

Prairie du Pont/Fish Lake Authorized Level Project Summary Report

Prepared for



Prepared by



August 16, 2017

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1. General Information / Background

Authorized Level Project

Following the Southwestern Illinois Flood Prevention District Council's (FPD Council) design and construction of levee improvements that are required for accreditation in accordance with 44 CFR 65.10 criteria (FEMA criteria), the FPD Council desires to advance the implementation of the U.S. Army Corps of Engineers' (USACE) Authorized Level Project. The USACE Authorized Level Project further protects the region from a flood in excess of a 100-year FEMA flood event; specifically, the USACE Authorized Level project protects the many residents and businesses throughout southwestern Illinois against an approximately 500-year flood event (the actual Authorized Level Flood Event is defined as 52 feet on the Mississippi River St. Louis, Missouri gage).

Prairie du Pont / Fish Lake Levee System

This report covers all of the Prairie du Pont/Fish Lake (PdP/FL) Levee System, including both Phase I and Phase II underseepage solutions.

USACE Authorized Level Project

The USACE St. Louis District has provided Amec Foster Wheeler and the FPD Council a series of five memorandums that document proposed Authorized Level solutions. Each memo discusses specific reaches (decision segments). The five memos provided (dated 3/15/2016, 4/11/2016, 6/16/2016, 6/30/2017, and 7/26/2017) constitute the completed Authorized Level Project at this time. No further underseepage solutions are expected to be recommended by USACE.

A decision segment is defined as a length of levee, typically 330 feet or some multiple thereof, that USACE isolated as a basis for analysis. Using available subsurface information, each decision segment was evaluated for protection against underseepage, and a decision was made regarding what underseepage improvements, if any, were needed to correct deficiencies of the particular segment. Underseepage improvements generally consist of seepage berms, fill, relief wells, pump stations, and cutoff walls. Decisions about underseepage improvements were based on factors such as constructability, land use, and cost.

The seepage control improvements recommended by USACE are based on reevaluations of the decision segments performed in the spring/summer of 2016 and 2017, and follow the 2012 USACE Limited Reevaluation Report (LRR) for PDP/Fish Lake Levee System. At the time the LRR was completed, none of the FPD Council's FEMA improvements had been constructed; therefore, USACE has noted which reaches have had work done by the FPD Council subsequent to the initial underseepage analysis as part of the LRR in 2012.

2. Recommended Plan

Development of Bid Packages

Amec Foster Wheeler has reviewed the USACE decision segments and recommends that three bid packages for construction be developed. The quantity of seepage berm material is anticipated to be extremely large; therefore, we anticipate that a contractor will be needed to dredge the Mississippi River to obtain the volume of sand that will be required. The relief wells could, in theory, be bid as a separate package, but the relief wells are geographically intermixed with the seepage berms meaning there would be multiple contractors working in the similar areas. When multiple contractors work in the same areas, there can be additional costs added to both contracts for coordination and routine items, such as traffic control and haul routes, can become logistically difficult. It can also be difficult to determine ownership of any restoration that needs performed to roads and other features, which is exacerbated by the fact that PdP/FL system only has a handful of roads to/from the entire levee system. With those considerations, the bid packages were broken up by levee system and then also by county limits, resulting in three relatively large construction packages. The FPD Council's FEMA projects have demonstrated that the promise of a large construction job often brings out the most competitive bids from general

contractors. Finally, the FPD Council has earned a positive reputation throughout the local contracting community, which also helps in obtaining good bids for construction work.

The three bid packages have been named Bid Package 15, Bid Package 16, and Bid Package 17 which are a continuation of the numbering from the FEMA Certification Design and other Authorized Level Construction packages along both the Wood River and MESD levee systems. The resultant bid packages are as follows:

- ▶ Bid Package 15 includes the portion of improvements along the Prairie du Pont levee system that is within St. Clair County limits (levee station 167+65 to 435+00). This package includes the abandonment of 53 existing relief wells, construction of 10 new seepage berms, 57 new relief wells, and the construction of a new levee pump station at station 209+13.
- ▶ Bid Package 16 includes the portion of improvements on the Prairie du Pont levee system that spans from the St. Clair/Monroe County line south to Interstate 255 (levee station 435+00 to 550+00). This package includes the abandonment of 37 existing relief wells, construction of 7 new seepage berms, and 40 new relief wells.
- ▶ Bid Package 17 includes the portion of improvements on the Fish Lake levee system which spans from Interstate 255 to the end of the southern flank (levee station 550+00 to 809+35). This package includes the abandonment of 47 relief wells, construction of 6 new seepage berms, 71 new relief wells, and the construction of a larger pump station at levee station 691+00.

Exhibits are included in Appendix 1 depicting the approximate location of each improvement as part of the recommended plan.

Recommendation

It is recommended that the FPD Council proceed with the following work:

Geotechnical Analyses of:

- All relief wells recommended for the Authorized Level project in the PdP/FL levee system.
- All seepage berms recommended for the Authorized Level project in the PdP/FL levee system.

Subsurface investigations of:

- All relief wells recommended for the Authorized Level project in the PdP/FL levee system.
- All seepage berms recommended for the Authorized Level project in the PdP/FL levee system.

Design, Permitting, and Bid Phase Services of:

- All relief wells recommended for the Authorized Level project in the PdP/FL levee system.
- All seepage berms recommended for the Authorized Level project in the PdP/FL levee system.
- All pump stations recommended for the Authorized Level project in the PdP/FL levee system.

3. Schedule

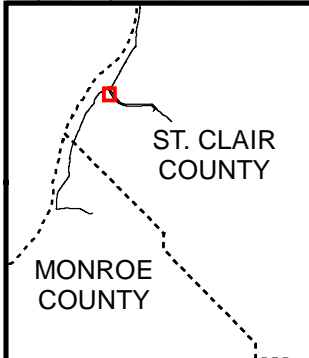
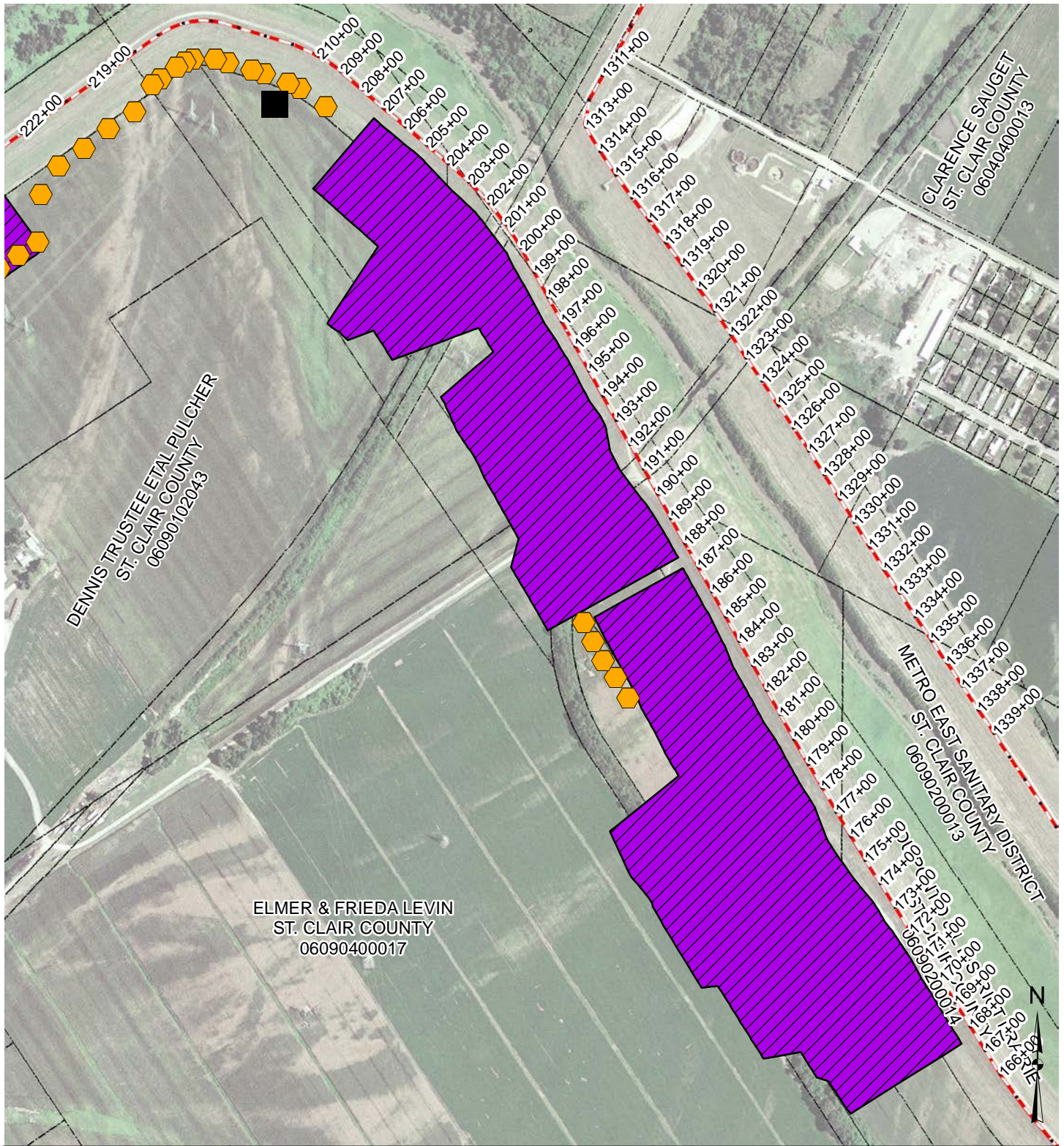
Upon Board approval of this Plan, Amec Foster Wheeler will develop a scope, schedule, and budget cost for the completion of field activities and design for the Bid Packages referenced herein and commence work on a boring plan for subsurface investigations throughout PdP/FL. If approved, the scope, schedule, and budget cost for geotechnical analyses, field work (including drilling), engineering,

permitting, and bid phase services, will be presented at the September 2017 FPD Council board meeting.

4. Risk in Moving Forward

Contrary to the Authorized Level plans in both the Wood River and MESD levee systems, the Authorized Level improvements in the PdP/FL system are unique to the FPD Council since there is no future federal project for the PdP/FL system at this time; therefore, any Authorized Level improvements made to the PdP/FL system will be designed and constructed by the FPD Council. This translates to the FPD Council having more control over the design and construction schedules for PdP/FL, and therefore lower risk relative to both Wood River and MESD.

Appendix 1 – Bid Package / Design Reach Exhibits



USACE Authorized Level of Protection Planning and Analysis

BID PACKAGE 15

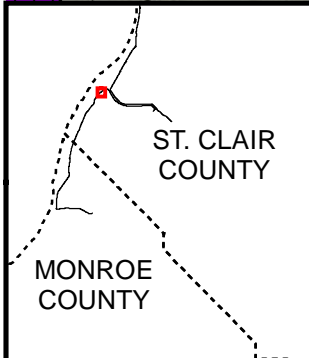
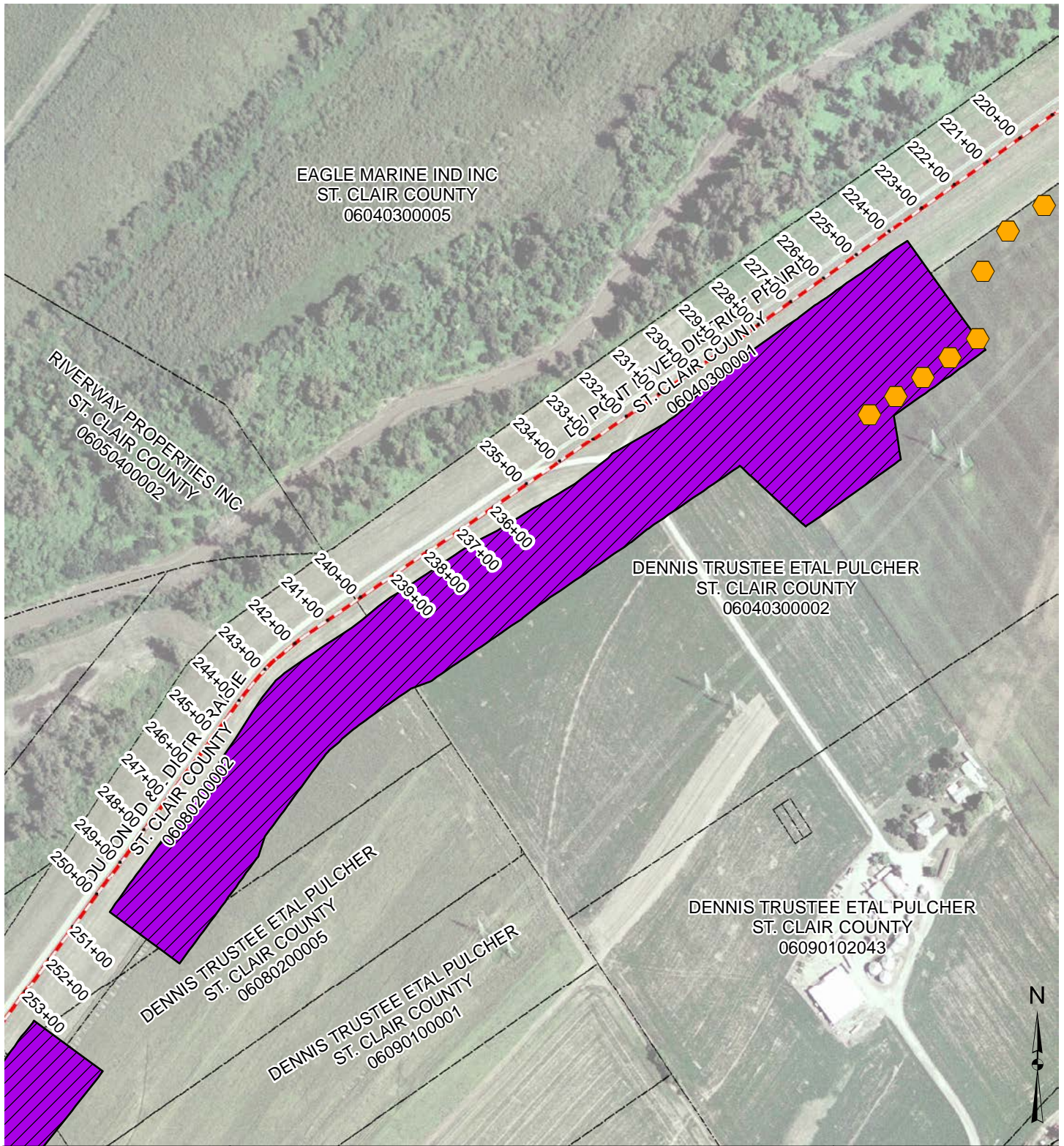
PDP LEVEE SYSTEM

DESIGN STA: 167+65 TO 223+00

08/16/2017 SHEET 1 OF 16

Legend

- Pump Station
- Relief Well
- Seepage Berm



**USACE Authorized Level of
Protection Planning and Analysis**

BID PACKAGE 15

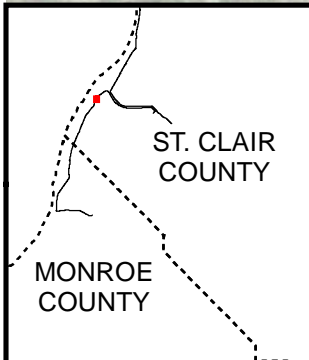
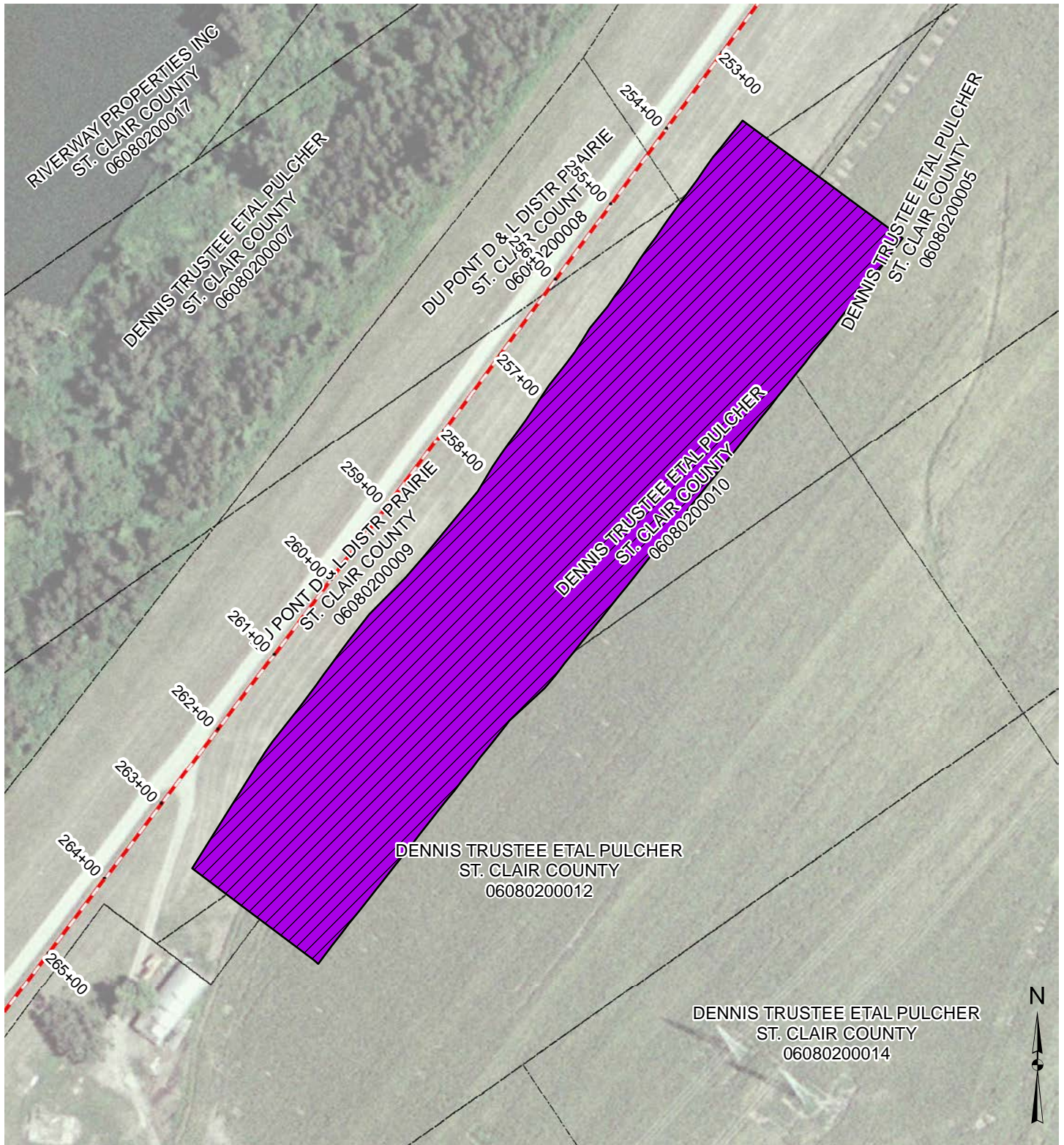
PDP LEVEE SYSTEM

DESIGN STA: 223+75 TO 250+15

08/16/2017 SHEET 2 OF 16

Legend

■	Pump Station
⬡	Relief Well
▨	Seepage Berm



**USACE Authorized Level of
Protection Planning and Analysis**

BID PACKAGE 15

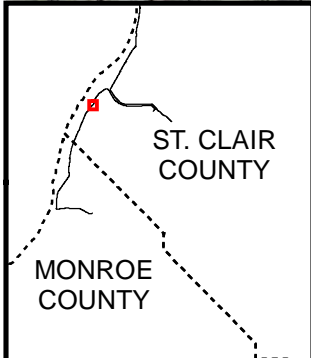
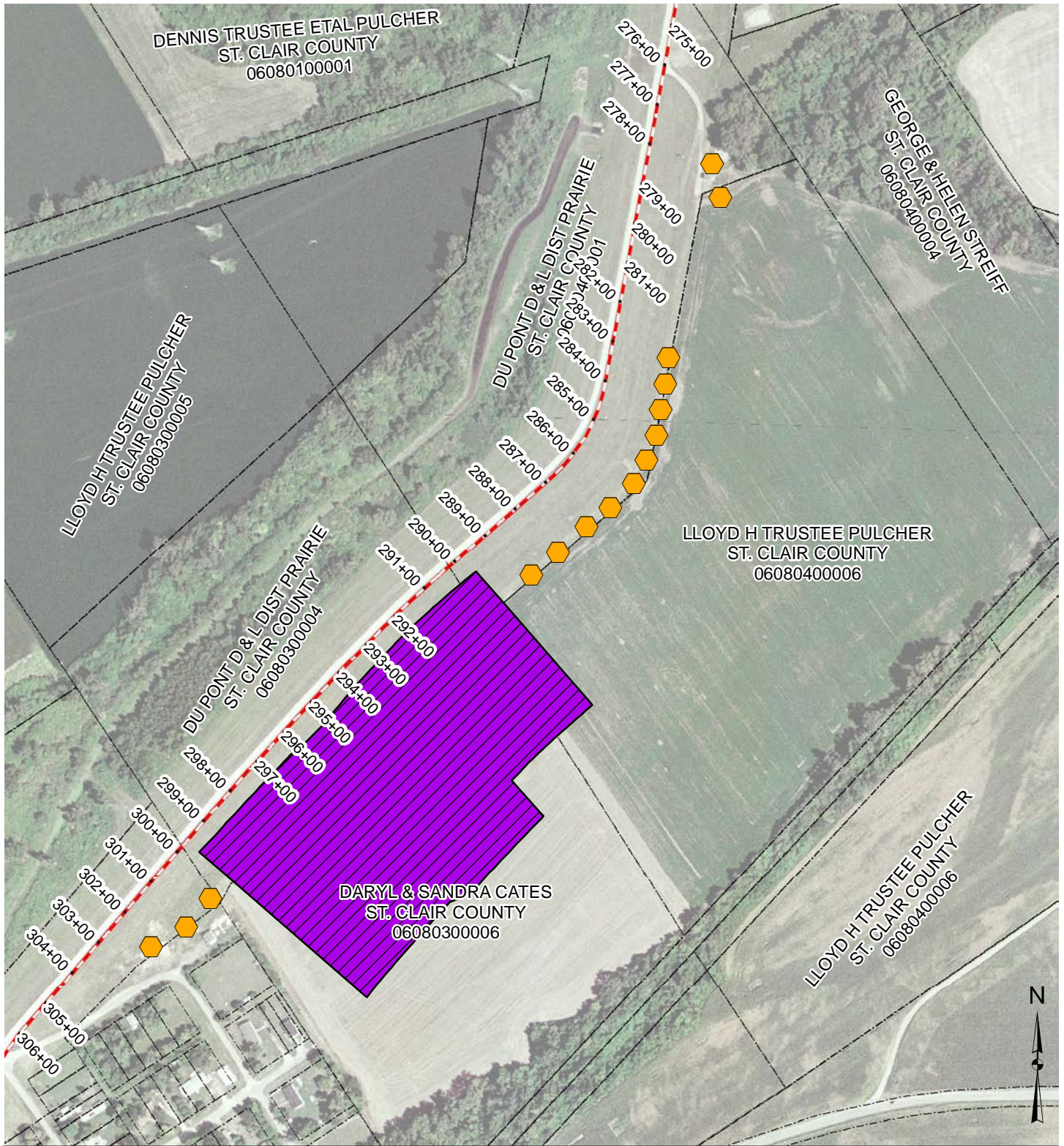
PDP LEVEE SYSTEM

DESIGN STA: 253+45 TO 260+05

08/16/2017 SHEET 3 OF 16

Legend

■	Pump Station
⬡	Relief Well
▨	Seepage Berm



**USACE Authorized Level of
Protection Planning and Analysis**

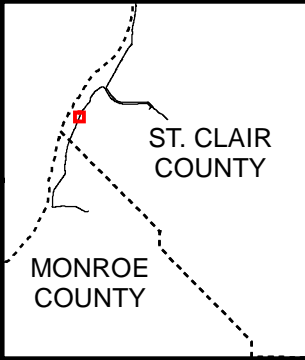
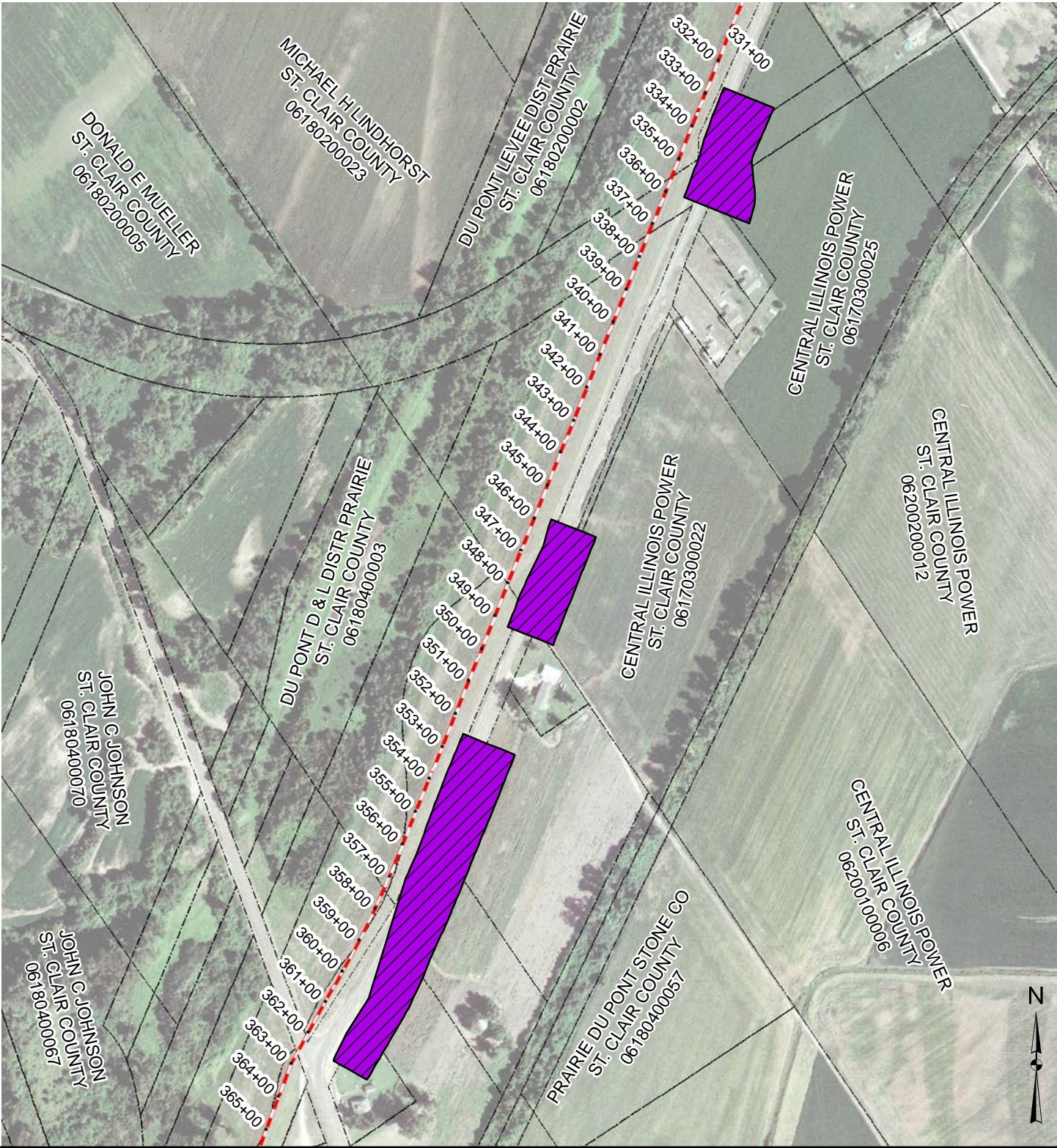
BID PACKAGE 15

PDP LEVEE SYSTEM

DESIGN STA: 278+25 TO 302+50

08/16/2017 SHEET 4 OF 16

Legend	
■	Pump Station
⬡	Relief Well
▨	Seepage Berm






USACE Authorized Level of Protection Planning and Analysis

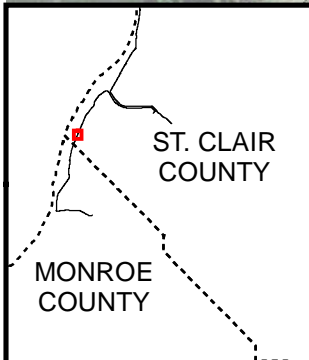
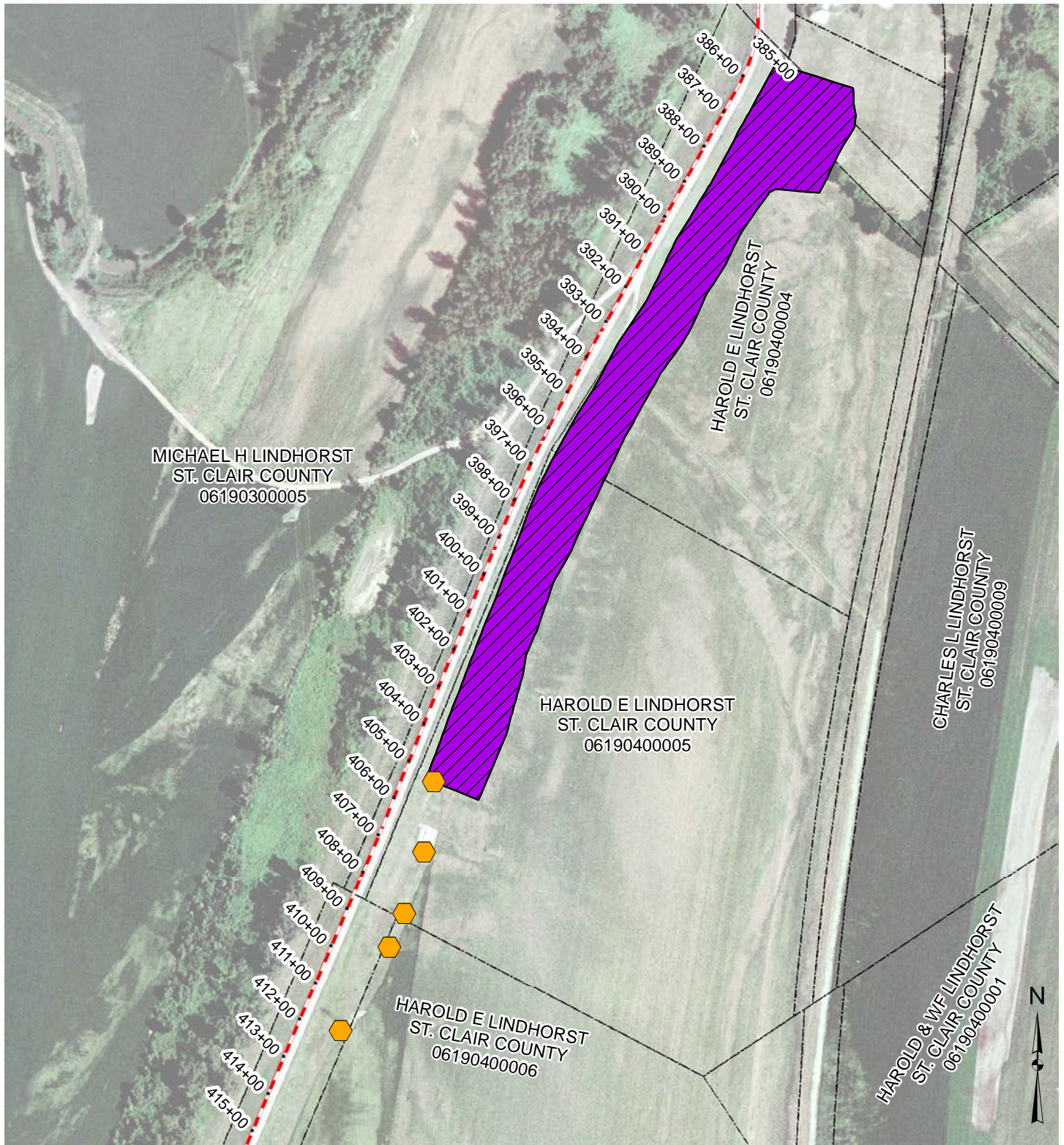
BID PACKAGE 15

PDP LEVEE SYSTEM

DESIGN STA: 332+65 TO 362+35

08/16/2017 SHEET 5 OF 16

Legend	
	Pump Station
	Relief Well
	Seepage Berm



**USACE Authorized Level of
Protection Planning and Analysis**

BID PACKAGE 15

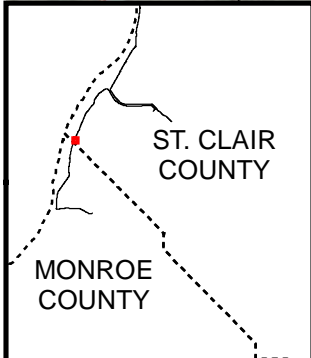
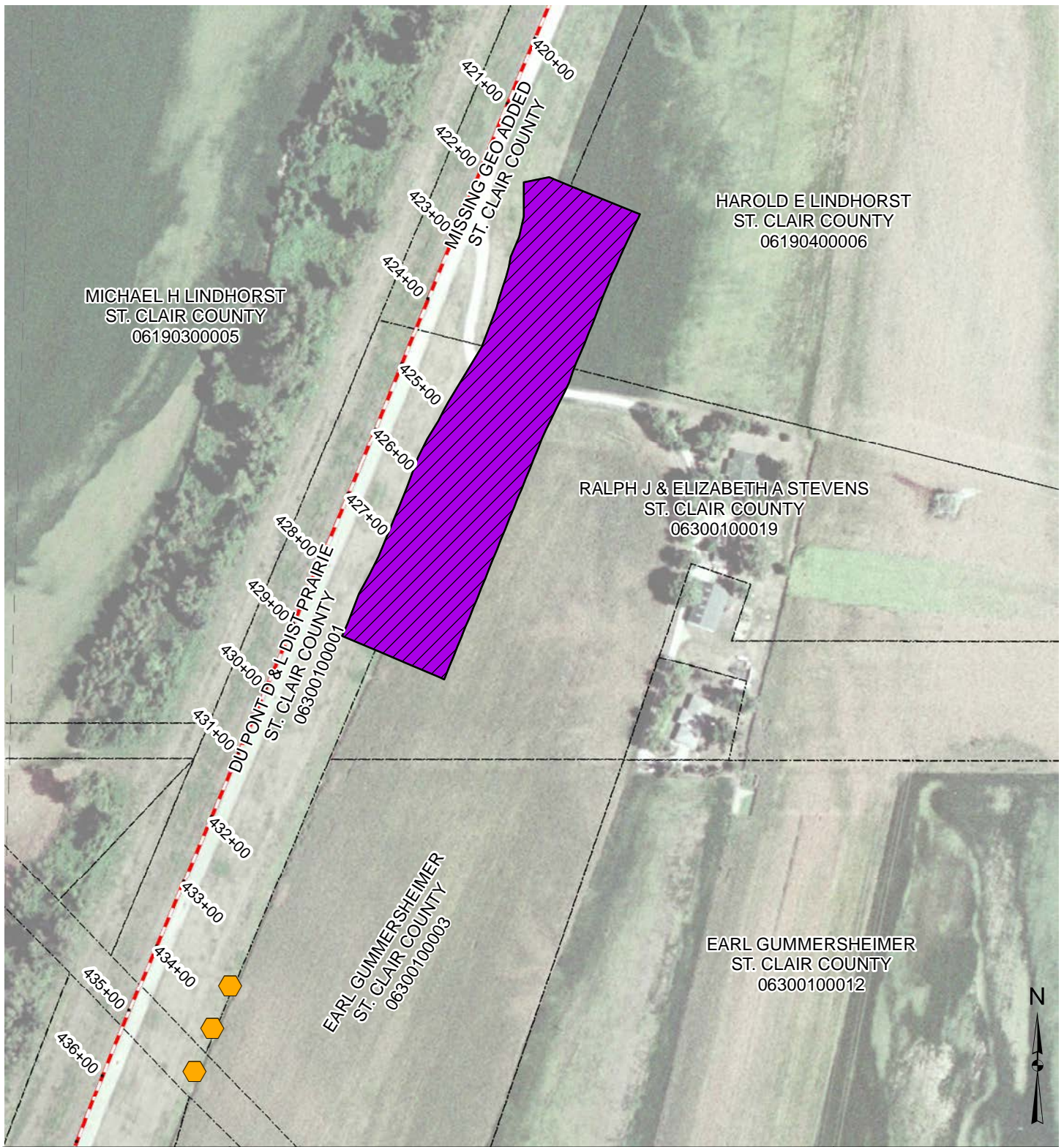
PDP LEVEE SYSTEM

DESIGN STA: 385+45 TO 412+00

08/16/2017 SHEET 6 OF 16

Legend

■	Pump Station
⬡	Relief Well
▨	Seepage Berm



USACE Authorized Level of Protection Planning and Analysis

BID PACKAGE 15

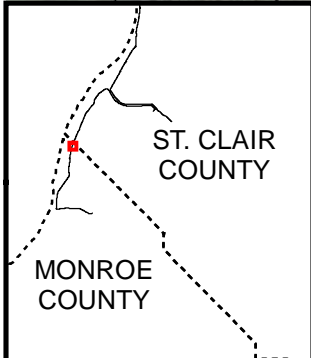
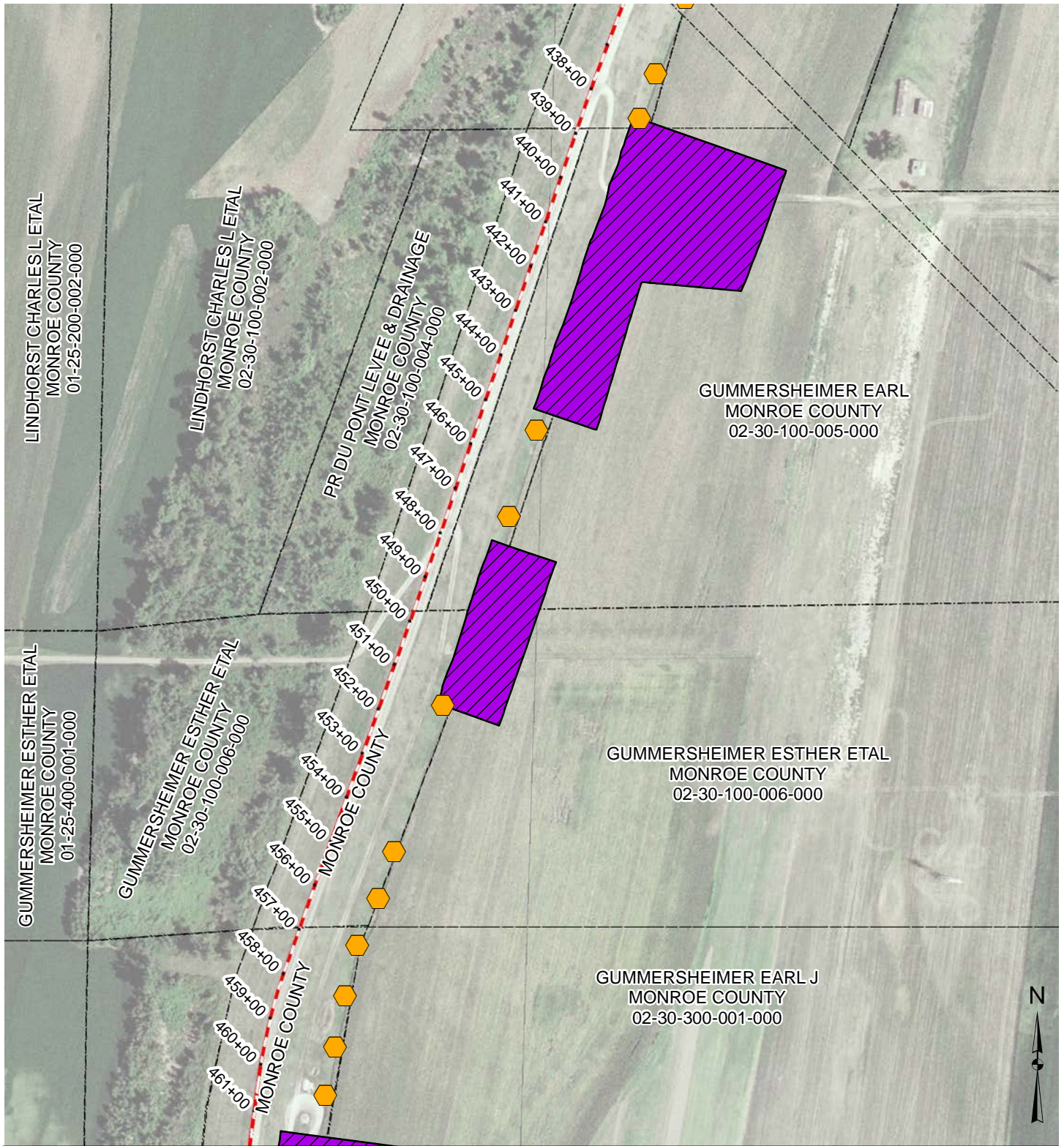
PDP LEVEE SYSTEM

DESIGN STA: 421+75 TO 435+50

08/16/2017 SHEET 7 OF 16

Legend

■	Pump Station
⬡	Relief Well
▨	Seepage Berm



**USACE Authorized Level of
Protection Planning and Analysis**

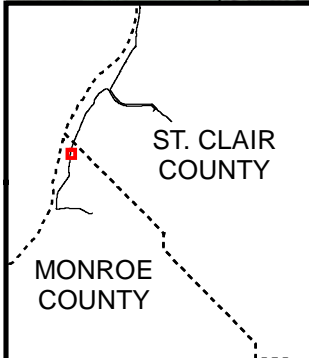
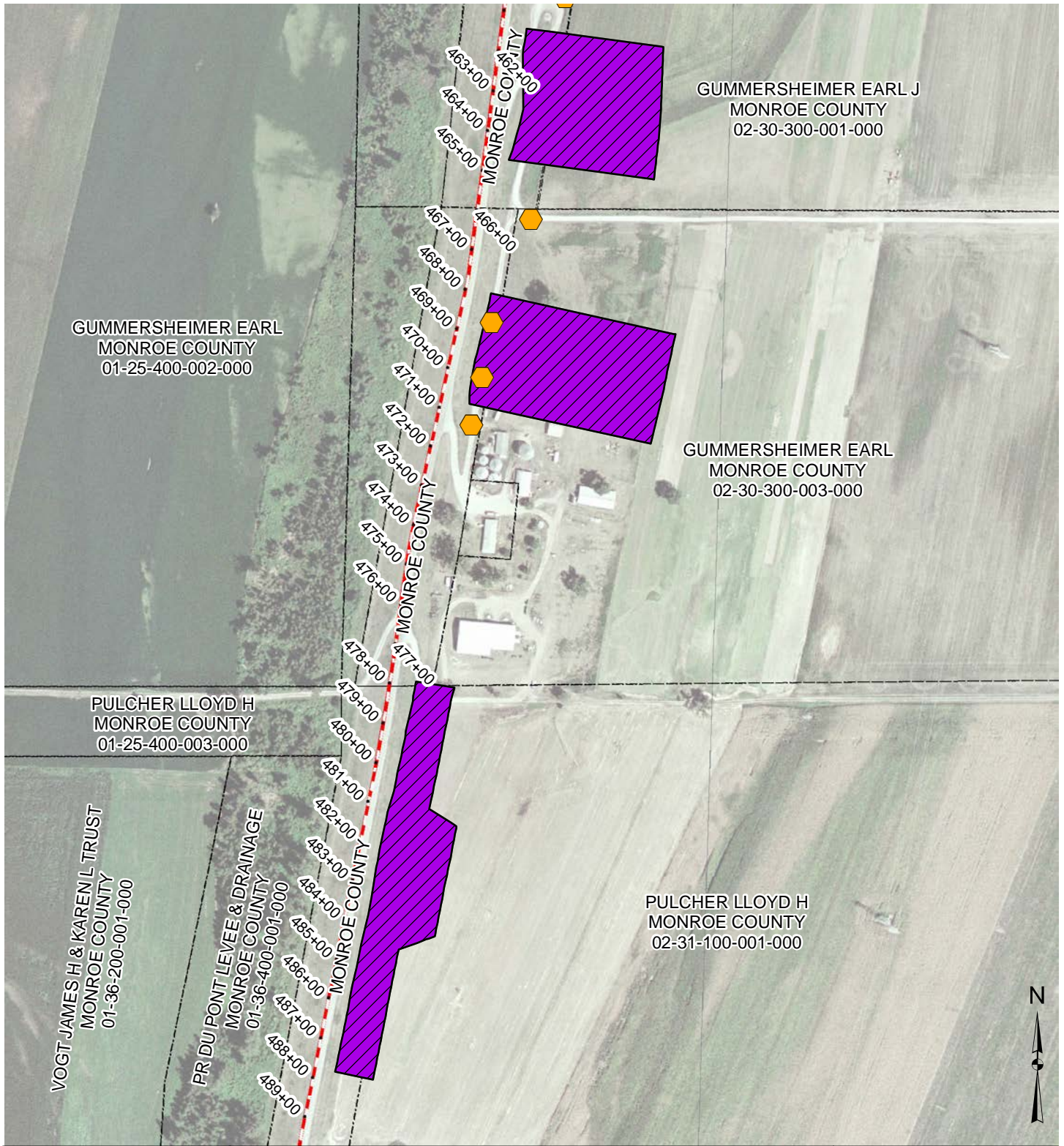
BID PACKAGE 16

PDP LEVEE SYSTEM

DESIGN STA: 437+25 TO 460+50




08/16/2017 SHEET 8 OF 16

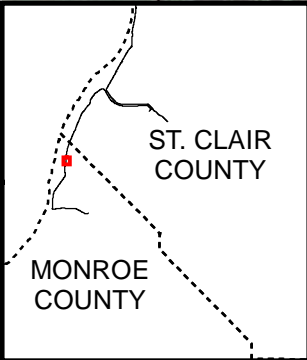
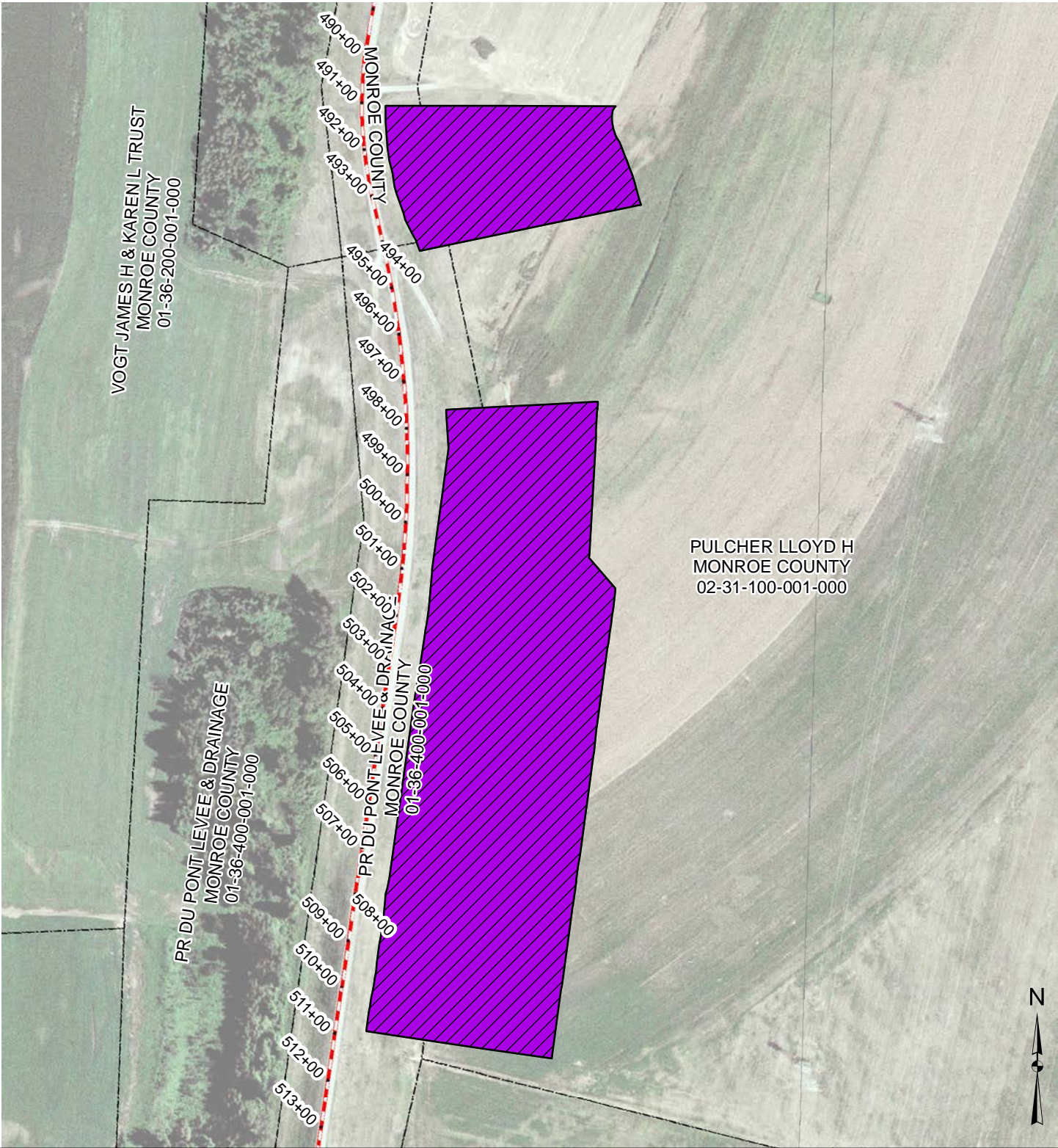
Legend	
■	Pump Station
⬡	Relief Well
▨	Seepage Berm



USACE Authorized Level of Protection Planning and Analysis
BID PACKAGE 16
PDP LEVEE SYSTEM
DESIGN STA: 461+35 TO 487+75

08/16/2017 SHEET 9 OF 16

Legend	
	Pump Station
	Relief Well
	Seepage Berm



USACE Authorized Level of Protection Planning and Analysis

BID PACKAGE 16

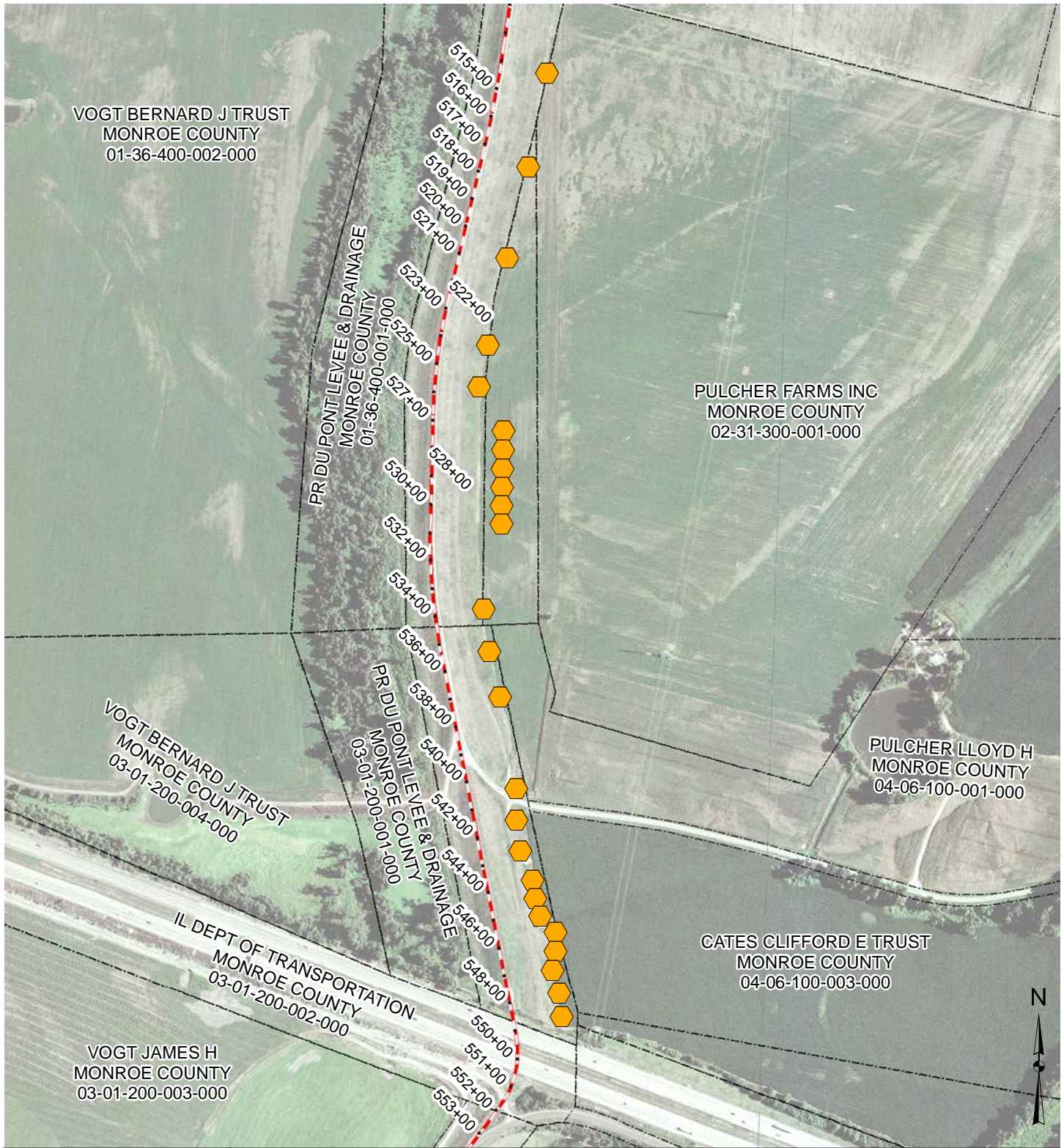
PDP LEVEE SYSTEM

DESIGN STA: 491+05 TO 510+85

08/16/2017 SHEET 10 OF 16

Legend

- Pump Station
- Relief Well
- Seepage Berm



VOGT BERNARD J TRUST
MONROE COUNTY
01-36-400-002-000

PR DU PONT LEVEE & DRAINAGE
MONROE COUNTY
01-36-400-001-000

PULCHER FARMS INC
MONROE COUNTY
02-31-300-001-000

VOGT BERNARD J TRUST
MONROE COUNTY
03-01-200-004-000

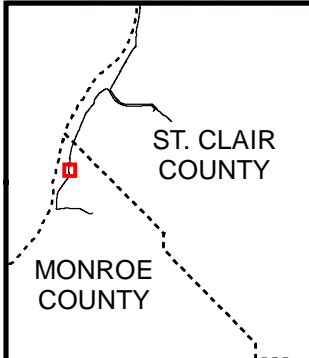
PR DU PONT LEVEE & DRAINAGE
MONROE COUNTY
03-01-200-001-000

PULCHER LLOYD H
MONROE COUNTY
04-06-100-001-000

IL DEPT OF TRANSPORTATION
MONROE COUNTY
03-01-200-002-000

CATES CLIFFORD E TRUST
MONROE COUNTY
04-06-100-003-000

VOGT JAMES H
MONROE COUNTY
03-01-200-003-000






USACE Authorized Level of Protection Planning and Analysis

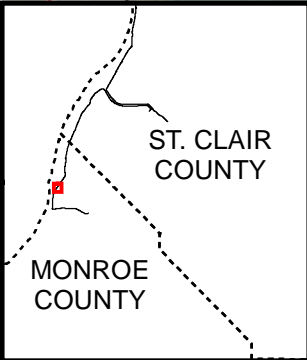
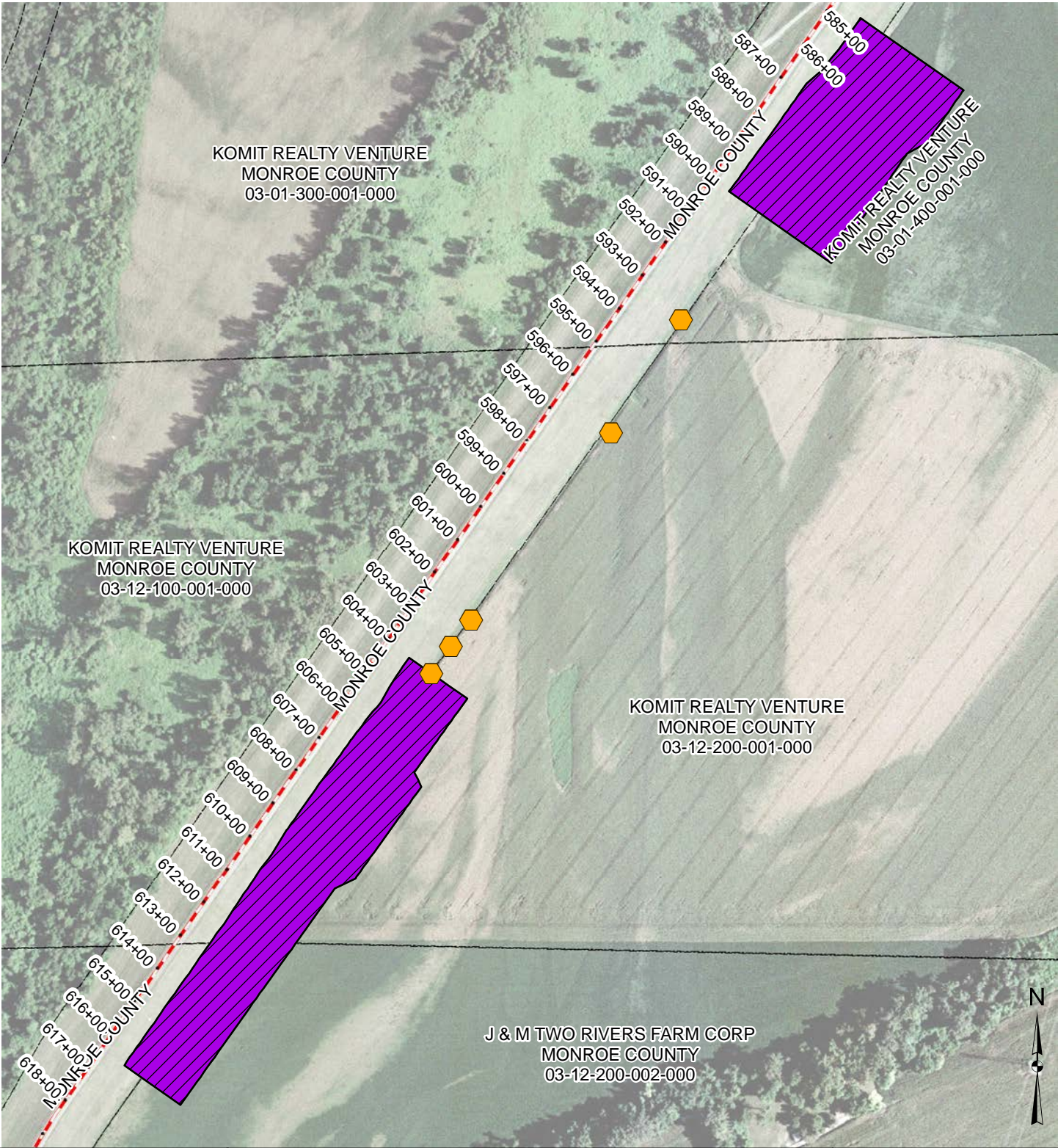
BID PACKAGE 16

PDP LEVEE SYSTEM

DESIGN STA: 514+25 TO 548+50




Legend

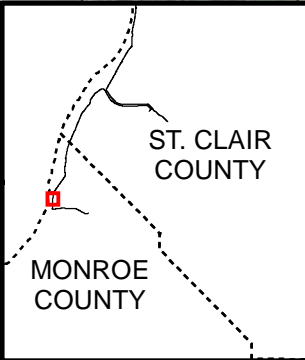
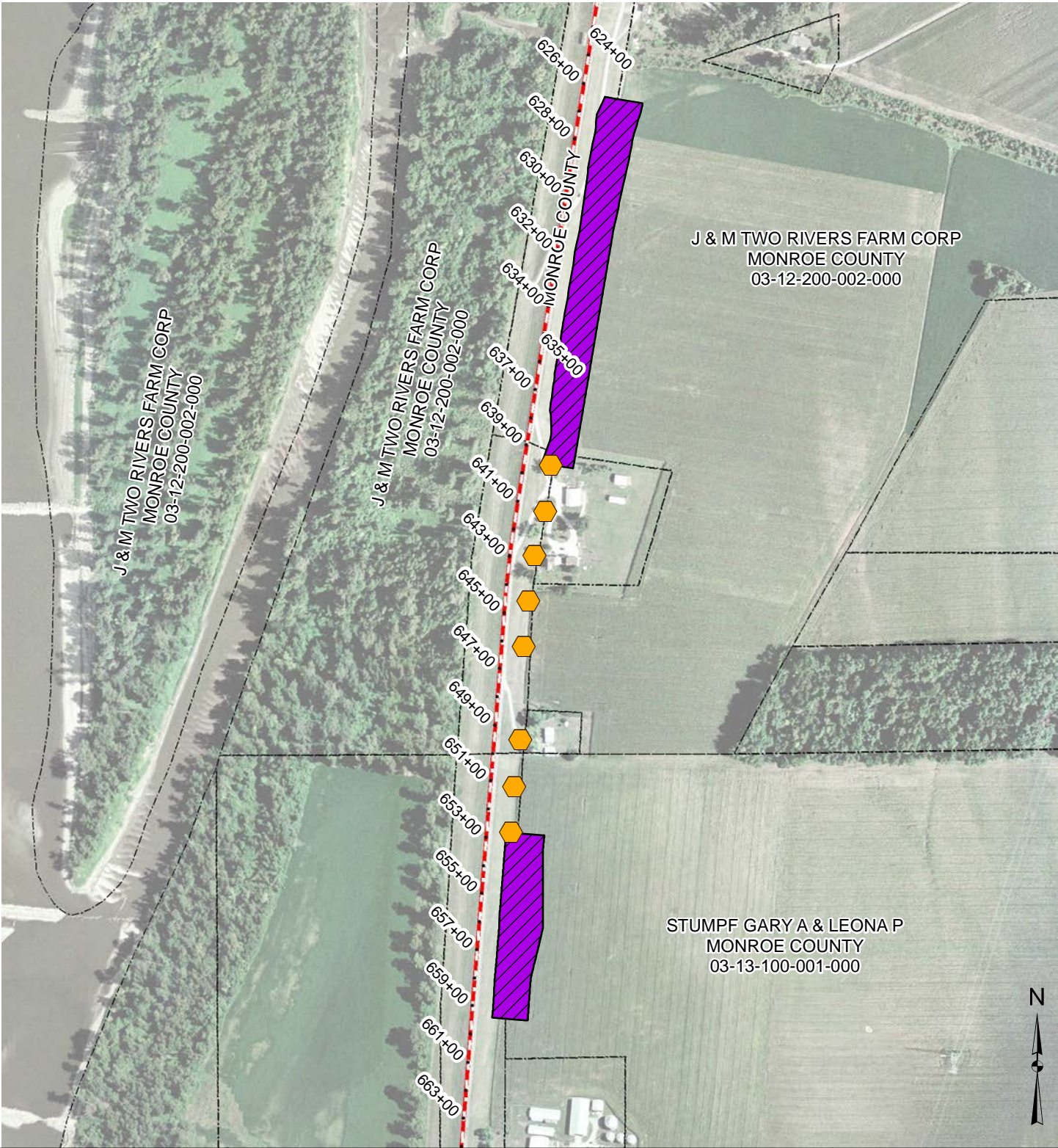
-  Pump Station
-  Relief Well
-  Seepage Berm



USACE Authorized Level of Protection Planning and Analysis
BID PACKAGE 17
FL LEVEE SYSTEM
 DESIGN STA: 584+65 TO 616+35

08/16/2017 SHEET 12 OF 16

Legend	
	Pump Station
	Relief Well
	Seepage Berm



USACE Authorized Level of Protection Planning and Analysis

BID PACKAGE 17

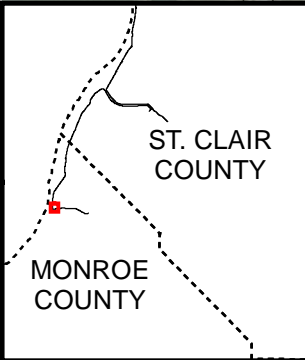
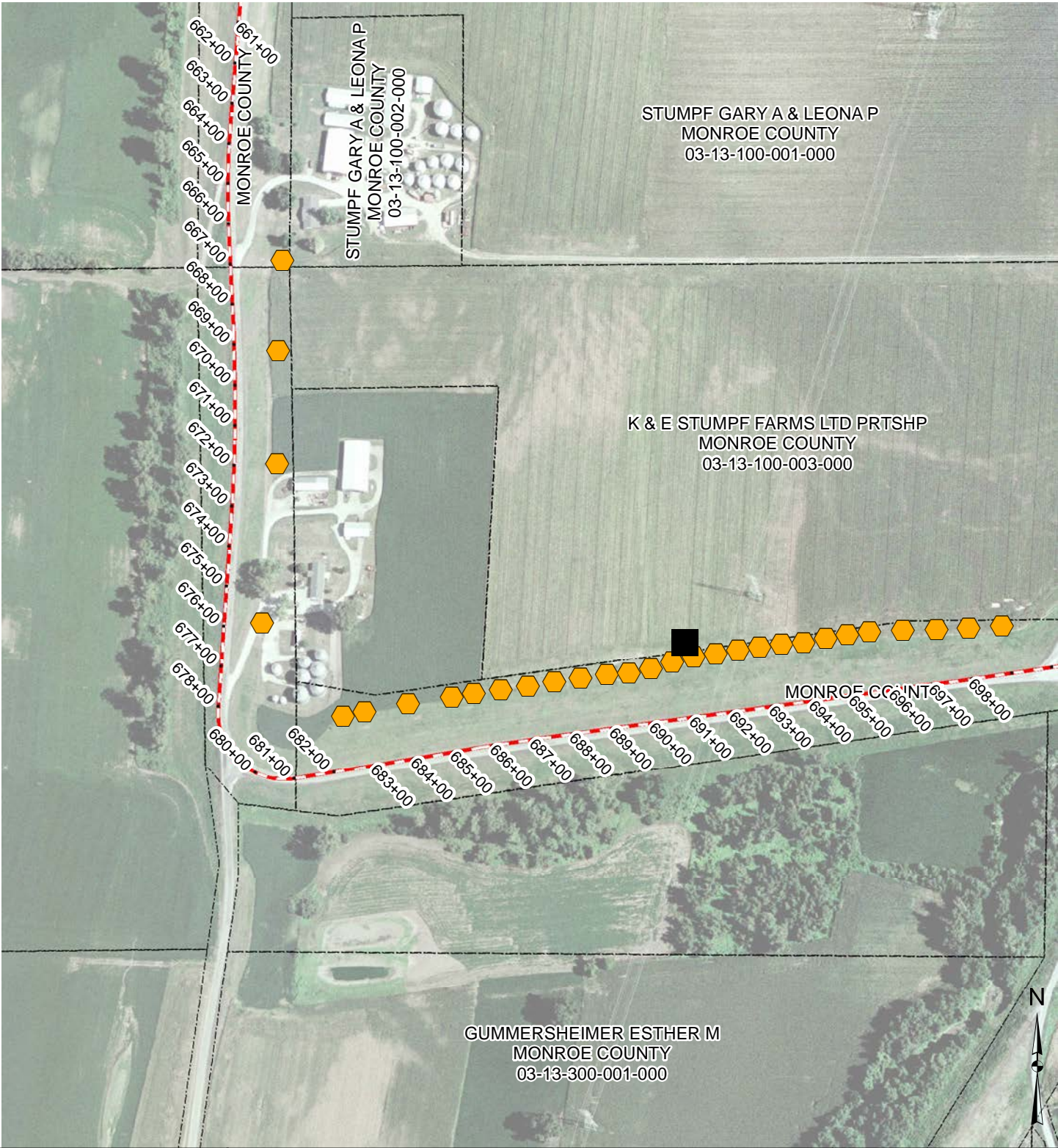
FL LEVEE SYSTEM

DESIGN STA: 626+35 TO 659+50

08/16/2017 SHEET 13 OF 16




Legend

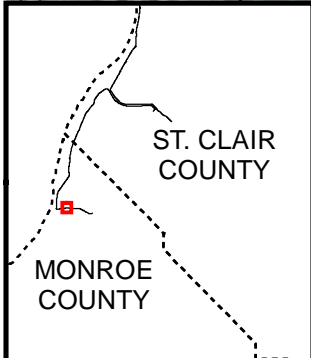
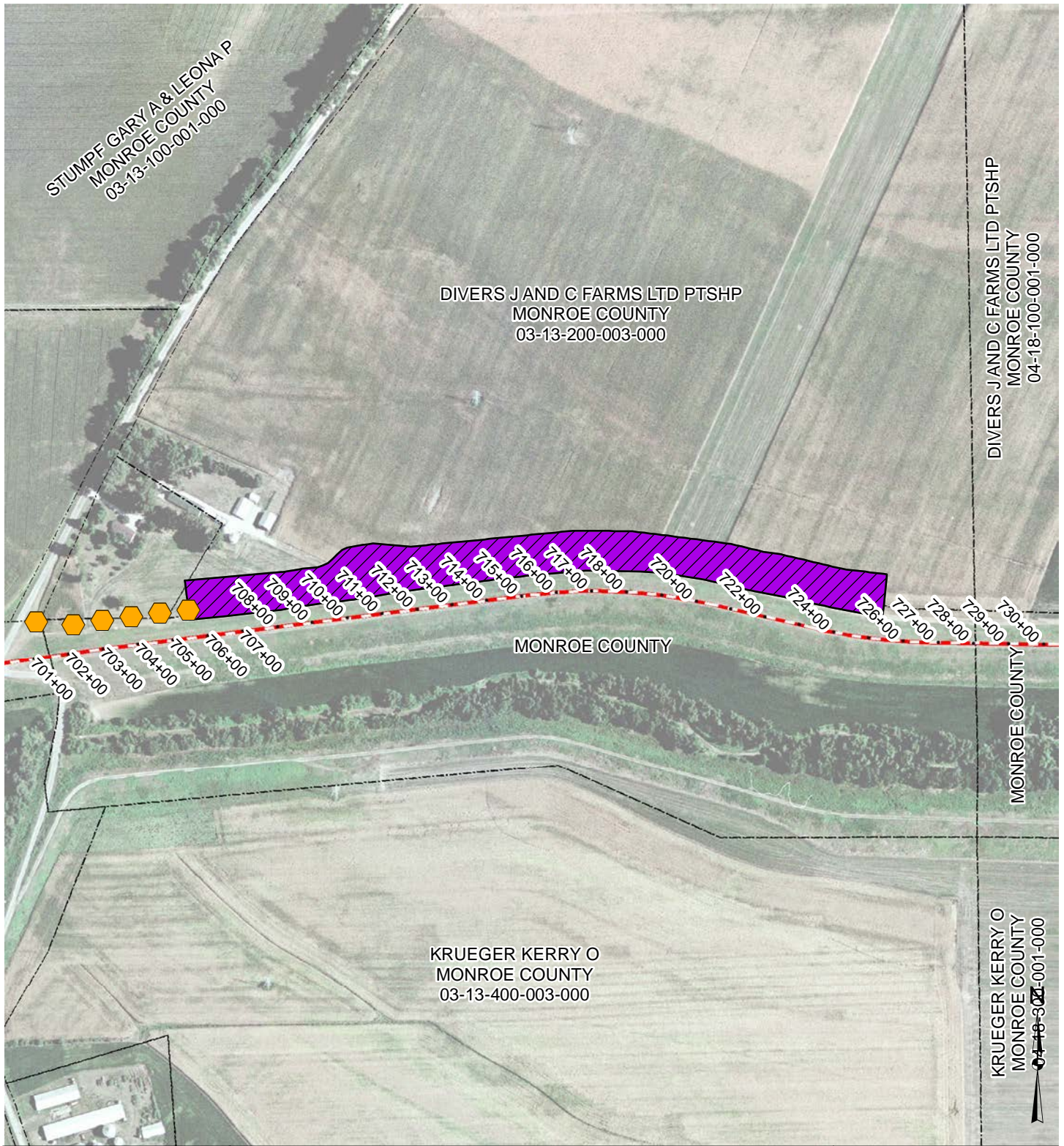
- Pump Station
- Relief Well
- Seepage Berm



USACE Authorized Level of Protection Planning and Analysis
BID PACKAGE 17
FL LEVEE SYSTEM
 DESIGN STA: 667+00 TO 699+00

08/16/2017 SHEET 14 OF 16

Legend	
	Pump Station
	Relief Well
	Seepage Berm



USACE Authorized Level of Protection Planning and Analysis

BID PACKAGE 17

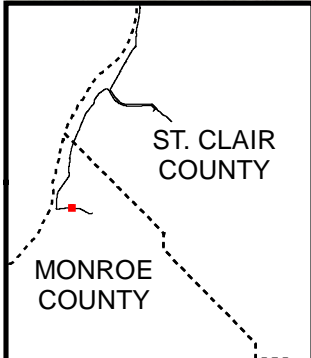
FL LEVEE SYSTEM

DESIGN STA: 701+00 TO 725+50

08/16/2017 SHEET 15 OF 16

Legend

- Pump Station
- Relief Well
- Seepage Berm



USACE Authorized Level of Protection Planning and Analysis

BID PACKAGE 17




FL LEVEE SYSTEM

DESIGN STA: 732+00 TO 735+25

08/16/2017

SHEET 16 OF 16

Legend

-  Pump Station
-  Relief Well
-  Seepage Berm