	5.0	no	FACW	than 3 in. (7.6 cm) DBH.
7. Smilax laurifolia	5.0	no	FACW	
8				Shrub – Woody plants, excluding woody vines,
9				approximately 3 to 20 ft (1 to 6 m) in height.
10.				Howh All I () I () I () I
11.				Herb – All herbaceous (non-woody) plants, including
12.				herbaceous vines, regardless of size AND woody plants, except woody vines, less than
50% of total cover: 47.50 20% of total cover: 19.00	95.0	= Total Co		approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)	33.0	- 10tal CC	vei	approximately and (am) in resignal
1				Woody vine – All woody vines, regardless of height.
2.				
3				
4				Hydrophytic
5				Vegetation
50% of total cover: 20% of total cover:	0.0	= Total Co	over	Present? Yes No
Remarks: (If observed, list morphological adaptations be	low). *Plants	not idendif	fied to spec	ies are not used in dominance calculations.
	· · · · · · · · · · · · · · · · · · · ·		,o opou	

Profile Des	cription: (Describ	e to the depth	needed to document the indicator or cor	firm the absence of	indicators.)
Depth	Matrix		Redox Features		B
(inches)	Color (moist)	<u>%</u>	Color (moist) % Type ¹ Loc		Remarks
0-6"	10YR 2/1	100		Sa	
6-18"	10YR 5/1	100			
					
					-
1			 	2.	
		epletion, RM=Re	educed Matrix, MS=Masked Sand Grains.		tion: PL=Pore Lining, M=Matrix.
•	Indicators:				r Problematic Hydric Soils ³ :
Histoso			Polyvalue Below Surface (S8) (LRR S,		ck (A9) (LRR O)
	pipedon (A2)		Thin Dark Surface (S9) (LRR S, T, U)		ck (A10) (LRR S)
	istic (A3)		Loamy Mucky Mineral (F1) (LRR O)		Vertic (F18) (outside MLRA 150A,B)
	en Sulfide (A4)		Loamy Gleyed Matrix (F2)		t Floodplain Soils (F19) (LRR P, S, T)
	d Layers (A5)		Depleted Matrix (F3)		us Bright Loamy Soils (F20)
_	Bodies (A6) (LRR		Redox Dark Surface (F6)		(153B)
	ucky Mineral (A7) (Depleted Dark Surface (F7)		ent Material (TF2)
	resence (A8) (LRR		Redox Depressions (F8)		illow Dark Surface (TF12)
	uck (A9) (LRR P, T		Marl (F10) (LRR U)	Other (E	xplain in Remarks)
	d Below Dark Surfa	ace (A11)	Depleted Ochric (F11) (MLRA 151)		
	ark Surface (A12)		Iron-Manganese Masses (F12) (LRR (O, P, T) ³ Indicate	ors of hydrophytic vegetation and
	rairie Redox (A16)		Umbric Surface (F13) (LRR P, T, U)		nd hydrology must be present,
	Mucky Mineral (S1)	(LRR O, S)	Delta Ochric (F17) (MLRA 151)		ess disturbed or problematic.
	Gleyed Matrix (S4)		Reduced Vertic (F18) (MLRA 150A, 15		
	Redox (S5)		Piedmont Floodplain Soils (F19) (MLR		
	d Matrix (S6)		Anomalous Bright Loamy Soils (F20) (I	VILRA 149A, 153C, 1	53D)
	ırface (S7) (LRR P,				
	Layer (if observed	1):			
Type:			_		./
Depth (in	ches):		<u> </u>	Hydric Soil Pi	resent? Yes No
Remarks: *S	Soil abbreviations:	CI=Clay; Lo=Lo	pam; Mu=Muck; Pe-Peat; Sa=Sand; Si=	-Silt	

Project/Site: Keystone Tract	City/County: Cha	rlton County	Sampling Date: 08/28/2018
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: WDP-8
Investigator(s): C. Terrell / C. Stanford (TTL)	Section, Township,		
Landform (hillslope, terrace, etc.): Depression	Local relief (concav	ve, convex, none): Concave	Slope (%): <u>0-1%</u>
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat:	30.53837030210	Long:82.11975018870	Datum: NAD83
Soil Map Unit Name: Lynn Haven, Allanton and Kingsferry soil			
Are climatic / hydrologic conditions on the site typical for this tin			
Are Vegetation Yes , Soil No , or Hydrology No signi			oresent? Yes <u>√</u> No
Are Vegetation No , Soil No , or Hydrology No natu			
SUMMARY OF FINDINGS – Attach site map sho			
Hydrophytic Vegetation Present? Yes ✓ No _			
Hydric Soil Present? Yes ✓ No _	is the Samp	_	
Wetland Hydrology Present? Yes ✓ No		etland? Yes <u>v</u>	No
Remarks:			
- Site observations and local hydrological data su	upport abnormally dry	conditions present duri	ng site visit.
- Vegetation recently affected by forest fire during		•	_
	-	_	
HADDOLOGA			
HYDROLOGY Western Hydrology Indicators		Cocondon Indica	tore (minimum of two required)
Wetland Hydrology Indicators:	annly)		otors (minimum of two required)
Primary Indicators (minimum of one is required; check all that ✓ Surface Water (A1) — Aquatic Fa		Surface Soil	getated Concave Surface (B8)
_	sits (B15) (LRR U)	Sparsely veg	
1 -	Sulfide Odor (C1)	Moss Trim Li	I
_ ` ' '	Rhizospheres along Living F		Water Table (C2)
<u> </u>	of Reduced Iron (C4)	Crayfish Buri	I
	n Reduction in Tilled Soils		isible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin Muck	Surface (C7)	Geomorphic	Position (D2)
Iron Deposits (B5) Other (Exp	olain in Remarks)	Shallow Aqui	itard (D3)
Inundation Visible on Aerial Imagery (B7)		✓ FAC-Neutral	Test (D5)
Water-Stained Leaves (B9)		Sphagnum m	noss (D8) (LRR T,U)
Field Observations:	Oll		
Surface Water Present? Yes No Depth			
	(inches): 3" 0"		✓
Saturation Present? Yes _ ✓ No Depth (includes capillary fringe)	(inches): 0"	Wetland Hydrology Presen	t? Yes No
Describe Recorded Data (stream gauge, monitoring well, aeria	al photos, previous inspect	ions), if available:	
Remarks: FAC-Neutral Test Results: Positive FACW	and OBL: 8 to FACU a	and UPL: 0	

Sampling Point: WDP-8	Sampling	Point:	WDP-8	
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	Absolute		t Indicator	Dominance Test worksheet:
Tree Stratum (Plot sizes: 30 ft radius)			? Status	Number of Dominant Species
1. Pinus elliottii		yes	FACW	That Are OBL, FACW, or FAC: 5 (A)
2		-	_	Total Number of Dominant
3				Species Across All Strata: 5 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100% (A/B)
6		-		Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
50% of total cover: 30.00 20% of total cover: 12.00	60.0	= Total C	Cover	
Sapling Stratum (30 ft radius)				OBL species x 1 =
1				FACW species x 2 =
2				FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5				Column Totals: (A) (B)
6				Prevalence Index = B/A =
7				Hydrophytic Vegetation Indicators:
50% of total cover: 20% of total cover: 20% of total cover:	0.0	= Total C	Cover	✓ 1 - Rapid Test for Hydrophytic Vegetation
Shrub Stratum (30 ft radius)	00.0	1/00	EAC\\\	✓ 2 - Dominance Test is >50%
·· <u> </u>				3 - Prevalence Index is ≤3.0 ¹
2				— Problematic Hydrophytic Vegetation ¹ (Explain)
3		-		
4		-	_	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5				
6				
7				Definitions of Vegetation Strata:
50% of total cover: 10.00 20% of total cover: 4.00	20.0	= Total C	Cover	Trace W. I.
Herb Stratum(_30 ft radius) 1. Woodwardia virginica	20.0	VAC	OPI	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and
	20.0	yes	OBL OBL	3 in. (7.6 cm) or larger in diameter at breast
_{2.} Typha latifolia _{3.} Lachnanthes caroliniana	20.0	yes	OBL_	height (DBH).
-	20.0	yes	OBL	
4. Xyris jupicai	<u>10.0</u>	no	OBL	Sapling – Woody plants, excluding woody vines,
5. Ludwigia decurrens	10.0	no	OBL	approximately 20 ft (6 m) or more in height and less
_{6.} Smilax laurifolia	10.0	no	FACW	than 3 in. (7.6 cm) DBH.
7				Shrub – Woody plants, excluding woody vines,
8				approximately 3 to 20 ft (1 to 6 m) in height.
9				approximately 3 to 20 ft (1 to 0 fff) in height.
10				Herb – All herbaceous (non-woody) plants, including
11		-		herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
50% of total cover: 45.00 20% of total cover: 18.00	90.0	= Total C	Cover	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				Manda de Cara
1		-		Woody vine – All woody vines, regardless of height.
2				
3				
4				Hydronhytio
5				Hydrophytic Vegetation
	0.0	= Total C	Cover	Present? Yes No
50% of total cover: 20% of total cover:				

Profile Desc	ription: (Describe	to the depth	needed to document the indicator or cor	firm the absence of	of indicators.)
Depth (in the ca)	Matrix		Redox Features		Damada
(inches) 0-11"	Color (moist) 10YR 2/1	_ <u>%</u> _	Color (moist) % Type ¹ Loc	Sa Texture	Remarks
11-18"	10YR 6/1	100		<u>Sa</u>	
					
		pletion, RM=F	Reduced Matrix, MS=Masked Sand Grains.		cation: PL=Pore Lining, M=Matrix.
Hydric Soil			D. I. D. I. O. (for Problematic Hydric Soils ³ :
Histosol	(A1) Dipedon (A2)		Polyvalue Below Surface (S8) (LRR S,Thin Dark Surface (S9) (LRR S, T, U)		uck (A9) (LRR O)
	stic (A3)		Loamy Mucky Mineral (F1) (LRR O)		uck (A10) (LRR S) ed Vertic (F18) (outside MLRA 150A,B)
	en Sulfide (A4)		Loamy Gleyed Matrix (F2)		ont Floodplain Soils (F19) (LRR P, S, T)
	d Layers (A5)		Depleted Matrix (F3)		lous Bright Loamy Soils (F20)
	Bodies (A6) (LRR I	P, T, U)	Redox Dark Surface (F6)		A 153B)
5 cm Mu	ıcky Mineral (A7) (L	RR P, T, U)	Depleted Dark Surface (F7)	Red Pa	rent Material (TF2)
	esence (A8) (LRR		Redox Depressions (F8)	Very Sh	nallow Dark Surface (TF12)
· 	ick (A9) (LRR P, T)		Marl (F10) (LRR U)	Other (Explain in Remarks)
	d Below Dark Surfa	ce (A11)	Depleted Ochric (F11) (MLRA 151)	0 D T)	
	ark Surface (A12) rairie Redox (A16) (MI DA 150A\	Iron-Manganese Masses (F12) (LRR (indica	tors of hydrophytic vegetation and
	fame Redox (A16) (flucky Mineral (S1) (Umbric Surface (F13) (LRR P, T, U) Delta Ochric (F17) (MLRA 151)		and hydrology must be present, less disturbed or problematic.
	Gleyed Matrix (S4)	LIKIK O, O)	Reduced Vertic (F18) (MLRA 150A, 15		liess disturbed of problematic.
	Redox (S5)		Piedmont Floodplain Soils (F19) (MLR		
	Matrix (S6)		Anomalous Bright Loamy Soils (F20) (I		153D)
✓ Dark Su	rface (S7) (LRR P,	S, T, U)			
Restrictive I	Layer (if observed)):			
Type:			<u> </u>		/
Depth (in	ches):		<u> </u>	Hydric Soil I	Present? Yes No
Remarks: *S	oil abbreviations: C	CI=Clay; Lo=L	oam; Mu=Muck; Pe-Peat; Sa=Sand; Si=	=Silt	

Project/Site: Keystone Tract City/County: Charlton County Sampling Date: 08/2	28/2018
Applicant/Owner: Twin Pines Minerals, LLC State: GA Sampling Point: WD	
Investigator(s): C. Terrell / C. Stanford (TTL) Section, Township, Range: Not Available	
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%	· 0-2%
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.52945612790 Long: -82.10996337620 Datum:	
Soil Map Unit Name: Lynn Haven fine sand, 0-2% slopes NWI classification: PF06/4C	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)	
	Nie
Are Vegetation Yes , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ✓ Are Vegetation No , Soil No , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)	NO
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feature	res, etc.
Hydrophytic Vegetation Present? Yes No Is the Sampled Area	
Hydric Soil Present? Yes No within a Wetland? Yes No	
Wetland Hydrology Present? Yes No	
Remarks:	
- Site observations and local hydrological data support moderately wet conditions present during site visit.	
- Vegetation recently impacted by forest fire resulting in high mortality of canopy species.	
HYDROLOGY	
Wetland Hydrology Indicators: Secondary Indicators (minimum of two responses to the control o	required)
Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6)	
✓ Surface Water (A1) Aquatic Fauna (B13) Sparsely Vegetated Concave Surfa	ce (B8)
✓ High Water Table (A2)	
✓ Saturation (A3) — Hydrogen Sulfide Odor (C1) — Moss Trim Lines (B16)	
Water Marks (B1) Oxidized Rhizospheres along Living Roots (C3) Dry-Season Water Table (C2)	
Sediment Deposits (B2) Presence of Reduced Iron (C4) Crayfish Burrows (C8)	
Drift Deposits (B3) Recent Iron Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery	y (C9)
Algal Mat or Crust (B4) Thin Muck Surface (C7) Geomorphic Position (D2)	
Iron Deposits (B5) Other (Explain in Remarks) Shallow Aquitard (D3)	
Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5)	
Water-Stained Leaves (B9) Sphagnum moss (D8) (LRR T,U)	
Field Observations:	
Surface Water Present? Yes Vo. Depth (inches): 2" Water Table Present? Yes Vo. Depth (inches): 0"	
water rable Present: Tes _ v No Deptir (inches)	
Saturation Present? Yes No Depth (inches): _0" Wetland Hydrology Present? Yes No No	'
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: FAC-Neutral Test Results: Positive FACW and OBL: 12 to FACU and UPL: 0	

	Absolute	Dominant		Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>)		Species?		Number of Dominant Species
1. Pinus elliottii	20.0	yes	FACW	That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: 7 (B)
4				Develop of Deminant Charles
5				Percent of Dominant Species That Are OBL, FACW, or FAC:100% (A/B)
6				
7				Prevalence Index worksheet:
50% of total cover: 10.00 20% of total cover: 4.00	20.0	= Total Co	ver	Total % Cover of: Multiply by:
Sapling Stratum (30 ft radius)				OBL species x 1 =
1. Taxodium ascendens	10.0	yes	OBL	FACW species x 2 =
2				FAC species x 3 =
3.				FACU species x 4 =
4.				UPL species x 5 =
5.				Column Totals: (A) (B)
				(2)
6		·		Prevalence Index = B/A =
7	10.0			Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)	10.0	= Total Co	over	√ 1 - Rapid Test for Hydrophytic Vegetation
4 llev cassine	5.0	yes	FACW	✓ 2 - Dominance Test is >50%
2. Ilex coriacea	5.0	yes	FACW	3 - Prevalence Index is ≤3.0 ¹
		yes	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
o			IACV	¹ Indicators of hydric soil and wetland hydrology must
4		-		be present, unless disturbed or problematic.
5				<u> </u>
6				D 5 33 00 1
7.				Definitions of Vegetation Strata:
50% of total cover: 7.50 20% of total cover: 3.00	15.0	= Total Co	over	Troo W. I.
Herb Stratum (30 ft radius)	20.0	V00	ODI	Tree – Woody plants, excluding woody vines,
1. Lachnanthes caroliniana	30.0	yes	OBL	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast
2. Rhynchospora fascicularis	20.0	yes	FACW	height (DBH).
3. Xyris jupicai	10.0	no	<u>OBL</u>	113g/11 (= =11).
_{4.} Scleria triglomerata	10.0	no	<u>FACW</u>	Sapling – Woody plants, excluding woody vines,
5. Scirpus cyperinus	10.0	no	OBL	approximately 20 ft (6 m) or more in height and less
_{6.} Rhexia mariana	5.0	no	FACW	than 3 in. (7.6 cm) DBH.
7. Woodwardia virginica	5.0	no	OBL	
8				Shrub – Woody plants, excluding woody vines,
9.				approximately 3 to 20 ft (1 to 6 m) in height.
10				Hards and the second se
11.				Herb – All herbaceous (non-woody) plants, including
12.				herbaceous vines, regardless of size AND woody plants, except woody vines, less than
50% of total cover: 45.00 20% of total cover: 18.00	00.0			approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)	90.0	= Total Co	over	approximately on (1 m) in noight.
				Woody vine – All woody vines, regardless of height.
1				
2				
3				
4				Hydrophytic
5				Vegetation
50% of total cover: 20% of total cover:	0.0	= Total Co	over	Present? Yes No
Remarks: (If observed, list morphological adaptations be	10W) *DI==4=			in an actual in densirance relations
(ii dada i da i ii	····/· Fiailis	not idendii	ieu io spec	ses are not used in dominance calculations.

Profile Desc	ription: (Describe	to the depth	needed to docur	nent the i	ndicator	or confirn	n the absence o	of indicato	rs.)	
Depth	Matrix			x Features	- 1					
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>		Remarks	
0-18"	10YR 2/1	100					Sa			
	-			- ——	-					
·	-									
¹ Type: C=Co	oncentration, D=Dep	oletion, RM=R	Reduced Matrix, MS	S=Masked	Sand Gra	ains.	² Loc	ation: PL=	Pore Lining, N	∕I=Matrix.
Hydric Soil	Indicators:						Indicators f	or Probler	natic Hydric	Soils³:
Histosol	(A1)		Polyvalue Be	low Surfa	ce (S8) (L	RR S, T, L	J) 1 cm Mu	uck (A9) (L	RR O)	
Histic Ep	oipedon (A2)		Thin Dark Su					uck (A10) (•	
Black Hi			Loamy Muck							/ILRA 150A,B)
	n Sulfide (A4)		Loamy Gleye			-				(LRR P, S, T)
	d Layers (A5)		Depleted Ma		-				Loamy Soils (
	Bodies (A6) (LRR F	P, T, U)	Redox Dark		6)			A 153B)	. ,	
_	icky Mineral (A7) (L		Depleted Da	rk Surface	(F7)			rent Materi	al (TF2)	
	esence (A8) (LRR l		Redox Depre						Surface (TF1	2)
	ick (A9) (LRR P, T)		Marl (F10) (L					Explain in F		
	d Below Dark Surfac	e (A11)	Depleted Oc		(MLRA 1	51)	(-		,	
Thick Da	ark Surface (A12)		Iron-Mangar	nese Mass	es (F12) (LRR O, P	, T) ³ Indicat	ors of hvd	ophytic vegeta	ation and
Coast P	rairie Redox (A16) (MLRA 150A)	Umbric Surfa	ice (F13) (LRR P, T	, U)			gy must be pi	
Sandy M	lucky Mineral (S1) (LRR O, S)	Delta Ochric	(F17) (ML	.RA 151)				ped or problen	
Sandy G	Bleyed Matrix (S4)		Reduced Ver	rtic (F18) (MLRA 15	0A, 150B))			
Sandy R	tedox (S5)		Piedmont Flo							
	Matrix (S6)		Anomalous E	Bright Loar	ny Soils (I	F20) (MLR	RA 149A, 153C,	153D)		
	rface (S7) (LRR P,									
Restrictive I	_ayer (if observed)	:								
Type:			<u>—</u>						,	
Depth (inc	ches):						Hydric Soil F	Present?	Yes	No
Remarks: *S	oil abbreviations: C	l=Clay; Lo=L	oam; Mu=Muck;	Pe- Peat;	Sa= San	d; Si=Silt				

Project/Site: Keystone Tract	City/County: Char	Iton County	Sampling Date: 08/28/2018
Applicant/Owner: Twin Pines Minerals, LLC	- , , <u></u>		Sampling Point: WDP-10
Investigator(s): C. Terrell / C. Stanford (TTL)	Section Township		
			Slope (%): 0-2%
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.51			
Soil Map Unit Name: Lynn Haven fine sand, 0-2% slopes			
		NWI classific	
Are climatic / hydrologic conditions on the site typical for this time of ye	<u></u>		•
Are Vegetation Yes, Soil No, or Hydrology No significantly			
Are Vegetation No , Soil No , or Hydrology No naturally pr	oblematic? (I	f needed, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing	g sampling poir	nt locations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes ✓ No			
Hydrophytic Vegetation Present? Yes Yes No Hydric Soil Present? Yes No No No No No No No N	is the samp	_	
Wetland Hydrology Present? Yes ✓ No	within a We	tland? Yes <u>√</u>	No
Remarks:			
- Site observations and local hydrological data support	t moderately wet	conditions present dur	ina site visit.
-Vegetation impacted by recent forest fire resulting in h	•	· ·	
	,	17 1	_
			+
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indica	tors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	<u>'</u>	Surface Soil	Cracks (B6)
✓ Surface Water (A1) Aquatic Fauna (B		Sparsely Ve	getated Concave Surface (B8)
✓ High Water Table (A2) — Marl Deposits (B1) — Marl Deposit		Drainage Pa	
✓ Saturation (A3) Hydrogen Sulfide		Moss Trim Li	
<u> </u>	oheres along Living R	- -	Water Table (C2)
Sediment Deposits (B2) Presence of Redu		Crayfish Bur	
	uction in Tilled Soils (sible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin Muck Surfac			Position (D2)
Iron Deposits (B5) Other (Explain in	Remarks)	Shallow Aqu	
Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9)		✓ FAC-Neutral	
		<u>▼</u> Spnagnum n	noss (D8) (LRR T,U)
Field Observations: Surface Water Present? Yes ✓ No Depth (inches	s): 2"		
Water Table Present? Yes No Depth (inches			
Saturation Present? Yes V No Depth (inches		Wetland Hydrology Presen	t? Yes No
(includes capillary fringe)	·)	welland nydrology Fresen	t: les NO
Describe Recorded Data (stream gauge, monitoring well, aerial phot	I tos, previous inspecti	ons), if available:	
Remarks: FAC-Neutral Test Results: Positive FACW and OB	BL: 10 to FACU a	and UPL: 0	

Compling	Doint	WDP-10
Sampling	Point.	VVDF-10

Number of Dominant Species 10
Total Number of Dominant Species Across All Strata:
Species Across All Strata:
Percent of Dominant Species That Are OBL, FACW, or FAC: Total Cover
Total Cover Prevalence Index worksheet: Total Cover
That Are OBL, FACW, or FAC:
Total Cover Total % Cover of:
Total Cover Total % Cover of:
OBL species
FACW FACW species x 2 = FAC species x 3 = FACU species x 4 = UPL species x 5 = Column Totals: (A) Prevalence Index = B/A = Hydrophytic Vegetation Indicators: ✓ 1 - Rapid Test for Hydrophytic Vegetation ✓ 2 - Dominance Test is >50% — 3 - Prevalence Index is ≤3.0¹ — Problematic Hydrophytic Vegetation¹ 1 Indicators of hydric soil and wetland hydrology must
FAC species
FACU species x 4 =
UPL species x 5 = (A) (B) Prevalence Index = B/A = Total Cover /es FACW /es FACW /es FACW /I - Rapid Test for Hydrophytic Vegetation // 2 - Dominance Test is >50% // 3 - Prevalence Index is ≤3.0¹ // Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
Column Totals:
Prevalence Index = B/A = Hydrophytic Vegetation Indicators: ✓ 1 - Rapid Test for Hydrophytic Vegetation ✓ 2 - Dominance Test is >50% — 3 - Prevalence Index is ≤3.0¹ — Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
Total Cover Hydrophytic Vegetation Indicators: ✓ 1 - Rapid Test for Hydrophytic Vegetation ✓ 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ Problematic Hydrophytic Vegetation¹ (Explain) Indicators of hydric soil and wetland hydrology must
Total Cover /es FACW /es FACW /es FACW /es FACW I - Rapid Test for Hydrophytic Vegetation ✓ 2 - Dominance Test is >50% — 3 - Prevalence Index is ≤3.0¹ — Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
/es FACW /es FACW FACW FACW 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 1 Problematic Hydrophytic Vegetation (Explain) Indicators of hydric soil and wetland hydrology must
//es FACW 3 - Prevalence Index is ≤3.0 ¹ Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must
¹Indicators of hydric soil and wetland hydrology must
¹ Indicators of hydric soil and wetland hydrology must
be present, unless disturbed or problematic.
Definitions of Vegetation Strata:
Total Cover
Tree – Woody plants, excluding woody vines,
/es OBL approximately 20 ft (6 m) or more in height and
/es OBL 3 in. (7.6 cm) or larger in diameter at breast
/es FACW height (DBH).
/es FACW Sapling – Woody plants, excluding woody vines,
/es OBL approximately 20 ft (6 m) or more in height and less
/es FACW than 3 in. (7.6 cm) DBH.
Shrub – Woody plants, excluding woody vines,
approximately 3 to 20 ft (1 to 6 m) in height.
Herb – All herbaceous (non-woody) plants, including
Tiers 7 in herbacocas (non-weedy) plante, including
herbaceous vines, regardless of size AND woody plants, except woody vines, less than
Total Cover approximately 3 ft (1 m) in height.
Total Cover approximately 5 ft (1 m) in resigna
Woody vine – All woody vines, regardless of height.
Hydrophytic
/e

Profile Desc	ription: (Describe	to the depti	n needed to docum	nent the i	ndicator o	r confirm	the absence of ir	ndicators.)	
Depth	Matrix			x Features	- 1	. 2			
(inches)	Color (moist)		Color (moist)	%	Type'	Loc ²	<u>Texture</u>	Remarks	
0-3"	10YR 2/1	_ 100					Sa		
3-18"	10YR 4/1	100					<u>Sa</u>		
									_
									<u>.</u>
1- 0.0							2,		
Hydric Soil I	oncentration, D=Dep	oletion, RM=I	Reduced Matrix, MS	s=Masked	Sand Gra	ins.		n: PL=Pore Lining, I	
Histosol			Polyvalue Be	low Surfa	oo (S9) (I I	DD C T II		-	Jons .
	oipedon (A2)		✓ Thin Dark Su					(A10) (LRR S)	
Black His			Loamy Mucky					ertic (F18) (outside	MLRA 150A,B)
	n Sulfide (A4)		Loamy Gleye			,		Floodplain Soils (F19)	
	I Layers (A5)		Depleted Mat					Bright Loamy Soils	(F20)
_	Bodies (A6) (LRR F		Redox Dark S	`	,		(MLRA 1		
	cky Mineral (A7) (L esence (A8) (LRR l		Depleted Dar Redox Depre					Material (TF2)	12)
· 	ck (A9) (LRR P, T)	,)	Marl (F10) (L		0)			ow Dark Surface (TF1 Iain in Remarks)	12)
	Below Dark Surface	e (A11)	Depleted Och		(MLRA 15	1)	Other (Exp	iaiii iii Keiliaiks)	
Thick Da	ark Surface (A12)		Iron-Mangan				T) ³ Indicators	of hydrophytic veget	tation and
	rairie Redox (A16) (U)		hydrology must be p	
	lucky Mineral (S1) (LRR O, S)	Delta Ochric			\		s disturbed or probler	matic.
	edox (S5)		Reduced Ver Piedmont Flo						
	Matrix (S6)						.эд) A 149A, 153C, 153	(D)	
	face (S7) (LRR P,	S, T, U)			., (.	, (, , , , , , , , , , , , , , , , , , , ,	,	
Restrictive L	ayer (if observed)	:							
Туре:								,	
Depth (inc	ches):						Hydric Soil Pres	sent? Yes <u> </u>	No
Remarks: *S	oil abbreviations: C	l=Clay; Lo=l	_oam; Mu=Muck;	Pe- Peat;	Sa= San	d; Si=Silt	•		

APPENDIX D
rth Carolina (NC) Division of Water Quality (DWQ) Stream Identification Forms
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rth Carolina (NC) Division of Water Quality (DWQ) Stream Identification Forms

Project/Site:

Keystone Tract

Stream ID: S1

30.529731

Latitude:

NC DWQ Stream Identification Form Version 4.11

08/27/2018

Evaluator: TTL, Inc./C. Terrell	County:	Charlton	Longitude:	-82.109174
Total Points:Stream is at least intermittent24.00if ≥ 19 or perennial if ≥ 30^*	Stream Determination:	Intermittent	e.g. Quad Name:	7.5 Minute: Moniac, GA & Saint George, GA
A. Geomorphology (Subtotal = $\frac{8.50}{}$)	Absent	Weak	Moderate	Strong
1 ^{a.} Continuity of channel bed and bank	0	1 ✓	2	3
2. Sinuosity of channel along thalweg	0	1	2 √	3
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1 🗸	2	3
4. Particle size of stream substrate	0	1 ✓	2	3
5. Active/relict floodplain	0	1 ✓	2	3
6. Depositional bars or benches	0	1 ✓	2	3
7. Recent alluvial deposits	0	1 ✓	2	3
8. Headcuts	0 ✓	1	2	3
9. Grade control	0 🗸	0.5	1	1.5
10. Natural valley	0	0.5 ✓	1	1.5
11. Second or greater order channel	N	0 = 0 ✓	Yes =	: 3
artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = $\frac{7.00}{}$)				
12. Presence of Baseflow	0	1 🗸	2	3
13. Iron oxidizing bacteria	0	1 🗸	2	3
14. Leaf litter	1.5	1 ✓	0.5	0
15. Sediment on plants or debris	0	0.5 ✓	1	1.5
16. Organic debris lines or piles	0	0.5 ✓	1	1.5
17. Soil-based evidence of high water table?		0 = 0	Yes =	
C. Biology (Subtotal = 8.50)				
18. Fibrous roots in streambed	3	2 🗸	1	0
19. Rooted upland plants in streambed	3 ✓	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1 🗸	2	3
21. Aquatic Mollusks	0 ✓	1	2	3
22. Fish	0 🗸	0.5	1	1.5
23. Crayfish	0	0.5 ✓	1	1.5
24. Amphibians	0	0.5 ✓	1	1.5
25. Algae	0 🗸	0.5	1	1.5
26. Wetland plants in streambed			OBL = 1.5 Othe	
*perennial streams may also be identified using other method	ds. See p. 35 of manua			
Notes:				
Sketch:				

Project/Site:

Keystone Tract

Stream ID: S2

30.533054

Latitude:

NC DWQ Stream Identification Form Version 4.11

08/27/2018

Evaluator:	TTL, Inc./C. Terrell	County:	Charlton	Longitude:	-82.113925
Total Points: Stream is at least in if ≥ 19 or perennial i		Stream Determination:	Intermittent	e.g. Quad Name:	7.5 Minute: Moniac, GA & Saint George, GA
		•			
A. Geomorpho	ology (Subtotal = <u>5.50</u>)	Absent	Weak	Moderate	Strong
1 ^{a.} Continuity of cl	hannel bed and bank	0	1	2 ✓	3
	annel along thalweg	0 ✓	1	2	3
ripple-pool seq		0 🗸	1	2	3
4. Particle size of		0	1 ✓	2	3
5. Active/relict floo	•	0	1 ✓	2	3
6. Depositional ba		0 ✓	1	2	3
7. Recent alluvial	deposits	0	1 ✓	2	3
8. Headcuts		0 ✓	1	2	3
9. Grade control		0 🗸	0.5	1	1.5
10. Natural valley		0	0.5 ✓	1	1.5
	eater order channel	N	0 = 0 ✓	Yes =	: 3
artificial ditches are B. Hydrology (e not rated; see discussions in manual (Subtotal = $\frac{9.00}{}$)				
12. Presence of B	Baseflow	0	1	2 ✓	3
13. Iron oxidizing		0	1	2 √	3
14. Leaf litter	Dactoria .	1.5	1 ✓	0.5	0
15. Sediment on p	plants or debris	0	0.5 ✓	1	1.5
16. Organic debris		0	0.5 ✓	1	1.5
	idence of high water table?	N	0 = 0	Yes =	: 3 ✓
C. Biology (Su			l		
18. Fibrous roots	,	3	2 ✓	1	0
19. Rooted upland	d plants in streambed	3 √	2	1	0
·	s (note diversity and abundance)	0	1 🗸	2	3
21. Aquatic Mollus		0 ✓	1	2	3
22. Fish		0	0.5 ✓	1	1.5
23. Crayfish		0	0.5 ✓	1	1.5
24. Amphibians		0	0.5 ✓	1	1.5
25. Algae		0 🗸	0.5	1	1.5
26. Wetland plant	s in streambed		FACW = 0.75	OBL = 1.5 Othe	r = 0
*perennial streams	may also be identified using other methods	. See p. 35 of manua	al.		
Notes:					
a.					
Sketch:					

Project/Site:

Keystone Tract

Stream ID: S3

30.517363

Latitude:

NC DWQ Stream Identification Form Version 4.11

08/27/2018

Evaluator: TTL, Inc./C. Terrell	County:	Charlton	Longitude:	-82.121289
Total Points:Stream is at least intermittent20.00if ≥ 19 or perennial if ≥ 30^*	Stream Determination:	Intermittent	e.g. Quad Name:	7.5 Minute: Moniac, GA & Saint George, GA
	<u> </u>			
A. Geomorphology (Subtotal = 5.50)	Absent	Weak	Moderate	Strong
1 ^{a.} Continuity of channel bed and bank	0	1	2 √	3
Sinuosity of channel along thalweg	0 🗸	1	2	3
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0 🗸	1	2	3
4. Particle size of stream substrate	0	1 ✓	2	3
5. Active/relict floodplain	0	1 ✓	2	3
6. Depositional bars or benches	0 🗸	1	2	3
7. Recent alluvial deposits	0	1 ✓	2	3
8. Headcuts	0 ✓	1	2	3
9. Grade control	0 🗸	0.5	1	1.5
10. Natural valley	0	0.5 ✓	1	1.5
11. Second or greater order channel	N	0 = 0 ✓	Yes =	: 3
^a artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = $\frac{6.00}{}$)				
12. Presence of Baseflow	0 🗸	1	2	3
13. Iron oxidizing bacteria	0	1 🗸	2	3
14. Leaf litter	1.5	1 ✓	0.5	0
15. Sediment on plants or debris	0	0.5 ✓	1	1.5
16. Organic debris lines or piles	0	0.5 ✓	1	1.5
17. Soil-based evidence of high water table?		0 = 0	Yes =	
C. Biology (Subtotal = 8.50)				
18. Fibrous roots in streambed	3	2 🗸	1	0
19. Rooted upland plants in streambed	3 ✓	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1 🗸	2	3
21. Aquatic Mollusks	0 🗸	1	2	3
22. Fish	0 🗸	0.5	1	1.5
23. Crayfish	0	0.5 ✓	1	1.5
24. Amphibians	0	0.5 ✓	1	1.5
25. Algae	0 🗸	0.5	1	1.5
26. Wetland plants in streambed				er = 0
*perennial streams may also be identified using other method	ds. See p. 35 of manua			
Notes:				
Sketch:				

Project/Site:

Keystone Tract

Stream ID: S4

30.516697

Latitude:

NC DWQ Stream Identification Form Version 4.11

08/28/2018

Total Points: Stream is at least intermit if \geq 19 or perennial if \geq 30		County:	Charlton	Longitude:	-82.110267
ii = 10 oi pereililiai ii = 00		Stream Determination:	Perennial	e.g. Quad Name:	7.5 Minute: Moniac GA & Saint George GA
A. Geomorphology	(Subtotal = 8.00)	Absent	Weak	Moderate	Strong
1 ^{a.} Continuity of channe		0	1	2	3 ✓
2. Sinuosity of channel		0	1 ✓	2	3
3. In-channel structure: ripple-pool sequence	ex. riffle-pool, step-pool,	0 🗸	1	2	3
4. Particle size of strea		0	1 ✓	2	3
5. Active/relict floodplai	n	0	1 ✓	2	3
6. Depositional bars or	benches	0 ✓	1	2	3
7. Recent alluvial depo	sits	0	1 ✓	2	3
8. Headcuts		0 ✓	1	2	3
9. Grade control		0	0.5 ✓	1	1.5
10. Natural valley		0	0.5 ✓	1	1.5
11. Second or greater of		No	o = 0 ✓	Yes =	: 3
	ated; see discussions in manual				
B. Hydrology (Subt					
12. Presence of Baseflo		0	1	2	3 ✓
Iron oxidizing bacte	ria	0	1	2 ✓	3
14. Leaf litter		1.5	1 ✓	0.5	0
Sediment on plants		0	0.5 ✓	1	1.5
16. Organic debris lines		0	0.5 ✓	1	1.5
17. Soil-based evidence		No	0 = 0	Yes =	: 3 ✓
C. Biology (Subtota	-,				
18. Fibrous roots in stre		3	2 ✓	1	0
Rooted upland plan		3 ✓	2	1	0
	diversity and abundance)	0	1	2 ✓	3
21. Aquatic Mollusks		0	1 ✓	2	3
22. Fish		0	0.5 ✓	1	1.5
23. Crayfish		0	0.5	1 ✓	1.5
24. Amphibians		0	0.5	1 ✓	1.5
25. Algae		0	0.5 ✓	1	1.5
26. Wetland plants in s	treambed		FACW = 0.75	✓ OBL = 1.5 Othe	r = 0
*	also be identified using other methods	s. See p. 35 of manua	al.		
Notes:					

APPENDIX E

USACE Savannah District Request for Corps of Engineers Jurisdictional Determination (JD) and/or Delineation Review Form



SAS APPENDIX 1: Request for Corps of Engineers Jurisdictional Determination (JD) and/or Delineation Review

I.	Reason for request: (check as many as applicable)
	I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all aquatic resources.
	I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all jurisdictional aquatic resources under Corps authority.
\checkmark	I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.
	I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permitting process.
	I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district Section 1O list and/or is subject to the ebb and flow of the tide.
	A Corps JD is required in order to obtain my local/state authorization.
	I intend to contest jurisdiction over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.
	I believe that the site may be comprised entirely of dry land.
	Other:
II.	I am requesting that the U.S. Army Corps of Engineers, Savannah District, provide me with the following: Delineation Review of Aquatic Resources - Concurrence with an aquatic resource delineation is a written notification from the Corps concurring, not concurring, or commenting on the aquatic resource boundaries, or limits, delineated on a property.
	Preliminary Jurisdictional Determination - (PJD). A PJD is defined in Corps regulations at 33 CFR 331.2, as "written indications that there may be waters of the United States on a parcel". When the Corps provides a PJD, the Corps is making no legally binding determination of any type regarding whether jurisdiction exists over the particular aquatic resource in question.
	Approved Jurisdictional Determination - (AJD) An AJD is defined in Corps regulations at 33 CFR 331.2. A definitive, official determination that there are, or that there are not, jurisdictional aquatic resources on a parcel.
	I am unclear as to what I would like to request and require additional information to inform my decision.

III. Property/Owner Information. Please complete ALL of the following information for the property under review:

SECTION 1

Parcel Number of Property: 0059 001002

Lat. 30.526662 Lo

Long. - 82.115773

(in decimal degrees)

Parcel Address:

Parcel City: Saint George

Parcel County: Charlton

Zip:

Size of Review Area: 1034.41

Acre(s) Variable

Linear feet

SECTION 2

LANDOWNER NAME

AUTHORIZED AGENT'S NAME

First: Steve

First: Cindy

Last: Ingle

Last: House-Pearson

Company: Twin Pines Minerals, LLC

Company: TTL, Inc.

Email Address: single@greenfuelsenergy.com

Email Address: chpearson@ttlusa.com

Address: 2100 Southbridge Parkway, Ste. 540

Address: 3516 Greensboro Avenue

City: Birmingham

City: Tuscaloosa

State: AL

Zip: 35209 State: AL

Zip: 35401

Phone: 205-545-8759

Phone: 251-327-6153

PROPERTY ACCESS PERMISSION, AKNOWLEDGEMENT OF 18 U.S.C. SECTION 10001 AND STATEMENT OF AGENT AUTHORIZATION

Initial ONLY One:

By signing below, I certify that I am the owner of record of the property referenced in III, Section 1 above, and I hereby authorize representatives of the U.S. Army Corps of Engineers, Savannah District, to enter the property for purposes of conducting on-site inspections, and issuing an aquatic resource delineation concurrence and/or a jurisdictional determination. My signature shall also be an affirmation that I possess the requisite property rights to request a delineation review and/or a jurisdictional determination on the property referenced in III - Section 1. Further, I authorize the agent in III - Section 2, to act on my behalf in the processing of this request and to furnish supplemental information in support of this request.

By signing below, I certify that I am acting as the duly authorized agent of the owner of record of the property referenced in III, Section 1 above, and have been given the authority to: 1) request a delineation review and/or a jurisdictional determination (JD) on the property referenced in III - Section 1, and 2) authorize representatives of the U.S. Army Corps of Engineers, Savannah District, to enter the property for purposes of conducting on-site inspections, and issuing an aquatic resource delineation concurrence and/or a jurisdictional determination. I understand that I may be required to provide documentary evidence of my authority to request a delineation review and/or JD, and/or to grant Corps of Engineers personnel access to the property.

Please Print Name Legibly: Steve Ingle
Signature

Date: 9/28/2018

33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.

Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.

Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approximation (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.

Disclosure. Submission of requested information is voluntary, however, if information is not provided, the request for an ATD cannot be evaluated not can an ATD be issue

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103,

US Army Corps of Engineers Savannah District, Regulatory Division Global Positioning Systems (GPS) Datasheet Delineation of Wetlands, Streams and Other Waters Within the State of Georgia

USACE File Number SAS-2018-00554	Date of Delineation08/20/2018-08/31/2018
Name of Delineator Present Chris Terrel	I & Chris Stanford
Make and Model of GPS Device Used (must be decorated Trimble Geo7x GPS (model and model)	
Geographic Coordinate System Used US State	Plane GA East - NAD 1983 (Conus)
Name of Continually Operated Reference Station	u Used for Post-processing
CORS, JACKSONVILLE 1 (ZJX1), FLORIDA	(ITRF00 (1997)-Derived from IGS08 (NEW)
Date Post-processing Performed 9/13/2018	3
Percent Dilution of Position (PDOP) (6 or less is	required) see attached table
Name and Coordinates of Known Property Corne no known monument/benchr	
GPS Reading of Known Property Corner and/or Ino known monument/benchr	
Frequency of Waypoints Taken During Survey_	s needed per field observations
Note: GPS data must be provided, if requested.	

determined unacceptable by the Savannah District, a survey sealed by a surveyor licensed in

Georgia will be required.

Twin Pines Minerals - WOTUS Delineation and Burrow Survey GPS Percent Dilution of Position (PDOP)

GPS Unit	Date	PDOP AM	PDOP PM
Tuscaloosa	8/21/2018	1.48	NA
Rental	8/21/2018	1.74	1.33
Montgomery	8/21/2018	1.11	2.16
Tuscaloosa	8/22/2018	2.33	1.14
Rental	8/22/2018	1.43	2.05
Montgomery	8/22/2018	NA	NA
Tuscaloosa	8/23/2018	1.58	2.20
Rental	8/23/2018	1.50	1.48
Montgomery	8/23/2018	NA	NA
Tuscaloosa	8/24/2018	1.58	1.18
Rental	8/24/2018	1.56	1.7
Montgomery	8/24/2018	NA	NA
Tuscaloosa	8/25/2018	1.83	1.89
Rental	8/25/2018	1.27	1.77
Montgomery	8/25/2018	NA	NA
Tuscaloosa	8/26/2018	1.35	1.85
Rental	8/26/2018	NA	NA
Montgomery	8/26/2018	NA	NA
Tuscaloosa	8/27/2018	1.38	1.26
Rental	8/27/2018	1.00	1.53
Montgomery	8/27/2018	NA	NA
Tuscaloosa	8/28/2018	1.46	NA
Rental	8/28/2018	1.06	1.87
Montgomery	8/28/2018	NA	NA
Tuscaloosa	8/29/2018	1.38	2.06
Rental	8/29/2018	NA	NA
Montgomery	8/29/2018	NA	NA
Tuscaloosa	8/30/2018	1.46	NA
Rental	8/30/2018	1.06	NA
Montgomery	8/30/2018	NA	1.35

NA: not applicable, GPS unit not in use

December 7, 2018



Mr. Jared M. Lopes, Project Manager Savannah District, OP-FC U.S. Army Corps of Engineers 100 West Oglethorpe Avenue Savannah, Georgia 31401-3640

Subject: Waters of the U.S. Delineation Field Verification – Revisions Submittal

Approximately 1,034-Acre Keystone Tract

Twin Pines, LLC

Saint George, Charlton County, Georgia USACE Project No.: SAS-2018-00554 TTL Project No.: 000180200804.00

Dear Mr. Lopes,

In response to the field verification conducted by the United States Army Corps of Engineers (USACE) and TTL on November 27-28, 2018, TTL provides the following summary of revisions:

- a. Attachment A provides the revised Waters of the U.S. Delineation Map per the USACE field verification.
- b. Wetland A (WA) was revised from 580.475 acres to 504.304 acres. Wetland E (WE) is now a portion of WA, which has now been separated into nine (9) polygons.
- c. Wetland B (WB) was revised from 2.041 acres to 2.194 acres.
- d. Wetland G (WG) was revised from 5.957 acres to 5.970 acres.
- e. Wetland H (WH) was revised from 14.562 acres to 14.141 acres.
- f. Stream 2 (S2) was revised to a wetland swale that is part of WA.
- g. Stream 3 (S3) was revised to be a non-jurisdictional ditch and therefore removed.
- h. Stream 4 (S4) was revised to be a wetland swale

Please let TTL representatives know if additional information or revisions are needed for the project.

Sincerely,

TTL, Inc.

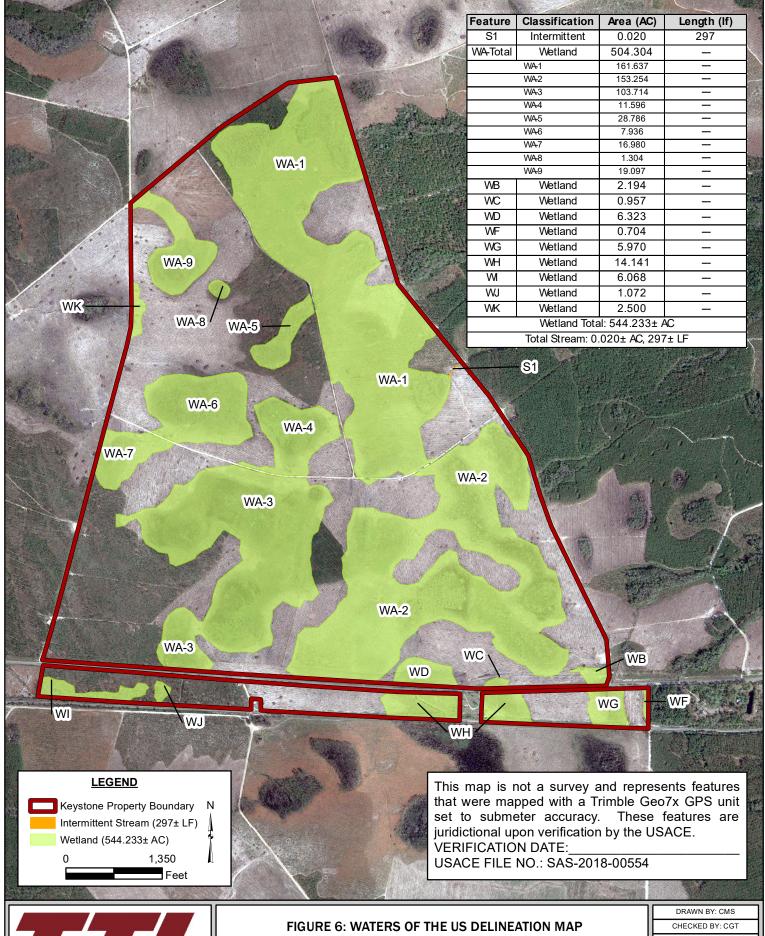
Christopher Terrell Project Professional

Chatopher Sevel

Cindy House-Pearson Senior Natural Resources

Client Manager

ATTACHMENT A REVISED WATERS OF THE US DELINEATION MAP



TWIN PINES MINERALS - KEYSTONE PROPERTIES
WATERS OF THE U.S. DELINEATION

BASEMAP: Google Earth, Europa Technologies (C) 2018. Image Date: 3/6/2018

CHECKED BY: CGT

DRAWING DATE: 09/18/2018

REVISION DATE: 12/06/2018

TTL JOB NO. 000180200804.00

APPROX. SCALE: 1" = 2,000'

WATERS OF THE UNITED STATES DELINEATION REPORT

APPROXIMATELY 1,012-ACRE LONCALA TRACT SAINT GEORGE, CHARLTON COUNTY, GEORGIA

Submitted to:

Twin Pines Minerals, LLC Attn: Mr. Steve Ingle, P.E. 2100 Southbridge Parkway Birmingham, Alabama 35209

Prepared by:

TTL, Inc. 2743-B Gunter Park Drive West Montgomery, Alabama 36109

Project No. 000180200804.00

August 3, 2018



SIGNATURE OF ENVIRONMENTAL PROFESSIONALS

TTL, Inc. has performed a waters of the United States (U.S.) delineation in general conformance with the scope and limitations of the *U. S. Army Corps of Engineers Wetland Delineation Manual,* 1987 *Edition,* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region Version* 2.0 (2010). Identification of ephemeral, intermittent and perennial streams has been performed in general conformance with methodology outlined in *Methodology for Identification of Intermittent and Perennial Streams and their Origins, Version* 4.11 (2010).

Ch	ristopher	T	erre	:II
_				_

Environmental Professional

August 3, 2018

Date

Cindy House-Pearson Serior Natural Resources

Client Manager

August 3, 2018

Date

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APPENDICES

Appendix A	Normal Weather Conditions Table
	Agricultural Applied Climate Information System (AgACIS) Data
	U.S. Drought Monitor – Georgia
	Palmer Drought Index
Appendix B	Selected Site Photographs
Appendix C	U.S. Army Corps of Engineers Wetland Determination Data Forms
Appendix D	North Carolina (NC) Division of Water Quality (DWQ) Stream Identification Forms
Appendix E	USACE Savannah District Request for Corps of Engineers Jurisdictional Determination (JD) and/or Delineation Review Form

1.0 INTRODUCTION

TTL, Inc. (TTL) was contracted by Twin Pines Minerals, LLC (Twin Pines) to perform a delineation of the waters of the United States (WOTUS) associated with a proposed development of a heavy mineral mining operation in Saint George, Charlton County, Georgia (Figure 1). TTL conducted the field activities for this project from April 3, 2018 to May 3, 2018.

Activities within jurisdictional waters of the U.S. are regulated by the U.S. Army Corps of Engineers (USACE). Authority to permit discharges (fill) within jurisdictional wetlands or non-navigable waters of the U.S. is granted under Section 404 of the Clean Water Act (CWA) of 1972. Authority to permit work and placement of structures in navigable waters of the U.S. is granted under Sections 9 and 10 of the Rivers and Harbors Act of 1899. For regulatory purposes under the CWA, wetlands are defined by the USACE as:

Those areas that are inundated or saturated by surface or groundwater 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.

2.0 SITE DESCRIPTION

The site is an approximately 1,012-acre area depicted on the U.S. Geological Survey (USGS) 7.5-minute Topographic Maps of Moniac, Georgia and Saint George, Georgia (Figure 1). The center of the site is located near latitude 30.576162 and longitude -82.128950. According to the USGS Topographic Map, the elevation at the site ranges from approximately 120 to 175 feet above mean sea level.

The delineation area is located near the eastern limits of the Okefenokee National Wildlife Refuge The western delineation area boundary follows a portion of Swamp Perimeter Road. The historic Trail Ridge is located along the eastern portion of the delineation area. The delineation area has historically been used for silvicultural activities. The primary sources of hydrology for the delineation area are onsite rainfall and surface water flow.

Driving directions to the site are as follows: from the intersection of GA-23 and GA-94 (in St. George, GA), travel west along GA-94 for approximately 6.93 miles to the intersection of GA-94 and Boggy Break (dirt road). Turn north (right) onto Boggy Break and travel north for 3.4 miles to the

intersection of Boggy Break/Swamp Perimeter Road and an unnamed dirt road to the east. This location is the southwest corner of the delineation area.

3.0 LITERATURE AND RECORDS REVIEW

Prior to conducting the field effort, TTL performed a literature and records review to develop an understanding of the potential for the presence of waters of the U.S. on the subject site or surrounding properties. These data sources and the review findings are described below.

3.1 Hydric Soils

The Natural Resources Conservation Service (NRCS) maintains a database of soil types (map units) for most areas of the U.S. (NRCS, 2017). The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit which represents a large area dominated by one or more major types of soil. Map units are further classified with a rating of hydric, partially hydric or non-hydric. Map units are useful for planning purposes to provide an overall understanding of the soils that occur in a general area. However, due to the natural variability of the landscape, direct observation of the soils profile is necessary to identify hydric soil indicators.

A classification of hydric means that the soil components listed for a given map unit are rated as being hydric. "Predominantly hydric" means that more than 66 percent to less than 100 percent of soil components are hydric. "Partially hydric" means that more than 33 percent to less than 65 percent of soil components are hydric. "Predominantly non-hydric" means that more than 0 percent and less than 32 percent of soil components are hydric. "Not hydric" means that all soil components are rated as not hydric. "Unknown hydric" indicates that at least one component is not rated so a definitive rating for the map unit cannot be made. A NRCS map of the soils located on the site with the associated hydric rating is presented in Figure 3 and summarized in Table 1 below.

Table 1: Soil Map Units Classifications

Map Unit Symbol	Description	Hydric Rating
LeA	Leon fine sand, 0-2% slopes	Predominantly Hydric
LoA	Leon fine sand, frequently ponded, 0-2% slopes	Hydric
LvA	Lynn Haven fine sand, 0-2% slopes	Predominantly Hydric
LYA	Lynn Haven, Allanton and Kingsferry soils, ponded, 0-1% slopes	Predominantly Hydric
MaA	Mandarin fine sand, 0-2% slopes	Predominantly Nonhydric
SuA	Surrency mucky fine sand, frequently ponded, 0-1% slopes	Hydric

3.2 National Wetland Inventory

The U.S. Fish and Wildlife Service (USFWS) created and maintains the National Wetland Inventory (NWI) database of information on the characteristics, extent, and status of the wetlands and deepwater habitats within the U.S. This information is useful for planning purposes and provides an overall understanding of the habitats that may be present in or around the site. The NWI classifies habitat types as marine, estuarine, riverine, lacustrine or palustrine with additional modifiers as appropriate to identify the water regime, water chemistry, soil or other characteristics based on *Classification of Wetlands and Deepwater Habitats of the U.S.* (Cowardin, 1979).

TTL reviewed the NWI data for the site using the USFWS NWI Wetlands Mapper web-based tool to determine the potential for wetlands to exist on the site. The USFWS NWI Mapper identified numerous wetland, stream, and open water features within the delineation area boundary. Figure 4 depicts the NWI Map, and Table 2 summarizes the habitat below.

Table 2: NWI Classifications

Map Unit Symbol	Description of Habitat			
PEM1C	Palustrine; Emergent; Persistent; Seasonally Flooded			
PEM1F	Palustrine; Emergent; Persistent; Semipermanently Flooded			
PFO3/4B	Palustrine; Forested; Broad-Leaved Evergreen/Needle-Leaved Evergreen; Seasonally Saturated			
PFO3/4C	Palustrine; Forested; Broad-Leaved Evergreen/Needle-Leaved Evergreen; Seasonally Flooded			
PF03/6C	Palustrine; Forested; Broad-Leaved Evergreen/Deciduous; Seasonally Flooded			
PF03B	Palustrine; Forested; Broad-Leaved Evergreen; Seasonally Saturated			
PF06/3C	Palustrine; Forested; Deciduous/Broad-Leaved Evergreen; Seasonally Flooded			
PF06C	Palustrine; Forested; Deciduous; Seasonally Flooded			
PF06F	Palustrine; Forested; Deciduous; Semipermanently Flooded			
PSS3/1B	Palustrine; Scrub-Shrub; Broad-Leaved Evergreen/Broad-Leaved Deciduous; Seasonally Saturated			
R5UBH	Riverine; Unknown Perennial; Unconsolidated Bottom; Permanently Flooded			

3.3 Hydrologic Unit Code

The U.S. is divided and sub-divided into successively smaller hydrologic units which are classified into six levels: regions, sub-regions, accounting units, watershed, sub-watershed, and cataloging units. The hydrologic units are arranged within each other, from the smallest (cataloging unit) to the largest (regions). Each hydrologic unit is identified by a unique hydrologic unit code (HUC) consisting of two to 12 digits based on the six levels of classification in the hydrologic system (Seaber, Kapinos, Knapp, 1987). The majority of the site is located within the Soldiers Camp Island watershed, cataloging unit 12-Digit HUC 030702040301. Three other cataloging unit 12-Digit HUCs occur along the northwestern (Cornhouse Creek – 030702040703), northeastern (Harris Creek – St. Marys River – 030702040603), and the eastern (Boone Creek – 030702040602) portions of the delineation area. All four cataloging units are located within the St Marys watershed, cataloging unit 8-Digit HUC 03070204 (Figure 5).

3.4 Normal Weather Conditions

TTL calculates a subject site's normal weather conditions before performing site work to understand whether aquatic features in the landscape may exhibit certain characteristics related to current and near past hydrologic regime. TTL calculates data obtained from an on-line NRCS climactic database, Agricultural Applied Climate Information System (AgACIS), and derives its calculation method from the Tennessee Department of Environment and Conservation's guide for making hydrologic

determinations (TDEC, 2011). An evaluation of weather conditions was performed for the three-month period prior to the field activities. Calculations for the site indicate that the weather conditions were drier than normal for the time of year that field work was performed.

The Palmer Drought Severity Index provided by National Oceanic and Atmospheric Administration (NOAA) is accessed at http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/palmer.html and was used to cross-reference the results calculated. The Palmer Drought Severity Index indicates that the region of the site experienced "moderate drought" conditions during the weeks prior to the site visit.

As an additional cross-reference, the U.S. Drought Monitor was accessed and evaluated. The U.S. Drought Monitor is produced through a partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture (USDA), and NOAA. The most recent update of the U.S. Drought Monitor (April 3, 2018) Map of Alabama exhibited moderate drought conditions in the vicinity of the review area.

The Normal Weather Conditions Table, AgACIS data, Palmer Drought Severity Index Map, and U.S Drought Monitor Map of Alabama and are included in Appendix A.

4.0 WETLAND AND WATERS DELINEATION

4.1 Wetland Identification Methodology

TTL utilizes the U.S. Army Corps of Engineers Wetland Delineation Manual (USACE, 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (USACE, 2010) technical guidelines for determining the presence of wetlands. This determination requires that a positive wetland indicator be present for each of the three parameters (hydrology, soil, and vegetation), with the exception of areas altered by recent human activities or natural events. During field activities, TTL assessed the project area for the presence of hydrophytic vegetation and used a Dutch hand-auger to evaluate the project area for the presence of hydric soils. TTL examined the soil for hydric soil indicators as identified in the Field Indicators of Hydric Soils in the United States, V. 8.1 (NRCS, 2017). Additionally, TTL observed the project area for indications of inundated or saturated soils, water marks, drift lines, crayfish burrows, sediment deposits and other wetland hydrology indicators. TTL used Wetland Determination Data Forms – Atlantic and Gulf Coastal Plain Region (2010) to record field conditions for the soil, vegetation and hydrology for wetlands and uplands located on the site. At least one data point was established in each habitat type observed within the review area.

TTL traversed the project area on foot and placed orange flagging labeled with Upland Data Point (UDP) or Wetland Data Point (WDP) point identification at the data point location. The location of the data point flagging was mapped with a Trimble Geo7x Global Positioning System (GPS) unit, which was set to sub-meter tolerances. Field data was post-processed using Trimble PathfinderOffice V 5.3 and exported to ESRI's ArcMap 10.2. Area features were manually digitized in ArcGIS using the flag locations; geographic coordinates and area quantities were calculated using ArcGIS "area" function.

4.2 Wetland Findings

The project area contains five wetland areas (WA-WE) consisting of approximately 416.03 acres. The boundaries of the wetland areas and data point locations are depicted on Figure 6. Selected photographs of our field observations are provided in Appendix B. Wetland Determination Data Forms are included in Appendix C. Table 3 summarizes the wetland findings below.

Table 3: Wetland Summary

Wetland ID	Cowardin Habitat Description	Area (acres)
WA	Palustrine; Forested, Broad-Leaved Deciduous/Needle-Leaved Evergreen; Saturated	333.88
WB	Palustrine; Forested, Broad-Leaved Deciduous/Needle-Leaved Evergreen; Saturated	11.96
WC	Palustrine; Forested, Broad-Leaved Deciduous/Needle-Leaved Evergreen; Saturated	3.80
WD	Palustrine; Forested, Broad-Leaved Deciduous/Needle-Leaved Evergreen; Saturated	62.67
WE	Palustrine; Forested, Broad-Leaved Deciduous/Needle-Leaved Evergreen; Saturated	3.72

Wetlands WA and WD are located west of the historic trail ridge. Wetland A is located along the southern, western, and central portions of the delineation area. Wetland D is located along the northwestern portion of the delineation area. Wetlands WB, WC, and WE are located east of the historic trail ridge. Wetland B is located along the central portion of the eastern portion of the delineation area. Wetlands C and E are both located along the northeastern portion of the delineation area. The soils textures within the wetland areas are comprised of a sand content that meets hydric soil indicators S7 – Dark Surface or S8 – Polyvalue Below Surface, as well as a peat/mucky mineral content that meets hydric soil indicators A3 – Black Histic, A4 – Hydrogen Sulfide, and/or A7 - 5cm Mucky Mineral. The hydrology for this area is supported by localized stormwater and a shallow water table. The wetland vegetation communities within the delineation area vary from large areas of hipped and benched, planted pine habitat [dominated by slash pine

(*Pinus elliottii*), inkberry (*Ilex glabra*), Carolina redroot (*Lachnanthes caroliniana*), and Virginia chain fern (*Woodwardia virginica*)], to smaller areas of hipped and benched, planted pine habitat that exhibited acidic bog characteristics [dominated by Carolina redroot, southern umbrella sedge (*Fuirena scirpoidea*), pipewort species (*Eriocaulon sp.*), blue-flower butterwort (*Pinguicula caerulea*), yellow colicroot (*Aletris lutea*), hooded pitcherplant (*Sarracenia minor*), snake-mouth orchid (*Pogonia ophioglossoides*), rosebud orchid (*Cleistesiopsis divaricata*), green-vein ladies'-tresses (*Spiranthes praecox*), and spoon-leaf sundew (*Drosera intermedia*)], to forested pocosin habitat that exhibited no signs of silvicultural activities [dominated by pond pine (*Pinus serotina*), pond cypress (*Taxodium ascendens*), loblolly bay (*Gordonia lasianthus*), swamp tupelo (*Nyssa biflora*), large gallberry (*Ilex coriacea*), and Virginia chain fern.

4.3 Streams Identification and Methodology

TTL used the North Carolina Division of Water Quality – Methodology for Identification of Intermittent and Perennial Streams and Their Origins v. 4.11, September 1, 2010 (NC Method) technical guideline to determine the most appropriate classification of each subject stream. This technical guideline for stream identification is the preferred methodology for distinguishing between intermittent and perennial streams in the southeast United States and requires evaluation of 26 attributes of the stream and assigning a numeric score to each on the NC DWQ Stream Identification Form Version 4.11. A four-tiered, weighted scale is utilized for evaluating and scoring the features categorized in sets of geomorphic, hydrologic, and biological attributes. Additionally, TTL utilized the Regulatory Guidance Letter No. 05-05: Ordinary High Water Mark Identification (USACE, 2005) as the basis for the delineation, mapping, and linear footage/areal estimations of on-site streams.

Identified streams were mapped using the method described in Section 4.1. Stream Identification Forms (v. 4.11) were used to classify streams that were not clearly perennial (i.e. flowing water at greater than 48 hours since rainfall, strong morphology and obvious biological presence). TTL traversed the stream channels on foot and placed blue flagging labeled with stream data point identifications near the observed ordinary high water mark (OHWM). The locations of the boundary flags were mapped with a Trimble Geo7x Global Positioning System (GPS) unit, which was set to submeter tolerances. Field data was post-processed using Trimble Pathfinder Office V 5.3 and exported to ESRI's ArcMap 10.2. Area features were manually digitized in ArcGIS using the flag locations; geographic coordinates and area quantities were calculated using ArcGIS "area" function.

4.4 Streams Findings

TTL identified two tributaries within the delineation area consisting of approximately 3,020 linear feet of intermittent stream (S1-S2). These streams are located within the northwestern portion of the delineation area. Stream S2 flows into Stream S1, which flows offsite westward into the Okefenokee Wildlife Refuge. Table 4 summarizes the stream findings below.

Table 4: Stream Summary

Wetland ID	Cowardin Habitat Description	Length (linear feet)/ Area (acres)		
S1	Riverine; Intermittent; Streambed; Mud	2,210/ 0.33		
S2	Riverine; Intermittent; Streambed; Mud	810/ 0.07		

4.5 Open Waters

TTL identified one open water (OW1) totaling 0.34 acres within the delineation area. The observed open water appears to be an excavated feature that is adjacent to Wetland D.

4.6 Jurisdictional Determination Request

The USACE has the sole authority to determine whether wetlands or water features are "jurisdictional." Under certain circumstances, wetland areas are considered non-jurisdictional because they lack a significant nexus with other wetlands or waters of the U.S. TTL utilized the USACE Jurisdictional Determination Form Instructional Guidebook (USACE and EPA, 2007) to complete a SAS APPENDIX 1: Request for Corps of Engineers Jurisdictional Determination (JD) and/or Delineation Review Form (Appendix E).

It is TTL's opinion that all observed tributaries, wetlands, and open waters within the delineation area are jurisdictional features due to their significant nexus to nearby relatively permanent waters. Copies of tables of the aquatic features details as well as flag locations are also included in Appendix E.

TTL recommends that a delineation review of aquatic resources of the potentially jurisdictional site features be requested from the USACE Savannah District. If the USACE is not engaged regarding a jurisdictional determination or delineation review of aquatic resources, TTL is neither responsible for the final determination of jurisdictional features within the review corridor, nor responsible for violations associated with unauthorized activities that may occur within areas deemed jurisdictional by the USACE at a later time.

5.0 CONCLUSIONS

- Approximately 416.03 acres of forested wetland were identified within the delineation area.
- Approximately 0.34 acres of open water were identified within the delineation area.
- Approximately 3,020 linear feet (0.40 acres) of intermittent stream were identified within the delineation area.
- Upon approval by the client, TTL will submit a request for an approved jurisdictional determination (AJD) from the USACE of all aquatic features within the site.

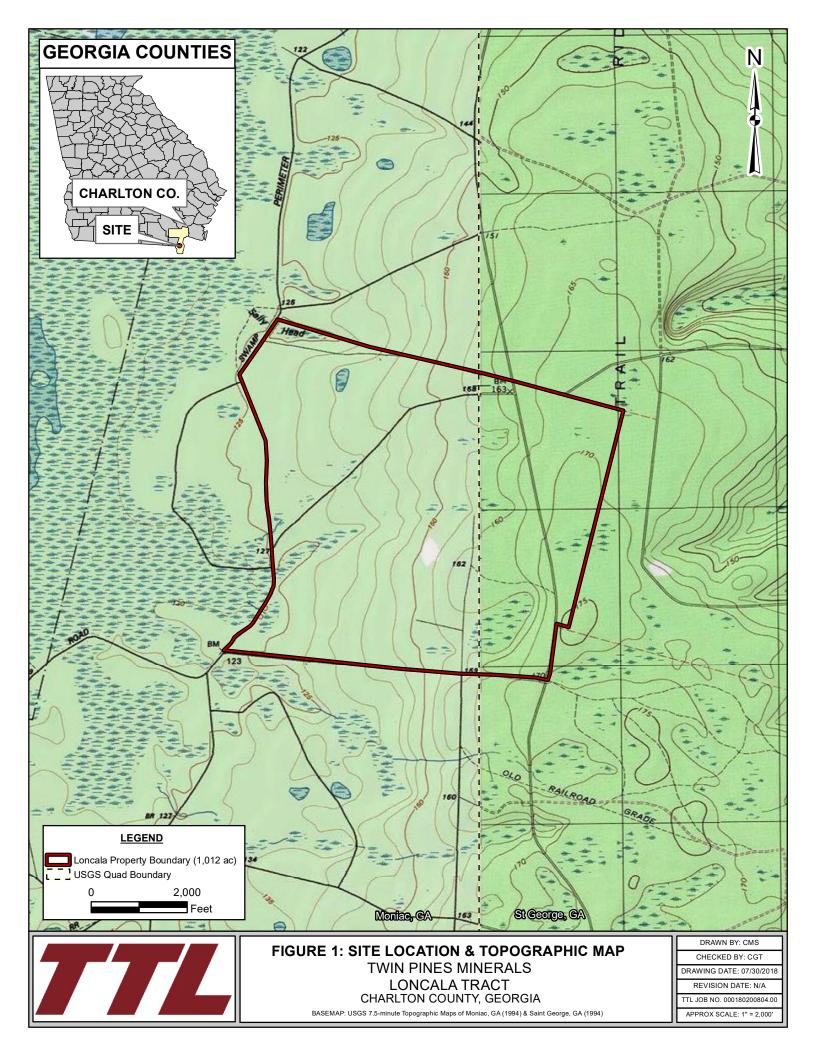
6.0 REFERENCES

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FIGURES

Figure 1	Project Location and Topographic Map
Figure 2	Site Location & Aerial Photograph
Figure 3	Natural Resources Conservation Service (NRCS) Soil Map w/Hydric Rating
Figure 4	National Wetland Inventory (NWI) Classification Map
Figure 5	Hydrologic Unit Code (HUC) Map
Figure 6	Waters of the U.S. Delineation Man



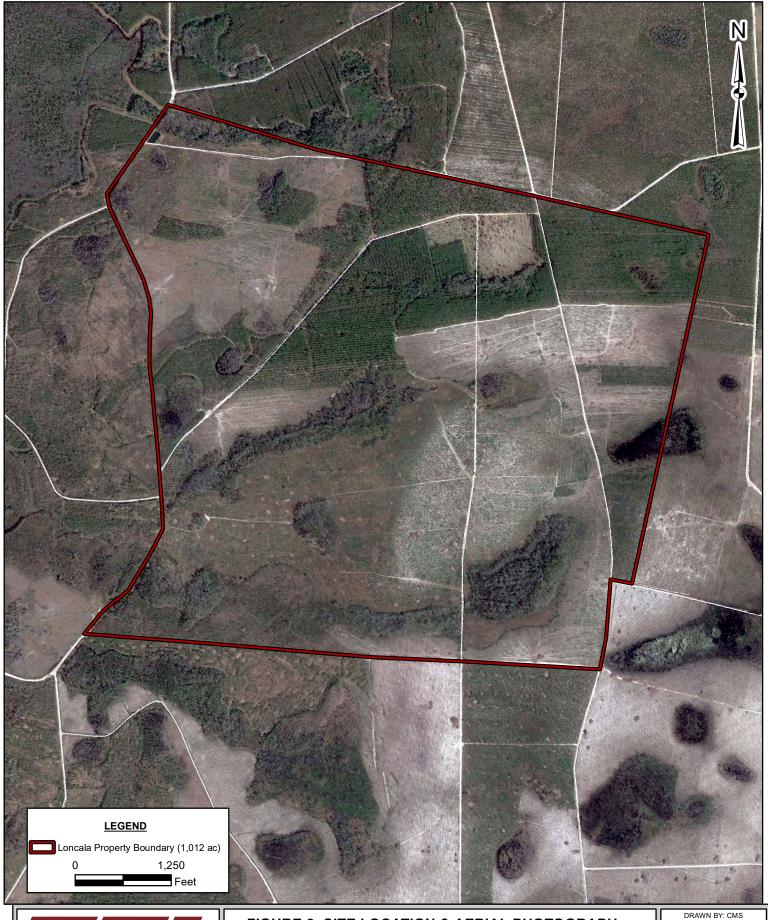




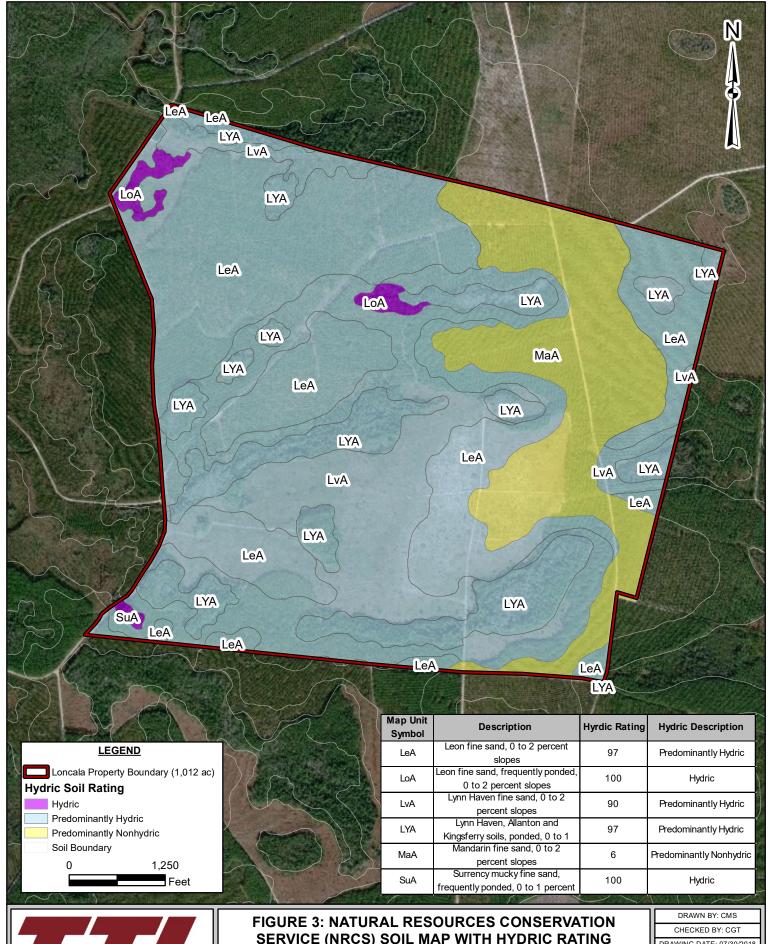
FIGURE 2: SITE LOCATION & AERIAL PHOTOGRAPH TWIN PINES MINERALS LONCALA TRACT CHARLTON COUNTY, GEORGIA

CHECKED BY: CGT

DRAWING DATE: 07/30/2018 REVISION DATE: N/A

TTL JOB NO. 000180200804.00

APPROX SCALE: 1" = 2,000'





SERVICE (NRCS) SOIL MAP WITH HYDRIC RATING

TWIN PINES MINERALS - LONCALA TRACT CHARLTON COUNTY, GEORGIA

BASEMAP: DigitalGlobe - Vivid (1/24/2016)

DRAWN BY: CMS
CHECKED BY: CGT
DRAWING DATE: 07/30/2018
REVISION DATE: N/A
TTL JOB NO. 000180200804.00
APPROX SCALE: 1" = 2 000"

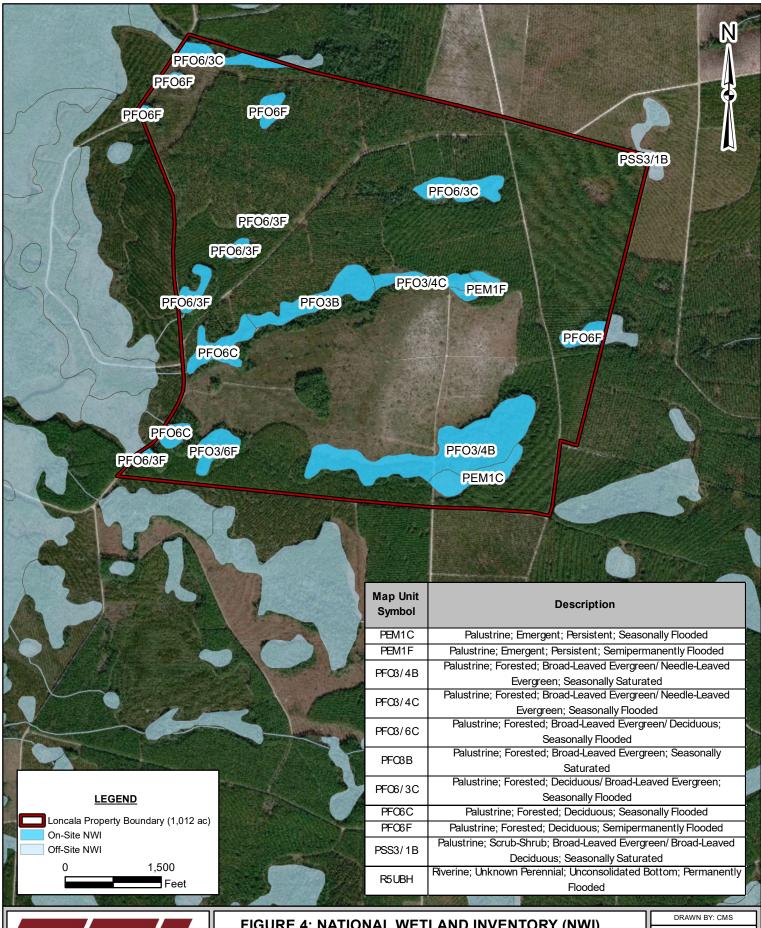




FIGURE 4: NATIONAL WETLAND INVENTORY (NWI) CLASSIFICATION MAP

TWIN PINES MINERALS - LONCALA TRACT CHARLTON COUNTY, GEORGIA

BASEMAP: DigitalGlobe-Vivid (1/24/2016)

DRAWN BY: CMS

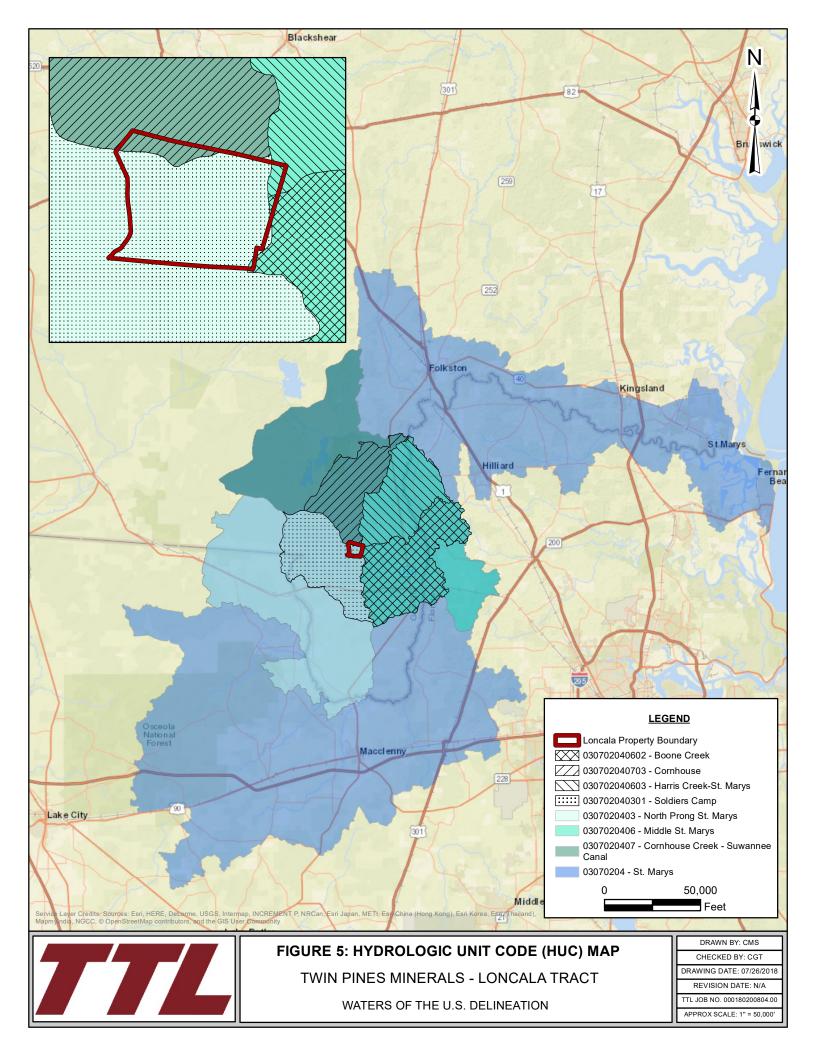
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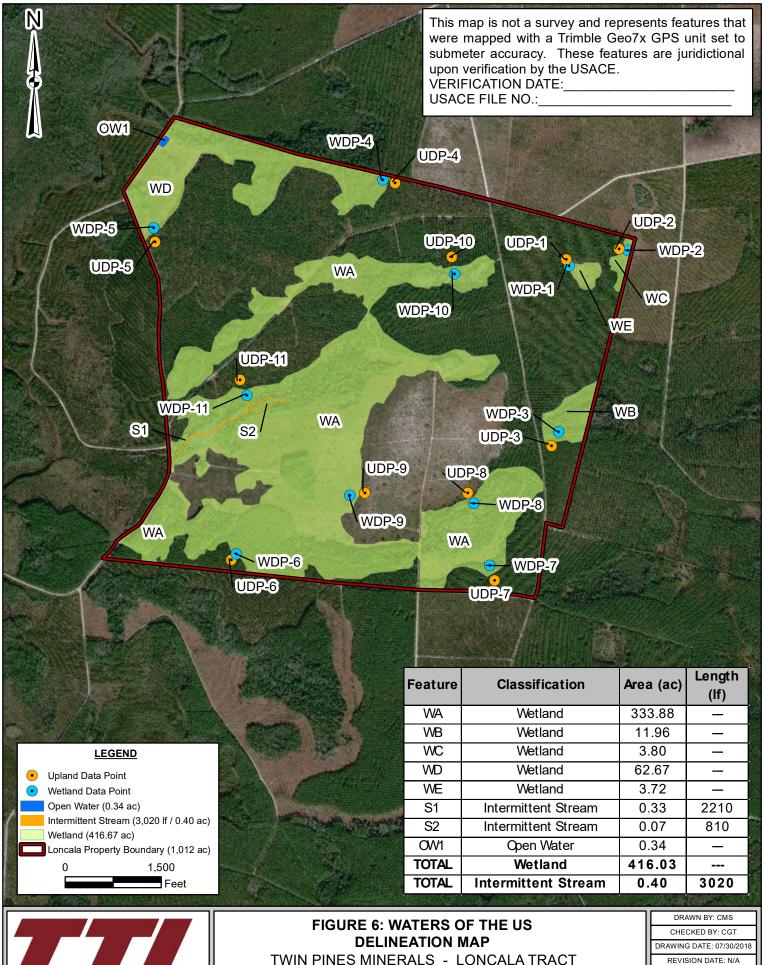
DRAWING DATE: 07/30/2018

REVISION DATE: N/A

TTL JOB NO. 000180200804.00

APPROX SCALE: 1" = 1,250'





TWIN PINES MINERALS - LONCALA TRACT CHARLTON COUNTY, GEORGIA

BASEMAP: DigitalGlobe Vivid (1/24/2016)

TTL JOB NO. 000180200804.00

APPROX SCALE: 1" = 1,250

APPENDIX A

Normal Weather Conditions Table AgACIS Data U.S. Drought Monitor – Alabama Palmer Drought Index

Calculation of Normal Weather Conditions General Project Location: Folkston, Georgia Analysis for April 2018 Site Visits

			Long-Term Rainfall Records							
			Minus One		Plus One					
			Standard		Standard		Condition		Month	
		Standard	Deviation	Normal* (Mean	Deviation	Actual	(wet, normal,	Condition	Weight	Weighted
	Month	Deviation*	(Dry)	Inches)	(Wet)	Rainfall**	dry)	Value***	Value	Value
1st prior month	Mar-18	2.52	1.53	4.05	6.57	1.31	dry	1	3	3
2nd prior month	Feb-18	2.14	1.36	3.50	5.64	1.56	normal	2	2	4
3rd prior month	Jan-18	2.31	1.08	3.39	5.70	2.16	normal	2	1	2
•	·	•	•	•		•	•	=	Sum:	9

Sum:	Conclusion:
6-9	prior period has been drier than normal
10-14	prior period has been normal
15-18	prior period has been wetter than normal

^{*} Standard Deviation and Mean Values can be found through the National Oceanic and Atmospheric Associations Earth System Research Laboratory: http://www.esrl.noaa.gov/psd/data/usstation/

^{**} Rainfall data can be found through Weather Source Consultants: www.weathersource.com

^{***} Condition Values: 1 = dry, 2 = normal, 3 = wet

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2018-01-01	55	32	43.5	4	0	0.16	М	М
2018-01-02	39	24	31.5	0	0	0.00	М	М
2018-01-03	41	29	35.0	0	0	0.46	М	М
2018-01-04	41	23	32.0	0	0	0.06	М	М
2018-01-05	46	23	34.5	0	0	0.00	М	М
2018-01-06	48	26	37.0	0	0	0.00	М	М
2018-01-07	52	28	40.0	0	0	0.00	М	М
2018-01-08	65	34	49.5	10	0	0.00	М	М
2018-01-09	66	55	60.5	21	11	0.00	М	М
2018-01-10	70	57	63.5	24	14	0.01	М	М
2018-01-11	74	62	68.0	28	18	0.09	М	М
2018-01-12	72	62	67.0	27	17	0.23	М	М
2018-01-13	67	39	53.0	13	3	0.03	М	М
2018-01-14	53	28	40.5	1	0	0.00	М	М
2018-01-15	54	31	42.5	3	0	0.00	М	М
2018-01-16	62	32	47.0	7	0	0.00	М	М
2018-01-17	65	37	51.0	11	1	0.00	М	М
2018-01-18	47	22	34.5	0	0	0.00	М	М
2018-01-19	57	27	42.0	2	0	0.00	М	М
2018-01-20	60	33	46.5	7	0	0.00	М	М
2018-01-21	71	41	56.0	16	6	0.00	М	М
2018-01-22	78	47	62.5	23	13	0.00	М	М
2018-01-23	78	64	71.0	31	21	0.01	М	М
2018-01-24	73	39	56.0	16	6	0.00	М	М
2018-01-25	60	37	48.5	9	0	0.00	М	М
2018-01-26	67	37	52.0	12	2	0.00	М	М
2018-01-27	70	51	60.5	21	11	0.00	М	М
2018-01-28	75	56	65.5	26	16	0.01	М	М
2018-01-29	75	58	66.5	27	17	1.10	М	М
2018-01-30	68	40	54.0	14	4	0.00	М	М
2018-01-31	61	33	47.0	7	0	0.00	М	М
Average Sum	61.6	38.9	50.3	360	160	2.16	М	М

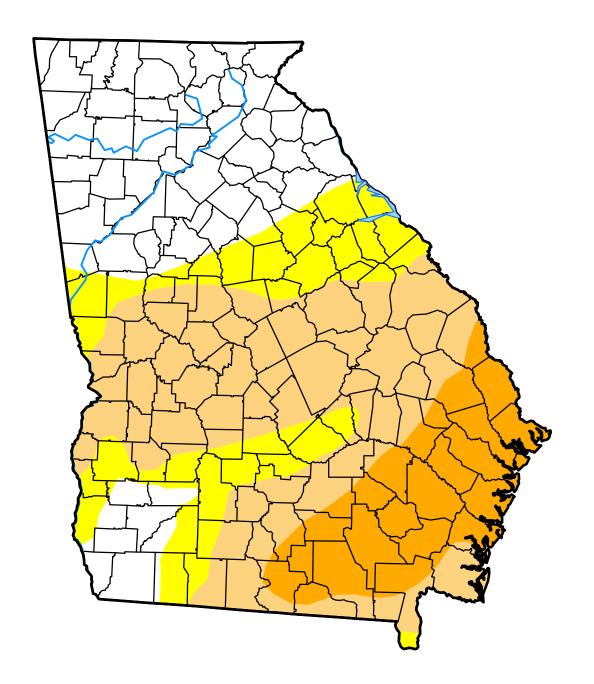
Climatological Data for FOLKSTON 9 SW, GA - February 2018

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2018-02-01	69	40	54.5	15	5	0.00	М	М
2018-02-02	69	50	59.5	20	10	0.00	М	М
2018-02-03	64	35	49.5	10	0	0.00	М	М
2018-02-04	69	48	58.5	19	9	0.35	М	М
2018-02-05	65	46	55.5	16	6	0.69	М	М
2018-02-06	74	42	58.0	18	8	0.00	М	М
2018-02-07	75	57	66.0	26	16	0.00	М	М
2018-02-08	76	59	67.5	28	18	0.12	М	М
2018-02-09	70	50	60.0	20	10	0.00	М	М
2018-02-10	79	61	70.0	30	20	0.04	М	М
2018-02-11	80	65	72.5	33	23	0.00	М	М
2018-02-12	82	62	72.0	32	22	0.10	М	М
2018-02-13	75	58	66.5	27	17	0.00	М	М
2018-02-14	64	51	57.5	18	8	0.02	М	М
2018-02-15	80	53	66.5	27	17	0.00	М	М
2018-02-16	80	58	69.0	29	19	0.00	М	М
2018-02-17	80	63	71.5	32	22	0.00	М	М
2018-02-18	79	61	70.0	30	20	0.00	М	М
2018-02-19	83	62	72.5	33	23	0.00	М	М
2018-02-20	81	62	71.5	32	22	0.00	М	М
2018-02-21	85	66	75.5	36	26	0.00	М	М
2018-02-22	84	61	72.5	33	23	0.00	М	М
2018-02-23	83	60	71.5	32	22	0.00	М	М
2018-02-24	84	61	72.5	33	23	0.00	М	М
2018-02-25	87	62	74.5	35	25	0.00	М	М
2018-02-26	87	58	72.5	33	23	0.02	М	М
2018-02-27	74	57	65.5	26	16	0.22	М	М
2018-02-28	79	52	65.5	26	16	0.00	М	М
Average Sum	77.0	55.7	66.4	749	469	1.56	М	М

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2018-03-01	85	63	74.0	34	24	0.00	М	М
2018-03-02	85	55	70.0	30	20	0.02	М	М
2018-03-03	75	40	57.5	18	8	0.00	М	М
2018-03-04	70	41	55.5	16	6	0.00	М	М
2018-03-05	70	38	54.0	14	4	0.00	М	М
2018-03-06	73	45	59.0	19	9	0.00	М	М
2018-03-07	74	50	62.0	22	12	0.00	М	М
2018-03-08	66	35	50.5	11	1	0.00	М	М
2018-03-09	63	33	48.0	8	0	0.00	М	М
2018-03-10	72	38	55.0	15	5	0.00	М	М
2018-03-11	75	45	60.0	20	10	0.00	М	М
2018-03-12	76	57	66.5	27	17	0.27	М	М
2018-03-13	60	35	47.5	8	0	0.00	М	М
2018-03-14	64	41	52.5	13	3	0.00	М	М
2018-03-15	66	33	49.5	10	0	0.00	М	М
2018-03-16	73	41	57.0	17	7	0.00	М	М
2018-03-17	79	49	64.0	24	14	0.00	М	М
2018-03-18	83	60	71.5	32	22	0.00	М	М
2018-03-19	85	65	75.0	35	25	0.26	М	М
2018-03-20	81	64	72.5	33	23	0.05	М	М
2018-03-21	80	51	65.5	26	16	0.00	М	М
2018-03-22	64	39	51.5	12	2	0.00	М	М
2018-03-23	67	38	52.5	13	3	0.00	М	М
2018-03-24	79	46	62.5	23	13	0.00	М	М
2018-03-25	81	55	68.0	28	18	0.00	М	М
2018-03-26	79	51	65.0	25	15	0.44	М	М
2018-03-27	73	52	62.5	23	13	0.00	М	М
2018-03-28	82	52	67.0	27	17	0.00	М	М
2018-03-29	84	56	70.0	30	20	0.00	М	М
2018-03-30	83	61	72.0	32	22	0.27	М	М
2018-03-31	69	53	61.0	21	11	0.00	М	М
Average Sum	74.7	47.8	61.3	666	360	1.31	М	М

U.S. Drought Monitor

Georgia



April 3, 2018

(Released Thursday, Apr. 5, 2018)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	31.27	68.73	51.19	16.00	0.00	0.00
Last Week 03-27-2018	31.15	68.85	50.54	10.42	0.00	0.00
3 Months Ago 01-02-2018	12.14	87.86	40.66	0.00	0.00	0.00
Start of Calendar Year 01-02-2018	12.14	87.86	40.66	0.00	0.00	0.00
Start of Water Year 09-26-2017	100.00	0.00	0.00	0.00	0.00	0.00
One Year Ago 04-04-2017	1.09	98.91	29.94	15.05	4.16	0.00

Intensity:

D0 Abnormally Dry
D1 Moderate Drought
D2 Severe Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

David Miskus NOAA/NWS/NCEP/CPC





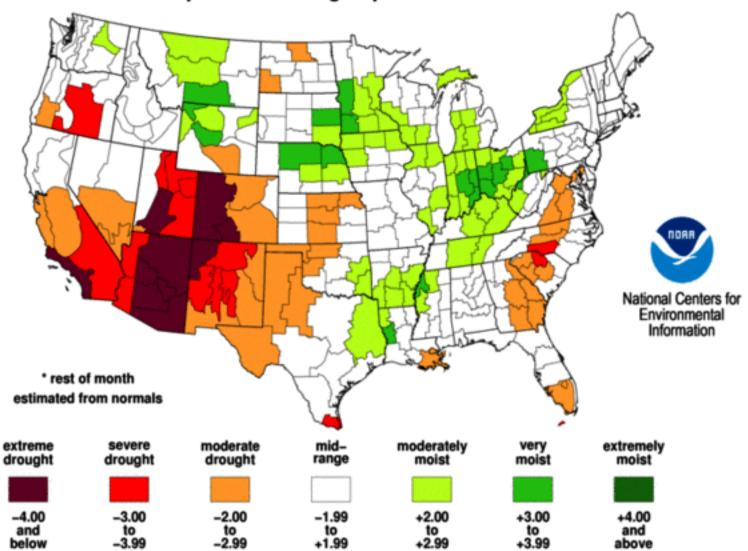




http://droughtmonitor.unl.edu/

Palmer Hydrological Drought Index Long-Term (Hydrological) Conditions

April 2018: through April 7 2018*



APPENDIX B

Site Photographs



Photograph 1: View of the Wetland Data Point 1 (WDP-1) location within Wetland E (WE).



Photograph 2: View of the Upland Data Point 1 (UDP-1) location.





Photograph 3: View of the Wetland Data Point 2 (WDP-2) location within Wetland C (WC).



Photograph 4: View of the Upland Data Point 2 (UDP-2) location.





Photograph 5: View of the Wetland Data Point 3 (WDP-3) location within Wetland B (WB).



Photograph 6: View of the Upland Data Point 3 (UDP-3) location.





Photograph 7: View of the Wetland Data Point 4 (WDP-4) location within a forested (planted pine) portion of Wetland D (WD).



Photograph 8: View of the Upland Data Point 4 (UDP-4) location.





Photograph 9: View of the Wetland Data Point 5 (WDP-5) location within Wetland D (WD).



Photograph 10: View of the Upland Data Point 5 (UDP-5) location.





Photograph 11: View of the Wetland Data Point 6 (WDP-6) location within Wetland A (WA).

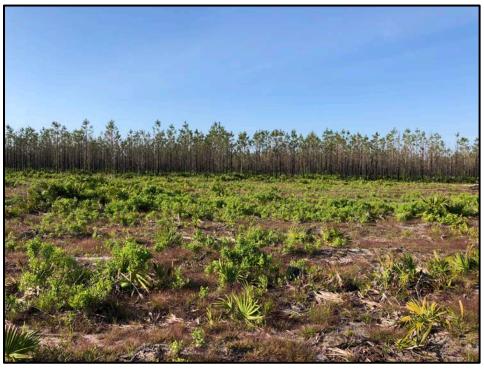


Photograph 12: View of the Upland Data Point 6 (UDP-6) location.





Photograph 13: View of the Wetland Data Point 7 (WDP-7) location within Wetland A (WA).



Photograph 14: View of the Upland Data Point 7 (UDP-7) location.





Photograph 15: View of the Wetland Data Point 8 (WDP-8) location within Wetland A (WA).



Photograph 16: View of the Upland Data Point 8 (UDP-8) location.





Photograph 17: View of the Wetland Data Point 9 (WDP-9) location within Wetland A (WA).



Photograph 18: View of the Upland Data Point 9 (UDP-9) location.





Photograph 19: View of the Wetland Data Point 10 (WDP-10) location within Wetland A (WA).



Photograph 20: View of the Upland Data Point 10 (UDP-10) location.





Photograph 21: View of the Wetland Data Point 11 (WDP-11) location within Wetland A (WA).



Photograph 22: View of the Upland Data Point 11 (UDP-11) location.





Photograph 23: View of intermittent Stream 1 (S1) within WA.



Photograph 24: View of intermittent Stream 2 (S2) within WA.



APPENDIX C U.S. Army Corps of Engineers Wetland Determination Data Forms

Project/Site: Loncala Tract	City/County: Cha	rlton County	Sampling Date: <u>04/25/2018</u>
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: UDP-1
Investigator(s): C. Terrell / C. Stanford (TTL)	Section, Township,		
	Local relief (concav		Slope (%): 0-2%
Subregion (LRR or MLRA): LRR T / MLRA 153A			
Soil Map Unit Name: Leon fine sand, 0-2% slopes		NWI classific	
Are climatic / hydrologic conditions on the site typical for the	nis time of year? Yes N	lo <u>√</u> (If no, explain in R	emarks.)
Are Vegetation Yes , Soil Yes , or Hydrology Yes			oresent? Yes <u>√</u> No
Are Vegetation No , Soil No , or Hydrology No			
SUMMARY OF FINDINGS – Attach site map			
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes	No Is the Samp within a We		No √
Wetland Hydrology Present? Yes	No <u>√</u>	etialiti res	NO <u>*</u>
Remarks:	·		
Site observations and local hydrological data Vegetation historically impacted by silviculture. Soils/Hydrology historically impacted by silviculture.	ural activities (planted pine	e).	
HYDROLOGY			
Wetland Hydrology Indicators:			tors (minimum of two required)
Primary Indicators (minimum of one is required; check al		Surface Soil	
_ ` '	tic Fauna (B13)		getated Concave Surface (B8)
	Deposits (B15) (LRR U) ogen Sulfide Odor (C1)	Drainage Pa	
<u> </u>	zed Rhizospheres along Living F	Moss Trim Li Roots (C3) Dry-Season	Water Table (C2)
<u> </u>	ence of Reduced Iron (C4)	Crayfish Bur	
	nt Iron Reduction in Tilled Soils		sible on Aerial Imagery (C9)
<u> </u>	Muck Surface (C7)	Geomorphic	1
Iron Deposits (B5) Other	r (Explain in Remarks)	Shallow Aqu	tard (D3)
Inundation Visible on Aerial Imagery (B7)		FAC-Neutral	Test (D5)
Water-Stained Leaves (B9)		Sphagnum n	noss (D8) (LRR T,U)
Field Observations:			
	epth (inches):		
	epth (inches):		√
Saturation Present? Yes No _▼ Do Do No Do Do	epth (inches):	Wetland Hydrology Presen	t? Yes No _ *
Describe Recorded Data (stream gauge, monitoring well	, aerial photos, previous inspect	ions), if available:	
Remarks: FAC-Neutral Test Results: Negative FA	ACW and OBL: 1 to FACU	and UPL: 2	

	Absolute	Dominar	nt Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>)			? Status	Number of Dominant Species That Are OBL_FACW_or FAC: 2 (A)
1. Pinus elliottii	70.0	yes	<u>FACW</u>	That Are OBL, FACW, or FAC: 2 (A)
2		•		Total Number of Dominant
3				Species Across All Strata: 4 (B)
4 5.				Percent of Dominant Species
				That Are OBL, FACW, or FAC: 50% (A/B)
6			 	Prevalence Index worksheet:
7	70.0	- Total C	20105	Total % Cover of: Multiply by:
Sapling Stratum (30 ft radius)	10.0	= Total C	ovei	OBL species x 1 =
1				FACW species70 x 2 = _140
2.				FAC species <u>15</u> x 3 = <u>45</u>
3.				FACU species50 x 4 = _200
4.				UPL species x 5 =
5.				Column Totals: <u>135</u> (A) <u>385</u> (B)
6.				
7.				Prevalence Index = B/A = 2.85
50% of total cover: 20% of total cover:	0.0	= Total C	Cover	Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)				1 - Rapid Test for Hydrophytic Vegetation
1. Serenoa repens	40.0	yes	FACU	2 - Dominance Test is >50%
_{2.} Gaylussacia dumosa	5.0	no	FAC	✓ 3 - Prevalence Index is ≤3.0 ¹
3		-		Problematic Hydrophytic Vegetation ¹ (Explain)
4		-		¹ Indicators of hydric soil and wetland hydrology must
5				be present, unless disturbed or problematic.
6		-		
7		-		Definitions of Vegetation Strata:
50% of total cover: 22.50 20% of total cover: 9.00	45.0	= Total C	Cover	
Herb Stratum (30 ft radius)	40.0		E40	Tree – Woody plants, excluding woody vines,
1. Andropogon virginicus		yes	FAC	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast
2. Smilax auriculata	10.0	yes	<u>FACU</u>	height (DBH).
3				
4		•		Sapling – Woody plants, excluding woody vines,
5		•		approximately 20 ft (6 m) or more in height and less
6		•		than 3 in. (7.6 cm) DBH.
7				Shrub – Woody plants, excluding woody vines,
8				approximately 3 to 20 ft (1 to 6 m) in height.
9				
10				Herb – All herbaceous (non-woody) plants, including
11		•		herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
Woody Vine Stratum (_30 ft radius)	20.0	= Total C	Cover	approximately 3 ft (1 m) in height.
				Woody vine – All woody vines, regardless of height.
1				, and the second
2				
3		-		
4 5.				Hydrophytic
50% of total cover: 20% of total cover:	0.0	= Total C	`over	Vegetation Present? Yes No
Remarks: (If observed, list morphological adaptations be	NOW) *Dianta	not idone	lified to appo	sign are not used in dominance calculations

Indicators of hydrology and hydric soils were not observed although the prevalence index was less than 3.

Sampling Point: UDP-1

Profile Desc	ription: (Describe	to the depth	needed to docum	nent the i	ndicator o	r confirm	the absence of i	ndicators.)	
Depth	Matrix			x Features					
(inches)	Color (moist)	<u> </u>	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Remark	S
0-2"	10YR 6/1	100					Sa		
2-7"	10YR 4/2	100					Sa		
7-18"	10YR 6/2	100					Sa		
									_
	-								
	-								
'Type: C=Co	oncentration, D=Dep	letion, RM=R	Reduced Matrix, MS	S=Masked	Sand Gra	ins.		on: PL=Pore Lining Problematic Hydr	
-			Daharaha Da	la Ofa	(00) (1.1	D C T II		-	ic soils :
Histosol	(A1) pipedon (A2)		Polyvalue Be Thin Dark Su					(A9) (LRR O) (A10) (LRR S)	
Black His			Loamy Muck					/ertic (F18) (outsic	le MLRA 150A,B)
	n Sulfide (A4)		Loamy Gleye			,		Floodplain Soils (F	
Stratified	l Layers (A5)		Depleted Ma	rix (F3)			Anomalous	s Bright Loamy Soi	ls (F20)
_	Bodies (A6) (LRR P		Redox Dark	,	,		(MLRA 1		
	cky Mineral (A7) (LI		Depleted Dar Redox Depre		. ,			t Material (TF2)	-E12\
	esence (A8) (LRR U ck (A9) (LRR P, T)	')	Marl (F10) (L		5)		-	ow Dark Surface (1 blain in Remarks)	F12)
	Below Dark Surfac	e (A11)	Depleted Och		(MLRA 15	1)	Other (Exp	nain in Remarks)	
Thick Da	rk Surface (A12)		Iron-Mangan	ese Mass	es (F12) (I	RR O, P,	T) ³ Indicators	s of hydrophytic ve	getation and
	rairie Redox (A16) (I					U)	wetland	hydrology must be	e present,
	lucky Mineral (S1) (I	LRR O, S)	Delta Ochric			A 450D\	unles	s disturbed or prob	lematic.
	edox (S5)		Reduced Ver				9Δ)		
	Matrix (S6)						A 149A, 153C, 15	3D)	
Dark Sur	rface (S7) (LRR P, \$	S, T, U)							
Restrictive L	ayer (if observed)	•							
Туре:									,
Depth (inc							Hydric Soil Pre	sent? Yes	No
Remarks: *So	oil abbreviations: C	l=Clay; Lo=L	oam; Mu=Muck;	Pe- Peat;	Sa= San	d; Si=Silt			

Project/Site: Loncala Tract	City/County: Cha	rlton County	Sampling Date: <u>04/25/2018</u>
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: UDP-2
Investigator(s): C. Terrell / C. Stanford (TTL)	Section, Township,		
			Slope (%): <u>0-2%</u>
Subregion (LRR or MLRA): LRR T / MLRA 153A La	at: 30.58171900820	Long:82.11624372070	Datum: NAD83
Soil Map Unit Name: Leon fine sand, 0-2% slopes		NWI classific	
Are climatic / hydrologic conditions on the site typical for this	time of year? Yes N	lo <u>√</u> (If no, explain in R	emarks.)
Are Vegetation Yes , Soil Yes , or Hydrology Yes sig			oresent? Yes <u>√</u> No
Are Vegetation No , Soil No , or Hydrology No na			
SUMMARY OF FINDINGS – Attach site map s			
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	Is the Samp within a We		No
Remarks:			
 Site observations and local hydrological data Vegetation historically impacted by silvicultura Soils/Hydrology historically impacted by silvic 	al activities (planted pine	e).	
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indica	tors (minimum of two required)
Primary Indicators (minimum of one is required; check all the		Surface Soil	
	Fauna (B13)		getated Concave Surface (B8)
	oosits (B15) (LRR U) en Sulfide Odor (C1)	Drainage Pa	
<u> </u>	Rhizospheres along Living F	Moss Trim L	Water Table (C2)
\	e of Reduced Iron (C4)	Crayfish Bur	
· · · · —	ron Reduction in Tilled Soils		isible on Aerial Imagery (C9)
	ck Surface (C7)	Geomorphic	I
	Explain in Remarks)	Shallow Aqu	1
Inundation Visible on Aerial Imagery (B7)	,	✓ FAC-Neutral	
Water-Stained Leaves (B9)			noss (D8) (LRR T,U)
Field Observations:			
Surface Water Present? Yes No Dept			
	th (inches):		
Saturation Present? Yes No _▼ Dept (includes capillary fringe)	h (inches):	Wetland Hydrology Preser	it? Yes No
Describe Recorded Data (stream gauge, monitoring well, as	erial photos, previous inspect	ions), if available:	
Remarks: FAC-Neutral Test Results: Positive FAC	W and OBL: 4 to FACU	and UPL: 1	
1710			

EGETATION – Use scientific names of plants.				Sampling Point: UDP-2
	Absolute		Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>) 1. <i>Pinus elliottii</i>	% Cover 70.0	Species? yes	Status FACW	Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
2. Gordonia lasianthus	10.0	no	FACW	Total Number of Dominant Species Across All Strata: 5 (B)
3 4				Species Across All Strata: (B)
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)
6				Prevalence Index worksheet:
7				
50% of total cover: 40.00 20% of total cover: 16.00 Sapling Stratum (30 ft radius)	0.08	= Total Co	over	
1				FACW species x 2 =
2.				FAC species x 3 =
3.				FACU species x 4 =
4.				UPL species x 5 =
5.				Column Totals: (A) (B)
6.				
7.				Prevalence Index = B/A =
50% of total cover: 20% of total cover:	0.0	= Total Co	over	Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)				1 - Rapid Test for Hydrophytic Vegetation
_{1.} Ilex glabra	25.0	yes	<u>FACW</u>	✓ 2 - Dominance Test is >50%
2. Serenoa repens	15.0	yes	<u>FACU</u>	3 - Prevalence Index is ≤3.0 ¹
3				Problematic Hydrophytic Vegetation ¹ (Explain)
4				¹ Indicators of hydric soil and wetland hydrology must
5				be present, unless disturbed or problematic.
6				
7.				Definitions of Vegetation Strata:
50% of total cover: 20.00 20% of total cover: 8.00	40.0	= Total Co	over	
Herb Stratum (30 ft radius)				Tree – Woody plants, excluding woody vines,
1. Scleria triglomerata	10.0	yes	<u>FACW</u>	approximately 20 ft (6 m) or more in height and
2				3 in. (7.6 cm) or larger in diameter at breast
3				height (DBH).
4				Sapling – Woody plants, excluding woody vines,
5				approximately 20 ft (6 m) or more in height and less
6.				than 3 in. (7.6 cm) DBH.
7				
8.				Shrub – Woody plants, excluding woody vines,
9.				approximately 3 to 20 ft (1 to 6 m) in height.
10.				Horb All back assess (assessed a standard in challenge
11.				Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size AND
12.				woody plants, except woody vines, less than
50% of total cover: 5.00 20% of total cover: 2.00	10.0	= Total Co	over	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				
1. Vitis rotundifolia	10.0	yes	FAC	Woody vine – All woody vines, regardless of height.
2				
3.				
4.				
5.				Hydrophytic
50% of total cover: 5.00 20% of total cover: 2.00				Vegetation Present? Yes ✓ No ———
Remarks: (If observed, list morphological adaptations belo	w). *Plants	not idendi	fied to spec	ies are not used in dominance calculations.

	inpuloii. (Describe	to the dep	un needed to docu	ment the	indicator	or contirr	n the absence	of indicators.)	
Depth	Matrix			x Feature					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Remarks	
0-7.5"	10YR 8/1	50	10YR 3/1	50	MS_	M	Sa		
7.5-18"	10YR 6/2	70	10YR 5/3	30	MS	M	Sa		
	-					-			
				-					
		 		_					
	-		·-	_					
¹ Type: C=Co	oncentration, D=Dep	oletion, RM	=Reduced Matrix, M	S=Maske	d Sand Gra	ains.		cation: PL=Pore Lining, M=Matrix.	
Hydric Soil I	ndicators:						Indicators	for Problematic Hydric Soils ³ :	
Histosol	(A1)		Polyvalue B	elow Surfa	ace (S8) (L	RR S, T,	U) 1 cm N	luck (A9) (LRR O)	
	pipedon (A2)		Thin Dark S					luck (A10) (LRR S)	
Black Hi			Loamy Muck	-	. , .	(O)		ed Vertic (F18) (outside MLRA 15	-
	n Sulfide (A4)		Loamy Gley		(F2)			ont Floodplain Soils (F19) (LRR P,	S, T)
	l Layers (A5) Bodies (A6) (LRR F	D T 11\	Depleted Ma Redox Dark		F6)			lous Bright Loamy Soils (F20)	
	icky Mineral (A7) (L			,	,			arent Material (TF2)	
	esence (A8) (LRR l		Redox Depr					hallow Dark Surface (TF12)	
	ick (A9) (LRR P, T)		Marl (F10) (I	LRR U)			-	Explain in Remarks)	
	d Below Dark Surfac	ce (A11)	Depleted Oc						
	ark Surface (A12)	MI DA 450	Iron-Manga				indioc	ators of hydrophytic vegetation and	ı
	rairie Redox (A16) (lucky Mineral (S1) (A) Umbric Surfa Delta Ochric			, U)		and hydrology must be present,	
	ilicky Millerai (S1) (ileyed Matrix (S4)	LKK (), (3)	Reduced Ve			0A 150B		nless disturbed or problematic.	
	edox (S5)		Piedmont FI						
	Matrix (S6)		Anomalous					153D)	
								,	
	rface (S7) (LRR P,							, 	
	rface (S7) (LRR P, s _ayer (if observed)							,	
Restrictive I	_ayer (if observed)								/
Type: Depth (inc	_ayer (if observed)	:					Hydric Soil		<u>/</u>
Type: Depth (inc	_ayer (if observed)	:	=Loam; Mu=Muck;	Pe- Peat		d; Si=Silt	Hydric Soil		<u>/</u>
Type: Depth (inc	_ayer (if observed)	:	=Loam; Mu=Muck;	Pe- Peat		d; Si=Silt	Hydric Soil		<u>/</u>
Type: Depth (inc	_ayer (if observed)	:	=Loam; Mu=Muck;	Pe- Peat		d; Si=Silt	Hydric Soil		<u>/</u>
Type: Depth (inc	_ayer (if observed)	:	=Loam; Mu=Muck;	Pe- Peat		d; Si=Silf	Hydric Soil		<u>/</u>
Type: Depth (inc	_ayer (if observed)	:	=Loam; Mu=Muck;	Pe- Peat		d; Si=Sill	Hydric Soil		<u>/</u>
Type: Depth (inc	_ayer (if observed)	:	=Loam; Mu=Muck;	Pe- Peat		d; Si=Silf	Hydric Soil		<u>/</u>
Type: Depth (inc	_ayer (if observed)	:	=Loam; Mu=Muck;	Pe- Peat		d; Si=Silt	Hydric Soil		<u>/</u>
Type: Depth (inc	_ayer (if observed)	:	=Loam; Mu=Muck;	Pe- Peat		d; Si=Sill	Hydric Soil		<u>/</u>
Type: Depth (inc	_ayer (if observed)	:	=Loam; Mu=Muck;	Pe- Peat		d; Si=Silt	Hydric Soil		<u>/</u>
Type: Depth (inc	_ayer (if observed)	:	=Loam; Mu=Muck;	Pe- Peat		d; Si=Silt	Hydric Soil		<u>/</u>
Type: Depth (inc	_ayer (if observed)	:	=Loam; Mu=Muck;	Pe- Peat		d; Si=Silt	Hydric Soil		<u>/</u>
Type: Depth (inc	_ayer (if observed)	:	=Loam; Mu=Muck;	Pe- Peat		d; Si=Silf	Hydric Soil		<u>/</u>
Type: Depth (inc	_ayer (if observed)	:	=Loam; Mu=Muck;	Pe- Peat		d; Si=Silt	Hydric Soil		<u>/</u>
Type: Depth (inc	_ayer (if observed)	:	=Loam; Mu=Muck;	Pe- Peat		d; Si=Silt	Hydric Soil		<u>/</u>
Type: Depth (inc	_ayer (if observed)	:	=Loam; Mu=Muck;	Pe- Peat		d; Si=Silt	Hydric Soil		<u>/</u>
Type: Depth (inc	_ayer (if observed)	:	=Loam; Mu=Muck;	Pe- Peat		d; Si=Silt	Hydric Soil		<u>/</u>
Type: Depth (inc	_ayer (if observed)	:	=Loam; Mu=Muck;	Pe- Peat		d; Si=Silt	Hydric Soil		<u>/</u>
Type: Depth (inc	_ayer (if observed)	:	=Loam; Mu=Muck;	Pe- Peat		d; Si=Silt	Hydric Soil		
Type: Depth (inc	_ayer (if observed)	:	=Loam; Mu=Muck;	Pe- Peat		d; Si=Silt	Hydric Soil		<u>/</u>
Type: Depth (inc	_ayer (if observed)	:	=Loam; Mu=Muck;	Pe- Peat		d; Si=Silt	Hydric Soil		<u>/</u>
Type: Depth (inc	_ayer (if observed)	:	=Loam; Mu=Muck;	Pe- Peat		d; Si=Silt	Hydric Soil		

Project/Site: Loncala Tract	City/County: Charlto	on County	Sampling Date: 04/25/2018		
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: UDP-3		
Investigator(s): C. Terrell / C. Stanford (TTL)	Section, Township, Ra				
	Local relief (concave, o		Slope (%): 0-2%		
Subregion (LRR or MLRA): LRR T / MLRA 153A La					
Soil Map Unit Name: Leon fine sand, 0-2% slopes			ation: Upland		
Are climatic / hydrologic conditions on the site typical for this	time of year? Ves No				
Are Vegetation Yes , Soil Yes , or Hydrology Yes si					
Are Vegetation No , Soil No , or Hydrology No na	grimcarity disturbed: Are	and a cyclein any angular	ra in Domarka		
SUMMARY OF FINDINGS – Attach site map s					
		.ooa.ioiio, ii aiioooto	,portant routaros, etc.		
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No	Is the Sample	d Area			
Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No	within a Wetla	nd? Yes	No <u> </u>		
Remarks:					
- Site observations and local hydrological data support abr	normally dry conditions present d	uring site visit.			
Vegetation historically impacted by silvicultural activities		-	ons, which resulted in a high		
mortality of canopy species.					
-Soils/Hydrology historically impacted by silvicultural activi	ies (hipping/benching for planted	d pine).			
HYDROLOGY					
Wetland Hydrology Indicators:		Secondary Indica	tors (minimum of two required)		
Primary Indicators (minimum of one is required; check all the	nat apply)	Surface Soil	Cracks (B6)		
	Fauna (B13)	Sparsely Veg	Sparsely Vegetated Concave Surface (B8)		
	posits (B15) (LRR U)	Drainage Pat			
<u> </u>	en Sulfide Odor (C1)	Moss Trim Li			
<u> </u>	d Rhizospheres along Living Roo ee of Reduced Iron (C4)	_ ′	Water Table (C2)		
<u> </u>	Iron Reduction in Tilled Soils (C6	Crayfish Burr	sible on Aerial Imagery (C9)		
_ , , , ,	ck Surface (C7)	Geomorphic			
	Explain in Remarks)	Shallow Aqui	· ·		
Inundation Visible on Aerial Imagery (B7)		✓ FAC-Neutral	Test (D5)		
Water-Stained Leaves (B9)		Sphagnum m	noss (D8) (LRR T,U)		
Field Observations:					
Surface Water Present? Yes No _▼ Dep	th (inches):				
Water Table Present? Yes ✓ No Dep			√		
Saturation Present? Yes No Dep (includes capillary fringe)	th (inches): We	etland Hydrology Presen	t? Yes No		
Describe Recorded Data (stream gauge, monitoring well, a	erial photos, previous inspections	s), if available:			
Remarks: FAC-Neutral Test Results: Positive FAC	W and OBL: 4 to FACU and	IUPL: 3			

EGETATION – Use scientific names of plants				Sampling Point: UDP-3
70 ft radius	Absolute	Dominant		Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>) 1. <u>Pinus elliottii</u>	40.0	Species? yes	FACW	Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
2				Total Number of Dominant Species Across All Strata: 6 (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)
6				
7				Prevalence Index worksheet:
50% of total cover: 20.00 20% of total cover: 8.00 Sapling Stratum (30 ft radius)	40.0	= Total Co	over	
1				FACW species x 2 =
2				FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5				Column Totals: (A) (B)
6				Dravalance Index D/A
7				Prevalence Index = B/A =
50% of total cover: 20% of total cover:	0.0	= Total Co	over	1 - Rapid Test for Hydrophytic Vegetation
Shrub Stratum (30 ft radius)	00.0	1/00	EA (C) A /	✓ 2 - Dominance Test is >50%
1. Ilex glabra			FACW	3 - Prevalence Index is ≤3.0 ¹
_{2.} <u>Serenoa repens</u> _{3.} Vaccineum arboreum		yes	FACU	— Problematic Hydrophytic Vegetation ¹ (Explain)
			<u>FACU</u>	
4 5				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6				
7				Definitions of Vegetation Strata:
50% of total cover: 27.50 20% of total cover: 11.00	55.0	= Total Co	over	
Herb Stratum (30 ft radius)				Tree – Woody plants, excluding woody vines,
1. Dichanthelium acuminatum	20.0	yes	<u>FAC</u>	approximately 20 ft (6 m) or more in height and
2. Smilax aciculare	10.0	yes	<u>FACU</u>	3 in. (7.6 cm) or larger in diameter at breast height (DBH).
3. Scleria triglomerata	5.0	no	<u>FACW</u>	Height (DDH).
4. Woodwardia virginica	5.0	no	OBL	Sapling – Woody plants, excluding woody vines,
5				approximately 20 ft (6 m) or more in height and less
6				than 3 in. (7.6 cm) DBH.
7				Ohmit in a second
8				Shrub – Woody plants, excluding woody vines,
9				approximately 3 to 20 ft (1 to 6 m) in height.
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
50% of total cover: 20.00 20% of total cover: 8.00	40.0	= Total Co	over	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				Mandania and a second
1. Vitis rotundifolia				Woody vine – All woody vines, regardless of height.
2				
3				
4				Hydrophytic
5				Vegetation
50% of total cover: 5.00 20% of total cover: 2.00				Present? Yes V No No
Remarks: (If observed, list morphological adaptations bel	ow). *Plants	not idendi	fied to spec	ies are not used in dominance calculations.

Profile Desc	ription: (Describe	to the depth	needed to docum	ent the i	ndicator o	r confirm	the absence of inc	dicators.)	
Depth	Matrix			Features	3				
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	<u> </u>
0-4"	10YR 5/1	100					Sa		
4-10"	10YR 6/1	100					Sa		
10-16"	10YR 5/2	100					Sa		
16-18"	10YR 2/1	100	_				Sa		_
		· -							
		· — — –							
	oncentration, D=Dep	letion, RM=R	Reduced Matrix, MS	=Masked	Sand Gra	ins.		 PL=Pore Lining roblematic Hydri 	
Hydric Soil I			Dalamaka Dal	Cf-	(00) (1.1	DD C T II		-	C Solls :
Histosol	(A1) pipedon (A2)		Polyvalue Bel Thin Dark Sur					A9) (LRR 0) A10) (LRR S)	
Black Hi			Loamy Mucky					rtic (F18) (outside	e MLRA 150A,B)
	n Sulfide (A4)		Loamy Gleye			,		oodplain Soils (F1	
Stratified	l Layers (A5)		Depleted Mat	ix (F3)			Anomalous	Bright Loamy Soils	s (F20)
_	Bodies (A6) (LRR P		Redox Dark S	,	,		(MLRA 15		
	icky Mineral (A7) (LF		Depleted Darl		, ,			Material (TF2)	T40)
	esence (A8) (LRR U ick (A9) (LRR P, T))	Redox Depres Marl (F10) (LI	•	3)		•	v Dark Surface (T	F12)
	Below Dark Surfac	e (A11)	Depleted Och	•	(MLRA 15	1)	Other (Expire	ain in Remarks)	
	ark Surface (A12)	,	Iron-Mangan				T) ³ Indicators	of hydrophytic veg	etation and
	rairie Redox (A16) (N					U)		nydrology must be	
	lucky Mineral (S1) (L	RR O, S)	Delta Ochric (A 450D)		disturbed or probl	ematic.
	edox (S5)		Reduced Vert Piedmont Floor						
	Matrix (S6)						A 149A, 153C, 153I	0)	
	rface (S7) (LRR P, S	s, T, U)		9	, (- / (, , , , , ,	,	
Restrictive I	_ayer (if observed):								
Type:			<u></u>						,
Depth (inc	ches):						Hydric Soil Pres	ent? Yes	No
Remarks: *S	oil abbreviations: Cl	=Clay; Lo=L	oam; Mu=Muck;	Pe- Peat;	Sa= San	d; Si=Silt	•		

Project/Site: Loncala Tract	City/County: Cha	rlton County	Sampling Date: <u>04/25/2018</u>
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: UDP-4
Investigator(s): C. Terrell / C. Stanford (TTL)	Section, Township,	Range: Not Available	
			Slope (%): <u>0-2%</u>
Subregion (LRR or MLRA): LRR T / MLRA 153A	at: 30.58455125570	Long:82.12735964530	Datum: NAD83
Soil Map Unit Name: Leon fine sand, 0-2% slopes		NWI classific	
Are climatic / hydrologic conditions on the site typical for this	time of year? Yes N	lo <u>√</u> (If no, explain in R	emarks.)
Are Vegetation Yes , Soil Yes , or Hydrology Yes si			oresent? Yes <u>√</u> No
Are Vegetation No , Soil No , or Hydrology No na		If needed, explain any answe	
SUMMARY OF FINDINGS – Attach site map s			
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No	Is the Samp		No √
Wetland Hydrology Present? Yes No	within a We	etiand? Yes	NO <u>¥</u>
Remarks:			
 Site observations and local hydrological data Vegetation historically impacted by silviculture Soils/Hydrology historically impacted by silvice 	al activities (hipped/bend	ched planted pine).	
HYDROLOGY			
Wetland Hydrology Indicators:			tors (minimum of two required)
Primary Indicators (minimum of one is required; check all the		Surface Soil	
_ ` '	Fauna (B13) eposits (B15) (LRR U)	Sparsely Veg Drainage Pat	getated Concave Surface (B8)
	en Sulfide Odor (C1)	Moss Trim Li	
_ ` ,	d Rhizospheres along Living F		Water Table (C2)
, , ,	ce of Reduced Iron (C4)	Crayfish Buri	
	Iron Reduction in Tilled Soils	(C6) Saturation Vi	sible on Aerial Imagery (C9)
	uck Surface (C7)	Geomorphic	1
	Explain in Remarks)	Shallow Aqui	
Inundation Visible on Aerial Imagery (B7)		FAC-Neutral	` '
Water-Stained Leaves (B9)		Spnagnum m	noss (D8) (LRR T,U)
Field Observations:	41.77		
	oth (inches):		
	oth (inches):oth (inches):	Wetland Hydrology Presen	t? Yes No ✓
Saturation Present? Yes No _ V Dep (includes capillary fringe)	tii (iiiches).	Wetland Hydrology Fresen	t: res No
Describe Recorded Data (stream gauge, monitoring well, a	erial photos, previous inspect	ions), if available:	
Remarks: FAC-Neutral Test Results: Negative FAC	W and OBL: 4 to FACU	and UPL: 4	

EGETATION – Use scientific names of plants.				Sampling Point: UDP-4
Tree Stratum (Plot sizes: 30 ft radius) 1. Pinus elliottii	Absolute % Cover 50.0	Dominant Species? yes		Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
2. Quercus pumila 3	5.0	no	<u>UPL</u>	Total Number of Dominant Species Across All Strata: 6 (B)
4.				Percent of Dominant Species
5 6				That Are OBL, FACW, or FAC:50% (A/B)
7				Prevalence Index worksheet:
50% of total cover: 40.00 20% of total cover: 16.00 Sapling Stratum (30 ft radius)	55.0	= Total Co	over	
1				FACW species <u>45</u> x 2 = <u>90</u>
2				FAC species <u>20</u> x 3 = <u>60</u>
3				FACU species <u>35</u> x 4 = <u>140</u>
4.				UPL species <u>5</u> x 5 = <u>25</u>
5.				Column Totals: <u>105</u> (A) <u>315</u> (B)
6 7.				Prevalence Index = B/A =3.0
50% of total cover: 20% of total cover: Shrub Stratum (30 ft radius)	0.0	= Total Co	ver	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation
1. Ilex coriacea	30.0	yes	FACW	2 - Dominance Test is >50%
2. Serenoa repens	15.0	yes	FACU	3 - Prevalence Index is ≤3.0 ¹
3. Cyrilla racemiflora	10.0	no	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
· · · · · · · · · · · · · · · · · · ·	-		IACVV	¹ Indicators of hydric soil and wetland hydrology must
4 5				be present, unless disturbed or problematic.
6				Definitions of Versetzian Chrotes
7				Definitions of Vegetation Strata:
50% of total cover: 27.50 20% of total cover: 11.00 Herb Stratum (30 ft radius)	55.0	= Total Co	over	Trocky
1. Dichanthelium acuminatum	20.0	yes	FAC	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and
2. Smilax aciculare	10.0	yes	FACU	3 in. (7.6 cm) or larger in diameter at breast
3. Pteridium aquilinum	10.0	yes	FACU	height (DBH).
Syngonanthus flavidulus	5.0	no	FACW	Sapling – Woody plants, excluding woody vines,
5 6				approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
7				Shrub – Woody plants, excluding woody vines,
8				approximately 3 to 20 ft (1 to 6 m) in height.
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12	45.0	= Total Co	ver	woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				Woody vine – All woody vines, regardless of height.
1 2				Total Control of the
3				
4				Hydrophytic
5 50% of total cover: 20% of total cover:	0.0	= Total Co	over	Vegetation Present? Yes No
Remarks: (If observed, list morphological adaptations belo				

Indicators of hydrology and hydric soils are not present.

Profile Desc	ription: (Describe	to the dept	th needed to docu	ment the	indicator	or confirr	n the absence of ir	ndicators.)	
Depth	Matrix			ox Feature					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	
0-7"	10YR 8/1	45	10YR 3/1	55	MS	M	Sa		
7-18"	10YR 5/2	100					Sa		
7 10	101111072			_					
	-								
				_					
	-			_	· -				
				_			-		
	-								
¹ Type: C=Co	oncentration, D=De	pletion, RM=	Reduced Matrix, M	IS=Maske	d Sand Gr	ains.	² Locatio	on: PL=Pore Lining,	M=Matrix.
Hydric Soil I	ndicators:						Indicators for	Problematic Hydric	Soils ³ :
Histosol	(A1)		Polyvalue B	elow Surfa	ice (S8) (L	RR S, T,	U) 1 cm Muck	(A9) (LRR O)	
	pipedon (A2)		Thin Dark S					(A10) (LRR S)	
Black Hi			Loamy Muc					/ertic (F18) (outside	MLRA 150A,B)
	n Sulfide (A4)		Loamy Gley					Floodplain Soils (F19	-
Stratified	Layers (A5)		Depleted Ma				Anomalous	Bright Loamy Soils	(F20)
Organic	Bodies (A6) (LRR I	P, T, U)	Redox Dark	Surface (I	- 6)		(MLRA 1	53B)	
5 cm Mu	icky Mineral (A7) (L	.RR P, T, U)	Depleted Da	ark Surface	e (F7)		Red Paren	t Material (TF2)	
Muck Pr	esence (A8) (LRR	U)	Redox Depr	essions (F	(8)		Very Shallo	ow Dark Surface (TF	12)
	ick (A9) (LRR P, T)		Marl (F10) (Other (Exp	olain in Remarks)	
	d Below Dark Surfa	ce (A11)	Depleted Or						
	ark Surface (A12)		Iron-Manga				P, T) ³ Indicators	s of hydrophytic vege	tation and
	rairie Redox (A16) (, U)		hydrology must be p	
	lucky Mineral (S1)	(LRR O, S)	Delta Ochrid					s disturbed or proble	matic.
	lleyed Matrix (S4)		Reduced Ve						
	edox (S5)		Piedmont Fl					20)	
	Matrix (S6)	C T II)	Anomaious	Bright Loa	my Solis (F20) (WILF	RA 149A, 153C, 153	3D)	
	rface (S7) (LRR P, _ayer (if observed)						-		
Type:									1
Depth (inc							Hydric Soil Pres	sent? Yes	No
Remarks: *S	oil abbreviations: C	CI=Clay; Lo=	Loam; Mu=Muck;	Pe- Peat	; Sa= Sar	ıd; Si=Silt	t		

Project/Site: Loncala Tract	City/County: Char	Iton County	Sampling Date: <u>04/25/2018</u>
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: UDP-5
Investigator(s): C. Terrell / C. Stanford (TTL)	Section, Township,		
			Slope (%): 0-2%
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat:	30.58202238470	Long: -82.13927810580	Datum: NAD83
Soil Map Unit Name: Leon fine sand, 0-2% slopes		NWI classific	
Are climatic / hydrologic conditions on the site typical for this til			
Are Vegetation Yes , Soil Yes , or Hydrology Yes sign			oresent? Yes <u>√</u> No
Are Vegetation No , Soil No , or Hydrology No natu		f needed, explain any answe	
SUMMARY OF FINDINGS – Attach site map sh			
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No No	Is the Samp		,
Hydric Soil Present? Yes No _ Wetland Hydrology Present? Yes No _	within a We	tland? Yes	No
Remarks:			
 Site observations and local hydrological data s Vegetation historically impacted by silvicultural Soils/Hydrology historically impacted by silvicu 	activities (hipped/bend	ched planted pine).	
HYDROLOGY			
Wetland Hydrology Indicators:			tors (minimum of two required)
Primary Indicators (minimum of one is required; check all tha		Surface Soil	
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	auna (B13) osits (B15) (LRR U)	Sparsely Veo	getated Concave Surface (B8)
	Sulfide Odor (C1)	Moss Trim Li	
_ ` '	Rhizospheres along Living R		Water Table (C2)
	of Reduced Iron (C4)	Crayfish Bur	
	on Reduction in Tilled Soils (C6) Saturation V	sible on Aerial Imagery (C9)
	Surface (C7)	Geomorphic	I
	plain in Remarks)	Shallow Aqu	
Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9)		✓ FAC-Neutral	Test (D5) noss (D8) (LRR T,U)
Field Observations:		Spriagrium ii	1035 (DO) (ENT 1,0)
Surface Water Present? Yes No Depth	(inches):		
	(inches): 14.5		
		Wetland Hydrology Presen	t? Yes No
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aer	ial photos, previous inspecti	ons), if available:	
Remarks: FAC-Neutral Test Results: Positive FACW	and OBL: 4 to FACU a	and UPL: 2	

EGETATION – Use scientific names of plants	S.			Sampling Point: UDP-5
Tree Stratum (Plot sizes: 30 ft radius) 1.	Absolute % Cover			Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC:3 (A)
2				Total Number of Dominant Species Across All Strata:5 (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)
6 7				Prevalence Index worksheet:
50% of total cover: 20% of total cover: Sapling Stratum (30 ft radius) 1				OBL species x 1 = FACW species x 2 =
2				FAC species x 3 = FACU species x 4 = UPL species x 5 =
4 5 6				Column Totals: (A) (B)
7				Prevalence Index = B/A =
50% of total cover: 20% of total cover: Shrub Stratum (30 ft radius)	0.0	= Total Co	over	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation
_{1.} Ilex glabra	20.0	yes	<u>FACW</u>	✓ 2 - Dominance Test is >50%
_{2.} <u>Serenoa repens</u> 3		yes	<u>FACU</u>	3 - Prevalence Index is ≤3.0 ¹ Problematic Hydrophytic Vegetation ¹ (Explain)
4 5				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6 7				Definitions of Vegetation Strata:
50% of total cover: 12.50 20% of total cover: 5.00 Herb Stratum (30 ft radius)	25.0			Tree – Woody plants, excluding woody vines,
_{1.} Kyllinga pumila _{2.} Dichanthelium acuminatum		yes	FACW	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast
2. <u>Dichanthelidin acuminatum</u> 3. Pteridium aquilinum	<u>10.0</u> 	yes yes	FACU	height (DBH).
4. Andropogon virginicus	5.0	no	FAC	Continue we have a second
5. Scleria triglomerata	5.0	no	FACW	Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less
_{6.} <u>Woodwardia virginica</u>	5.0	no	OBL	than 3 in. (7.6 cm) DBH.
7				Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
10 11				Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size AND
12	55.0	= Total Co	over	woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
1 2				Woody vine – All woody vines, regardless of height.
34				Hydrophytic
5 50% of total cover: 20% of total cover:	0.0	= Total Co	over	Vegetation Present? Yes No

Profile Desc	ription: (Describe	to the dep	th needed to docu	ment the	indicator	or confire	m the absence o	of indicators.)	
Depth	Depth Matrix Redox Features								
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remar	ks
0-9.5"	10YR 6/1	30	10YR 4/1	70	MS	М	Sa		
9.5-18"	10YR 6/1	10	10YR 4/1	90	MS	М	Sa		_
	-					-	·		
				_					
-	-		-		-		·		
1							2.		
		oletion, RM=	Reduced Matrix, M	IS=Maske	d Sand Gr	ains.		ation: PL=Pore Linin	
Hydric Soil I								or Problematic Hyd	ric Solis :
Histosol			Polyvalue B					uck (A9) (LRR O)	
	pipedon (A2)		Thin Dark S					uck (A10) (LRR S)	do MI DA 150A D)
Black His			Loamy Mucl Loamy Gley			(0)		d Vertic (F18) (outsi nt Floodplain Soils (F	
	n Sulfide (A4) I Layers (A5)		Depleted Ma		(Г2)			ous Bright Loamy So	, ,
	Bodies (A6) (LRR F	T 11)	Redox Dark		F6)			A 153B)	iiis (F20)
-	cky Mineral (A7) (L				,			rent Material (TF2)	
	esence (A8) (LRR l		Redox Depr					allow Dark Surface (TF12)
· 	ck (A9) (LRR P, T)	,	Marl (F10) (-,		•	Explain in Remarks)	,
	Below Dark Surfac	e (A11)	Depleted Oc		(MLRA 1	51)	00. (2	-xpiair iii rtomantoj	
Thick Da	ark Surface (A12)		Iron-Manga	nese Mas	ses (F12)	(LRR O, F	P, T) ³ Indicat	ors of hydrophytic ve	egetation and
	rairie Redox (A16) (A) Umbric Surf	ace (F13)	(LRR P, T	', U)		and hydrology must b	_
	lucky Mineral (S1) (LRR O, S)	Delta Ochric				unl	less disturbed or pro	
	leyed Matrix (S4)		Reduced Ve						
	edox (S5)		Piedmont FI						
	Matrix (S6)		Anomalous	Bright Loa	my Soils (F20) (ML F	RA 149A, 153C,	153D)	
	face (S7) (LRR P,						1		
	ayer (if observed)								
Type:									🗸
Depth (inc	, -						Hydric Soil F	Present? Yes	No
Remarks: *Se	oil abbreviations: C	l=Clay; Lo:	=Loam; Mu=Muck;	Pe- Peat	; Sa= Sar	nd; Si=Silf	t		

Project/Site: Loncala Tract	City/County: Cha	rlton County	Sampling Date: <u>04/26/2018</u>
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: UDP-6
• •	Section, Township,		
Landform (hillslope, terrace, etc.): Flatwoods	Local relief (concav	ve, convex, none): None	Slope (%): 0-2%
Subregion (LRR or MLRA): LRR T / MLRA 153A	_ Lat: _30.56834107180	Long: -82.13549675250	Datum: NAD83
Soil Map Unit Name: Leon fine sand, 0-2% slopes		NWI classific	
Are climatic / hydrologic conditions on the site typical for t	this time of year? Yes N	lo <u>√</u> (If no, explain in R	emarks.)
Are Vegetation Yes , Soil Yes , or Hydrology Yes		Are "Normal Circumstances" p	
Are Vegetation No , Soil No , or Hydrology No			
SUMMARY OF FINDINGS - Attach site ma			
Hydrophytic Vegetation Present? Yes✓	No		
Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes	No Is the Samp		
Wetland Hydrology Present? Yes ✓	No within a We	etland? Yes	No
Remarks:			
Site observations and local hydrological data support Vegetation historically impacted by silvicultural activitic conditions resulting in high mortality of canopy species.	es (hipped/benched planted pine	_	rest fire during drought
- Soils/Hydrology historically impacted by silvicultural a	ctivities (hipping/benching for pla	nted pine).	
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indica	tors (minimum of two required)
Primary Indicators (minimum of one is required; check a	Il that apply)	Surface Soil	
	atic Fauna (B13)		getated Concave Surface (B8)
	Deposits (B15) (LRR U)	Drainage Pa	I
<u> </u>	ogen Sulfide Odor (C1)	Moss Trim Li	
_ ` '	ized Rhizospheres along Living F ence of Reduced Iron (C4)	· · · · · · · · · · · · · · · · · · ·	Water Table (C2)
, _	ent Iron Reduction in Tilled Soils	✓ Crayfish Bur	sible on Aerial Imagery (C9)
<u> </u>	Muck Surface (C7)	-	Position (D2)
<u> </u>	er (Explain in Remarks)	Shallow Aqui	I
Inundation Visible on Aerial Imagery (B7)	(=	✓ FAC-Neutral	
Water-Stained Leaves (B9)			noss (D8) (LRR T,U)
Field Observations:			
Surface Water Present? Yes No C			
Water Table Present? Yes ✓ No D	Depth (inches): 12.5		/
Saturation Present? Yes No C (includes capillary fringe)	Depth (inches):	Wetland Hydrology Presen	t? Yes No
Describe Recorded Data (stream gauge, monitoring well	l, aerial photos, previous inspect	ions), if available:	
Remarks: FAC-Neutral Test Results: Positive F	ACW and OBL: 6 to FACU	and UPL: 2	
Remarks. FAC-Neutral Test Results. 1 ositive	ACW and OBL. 0 10 1 ACC	and OFL. 2	

EGETATION – Use scientific names of plants	S.			Sampling Point: UDP-6
70 ft madition	Absolute	Dominant		Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>) 1. <u>Pinus elliottii</u>	<u>% Cover</u> 10.0	Species? yes	<u>Status</u> <u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)
2				Total Number of Dominant Species Across All Strata:11(B)
4. 5.				Percent of Dominant Species That Are OBL, FACW, or FAC: 82% (A/B)
6				Drawalana Inday werkahaati
7				Prevalence Index worksheet:
50% of total cover: 5.00 20% of total cover: 2.00 Sapling Stratum (30 ft radius)	10.0	= Total Co	over	Total % Cover of: Multiply by: OBL species x 1 =
1. Gordonia lasianthus	10.0	yes	<u>FACW</u>	FACW species x 2 =
2. Acer rubrum	5.0	yes	FAC	FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5				Column Totals: (A) (B)
6				Prevalence Index = B/A =
7 50% of total cover: 7.50	15.0	= Total Co		Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)	10.0	- Total Oc	7701	1 - Rapid Test for Hydrophytic Vegetation
1. Serenoa repens	20.0	yes	<u>FACU</u>	✓ 2 - Dominance Test is >50%
2. Ilex coriacea	10.0	yes	FACW	3 - Prevalence Index is ≤3.0 ¹
3. Ilex glabra	10.0	yes	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
4				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5				be present, amose distarbed of presistinguis.
6				D 5 '''
7				Definitions of Vegetation Strata:
50% of total cover: 20.00 20% of total cover: 8.00 Herb Stratum (_30 ft radius)	40.0	= Total Co	over	Troo Meady plants avaluating was divisions
1. Dichanthelium acuminatum	30.0	VAS	FAC	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and
2. Scleria triglomerata		yes		3 in. (7.6 cm) or larger in diameter at breast
3. Pteridium aquilinum	10.0	yes	FACU	height (DBH).
Woodwardia virginica	10.0	yes	FACU ORL	
	10.0	yes	<u>OBL</u>	Sapling – Woody plants, excluding woody vines,
5		-		approximately 20 ft (6 m) or more in height and less
6				than 3 in. (7.6 cm) DBH.
7				Shrub – Woody plants, excluding woody vines,
8				approximately 3 to 20 ft (1 to 6 m) in height.
9				
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12.		-		woody plants, except woody vines, less than
50% of total cover: 30.00 20% of total cover: 12.00 Woody Vine Stratum (30 ft radius)	60.0	= Total Co	over	approximately 3 ft (1 m) in height.
1. Vitis rotundifolia	10.0	ves	FΔC	Woody vine – All woody vines, regardless of height.
· · ·				The say this thin is a second of the say the s
2				
3				
4		-		Hydrophytic
5 20% of total cover: 2.00 20% of total cover: 2.00	40.0			Vegetation Present? Yes No
Remarks: (If observed, list morphological adaptations be	elow). *Plants	not idendit	fied to spec	ies are not used in dominance calculations.

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Depth	e Description: (Describe to the depth needed to document the indicator or confirm Matrix Redox Features						,	
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-18"	10YR 8/1	10	10YR 2/1	90	MS	M	Sa	
						-		
					-			
							<u> </u>	
			-		-			
- 00							2,	
	oncentration, D=De Indicators:	epletion, RIV	=Reduced Matrix, I	VIS=Maske	d Sand Gr	ains.		ation: PL=Pore Lining, M=Matrix. for Problematic Hydric Soils ³ :
•					(00) (•
Histosol			Polyvalue I					uck (A9) (LRR O)
	pipedon (A2)		Thin Dark S					uck (A10) (LRR S)
	istic (A3)		Loamy Mu			(0)		d Vertic (F18) (outside MLRA 150A,I
	en Sulfide (A4) d Layers (A5)		Loamy Gle	-	(Г2)		· · · · · · · · · · · · · · · · · · ·	nt Floodplain Soils (F19) (LRR P, S, 1 ous Bright Loamy Soils (F20)
	: Bodies (A6) (LRR	D T II\	Depleted M Redox Dar		F6)			A 153B)
_	ucky Mineral (A7) (I							rent Material (TF2)
	resence (A8) (LRR		Redox Dep		. ,			allow Dark Surface (TF12)
	uck (A9) (LRR P, T)		Marl (F10)		٥,		-	Explain in Remarks)
	d Below Dark Surfa	•	Depleted C		(MLRA 1	51)	Other (E	-xpiaii iii remarks)
	ark Surface (A12)	, ,		anese Mas			P, T) 3 _{Indicat}	tors of hydrophytic vegetation and
Coast P	Prairie Redox (A16)	(MLRA 150	A) Umbric Sui	face (F13)	(LRR P, T	', U)		and hydrology must be present,
Sandy N	Mucky Mineral (S1)	(LRR O, S)	Delta Ochr	ic (F17) (M I	LRA 151)			less disturbed or problematic.
Sandy 0	Gleyed Matrix (S4)		Reduced V	ertic (F18)	(MLRA 15	0A, 150B)	
Sandy F	Redox (S5)		Piedmont F	Floodplain S	Soils (F19)	(MLRA 1	49A)	
	d Matrix (S6)		Anomalous	Bright Loa	my Soils (F20) (MLF	RA 149A, 153C,	153D)
	ırface (S7) (LRR P,							
Restrictive	Layer (if observed	d):						
Type:								/
Depth (in	ches):						Hydric Soil F	Present? Yes No
Remarks: *S	Soil abbreviations: (Cl=Clay; Lo	=Loam; Mu=Muck	; Pe-Peat	; Sa= Sar	nd; Si=Silt	l	

Project/Site: Loncala Tract	City/County: Char	Iton County	Sampling Date: <u>04/26/2018</u>
Applicant/Owner: Twin Pines Minerals, LLC	State: GA	Sampling Point: UDP-7	
Investigator(s): C. Terrell / C. Stanford (TTL)	Section, Township,		
Landform (hillslope, terrace, etc.): Hillslope	Local relief (concav	e, convex, none): None	Slope (%): 0-2%
Subregion (LRR or MLRA): LRR T / MLRA 153A	_Lat: 30.56746105640	Long: -82.12243101840	Datum: NAD83
Soil Map Unit Name: Leon fine sand, 0-2% slopes		NWI classific	
Are climatic / hydrologic conditions on the site typical for t	his time of year? Yes No	o <u>√</u> (If no, explain in R	emarks.)
Are Vegetation Yes , Soil Yes , or Hydrology Yes	_ significantly disturbed? A	re "Normal Circumstances" p	resent? Yes <u>√</u> No
Are Vegetation No , Soil No , or Hydrology No			
SUMMARY OF FINDINGS - Attach site ma			
Hydrophytic Vegetation Present? Yes <u>√</u>	No Lui o		
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes Yes	No		No √
Wetland Hydrology Present? Yes	No <u>√</u> within a We	tiand? Yes	NO <u>¥</u>
Remarks:			
Site observations and local hydrological data support Vegetation historically impacted by silvicultural activiti Soils/Hydrology historically impacted by silvicultural activities.	es (hipped/benched planted pine)	and recently impacted by cle	ear-cutting activities.
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indica	tors (minimum of two required)
Primary Indicators (minimum of one is required; check a	II that apply)	Surface Soil	
	atic Fauna (B13)		getated Concave Surface (B8)
<u> </u>	Deposits (B15) (LRR U)	Drainage Pat	
	ogen Sulfide Odor (C1) ized Rhizospheres along Living R	Moss Trim Li	1 1
\	ence of Reduced Iron (C4)	Crayfish Burr	Water Table (C2)
, ,	ent Iron Reduction in Tilled Soils (sible on Aerial Imagery (C9)
<u> </u>	Muck Surface (C7)	Geomorphic	= : : :
	er (Explain in Remarks)	Shallow Aqui	
Inundation Visible on Aerial Imagery (B7)		FAC-Neutral	Test (D5)
Water-Stained Leaves (B9)		Sphagnum m	noss (D8) (LRR T,U)
Field Observations:			
Surface Water Present? Yes No C			
	epth (inches): 24"		./
Saturation Present? Yes No _▼ _ C (includes capillary fringe)	Depth (inches):	Wetland Hydrology Presen	t? Yes No
Describe Recorded Data (stream gauge, monitoring wel	l, aerial photos, previous inspecti	ons), if available:	
	1011 1011 0 1 51011		
Remarks: FAC-Neutral Test Results: Negative F.	ACW and OBL: 2 to FACU a	ind UPL: 2	

EGETATION – Use scientific names of plants	S.			Sampling Point: UDP-7
Tree Stratum (Plot sizes: 30 ft radius) 1.	Absolute % Cover	Species'		Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
2				Total Number of Dominant Species Across All Strata: 4 (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC:
6 7.				Prevalence Index worksheet:
50% of total cover: 20% of total cover: Sapling Stratum (30 ft radius)	0.0	= Total C	over	Total % Cover of: Multiply by: OBL species x 1 =
1				FACW species x 2 =
2				FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5				Column Totals: (A) (B)
6				Prevalence Index = B/A =
7 50% of total cover: 20% of total cover:			. ———	Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)	0.0	= Total C	over	1 - Rapid Test for Hydrophytic Vegetation
llov globro	20.0	ves	FACW	✓ 2 - Dominance Test is >50%
2. Serenoa repens			FACU	3 - Prevalence Index is ≤3.0 ¹
3				Problematic Hydrophytic Vegetation ¹ (Explain)
4				¹ Indicators of hydric soil and wetland hydrology must
5				be present, unless disturbed or problematic.
6				
7.		-		Definitions of Vegetation Strata:
50% of total cover: 15.00 20% of total cover: 6.00	30.0	= Total C	over	
Herb Stratum (30 ft radius)				Tree – Woody plants, excluding woody vines,
1. Dichanthelium acuminatum	50.0	yes	FAC	approximately 20 ft (6 m) or more in height and
2. Scleria triglomerata	5.0	no	<u>FACW</u>	3 in. (7.6 cm) or larger in diameter at breast
3. Smilax auriculata	5.0	no	FACU	height (DBH).
4				Sapling – Woody plants, excluding woody vines,
5	<u> </u>			approximately 20 ft (6 m) or more in height and less
6	<u> </u>			than 3 in. (7.6 cm) DBH.
7				Ohm b w w w w w w w w w w w w w w w w w w
8				Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
9				approximately 3 to 20 it (1 to 6 iii) iii neight.
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12			·	woody plants, except woody vines, less than
50% of total cover: 30.00 20% of total cover: 12.00 Woody Vine Stratum (30 ft radius)	60.0	= Total C	over	approximately 3 ft (1 m) in height.
	5 0	VAS	EAC	Woody vine – All woody vines, regardless of height.
·· 				vvoody vine – All woody vines, regulaless of height.
2				
3				
4			·	Hydrophytic
5 50% of total cover: 2.50				Vegetation Present? Yes No
Remarks: (If observed, list morphological adaptations be	elow). *Plants	not idend	ified to spec	ies are not used in dominance calculations.

Profile Desc	cription: (Describe	to the depth	needed to docur	ment the indicator or o	confirm the absence of	of indicators.)	
Depth	Matrix			x Features			
(inches)	Color (moist)	<u>%</u>	Color (moist)	<u>% Type¹ L</u>	oc ² Texture	Remarks	
0-2.5"	10YR 5/1	100			Sa		_
2.5-18"	10YR 8/1	100			Sa		
				· · · · · · · · · · · · · · · · · · ·			
				·			-
							
				. —— —			
							_
1 _{Turnou} C. C.	anacatrotica D. Dor	lotion DM F	Paduaad Matrix M	S=Masked Sand Grains	21 00	ation: PL=Pore Lining, N	A Motrix
Hydric Soil		Dietion, Rivier	Reduced Matrix, Mi	5=Masked Sand Grains		or Problematic Hydric	
•			Dobarduo Po	Now Surface (S9) /I DD		•	oons .
Histosol	oipedon (A2)			elow Surface (S8) (LRR urface (S9) (LRR S, T, l		uck (A9) (LRR O) uck (A10) (LRR S)	
	stic (A3)			y Mineral (F1) (LRR 0)		d Vertic (F18) (outside l	MLRA 150A.B)
	en Sulfide (A4)			ed Matrix (F2)		nt Floodplain Soils (F19)	-
	d Layers (A5)		Depleted Ma			ous Bright Loamy Soils (
·	Bodies (A6) (LRR P	P, T, U)	Redox Dark			A 153B)	,
-	ıcky Mineral (A7) (L l			rk Surface (F7)	•	rent Material (TF2)	
	esence (A8) (LRR L		Redox Depre			allow Dark Surface (TF1	2)
1 cm Mu	uck (A9) (LRR P, T)		Marl (F10) (L	.RR U)	Other (F	Explain in Remarks)	,
Depleted	d Below Dark Surfac	e (A11)	Depleted Oc	hric (F11) (MLRA 151)	·	,	
	ark Surface (A12)			nese Masses (F12) (LR	indica	tors of hydrophytic veget	ation and
	rairie Redox (A16) (ace (F13) (LRR P, T, U)	wetla	and hydrology must be p	resent,
	Mucky Mineral (S1) (LRR O, S)		(F17) (MLRA 151)		less disturbed or probler	natic.
	Gleyed Matrix (S4)			rtic (F18) (MLRA 150A,			
	Redox (S5)			oodplain Soils (F19) (MI	LRA 149A)		
					\ /BAL D.A. 440.A. 450.C.	4 E 2 D \	
	Matrix (S6)	2 T II)	Anomalous E	Bright Loamy Soils (F20) (MLRA 149A, 153C,	153D)	
Dark Su	rface (S7) (LRR P,		Anomalous E	Bright Loamy Soils (F20) (MLRA 149A, 153C,	153D)	
Dark Su	, ,		Anomalous E	Bright Loamy Soils (F20) (MLRA 149A, 153C,	153D)	
Dark Su Restrictive I Type:	rface (S7) (LRR P, S Layer (if observed)		Anomalous E	Bright Loamy Soils (F20			No. 🗸
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:		Pe- Peat; Sa= Sand;	Hydric Soil F		No✓
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		No_ <u>√</u>
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		No✓
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		. No_✓
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		. No✓
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		No_ <u>√</u>
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		No✓
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		No✓
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		No✓
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		. No✓
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		. No✓
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		No✓
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		No✓
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		No✓
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		No_✓
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		No✓
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		No_✓
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		No
Dark Su Restrictive I Type: Depth (inc	rface (S7) (LRR P, S Layer (if observed)	:			Hydric Soil F		No✓

Project/Site: Loncala Tract	City/County: Char	Iton County	Sampling Date: <u>04/26/2018</u>
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: UDP-8
Investigator(s): C. Terrell / C. Stanford (TTL)	Section, Township,		
			Slope (%): 0-2%
Subregion (LRR or MLRA): LRR T / MLRA 153A L	at: 30.57121973760	Long: -82.12376588410	Datum: NAD83
Soil Map Unit Name: Leon fine sand, 0-2% slopes		NWI classific	
Are climatic / hydrologic conditions on the site typical for this	s time of year? Yes N	o <u>√</u> (If no, explain in R	emarks.)
Are Vegetation Yes , Soil Yes , or Hydrology Yes si			resent? Yes <u>√</u> No
Are Vegetation No , Soil No , or Hydrology No n		f needed, explain any answe	
SUMMARY OF FINDINGS – Attach site map			
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No	Is the Samp	oled Area	
Hydric Soil Present? Yes No	within a We	tland? Yes	No <u>√</u>
Wetland Hydrology Present? Yes No Remarks:) <u> </u>		
 Site observations and local hydrological data Vegetation historically impacted by silvicultur Soils/Hydrology historically impacted by silvic 	al activities (hipped/bend	ched planted pine).	
HYDROLOGY			
Wetland Hydrology Indicators:			tors (minimum of two required)
Primary Indicators (minimum of one is required; check all the		Surface Soil	
	Fauna (B13)		getated Concave Surface (B8)
1 	eposits (B15) (LRR U) en Sulfide Odor (C1)	Drainage Pat Moss Trim Li	
_ ` ,	d Rhizospheres along Living F		Water Table (C2)
<u> </u>	ce of Reduced Iron (C4)	Crayfish Burn	
	Iron Reduction in Tilled Soils (sible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin Mu	uck Surface (C7)	Geomorphic	Position (D2)
	Explain in Remarks)	Shallow Aqui	
Inundation Visible on Aerial Imagery (B7)		✓ FAC-Neutral	
Water-Stained Leaves (B9)		Sphagnum m	loss (D8) (LRR T,U)
Field Observations:	the Condense		
	oth (inches):		
	oth (inches):oth (inches):	Wetland Hydrology Presen	t? Yes No ✓
(includes capillary fringe)	iti (iliches).	Welland Hydrology Fresen	t: les No
Describe Recorded Data (stream gauge, monitoring well, a	aerial photos, previous inspecti	ons), if available:	
Remarks: FAC-Neutral Test Results: Positive FAC	CW and OBL: 6 to FACU a	and UPL: 2	
.,			

EGETATION – Use scientific names of plants	S.			Sampling Point: UDP-8
Tree Stratum (Plot sizes: 30 ft radius) 1.	Absolute % Cover			Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
2				Total Number of Dominant Species Across All Strata: 6 (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)
6				Prevalence Index worksheet:
7	0.0	= Total Co	over	
1. Pinus palustris	20.0	yes	FACU	FACW species x 2 =
2. Gordonia lasianthus	10.0	yes	FACW	FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5				Column Totals: (A) (B)
6				Prevalence Index = B/A =
7	30.0	= Total Co		Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)		- Total Co	ovei	1 - Rapid Test for Hydrophytic Vegetation
1. Serenoa repens	10.0	yes	<u>FACU</u>	✓ 2 - Dominance Test is >50%
2. Ilex coriacea	5.0	yes	<u>FACW</u>	3 - Prevalence Index is ≤3.0 ¹
3. Ilex glabra	5.0	yes	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
4 5				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6				Definitions of Vegetation Strata:
7	20.0	= Total Co	over	Deminions of Vegetation Strata.
Herb Stratum(30 ft radius)		. otal ot		Tree – Woody plants, excluding woody vines,
1. Andropogon virginicus	30.0	yes	FAC	approximately 20 ft (6 m) or more in height and
2. Scleria triglomerata	5.0	no	<u>FACW</u>	3 in. (7.6 cm) or larger in diameter at breast height (DBH).
3. Xyris jupicai	5.0	no	OBL	Height (DDH).
4. <i>Woodwardia virginica</i> 5.	5.0	no	<u>OBL</u>	Sapling – Woody plants, excluding woody vines,
6.				approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
7				Shrub – Woody plants, excluding woody vines,
8				approximately 3 to 20 ft (1 to 6 m) in height.
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
50% of total cover: 22.50 20% of total cover: 9.00 Woody Vine Stratum (30 ft radius)	45.0	= Total Co	over	approximately 3 ft (1 m) in height.
1				Woody vine – All woody vines, regardless of height.
2				
3				
4 5.				Hydrophytic
50% of total cover: 20% of total cover:	0.0	= Total Co	over	Vegetation Present? Yes No

Profile Desc	ription: (Describe	to the dept	h needed to docu	ment the	indicator	or confire	m the absence of i	indicators.)	
Depth	Matrix			ox Feature					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	<u>; </u>
0-6"	10YR 6/1	30	10YR 2/1	70	MS	M	Sa		
6-18"	10YR 6/1	100					Sa		
0 10	10111011								
							· 		
									_
									_
				_					
¹ Type: C=Co	ncentration, D=Dep	oletion, RM=	Reduced Matrix, M	S=Maske	d Sand Gr	ains.	² Locati	on: PL=Pore Lining	M=Matrix.
Hydric Soil I		•	•					Problematic Hydri	
Histosol	(A1)		Polyvalue B	elow Surfa	ice (S8) (L	RR S. T.	U) 1 cm Muc	k (A9) (LRR O)	
	ipedon (A2)		Thin Dark S					k (A10) (LRR S)	
Black His			Loamy Mucl					Vertic (F18) (outside	MLRA 150A.B)
	n Sulfide (A4)		Loamy Gley			-,		Floodplain Soils (F1	
	Layers (A5)		Depleted Ma		,			is Bright Loamy Soils	, , , , ,
	Bodies (A6) (LRR P	P, T, U)	Redox Dark		- 6)		(MLRA		
	cky Mineral (A7) (L l		Depleted Da		,			nt Material (TF2)	
	esence (A8) (LRR L		Redox Depr					low Dark Surface (Th	- ₁₂₎
	ck (A9) (LRR P, T)	,	Marl (F10) (I		,		•	plain in Remarks)	,
	Below Dark Surfac	e (A11)	Depleted Oc	chric (F11)	(MLRA 1	51)		,	
Thick Da	rk Surface (A12)		Iron-Manga	nese Mas	ses (F12)	(LRR O, P	P, T) ³ Indicator	s of hydrophytic veg	etation and
Coast Pr	airie Redox (A16) (I	MLRA 150A) Umbric Surfa	ace (F13)	(LRR P, T	', U)		d hydrology must be	
Sandy M	ucky Mineral (S1) (LRR O, S)	Delta Ochric	(F17) (M I	LRA 151)			ss disturbed or proble	
	leyed Matrix (S4)		Reduced Ve						
	edox (S5)		Piedmont FI	oodplain S	Soils (F19)	(MLRA 1	49A)		
	Matrix (S6)		Anomalous	Bright Loa	my Soils (F20) (MLF	RA 149A, 153C, 15	53D)	
	face (S7) (LRR P, \$								
Restrictive L	ayer (if observed)	:							
Туре:									/
Depth (inc	hes):						Hydric Soil Pre	esent? Yes	No <u></u>
Remarks: *So	oil abbreviations: C	l=Clay; Lo=	Loam; Mu=Muck;	Pe- Peat	; Sa= Sar	nd; Si=Silt	t		

Project/Site: Loncala Tract	City/County: Cha	rIton County	Sampling Date: <u>04/26/2018</u>			
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: UDP-9			
nvestigator(s): C. Terrell / C. Stanford (TTL) Section, Township, Range: Not Available						
	Local relief (concav		Slope (%): <u>0-2%</u>			
Subregion (LRR or MLRA): LRR T / MLRA 153A	Lat: 30.57122945130	Long:82.12885483280	Datum: NAD83			
Soil Map Unit Name: Lynn Haven fine sand, 0-2% slopes		NWI classific				
Are climatic / hydrologic conditions on the site typical for tl		_				
Are Vegetation Yes, Soil Yes, or Hydrology Yes			resent? Yes No			
Are Vegetation No , Soil No , or Hydrology No						
SUMMARY OF FINDINGS – Attach site map						
Hydrophytic Vegetation Present? Yes	No ✓					
Hydric Soil Present? Yes	No / Is the Samp		No √			
Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	No <u>√</u> within a We	etiano? res	NO <u>\</u>			
Remarks:						
- Site observations and local hydrological da	ta support abnormally dry	conditions present during	ng site visit.			
- Vegetation historically impacted by silvicult	ural activities (hipped/ben	ched planted pine).				
- Soils/Hydrology historically impacted by silv	vicultural activities (hipping	g/benching for planted p	ine).			
LIVEROLOGY			,			
HYDROLOGY Wetland Hydrology Indicators:		Soondon/Indica	tors (minimum of two required)			
Primary Indicators (minimum of one is required; check a	II that apply)		tors (minimum of two required)			
	tic Fauna (B13)	Surface Soil				
_ ` ,			Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10)			
1 	High Water Table (A2) Marl Deposits (B15) (LRR U) Saturation (A3) Hydrogen Sulfide Odor (C1)					
_ ` ,	zed Rhizospheres along Living F	Moss Trim Li Roots (C3) Dry-Season	Water Table (C2)			
\	ence of Reduced Iron (C4)	Crayfish Burn				
· · · / —	nt Iron Reduction in Tilled Soils		sible on Aerial Imagery (C9)			
	Muck Surface (C7)	Geomorphic				
Iron Deposits (B5) Othe	r (Explain in Remarks)	Shallow Aqui	tard (D3)			
Inundation Visible on Aerial Imagery (B7)		FAC-Neutral	Test (D5)			
Water-Stained Leaves (B9)		Sphagnum m	noss (D8) (LRR T,U)			
Field Observations:						
	epth (inches):					
	epth (inches):					
Saturation Present? Yes No ✓ D (includes capillary fringe)	epth (inches):	Wetland Hydrology Presen	t? Yes No			
Describe Recorded Data (stream gauge, monitoring well	, aerial photos, previous inspect	ions), if available:				
Remarks: FAC-Neutral Test Results: Negative FA	ACW and OBL: 4 to FACU	and UPL: 4				

EGETATION – Use scientific names of plant	Sampling Point: UDP-9					
Tree Stratum (Plot sizes: 30 ft radius) 1	Absolute % Cover			Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)		
2				Total Number of Dominant Species Across All Strata: 4 (B)		
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)		
6				Prevalence Index worksheet:		
50% of total cover: 20% of total cover: Sapling Stratum (_30 ft radius)	0.0	= Total Co	over	Total % Cover of: Multiply by: OBL species x 1 =		
Pinus palustris				FACW species 20		
2				FACU species <u>55</u> x 4 = <u>220</u>		
4 5				UPL species $x = 5$ Column Totals: $y = 5$ (A) $y = 320$ (B)		
6 7.				Prevalence Index = B/A =3.4		
50% of total cover: 15.00 20% of total cover: 6.00 Shrub Stratum (30 ft radius)	20.0	= Total Co	over	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation		
1. Serenoa repens	20.0	yes	FACU	2 - Dominance Test is >50%		
_{2.} Ilex glabra	5.0	no	FACW	3 - Prevalence Index is ≤3.0 ¹		
3. Persea borbonia		no	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)		
4 5				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.		
6 7				Definitions of Vegetation Strata:		
50% of total cover: 15.00 20% of total cover: 6.00 Herb Stratum (30 ft radius)	30.0	= Total Co	over	Tree – Woody plants, excluding woody vines,		
1. Andropogon virginicus	20.0	yes	FAC	approximately 20 ft (6 m) or more in height and		
Pteridium aquilinum	10.0	yes	FACU	3 in. (7.6 cm) or larger in diameter at breast		
Polygala nana	5.0	no	FACW	height (DBH).		
4. Smilax auriculata	5.0	no	FACU	Conling Washington and discount discount		
Scleria triglomerata 6.	5.0	no	FACW	Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.		
7				Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.		
10 11				Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size AND		
12	45.0	= Total Co	over	woody plants, except woody vines, less than approximately 3 ft (1 m) in height.		
1				Woody vine – All woody vines, regardless of height.		
3						
4 5.				Hydrophytic		
50% of total cover: 20% of total cover:	0.0	= Total Co	over	Vegetation Present? Yes No		

	ription: (Describe	to the dep	th needed to docu	ment the	indicator	or confir	m the absence	of indicators.)		
Depth	Matrix			ox Feature	s		_			
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	_Loc ²	Texture	Re	marks	
0-3.5"	10YR 6/1	60	10YR 5/2	40	MS	M	Sa			
3.5-7"	10YR 7/1	40	10YR5/2	60	MS	М	Sa			
7-18"	10YR 7/1	100		_			Sa			
	10111171									
					. ——					
1 _T 0. 0.		alatian DM	=Reduced Matrix, M		4 0 4 0 -	-:	21.	antine DL Dave I	Lining M. Matrix	
Hydric Soil I		pielion, Rivis	=Reduced Matrix, IV	15=IVIASKE	a Sand Gr	airis.		cation: PL=Pore I		
-			Dobarduo P	olow Curfo	oo (S9) (I	DD C T			-	
Histosol	ipedon (A2)		Polyvalue B Thin Dark S					/luck (A9) (LRR O /luck (A10) (LRR \$		
Black His			Loamy Muc					ed Vertic (F18) (o		DA.B)
	n Sulfide (A4)		Loamy Gley			. •,		ont Floodplain Soi		- 1
	Layers (A5)		Depleted Ma		,			alous Bright Loam		-, ,
	Bodies (A6) (LRR I	P, T, U)	Redox Dark		- 6)			RA 153B)	, ,	
_	cky Mineral (A7) (L						Red Pa	arent Material (TF	2)	
Muck Pr	esence (A8) (LRR I	J)	Redox Depi		(8)		Very S	hallow Dark Surfa	ice (TF12)	
	ck (A9) (LRR P, T)		Marl (F10) (•			Other	(Explain in Remar	ks)	
	Below Dark Surfac	ce (A11)	Depleted O							
	rk Surface (A12)	MI DA 450	Iron-Manga				inaloc	ators of hydrophyt	-	
	airie Redox (A16) (lucky Mineral (S1) (A) Umbric Surf Delta Ochric			, 0)		land hydrology mu		
	leyed Matrix (S4)	LKK 0, 3)	Reduced Ve			ΛΔ 150B		nless disturbed or	problematic.	
	edox (S5)		Piedmont F							
	00011 (00)									
Stripped	Matrix (S6)							, 153D)		
	Matrix (S6) face (S7) (LRR P,	S, T, U)	Anomalous					, 153D)		
Dark Sui	, ,							, 153D)		
Dark Sui	face (S7) (LRR P,							, 153D)		
Dark Sur	face (S7) (LRR P, ayer (if observed)								No_ _	<u> </u>
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, Layer (if observed)):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No V	<u>/</u>
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):		Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No V	<u></u>
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No _	<u>/</u>
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No <u>*</u>	<u>/</u>
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No V	<u>/</u>
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No V	<u>/</u>
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No <u>*</u>	/
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No V	<u>/</u>
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No <u>*</u>	<u>/</u>
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No V	<u>/</u>
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No V	<u>/</u>
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No V	<u>/</u>
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No v	<u>/</u>
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No _	<u>/</u>
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No V	<u>/</u>
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No <u>v</u>	<u>/</u>
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No V	
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No V	<u>/</u>
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No V	<u>/ </u>
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No V	<u>/</u>
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No V	<u>/</u>
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No	<u>/</u>
Dark Sur Restrictive L Type: Depth (inc	face (S7) (LRR P, .ayer (if observed) ches):):	Anomalous	Bright Loa	my Soils (F20) (ML I	RA 149A, 153C		No V	<u>/</u>

Project/Site: Loncala Tract	City/Co	unty: Charlton Coul	nty	Sampling Date: <u>04/27/2018</u>		
Applicant/Owner: Twin Pines Minerals, LLC			State: GA	Sampling Point: UDP-10		
nvestigator(s): C. Terrell / C. Stanford (TTL) Section, Township, Range: Not Available						
				Slope (%): <u>0-2%</u>		
Subregion (LRR or MLRA): LRR T / MLRA 153A La	at: 30.581376198	390 Long: -	82.12455243660	Datum: NAD83		
Soil Map Unit Name: Lynn Haven fine sand, 0-2% slopes						
Are climatic / hydrologic conditions on the site typical for this	time of year? Ye	s No(If no, explain in R	emarks.)		
Are Vegetation Yes_, Soil Yes_, or Hydrology Yes_ significant sign	gnificantly disturbe	ed? Are "Normal	Circumstances" p	present? Yes <u>√</u> No		
Are Vegetation No , Soil No , or Hydrology No na						
SUMMARY OF FINDINGS – Attach site map s						
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No		Is the Sampled Area		/		
Wetland Hydrology Present? Yes No	, ,	within a Wetland?	Yes	No <u> </u>		
Remarks:						
Site observations and local hydrological data support abr Vegetation historically impacted by silvicultural activities (Soils/Hydrology historically impacted by silvicultural activities).	(hipped/benched p	planted pine) and recen		vities.		
HYDROLOGY						
Wetland Hydrology Indicators:			Secondary Indica	ators (minimum of two required)		
Primary Indicators (minimum of one is required; check all the	nat apply)		Surface Soil Cracks (B6)			
<u> </u>	Fauna (B13)		Sparsely Vegetated Concave Surface (B8) Drainage Patterns (B10)			
1 — · · · · —	posits (B15) (LRR					
	en Sulfide Odor (C		Moss Trim Lines (B16)			
_ ` ` '		ong Living Roots (C3)	Dry-Season Water Table (C2)			
, _	ce of Reduced Iron		Crayfish Bur			
	Iron Reduction in	Tilled Soils (C6)		isible on Aerial Imagery (C9)		
<u> </u>	ick Surface (C7)	-1		Position (D2)		
	Explain in Remark	s)	Shallow Aqu			
Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9)			FAC-Neutral	noss (D8) (LRR T,U)		
			Spriagrium ii	1055 (D0) (LKK 1,0)		
Field Observations: Surface Water Present? Yes No _ ✓ Dept	th (inches):					
	th (inches): th (inches):					
			hadrala ma Buasan	42 Vaa Na ✓		
Saturation Present? Yes No Dept (includes capillary fringe)	th (inches):	Wetland H	ydrology Preser	it? Yes No_ _		
Describe Recorded Data (stream gauge, monitoring well, a	erial photos, previ	ous inspections), if ava	ilable:			
Remarks: FAC-Neutral Test Results: Negative FAC	W and OBL: 1	to FACU and UPL: 3	}			

VEGETATION – Use scientific names of plants.

EGETATION – Use scientific names of plants	S.			Sampling Point: UDP-10
Tree Stratum (Plot sizes: 30 ft radius) 1.	Absolute % Cover	Species?		Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
2				Total Number of Dominant Species Across All Strata:5 (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)
6				Prevalence Index worksheet:
Sapling Stratum (30 ft radius) 1				OBL species x 1 = FACW species x 2 = 5 x 3 = x 2 = x 3 =
3 4				FACU species x 4 =
5 6				Column Totals: $\underline{40}$ (A) $\underline{135}$ (B) Prevalence Index = B/A = $\underline{3.4}$
7	0.0	= Total Co	over	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation
1. Serenoa repens 2. Ilex glabra			FACU FACW	2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹
3 4				Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5 6 7.				Definitions of Vegetation Strata:
50% of total cover: 10.00 20% of total cover: 4.00 Herb Stratum (30 ft radius)	20.0			Tree – Woody plants, excluding woody vines,
1. Pteridium aquilinum 2. Smilax auriculata 3.		yes	FACU FACU	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
4				Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
7				Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
10 11 12				Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size AND woody plants, except woody vines, less than
Woody Vine Stratum (30 ft radius)	15.0			approximately 3 ft (1 m) in height.
1. <u>Vitis rotundifolia</u> 2				Woody vine – All woody vines, regardless of height.
4				Hydrophytic Vegetation Present? Yes No
Remarks: (If observed, list morphological adaptations be				

Depth Desc	Matrix		oth needed to doc Red	dox Feature			ii tile abselice t	or mulcators.
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Remarks
0-6"	10YR 6/1	40	10YR 3/1	60	MS	M	Sa	
6-18"	10YR 5/2	100			<u> </u>		Sa	
						-		
			-	_				
		epletion, RM	=Reduced Matrix, I	MS=Maske	d Sand Gr	ains.		cation: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:						Indicators	for Problematic Hydric Soils ³ :
Histosol			Polyvalue I					luck (A9) (LRR O)
	pipedon (A2)		Thin Dark					luck (A10) (LRR S)
	stic (A3)		Loamy Mu			R O)		ed Vertic (F18) (outside MLRA 150A,B
	en Sulfide (A4)		Loamy Gle		(F2)			ont Floodplain Soils (F19) (LRR P, S, T)
	d Layers (A5) Bodies (A6) (LRR	P T II)	Depleted M Redox Dar	, ,	F6)			lous Bright Loamy Soils (F20)
_	icky Mineral (A7) (•	•			arent Material (TF2)
	esence (A8) (LRR		Redox Dep					hallow Dark Surface (TF12)
	ıck (A9) (LRR P, T		Marl (F10)		,		-	Explain in Remarks)
	d Below Dark Surfa		Depleted C	chric (F11)	(MLRA 1	51)	(,,
Thick Da	ark Surface (A12)		Iron-Mang	anese Mas	ses (F12)	(LRR O, P	, T) ³ Indica	ators of hydrophytic vegetation and
	rairie Redox (A16)					, U)		and hydrology must be present,
	flucky Mineral (S1)	(LRR O, S)						nless disturbed or problematic.
	Gleyed Matrix (S4)		Reduced V					
	Redox (S5) Matrix (S6)		Piedmont F					1520)
	rface (S7) (LRR P ,	S T II)	Anomaious	Blight Loa	illy Solls (rzu) (IVIL	RA 149A, 153C,	1930)
	Layer (if observed							
Type:	• ,	•						
Depth (in	ches):						Hydric Soil	Present? Yes No
		Cl=Clav: Lo	=Loam; Mu=Muck	Pe- Peat	· Sa= Sar	nd: Si=Silt	_	
				,	,	,		

Project/Site: Loncala Tract	City/County: Char	Iton County	Sampling Date: <u>04/27/2018</u>			
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: UDP-11			
Investigator(s): C. Terrell / C. Stanford (TTL) Section, Township, Range: Not Applicable						
Landform (hillslope, terrace, etc.): Flatwoods	Local relief (concav	re, convex, none): None	Slope (%): 0-2%			
Subregion (LRR or MLRA): LRR T / MLRA 153A	Lat: 30.57608738330	Long: -82.13506248630	Datum: NAD83			
Soil Map Unit Name: Leon fine sand, 0-2% slopes		NWI classific				
Are climatic / hydrologic conditions on the site typical for	this time of year? Yes N	o <u>√</u> (If no, explain in R	emarks.)			
Are Vegetation $\underline{\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	significantly disturbed? A	are "Normal Circumstances" p	resent? Yes <u>√</u> No			
Are Vegetation No , Soil No , or Hydrology No						
SUMMARY OF FINDINGS – Attach site ma						
Hydrophytic Vegetation Present? Yes ✓	No la the Comm	alad Avas				
Hydric Soil Present? Yes	No Is the Samp No within a We		No √			
Wetland Hydrology Present? Yes	No <u>√</u> within a We	etiano? Yes	NO <u>*</u>			
Remarks:						
Site observations and local hydrological data suppor Vegetation historically impacted by silvicultural activi -Soils/Hydrology historically impacted by silvicultural a	ties (hipped/benched planted pine) and recent clear-cutting acti	vities.			
HYDROLOGY						
Wetland Hydrology Indicators:		Secondary Indica	tors (minimum of two required)			
Primary Indicators (minimum of one is required; check		Surface Soil				
	uatic Fauna (B13)		getated Concave Surface (B8)			
	rl Deposits (B15) (LRR U)	Drainage Par				
<u> </u>	drogen Sulfide Odor (C1) dized Rhizospheres along Living F	Moss Trim Li				
-	sence of Reduced Iron (C4)	,	Water Table (C2)			
	cent Iron Reduction in Tilled Soils	Crayfish Buri	sible on Aerial Imagery (C9)			
_ ' ' '	n Muck Surface (C7)	Geomorphic	= : : :			
	ner (Explain in Remarks)	Shallow Aqui	` '			
Inundation Visible on Aerial Imagery (B7)	,	✓ FAC-Neutral				
Water-Stained Leaves (B9)			noss (D8) (LRR T,U)			
Field Observations:						
Surface Water Present? Yes No	Depth (inches):					
Water Table Present? Yes No	Depth (inches):					
Saturation Present? Yes No (includes capillary fringe)	Depth (inches):	Wetland Hydrology Presen	t? Yes No			
Describe Recorded Data (stream gauge, monitoring w	ell, aerial photos, previous inspect	ions), if available:				
Remarks: FAC-Neutral Test Results: Positive	FACW and OBL: 6 to FACU a	and UPL: 1				

VEGETATION – Use scientific names of plants.

EGETATION - Use scientific names of plants				Sampling Point: UDP-11
Tree Stratum (Plot sizes: 30 ft radius) 1.	Absolute % Cover		Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC:3 (A)
2				Total Number of Dominant Species Across All Strata: 4 (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)
6				Prevalence Index worksheet:
50% of total cover: 20% of total cover: Sapling Stratum (30 ft radius) 1 2 3				Total % Cover of: Multiply by: OBL species x 1 = FACW species x 2 = FAC species x 3 = FACU species x 4 =
4 5				UPL species x 5 = Column Totals: (A) (B)
6 7.				Prevalence Index = B/A =
50% of total cover: 20% of total cover: Shrub Stratum (30 ft radius)	0.0	= Total Co	over	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation
1. Serenoa repens	10.0	yes	FACU	✓ 2 - Dominance Test is >50%
2. Ilex glabra			FACW	3 - Prevalence Index is ≤3.0 ¹ Problematic Hydrophytic Vegetation (Explain)
3				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6				Definitions of Vegetation Strata:
50% of total cover: 10.00 20% of total cover: 4.00 Herb Stratum (30 ft radius)	20.0	= Total Co	over	Tree – Woody plants, excluding woody vines,
1. Dichanthelium accuminatum		yes	FAC	approximately 20 ft (6 m) or more in height and
2. Kyllinga pumila	20.0	yes	FACW	3 in. (7.6 cm) or larger in diameter at breast height (DBH).
3. Scleria triglomerata	10.0	no	FACW	
_{4.} Xyris jupicai _{5.} Andropogon virginicus	<u>10.0</u> 5.0	no no	OBL FAC	Sapling – Woody plants, excluding woody vines,
6. Woodwardia virginica	5.0	no	OBL	approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
7. Lachnanthes caroliniana	5.0	no	OBL	
8				Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
10				Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size AND woody plants, except woody vines, less than
	80.0	= Total Co	over	approximately 3 ft (1 m) in height.
1 2				Woody vine – All woody vines, regardless of height.
3 4				Hydrophytic
5 20% of total cover: 20% of total cover:				Hydrophytic Vegetation Present? Yes No

0-8" 10YR 6/1 40 10YR 2/1 60 MS M Sa	Depth	Matrix		pth needed to doc Rec	dox Feature			in the absence v	or malcators.)
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. Coastion: PL=Pore Lining, M=Matrix.	(inches)		%				Loc ²		Remarks
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. 2 Location: PL=Pore Lining, M=Matrix. Indicators: Indicators for Problematic Hydric Soils ³ : Histosol (A1)	0-8"	10YR 6/1	40	10YR 2/1	60	MS	M	Sa	
Histosol (A1)	8-18"	10YR 6/1	20	10YR 4/1	80	MS	M	Sa	
Histosol (A1)									
Histosol (A1)									
Histosol (A1)		-					-		
Histosol (A1)		-						<u> </u>	
Histosol (A1)				·				<u> </u>	
Histosol (A1)			epletion, RM		MS=Maske	d Sand Gr	ains.		
Histic Epipedon (A2)	•			5		(00) (1			-
Loamy Mucky Mineral (F1) (LRR O) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Depleted Matrix (F3) Depleted Matrix (F3) Stratified Layers (A5) Depleted Matrix (F3) Sem Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F6) Muck Presence (A8) (LRR U) Depleted Dark Surface (F7) Marl (F10) (LRR U) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Sandy Redox (S5) Sandy Redox (S5) Detended Dark Surface (F13) (MLRA 150A, 150B) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Redox Dark Surface (F6) (MLRA 153B) Red Parent Material (TF2) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) Depleted Dark Surface (F12) (LRR O, P, T) Jandicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Reduced Vertic (F18) (MLRA 150A, 150B) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Restrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No									
Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Piedmont Floodplain Soils (F19) (LRR P, S, T) Stratified Layers (A5) Depleted Matrix (F3) Anomalous Bright Loamy Soils (F20) Organic Bodies (A6) (LRR P, T, U) Redox Dark Surface (F6) Mucky Mineral (A7) (LRR P, T, U) Depleted Dark Surface (F7) Red Parent Material (TF2) Muck Presence (A8) (LRR U) Redox Depressions (F8) Very Shallow Dark Surface (TF12) 1 cm Muck (A9) (LRR P, T) Marl (F10) (LRR U) Depleted Below Dark Surface (A11) Depleted Ochric (F11) (MLRA 151) Thick Dark Surface (A12) Iron-Manganese Masses (F12) (LRR O, P, T) Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F13) (LRR P, T, U) Delta Ochric (F13) (LRR P, T, U) Sandy Gleyed Matrix (S4) Reduced Vertic (F18) (MLRA 150A, 150B) Surface (S7) (LRR P, S, T, U) Piedmont Floodplain Soils (F20) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Derth (inches): Hydric Soil Present? Yes No Very No									
							. • ,		
						` '			, , , , , , , , , , , , , , , , , , , ,
Muck Presence (A8) (LRR U)	_			·	•	•			
Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Coast Prairie Redox (A16) (MLRA 150A) Sandy Mucky Mineral (S1) (LRR O, S) Sandy Gleyed Matrix (S4) Stripped Matrix (S6) Dark Surface (S7) (LRR P, S, T, U) Destrictive Layer (if observed): Type: Depleted Ochric (F11) (MLRA 151) Iron-Manganese Masses (F12) (LRR O, P, T) Iron-Manganese Masses (F12) (LRR O, P, T) Jesting Matrix (S1) (LRR O, S) Surface (F13) (LRR P, T, U) Wetland hydrology must be present, unless disturbed or problematic. Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Depth (inches): Hydric Soil Present? Yes No						-8)			
Thick Dark Surface (A12)						(MLRA 1	51)	Otner (Explain in Remarks)
_ Coast Prairie Redox (A16) (MLRA 150A) Umbric Surface (F13) (LRR P, T, U) wetland hydrology must be present, unless disturbed or problematic. _ Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151) unless disturbed or problematic. _ Sandy Gleyed Matrix (S4) Reduced Vertic (F18) (MLRA 150A, 150B) _ Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) _ Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) testrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No ✓			(P, T) ³ Indica	itors of hydrophytic vegetation and
Sandy Mucky Mineral (S1) (LRR O, S) Delta Ochric (F17) (MLRA 151) unless disturbed or problematic Sandy Gleyed Matrix (S4) Reduced Vertic (F18) (MLRA 150A, 150B) Sandy Redox (S5) Piedmont Floodplain Soils (F19) (MLRA 149A) Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) testrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No Hydric Soil Present? Yes No	Coast P	rairie Redox (A16)	(MLRA 150	OA) Umbric Su	rface (F13)	(LRR P, T	, U)		
Sandy Redox (S5)			(LRR O, S)					un	
Stripped Matrix (S6) Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D) Dark Surface (S7) (LRR P, S, T, U) lestrictive Layer (if observed): Type: Depth (inches): Hydric Soil Present? Yes No ✓									
Dark Surface (S7) (LRR P, S, T, U) destrictive Layer (if observed): Type: Depth (inches): No✓									153D)
Type: Depth (inches): No ✓			. S. T. U)	Anomalous	bright Loo	iiiiy Oolis (1 20) (IVILI	140A, 1000,	1002)
Depth (inches): No									
	Type:								,
emarks: *Soil abbreviations: CI=Clay; Lo=Loam; Mu=Muck; Pe-Peat; Sa=Sand; Si=Silt	Depth (in	ches):						Hydric Soil	Present? Yes No _✓
	Remarks: *S	Soil abbreviations:	Cl=Clay; Lo	o=Loam; Mu=Muck	; Pe-Peat	t; Sa= Sar	nd; Si=Sili	t	

Project/Site: Loncala Tract	City/County: Char	Iton County	Sampling Date: 04/25/2018			
Applicant/Owner: Twin Pines Minerals, LLC			Sampling Point: WDP-1			
nvestigator(s): C. Terrell / C. Stanford (TTL) Section, Township, Range: Not Available						
			Slope (%): 0-1%			
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.58	- '					
Soil Map Unit Name: Lynn Haven, Allanton and Kingsferry soils, pond						
Are climatic / hydrologic conditions on the site typical for this time of ye						
Are Vegetation Yes, Soil No, or Hydrology No significantly						
Are Vegetation No , Soil No , or Hydrology No naturally pr	roblematic? (I	f needed, explain any answer	's in Remarks.)			
SUMMARY OF FINDINGS - Attach site map showing	g sampling poin	t locations, transects	, important features, etc.			
Hydrophytic Vegetation Present? Yes _ ✓ No						
Hydric Soil Present? Yes ✓ No	is the oamp	_				
Wetland Hydrology Present? Yes ✓ No	within a We	tland? Yes <u>▼</u>	No			
Remarks:	<u> </u>					
- Site observations and local hydrological data support	t abnormally dry	conditions present during	na site visit.			
Vegetation historically impacted by silvicultural activit		•	•			
	(.,	,,			
HYDROLOGY						
Wetland Hydrology Indicators:		Secondary Indica	tors (minimum of two required)			
Primary Indicators (minimum of one is required; check all that apply)	Į .	Surface Soil	Cracks (B6)			
Surface Water (A1) Aquatic Fauna (B			getated Concave Surface (B8)			
High Water Table (A2) Marl Deposits (B1		Drainage Pat				
✓ Saturation (A3) Hydrogen Sulfide		Moss Trim Li				
<u> </u>	oheres along Living R	- -	Water Table (C2)			
Sediment Deposits (B2) Presence of Redu	uced from (C4) uction in Tilled Soils (Crayfish Burr				
Drift Deposits (B3) Recent Iron Redu Algal Mat or Crust (B4) Thin Muck Surfac			sible on Aerial Imagery (C9)			
Iron Deposits (B5) Other (Explain in		Geomorphic Shallow Aqui				
Inundation Visible on Aerial Imagery (B7)	rtomarko)	✓ FAC-Neutral				
✓ Water-Stained Leaves (B9)			noss (D8) (LRR T,U)			
Field Observations:			, , , , ,			
Surface Water Present? Yes No _ ✓ Depth (inches	s):					
Water Table Present? Yes ✓ No Depth (inches						
Saturation Present? Yes No Depth (inches	s): <u>0"</u>	Wetland Hydrology Presen	t? Yes No			
(includes capillary fringe)						
Describe Recorded Data (stream gauge, monitoring well, aerial phot	tos, previous inspecti	ons), if available:				
Remarks: FAC-Neutral Test Results: Positive FACW and OB	BL: 3 to FACU a	and UPL: 0				

Sampling	D=:=4:	\//\DP_1
Sampling	Point:	77DP-1

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>)		Species?		Number of Dominant Species
1. Pinus elliottii	25.0	yes	<u>FACW</u>	That Are OBL, FACW, or FAC: 3 (A)
2				Total Number of Dominant
3				Species Across All Strata: 3 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100% (A/B)
6				
7				Prevalence Index worksheet:
	25.0	= Total Co	ver	Total % Cover of: Multiply by:
Sapling Stratum (30 ft radius)				OBL species x 1 =
1				FACW species x 2 =
2				FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5.				Column Totals: (A) (B)
6.				
7.				Prevalence Index = B/A =
50% of total cover: 20% of total cover:	0.0	= Total Co	wor.	Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)	0.0	- Total Co	ivei	√ 1 - Rapid Test for Hydrophytic Vegetation
1. Ilex myrtifolia	10.0	ves	FACW	✓ 2 - Dominance Test is >50%
2.				3 - Prevalence Index is ≤3.0 ¹
				Problematic Hydrophytic Vegetation ¹ (Explain)
3				¹ Indicators of hydric soil and wetland hydrology must
4				be present, unless disturbed or problematic.
5				
6				Definitions of Variation Chata
7				Definitions of Vegetation Strata:
50% of total cover: 5.00 20% of total cover: 2.00 Herb Stratum (30 ft radius)	10.0	= Total Co	over	Troo Weeds pleate evaluation weeds wines
1. Lachnanthes caroliniana	70.0	yes	OBL	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and
				3 in. (7.6 cm) or larger in diameter at breast
2. Carex glaucescens	<u>5.0</u>	no	OBL OBL	height (DBH).
3. Woodwardia virginica		no	OBL_	
4. Sagittaria graminea	5.0	no	OBL	Sapling – Woody plants, excluding woody vines,
_{5.} <u>Limnobium spongia</u>	5.0	no	<u>OBL</u>	approximately 20 ft (6 m) or more in height and less
6				than 3 in. (7.6 cm) DBH.
7				
8				Shrub – Woody plants, excluding woody vines,
9				approximately 3 to 20 ft (1 to 6 m) in height.
10				Horb All hards account (non-viscody) plants including
11.				Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size AND
12.				woody plants, except woody vines, less than
50% of total cover: 45.00 20% of total cover: 18.00	90.0	= Total Co		approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)	30.0	- Total CC	7761	
1				Woody vine – All woody vines, regardless of height.
2.				
3.				
4				Hydrophytic
5 20% of total cover: 20% of total cover:				Vegetation Present? Yes ✓ No
20 /0 OI total cover 20 /0 OI total cover	0.0	= rotal Co	over	Present? Yes No
Remarks: (If observed, list morphological adaptations b	elow). *Plants	not idendif	ied to spec	cies are not used in dominance calculations.
			- 1	

Profile Desc	ription: (Describe	to the depti	h needed to docun	nent the i	ndicator o	or confirm	the absence of	indicators.)	
Depth	Matrix			x Feature					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Remarks	
0-9.5"	10YR 2/1	100					Sa		
9.5-18"	10YR 4/1	100					Sa		
									_
¹ Type: C=Co	oncentration, D=Dep	oletion, RM=I	Reduced Matrix, MS	S=Masked	I Sand Gra	ins.	² Locat	ion: PL=Pore Lining,	M=Matrix.
Hydric Soil	Indicators:						Indicators for	Problematic Hydric	: Soils³:
Histosol	(A1)		Polyvalue Be	low Surfa	ce (S8) (L l	RR S, T, U	J) 1 cm Muc	k (A9) (LRR O)	
	pipedon (A2)		Thin Dark Su					k (A10) (LRR S)	
Black Hi			Loamy Muck	•	. , .	O)		Vertic (F18) (outside	
	n Sulfide (A4)		Loamy Gleye		F2)			Floodplain Soils (F19	
	d Layers (A5) Bodies (A6) (LRR F) T II)	Depleted Mar		·6)		Anomaiou (MLRA	us Bright Loamy Soils	(F2U)
-	icky Mineral (A7) (L		Depleted Dar	,	,			nt Material (TF2)	
	esence (A8) (LRR L		Redox Depre					low Dark Surface (TF	12)
	ick (A9) (LRR P, T)		Marl (F10) (L	RR U)			-	plain in Remarks)	,
	d Below Dark Surfac	ce (A11)	Depleted Oct						
·	ark Surface (A12)		Iron-Mangan				, T) ³ Indicato	rs of hydrophytic vege	etation and
	rairie Redox (A16) (lucky Mineral (S1) () Ombric Surra Delta Ochric			U)		d hydrology must be	
	Bleyed Matrix (S4)	LKK (), (3)	Reduced Ver			0A 150B)		ss disturbed or proble	ematic.
	ledox (S5)		Piedmont Flo						
	Matrix (S6)						A 149A, 153C, 15	53D)	
	rface (S7) (LRR P,								
Restrictive I	_ayer (if observed)	:							
Type:								./	
Depth (inc							Hydric Soil Pro	esent? Yes <u> </u>	No
Remarks: *S	oil abbreviations: C	l=Clay; Lo=l	Loam; Mu=Muck;	Pe- Peat;	Sa= San	d; Si=Silt			

Project/Site: Loncala Tract	City/County: Cha	rlton County	Sampling Date: <u>04/25/2018</u>
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: WDP-2
	Section, Township,		
Landform (hillslope, terrace, etc.): Depression	Local relief (concav	ve, convex, none): Concave	Slope (%): 0-1%
Subregion (LRR or MLRA): LRR T / MLRA 153A	Lat: 30.58164837890	Long:82.11581799910	Datum: NAD83
Soil Map Unit Name: Lynn Haven, Allanton and Kingsfer			
Are climatic / hydrologic conditions on the site typical for the	his time of year? Yes N	lo <u>√</u> (If no, explain in R	emarks.)
Are Vegetation Yes , Soil No , or Hydrology No	_significantly disturbed?	Are "Normal Circumstances" p	oresent? Yes <u>√</u> No
Are Vegetation No Soil No , or Hydrology No			
SUMMARY OF FINDINGS - Attach site map	showing sampling poi	nt locations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes✓	No.		
Hydric Soil Present? Yes ✓	No.	_	
Wetland Hydrology Present? Yes ✓		etiand? Yes <u>v</u>	No
Remarks:			
- Site observations and local hydrological da	ta support abnormally dry	conditions present duri	ng site visit.
- Vegetation historically impacted by silvicult	ural activities (planted pin-	e) which are stunted du	e to hydric conditions.
			-
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check a	Il that annly)	Surface Soil	
	tic Fauna (B13)		getated Concave Surface (B8)
\ <u>-</u>	Deposits (B15) (LRR U)	Drainage Pa	
1 	ogen Sulfide Odor (C1)	Moss Trim Li	
_ ` ` '	zed Rhizospheres along Living F		Water Table (C2)
<u> </u>	ence of Reduced Iron (C4)	Crayfish Bur	
	nt Iron Reduction in Tilled Soils		isible on Aerial Imagery (C9)
	Muck Surface (C7)		Position (D2)
	r (Explain in Remarks)	Shallow Aqui	itard (D3)
Inundation Visible on Aerial Imagery (B7)		✓ FAC-Neutral	Test (D5)
✓ Water-Stained Leaves (B9)		✓ Sphagnum n	noss (D8) (LRR T,U)
Field Observations:			
Surface Water Present? Yes No D			
	epth (inches): 2"		1
Saturation Present? Yes ✓ No D (includes capillary fringe)	epth (inches): 0"	Wetland Hydrology Presen	t? Yes No
Describe Recorded Data (stream gauge, monitoring well	, aerial photos, previous inspect	ions), if available:	
Remarks: FAC-Neutral Test Results: Positive	ACW and OBL: 12 to FACU	and UPL: 0	

Sampling	Doint	WDP-2
Sampling	Point:	V V D I - Z

22.5	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot sizes: 30 ft radius)		Species?		Number of Dominant Species
1. Pinus elliottii	40.0	yes	<u>FACW</u>	That Are OBL, FACW, or FAC: (A)
2. Taxodium ascendens	10.0	no	<u>OBL</u>	Total Number of Dominant
3. Gordonia lasianthus	5.0	no	<u>FACW</u>	Species Across All Strata: 7 (B)
4				Dercent of Deminent Charles
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)
6				
7.				Prevalence Index worksheet:
50% of total cover: 27.50 20% of total cover: 11.00	55.0	= Total Co	ver	Total % Cover of: Multiply by:
Sapling Stratum (30 ft radius)				OBL species x 1 =
1. Taxodium ascendens			<u>OBL</u>	FACW species x 2 =
2. Pinus elliottii	5.0	yes	FACW	FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5				Column Totals: (A) (B)
6.				
7.				Prevalence Index = B/A =
50% of total cover: 7.50 20% of total cover: 3.00	15.0	= Total Co	ver	Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)				√ 1 - Rapid Test for Hydrophytic Vegetation
1. Ilex myrtifolia	15.0	yes	FACW	✓ 2 - Dominance Test is >50%
2. Sabal minor		yes	FACW	3 - Prevalence Index is ≤3.0 ¹
3.				Problematic Hydrophytic Vegetation ¹ (Explain)
4.				¹ Indicators of hydric soil and wetland hydrology must
5.				be present, unless disturbed or problematic.
6				
7.				Definitions of Vegetation Strata:
50% of total cover: 10.00 20% of total cover: 4.00	20.0	= Total Co		Bollintono di Vogotation di ata.
Herb Stratum (30 ft radius)	20.0	= Total Co	ver	Tree – Woody plants, excluding woody vines,
1. Carex striata	20.0	yes	OBL	approximately 20 ft (6 m) or more in height and
2. Lachnanthes caroliniana	10.0	yes	OBL	3 in. (7.6 cm) or larger in diameter at breast
3. Carex glaucescens	5.0	no	OBL	height (DBH).
Woodwardia virginica	5.0	no	OBL	
5. Andropogon glomeratus				Sapling – Woody plants, excluding woody vines,
	5.0	no	FACW	approximately 20 ft (6 m) or more in height and less
6				than 3 in. (7.6 cm) DBH.
7				Shrub – Woody plants, excluding woody vines,
8				approximately 3 to 20 ft (1 to 6 m) in height.
9				approximately of to 20 ft (1 to 0 ftf) in height.
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
50% of total cover: 22.50 20% of total cover: 9.00	45.0	= Total Co	ver	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				
1				Woody vine – All woody vines, regardless of height.
2				
3				
4				
5.				Hydrophytic Vegetation
50% of total cover: 20% of total cover:	0.0	= Total Co	ver	Present? Yes No
Remarks: (If observed, list morphological adaptations bel	ow). *Plants	not idendif	ied to spec	I ies are not used in dominance calculations.

Profile Desc	cription: (Describe	to the depth	needed to document the indicator or co	onfirm the absence of	of indicators.)
Depth (in the ca)	Matrix		Redox Features	c ² Texture	Damada
(inches) 0-11"	Color (moist) 10YR 2/1	_ <u>%</u> _	Color (moist) % Type ¹ Lo	Sa Texture	Remarks
	-				
11-18"	10YR 3/1			Sa	
	-				
1					
'Type: C=C Hydric Soil		pletion, RM=F	Reduced Matrix, MS=Masked Sand Grains.		cation: PL=Pore Lining, M=Matrix. for Problematic Hydric Soils ³ :
-			Debagaine Below Curfose (CO) (LDD C		•
Histosol	oipedon (A2)		Polyvalue Below Surface (S8) (LRR SThin Dark Surface (S9) (LRR S, T, U)		uck (A9) (LRR O) uck (A10) (LRR S)
	stic (A3)		Loamy Mucky Mineral (F1) (LRR O)		ed Vertic (F18) (outside MLRA 150A,B)
	en Sulfide (A4)		Loamy Gleyed Matrix (F2)		ont Floodplain Soils (F19) (LRR P, S, T)
	d Layers (A5)		Depleted Matrix (F3)		lous Bright Loamy Soils (F20)
Organic	Bodies (A6) (LRR I	P, T, U)	Redox Dark Surface (F6)	(MLR	A 153B)
	ucky Mineral (A7) (L		Depleted Dark Surface (F7)		rent Material (TF2)
	resence (A8) (LRR		Redox Depressions (F8)	•	nallow Dark Surface (TF12)
	uck (A9) (LRR P, T)		Marl (F10) (LRR U)	Other (Explain in Remarks)
	d Below Dark Surfa ark Surface (A12)	ce (ATT)	Depleted Ochric (F11) (MLRA 151)Iron-Manganese Masses (F12) (LRR	O P T) 3,	
	rairie Redox (A16) (MLRA 150A)		ilialoa	tors of hydrophytic vegetation and
	Mucky Mineral (S1)		Delta Ochric (F17) (MLRA 151)		and hydrology must be present, less disturbed or problematic.
Sandy G	Bleyed Matrix (S4)		Reduced Vertic (F18) (MLRA 150A, 1		·
Sandy F	Redox (S5)		Piedmont Floodplain Soils (F19) (MLF	RA 149A)	
	Matrix (S6)		Anomalous Bright Loamy Soils (F20)	(MLRA 149A, 153C,	153D)
	rface (S7) (LRR P,			ı	
	Layer (if observed):			
Type:	- l \		_	111-1- 0-11	No. 1910 Var. ✓ No.
	ches):			Hydric Soil	Present? Yes No
Remarks: "S	oli appreviations: (DI=Clay; Lo=L	oam; Mu=Muck; Pe-Peat; Sa=Sand; Si	I=SIIT	
ı					
1					
1					
ı					
ı					

Project/Site: Loncala Tract	Project/Site: Loncala Tract City/County: Charlton Co				
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: WDP-3		
	Section, Township				
	Local relief (concav	=	Slope (%): 0-1%		
Subregion (LRR or MLRA): LRR T / MLRA 153A					
Soil Map Unit Name: Lynn Haven, Allanton and Kingsfern					
Are climatic / hydrologic conditions on the site typical for th					
Are Vegetation Yes , Soil No , or Hydrology No			oresent? Yes No		
Are Vegetation No , Soil No , or Hydrology No					
SUMMARY OF FINDINGS – Attach site map					
Hydrophytic Vegetation Present? Yes <u>√</u> ١	No				
Hydric Soil Present? Yes ✓	lis the Samp				
Wetland Hydrology Present? Yes ✓ 1		etland? Yes <u>v</u>	No		
Remarks:					
- Site observations and local hydrological dat	a support abnormally dry	conditions present duri	ng site visit.		
- Vegetation recently affected by forest fire du			_		
	3 · · · 3 · · · · · · · · · · · · · · · · · · ·		,		
HYDROLOGY					
Wetland Hydrology Indicators:			ators (minimum of two required)		
Primary Indicators (minimum of one is required; check all		Surface Soil			
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	ic Fauna (B13)		getated Concave Surface (B8)		
<u> </u>	Deposits (B15) (LRR U)	Drainage Pa	I		
_ ` ,	gen Sulfide Odor (C1) zed Rhizospheres along Living F	Moss Trim L			
	nce of Reduced Iron (C4)	Roots (C3) Dry-Season Crayfish Bur	Water Table (C2)		
_ ' ' ' _	nt Iron Reduction in Tilled Soils		isible on Aerial Imagery (C9)		
	Muck Surface (C7)	Geomorphic			
1 	(Explain in Remarks)	Shallow Aqu			
Inundation Visible on Aerial Imagery (B7)	,	✓ FAC-Neutral			
✓ Water-Stained Leaves (B9)			noss (D8) (LRR T,U)		
Field Observations:					
Surface Water Present? Yes No De	epth (inches): 3"				
Water Table Present? Yes No De	epth (inches): 1"				
Saturation Present? Yes ✓ No De (includes capillary fringe)	epth (inches): 0"	Wetland Hydrology Preser	nt? Yes No		
Describe Recorded Data (stream gauge, monitoring well,	aerial photos, previous inspect	ions), if available:			
Remarks: FAC-Neutral Test Results: Positive FA	CW and OBL: 10 to FACU	and UPL: 0			
I					

Sampling	.	WDD 3
Sampling	Point.	VVDP-3

	Absolute		Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>)		Species?		Number of Dominant Species
1. Pinus serotina	20.0	yes	FACW	That Are OBL, FACW, or FAC: 7 (A)
2. Taxodium ascendens	10.0	yes	OBL	Total Number of Dominant
3. Gordonia lasianthus	10.0	yes	FACW	Species Across All Strata: 7 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100% (A/B)
6				Prevalence Index worksheet:
7		-		Total % Cover of: Multiply by:
50% of total cover: 20.00 20% of total cover: 8.00 Sapling Stratum (30 ft radius)	40.0	= Total Co	over	OBL species x 1 =
1				FACW species x 2 =
2.			-	FAC species x 3 =
3.				FACU species x 4 =
4.				UPL species x 5 =
5				Column Totals: (A) (B)
				(1)
6			· ——	Prevalence Index = B/A =
50% of total cover: 20% of total cover:	0.0	= Total C	over	Hydrophytic Vegetation Indicators: ✓ 1 - Rapid Test for Hydrophytic Vegetation
Shrub Stratum (30 ft radius)	40.0	V00		✓ 2 - Dominance Test is >50%
1. Ilex glabra			FACW	3 - Prevalence Index is ≤3.0 ¹
2. Sabal minor		yes	FACW	— Problematic Hydrophytic Vegetation ¹ (Explain)
3. Vaccinium elliottii	5.0	yes	FACW	
4				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5				1
6		-		
7				Definitions of Vegetation Strata:
50% of total cover: 10.00 20% of total cover: 4.00	20.0	= Total C	over	_
Herb Stratum (30 ft radius)	=0.0		0.01	Tree – Woody plants, excluding woody vines,
1. Lachnanthes caroliniana	70.0	yes	OBL	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast
2. Rhynchospora fascicularis	10.0	no	FACW	height (DBH).
3. Woodwardia virginica	10.0	no	OBL	
4. Smilax laurifolia	5.0	no	<u>FACW</u>	Sapling – Woody plants, excluding woody vines,
5				approximately 20 ft (6 m) or more in height and less
6				than 3 in. (7.6 cm) DBH.
7				
8				Shrub – Woody plants, excluding woody vines,
9				approximately 3 to 20 ft (1 to 6 m) in height.
10				Herb – All herbaceous (non-woody) plants, including
11.				herbaceous vines, regardless of size AND
12.				woody plants, except woody vines, less than
50% of total cover: 47.50 20% of total cover: 19.00	95.0	= Total C	over	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				
1				Woody vine – All woody vines, regardless of height.
2				
3.				
4.				
5.				Hydrophytic
50% of total cover: 20% of total cover:	0.0	= Total C	over	Vegetation Present? Yes No
Remarks: (If observed, list morphological adaptations be	low). *Plants	not idend	ified to spec	ies are not used in dominance calculations.

		e to the depth	needed to document the indicator or c	onfirm the absence	of indicators.)
Depth Matrix		%	Redox Features Color (moist)	oc ² Texture	Remarks
(inches) 0-18"	Color (moist) 10YR 2/1	% 100	Coloi (IIIOISI)	Sa	remarks
0-10	1018 2/1			<u>Sa</u>	
	-				
	-				
	-				
			 	2.	
		pletion, RM=Re	educed Matrix, MS=Masked Sand Grains.		cation: PL=Pore Lining, M=Matrix.
•	Indicators:				for Problematic Hydric Soils ³ :
Histosol			Polyvalue Below Surface (S8) (LRR		luck (A9) (LRR O)
	pipedon (A2)		Thin Dark Surface (S9) (LRR S, T, U		luck (A10) (LRR S)
	istic (A3)		Loamy Mucky Mineral (F1) (LRR O)		ed Vertic (F18) (outside MLRA 150A,B)
	en Sulfide (A4)		Loamy Gleyed Matrix (F2)		ont Floodplain Soils (F19) (LRR P, S, T)
	d Layers (A5)		Depleted Matrix (F3)		lous Bright Loamy Soils (F20)
_	Bodies (A6) (LRR		Redox Dark Surface (F6)		RA 153B)
	ucky Mineral (A7) (L		Depleted Dark Surface (F7)		arent Material (TF2)
	resence (A8) (LRR		Redox Depressions (F8)	-	nallow Dark Surface (TF12)
	uck (A9) (LRR P, T) d Below Dark Surfa		Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151)	Other (Explain in Remarks)
	ark Surface (A12)	ce (ATT)	Iron-Manganese Masses (F12) (LRF	POPT\ 3	
	rairie Redox (A16)	(MI RA 150A)	Umbric Surface (F13) (LRR P, T, U)	ilialoa	tors of hydrophytic vegetation and
	Mucky Mineral (S1)		Offishic Surface (1.13) (ERRT 1, 1, 3) Delta Ochric (F17) (MLRA 151)		and hydrology must be present, nless disturbed or problematic.
	Gleyed Matrix (S4)	(Little 0, 0)	Reduced Vertic (F18) (MLRA 150A,		liess disturbed of problematic.
	Redox (S5)		Piedmont Floodplain Soils (F19) (ML		
	Matrix (S6)		Anomalous Bright Loamy Soils (F20)		153D)
	rface (S7) (LRR P,		/ea.eae 2g.n _ea, eee (: _e)	(, 1000,	
	Layer (if observed				
Type:	, , , , , , , , , , , , , , , , , , , ,	,			
Depth (in	ohoo):		_	Hydric Soil	Present? Yes ✓ No
			-	,	Flesent: les No
Telliaiks. C	oli abbi eviations. (oi-Clay, LU-LU	am; Mu=Muck; Pe-Peat; Sa=Sand; S	51-5111	

Project/Site: Loncala Tract	City/County: Charlt	on County	Sampling Date: 04/25/2018			
Applicant/Owner: Twin Pines Minerals, LLC	, ,		Sampling Point: WDP-4			
Investigator(s): C. Terrell / C. Stanford (TTL) Section, Township, Range: Not Available						
			Slope (%): 0-2%			
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.58						
Soil Map Unit Name: Leon fine sand, 0-2% slopes			ation: Upland			
•			·			
Are climatic / hydrologic conditions on the site typical for this time of year						
Are Vegetation Yes, Soil No, or Hydrology No significantly						
Are Vegetation No , Soil No , or Hydrology No naturally pr	oblematic? (If	needed, explain any answer	's in Remarks.)			
SUMMARY OF FINDINGS – Attach site map showing	g sampling point	locations, transects	, important features, etc.			
Hydrophytic Vegetation Present? Yes✓ No						
Hydric Soil Present? Yes ✓ No	io tino oumpio	_				
Wetland Hydrology Present? Yes No	within a Wetl	and? Yes <u>V</u>	No			
Remarks:	I					
- Site observations and local hydrological data support	t abnormally dry c	onditions present durir	ng site visit.			
- Vegetation historically affected by silvicultural activitie		•				
	· · · · ·	, ,				
HYDROLOGY						
Wetland Hydrology Indicators:			tors (minimum of two required)			
Primary Indicators (minimum of one is required; check all that apply)		Surface Soil (
Surface Water (A1) Aquatic Fauna (B			Sparsely Vegetated Concave Surface (B8)			
✓ High Water Table (A2) Marl Deposits (B1		Drainage Pat				
✓ Saturation (A3) Hydrogen Sulfide		Moss Trim Li				
<u> </u>	heres along Living Ro		Water Table (C2)			
Sediment Deposits (B2) Presence of Redu		✓ Crayfish Burr				
	uction in Tilled Soils (C	Geomorphic	sible on Aerial Imagery (C9)			
Algal Mat or Crust (B4) Thin Muck Surfac Iron Deposits (B5) Other (Explain in		Shallow Aqui	` '			
Inundation Visible on Aerial Imagery (B7)	rtemarks)	✓ FAC-Neutral				
Water-Stained Leaves (B9)			noss (D8) (LRR T,U)			
Field Observations:			7.7			
Surface Water Present? Yes No _✓ Depth (inches	s):					
Water Table Present? Yes <u>✓</u> No Depth (inches						
Saturation Present? Yes No Depth (inches	s): 0" v	Vetland Hydrology Presen	t? Yes No			
(includes capillary fringe)	,					
Describe Recorded Data (stream gauge, monitoring well, aerial photo	os, previous inspection	ns), if available:				
Remarks: FAC-Neutral Test Results: Positive FACW and OB	BL: 12 to FACU an	nd UPL: 0				

00.0	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot sizes: 30 ft radius)		Species?		Number of Dominant Species
1. Pinus elliottii		yes	FACW	That Are OBL, FACW, or FAC:6 (A)
_{2.} Magnolia virginiana	5.0	no	<u>FACW</u>	Total Number of Dominant
3				Species Across All Strata: 6 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100% (A/B)
6				
7				Prevalence Index worksheet:
50% of total cover: 32.50 20% of total cover: 13.00	65.0	= Total Co	ver	Total % Cover of: Multiply by:
Sapling Stratum (30 ft radius)				OBL species x 1 =
1				FACW species x 2 =
2				FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5				Column Totals: (A) (B)
6.				
7				Prevalence Index = B/A =
50% of total cover: 20% of total cover:	0.0	= Total Co		Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)	0.0	Total Oc	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	✓ 1 - Rapid Test for Hydrophytic Vegetation
1. Ilex glabra	25.0	yes	FACW	✓ 2 - Dominance Test is >50%
2. Vaccinium elliottii	25.0	yes	FACW	3 - Prevalence Index is ≤3.0 ¹
3.				Problematic Hydrophytic Vegetation ¹ (Explain)
4.				¹ Indicators of hydric soil and wetland hydrology must
5.				be present, unless disturbed or problematic.
		-		
6		-	-	Definitions of Vegetation Strata:
7	<u> </u>			Definitions of Vegetation Strata.
Herb Stratum (30 ft radius)	50.0	= Total Co	over	Tree – Woody plants, excluding woody vines,
1. Lachnanthes caroliniana	25.0	yes	OBL	approximately 20 ft (6 m) or more in height and
2. Syngonanthus flavidulus	10.0	yes	FACW	3 in. (7.6 cm) or larger in diameter at breast
3. Utricularia subulata	10.0	yes	OBL	height (DBH).
Woodwardia virginica	5.0	no	OBL	
5. Polygala lutea	5.0	no	FACW	Sapling – Woody plants, excluding woody vines,
6. Osmunda cinnamomea			FACW	approximately 20 ft (6 m) or more in height and less
7. Smilax laurifolia	5.0	no		than 3 in. (7.6 cm) DBH.
		no	FACW_	Shrub – Woody plants, excluding woody vines,
_{8.} Xyris jupicai		no	<u>OBL</u>	approximately 3 to 20 ft (1 to 6 m) in height.
9				approximately a to 20 it (i to a m) in neighb
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
50% of total cover: 35.00 20% of total cover: 14.00	70.0	= Total Co	over	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				NA/a a de crista a como de com
1				Woody vine – All woody vines, regardless of height.
2				
3				
4				Header about a
5				Hydrophytic Vegetation
50% of total cover: 20% of total cover:	0.0	= Total Co	ver	Present? Yes No
Demonico, (If about and list was the lastical adaptation to	low):			
Remarks: (If observed, list morphological adaptations be	······································	not idendif	nea to spec	ies are not used in dominance calculations.

Profile Desc	ription: (Describe	to the depth	needed to docur	nent the i	ndicator	or confirn	n the absence o	of indicato	rs.)	
Depth	Matrix			x Features	- 1					
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>		Remarks	
0-18"	10YR 2/1	100					Sa			
	-				-					
·	-									
¹ Type: C=Co	oncentration, D=Dep	oletion, RM=R	Reduced Matrix, MS	S=Masked	Sand Gra	ains.	² Loc	ation: PL=	Pore Lining, N	∕I=Matrix.
Hydric Soil	Indicators:						Indicators f	or Probler	natic Hydric	Soils³:
Histosol	(A1)		Polyvalue Be	low Surfa	ce (S8) (L	RR S, T, L	J) 1 cm Mu	uck (A9) (L	RR O)	
Histic Ep	pipedon (A2)		Thin Dark Su					uck (A10) (•	
Black Hi			Loamy Muck							/ILRA 150A,B)
	n Sulfide (A4)		Loamy Gleye			-				(LRR P, S, T)
	d Layers (A5)		Depleted Ma		-				Loamy Soils (
	Bodies (A6) (LRR F	P, T, U)	Redox Dark		6)			A 153B)	. ,	
_	icky Mineral (A7) (L		Depleted Da	rk Surface	(F7)			rent Materi	al (TF2)	
	esence (A8) (LRR l		Redox Depre						Surface (TF1	2)
	ick (A9) (LRR P, T)		Marl (F10) (L					Explain in F		
	d Below Dark Surfac	e (A11)	Depleted Oc		(MLRA 1	51)	(-		,	
Thick Da	ark Surface (A12)		Iron-Mangar	nese Mass	es (F12) (LRR O, P	, T) ³ Indicat	ors of hvd	ophytic vegeta	ation and
Coast P	rairie Redox (A16) (MLRA 150A)	Umbric Surfa	ice (F13) (LRR P, T	, U)			gy must be pi	
Sandy M	lucky Mineral (S1) (LRR O, S)	Delta Ochric	(F17) (ML	.RA 151)				ped or problen	
Sandy G	Bleyed Matrix (S4)		Reduced Ver	rtic (F18) (MLRA 15	0A, 150B))			
Sandy R	tedox (S5)		Piedmont Flo							
	Matrix (S6)		Anomalous E	Bright Loar	ny Soils (I	F20) (MLR	RA 149A, 153C,	153D)		
	rface (S7) (LRR P,									
Restrictive I	_ayer (if observed)	:								
Type:			<u>—</u>						,	
Depth (inc	ches):						Hydric Soil F	Present?	Yes	No
Remarks: *S	oil abbreviations: C	l=Clay; Lo=L	oam; Mu=Muck;	Pe- Peat;	Sa= San	d; Si=Silt				

Project/Site: Loncala Tract	City/County: C	harlton County	Sampling Date: <u>04/25/2018</u>			
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: WDP-5			
Investigator(s): C. Terrell / C. Stanford (TTL) Section, Township, Range: Not Available						
			Slope (%): 0-2%			
Subregion (LRR or MLRA): LRR T / MLRA 153A						
Soil Map Unit Name: Leon fine sand, 0-2% slopes		NWI classifi				
Are climatic / hydrologic conditions on the site typical fo			·			
Are Vegetation Yes , Soil No , or Hydrology No						
Are Vegetation No , Soil No , or Hydrology No	significantly disturbed:	(If needed explain any energy	present: res No			
SUMMARY OF FINDINGS – Attach site ma						
			o,portanie router oo, etc.			
	No Is the Sa	ampled Area				
Hydric Soil Present? Yes✓ Wetland Hydrology Present? Yes✓	No within a	Wetland? Yes v	No			
Remarks:						
- Site observations and local hydrological of	lata support abnormally (dry conditions present du	ring eite vieit			
Vegetation historically affected by silvicult		•	ing site visit.			
- vegetation historically affected by silvicul	urai activities (hipping/be	sticiting planted pine).				
HYDROLOGY						
Wetland Hydrology Indicators:		Secondary Indic	cators (minimum of two required)			
Primary Indicators (minimum of one is required; check	all that apply)	Surface Soi	Surface Soil Cracks (B6)			
	uatic Fauna (B13)	Sparsely Ve	egetated Concave Surface (B8)			
<u> </u>	rl Deposits (B15) (LRR U)		atterns (B10)			
<u> </u>	drogen Sulfide Odor (C1)	Moss Trim I				
<u> </u>	idized Rhizospheres along Livii	 '	Water Table (C2)			
, ,	esence of Reduced Iron (C4)	✓ Crayfish Bu	` ,			
	cent Iron Reduction in Tilled Sc		Visible on Aerial Imagery (C9)			
<u> </u>	n Muck Surface (C7)		c Position (D2)			
<u> </u>	ner (Explain in Remarks)	Shallow Aq				
Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9)			✓ FAC-Neutral Test (D5) ✓ Sphagnum moss (D8) (LRR T,U)			
Field Observations:		Opinagnam	111000 (DO) (ERRY 1,0)			
Surface Water Present? Yes No	Depth (inches):					
Water Table Present? Yes ✓ No	Depth (inches): 8"	_				
Saturation Present? Yes Vo No	Depth (inches): 0"	Wetland Hydrology Prese	ent? Yes No			
(includes capillary fringe)	. , ,	-				
Describe Recorded Data (stream gauge, monitoring w	ell, aerial photos, previous insp	pections), if available:				
Remarks: FAC-Neutral Test Results: Positive	FACW and OBL: 11 to FAC	CU and UPL: 1				

Sampling	Deter	WIDD	Ξ
Sampling	Point.	VVDP-	Э

00.6	Absolute	Dominant		Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>) 1		Species?		Number of Dominant Species That Are OBL, FACW, or FAC:8 (A)
2				Total Number of Dominant Species Across All Strata: 9 (B)
4				Percent of Dominant Species That Are OBL, FACW, or FAC: 89% (A/B)
6				Prevalence Index worksheet:
7				
50% of total cover: 20% of total cover: Sapling Stratum (30 ft radius)	0.0	= Total Co	ver	
1. Pinus palustris	25.0	yes	FACU	FACW species x 2 =
2. Acer rubrum	5.0	no	FAC	FAC species x 3 =
3.				FACU species x 4 =
4.				UPL species x 5 =
5				Column Totals: (A) (B)
6.				(b)
7.				Prevalence Index = B/A =
50% of total cover: 15.00 20% of total cover: 6.00 Shrub Stratum (30 ft radius)	30.0	= Total Co	ver	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation
4 llev glahra	10.0	ves	FACW	✓ 2 - Dominance Test is >50%
2. Ilex coriacea	10.0	yes	FACW	3 - Prevalence Index is ≤3.0 ¹
		yes	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
· <u>·</u>			ODL	¹ Indicators of hydric soil and wetland hydrology must
4				be present, unless disturbed or problematic.
5				
6				Definitions of Venetation Chate
7				Definitions of Vegetation Strata:
50% of total cover: 15.00 20% of total cover: 6.00 Herb Stratum (30 ft radius)	30.0	= Total Co	over	Troo Meady plants avaluating was divising
1. Rhynchospora fascicularis	25.0	VAS	FACW	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and
		yes		3 in. (7.6 cm) or larger in diameter at breast
2. Woodwardia virginica3. Lachnanthes caroliniana	10.0	yes	OBL OBL	height (DBH).
	_ 10.0	yes	OBL	
4. Syngonanthus flavidulus	10.0	yes	FACW	Sapling – Woody plants, excluding woody vines,
5. Rubus argutus	10.0	yes	FAC	approximately 20 ft (6 m) or more in height and less
6. Lycopodiella alopecuroides	5.0	no	<u>OBL</u>	than 3 in. (7.6 cm) DBH.
7. Drosera intermedia		no	<u>OBL</u>	Charles W. J.
8. Xyris jupicai	5.0	no	<u>OBL</u>	Shrub – Woody plants, excluding woody vines,
9				approximately 3 to 20 ft (1 to 6 m) in height.
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
50% of total cover: 40.00 20% of total cover: 16.00	80.0	= Total Co	ver	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				
1				Woody vine – All woody vines, regardless of height.
2				
3				
4				
-				Hydrophytic Vegetation
50% of total cover: 20% of total cover:	0.0	= Total Co		Present? Yes No
Remarks: (If observed, list morphological adaptations bel	low). *Plants	not idendif	ied to spec	ies are not used in dominance calculations.

Profile Desc	ription: (Describe	to the depth	needed to document the indicator or co	onfirm the absence of	of indicators.)
Depth	Matrix	<u></u> %	Redox Features	 oc² Texture	Domonico
(inches) 0-6"	Color (moist) 10YR 2/1	<u>%</u> _ 100	Color (moist) % Type ¹ Lo	Sa Texture	Remarks
6-18"	10YR 3/1	100		Sa	
					_
1- 0.0				2,	
Hydric Soil		pletion, RM=F	Reduced Matrix, MS=Masked Sand Grains.		ation: PL=Pore Lining, M=Matrix. for Problematic Hydric Soils ³ :
Histosol			Polyvalue Below Surface (S8) (LRR S		uck (A9) (LRR O)
	pipedon (A2)		Thin Dark Surface (S9) (LRR S, T, U)		uck (A10) (LRR S)
	stic (A3)		Loamy Mucky Mineral (F1) (LRR O)		d Vertic (F18) (outside MLRA 150A,B)
	en Sulfide (A4)		Loamy Gleyed Matrix (F2)		nt Floodplain Soils (F19) (LRR P, S, T)
	d Layers (A5)		Depleted Matrix (F3)		ous Bright Loamy Soils (F20)
	Bodies (A6) (LRR I		Redox Dark Surface (F6)		A 153B)
	icky Mineral (A7) (L esence (A8) (LRR		Depleted Dark Surface (F7)		rent Material (TF2)
	esence (A8) (LRR) ıck (A9) (LRR P, T)		<pre> Redox Depressions (F8) Marl (F10) (LRR U)</pre>		nallow Dark Surface (TF12)
·	d Below Dark Surfa		Depleted Ochric (F11) (MLRA 151)	Other (Explain in Remarks)
	ark Surface (A12)	,	Iron-Manganese Masses (F12) (LRR	RO, P, T) 3 _{Indica}	tors of hydrophytic vegetation and
Coast P	rairie Redox (A16)	(MLRA 150A)	Umbric Surface (F13) (LRR P, T, U)		and hydrology must be present,
	lucky Mineral (S1)	(LRR O, S)	Delta Ochric (F17) (MLRA 151)	un	less disturbed or problematic.
	Gleyed Matrix (S4)		Reduced Vertic (F18) (MLRA 150A,		
	Redox (S5) Matrix (S6)		Piedmont Floodplain Soils (F19) (ML		452D)
	rface (S7) (LRR P,	S. T. U)	Anomalous Bright Loamy Soils (F20)	(WILKA 149A, 193C,	1550)
	Layer (if observed				
Type:		,			_
Depth (in	ches):			Hydric Soil I	Present? Yes / No
Remarks: *S	oil abbreviations: (CI=Clay; Lo=L	oam; Mu=Muck; Pe-Peat; Sa=Sand; S	Si=Silt	
		-			

Project/Site: Loncala Tract	City/C	ounty: Charlton Count	:y	Sampling Date:	04/26/2018	
Applicant/Owner: Twin Pines Minerals,	LLC	St	ate: GA	Sampling Point:	WDP-6	
nvestigator(s): C. Terrell / C. Stanford (TTL) Section, Township, Range: Not Available						
Landform (hillslope, terrace, etc.): Depression				Slop	pe (%): 0-2%	
Subregion (LRR or MLRA): LRR T / MLRA 15						
Soil Map Unit Name: Leon fine sand, 0-2% s						
Are climatic / hydrologic conditions on the site				<u>- </u>		
Are Vegetation Yes, Soil No, or Hydro					✓ No	
Are Vegetation No , Soil No , or Hydro					<u> </u>	
SUMMARY OF FINDINGS – Attach					eatures, etc.	
	_			<u> </u>	,	
	es	Is the Sampled Area				
,	es _ √ No	within a Wetland?	Yes <u>√</u>	No	_	
Remarks:	<u> </u>					
- Site observations and local hydro	logical data support abno	ormally dry conditions	present duri	na site visit		
- Vegetation historically affected by			•	•	ted by	
forest fire during drought conditions	· ·		oa po, aa			
<u> </u>					=	
HYDROLOGY						
Wetland Hydrology Indicators:		<u>S</u>		ators (minimum of	f two required)	
Primary Indicators (minimum of one is requir			Surface Soil		0 ((D0)	
✓ Surface Water (A1) ✓ High Water Table (A2)	Aquatic Fauna (B13) Marl Deposits (B15) (LR	- P II/		getated Concave	Surface (B8)	
✓ Saturation (A3)	Hydrogen Sulfide Odor (Drainage PaMoss Trim L			
Water Marks (B1)	Oxidized Rhizospheres			Water Table (C2))	
Sediment Deposits (B2)	Presence of Reduced Iro	_	Crayfish Bur		,	
Drift Deposits (B3)	Recent Iron Reduction in	Tilled Soils (C6)	Saturation V	isible on Aerial In	nagery (C9)	
Algal Mat or Crust (B4)	Thin Muck Surface (C7)		Geomorphic	Position (D2)		
Iron Deposits (B5)	Other (Explain in Remar		Shallow Aqu			
Inundation Visible on Aerial Imagery (B7	')	7	FAC-Neutral		- 1.0	
Water-Stained Leaves (B9)			Sphagnum n	noss (D8) (LRR T	,U)	
Field Observations:	No. 11 (Seekee) 0.5	<u>,</u> "				
Surface Water Present? Yes V	No Depth (inches): 0.5 No Depth (inches): 6"	<u>'</u>				
	No Depth (inches): 0"	Wotland Hy	drology Preser	√ Voc	No	
(includes capillary fringe)	vo Deptii (iliches)	vvetiand ny	ulology Flesel	it: 165	- NO	
Describe Recorded Data (stream gauge, mo	nitoring well, aerial photos, pre	vious inspections), if availa	able:			
Remarks: FAC-Neutral Test Results: Positive	e FACW and OBL: 8	to FACU and UPL: 0				

Tree Stratum (Plot sizes: 30 ft radius)

Sapling Stratum (30 ft radius)

1. Gordonia lasianthus

Shrub Stratum (30 ft radius) 1. Ilex glabra

Herb Stratum (30 ft radius)

Woody Vine Stratum (30 ft radius)

5. Xyris jupicai

1. Pinus elliottii

Sa	ampling Point: WD	P-6				
Dominance Test worksheet	t:					
Number of Dominant Species That Are OBL, FACW, or FAC		(A)				
Total Number of Dominant Species Across All Strata:	6	(B)				
Percent of Dominant Species That Are OBL, FACW, or FAC		(A/B)				
Prevalence Index workshee	et:					
Total % Cover of:	Multiply by:	_				
OBL species						
FACW species						
FAC species	x 3 =					
FACU species						
	x 5 =					
Column Totals:						
Column rotals.	(A)	_ (D)				
Prevalence Index = B/A	A =	_				
Hydrophytic Vegetation Ind						
✓ 1 - Rapid Test for Hydrophytic Vegetation						
✓ 2 - Dominance Test is >50%						
3 - Prevalence Index is ≤	3.0 ¹					
Problematic Hydrophytic	Vegetation ¹ (Exp	lain)				
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.						
Definitions of Vegetation Strata:						
Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).						
Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.						
Shrub – Woody plants, excapproximately 3 to 20 ft (1 to		; ,				
Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size AND woody plants, except woody vines, less than approximately 3 ft (1 m) in height.						
Woody vine – All woody vines, regardless of height.						

50% of total cover:_____ 20% of total cover:_____ = Total Cover Present? Remarks: (If observed, list morphological adaptations below). *Plants not idendified to species are not used in dominance calculations.

Absolute Dominant Indicator

% Cover Species? Status

Hydrophytic Vegetation

10.0 yes FACW

_____<u>15.0</u> yes FACW

30.0 yes FACW

50% of total cover: $\frac{5.00}{20\%}$ 20% of total cover: $\frac{2.00}{20\%}$ = Total Cover

50% of total cover: $\frac{7.50}{20\%}$ 20% of total cover: $\frac{3.00}{20\%}$ = Total Cover

50% of total cover: 15.00 20% of total cover: 6.00 30.0 = Total Cover

2. Woodwardia virginica ______ 20.0 _yes _OBL

3. Lachnanthes caroliniana 20.0 yes OBL 4. Dichanthelium acuminatum 10.0 no FAC

6. Hypericum tetrapetalum _____5.0 __no __OBL

50% of total cover: <u>45.00</u> 20% of total cover: <u>18.00</u> = Total Cover

1. Scleria triglomerata 25.0 yes FACW

3. ______ ____ ____

		e to the depth	needed to document the indicator or c	onfirm the absence	of indicators.)
Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	oc ² Texture	Remarks
0-18"	10YR 2/1	% 100	Coloi (IIIOISI)	Sa	remarks
0-10	1018 2/1			<u>Sa</u>	
	-				
	-				
	-				
			 	2.	
		pletion, RM=Re	educed Matrix, MS=Masked Sand Grains.		cation: PL=Pore Lining, M=Matrix.
•	Indicators:				for Problematic Hydric Soils ³ :
Histosol			Polyvalue Below Surface (S8) (LRR		luck (A9) (LRR O)
	pipedon (A2)		Thin Dark Surface (S9) (LRR S, T, U		luck (A10) (LRR S)
	istic (A3)		Loamy Mucky Mineral (F1) (LRR O)		ed Vertic (F18) (outside MLRA 150A,B)
	en Sulfide (A4)		Loamy Gleyed Matrix (F2)		ont Floodplain Soils (F19) (LRR P, S, T)
	d Layers (A5)		Depleted Matrix (F3)		lous Bright Loamy Soils (F20)
_	Bodies (A6) (LRR		Redox Dark Surface (F6)		RA 153B)
	ucky Mineral (A7) (L		Depleted Dark Surface (F7)		arent Material (TF2)
	resence (A8) (LRR		Redox Depressions (F8)	-	nallow Dark Surface (TF12)
	uck (A9) (LRR P, T) d Below Dark Surfa		Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151)	Other (Explain in Remarks)
	ark Surface (A12)	ce (ATT)	Iron-Manganese Masses (F12) (LRF	POPT\ 3	
	rairie Redox (A16)	(MI RA 150A)	Umbric Surface (F13) (LRR P, T, U)	ilialoa	tors of hydrophytic vegetation and
	Mucky Mineral (S1)		Offishic Surface (1.13) (ERRT 1, 1, 3) Delta Ochric (F17) (MLRA 151)		and hydrology must be present, nless disturbed or problematic.
	Gleyed Matrix (S4)	(Little 0, 0)	Reduced Vertic (F18) (MLRA 150A,		liess disturbed of problematic.
	Redox (S5)		Piedmont Floodplain Soils (F19) (ML		
	Matrix (S6)		Anomalous Bright Loamy Soils (F20)		153D)
	rface (S7) (LRR P,		/ea.eae 2g.n _ea, eee (: _e)	(, 1000,	
	Layer (if observed				
Type:	, , , , , , , , , , , , , , , , , , , ,	,			
Depth (in	ohoo):		_	Hydric Soil	Present? Yes ✓ No
			-	,	Flesent: les No
Telliaiks. C	oli abbi eviations. (oi-Clay, LU-LU	am; Mu=Muck; Pe-Peat; Sa=Sand; S	51-5111	

Project/Site: Loncala Tract	City/County: Charlto	on County	Sampling Date: <u>04/26/2018</u>
Applicant/Owner: Twin Pines Minerals, LLC			Sampling Point: WDP-7
Investigator(s): C. Terrell / C. Stanford (TTL)	Section Township Ra		
			Slope (%): 0-2%
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.56			
Soil Map Unit Name: Lynn Haven fine sand, 0-2% slopes			
		NWI classifica	
Are climatic / hydrologic conditions on the site typical for this time of ye			
Are Vegetation Yes, Soil No, or Hydrology No significantly			
Are Vegetation No , Soil No , or Hydrology No naturally pr	oblematic? (If no	eeded, explain any answer	s in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing	g sampling point l	locations, transects,	important features, etc.
Hydrophytic Vegetation Present? Yes ✓ No			
Hydrophytic Vegetation Present? Yes Yes No No No No No No No N	is the dampiet	_	
Wetland Hydrology Present? Yes ✓ No	within a Wetla	nd? Yes <u>√</u>	No
Remarks:			
- Site observations and local hydrological data support	t abnormally dry co	onditions present durin	na site visit
Vegetation historically affected by silvicultural activities.		·	•
clear-cutting activities.	(ppg/	.g piantoa pino) ana i	
0.0000			Ħ
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indicat	ors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		Surface Soil (Cracks (B6)
Surface Water (A1) Aquatic Fauna (B	313)	Sparsely Veg	etated Concave Surface (B8)
✓ High Water Table (A2) Marl Deposits (B1		Drainage Patt	erns (B10)
✓ Saturation (A3) Hydrogen Sulfide		Moss Trim Lir	
<u> </u>	heres along Living Roo		Vater Table (C2)
Sediment Deposits (B2) Presence of Redu		Crayfish Burro	1 1
<u> </u>	uction in Tilled Soils (C6	· 	sible on Aerial Imagery (C9)
✓ Algal Mat or Crust (B4) Thin Muck Surfac		Geomorphic F	` '
Iron Deposits (B5) Other (Explain in	Remarks)	Shallow Aquit	l l
Inundation Visible on Aerial Imagery (B7)		✓ FAC-Neutral	
Water-Stained Leaves (B9)		Spnagnum m	oss (D8) (LRR T,U)
Field Observations: Surface Water Present? Yes No _✓ Depth (inches	.).		
Water Table Present? Yes V No Depth (inches			
	o)	etland Hydrology Present	t? Yes No
Saturation Present? Yes <u>▼</u> No Depth (inches (includes capillary fringe)	s): vv e	eliand Hydrology Present	.? res No
Describe Recorded Data (stream gauge, monitoring well, aerial phot	os, previous inspections	s), if available:	
Remarks: FAC-Neutral Test Results: Positive FACW and Of	BL: 9 to FACU and	I UPL: 0	

VEGETATION – Use scientific names of plants.

EGETATION – Use scientific names of plants	S.			Sampling Point: WDP-7
Tree Stratum (Plot sizes: 30 ft radius) 1.		Dominant Species?	Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)
2				Total Number of Dominant Species Across All Strata: 5 (B)
4				Percent of Dominant Species That Are OBL, FACW, or FAC:100% (A/B)
6 7.				Prevalence Index worksheet:
50% of total cover: 20% of total cover: Sapling Stratum (30 ft radius)	0.0	= Total Co	over	
1. Gordonia lasianthus	10.0	yes	FACW	FACW species x 2 =
2.				FAC species x 3 =
3.				FACU species x 4 =
4				UPL species x 5 =
5				Column Totals: (A) (B)
6.				Prevalence Index = B/A =
7				Hydrophytic Vegetation Indicators:
50% of total cover: 5.00 20% of total cover: 2.00 Shrub Stratum (30 ft radius)	10.0	= Total Co	over	1 - Rapid Test for Hydrophytic Vegetation
1. Ilex coriacea	10.0	yes	FACW	✓ 2 - Dominance Test is >50%
_{2.} Sabal minor	10.0	yes	FACW	3 - Prevalence Index is ≤3.0 ¹
3				Problematic Hydrophytic Vegetation ¹ (Explain)
4				¹ Indicators of hydric soil and wetland hydrology must
5				be present, unless disturbed or problematic.
6				
7				Definitions of Vegetation Strata:
50% of total cover: 10.00 20% of total cover: 4.00	20.0	= Total Co	over	
Herb Stratum (30 ft radius)				Tree – Woody plants, excluding woody vines,
1. Rhynchospora fascicularis		yes	FACW	approximately 20 ft (6 m) or more in height and
2. Dichanthelium acuminatum	<u> 10.0</u>	yes	<u>OBL</u>	3 in. (7.6 cm) or larger in diameter at breast height (DBH).
3. Woodwardia virginica	5.0	no	<u>OBL</u>	Height (BBH).
_{4.} Utricularia subulata	5.0	no	OBL	Sapling – Woody plants, excluding woody vines,
_{5.} Xyris jupicai	5.0	no	OBL	approximately 20 ft (6 m) or more in height and less
_{6.} Syngonanthus flavidulus		no	FACW	than 3 in. (7.6 cm) DBH.
7				Shrub – Woody plants, excluding woody vines,
8				approximately 3 to 20 ft (1 to 6 m) in height.
9				
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
Woody Vine Stratum (_30 ft radius)	60.0	= Total Co	over	approximately 3 ft (1 m) in height.
1				Woody vine – All woody vines, regardless of height.
2				
3				
4				Hydrophytic
5 50% of total cover: 20% of total cover:	0.0	= Total Co	over	Vegetation Present? Yes No
Remarks: (If observed, list morphological adaptations be	low). *Plants	not idendif	fied to spec	ies are not used in dominance calculations.

Profile Desc	ription: (Describe	to the dep	th needed to docu	ment the	indicator	or confirn	n the absence of	indicators.)	
Depth	Matrix			x Feature					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	
0-5"	10YR 2/1	100		_			Sa		
5-10.5"	10YR 5/1	50	10YR 2/1	50	MS	M	Sa		
10.5-18	10YR 5/1	100					Sa		
		 -							
		-		-					
		·							
				_					
		letion, RM=	Reduced Matrix, M	S=Masked	d Sand Gra	ains.		tion: PL=Pore Lining, N	
Hydric Soil I								r Problematic Hydric	Soils':
Histosol	` '		Polyvalue Be					ck (A9) (LRR O)	
Histic Ep	pipedon (A2)		Thin Dark Su Loamy Muck					ck (A10) (LRR S) Vertic (F18) (outside N	/II RA 150A B)
	n Sulfide (A4)		Loamy Gleye			0,		t Floodplain Soils (F19)	
	Layers (A5)		Depleted Ma		(- –)			us Bright Loamy Soils (
Organic	Bodies (A6) (LRR P	, T, U)	Redox Dark	Surface (F	- 6)		(MLRA	153B)	
	cky Mineral (A7) (LI		Depleted Da					ent Material (TF2)	
	esence (A8) (LRR L	l)	Redox Depre		(8)		-	llow Dark Surface (TF1	2)
	ck (A9) (LRR P, T) d Below Dark Surfac	ρ (Δ11)	Marl (F10) (L Depleted Oc		(MI DA 18	:1)	Other (Ex	cplain in Remarks)	
	ark Surface (A12)	C (ATT)	Iron-Mangar				T) ³ Indicate	rs of hydrophytic vegeta	ation and
		MLRA 150	A) Umbric Surfa				indicato	nd hydrology must be pr	
Sandy M	lucky Mineral (S1) (I	LRR O, S)	Delta Ochric	(F17) (MI	LRA 151)			ess disturbed or problem	
	leyed Matrix (S4)		Reduced Ve						
	edox (S5)		Piedmont Flo					50D)	
	Matrix (S6) face (S7) (LRR P, \$: T II)	Anomalous I	Bright Loa	my Soils (I	-20) (MLR	RA 149A, 153C, 1	53D)	
	ayer (if observed)								
Type:	,								
Depth (inc	ches):						Hydric Soil Pr	resent? Yes	No
		l=Clav: Lo=	Loam; Mu=Muck;	Pe- Peat	: Sa= San	d: Si=Silt	_		
		3,	, , , ,		,	.,			

Project/Site: Loncala Tract Cit	ty/County: Charlton Count	ty	Sampling Date: <u>04/26/2018</u>			
Applicant/Owner: Twin Pines Minerals, LLC	St	tate: GA	Sampling Point: WDP-8			
nvestigator(s): C. Terrell / C. Stanford (TTL) Section, Township, Range: Not Available						
			Slope (%): <u>0-1%</u>			
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.57078	373580 Long: -8	2.12346477470	Datum: NAD83			
Soil Map Unit Name: Lynn Haven, Allanton and Kingsferry soils, ponded						
Are climatic / hydrologic conditions on the site typical for this time of year	? Yes No (If	no, explain in Re	emarks.)			
Are Vegetation Yes_, Soil No_, or Hydrology No_ significantly dis	sturbed? Are "Normal C	Circumstances" p	resent? Yes <u>√</u> No			
Are Vegetation No , Soil No , or Hydrology No naturally proble						
SUMMARY OF FINDINGS - Attach site map showing s						
Hydrophytic Vegetation Present? Yes ✓ No						
Hydric Soil Present? Yes ✓ No	Is the Sampled Area					
Wetland Hydrology Present? Yes ✓ No	within a Wetland?	Yes <u> </u>	No			
Remarks:						
- Site observations and local hydrological data support al	onormally dry conditions	present durir	na site visit.			
Vegetation recently affected by forest fire during drough	• •	•	_			
r ogotation recently amosted by forcet me daming arough	it contained that recalls	a mg. mer	anty or carropy openion.			
HYDROLOGY						
Wetland Hydrology Indicators:	S	Secondary Indicat	ors (minimum of two required)			
Primary Indicators (minimum of one is required; check all that apply)		Surface Soil (Cracks (B6)			
✓ Surface Water (A1) Aquatic Fauna (B13)	_	Sparsely Veg	etated Concave Surface (B8)			
✓ High Water Table (A2) Marl Deposits (B15)		Drainage Pat	terns (B10)			
✓ Saturation (A3) ✓ Hydrogen Sulfide Od	_	Moss Trim Lir	nes (B16)			
\ <u> </u>		Dry-Season V	Vater Table (C2)			
Sediment Deposits (B2) Presence of Reduce	-	Crayfish Burre	ows (C8)			
_ · · · · · —	on in Tilled Soils (C6)	Saturation Vis	sible on Aerial Imagery (C9)			
Algal Mat or Crust (B4) Thin Muck Surface (_	Geomorphic I				
Iron Deposits (B5) Other (Explain in Re		Shallow Aquit				
Inundation Visible on Aerial Imagery (B7)		✓ FAC-Neutral *				
Water-Stained Leaves (B9)	-	Sphagnum m	oss (D8) (LRR T,U)			
Field Observations:	2"					
Surface Water Present? Yes No Depth (inches): _	<u>2</u> 0"					
Water Table Present? Yes No Depth (inches): _	0"		✓			
Saturation Present? Yes No Depth (inches): _ (includes capillary fringe)	Wetland Hy	drology Present	!? Yes No			
Describe Recorded Data (stream gauge, monitoring well, aerial photos,	nrevious inspections) if avail:	ahle:				
December Necestada Data (etream gaage, memering weil, acital priotee,	providuo inopodiono), ii avait	3510.				
Remarks: FAC-Neutral Test Results: Positive FACW and OBL:	5 to FACU and UPL: 0					
	10 17100 4114 01 21					

Sampling	Point:	WDP-8

T 0: (D) : 20 ft radius	Absolute	Dominant	_	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>) 1. Gordonia lasianthus	-	Species?		Number of Dominant Species That Are OBL FACW or FAC: 4 (A)
	40.0	yes	FACW	That Are OBL, FACW, or FAC: 4 (A)
2. Pinus serotina	30.0	yes	FACW	Total Number of Dominant
3. Nyssa biflora	10.0	no	OBL	Species Across All Strata: 4 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100% (A/B)
6				Prevalence Index worksheet:
7				
50% of total cover: 40.00 20% of total cover: 16.00	0.08	= Total Co	ver	
Sapling Stratum (30 ft radius)				OBL species x 1 =
1				FACW species x 2 =
2				FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5				Column Totals: (A) (B)
6				
7.				Prevalence Index = B/A =
50% of total cover: 20% of total cover: Shrub Stratum (30 ft radius)	0.0	= Total Co	ver	Hydrophytic Vegetation Indicators: ✓ 1 - Rapid Test for Hydrophytic Vegetation
1. Ilex coriacea	40 O	ves	FACW	✓ 2 - Dominance Test is >50%
2				3 - Prevalence Index is ≤3.0 ¹
				Problematic Hydrophytic Vegetation ¹ (Explain)
3				¹ Indicators of hydric soil and wetland hydrology must
4				be present, unless disturbed or problematic.
5				·
6				Definitions of Vanatation Chata
7.				Definitions of Vegetation Strata:
50% of total cover: 20.00 20% of total cover: 8.00 Herb Stratum (_30 ft radius)	40.0	= Total Co	ver	Troo Manda plants avaluding was divising
	20.0	VAC	OBL	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and
				3 in. (7.6 cm) or larger in diameter at breast
2				height (DBH).
3				
4				Sapling – Woody plants, excluding woody vines,
5				approximately 20 ft (6 m) or more in height and less
6				than 3 in. (7.6 cm) DBH.
7				Charle we have a second
8				Shrub – Woody plants, excluding woody vines,
9				approximately 3 to 20 ft (1 to 6 m) in height.
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12.				woody plants, except woody vines, less than
50% of total cover: 15.00 20% of total cover: 6.00	30.0	= Total Co	ver	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				
1				Woody vine – All woody vines, regardless of height.
2				
3.				
4.				
5.				Hydrophytic
50% of total cover: 20% of total cover:	0.0	= Total Co	ver	Vegetation Present? Yes No
Remarks: (If observed list morphological adoptations by	7 OM) *D: .		: ·	in an actual in descionary relation
Remarks: (If observed, list morphological adaptations be	ਰਾਂ∪w). *Plants	not idendif	ed to spec	cies are not used in dominance calculations.

Profile Desc	cription: (Describe	to the depth	n needed to document the indicator or cor	nfirm the absence	e of indicators.)
Depth (in a land)	Matrix		Redox Features Color (moist) % Type ¹ Loc	<u> </u>	Demode
(inches) 0-4"	Color (moist)	%	Color (moist)	Pe Texture	Remarks
4-18"	10YR 2/1	100		Mu	Mucky Mineral
				<u> </u>	
¹ Type: C=C	oncentration, D=Dep	oletion, RM=F	Reduced Matrix, MS=Masked Sand Grains.	² Lc	ocation: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:			Indicators	s for Problematic Hydric Soils ³ :
Histosol	(A1)		Polyvalue Below Surface (S8) (LRR S,	T, U) 1 cm !	Muck (A9) (LRR O)
	pipedon (A2)		Thin Dark Surface (S9) (LRR S, T, U)		Muck (A10) (LRR S)
·	istic (A3)		Loamy Mucky Mineral (F1) (LRR O)		ced Vertic (F18) (outside MLRA 150A,B)
	en Sulfide (A4)		Loamy Gleyed Matrix (F2)		nont Floodplain Soils (F19) (LRR P, S, T)
	d Layers (A5)	T 11\	Depleted Matrix (F3)Redox Dark Surface (F6)		alous Bright Loamy Soils (F20) RA 153B)
_	Bodies (A6) (LRR Fucky Mineral (A7) (L		Redox Dark Surface (F6) Depleted Dark Surface (F7)		Parent Material (TF2)
	resence (A8) (LRR L		Redox Depressions (F8)		Shallow Dark Surface (TF12)
	uck (A9) (LRR P, T)	,	Marl (F10) (LRR U)		(Explain in Remarks)
	d Below Dark Surfac	e (A11)	Depleted Ochric (F11) (MLRA 151)		
Thick Da	ark Surface (A12)		Iron-Manganese Masses (F12) (LRR (O, P, T) ³ Indic	cators of hydrophytic vegetation and
	rairie Redox (A16) (tland hydrology must be present,
	Mucky Mineral (S1) (LRR O, S)	Delta Ochric (F17) (MLRA 151)		unless disturbed or problematic.
	Gleyed Matrix (S4)		Reduced Vertic (F18) (MLRA 150A, 18		
	Redox (S5) I Matrix (S6)		Piedmont Floodplain Soils (F19) (MLR		1620)
	rface (S7) (LRR P, 	S T II)	Anomalous Bright Loamy Soils (F20) (I	WILKA 149A, 153C	, 1930)
	Layer (if observed)				
Type:	,				
Depth (in	ches):			Hydric Soil	I Present? Yes ✓ No
	·	l=Clav: Lo=l	 _oam; Mu=Muck; Pe- Peat; Sa= Sand; Si=	_	
rtomanto. C	on approviduono.	. Olay, 20 1	Touri, Ma Maok, 10 1 oak, oa oana, or	O.I.C	

Project/Site: Loncala Tract		City/C	ounty: Charlton	County	_ Sampling Date:	04/26/2018
Applicant/Owner: Twin Pines	Minerals, LLC			State: GA	_ Sampling Point:	: WDP-9
nvestigator(s): C. Terrell / C. Stanford (TTL) Section, Township, Range: Not Available						
Landform (hillslope, terrace, etc.				ivex, none): None	Slo	pe (%): 0-2%
Subregion (LRR or MLRA): LRF						
Soil Map Unit Name: Lynn Have				NWI classif		
Are climatic / hydrologic conditio						
Are Vegetation Yes , Soil No						✓ No
Are Vegetation No , Soil No						<u> </u>
SUMMARY OF FINDINGS						eatures, etc.
			1 31	,	-, p	
Hydrophytic Vegetation Present			Is the Sampled A			
Hydric Soil Present? Wetland Hydrology Present?	Yes <u>√</u>	No	within a Wetland	? Yes <u>v</u>	No	_
Remarks:	163 <u>V</u>	NO				
- Site observations and I	local hydrological de	ata sunnort ahno	ormally dry cond	litions present du	rina eite vieit	
- Vegetation historically					•	d due to
hydric conditions.	impacted by silvicul	iurai activities (ii	ipping/benching	g planted pine), bi	ut trees sturite	a due to
Trydric conditions.						E
HYDROLOGY						
Wetland Hydrology Indicator	s:			Secondary Indic	cators (minimum o	f two required)
Primary Indicators (minimum of	f one is required; check a	all that apply)		Surface Soi	il Cracks (B6)	
✓ Surface Water (A1)		atic Fauna (B13)		Sparsely Ve	egetated Concave	Surface (B8)
✓ High Water Table (A2)		Deposits (B15) (LR			atterns (B10)	
✓ Saturation (A3)		rogen Sulfide Odor (Moss Trim		
Water Marks (B1)		lized Rhizospheres			Water Table (C2)
Sediment Deposits (B2)		sence of Reduced Iro		✓ Crayfish Bu	, ,	(00)
Drift Deposits (B3)		ent Iron Reduction in	i filled Solls (Cb)		Visible on Aerial In	nagery (C9)
Algal Mat or Crust (B4) Iron Deposits (B5)		Muck Surface (C7) er (Explain in Remar	·ke)	Geomorphi	c Position (D2)	
Inundation Visible on Aeria		or (Explain in Nomal	K3)	✓ FAC-Neutra		
Water-Stained Leaves (B9					moss (D8) (LRR 1	Γ,U)
Field Observations:					. , , ,	,
Surface Water Present?	Yes No [Depth (inches): 2"				
Water Table Present?	Yes <u> </u>	Depth (inches): 2"_			,	
Saturation Present? (includes capillary fringe)	Yes No [Depth (inches): 0"	Wetla	and Hydrology Prese	ent? Yes	
Describe Recorded Data (strea	ım gauge, monitoring we	II, aerial photos, pre	vious inspections), i	if available:		
Remarks: FAC-Neutral Test Re-	sults: Positive F	ACW and OBL: 14	to FACU and UF	PL: 1		

VEGETATION – Use scientific names of plants.

EGETATION – Use scientific names of plants.	•			Sampling Point: WDP-9
00.6	Absolute			Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>) 1	% Cover	Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant Species Across All Strata:16 (B)
4				Percent of Dominant Species That Are OBL, FACW, or FAC: 94% (A/B)
6				
7				Prevalence Index worksheet:
50% of total cover: 20% of total cover: 20% of total cover: 30 ft radius)	0.0	= Total Co	over	Total % Cover of: Multiply by: OBL species x 1 =
1. Pinus palustris	10.0	yes	FACU	FACW species x 2 =
2.				FAC species x 3 =
3.				FACU species x 4 =
4				UPL species x 5 =
5.				Column Totals: (A) (B)
6.				
7.				Prevalence Index = B/A =
50% of total cover: 5.00 20% of total cover: 2.00	10.0	= Total Co	over	Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)				√ 1 - Rapid Test for Hydrophytic Vegetation
_{1.} Ilex glabra	5.0	yes	<u>FACW</u>	✓ 2 - Dominance Test is >50%
2. Persea borbonia	5.0	yes	<u>FACW</u>	3 - Prevalence Index is ≤3.0 ¹
3. Hypericum galioides	5.0	yes	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
4			-	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5				be present, unless disturbed of problematic.
6				
7				Definitions of Vegetation Strata:
50% of total cover: 7.50 20% of total cover: 3.00 Herb Stratum (30 ft radius)	15.0	= Total Co	over	Tree – Woody plants, excluding woody vines,
1. Lachnanthes caroliniana	40.0	yes	OBL	approximately 20 ft (6 m) or more in height and
2. Fuirena scirpoidea	5.0	yes	OBL	3 in. (7.6 cm) or larger in diameter at breast
3. Eriocaulon decangulare	5.0	yes	OBL	height (DBH).
4. Pinguicula caerulea	5.0	yes	OBL	Conling Weeds plants evaluating successions
5. Aletris lutea	5.0	yes	FACW	Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less
6. Sarracenia minor	5.0	yes	OBL	than 3 in. (7.6 cm) DBH.
7. Pogonia ophioglossoides	5.0	yes	OBL	
8. Cleistesiopsis divaricata	5.0	yes	FAC	Shrub – Woody plants, excluding woody vines,
9. Spiranthes praecox	5.0	yes	FACW	approximately 3 to 20 ft (1 to 6 m) in height.
10. Drosera intermedia	5.0	yes	OBL	
11. Smilax laurifolia	5.0	yes	FACW	Herb – All herbaceous (non-woody) plants, including
12. Woodwardia virginica	5.0	yes	OBL	herbaceous vines, regardless of size AND woody plants, except woody vines, less than
50% of total cover: 47.50 20% of total cover: 19.00	95.0	= Total Co		approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)	90.0	- 10tal Ct	Jvei	
1				Woody vine – All woody vines, regardless of height.
2.				
3.				
4.				
5.			-	Hydrophytic
	0.0	= Total Co	over	Vegetation Present? Yes No

Remarks: (If observed, list morphological adaptations below). *Plants not idendified to species are not used in dominance calculations.

Typical bog habitat observed within planted pine area. Multiple similar areas observed in the nearby vicinity of the site.

	cription: (Describe	e to the dep	oth needed to docu			or confirn	n the absence	of indicators.)
Depth	Matrix Color (moist)	%		ox Feature		Loc ²	Texture	Domarko
(inches) 0-2"	10YR 2/1	100	Color (moist)	%	Type ¹	LUC	Sa	Remarks
			40)/D 0/4					
2-18"	10YR 5/1	60	10YR 3/1	40	MS	<u>M</u>	Sa	
				_				
			-					
1- 0 0							2.	
Hydric Soil		epletion, RM	=Reduced Matrix, M	1S=Masked	d Sand Gr	ains.		cation: PL=Pore Lining, M=Matrix. for Problematic Hydric Soils ³ :
Histosol			✓ Polyvalue B	olow Surfa) (S2) (I	DD C T I		luck (A9) (LRR O)
	pipedon (A2)		Thin Dark S					luck (A10) (LRR S)
	stic (A3)		Loamy Muc					ed Vertic (F18) (outside MLRA 150A,B)
	en Sulfide (A4)		Loamy Gley			·		ont Floodplain Soils (F19) (LRR P, S, T)
	d Layers (A5)		Depleted Ma					llous Bright Loamy Soils (F20)
	Bodies (A6) (LRR		Redox Dark					RA 153B)
	icky Mineral (A7) (L esence (A8) (LRR		Depleted Da Redox Depl					arent Material (TF2)
	esence (A6) (LRR ıck (A9) (LRR P, T)		Redox Depi		(0)		-	hallow Dark Surface (TF12) (Explain in Remarks)
	d Below Dark Surfa		Depleted O		(MLRA 1	51)	Other (Explain in Remarks)
	ark Surface (A12)	, ,	Iron-Manga				, T) ³ Indica	ators of hydrophytic vegetation and
	rairie Redox (A16)					, U)		land hydrology must be present,
	flucky Mineral (S1)	(LRR O, S)	Delta Ochrid					nless disturbed or problematic.
	Gleyed Matrix (S4) Redox (S5)		Reduced Ve Piedmont F					
	Matrix (S6)		Anomalous					153D)
	rface (S7) (LRR P,	S, T, U)	/ #1011141040	Drigin Loa	my conc (20) (2.		1002)
	Layer (if observed							
Type:								
Depth (in	ches):						Hydric Soil	Present? Yes No
Remarks: *S	oil abbreviations: (CI=Clay; Lo	=Loam; Mu=Muck;	Pe- Peat	; Sa= Sar	d; Si=Silt		

Project/Site: Loncala Tract	City/County: Charlton Cou	ınty	Sampling Date: <u>04/27/2018</u>		
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: WDP-10		
Investigator(s): C. Terrell / C. Stanford (TTL)			. 0		
Landform (hillslope, terrace, etc.): Depression	_ Local relief (concave, convex,	none): Concave	Slope (%): 0-1%		
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.5	8064112260 Long:	-82.12440825140	Datum: NAD83		
Soil Map Unit Name: Lynn Haven, Allanton and Kingsferry soils, por					
Are climatic / hydrologic conditions on the site typical for this time of	year? Yes No <u>√</u>	(If no, explain in R	emarks.)		
Are Vegetation No Soil No or Hydrology No significant	ly disturbed? Are "Norma	al Circumstances" p	oresent? Yes No		
Are Vegetation No , Soil No , or Hydrology No naturally p					
SUMMARY OF FINDINGS – Attach site map showir					
Hydrophytic Vegetation Present? Yes _ ✓ No					
Hydrophytic Vegetation Present? Yes ✓ No Hydric Soil Present? Yes ✓ No No No No No No No	is the Sampled Area				
Wetland Hydrology Present? Yes ✓ No		Yes <u>√</u>	No		
Remarks:	-				
- Site observations and local hydrological data suppo	rt abnormally dry conditio	ns present duri	na site visit		
and observations and local my drong loan data suppo	t abriding ary condition	no procent dan	ing one view		
HYDROLOGY					
Wetland Hydrology Indicators:		Secondary Indica	tors (minimum of two required)		
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil	Cracks (B6)		
Surface Water (A1) Aquatic Fauna (B13)	Sparsely Ve	getated Concave Surface (B8)		
✓ High Water Table (A2) Marl Deposits (E		Drainage Patterns (B10)			
✓ Saturation (A3)		Moss Trim Li	ines (B16)		
<u> </u>	pheres along Living Roots (C3)) Dry-Season Water Table (C2)			
Sediment Deposits (B2) Presence of Rec	Crayfish Burrows (C8)				
Drift Deposits (B3) Recent Iron Rec	Saturation Visible on Aerial Imagery (C9)				
Algal Mat or Crust (B4) Thin Muck Surfa		Geomorphic	Position (D2)		
Iron Deposits (B5) Other (Explain i	n Remarks)	Shallow Aqui			
Inundation Visible on Aerial Imagery (B7)		✓ FAC-Neutral			
Water-Stained Leaves (B9)		Sphagnum n	noss (D8) (LRR T,U)		
Field Observations:					
Surface Water Present? Yes No _ ✓ Depth (inche	s):				
Water Table Present? Yes ✓ No Depth (inche	s): <u>0</u>		✓		
Saturation Present? Yes No Depth (inche (includes capillary fringe)	s): Wetland I	Hydrology Presen	t? Yes No		
Describe Recorded Data (stream gauge, monitoring well, aerial pho	otos, previous inspections), if av	ailable:			
Remarks: FAC-Neutral Test Results: Positive FACW and C	DBL: 7 to FACU and UPL:	0			

Sampling	Point:	WDP-10
Sambiinu	Point.	V V DI - 10

70 ft radius	Absolute	Dominant		Dominance Test worksheet:		
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>) 1. Gordonia lasianthus		Species?		Number of Dominant Species That Are OBL_FACW_or_FAC: 9 (A)		
2. Taxodium ascendens	35.0	yes	FACW	That Are OBL, FACW, or FAC: 9 (A)		
3. Pinus serotina	25.0	yes	OBL	Total Number of Dominant		
··-	20.0	yes	<u>FACW</u>	Species Across All Strata: 9 (B)		
4				Percent of Dominant Species		
5				That Are OBL, FACW, or FAC: 100% (A/B)		
6				Prevalence Index worksheet:		
7				Total % Cover of: Multiply by:		
50% of total cover: 40.00 20% of total cover: 16.00 Sapling Stratum (30 ft radius)	80.0	= Total Co	ver	OBL species x 1 =		
1. Gordonia lasianthus	20.0	yes	FACW	FACW species x 2 =		
2. Magnolia virginiana		yes	FACW	FAC species x 3 =		
3.				FACU species x 4 =		
4.				UPL species x 5 =		
5.				Column Totals: (A) (B)		
6.						
7.				Prevalence Index = B/A =		
50% of total cover: 15.00 20% of total cover: 6.00 Shrub Stratum (30 ft radius)	30.0	= Total Co	ver	Hydrophytic Vegetation Indicators: ✓ 1 - Rapid Test for Hydrophytic Vegetation		
1. Ilex coriacea	40.0	yes	FACW	✓ 2 - Dominance Test is >50%		
2.				3 - Prevalence Index is ≤3.0 ¹		
3.				Problematic Hydrophytic Vegetation ¹ (Explain)		
4.				¹ Indicators of hydric soil and wetland hydrology must		
5.				be present, unless disturbed or problematic.		
6.						
7				Definitions of Vegetation Strata:		
50% of total cover: 20.00 20% of total cover: 8.00	40.0	= Total Co	ver			
Herb Stratum (30 ft radius)				Tree – Woody plants, excluding woody vines,		
1. Toxicodendron radicans		yes	<u>FAC</u>	approximately 20 ft (6 m) or more in height and		
2. Smilax laurifolia	5.0	yes	<u>FACW</u>	3 in. (7.6 cm) or larger in diameter at breast height (DBH).		
3				Height (DDH).		
4				Sapling – Woody plants, excluding woody vines,		
5				approximately 20 ft (6 m) or more in height and less		
6				than 3 in. (7.6 cm) DBH.		
7				Ohmah was a same a same		
8				Shrub – Woody plants, excluding woody vines,		
9				approximately 3 to 20 ft (1 to 6 m) in height.		
10				Herb – All herbaceous (non-woody) plants, including		
11. 3				herbaceous vines, regardless of size AND		
12				woody plants, except woody vines, less than		
50% of total cover: 7.50 20% of total cover: 19.00	15.0	= Total Co	ver	approximately 3 ft (1 m) in height.		
Woody Vine Stratum (30 ft radius)				Moody wine All I i I I I I I I I		
1. Vitis rotundifolia				- Woody vine – All woody vines, regardless of heig		
2						
3						
4				Hydrophytic		
5				Vegetation		
50% of total cover: 5.00 20% of total cover: 2.00		= Total Co	ver	Present? Yes No		

Remarks: (If observed, list morphological adaptations below). *Plants not idendified to species are not used in dominance calculations.

Typical bog habitat observed within planted pine area. Multiple similar areas observed in the nearby vicinity of the data point.

Profile Desc	ription: (Describe	to the depth	needed to docur	nent the i	ndicator o	or confirm	the absence	of indicate	ors.)			
Depth Matrix		Redox Features				_						
(inches)	Color (moist)		Color (moist)	%	Type'	Loc ²	Texture		Remarks			
0-18"	10YR 2/1	100					Mu	Mucky I	Mineral			
				-								
	-			- ——								
1- 0.0							2,	·	D 111 1			
Hydric Soil	oncentration, D=Dep	Dietion, RIVI=R	reduced Matrix, Mis	5=IVIasked	Sand Gra	iins.			=Pore Lining, N matic Hydric \$			
•			D		(00) (1)				-	50115 .		
Histosol	` '		Polyvalue Be					Muck (A9) (I	•			
	pipedon (A2)		Thin Dark Su				2 cm Muck (A10) (LRR S)					
Black Hi	n Sulfide (A4)		Loamy Muck			0)	Reduced Vertic (F18) (outside MLRA					
	l Layers (A5)			my Gleyed Matrix (F2) Piedmont Floodplain Soils (
	Bodies (A6) (LRR F	т 11)								ous Bright Loamy Soils (F20)		
	icky Mineral (A7) (L		Depleted Dai	,	,			RA 153B) arent Mater	ial (TF2)			
	esence (A8) (LRR I		Redox Depre							2)		
	ick (A9) (LRR P, T)	-,	Marl (F10) (L		-,		Very Shallow Dark Surface (TF12)Other (Explain in Remarks)					
	Below Dark Surface	ce (A11)	Depleted Ocl		(MLRA 15	51)	0.1101	(Explain in	rtomanto)			
Thick Da	ark Surface (A12)	. ,	Iron-Mangar				T) 3 _{Indic}	ators of hyd	rophytic vegeta	ation and		
Coast P	rairie Redox (A16) (MLRA 150A)	Umbric Surfa	ce (F13) (LRR P, T,	U)			ogy must be pr			
Sandy M	lucky Mineral (S1) (LRR O, S)	Delta Ochric	(F17) (ML	.RA 151)				bed or problem			
	leyed Matrix (S4)		Reduced Ver									
	edox (S5)		Piedmont Flo									
	Matrix (S6)		Anomalous E	Bright Loar	my Soils (F	20) (MLR	A 149A, 153C	i, 153D)				
	rface (S7) (LRR P,						1					
	_ayer (if observed)											
Type:									./			
Depth (inc	,		<u> </u>				Hydric Soil	Present?	Yes	No		
Remarks: *S	oil abbreviations: C	l=Clay; Lo=L	.oam; Mu=Muck;	Pe- Peat;	Sa= San	d; Si=Silt						

Project/Site: Loncala Tract	City/County: Char	Iton County	Sampling Date: 04/27/2018		
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: WDP-11		
Investigator(s): C. Terrell / C. Stanford (TTL)	Section, Township,				
			Slope (%): 0-2%		
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat:	30.57540847230	Long:82.13472294090	Datum: NAD83		
		NWI classific			
Are climatic / hydrologic conditions on the site typical for this tim	ne of year? Yes N	o <u>√</u> (If no, explain in R	emarks.)		
Are Vegetation No , Soil No , or Hydrology No signi			oresent? Yes <u>√</u> No		
Are Vegetation No , Soil No , or Hydrology No nature					
SUMMARY OF FINDINGS – Attach site map sho					
Hydrophytic Vegetation Present? Yes ✓ No _					
Hydric Soil Present? Yes ✓ No _	is the Samp	_			
Wetland Hydrology Present? Yes ✓ No _		tland? Yes <u>√</u>	No		
Remarks:					
- Site observations and local hydrological data su	upport abnormally dry	conditions present duri	na site visit.		
-The observed portion of the wetland has recently	, ,	•	5		
, ,	, 1	J			
			+		
HYDROLOGY					
Wetland Hydrology Indicators:		Secondary Indica	tors (minimum of two required)		
Primary Indicators (minimum of one is required; check all that	apply)	Surface Soil	Cracks (B6)		
Surface Water (A1) Aquatic Fa	una (B13)	Sparsely Veg	getated Concave Surface (B8)		
✓ High Water Table (A2) Marl Deposit	sits (B15) (LRR U)	Drainage Pa	Drainage Patterns (B10)		
✓ Saturation (A3) Hydrogen S	Moss Trim Li	ines (B16)			
Water Marks (B1) Oxidized R	Rhizospheres along Living R	coots (C3) Dry-Season	Dry-Season Water Table (C2)		
Sediment Deposits (B2) Presence of	of Reduced Iron (C4)	✓ Crayfish Burn	rows (C8)		
Drift Deposits (B3) Recent Iron	n Reduction in Tilled Soils (C6) Saturation Vi	sible on Aerial Imagery (C9)		
	Surface (C7)	Geomorphic	Position (D2)		
Iron Deposits (B5) Other (Exp	olain in Remarks)	Shallow Aqui			
Inundation Visible on Aerial Imagery (B7)		✓ FAC-Neutral	` '		
Water-Stained Leaves (B9)		✓ Sphagnum n	noss (D8) (LRR T,U)		
Field Observations:					
Surface Water Present? Yes No Depth (
Water Table Present? Yes No Depth ((inches): 8.5"		✓		
Saturation Present? Yes _ ✓ No Depth ((includes capillary fringe)	(inches): <u>0"</u>	Wetland Hydrology Presen	t? Yes No		
Describe Recorded Data (stream gauge, monitoring well, aeria	l al photos, previous inspecti	ons), if available:			
	p	,,			
Remarks: FAC-Neutral Test Results: Positive FACW	and OBL: 13 to FACU a	and LIPL: 0			
TAOW	and OBE. 10 to 1 AOO 6	illa of E. o			

Sampling Point	WDP-11
Sambling Point	V V D I - I I

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>) 1.		Species?		Number of Dominant Species That Are OBL, FACW, or FAC:8 (A)
2				Total Number of Dominant Species Across All Strata: 8 (B)
4. 5.				Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)
6				
7				Prevalence Index worksheet:
50% of total cover: 20% of total cover: Sapling Stratum (30 ft radius)	0.0	= Total Co	ver	
1. Acer rubrum	5.0	yes	FAC	FACW species x 2 =
2. Gordonia lasianthus	5.0	yes	FACW	FAC species x 3 =
3				FACU species x 4 =
4.				UPL species x 5 =
5.				Column Totals: (A) (B)
6.				
7.				Prevalence Index = B/A =
50% of total cover: 20% of total cover: Shrub Stratum (30 ft radius)	10.0	= Total Co	ver	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation
1. Lyonia lucida	5.0	yes	FACW	√ 2 - Dominance Test is >50%
2. Ilex glabra		yes	FACW	3 - Prevalence Index is ≤3.0 ¹
3. Ilex coriacea	5.0		FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
4		J ~ -	17.0	¹ Indicators of hydric soil and wetland hydrology must
			-	be present, unless disturbed or problematic.
5				
6				Definitions of Vegetation Strata:
7	15.0			Definitions of Vegetation Strata.
Herb Stratum (30 ft radius)	15.0	= Total Co	ver	Tree – Woody plants, excluding woody vines,
1. Woodwardia virginica	20.0	yes	OBL	approximately 20 ft (6 m) or more in height and
2. Andropogon glomeratus	20.0	yes	FACW	3 in. (7.6 cm) or larger in diameter at breast
3. Lachnanthes caroliniana	20.0	yes	OBL	height (DBH).
4. Polygala lutea	5.0	no	FACW	
5. Xyris jupicai	5.0	no	OBL	Sapling – Woody plants, excluding woody vines,
6. Syngonanthus flavidulus		no	FACW	approximately 20 ft (6 m) or more in height and less
7. Lycopodiella alopecuroides	5.0			than 3 in. (7.6 cm) DBH.
	5.0	no	OBL	Shrub – Woody plants, excluding woody vines,
8. Osmunda cinnamomea	5.0	no	FACW_	approximately 3 to 20 ft (1 to 6 m) in height.
9. Utricularia subulata		no	OBL	spp. o
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12.				woody plants, except woody vines, less than
50% of total cover: 45.00 20% of total cover: 18.00 Woody Vine Stratum (30 ft radius)	90.0	= Total Co	ver	approximately 3 ft (1 m) in height.
1				Woody vine – All woody vines, regardless of height.
2				
3				
4				
5.				Hydrophytic Vegetation
50% of total cover: 20% of total cover:	0.0	= Total Co		Present? Yes No
Remarks: (If observed, list morphological adaptations be	low). *Plants	not idendif	ied to spec	ies are not used in dominance calculations.

SOIL Sampling Point: WDP-11

Profile Desc	ription: (Describe	to the depth	needed to docur	nent the i	ndicator	or confirn	n the absence o	of indicato	rs.)	
Depth	Matrix			x Features	- 1					
(inches)	Color (moist)	<u>%</u>	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>		Remarks	
0-18"	10YR 2/1	100					Sa			
	-			- ——	-					
·	-									
¹ Type: C=Co	oncentration, D=Dep	oletion, RM=R	Reduced Matrix, MS	S=Masked	Sand Gra	ains.	² Loc	ation: PL=	Pore Lining, N	∕I=Matrix.
Hydric Soil	Indicators:						Indicators f	or Probler	natic Hydric	Soils³:
Histosol	(A1)		Polyvalue Be	low Surfa	ce (S8) (L	RR S, T, L	J) 1 cm Mu	uck (A9) (L	RR O)	
Histic Ep	pipedon (A2)		Thin Dark Su					uck (A10) (•	
Black Hi			Loamy Muck							/ILRA 150A,B)
	n Sulfide (A4)		Loamy Gleye			-				(LRR P, S, T)
	d Layers (A5)		Depleted Ma		-				Loamy Soils (
	Bodies (A6) (LRR F	P, T, U)	Redox Dark		6)			A 153B)	. ,	
_	icky Mineral (A7) (L		Depleted Da	rk Surface	(F7)			rent Materi	al (TF2)	
	esence (A8) (LRR l		Redox Depre						Surface (TF1	2)
	ick (A9) (LRR P, T)		Marl (F10) (L					Explain in F		
	d Below Dark Surfac	e (A11)	Depleted Oc		(MLRA 1	51)	(-		,	
Thick Da	ark Surface (A12)		Iron-Mangar	nese Mass	es (F12) (LRR O, P	, T) ³ Indicat	ors of hvd	ophytic vegeta	ation and
Coast P	rairie Redox (A16) (MLRA 150A)	Umbric Surfa	ice (F13) (LRR P, T	, U)			gy must be pi	
Sandy M	lucky Mineral (S1) (LRR O, S)	Delta Ochric	(F17) (ML	.RA 151)				ped or problen	
Sandy G	Bleyed Matrix (S4)		Reduced Ver	rtic (F18) (MLRA 15	0A, 150B))			
Sandy R	tedox (S5)		Piedmont Flo							
	Matrix (S6)		Anomalous E	Bright Loar	ny Soils (I	F20) (MLR	RA 149A, 153C,	153D)		
	rface (S7) (LRR P,									
Restrictive I	_ayer (if observed)	:								
Type:			<u>—</u>						,	
Depth (inc	ches):						Hydric Soil F	Present?	Yes	No
Remarks: *S	oil abbreviations: C	l=Clay; Lo=L	oam; Mu=Muck;	Pe- Peat;	Sa= San	d; Si=Silt				

APPENDIX D
rth Carolina (NC) Division of Water Quality (DWQ) Stream Identification Forms
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rth Carolina (NC) Division of Water Quality (DWQ) Stream Identification Forms

NC Division of Water Quality –Methodology for Identification of Intermittent and Perennial Streams and Their Origins v. 4.11

Project/Site:

Loncala Tract

Stream ID: S1

30.57402072080

Latitude:

NC DWQ Stream Identification Form Version 4.11

04/27/2018

Date:

Total Points: Itream is at least intermittent 27.00	Stream	Intermittent		7.5 Minute: Moniac, GA & Saint George,
tream is at least intermittent 27.00 ≥ 19 or perennial if ≥ 30*	Determination:	momme	e.g. Quad Name:	GA & Saint George,
				
. Geomorphology (Subtotal = 9.00)	Absent	Weak	Moderate	Strong
^{a.} Continuity of channel bed and bank	0	1 ✓	2	3
. Sinuosity of channel along thalweg	0	1	2 √	3
. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1 🗸	2	3
. Particle size of stream substrate	0	1 ✓	2	3
. Active/relict floodplain	0	1	2 √	3
. Depositional bars or benches	0 ✓	1	2	3
. Recent alluvial deposits	0	1 ✓	2	3
. Headcuts	0 ✓	1	2	3
. Grade control	0	0.5 ✓	1	1.5
0. Natural valley	0	0.5 ✓	1	1.5
Second or greater order channel	No	o = 0 ✓	Yes =	= 3
artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = $\frac{9.00}{1000}$)				
2. Presence of Baseflow	0	1	2 ✓	3
	0	1	2 ✓	3
Iron oxidizing bacteria Leaf litter	1.5	1 ✓	0.5	0
5. Sediment on plants or debris	0	0.5 ✓	1	1.5
6. Organic debris lines or piles	0	0.5 ✓	1	1.5
7. Soil-based evidence of high water table?	-	0 = 0	Yes =	
C. Biology (Subtotal = 9.00)		-		
8. Fibrous roots in streambed	3	2 🗸	1	0
9. Rooted upland plants in streambed	3 ✓	2	1	0
Macrobenthos (note diversity and abundance)	0	1 🗸	2	3
1. Aquatic Mollusks	0 🗸	1	2	3
2. Fish	0	0.5 ✓	1	1.5
3. Crayfish	0	0.5 ✓	1	1.5
4. Amphibians	0	0.5 ✓	1	1.5
5. Algae	0 🗸	0.5	1	1.5
		FACW = 0.75	✓ OBL = 1.5 Othe	er = 0
6. Wetland plants in streambed				
Wetland plants in streambedperennial streams may also be identified using other method	s. See p. 35 of manua	al.		

NC Division of Water Quality –Methodology for Identification of Intermittent and Perennial Streams and Their Origins v. 4.11

Project/Site:

Loncala Tract

Stream ID: S2

30.57499822120

Latitude:

NC DWQ Stream Identification Form Version 4.11

04/27/2018

Date:

Evaluator: TTL, Inc./C. Terrell	County:	Charlton	Longitude:	-82.13366262730
Fotal Points: Stream is at least intermittent 25.00 $f \ge 19$ or perennial if $\ge 30^*$	Stream Determination	Intermittent :	e.g. Quad Name	7.5 Minute: Moniac GA & Saint George GA
A. Geomorphology (Subtotal = 8.00	Absent	Weak	Moderate	Strong
a. Continuity of channel bed and bank	0	1 🗸	2	3
2. Sinuosity of channel along thalweg	0	1 🗸	2	3
B. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1 🗸	2	3
Particle size of stream substrate	0	1 ✓	2	3
5. Active/relict floodplain	0	1	2 ✓	3
S. Depositional bars or benches	0 ✓	1	2	3
7. Recent alluvial deposits	0	1 ✓	2	3
B. Headcuts	0 ✓	1	2	3
). Grade control	0	0.5 ✓	1	1.5
0. Natural valley	0	0.5 ✓	1	1.5
Second or greater order channel		No = 0 ✓	Yes	= 3
artificial ditches are not rated; see discussions in mar B. Hydrology (Subtotal = 8.00)	nual			
2. Presence of Baseflow	0	1 🗸	2	3
Iron oxidizing bacteria	0	1	2 √	3
4. Leaf litter	1.5	1 ✓	0.5	0
Sediment on plants or debris	0	0.5 ✓	1	1.5
Organic debris lines or piles	0	0.5 ✓	1	1.5
7. Soil-based evidence of high water table?		No = 0		= 3 ✓
C. Biology (Subtotal = 9.00)				
8. Fibrous roots in streambed	3	2 ✓	1	0
Rooted upland plants in streambed	3 √	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1 🗸	2	3
21. Aquatic Mollusks	0 ✓	1	2	3
22. Fish	0	0.5 ✓	1	1.5
23. Crayfish	0	0.5 ✓	1	1.5
24. Amphibians	0	0.5 ✓	1	1.5
25. Algae	0 🗸	0.5	1	1.5
		FACW = 0.75	✓ OBL = 1.5 Oth	ner = 0
26. Wetland plants in streambed				
26. Wetland plants in streambed *perennial streams may also be identified using other	methods. See p. 35 of manu	ıal.		

APPENDIX E

USACE Savannah District Request for Corps of Engineers Jurisdictional Determination (JD) and/or Delineation Review Form



SAS APPENDIX 1: Request for Corps of Engineers Jurisdictional Determination (JD) and/or Delineation Review

I.	Reason for request: (check as many as applicable)
	I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all aquatic resources.
	I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all jurisdictional aquatic resources under Corps authority.
1	I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.
	I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permitting process.
	I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district Section 1O list and/or is subject to the ebb and flow of the tide.
	A Corps JD is required in order to obtain my local/state authorization.
	I intend to contest jurisdiction over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.
	I believe that the site may be comprised entirely of dry land.
	Other:
	I am requesting that the U.S. Army Corps of Engineers, Savannah District, provide me with the following: Delineation Review of Aquatic Resources - Concurrence with an aquatic resource delineation is a written notification from the Corps concurring, not concurring, or commenting on the aquatic resource boundaries, or limits, delineated on a property.
∐ ; I	Preliminary Jurisdictional Determination - (PJD). A PJD is defined in Corps regulations at 33 CFR 331.2, as "written indications that there may be waters of the United States on a parcel". When the Corps provides a PJD, the Corps is making no legally binding determination of any type regarding whether jurisdiction exists over the particular aquatic resource in question.
	Approved Jurisdictional Determination - (AJD) An AJD is defined in Corps regulations at 33 CFR 331.2. A definitive, official determination that there are, or that there are not, jurisdictional aquatic resources on a parcel.
	am unclear as to what I would like to request and require additional information to inform my decision.

III. Property/Owner Information. Please complete <u>ALL</u> of the following information for the property under review:

SECTION 1

Parcel Number of Property: 0036 001001

Lat. 30.576162 Long. - 82.128950 (in decimal degrees)

Parcel Address:

Parcel City: Saint George Parcel County: Charlton Zip:

Size of Review Area: 1,012 Acre(s) Variable Linear feet

SECTION 2

LANDOWNER NAME AUTHORIZED AGENT'S NAME

First: Steve First: Cindy

Last: Ingle Last: House-Pearson

Company: Twin Pines Minerals, LLC Company: TTL, Inc.

Email Address: single@greenfuelsenergy.com Email Address: chpearson@ttlusa.com

Address: 2100 Southbridge Parkway, Ste. 540 Address: 3516 Greensboro Avenue

City: Birmingham City: Tuscaloosa

State: AL Zip: 35209 State: AL Zip: 35401

Phone: 205-545-8759 Phone: 251-327-6153

PROPERTY ACCESS PERMISSION, AKNOWLEDGEMENT OF 18 U.S.C. SECTION 10001 AND STATEMENT OF AGENT AUTHORIZATION

Initial ONLY One:

By signing below, I certify that I am the owner of record of the property referenced in III, Section 1 above, and I hereby authorize representatives of the U.S. Army Corps of Engineers, Savannah District, to enter the property for purposes of conducting on-site inspections, and issuing an aquatic resource delineation concurrence and/or a jurisdictional determination. My signature shall also be an affirmation that I possess the requisite property rights to request a delineation review and/or a jurisdictional determination on the property referenced in III - Section 1. Further, I authorize the agent in III - Section 2, to act on my behalf in the processing of this request and to furnish supplemental information in support of this request.

WA By signing below, I certify that I am acting as the duly authorized agent of the owner of record of the property referenced in III, Section 1 above, and have been given the authority to: 1) request a delineation review and/or a jurisdictional determination (JD) on the property referenced in III - Section 1, and 2) authorize representatives of the U.S. Army Corps of Engineers, Savannah District, to enter the property for purposes of conducting on-site inspections, and issuing an aquatic resource delineation concurrence and/or a jurisdictional determination. I understand that I may be required to provide documentary evidence of my authority to request a delineation review and/or JD, and/or to grant Corps of Engineers personnel access to the property.

Please Print Name Legibly: Steve Ingle	
Signature	Date: 8/3/2018

Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.

Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.

Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued.

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.

US Army Corps of Engineers Savannah District, Regulatory Division Global Positioning Systems (GPS) Datasheet Delineation of Wetlands, Streams and Other Waters Within the State of Georgia

USACE File Number	Date of Delineation 04/03/2018-05/03/2018
Name of Delineator Present Chris Terr	ell & Chris Stanford
Make and Model of GPS Device Used (must land) Trimble Geo7x GPS (mode)	
Geographic Coordinate System Used US Sta	ate Plane GA East - NAD 1983 (Conus)
Name of Continually Operated Reference Star Florida Department of Environmenta	tion Used for Post-processing
Date Post-processing Performed 05/07/2	018
Percent Dilution of Position (PDOP) (6 or less	s is required) NA (use Trimble Smart Settings)
Name and Coordinates of Known Property Connection	orner and/or Monument r: 30.5684236, -82.1418926
GPS Reading of Known Property Corner and	or Monument
Frequency of Waypoints Taken During Surve	as needed per field observations

Note: GPS data must be provided, if requested. If GPS data and/or a GPS delineation is determined unacceptable by the Savannah District, a survey sealed by a surveyor licensed in Georgia will be required.

Flag ID	Longitude (Decimal Degrees, NAD 83)	Latitude (Decimal Degrees, NAD 83)
s1-10 7' fn	-82.137679609	30.573554640
s1-11 10' fn	-82.137540852	30.573632078
s1-12 10 fs	-82.137406971	30.573706324
s1-13 10' fs	-82.137302937	30.573800483
s1-14 10' fs	-82.137127367	30.573702539
s1-15 8'	-82.136969713	30.573751603
s1-16 8' fs	-82.136800582	30.573762084
s1-17 8'	-82.136675389	30.573742898
s1-18 10' fs	-82.136607696	30.573764294
s1-19 10' fs	-82.136499104	30.573838842
s1-1i 8' from south	-82.138596785	30.572818136
s1-2 8' fs	-82.138334836	30.572848112
s1-20 5' fs	-82.136398647	30.573867243
s1-21 5' fs	-82.136281329	30.573901522
s1-22 6' fs	-82.136158337	30.573955881
s1-23 7' fs	-82.136031509	30.574054322
s1-24 10' fs	-82.135990394	30.574161829
s1-25 10 fs	-82.135869375	30.574201590
s1-26 8' fs	-82.135799500	30.574312179
s1-27 5' fs	-82.135674636	30.574402079
s1-28 6' fn	-82.135598663	30.574366774
s1-29 6' fn	-82.135448094	30.574369941
s1-3 7' fs	-82.138175258	30.572888318
s1-30 7' fn	-82.135296649	30.574432474
s1-31 8' fn	-82.135209163	30.574463139
s1-32 5' fn	-82.135048989	30.574538846
s1-33 6' fn	-82.134899589	30.574591532
s1-34 5' fn	-82.134739623	30.574680931
s1-35 5' fs	-82.134684376	30.574751529
s1-36 8' fs	-82.134691711	30.574880303
s1-37 5' fs	-82.134734255	30.575058311
s1-38 4' fn	-82.134753194	30.575106662
s1-39 5' fn	-82.134334124	30.575020412
s1-4 7' fs	-82.138092002	30.572939857
s1-40 4' fs	-82.134146423	30.575062173
s1-41 5' fs	-82.133983121	30.575040464
s1-42 5' fn	-82.134079803	30.575142861
s1-43 4' fs	-82.133948936	30.575181772
s1-44 4' fs	-82.133781183	30.575257667
s1-45 4' fn	-82.133650420	30.575307711
s1-46 end 6' fs	-82.133497344	30.575281571
s1-5 9' fs	-82.137961198	30.573093815

Flag ID	Longitude (Decimal Degrees, NAD 83)	Latitude (Decimal Degrees, NAD 83)
s1-6 10' fs	-82.137900565	30.573139925
s1-7 10 from north	-82.137941610	30.573194625
s1-8 9' fs	-82.137781316	30.573272067
s1-9 7' fs	-82.137735105	30.573390126
s2-10 5' fs	-82.133401832	30.575047669
S2-11 2' fn	-82.133254908	30.575129930
s2-12 3' fn	-82.133103312	30.575137614
s2-13 4' fn	-82.132930806	30.575175577
s2-14 5' fs	-82.132678850	30.575273358
s2-15 4'fn	-82.132658503	30.575423731
s2-1i 4'fn at s1	-82.134657332	30.575105014
s2-2 5' fw	-82.134608192	30.574994288
s2-3 4' fw	-82.134531614	30.574882854
s2-4 2' fs	-82.134390179	30.574724081
s2-5 4' fs	-82.134229030	30.574683015
s2-6 4'fn	-82.134096516	30.574747241
s2-7 3' fn	-82.133909141	30.574834748
s2-8 6' fn	-82.133684637	30.574955185
s2-9 8' fn	-82.133586661	30.575000811
UDP-1	-82.118859121	30.581266593
UDP-2	-82.116243721	30.581719008
UDP-3	-82.119596260	30.573245336
UDP-4	-82.127359645	30.584551256
UDP-5	-82.139278106	30.582022385
UDP-6	-82.135496753	30.568341072
UDP-7	-82.122431018	30.567461056
UDP-8	-82.123765884	30.571219738
UDP-9	-82.128854833	30.571229451
UDP-10	-82.124552437	30.581376199
UDP-11	-82.135062486	30.576087383
wa-1 at pl	-82.141095716	30.569069289
wa-10	-82.139212792	30.568428568
wa-100	-82.122336982	30.572296136
wa-101	-82.122783104	30.572021739
wa-102	-82.122938540	30.571829663
wa-103	-82.123064593	30.571595370
wa-104	-82.123211222	30.571488237
wa-105	-82.123321639	30.571293721
wa-106	-82.123478713	30.571120677
wa-107	-82.123698575	30.571030785
wa-108	-82.123943789	30.570919616
wa-109	-82.124201225	30.570867821

Flag ID	Longitude (Decimal Degrees, NAD 83)	Latitude (Decimal Degrees, NAD 83)
wa-11	-82.139008853	30.568519777
wa-110	-82.124407613	30.570760845
wa-111	-82.124584743	30.570649342
wa-112	-82.124839152	30.570615085
wa-113	-82.125089631	30.570535360
wa-114	-82.125381981	30.570469641
wa-115	-82.125661324	30.570506335
wa-116	-82.125870336	30.570425265
wa-117	-82.126077232	30.570441425
wa-118	-82.126103026	30.569883897
wa-119	-82.126093257	30.569342994
wa-12	-82.139052181	30.568427783
wa-120	-82.126240027	30.569127534
wa-121	-82.126480553	30.569121117
wa-122	-82.126701998	30.569234967
wa-123	-82.126969128	30.569297802
wa-124	-82.127240463	30.569183424
wa-125	-82.127589211	30.569186417
wa-126	-82.127886740	30.569156425
wa-127	-82.128148441	30.569158278
wa-128	-82.128432893	30.569060579
wa-129	-82.128697544	30.569038856
wa-13	-82.138933428	30.568296523
wa-130	-82.129057824	30.569056309
wa-131	-82.129371670	30.569061638
wa-132	-82.129419398	30.569307363
wa-133	-82.129652970	30.569452043
wa-134	-82.129826253	30.569622903
wa-135	-82.129995591	30.569832577
wa-136	-82.130066009	30.570179157
wa-137	-82.129821023	30.570372892
wa-138	-82.129546635	30.570328981
wa-139	-82.129455502	30.570531037
wa-14	-82.138705963	30.568423471
wa-140	-82.129397415	30.570756427
wa-141	-82.129237326	30.570993584
wa-142	-82.129121001	30.571194674
wa-143	-82.129039037	30.571560398
wa-144	-82.129041411	30.571808896
wa-145	-82.128998392	30.572141006
wa-146	-82.129026385	30.572434792
wa-147	-82.129002772	30.572630679

Flag ID	Longitude (Decimal Degrees, NAD 83)	Latitude (Decimal Degrees, NAD 83)
wa-148	-82.129053107	30.572843584
wa-149	-82.129092982	30.573083809
wa-15	-82.138678544	30.568554724
wa-150	-82.128983983	30.573324687
wa-151	-82.128918455	30.573598986
wa-152	-82.128912409	30.573851593
wa-153	-82.128866758	30.574061726
wa-154	-82.128763980	30.574265373
wa-155	-82.128685681	30.574485857
wa-156	-82.128621615	30.574745041
wa-157	-82.128477694	30.574968645
wa-158	-82.128251059	30.575128355
wa-159	-82.127948796	30.575045825
wa-16	-82.138583659	30.568703717
wa-160	-82.127764574	30.575331386
wa-161	-82.127569786	30.575566445
wa-162	-82.127356445	30.575795776
wa-163	-82.127284014	30.576112934
wa-164	-82.127016459	30.576283181
wa-165	-82.126716786	30.576235281
wa-166	-82.126393031	30.576219151
wa-167	-82.126199719	30.576328407
wa-168	-82.125963692	30.576376449
wa-169	-82.125765342	30.576509662
wa-17	-82.138567466	30.568933611
wa-170	-82.125228114	30.576416817
wa-171	-82.125125444	30.576249517
wa-172	-82.124931680	30.575984885
wa-173	-82.124715615	30.576029761
wa-174	-82.124339425	30.576033924
wa-175	-82.124089138	30.576009919
wa-176	-82.123849645	30.576166430
wa-177	-82.123372844	30.576063570
wa-178	-82.122923514	30.576049876
wa-179	-82.122557837	30.576384231
wa-18	-82.138375107	30.569108099
wa-180	-82.122136783	30.576825057
wa-181	-82.122392260	30.577217950
wa-182	-82.123012883	30.577159044
wa-183	-82.123529078	30.577129504
wa-184	-82.123898047	30.577384045
wa-185	-82.124416330	30.577445743

Flag ID	Longitude (Decimal Degrees, NAD 83)	Latitude (Decimal Degrees, NAD 83)
wa-186	-82.125142228	30.577182478
wa-187	-82.125723274	30.577159566
wa-188	-82.126097672	30.577242463
wa-189	-82.126430357	30.577307465
wa-19	-82.138332751	30.569353649
wa-190	-82.126883186	30.577537203
wa-191	-82.127414601	30.577805718
wa-192	-82.127972206	30.578180040
wa-193	-82.128298050	30.578732959
wa-194	-82.128669363	30.579005417
wa-195	-82.128454266	30.579304455
wa-196	-82.128245919	30.579489767
wa-197	-82.127851867	30.579815991
wa-198	-82.127718527	30.580046121
wa-199	-82.127496051	30.580130839
wa-2	-82.140884136	30.569034095
wa-20	-82.138108971	30.569406895
wa-200	-82.127215971	30.580181121
wa-201	-82.127028962	30.580245249
wa-202	-82.126804502	30.580300334
wa-203	-82.126596302	30.580236021
wa-204	-82.126382366	30.580063444
wa-205	-82.126076101	30.580057228
wa-206	-82.125679131	30.579986245
wa-207	-82.125512992	30.580102168
wa-208	-82.125251342	30.580113722
wa-209	-82.125077289	30.580161276
wa-21	-82.137887866	30.569416149
wa-210	-82.125025187	30.580249447
wa-211	-82.124864861	30.580240663
wa-212	-82.124706952	30.580257829
wa-213	-82.124575837	30.580190074
wa-214	-82.124570434	30.580064412
wa-215	-82.124458507	30.580014445
wa-216	-82.124348464	30.579944427
wa-217	-82.124149920	30.579841224
wa-218	-82.123919695	30.579821261
wa-219	-82.123785136	30.579897766
wa-22	-82.137683838	30.569507451
wa-220	-82.123626545	30.579898166
wa-221	-82.123503226	30.580019675
wa-222	-82.123311684	30.580000690

Flag ID	Longitude (Decimal Degrees, NAD 83)	Latitude (Decimal Degrees, NAD 83)
wa-223	-82.123106582	30.580060695
wa-224	-82.122915778	30.580089673
wa-225	-82.122775411	30.580187071
wa-226	-82.122778250	30.580346607
wa-227	-82.122797251	30.580457567
wa-228	-82.122595633	30.580634495
wa-229	-82.122407053	30.580710270
wa-23	-82.137622225	30.569400510
wa-230	-82.122425294	30.580867273
wa-231	-82.122459959	30.581070883
wa-232	-82.122387188	30.581197742
wa-233	-82.122138839	30.581244299
wa-234	-82.122161095	30.581341081
wa-235	-82.122399932	30.581224353
wa-236	-82.122604072	30.581287407
wa-237	-82.122863566	30.581476034
wa-238	-82.123303083	30.581344612
wa-239	-82.123661136	30.581099040
wa-24	-82.137732759	30.569187478
wa-240	-82.124140030	30.580982204
wa-241	-82.124469916	30.581016294
wa-242	-82.124960524	30.580894422
wa-243	-82.125092041	30.581042109
wa-244	-82.125303782	30.580974284
wa-245	-82.125646899	30.581185483
wa-246	-82.126017916	30.581114541
wa-247	-82.126310234	30.581139104
wa-248	-82.126640161	30.581128029
wa-249	-82.127249522	30.581131491
wa-25	-82.137770103	30.568979051
wa-250	-82.127775154	30.581124310
wa-251	-82.128205297	30.581241043
wa-252	-82.128753963	30.581450626
wa-253	-82.129177372	30.581273263
wa-254	-82.129428129	30.581512792
wa-255	-82.129705454	30.581586730
wa-256	-82.130126498	30.581373514
wa-257	-82.130450350	30.581458269
wa-258	-82.130895440	30.581371585
wa-259	-82.131023031	30.581289243
wa-26	-82.137893706	30.568753103
wa-260	-82.131307649	30.581264885

Flag ID	Longitude (Decimal Degrees, NAD 83)	Latitude (Decimal Degrees, NAD 83)
wa-261	-82.131825334	30.581195422
wa-262	-82.132401660	30.580956859
wa-263	-82.132358442	30.580617849
wa-264	-82.132050927	30.580474570
wa-265	-82.131915074	30.580345250
wa-266	-82.132186322	30.580279716
wa-267	-82.132434431	30.580224952
wa-268	-82.132744257	30.580162524
wa-269	-82.132876944	30.579847635
wa-27	-82.137742616	30.568611364
wa-270	-82.132673022	30.579640161
wa-271	-82.133081666	30.579650530
wa-272	-82.133510045	30.579670790
wa-273	-82.133889368	30.579697731
wa-274	-82.134262212	30.579951016
wa-275	-82.134287174	30.580070870
wa-276	-82.134497355	30.580086529
wa-277	-82.134527606	30.579867926
wa-278	-82.134365201	30.579659029
wa-279	-82.134481166	30.579518648
wa-28	-82.137682853	30.568440634
wa-280	-82.134677387	30.579375248
wa-281	-82.134647841	30.579189981
wa-282	-82.134354223	30.578910982
wa-283	-82.134527850	30.578741346
wa-284	-82.134856496	30.578671641
wa-285	-82.135174687	30.578727593
wa-286	-82.135456419	30.578666967
wa-287	-82.135824624	30.578471405
wa-288	-82.135988326	30.578302091
wa-289	-82.136300983	30.577974241
wa-29	-82.137445618	30.568351356
wa-290	-82.136428160	30.577663977
wa-291	-82.136535565	30.577302117
wa-292	-82.136800053	30.577346110
wa-293	-82.137215005	30.577535747
wa-294	-82.137680739	30.577572829
wa-295	-82.137999203	30.577515867
wa-296	-82.138200467	30.577153853
wa-297	-82.138326732	30.576872965
wa-298	-82.138391737	30.576606912
wa-299	-82.138649491	30.576289627

Flag ID	Longitude (Decimal Degrees, NAD 83)	Latitude (Decimal Degrees, NAD 83)
wa-3	-82.140604106	30.568909036
wa-30	-82.137197719	30.568407265
wa-300	-82.138729514	30.576047599
wa-301	-82.138695937	30.575740072
wa-302	-82.138604933	30.575508635
wa-303	-82.138689148	30.575251591
wa-304	-82.138236104	30.575245003
wa-305	-82.137971187	30.575312001
wa-306	-82.137752385	30.575403964
wa-307	-82.137583303	30.575626198
wa-308	-82.137344519	30.575779425
wa-309	-82.137209990	30.575771065
wa-31	-82.137080802	30.568572689
wa-310	-82.137029887	30.575865106
wa-311	-82.136730756	30.576156817
wa-312	-82.136476770	30.576311149
wa-313	-82.136379068	30.576549039
wa-314	-82.136394411	30.576728231
wa-315	-82.136117289	30.576743635
wa-316	-82.135943822	30.576887905
wa-317	-82.135758635	30.577020593
wa-318	-82.135518039	30.577213583
wa-319	-82.135213814	30.577412471
wa-32	-82.136800405	30.568637380
wa-320	-82.135121186	30.577728220
wa-321	-82.134861602	30.577877695
wa-322	-82.134607183	30.577874813
wa-323	-82.134395960	30.577945812
wa-324	-82.134103685	30.578170597
wa-325	-82.133871263	30.578425781
wa-326	-82.133639748	30.578657902
wa-327	-82.133301048	30.578932541
wa-328	-82.133159933	30.578873854
wa-329	-82.132836522	30.579144729
wa-33	-82.136754613	30.568812698
wa-330	-82.132550550	30.579458533
wa-331	-82.132376307	30.579653324
wa-332	-82.131829220	30.579954783
wa-333	-82.131607841	30.580158721
wa-334	-82.131260230	30.580168450
wa-335	-82.131036651	30.580306652
wa-336	-82.130825109	30.580262164

Flag ID	Longitude (Decimal Degrees, NAD 83)	Latitude (Decimal Degrees, NAD 83)
wa-337	-82.130516412	30.580285752
wa-338	-82.130404088	30.580091515
wa-339	-82.130458182	30.579959385
wa-34	-82.136515051	30.568745310
wa-340	-82.130358410	30.579848201
wa-341	-82.130066975	30.579975293
wa-342	-82.129856734	30.579817803
wa-343	-82.129609965	30.579778857
wa-344	-82.129372545	30.579789595
wa-345	-82.129219712	30.579585809
wa-346	-82.129058470	30.579698256
wa-347	-82.128949083	30.579733005
wa-348	-82.128917912	30.579572683
wa-349	-82.128992754	30.579365177
wa-35	-82.136303508	30.568787157
wa-350	-82.128725160	30.579133222
wa-351	-82.128789070	30.578947605
wa-352	-82.129103293	30.578610072
wa-353	-82.129274017	30.578313973
wa-354	-82.129772018	30.578181764
wa-355	-82.130432899	30.577847245
wa-356	-82.131043629	30.577421675
wa-357	-82.131116576	30.577118307
wa-358	-82.131376992	30.576887529
wa-359	-82.131686160	30.576666974
wa-36	-82.136187723	30.568970357
wa-360	-82.132202104	30.576450847
wa-361	-82.132771413	30.576254091
wa-362	-82.133118164	30.575956051
wa-363	-82.133640522	30.575885730
wa-364	-82.134319200	30.575819034
wa-365	-82.134776493	30.575667279
wa-366	-82.135414193	30.575780490
wa-367	-82.135777409	30.575457822
wa-368	-82.136307228	30.575253703
wa-369	-82.136752366	30.575285525
wa-37	-82.135999451	30.569085495
wa-370	-82.137163626	30.575469963
wa-371	-82.137671838	30.575221732
wa-372	-82.137841986	30.574950912
wa-373	-82.138082095	30.574719712
wa-374	-82.138194384	30.574372703

Flag ID	Longitude (Decimal Degrees, NAD 83)	Latitude (Decimal Degrees, NAD 83)
wa-375	-82.137988433	30.574403134
wa-376	-82.137749839	30.574477919
wa-377	-82.137613282	30.574435791
wa-378	-82.137664143	30.574152057
wa-379	-82.137847608	30.573917320
wa-38	-82.135716228	30.569136943
wa-380	-82.137953870	30.573657299
wa-381	-82.138213152	30.573423129
wa-382	-82.138511961	30.573496932
wa-383	-82.138487968	30.572791353
wa-384	-82.138483084	30.572131657
wa-385	-82.138308945	30.572096538
wa-386	-82.138339584	30.572439363
wa-387	-82.137987077	30.572471813
wa-388	-82.137788352	30.572577142
wa-389	-82.137507954	30.572753416
wa-39	-82.135622420	30.569001079
wa-390	-82.137279583	30.572928904
wa-391	-82.137025677	30.572773696
wa-392	-82.137190377	30.572607083
wa-393	-82.137338218	30.572539503
wa-394	-82.137244571	30.572304405
wa-395	-82.137255628	30.572095139
wa-396	-82.137051169	30.571906658
wa-397	-82.136779461	30.572117893
wa-398	-82.136500354	30.572454314
wa-399	-82.136734989	30.572623917
wa-4	-82.140413462	30.568807286
wa-40	-82.135561981	30.568838136
wa-400	-82.136748330	30.572925192
wa-401	-82.136633021	30.573199967
wa-402	-82.136312550	30.572956884
wa-402	-82.136310996	30.572956799
wa-403	-82.135961113	30.572902884
wa-404	-82.135671997	30.572753252
wa-405	-82.135223738	30.572730586
wa-406	-82.135193258	30.572471573
wa-407	-82.134820470	30.572426320
wa-408	-82.134585470	30.572298380
wa-409	-82.134934591	30.572152520
wa-41 to wa-47 delt 42-46	-82.135438999	30.568617219
wa-410	-82.135191761	30.572042884

Flag ID	Longitude (Decimal Degrees, NAD 83)	Latitude (Decimal Degrees, NAD 83)
wa-411	-82.135343717	30.571918560
wa-412	-82.135323437	30.571679870
wa-413	-82.135270633	30.571422760
wa-414	-82.135167420	30.571221144
wa-415	-82.134769626	30.571428127
wa-416	-82.134397913	30.571386828
wa-417	-82.134242346	30.571583188
wa-418	-82.134244879	30.571765889
wa-419	-82.134038795	30.571760200
wa-420	-82.133894208	30.571592547
wa-421	-82.133656280	30.571610903
wa-422	-82.133421485	30.571538094
wa-423	-82.133623956	30.571441316
wa-424	-82.133815363	30.571250302
wa-425	-82.134044729	30.571113534
wa-426	-82.134126544	30.570771910
wa-427	-82.134497816	30.570706249
wa-428	-82.134902092	30.570738684
wa-429	-82.135006788	30.570980570
wa-430	-82.135458853	30.571055738
wa-431	-82.135740708	30.570970500
wa-432	-82.135996251	30.570723681
wa-433	-82.136320488	30.571001214
wa-434	-82.136758067	30.571040683
wa-435	-82.137010479	30.570933283
wa-436	-82.136882210	30.570644341
wa-437	-82.137155078	30.570345191
wa-438	-82.137353664	30.570153977
wa-439	-82.137689260	30.570043482
wa-440	-82.137666909	30.570461573
wa-441	-82.137489160	30.570762199
wa-442	-82.137724179	30.570995550
wa-443	-82.137915246	30.571254208
wa-444	-82.138144708	30.571486975
wa-445	-82.138058497	30.571625722
wa-446	-82.138103437	30.571692319
wa-447	-82.138361189	30.571726897
wa-448	-82.138519880	30.571844764
wa-47	-82.135018412	30.568402956
wa-48	-82.134883118	30.568233203
wa-49	-82.134753333	30.568000319
wa-5	-82.140200892	30.568673601

Flag ID	Longitude (Decimal Degrees, NAD 83)	Latitude (Decimal Degrees, NAD 83)
wa-50	-82.134860983	30.567775725
wa-51	-82.131998178	30.567511252
wa-52	-82.131833259	30.567664024
wa-53	-82.131883326	30.567913313
wa-54	-82.131705064	30.567987440
wa-55	-82.131682447	30.568186140
wa-56	-82.131366649	30.568084663
wa-57	-82.131137344	30.567744446
wa-58	-82.130959895	30.567606875
wa-59	-82.130808422	30.567423652
wa-6	-82.139943690	30.568605175
wa-60	-82.130289625	30.567584026
wa-61	-82.129776516	30.567529850
wa-62	-82.129072560	30.567525385
wa-63	-82.128551163	30.567759080
wa-64	-82.128083160	30.567810674
wa-65	-82.127471379	30.567853561
wa-66	-82.127022945	30.567963009
wa-67	-82.126683247	30.567968734
wa-68	-82.126470732	30.568138959
wa-69	-82.126436877	30.568371921
wa-7	-82.139948417	30.568431069
wa-70	-82.126309768	30.568499363
wa-71	-82.126148309	30.568314327
wa-72	-82.126157960	30.567944122
wa-73	-82.126175980	30.567419096
wa-74	-82.126155646	30.567132232
wa-75	-82.125003858	30.567058647
wa-76	-82.124856517	30.567385064
wa-77	-82.124790866	30.567684524
wa-78	-82.124484037	30.567974768
wa-79	-82.124157322	30.568047915
wa-8 at pl	-82.139980021	30.568286254
wa-80	-82.123853228	30.568068275
wa-81	-82.123337710	30.567930793
wa-82	-82.122802668	30.567623836
wa-83	-82.122251597	30.567896421
wa-84	-82.121884092	30.568198495
wa-85	-82.121876507	30.568518517
wa-86	-82.121866126	30.568854335
wa-87	-82.121852404	30.569304613
wa-88	-82.121496009	30.569644997

Flag ID	Longitude (Decimal Degrees, NAD 83)	Latitude (Decimal Degrees, NAD 83)
wa-89	-82.121367598	30.570041011
wa-9 at pl	-82.139145971	30.568213888
wa-90	-82.120950795	30.570451804
wa-91	-82.120567949	30.570933207
wa-92	-82.120291073	30.571233223
wa-93	-82.119993911	30.571333268
wa-94	-82.120005271	30.571697848
wa-95	-82.120270115	30.572008119
wa-96	-82.120588268	30.572235733
wa-97	-82.120980663	30.572388259
wa-98	-82.121509862	30.572365537
wa-99	-82.121937538	30.572306436
wb-1 at pl	-82.117905098	30.573483307
wb-10	-82.120064060	30.574648449
wb-11	-82.119499136	30.574802189
wb-12	-82.119148072	30.575049384
wb-13	-82.118970383	30.575323029
wb-14	-82.118449613	30.575506173
wb-15	-82.118000795	30.575769042
wb-16 at pl	-82.117144409	30.576128474
wb-2	-82.118267936	30.573426138
wb-3	-82.118581346	30.573373462
wb-4	-82.118878493	30.573486583
wb-5	-82.119244574	30.573438016
wb-6	-82.119664325	30.573409033
wb-7	-82.119958606	30.573389483
wb-8	-82.120042114	30.573686229
wb-9	-82.120109860	30.574140725
wc-1 at pl	-82.115945378	30.582197311
wc-10	-82.116657059	30.580990255
wc-11	-82.116709918	30.580835977
wc-12	-82.116476872	30.580775909
wc-13	-82.116359094	30.580722408
wc-14	-82.116333241	30.580531374
wc-15	-82.116377720	30.580321103
wc-16	-82.116558099	30.580084168
wc-17	-82.116391898	30.579871337
wc-18 at pl	-82.116020059	30.579872719
wc-2	-82.116064010	30.581973096
wc-3	-82.115989718	30.581822186
wc-4	-82.116094919	30.581703608
wc-5	-82.116167077	30.581584121

Flag ID	Longitude (Decimal Degrees, NAD 83)	Latitude (Decimal Degrees, NAD 83)
wc-6	-82.116353578	30.581449401
wc-7	-82.116659725	30.581392262
wc-8	-82.116726643	30.581261981
wc-9	-82.116759085	30.581051593
wd-1 to pl	-82.127607328	30.584699204
wd-10	-82.129583820	30.583392945
wd-11	-82.129909421	30.583158187
wd-12	-82.130244574	30.583169269
wd-13	-82.130155900	30.583383847
wd-14	-82.130570404	30.583732740
wd-15	-82.130355596	30.583952515
wd-16	-82.129992745	30.584145358
wd-17	-82.130153079	30.584506129
wd-18	-82.130498686	30.584883611
wd-19	-82.131511977	30.585171163
wd-2	-82.127729794	30.584580035
wd-20	-82.131897533	30.585208200
wd-21	-82.132334298	30.585286422
wd-22	-82.132670325	30.584972964
wd-23	-82.133003242	30.584656278
wd-24	-82.133179882	30.584312613
wd-25	-82.133334191	30.583883442
wd-26	-82.133580929	30.583617585
wd-27	-82.133885256	30.583358025
wd-28	-82.134159749	30.583167296
wd-29	-82.134423491	30.583164662
wd-3	-82.127825256	30.584248540
wd-30	-82.134660820	30.583558209
wd-31	-82.135171773	30.583759337
wd-32	-82.135414141	30.583893363
wd-33	-82.135446488	30.584299782
wd-34	-82.135146446	30.584572540
wd-35	-82.134466331	30.584459460
wd-36	-82.134517950	30.584788424
wd-37	-82.134287974	30.585267698
wd-38	-82.134455134	30.585486156
wd-39	-82.135294211	30.585570233
wd-4	-82.128110990	30.583986699
wd-40	-82.135395415	30.585310445
wd-41	-82.135822040	30.585417813
wd-42	-82.136289919	30.585757657
wd-43	-82.136965227	30.585822540

Flag ID	Longitude (Decimal Degrees, NAD 83)	Latitude (Decimal Degrees, NAD 83)
wd-44	-82.137235245	30.585421096
wd-45	-82.137453458	30.585112540
wd-46	-82.137796967	30.584756962
wd-47	-82.137817428	30.584359226
wd-48	-82.137921598	30.583961107
wd-49	-82.138111836	30.583515210
wd-5	-82.128335555	30.583718680
wd-50	-82.138582702	30.583071372
wd-51	-82.138942560	30.582620588
wd-53	-82.139556854	30.582282091
wd-54 at pl	-82.139781409	30.582052900
wd-6	-82.128452912	30.583456398
wd-7	-82.128691834	30.583626948
wd-8	-82.129050873	30.583647211
wd-9	-82.129388416	30.583575670
WDP-1	-82.118712929	30.580985025
WDP-2	-82.115817999	30.581648379
WDP-3	-82.119239969	30.573852451
WDP-4	-82.127957749	30.584678750
WDP-5	-82.139348722	30.582615311
WDP-6	-82.135250251	30.568615807
WDP-7	-82.122665025	30.568116881
WDP-8	-82.123464775	30.570783736
WDP-9	-82.129603895	30.571115896
WDP-10	-82.124408251	30.580641123
WDP-11	-82.134722941	30.575408472
we-1	-82.118862606	30.580998937
we-10	-82.117421066	30.580136000
we-11	-82.117598844	30.579968249
we-12	-82.117975654	30.579946371
we-13	-82.118217503	30.580050049
we-14	-82.118316012	30.580330928
we-15	-82.118532375	30.580502245
we-16 to we-1	-82.118671878	30.580737630
we-2	-82.118629430	30.581149220
we-3	-82.118169950	30.581061931
we-4	-82.117908562	30.581159842
we-5	-82.117269492	30.581131758
we-6	-82.117151346	30.580960272
we-7	-82.117108933	30.580780092
we-8	-82.117227381	30.580533612
we-9	-82.117421970	30.580422401

Waters_Name	Cowardin_Code	HGM_Code	Area (acres)	Linear (ft)	Waters Types	Latitude (dd nad83)	Longitude (dd nad83)	Local_Waterway
S1	R4SB5	DEPRESS	0.33	2210	RPW	30.57402072080	-82.13631505050	UT of River Styx
S2	R4SB5	DEPRESS	0.07	810	RPW	30.57499822120	-82.13366262730	UT of River Styx
WA	PFO1/4B	DEPRESS	333.88		RPWWD	30.57327199400	-82.13080374390	UT of River Styx
WB	PFO1/4B	DEPRESS	11.96		NRPWW	30.57449544570	-82.11866701960	UT of Boone Creek
WC	PFO1/4B	DEPRESS	3.8		NRPWW	30.58110727390	-82.11609483860	UT of Boone Creek
WD	PFO1/4B	DEPRESS	62.67		NRPWW	30.58492704710	-82.13548705850	UT of River Styx
WE	PFO1/4B	DEPRESS	3.72		NRPWW	30.58064047680	-82.11791326950	UT of Boone Creek

December 7, 2018

Mr. Jared M. Lopes, Project Manager Savannah District, OP-FC U.S. Army Corps of Engineers 100 West Oglethorpe Avenue Savannah, Georgia 31401-3640



Subject: Waters of the U.S. Delineation Field Verification - Revisions Submittal

Approximately 1,012-Acre Loncala Tract

Twin Pines, LLC

Saint George, Charlton County, Georgia USACE Project No.: SAS-2018-00554 TTL Project No.: 000180200804.00

Dear Mr. Lopes,

In response to the field verification conducted by the United States Army Corps of Engineers (USACE) and TTL on November 27-28, 2018, TTL provides the following summary of revisions:

- a. Attachment A provides the revised Waters of the U.S. Delineation Map per the USACE field verification.
- b. Wetland A (WA) was revised from 333.88 acres to 306.80 acres.
- c. Wetlands C and E (WC and WE) were combined with an additional aquatic feature, Wetland F (WF), which now total 19.51 acres of wetland that is collectively called WC. WC was originally 3.80 acres and WE was originally 3.72 acres.
- d. Wetland D (WD) was revised from 62.67 acres to 66.84 acres.
- e. Overall, the total wetland acreage was revised from 416.03 acres to 405.11 acres.

Please let TTL representatives know if additional information or revisions are needed for the project.

Sincerely.

TTL, Inc.

Christopher Terrell

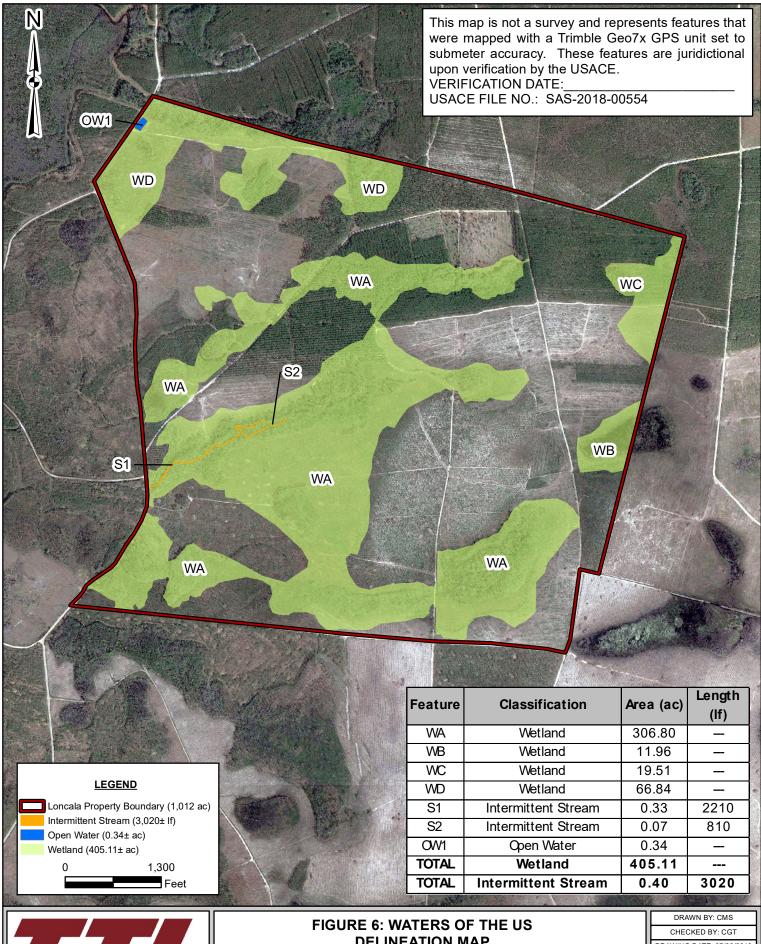
Project Professional

Cindy House-Pearson

Senior Natural Resources

Client Manager

ATTACHMENT A REVISED WATERS OF THE US DELINEATION MAP





DELINEATION MAP

TWIN PINES MINERALS - LONCALA TRACT CHARLTON COUNTY, GEORGIA

BASEMAP: Google Earth & Eurpoa Technologies (3/6/2018)

DRAWN BY: CMS
CHECKED BY: CGT
DRAWING DATE: 07/30/2018
REVISION DATE: 12/06/2018
TTL JOB NO. 000180200804.00
APPROX SCALE: 1" = 1,300'

WATERS OF THE UNITED STATES DELINEATION REPORT

APPROXIMATELY 1,143-ACRE TIAA TRACT SAINT GEORGE, CHARLTON COUNTY, GEORGIA

Submitted to:

Twin Pines Minerals, LLC Attn: Mr. Steve Ingle, P.E. 2100 Southbridge Parkway Birmingham, Alabama 35209

Prepared by:

TTL, Inc. 2743-B Gunter Park Drive West Montgomery, Alabama 36109

Project No. 000180200804.00

July 3, 2019



Client Manager

SIGNATURE OF ENVIRONMENTAL PROFESSIONALS

TTL, Inc. has performed a waters of the United States (U.S.) delineation in general conformance with the scope and limitations of the *U. S. Army Corps of Engineers Wetland Delineation Manual,* 1987 *Edition,* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region Version* 2.0 (2010). Identification of ephemeral, intermittent and perennial streams has been performed in general conformance with methodology outlined in *Methodology for Identification of Intermittent and Perennial Streams and their Origins, Version* 4.11 (2010).

	July 3, 2019
Christopher Terrell Environmental Professional	Date
	July 3, 2019
Cindy House-Pearson Senior Natural Resources	Date

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APPENDICES

Appendix A Normal Weather Conditions Table	ons Table	Veather	Normal	Appendix A
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Agricultural Applied Climate Information System (AgACIS) Data

U.S. Drought Monitor - Georgia

Palmer Drought Index

Appendix B Selected Site Photographs

Appendix C U.S. Army Corps of Engineers Wetland Determination Data Forms
Appendix D USACE Savannah District Request for Corps of Engineers Jurisdictional

Determination (JD) and/or Delineation Review Form

1.0 INTRODUCTION

TTL, Inc. (TTL) was contracted by Twin Pines Minerals, LLC (Twin Pines) to perform a delineation of the waters of the United States (WOTUS) associated with a proposed development of a heavy mineral mining operation in Saint George, Charlton County, Georgia (Figure 1). TTL conducted the field activities for this project from March 23- April 10, 2019.

Activities within jurisdictional waters of the U.S. are regulated by the U.S. Army Corps of Engineers (USACE). Authority to permit discharges (fill) within jurisdictional wetlands or non-navigable waters of the U.S. is granted under Section 404 of the Clean Water Act (CWA) of 1972. Authority to permit work and placement of structures in navigable waters of the U.S. is granted under Sections 9 and 10 of the Rivers and Harbors Act of 1899. For regulatory purposes under the CWA, wetlands are defined by the USACE as:

Those areas that are inundated or saturated by surface or groundwater 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.

2.0 SITE DESCRIPTION

The site is an approximately 1,143-acre area depicted on the U.S. Geological Survey (USGS) 7.5-minute Topographic Maps of Moniac, Georgia and Saint George, Georgia (Figure 1). The center of the site is located near latitude 30.526268 and longitude -82.14322. According to the USGS Topographic Map, the elevation at the site ranges from approximately 120 to 165 feet above mean sea level.

The delineation area is located just north of GA-94. The eastern delineation area boundary follows a portion of T-Model Road. Although not well-defined, the historic Trail Ridge is located to the east of the delineation area. The delineation area has historically been used for silvicultural activities. The primary sources of hydrology for the delineation area are onsite rainfall and surface water flow.

Driving directions to the site are as follows: from the intersection of GA-23 and GA-94 (in St. George, GA), travel west along GA-94 for approximately 3.9 miles to the intersection of GA-94 and Boggy Break Road (dirt road). This location is near the southeast corner of the delineation area.

3.0 LITERATURE AND RECORDS REVIEW

Prior to conducting the field effort, TTL performed a literature and records review to develop an understanding of the potential for the presence of waters of the U.S. on the subject site or surrounding properties. These data sources and the review findings are described below.

3.1 Hydric Soils

The Natural Resources Conservation Service (NRCS) maintains a database of soil types (map units) for most areas of the U.S. (NRCS, 2017). The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit which represents a large area dominated by one or more major types of soil. Map units are further classified with a rating of hydric, partially hydric or non-hydric. Map units are useful for planning purposes to provide an overall understanding of the soils that occur in a general area. However, due to the natural variability of the landscape, direct observation of the soils profile is necessary to identify hydric soil indicators.

A classification of hydric means that the soil components listed for a given map unit are rated as being hydric. "Predominantly hydric" means that more than 66 percent to less than 100 percent of soil components are hydric. "Partially hydric" means that more than 33 percent to less than 65 percent of soil components are hydric. "Predominantly non-hydric" means that more than 0 percent and less than 32 percent of soil components are hydric. "Not hydric" means that all soil components are rated as not hydric. "Unknown hydric" indicates that at least one component is not rated so a definitive rating for the map unit cannot be made. A NRCS map of the soils located on the site with the associated hydric rating is presented in Figure 3 and summarized in Table 1 below.

Table 1: Soil Map Units Classifications

Map Unit Symbol	Description	Hydric Rating
LeA	Leon fine sand, 0 to 2 percent slopes	Predominantly Hydric
LoA	Leon fine sand, frequently ponded, 0 to 2 percent slopes	Hydric
LvA	Lynn Haven fine sand, 0 to 2 percent slopes	Predominantly Hydric
LYA	Lynn Haven, Allanton and Kingsferry soils, ponded, 0 to 1 percent slopes	Predominantly Hydric
MaA	Mandarin fine sand, 0 to 2 percent slopes	Predominantly Nonhydric
McA	Mascotte fine sand, 0 to 2 percent slopes	Predominantly Hydric
PhA	Pelham fine sand, ponded, 0 to 2 percent slopes	Predominantly Hydric
PmB	Pelham loamy fine sand, 0 to 5 percent slopes	Predominantly Hydric
SuA	Surrency mucky fine sand, frequently ponded, 0 to 1 percent slopes	Hydric

3.2 National Wetland Inventory

The U.S. Fish and Wildlife Service (USFWS) created and maintains the National Wetland Inventory (NWI) database of information on the characteristics, extent, and status of the wetlands and deepwater habitats within the U.S. This information is useful for planning purposes and provides an overall understanding of the habitats that may be present in or around the site. The NWI classifies habitat types as marine, estuarine, riverine, lacustrine or palustrine with additional modifiers as appropriate to identify the water regime, water chemistry, soil or other characteristics based on *Classification of Wetlands and Deepwater Habitats of the U.S.* (Cowardin, 1979).

TTL reviewed the NWI data for the site using the USFWS NWI Wetlands Mapper web-based tool to determine the potential for wetlands to exist on the site. The USFWS NWI Mapper identified numerous wetland, stream, and open water features within the delineation area boundary. Figure 4 depicts the NWI Map, and Table 2 summarizes the habitat below.

Table 2: NWI Classifications

Map Unit Symbol	Description of Habitat		
PEM1A	Palustrine, Emergent, Persistent, Temporarily Flooded		
PEM1C	Palustrine, Emergent, Persistent, Seasonally Flooded		
PEM1F	Palustrine, Emergent, Persistent, Semipermanently Flooded		
PF03/4C	Palustrine, Forested, Broad-Leaved Evergreen/Needle- Leaved Evergreen, Seasonally Flooded		
PF03C	Palustrine, Forested, Broad-Leaved Evergreen, Seasonally Flooded		
PF04/6C	Palustrine, Forested, Needle-Leaved Evergreen/Deciduous, Seasonally Flooded		
PFO4B	Palustrine, Forested, Needle-Leaved Evergreen, Seasonally Saturated		
PF06/3C	Palustrine, Forested, Deciduous/Needle-Leaved Evergreen, Seasonally Flooded		
PF06/4C	Palustrine, Forested, Deciduous/Broad-Leaved Evergreen, Seasonally Flooded		
PF06C	Palustrine, Forested, Deciduous, Seasonally Flooded		
PF06F	Palustrine, Forested, Deciduous, Semipermanently Flooded		
PSS6F	Palustrine, Scrub-Shrub, Deciduous, Semipermanently Flooded		
PSS7/EM1C	Palustrine, Scrub-Shrub, Evergreen/Emergent, Persistent, Seasonally Flooded		
PUBHx	Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated		
R4SBC	Riverine, Intermittent, Streambed, Seasonally Flooded		
R5UBH	Riverine, Unconsolidated Bottom, Permanently Flooded		

3.3 Hydrologic Unit Code

The U.S. is divided and sub-divided into successively smaller hydrologic units which are classified into six levels: regions, sub-regions, accounting units, watershed, sub-watershed, and cataloging units. The hydrologic units are arranged within each other, from the smallest (cataloging unit) to the largest (regions). Each hydrologic unit is identified by a unique hydrologic unit code (HUC) consisting of two to 12 digits based on the six levels of classification in the hydrologic system (Seaber, Kapinos, Knapp, 1987). The delineation area is located within the Soldiers Camp Island cataloging unit 12-Digit HUC 030702040303. This cataloging unit is within the North Prong St. Mary's River sub-watershed, 10-Digit HUC 0307020403. This is located within the St Mary's watershed, 8-Digit HUC 03070204 (Figure 5).

3.4 Normal Weather Conditions

TTL calculates a subject site's normal weather conditions before performing site work to understand whether aquatic features in the landscape may exhibit certain characteristics related to current and near past hydrologic regime. TTL calculates data obtained from an on-line NRCS climactic database, Agricultural Applied Climate Information System (AgACIS), and derives its calculation method from

the Tennessee Department of Environment and Conservation's guide for making hydrologic determinations (TDEC, 2011). An evaluation of weather conditions was performed for the three-month period prior to the field activities. Calculations for the site indicate that the weather conditions were normal for the time of year that field work was performed.

The Palmer Drought Severity Index provided by National Oceanic and Atmospheric Administration (NOAA) is accessed at http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/palmer.html and was used to cross-reference the results calculated. The Palmer Drought Severity Index indicates that the region of the site experienced "mid-range" conditions during the weeks prior to the site visit.

As an additional cross-reference, the U.S. Drought Monitor was accessed and evaluated. The U.S. Drought Monitor is produced through a partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture (USDA), and NOAA. The most recent update of the U.S. Drought Monitor (March 26, 2019) Map of Georgia exhibited no drought conditions in the vicinity of the review area.

The Normal Weather Conditions Table, AgACIS data, Palmer Drought Severity Index Map, and U.S Drought Monitor Map of Georgia and are included in Appendix A.

4.0 WETLAND AND WATERS DELINEATION

4.1 Wetland Identification Methodology

TTL utilizes the U.S. Army Corps of Engineers Wetland Delineation Manual (USACE, 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (USACE, 2010) technical guidelines for determining the presence of wetlands. This determination requires that a positive wetland indicator be present for each of the three parameters (hydrology, soil, and vegetation), with the exception of areas altered by recent human activities or natural events. During field activities, TTL assessed the project area for the presence of hydrophytic vegetation and used a Dutch hand-auger to evaluate the project area for the presence of hydric soils. TTL examined the soil for hydric soil indicators as identified in the Field Indicators of Hydric Soils in the United States, V. 8.1 (NRCS, 2017). Additionally, TTL observed the project area for indications of inundated or saturated soils, water marks, drift lines, crayfish burrows, sediment deposits and other wetland hydrology indicators. TTL used Wetland Determination Data Forms – Atlantic and Gulf Coastal Plain Region (2010) to record field conditions for the soil, vegetation and hydrology for wetlands and uplands located on the site. At least one data point was established in each habitat type observed within the review area.

TTL traversed the project area on foot and placed orange flagging labeled with Upland Data Point (UDP) or Wetland Data Point (WDP) identification at the data point location. The location of the data point flagging was mapped with a Trimble Geo7x Global Positioning System (GPS) unit, which was set to sub-meter tolerances. Field data was post-processed using Trimble PathfinderOffice V 5.3 and exported to ESRI's ArcMap 10.2. Area features were manually digitized in ArcGIS using the flag locations; geographic coordinates and area quantities were calculated using ArcGIS "area" function.

4.2 Wetland Findings

The project area contains three wetland areas (WA-WC) consisting of approximately 662.712 acres. The boundaries of the wetland areas and data point locations are depicted on Figure 6. Selected photographs of our field observations are provided in Appendix B. Wetland Determination Data Forms are included in Appendix C. Table 3 summarizes the wetland findings below.

Wetland Area **Cowardin Habitat Description** ID (acres) Palustrine: Emergent, Persistent: WA 1.254 Seasonally Flooded Palustrine; Emergent, Persistent; WB 2.051 Seasonally Flooded Palustrine; Forested, Scrub-Shrub, Emergent, Broad-Leaved Evergreen/Needle-WC 659,407 Leaved Evergreen; Seasonally Flooded

Table 3: Wetland Summary

Wetland C is the largest wetland and is located throughout the delineation area. Wetlands A and B are located in the northern portion of the delineation area. The soils textures within the wetland areas are comprised of a sand content that meets hydric soil indicators S6 - Stripped Matrix, and/or A7 - 5cm Mucky Mineral. The hydrology for this area is supported by localized stormwater and a shallow water table. The wetland vegetation communities within the delineation area vary from large areas of hipped and benched, planted pine habitat [dominated by slash pine (*Pinus elliottii*), inkberry (*Ilex glabra*), Carolina redroot (*Lachnanthes caroliniana*), and Virginia chain fern (*Woodwardia virginica*)] to forested pocosin habitat that exhibited no signs of silvicultural activities [dominated by pond pine (*Pinus serotina*), pond cypress (*Taxodium ascendens*), loblolly bay (*Gordonia lasianthus*), swamp tupelo (*Nyssa biflora*), large gallberry (*Ilex coriacea*), and Virginia chain fern.

4.3 Streams Identification and Methodology

TTL used the North Carolina Division of Water Quality – Methodology for Identification of Intermittent and Perennial Streams and Their Origins v. 4.11, September 1, 2010 (NC Method) technical

guideline to determine the most appropriate classification of each subject stream. This technical guideline for stream identification is the preferred methodology for distinguishing between intermittent and perennial streams in the southeast United States and requires evaluation of 26 attributes of the stream and assigning a numeric score to each on the *NC DWQ Stream Identification Form Version 4.11*. A four-tiered, weighted scale is utilized for evaluating and scoring the features categorized in sets of geomorphic, hydrologic, and biological attributes. Additionally, TTL utilized the *Regulatory Guidance Letter No. 05-05*: *Ordinary High Water Mark Identification* (USACE, 2005) as the basis for the delineation, mapping, and linear footage/areal estimations of on-site streams.

Identified streams were mapped using the method described in Section 4.1. Stream Identification Forms (v. 4.11) were used to classify streams that were not clearly perennial (i.e. flowing water at greater than 48 hours since rainfall, strong morphology and obvious biological presence). TTL traversed the stream channels on foot and placed blue flagging labeled with stream data point identifications near the observed ordinary high water mark (OHWM). The locations of the boundary flags were mapped with a Trimble Geo7x Global Positioning System (GPS) unit, which was set to submeter tolerances. Field data was post-processed using Trimble Pathfinder Office V 5.3 and exported to ESRI's ArcMap 10.2. Area features were manually digitized in ArcGIS using the flag locations; geographic coordinates and area quantities were calculated using ArcGIS "area" function.

4.4 Streams and Ditches Findings

TTL identified ten ditches within the delineation area consisting of approximately 7,807 linear feet of ditches (D1-D10). These ditches are jurisdictional where they are located within wetlands. In these areas, their acreage has been included within the wetland acreage. No jurisdictional streams were identified within the delineation area. The River Styx is shown in the western portion of the delineation area on aerial photographs for the site (Figure 2) but the channel of this stream was not identified within the delineation area. Table 4 summarizes the ditch findings below.

Table 4: Ditch Summary

Wetland ID	Cowardin Habitat Description	Length (linear feet)/ Area (acres)
D1	Ditch	0.028
D2	Ditch	0.022
D3	Ditch	0.122
D4	Ditch	0.012
D5	Ditch	0.011
D6	Ditch	0.091
D7	Ditch	0.072
D8	Ditch	0.120
D9	Ditch	0.064
D10	Ditch	0.722

4.5 Jurisdictional Determination Request

The USACE has the sole authority to determine whether wetlands or water features are "jurisdictional." Under certain circumstances, wetland areas are considered non-jurisdictional because they lack a significant nexus with other wetlands or waters of the U.S. TTL utilized the USACE Jurisdictional Determination Form Instructional Guidebook (USACE and EPA, 2007) to complete a SAS APPENDIX 1: Request for Corps of Engineers Jurisdictional Determination (JD) and/or Delineation Review Form (Appendix E).

It is TTL's opinion that all observed wetlands, and ditches within the wetlands are jurisdictional features due to their significant nexus to nearby relatively permanent waters. The ditches that occur within wetlands have been included and calculated as part of the wetland total acreage.

TTL recommends that a delineation review of aquatic resources of the potentially jurisdictional site features be requested from the USACE Savannah District. If the USACE is not engaged regarding a jurisdictional determination or delineation review of aquatic resources, TTL is neither responsible for the final determination of jurisdictional features within the review corridor, nor responsible for violations associated with unauthorized activities that may occur within areas deemed jurisdictional by the USACE at a later time.

5.0 CONCLUSIONS

- Approximately 659.407 acres of forested wetland were identified within the delineation area.
- Approximately 3.305 acres of emergent wetland were identified within the delineation area.
- No jurisdictional streams were identified within the delineation area.
- Approximately 7,807 linear feet of ditches were identified within the delineation area. These
 ditches are jurisdictional where they are located within wetlands and have been included in the
 wetland total acreage.
- Upon approval by the client, TTL will submit a request for a delineation review of aquatic resources from the USACE of all aquatic features within the site.

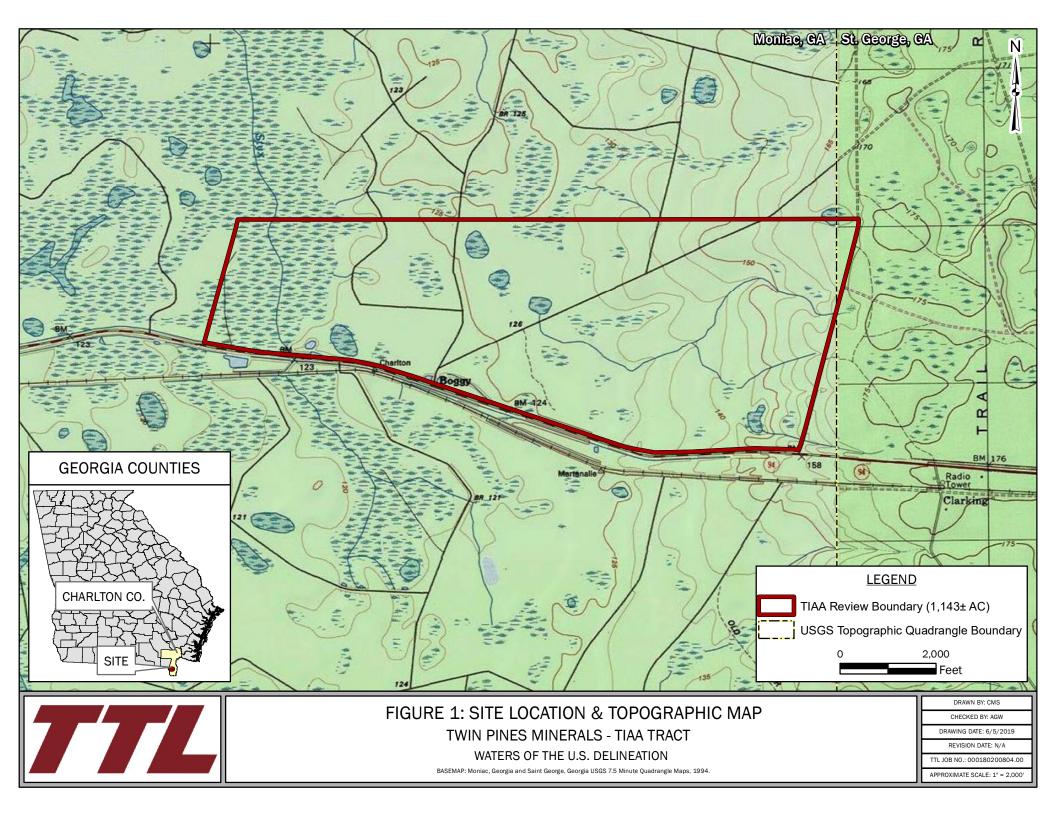
6.0 REFERENCES

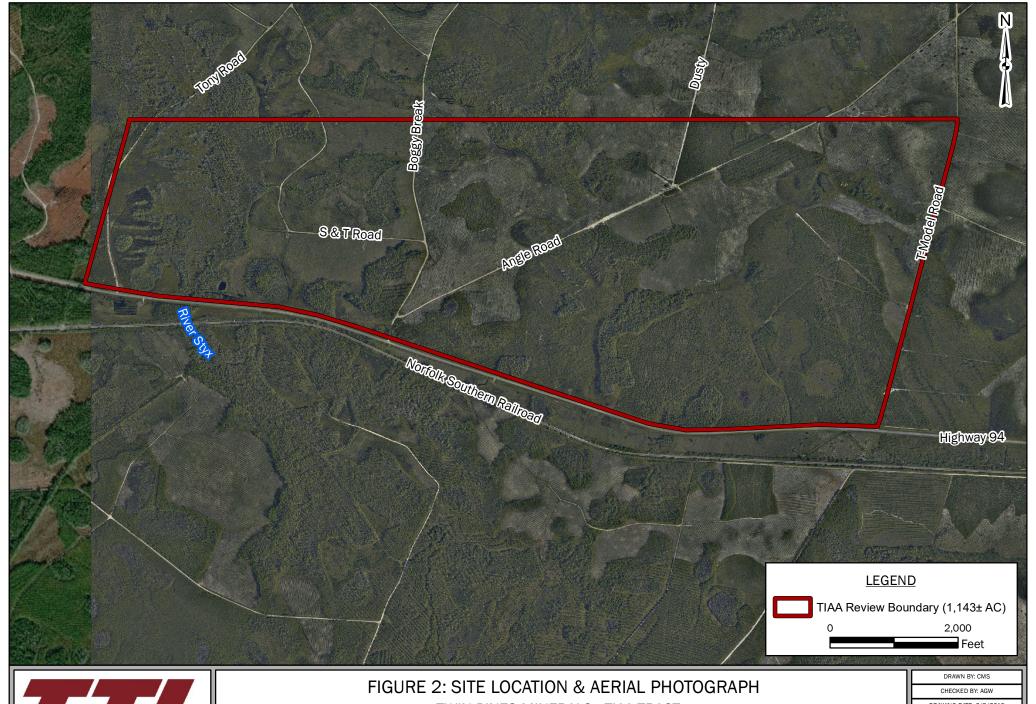
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FIGURES

Figure 1	Project Location and Topographic Map
Figure 2	Site Location & Aerial Photograph
Figure 3	Natural Resources Conservation Service (NRCS) Soil Map w/Hydric Rating
Figure 4	National Wetland Inventory (NWI) Classification Map
Figure 5	Hydrologic Unit Code (HUC) Map
Figure 6	Waters of the U.S. Delineation Map





TWIN PINES MINERALS - TIAA TRACT

WATERS OF THE U.S. DELINEATION

BASEMAP: DigitalGlobe, 1/24/2016 & Twin Pines Ortholmagery, 09/2018

DRAWING DATE: 6/5/2019

REVISION DATE: N/A

TTL JOB NO.: 000180200804.00

APPROXIMATE SCALE: 1" = 2,000'

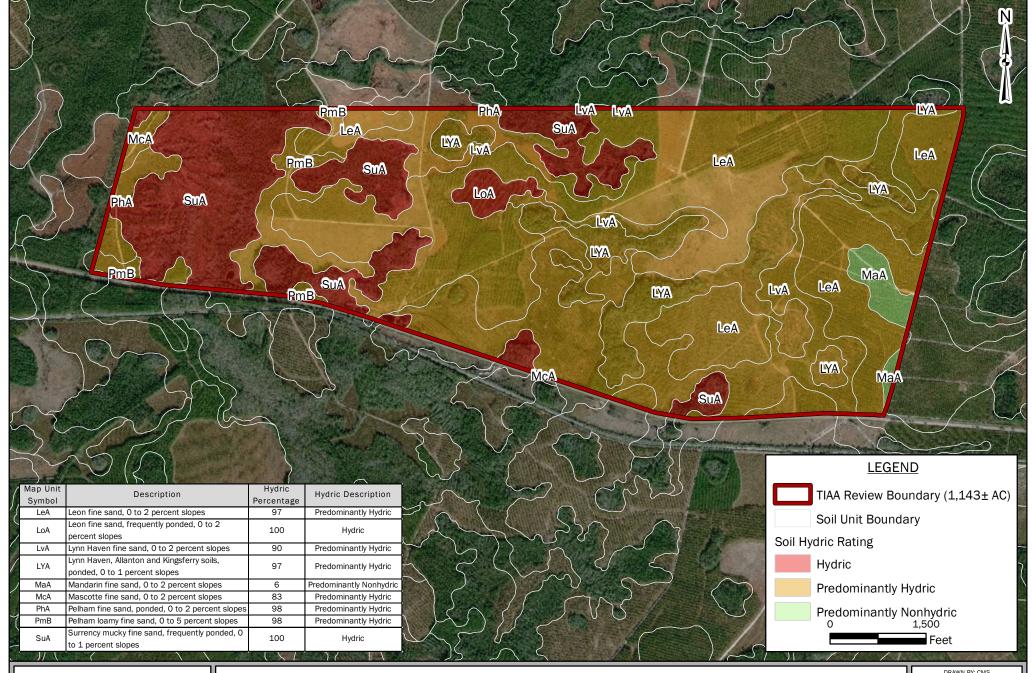




FIGURE 3: NATURAL RESOURCES CONSERVATION SERVICE (NRCS)
SOIL MAP WITH HYDRIC RATING

TWIN PINES MINERALS - TIAA TRACT WATERS OF THE U.S. DELINEATION

BASEMAP: DigitalGlobe, 1/24/2017

DRAWN BY: CMS
CHECKED BY: AGW

DRAWING DATE: 6/5/2019

REVISION DATE: N/A

TTL JOB NO.: 000180200804.00

APPROXIMATE SCALE: 1" = 1.500'

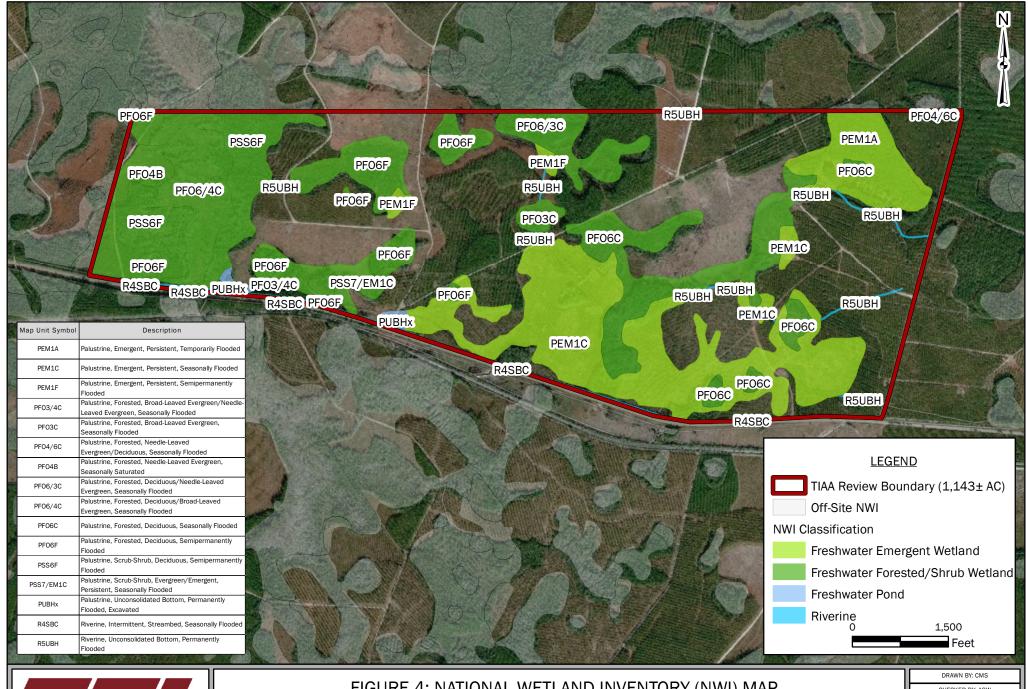




FIGURE 4: NATIONAL WETLAND INVENTORY (NWI) MAP TWIN PINES MINERALS - TIAA TRACT

WATERS OF THE U.S. DELINEATION

BASEMAP: DigitalGlobe, 1/24/2017

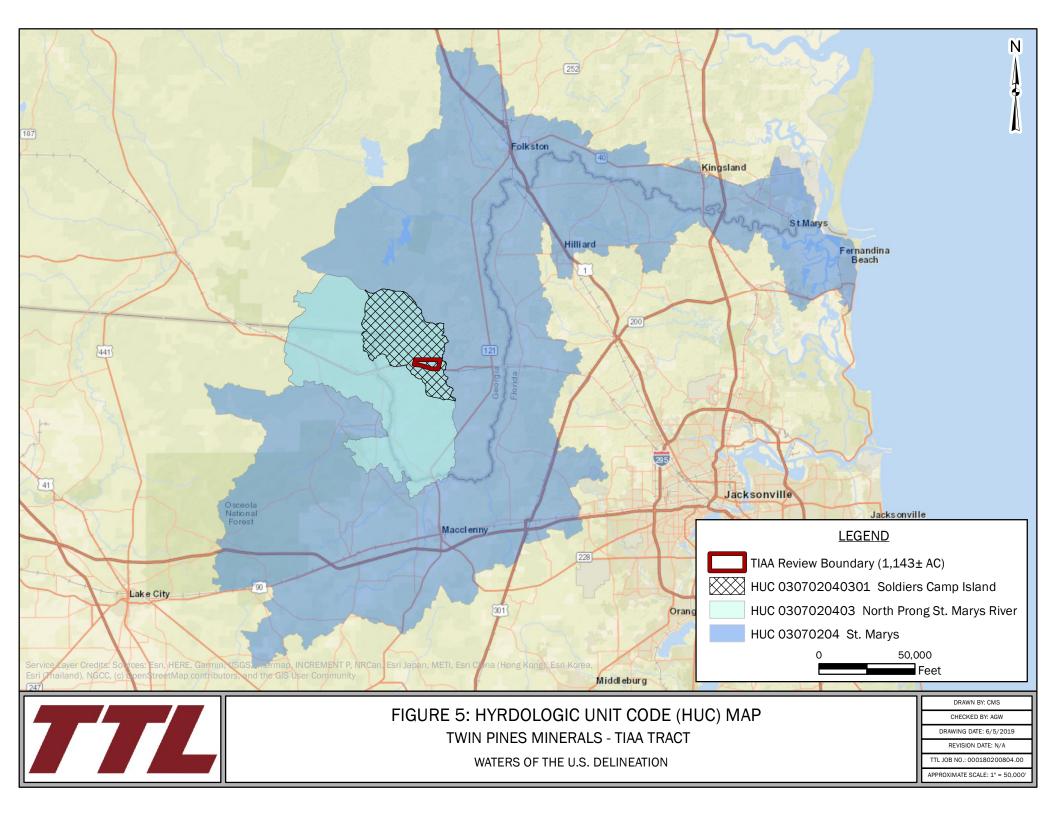
CHECKED BY: AGW

DRAWING DATE: 6/5/2019

REVISION DATE: N/A

TTL JOB NO.: 000180200804.00

APPROXIMATE SCALE: 1" = 1.500'



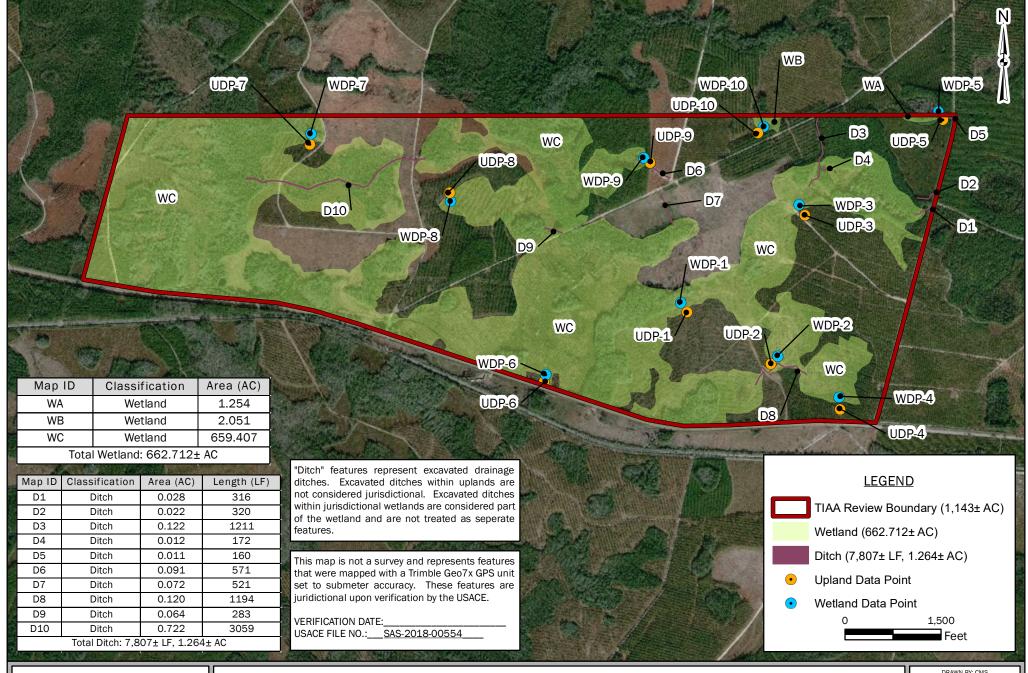




FIGURE 6: WATERS OF THE U.S. DELINEATION MAP TWIN PINES MINERALS - TIAA TRACT WATERS OF THE U.S. DELINEATION

BASEMAP: DigitalGlobe, 1/24/2016

DRAWN BY: CMS

DRAWING DATE: 6/7/2019
REVISION DATE: N/A

TTL JOB NO.: 000180200804.00

APPROXIMATE SCALE: 1" = 1,500'

APPENDIX A

Normal Weather Conditions Table AgACIS Data U.S. Drought Monitor – Georgia Palmer Drought Index

Calculation of Normal Weather Conditions General Project Location: Folkston, Georgia Analysis for March 2019 Site Visits

			Long-Term Rainfall Records							
			Minus One		Plus One					
			Standard		Standard		Condition		Month	
		Standard	Deviation	Normal* (Mean	Deviation	Actual	(wet, normal,	Condition	Weight	Weighted
	Month	Deviation*	(Dry)	Inches)	(Wet)	Rainfall**	dry)	Value***	Value	Value
1st prior month	3/23/2019 - 2/23/2019	2.62	1.29	3.91	6.53	1.38	Normal	2	3	6
2nd prior month	2/22/2019 - 1/22/2019	2.14	1.56	3.70	5.84	2.27	Normal	2	2	4
3rd prior month	1/21/2019 - 12/21/2018	2.18	1.24	3.42	5.60	0.31	dry	1	1	1
-			<u>. </u>			<u> </u>			Sum:	11

Sum:	Conclusion:
6-9	prior period has been drier than normal
10-14	prior period has been normal
15-18	prior period has been wetter than normal

^{*} Standard Deviation and Mean Values can be found through the National Oceanic and Atmospheric Associations Earth System Research Laboratory: http://www.esrl.noaa.gov/psd/data/usstation/

^{**} Rainfall data can be found through Weather Source Consultants: www.weathersource.com

^{***} Condition Values: 1 = dry, 2 = normal, 3 = wet

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2018-12-01	72	46	59.0	19	9	0.12	М	М
2018-12-02	M	M	M	М	М	М	М	М
2018-12-03	M	M	M	М	М	М	М	М
2018-12-04	M	M	M	М	М	М	М	М
2018-12-05	64	42	53.0	13	3	0.00	М	М
2018-12-06	56	38	47.0	7	0	0.00	М	М
2018-12-07	M	M	M	М	М	М	М	М
2018-12-08	M	M	M	М	М	М	М	М
2018-12-09	66	54	60.0	20	10	0.91	М	М
2018-12-10	73	43	58.0	18	8	0.02	М	М
2018-12-11	М	M	M	М	М	М	М	М
2018-12-12	55	39	47.0	7	0	0.00	М	М
2018-12-13	61	45	53.0	13	3	0.00	М	М
2018-12-14	67	45	56.0	16	6	0.86	М	М
2018-12-15	М	M	M	М	М	М	М	М
2018-12-16	68	51	59.5	20	10	0.06	М	М
2018-12-17	M	M	M	М	М	М	М	М
2018-12-18	M	M	M	М	М	М	М	М
2018-12-19	65	44	54.5	15	5	0.00	М	М
2018-12-20	64	52	58.0	18	8	0.02	М	М
2018-12-21	64	56	60.0	20	10	0.15	М	М
2018-12-22	М	M	М	М	М	М	М	М
2018-12-23	M	M	M	М	М	М	М	М
2018-12-24	64	47	55.5	16	6	0.00	М	М
2018-12-25	M	M	М	М	М	М	М	М
2018-12-26	64	44	54.0	14	4	0.00	М	М
2018-12-27	66	52	59.0	19	9	0.00	М	М
2018-12-28	М	М	М	М	М	М	М	М
2018-12-29	М	M	М	М	М	М	М	М
2018-12-30	79	61	70.0	30	20	0.01	М	М
2018-12-31	М	M	М	М	М	М	М	М
Average Sum	65.5	47.4	56.5	265	111	2.15	М	М

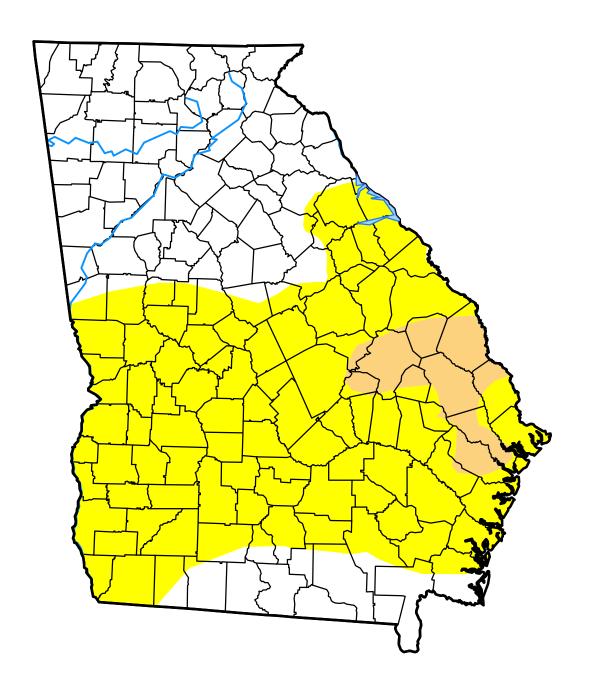
Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2019-01-01	М	М	М	М	М	М	М	М
2019-01-02	M	М	M	М	М	М	М	М
2019-01-03	77	62	69.5	30	20	0.00	М	М
2019-01-04	76	63	69.5	30	20	0.15	М	М
2019-01-05	М	М	M	М	М	М	М	М
2019-01-06	M	М	M	М	М	М	М	М
2019-01-07	М	М	М	М	М	М	М	М
2019-01-08	75	52	63.5	24	14	0.00	М	М
2019-01-09	М	М	М	М	М	М	М	М
2019-01-10	61	42	51.5	12	2	0.00	М	М
2019-01-11	М	М	М	М	М	М	М	М
2019-01-12	62	35	48.5	9	0	Т	М	М
2019-01-13	М	М	М	М	М	М	М	М
2019-01-14	М	М	М	М	М	М	М	М
2019-01-15	52	47	49.5	10	0	0.00	М	М
2019-01-16	М	М	М	М	М	М	М	М
2019-01-17	М	М	M	М	М	М	М	М
2019-01-18	67	48	57.5	18	8	0.00	М	М
2019-01-19	М	М	М	М	М	М	М	М
2019-01-20	М	M	M	М	М	М	М	М
2019-01-21	М	М	М	М	М	M	М	М
2019-01-22	М	M	M	М	М	М	М	М
2019-01-23	66	48	57.0	17	7	0.01	М	М
2019-01-24	78	58	68.0	28	18	1.60	М	М
2019-01-25	М	М	М	М	М	М	М	М
2019-01-26	М	М	М	М	М	М	М	М
2019-01-27	57	44	50.5	11	1	0.00	М	М
2019-01-28	М	М	М	М	М	М	М	М
2019-01-29	М	М	М	М	М	М	М	М
2019-01-30	М	М	М	М	М	0.03	М	М
2019-01-31	47	34	40.5	1	0	0.00	М	М
Average Sum	65.3	48.5	56.9	190	90	1.79	М	М

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2019-02-01	М	М	М	М	М	М	М	М
2019-02-02	61	52	56.5	17	7	0.19	М	М
2019-02-03	М	M	M	М	М	М	М	М
2019-02-04	64	55	59.5	20	10	0.24	М	М
2019-02-05	70	50	60.0	20	10	0.00	М	М
2019-02-06	М	M	M	М	М	М	М	М
2019-02-07	М	М	M	М	М	М	М	М
2019-02-08	М	M	М	М	М	М	М	М
2019-02-09	М	М	M	М	М	М	М	М
2019-02-10	M	M	M	М	М	М	М	М
2019-02-11	М	M	M	М	М	М	М	М
2019-02-12	M	M	M	М	М	0.00	М	М
2019-02-13	82	50	66.0	26	16	0.13	М	М
2019-02-14	М	M	M	М	М	М	М	М
2019-02-15	М	M	М	М	М	М	М	М
2019-02-16	73	41	57.0	17	7	0.00	М	М
2019-02-17	М	M	М	М	М	М	М	М
2019-02-18	М	М	М	М	М	М	М	М
2019-02-19	М	M	M	М	М	М	М	М
2019-02-20	79	51	65.0	25	15	0.07	М	М
2019-02-21	М	M	M	М	М	М	М	М
2019-02-22	М	M	М	М	М	M	М	М
2019-02-23	М	M	M	М	М	М	М	М
2019-02-24	М	M	М	М	М	М	М	М
2019-02-25	М	M	M	М	М	М	М	М
2019-02-26	М	М	М	М	М	М	М	М
2019-02-27	М	М	М	М	М	М	М	М
2019-02-28	74	57	65.5	26	16	0.13	М	М
Average Sum	71.9	50.9	61.4	151	81	0.76	М	М

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2019-03-01	M	М	M	М	М	М	М	М
2019-03-02	76	59	67.5	28	18	0.96	М	М
2019-03-03	M	М	M	М	М	М	М	М
2019-03-04	81	53	67.0	27	17	0.29	М	М
2019-03-05	M	М	М	М	М	М	М	М
2019-03-06	М	М	М	М	М	М	М	М
2019-03-07	M	М	М	М	М	М	М	М
2019-03-08	М	М	М	М	М	М	М	М
2019-03-09	78	52	65.0	25	15	0.00	М	М
2019-03-10	83	61	72.0	32	22	0.00	М	М
2019-03-11	M	М	М	М	М	М	М	М
2019-03-12	М	М	М	М	М	М	М	М
2019-03-13	86	54	70.0	30	20	0.00	М	М
2019-03-14	M	М	M	М	М	М	М	М
2019-03-15	M	М	M	М	М	М	М	М
2019-03-16	M	М	M	М	М	М	М	М
2019-03-17	M	М	M	М	М	М	М	М
2019-03-18	M	М	M	М	М	М	М	М
2019-03-19	М	М	M	М	М	М	М	М
2019-03-20	М	М	М	М	М	М	М	М
2019-03-21	М	М	M	М	М	М	М	М
2019-03-22	М	М	М	М	М	М	М	М
2019-03-23	M	М	М	М	М	М	М	М
2019-03-24	М	М	М	М	М	М	М	М
2019-03-25	М	М	М	М	М	М	М	М
2019-03-26	M	М	М	М	М	М	М	М
2019-03-27	M	М	М	М	М	М	М	М
2019-03-28	М	М	М	М	М	М	М	М
2019-03-29	M	М	M	М	М	М	М	М
2019-03-30	М	М	М	М	М	М	М	М
2019-03-31	M	М	M	М	М	М	М	М
Average Sum	80.8	55.8	68.3	142	92	1.25	М	М

U.S. Drought Monitor

Georgia



March 26, 2019

(Released Thursday, Mar. 28, 2019)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	39.33	60.67	6.01	0.00	0.00	0.00
Last Week 03-19-2019	66.71	33.29	1.27	0.00	0.00	0.00
3 Months Ago 12-25-2018	100.00	0.00	0.00	0.00	0.00	0.00
Start of Calendar Year 01-01-2019	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year 09-25-2018	70.95	29.05	6.72	0.00	0.00	0.00
One Year Ago 03-27-2018	31.15	68.85	50.54	10.42	0.00	0.00

Intensity:

D0 Abnormally Dry
D1 Moderate Drought
D2 Severe Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

Eric Luebehusen
U.S. Department of Agriculture





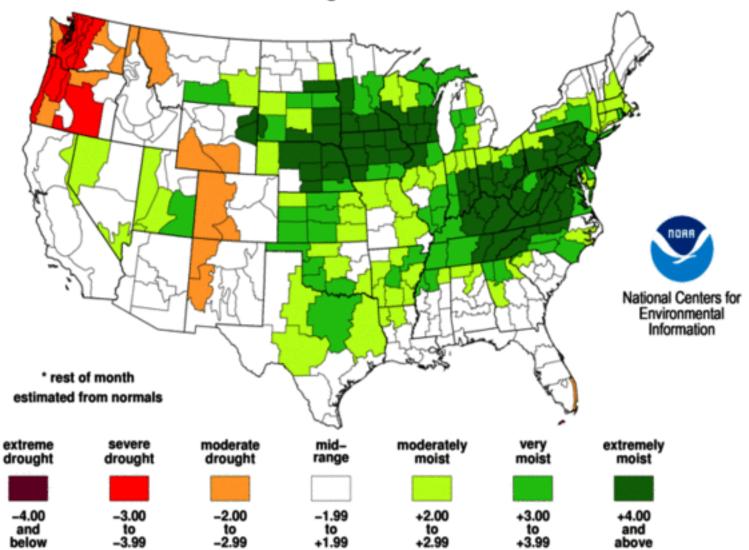




http://droughtmonitor.unl.edu/

Palmer Hydrological Drought Index Long-Term (Hydrological) Conditions

March 2019: through March 23 2019*



APPENDIX B

Site Photographs



Photograph 1: View of Ditch 1 (D1).



Photograph 2: View of Ditch 2 (D2).





Photograph 3: View of Ditch 3 (D3).



Photograph 4: View of Ditch 4 (D4).





Photograph 5: View of Ditch 5 (D5).



Photograph 6: View of Ditch 9 (D9).





Photograph 7: View Ditch 10 (D10).



Photograph 8: View of the Wetland Data Point 1 (WDP-1) location.





Photograph 9: View of the Upland Data Point 1 (UDP-1) location.



Photograph 10: View of the Wetland Data Point 2 (WDP-2) location.





Photograph 11: View of View of the Upland Data Point 2 (UDP-2) location.



Photograph 12: View of the Wetland Data Point 3 (WDP-3) location.





Photograph 13: View of the Upland Data Point 3 (UDP-3) location.



Photograph 14: View of the Wetland Data Point 4 (WDP-4) location.





Photograph 15: View of the Upland Data Point 4 (UDP-4) location.



Photograph 16: View of the Wetland Data Point 5 (WDP-5) location.





Photograph 17: View of the Upland Data Point 5 (UDP-5) location.



Photograph 18: View of the Wetland Data Point 6 (WDP-6) location.





Photograph 19: View of the Upland Data Point 6 (UDP-6) location.



Photograph 20: View of the Wetland Data Point 7 (WDP-7) location.





Photograph 21: View of the Upland Data Point 7 (UDP-7) location.



Photograph 22: View of the Wetland Data Point 8 (WDP-8) location.





Photograph 23: View of the Upland Data Point 8 (UDP-8) location.



Photograph 24: View of the Wetland Data Point 9 (WDP-9) location.





Photograph 25: View of the Upland Data Point 9 (UDP-9) location.



Photograph 26: View of the Wetland Data Point 10 (WDP-10) location.



Site Photographs

Waters of the U.S. Delineation: TIAA Tract — TTL Project No. 000180200804.00
Twin Pines Minerals ● Charlton County, Georgia
Photos taken March 23, 2019 – April 10, 2019



Photograph 27: View of the Upland Data Point 10 (UDP-10) location.



APPENDIX C U.S. Army Corps of Engineers Wetland Determination Data Forms

Project/Site: TIAA Tract		City/C	ounty: Charlton C	County	Sampling Date: 04/09/2019
Applicant/Owner: Twin Pines	Minerals, LLC		•		Sampling Point: UDP-1
Investigator(s): C. Terrell / C.		Section			
Landform (hillslope, terrace, etc.)					Slope (%): 0-2%
Subregion (LRR or MLRA): LRR					
Soil Map Unit Name: Leon fine		Lat			cation: _Upland
Are climatic / hydrologic condition		r this time of year? V	as 🗸 No		
Are Vegetation Yes, Soil Yes					
Are Vegetation No , Soil No				ed, explain any answe	
SUMMARY OF FINDINGS	5 – Attach site m	ap showing sam	ipling point loc	ations, transects	s, important features, etc.
Hydrophytic Vegetation Presen	ıt? Yes <u>√</u>	No	Is the Sampled Ar	'ea	
Hydric Soil Present?	Yes	No No✓ No✓	within a Wetland?		No √
Wetland Hydrology Present?	Yes	_ No <u></u>			
Remarks:					
- Vegetation historically			• •		
- Soils/Hydrology historic	cally impacted by s	silvicultural activiti	es (bedding for p	planted pine).	
HYDROLOGY					
Wetland Hydrology Indicators	s:			Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of		all that apply)		Surface Soil	
Surface Water (A1)	Aq	uatic Fauna (B13)			getated Concave Surface (B8)
High Water Table (A2)		arl Deposits (B15) (LR	R U)	Drainage Pa	
Saturation (A3)	Hy	drogen Sulfide Odor (C1)	Moss Trim L	ines (B16)
Water Marks (B1)	Ox	idized Rhizospheres a	along Living Roots (0	C3) Dry-Season	Water Table (C2)
Sediment Deposits (B2)	Pre	esence of Reduced Iro	on (C4)	Crayfish Bur	rows (C8)
Drift Deposits (B3)		cent Iron Reduction in	Tilled Soils (C6)	Saturation V	isible on Aerial Imagery (C9)
Algal Mat or Crust (B4)		in Muck Surface (C7)		Geomorphic	Position (D2)
Iron Deposits (B5)		her (Explain in Remar	ks)	Shallow Aqu	
Inundation Visible on Aeria				✓ FAC-Neutra	
Water-Stained Leaves (B9)			Sphagnum r	noss (D8) (LRR T,U)
Field Observations:	Vac No 🗸	Depth (inches):			
Surface Water Present? Water Table Present?	Yes No V	Depth (inches): 30			
	/	Depth (inches): 24		nd Hydrology Presei	nt? Yes No ✓
Saturation Present? (includes capillary fringe)	Yes _ ▼ No	Depth (inches):	vvetiai	na nyarology Presei	it? fes NO
Describe Recorded Data (strea	ım gauge, monitoring w	vell, aerial photos, pre	vious inspections), if	available:	
Remarks: FAC-Neutral Test Res	sults: Positive	FACW and OBL: 6	to FACU and UP	L: 1	

VEGETATION – Use scientific names of plants.

EGETATION – Use scientific names of plants	s.			Sampling Point: UDP-1
70 ft radius	Absolute	Dominant		Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>) 1. <i>Pinus elliottii</i>	40.0	Species? yes	<u>Status</u> <u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC:8 (A)
2 3				Total Number of Dominant Species Across All Strata: 9 (B)
4				Percent of Dominant Species That Are OBL, FACW, or FAC: 89% (A/B)
6				
7				Prevalence Index worksheet:
50% of total cover: 20.00 20% of total cover: 8.00	40.0	= Total Co	over	Total % Cover of: Multiply by:
Sapling Stratum (30 ft radius) 1 Pinus elliottii	30 O	yes	FAC\/\	OBL species x 1 = FACW species x 2 =
1. T mus emottii 2.			IACVV	FAC species x 3 =
			·	FACU species x 4 =
3				UPL species x 5 =
4				Column Totals: (A) (B)
5				Column Totals(A)(B)
6				Prevalence Index = B/A =
50% of total cover: 15.00 20% of total cover: 6.00	30.0	= Total Co		Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)	30.0	- 10tal CC	vei	1 - Rapid Test for Hydrophytic Vegetation
1. Ilex glabra	15.0	yes	FACW	✓ 2 - Dominance Test is >50%
2. Ilex coriacea	15.0	yes	FACW	3 - Prevalence Index is ≤3.0 ¹
3. Serenoa repens		yes	FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
4.				¹ Indicators of hydric soil and wetland hydrology must
5.				be present, unless disturbed or problematic.
6.				
7.				Definitions of Vegetation Strata:
50% of total cover: 22.50 20% of total cover: 9.00	45.0	= Total Co	over	
Herb Stratum (30 ft radius)				Tree – Woody plants, excluding woody vines,
1. Andropogon virginicus	20.0	yes	FAC	approximately 20 ft (6 m) or more in height and
2. Anchistea virginica	10.0	yes	OBL	3 in. (7.6 cm) or larger in diameter at breast
3. Scleria triglomerata	10.0	yes	FACW	height (DBH).
4				Sapling – Woody plants, excluding woody vines,
5				approximately 20 ft (6 m) or more in height and less
6				than 3 in. (7.6 cm) DBH.
7				
8				Shrub – Woody plants, excluding woody vines,
9				approximately 3 to 20 ft (1 to 6 m) in height.
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
50% of total cover: 22.50 20% of total cover: 9.00	40.0	= Total Co	over	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				
1. Vitis rotundifolia	10.0	yes	<u>FAC</u>	Woody vine – All woody vines, regardless of height.
2				
3				
4				Hydrophytic
5				Hydrophytic Vegetation
50% of total cover: 5.00 20% of total cover: 2.00				Present? Yes No
Remarks: (If observed, list morphological adaptations be	low). *Plants	not idendi	fied to spec	ies are not used in dominance calculations.

US Army Corps of Engineers

SOIL Sampling Point: UDP-1

Profile Desc	ription: (Describe	to the dept	h needed to docun	nent the indicator of	or confirm the absen	ce of indicators.)	
Depth	Matrix			K Features			
(inches)	Color (moist)	%	Color (moist)	% Type ¹	Loc ² Texture		-
0-4"	10YR 3/1	50			Sa	masked sand gr	ains
	10YR 7/1	50			Sa	unmasked sand	grains
4-18"	10YR 4/1	70			Sa	masked sand gr	ains
	10YR 6/1	30			Sa	unmasked sand	grains
1Typo: C-C	ancontration D-Do	olotion PM-I	Reduced Matrix, MS	-Maskod Sand Gra	ine 2	Location: PL=Pore Linin	a M-Matrix
Hydric Soil		JIELIOH, KIVI=I	Reduced Matrix, Mc	= Waskeu Sanu Gra		ors for Problematic Hyd	
Histosol			Polyvalue Re	low Surface (S8) (LI		n Muck (A9) (LRR O)	
	pipedon (A2)			rface (S9) (LRR S,		n Muck (A10) (LRR S)	
Black Hi				Mineral (F1) (LRR		luced Vertic (F18) (outsi	de MLRA 150A.B)
	n Sulfide (A4)		Loamy Gleye			dmont Floodplain Soils (F	
	d Layers (A5)		Depleted Mat	, ,		malous Bright Loamy So	
	Bodies (A6) (LRR F	P. T. U)	Redox Dark S			ILRA 153B)	- (- /
_	icky Mineral (A7) (L			k Surface (F7)	•	Parent Material (TF2)	
	esence (A8) (LRR I		Redox Depre			y Shallow Dark Surface (TF12)
	ick (A9) (LRR P, T)	•	Marl (F10) (L	, ,		er (Explain in Remarks)	,
Depleted	d Below Dark Surface	ce (A11)	Depleted Och	ric (F11) (MLRA 15		. ()	
Thick Da	ark Surface (A12)		Iron-Mangan	ese Masses (F12) (LRR O, P, T) 3 _{Inc}	dicators of hydrophytic ve	egetation and
	rairie Redox (A16) () Umbric Surfa	ce (F13) (LRR P, T,	III\	vetland hydrology must b	-
Sandy M	lucky Mineral (S1) (LRR O, S)	Delta Ochric	(F17) (MLRA 151)		unless disturbed or prol	
	Bleyed Matrix (S4)			tic (F18) (MLRA 15 0			
	tedox (S5)			odplain Soils (F19)			
	Matrix (S6)		Anomalous B	right Loamy Soils (F	(20) (MLRA 149A, 15	3C, 153D)	
	rface (S7) (LRR P,				1		
	_ayer (if observed)	:					
Type:							1
Depth (inc						oil Present? Yes	No <u>*</u>
Remarks: *S	oil abbreviations: C	l=Clay; Lo=l	Loam; Mu=Muck;	Pe- Peat; Sa= San	d; Si=Silt		
							ı

Project/Site: TIAA Tract		City/C	ounty: Charlton Cou	inty	Sampling Date:	04/09/2019
Applicant/Owner: Twin Pines	Minerals, LLC	-		State: GA	Sampling Point:	WDP-1
Investigator(s): C. Terrell / C	. Stanford (TTL)	Section				
Landform (hillslope, terrace, etc.			relief (concave, convex,		Slo	pe (%): 0-1%
Subregion (LRR or MLRA): LRF						
Soil Map Unit Name: Lynn Have	en, Allanton and Kingsfe	erry soils, ponded, 0-	1% slopes	NWI classifi	cation: PFO6C	
Are climatic / hydrologic conditio						
Are Vegetation No , Soil No						√ No
Are Vegetation No , Soil No				explain any answe		
SUMMARY OF FINDINGS						eatures, etc.
Hydrophytic Vegetation Presen	nt? Ves ✓	No				
Hydric Soil Present?	Yes V	No	Is the Sampled Area		<i>.</i>	
Wetland Hydrology Present?	Yes	No	within a Wetland?	Yes <u> </u>	No	_
Remarks:		l				
HYDROLOGY						<u> </u>
Wetland Hydrology Indicator	s:			Secondary Indica	ators (minimum o	f two required)
Primary Indicators (minimum of					Cracks (B6)	
Surface Water (A1)		atic Fauna (B13)			getated Concave	Surface (B8)
✓ High Water Table (A2)		Deposits (B15) (LR		✓ Drainage Pa		
✓ Saturation (A3) Water Marks (B1)		lrogen Sulfide Odor (along Living Roots (C3)	Moss Trim L		,
Sediment Deposits (B2)		sence of Reduced Iro		Crayfish Bu	Water Table (C2)	,
Drift Deposits (B3)		ent Iron Reduction in			isible on Aerial In	nagery (C9)
Algal Mat or Crust (B4)		n Muck Surface (C7)	(Position (D2)	lagory (Co)
Iron Deposits (B5)	✓ Oth	er (Explain in Remar	·ks)	Shallow Aqu		
Inundation Visible on Aeria				✓ FAC-Neutra		
Water-Stained Leaves (B9))			Sphagnum r	moss (D8) (LRR T	-,U)
Field Observations:						
Surface Water Present?	Yes No	Depth (inches):				
Water Table Present?	Yes No No	Depth (inches): 2			1	
Saturation Present? (includes capillary fringe)	Yes No	Depth (inches): 0"	Wetland H	Hydrology Prese	nt? Yes <u> </u>	_ No
Describe Recorded Data (stream	ım gauge, monitoring we	ell, aerial photos, pre	vious inspections), if ava	ailable:		
Remarks: FAC-Neutral Test Re	sults: Positive	FACW and OBL: 12	to FACU and UPL: (<u> </u>		
				-		
Buttressed bases and m	iuitipiy-trunkated ba	ises of numerous	s canopy trees.			

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>)		Species?		Number of Dominant Species
1. Taxodium ascendens	25.0	yes	OBL	That Are OBL, FACW, or FAC:(A)
2. Nyssa biflora	25.0	yes	OBL	Total Number of Dominant
3. Acer rubrum	20.0	yes	FAC	Species Across All Strata: 10 (B)
4. Magnolia virginiana	10.0	no	FACW	Percent of Dominant Species
_{5.} Pinus elliottii	10.0	no	<u>FACW</u>	That Are OBL, FACW, or FAC: 100% (A/B)
6				Prevalence Index worksheet:
7				
50% of total cover: 12.50 20% of total cover: 18.00 Sapling Stratum (30 ft radius)	90.0	= Total Co	over	Total % Cover of: Multiply by: OBL species x 1 =
1. Magnolia virginana	10.0	yes	FACW	FACW species x 2 =
2. Acer rubrum	10.0	yes	FAC	FAC species x 3 =
3.				FACU species x 4 =
4.				UPL species x 5 =
5.				Column Totals: (A) (B)
6.				
7.				Prevalence Index = B/A =
50% of total cover: 10.00 20% of total cover: 4.00	20.0	= Total Co	over	Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)	20.0	- Total Ct	ovei	√ 1 - Rapid Test for Hydrophytic Vegetation
1. Itea virginica	10.0	yes	FACW	✓ 2 - Dominance Test is >50%
2. Lyonia lucida	10.0	yes	FACW	3 - Prevalence Index is ≤3.0 ¹
3. Baccharis halimifolia		yes	FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
4.				¹ Indicators of hydric soil and wetland hydrology must
5				be present, unless disturbed or problematic.
6.		-		
7.				Definitions of Vegetation Strata:
50% of total cover: 12.50 20% of total cover: 5.00	25.0	= Total Co	over	John Morro C. Togotamorr Charles
Herb Stratum (30 ft radius)	20.0	- Total Ct	ovei	Tree – Woody plants, excluding woody vines,
1. Carex intumescens	25.0	yes	FACW	approximately 20 ft (6 m) or more in height and
2. Carex Iouisianica	15.0	yes	OBL	3 in. (7.6 cm) or larger in diameter at breast
3. Anchistea virginica	10.0	no	OBL	height (DBH).
4. Carex glaucescens	10.0	no	OBL	Conling Westerlands and discuss decision
5. Bidens mitis	10.0	no	OBL	Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less
6.		-		than 3 in. (7.6 cm) DBH.
7				
8.				Shrub – Woody plants, excluding woody vines,
				approximately 3 to 20 ft (1 to 6 m) in height.
9				
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12	70.0			woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)	70.0	= Total Co	over	approximately on (1 m) in neight.
1. Vitis rotundifolia	10.0	ves	FAC	Woody vine – All woody vines, regardless of height.
2.				, , , , , , , , , , , , , , , , , , , ,
3				
4				Hydrophytic
5 50% of total cover: 5.00 20% of total cover: 2.00	10.0			Vegetation Present? Yes No
20 /0 01 total 60 vol 20 /0 01 total 60 vel	10.0	= Total Co	over	Present? Yes No
Remarks: (If observed, list morphological adaptations be	elow). *Plants	not idendi	ified to spec	ries are not used in dominance calculations

SOIL Sampling Point: WDP-1

Profile Desc	cription: (Describe	to the depth	needed to document the indicator	or confirm the	absence of	indicators.)
Depth (inches)	Matrix	%	Redox Features	Loc ² Te		Domorko
(inches) 0-18"	Color (moist) 10YR 2/1	_ <u>%</u> _ 100	Color (moist) % Type ¹		exture ı Mi	Remarks
0-10	1018 2/1	100		iviu	I IVII	
				·		
				· — —		
	-			· 		
						_
¹Type: C=C	oncentration. D=De	pletion. RM=F	Reduced Matrix, MS=Masked Sand Gr	ains.	² Locat	ion: PL=Pore Lining, M=Matrix.
Hydric Soil		,	, , , , , , , , , , , , , , , , , , , ,			Problematic Hydric Soils ³ :
Histosol	(A1)		Polyvalue Below Surface (S8) (I	_RR S, T, U)	1 cm Muc	k (A9) (LRR O)
	oipedon (A2)		Thin Dark Surface (S9) (LRR S,			k (A10) (LRR S)
Black Hi	stic (A3)		Loamy Mucky Mineral (F1) (LRF			Vertic (F18) (outside MLRA 150A,B)
	en Sulfide (A4)		Loamy Gleyed Matrix (F2)	_		Floodplain Soils (F19) (LRR P, S, T)
	d Layers (A5)		Depleted Matrix (F3)	_		us Bright Loamy Soils (F20)
	Bodies (A6) (LRR I		Redox Dark Surface (F6)		(MLRA	-
	ucky Mineral (A7) (L		Depleted Dark Surface (F7)	_		nt Material (TF2)
	esence (A8) (LRR		Redox Depressions (F8)	_	•	low Dark Surface (TF12)
	ıck (A9) (LRR P, T) d Below Dark Surfa		Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 1	<u> </u>	_ Other (Ex	plain in Remarks)
	ark Surface (A12)	CC (ATT)	Iron-Manganese Masses (F12)		3, ,, ,	
	rairie Redox (A16) (MLRA 150A)				rs of hydrophytic vegetation and dhydrology must be present,
	Mucky Mineral (S1)		Delta Ochric (F17) (MLRA 151)			ss disturbed or problematic.
	Bleyed Matrix (S4)	` ,	Reduced Vertic (F18) (MLRA 15			
Sandy F	Redox (S5)		Piedmont Floodplain Soils (F19)	(MLRA 149A)		
Stripped	Matrix (S6)		Anomalous Bright Loamy Soils ((F20) (MLRA 149	9A, 153C, 15	53D)
	rface (S7) (LRR P,			1		
	Layer (if observed)):				
Type:			<u>—</u>			1
Depth (in	ches):		<u></u>	Hy	dric Soil Pro	esent? Yes No
Remarks: *S	oil abbreviations: C	CI=Clay; Lo=L	.oam; Mi=Mineral; Mu=Muck; Pe- Pe	eat; Sa= Sand;	Si=Silt	

Project/Site: TIAA Tract	City/Co	ounty: Charlton Cou	nty	Sampling Date: <u>04/09/2019</u>
Applicant/Owner: Twin Pines Minerals, LLC			State: GA	Sampling Point: UDP-2
Investigator(s): C. Terrell / C. Stanford (TTL)		n, Township, Range: N		
Landform (hillslope, terrace, etc.): Flatwoods				Slope (%): <u>0-2%</u>
Subregion (LRR or MLRA): LRR T / MLRA 153A				
Soil Map Unit Name: Leon fine sand, 0-2% slopes				
Are climatic / hydrologic conditions on the site typical fo	or this time of year? Ye	es No	(If no, explain in R	emarks.)
Are Vegetation Yes_, Soil Yes_, or Hydrology Yes	significantly disturb	ed? Are "Norma	Circumstances" p	oresent? Yes <u>√</u> No
Are Vegetation No , Soil No , or Hydrology No	naturally problemat	tic? (If needed, e	explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS - Attach site m	ap showing sam			
Hydrophytic Vegetation Present? Yes ✓	No	In the Committed Ameri		
Hydric Soil Present? Yes	No 🗸	Is the Sampled Area within a Wetland?	Vos	No ✓
Wetland Hydrology Present? Yes	_ No <u>√</u>	within a Wetland:	165	NO <u>V</u>
Remarks:				
- Vegetation historically impacted by silvice			atad pina)	
- Soils/Hydrology historically impacted by s	siivicuiturai activitie	es (bedding for plar	itea pine).	
HYDROLOGY				
Wetland Hydrology Indicators:			-	ators (minimum of two required)
Primary Indicators (minimum of one is required; check			Surface Soil	
· · · · —	quatic Fauna (B13)			getated Concave Surface (B8)
	arl Deposits (B15) (LRF		Drainage Pa	
	/drogen Sulfide Odor (0 kidized Rhizospheres a		Moss Trim L	
_	esence of Reduced Iro		Crayfish Bur	Water Table (C2)
· · · / —	ecent Iron Reduction in			isible on Aerial Imagery (C9)
	nin Muck Surface (C7)	111100 00110 (00)		Position (D2)
—	ther (Explain in Remark	(s)	Shallow Aqu	` '
Inundation Visible on Aerial Imagery (B7)	(,	✓ FAC-Neutral	
Water-Stained Leaves (B9)				noss (D8) (LRR T,U)
Field Observations:				
Surface Water Present? Yes No				
Water Table Present? Yes No				/
Saturation Present? Yes _ V No No	Depth (inches): 36	Wetland H	lydrology Preser	nt? Yes No
Describe Recorded Data (stream gauge, monitoring w	vell, aerial photos, prev	rious inspections), if ava	ilable:	
Remarks: FAC-Neutral Test Results: Positive	FACW and OBL: 4	to FACU and UPL: 2	2	

VEGETATION – Use scientific names of plants.

YEGETATION - Use scientific names of plant	S.			Sampling Point: UDP-2
T Out (District 20 ft radius	Absolute		Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>) 1. <i>Pinus elliottii</i>	% Cover 60.0		FACW	Number of Dominant Species That Are OBL, FACW, or FAC:8 (A)
2				Total Number of Dominant
3				Species Across All Strata: 9 (B)
4			· ——	Percent of Dominant Species
5			· ——	That Are OBL, FACW, or FAC: 89% (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
50% of total cover: 20.00 20% of total cover: 8.00 Sapling Stratum (30 ft radius)	60.0	= Total Co	over	OBL species x 1 =
· · · · · · · · · · · · · · · · · · ·				FACW species x 2 =
1				FAC species x 3 =
2				
3		-		FACU species x 4 =
4				UPL species x 5 =
5				Column Totals: (A) (B)
6				Prevalence Index = B/A =
7				Hydrophytic Vegetation Indicators:
50% of total cover: 20% of total cover: Shrub Stratum (30 ft radius)	0.0	= Total Co	over	1 - Rapid Test for Hydrophytic Vegetation
1. Ilex glabra	10.0	yes	FACW	✓ 2 - Dominance Test is >50%
2. Kalmia hirsuta	10.0	yes	FACW	3 - Prevalence Index is ≤3.0 ¹
3. Serenoa repens	10.0	yes	FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
		no	FACU	¹ Indicators of hydric soil and wetland hydrology must
			IACO	be present, unless disturbed or problematic.
5				
6				Definitions of Vegetation Strata:
7	35.0	_ T-1-1 O		Deminions of Vegetation Strata.
Herb Stratum (30 ft radius)	35.0	= Total Co	over	Tree – Woody plants, excluding woody vines,
1. Andropogon virginicus	20.0	yes	FAC	approximately 20 ft (6 m) or more in height and
2. Anchistea virginica	10.0	yes	OBL	3 in. (7.6 cm) or larger in diameter at breast
3. Xyris sp.	10.0		NI	height (DBH).
4. Smilax bona-nox	5.0	no	FAC	Cooling
5.			1710	Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less
6.				than 3 in. (7.6 cm) DBH.
7				
8.				Shrub – Woody plants, excluding woody vines,
				approximately 3 to 20 ft (1 to 6 m) in height.
9				
10.				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12 50% of total cover: ^{22.50} 20% of total cover: ^{9.00}	45.0	_ T-t-L O		woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)	45.0	= Total Co	over	approximatory on (1111) in Holghi.
1. Vitis rotundifolia	10.0	yes	FAC	Woody vine – All woody vines, regardless of height.
2.				
3.				
4				
4 5.				Hydrophytic
50% of total cover: 5.00 20% of total cover: 2.00	10.0	= Total C	over	Vegetation Present? Yes No
Remarks: (If observed, list morphological adaptations be	PIOW) *Dlanta	not idendi	ified to anon	sice are not used in deminance calculations

SOIL Sampling Point: UDP-2

Profile Desc	ription: (Describe	to the depth	needed to docume	nt the indicato	r or confirm	the absence	of indicators.)	
Depth	Matrix			eatures					
(inches)	Color (moist)		Color (moist)	% Type'	Loc ²	Texture		Remarks	
0-4"	10YR 4/1	_ 20 _				Sa	masked sa		
	10YR 8/1	80				Sa	unmasked	sand grain	ns
4-7"	10YR 4/1	50				Sa	masked sa	and grains	
	10YR 8/1	50				Sa	unmasked	sand grain	าร
7-18"	10YR 7/1	100				Sa			
	-	 -							
1Turno: C-Co	noontration D_Day	olotion DM_B	educed Matrix, MS=	Maakad Sand C	roine	21	ocation: PL=Po	ro Lining M	Motrix
Hydric Soil I		pielion, Kivi=K	educed Matrix, MS=	waskeu Sanu G	italiis.		s for Problema		
Histosol			Polyvalue Belov	w Surface (S8)	LRR S. T. U		Muck (A9) (LRF	-	
	pipedon (A2)		Thin Dark Surfa				Muck (A10) (LR	•	
Black His	stic (A3)		Loamy Mucky N	/lineral (F1) (LR	R O)	Redu	ced Vertic (F18)	(outside ML	.RA 150A,B)
Hydroge	n Sulfide (A4)		Loamy Gleyed	Matrix (F2)			nont Floodplain		
	Layers (A5)		Depleted Matrix				alous Bright Lo	amy Soils (F2	20)
_	Bodies (A6) (LRR F		Redox Dark Su	` ,		•	.RA 153B)	TE0)	
	cky Mineral (A7) (L		Depleted Dark				Parent Material (
· 	esence (A8) (LRR l ck (A9) (LRR P, T)	J)	Redox Depress Marl (F10) (LRF			-	Shallow Dark Su		
	Below Dark Surface	ce (A11)	Depleted Ochrid	•	151)	Other	(Explain in Rer	narks)	
	ark Surface (A12)	(****)	Iron-Manganes			T) ³ India	cators of hydrop	hytic vegetati	on and
		MLRA 150A)	Umbric Surface			· IIIGIN	etland hydrology		
Sandy M	lucky Mineral (S1) (LRR O, S)	Delta Ochric (F	17) (MLRA 151)		unless disturbed		
	leyed Matrix (S4)		Reduced Vertic						
	edox (S5)		Piedmont Flood						
	Matrix (S6)	C T II)	Anomalous Brig	tht Loamy Soils	(F20) (MLR	A 149A, 1530	C, 153D)		
	face (S7) (LRR P, sayer (if observed)					1			
Type:		/· <u>·</u>							
Depth (inc			_			Hydric Soi	I Present? Y	es	No ✓
	,	Cl=Clav: Lo=l	— oam; Mu=Muck; P€	e- Peat: Sa= Sa	and: Si=Silt	, , , , , ,			
		, ,			,				

Project/Site: TIAA Tract	City/County: Charlton County	Sampling Date: <u>04/09/2019</u>			
Applicant/Owner: Twin Pines Minerals, LLC	State	GA Sampling Point: WDP-2			
Investigator(s): C. Terrell / C. Stanford (TTL)					
): Concave Slope (%): <u>0-1%</u>			
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.52					
Soil Map Unit Name: Lynn Haven, Allanton and Kingsferry soils, ponc	led, 0-1% slopes	NWI classification: PEM1C			
Are climatic / hydrologic conditions on the site typical for this time of ye					
Are Vegetation No , Soil No , or Hydrology No significantly		umstances" present? Yes✓_ No			
Are Vegetation No , Soil No , or Hydrology No naturally pro		n any answers in Remarks.)			
SUMMARY OF FINDINGS – Attach site map showing					
Thirdren hatin Venetation Proceeds Venetation Proceeds					
Hydrophytic Vegetation Present? Yes Yes No Hydric Soil Present? Yes No No No No No No No N	Is the Sampled Area				
Wetland Hydrology Present? Yes ✓ No	within a Wetland?	Yes No			
Remarks:					
HYDROLOGY					
Wetland Hydrology Indicators:	Seco	ondary Indicators (minimum of two required)			
Primary Indicators (minimum of one is required; check all that apply)		Surface Soil Cracks (B6)			
Surface Water (A1) Aquatic Fauna (B		Sparsely Vegetated Concave Surface (B8)			
✓ High Water Table (A2) Marl Deposits (B1)		Drainage Patterns (B10)			
✓ Saturation (A3) Hydrogen Sulfide		Moss Trim Lines (B16)			
<u> </u>		Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9)			
Algal Mat or Crust (B4) Thin Muck Surfac		Geomorphic Position (D2)			
☐ Iron Deposits (B5) ☐ Other (Explain in		Shallow Aquitard (D3)			
Inundation Visible on Aerial Imagery (B7)		FAC-Neutral Test (D5)			
Water-Stained Leaves (B9)	<u> </u>	Sphagnum moss (D8) (LRR T,U)			
Field Observations:					
Surface Water Present? Yes No Depth (inches):				
Water Table Present? Yes No Depth (inches): <u>0</u>	logy Present? Yes No			
Saturation Present? Yes ✓ No Depth (inches includes capillary fringe)	: Wetland Hydro	logy Present? Yes No			
Describe Recorded Data (stream gauge, monitoring well, aerial photo	s, previous inspections), if available	:			
	BL: 11 to FACU and UPL: 0				
Organic bodies					

Sampling	Daint	WDP-2
Sampling	Point.	VVDF-Z

To Chatana (District 20 ft radius	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot sizes: 30 ft radius)		Species?		Number of Dominant Species 7
1. Taxodium ascendens		yes	OBL	That Are OBL, FACW, or FAC: 7 (A)
2				Total Number of Dominant
3				Species Across All Strata: 7 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100% (A/B)
6				
7				Prevalence Index worksheet:
50% of total cover: 5.00 20% of total cover: 2.00	10.0	= Total Co	over	Total % Cover of: Multiply by:
Sapling Stratum (30 ft radius)				OBL species x 1 =
1				FACW species x 2 =
2				FAC species x 3 =
3				FACU species x 4 =
4.				UPL species x 5 =
5.				Column Totals: (A) (B)
6.				()
7.				Prevalence Index = B/A =
50% of total cover: 20% of total cover:	0.0	- Total Ca		Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)	0.0	= Total Co	over	√ 1 - Rapid Test for Hydrophytic Vegetation
1. Vaccinium elliottii	20.0	ves	FACW	✓ 2 - Dominance Test is >50%
2. Styrax americanus	20.0	yes	FACW	3 - Prevalence Index is ≤3.0 ¹
3. Ilex myrtifolia	20.0	yes	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
			FACW	¹ Indicators of hydric soil and wetland hydrology must
			FACVV	be present, unless disturbed or problematic.
5				
6				Definitions of Manualation Observe
7.				Definitions of Vegetation Strata:
50% of total cover: 37.50 20% of total cover: 15.00	75.0	= Total Co	over	Troc W
Herb Stratum (30 ft radius)	25.0	V00		Tree – Woody plants, excluding woody vines,
1. Dichanthelium scabriusculum	35.0	yes	FACW_	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast
2. Rubus argutus	25.0	yes	FAC	height (DBH).
3. Anchistea virginica	10.0	no	<u>OBL</u>	
4. Lorinseria areolata	10.0	no	<u>OBL</u>	Sapling – Woody plants, excluding woody vines,
5. Scirpus cyperinus	10.0	no	OBL	approximately 20 ft (6 m) or more in height and less
6. Rhynchospora fascicularis	10.0	no	FACW	than 3 in. (7.6 cm) DBH.
7				
8				Shrub – Woody plants, excluding woody vines,
9				approximately 3 to 20 ft (1 to 6 m) in height.
10.				Heads and the second se
11.				Herb – All herbaceous (non-woody) plants, including
12.		(herbaceous vines, regardless of size AND woody plants, except woody vines, less than
50% of total cover: 50.00 20% of total cover: 20.00	100.0	= Total Co		approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)	100.0	= 10tal Ct	over	
1				Woody vine – All woody vines, regardless of height.
2.				
3			· 	
4		-		Hydrophytic
5.				Vegetation
50% of total cover: 20% of total cover:	0.0	= Total Co	over	Present? Yes No
Remarks: (If observed, list morphological adaptations be	elow). *Plants	not idendi	fied to spec	I cies are not used in dominance calculations.

SOIL Sampling Point: WDP-2

	cription: (Describe	e to the depth	needed to document the indicator or confi	rm the absence of i	ndicators.)
Depth (inches)	Matrix	%	Redox Features Color (moist) % Type¹ Loc²	- Toytura	Domostro
(inches) 0-18"	Color (moist) 10YR 2/1		Color (moist) % Type ¹ Loc ²	Texture Mu Mi	Remarks
0-10	1011 2/1	_ 100 _		IVIU IVII	
1T 0 0			advand Matrix MO Manhad Ocad Ocales	21	DI Daniel Indian M. Matrix
	Indicators:	pietion, Rivi=Re	educed Matrix, MS=Masked Sand Grains.		on: PL=Pore Lining, M=Matrix. Problematic Hydric Soils ³ :
•			D. I. D. I. O. ((00) (I DD 0 T		•
Histoso			Polyvalue Below Surface (S8) (LRR S, T		
	pipedon (A2)		Thin Dark Surface (S9) (LRR S, T, U)		(A10) (LRR S)
	istic (A3)		Loamy Clayed Matrix (F2)		/ertic (F18) (outside MLRA 150A,B)
	en Sulfide (A4) d Layers (A5)		Loamy Gleyed Matrix (F2)		Floodplain Soils (F19) (LRR P, S, T) s Bright Loamy Soils (F20)
	Bodies (A6) (LRR	D T II\	Depleted Matrix (F3)Redox Dark Surface (F6)	(MLRA 1	
	ucky Mineral (A7) (L		Depleted Dark Surface (F7)		it Material (TF2)
	resence (A8) (LRR		Redox Depressions (F8)		ow Dark Surface (TF12)
	uck (A9) (LRR P, T)		Marl (F10) (LRR U)		plain in Remarks)
	d Below Dark Surfa		Depleted Ochric (F11) (MLRA 151)	Other (Exp	olain in Remarks)
	ark Surface (A12)	(* (* (*)	Iron-Manganese Masses (F12) (LRR O,	P. T) 3Indicators	of budges budges as a sectorion and
	rairie Redox (A16)	(MLRA 150A)	Umbric Surface (F13) (LRR P, T, U)	maioatore	s of hydrophytic vegetation and I hydrology must be present,
	Mucky Mineral (S1)		Delta Ochric (F17) (MLRA 151)		s disturbed or problematic.
	Gleyed Matrix (S4)	, ,	Reduced Vertic (F18) (MLRA 150A, 150		o alotalizou el proziolitatio
	Redox (S5)		Piedmont Floodplain Soils (F19) (MLRA		
	d Matrix (S6)		Anomalous Bright Loamy Soils (F20) (MI		3D)
Dark Su	ırface (S7) (LRR P,	S, T, U)			
Restrictive	Layer (if observed):			
Type:			_		
Depth (in	ches):			Hydric Soil Pre	sent? Yes / No
Remarks: *S	Soil abbreviations: (CI=Clav: Lo=Lo	pam; Mi=Mineral; Mu=Muck; Pe- Peat; Sa=	Sand: Si=Silt	
		<i>3.</i>		,	

Project/Site: TIAA Tract	City/County: Ch	arlton County	Sampling Date: <u>04/09/2019</u>
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	_ Sampling Point: UDP-3
Investigator(s): C. Terrell / C. Stanford (TTL)	Section, Townsh		
			Slope (%): <u>0-2%</u>
Subregion (LRR or MLRA): LRR T / MLRA 153A			
Soil Map Unit Name: Leon fine sand, 0-2% slopes		NWI classif	
Are climatic / hydrologic conditions on the site typical for the	is time of year? Yes	No (If no, explain in	Remarks.)
Are Vegetation Yes , Soil Yes , or Hydrology Yes	significantly disturbed?	Are "Normal Circumstances"	present? Yes No
Are Vegetation No , Soil No , or Hydrology No			
SUMMARY OF FINDINGS – Attach site map		•	,
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes ✓ I Yes ✓ I Remarks:	No Is the Sar No within a W	npled Area Vetland? Yes	No <u> </u>
Vegetation historically impacted by silvicultu Soils/Hydrology historically impacted by silving		·	
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indic	cators (minimum of two required)
Primary Indicators (minimum of one is required; check all			l Cracks (B6)
<u> </u>	ic Fauna (B13)		egetated Concave Surface (B8)
	Deposits (B15) (LRR U)		atterns (B10)
<u> </u>	gen Sulfide Odor (C1) zed Rhizospheres along Living	Moss Trim I	
<u> </u>	nce of Reduced Iron (C4)	Roots (C3) Dry-Seasor Crayfish Bu	Water Table (C2)
· · · · · —	nt Iron Reduction in Tilled Soil	- '	/isible on Aerial Imagery (C9)
	Muck Surface (C7)		c Position (D2)
<u> </u>	(Explain in Remarks)	Shallow Aq	
Inundation Visible on Aerial Imagery (B7)	,	✓ FAC-Neutra	` ,
Water-Stained Leaves (B9)			moss (D8) (LRR T,U)
Field Observations:			
Surface Water Present? Yes No De			
	epth (inches): 20		./
Saturation Present? Yes No De (includes capillary fringe)	epth (inches): 18	Wetland Hydrology Prese	nt? Yes No*_
Describe Recorded Data (stream gauge, monitoring well,	aerial photos, previous inspe	ctions), if available:	
Remarks: FAC-Neutral Test Results: Positive FA	CW and OBL: 7 to FACI	J and UPL: 2	

VEGETATION – Use scientific names of plants.

YEGETATION – Use scientific names of plants.				Sampling Point: UDP-3
T Out (District 20 ft radius)	Absolute		Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>) 1. <i>Pinus elliottii</i>	% Cover 60.0	yes	FACW	Number of Dominant Species That Are OBL, FACW, or FAC:6 (A)
2				Total Number of Dominant Species Across All Strata: 7 (B)
4. 5.				Percent of Dominant Species That Are OBL, FACW, or FAC: 86% (A/B)
6				Bassalana Indonesia Indonesia
7				Prevalence Index worksheet:
50% of total cover: 30.00 20% of total cover: 12.00 Sapling Stratum (30 ft radius)	60.0	= Total Co	over	
1				FACW species x 2 =
2.				FAC species x 3 =
3.				FACU species x 4 =
4.				UPL species x 5 =
5.				Column Totals: (A) (B)
6				Prevalence Index = B/A =
7				Hydrophytic Vegetation Indicators:
50% of total cover: 20% of total cover: Shrub Stratum (30 ft radius)	0.0	= Total Co	over	1 - Rapid Test for Hydrophytic Vegetation
1. Serenoa repens	25.0	yes	FACU	✓ 2 - Dominance Test is >50%
2. Rhus copallinum	10.0	no	UPL	3 - Prevalence Index is ≤3.0 ¹
. Iley coriacea	10.0	no	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
4. Lyonia lucida		no	FACW	¹ Indicators of hydric soil and wetland hydrology must
5. Hypericum tetrapetulum	5.0	no	OBL	be present, unless disturbed or problematic.
6.				
7.				Definitions of Vegetation Strata:
50% of total cover: 22.50 20% of total cover: 11.00	55.0	= Total Co	over	, and the second
Herb Stratum (30 ft radius)		. 0.0		Tree – Woody plants, excluding woody vines,
1. Andropogon virginicus	10.0	yes	FAC	approximately 20 ft (6 m) or more in height and
2. Anchistea virginica	10.0	yes	OBL	3 in. (7.6 cm) or larger in diameter at breast
3. Xyris sp.	5.0	yes	NI	height (DBH).
4. Smilax bona-nox	5.0	yes	FAC	Sapling – Woody plants, excluding woody vines,
5. Rhynchospora fascicularis	5.0	yes	FACW	approximately 20 ft (6 m) or more in height and less
6. Scleria triglomerata	5.0	yes	FACW	than 3 in. (7.6 cm) DBH.
7. Eupatorium compositifolium	5.0	yes	FAC	
8				Shrub – Woody plants, excluding woody vines,
9				approximately 3 to 20 ft (1 to 6 m) in height.
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
50% of total cover: 22.50 20% of total cover: 9.00	45.0	= Total Co	over	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				
1				Woody vine – All woody vines, regardless of height.
2				
3				
4				
5				Hydrophytic Vegetation
50% of total cover: 20% of total cover:				Present? Yes V No No
Remarks: (If observed, list morphological adaptations belo	w). *Plants	not idendi	ified to spec	ies are not used in dominance calculations

SOIL Sampling Point: UDP-3

Profile Desc	ription: (Describe	to the dept	h needed to docum	ent the i	ndicator o	r confirn	n the absence	e of indicato	rs.)	
Depth	Matrix			(Feature						
(inches)	Color (moist)		Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	· —	Remarks	
0-8"	10YR 3/1	50					Sa		sand grains	
	10YR 6/1	50					Sa	unmask	ed sand gra	nins
3-8"	10YR 3/1	50					Sa	masked	sand grains	3
8-18"	10YR 3/1	80					Sa	unmask	ed sand gra	nins
	10YR 6/1	20					Sa	stripped	areas	
				-						
1Typo: C-C	ncontration D-Dor	lotion PM-I	Reduced Matrix, MS	-Maskoo		inc	21	ocation: DI =	Pore Lining, N	I_Matrix
Hydric Soil		netion, ixivi–i	reduced Matrix, Mc	-Wasket	Janu Ora	1113.			natic Hydric §	
Histosol			Polyvalue Bel	ow Surfa	ce (S8) (LI	RR S, T, L		Muck (A9) (L	-	
	pipedon (A2)		Thin Dark Su	rface (S9	(LRR S, 1	Γ, U)		Muck (A10) (,	
Black Hi			Loamy Mucky			O)				/ILRA 150A,B)
	n Sulfide (A4)		Loamy Gleye		F2)			•	ain Soils (F19)	
	Layers (A5)		Depleted Mat Redox Dark S		-c\			_	Loamy Soils (I	-20)
_	Bodies (A6) (LRR P cky Mineral (A7) (LI		Redox Dark s	`	,			. RA 153B) Parent Materi	al (TF2)	
	esence (A8) (LRR L		Redox Depre						Surface (TF1	2)
	ck (A9) (LRR P, T)	,	Marl (F10) (L		-,		-	(Explain in F		
	Below Dark Surfac	e (A11)	Depleted Och					` '	,	
· 	ark Surface (A12)		Iron-Mangan		, , ,		, T) ³ India	cators of hydi	rophytic vegeta	ation and
) Umbric Surfa			U)			ogy must be pr	
	lucky Mineral (S1) (leyed Matrix (S4)	LKK (), 3)	Delta Ochric (A 150B)		uniess disturi	oed or problem	iatic.
	edox (S5)		Piedmont Flo							
	Matrix (S6)		Anomalous B					C, 153D)		
	face (S7) (LRR P, S									
Restrictive I	ayer (if observed)	:								
Type:			<u> </u>						./	
Depth (inc							_	I Present?	Yes	No
Remarks: *S	oil abbreviations: C	l=Clay; Lo=l	Loam; Mu=Muck;	Pe- Peat;	Sa= San	d; Si=Silt				

Project/Site: TIAA Tract		City/County: _	Charlton Cour	nty	Sampling Date:	04/09/2019
Applicant/Owner: Twin Pines Minera	ıls, LLC			State: GA	Sampling Point:	WDP-3
Investigator(s): C. Terrell / C. Stanfo						
Landform (hillslope, terrace, etc.): Depres		Local relief (c			Slo	pe (%): 0-1%
Subregion (LRR or MLRA): LRR T / MLR						
Soil Map Unit Name: Lynn Haven fine sa					cation: PFO6C	
Are climatic / hydrologic conditions on the		ne of vear? Yes ✓	No (·	
Are Vegetation No , Soil No , or H						√ No
Are Vegetation No , Soil No , or H				xplain any answe		
SUMMARY OF FINDINGS - Att						eatures, etc.
Lhuduanhudia Vanatatian Dasaad	Vac / Na					
Hydrophytic Vegetation Present? Hydric Soil Present?	Yes ✓ No _ Yes ✓ No	10 1110	Sampled Area		•	
Wetland Hydrology Present?	,	within	a Wetland?	Yes <u>√</u>	No	_
Remarks:						
HYDROLOGY						
Wetland Hydrology Indicators:				Secondary Indica	ators (minimum o	f two required)
Primary Indicators (minimum of one is re	equired: check all that	apply)		Surface Soil		rtwo required)
✓ Surface Water (A1)	Aquatic Fa		_		getated Concave	Surface (B8)
High Water Table (A2)		sits (B15) (LRR U)		Drainage Pa		Canaco (20)
✓ Saturation (A3)		Sulfide Odor (C1)		Moss Trim L		
Water Marks (B1)	Oxidized R	Rhizospheres along Li	ving Roots (C3)		Water Table (C2))
Sediment Deposits (B2)	Presence	of Reduced Iron (C4)		Crayfish Bur	rows (C8)	
Drift Deposits (B3)		n Reduction in Tilled	Soils (C6)	Saturation V	isible on Aerial In	nagery (C9)
Algal Mat or Crust (B4)		Surface (C7)			Position (D2)	
Iron Deposits (B5)		olain in Remarks)		Shallow Aqu		
Inundation Visible on Aerial Imagery	/ (B7)			✓ FAC-Neutral	` '	F.1.D
Water-Stained Leaves (B9)				<u>▼</u> Spnagnum r	noss (D8) (LRR T	,U)
Field Observations: Surface Water Present? Yes ✓	No Depth	(inches): 2"				
Water Table Present? Yes		(inches): 0"	_			
Saturation Present?	No Depth	(inches): 0"	Wetland H	ydrology Preser	nt? Vos √	No
(includes capillary fringe)	No Depti ((IIICHES).	vvetianu ii	yurology Fresei	103	
Describe Recorded Data (stream gauge	, monitoring well, aeri	al photos, previous in	spections), if avai	lable:		
Remarks: FAC-Neutral Test Results: Po	sitive FACW	and OBL: 10 to F	ACU and UPL: 0			

Sampling	.	WDD 3
Sampling	Point.	VVDP-3

	Species?	' Status	· I
			Number of Dominant Species
10.0	yes	FACW	That Are OBL, FACW, or FAC: 9 (A)
			Total Number of Dominant
			Species Across All Strata: 9 (B)
			Percent of Dominant Species
			That Are OBL, FACW, or FAC: 100% (A/B)
			Prevalence Index worksheet:
10.0	= Total Co	over	
			FACW species x 2 =
			FAC species x 3 =
			FACU species x 4 =
			UPL species x 5 =
			Column Totals: (A) (B)
			(1)
			Prevalence Index = B/A =
	- Total Co		Hydrophytic Vegetation Indicators:
0.0	= 10tar Ct	over	✓ 1 - Rapid Test for Hydrophytic Vegetation
15.0	ves	FACW	✓ 2 - Dominance Test is >50%
			3 - Prevalence Index is ≤3.0 ¹
			Problematic Hydrophytic Vegetation ¹ (Explain)
			¹ Indicators of hydric soil and wetland hydrology must
		IFICIV	be present, unless disturbed or problematic.
			Definitions of Vegetation Strata:
60.0			Definitions of Vegetation Strata.
00.0	= Total Co	over	Tree – Woody plants, excluding woody vines,
20.0	ves	OBI	approximately 20 ft (6 m) or more in height and
			3 in. (7.6 cm) or larger in diameter at breast
			height (DBH).
			Sapling – Woody plants, excluding woody vines,
	-		approximately 20 ft (6 m) or more in height and less
	110		than 3 in. (7.6 cm) DBH.
	-	<u>NI</u>	Shrub – Woody plants, excluding woody vines,
			approximately 3 to 20 ft (1 to 6 m) in height.
			approximately 6 to 25 it (1 to 5 iii)
			Herb – All herbaceous (non-woody) plants, including
			herbaceous vines, regardless of size AND
			woody plants, except woody vines, less than
90.0	= Total Co	over	approximately 3 ft (1 m) in height.
			NAT BOOKER OF THE PARTY OF THE
			Woody vine – All woody vines, regardless of height.
			0.1.1.2.
			Hydrophytic Vegetation
10.0	= Total Co	over	Present? Yes No
	10.0 10.0 15.0 15.0 15.0 15.0 15.0 10.0 10.0 10.0 10.0	10.0 = Total Co	10.0 = Total Cover 15.0 yes FACW 15.0 yes FACW 15.0 yes FACW 15.0 yes FACW 15.0 yes OBL 20.0 yes OBL 20.0 yes OBL 15.0 yes FACW 15.0 yes FACW 15.0 yes FACW 10.0 no FAC 10.0 no OBL NI 90.0 = Total Cover

SOIL Sampling Point: WDP-3

Profile Desc	ription: (Describe	to the depth	needed to document the indicate	r or confirm the	absence	of indicators.)	
Depth	Matrix		Redox Features			Damada	_
(inches) 0-18"	Color (moist) 10YR 2/1	<u>%</u> _	Color (moist) % Type	Loc² Toc² Sa	<u>exture</u>	Remark Masked Sand Gr	_
0-10							all is
	10YR 5/1	40		Sa	<u> </u>	Stripped Areas	
	-						
							_
							-
1				 	2.		
Type: C=Co		pletion, RM=F	Reduced Matrix, MS=Masked Sand C			cation: PL=Pore Lining for Problematic Hydr	
•			Dolarduo Polow Surface (SS)			-	ic soils .
Histosol	pipedon (A2)		Polyvalue Below Surface (S8)Thin Dark Surface (S9) (LRR \$			luck (A9) (LRR O) luck (A10) (LRR S)	
	stic (A3)		Loamy Mucky Mineral (F1) (LF			ed Vertic (F18) (outsid	e MLRA 150A,B)
	en Sulfide (A4)		Loamy Gleyed Matrix (F2)	, =		ont Floodplain Soils (F1	
	d Layers (A5)		Depleted Matrix (F3)	_	_ Anoma	lous Bright Loamy Soil	s (F20)
	Bodies (A6) (LRR		Redox Dark Surface (F6)			RA 153B)	
	icky Mineral (A7) (L		Depleted Dark Surface (F7)	_		arent Material (TF2)	
	esence (A8) (LRR		Redox Depressions (F8)	_	-	hallow Dark Surface (T	⊢ 12)
· 	ıck (A9) (LRR P, T) d Below Dark Surfa		Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA		_ Other (Explain in Remarks)	
	ark Surface (A12)	CC (ATT)	Iron-Manganese Masses (F12		31		
	rairie Redox (A16)	(MLRA 150A)				ators of hydrophytic veg and hydrology must be	
Sandy M	lucky Mineral (S1)	(LRR O, S)	Delta Ochric (F17) (MLRA 151)		nless disturbed or prob	
	Gleyed Matrix (S4)		Reduced Vertic (F18) (MLRA				
	Redox (S5)		Piedmont Floodplain Soils (F1				
	Matrix (S6)	O T II)	Anomalous Bright Loamy Soils	(F20) (MLRA 14	9A, 153C,	153D)	
	rface (S7) (LRR P, Layer (if observed						
Type:	Layer (II Observed).					
	ches):			L.	dric Sail	Present? Yes <u>√</u>	No
	*	CI=Clove Lo=L	— oam; Mi=Mineral; Mu=Muck; Pe- I	_		riesent: les	
Remarks. S	oli abbreviations. C	oi-Ciay, LU-L	oam, Mi-Mineral, Mu-Muck, Pe-r	real, Sa- Saliu,	31-3111		

Project/Site: TIAA Tract	City/County: Charlton	County	Sampling Date: <u>04/09/2019</u>
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: UDP-4
Investigator(s): C. Terrell / C. Stanford (TTL)	Section, Township, Rang		
			Slope (%): <u>0-2%</u>
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: _30.			
Soil Map Unit Name: Lynn Haven fine sand, 0-2% slopes		NWI classifi	
Are climatic / hydrologic conditions on the site typical for this time o			
Are Vegetation Yes , Soil Yes , or Hydrology Yes significan			present? Yes <u>√</u> No
Are Vegetation No , Soil No , or Hydrology No naturally		ded, explain any answe	
SUMMARY OF FINDINGS – Attach site map show			
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: Yes ✓ No Yes No ✓	Is the Sampled A within a Wetland		No <u> </u>
Vegetation historically impacted by silvicultural action Soils/Hydrology historically impacted by silvicultural actions.		planted pine).	
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indic	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that app	ly)	Surface Soil	Cracks (B6)
Surface Water (A1) Aquatic Fauna		Sparsely Ve	egetated Concave Surface (B8)
High Water Table (A2) Marl Deposits			atterns (B10)
Saturation (A3) Hydrogen Sulfi		Moss Trim L	
	espheres along Living Roots (educed Iron (C4)	_ ′	Water Table (C2)
_ : ` ` /	eduction in Tilled Soils (C6)	Crayfish Bu	` ′
Drift Deposits (B3) Recent Iron Re Algal Mat or Crust (B4) Thin Muck Sur			/isible on Aerial Imagery (C9) c Position (D2)
Iron Deposits (B5) Other (Explain		Geomorphic Shallow Aqu	
Inundation Visible on Aerial Imagery (B7)	iii rtomanto)	✓ FAC-Neutra	
Water-Stained Leaves (B9)			moss (D8) (LRR T,U)
Field Observations:			
Surface Water Present? Yes No Depth (inch			
Water Table Present? Yes ✓ No Depth (inch			
Saturation Present? Yes No Depth (includes capillary fringe)	les): <u>20</u> Wetla	and Hydrology Prese	nt? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial pl	notos, previous inspections),	if available:	
Remarks: FAC-Neutral Test Results: Positive FACW and	OBL: 7 to FACU and U	PL: 2	

VEGETATION – Use scientific names of plants.

EGETATION – Use scientific names of plants	S.			Sampling Point: UDP-4
- 00 ft madius	Absolute		Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>) 1. <i>Pinus elliottii</i>	% Cover 60.0	Species?	FACW	Number of Dominant Species That Are OBL, FACW, or FAC:6 (A)
2				Total Number of Dominant
3				Species Across All Strata: 7 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 86% (A/B)
6				Prevalence Index worksheet:
7				
50% of total cover: 30.00 20% of total cover: 12.00 Sapling Stratum (30 ft radius)	60.0	= Total Co	over	
1				FACW species x 2 =
2				FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5				Column Totals: (A) (B)
6.				
7				Prevalence Index = B/A =
50% of total cover: 20% of total cover:	0.0	= Total Co	over	Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)				1 - Rapid Test for Hydrophytic Vegetation
1. Ilex coriacea			FACW	✓ 2 - Dominance Test is >50%
2. Rhus copallinum		yes	<u>UPL</u>	3 - Prevalence Index is ≤3.0 ¹
3. Morella cerifera	5.0	yes	FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
4				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5				be present, unless disturbed of problematio.
6				
7				Definitions of Vegetation Strata:
50% of total cover: 10.00 20% of total cover: 4.00	20.0	= Total Co	over	T
Herb Stratum (30 ft radius) 1. Anchistea virginica	10.0	V00	ODI	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and
2. Pteridium aquilinum	10.0	yes	OBL_	3 in. (7.6 cm) or larger in diameter at breast
	10.0	yes	OBL	height (DBH).
3. Xyris sp. 4. Polygala lutea	5.0	yes	NI	
	5.0	yes	FACW	Sapling – Woody plants, excluding woody vines,
5. Rhynchospora fascicularis		yes	FACW	approximately 20 ft (6 m) or more in height and less
6. Scleria triglomerata 7. Lachnacaulon anceps	5.0	yes	FACW	than 3 in. (7.6 cm) DBH.
··		yes	FACW	Shrub – Woody plants, excluding woody vines,
8			· 	approximately 3 to 20 ft (1 to 6 m) in height.
9				
10				Herb – All herbaceous (non-woody) plants, including
11			· 	herbaceous vines, regardless of size AND
12 50% of total cover: 22.50 20% of total cover: 9.00	45.0		· 	woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)	45.0	= Total Co	over	approximately 3 it (1 iii) iii neight.
1				Woody vine – All woody vines, regardless of height.
2.				, July 1 and
3				
4 5.				Hydrophytic
50% of total cover: 20% of total cover:	0.0	= Total Co	over	Vegetation Present? Yes No
Remarks: (If observed, list morphological adaptations be				

SOIL Sampling Point: UDP-4

Profile Desc	ription: (Describe	to the dept	h needed to docun	nent the i	ndicator o	r confirm	the absenc	e of indicato	ors.)	
Depth	Matrix			x Features	- 1	. 2	_			
(inches)	Color (moist)		Color (moist)	%	Type'	Loc ²	Texture		Remarks	
0-18"	10YR 2/1	50					Sa		sand grain	
	10YR 6/1	50					Sa	unmask	ed sand gra	nins
										_
								_		
								_		
		oletion, RM=	Reduced Matrix, MS	S=Masked	Sand Gra	ins.			Pore Lining, N	
Hydric Soil I			Daharaha Da	Ofa	(CO) (LI	DD C T II			-	Solis :
Histosol	(A1) pipedon (A2)		Polyvalue Be Thin Dark Su					Muck (A9) (L) Muck (A10)	,	
Black Hi			Loamy Muck							/ILRA 150A,B)
	n Sulfide (A4)		Loamy Gleye			,			ain Soils (F19)	
Stratified	l Layers (A5)		Depleted Ma	rix (F3)			Anon	nalous Bright	Loamy Soils (F20)
_	Bodies (A6) (LRR F		Redox Dark	,	,			LRA 153B)		
· · · · · · · · · · · · · · · · · · ·	cky Mineral (A7) (L		Depleted Dar					Parent Mater		2)
	esence (A8) (LRR l ick (A9) (LRR P, T)	J)	Redox Depre Marl (F10) (L		0)			r (Explain in l	Surface (TF1	2)
	Below Dark Surface	ce (A11)	Depleted Oct		(MLRA 15	1)	Othe	i (⊏xpiaiii iii	Kemarks)	
	ark Surface (A12)	, ,	Iron-Mangan				T) ³ Indi	cators of hvd	rophytic vegeta	ation and
) Umbric Surfa			U)			ogy must be pr	
	lucky Mineral (S1) (LRR O, S)	Delta Ochric			\		unless distur	bed or problem	natic.
	edox (S5)		Reduced Ver Piedmont Flo				9.4)			
	Matrix (S6)		Anomalous E					C. 153D)		
	rface (S7) (LRR P,	S, T, U)			, (.	, (, , , , , , , , , , , , , , , , , , , ,	-,,		
Restrictive I	ayer (if observed)	:								
Туре:									/	
Depth (inc	ches):		<u></u>				Hydric So	il Present?	Yes	No
Remarks: *S	oil abbreviations: C	l=Clay; Lo=	Loam; Mu=Muck;	Pe- Peat;	Sa= San	d; Si=Silt	•			

Project/Site: TIAA Tract	City/County: Charlto	n County	Sampling Date: <u>04/09/2019</u>
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: WDP-4
Investigator(s): C. Terrell / C. Stanford (TTL)			
			Slope (%): <u>0-1%</u>
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.5			
Are climatic / hydrologic conditions on the site typical for this time of			
Are Vegetation Yes , Soil Yes , or Hydrology Yes significan	tly disturbed? Are '	"Normal Circumstances"	present? Yes <u>√</u> No
Are Vegetation No , Soil No , or Hydrology No naturally		eeded, explain any answe	
SUMMARY OF FINDINGS – Attach site map showing			
Hydrophytic Vegetation Present? Hydric Soil Present? Wes Yes No Yes No Wetland Hydrology Present? Yes No Remarks:	- within a Watlar		/ No
Vegetation historically impacted by silvicultural active. Soils/Hydrology historically impacted by silvicultura.		or planted pine).	
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indic	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that appl	y)	Surface Soi	Cracks (B6)
Surface Water (A1) Aquatic Fauna		Sparsely Ve	egetated Concave Surface (B8)
✓ High Water Table (A2) Marl Deposits (atterns (B10)
✓ Saturation (A3) Hydrogen Sulfid		Moss Trim L	
<u> </u>	spheres along Living Root	_ ′	Water Table (C2)
	duced Iron (C4)	Crayfish Bu	` ′
	duction in Tilled Soils (C6)		isible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin Muck Surf			Position (D2)
Iron Deposits (B5) Other (Explain	in Remarks)	Shallow Aqu	
Inundation Visible on Aerial Imagery (B7)		✓ FAC-Neutra	
Water-Stained Leaves (B9)		Sphagnum	moss (D8) (LRR T,U)
Field Observations:	00)		
Surface Water Present? Yes No Depth (inch Water Table Present? Yes No Depth (inch	es):		
Water Table Present? Yes No Depth (inch	0"		√ No.
Saturation Present? Yes ✓ No Depth (inch (includes capillary fringe)	es): we	etland Hydrology Prese	nt? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial ph	otos, previous inspections	s), if available:	
Remarks: FAC-Neutral Test Results: Positive FACW and	OBL: 11 to FACU and	UPL: 0	

<u>Tree Stratum</u> (Plot sizes: 30 ft radius)	% Cover			
			Status	Number of Dominant Species
1. Pinus elliottii	70.0	yes	<u>FACW</u>	That Are OBL, FACW, or FAC:(A)
2				Total Number of Dominant
3				Species Across All Strata: 10 (B)
4				Demonstrat Demissors Consise
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)
6				1110.7110.052,171011,011710.
7.				Prevalence Index worksheet:
50% of total cover: 35.00 20% of total cover: 14.00	70.0	= Total Co	ver	Total % Cover of: Multiply by:
Sapling Stratum (30 ft radius)		rotar oc		OBL species x 1 =
1. Magnolia virginiana	10.0	yes	FACW	FACW species x 2 =
2. Acer rubrum	10.0	yes	FAC	FAC species x 3 =
3.				FACU species x 4 =
4.				UPL species x 5 =
5				Column Totals: (A) (B)
-				(7)
6				Prevalence Index = B/A =
7				Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)	20.0	= Total Co	ver	 ✓ 1 - Rapid Test for Hydrophytic Vegetation
1. Ilex glabra	15.0	yes	FACW	✓ 2 - Dominance Test is >50%
2. Morella caroliniana				3 - Prevalence Index is ≤3.0 ¹
	<u> 15.0</u>	yes	FACW	Problematic Hydrophytic Vegetation¹ (Explain)
3. Hypericum brachyphyllum		yes	<u>FACW</u>	1 .
4				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5				be proport, arrived distarbed of problematic.
6				
7				Definitions of Vegetation Strata:
50% of total cover: 22.50 20% of total cover: 9.00	45.0	= Total Co	ver	
Herb Stratum (30 ft radius)				Tree – Woody plants, excluding woody vines,
1. Anchistea virginica	20.0	yes	<u>OBL</u>	approximately 20 ft (6 m) or more in height and
2. Lorinseria areolata	20.0	yes	OBL	3 in. (7.6 cm) or larger in diameter at breast
3. Eriocaulon compressum	15.0	yes	OBL	height (DBH).
4. Juncus effusus	15.0	yes	OBL	Sanling Woody plants evaluding woody vines
5. Scleria triglomerata	10.0	no	FACW	Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less
6. Rhynchospora fascicularis	10.0	no	FACW	than 3 in. (7.6 cm) DBH.
				and o m. (1.10 cm) BB11.
7				Shrub – Woody plants, excluding woody vines,
8				approximately 3 to 20 ft (1 to 6 m) in height.
9				
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
50% of total cover: 45.00 20% of total cover: 18.00	90.0	= Total Co	ver	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				Mandayina All I i I I I I I I I I I I I I I I I I I
1				Woody vine – All woody vines, regardless of height.
2				
3				
4				
5				Hydrophytic Vegetation
50% of total cover: 20% of total cover:	0.0	= Total Co	ver	Present? Yes No

SOIL Sampling Point: WDP-4

Profile Desc	ription: (Describe	to the depth	needed to document the indicate	or or confirm the	absence	of indicators.)	
Depth	Matrix		Redox Features	1 1 - 2	T t	Danada	
(inches) 0-18"	Color (moist) 10YR 3/1	70	Color (moist) % Type	Loc ² S	Texture	Remarks Masked Sand Grains	
0-10							
	10YR 6/1	40		S	<u>a</u>	Stripped Areas	
1					2.		
Type: C=Co		pletion, RM=F	Reduced Matrix, MS=Masked Sand			cation: PL=Pore Lining, M=M for Problematic Hydric Soil	
•			Dobavoluo Polow Surface (S9)			-	٠.
Histosol	pipedon (A2)		Polyvalue Below Surface (S8)Thin Dark Surface (S9) (LRR			luck (A9) (LRR O) luck (A10) (LRR S)	
	stic (A3)		Loamy Mucky Mineral (F1) (L			ed Vertic (F18) (outside MLR	A 150A,B)
	en Sulfide (A4)		Loamy Gleyed Matrix (F2)	, -		ont Floodplain Soils (F19) (LR	
	d Layers (A5)		Depleted Matrix (F3)	-	Anoma	lous Bright Loamy Soils (F20))
	Bodies (A6) (LRR		Redox Dark Surface (F6)			RA 153B)	
	icky Mineral (A7) (L		Depleted Dark Surface (F7)	-		arent Material (TF2)	
	esence (A8) (LRR		Redox Depressions (F8)	-	-	nallow Dark Surface (TF12)	
· 	ıck (A9) (LRR P, T) d Below Dark Surfa		<pre> Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA</pre>	151)	Other (Explain in Remarks)	
	ark Surface (A12)	CC (ATT)	Iron-Manganese Masses (F12		31		
	rairie Redox (A16)	(MLRA 150A)				itors of hydrophytic vegetation and hydrology must be prese	
Sandy N	lucky Mineral (S1)	(LRR O, S)	Delta Ochric (F17) (MLRA 15	1)		nless disturbed or problemation	
	Gleyed Matrix (S4)		Reduced Vertic (F18) (MLRA				
	Redox (S5)		Piedmont Floodplain Soils (F1				
	Matrix (S6)	C T II)	Anomalous Bright Loamy Soil	s (F20) (MLRA 1 4	49A, 153C,	153D)	
	rface (S7) (LRR P, Layer (if observed						
Type:	Layer (ii observed	<i>,</i> ·					
Depth (in	ches).				lydric Soil	Present? Yes N	0
	*	Cl=Clay: Lo=L	oam; Mi=Mineral; Mu=Muck; Pe-		-		
rtomanto. O	on approviations.	or Olay, Lo L	Sam, Will William, Wa Wask, Te	r cat, ca cana,	, or one		

Project/Site: TIAA Tract	City/Co	ounty: Charlton Cou	ınty	Sampling Date: <u>04/09/2019</u>
Applicant/Owner: Twin Pines Minerals, LLC				Sampling Point: UDP-5
Investigator(s): C. Terrell / C. Stanford (TTL)		n, Township, Range: N		
Landform (hillslope, terrace, etc.): Flatwoods				Slope (%): <u>0-2%</u>
Subregion (LRR or MLRA): LRR T / MLRA 153A				
Soil Map Unit Name: Leon fine sand, 0-2% slopes				
Are climatic / hydrologic conditions on the site typical fo	or this time of year? Ye	es No	(If no, explain in R	emarks.)
Are Vegetation Yes, Soil Yes, or Hydrology Yes				oresent? Yes <u>√</u> No
Are Vegetation No , Soil No , or Hydrology No				
SUMMARY OF FINDINGS – Attach site m				
Hydrophytic Vegetation Present? Yes ✓	No	In the Committed Area		
Hydric Soil Present? Yes	No 🗸	Is the Sampled Area within a Wetland?	Voc	No ✓
Wetland Hydrology Present? Yes	_ No <u> </u>	within a wettand?	res	NO <u>V</u>
Remarks:				
Vegetation historically impacted by silvicular - Soils/Hydrology historically historically impacted by silvicular - Soils/Hydrology historically		• •	nted pine).	
HYDROLOGY				
Wetland Hydrology Indicators:			Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check			Surface Soil	
· · · · —	quatic Fauna (B13)			getated Concave Surface (B8)
	arl Deposits (B15) (LRI		Drainage Pa	
<u> </u>	/drogen Sulfide Odor ((llong Living Roots (C3)	Moss Trim L	
_ ` '	esence of Reduced Iro		Crayfish Bur	Water Table (C2)
— · · · / — —	ecent Iron Reduction in			isible on Aerial Imagery (C9)
	nin Muck Surface (C7)	Timod Cone (Co)		Position (D2)
	ther (Explain in Remarl	ks)	Shallow Aqu	• •
Inundation Visible on Aerial Imagery (B7)		,	✓ FAC-Neutral	, ,
Water-Stained Leaves (B9)			Sphagnum n	noss (D8) (LRR T,U)
Field Observations:				
Surface Water Present? Yes No				
Water Table Present? Yes No				1
Saturation Present? Yes _ V No No	Depth (inches): 16	Wetland I	Hydrology Preser	nt? Yes No*_
Describe Recorded Data (stream gauge, monitoring w	vell, aerial photos, prev	vious inspections), if ava	ailable:	
Remarks: FAC-Neutral Test Results: Positive	FACW and OBL: 3	to FACU and UPL:	1	

VEGETATION – Use scientific names of plants.

EGETATION - Use scientific names of plants	5.			Sampling Point: <u>U</u>	טר-ט
ree Stratum (Plot sizes: 30 ft radius)	Absolute	Dominant Species?	Indicator	Dominance Test worksheet:	
				Number of Dominant Species That Are OBL, FACW, or FAC: 4	(A)
				Total Number of Dominant	
				Species Across All Strata: 5	(B)
		-		Percent of Dominant Species	
				That Are OBL, FACW, or FAC: 80%	(A/B)
				Prevalence Index worksheet:	
30.00 222 544 12.00			·	Total % Cover of: Multiply by:	
50% of total cover: 30.00 20% of total cover: 12.00 apling Stratum (30 ft radius)	0.0	= Total C	over	OBL species x 1 =	
Pinus elliottii	25.0	ves	FACW	FACW species x 2 =	
				FAC species x 3 =	
				FACU species x 4 =	
				UPL species x 5 =	
				Column Totals: (A)	
				(1)	()
			·	Prevalence Index = B/A =	
50% of total cover: 12.50 20% of total cover: 5.00 hrub Stratum (30 ft radius	25.0	= Total Co	over	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation	ı
, , , , , , , , , , , , , , , , , , , ,				✓ 2 - Dominance Test is >50%	
-				3 - Prevalence Index is ≤3.0 ¹	
				Problematic Hydrophytic Vegetation ¹ (E	xplain)
-			·	¹ Indicators of hydric soil and wetland hydrolog	
				be present, unless disturbed or problematic.	iy iiidot
•					
		-		Definitions of Vegetation Strata:	
50% of total cover: 20% of total cover:		= Total C	ovor	Deminions of Vegetation Strata.	
lerb Stratum (30 ft radius)	0.0	- Total C	ovei	Tree – Woody plants, excluding woody vine	s,
Eupatorium capillifolium	15.0	yes	FACU	approximately 20 ft (6 m) or more in height an	
Cyperus flavescens	10.0	yes	OBL	3 in. (7.6 cm) or larger in diameter at breast	
Andropogon virginicus	10.0	yes	FAC	height (DBH).	
Pluchea odorata	10.0	yes	FACW	Sapling – Woody plants, excluding woody	/ines
			·	approximately 20 ft (6 m) or more in height an	
				than 3 in. (7.6 cm) DBH.	
:				Shrub – Woody plants, excluding woody vir	ies,
				approximately 3 to 20 ft (1 to 6 m) in height.	
0				Herb – All herbaceous (non-woody) plants,	including
1			· 	herbaceous vines, regardless of size AND	
2	45.0	= Total C	over	woody plants, except woody vines, less than approximately 3 ft (1 m) in height.	
Voody Vine Stratum (30 ft radius)	-1 0.0	- rotal C	ovei	, p	
				Woody vine – All woody vines, regardless	of height
			· -		
				Hydrophytic	
50% of total cover: 20% of total cover:	0.0	= Total C	over	Vegetation Present? Yes ✓ No	
		, otal O			-

SOIL Sampling Point: UDP-5

Profile Desc	ription: (Describe	to the dept	h needed to docun	nent the i	ndicator o	r confirm	the absenc	e of indicato	rs.)	
Depth	Matrix			x Feature:						
(inches)	Color (moist)	%	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	-	Remarks	
0-18"	10YR 2/1	70					Sa	masked	sand grains	8
	10YR 6/1	30					Sa	unmask	ed sand gra	nins
								-		_
								-		_
		 ·						_		
								-		
	·									
¹ Type: C=Co	oncentration, D=Dep	oletion, RM=	Reduced Matrix, MS	S=Masked	I Sand Gra	ins.	^{2}L	ocation: PL=	Pore Lining, M	l=Matrix.
Hydric Soil I	ndicators:						Indicator	s for Proble	matic Hydric S	Soils ³ :
Histosol	(A1)		Polyvalue Be	low Surfa	ce (S8) (LF	RR S, T, U	J) 1 cm	Muck (A9) (L	.RR O)	
	pipedon (A2)		Thin Dark Su					Muck (A10)		
Black Hi			Loamy Mucky			O)				/ILRA 150A,B)
	n Sulfide (A4)		Loamy Gleye		F2)				ain Soils (F19) Loamy Soils (I	
	l Layers (A5) Bodies (A6) (LRR F	P T II)	Depleted Mat Redox Dark S		·6)			.RA 153B)	LUAITIY SUIIS (I	-20)
	icky Mineral (A7) (L		Depleted Dar		,			Parent Materi	al (TF2)	
	esence (A8) (LRR l		Redox Depre		. ,				Surface (TF1	2)
	ick (A9) (LRR P, T)		Marl (F10) (L	RR U)			-	r (Explain in I		,
	d Below Dark Surfac	ce (A11)	Depleted Och							
	ark Surface (A12)		Iron-Mangan				T) ³ Indi	cators of hyd	rophytic vegeta	ation and
	rairie Redox (A16) (lucky Mineral (S1) (Umbric SurfaDelta Ochric			U)			ogy must be pr	
	ilicky Millerai (S1) (ileyed Matrix (S4)	LKK 0, 3)	Reduced Ver			A 150B)		uniess disturi	bed or problem	iatic.
	edox (S5)		Piedmont Flo							
	Matrix (S6)		Anomalous B					C, 153D)		
	rface (S7) (LRR P,									
Restrictive I	_ayer (if observed)	:								
Type:									./	
Depth (inc							Hydric So	il Present?	Yes	No
Remarks: *S	oil abbreviations: C	l=Clay; Lo=	Loam; Mu=Muck;	Pe- Peat;	Sa= Sand	d; Si=Silt				
										l
										l
										l
										l

Project/Site: TIAA Tract	City/County: Charlton Cou	nty	Sampling Date: <u>04/09/2019</u>
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: WDP-5
Investigator(s): C. Terrell / C. Stanford (TTL)			
			Slope (%): <u>0-1%</u>
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.531			
Are climatic / hydrologic conditions on the site typical for this time of year			
Are Vegetation Yes, Soil Yes, or Hydrology Yes significantly			present? Yes <u>√</u> No
Are Vegetation No , Soil No , or Hydrology No naturally pro			
SUMMARY OF FINDINGS – Attach site map showing			
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes ✓ No Yes ✓ No Remarks:	Is the Sampled Area within a Wetland?	Yes✓	No
Vegetation historically impacted by silvicultural activitie Soils/Hydrology historically impacted by silvicultural activities.		nted pine).	
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		Surface Soil	Cracks (B6)
Surface Water (A1) Aquatic Fauna (B1	3)	Sparsely Ve	getated Concave Surface (B8)
✓ High Water Table (A2) Marl Deposits (B15	(LRR U)	Drainage Pa	tterns (B10)
✓ Saturation (A3) Hydrogen Sulfide (Odor (C1)	Moss Trim L	ines (B16)
Water Marks (B1) Oxidized Rhizosph	eres along Living Roots (C3)	Dry-Season	Water Table (C2)
Sediment Deposits (B2) Presence of Reduc	ced Iron (C4)	Crayfish Bur	rows (C8)
Drift Deposits (B3) Recent Iron Reduc	tion in Tilled Soils (C6)	Saturation V	isible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin Muck Surface	(C7)	Geomorphic	Position (D2)
Iron Deposits (B5) Other (Explain in F	Remarks)	Shallow Aqu	itard (D3)
Inundation Visible on Aerial Imagery (B7)		✓ FAC-Neutral	Test (D5)
Water-Stained Leaves (B9)		Sphagnum n	noss (D8) (LRR T,U)
Field Observations:			
Surface Water Present? Yes No _ ✓ Depth (inches):	0"		
Water Table Present? Yes ✓ No Depth (inches):	0		√
Saturation Present? Yes No Depth (inches): (includes capillary fringe)	Wetland H	lydrology Preser	nt? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial photo-	s, previous inspections), if ava	ilable:	
Remarks: FAC-Neutral Test Results: Positive FACW and OBI	.: 8 to FACU and UPL: ()	

Sampling	Doint	WDP-5	
Sampling	Point:	V V D I - J	

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>) 1		Species?		Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)
2				Total Number of Dominant Species Across All Strata: 8 (B)
				Species Across All Strata.
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100% (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
50% of total cover: 20% of total cover: Sapling Stratum (30 ft radius)	0.0	= Total Co	ver	OBL species x1 =
1. Magnolia virginiana	10.0	yes	<u>FACW</u>	FACW species x 2 =
2. Acer rubrum	10.0	yes	FAC	FAC species x 3 =
3				FACU species x 4 =
4.				UPL species x 5 =
5.				Column Totals: (A) (B)
6.				
7				Prevalence Index = B/A =
50% of total cover: 10.00 20% of total cover: 4.00 Shrub Stratum (30 ft radius)	20.0	= Total Co	ver	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation
1. Morella caroliniana	15.0	ves	FACW	√ 2 - Dominance Test is >50%
2				3 - Prevalence Index is ≤3.0 ¹
3				Problematic Hydrophytic Vegetation ¹ (Explain)
4.				¹ Indicators of hydric soil and wetland hydrology must
5.				be present, unless disturbed or problematic.
6.				
7.				Definitions of Vegetation Strata:
50% of total cover: 7.50 20% of total cover: 3.00	15.0	= Total Co	ver	
Herb Stratum (30 ft radius)	00.0		ODI	Tree – Woody plants, excluding woody vines,
1. Anchistea virginica	20.0	yes	OBL	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast
2. Pluchea odorata	<u>15.0</u>	yes	FACW	height (DBH).
3. Mikania scandens	15.0	yes	FACW	
4. Juncus polycephalos	15.0	yes	<u>OBL</u>	Sapling – Woody plants, excluding woody vines,
5. Typha latifolia	15.0	yes	OBL	approximately 20 ft (6 m) or more in height and less
6. Carex louisianica	10.0	no	OBL	than 3 in. (7.6 cm) DBH.
7				Shrub – Woody plants, excluding woody vines,
8				approximately 3 to 20 ft (1 to 6 m) in height.
9				approximately 5 to 25 it (1 to 6 iii) iii neight.
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
50% of total cover: 45.00 20% of total cover: 18.00	90.0	= Total Co	ver	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				
1. Vitis rotundifolia	10.0	yes	FAC	Woody vine – All woody vines, regardless of height.
2				
3.				
4.				
		-		Hydrophytic
5 20% of total cover: 20% of total cover:	10.0	= Total Co	ver	Vegetation Present? Yes No
Remarks: (If observed, list morphological adaptations be				
	Plants	not idendi	ieu io spec	ies are not used in dominance calculations.

SOIL Sampling Point: WDP-5

Profile Desc	ription: (Describe	e to the depth	n needed to document the indicator or con	firm the absence	of indicators.)
Depth (inches)	Matrix Color (moist)	<u></u> %	Redox Features Color (moist) % Type ¹ Loc	Texture	Remarks
(inches) 0-5"	10YR 2/1		Color (moist) % Type ¹ Loc	Mu Mi	Remarks
5-18"	10YR 3/1	80		Sa	Masked sand grains
<u>J-10</u>	10YR 6/1	00 _		<u>Ga</u> Sa	
	1011011			<u>Sa</u>	Stripped Areas
¹ Type: C=Ce	oncentration, D=De	pletion, RM=F	Reduced Matrix, MS=Masked Sand Grains.	² Lc	ocation: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:			Indicators	for Problematic Hydric Soils ³ :
Histosol			Polyvalue Below Surface (S8) (LRR S,		Muck (A9) (LRR O)
	oipedon (A2)		Thin Dark Surface (S9) (LRR S, T, U)Loamy Mucky Mineral (F1) (LRR O)		Muck (A10) (LRR S) eed Vertic (F18) (outside MLRA 150A,B)
Black Hi	en Sulfide (A4)		Loamy Gleyed Matrix (F2)		nont Floodplain Soils (F19) (LRR P, S, T)
	d Layers (A5)		Depleted Matrix (F3)		alous Bright Loamy Soils (F20)
	Bodies (A6) (LRR	P, T, U)	Redox Dark Surface (F6)		RA 153B)
	ıcky Mineral (A7) (L		Depleted Dark Surface (F7)		arent Material (TF2)
	esence (A8) (LRR		Redox Depressions (F8)	•	Shallow Dark Surface (TF12)
	ick (A9) (LRR P, T)		Marl (F10) (LRR U)	Other	(Explain in Remarks)
	d Below Dark Surfa ark Surface (A12)	ice (ATT)	Depleted Ochric (F11) (MLRA 151)Iron-Manganese Masses (F12) (LRR 0) P T) 3	
	rairie Redox (A16)	(MLRA 150A)	-	· indio	ators of hydrophytic vegetation and tland hydrology must be present,
	Mucky Mineral (S1)		Delta Ochric (F17) (MLRA 151)		inless disturbed or problematic.
	Sleyed Matrix (S4)		Reduced Vertic (F18) (MLRA 150A, 15		
	Redox (S5)		Piedmont Floodplain Soils (F19) (MLRA		
	Matrix (S6)	C T II)	Anomalous Bright Loamy Soils (F20) (N	/ILRA 149A, 153C	c, 153D)
	rface (S7) (LRR P, Layer (if observed			<u> </u>	
Type:	Layer (ii observed	· ·			
Depth (in	ches).		_	Hydric Soil	Present? Yes ✓ No
		Cl=Clav: I n=l	 _oam; Mi=Mineral; Mu=Muck; Pe- Peat; Sa		100
rtomanto. O	on appreviations.	or oldy, Lo i	count, wir willional, wa wack, Te Teat, Ca	Caria, Ci Ciit	

Project/Site: TIAA Tract	City/County:	Charlton County	Sampling Date: 04/09/2019
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	Sampling Point: UDP-6
Investigator(s): C. Terrell / C. Stanford (TTL)		nship, Range: Not Available	
			Slope (%): <u>0-2%</u>
Subregion (LRR or MLRA): LRR T / MLRA 153A			
Soil Map Unit Name: Mascotte fine sand, 0-2% slopes		NWI class	
Are climatic / hydrologic conditions on the site typical for the	nis time of year? Yes	No (If no, explain ir	Remarks.)
Are Vegetation Yes , Soil Yes , or Hydrology Yes	significantly disturbed?	Are "Normal Circumstances	s" present? Yes <u>√</u> No
Are Vegetation No , Soil No , or Hydrology No		(If needed, explain any ans	
SUMMARY OF FINDINGS – Attach site map			
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: - Vegetation historically impacted by silviculti	·		No <u>√</u> _
- Soils/Hydrology historically impacted by silv			
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Ind	icators (minimum of two required)
Primary Indicators (minimum of one is required; check al	I that apply)	Surface S	oil Cracks (B6)
Surface Water (A1) Aqua	tic Fauna (B13)	Sparsely \	/egetated Concave Surface (B8)
High Water Table (A2) Marl I	Deposits (B15) (LRR U)	Drainage I	Patterns (B10)
Saturation (A3) Hydro	ogen Sulfide Odor (C1)	Moss Trim	Lines (B16)
Water Marks (B1) Oxidia	zed Rhizospheres along Li	ving Roots (C3) Dry-Seaso	on Water Table (C2)
Sediment Deposits (B2) Prese	ence of Reduced Iron (C4)	Crayfish B	surrows (C8)
Drift Deposits (B3) Rece	nt Iron Reduction in Tilled	Soils (C6) Saturation	Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Thin I	Muck Surface (C7)	Geomorph	nic Position (D2)
Iron Deposits (B5) Othe	r (Explain in Remarks)	Shallow A	quitard (D3)
Inundation Visible on Aerial Imagery (B7)		✓ FAC-Neut	ral Test (D5)
Water-Stained Leaves (B9)		Sphagnun	n moss (D8) (LRR T,U)
Field Observations:			
Surface Water Present? Yes No D		_	
	epth (inches): 28		./
Saturation Present? Yes ✓ No D (includes capillary fringe)	epth (inches): 24	Wetland Hydrology Pres	ent? Yes No
Describe Recorded Data (stream gauge, monitoring well	, aerial photos, previous in:	spections), if available:	
Remarks: FAC-Neutral Test Results: Positive FA	ACW and OBL: 6 to FA	ACU and UPL: 2	
I and the second			

VEGETATION – Use scientific names of plants.

EGETATION – Use scientific names of plants.	Sampling Point: UDP-6			
To Company (District Control of the	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot sizes: 30 ft radius) 1. Pinus elliottii	% Cover 25.0	Species? yes	FACW	Number of Dominant Species That Are OBL, FACW, or FAC:6 (A)
2	<u> </u>			Total Number of Dominant
3				Species Across All Strata: 8 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 75% (A/B)
6				Prevalence Index worksheet:
7				
50% of total cover: 12.50 20% of total cover: 5.00 Sapling Stratum (30 ft radius)	25.0	= Total Co	over	
1	25.0	yes	FACW	FACW species x 2 =
2				FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5				Column Totals: (A) (B)
6				Drevelence Index D/A
7				Prevalence Index = B/A =
50% of total cover: 12.50 20% of total cover: 5.00 Shrub Stratum (30 ft radius)	25.0	= Total Co	over	1 - Rapid Test for Hydrophytic Vegetation
1. Serenoa repens	15.0	yes	FACU	✓ 2 - Dominance Test is >50%
2. Morella cerifera		yes	FAC	3 - Prevalence Index is ≤3.0 ¹
3. Ilex glabra	15.0	yes	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
4				¹ Indicators of hydric soil and wetland hydrology must
5				be present, unless disturbed or problematic.
6				
7				Definitions of Vegetation Strata:
50% of total cover: 22.50 20% of total cover: 9.00	45.0	= Total Co	over	
Herb Stratum (30 ft radius)	0		ODI	Tree – Woody plants, excluding woody vines,
1. Anchistea virginica		yes	OBL	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast
2. Pteridium aquilinum	<u>15.0</u>	yes	FACU_	height (DBH).
3. Andropogon virginicus	15.0	yes	FAC	
4. Lachnanthes caroliniana	10.0	no	OBL	Sapling – Woody plants, excluding woody vines,
5. Polygala nana	10.0	no	FACW	approximately 20 ft (6 m) or more in height and less
6. Dichanthelium aciculare	10.0	no	<u>FACU</u>	than 3 in. (7.6 cm) DBH.
7				Shrub – Woody plants, excluding woody vines,
8				approximately 3 to 20 ft (1 to 6 m) in height.
9				
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
50% of total cover: 47.50 20% of total cover: 19.00 Woody Vine Stratum (30 ft radius)	95.0	= Total Co	over	approximately 3 ft (1 m) in height.
				Woody vine – All woody vines, regardless of height.
1				Tilling the second of the seco
2				
3				
4				Hydrophytic
5 50% of total cover: 20% of total cover:	0.0	= Total Co	over	Vegetation Present? Yes No
Remarks: (If observed, list morphological adaptations belo				

SOIL Sampling Point: UDP-6

Profile Desc	ription: (Describe	to the depti	h needed to docun	nent the i	ndicator o	r confirm	the absenc	e of indicato	ors.)	
Depth	Matrix			x Feature	- 1	. 2	_			
(inches)	Color (moist)		Color (moist)	%	Type'	Loc ²	Texture		Remarks	
0-18"	10YR 3/1	65					Sa		sand grains	-
	10YR 6/1	35					Sa	unmask	ed sand gra	ains
				 						
	-							-		
								-		
		oletion, RM=I	Reduced Matrix, MS	S=Masked	I Sand Gra	ins.			Pore Lining, N	
Hydric Soil I			Daharaha Da	1	(00) (1.1				matic Hydric S	Solls :
Histosol	(A1) pipedon (A2)		Polyvalue Be Thin Dark Su					Muck (A9) (I Muck (A10)		
Black Hi			Loamy Muck							/ILRA 150A,B)
	n Sulfide (A4)		Loamy Gleye			,			ain Soils (F19)	
Stratified	Layers (A5)		Depleted Ma	trix (F3)			Anon	nalous Bright	Loamy Soils (I	F20)
_	Bodies (A6) (LRR F		Redox Dark	`	,			_RA 153B)		
	cky Mineral (A7) (L		Depleted Dar					Parent Mater		0)
· 	esence (A8) (LRR U ck (A9) (LRR P, T)	J)	Redox Depre Marl (F10) (L		0)			รกลแอพ บลก r (Explain in	k Surface (TF1:	2)
	Below Dark Surface	ce (A11)	Depleted Oct		(MLRA 15	1)	Othe	i (⊏xpiaiii iii	Kemarks)	
	ark Surface (A12)	. ,	Iron-Mangan				T) ³ Indi	cators of hvd	rophytic vegeta	ation and
) Umbric Surfa			U)			ogy must be pr	
	lucky Mineral (S1) (LRR O, S)	Delta Ochric			\		unless distur	bed or problem	natic.
	edox (S5)		Reduced Ver Piedmont Flo				9.4)			
	Matrix (S6)		Anomalous E					C. 153D)		
	rface (S7) (LRR P,	S, T, U)			., (.	, (, , , , , , , , , , , , , , , , , , , ,	-,,		
Restrictive I	ayer (if observed)	:								
Type:									/	
Depth (inc	ches):		<u></u>				Hydric So	il Present?	Yes	No
Remarks: *S	oil abbreviations: C	I=Clay; Lo=	Loam; Mu=Muck;	Pe- Peat;	Sa= San	d; Si=Silt	•			

Project/Site: TIAA Tract	City/C	City/County: Charlton County Sampling Date:		
Applicant/Owner: Twin Pines Minerals, LLC	;		State: GA	Sampling Point: WDP-6
Investigator(s): C. Terrell / C. Stanford (TTL) Section, Township, Range: Not Available				
Landform (hillslope, terrace, etc.): Depression				Slope (%): <u>0-1%</u>
Subregion (LRR or MLRA): LRR T / MLRA 153A				
Soil Map Unit Name: Leon fine sand, 0-2% slope				
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)				
Are Vegetation Yes , Soil Yes , or Hydrology Yes significantly disturbed?				
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)				
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.				
Hydric Soil Present? Yes	✓ No ✓ No ✓ No	Is the Sampled Area within a Wetland?	Yes <u>√</u>	No
 Vegetation historically impacted by silvicultural activities (planted pine). Soils/Hydrology historically impacted by silvicultural activities (bedding for planted pine). 				
HYDROLOGY				
Wetland Hydrology Indicators:			Secondary Indica	tors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)			Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8)	
✓ Surface Water (A1) Aquatic Fauna (B13)				
 ✓ High Water Table (A2) ✓ Saturation (A3) Marl Deposits (B15) (LRR U) Hydrogen Sulfide Odor (C1) 			Drainage Pat	
<u> </u>			Moss Trim Li	
 Water Marks (B1) Sediment Deposits (B2) Oxidized Rhizospheres along Living Roots (C3) Dry-Season Water Table (C2) Crayfish Burrows (C8) 				
Sediment Deposits (B2) Precent Grown Reduction in Tilled Soils (C6) Saturation Visible on Aerial Imagery (C9)				
			Geomorphic	
Iron Deposits (B5) Other (Explain in Remarks) Shallow Aquitard (D3)				
Inundation Visible on Aerial Imagery (B7)	_ ` `		✓ FAC-Neutral	
Water-Stained Leaves (B9)				noss (D8) (LRR T,U)
Field Observations:				
Surface Water Present? Yes No _	Depth (inches): 2"			
	Depth (inches): 12"	 -		1
Saturation Present? Yes No _ (includes capillary fringe)	Depth (inches): 8"	Wetland H	lydrology Presen	t? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
Remarks: FAC-Neutral Test Results: Positive FACW and OBL: 8 to FACU and UPL: 0				
Tromand. The Nedular Test Nesalis. T solute Trow and OBE. 9 to Troo and OTE. 9				

San	npling Point: WD	P-6				
nance Test worksheet:						
er of Dominant Species Are OBL, FACW, or FAC	8	(A)				
Number of Dominant es Across All Strata:	8	(B)				
nt of Dominant Species Are OBL, FACW, or FAC	100%	(A/B)				
lence Index worksheet	:					
otal % Cover of:	Multiply by:	_				
	x 1 =					
	x 2 =					
	x 3 =					
•	x 4 =					
· 	x 5 =	_				
nn Totals:	(A)	_ (B)				
Prevalence Index = B/A	=	_				
phytic Vegetation Indi	cators:					
 Rapid Test for Hydroph 	nytic Vegetation					
- Dominance Test is >50)%					
- Prevalence Index is ≤3	3.0 ¹					
roblematic Hydrophytic \	/egetation1 (Exp	lain)				
roblematic Hydrophytic Vegetation ¹ (Explain) ators of hydric soil and wetland hydrology must esent, unless disturbed or problematic.						
nitions of Vegetation	n Strata:					
e – Woody plants, exclud eximately 20 ft (6 m) or m (7.6 cm) or larger in diam tt (DBH).	nore in height and					
ling – Woody plants, ex eximately 20 ft (6 m) or m 3 in. (7.6 cm) DBH.						
ub – Woody plants, exclusions, which will be a work of the work of		,				
O – All herbaceous (non- aceous vines, regardless y plants, except woody v oximately 3 ft (1 m) in he	of size AND vines, less than	luding				
ody vine – All woody vii	nes, regardless of	height.				

22.5	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot sizes: 30 ft radius)		Species?		Number of Dominant Species
1. Pinus elliottii	30.0		<u>FACW</u>	That Are OBL, FACW, or FAC: 8 (A)
2				Total Number of Dominant
3				Species Across All Strata: 8 (B)
4				Develop of Deminent Charles
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)
6				
7.				Prevalence Index worksheet:
50% of total cover: 15.00 20% of total cover: 6.00	30.0	= Total Co	ver	Total % Cover of: Multiply by:
Sapling Stratum (30 ft radius)		1010100		OBL species x 1 =
1				FACW species x 2 =
2.				FAC species x 3 =
3.				FACU species x 4 =
4.				UPL species x 5 =
5				Column Totals: (A) (B)
				Column Totals (A) (B)
6				Prevalence Index = B/A =
7 50% of total cover: 20% of total cover:				Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)	0.0	= Total Co	ver	 ✓ 1 - Rapid Test for Hydrophytic Vegetation
1. Styrax americanus	15.0	yes	FACW	✓ 2 - Dominance Test is >50%
2. Itea virginica				3 - Prevalence Index is ≤3.0 ¹
	10.0	yes	FACW	Problematic Hydrophytic Vegetation¹ (Explain)
3. Ilex glabra		yes	FACW	
4. Hypericum brachyphyllum	10.0	_yes	<u>FACW</u>	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5				bo procont, amos alstance or prezioniane.
6				
7				Definitions of Vegetation Strata:
50% of total cover: 22.50 20% of total cover: 9.00	45.0	= Total Co	ver	
Herb Stratum (30 ft radius)				Tree – Woody plants, excluding woody vines,
1. Anchistea virginica	25.0	yes	<u>OBL</u>	approximately 20 ft (6 m) or more in height and
2. Rhynchospora fascicularis	<u> 15.0</u>	yes	<u>FACW</u>	3 in. (7.6 cm) or larger in diameter at breast
3. Rubus argutus	15.0	yes	FACW	height (DBH).
4. Andropogon virginicus	15.0	yes	OBL	Sapling – Woody plants, excluding woody vines,
5. Xyris elliottii	10.0	no	OBL	approximately 20 ft (6 m) or more in height and less
6.				than 3 in. (7.6 cm) DBH.
7.				,
8.				Shrub – Woody plants, excluding woody vines,
				approximately 3 to 20 ft (1 to 6 m) in height.
9				
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
50% of total cover: 40.00 20% of total cover: 16.00	80.0	= Total Co	over	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				Woody vino. All woody vinos regardless of height
1				Woody vine – All woody vines, regardless of height.
2				
3				
4				Hydrophytic
5				Vegetation
50% of total cover: 20% of total cover:				Present? Yes No
Remarks: (If observed, list morphological adaptations be	low). *Plants	not idendif	ied to spec	ies are not used in dominance calculations.

SOIL Sampling Point: WDP-6

Profile Desc	cription: (Describ	e to the deptl	n needed to document the indicator or cor	nfirm the absence	of indicators.)
Depth	Matrix Color (moist)	<u></u> %	Redox Features Color (moist) % Type ¹ Loc	Texture	Remarks
(inches) 0-4"	10YR 2/1	100	Color (moist) % Type Loc	Sa	Remarks
4-18"	10YR 3/1	50		Sa	Masked sand grains
1 -10	10YR 5/1				
	10113/1	50		Sa	Stripped Areas
¹ Type: C=C	oncentration, D=De	pletion, RM=I	Reduced Matrix, MS=Masked Sand Grains.	² Lc	ocation: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:			Indicators	for Problematic Hydric Soils ³ :
Histosol			Polyvalue Below Surface (S8) (LRR S,		Muck (A9) (LRR O)
	oipedon (A2)		Thin Dark Surface (S9) (LRR S, T, U)		Muck (A10) (LRR S) ced Vertic (F18) (outside MLRA 150A,B)
	stic (A3) en Sulfide (A4)		Loamy Mucky Mineral (F1) (LRR O)Loamy Gleyed Matrix (F2)		nont Floodplain Soils (F19) (LRR P, S, T)
	d Layers (A5)		Depleted Matrix (F3)		alous Bright Loamy Soils (F20)
	Bodies (A6) (LRR	P, T, U)	Redox Dark Surface (F6)		RA 153B)
	ucky Mineral (A7) (I		Depleted Dark Surface (F7)		arent Material (TF2)
	esence (A8) (LRR		Redox Depressions (F8)		Shallow Dark Surface (TF12)
	uck (A9) (LRR P, T)		Marl (F10) (LRR U) Depleted Ochric (F11) (MLRA 151)	Other	(Explain in Remarks)
	d Below Dark Surfa ark Surface (A12)	ice (ATT)	Iron-Manganese Masses (F12) (LRR (OPT) 31r.	atana afficialmentaria constati a cand
	rairie Redox (A16)	(MLRA 150A)		ilidio	ators of hydrophytic vegetation and tland hydrology must be present,
	Mucky Mineral (S1)	(LRR O, S)	Delta Ochric (F17) (MLRA 151)		inless disturbed or problematic.
	Bleyed Matrix (S4)		Reduced Vertic (F18) (MLRA 150A, 15		
	Redox (S5)		Piedmont Floodplain Soils (F19) (MLR		1.452D)
	Matrix (S6) rface (S7) (LRR P,	S T II)	Anomalous Bright Loamy Soils (F20) (I	WILKA 149A, 153C	, 1530)
	Layer (if observed				
Type:			<u></u>		_
Depth (in	ches):		<u></u>	Hydric Soil	Present? Yes No
Remarks: *S	oil abbreviations:	CI=Clay; Lo=I	oam; Mi=Mineral; Mu=Muck; Pe-Peat; Sa	a= Sand; Si=Silt	

Project/Site: TIAA Tract	City/County: C	Charlton County	Sampling Date: <u>04/09/2019</u>
Applicant/Owner: Twin Pines Minerals, LLC		State: GA	_ Sampling Point: UDP-7
Investigator(s): C. Terrell / C. Stanford (TTL)		ship, Range: Not Available	
			Slope (%): 0-2%
Subregion (LRR or MLRA): LRR T / MLRA 153A			
Soil Map Unit Name: Leon fine sand, 0-2% slopes		NWI classi	
Are climatic / hydrologic conditions on the site typical for the			
Are Vegetation Yes , Soil Yes , or Hydrology Yes	significantly disturbed?	Are "Normal Circumstances"	'present? Yes <u>√</u> No
Are Vegetation No , Soil No , or Hydrology No			
SUMMARY OF FINDINGS - Attach site map	showing sampling	point locations, transect	ts, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes Yes Remarks:	No Is the S No within a	Sampled Area a Wetland? Yes	No <u>√</u>
Vegetation historically impacted by silvicult Soils/Hydrology historically impacted by silving	"	• •	
HYDROLOGY			
Wetland Hydrology Indicators:		Secondary Indi	cators (minimum of two required)
Primary Indicators (minimum of one is required; check al	I that apply)	Surface So	oil Cracks (B6)
_ ` '	tic Fauna (B13)	Sparsely V	egetated Concave Surface (B8)
1 -	Deposits (B15) (LRR U)		Patterns (B10)
1 - ` ` '	ogen Sulfide Odor (C1)		Lines (B16)
	zed Rhizospheres along Liv	_ ,	n Water Table (C2)
,	ence of Reduced Iron (C4)	Crayfish Bu	` '
	nt Iron Reduction in Tilled S		Visible on Aerial Imagery (C9)
<u> </u>	Muck Surface (C7)		ic Position (D2)
	r (Explain in Remarks)	Shallow Ac	
Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9)		FAC-Neutr	` '
Field Observations:		Spriagrum	moss (D8) (LRR T,U)
Surface Water Present? Yes No ✓ D	epth (inches):		
	epth (inches): 28	_	
	epth (inches): 24	Wetland Hydrology Prese	ent? Yes No ✓
(includes capillary fringe)	eptir (inches).	Wetland Trydrology Frest	ent: 165 NO
Describe Recorded Data (stream gauge, monitoring well	, aerial photos, previous ins	pections), if available:	
Remarks: FAC-Neutral Test Results: Negative FA	ACW and OBL: 2 to FA	CU and UPL: 5	

VEGETATION – Use scientific names of plants.

EGETATION – Use scientific names of plants	S.			Sampling Point: UDP-7
Tree Stratum (Plot sizes: 30 ft radius)	Absolute % Cover		t Indicator	Dominance Test worksheet:
1				Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant Species Across All Strata: 7 (B)
4 5				Percent of Dominant Species That Are OBL, FACW, or FAC:
6			<u> </u>	Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
50% of total cover: 20% of total cover: Sapling Stratum (_30 ft radius)	0.0	= Total C	over	OBL species x 1 =
1				FACW species x 2 =
2.				FAC species x 3 =
3.				FACU species x 4 =
4.				UPL species x 5 =
5.				Column Totals: (A) (B)
6.				
7. <u> </u>				Prevalence Index = B/A =
50% of total cover: 12.50 20% of total cover: 5.00 Shrub Stratum (30 ft radius)	0.0	= Total Co	over	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation
· llov globro	25.0	ves	FACW	✓ 2 - Dominance Test is >50%
1. Nex glabra 2. Vaccinium mysinites		yes	FACU	3 - Prevalence Index is ≤3.0 ¹
3. Serenoa repens			FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
4			17100	¹ Indicators of hydric soil and wetland hydrology must
5.				be present, unless disturbed or problematic.
6				
7				Definitions of Vegetation Strata:
50% of total cover: 27.50 20% of total cover: 11.00	55.0	= Total C	over	
Herb Stratum (30 ft radius)				Tree – Woody plants, excluding woody vines,
1. Andropogon virginicus	25.0	yes	FAC	approximately 20 ft (6 m) or more in height and
_{2.} <u>Pteridium aquilinum</u>	15.0	yes	FACU	3 in. (7.6 cm) or larger in diameter at breast height (DBH).
3. Anchistea virginica	15.0	yes	OBL	Height (DBH).
4. Dichanthelium aciculare	10.0	no	FACU	Sapling – Woody plants, excluding woody vines,
_{5.} Rubus argutus	10.0	no	FAC	approximately 20 ft (6 m) or more in height and less
6. Toxicodendron radicans	10.0	no	FACU	than 3 in. (7.6 cm) DBH.
7				Shrub – Woody plants, excluding woody vines,
8				approximately 3 to 20 ft (1 to 6 m) in height.
9				
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)	85.0	= Total C	over	approximately 3 it (1 iii) iii neight.
1. Vitis rotundifolia	10.0	ves	FAC	Woody vine – All woody vines, regardless of height.
2.				
3.				
4				
5.			·	Hydrophytic
50% of total cover: 5.00 20% of total cover: 2.00	10.0	= Total C	over	Vegetation Present? Yes No
Remarks: (If observed, list morphological adaptations be	low). *Plants	not idend	ified to spec	ies are not used in dominance calculations.

SOIL Sampling Point: UDP-7

Profile Desc	ription: (Describe	to the dept	h needed to docun	nent the i	ndicator o	r confirm	the absence	e of indicators.)	
Depth	Matrix			k Feature					
(inches)	Color (moist)		Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	
0-8"	10YR 3/1	50					Sa	masked sand grains	
	10YR 7/1	50					Sa	unmasked sand grain	ns
8-18"	10YR 5/1	70					Sa	masked sand grains	
	10YR 6/1	30					Sa	unmasked sand grain	าร
		_ ·			·				
							-		
¹Type: C=Cd	oncentration, D=Dep	letion RM-	Reduced Matrix MS		I Sand Gra	ins	21	ocation: PL=Pore Lining, M=	Matrix
Hydric Soil		notion, raivi–	reduced Waters, We)—IVIQOROC	Touria Ord			s for Problematic Hydric So	
Histosol	(A1)		Polyvalue Be	low Surfa	ce (S8) (L l	RR S, T, L	J) 1 cm	Muck (A9) (LRR O)	
Histic Ep	pipedon (A2)		Thin Dark Su					Muck (A10) (LRR S)	
Black Hi			Loamy Muck			O)		ced Vertic (F18) (outside ML	
	n Sulfide (A4)		Loamy Gleye		F2)			nont Floodplain Soils (F19) (L	
· 	l Layers (A5) Bodies (A6) (LRR P	T 11\	Depleted Mat		.e)			nalous Bright Loamy Soils (F2 . RA 153B)	20)
_	cky Mineral (A7) (LI		Depleted Dar	`	,			Parent Material (TF2)	
	esence (A8) (LRR L		Redox Depre					Shallow Dark Surface (TF12)	
	ck (A9) (LRR P, T)		Marl (F10) (L	,			Other	(Explain in Remarks)	
	Below Dark Surfac	e (A11)	Depleted Och						
· 	ark Surface (A12) rairie Redox (A16) (I	MI DA 150A	Iron-Mangan				·	cators of hydrophytic vegetati	
	lucky Mineral (S1) (I		Delta Ochric			Ο,		etland hydrology must be pres unless disturbed or problema	
	leyed Matrix (S4)	-, -,	Reduced Ver			A, 150B)		armose distanced or problema	
Sandy R	edox (S5)		Piedmont Flo						
	Matrix (S6)		Anomalous B	right Loai	my Soils (F	20) (MLR	A 149A, 1530	C, 153D)	
	face (S7) (LRR P, S -ayer (if observed)								
Type:	ayer (ii observed)	•							
Depth (inc	shos).						Hydric Soi	I Present? Yes	No
	oil abbreviations: C	l=Clav: Lo=	Loam: Mu=Muck:	Pe- Peat	Sa= San	d: Si=Silt	1 -		
rtomanto. O	on abbreviations. O	oldy, Lo	Loam, wa waok,	r c r cat,	ou our	a, Oi Oiit			

Project/Site: TIAA Tract		City/County: Ch	arlton County	Sampling Date: _	04/09/2019	
Applicant/Owner: Twin Pines Mine		, ,		Sampling Point:		
Investigator(s): C. Terrell / C. Star		Section, Townsh				
Landform (hillslope, terrace, etc.): Dep			ave, convex, none): Concave	Slop	e (%): 0-1%	
Subregion (LRR or MLRA): LRR T / MI			Long: -82.155516			
Soil Map Unit Name: Surrency mucky						
Are climatic / hydrologic conditions on t		_		·		
Are Vegetation No , Soil No , or			Are "Normal Circumstances		/ No	
Are Vegetation No , Soil No , or			(If needed, explain any answ			
SUMMARY OF FINDINGS – A					atures, etc.	
Lhydrophytic Vegetation Drecent?	Yes <u>√</u> No _					
Hydrophytic Vegetation Present? Hydric Soil Present?		is the out	mpled Area	/		
Wetland Hydrology Present?		within a \	Vetland? Yes	✓ No	-	
Remarks:						
HYDROLOGY						
Wetland Hydrology Indicators:			Secondary Indi	cators (minimum of	two required)	
Primary Indicators (minimum of one is	required; check all that	t apply)		oil Cracks (B6)		
✓ Surface Water (A1)	Aquatic Fa	auna (B13)		egetated Concave S	Surface (B8)	
✓ High Water Table (A2)	Marl Depo	sits (B15) (LRR U)		Patterns (B10)		
✓ Saturation (A3)		Sulfide Odor (C1)		Moss Trim Lines (B16)		
Water Marks (B1)		Rhizospheres along Living	- -	n Water Table (C2)		
Sediment Deposits (B2)		of Reduced Iron (C4)		urrows (C8)	(==)	
Drift Deposits (B3)		on Reduction in Tilled Soil		Visible on Aerial Ima	agery (C9)	
Algal Mat or Crust (B4) Iron Deposits (B5)		s Surface (C7) plain in Remarks)		ic Position (D2) quitard (D3)		
Inundation Visible on Aerial Imag		piairi iri remarks)	Shallow Act			
Water-Stained Leaves (B9)	ory (21)			moss (D8) (LRR T,	U)	
Field Observations:						
Surface Water Present? Yes _	✓ No Depth	(inches): 3"				
Water Table Present? Yes _	✓ No Depth	(inches): 0"		/		
Saturation Present? Yes _ (includes capillary fringe)	No Depth	(inches): 0"	Wetland Hydrology Pres	ent? Yes	No	
Describe Recorded Data (stream gau	ge, monitoring well, aeri	ial photos, previous inspe	ctions), if available:			
Remarks: FAC-Neutral Test Results:	Positive FACW	and OBL: 12 to FACI	J and UPL: 0			

Sampling	Doint	WDP-7
Sampling	Point.	V V D I - 1

00 ft and live	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot sizes: 30 ft radius)		Species?		Number of Dominant Species That Are ORL FACW or FAC: 12 (A)
1. Acer rubrum	30.0	yes	FAC	That Are OBL, FACW, or FAC: 12 (A)
2. Nyssa biflora	20.0	yes	OBL_	Total Number of Dominant
3. Taxodium ascendens	20.0	yes	OBL	Species Across All Strata: 12 (B)
4. Pinus elliottii	<u> 15.0</u>	no	FACW	Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100% (A/B)
6				Prevalence Index worksheet:
7				
50% of total cover: 42.50 20% of total cover: 17.00 Sapling Stratum (30 ft radius)	85.0	= Total Co	ver	
1. Acer rubrum	10.0	yes	FAC	FACW species x 2 =
2. Nyssa biflora	5.0	yes	OBL	FAC species x 3 =
3. Liquidambar styraciflua	5.0	yes	FAC	FACU species x 4 =
4.				UPL species x 5 =
5.				Column Totals: (A) (B)
				(-)
**-				Prevalence Index = B/A =
7 50% of total cover: 10.00 20% of total cover: 4.00	20.0			Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)	20.0	= Total Co	ver	√ 1 - Rapid Test for Hydrophytic Vegetation
1. Morella caroliniana	15.0	yes	FACW	✓ 2 - Dominance Test is >50%
2. Itea virginica	15.0	yes	FACW	3 - Prevalence Index is ≤3.0 ¹
		yes	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
**			IACVV	¹ Indicators of hydric soil and wetland hydrology must
4				be present, unless disturbed or problematic.
5		-		
6				Definitions of Variation Strate.
7				Definitions of Vegetation Strata:
Herb Stratum (30 ft radius)	45.0	= Total Co	over	Troo Meady plants and discoursed wines
1. Carex louisianica	25.0	yes	OBL	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and
2. Dichanthelium scabriusculum				3 in. (7.6 cm) or larger in diameter at breast
3. Osmunda regalis var. spectabilis	25.0	yes	OBL OBL	height (DBH).
	20.0	yes	OBL_	
4. Anchistea virginica	<u> 15.0</u>	no	OBL_	Sapling – Woody plants, excluding woody vines,
_{5.} Lorinseria areolata	10.0	_no	OBL	approximately 20 ft (6 m) or more in height and less
6				than 3 in. (7.6 cm) DBH.
7				Charles W. J.
8				Shrub – Woody plants, excluding woody vines,
9				approximately 3 to 20 ft (1 to 6 m) in height.
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12.				woody plants, except woody vines, less than
50% of total cover: 47.50 20% of total cover: 19.00	95.0	= Total Co	ver	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				
1				Woody vine – All woody vines, regardless of height.
2				
3.				
4.				
				Hydrophytic
50% of total cover: 20% of total cover:			ver	Vegetation Present? Yes No
Remarks: (If observed, list morphological adaptations be	low). *Plants	not idendit	ied to spec	ies are not used in dominance calculations.

SOIL Sampling Point: WDP-7

	cription: (Describe	e to the depth	needed to document the indicator or confi	rm the absence of i	ndicators.)
Depth (inches)	Matrix	%	Redox Features Color (moist) % Type¹ Loc²	- Toytura	Domostro
(inches) 0-18"	Color (moist) 10YR 2/1		Color (moist) % Type ¹ Loc ²	Texture Mu Mi	Remarks
0-10	1011 2/1	_ 100 _		IVIU IVII	
1T 0 0			advand Matrix MO Manhad Ocad Ocales	21	DI Daniel Indian M. Matrix
	Indicators:	pietion, Rivi=Re	educed Matrix, MS=Masked Sand Grains.		on: PL=Pore Lining, M=Matrix. Problematic Hydric Soils ³ :
•			D. I. D. I. O. ((00) (I DD 0 T		•
Histoso			Polyvalue Below Surface (S8) (LRR S, T		
	pipedon (A2)		Thin Dark Surface (S9) (LRR S, T, U)		(A10) (LRR S)
	istic (A3)		Loamy Cloved Matrix (F2)		/ertic (F18) (outside MLRA 150A,B)
	en Sulfide (A4) d Layers (A5)		Loamy Gleyed Matrix (F2)		Floodplain Soils (F19) (LRR P, S, T) s Bright Loamy Soils (F20)
	Bodies (A6) (LRR	D T II\	Depleted Matrix (F3)Redox Dark Surface (F6)	(MLRA 1	
	ucky Mineral (A7) (L		Depleted Dark Surface (F7)		it Material (TF2)
	resence (A8) (LRR		Redox Depressions (F8)		ow Dark Surface (TF12)
	uck (A9) (LRR P, T)		Marl (F10) (LRR U)		plain in Remarks)
	d Below Dark Surfa		Depleted Ochric (F11) (MLRA 151)	Other (Exp	olain in Remarks)
	ark Surface (A12)	(* (* (*)	Iron-Manganese Masses (F12) (LRR O,	P. T) 3Indicators	of budges budges as a sectorion and
	rairie Redox (A16)	(MLRA 150A)	Umbric Surface (F13) (LRR P, T, U)	maioatore	s of hydrophytic vegetation and I hydrology must be present,
	Mucky Mineral (S1)		Delta Ochric (F17) (MLRA 151)		s disturbed or problematic.
	Gleyed Matrix (S4)	, ,	Reduced Vertic (F18) (MLRA 150A, 150		o alotalizou el proziolitatio
	Redox (S5)		Piedmont Floodplain Soils (F19) (MLRA		
	d Matrix (S6)		Anomalous Bright Loamy Soils (F20) (MI		3D)
Dark Su	ırface (S7) (LRR P,	S, T, U)			
Restrictive	Layer (if observed):			
Type:			_		
Depth (in	ches):			Hydric Soil Pre	sent? Yes / No
Remarks: *S	Soil abbreviations: (CI=Clav: Lo=Lo	pam; Mi=Mineral; Mu=Muck; Pe- Peat; Sa=	Sand: Si=Silt	
		<i>3.</i>		,	

Project/Site: TIAA Tract	City/Cou	unty: Charlton Cou	nty	Sampling Date: <u>04/10/2019</u>	
Applicant/Owner: Twin Pines Minerals, LLC		;	State: GA	Sampling Point: UDP-8	
Investigator(s): C. Terrell / C. Stanford (TTL)	Section				
Landform (hillslope, terrace, etc.): Flatwoods				Slope (%): <u>0-2%</u>	
Subregion (LRR or MLRA): LRR T / MLRA 153A	Lat: 30.528467	Long:	82.148634	Datum: NAD83	
Soil Map Unit Name: Leon fine sand, 0-2% slopes			NWI classific	cation: Upland	
Are climatic / hydrologic conditions on the site typical fo	or this time of year? Yes	s_ √ _ No	(If no, explain in R	emarks.)	
Are Vegetation Yes , Soil Yes , or Hydrology Yes	significantly disturbe	ed? Are "Normal	Circumstances" p	oresent? Yes <u>√</u> No	
Are Vegetation No , Soil No , or Hydrology No	naturally problemati	c? (If needed, e	explain any answe	rs in Remarks.)	
SUMMARY OF FINDINGS - Attach site m	ap showing samp				
Hydrophytic Vegetation Present? Yes ✓	No	s the Sampled Area			
Hydric Soil Present? Yes	No 🗸	within a Wetland?	Yes	No ✓	
Wetland Hydrology Present? Yes	_ No <u> </u>	within a wettand:		NO <u></u>	
Remarks:					
Vegetation historically impacted by silvicular - Soils/Hydrology historically historically impacted by silvicular - Soils/Hydrology historically		• •	nted pine).		
HYDROLOGY					
Wetland Hydrology Indicators:				ators (minimum of two required)	
Primary Indicators (minimum of one is required; check			Surface Soil		
· · · · · · · · · · · · · · · · · · ·	quatic Fauna (B13)	•••	Sparsely Vegetated Concave Surface (B8)		
	arl Deposits (B15) (LRR		Drainage Pa		
	drogen Sulfide Odor (C kidized Rhizospheres ald		Moss Trim L		
\ <u> </u>	esence of Reduced Iron		Crayfish Bur	Water Table (C2)	
· · · / —	ecent Iron Reduction in			isible on Aerial Imagery (C9)	
	in Muck Surface (C7)	1 11104 20110 (20)		Position (D2)	
<u> </u>	ther (Explain in Remarks	s)	Shallow Aqu		
Inundation Visible on Aerial Imagery (B7)	()	,	FAC-Neutral		
Water-Stained Leaves (B9)				noss (D8) (LRR T,U)	
Field Observations:					
Surface Water Present? Yes No					
Water Table Present? Yes No				./	
Saturation Present? Yes No (includes capillary fringe)	Depth (inches): 18	Wetland H	lydrology Preser	nt? Yes No	
Describe Recorded Data (stream gauge, monitoring w	vell, aerial photos, previo	ous inspections), if ava	ilable:		
Remarks: FAC-Neutral Test Results: Positive	FACW and OBL: 6	to FACU and UPL: 0)		
Tromand: 1710 House 1 Socretous. 1 Soluto	THOW and OBE.	to 17100 and of E.			

VEGETATION – Use scientific names of plants.

EGETATION - Use scientific names of plants	S.			Sampling Point: UDP-8
Tree Stratum (Plot sizes: 30 ft radius)	Absolute % Cover	Species?		Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC:3 (A)
				Total Number of Dominant Species Across All Strata:3 (B)
				Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/
				Prevalence Index worksheet:
FOOV of total account 200% of total account				Total % Cover of: Multiply by:
50% of total cover: 20% of total cover: apling Stratum (30 ft radius)	0.0	= Total Co	over	OBL species x 1 =
Pinus elliottii	15.0	ves	FACW	FACW species x 2 =
				FAC species x 3 =
				FACU species x 4 =
				UPL species x 5 =
				Column Totals: (A) (E
				Prevalence Index = B/A =
7.50				Hydrophytic Vegetation Indicators:
50% of total cover: 7.50 20% of total cover: 3.00 hrub Stratum (30 ft radius)	15.0	= Total Co	over	1 - Rapid Test for Hydrophytic Vegetation
				✓ 2 - Dominance Test is >50%
				3 - Prevalence Index is ≤3.0 ¹
				— Problematic Hydrophytic Vegetation ¹ (Explain)
				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
•				<u> </u>
				Definitions of Vegetation Ctrates
				Definitions of Vegetation Strata:
50% of total cover: 20% of total cover: erb Stratum (30 ft radius)	0.0	= Total Co	over	Tree – Woody plants, excluding woody vines,
	35 N	yes	FAC	approximately 20 ft (6 m) or more in height and
Andropogon virginicus Lachnanthes caroliniana	15.0	yes	OBL	3 in. (7.6 cm) or larger in diameter at breast
Anchistea virginica	10.0	no	OBL	height (DBH).
Polygala lutea		no		
Lachnocaulon anceps	5.0		FACW	Sapling – Woody plants, excluding woody vines,
•	5.0	no	FACW	approximately 20 ft (6 m) or more in height and less
Osmunda cinnamomea	5.0	no	FACW	than 3 in. (7.6 cm) DBH.
				Shrub – Woody plants, excluding woody vines,
				approximately 3 to 20 ft (1 to 6 m) in height.
).				Herb – All herbaceous (non-woody) plants, includin
1				herbaceous vines, regardless of size AND woody plants, except woody vines, less than
2	75.0	= Total C	over.	approximately 3 ft (1 m) in height.
/oody Vine Stratum (_30 ft radius)	13.0	- Total Co	JVEI	
				Woody vine – All woody vines, regardless of heig
			-	Hydrophytic
50% of total cover: 20% of total cover:	0.0	= Total Co	over	Vegetation Present? Yes ✓ No
	_ 0.0	- i otai Ot	J V C I	

SOIL Sampling Point: UDP-8

Profile Desc	ription: (Describe	to the depth	needed to docun	nent the indi	cator or confirm	the absence	of indicato	rs.)	
Depth	Matrix		Redo	x Features					
(inches)	Color (moist)	%	Color (moist)	<u>%</u> <u>T</u>	ype ¹ Loc ²	Texture		Remarks	
0-18"	10YR 3/1	50				Sa	masked	sand grain	S
	10YR 7/1	50				Sa	unmask	ed sand gra	nins
	1011(171			-			armaon	oa oana git	
							-		
¹ Type: C=Co	oncentration, D=Dep	pletion, RM=R	Reduced Matrix, MS	S=Masked Sa	nd Grains.	² Lc	cation: PL=	Pore Lining, N	∕I=Matrix.
Hydric Soil I	ndicators:					Indicators	for Probler	natic Hydric	Soils ³ :
Histosol	(A1)		Polyvalue Be	low Surface (S8) (LRR S, T, U	J) 1 cm l	Muck (A9) (L	RR O)	
Histic Ep	ipedon (A2)		Thin Dark Su				Muck (A10) (LRR S)	
Black Hi	stic (A3)		Loamy Muck	/ Mineral (F1)	(LRR O)	Reduc	ced Vertic (F	18) (outside l	/ILRA 150A,B)
Hydroge	n Sulfide (A4)		Loamy Gleye	d Matrix (F2)		Piedm	ont Floodpla	in Soils (F19)	(LRR P, S, T)
	Layers (A5)		Depleted Ma				_	Loamy Soils (F20)
_	Bodies (A6) (LRR F		Redox Dark S				RA 153B)		
	cky Mineral (A7) (L		Depleted Dar		")		arent Materi	, ,	
· 	esence (A8) (LRR I	J)	Redox Depre			Very S	Shallow Dark	Surface (TF1	2)
	ck (A9) (LRR P, T)	(4.44)	Marl (F10) (L		DA 454)	Other	(Explain in F	Remarks)	
	Below Dark Surfac	ce (A11)	Depleted Och			T) 0			
	rk Surface (A12)	MI DA 150A)	_		F12) (LRR O, P,	iliaio		ophytic vegeta	
	airie Redox (A16) (lucky Mineral (S1) (Umbric Surfa Delta Ochric					gy must be pi	
	leyed Matrix (S4)	LIKIK O, 3)					iniess disturt	ed or problen	iauc.
	edox (S5)		Reduced Vertic (F18) (MLRA 150A, 150B) Piedmont Floodplain Soils (F19) (MLRA 149A)						
	Matrix (S6)		Anomalous B				: 153D)		
	face (S7) (LRR P,	S. T. U)	/oaoo 2		505 (1 <u>_</u>) (<u>_</u> 1	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, 1002)		
	ayer (if observed)								
Type:									
Depth (inc	has).					Hydric Soil	Present?	Yes	No ✓
	oil abbreviations: C	N-Clayr La-L		Do Doot: Co	- Cond. Ci-Cilt	Tiyane con	1110301111	103	
Remarks. 3	on appreviations. C	i-Clay, LU-L	.oam, wu-wuck,	re-real, Sa	i– Sariu, Si–Siit				

Project/Site: TIAA Tract	City/County: Charlto	n County	Sampling Date: <u>04/10/2019</u>			
Applicant/Owner: Twin Pines Minerals, LLC			Sampling Point: WDP-8			
Investigator(s): C. Terrell / C. Stanford (TTL) Section, Township, Range: Not Available						
5 · · /			Slope (%): <u>0-1%</u>			
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.52						
Soil Map Unit Name: Leon fine sand, 0-2% slopes			ation: Upland			
			·			
Are climatic / hydrologic conditions on the site typical for this time of ye						
Are Vegetation Yes, Soil Yes, or Hydrology Yes significantly			resent? Yes _ ✓ No			
Are Vegetation No , Soil No , or Hydrology No naturally pr	oblematic? (If ne	eeded, explain any answer	s in Remarks.)			
SUMMARY OF FINDINGS - Attach site map showing	g sampling point l	ocations, transects,	important features, etc.			
Hydrophytic Vegetation Present? Yes ✓ No						
Hydric Soil Present? Yes ✓ No	io uno oumpios	_				
Wetland Hydrology Present? Yes ✓ No	within a Wetlar	nd? Yes <u>V</u>	No			
Remarks:	<u> </u>					
- Vegetation historically impacted by silvicultural activit	ties (planted pine).					
- Soils/Hydrology historically impacted by silvicultural a	. ,	or planted pine).				
		p				
HYDROLOGY						
Wetland Hydrology Indicators:		Secondary Indicat	tors (minimum of two required)			
Primary Indicators (minimum of one is required; check all that apply)		Surface Soil (Cracks (B6)			
Surface Water (A1) Aquatic Fauna (B		Sparsely Veg	Sparsely Vegetated Concave Surface (B8)			
High Water Table (A2) Marl Deposits (B1			Drainage Patterns (B10)			
✓ Saturation (A3) Hydrogen Sulfide		Moss Trim Lii				
	heres along Living Roof	- -	Dry-Season Water Table (C2)			
Sediment Deposits (B2) Presence of Redu			Crayfish Burrows (C8)			
	uction in Tilled Soils (C6)		Saturation Visible on Aerial Imagery (C9)			
Algal Mat or Crust (B4) Thin Muck Surfac			Geomorphic Position (D2)			
Iron Deposits (B5) Other (Explain in	Remarks)	Shallow Aquitard (D3)				
 Inundation Visible on Aerial Imagery (B7)✓ Water-Stained Leaves (B9)		✓ FAC-Neutral Test (D5) Sphagnum moss (D8) (LRR T,U)				
		Spnagnum m	DSS (D8) (LRR 1,U)			
Field Observations: Surface Water Present? Yes ✓ No Depth (inches	.).					
Water Table Present? Yes V No Depth (inches	4 = 0					
	o)	etland Hydrology Presen	t? Yes No			
Saturation Present? Yes <u>▼</u> No Depth (inches (includes capillary fringe)	s): _ · ·	eliand Hydrology Present	.? res No			
Describe Recorded Data (stream gauge, monitoring well, aerial phot	os, previous inspections	s), if available:				
	,, ,	,,				
Remarks: FAC-Neutral Test Results: Positive FACW and Of	BL: 8 to FACU and	UPL: 0				

Sampling Point: \	WDP-8
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	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>)	% Cover	Species?	Status	Number of Dominant Species
1. Pinus elliottii	40.0	yes	<u>FAC</u>	That Are OBL, FACW, or FAC: 8 (A)
2.				Total Number of Deminant
3				Total Number of Dominant Species Across All Strata: 8 (B)
4.				(B)
				Percent of Dominant Species That Are OBL_FACW_or FAC: 100% (A/B)
5				That Are OBL, FACW, or FAC: 100% (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
	40.0	= Total Co	ver	
Sapling Stratum (30 ft radius)				OBL species x 1 =
1				FACW species x 2 =
2				FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5				Column Totals: (A) (B)
				(-)
6				Prevalence Index = B/A =
7.				Hydrophytic Vegetation Indicators:
50% of total cover: 20% of total cover:	0.0	= Total Co	ver	1 - Rapid Test for Hydrophytic Vegetation
Shrub Stratum (30 ft radius)	40.0	1/00	E A C) A /	✓ 2 - Dominance Test is >50%
1. Ilex glabra		yes	FACW	
2. Persea palustris	<u> 10.0</u>	yes	<u>FACW</u>	3 - Prevalence Index is ≤3.0 ¹
3. Ilex myrtifolia	10.0	yes	<u>FACW</u>	Problematic Hydrophytic Vegetation ¹ (Explain)
4				¹ Indicators of hydric soil and wetland hydrology must
5.				be present, unless disturbed or problematic.
6				
				Definitions of Vegetation Strata:
7	20.0			Definitions of Vegetation Strata.
Herb Stratum (30 ft radius)	30.0	= Total Co	ver	Tree – Woody plants, excluding woody vines,
1. Andropogon virginicus	25.0	yes	FAC	approximately 20 ft (6 m) or more in height and
				3 in. (7.6 cm) or larger in diameter at breast
2. Rhynchospora fascicularis	<u> 15.0</u>	yes	FACW_	height (DBH).
3. Lycopodiella appressa	15.0	yes	<u>OBL</u>	
4. Anchistea virginica	15.0	yes	<u>OBL</u>	Sapling – Woody plants, excluding woody vines,
5. Lachnanthes caroliniana	10.0	no	OBL	approximately 20 ft (6 m) or more in height and less
6. Rhexia alifanus	5.0	no	FACW	than 3 in. (7.6 cm) DBH.
7.				, ,
				Shrub – Woody plants, excluding woody vines,
8				approximately 3 to 20 ft (1 to 6 m) in height.
9				
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
50% of total cover: 42.50 20% of total cover: 17.00	85.0	= Total Co	ver	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				
1				Woody vine – All woody vines, regardless of height.
2				
3.				
4				Hydrophytic
5				Vegetation
50% of total cover: 20% of total cover:	0.0	= Total Co	ver	Present? Yes V No
Remarks: (If observed, list morphological adaptations be	elow). *Dlanta	not ideadif	ied to spec	ies are not used in dominance calculations
(osos. ros, morphological adaptations be	/· FiaillS	HOLIUCHUII	ieu io spec	des are not used in dominance calculations.

SOIL Sampling Point: WDP-8

Profile Desc	cription: (Describe	e to the depth	needed to document the indicator or	confirm the absenc	e of indicators.)
Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	Loc ² Texture	Remarks
0-18"	10YR 2/1	 70	Color (moist) /6 Type	Sa	masked sand grains
	10YR 5/1	30		Sa	stripped areas
	10110 3/1			<u> </u>	stripped areas
					<u> </u>
¹ Type: C=Ce	oncentration, D=De	pletion, RM=R	educed Matrix, MS=Masked Sand Grain	s. ² L	ocation: PL=Pore Lining, M=Matrix.
Hydric Soil		•			s for Problematic Hydric Soils ³ :
Histosol	(A1)		Polyvalue Below Surface (S8) (LRF	R S, T, U) 1 cm	Muck (A9) (LRR O)
	oipedon (A2)		Thin Dark Surface (S9) (LRR S, T,		Muck (A10) (LRR S)
	stic (A3)		Loamy Mucky Mineral (F1) (LRR O		uced Vertic (F18) (outside MLRA 150A,B)
	en Sulfide (A4) d Layers (A5)		Loamy Gleyed Matrix (F2)Depleted Matrix (F3)		mont Floodplain Soils (F19) (LRR P, S, T) nalous Bright Loamy Soils (F20)
	Bodies (A6) (LRR	P. T. U)	Redox Dark Surface (F6)		LRA 153B)
-	ıcky Mineral (A7) (I		Depleted Dark Surface (F7)		Parent Material (TF2)
	esence (A8) (LRR		Redox Depressions (F8)	Very	Shallow Dark Surface (TF12)
· 	uck (A9) (LRR P, T)		Marl (F10) (LRR U)		r (Explain in Remarks)
	d Below Dark Surfa ark Surface (A12)	ice (A11)	Depleted Ochric (F11) (MLRA 151)Iron-Manganese Masses (F12) (LF	3D O D T)	
· 	rairie Redox (A16)	(MLRA 150A)			cators of hydrophytic vegetation and etland hydrology must be present,
	Mucky Mineral (S1)		Delta Ochric (F17) (MLRA 151)		unless disturbed or problematic.
	Bleyed Matrix (S4)		Reduced Vertic (F18) (MLRA 150A	, 150B)	·
	Redox (S5)		Piedmont Floodplain Soils (F19) (M		
✓ Stripped	l Matrix (S6) rface (S7) (LRR P,	C T II)	Anomalous Bright Loamy Soils (F20	0) (MLRA 149A, 153	C, 153D)
	Layer (if observed				
Type:		.,-			
Depth (in	ches):			Hydric So	il Present? Yes No
Remarks: *S	oil abbreviations: (CI=Clay; Lo=L	oam; Mi=Mineral; Mu=Muck; Pe- Peat;	Sa= Sand; Si=Silt	<u> </u>

Project/Site: TIAA Tract		City/County: Charlton	County	Sampling Date: <u>04/10/2019</u>			
Applicant/Owner: Twin Pines Minera	als, LLC		State: GA	Sampling Point: WDP-9			
Investigator(s): C. Terrell / C. Stanf		Section, Township, Ran-		· · · · · · · · · · · · · · · · · · ·			
Landform (hillslope, terrace, etc.): Depre				Slope (%): 0-1%			
Subregion (LRR or MLRA): LRR T / MLF				Datum: NAD83			
Soil Map Unit Name: Surrency mucky fi		ed, 0-1% slopes	NWI classifi				
Are climatic / hydrologic conditions on the		_					
Are Vegetation No , Soil No , or H				present? Yes <u>√</u> No			
Are Vegetation No , Soil No , or H			eded, explain any answe				
SUMMARY OF FINDINGS – At							
			,				
Hydrio Soil Propert?	Yes ✓ No Yes ✓ No						
Hydric Soil Present? Wetland Hydrology Present?	Yes _ ✓ No Yes _ ✓ No	i willin a vvenanc	d? Yes <u>√</u>	No			
Remarks:	103 140						
HYDROLOGY							
Wetland Hydrology Indicators:			Secondary Indic	ators (minimum of two required)			
Primary Indicators (minimum of one is r	required; check all that ap	(ylgo		I Cracks (B6)			
Surface Water (A1)	Aquatic Faun			Sparsely Vegetated Concave Surface (B8)			
✓ High Water Table (A2)	Marl Deposits	s (B15) (LRR U)		Drainage Patterns (B10)			
✓ Saturation (A3)		lfide Odor (C1)		Moss Trim Lines (B16)			
Water Marks (B1)		zospheres along Living Roots	_ ′				
Sediment Deposits (B2)		Reduced Iron (C4)		Crayfish Burrows (C8)			
Drift Deposits (B3)	Recent Iron R	Reduction in Tilled Soils (C6)	Saturation Visible on Aerial Imagery (C9)				
Algal Mat or Crust (B4) Iron Deposits (B5)	Other (Explai		Geomorphic Position (D2) Shallow Aquitard (D3)				
Inundation Visible on Aerial Image		in in resinance)	FAC-Neutral Test (D5)				
Water-Stained Leaves (B9)				moss (D8) (LRR T,U)			
Field Observations:							
Surface Water Present? Yes	No Depth (inc	ches):					
Water Table Present? Yes		ches): 8"		./			
Saturation Present? Yes	No Depth (inc	ches): U" Wet	land Hydrology Prese	nt? Yes No			
Describe Recorded Data (stream gauge	e, monitoring well, aerial p	photos, previous inspections),	, if available:				
Remarks: FAC-Neutral Test Results: Po	ositive FACW and	d OBL: 6 to FACU and U	JPL: 0				

Sampling	D=:=4:	MDP_0
Sampling	Point.	VVDP-9

To Company (District 20 th radius)	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot sizes: 30 ft radius)		Species?		Number of Dominant Species That Are OBL_FACW_or_FAC: 9 (A)
1. Taxodium ascendens	30.0	yes	<u>FAC</u>	That Are OBL, FACW, or FAC: 9 (A)
2				Total Number of Dominant
3				Species Across All Strata: 9 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: 100% (A/B)
6				Prevalence Index worksheet:
7				
50% of total cover: 15.00 20% of total cover: 6.00 Sapling Stratum (30 ft radius)	30.0	= Total Co	ver	
_{1.} Magnolia virginiana	10.0	yes	FACW	FACW species x 2 =
2. Taxodium ascendens	10.0	yes	OBL	FAC species x 3 =
3. Acer rubrum	10.0	yes	FAC	FACU species x 4 =
4				UPL species x 5 =
5.				Column Totals: (A) (B)
				(1)
6			-	Prevalence Index = B/A =
7	20.0	T-1-10-		Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)	30.0	= Total Co	ver	1 - Rapid Test for Hydrophytic Vegetation
. Ilay alahra	40.0	yes	FACW	√ 2 - Dominance Test is >50%
1. Ilex giabra 2. Ilex coriacea			FACW	3 - Prevalence Index is ≤3.0 ¹
			IAOW	Problematic Hydrophytic Vegetation ¹ (Explain)
3				¹ Indicators of hydric soil and wetland hydrology must
4				be present, unless disturbed or problematic.
5				
6				Definitions of Vegetation Strate.
7.				Definitions of Vegetation Strata:
50% of total cover: 15.00 20% of total cover: 6.00	70.0	= Total Co	ver	Troo Westerlands such discourse designs
Herb Stratum (30 ft radius)	10.0	VOC	ODI	Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and
1. Anchistea virginica	10.0	yes	OBL	3 in. (7.6 cm) or larger in diameter at breast
2. Rhynchospora fascicularis	<u>5.0</u>	yes	FACW	height (DBH).
3. Andropogon virginicus	5.0	yes	<u>FAC</u>	
4				Sapling – Woody plants, excluding woody vines,
5				approximately 20 ft (6 m) or more in height and less
6				than 3 in. (7.6 cm) DBH.
7				Ohm b was a second of
8				Shrub – Woody plants, excluding woody vines,
9				approximately 3 to 20 ft (1 to 6 m) in height.
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12.				woody plants, except woody vines, less than
50% of total cover: 10.00 20% of total cover: 4.00	20.0	= Total Co	ver	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				
1				Woody vine – All woody vines, regardless of height.
2				
3.				
4.				
5				Hydrophytic
50% of total cover: 20% of total cover:		= Total Co	over	Vegetation Present? Yes No
50% of total cover: 20% of total cover: Remarks: (If observed, list morphological adaptations be				

Majority of the historic canopy strata killed during forest fire in the last 10 years (West Mims Fire).

SOIL Sampling Point: WDP-9

	ription: (Describe	e to the depth	needed to document the indicator or	confirm the absence	e of indicators.)
Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist) % Type ¹	Loc ² Texture	Remarks
0-18"	10YR 3/1	80	Color (moist) // Type	Sa	masked sand grains
	10YR 5/1	20		Sa	stripped areas
	1011(3/1				Stripped dieds
	-				
¹ Type: C=C	oncentration, D=De	pletion, RM=R	educed Matrix, MS=Masked Sand Grain	s. ² L	ocation: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:			Indicator	s for Problematic Hydric Soils ³ :
Histosol	(A1)		Polyvalue Below Surface (S8) (LRF		Muck (A9) (LRR O)
	pipedon (A2)		Thin Dark Surface (S9) (LRR S, T,		Muck (A10) (LRR S)
	stic (A3)		Loamy Mucky Mineral (F1) (LRR O		ced Vertic (F18) (outside MLRA 150A,B)
	n Sulfide (A4) d Layers (A5)		Loamy Gleyed Matrix (F2)Depleted Matrix (F3)		nont Floodplain Soils (F19) (LRR P, S, T) nalous Bright Loamy Soils (F20)
	Bodies (A6) (LRR	P. T. U)	Redox Dark Surface (F6)		-RA 153B)
_	ıcky Mineral (A7) (I		Depleted Dark Surface (F7)		Parent Material (TF2)
Muck Pr	esence (A8) (LRR	U)	Redox Depressions (F8)	Very	Shallow Dark Surface (TF12)
	ick (A9) (LRR P, T)		Marl (F10) (LRR U)		r (Explain in Remarks)
	d Below Dark Surfa	ice (A11)	Depleted Ochric (F11) (MLRA 151)	3D O D T)	
· 	ark Surface (A12) rairie Redox (A16)	(MI DA 150A)	Iron-Manganese Masses (F12) (LFUmbric Surface (F13) (LRR P, T, U		cators of hydrophytic vegetation and
	fucky Mineral (S1)		Delta Ochric (F17) (MLRA 151)	. , , , , , , , , , , , , , , , , , , ,	etland hydrology must be present, unless disturbed or problematic.
	Bleyed Matrix (S4)	, -,	Reduced Vertic (F18) (MLRA 150A		arried distarbed of problematic.
	tedox (S5)		Piedmont Floodplain Soils (F19) (M	ILRA 149A)	
✓ Stripped	, ,		Anomalous Bright Loamy Soils (F2	0) (MLRA 149A, 153 0	C, 153D)
	rface (S7) (LRR P,				
	_ayer (if observed	ı):			
Type:	-t \		_	Harabata Ont	il Present? Yes ✓ No
Depth (in					il Present? Yes No
Remarks. 3	oli appreviations. V	oi-Ciay, LO-Li	oam; Mi=Mineral; Mu=Muck; Pe- Peat;	Sa- Sariu, Si-Siil	

Project/Site: TIAA Tract	City/County: Charlt	ton County	Sampling Date: 04/10/2019			
Applicant/Owner: Twin Pines Minerals, LLC	, ,		Sampling Point: UDP-10			
	Range: Not Available					
5 · · /			Slope (%): 0-2%			
Subregion (LRR or MLRA): LRR T / MLRA 153A Lat: 30.53						
Soil Map Unit Name: Leon fine sand, 0-2% slopes			cation: _Upland			
Are climatic / hydrologic conditions on the site typical for this time of ye	oor? Voo 🗸 No					
Are Vegetation Yes , Soil Yes , or Hydrology Yes significantly						
Are Vegetation No , Soil No , or Hydrology No naturally pr			present? Yes No			
		needed, explain any answe	,			
SUMMARY OF FINDINGS – Attach site map showing	g sampling point	locations, transects	s, important features, etc.			
Hydrophytic Vegetation Present? Yes _ ✓ No	le the Compl	ad Avaa				
Hydric Soil Present? Yes No✓	Is the Sample within a Wetl		No <u>√</u>			
Hydrophytic Vegetation Present? Yes ✓ No Hydric Soil Present? Yes No ✓ Wetland Hydrology Present? Yes No ✓	within a wet	ialiu: 165	NO			
Remarks:	·					
- Vegetation historically impacted by silvicultural activit	ties (planted pine)).				
- Soils/Hydrology historically impacted by silvicultural a	activities (bedding	for planted pine).				
HYDROLOGY						
Wetland Hydrology Indicators:		Secondary Indica	ators (minimum of two required)			
Primary Indicators (minimum of one is required; check all that apply)		Surface Soil				
Surface Water (A1) Aquatic Fauna (B			Sparsely Vegetated Concave Surface (B8)			
High Water Table (A2) Marl Deposits (B1)			Drainage Patterns (B10)			
Saturation (A3) Hydrogen Sulfide		Moss Trim L				
	heres along Living Ro		Water Table (C2)			
Sediment Deposits (B2) Presence of Redu	uced Iron (C4)	Crayfish Bur	Crayfish Burrows (C8)			
Drift Deposits (B3) Recent Iron Redu	uction in Tilled Soils (C	C6) Saturation V	Saturation Visible on Aerial Imagery (C9)			
Algal Mat or Crust (B4) Thin Muck Surfac	ce (C7)	Geomorphic	Geomorphic Position (D2)			
Iron Deposits (B5) Other (Explain in	Remarks)		Shallow Aquitard (D3)			
Inundation Visible on Aerial Imagery (B7)		✓ FAC-Neutral	✓ FAC-Neutral Test (D5)			
Water-Stained Leaves (B9)		Sphagnum r	moss (D8) (LRR T,U)			
Field Observations:						
Surface Water Present? Yes No Depth (inches	4.011					
Water Table Present? Yes No Depth (inches	s)					
Saturation Present? Yes ✓ No Depth (inches includes capillary fringe)	s): V	Vetland Hydrology Preser	nt? Yes No*			
Describe Recorded Data (stream gauge, monitoring well, aerial phot	os, previous inspectio	ns), if available:				
Remarks: FAC-Neutral Test Results: Positive FACW and Of	BL: 7 to FACU ar	nd UPL: 0				

1. Pinus elliottii 40.0 yes FACW

50% of total cover: 20.00 20% of total cover: 8.00 40.0 = Total Cover

2. Acer rubrum 5.0 no FAC 3. Quercus nigra 5.0 no FAC

50% of total cover: $\underline{^{15.00}}$ 20% of total cover: $\underline{^{6.00}}$ = Total Cover

2.Vaccineum elliottii10.0yesFACW 3. Lyonia lucida 10.0 yes FACW

50% of total cover: 22.50 20% of total cover: 45.0 = Total Cover

1. Andropogon virginicus 35.0 yes FAC 2. Lachnocaulon anceps 10.0 no FACW 3. Rhynchospora fascicularis 10.0 no FACW

Tree Stratum (Plot sizes: 30 ft radius)

Sapling Stratum (30 ft radius)

Shrub Stratum (30 ft radius)

Herb Stratum (30 ft radius)

1. Ilex glabra

1. Pinus elliottii

	UD	D 40			
Sa	ampling Point: <u>UD</u>	F-10			
Dominance Test workshee Number of Dominant Specie That Are OBL, FACW, or FA	s c	(A)			
Total Number of Dominant Species Across All Strata:	6	(B)			
Percent of Dominant Species That Are OBL, FACW, or FA		(A/B)			
Prevalence Index workshe	et:				
Total % Cover of:	Multiply by:				
	x 1 =				
FACW species					
FAC species	_				
	_				
	x 5 =				
-					
Column Totals:	_ (A)	(D)			
Prevalence Index = B/	A =				
Hydrophytic Vegetation Inc	dicators:	_			
1 - Rapid Test for Hydro					
✓ 2 - Dominance Test is >	50%				
3 - Prevalence Index is					
Problematic Hydrophytic		olain)			
¹ Indicators of hydric soil and be present, unless disturbed	wetland hydrology				
Definitions of Vegetation Strata:					
Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).					
Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.					
Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.					
Herb – All herbaceous (not herbaceous vines, regardles woody plants, except woody approximately 3 ft (1 m) in h	ss of size AND vines, less than	cluding			
Woody vine – All woody	vines, regardless of	f height.			

6			_ than 3 in. (7.6 cm) DBH.
7	55.0	= Total Cover	Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size AND woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine – All woody vines, regardless of height.
3	0.0	= Total Cover	Hydrophytic Vegetation Present? Yes No ecies are not used in dominance calculations.
JS Army Corps of Engineers			Atlantic and Gulf Coastal Plain Region – Version 2.0

Absolute Dominant Indicator

% Cover Species? Status

20.0 yes FACW

<u>25.0</u> <u>yes</u> <u>FACW</u>

SOIL Sampling Point: UDP-10

Profile Desc	ription: (Describe	to the dept	h needed to docum	nent the i	ndicator o	r confirm	the absenc	e of indicato	rs.)	
Depth	Matrix			x Features	- 1	. 2	_			
(inches)	Color (moist)		Color (moist)	%	Type'	Loc ²	Texture		Remark	
0-18"	10YR 3/1	90				<u>.</u>	Sa		sand gra	-
	10YR 5/1	10					Sa	unmask	ed sand g	grains
		_								
		_								
		pletion, RM=	Reduced Matrix, MS	S=Masked	Sand Gra	ins.		ocation: PL=		
Hydric Soil			Dalia salua Da	Ofa	(CO) (LI	DD C T I			•	C Solls :
Histosol	(A1) Dipedon (A2)		Polyvalue Be Thin Dark Su					Muck (A9) (L Muck (A10)	•	
Black Hi			Loamy Muck							e MLRA 150A,B)
	n Sulfide (A4)		Loamy Gleye			-,		•	, .	9) (LRR P, S, T)
	d Layers (A5)		Depleted Ma					nalous Bright		
Organic	Bodies (A6) (LRR I	P, T, U)	Redox Dark	Surface (F	6)		(ML	_RA 153B)		
	ıcky Mineral (A7) (L		Depleted Dar					Parent Mater		
· 	esence (A8) (LRR	•	Redox Depre		8)		•	Shallow Dark	,	F12)
	ick (A9) (LRR P, T) d Below Dark Surfa		Marl (F10) (L Depleted Och		/MI DA 15	1)	Othe	r (Explain in I	Remarks)	
	ark Surface (A12)	CC (ATT)	Iron-Mangan				T) 31.2.21			
· 	, ,	MLRA 150A) Umbric Surfa				iiidi	cators of hyd etland hydrol		
	lucky Mineral (S1)		Delta Ochric			·		unless distur		
	Gleyed Matrix (S4)		Reduced Ver							
	Redox (S5)		Piedmont Flo							
	Matrix (S6)	O T II)	Anomalous B	right Loar	ny Soils (F	(20) (MLR	A 149A, 153	C, 153D)		
	rface (S7) (LRR P, Layer (if observed)						1			
Type:)·								
Depth (inc							Hydric So	il Present?	Yes	No ✓
		Cl=Clav: Lo=	Loam; Mu=Muck;	Pe- Peat	Sa= San	d. Si=Silt	Tiyano oo		100	
rtemante. e	on abbreviations.	or olay, Lo	Louin, Ma Maok,	r o r cat,	ou our	a, Oi Oiit				

Project/Site: TIAA Tract		_ City/County: Cha	rlton County	Sampling Date: 04/10/2019			
Applicant/Owner: Twin Pines Mine	rals, LLC		State: GA	Sampling Point: WDP-10			
Investigator(s): C. Terrell / C. Stan	, Range: Not Available						
Landform (hillslope, terrace, etc.): Depr				ge Slope (%): 0-1%			
Subregion (LRR or MLRA): LRR T / ML							
Soil Map Unit Name: Leon fine sand, C				sification: PFO6C			
Are climatic / hydrologic conditions on the		vear? Ves 🗸 N					
Are Vegetation Yes, Soil Yes, or				s" present? Yes✓_ No			
Are Vegetation No , Soil No , or			If needed, explain any ans				
SUMMARY OF FINDINGS – A							
	· / / · · ·		<u> </u>				
Hydrophytic Vegetation Present? Hydric Soil Present?	Yes No Yes No						
Wetland Hydrology Present?	Yes	within a vv	etland? Yes	✓ No			
Remarks:		_					
- Vegetation historically impact	ted by silvicultural activ	vities (planted pin	e)				
- Soils/Hydrology historically in	•		•				
Conditionally in	inpactou by onviountaria	donvinoo (boddii	ig for plantoa pino).				
HYDROLOGY							
Wetland Hydrology Indicators:			Secondary Ind	licators (minimum of two required)			
Primary Indicators (minimum of one is	required; check all that apply	/)	Surface S	oil Cracks (B6)			
Surface Water (A1)	Aquatic Fauna (Sparsely \	Vegetated Concave Surface (B8)			
High Water Table (A2)	Marl Deposits (E			Drainage Patterns (B10)			
✓ Saturation (A3)	Hydrogen Sulfid			n Lines (B16)			
Water Marks (B1)		spheres along Living I	- -				
Sediment Deposits (B2)	Presence of Rec	duction in Tilled Soils		Crayfish Burrows (C8)			
Drift Deposits (B3) Algal Mat or Crust (B4)	Thin Muck Surfa			Saturation Visible on Aerial Imagery (C9)Geomorphic Position (D2)			
Iron Deposits (B5)	Other (Explain i			quitard (D3)			
Inundation Visible on Aerial Image			✓ FAC-Neut				
Water-Stained Leaves (B9)				m moss (D8) (LRR T,U)			
Field Observations:							
	No Depth (inche						
Water Table Present? Yes	No Depth (inche	es): 12"					
Saturation Present? Yes	✓ No Depth (inche	es): 6"	Wetland Hydrology Pres	sent? Yes No			
(includes capillary fringe)							
Describe Recorded Data (stream gauge	ge, monitoring well, aerial pho	otos, previous inspect	ions), if available:				
Remarks: FAC-Neutral Test Results: F	Positive FACW and C	DBL: 11 to FACU	and UPL: 0				

Complina	Daint	WDP-10
Sampling	Point.	VVDE-10

00.0	Absolute	Dominant		Dominance Test worksheet:
<u>Tree Stratum</u> (Plot sizes: <u>30 ft radius</u>) 1				Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant Species Across All Strata: 7 (B)
4				Percent of Dominant Species That Are OBL, FACW, or FAC:100% (A/B)
6				Prevalence Index worksheet:
7				
50% of total cover: 20% of total cover: Sapling Stratum (30 ft radius)	0.0	= Total Co		Total % Cover of:
_{1.} Magnolia virginiana	10.0	yes	FACW	FACW species x 2 =
2. Persea borbonia	5.0	yes	FACW	FAC species x 3 =
3. Acer rubrum	5.0	yes	FAC	FACU species x 4 =
4				UPL species x 5 =
5.				Column Totals: (A) (B)
6.				, , ,, , ,
7.				Prevalence Index = B/A =
50% of total cover: 10.00 20% of total cover: 4.00	20.0	T-tol Co		Hydrophytic Vegetation Indicators:
Shrub Stratum (30 ft radius)	20.0	= Total Co	over	1 - Rapid Test for Hydrophytic Vegetation
1. Hypericum brachyphyllum	25.0	yes	FACW	✓ 2 - Dominance Test is >50%
2 Vaccinium elliottii	10.0	yes	FACW	3 - Prevalence Index is ≤3.0 ¹
		yes	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
			UDL	¹Indicators of hydric soil and wetland hydrology must
4				be present, unless disturbed or problematic.
5				,
6				
7				Definitions of Vegetation Strata:
50% of total cover: 22.50 20% of total cover: 9.00	45.0	= Total Co	over	
Herb Stratum (30 ft radius)				Tree – Woody plants, excluding woody vines,
1. Rhynchospora fascicularis	50.0	yes	FACW	approximately 20 ft (6 m) or more in height and
2. Ludwigia alternifolia	10.0	no	OBL	3 in. (7.6 cm) or larger in diameter at breast
3. Scirpus cyperinus	10.0	no	OBL	height (DBH).
4. Scleria triglomerata	10.0	no	FACW	Sanling Woody plants evaluding woody vines
5. Diodia virginiana	10.0	no	FACW	Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less
6. Xyris ambigua	5.0	no	OBL	than 3 in. (7.6 cm) DBH.
_				
7				Shrub – Woody plants, excluding woody vines,
8				approximately 3 to 20 ft (1 to 6 m) in height.
9				
10				Herb – All herbaceous (non-woody) plants, including
11				herbaceous vines, regardless of size AND
12				woody plants, except woody vines, less than
50% of total cover: 47.50 20% of total cover: 19.00	95.0	= Total Co	over	approximately 3 ft (1 m) in height.
Woody Vine Stratum (30 ft radius)				Woody vino. All was the interpretations of height
1				Woody vine – All woody vines, regardless of height.
2				
3				
4				
-				Hydrophytic Vegetation
50% of total cover: 20% of total cover:	0.0	= Total Co		Present? Yes No
Remarks: (If observed, list morphological adaptations be	low). *Plants	not idendif	fied to spec	ies are not used in dominance calculations.

Majority of the historic canopy strata killed during forest fire in the last 10 years (West Mims Fire).

SOIL Sampling Point: WDP-10

Profile Desc	ription: (Describe	to the depti	n needed to docum	ient the indicato	r or confirm	the absenc	e of indicators.)
Depth	Matrix			r Features			
(inches)	Color (moist)	%	Color (moist)	%Type ¹	Loc ²	Texture	Remarks
0-18"	10YR 2/1	70				Sa	masked sand grains
i	10YR 5/1	30				Sa	stripped areas
		<u> </u>					
							-
							·
	-						
¹ Type: C=Co	ncentration D=Der	letion RM=I	Reduced Matrix, MS	=Masked Sand G		2 _I	ocation: PL=Pore Lining, M=Matrix.
Hydric Soil		70tion, 1tivi—	rtoddod Matrix, Me		Jianio.		rs for Problematic Hydric Soils ³ :
Histosol			Polyvalue Bel	ow Surface (S8)	(LRR S. T. U		Muck (A9) (LRR O)
	pipedon (A2)			rface (S9) (LRR S			Muck (A10) (LRR S)
Black Hi				Mineral (F1) (LR			uced Vertic (F18) (outside MLRA 150A,B)
Hydroge	n Sulfide (A4)		Loamy Gleye	d Matrix (F2)		Piedr	mont Floodplain Soils (F19) (LRR P, S, T)
	Layers (A5)		Depleted Mat	rix (F3)		Anon	nalous Bright Loamy Soils (F20)
	Bodies (A6) (LRR P		Redox Dark S	, ,			LRA 153B)
	cky Mineral (A7) (LI			k Surface (F7)			Parent Material (TF2)
	esence (A8) (LRR U))	Redox Depre			-	Shallow Dark Surface (TF12)
	ck (A9) (LRR P, T) d Below Dark Surfac	e (A11)		ric (F11) (MLRA	151)	Othe	r (Explain in Remarks)
	ark Surface (A12)	0 (/ (/ / /		ese Masses (F12		T) 3 _{Indi}	cators of hydrophytic vegetation and
		MLRA 150A) Umbric Surfac			illui	etland hydrology must be present,
	lucky Mineral (S1) (I			F17) (MLRA 151			unless disturbed or problematic.
	leyed Matrix (S4)			tic (F18) (MLRA 1			·
	edox (S5)			odplain Soils (F19			
✓ Stripped	, ,		Anomalous B	right Loamy Soils	(F20) (MLR	A 149A, 153	C, 153D)
	face (S7) (LRR P, S						
	ayer (if observed)	•					
Type:						l ₋	J
Depth (inc						_	il Present? Yes No
Remarks: *S	oil abbreviations: C	l=Clay; Lo=l	Loam; Mi=Mineral;	Mu=Muck; Pe-F	Peat; Sa= Sa	and; Si=Silt	

APPENDIX D

USACE Savannah District Request for Corps of Engineers Jurisdictional Determination (JD) and/or Delineation Review Form



SAS APPENDIX 1: Request for Corps of Engineers Jurisdictional Determination (JD) and/or Delineation Review

I.	Reason for request: (check as many as applicable)
	I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all aquatic resources.
	I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all jurisdictional aquatic resources under Corps authority.
✓	I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.
	I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permittir process.
	I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is include on the district Section 10 list and/or is subject to the ebb and flow of the tide.
	A Corps JD is required in order to obtain my local/state authorization.
	I intend to contest jurisdiction over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.
	I believe that the site may be comprised entirely of dry land.
Г	Other:
	I am requesting that the U.S. Army Corps of Engineers, Savannah District, provide me with the following: Delineation Review of Aquatic Resources - Concurrence with an aquatic resource delineation is a written notification from the Corps concurring, not concurring, or commenting on the aquatic resource boundaries, or limits, delineated on a property.
	Preliminary Jurisdictional Determination - (PJD). A PJD is defined in Corps regulations at 33 CFR 331.2, as "written indications that there may be waters of the United States on a parcel". When the Corps provides a PJD, the Corps is making no legally binding determination of any type regarding whether jurisdiction exists over the particular aquatic resource in question.
	Approved Jurisdictional Determination - (AJD) An AJD is defined in Corps regulations at 33 CFR 331.2. A definitive, official determination that there are, or that there are not, jurisdictional aquatic resources on a parcel.
	I am unclear as to what I would like to request and require additional information to inform my decision.

SECTION 1

Parcel Number of Property:

Lat. 30.526268

Long. - -82.143220

(in decimal degrees)

Parcel Address:

Parcel City: Saint George

Parcel County; Charlton

Zip:

Size of Review Area: 1143

Acre(s) Variable

Linear feet

SECTION 2

LANDOWNER NAME

First: Steven

Last: Ingle

Company: Twin Pines Minerals, LLC

Email Address: single@greenfuelsenergy.com

Address: 2100 Southbridge Parkway, Ste. 540

City: Birmingham

State: AL

Zip: 35209

Phone: 205-545-8759

AUTHORIZED AGENT'S NAME

First: Cindy

Last: House-Pearson

Company: TTL, Inc.

Email Address: chpearson@ttlusa.com

Address: 3516 Greensboro Avenue

City: Tuscaloosa

State: AL

Zip: 35401

Phone: 251-327-6153

PROPERTY ACCESS PERMISSION, AKNOWLEDGEMENT OF 18 U.S.C. SECTION 10001 AND STATEMENT OF AGENT AUTHORIZATION

Initial ONLY One:

By signing below, I certify that I am the owner of record of the property referenced in III, Section 1 above, and I hereby authorize representatives of the U.S. Army Corps of Engineers, Savannah District, to enter the property for purposes of conducting on-site inspections, and issuing an aquatic resource delineation concurrence and/or a jurisdictional determination. My signature shall also be an affirmation that I possess the requisite property rights to request a delineation review and/or a jurisdictional determination on the property referenced in III - Section 1. Further, I authorize the agent in III - Section 2, to act on my behalf in the processing of this request and to furnish supplemental information in support of this request.

N/A By signing below, I certify that I am acting as the duly authorized agent of the owner of record of the property referenced in III, Section I above, and have been given the authority to: 1) request a delineation review and/or a jurisdictional determination (JD) on the property referenced in III - Section I, and 2) authorize representatives of the U.S. Army Corps of Engineers, Savannah District, to enter the property for purposes of conducting on-site inspections, and issuing an aquatic resource delineation concurrence and/or a jurisdictional determination. I understand that I may be required to provide documentary evidence of my authority to request a delineation review and/or JD, and/or to grant Corps of Engineers personnel access to the property.

Please Print Name Legibly: Steven R. Ingle

Signature

Date: 07/03/2019

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103.

33 USC 1413, Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.

Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.

Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made

US Army Corps of Engineers Savannah District, Regulatory Division Global Positioning Systems (GPS) Datasheet Delineation of Wetlands, Streams and Other Waters Within the State of Georgia

USACE File Number SAS-2018-00554 Date	of Delineation Mar 23-Apr 10, 2019
Name of Delineator Present Chris Terrell & C	hris Stanford
Make and Model of GPS Device Used (must be capable of Trimble Geo7x GPS (model 8816)	
Geographic Coordinate System Used_US State Plane	GA East - NAD 1983 (Conus)
Name of Continually Operated Reference Station Used for CORS, Jacksonville, 1 (ZJX1), Flo	
Date Post-processing Performed 6-6-2019	
Percent Dilution of Position (PDOP) (6 or less is required	NA (use Trimble Smart Settings)
Name and Coordinates of Known Property Corner and/or	Monument
GPS Reading of Known Property Corner and/or Monume	ent
Frequency of Waypoints Taken During Survey_as need	ded per field observations
Note: GPS data must be provided, if requested. If GPS d	

determined unacceptable by the Savannah District, a survey sealed by a surveyor licensed in

Georgia will be required.

November 1, 2019

2743-B Gunter Park Drive West Montgomery, AL 36109 334.244.0766 www.TTLUSA.com

Transmitted Via: Email (Holly.A.Ross@usace.army.mil)

Ms. Holly Ross, Sr. Project Manager U.S. Army Corps of Engineers Savannah District - Regulatory Division 1104 N. Westover Blvd. Unit 9 Albany, Georgia 31707

Subject: Waters of the U.S. Delineation Field Verification – Revisions Submittal

Approximately 1,143-Acre TIAA Tract

Twin Pines, LLC

Saint George, Charlton County, Georgia USACE Project No.: SAS-2018-00554 TTL Project No.: 000180200804.00

Dear Ms. Ross.

In response to the field verification conducted by the United States Army Corps of Engineers (USACE) and TTL on October 21-25, 2019, TTL provides the following summary of revisions:

- a. Attachment A provides the revised Waters of the U.S. Delineation Map per the USACE field verification.
- b. Wetland A (WA) acreage was not changed.
- c. All 10 ditches (D1 through D10) were removed from the delineation. Any ditches that were located within wetlands were included in the wetland acreage for that wetland.
- d. The acreage of Wetland B (WB) was revised from 2.051 acres to 1.436 acres.
- e. The acreage of Wetland C (WC) was revised from 659.407 acres to 659.512 acres.
- f. Overall, the total wetland acreage was revised from 662.712 acres to 662.202 acres.

A separate letter for the other delineated property that was field verified (Adirondack) at the same time has been prepared and sent separately.

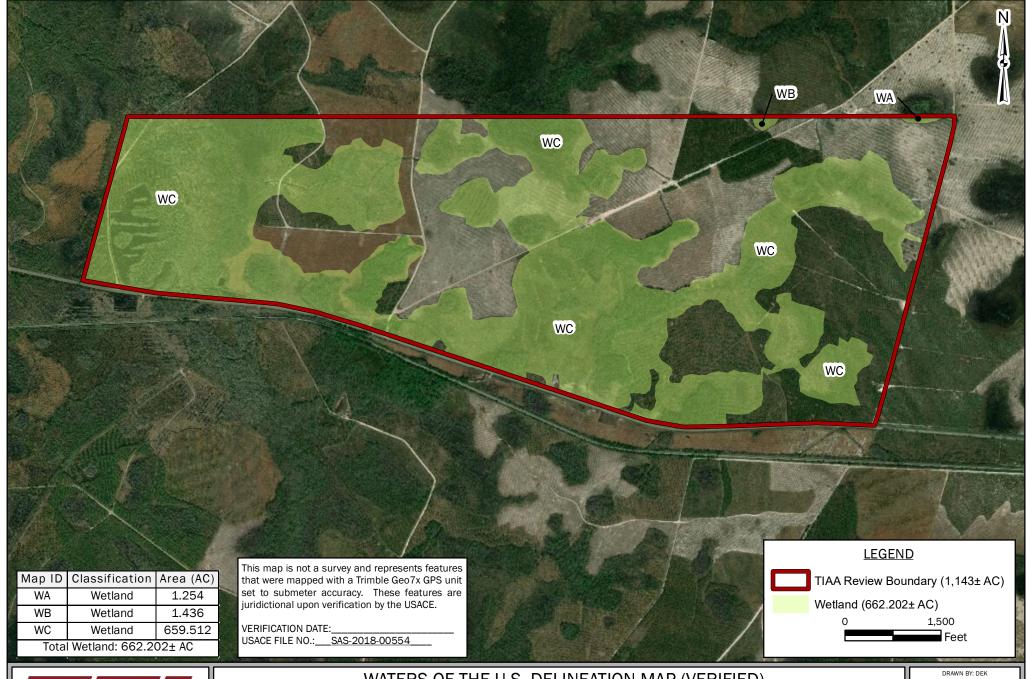
Please let TTL representatives know if additional information or revisions are needed for the project.

Sincerely,

TTL, Inc.

Christopher Terrell Project Professional Cindy House-Pearson Senior Natural Resources Client Manager

ATTACHMENT A REVISED WATERS OF THE US DELINEATION MAP





WATERS OF THE U.S. DELINEATION MAP (VERIFIED) HYDROGEOLOGY OF THE TWIN PINES PROJECT AREA TWIN PINES MINERALS - TIAA TRACT

ST. GEORGE, CHARLTON COUNTY, GEORGIA

BASEMAP: DigitalGlobe, 3/24/2018 (0.46 m Resolution)

CHECKED BY: CMS

DRAWING DATE: 6/7/2019

REVISION DATE: 10/25/2019

TTL JOB NO.: 000180200804.00

APPROXIMATE SCALE: 1" = 1,500'