



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, PHILADELPHIA DISTRICT
1650 ARCH STREET
PHILADELPHIA, PENNSYLVANIA 19103-2004

NAP, Regulatory Branch

July 19, 2024

MEMORANDUM FOR RECORD

SUBJECT: US Army Corps of Engineers (Corps) Approved Jurisdictional Determination in accordance with the "Revised Definition of 'Waters of the United States'"; (88 FR 3004 (January 18, 2023) as amended by the "Revised Definition of 'Waters of the United States'; Conforming" (8 September 2023),¹ 2023-01223-85 MFR 1 of 1²

BACKGROUND. An Approved Jurisdictional Determination (AJD) is a Corps document stating the presence or absence of waters of the United States on a parcel or a written statement and map identifying the limits of waters of the United States on a parcel. AJDs are clearly designated appealable actions and will include a basis of JD with the document.³ AJDs are case-specific and are typically made in response to a request. AJDs are valid for a period of five years unless new information warrants revision of the determination before the expiration date or a District Engineer has identified, after public notice and comment, that specific geographic areas with rapidly changing environmental conditions merit re-verification on a more frequent basis.⁴

On January 18, 2023, the Environmental Protection Agency (EPA) and the Department of the Army ("the agencies") published the "Revised Definition of 'Waters of the United States,'" 88 FR 3004 (January 18, 2023) ("2023 Rule"). On September 8, 2023, the agencies published the "Revised Definition of 'Waters of the United States'; Conforming", which amended the 2023 Rule to conform to the 2023 Supreme Court decision in *Sackett v. EPA*, 598 U.S., 143 S. Ct. 1322 (2023) ("*Sackett*").

This Memorandum for Record (MFR) constitutes the basis of jurisdiction for a Corps AJD as defined in 33 CFR §331.2. For the purposes of this AJD, we have relied on Section 10 of the Rivers and Harbors Act of 1899 (RHA),⁵ the 2023 Rule as amended,

¹ While the Revised Definition of "Waters of the United States"; Conforming had no effect on some categories of waters covered under the CWA, and no effect on any waters covered under RHA, all categories are included in this Memorandum for Record for efficiency.

² When documenting aquatic resources within the review area that are jurisdictional under the Clean Water Act (CWA), use an additional MFR and group the aquatic resources on each MFR based on the TNW, the territorial seas, or interstate water that they are connected to. Be sure to provide an identifier to indicate when there are multiple MFRs associated with a single AJD request (i.e., number them 1, 2, 3, etc.).

³ 33 CFR 331.2.

⁴ Regulatory Guidance Letter 05-02.

⁵ USACE has authority under both Section 9 and Section 10 of the Rivers and Harbors Act of 1899 but for convenience, in this MFR, jurisdiction under RHA will be referred to as Section 10.

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as well as other applicable guidance, relevant case law, and longstanding practice in evaluating jurisdiction.

1. SUMMARY OF CONCLUSIONS.

- a. Provide a list of each individual feature within the review area and the jurisdictional status of each one (i.e., identify whether each feature is/is not a water of the United States and/or a navigable water of the United States).
 - i. Wetlands Area 1: Non-jurisdictional.
 - ii. Wetlands Area 2: Non-jurisdictional.
 - iii. Wetlands Area 3: Non-jurisdictional.
 - iv. Wetlands Area 4: Non-jurisdictional.
 - v. Wetlands Area 5: Non-jurisdictional.
 - vi. Wetlands Area 6: Section 404 Jurisdictional.
 - vii. Wetlands Area 7: Section 404 Jurisdictional.
 - viii. Wetlands Area 8: Section 404 Jurisdictional.
 - ix. Ephemeral Ditch Reach 1: Non-jurisdictional.
 - x. Ephemeral Ditch Reach 2: Non-jurisdictional.
 - xi. Ephemeral Ditch Reach 3: Non-jurisdictional.
 - xii. Ephemeral Drainage Swale 1: Non-jurisdictional.
 - xiii. Intermittent Tributary to Isaac Branch: Section 404 Jurisdictional
 - xiv. Waters Area 1: Section 404 Jurisdictional
 - xv. Waters Area 2: Section 404 Jurisdictional

2. REFERENCES.

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- a. "Revised Definition of 'Waters of the United States,'" 88 FR 3004 (January 18, 2023) ("2023 Rule")
 - b. "Revised Definition of 'Waters of the United States'; Conforming" 88 FR 61964 (September 8, 2023))
 - c. *Sackett v. EPA*, 598 U.S. ___, 143 S. Ct. 1322 (2023)
3. REVIEW AREA. The review area encompasses approximately 359.29 acres located at Mariene Drive in Camden Wyoming, Kent County, Delaware on Tax Map Parcel Numbers 7-20-09400-01-1000-00001, 0100-00001, 0200-00001, 3300-00001, 3400-00001, 3500-00001, 0300-00001, and 2100- 00001. The center coordinates for the review area are 39.104456°N/75.571677°W. The review area consists primarily of active agricultural land with deciduous forest cover in the north-central, western, southwestern, and south-central portions. Residential dwellings and farming operation structures are also located within the review area. A railroad line borders the eastern portion of the review area.
 4. NEAREST TRADITIONAL NAVIGABLE WATER (TNW), THE TERRITORIAL SEAS, OR INTERSTATE WATER TO WHICH THE AQUATIC RESOURCE IS CONNECTED. The nearest TNW for the southern portion of the property is Tidbury Creek where it flows into the St. Jones River approximately 5.6 miles away. This is based on the NWI mapper indicating estuarine waters at this location along with estuarine wetlands. The nearest TNW for the northern portion of the property is Isaac Branch where it flows into the St. Jones River approximately 5 miles away. This is based on the NWI mapper indicating estuarine waters at this location along with estuarine wetlands.⁶
 5. FLOWPATH FROM THE SUBJECT AQUATIC RESOURCES TO A TNW, THE TERRITORIAL SEAS, OR INTERSTATE WATER. Wetlands Area #6 is the main source of hydrology for Red House Branch ((a)(3) tributary) which flows into Derby Pond to Tidbury Creek into Voshell Pond and into Tidbury Creek which transitions into tidal at the lower end where it intersects with the St. Jones River. Waters Area #1 is connected to Red House Branch through an unnamed tributary to Red House Branch ((a)(3) tributary), which flows into Derby Pond to Tidbury Creek into Voshell Pond and into Tidbury Creek which transitions into tidal at the lower end where it intersects with the St. Jones River. Waters Area #2 is an impoundment of an offsite

⁶ This MFR should not be used to complete a new stand-alone TNW determination. A stand-alone TNW determination for a water that is not subject to Section 9 or 10 of the Rivers and Harbors Act of 1899 (RHA) is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where upstream or downstream limits or lake borders are established.

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unnamed tributary to Red Horse Branch, which is a relatively permanent stream ((a)(3) tributary). Waters Area #2 was assessed in conjunction with the unnamed tributary to Red Horse Branch. Wetlands Area #7 and Wetlands Area #8 are connected to Waters Area #8 and the unnamed tributary to Red House Branch which flows into Red House Branch and continues into Derby Pond to Tidbury Creek into Voshell Pond and into Tidbury Creek which transitions into tidal at the lower end where it intersects with the St. Jones River. The Intermittent Unnamed Tributary to Isaac Branch flows into Wyoming Lake, discharging into Isaac Branch to Moores Lake and into Isaac Branch which transitions into tidal at the lower end where it intersects with the St. Jones River.

6. SECTION 10 JURISDICTIONAL WATERS⁷: Describe aquatic resources or other features within the review area determined to be jurisdictional in accordance with Section 10 of the Rivers and Harbors Act of 1899. Include the size of each aquatic resource or other feature within the review area and how it was determined to be jurisdictional in accordance with Section 10.⁸ N/A
7. SECTION 404 JURISDICTIONAL WATERS: Describe the aquatic resources within the review area that were found to meet the definition of waters of the United States in accordance with the 2023 Rule as amended, consistent with the Supreme Court's decision in *Sackett*. List each aquatic resource separately, by name, consistent with the naming convention used in section 1, above. Include a rationale for each aquatic resource, supporting that the aquatic resource meets the relevant category of "waters of the United States" in the 2023 Rule as amended. The rationale should also include a written description of, or reference to a map in the administrative record that shows, the lateral limits of jurisdiction for each aquatic resource, including how that limit was determined, and incorporate relevant references used. Include the size of each aquatic resource in acres or linear feet and attach and reference related figures as needed.
 - a. Traditional Navigable Waters (TNWs) (a)(1)(i): N/A
 - b. The Territorial Seas (a)(1)(ii): N/A

⁷ 33 CFR 329.9(a) A waterbody which was navigable in its natural or improved state, or which was susceptible of reasonable improvement (as discussed in § 329.8(b) of this part) retains its character as "navigable in law" even though it is not presently used for commerce, or is presently incapable of such use because of changed conditions or the presence of obstructions.

⁸ This MFR is not to be used to make a report of findings to support a determination that the water is a navigable water of the United States. The district must follow the procedures outlined in 33 CFR part 329.14 to make a determination that water is a navigable water of the United States subject to Section 10 of the RHA.

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- c. Interstate Waters (a)(1)(iii): N/A
- d. Impoundments (a)(2): Waters Area #2 is an approximately 0.4203 acre permanent pool impoundment of a relatively permanent unnamed tributary to Red House Branch (a)(3) tributary) that flows under Willow Grove Road via a culvert that flows to the (a)(2) waters Derby Pond, approximately 0.85 miles away which then flows into Tidbury Creek into Voshell Pond and into Tidbury Creek (a)(1) which transitions into tidal at the lower end where it intersects with the St. Jones River. Waters Area #2 is in a topographically depressed area and receives hydrology from Wetlands Area #7 and Wetlands Area #8. Waters Area #2 is continuous with Wetlands Area #7 via an approximately 20 linear feet channel. The impoundment is in line with the unnamed tributary to Red House Branch and created by a downstream water control structure that maintains the hydrology. Based off of historical aerial imagery a relatively permanent water existed in this location in 1968. The impoundment of the relatively permanent water was created in the 1992 time frame. At the time the impoundment was created there was evidence of a flowpath downstream from the structure to a paragraph (a)(1) water (Tidbury Creek and St. Jones River).

Because the impoundment is inline with the unnamed tributary to Red House Branch, the flow characteristics of the impoundment are assessed in conjunction with the unnamed tributary to Red House Branch. The upstream wetlands, Wetlands Area #7 and #8, as well as the impoundment itself provide the source of flow for the unnamed tributary to Red House Branch. Aerial imagery of the unnamed tributary indicates a distinct vegetation change and channel that continues south to the confluence of the Red House Branch. Furthermore, a site visit from the roadside indicates an ordinary high water mark, bed and bank, and flowing water.

Because the impoundment was created by impounding an (a)(3) tributary, the Waters Area #2 meets the definition of an impoundment. Furthermore, Waters Area #2 also meets the definition of an (a)(3) Tributary as it meets the relatively permanent standard, in that it has standing water year round and flows into an unnamed tributary to Red House Branch ((a)(3) tributary) that flows under Willow Grove Road via a culvert that flows to the (a)(2) waters Derby Pond, approximately 0.85 miles away, which then flows into Tidbury Creek into Voshell Pond and into Tidbury Creek (a)(1) which transitions into tidal at the lower end where it intersects with the St. Jones River.

- e. Tributaries (a)(3): The Intermittent Tributary to Isaac Branch includes approximately 518 linear feet within the review area along the northeast portion of the review area and is approximately 1.24 miles from the (a)(2) water

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Wyoming Lake. The National Hydrography Dataset map depicts this tributary as an unnamed blue line stream. The USGS Map also depicts the tributary as an unnamed blue line stream. The Delaware Department of Natural Resources and Environmental Control, Wetlands and Waterways Section conducted a site investigation on April 12, 2022, confirming that a portion of the tributary is intermittent and would be State regulated as well. A USACE site visit conducted on January 9, 2024, confirmed the presence of an ordinary high water mark to the upstream extent where the tributary has a 90 degree turn from the Ephemeral Drainage Ditch Reach 1. This portion of the tributary is channelized and continues upstream into agriculture fields. The determination of the terminus of the tributary at this location is based off of field evidence of vegetation (grass species) growing in the bottom of the ephemeral reach with no presence of an ordinary high water mark. In intermittent portion of the stream there is a minimal presence or lack of presence of vegetation. As such, the Intermittent Tributary to Isaac Branch meets the definition of an (a)(3) Tributary.

Waters Area #1 is 0.3959 acres in size within the review area and is approximately 0.76 miles from the (a)(2) waters Derby Pond. For purposes of this Rule, tributaries includes rivers, streams, lakes, ponds and impoundments, regardless of flow regime that flow directly or indirectly through another water or waters to an (a)(1) or (a)(2) waters. The tributary may flow through a number of downstream waters, including non-jurisdictional tributaries or non-jurisdictional features. The Waters Area #1 has an ordinary water mark and supports hydrology year round based off of review of historical aerial imagery and field indicators. Thus Waters Area #1 meets the relatively permanent standard. Waters Area #1 is a standing body of water that is connected via a culvert into a channel on the southside of Willow Grove Road to the Unnamed Tributary to Red House Branch into Red House Branch and into an (a)(2) impoundment (Derby Pond) thereby meeting the definition of an (a)(3) tributary.

- f. Adjacent Wetlands (a)(4): Wetland Area #6 is the source of hydrology for Red House Branch (a perennial stream). Based off of field observation, there is no clear Red House Branch Channel through the wetlands, as the entire wetland area has surface water. Wetland Area #6 has a continuous surface connection to Red House Branch ((a)(3) tributary) via a 70 linear feet piped connection under Willow Grove Road and is approximately 0.87 miles from the (a)(2) waters Derby Pond.

Wetlands Area #7 is directly abutting the relatively permanent Waters Area #2 Impoundment ((a)(2)) that is an impoundment of the Unnamed Tributary to Red House Branch ((a)(3)). Waters Area #2 is continuous with Wetlands Area #7 via an approximately 20 linear feet channel that is a continuation of the unnamed

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tributary to Red House Branch. Wetlands Area #7 is approximately 0.88 miles from the (a)(2) waters Derby Pond.

Wetlands Area #8 has a continuous surface connection to the relatively permanent Waters Area #2 impoundment ((a)(2)) via the Ephemeral Drainage Swale 1 and, is thereby adjacent to Waters Area #2. Wetlands Area #8 is approximately 0.88 miles from the (a)(2) waters Derby Pond.

Because these wetlands are adjacent to and have a continuous surface connection to an (a)(2) or (a)(3) waters, they meet the (a)(4)(ii) definition of an adjacent wetland.

g. Additional Waters (a)(5): N/A

8. NON-JURISDICTIONAL AQUATIC RESOURCES AND FEATURES

- a. Describe aquatic resources and other features within the review area identified in the 2023 Rule as amended as not “waters of the United States” even where they otherwise meet the terms of paragraphs (a)(2) through (5). Include the type of excluded aquatic resource or feature, the size of the aquatic resource or feature within the review area and describe how it was determined to meet one of the exclusions listed in 33 CFR 328.3(b).⁹

Ephemeral Ditch Reach 1 is 2,800 linear feet. The ditch reach is excavated wholly in dry land, drains only dry land and does not carry a relatively permanent flow of water. Additionally, the ditch lacks a bed and bank, wrack deposits and alluvial deposits that would be strong indicators of relatively permanent or standing water. For these reasons, the ditch meets the (b)(3) ditch exclusion.

Ephemeral Ditch Reach 2 is 768 linear feet. The ditch reach is excavated wholly in dry land, drains only dry land and does not carry a relatively permanent flow of water. Additionally, the ditch lacks a bed and bank, wrack deposits and alluvial deposits that would be strong indicators of relatively permanent or standing water. For these reasons, the ditch meets the (b)(3) ditch exclusion.

Ephemeral Ditch Reach 3 is 901 linear feet. The ditch reach is excavated wholly in dry land, drains only dry land and does not carry a relatively permanent flow of water. Additionally, the ditch lacks a bed and bank, wrack deposits and alluvial deposits that would be strong indicators of relatively permanent or standing water. For these reasons, the ditch meets the (b)(3) ditch exclusion.

⁹ 88 FR 3004 (January 18, 2023)

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Ephemeral Drainage Swale 1 is 347 linear feet. The swale is characterized as a shallow feature that conveys water from the surrounding uplands and Wetlands Area #8 at low frequency and low volume. The swale was not initially identified in the wetland delineation report likely due to the delineation being performed during a moderate drought. During the January 9, 2024 site visit by the USACE, the shallow, vegetated feature was identified as a continuous surface connection for Wetlands Area #8. Furthermore, the swale contained water flowing towards the (a)(2) impoundment as a result of recent rain events. While most ditches can be identified as having a channel, it was noted that the swale lacked an identifiable channel. Additionally, upon review of historical aerial imagery, there is a lack of water signature in this swale in all years except one. Furthermore, the swale is not indicated on any topographic maps or National Hydrography maps. For these reasons, the swale has been identified as meeting the (b)(8) Swales and Erosional Features exclusion.

- b. Describe aquatic resources and features within the review area that were determined to be non-jurisdictional because they do not meet one or more categories of waters of the United States under the 2023 Rule as amended (e.g., tributaries that are non-relatively permanent waters; non-tidal wetlands that do not have a continuous surface connection to a jurisdictional water).

Wetlands Area #1 is 1.2499 acres in size along the northeast of the review area. This wetland is geographically separated from any other aquatic resources and does not have a continuous surface connection to the nearest unnamed tributary to Isaac Branch. Because Wetlands Area #1 does not have a continuous surface connection to an (a)(1) through (a)(3) waters it does not meet the definition (a)(4) adjacent wetland.

Wetlands Area #2 is 0.3900 acre in size near the northeast within the review area. This wetland is geographically separated from any other aquatic resources and does not have a continuous surface connection to the nearest unnamed tributary to Isaac Branch. The separation from the unnamed tributary was verified during the USACE January 9, 2024 site visit. Because Wetlands Area #2 does not have a continuous surface connection to an (a)(1) through (a)(3) waters it does not meet the definition (a)(4) adjacent wetland.

Wetlands Area #3 is 0.9583 acre in size near the west central portion of the review area. This wetland is geographically separated from any other aquatic resources and does not have a continuous surface connection to the nearest ephemeral drainage ditches. Because Wetlands Area #3 does not have a continuous surface connection to an (a)(1) through (a)(3) waters it does not meet the definition of an (a)(4) adjacent wetland.

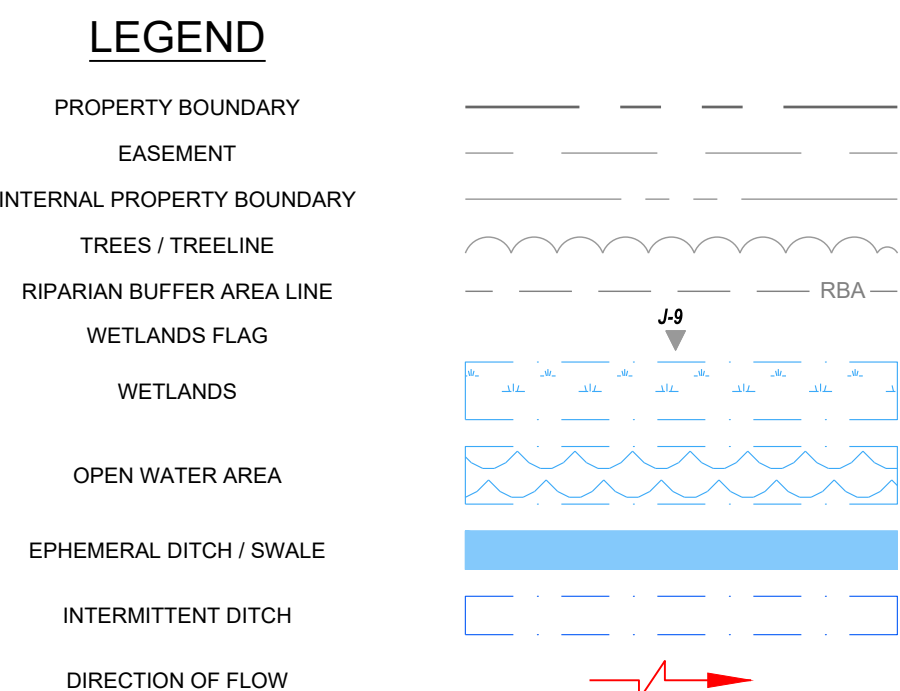
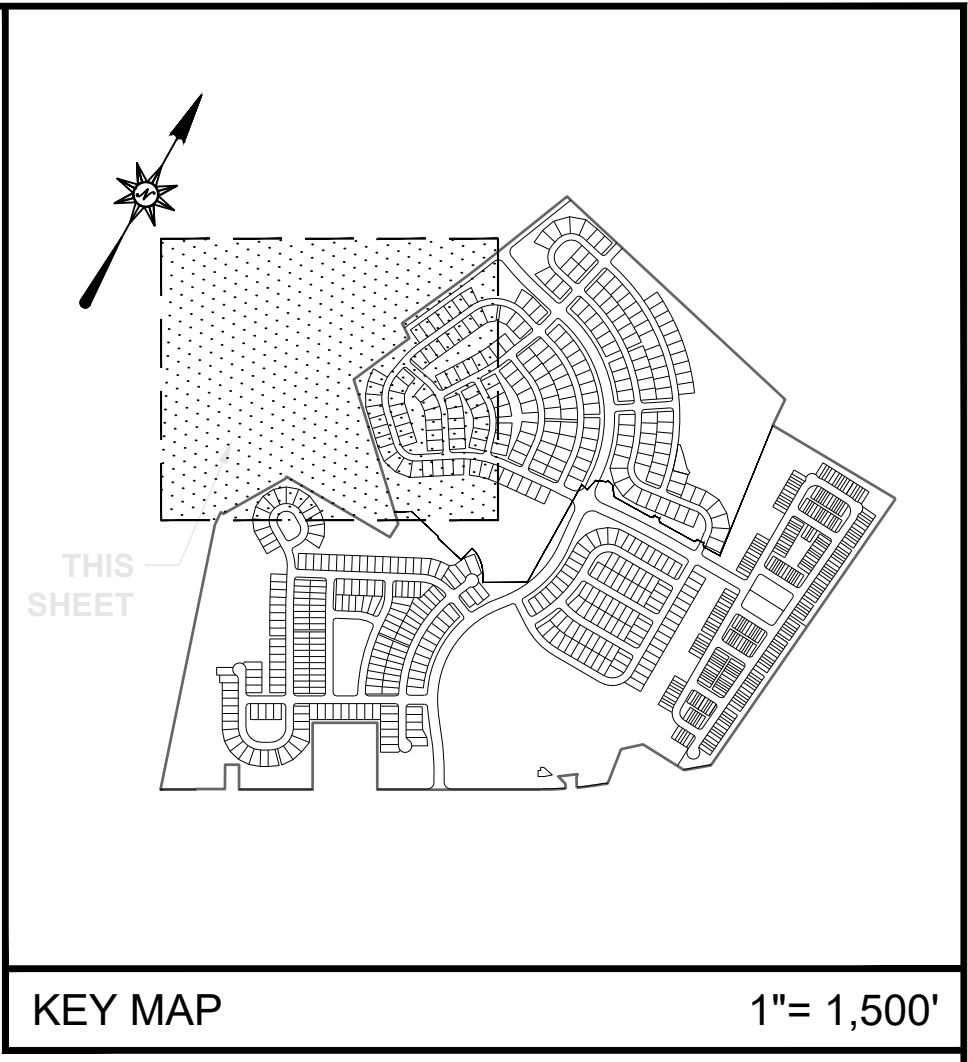
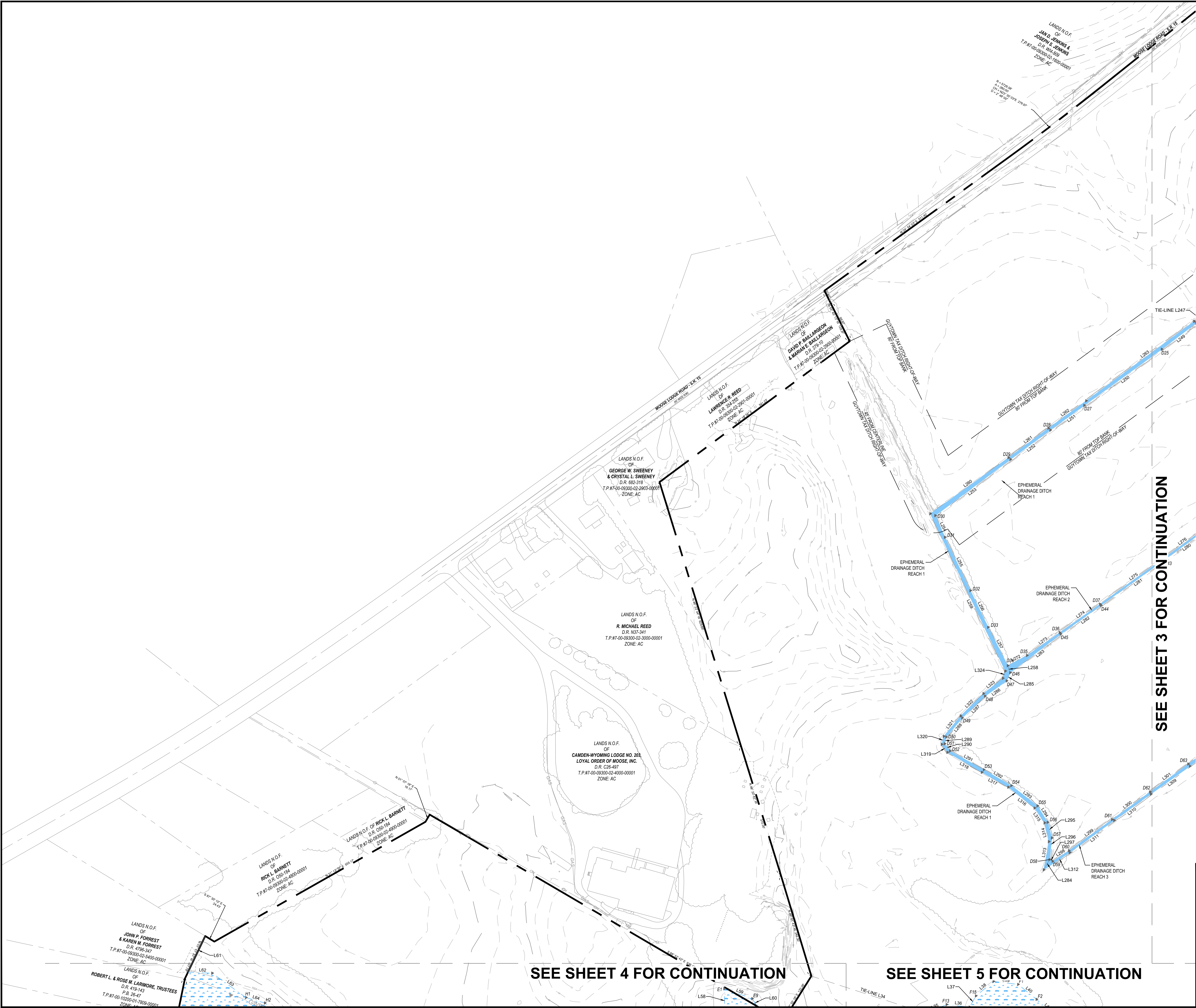
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Wetlands Area #4 is 0.2019 acre in size near the west central portion of the review area. This wetland is geographically separated from any other aquatic resources and does not have a continuous surface connection to the nearest ephemeral drainage ditches. Because Wetlands Area #4 does not have a continuous surface connection to an (a)(1) through (a)(3) waters it does not meet the definition of an (a)(4) adjacent wetland.

Wetlands Area #5 is 9.6621 acres in size near the west central portion of the review area. This wetland is geographically separated from any other aquatic resources and does not have a continuous surface connection to the nearest unnamed tributary to Red House Branch. While the wetlands do extend beyond the property line, the extent is limited to within the wooded area. Beyond the wooded area off of the property line are agriculture fields and single-family homes. This was verified during the USACE January 9, 2024 site visit. Review of aerial imagery further verifies that the wetland does not connect to any other resources to the north or the west. Wetland area #5 is physically separated from Wetlands Area #6 by a large uplands area, verified on January 9, 2024. Because Wetlands Area #5 does not have a continuous surface connection to an (a)(1) through (a)(3) waters it does not meet the definition of an (a)(4) adjacent wetland.

9. DATA SOURCES. List sources of data/information used in making determination. Include titles and dates of sources used and ensure that information referenced is available in the administrative record.
 - a. A USACE field visit was conducted on January 9, 2024.
 - b. WETLAND DELINEATION-SAVANNAH FARM, CAMDEN-WYOMING, DELAWARE, dated December 15, 2023.
 - c. WETLANDS DELINEATION MAP FOR SAVANNAH FARMS, dated October 23, 2023 and revised on December 11, 2023, January 11, 2024 and January 19, 2024.
10. OTHER SUPPORTING INFORMATION. Memorandum On NAP-2023-01223, issued by the U.S. EPA and OASACW, dated June 25, 2024.
11. NOTE: The structure and format of this MFR were developed in coordination with the EPA and Department of the Army. The MFR's structure and format may be subject to future modification or may be rescinded as needed to implement additional guidance from the agencies; however, the approved jurisdictional determination described herein is a final agency action.



ONSITE WETLANDS AND WATERS		
AREA NO.	AREA (SF)	AREA (AC)
WETLANDS 1	54,447.73	1.2499
WETLANDS 2	16,988.22	0.3900
WETLANDS 3	41,742.91	0.9583
WETLANDS 4	8,792.90	0.2019
WETLANDS 5	420,880.32	9.6621
WETLANDS 6	109,130.70	2.5053
WETLANDS 7	186,133.55	4.2730
WETLANDS 8	7,049.01	0.1618
WATERS 1	17,245.59	0.3959
WATERS 2	18,309.72	0.4203
TOTAL	880,720.65	20.2185

DRAINAGE CHANNELS		
ID NO.	AREA (SF)	LENGTH (LF)
EPHEMERAL DITCH REACH 1	19,636.08	2,800
EPHEMERAL DITCH REACH 2	3,479.01	768
EPHEMERAL DITCH REACH 3	9,327.82	901
EPHEMERAL SWALE 1	2,480.52	347
INTERMITTENT TRIBUTARY TO ISAAC BRANCH	1,044.47	518
TOTAL	32,442.91	1671.8

**WETLANDS DELINEATION MAP
FOR
SAVANNAH FARMS**
SITUATE IN: TOWN OF CAMDEN & WYOMING, KENT COUNTY, DELAWARE

02-01-24	J.L.	01-19-24	J.L.	01-11-24	J.L.	checked	date
Karins and Associates ENGINEERS • PLANNERS • SURVEYORS NEWARK, DE & GEORGETOWN, DE www.karinsengineering.com 17 POLLY DRUMMOND CENTER • SUITE 201 NEWARK, DELAWARE 19711 PHONE: (302) 369-2900 FAX: (302) 369-2975							
OWNER: SAVANNAH FARMS, INC. & SAVANNAH FARMS II, LLC 58 BLADES DRIVE DOVER, DE 19901							
PROPERTY ADDRESS: WILLOW GROVE RD CAMDEN-WYOMING, DE 19934							
SURVEY BY: KARINS & ASSOCIATES							
DESIGNED BY: KARINS & ASSOCIATES							
DRAWN BY: M.P.O., J.L.							
CHECKED BY: J.L.							
SCALE: 1" = 100'							
DATE: 10-23-2023							
SHEET: 2 OF 6							
DRAWING NO.: 3184_X-WL02-06							

BENCHMARK 1 (BM-1)
SET CAPPED REBAR
N: 404211.6132
E: 610706.0149
ELEVATION = 50.61'

SEE SHEET 2 FOR CONTINUATION

SEE SHEET 5 FOR CONTINUATION

KEY MAP

1"= 1,500'

LEGEND

PROPERTY BOUNDARY	---
EASEMENT	---
INTERNAL PROPERTY BOUNDARY	---
TREES / TREELINE	~ ~ ~
RIPARIAN BUFFER AREA LINE	--- RBA ---
WETLANDS FLAG	Jg
WETLANDS	
OPEN WATER AREA	
EPHEMERAL DITCH / SWALE	
INTERMITTENT DITCH	
DIRECTION OF FLOW	

ONSITE WETLANDS AND WATERS		
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EPHEMERAL SWALE 1	2,480.52	347
INTERMITTENT TRIBUTARY TO ISAAC BRANCH	1,044.47	518
TOTAL	32,442.91	1671.8

WETLANDS DELINEATION MAP
FOR
SAVANNAH FARMS
SITUATE IN: TOWN OF CAMDEN & WYOMING, KENT COUNTY, DELAWARE

02-01-24
J.L.
ADDED METES AND BOUNDS TO WETLANDS AND WATERS AREAS
FOR WETLANDS AND WATERS AREAS
PER USE CASE COMMENT 01-09-24

01-19-24
J.L.
ADDED METES AND BOUNDS TO WETLANDS AND WATERS AREAS
FOR WETLANDS AND WATERS AREAS
PER USE CASE COMMENT 01-09-24

01-11-24
J.L.
ADDED METES AND BOUNDS TO WETLANDS AND WATERS AREAS
FOR WETLANDS AND WATERS AREAS
PER USE CASE COMMENT 01-09-24

02-01-24
J.L.
ADDED METES AND BOUNDS TO WETLANDS AND WATERS AREAS
FOR WETLANDS AND WATERS AREAS
PER USE CASE COMMENT 01-09-24

01-19-24
J.L.
ADDED METES AND BOUNDS TO WETLANDS AND WATERS AREAS
FOR WETLANDS AND WATERS AREAS
PER USE CASE COMMENT 01-09-24

01-11-24
J.L.
ADDED METES AND BOUNDS TO WETLANDS AND WATERS AREAS
FOR WETLANDS AND WATERS AREAS
PER USE CASE COMMENT 01-09-24

Karins and Associates
ENGINEERS • PLANNERS • SURVEYORS
NEWARK, DE & GEORGETOWN, DE
www.karinsengineering.com
17 POLLY DRUMMOND CENTER • SUITE 201
NEWARK, DELAWARE 19711
PHONE: (302) 369-2900 FAX: (302) 369-2975

OWNER:
SAVANNAH FARMS, INC. &
SAVANNAH FARMS II, LLC
58 BLADES DRIVE
DOVER, DE 19901

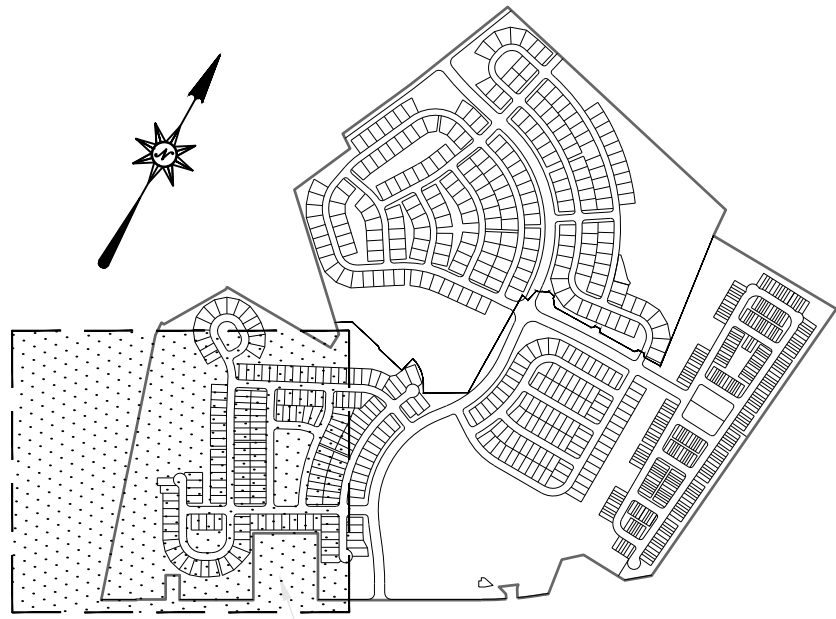
PROPERTY ADDRESS:
WILLOW GROVE RD
CAMDEN-WYOMING, DE 19934

SURVEY BY: KARINS & ASSOCIATES
DESIGNED BY: KARINS & ASSOCIATES
DRAWN BY: M.P.O., J.L.
CHECKED BY: J.L.

SCALE: 1" = 100'
0 100 200'
DATE: 10-23-2023
SHEET: 3 OF 6
DRAWING NO.: 3184_X-WL02-06

SEE SHEET 2 FOR CONTINUATION

SEE SHEET 5 FOR CONTINUATION



KEY MAP 1"= 1,500'

LEGEND

PROPERTY BOUNDARY	---
EASEMENT	---
INTERNAL PROPERTY BOUNDARY	---
TREES / TREELINE	~ ~ ~
RIPARIAN BUFFER AREA LINE	---
WETLANDS FLAG	Jag
WETLANDS	Blue wavy lines
OPEN WATER AREA	Blue wavy lines
EPHEMERAL DITCH / SWALE	Blue dashed line
INTERMITTENT DITCH	Blue dashed line
DIRECTION OF FLOW	Red arrow

ONSITE WETLANDS AND WATERS		
AREA NO.	AREA (SF)	AREA (AC)
WETLANDS 1	54,447.73	1.2499
WETLANDS 2	16,388.22	0.3800
WETLANDS 3	41,742.91	0.9583
WETLANDS 4	8,792.90	0.2019
WETLANDS 5	420,880.32	9.6621
WETLANDS 6	109,130.70	2.5053
WETLANDS 7	186,133.55	4.2730
WETLANDS 8	7,049.01	0.1618
WATERS 1	17,245.59	0.3959
WATERS 2	18,309.72	0.4203
TOTAL	880,720.65	20.2185

DRAINAGE CHANNELS		
ID NO.	AREA (SF)	LENGTH (LF)
EPHEMERAL DITCH REACH 1	19,636.08	2,800
EPHEMERAL DITCH REACH 2	3,479.01	768
EPHEMERAL DITCH REACH 3	9,327.82	901
EPHEMERAL SWALE 1	2,480.52	347
INTERMITTENT TRIBUTARY TO ISAAC BRANCH	1,044.47	518
TOTAL	32,442.91	1671.8

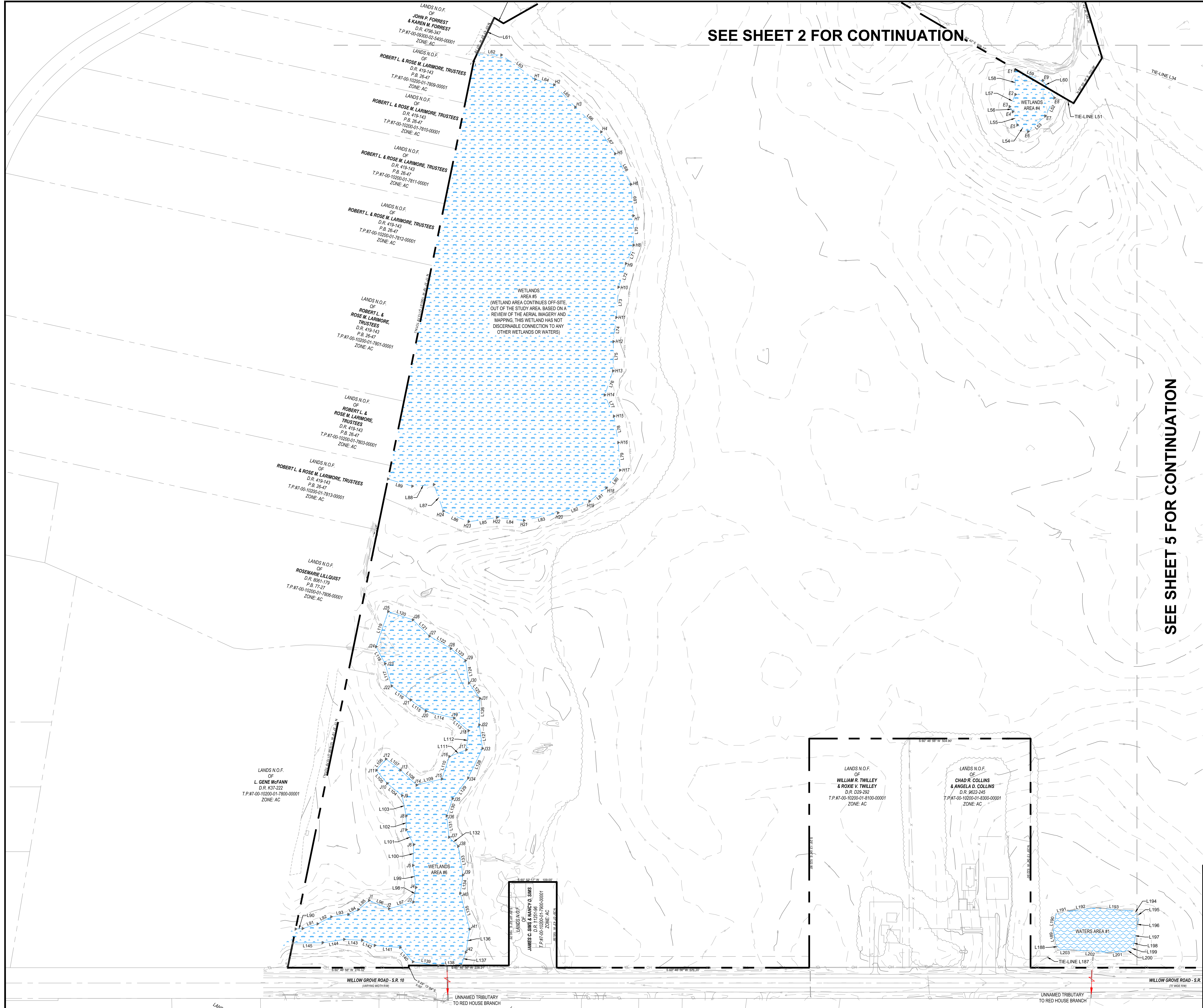
WETLANDS DELINEATION MAP FOR SAVANNAH FARMS SITUATE IN: TOWN OF CAMDEN & WYOMING, KENT COUNTY, DELAWARE

Karins and Associates
ENGINEERS • PLANNERS • SURVEYORS
NEWARK, DE & GEORGETOWN, DE
www.karinsengineering.com
17 POLLY DRUMMOND CENTER • SUITE 201
NEWARK, DELAWARE 19711
PHONE: (302) 369-2900 FAX: (302) 369-2975

OWNER:
SAVANNAH FARMS, INC. &
SAVANNAH FARMS II, LLC
58 BLADES DRIVE
DOVER, DE 19901

PROPERTY ADDRESS:
WILLOW GROVE RD
CAMDEN-WYOMING, DE 19934

SURVEY BY:	KARINS & ASSOCIATES	SCALE: 1" = 100'	
DESIGNED BY:	KARINS & ASSOCIATES	DATE: 10-23-2023 SHEET: 4 OF 6	
DRAWN BY:	M.P.O., J.L.	DRAWING NO.: 3184_X-WL02-06	
CHECKED BY:	J.L.		



SEE SHEET 2 FOR CONTINUATION

SEE SHEET 3 FOR CONTINUATION

SEE SHEET 4 FOR CONTINUATION

KEY MAP

1"= 1,500'

LEGEND

PROPERTY BOUNDARY	
EASEMENT	
INTERNAL PROPERTY BOUNDARY	
TREES / TREELINE	
RIPARIAN BUFFER AREA LINE	
WETLANDS FLAG	
WETLANDS	
OPEN WATER AREA	
EPHEMERAL DITCH / SWALE	
INTERMITTENT DITCH	
DIRECTION OF FLOW	

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WETLANDS DELINEATION MAP
FOR
SAVANNAH FARMS
SITUATE IN: TOWN OF CAMDEN & WYOMING, KENT COUNTY, DELAWARE



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SURVEY BY: KARINS & ASSOCIATES

DESIGNED BY: KARINS & ASSOCIATES

DRAWN BY: M.P.O., J.L.

CHECKED BY: J.L.

SCALE: 1" = 100'

DATE: 10-23-2023 SHEET: 5 OF 6

DRAWING NO.: 3184_X-WL02-06

WETLANDS AREA #1

Line Table		
Line #	Direction	Length
L1	S72° 13' 00"W	343.01
L2	N4° 47' 11"E	51.42
L3	N57° 32' 53"E	42.10
L4	S87° 25' 56"E	62.98
L5	S64° 10' 52"E	48.02
L6	N76° 43' 51"E	34.56
L7	S62° 20' 50"E	43.85
L8	S26° 42' 07"E	65.25
L9	S1° 32' 05"E	37.53
L10	S10° 27' 03"E	65.90
L11	S55° 42' 57"E	48.71
L12	S39° 46' 46"E	58.02
L13	S65° 23' 10"W	47.29
L14	N80° 30' 12"W	70.24
L15	N72° 16' 39"W	59.08
L16	N78° 46' 43"W	61.77
L17	N48° 57' 57"W	36.75
L18	N6° 39' 06"W	34.19
L19	N25° 29' 16"W	46.76
L20	N38° 28' 49"W	50.12
L21	N37° 44' 09"W	42.40

WETLANDS AREA #2

Line Table		
Line #	Direction	Length
L22	S44° 56' 02"W	564.45
L23	N32° 51' 06"W	60.51
L24	N21° 27' 48"W	56.55
L25	N15° 23' 26"W	52.32
L26	N73° 47' 20"E	40.82
L27	S48° 30' 22"E	61.97
L28	S37° 04' 38"E	59.11
L29	S48° 58' 13"E	61.39
L30	S15° 14' 19"W	31.15
L31	S8° 35' 30"W	44.78
L32	N78° 59' 07"W	46.78
L33	N53° 58' 58"W	48.66

WETLANDS AREA #3

Line Table		
Line #	Direction	Length
L34	N78° 46' 44"E	273.79
L35	N39° 15' 12"E	52.85
L36	N67° 06' 11"E	52.86
L37	N0° 04' 31"E	29.39
L38	N21° 22' 03"E	52.16
L39	N67° 45' 16"E	56.68
L40	S80° 19' 00"E	54.29
L41	S75° 11' 12"E	58.49
L42	S59° 39' 20"E	48.40
L43	S3° 45' 20"E	61.89
L44	S52° 40' 01"W	54.39
L45	S75° 06' 14"W	55.47
L46	S50° 33' 12"W	65.42
L47	S39° 52' 10"W	60.77
L48	N56° 00' 31"W	48.04
L49	N53° 14' 43"W	36.95
L50	N56° 17' 39"W	64.62

WETLANDS AREA #4

Line Table		
Line #	Direction	Length
L51	S76° 26' 17"W	45.43
L52	N2° 28' 34"W	46.13
L53	N18° 17' 13"E	52.99
L54	S87° 52' 08"E	28.87
L55	S48° 17' 10"E	32.14
L56	S60° 59' 34"E	13.73
L57	S3° 26' 11"E	30.67
L58	S30° 47' 16"E	54.78
L59	S80° 14' 20"W	67.92
L60	N62° 41' 14"W	47.75

WETLANDS AREA #5

Line Table		
Line #	Direction	Length
L61	S3° 41' 33"E	91.61
L62	N63° 10' 50"E	55.52
L63	S83° 24' 27"E	95.31
L64	N76° 41' 39"E	45.04
L65	S72° 42' 43"E	69.92
L66	S75° 22' 09"E	81.84
L67	S61° 49' 53"E	59.07
L68	S56° 30' 44"E	78.65
L69	S33° 42' 43"E	71.87
L70	S29° 27' 54"E	67.24
L71	S6° 51' 32"E	45.38
L72	S11° 36' 22"E	56.51
L73	S25° 10' 22"E	69.33
L74	S22° 31' 02"E	55.37
L75	S28° 21' 07"E	66.88
L76	S10° 14' 18"E	58.15
L77	S52° 33' 24"E	52.79
L78	S38° 39' 34"E	61.13
L79	S32° 54' 40"E	62.96
L80	S8° 29' 07"W	51.08
L81	S22° 29' 21"W	49.33
L82	S40° 27' 16"W	76.36
L83	S48° 12' 33"W	79.61
L84	S67° 09' 16"W	61.88
L85	S52° 18' 31"W	65.35
L86	S83° 37' 53"W	62.58
L87	N48° 50' 58"W	64.17
L88	S56° 27' 55"W	49.47
L89	S77° 14' 02"W	57.85

WETLANDS AREA #6

Line Table		
Line #	Direction	Length
L90	N56° 36' 44"E	16.25
L91	N43° 24' 48"E	35.64
L92	N33° 27' 39"E	34.99
L93	N52° 30' 50"E	39.32
L94	N35° 32' 35"E	25.22
L95	N20° 10' 21"E	32.28
L96	N83° 17' 19"E	49.32
L97	N45° 26' 52"E	57.58
L98	N19° 00' 05"W	33.61
L99	N36° 49' 55"W	50.90
L100	N27° 17' 52"W	47.45
L101	N55° 54' 08"W	38.10
L102	N29° 11' 25"W	31.56
L103	N40° 37' 52"W	47.45
L104	N80° 13' 19"W	43.85
L105	N68° 37' 17"W	38.90
L106	N11° 22' 03"E	33.65
L107	S82° 02' 46"E	41.73
L108	S76° 12' 58"E	50.28
L109	N46° 59' 11"E	59.24
L110	N10° 45' 21"W	53.87
L111	N39° 07' 34"E	41.61
L112	N22° 41' 33"W	43.92
L113	N78° 00' 41"W	43.44
L114	S74° 32' 22"W	66.56
L115	N82° 20' 46"W	42.82
L116	N83° 13' 45"W	54.20
L117	N45° 23' 33"W	53.05

Line Table		
Line #	Direction	Length
L118	N57° 18' 01"W	43.94
L119	N10° 09' 48"W	85.17
L120	N79° 43' 59"E	59.45
L121	S74° 55' 29"E	52.90
L122	S88° 52' 09"E	56.54
L123	S79° 44' 08"E	43.17
L124	S38° 04' 33"E	51.64
L125	S64° 35' 23"E	43.14
L126	S27° 57' 45"E	60.48
L127	S36° 59' 02"E	54.25
L128	S3° 23' 17"E	75.11
L129	S7° 56' 29"W	59.00
L130	S10° 22' 13"E	41.45
L131	S35° 37' 47"E	48.91
L132	S74° 10' 43"E	29.37
L133	S38° 35' 24"E	66.57
L134	S20° 46' 21"E	42.05
L135	S43° 57' 18"E	84.75
L136	S19° 46' 49"E	53.37
L137	S10° 09' 40"E	31.44
L138	S59° 04' 27"W	52.34
L139	S70° 06' 06"W	58.87
L140	N70° 44' 19"W	43.69
L141	S65° 12' 20"W	58.17
L142	S83° 18° 30"W	31.23
L143	S63° 19' 50"W	41.07
L144	S52° 04' 40"W	49.79
L145	S60° 22' 27"W	68.09

WETLANDS AREA #7

Line Table		
Line #	Direction	Length
L146	N76° 47' 45"W	54.07
L147	N38° 06' 30"W	49.96
L148	S1° 29' 28"W	30.01
L149	S52° 38' 05"W	36.77
L150	S86° 10' 14"W	49.71
L151	S78° 19' 29"W	82.01
L152	N6° 25' 51"E	80.78
L153	N31° 14' 54"W	62.22
L154	N23° 14' 38"W	46.76
L155	N34° 22' 40"W	50.74
L156	N2° 42' 21"W	44.21
L157	N10° 45' 15"E	62.57
L158	N36° 39' 19"E	49.56
L159	N55° 14' 57"E	71.97
L160	N47° 48' 30"E	53.48
L161	N74° 16' 36"E	51.80
L162	N75° 47' 23"E	42.80
L163	N77° 51' 05"E	54.84
L164	S82° 47' 55"E	43.16
L165	N73° 03' 52"E	51.47

Line Table		
Line #	Direction	Length
L166	S87° 26' 20"E	45.97
L167	S61° 30' 03"E	56.17
L168	S24° 15' 54"E	50.10
L169	S3° 39' 45"E	59.37
L170	S5° 50' 10"W	74.47
L171	S11° 48' 38"W	66.87
L172	S14° 49' 29"W	58.62
L173	S22° 58' 39"W	46.71
L174	S5° 46' 09"W	38.88
L175	N76° 35' 43"E	49.52
L176	S5° 58' 11"W	8.71
L177	S71° 24' 04"W	56.68
L178	S69° 38' 07"W	69.50
L179	S73° 58' 08"W	52.95

WETLANDS AREA #8

Line Table		
Line #	Direction	Length
L181	S14° 16' 17"E	82.42
L183	N79° 47' 07"W	51.93
L184	N5° 32' 20"W	30.54
L185	N60° 49' 44"E	71.35
L186	S72° 52' 01"E	42.08
L349	N75° 25' 10"W	71.07
L350	S85° 56' 16"W	137.85

WATERS AREA #1

Line Table		
Line #	Direction	Length
L187	N28° 08' 43"E	76.23
L188	N54° 46' 39"W	15.19
L189	N39° 16' 08"W	33.41
L190	N18° 33' 00"W	35.24
L191	N47° 44' 45"E	27.34
L192	N53° 38' 31"E	60.77
L193	N65° 00' 56"E	89.64
L194	S87° 17' 41"E	10.45
L195	S55° 46' 06"E	8.84
L196	S16° 44' 35"E	35.00
L197	S23° 32' 08"E	17.83
L198	S14° 25' 42"E	16.86
L199	S1° 27' 05"W	8.57
L200	S47° 38' 00"W	14.16
L201	S57° 02' 08"W	36.28
L202	S64° 51' 25"W	86.24
L203	S61° 05' 25"W	29.26

WATERS AREA #2

Line Table		
Line #	Direction	Length
L204	S28° 59' 56"E	7.08
L205	S18° 46' 16"E	46.80
L206	S8° 05' 28"E	56.18
L207	S18° 34' 10"E	106.09
L208	S19° 48' 33"E	36.67
L209	S3° 57' 54"W	9.24
L210	S30° 45' 57"W	10.23
L211	S55° 33' 47"W	16.28
L212	S0° 43' 48"E	6.08
L213	S62° 16' 51"W	4.60
L214	N75° 19' 12"W	2.49
L215	N37° 43' 29"W	2.90
L216	S80° 34' 26"W	11.59
L217	S89° 15' 33"W	6.51
L218	N34° 51' 15"W	11.73
L219	N27° 52' 21"W	37.78
L220	N18° 56' 15"W	36.00
L221	N19° 01' 08"W	53.18
L222	N15° 40' 32"W	5.75
L223	N15° 40' 32"W	34.15
L224	N17° 16' 49"W	39.19
L225	N13° 51' 50"W	10.30
L226	N14° 17' 49"W	42.77
L227	N23° 32' 21"E	6.85
L228	N32° 33' 22"E	15.15
L229	N46° 11' 15"E	14.38
L230	N10° 47' 34"W	30.43
L231	S76° 47' 45"E	13.03
L232	S10° 58' 25"E	27.60
L233	S85° 04' 34"E	13.13
L234	S74° 37' 48"E	9.28
L235	S55° 39' 12"E	7.38

EPHEMERAL DITCH
REACH #1

Line Table		
Line #	Direction	Length
L236	S64° 13' 35"E	187.45
L237	N72° 16' 56"W	7.54
L238	S23° 46' 23"W	57.59
L239	S23° 05' 34"W	174.63
L240	S22° 15' 41"W	82.29
L241	S21° 52' 57"W	100.31
L242	S23° 17' 14"W	118.31
L243	S22° 55' 01"W	267.88
L244	S21° 46' 36"W	115.49
L245	S23° 53' 55"W	110.26
L246	N68° 07' 38"W	5.65
L247	S25° 45' 11"W	26.57
L248	S75° 43' 47"E	6.06
L249	S23° 31' 47"W	98.55
L250	S24° 52' 16"W	218.93
L251	S24° 47' 00"W	96.04
L252	S24° 25' 06"W	113.30
L253	S24° 02' 38"W	214.56
L254	S53° 14' 55"E	54.35
L255	S54° 45' 03"E	135.30
L256	S55° 01' 52"E	93.14
L257	S56° 19' 54"E	98.44
L258	N47° 57' 30"W	17.11
L259	N54° 42' 36"W	398.77
L260	N25° 09' 24"E	219.89
L261	N24° 21' 54"E	113.72
L262	N24° 50' 43"E	106.63
L263	N24° 25' 55"E	306.64
L264	N22° 15' 34"E	112.11
L265	N22° 04' 09"E	114.11
L266	N22° 57' 30"E	268.66

Line Table		
Line #	Direction	Length
L267	N23° 01' 39"E	118.81
L268	N23° 05' 53"E	99.27
L269	N22° 00' 13"E	81.68
L270	N23° 02' 00"E	174.55
L271	N22° 02' 42"E	56.96
L284	N0° 28' 56"E	26.94
L285	S5° 53' 19"E	20.41