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April 23, 2010

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Ms. Felicia Miller  
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1516 Ninth Street  
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Subject: Almond 2 Power Plant (09-AFC-02)  
Delineation of Wetlands and Waters of the U.S. for Line 7216-03 Project

Dear Ms. Miller:

Attached please find 3 hard copies and 2 electronic copies on CD-ROM of the Almond 2 Power Plant's Delineation of Wetlands and Waters of the U.S. for the Line 7216-03 Project.

If you have any questions about this matter, please contact me at (916) 286-0249 or contact Susan Strachan at (530) 757-7038.

Sincerely,

CH2M HILL

Sarah Madams  
AFC Project Manager

Attachment

cc: S. Strachan, Strachan Consulting  
R. Baysinger, TID

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*Draft Report*

# **Delineation of Wetlands and Waters of the United States for the Line 7216-03 Project**

Prepared for  
**Pacific Gas and Electric Company**

April 2010

**CH2MHILL**

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# Acronyms and Abbreviations

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CFR	Code of Federal Regulations
NRCS	U.S. Department of Agriculture, Natural Resources Conservation Service
PG&E	Pacific Gas and Electric Company
PID	Patterson Irrigation District
TID	Turlock Irrigation District
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
WRCC	Western Regional Climate Center

## SECTION 1

# Introduction

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Pacific Gas and Electric Company (PG&E) proposes to extend its existing natural gas system with Line 7216-03 approximately 13.4 miles northward in Stanislaus County, California, to reinforce PG&E's existing natural gas service in the Modesto area and supply natural gas to a proposed power plant (the Line 7216-03 Project or the Project).

PG&E supplies natural gas to the Modesto area of its service territory and the existing Almond Power Plant (APP), owned by Turlock Irrigation District (TID), via the existing PG&E Line 148. Line 148 is regulated near the transmission tap near the western end of Vernalis. The line then runs through Vernalis and on to the Modesto area.

TID's proposed Almond 2 Power Plant (A2PP) project, which will be immediately north of the existing APP, will receive its natural gas supply primarily from the northward expansion of Line 7216-03. The northern extension of Line 7216-03 will bring natural gas to a new PG&E regulating station to be located on TID property, just to the south of the existing APP project and north of TID Lateral 2. The PG&E regulating station will allow PG&E to supply (back-feed) natural gas supply from Line 7216-03 into Line 148 as conditions demand. This ability to supply Line 148 from the northward expansion of Line 7216-03 will allow PG&E to support current and future PG&E customers on Line 148 without the need for new piping to bring more gas into the Modesto portion of PG&E's service territory.

The gas pipeline route for the Line 7216-03 Project extends along a combination of paved county roads and private dirt roads and along the edges of active cultivated agricultural fields and orchards. The Project will cross several active irrigation canals and drains managed by TID and other entities. The drains convey irrigation and stormwater to the San Joaquin River.

In addition to the northward expansion, a 1.8-mile segment of the Project will be located west of the river's riparian corridor. This segment consists of a new 24-inch gas pipeline, which will reinforce PG&E's existing Line 215. Although all the irrigation drains and canals are managed to convey irrigation water on and off the agricultural fields and to drain stormwater from the region, only two drains may have some characteristics consistent with U.S. Army Corps of Engineers (USACE) permitting jurisdiction.

Wetlands and waters of the United States are ecological habitats that are protected under the Federal Clean Water Act and are under the jurisdiction of the USACE. Activities that have the potential to discharge fill materials into "waters of the United States," including wetlands, are subject to the USACE's permitting jurisdiction. This report presents the results of a wetland delineation conducted for the Line 7216-03 Project.

The results presented in this report are preliminary, pending verification by USACE. Information on the Line 7216-03 Project and a general description of the environmental setting follows. Study methods and results are provided in the following sections.

## 1.1 Project Location

The Line 7216-03 Project location is in the northern part of the San Joaquin Valley in Stanislaus County (Appendix A). The San Joaquin Valley occupies the southern half of California's Central Valley, between the Sierra Nevada and Coast ranges, extending from Stockton south to Bakersfield. The site is located within the Manteca-Merced Alluvium subsection of the Great Valley ecoregion (Miles and Goudey, 1998). This area consists of gently sloping floodplains and alluvial fans between the Sierra Nevada and the San Joaquin River.

The Line 7216-03 Project is located along county and farm roads that cross several irrigation and drains managed and operated by TID and others (Appendix B). Other surface water resources in the area include the San Joaquin River west of the project, the Tuolumne River north of the project, and several tributaries to both of these river systems (Appendix C).

At the northern terminus of the gas pipeline, a natural gas regulating station would be located at the existing APP at 4500 Crows Landing Road, Ceres, California (Appendix A). The Line 7216-03 Project would be located in the northwestern quarter of section 21, Township 04 south, Range 09 east (Mt. Diablo Meridian) in the Ceres U.S. Geological Survey (USGS) 7.5-minute quadrangle. The northern terminus is located at 37.573446° north latitude and -120.985728° west longitude. The southwestern terminus of the pipeline is located at 37.438663° north latitude and -121.074508° west longitude.

The Line 7216-03 Project will begin with segment 1. Segment 1 would be west of the San Joaquin River, outside the riparian zone, along Prune Avenue (parallel to a Patterson Irrigation District (PID) irrigation canal) and extend for approximately 1.8 miles to the east (Appendix D). No work will be done on the existing pipeline under the San Joaquin River, nor will any work be done inside the riparian zone of the San Joaquin River. On the east side of the San Joaquin River, the pipeline will join PG&E's pipeline 215 at W. Bradbury Road. The pipeline will then extend north along an unnamed farm road for 0.7 mile. The pipeline will extend east through a farm field for 0.5 mile. The pipeline will then extend north on an unnamed farm road for 0.3 mile. The Project then will turn east along W. Harding Road (paralleling the TID Lateral 5) for approximately 1.5 miles. The pipeline then will turn north on Bystrum Road and unpaved farm access roads for approximately 4.5 miles before turning east on E. Zeering Road for approximately 0.5 mile. The pipeline then will continue north along Morgan Road for 3 miles. At the intersection of TID Lateral 2 and Morgan Road, the pipeline will turn west and run parallel to TID's Lateral 2 for approximately 0.6 mile, terminating at a new PG&E regulating station located on the APP project site.

## SECTION 2

# Field Survey Methods

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Surveys for potential jurisdictional wetlands and waters of the United States were conducted concurrently with various habitat and wildlife surveys for the project study area. Surveys of the natural gas pipeline alignment and the regulating station to be located at the APP site were conducted by CH2M HILL biologists Bridget Canty and Victor Leighton on January 28, June 30, and July 1, 2009, and by Ms. Canty and CH2M HILL biologist Rick Crowe on March 10, 2009. At that same time, TID also instructed the survey crews deployed in the field to conduct surveys on the proposed A2PP site, the laydown areas, and the transmission line corridors for the proposed A2PP site. No wetlands were found to be associated with the proposed A2PP project or the A2PP project features.

Additional biological surveys of the natural gas pipeline alignment were conducted on September 2, 2009, by CH2M HILL biologists Michael Clary and Dan Weinberg. A botanical assessment survey of the gas line and transmission lines was conducted on October 12, 2009, by botanical consultant Virginia Dains and Ms. Canty. Additional non-protocol field surveys for giant garter snake habitat suitability were conducted by Mr. Clary in aquatic habitats on September 15 and 22, 2009, and by biological consultant Eric C. Hansen and Mr. Clary on October 12, 2009. Ms. Canty and CH2M HILL biologist Debra Crowe evaluated the potential connectivity of irrigation canals, drains, and ditches in the project area to the San Joaquin River on January 7, 2010. Additional surveys of the Line 7216-03 Project alignment and A2PP project features were conducted during the wet season on January 27 and 29, 2010, to assess ponding and water levels. CH2M HILL soil biologist Steve Long conducted additional soil analyses for the delineation of Harding Drain and Prairie Flower Drain on March 2, 2010.

## 2.1 Wetlands

The USACE defines wetlands as areas that are “inundated by surface water or groundwater with 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.” (Title 40 Code of Federal Regulations [CFR] Section 230.3 and Title 33 CFR Section 238). The wetland field surveys were conducted following the survey methodology described in the 1987 *Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE, 2008).

The USACE uses the three-criterion approach (vegetation, soils, and hydrology) to determine the presence of wetlands. As a general rule, under this method, evidence of a minimum of one positive indicator for each criterion must be found in order to make a positive wetland determination.

## 2.2 Waters of the United States

Waters of the United States include all waters used in interstate or foreign commerce; all interstate waters including interstate wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent and ephemeral streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, where the use, degradation, or destruction of which could affect interstate commerce; impoundments of these waters; tributaries of these waters; or wetlands adjacent to these waters (Section 404 of the Clean Water Act; Title 33 CFR Part 328). With non-tidal waters, in the absence of adjacent wetlands, the extent of federal jurisdiction is defined by the ordinary high water mark, the line on the shore established by the fluctuations of water, and indicated by a clear, natural line impressed on the bank, shelving, changes in soil character, destruction of terrestrial vegetation, or the presence of litter and debris.

Historical and existing USGS maps of the area were reviewed for jurisdictional blue-line streams, rivers, or other natural water features. No natural, undisturbed waters of the United States were observed in the Project area. The San Joaquin River is outside the Project area. Potential waters of the United States were assessed for source of water flows and duration in the irrigation canals and drains that flow and have connectivity to the San Joaquin River. Additionally, wetland hydrology was determined based on observations of saturation or inundation during the field surveys and other primary and secondary indicators, such as presence of aquatic invertebrates, algal matting, water marks, and sediment deposits. Additional factors considered in determining wetland hydrology included site drainage, landscape position, and micro-topography.

Dominant plant species (wetland and upland species) were identified at each location, and the percent cover was visually estimated. All taxonomic designations follow *The Jepson Manual of Higher Plants of California* (Hickman, 1993) or the current revised taxonomy per the *Jepson Interchange for California Floristics* (University of California, 2009). The wetland indicator status was determined using the *National List of Plant Species that Occur in Wetlands: Region 0* (Reed, 1988). Dominant species within each vegetation strata included the most abundant species whose cumulative cover accounted for at least 50 percent of the total cover, as well as any single species that accounted for at least 20 percent of the vegetative cover. Strata that contained less than 5 percent total cover were not considered in the dominance test.

Descriptions of soils were made at each sample location by examining soil pits dug with a tile spade to depths of at least 8 inches where possible. Soil morphological features such as texture, color, and redoximorphic features were noted. Soils texture was estimated in the field using the "ribbon test" to approximate the clay, silt, and sand content. Moist soil colors were determined using Munsell color charts.

## SECTION 3

# Site Description

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Land use throughout the Project area is predominantly agriculture with scattered small farms and rural residential areas. More urban areas are concentrated around the communities of Ceres and Modesto north of the project site. Elevations in the project vicinity generally range from 50 to 75 feet above mean sea level with drainage to the southwest.

## 3.1 Terrestrial Habitats and Land Use

The proposed the Line 7216-03 Project alignment is primarily along existing paved roads, dirt farm access roads, and the edges of active cultivated agricultural fields and orchards. Cultivated crops along the alignment include wheat, alfalfa, and corn, as well as some areas of irrigated pasture. Orchard crops include almonds, walnuts, and cherries. Most of the field crops, orchards, and pastures are flood irrigated. Other agricultural land uses include dairies, poultry farms, and sod farms. Occasional rural small farms and residential areas are present along the natural gas supply line route. Potential waters of the United States were observed along the proposed the Line 7216-03 Project alignment, primarily within managed drains that convey irrigation and storm water. These are described in Section 4.

## 3.2 Climate

The regional climate is characterized by cool, wet winters and hot, dry summers. Average temperatures range from a low of 38 degrees Fahrenheit (°F) in December and January to a high of 94°F in July (Western Regional Climate Center [WRCC], 2010). According to the Natural Resources Conservation Service (NRCS) Climate Analysis for Wetlands (NRCS, 2002) the growing season (based on data from Modesto, California, and defined as temperatures above 32°F with as probability of 70 percent) extends from January 23 through December 21 for a total of 333 days. The average annual rainfall recorded at the Modesto weather station (045738) is 12.21 inches during the water year, which begins on October 1 and ends on September 30. Most of the annual precipitation (9.75 inches) occurs between November and March (WRCC, 2009).

The wetland delineation was conducted mid-way through the 2009-2010 water year. Based on daily climate data recorded at the Modesto weather station, approximately 5 miles north of the project site, the 2009-2010 water year appears to be an average rainfall year, with 7.25 inches or approximately 59 percent of the average annual rainfall recorded between October 1, 2009, and January 31, 2009 (University of California Statewide Integrated Pest Management Program , 2010; WRCC, 2010).

## 3.3 Hydrology

The Line 7216-03 Project is in the Middle San Joaquin-Lower Merced-Lower Stanislaus Hydrologic Unit (Hydrologic Unit Code 18040002), which encompasses approximately

433,300 acres. Major rivers in Stanislaus County include the San Joaquin, the Stanislaus, and the Tuolumne. The San Joaquin River originates in Fresno County, crossing southwestern San Joaquin County before terminating in the Sacramento-San Joaquin River Delta. The Stanislaus and the Tuolumne rivers terminate in the San Joaquin River west of the project site. All the major rivers in Stanislaus County have been modified by impoundments or diversion channels. At its nearest points, the natural gas pipeline is located approximately 2.75 miles south of the Tuolumne River and approximately 0.15 mile east of the San Joaquin River (Appendix E).

### 3.3.1 Irrigation Drainages

A significant factor in converting the arid San Joaquin Valley for intensive agriculture was the implementation of widespread irrigation via concrete-lined and earthen conveyance canals (Appendix D). These canals supply water to agricultural fields and also drain tail-water back to detention basins or to canals and drainages. The drains also convey stormwater from Ceres and adjacent lands. Most of the irrigation canals and drainage ditches along the county roads are operated by individual improvement districts, which are overseen by TID, and are generally kept clear of aquatic and riparian vegetation.

Drainage ditches in the proposed construction areas vary in size from approximately 3 to 6 feet wide. These ditches are primarily found along roadsides and along the edges of agricultural fields. There are 11 concrete-lined canals/drainages and 56 earthen drainages/ditches along the gas pipeline alignment (Appendix E).

## 3.4 Soils

Twenty-three mapped soil units belonging to 13 soil series occur in the Line 7216-03 Project impact area (Table 3-1; Appendix F). Summary description of the soils provided in Table 3-1 were developed using the online and published Soil Survey of Eastern Stanislaus Area, California (NRCS, 2009a; NRCS, 1964), and online Soil Survey of Stanislaus County, Western Part, California (NRCS, 2009b). Descriptions of the soil mapping units were developed from the soil survey and the online soil series descriptions (NRCS, 2009c). Maps showing the distribution of the units are provided in Appendix F.

TABLE 3-1  
Soil Mapping Unit Descriptions and Characteristics along the Natural Gas Pipeline Alignment

Map Unit	Description
<b>DgA</b>	<b>Delhi loamy sand, silty substratum, 0 to 3 percent slopes</b>
	Parent material: Wind modified sandy alluvium derived from granite
	Typical profile: Loamy sand over stratified very fine sand to silt loam
	Shrink-swell capacity: Low
	Depth and drainage: Very deep; somewhat excessively drained
	Permeability: High
	Runoff: Negligible
	Farmland class: Prime farmland if irrigated
	Storie index: 66 (Grade 2), Good
	Capability class: 3s irrigated, 4e nonirrigated
	Taxonomic class: Mixed, thermic, Typic Xeropsamments

TABLE 3-1  
Soil Mapping Unit Descriptions and Characteristics along the Natural Gas Pipeline Alignment

Map Unit	Description
<b>DrA</b>	<b>Dinuba sandy loam, 0 to 1 percent slopes</b>
Parent material:	Developed from moderately coarse textured dominantly granitic alluvium
Typical profile:	Sandy loam over stratified silts and very fine sands
Shrink-swell capacity:	Low
Depth and drainage:	Very deep; naturally moderately well drained but due to pumping may be better drained or, where over-irrigated, imperfectly drained
Permeability:	Moderate to moderately rapid in A horizon and less permeable below
Runoff:	Medium
Farmland class:	Prime farmland if irrigated
Storie index:	82 (Grade 1), Excellent
Capability class:	2w irrigated, 4s nonirrigated
Taxonomic class:	Coarse-loamy, mixed, active, thermic Typic Haploxeralfs
<b>DwA</b>	<b>Dinuba sandy loam, slightly saline-alkali, 0 to 1 percent slopes</b>
Parent material:	Developed from moderately coarse textured dominantly granitic alluvium
Typical profile:	Sandy loam over stratified silts and very fine sands
Shrink-swell capacity:	Low
Depth and drainage:	Very deep; naturally moderately well drained but due to pumping may be better drained or, where over-irrigated, imperfectly drained
Permeability:	Moderate to moderately rapid in A horizon and less permeable below
Runoff:	Medium
Farmland class:	Prime farmland if irrigated
Storie index:	67 (Grade 2); Good
Capability class:	2w irrigated, 4s nonirrigated
Taxonomic class:	Coarse-loamy, mixed, active, thermic Typic Haploxeralfs
<b>FrA</b>	<b>Fresno fine sandy loam, moderately saline-alkali, 0 to 1 percent slopes</b>
Parent material:	Alluvium derived from granite
Typical profile:	Fine sandy loam over sandy clay loam over silt loam; cemented horizon in subsoil, typically around 38 inches below ground surface
Shrink-swell capacity:	Moderate
Depth and drainage:	Moderately deep over cemented silica hardpan; moderately well drained
Permeability:	Very slow; small pools of water commonly persist during wet winters
Runoff:	Very high
Farmland class:	Not a prime or important farmland
Storie index:	Grade 5 - Very poor
Capability class:	4s (irrigated), 6s (non-irrigated)
Taxonomic class:	Fine-loamy, mixed, superactive, thermic Natric Durixeralfs
<b>FsA</b>	<b>Fresno fine sandy loam, strongly saline-alkali, 0 to 1 percent slopes</b>
Parent material:	Developed in alluvium derived from granite
Typical profile:	Fine sandy loam over sandy clay loam, silt loam, and stratified sandy loam to loam; strongly cemented silica hardpan present in subsoil (typically about 24 inches)
Shrink-swell capacity:	Low
Depth and drainage:	Moderately deep over duripan; moderately well drained
Permeability:	Very slow; small pools of water commonly persist during wet winters
Runoff:	Very high
Farmland class:	Not a prime or important farmland
Storie index:	8 (Grade 6), Nonagricultural
Capability class:	6s
Taxonomic class:	Fine-loamy, mixed, superactive, thermic Natric Durixeralfs

TABLE 3-1  
Soil Mapping Unit Descriptions and Characteristics along the Natural Gas Pipeline Alignment

Map Unit	Description
<b>FtA</b>	<b>Fresno sandy loam, slightly saline-alkali, 0 to 1 percent slopes</b>
Parent material:	Developed in alluvium derived from granite
Typical profile:	Fine sandy loam over sandy clay loam, silt loam, and stratified sandy loam to loam; strongly cemented silica hardpan present in subsoil (typically about 24 inches)
Shrink-swell capacity:	Low
Depth and drainage:	Moderately deep over duripan; moderately well drained
Permeability:	Very slow; small pools of water commonly persist during wet winters
Runoff:	Very high
Farmland class:	Not a prime or important farmland
Storie index:	20 (Grade 4), Poor
Capability class:	3s irrigated, 6s nonirrigated
Taxonomic class:	Fine-loamy, mixed, superactive, thermic Natric Durixeralfs
<b>FuA</b>	<b>Fresno sandy loam, moderately saline-alkali, 0 to 1 percent slopes:</b>
Parent material:	Developed in alluvium derived from granite
Typical profile:	Fine sandy loam over sandy clay loam, silt loam, and stratified sandy loam to loam; strongly cemented silica hardpan present in subsoil (typically about 24 inches)
Shrink-swell capacity:	Low
Depth and drainage:	Moderately deep over duripan; moderately well drained
Permeability:	Very slow; small pools of water commonly persist during wet winters
Runoff:	Very high
Farmland class:	Not a prime or important farmland
Storie index:	14 (Grade 5), Very poor
Capability class:	4s irrigated, 6s nonirrigated
Taxonomic class:	Fine-loamy, mixed, superactive, thermic Natric Durixeralfs
<b>FwA</b>	<b>Fresno-Dinuba sandy loams, strongly saline alkali, 0 to 1 percent slopes:</b>
Parent material:	Developed in alluvium derived from granite
Typical profile:	Sandy loam over sandy clay loam, silt loam, and stratified sandy loam to loam; strongly cemented silica hardpan present in subsoil (typically about 24 inches)
Shrink-swell capacity:	Low
Depth and drainage:	Moderately deep over duripan; moderately well drained
Permeability:	Moderate to moderately rapid in A horizon and less permeable below
Runoff:	Medium
Farmland class:	Not a prime or important farmland
Storie index:	6/18 (Grade 6/Grade 5), Nonagricultural/Very poor
Capability class:	3s irrigated, 4s/6s non-irrigated
Taxonomic class:	Coarse-loamy, mixed, active, thermic Typic Haploxeralfs; Coarse-loamy, mixed, active, thermic Typic Haploxeralfs

TABLE 3-1  
Soil Mapping Unit Descriptions and Characteristics along the Natural Gas Pipeline Alignment

Map Unit	Description
<b>HdA</b>	<b>Hanford sandy loam, 0 to 3 percent slopes:</b>
	Parent material: Formed in moderately coarse textured alluvium dominantly from granite
	Typical profile: Fine sandy loam throughout
	Shrink-swell capacity: Low
	Depth and drainage: Very deep; well drained
	Permeability: Moderately rapid
	Runoff: Negligible to low
	Farmland class: Prime farmland if irrigated
	Storie index: 92 (Grade 1), Excellent
	Capability class: 4c
	Taxonomic class: Coarse-loamy, mixed, superactive, nonacid, thermic Typic Xerorthents
<b>HddA</b>	<b>Hanford sandy loam, poorly drained variant, 0 to 1 percent slopes</b>
	Parent material: Alluvium derived from granite
	Typical profile: Sandy loam throughout
	Shrink-swell capacity: Low
	Depth and drainage: Very deep; poorly drained
	Permeability: Moderately rapid
	Runoff: Negligible to low
	Farmland class: Prime farmland if irrigated
	Storie index: Grade 4 - Poor
	Capability class: 2w (irrigated), 4w (non-irrigated)
	Taxonomic class: Coarse-loamy, mixed, superactive, nonacid, thermic Typic Xerorthents
<b>HfA</b>	<b>Hilmar loamy sand, 0 to 1 percent slopes:</b>
	Parent material: Formed in wind modified sandy alluvium derived from granite over silty alluvium derived from granite
	Typical profile: Loamy sand over sand, sandy loam, and stratified very fine sandy loam to silt loam
	Shrink-swell capacity: Low
	Depth and drainage: Very deep; imperfectly to poorly drained; ponding can occur during periods of heavy irrigation
	Permeability: Rapidly permeable surface and upper subsoil (23+ inches thick) over slowly permeable subsoil
	Runoff: Slow
	Farmland class: Farmland of statewide importance
	Storie index: 57 (Grade 3), Fair
	Capability class: 3w irrigated, 4s nonirrigated
	Taxonomic class: Sandy over loamy, mixed, active, calcareous, thermic, Aeric Halaquepts

TABLE 3-1  
Soil Mapping Unit Descriptions and Characteristics along the Natural Gas Pipeline Alignment

Map Unit	Description
<b>HkBA Hilmar loamy sand, slightly saline-alkali, 0 to 1 percent slopes:</b>	
Parent material:	Formed in wind modified sandy alluvium derived from granite over silty alluvium derived from granite
Typical profile:	Loamy sand over sand, sandy loam, and stratified very fine sandy loam to silt loam
Shrink-swell capacity:	Low
Depth and drainage:	Very deep; imperfectly to poorly drained; ponding can occur during periods of heavy irrigation
Permeability:	Rapidly permeable surface and upper subsoil (23+ inches thick) over slowly permeable subsoil
Runoff:	Slow
Farmland class:	Not a prime or important farmland
Storie index:	45 (Grade 3), Fair
Capability class:	3w irrigated, 4s nonirrigated
Taxonomic class:	Sandy over loamy, mixed, active, calcareous, thermic, Aeric Halaquepts
<b>RkA Rossi clay loam, moderately saline-alkali, 0 to 1 percent slopes</b>	
Parent material:	Alluvium derived from granite
Typical profile:	Clay loam over clay and clay loam
Shrink-swell capacity:	Moderate to severe
Depth and drainage:	Very deep; poorly drained
Permeability:	Very slow
Runoff:	Very slow or slow
Taxonomic class:	Fine, smectitic, thermic Aquic Natriferalfs
<b>TpA Traver sandy loam, slightly saline-alkali, 0 to 1 percent slopes</b>	
Parent material:	Alluvium derived from granite
Typical profile:	Sandy loam throughout
Shrink-swell capacity:	Low
Depth and drainage:	Very deep; moderately well drained
Permeability:	Moderate to slow
Runoff:	Slow
Farmland class:	Prime farmland if irrigated
Storie index:	Grade 3 - Fair
Capability class:	2s (irrigated), 6s (non-irrigated)
Taxonomic class:	Coarse-loamy, mixed, superactive, thermic Natric Haploxeralfs
<b>TrA Traver sandy loam, moderately saline-alkali, 0 to 1 percent slopes:</b>	
Parent material:	Formed on alluvial fans and flood plains composed of alluvium derived from granitic sources
Typical profile:	Sandy loam throughout
Shrink-swell capacity:	Low
Depth and drainage:	Very deep; moderately well to somewhat poorly drained
Permeability:	Moderate to slow
Runoff:	Slow
Farmland class:	Farmland of statewide importance
Storie index:	42 (Grade 3), Fair
Capability class:	3s irrigated, 6s nonirrigated
Taxonomic class:	Coarse-loamy, mixed, superactive, thermic Natric Haploxeralfs

TABLE 3-1  
Soil Mapping Unit Descriptions and Characteristics along the Natural Gas Pipeline Alignment

Map Unit	Description
<b>TuA</b>	<b>Tujungua loamy sand, 0 to 3 percent slopes:</b>
	Parent material: Formed in alluvium weathered mostly from granitic sources
	Typical profile: Loamy sand throughout
	Shrink-swell capacity: Low
	Depth and drainage: Very deep; somewhat excessively drained
	Permeability: Rapid
	Runoff: Negligible or very low runoff
	Farmland class: Prime farmland if irrigated
	Storie index: 62 (Grade 2), Good
	Capability class: 3e irrigated, 6e nonirrigated
	Taxonomic class: Mixed, thermic, Typic Xeropsamments
<b>WaA</b>	<b>Waukena fine sandy loam, slightly saline-alkali, 0 to 1 percent slopes:</b>
	Parent material: Formed in mixed, moderately fine textured, sedimentary alluvium
	Typical profile: Fine sandy loam over sandy clay loam and stratified fine sandy loam and clay loam
	Shrink-swell capacity: Low
	Depth and drainage: Very deep; moderately well to somewhat poorly drained
	Permeability: Slow to very slow permeability
	Runoff: Slow
	Farmland class: Farmland of statewide importance
	Storie index: 67 (Grade 2), Good
	Capability class: 3s irrigated, 6e nonirrigated
	Taxonomic class: Fine-loamy, mixed, superactive, thermic, Typic Natrixeralfs
<b>WbA</b>	<b>Waukena fine sandy loam, moderately saline-alkali, 0 to 1 percent slopes</b>
	Parent material: Alluvium derived from granite
	Typical profile: Fine sandy loam over sandy loam
	Shrink-swell capacity: Low
	Depth and drainage: Very deep; moderately well drained
	Permeability: Moderately high
	Runoff: High
	Farmland class: Not a prime or important farmland
	Storie index: 39 (Grade 4), Poor
	Capability class: 4s irrigated, 6s nonirrigated
	Taxonomic class: Fine, serpentinitic, superactive, mesic, Pachic Ultic Argixerolls
<b>WdA</b>	<b>Waukena sandy loam, slightly saline-alkali, 0 to 1 percent slopes</b>
	Parent material: Alluvium derived from granite
	Typical profile: Sandy loam throughout
	Shrink-swell capacity: Low
	Depth and drainage: Very deep; moderately well drained
	Permeability: Moderately high
	Runoff: High
	Farmland class: Farmland of statewide importance
	Storie index: 64 (Grade 2), Good
	Capability class: 3s irrigated, 6s nonirrigated
	Taxonomic class: Fine, serpentinitic, superactive, mesic, Pachic Ultic Argixerolls

TABLE 3-1  
Soil Mapping Unit Descriptions and Characteristics along the Natural Gas Pipeline Alignment

Map Unit	Description
<b>101 Capay clay, wet, 0 to 2 percent slopes</b>	Parent material: Alluvium derived from sandstone and shale Typical profile: Clay throughout Shrink-swell capacity: High Depth and drainage: Very deep; moderately well drained Permeability: Slow to very slow Runoff: Negligible to high Farmland class: Prime farmland if irrigated Storie index: Grade 3 - Fair Capability class: 2w (irrigated ), 4w (non-irrigated) Taxonomic class: Fine, smectitic, thermic Typic Haploxererts
<b>131 Stomar clay loam, wet, 0 to 2 percent slopes</b>	Parent material: Alluvium from sedimentary rock Typical profile: Clay loam over clay and clay loam Shrink-swell capacity: Moderate to high Depth and drainage: Very deep; well drained Permeability: Slow Runoff: Negligible to high Farmland class: Prime farmland if irrigated Storie index: Grade 1 - Excellent Capability class: 2w (irrigated), 4w (non-irrigated) Taxonomic class: Fine, smectitic, thermic Mollic Haploxerafls
<b>170 Dospalos-Bolfar complex, 0 to 2 percent slopes, occasionally flooded</b>	Parent material: Alluvium derived from granite Typical profile: Clay to clay loam over clay loam to loam Shrink-swell capacity: Moderate to high Depth and drainage: Very deep; poorly drained Permeability: Slow to moderately slow Runoff: Negligible to medium Farmland class: Prime farmland if irrigated Storie index: Grade 3 - Fair, Grade 4 - Poor Capability class: 2w (irrigated ), 4w (non-irrigated) Taxonomic class: Fine, smectitic, calcareous, thermic Vertic Endoaquolls; fine-loamy, mixed, superactive, calcareous, thermic Cumulic Endoaquolls
<b>175 Dospalos-Bolfar complex, 0 to 2 percent slopes, rarely flooded</b>	Parent material: Alluvium derived from granite Typical profile: Clay loam over clay loam to loam Shrink-swell capacity: Moderate to high Depth and drainage: Very deep; poorly drained Permeability: Slow to moderately slow Runoff: Negligible to medium Farmland class: Prime farmland if irrigated Storie index: Grade 3 - Fair Capability class: 2w (irrigated ), 4w (non-irrigated) Taxonomic class: Fine, smectitic, calcareous, thermic Vertic Endoaquolls; fine-loamy, mixed, superactive, calcareous, thermic Cumulic Endoaquolls

TABLE 3-1  
Soil Mapping Unit Descriptions and Characteristics along the Natural Gas Pipeline Alignment

Map Unit	Description
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Notes

Soil characteristics are based on soil mapping descriptions provided in the online soil survey (NRCS, 2009b; in the published soil survey (NRCS, 1964); and in the online Official Series Descriptions (OSDs) (<http://www2.ftw.nrcs.usda.gov/osd/dat>) (NRCS, 2009a).

Soil descriptions provided above are limited to those soil units that could be directly affected by the proposed natural gas pipeline project. Other soil mapping units, which are well outside of the project area but are shown in Appendix F are listed below:

Within the "Soil Survey of Eastern Stanislaus Area": **CeA** - Columbia loam, 0 to 1 percent slopes; **CsB** - Columbia soils, channeled, 0 to 8 percent slopes; **DkA** - Dello loamy sand, 0 to 1 percent slopes; **DtA** - Dinuba sandy loam, deep, 0 to 1 percent slopes; **DuA** - Dinuba sandy loam, poorly drained variant, 0 to 1 percent slopes; **DzA** - Dinuba sandy loam, very poorly drained variant, slightly saline-alkali, 0 to 1 percent slopes; **FrA** - Fresno fine sandy loam, moderately saline-alkali, 0 to 1 percent slopes; **HbA** - Hanford fine sandy loam, 0 to 3 percent slopes; **HdB** - Hanford sandy loam, 3 to 8 percent slopes; **HddA** - Hanford sandy loam, poorly drained variant, 0 to 1 percent slopes; and **WeA** - Waukena sandy loam, moderately saline-alkali, 0 to 1 percent slopes. Within the "Stanislaus County, Western Part" soil survey: **153** - Columbia fine sandy loam, channeled, partially drained, 0 to 2 percent slopes, frequently flooded; **246** - Dospalos-Bolfar complex, 0 to 2 percent slopes, rarely flooded, and **W** - Water.

## SECTION 4

# Results

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One isolated wetland was identified. Two potential Waters of the United States were observed as irrigation features.

## 4.1 Potential Wetlands along the Line 7216-03 Project

One isolated potential jurisdictional wetland was identified along the natural gas pipeline route. This approximately 1,050-square-foot (0.02-acre) site is south of East Zeering Road and approximately 8 feet west of the center of the natural gas pipeline alignment and a dirt road (Appendix G-11). This alkaline scald is in a fallow field with areas of bare soil present. Based on aerial photographs of the area, it appears an area approximately 250 feet west of the site is or has been used as an off-road vehicle recreational site and there has been other surface disturbance at the site (i.e., grading). This non-jurisdictional isolated wetland, which is in an area zoned for agriculture, would be avoided.

At the time of the field visit, there was evidence of surface ponding against the roadway fill and soil surface cracks.

Soils in the saturated area were comprised of 0- to 8-inch layer of olive brown (2.5Y 4/3) fine, silty loam above a layer (8 to 14 inches) of firmer silty loam of the same color. From 14 to 17 inches, the soil was hardpan silty loam, also olive brown in color. The potential alkali scald seen in a 2002 aerial photograph is consistent with the mapped soil type, Fresno fine sandy loam, moderately saline-alkaline (Appendix F).

Vegetation at the site is dominated by chamise (*Adenostoma fasciculatum*; NL; 30 percent) in the shrub layer; and meadow barley (*Hordeum brachyantherum*; FACW; 80 percent) and saltgrass (*Distichlis spicata*; FACW; 3 percent) in the herb layer. Smaller amounts of common groundsel (*Senecio vulgaris*; NI; 1 percent) and penstemon (*Penstemon* sp.; FAC<sup>1</sup>; 1 percent) also is present.

Based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology, this site may meet the criteria to be considered a wetland; however, because it is isolated, it does not meet the USACE criteria for a jurisdictional wetland. Data sheets and photographs of this wetland feature are provided in Appendix G.

Other non-jurisdictional areas of ephemeral ponding were noted during the March 2, 2010 field visit, which occurred during a rain event. These areas, which are also isolated and do not display wetland characteristics, include cattle wallows and crop furrows and are detailed in Appendix G.

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<sup>1</sup> Penstemon wetland indicator status based on *P. rydbergii*, the most conservative of species found in the Jepson Manual.

## 4.2 Potential Waters of the United States along the Line 7216-03 Project

Waters observed along the natural gas pipeline study area included actively managed canals, drains, and ditches used for agricultural irrigation, drainage, and stormwater runoff. Several of these features were determined to have a potential hydrologic connection to the San Joaquin River, where they terminate; however, only two have characteristics that could be considered potential Waters of the United States under jurisdiction of the USACE: Harding Drain and Prairie Flower Drain (Appendix G-26 and G-28). Together, Harding Drain (3.11 acres) and Prairie Flower Drain (0.04 acre) comprise 3.15 acres within the 200-foot-wide pipeline study corridor. Detailed descriptions of these features follow. Photographs are provided in Appendix G.

Harding Drain is an earthen irrigation drain that parallels Harding Road with connectivity to the San Joaquin River (see Appendix G-26). To the east of Prairie Flower Road along Harding Road, the drain is cement lined and referred to as Lateral 5. To the west of this location, it is referred to as Harding Drain. Excess irrigation water, seasonal stormwater runoff, and the City of Turlock's treated wastewater flow into Harding Drain. The drain width is approximately 26 to 30 feet. The depth of the bank is approximately 14 to 15 feet. Ordinary High Water (OHW) is shown on Appendix G-26. At the time of the site visit, during the rainy season, there were approximately 2 to 3 feet of water in the drain, primarily stormwater during the rainy season. No soil sample was taken because of the extremely steep banks, but the soils near the top of bank were sandy and appeared to be consistent with the mapped soil unit (Fresno-Dinuba sand loam, strongly saline-alkali, 0 to 1 percent slopes; Table 3-1). The banks are sparsely vegetated and bare in places, with construction debris (e.g., chunks of concrete) armoring the banks. Vegetation is dominated by stinging nettle (*Urtica dioica*), Bermuda grass (*Cynodon dactylon*), and curly dock (*Rumex crispus*), with small amounts of bristly ox-tongue (*Picris echioides*), pearly everlasting (*Gnaphalium* sp.), common sow thistle (*Sonchus oleraceus*), and cheeseweed (*Malva parviflora*).

Harding Drain terminates at the San Joaquin River via gravity flow through flap gates approximately 1.1 miles west of the proposed gas pipeline construction area. Under extreme high water conditions, Sacramento splittail and anadromous fish (e.g., salmon and steelhead) potentially could under extreme highwater conditions potentially enter the lower dirt-lined portion of Harding Drain through the flap gates; however, a water-flow control and measuring device at Prairie Flower Road probably precludes fish from entering the cement-lined Lateral5. Photographs of Harding Drain are provided in Appendix G.

Prairie Flower Drain is an earthen irrigation drain that flows north into Harding Drain approximately 1 mile from the San Joaquin River (see Appendix G-28). Water for agricultural activities is used for irrigation prior to returning to Lateral 5 ½ and then Prairie Flower Drain. The drain is strongly trapezoidal with well-maintained banks and a width of approximately 13.5 feet. The depth of the bank is approximately 12 to 13 feet. OHW is shown on Appendix G-28. At the time of the site visit, during the rainy season, there was approximately 1 foot of water in the drain, primarily stormwater. The soils were consistent with the mapped soil unit (Hanford sandy loam, very poorly drained variant, 0 to 1 percent slopes; Table 3-1). The presence of poorly drained hydric soils along with the soil map signature suggest Prairie Flower drain might have been constructed in a historical channel

(Appendix F-4). The banks are sparsely vegetated and bare in places. Vegetation is dominated by non-native, weedy species including wild oats (*Avena fatua*), red-stem filaree (*Erodium cicutarium*), cheeseweed (*Malva parviflora*), yellow sweetclover (*Melilotus indica*), black mustard (*Brassica nigra*), and foxtail barley (*Hordeum jubatum*). Water from the San Joaquin River could potentially enter Prairie Flower Drain via Harding Drain during periods of high water; however, the approximately 12-inch drop at the outfall leading from Prairie Flower Drain into Harding Drain likely precludes such flow during all but the most extreme high flow conditions. Similarly, fish found in the San Joaquin River could potentially enter Prairie Flower Drain; however, this is very unlikely because the fish would first have to enter the flap gates at the Harding Drain outfall and then overcome the approximately 12-inch differential between Harding Drain and Prairie Flower Drain. Photographs of Prairie Flower Drain are provided in Appendix G.

Additional canals, drains, and ditches were found along the alignment; all are human-made, periodically modified, and maintained for irrigation purposes. Appendix E describes other irrigation canals, drains, and ditches that were constructed in uplands for the purpose of irrigation that do not sustain significant nexus to the San Joaquin River. These descriptions are provided for completeness.

## SECTION 5

# References

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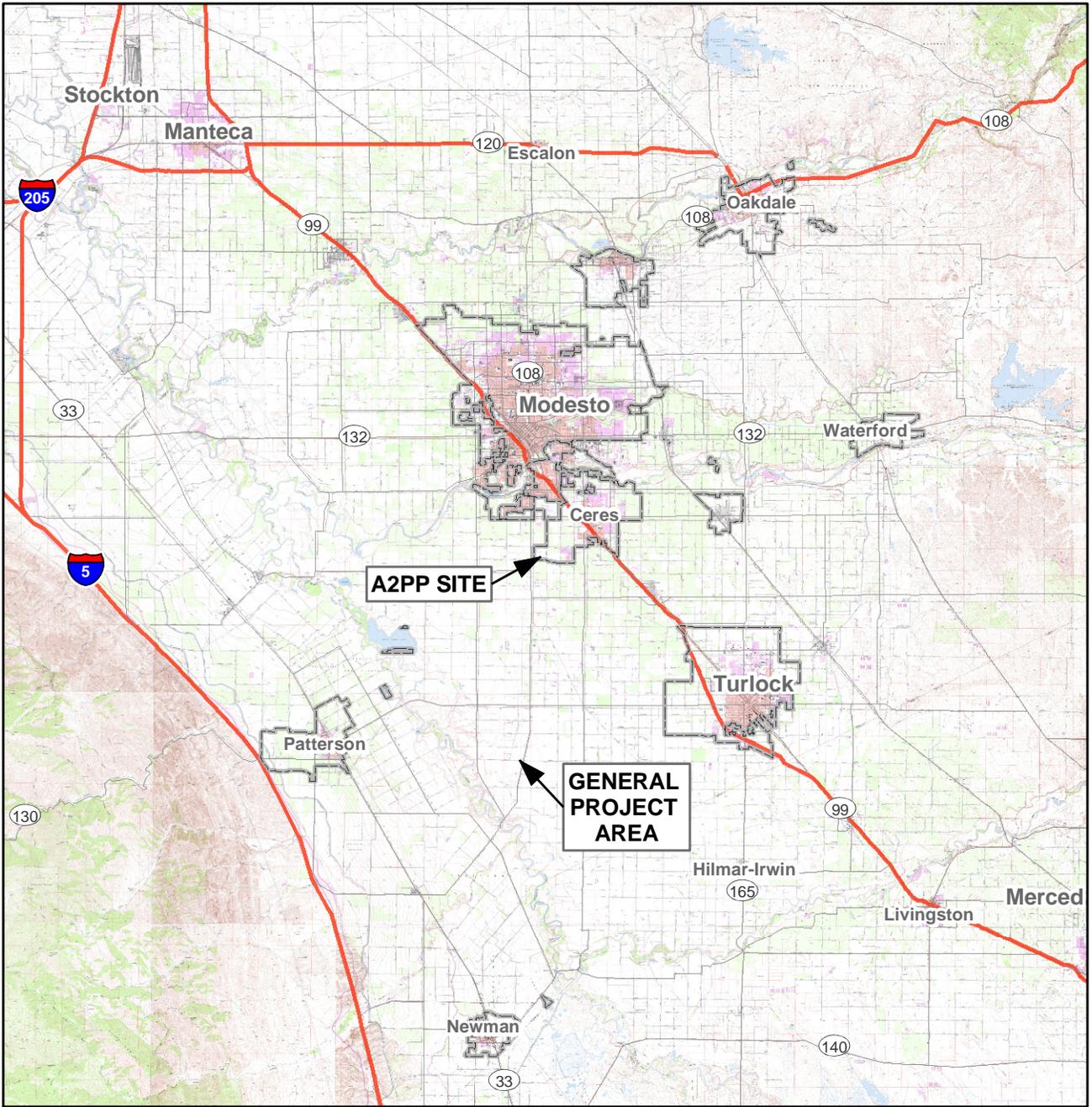
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**Appendix A**  
**Project Vicinity Map**

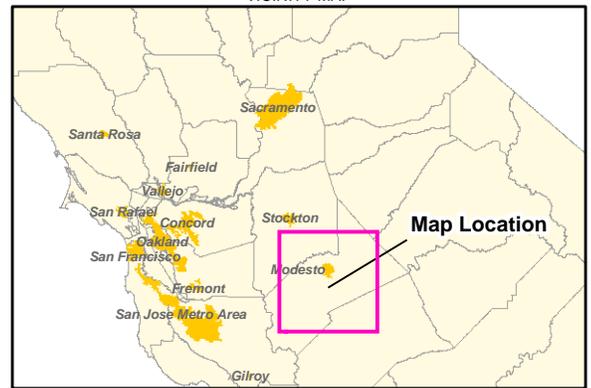
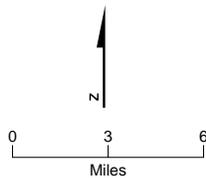
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VICINITY MAP

**LEGEND**

 City Boundaries

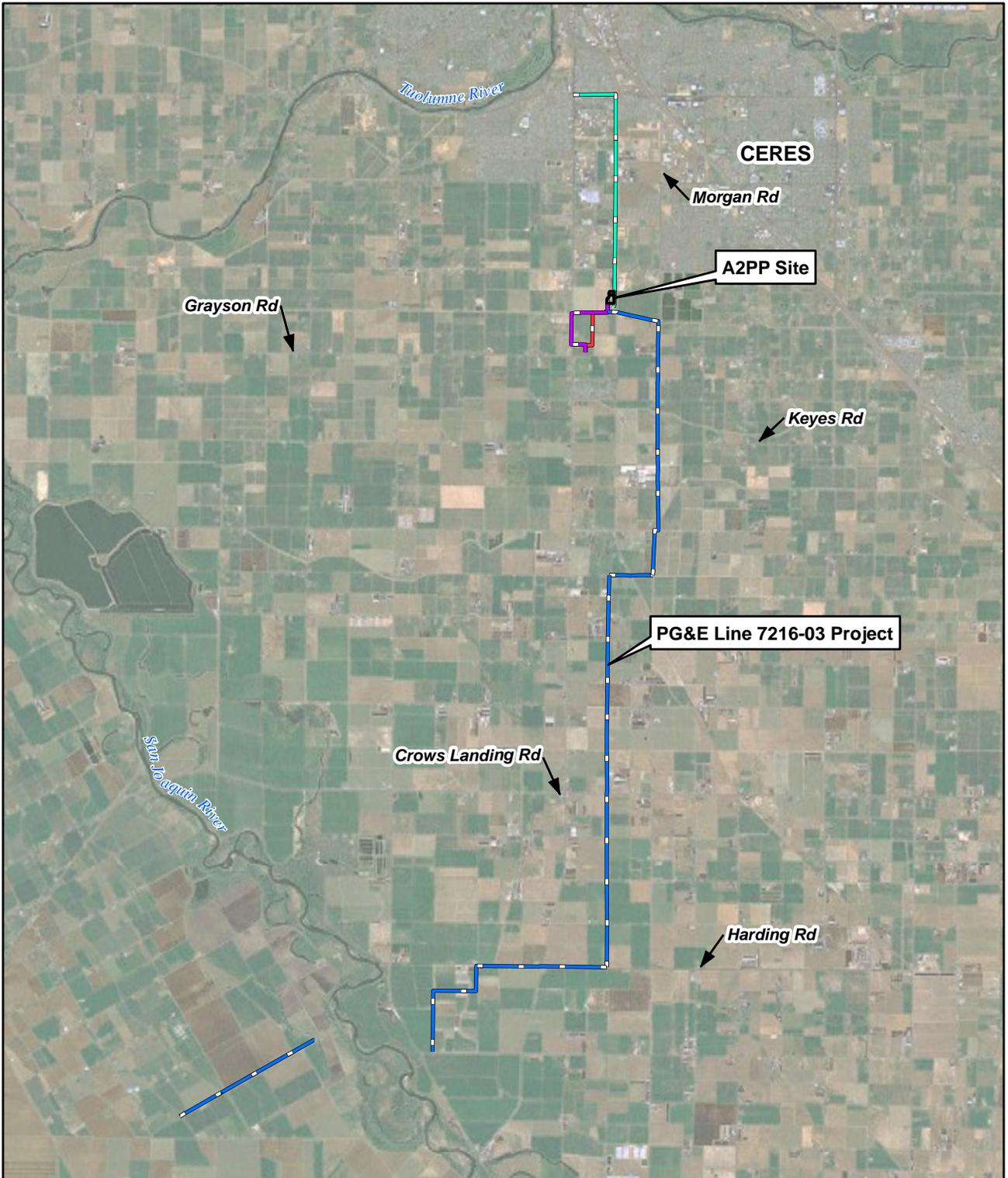


**APPENDIX A  
PROJECT VICINITY MAP  
LINE 7216-03 PROJECT  
CERES, CALIFORNIA**

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

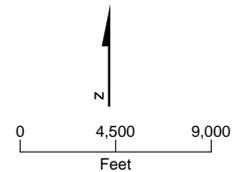
**Appendix B**  
**Site Location**

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**LEGEND**

-  Natural Gas Pipeline Alignment
-  115-kV Circuit 1 Line (Corridor 1)
-  115-kV Circuit 2 Line (Corridor 2)
-  Reconductored 69kV Sub-Transmission Line
-  Temporary Laydown Area
-  Project Site

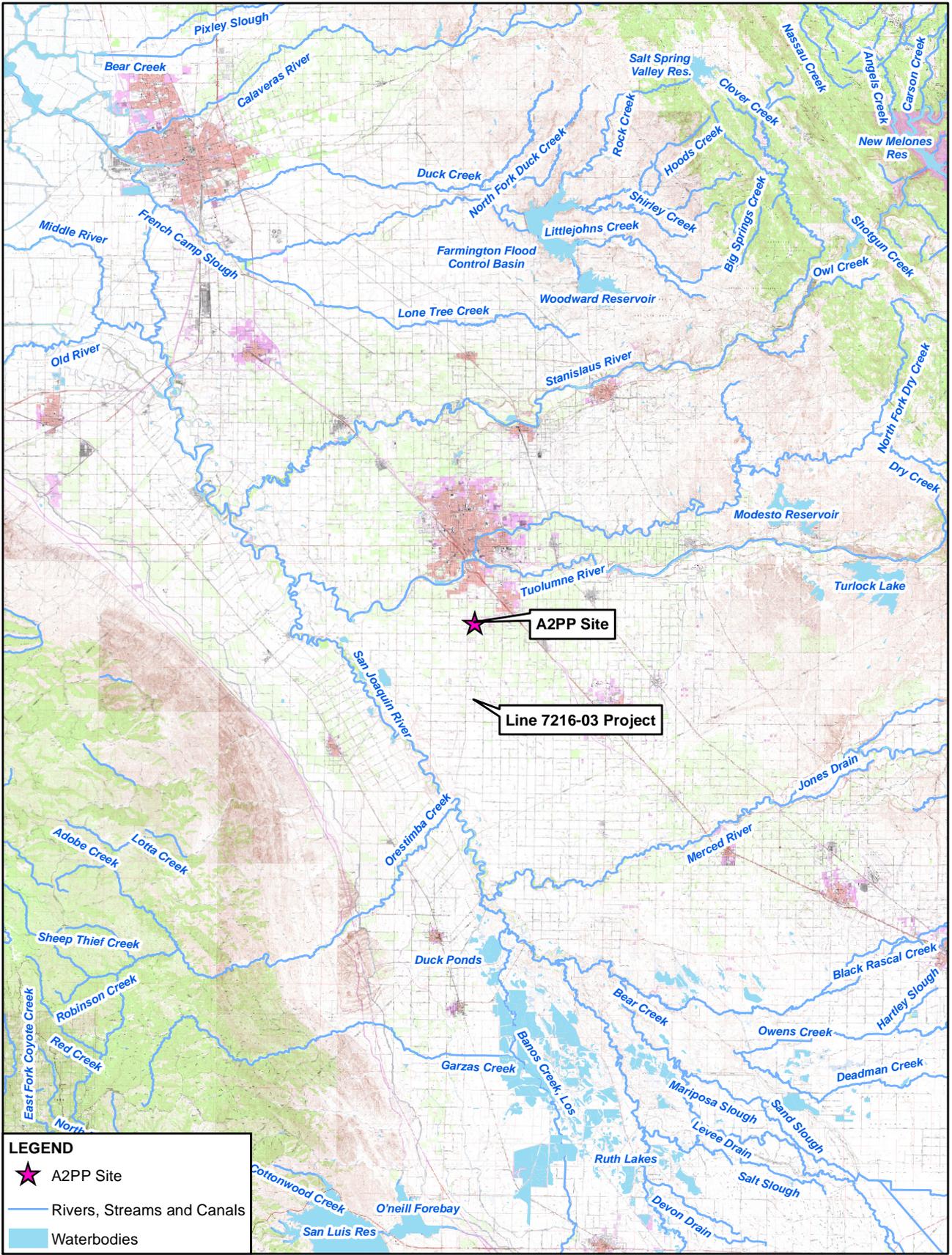


**APPENDIX B  
SITE LOCATION**  
LINE 7216-03 PROJECT  
CERES, CALIFORNIA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

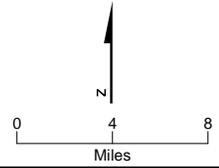
**Appendix C**  
**Surface Water Resources**

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Notes:  
 1. The Department of Water Resources,  
 Groundwater Basin Map, 2004

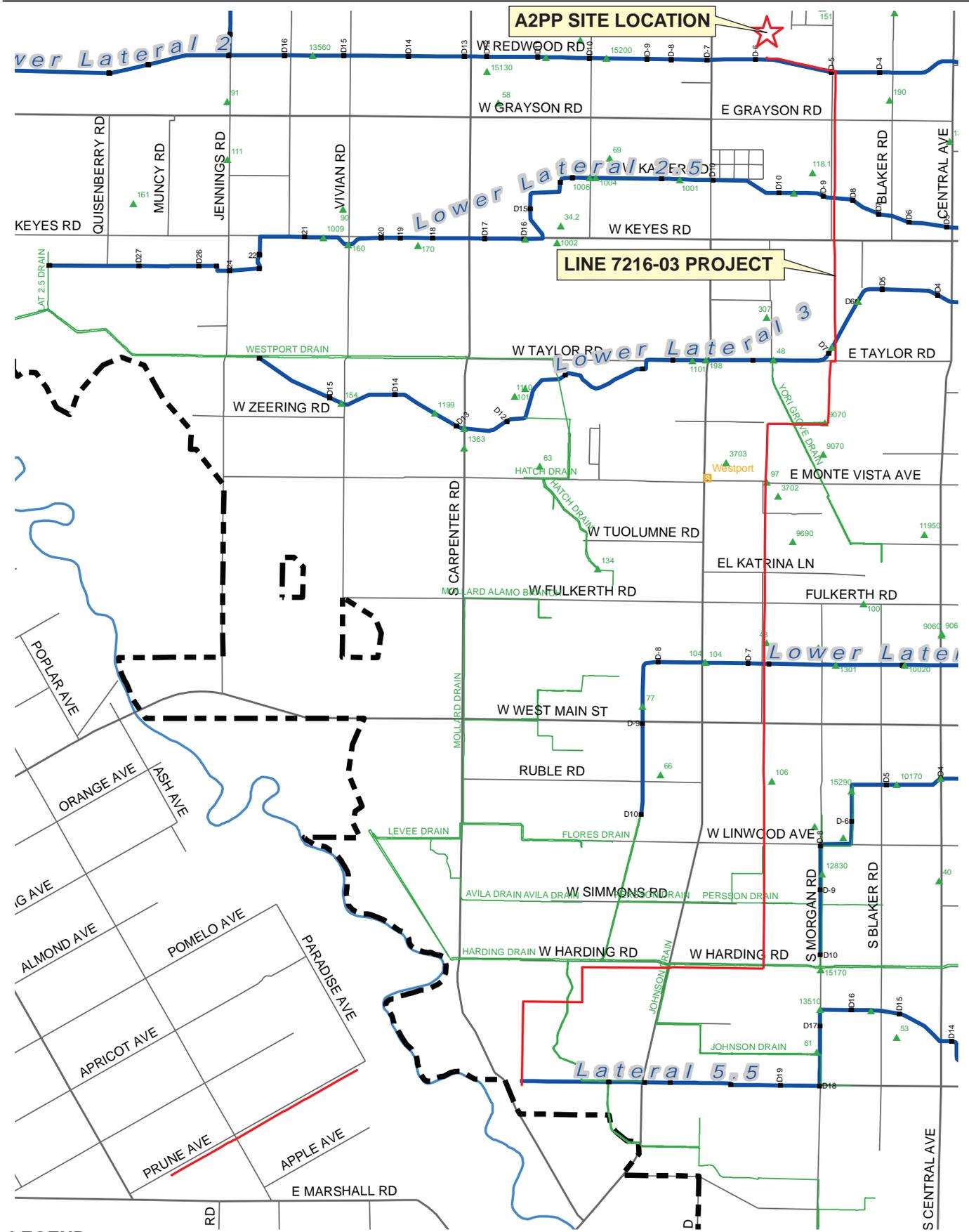
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.



**APPENDIX C**  
**SURFACE WATER RESOURCES**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

**Appendix D**  
**Turlock Irrigation District Map**

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**A2PP SITE LOCATION**

**LINE 7216-03 PROJECT**

**LEGEND**

- ▲ Pumps
- Canals
- S Substation
- Irrigation Boundary
- Drains
- Line 7216-03 Project

**APPENDIX D  
TURLOCK IRRIGATION SYSTEM MAP  
LINE 7216-03 PROJECT  
CERES, CALIFORNIA**

Source: TID  
EY012009003SAC Appendix\_D.ai 04.07.2010 ltaus

**Appendix E**  
**Non-Jurisdictional Irrigation Canals, Drains, and**  
**Ditches along the Line 7216-03 Project**

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**TABLE E-1**

Human-made Managed Irrigation Canals, Drains, and Ditches Crossed by the Line 7216-03 Project, Not under the Jurisdiction of USACE

Feature Name	Description	Appendix-Page(S) / ID Number(s)
Clark Ditch	Concrete-lined irrigation ditch; 5 feet wide on west side of natural gas pipeline alignment, 10 feet wide on the east side, flows west for approximately 0.4 mile to a retention basin. This drain is not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and does not sustain return flow from the San Joaquin River.	G-21 36
McPherson Drain	This 8-foot-wide concrete-lined irrigation ditch originates from a pump under E. Monte Vista Road. The drain flows approximately 1.9 miles to the southeast to Lower Lateral 4. McPherson Drain generally flows in winter only. Connected to a drainage pump. No direct connection to the San Joaquin River. This drain is not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and does not sustain return flow from the San Joaquin River.	G-11, 12 18, 37
Persson Drain	This 13-foot-wide vegetated earthen drainage flows south then west through agricultural fields. This drain is not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and does not sustain return flow from the San Joaquin River.	G-21, 22 38
Patterson Irrigation District Lateral G	This 15-foot-wide earthen irrigation canal originates approximately 3 miles north off of the Main canal, which carries irrigation water from the San Joaquin River, and terminates approximately 0.6 mile south of the natural gas pipeline in agricultural fields. This feature is not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and does not sustain return flow from the San Joaquin River.	G-34 4, 82
Patterson Irrigation District Lateral H	This 6-foot-wide concrete-lined feature is located at the west end of Prune Avenue and east of Sycamore Road. This canal originates approximately 3 miles north off of the Main canal, which carries water from the San Joaquin River, and extends for several miles south of the natural gas pipeline in agricultural fields. This feature is not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and does not sustain return flow from the San Joaquin River.	G-35 2, 84
TID Lower Lateral 2 1/2 Canal	Concrete-lined irrigation canal; 12 feet wide; flows approximately 7.5 miles to the west, where it enters the North Branch of the Westport Drain, which continues for approximately 1.2 miles to the San Joaquin River. Water from the River is precluded from flowing back up the canal by a flow barrier. Carries irrigation water from March 15 to October 15. This canal is not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and does not sustain return flow from the San Joaquin River.	G-5 10

TABLE E-1

Human-made Managed Irrigation Canals, Drains, and Ditches Crossed by the Line 7216-03 Project, Not under the Jurisdiction of USACE

Feature Name	Description	Appendix-Page(S) / ID Number(s)
TID Lower Lateral 2 Canal	This concrete-lined canal parallels the pipeline from A2PP to Morgan Road. This 15-foot-wide canal flows to the west for approximately 9 miles to the San Joaquin River. The concrete-lined canal is raised at a steep gradient that precludes backflow from the San Joaquin River. Carries irrigation water from March 15 to October 15. This canal is not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and does not sustain return flow from the San Joaquin River.	G-2 87
TID Lower Lateral 3 Canal	This 12-foot-wide concrete-lined irrigation canal is crossed by the pipeline near E. Taylor Road. The canal flows approximately 5.4 miles to the west where it enters the Westport Drain, which continues for approximately 2.6 miles to the San Joaquin River. Carries irrigation water from March 15 to October 15. This canal is non-jurisdictional water because it was constructed in uplands for the purpose of irrigation and does not sustain return flow from the San Joaquin River.	G-8, 9 11
TID Lower Lateral 4 Canal	This 12-foot-wide concrete-lined irrigation canal flows approximately 0.5 mile to the west before turning to the south and continuing for an additional 2.25 miles where it drains into the Lower Lateral No. 4 spillway. Carries irrigation water from March 15 to October 15. This canal is not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and does not sustain return flow from the San Joaquin River.	G-17 19
TID Lower Lateral 4 Spillway	This 30-foot-wide earthen spillway flows from Lower Lateral 4 for 1.25 miles to the Harding Drain, which flows west for 1.2 miles and into the San Joaquin River. A 4-foot drop in elevation from the top of the Lower Lateral 4 spillway to the bottom of the spillway (at the junction with Harding Drain) precludes upstream flow. This canal is not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and does not sustain return flow from the San Joaquin River.	G-27 83
TID Lower Lateral 5 1/2 Canal	This 12-foot-wide concrete-lined irrigation canal appears to terminate approximately 0.3 mile east of the San Joaquin River; however, the USGS topographic map for the Crows Landing 7.5 minute Quadrangle shows a direct connection to the San Joaquin River. Carries irrigation water from March 15 to October 15. Not crossed by the pipeline. This canal is not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and does not sustain return flow from the San Joaquin River due to a steep gradient at the terminus.	G-31 1
Twin Elks Supply Canal	This 20-foot-wide vegetated earthen ditch is located parallel to Prune Avenue. Flow originates at the San Joaquin River approximately 2.5 miles to the north. This feature is not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and does not sustain return flow from the San Joaquin River.	G-32, 33, 34 5

**TABLE E-1**

Human-made Managed Irrigation Canals, Drains, and Ditches Crossed by the Line 7216-03 Project, Not under the Jurisdiction of USACE

Feature Name	Description	Appendix-Page(S) / ID Number(s)
Unnamed Ditch	This 15-foot-wide earthen ditch parallels PID Lateral H on the north side of Prune Avenue and west of Elm Avenue. This feature is not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and does not sustain return flow from the San Joaquin River.	G-34 3
Unnamed Drain	This 8-foot-wide earthen drain is located perpendicular and approximately 400 feet east of the pipeline. It is situated along a roadside and may empty into Lower Lateral 5 ½ via a culvert under Bradbury Road. The banks are sparsely vegetated. Not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and has no direct connection to the San Joaquin River.	G-31 14
Unnamed ditch	This 2-foot-wide unvegetated earthen ditch is located perpendicular to the pipeline and just northeast of Yori Grove Drain. Not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and has no direct connection to the San Joaquin River.	G-10 15
Unnamed ditch	This 10-foot-wide vegetated earthen ditch is located perpendicular to the pipeline and just west of Yori Grove Drain. Not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and has no direct connection to the San Joaquin River.	G-11 16
Unnamed Ditch	This 2-foot-wide unvegetated earthen ditch is located on the north side of Fulkerth Road and perpendicular to the pipeline. It is not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and has no direct connection to the San Joaquin River.	G-15 17
Unnamed Ditch	This 5-foot-wide concrete-lined drain appears to be abandoned. It is located north of Linwood Avenue and perpendicular to the pipeline. Not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and has no direct connection to the San Joaquin River.	G-21 20
Unnamed Ditch	This vegetated 8-foot-wide earthen ditch is located on the west side of the pipeline at West Main Street. Not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and has no direct connection to the San Joaquin River.	G-18 22
Unnamed Ditches	These 2-foot-wide unvegetated earthen ditches are located in an agricultural field north of W. Linwood Road and perpendicular to the pipeline. Not USACE jurisdictional waters because they were constructed in uplands for the purpose of irrigation and have no direct connection to the San Joaquin River.	G-20 23, 24, 25, 26, 27, 28,

TABLE E-1

Human-made Managed Irrigation Canals, Drains, and Ditches Crossed by the Line 7216-03 Project, Not under the Jurisdiction of USACE

Feature Name	Description	Appendix-Page(S) / ID Number(s)
Unnamed Ditches	These 1- to 2-foot-wide unvegetated earthen ditches are located in an agricultural field north of W. Linwood Road and perpendicular to the pipeline. Not USACE jurisdictional waters because they were constructed in uplands for the purpose of irrigation and have no direct connection to the San Joaquin River.	G-21 29, 30, 31, 32
Unnamed Ditches	These 4-foot-wide unvegetated earthen ditches are located north of Prune Avenue. Not USACE jurisdictional waters because they were constructed in uplands for the purpose of irrigation and have no direct connection to the San Joaquin River.	G-35 33, 34
Unnamed Ditches	These 2-foot-wide unvegetated earthen ditches are located in an agricultural field south of Harding Drain and west of Bystrum Road. Not USACE jurisdictional waters because they were constructed in uplands for the purpose of irrigation and have no direct connection to the San Joaquin River.	G-24 35, 39, 40, 41, 42, G-25 43, 44, 45, 47
Unnamed Ditches	These 1- to 2-foot-wide unvegetated earthen ditches are located on a turf farm west of Crows Landing Road and south of Harding Drain. Not USACE jurisdictional waters because they were constructed in uplands for the purpose of irrigation and have no direct connection to the San Joaquin River.	G-28 48, 49, 50, 52, 53, 54, 55 G-29 57
Unnamed Ditches	These 6-foot-wide unvegetated earthen ditches are located at a turf farm west of Crows Landing Road and south of Harding Drain. Not USACE jurisdictional waters because they were constructed in uplands for the purpose of irrigation and have no direct connection to the San Joaquin River.	G-30 56, 58, 59,60
Unnamed Ditch	This 3-foot-wide vegetated earthen ditch is located along the edge of an agricultural field north of Prune Avenue. Not a USACE jurisdictional water because it has no direct connection to the San Joaquin River.	G-33 61
Unnamed Ditch	This 7-foot-wide vegetated earthen ditch is located along the edge of an agricultural field north of Prune Avenue. Not a USACE jurisdictional water because it has no direct connection to the San Joaquin River.	G-34 62
Unnamed Ditch	This 3-foot-wide vegetated earthen ditch is located along the edge of an agricultural field north of Prune Avenue. Not a USACE jurisdictional water because it has no direct connection to the San Joaquin River.	G-33, 34 63

**TABLE E-1**  
Human-made Managed Irrigation Canals, Drains, and Ditches Crossed by the Line 7216-03 Project, Not under the Jurisdiction of USACE

<b>Feature Name</b>	<b>Description</b>	<b>Appendix-Page(S) / ID Number(s)</b>
Unnamed Ditch	This 3-foot-wide unvegetated earthen ditch is located along the edge of an agricultural field south of Prune Avenue. Not a USACE jurisdictional water because it has no direct connection to the San Joaquin River.	G-34 65
Unnamed Ditch	This unvegetated 1- to 5-foot-wide earthen ditch is located on the east side of Elm Avenue and north of Prune Avenue. Not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and has no direct connection to the San Joaquin River.	G-34 66
Unnamed Ditch	This 3-foot-wide unvegetated earthen ditch is located along the edge of an agricultural field on the south side of Prune Avenue. This feature is not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and does not sustain return flow from the San Joaquin River.	G-33 67
Unnamed Ditch	This 3-foot-wide vegetated earthen ditch is located along the edge of an agricultural field on the north side of Prune Avenue. This feature is not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and does not sustain return flow from the San Joaquin River.	G-32, 33 68
Unnamed Ditch	This 3-foot-wide unvegetated earthen ditch is located along the edge of an agricultural field on the south side of Prune Avenue. This feature is not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and does not s	G-32 69
Unnamed Ditch	This 6- to 10-foot-wide vegetated earthen ditch parallels the east end of Prune Avenue before heading south on the west side of an unnamed stream. This feature is not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and does not sustain return flow from the San Joaquin River.	G-32 70
Unnamed Ditch	This unvegetated 1- to 5-foot-wide earthen ditch parallels Morgan Road from approximately Lower Lateral 2 1/2 to E. Keyes Road. Not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and no direct connection to the San Joaquin River.	G-5, 6 71
Unnamed Ditch	This concrete-lined ditch is located along the edge of an agricultural field on the east side of Elm Avenue and south of Prune Avenue. This feature is not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and does not sustain return flow from the San Joaquin River.	G-34 72
Unnamed Ditch	This 4-foot-wide vegetated earthen ditch is located along the edge of an agricultural field on the south side of Prune Avenue. This feature is not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and does not sustain return flow from the San Joaquin River.	G-33 73

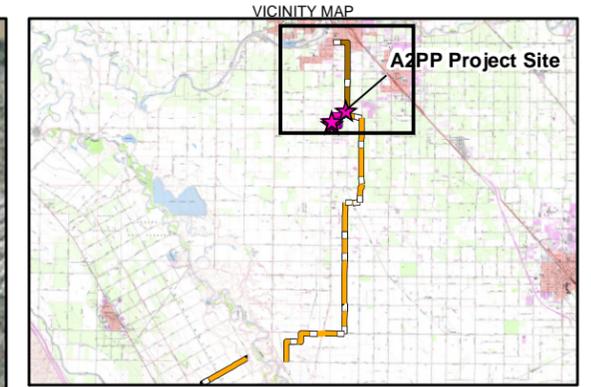
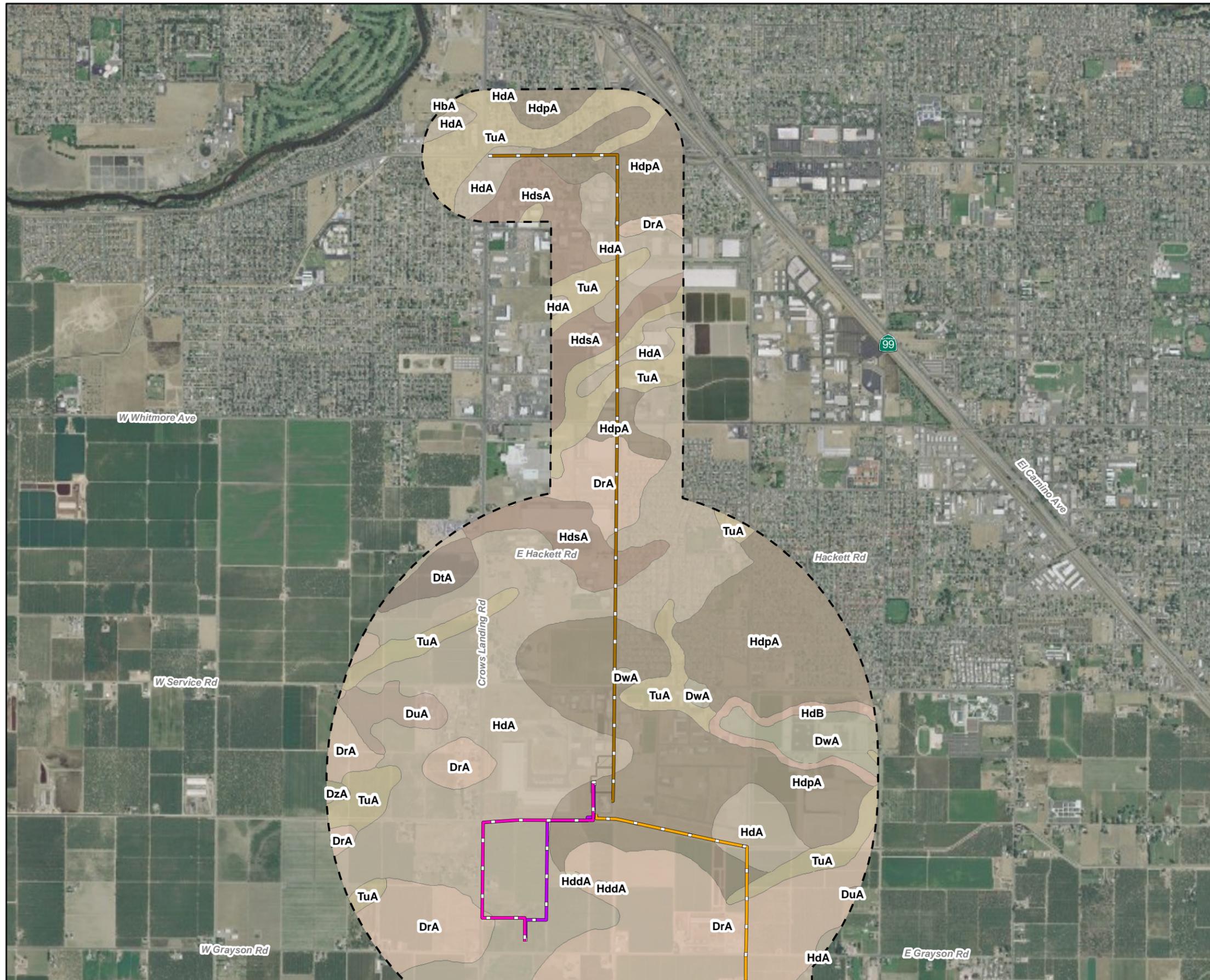
**TABLE E-1**

Human-made Managed Irrigation Canals, Drains, and Ditches Crossed by the Line 7216-03 Project, Not under the Jurisdiction of USACE

Feature Name	Description	Appendix- Page(S) / ID Number(s)
Unnamed Ditch	This 4-foot-wide earthen ditch parallels PID Lateral H on the north side of Prune Avenue. This feature is not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and does not sustain return flow from the San Joaquin River.	G-35 74
Yori Grove Drain	This 10-foot-wide sparsely vegetated earthen irrigation drainage ditch parallels E. Zeering Road. The drain collects agricultural and stormwater runoff. Yori Grove flows approximately 0.3 mile west along E. Zeering Road and before splitting and then flowing 0.4 mile north, where it then enters Lower Lateral 3. No direct connection to the San Joaquin River. This drain is not a USACE jurisdictional water because it was constructed in uplands for the purpose of irrigation and does not sustain return flow from the San Joaquin River.	G-10, 11 12, 13, 21
Zamaroni Canal	This 3-foot-wide concrete-lined irrigation ditch parallels the pipeline on first the west side and then the east side of Morgan Road before turning east and west and away from the pipeline route. Zamaroni Canal conveys water 2 to 3 days per week between March 15 and October 15. This feature is not a USACE jurisdictional water because it was constructed in uplands for irrigation and there is no direct connection to the San Joaquin River.	G-2, 3, 4 6, 7, 8, 9

**Appendix F**  
**Mapped Soil Units in the Project Vicinity**

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**LEGEND**

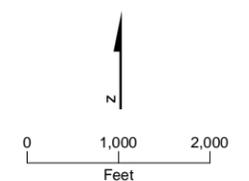
- GAS PIPELINE ALIGNMENT
- GAS PIPELINE ALIGNMENT - UNDERGROUND SECTION
- CORRIDOR 1 (115 KV TRANSMISSION LINE)
- CORRIDOR 2 (115 KV TRANSMISSION LINE)
- CORRIDOR 3 (69KV TRANSMISSION LINE)
- Temporary Laydown Area
- A2PP Project Site
- Buffer

**Soil Type**

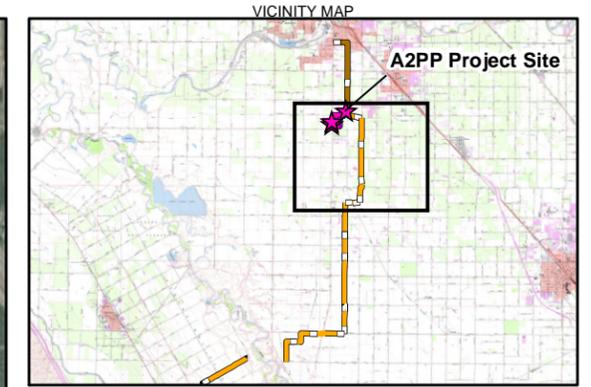
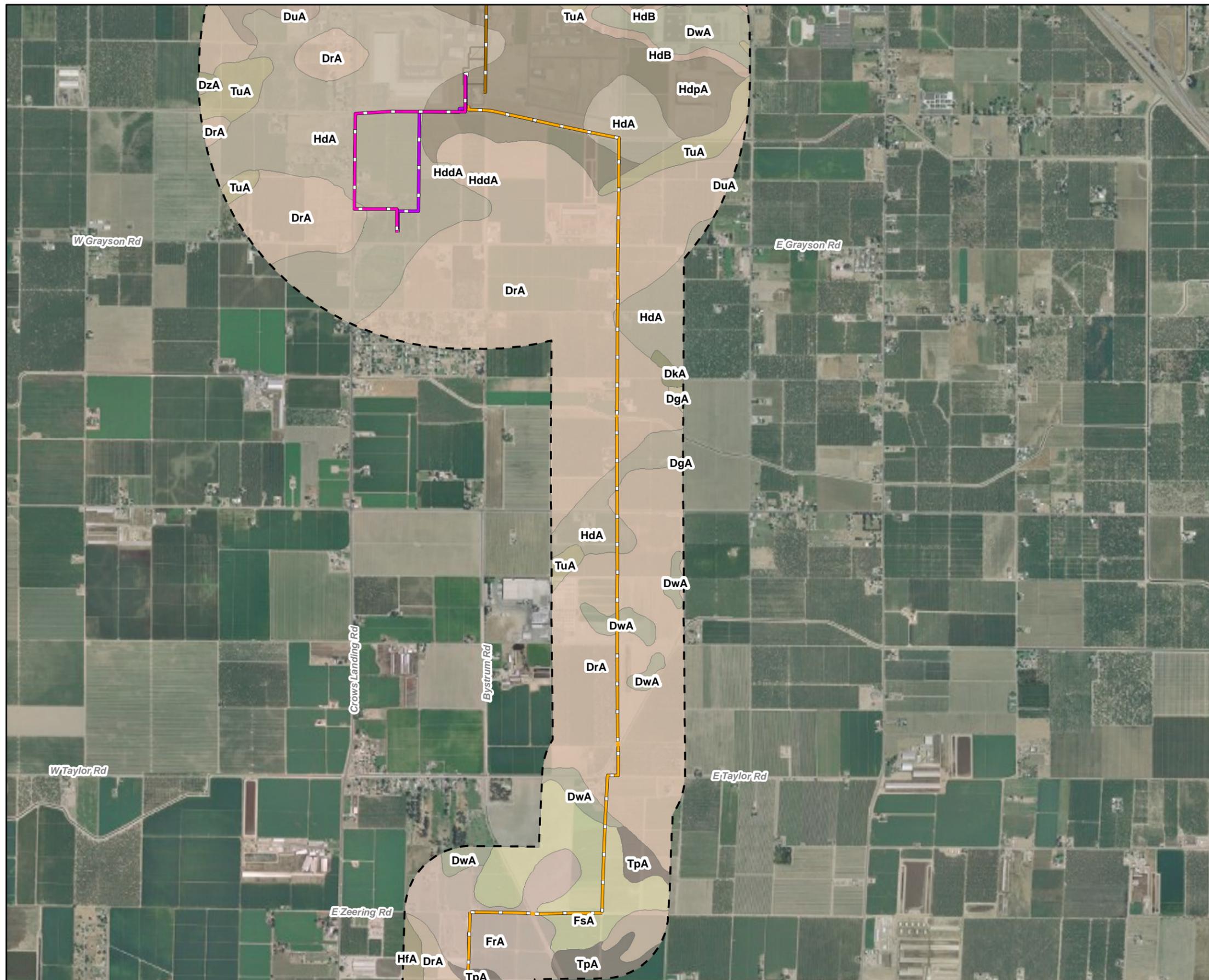
- 101, Capay clay, wet, 0 to 2 percent slopes
- 131, Stomar clay loam, wet, 0 to 2 percent slopes
- 153, Columbia fine sandy loam, channeled, partially drained, 0 to 2 percent slopes, frequently flooded
- 170, Dospalos-Bolifar complex, 0 to 2 percent slopes, occasionally flooded
- 175, Dospalos-Bolifar complex, 0 to 2 percent slopes, rarely flooded
- 246, Bolifar-Columbia complex, 0 to 2 percent slopes, occasionally flooded
- CeA, Columbia loam, 0 to 1 percent slopes
- CsB, Columbia soils, channeled, 0 to 8 percent slopes
- DgA, Delhi loamy sand, silty substratum, 0 to 3 percent slopes
- DkA, Dello loamy sand, 0 to 1 percent slopes
- DrA, Dinuba sandy loam, 0 to 1 percent slopes
- DtA, Dinuba sandy loam, 0 to 1 percent slopes
- DuA, Dinuba sandy loam, poorly drained variant, 0 to 1 percent slopes
- DwA, Dinuba sandy loam, poorly drained variant, 0 to 1 percent slopes
- DzA, Dinuba sandy loam, very poorly drained variant, slightly saline-alkali, 0 to 1 percent slopes
- FrA, Fresno fine sandy loam, moderately saline-alkali, 0 to 1 percent slopes
- FsA, Fresno fine sandy loam, strongly saline-alkali, 0 to 1 percent slopes
- FtA, Fresno sandy loam, slightly saline-alkali, 0 to 1 percent slopes
- FuA, Fresno sandy loam, moderately saline-alkali, 0 to 1 percent slopes
- FwA, Fresno-Dinuba sandy loams, strongly saline alkali, 0 to 1 percent slopes
- HbA, Hanford fine sandy loam, 0 to 3 percent slopes
- HdA, Hanford sandy loam, 0 to 3 percent slopes
- HdB, Hanford sandy loam, 3 to 8 percent slopes
- HddA, Hanford sandy loam, poorly drained variant, 0 to 1 percent slopes
- HdpA, Hanford sandy loam, moderately deep over silt, 0 to 1 percent slopes
- HdsA, Hanford sandy loam, deep over silt, 0 to 1 percent slopes
- HfA, Hilmar loamy sand, 0 to 1 percent
- HkbA, Hilmar loamy sand, slightly saline-alkali, 0 to 1 percent slopes
- RkA, Rossi clay loam, moderately saline-alkali, 0 to 1 percent slopes
- TpA, Traver sandy loam, slightly saline-alkali, 0 to 1 percent slopes
- TrA, Traver sandy loam, moderately saline-alkali, 0 to 1 percent slopes
- TuA, Tujunga loamy sand, 0 to 3 percent slopes
- W, Water
- WaA, Waukena fine sandy loam, slightly saline-alkali, 0 to 1 percent slopes
- WbA, Waukena fine sandy loam, moderately saline-alkali, 0 to 1 percent slopes
- WdA, Waukena sandy loam, slightly saline-alkali, 0 to 1 percent slopes

- Notes:
1. 1 mile around Project Site, 1/4 mile around NG Pipeline and Transmission Line.
  2. Source: U.S. Department of Agriculture, Natural Resources Conservation Service, Soil Survey Geographic (SSURGO) database for Stanislaus County, California.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.



**APPENDIX F-1  
MAPPED SOIL UNITS**  
LINE 7216-03 PROJECT  
CERES, CALIFORNIA



**LEGEND**

- GAS PIPELINE ALIGNMENT
- GAS PIPELINE ALIGNMENT - UNDERGROUND SECTION
- CORRIDOR 1 (115 KV TRANSMISSION LINE)
- CORRIDOR 2 (115 KV TRANSMISSION LINE)
- CORRIDOR 3 (69KV TRANSMISSION LINE)
- Temporary Laydown Area
- A2PP Project Site
- Buffer

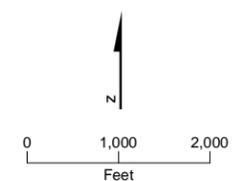
**Soil Type**

- 101, Capay clay, wet, 0 to 2 percent slopes
- 131, Stomar clay loam, wet, 0 to 2 percent slopes
- 153, Columbia fine sandy loam, channeled, partially drained, 0 to 2 percent slopes, frequently flooded
- 170, Dospalos-Bolifar complex, 0 to 2 percent slopes, occasionally flooded
- 175, Dospalos-Bolifar complex, 0 to 2 percent slopes, rarely flooded
- 246, Bolifar-Columbia complex, 0 to 2 percent slopes, occasionally flooded
- CeA, Columbia loam, 0 to 1 percent slopes
- CsB, Columbia soils, channeled, 0 to 8 percent slopes
- DgA, Delhi loamy sand, silty substratum, 0 to 3 percent slopes
- DkA, Delhi loamy sand, 0 to 1 percent slopes
- DrA, Dinuba sandy loam, 0 to 1 percent slopes
- DtA, Dinuba sandy loam, 0 to 1 percent slopes
- DuA, Dinuba sandy loam, poorly drained variant, 0 to 1 percent slopes
- DwA, Dinuba sandy loam, poorly drained variant, 0 to 1 percent slopes
- DzA, Dinuba sandy loam, very poorly drained variant, slightly saline-alkali, 0 to 1 percent slopes
- FrA, Fresno fine sandy loam, moderately saline-alkali, 0 to 1 percent slopes
- FsA, Fresno fine sandy loam, strongly saline-alkali, 0 to 1 percent slopes
- FtA, Fresno sandy loam, slightly saline-alkali, 0 to 1 percent slopes
- FuA, Fresno sandy loam, moderately saline-alkali, 0 to 1 percent slopes
- FwA, Fresno-Dinuba sandy loams, strongly saline-alkali, 0 to 1 percent slopes
- HbA, Hanford fine sandy loam, 0 to 3 percent slopes
- HdA, Hanford sandy loam, 0 to 3 percent slopes
- HdB, Hanford sandy loam, 3 to 8 percent slopes
- HddA, Hanford sandy loam, poorly drained variant, 0 to 1 percent slopes
- HdpA, Hanford sandy loam, moderately deep over silt, 0 to 1 percent slopes
- HdsA, Hanford sandy loam, deep over silt, 0 to 1 percent slopes
- HfA, Hilmar loamy sand, 0 to 1 percent
- HkbA, Hilmar loamy sand, slightly saline-alkali, 0 to 1 percent slopes
- RkA, Rossi clay loam, moderately saline-alkali, 0 to 1 percent slopes
- TpA, Traver sandy loam, slightly saline-alkali, 0 to 1 percent slopes
- TrA, Traver sandy loam, moderately saline-alkali, 0 to 1 percent slopes
- TuA, Tujunga loamy sand, 0 to 3 percent slopes
- W, Water
- WaA, Waukena fine sandy loam, slightly saline-alkali, 0 to 1 percent slopes
- WbA, Waukena fine sandy loam, moderately saline-alkali, 0 to 1 percent slopes
- WdA, Waukena sandy loam, slightly saline-alkali, 0 to 1 percent slopes

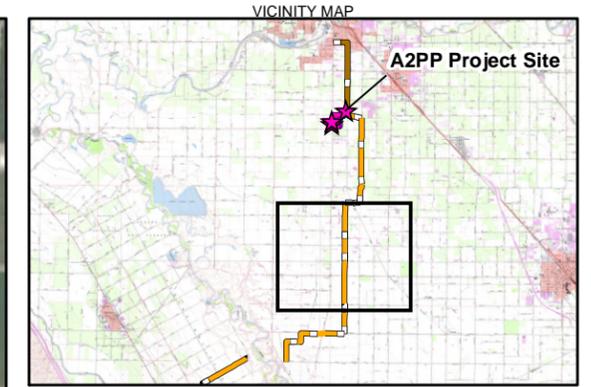
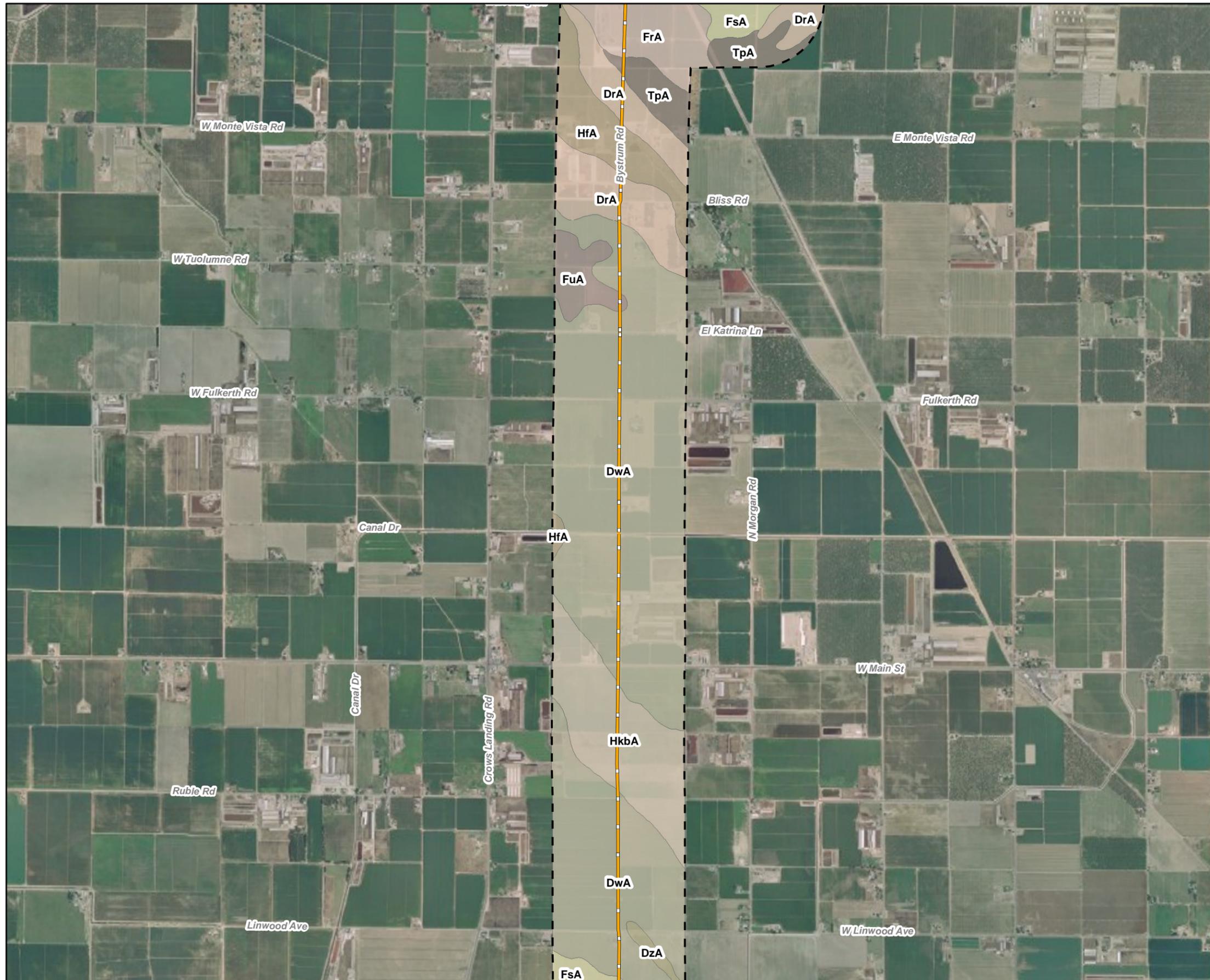
Notes:

1. 1 mile around Project Site, 1/4 mile around NG Pipeline and Transmission Line.
2. Source: U.S. Department of Agriculture, Natural Resources Conservation Service, Soil Survey Geographic (SSURGO) database for Stanislaus County, California.

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**APPENDIX F-2  
MAPPED SOIL UNITS**  
LINE 7216-03 PROJECT  
CERES, CALIFORNIA



**LEGEND**

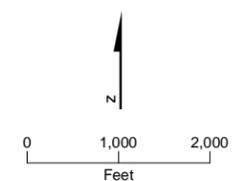
- GAS PIPELINE ALIGNMENT
- GAS PIPELINE ALIGNMENT - UNDERGROUND SECTION
- CORRIDOR 1 (115 KV TRANSMISSION LINE)
- CORRIDOR 2 (115 KV TRANSMISSION LINE)
- CORRIDOR 3 (69KV TRANSMISSION LINE)
- Temporary Laydown Area
- A2PP Project Site
- Buffer

**Soil Type**

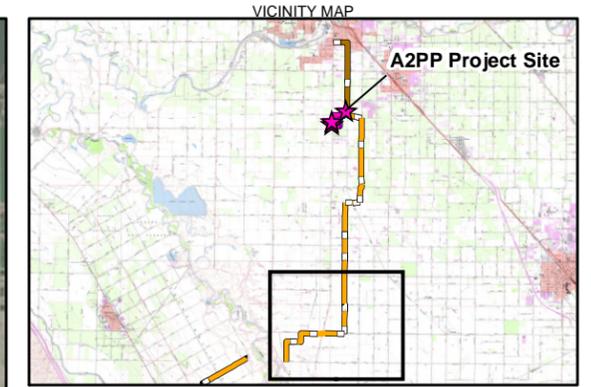
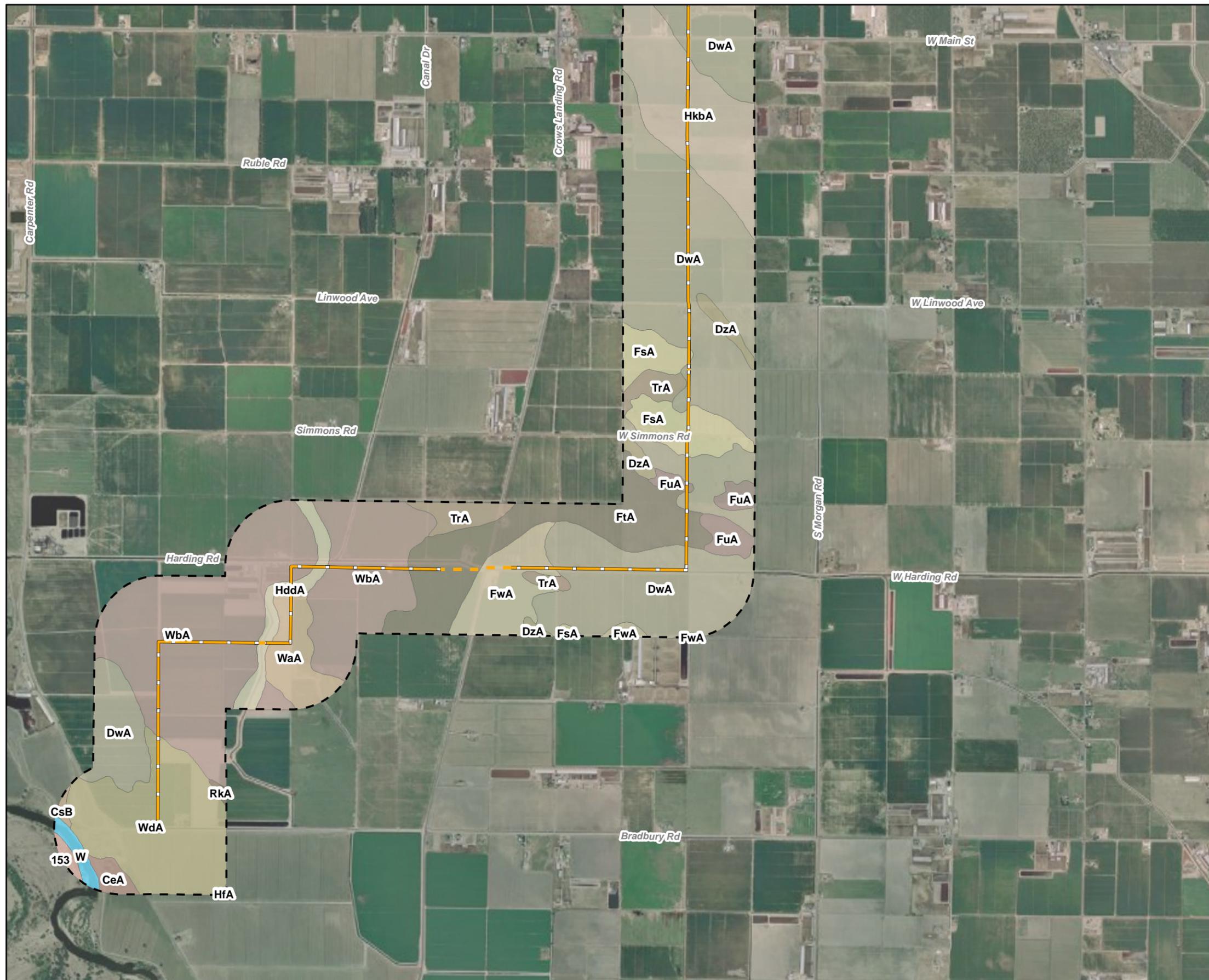
- 101, Capay clay, wet, 0 to 2 percent slopes
- 131, Stomar clay loam, wet, 0 to 2 percent slopes
- 153, Columbia fine sandy loam, channeled, partially drained, 0 to 2 percent slopes, frequently flooded
- 170, Dospalos-Bolifar complex, 0 to 2 percent slopes, occasionally flooded
- 175, Dospalos-Bolifar complex, 0 to 2 percent slopes, rarely flooded
- 246, Bolifar-Columbia complex, 0 to 2 percent slopes, occasionally flooded
- CeA, Columbia loam, 0 to 1 percent slopes
- CsB, Columbia soils, channeled, 0 to 8 percent slopes
- DgA, Delhi loamy sand, silty substratum, 0 to 3 percent slopes
- DkA, Dello loamy sand, 0 to 1 percent slopes
- DrA, Dinuba sandy loam, 0 to 1 percent slopes
- DtA, Dinuba sandy loam, 0 to 1 percent slopes
- DuA, Dinuba sandy loam, poorly drained variant, 0 to 1 percent slopes
- DwA, Dinuba sandy loam, poorly drained variant, 0 to 1 percent slopes
- DzA, Dinuba sandy loam, very poorly drained variant, slightly saline-alkali, 0 to 1 percent slopes
- FrA, Fresno fine sandy loam, moderately saline-alkali, 0 to 1 percent slopes
- FsA, Fresno fine sandy loam, strongly saline-alkali, 0 to 1 percent slopes
- FtA, Fresno sandy loam, slightly saline-alkali, 0 to 1 percent slopes
- FuA, Fresno sandy loam, moderately saline-alkali, 0 to 1 percent slopes
- FwA, Fresno-Dinuba sandy loams, strongly saline alkali, 0 to 1 percent slopes
- HbA, Hanford fine sandy loam, 0 to 3 percent slopes
- HdA, Hanford sandy loam, 0 to 3 percent slopes
- HdB, Hanford sandy loam, 3 to 8 percent slopes
- HdA, Hanford sandy loam, poorly drained variant, 0 to 1 percent slopes
- HdpA, Hanford sandy loam, moderately deep over silt, 0 to 1 percent slopes
- HdsA, Hanford sandy loam, deep over silt, 0 to 1 percent slopes
- HfA, Hilmar loamy sand, 0 to 1 percent
- HkbA, Hilmar loamy sand, slightly saline-alkali, 0 to 1 percent slopes
- RkA, Rossi clay loam, moderately saline-alkali, 0 to 1 percent slopes
- TpA, Traver sandy loam, slightly saline-alkali, 0 to 1 percent slopes
- TrA, Traver sandy loam, moderately saline-alkali, 0 to 1 percent slopes
- TuA, Tujunga loamy sand, 0 to 3 percent slopes
- W, Water
- WaA, Waukena fine sandy loam, slightly saline-alkali, 0 to 1 percent slopes
- WbA, Waukena fine sandy loam, moderately saline-alkali, 0 to 1 percent slopes
- WdA, Waukena sandy loam, slightly saline-alkali, 0 to 1 percent slopes

Notes:  
 1. 1 mile around Project Site, 1/4 mile around NG Pipeline and Transmission Line.  
 2. Source: U.S. Department of Agriculture, Natural Resources Conservation Service, Soil Survey Geographic (SSURGO) database for Stanislaus County, California.

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**APPENDIX F-3  
 MAPPED SOIL UNITS**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA



**LEGEND**

- GAS PIPELINE ALIGNMENT
- GAS PIPELINE ALIGNMENT - UNDERGROUND SECTION
- CORRIDOR 1 (115 KV TRANSMISSION LINE)
- CORRIDOR 2 (115 KV TRANSMISSION LINE)
- CORRIDOR 3 (69KV TRANSMISSION LINE)
- Temporary Laydown Area
- A2PP Project Site
- Buffer

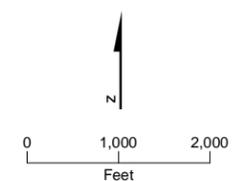
**Soil Type**

- 101, Capay clay, wet, 0 to 2 percent slopes
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- 153, Columbia fine sandy loam, channeled, partially drained, 0 to 2 percent slopes, frequently flooded
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- DkA, Dello loamy sand, 0 to 1 percent slopes
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- DtA, Dinuba sandy loam, 0 to 1 percent slopes
- DuA, Dinuba sandy loam, poorly drained variant, 0 to 1 percent slopes
- DwA, Dinuba sandy loam, poorly drained variant, 0 to 1 percent slopes
- DzA, Dinuba sandy loam, very poorly drained variant, slightly saline-alkali, 0 to 1 percent slopes
- FrA, Fresno fine sandy loam, moderately saline-alkali, 0 to 1 percent slopes
- FsA, Fresno fine sandy loam, strongly saline-alkali, 0 to 1 percent slopes
- FtA, Fresno sandy loam, slightly saline-alkali, 0 to 1 percent slopes
- FuA, Fresno sandy loam, moderately saline-alkali, 0 to 1 percent slopes
- FwA, Fresno-Dinuba sandy loams, strongly saline alkali, 0 to 1 percent slopes
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- HdA, Hanford sandy loam, 0 to 3 percent slopes
- HdB, Hanford sandy loam, 3 to 8 percent slopes
- HddA, Hanford sandy loam, poorly drained variant, 0 to 1 percent slopes
- HdpA, Hanford sandy loam, moderately deep over silt, 0 to 1 percent slopes
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- HfA, Hilmar loamy sand, 0 to 1 percent
- HkbA, Hilmar loamy sand, slightly saline-alkali, 0 to 1 percent slopes
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- TrA, Traver sandy loam, moderately saline-alkali, 0 to 1 percent slopes
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- W, Water
- WaA, Waukena fine sandy loam, slightly saline-alkali, 0 to 1 percent slopes
- WbA, Waukena fine sandy loam, moderately saline-alkali, 0 to 1 percent slopes
- WdA, Waukena sandy loam, slightly saline-alkali, 0 to 1 percent slopes

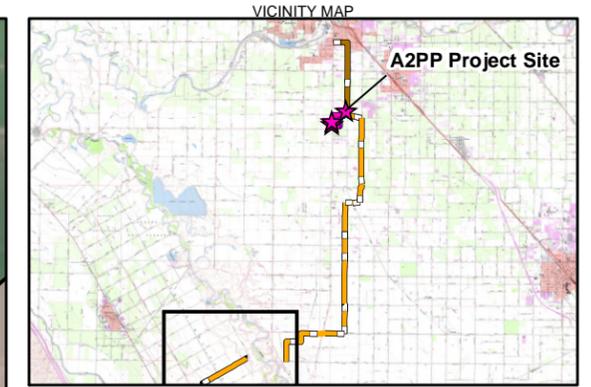
Notes:

1. 1 mile around Project Site, 1/4 mile around NG Pipeline and Transmission Line.
2. Source: U.S. Department of Agriculture, Natural Resources Conservation Service, Soil Survey Geographic (SSURGO) database for Stanislaus County, California.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.



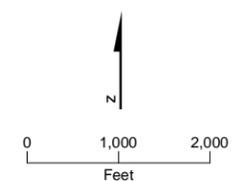
**APPENDIX F-4  
MAPPED SOIL UNITS**  
LINE 7216-03 PROJECT  
CERES, CALIFORNIA



- LEGEND**
- GAS PIPELINE ALIGNMENT
  - GAS PIPELINE ALIGNMENT - UNDERGROUND SECTION
  - CORRIDOR 1 (115 KV TRANSMISSION LINE)
  - CORRIDOR 2 (115 KV TRANSMISSION LINE)
  - CORRIDOR 3 (69KV TRANSMISSION LINE)
  - Temporary Laydown Area
  - A2PP Project Site
  - Buffer
- Soil Type**
- 101, Capay clay, wet, 0 to 2 percent slopes
  - 131, Stomar clay loam, wet, 0 to 2 percent slopes
  - 153, Columbia fine sandy loam, channeled, partially drained, 0 to 2 percent slopes, frequently flooded
  - 170, Dospalos-Bolifar complex, 0 to 2 percent slopes, occasionally flooded
  - 175, Dospalos-Bolifar complex, 0 to 2 percent slopes, rarely flooded
  - 246, Bolifar-Columbia complex, 0 to 2 percent slopes, occasionally flooded
  - CeA, Columbia loam, 0 to 1 percent slopes
  - CsB, Columbia soils, channeled, 0 to 8 percent slopes
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  - DkA, Dello loamy sand, 0 to 1 percent slopes
  - DrA, Dinuba sandy loam, 0 to 1 percent slopes
  - DtA, Dinuba sandy loam, 0 to 1 percent slopes
  - DuA, Dinuba sandy loam, poorly drained variant, 0 to 1 percent slopes
  - DwA, Dinuba sandy loam, poorly drained variant, 0 to 1 percent slopes
  - DzA, Dinuba sandy loam, very poorly drained variant, slightly saline-alkali, 0 to 1 percent slopes
  - FrA, Fresno fine sandy loam, moderately saline-alkali, 0 to 1 percent slopes
  - FsA, Fresno fine sandy loam, strongly saline-alkali, 0 to 1 percent slopes
  - FtA, Fresno sandy loam, slightly saline-alkali, 0 to 1 percent slopes
  - FuA, Fresno sandy loam, moderately saline-alkali, 0 to 1 percent slopes
  - FwA, Fresno-Dinuba sandy loams, strongly saline alkali, 0 to 1 percent slopes
  - HbA, Hanford fine sandy loam, 0 to 3 percent slopes
  - HdA, Hanford sandy loam, 0 to 3 percent slopes
  - HdB, Hanford sandy loam, 3 to 8 percent slopes
  - HdA, Hanford sandy loam, poorly drained variant, 0 to 1 percent slopes
  - HdpA, Hanford sandy loam, moderately deep over silt, 0 to 1 percent slopes
  - HdsA, Hanford sandy loam, deep over silt, 0 to 1 percent slopes
  - HfA, Hilmar loamy sand, 0 to 1 percent
  - HkbA, Hilmar loamy sand, slightly saline-alkali, 0 to 1 percent slopes
  - RkA, Rossi clay loam, moderately saline-alkali, 0 to 1 percent slopes
  - TpA, Traver sandy loam, slightly saline-alkali, 0 to 1 percent slopes
  - TrA, Traver sandy loam, moderately saline-alkali, 0 to 1 percent slopes
  - TuA, Tujunga loamy sand, 0 to 3 percent slopes
  - W, Water
  - WbA, Waukena fine sandy loam, slightly saline-alkali, 0 to 1 percent slopes
  - WcA, Waukena fine sandy loam, moderately saline-alkali, 0 to 1 percent slopes
  - WdA, Waukena sandy loam, slightly saline-alkali, 0 to 1 percent slopes

- Notes:
1. 1 mile around Project Site, 1/4 mile around NG Pipeline and Transmission Line.
  2. Source: U.S. Department of Agriculture, Natural Resources Conservation Service, Soil Survey Geographic (SSURGO) database for Stanislaus County, California.

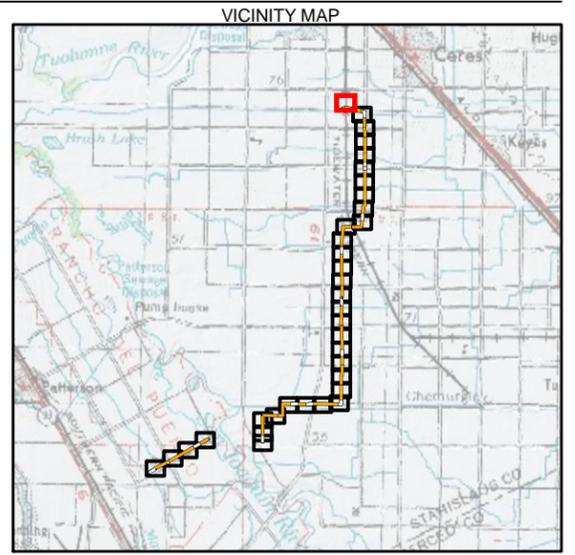
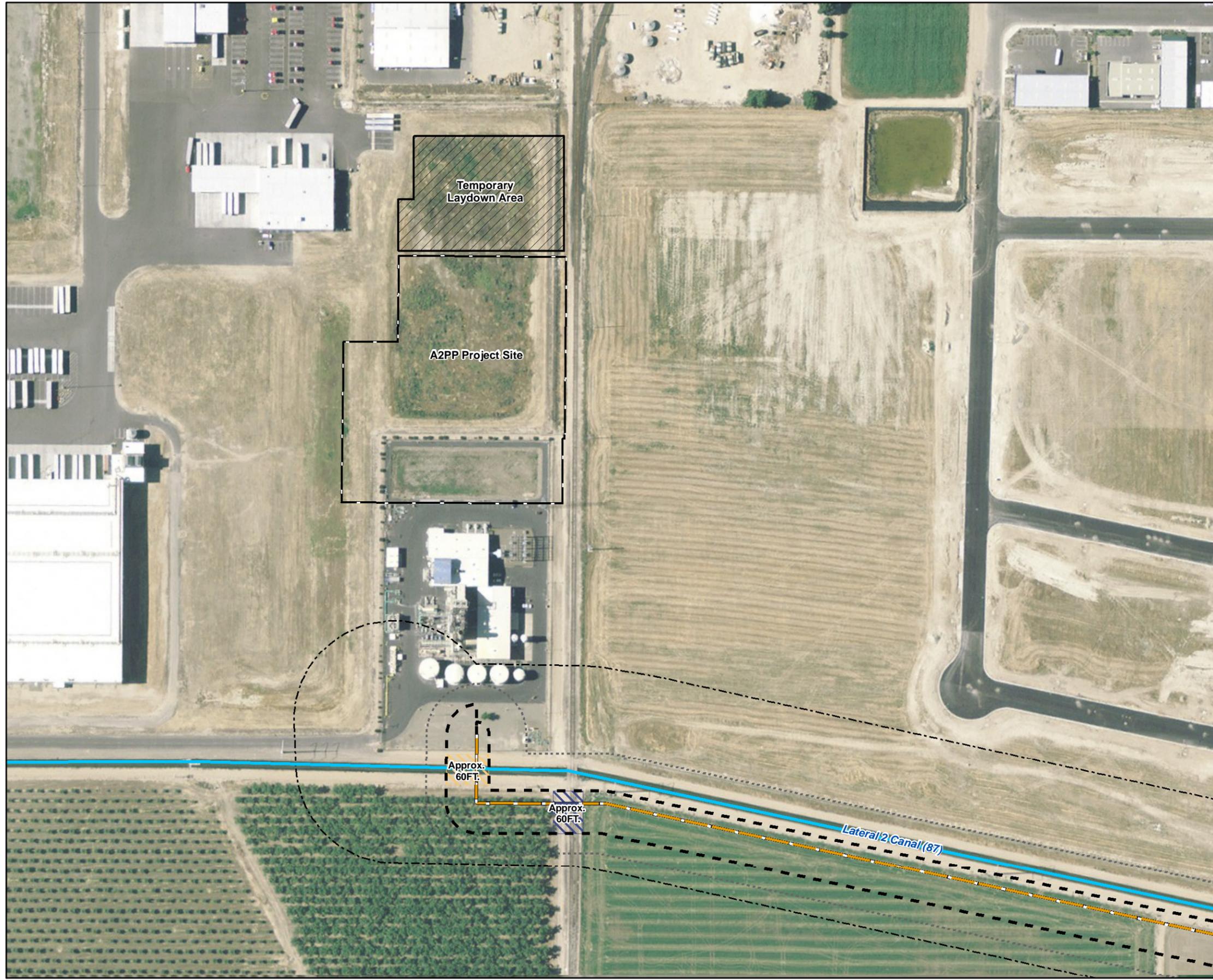
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.



**APPENDIX F-5  
MAPPED SOIL UNITS**  
LINE 7216-03 PROJECT  
CERES, CALIFORNIA

**Appendix G**  
**Wetland Delineation Map, Photographs, and**  
**Data Sheets - Line 7216-03 Project**

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**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
- JACK & BORE
- OPEN CUT
- TEMPORARY LAYDOWN AREA
- A2PP PROJECT SITE
- GAS PIPELINE PROJECT BOUNDARY
- 85 FOOT CONSTRUCTION CORRIDOR
- 200 FOOT STUDY CORRIDOR

**PIPELINE CROSSINGS**

- HAMMER BORE
- HDD
- JACK & BORE
- OPEN CUT

Approx  
60 FT. = LENGTH OF CROSSING

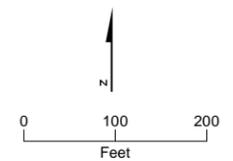
**POTENTIAL WATERS OF THE US**

- HARDING DRAIN
- PRAIRIE FLOWER DRAIN
- - - RIVER HIGH FLOW CHANNEL

**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

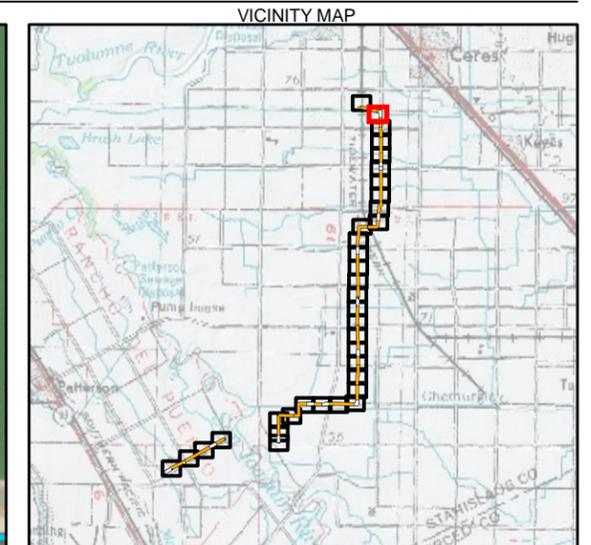
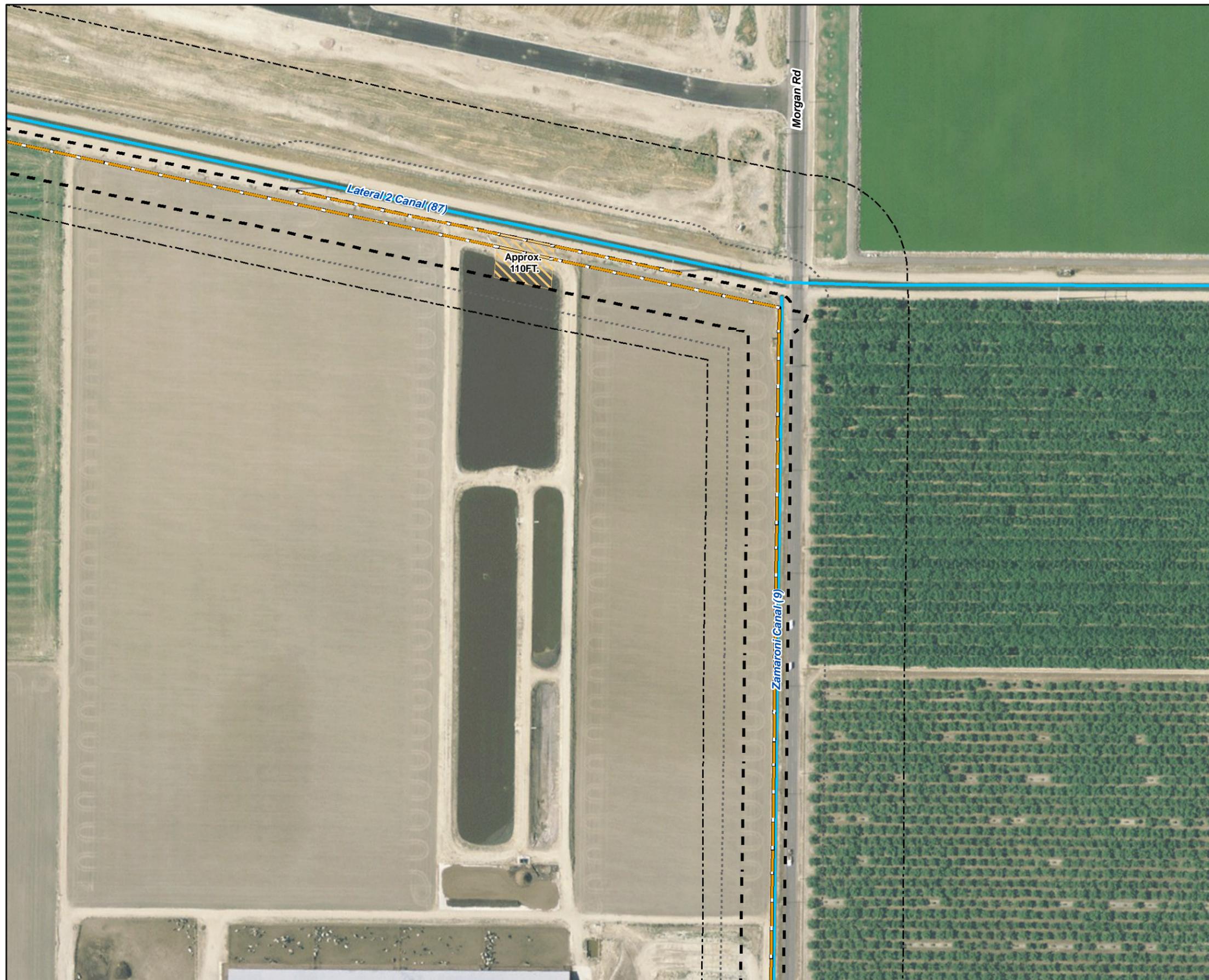
- CANAL
- DITCH
- DRAIN

\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.



**APPENDIX G-1  
 WETLAND DELINEATION MAP -  
 LINE 7216-03 PROJECT  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA**

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
 \\VISION\SACGIS\PROJECT\TURLOCK\IRRIGATION\DIS\383194\MAPFILES\WETLAND\DELINERATION\_NG\_29MAR2010.MXD MCLAY1 4/19/2010



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**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
- JACK & BORE
- OPEN CUT
- TEMPORARY LAYDOWN AREA
- A2PP PROJECT SITE
- GAS PIPELINE PROJECT BOUNDARY
- 85 FOOT CONSTRUCTION CORRIDOR
- 200 FOOT STUDY CORRIDOR

**PIPELINE CROSSINGS**

- HAMMER BORE
- HDD
- JACK & BORE
- OPEN CUT

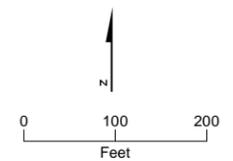
Approx  
60 FT. = LENGTH OF CROSSING

**POTENTIAL WATERS OF THE US**

- HARDING DRAIN
- PRAIRIE FLOWER DRAIN
- RIVER HIGH FLOW CHANNEL

**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

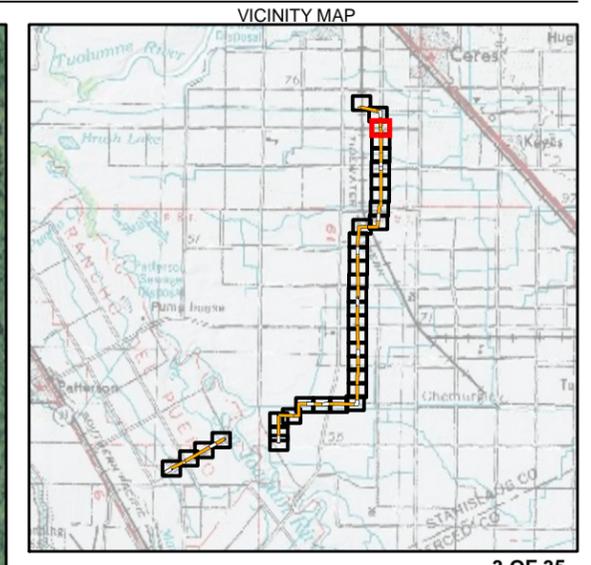
- CANAL
- DITCH
- DRAIN



\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.

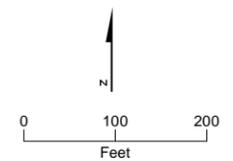
**APPENDIX G-2**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
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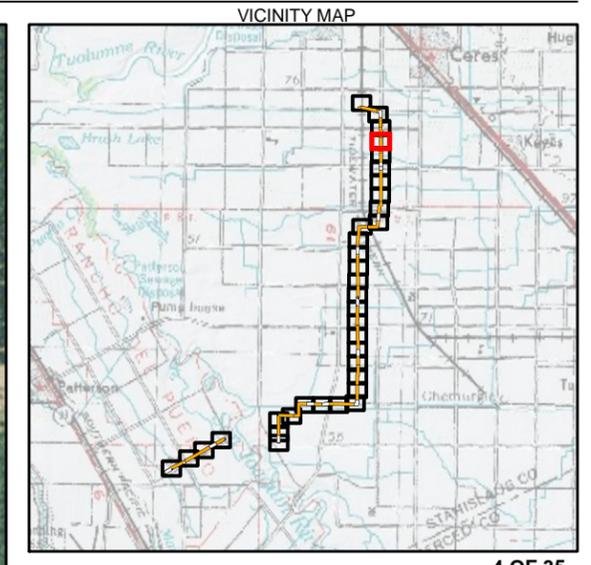
- LEGEND**
- PREFERRED ALIGNMENT
  - REINFORCEMENT SEGMENT
  - HDD
  - HAMMER BORE
  - JACK & BORE
  - OPEN CUT
  - TEMPORARY LAYDOWN AREA
  - A2PP PROJECT SITE
  - GAS PIPELINE PROJECT BOUNDARY
  - 85 FOOT CONSTRUCTION CORRIDOR
  - 200 FOOT STUDY CORRIDOR
- PIPELINE CROSSINGS**
- HAMMER BORE
  - HDD
  - JACK & BORE
  - OPEN CUT
- Approx  
60 FT. = LENGTH OF CROSSING
- POTENTIAL WATERS OF THE US**
- HARDING DRAIN
  - PRAIRIE FLOWER DRAIN
  - - - RIVER HIGH FLOW CHANNEL
- POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**
- CANAL
  - DITCH
  - DRAIN



\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.

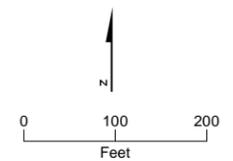
**APPENDIX G-3**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
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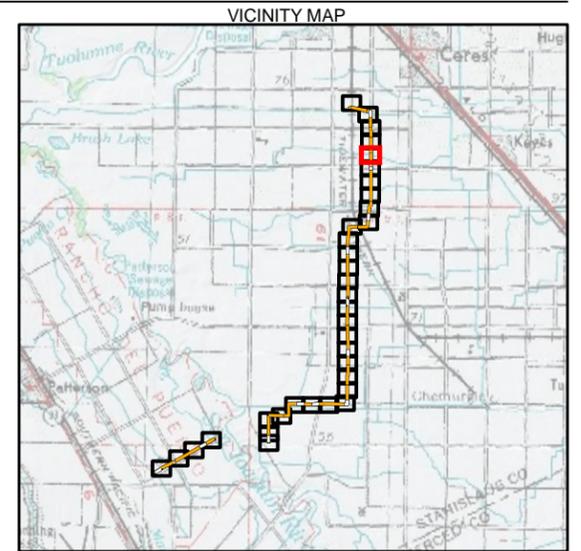
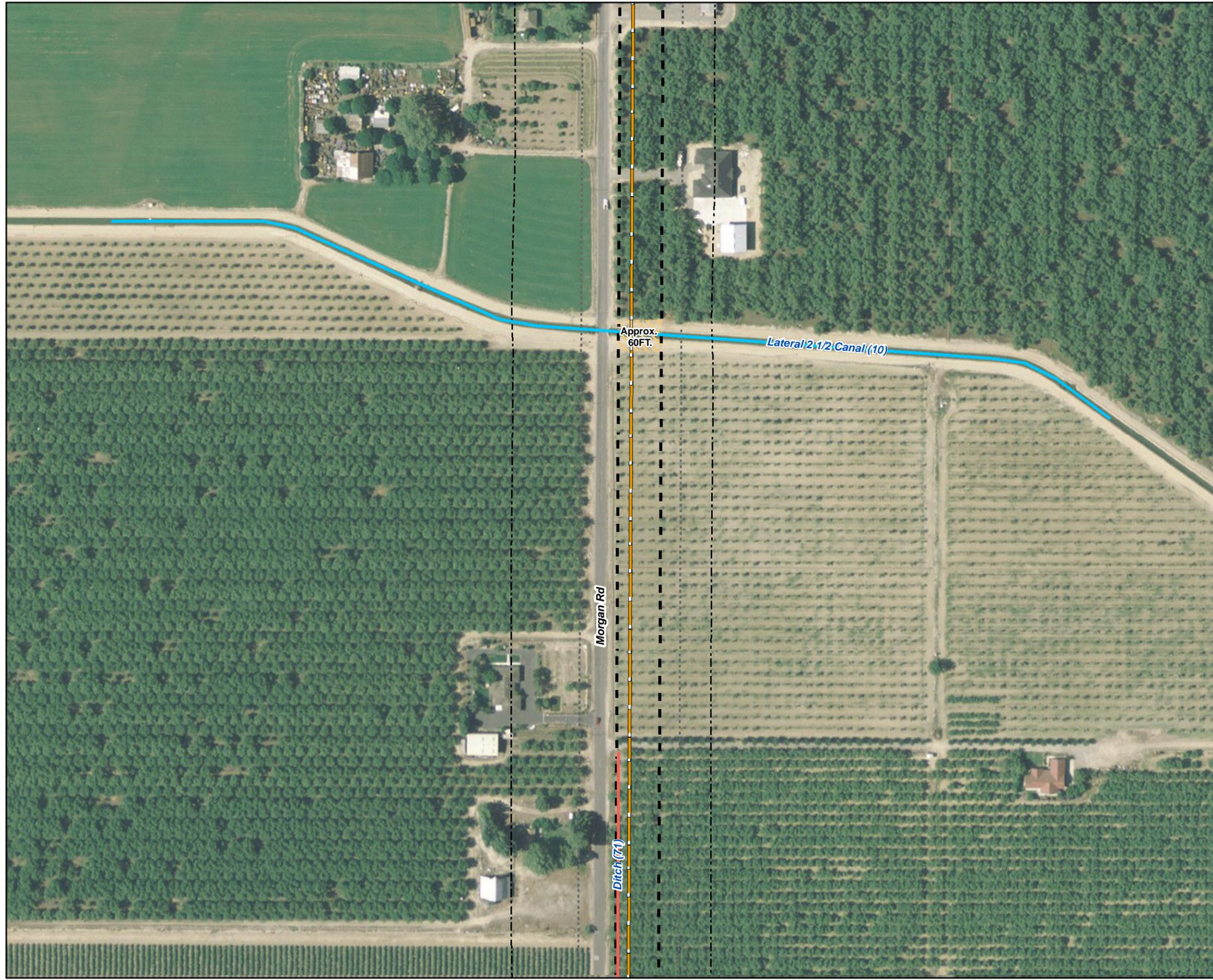
- LEGEND**
- PREFERRED ALIGNMENT
  - REINFORCEMENT SEGMENT
  - HDD
  - HAMMER BORE
  - JACK & BORE
  - OPEN CUT
  - TEMPORARY LAYDOWN AREA
  - A2PP PROJECT SITE
  - GAS PIPELINE PROJECT BOUNDARY
  - 85 FOOT CONSTRUCTION CORRIDOR
  - 200 FOOT STUDY CORRIDOR
- PIPELINE CROSSINGS**
- HAMMER BORE
  - HDD
  - JACK & BORE
  - OPEN CUT
- Approx  
60 FT. = LENGTH OF CROSSING
- POTENTIAL WATERS OF THE US**
- HARDING DRAIN
  - PRAIRIE FLOWER DRAIN
  - RIVER HIGH FLOW CHANNEL
- POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**
- CANAL
  - DITCH
  - DRAIN



\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.

**APPENDIX G-4**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

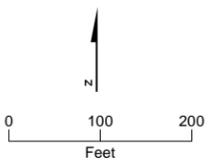
This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
 \\ZION\SACGIS\PROJECT\TURLOCK\IRRIGATION\DIS\383194\MAPFILES\WETLAND\DELINERATION\_NG\_29MAR2010.MXD MCLAY1 4/19/2010



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**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
- JACK & BORE
- OPEN CUT
- TEMPORARY LAYDOWN AREA
- A2PP PROJECT SITE
- GAS PIPELINE PROJECT BOUNDARY
- 85 FOOT CONSTRUCTION CORRIDOR
- 200 FOOT STUDY CORRIDOR
- PIPELINE CROSSINGS**
- HAMMER BORE
- HDD
- JACK & BORE
- OPEN CUT

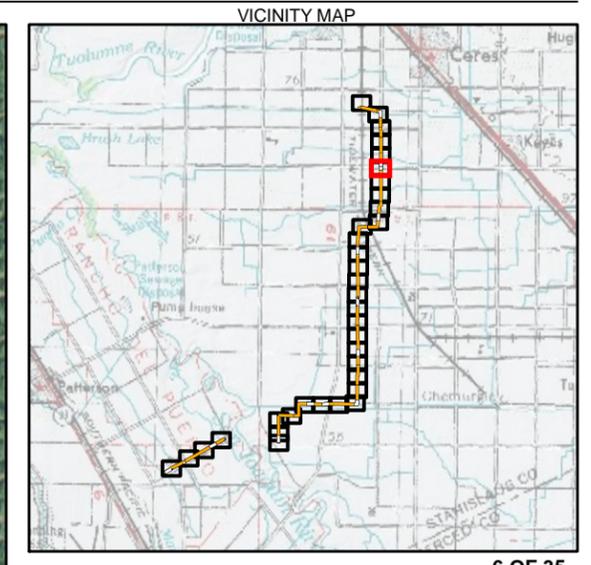


- Approx  
60 FT. = LENGTH OF CROSSING
- POTENTIAL WATERS OF THE US**
- HARDING DRAIN
  - PRAIRIE FLOWER DRAIN
  - RIVER HIGH FLOW CHANNEL
- POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**
- CANAL
  - DITCH
  - DRAIN

\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.

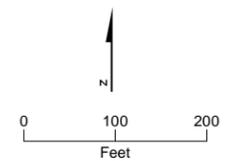
**APPENDIX G-5  
 WETLAND DELINEATION MAP -  
 LINE 7216-03 PROJECT  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA**

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
 \\ZION\SACGIS\PROJ\TURLOCKIRRIGATION\DIS\383194\MAPFILES\WETLANDDELINERATION\_NG\_29MAR2010.MXD MCLAY1 4/19/2010



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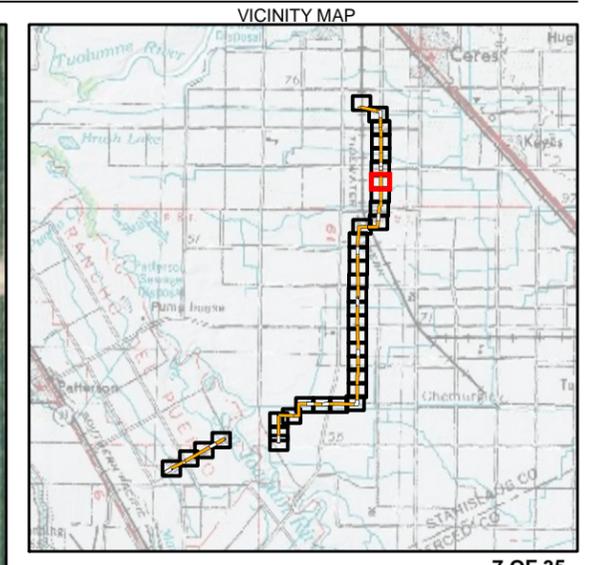
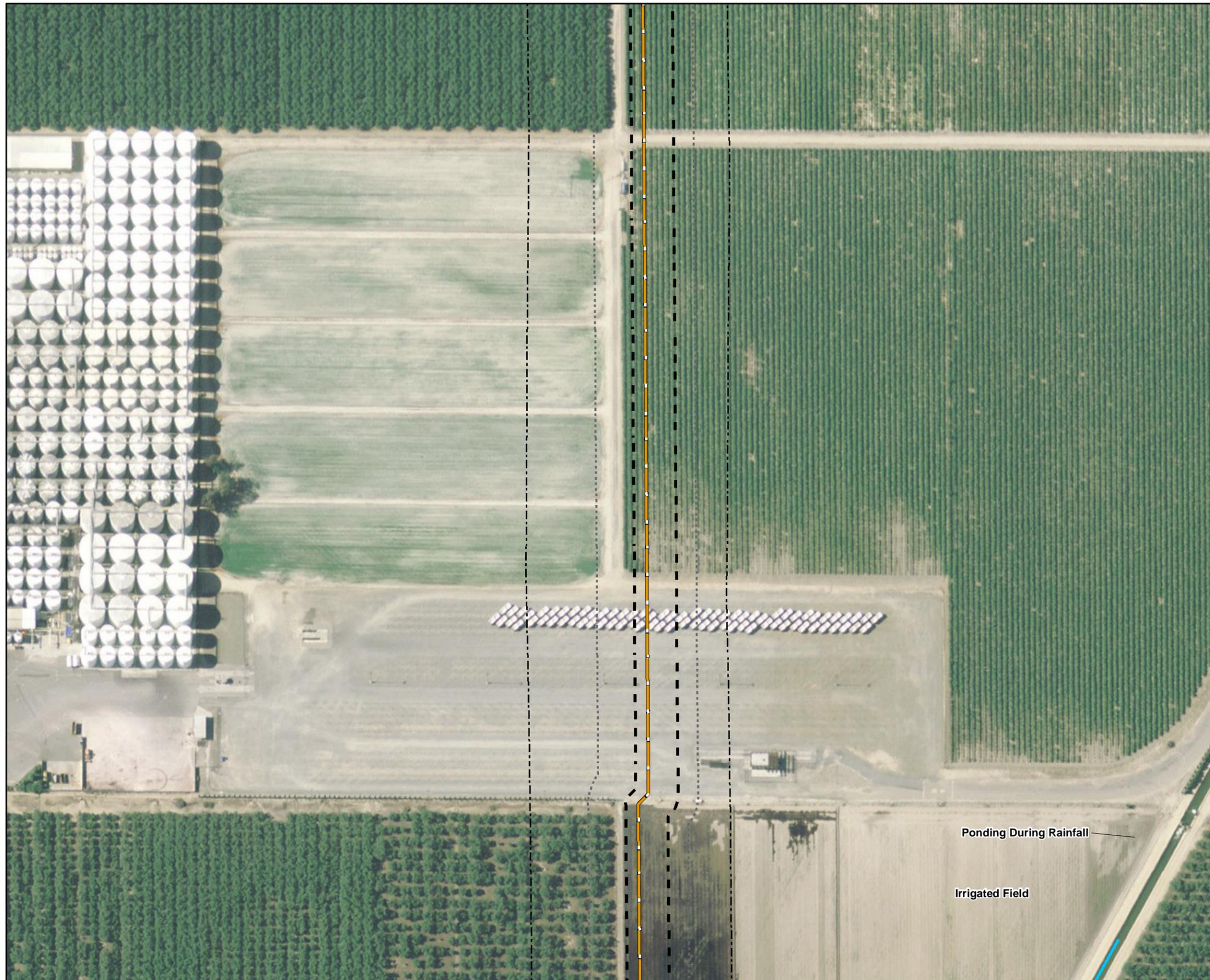
- LEGEND**
- PREFERRED ALIGNMENT
  - REINFORCEMENT SEGMENT
  - HDD
  - HAMMER BORE
  - JACK & BORE
  - OPEN CUT
  - TEMPORARY LAYDOWN AREA
  - A2PP PROJECT SITE
  - GAS PIPELINE PROJECT BOUNDARY
  - 85 FOOT CONSTRUCTION CORRIDOR
  - 200 FOOT STUDY CORRIDOR
- PIPELINE CROSSINGS**
- HAMMER BORE
  - HDD
  - JACK & BORE
  - OPEN CUT
- Approx  
60 FT. = LENGTH OF CROSSING
- POTENTIAL WATERS OF THE US**
- HARDING DRAIN
  - PRAIRIE FLOWER DRAIN
  - - - RIVER HIGH FLOW CHANNEL
- POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**
- CANAL
  - DITCH
  - DRAIN



\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.

**APPENDIX G-6  
 WETLAND DELINEATION MAP -  
 LINE 7216-03 PROJECT  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA**

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
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**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
- JACK & BORE
- OPEN CUT
- TEMPORARY LAYDOWN AREA
- A2PP PROJECT SITE
- GAS PIPELINE PROJECT BOUNDARY
- 85 FOOT CONSTRUCTION CORRIDOR
- 200 FOOT STUDY CORRIDOR

**PIPELINE CROSSINGS**

- HAMMER BORE
- HDD
- JACK & BORE
- OPEN CUT

Approx  
60 FT. = LENGTH OF CROSSING

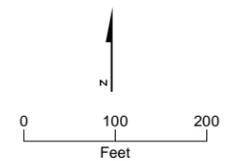
**POTENTIAL WATERS OF THE US**

- HARDING DRAIN
- PRAIRIE FLOWER DRAIN
- RIVER HIGH FLOW CHANNEL

**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

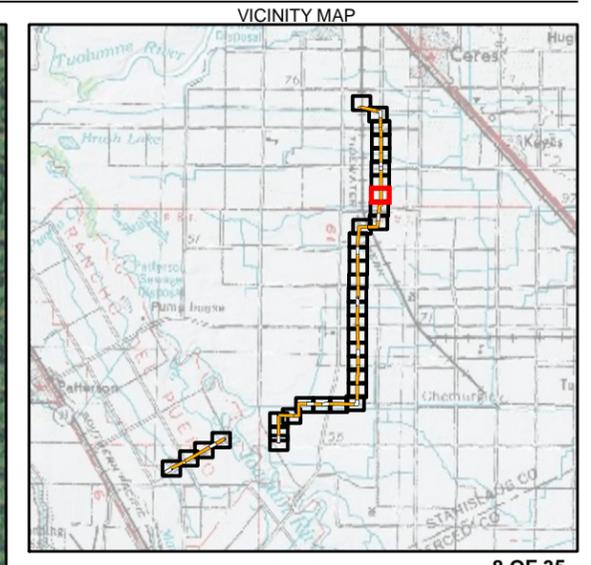
- CANAL
- DITCH
- DRAIN

\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.



**APPENDIX G-7**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
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**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
- JACK & BORE
- OPEN CUT
- TEMPORARY LAYDOWN AREA
- A2PP PROJECT SITE
- GAS PIPELINE PROJECT BOUNDARY
- 85 FOOT CONSTRUCTION CORRIDOR
- 200 FOOT STUDY CORRIDOR

**PIPELINE CROSSINGS**

- HAMMER BORE
- HDD
- JACK & BORE
- OPEN CUT

Approx  
60 FT. = LENGTH OF CROSSING

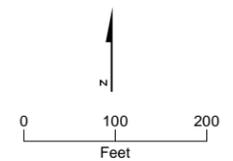
**POTENTIAL WATERS OF THE US**

- HARDING DRAIN
- PRAIRIE FLOWER DRAIN
- - - RIVER HIGH FLOW CHANNEL

**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

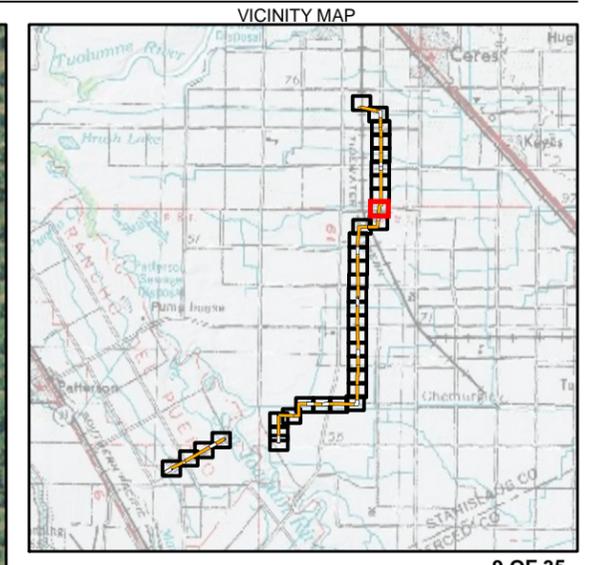
- CANAL
- DITCH
- DRAIN

\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.



**APPENDIX G-8**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
 \\ZION\SACGIS\PROJ\TURLOCKIRRIGATION\DIS\383194\MAPFILES\WETLANDDELINEATION\_NG\_29MAR2010.MXD MCLAY1 4/19/2010



**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
- JACK & BORE
- OPEN CUT
- TEMPORARY LAYDOWN AREA
- A2PP PROJECT SITE
- GAS PIPELINE PROJECT BOUNDARY
- 85 FOOT CONSTRUCTION CORRIDOR
- 200 FOOT STUDY CORRIDOR

**PIPELINE CROSSINGS**

- HAMMER BORE
- HDD
- JACK & BORE
- OPEN CUT

Approx  
60 FT. = LENGTH OF CROSSING

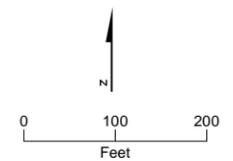
**POTENTIAL WATERS OF THE US**

- HARDING DRAIN
- PRAIRIE FLOWER DRAIN
- RIVER HIGH FLOW CHANNEL

**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

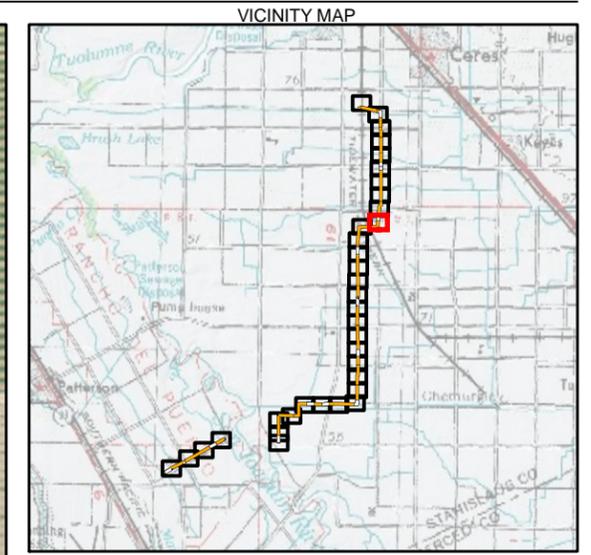
- CANAL
- DITCH
- DRAIN

\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.



**APPENDIX G-9  
 WETLAND DELINEATION MAP -  
 LINE 7216-03 PROJECT  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA**

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
 \\ZION\SACGIS\PROJ\TURLOCKIRRIGATION\DIS\383194\MAPFILES\WETLANDDELINEATION\_NG\_29MAR2010.MXD MCLAY1 4/19/2010



**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
- JACK & BORE
- OPEN CUT
- TEMPORARY LAYDOWN AREA
- A2PP PROJECT SITE
- GAS PIPELINE PROJECT BOUNDARY
- 85 FOOT CONSTRUCTION CORRIDOR
- 200 FOOT STUDY CORRIDOR

**PIPELINE CROSSINGS**

- HAMMER BORE
- HDD
- JACK & BORE
- OPEN CUT

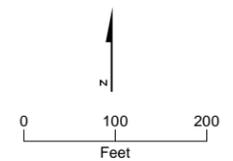
Approx  
60 FT. = LENGTH OF CROSSING

**POTENTIAL WATERS OF THE US**

- HARDING DRAIN
- PRAIRIE FLOWER DRAIN
- - - RIVER HIGH FLOW CHANNEL

**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

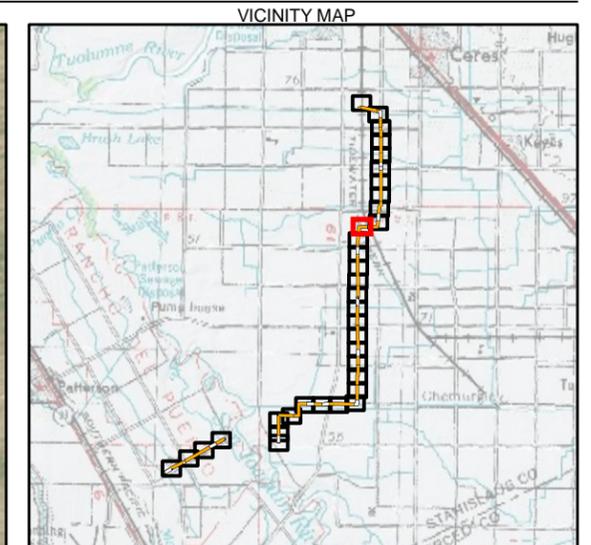
- CANAL
- DITCH
- DRAIN



\*Areas were mapped, in part, with aerial photographs.  
*Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)*  
 Source: Biological Surveys, 2009 - 2010.

**APPENDIX G-10**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

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**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
- JACK & BORE
- OPEN CUT
- ▨ TEMPORARY LAYDOWN AREA
- ▨ A2PP PROJECT SITE
- ▨ GAS PIPELINE PROJECT BOUNDARY
- ▨ 85 FOOT CONSTRUCTION CORRIDOR
- ▨ 200 FOOT STUDY CORRIDOR

**PIPELINE CROSSINGS**

- ▨ HAMMER BORE
- ▨ HDD
- ▨ JACK & BORE
- ▨ OPEN CUT

Approx  
60 FT. = LENGTH OF CROSSING

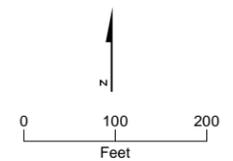
**POTENTIAL WATERS OF THE US**

- HARDING DRAIN
- PRAIRIE FLOWER DRAIN
- RIVER HIGH FLOW CHANNEL

**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

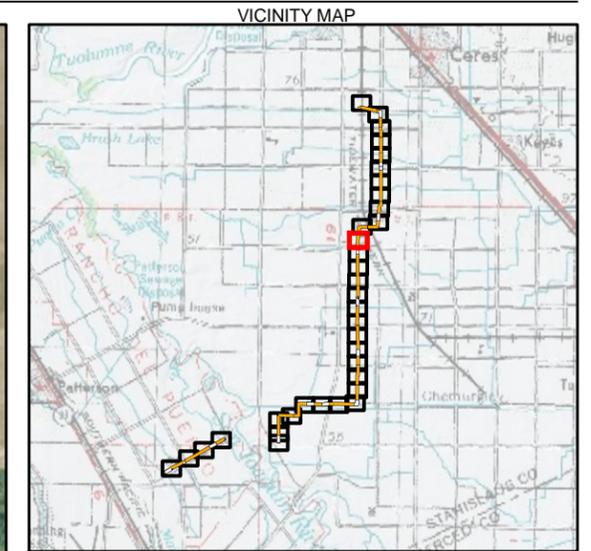
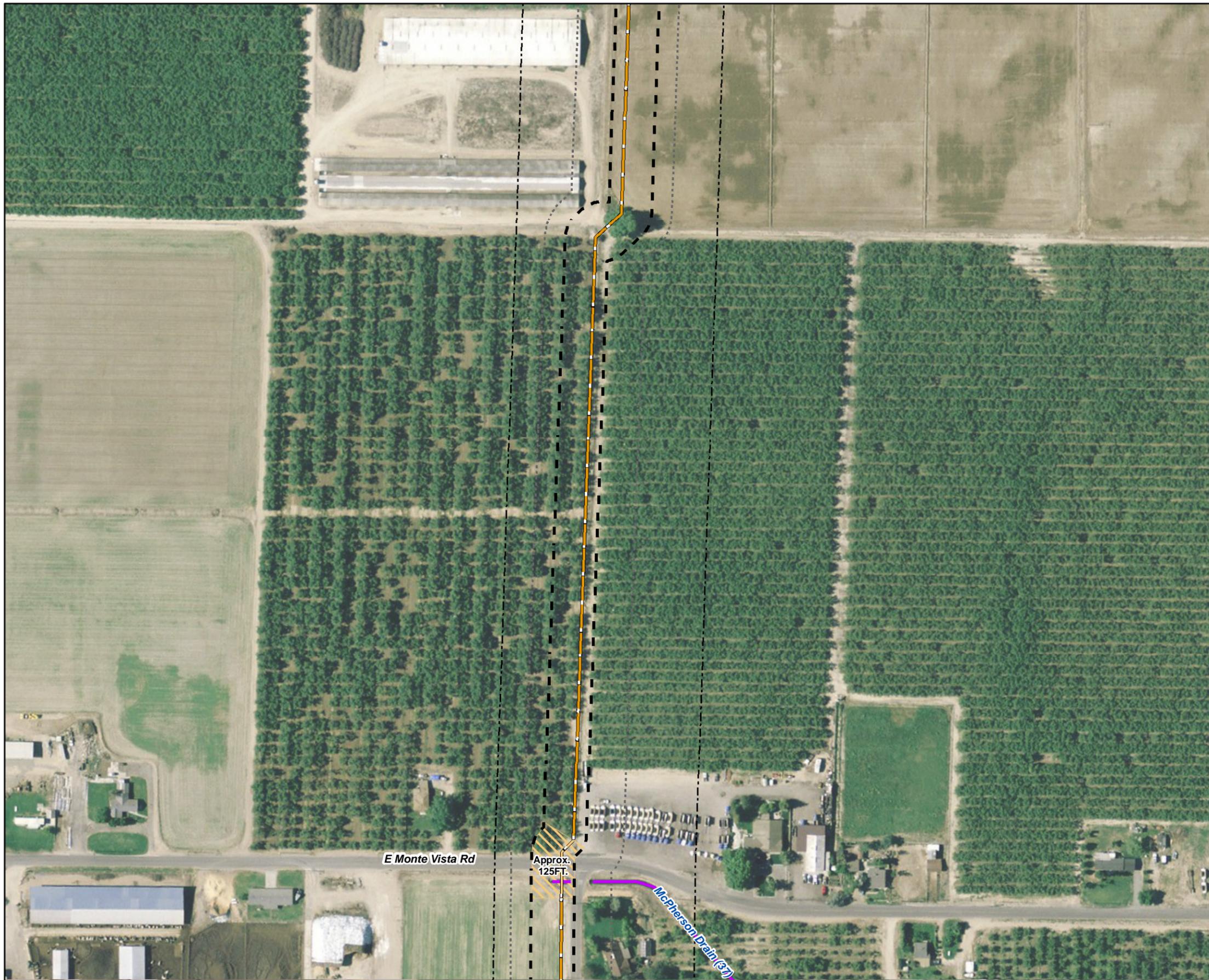
- CANAL
- DITCH
- DRAIN

\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.



**APPENDIX G-11**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

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**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
- JACK & BORE
- OPEN CUT
- TEMPORARY LAYDOWN AREA
- A2PP PROJECT SITE
- GAS PIPELINE PROJECT BOUNDARY
- 85 FOOT CONSTRUCTION CORRIDOR
- 200 FOOT STUDY CORRIDOR

**PIPELINE CROSSINGS**

- HAMMER BORE
- HDD
- JACK & BORE
- OPEN CUT

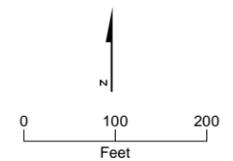
Approx  
60 FT. = LENGTH OF CROSSING

**POTENTIAL WATERS OF THE US**

- HARDING DRAIN
- PRAIRIE FLOWER DRAIN
- RIVER HIGH FLOW CHANNEL

**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

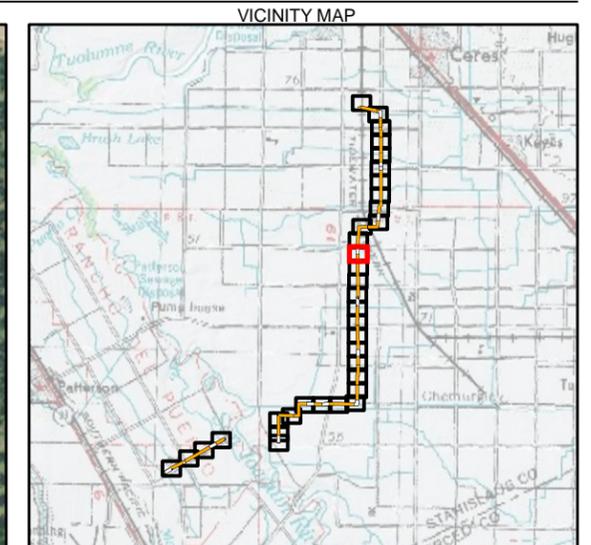
- CANAL
- DITCH
- DRAIN



\*Areas were mapped, in part, with aerial photographs.  
*Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)*  
 Source: Biological Surveys, 2009 - 2010.

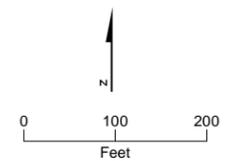
**APPENDIX G-12**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
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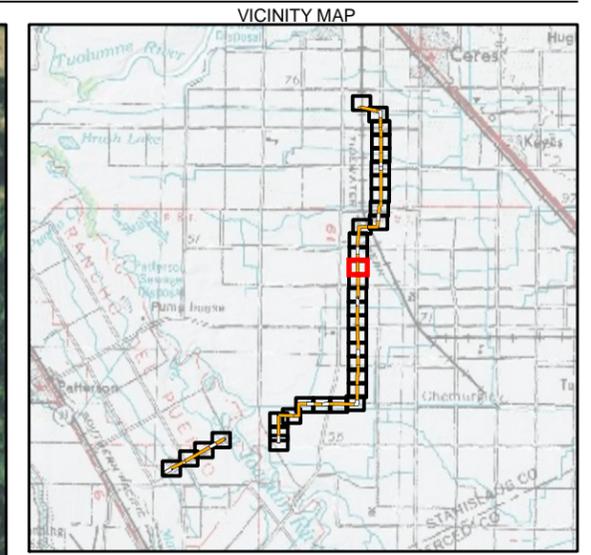
- LEGEND**
- PREFERRED ALIGNMENT
  - REINFORCEMENT SEGMENT
  - HDD
  - HAMMER BORE
  - JACK & BORE
  - OPEN CUT
  - TEMPORARY LAYDOWN AREA
  - A2PP PROJECT SITE
  - GAS PIPELINE PROJECT BOUNDARY
  - 85 FOOT CONSTRUCTION CORRIDOR
  - 200 FOOT STUDY CORRIDOR
- PIPELINE CROSSINGS**
- HAMMER BORE
  - HDD
  - JACK & BORE
  - OPEN CUT
- Approx  
60 FT. = LENGTH OF CROSSING
- POTENTIAL WATERS OF THE US**
- HARDING DRAIN
  - PRAIRIE FLOWER DRAIN
  - RIVER HIGH FLOW CHANNEL
- POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**
- CANAL
  - DITCH
  - DRAIN



\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.

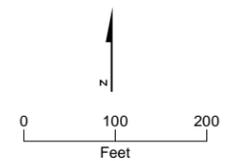
**APPENDIX G-13**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
 \\ZION\SACGIS\PROJ\TURLOCKIRRIGATION\DIS\383194\MAPFILES\WETLANDDELINERATION\_NG\_29MAR2010.MXD MCLAY1 4/19/2010



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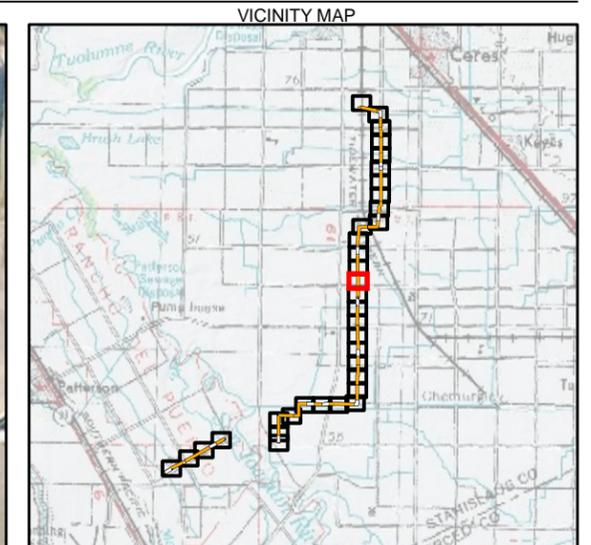
- LEGEND**
- PREFERRED ALIGNMENT
  - REINFORCEMENT SEGMENT
  - HDD
  - HAMMER BORE
  - JACK & BORE
  - OPEN CUT
  - TEMPORARY LAYDOWN AREA
  - A2PP PROJECT SITE
  - GAS PIPELINE PROJECT BOUNDARY
  - 85 FOOT CONSTRUCTION CORRIDOR
  - 200 FOOT STUDY CORRIDOR
- PIPELINE CROSSINGS**
- HAMMER BORE
  - HDD
  - JACK & BORE
  - OPEN CUT
- Approx  
60 FT. = LENGTH OF CROSSING
- POTENTIAL WATERS OF THE US**
- HARDING DRAIN
  - PRAIRIE FLOWER DRAIN
  - - - RIVER HIGH FLOW CHANNEL
- POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**
- CANAL
  - DITCH
  - DRAIN



\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.

**APPENDIX G-14**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
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**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
- JACK & BORE
- OPEN CUT
- TEMPORARY LAYDOWN AREA
- A2PP PROJECT SITE
- GAS PIPELINE PROJECT BOUNDARY
- 85 FOOT CONSTRUCTION CORRIDOR
- 200 FOOT STUDY CORRIDOR

**PIPELINE CROSSINGS**

- HAMMER BORE
- HDD
- JACK & BORE
- OPEN CUT

Approx  
60 FT. = LENGTH OF CROSSING

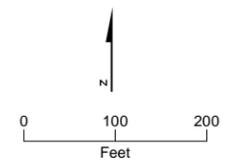
**POTENTIAL WATERS OF THE US**

- HARDING DRAIN
- PRAIRIE FLOWER DRAIN
- RIVER HIGH FLOW CHANNEL

**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

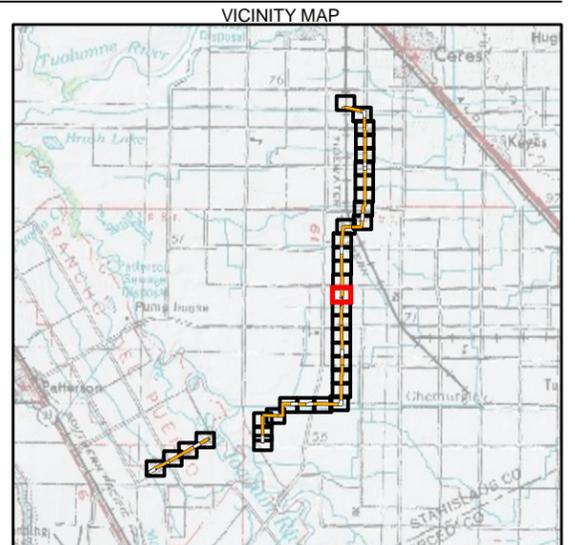
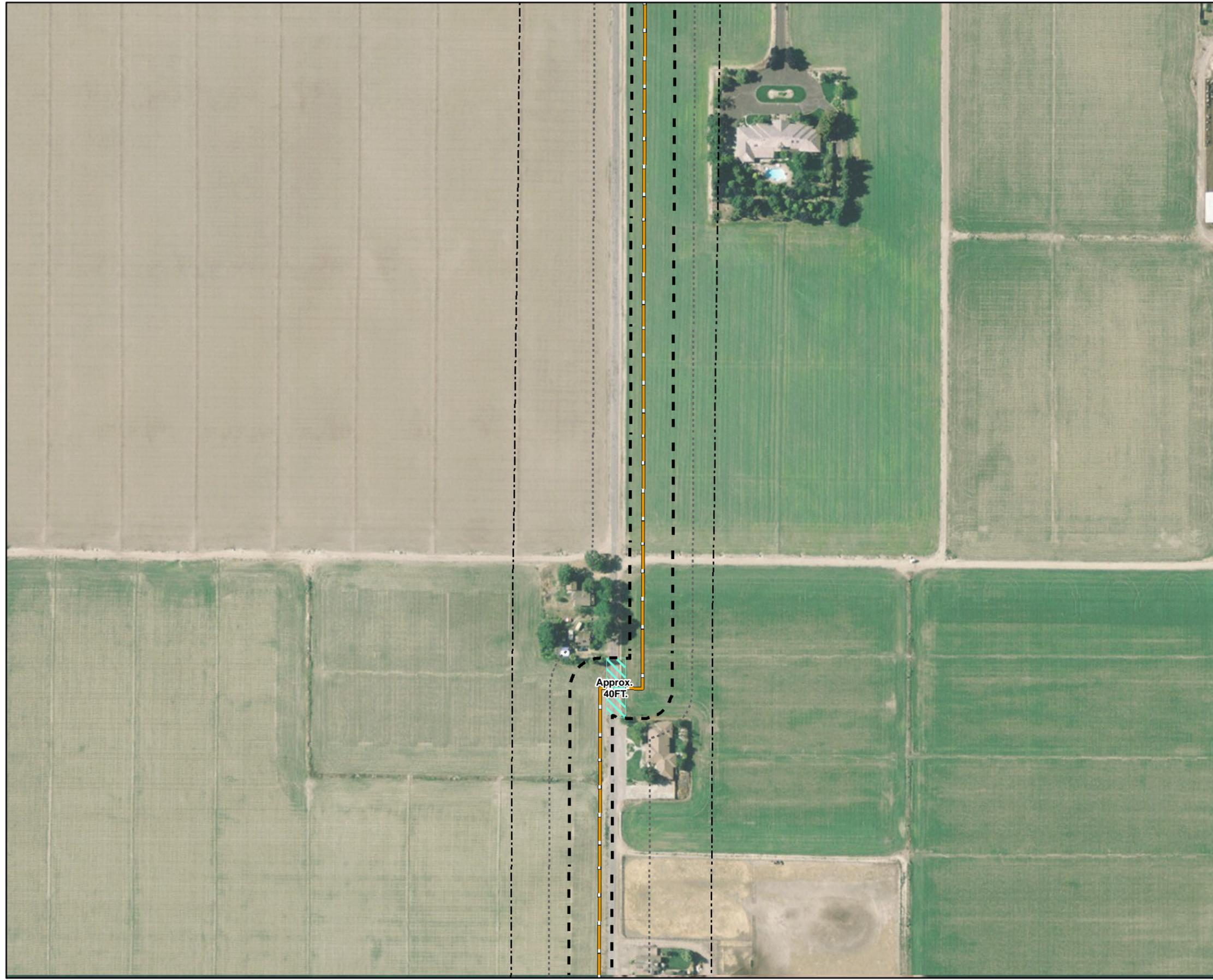
- CANAL
- DITCH
- DRAIN

\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.



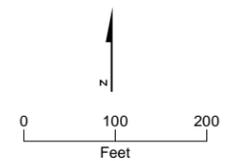
**APPENDIX G-15**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
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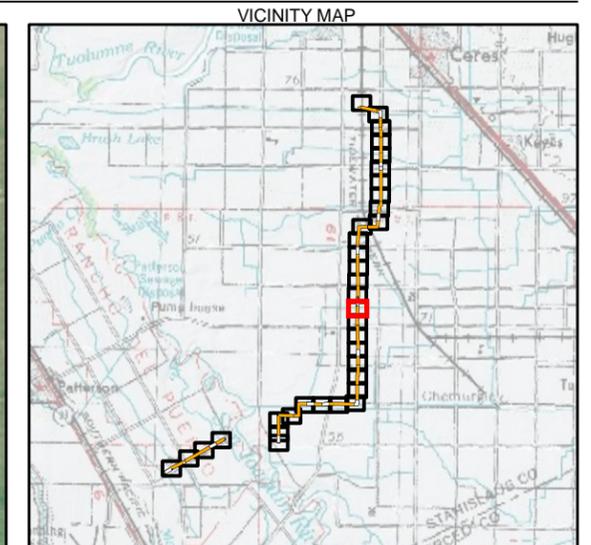
- LEGEND**
- PREFERRED ALIGNMENT
  - REINFORCEMENT SEGMENT
  - HDD
  - HAMMER BORE
  - JACK & BORE
  - OPEN CUT
  - TEMPORARY LAYDOWN AREA
  - A2PP PROJECT SITE
  - GAS PIPELINE PROJECT BOUNDARY
  - 85 FOOT CONSTRUCTION CORRIDOR
  - 200 FOOT STUDY CORRIDOR
- PIPELINE CROSSINGS**
- HAMMER BORE
  - HDD
  - JACK & BORE
  - OPEN CUT
- Approx  
60 FT. = LENGTH OF CROSSING
- POTENTIAL WATERS OF THE US**
- HARDING DRAIN
  - PRAIRIE FLOWER DRAIN
  - - - RIVER HIGH FLOW CHANNEL
- POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**
- CANAL
  - DITCH
  - DRAIN



\*Areas were mapped, in part, with aerial photographs.  
*Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)*  
 Source: Biological Surveys, 2009 - 2010.

**APPENDIX G-16**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
 \\ZION\SACGIS\PROJ\TURLOCK\IRRIGATION\DIS\383194\MAPFILES\WETLAND\DELINEATION\_NG\_29MAR2010.MXD MCLAY1 4/19/2010



**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
- JACK & BORE
- OPEN CUT
- TEMPORARY LAYDOWN AREA
- A2PP PROJECT SITE
- GAS PIPELINE PROJECT BOUNDARY
- 85 FOOT CONSTRUCTION CORRIDOR
- 200 FOOT STUDY CORRIDOR

**PIPELINE CROSSINGS**

- HAMMER BORE
- HDD
- JACK & BORE
- OPEN CUT

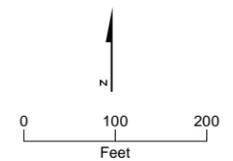
Approx  
60 FT. = LENGTH OF CROSSING

**POTENTIAL WATERS OF THE US**

- HARDING DRAIN
- PRAIRIE FLOWER DRAIN
- RIVER HIGH FLOW CHANNEL

**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

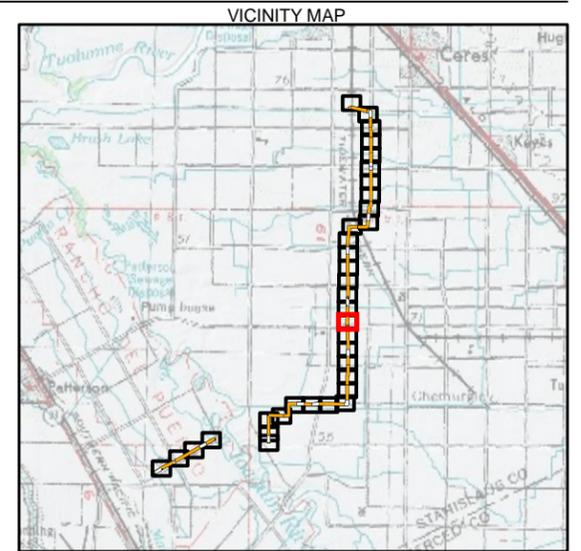
- CANAL
- DITCH
- DRAIN



\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.

**APPENDIX G-17**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
 \\ZION\SACGIS\PROJ\TURLOCKIRRIGATION\DIS\383194\MAPFILES\WETLANDDELINEATION\_NG\_29MAR2010.MXD MCLAY1 4/19/2010



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**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
- JACK & BORE
- OPEN CUT
- TEMPORARY LAYDOWN AREA
- A2PP PROJECT SITE
- GAS PIPELINE PROJECT BOUNDARY
- 85 FOOT CONSTRUCTION CORRIDOR
- 200 FOOT STUDY CORRIDOR

**PIPELINE CROSSINGS**

- HAMMER BORE
- HDD
- JACK & BORE
- OPEN CUT

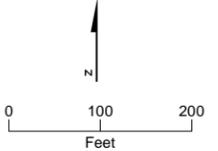
Approx  
60 FT. = LENGTH OF CROSSING

**POTENTIAL WATERS OF THE US**

- HARDING DRAIN
- PRAIRIE FLOWER DRAIN
- RIVER HIGH FLOW CHANNEL

**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

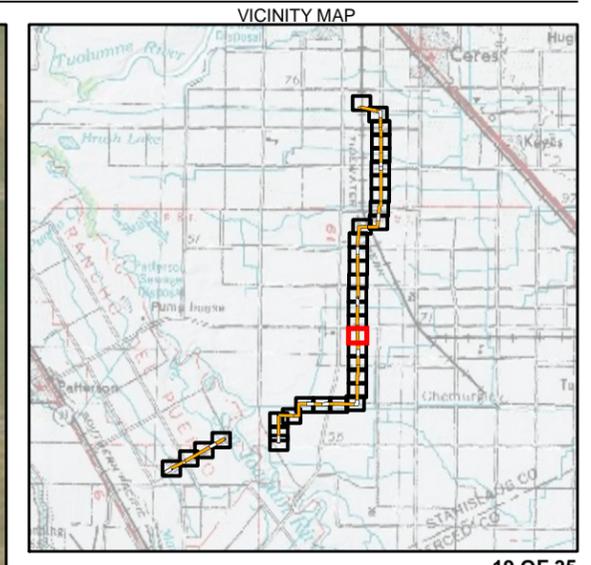
- CANAL
- DITCH
- DRAIN



\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.

**APPENDIX G-18**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
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**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
- JACK & BORE
- OPEN CUT
- TEMPORARY LAYDOWN AREA
- A2PP PROJECT SITE
- GAS PIPELINE PROJECT BOUNDARY
- 85 FOOT CONSTRUCTION CORRIDOR
- 200 FOOT STUDY CORRIDOR

**PIPELINE CROSSINGS**

- HAMMER BORE
- HDD
- JACK & BORE
- OPEN CUT

Approx  
60 FT. = LENGTH OF CROSSING

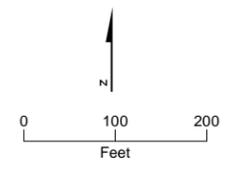
**POTENTIAL WATERS OF THE US**

- HARDING DRAIN
- PRAIRIE FLOWER DRAIN
- RIVER HIGH FLOW CHANNEL

**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

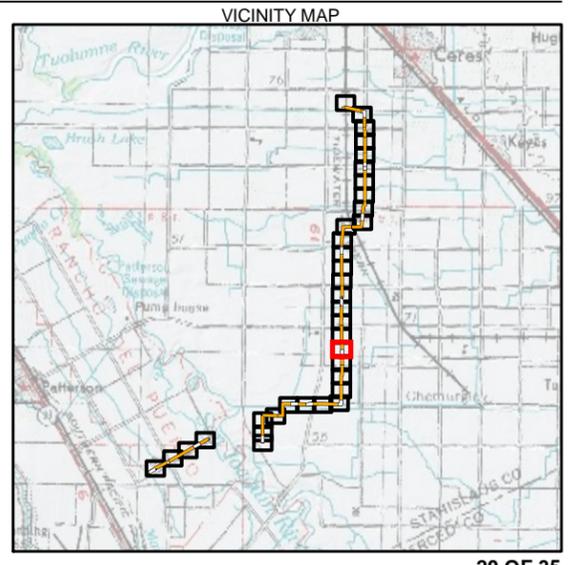
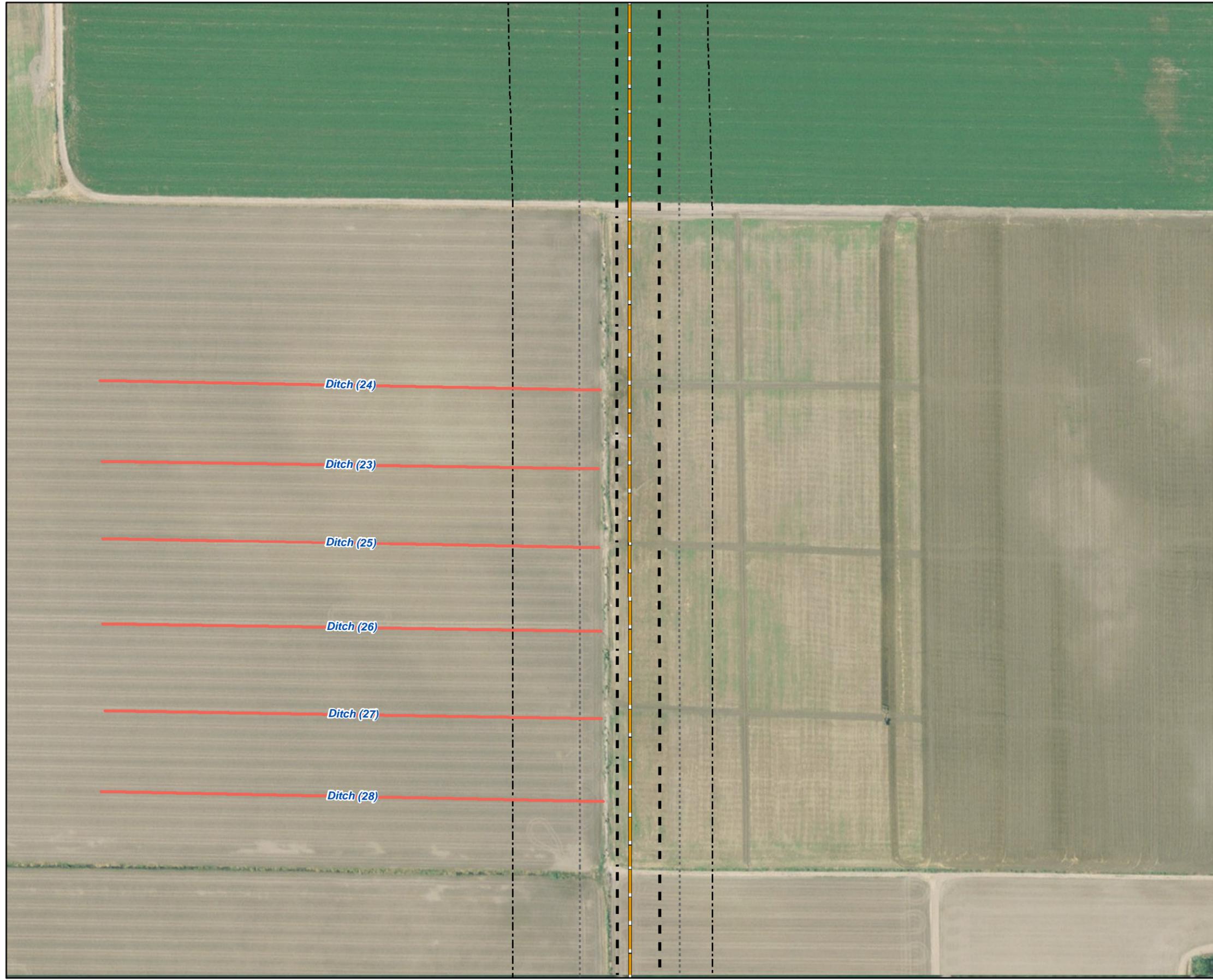
- CANAL
- DITCH
- DRAIN

\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.



**APPENDIX G-19**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
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**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
- JACK & BORE
- OPEN CUT
- TEMPORARY LAYDOWN AREA
- A2PP PROJECT SITE
- GAS PIPELINE PROJECT BOUNDARY
- 85 FOOT CONSTRUCTION CORRIDOR
- 200 FOOT STUDY CORRIDOR

**PIPELINE CROSSINGS**

- HAMMER BORE
- HDD
- JACK & BORE
- OPEN CUT

Approx  
60 FT. = LENGTH OF CROSSING

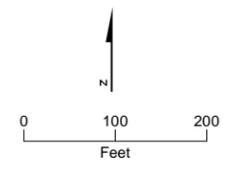
**POTENTIAL WATERS OF THE US**

- HARDING DRAIN
- PRAIRIE FLOWER DRAIN
- RIVER HIGH FLOW CHANNEL

**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

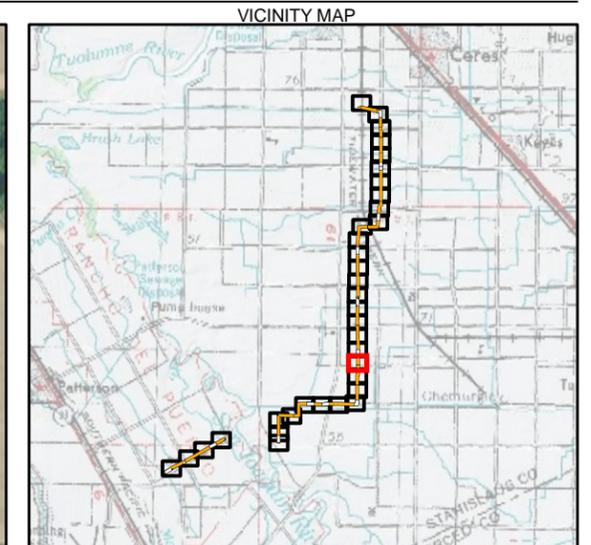
- CANAL
- DITCH
- DRAIN

\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.



**APPENDIX G-20**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
 \\ZION\SACGIS\PROJECTURLOCKIRRIGATIONDIS\383194\MAPFILES\WETLANDDELINERATION\_NG\_29MAR2010.MXD MCLAY1 4/19/2010



**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
- JACK & BORE
- OPEN CUT
- TEMPORARY LAYDOWN AREA
- A2PP PROJECT SITE
- GAS PIPELINE PROJECT BOUNDARY
- 85 FOOT CONSTRUCTION CORRIDOR
- 200 FOOT STUDY CORRIDOR

**PIPELINE CROSSINGS**

- HAMMER BORE
- HDD
- JACK & BORE
- OPEN CUT

Approx  
60 FT. = LENGTH OF CROSSING

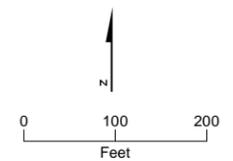
**POTENTIAL WATERS OF THE US**

- HARDING DRAIN
- PRAIRIE FLOWER DRAIN
- - - RIVER HIGH FLOW CHANNEL

**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

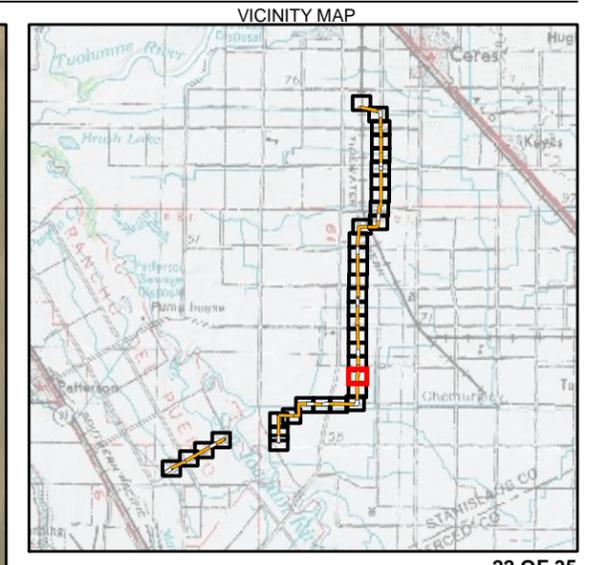
- CANAL
- DITCH
- DRAIN

\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.



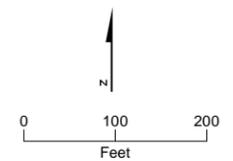
**APPENDIX G-21**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
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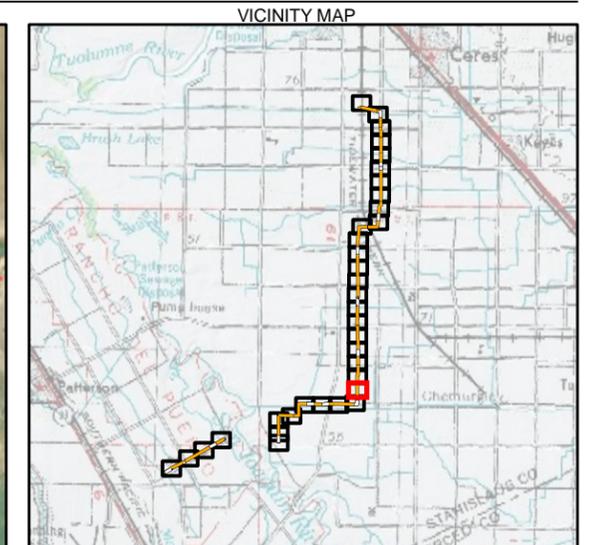
- LEGEND**
- PREFERRED ALIGNMENT
  - REINFORCEMENT SEGMENT
  - HDD
  - HAMMER BORE
  - JACK & BORE
  - OPEN CUT
  - ▨ TEMPORARY LAYDOWN AREA
  - ▨ A2PP PROJECT SITE
  - ▨ GAS PIPELINE PROJECT BOUNDARY
  - ▨ 85 FOOT CONSTRUCTION CORRIDOR
  - ▨ 200 FOOT STUDY CORRIDOR
- PIPELINE CROSSINGS**
- ▨ HAMMER BORE
  - ▨ HDD
  - ▨ JACK & BORE
  - ▨ OPEN CUT
- Approx  
60 FT. = LENGTH OF CROSSING
- POTENTIAL WATERS OF THE US**
- HARDING DRAIN
  - PRAIRIE FLOWER DRAIN
  - RIVER HIGH FLOW CHANNEL
- POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**
- CANAL
  - DITCH
  - DRAIN



\*Areas were mapped, in part, with aerial photographs.  
*Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)*  
 Source: Biological Surveys, 2009 - 2010.

**APPENDIX G-22**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
 \\ZION\SACGIS\PROJECTURLOCKIRRIGATIONDIS\383194\MAPFILES\WETLANDDELINERATION\_NG\_29MAR2010.MXD MCLAY1 4/19/2010



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**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
- JACK & BORE
- OPEN CUT
- ▨ TEMPORARY LAYDOWN AREA
- ▨ A2PP PROJECT SITE
- ▨ GAS PIPELINE PROJECT BOUNDARY
- ▨ 85 FOOT CONSTRUCTION CORRIDOR
- ▨ 200 FOOT STUDY CORRIDOR

**PIPELINE CROSSINGS**

- ▨ HAMMER BORE
- ▨ HDD
- ▨ JACK & BORE
- ▨ OPEN CUT

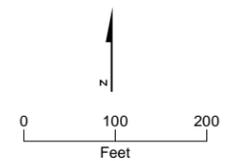
Approx  
60 FT. = LENGTH OF CROSSING

**POTENTIAL WATERS OF THE US**

- HARDING DRAIN
- PRAIRIE FLOWER DRAIN
- RIVER HIGH FLOW CHANNEL

**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

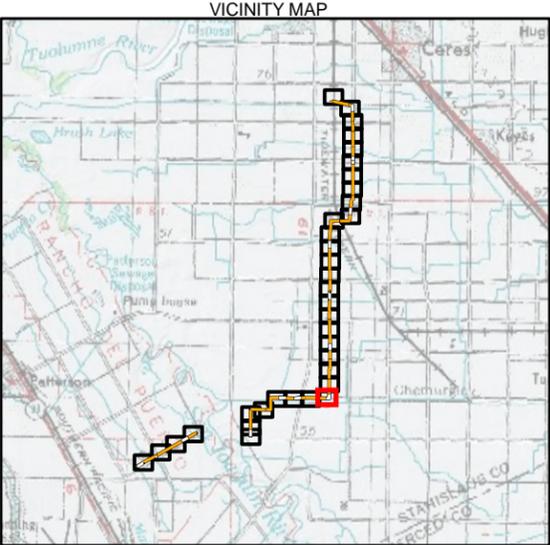
- CANAL
- DITCH
- DRAIN



\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.

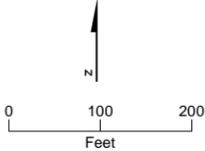
**APPENDIX G-23  
 WETLAND DELINEATION MAP -  
 LINE 7216-03 PROJECT  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA**

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
 \\ZION\SACGIS\PROJ\TURLOCKIRRIGATIONDIS\383194\MAPFILES\WETLANDDELINEATION\_NG\_29MAR2010.MXD MCLAY1 4/19/2010



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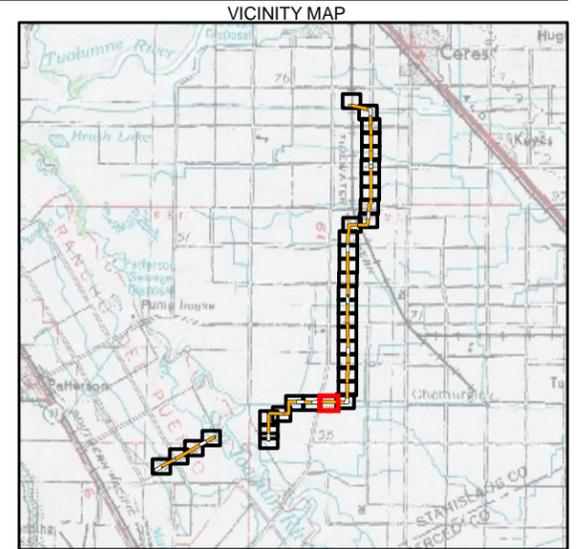
- LEGEND**
- PREFERRED ALIGNMENT
  - REINFORCEMENT SEGMENT
  - HDD
  - HAMMER BORE
  - JACK & BORE
  - OPEN CUT
  - ▨ TEMPORARY LAYDOWN AREA
  - ▨ A2PP PROJECT SITE
  - ▨ GAS PIPELINE PROJECT BOUNDARY
  - ▨ 85 FOOT CONSTRUCTION CORRIDOR
  - ▨ 200 FOOT STUDY CORRIDOR
- PIPELINE CROSSINGS**
- ▨ HAMMER BORE
  - ▨ HDD
  - ▨ JACK & BORE
  - ▨ OPEN CUT
- Approx  
60 FT. = LENGTH OF CROSSING
- POTENTIAL WATERS OF THE US**
- HARDING DRAIN
  - PRAIRIE FLOWER DRAIN
  - RIVER HIGH FLOW CHANNEL
- POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**
- CANAL
  - DITCH
  - DRAIN



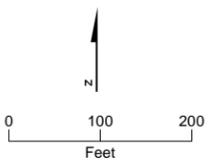
\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.

**APPENDIX G-24**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
 \\ZION\SACGIS\PROJECTURLOCKIRRIGATIONDIS\383194\MAPFILES\WETLANDDELINERATION\_NG\_29MAR2010.MXD MCLAY1 4/19/2010



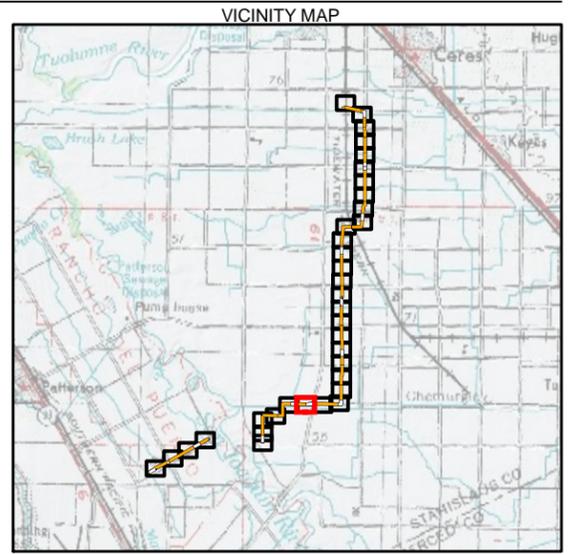
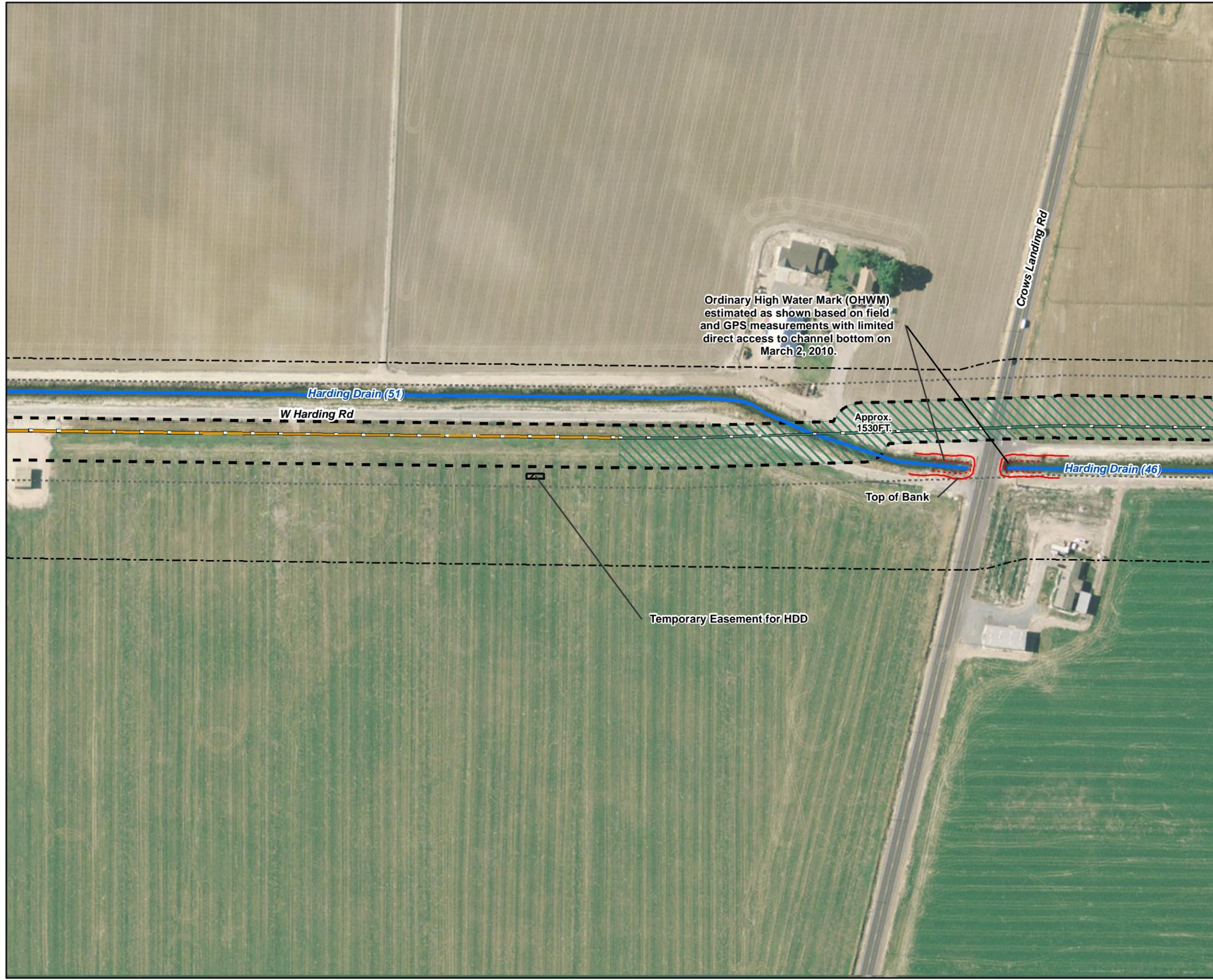
- LEGEND**
- PREFERRED ALIGNMENT
  - REINFORCEMENT SEGMENT
  - HDD
  - HAMMER BORE
  - JACK & BORE
  - OPEN CUT
  - ▨ TEMPORARY LAYDOWN AREA
  - ▭ A2PP PROJECT SITE
  - ▭ GAS PIPELINE PROJECT BOUNDARY
  - ▭ 85 FOOT CONSTRUCTION CORRIDOR
  - ▭ 200 FOOT STUDY CORRIDOR
- PIPELINE CROSSINGS**
- ▨ HAMMER BORE
  - ▨ HDD
  - ▨ JACK & BORE
  - ▨ OPEN CUT
- Approx  
60 FT. = LENGTH OF CROSSING
- POTENTIAL WATERS OF THE US**
- HARDING DRAIN
  - PRAIRIE FLOWER DRAIN
  - RIVER HIGH FLOW CHANNEL
- POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**
- CANAL
  - DITCH
  - DRAIN



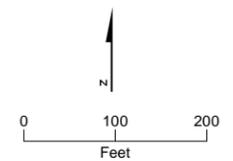
\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.

**APPENDIX G-25**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
 \\ZION\SACGIS\PROJ\TURLOCK\IRRIGATION\DIS\383194\MAPFILES\WETLAND\DELINERATION\_NG\_29MAR2010.MXD MCLAY1 4/19/2010



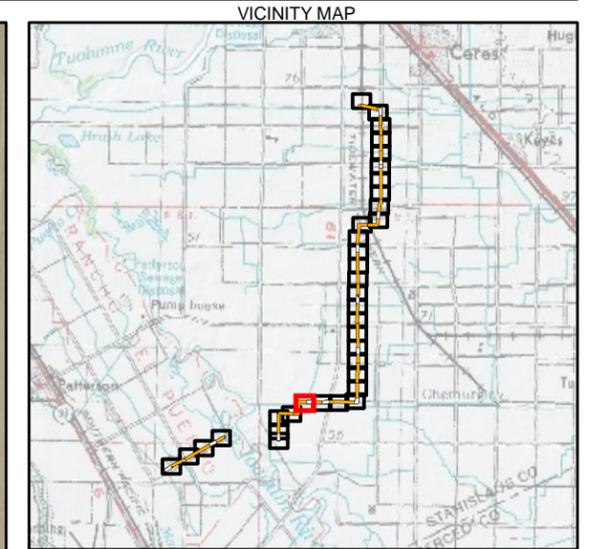
- LEGEND**
- PREFERRED ALIGNMENT
  - REINFORCEMENT SEGMENT
  - HDD
  - HAMMER BORE
  - JACK & BORE
  - OPEN CUT
  - ▨ TEMPORARY LAYDOWN AREA
  - ▨ A2PP PROJECT SITE
  - ▨ GAS PIPELINE PROJECT BOUNDARY
  - ▨ 85 FOOT CONSTRUCTION CORRIDOR
  - ▨ 200 FOOT STUDY CORRIDOR
- PIPELINE CROSSINGS**
- ▨ HAMMER BORE
  - ▨ HDD
  - ▨ JACK & BORE
  - ▨ OPEN CUT
- Approx  
60 FT. = LENGTH OF CROSSING
- POTENTIAL WATERS OF THE US**
- HARDING DRAIN
  - PRAIRIE FLOWER DRAIN
  - RIVER HIGH FLOW CHANNEL
- POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**
- CANAL
  - DITCH
  - DRAIN



\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.

**APPENDIX G-26**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
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**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
- JACK & BORE
- OPEN CUT
- ▨ TEMPORARY LAYDOWN AREA
- ▨ A2PP PROJECT SITE
- ▨ GAS PIPELINE PROJECT BOUNDARY
- ▨ 85 FOOT CONSTRUCTION CORRIDOR
- ▨ 200 FOOT STUDY CORRIDOR

**PIPELINE CROSSINGS**

- ▨ HAMMER BORE
- ▨ HDD
- ▨ JACK & BORE
- ▨ OPEN CUT

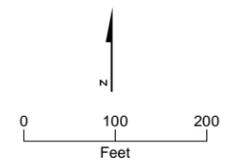
Approx  
60 FT. = LENGTH OF CROSSING

**POTENTIAL WATERS OF THE US**

- HARDING DRAIN
- PRAIRIE FLOWER DRAIN
- RIVER HIGH FLOW CHANNEL

**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

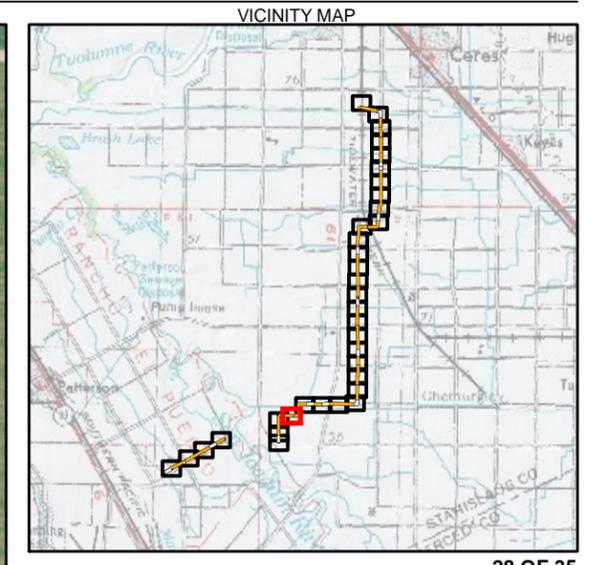
- CANAL
- DITCH
- DRAIN



\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.

**APPENDIX G-27  
 WETLAND DELINEATION MAP -  
 LINE 7216-03 PROJECT  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA**

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**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
- JACK & BORE
- OPEN CUT
- ▨ TEMPORARY LAYDOWN AREA
- ▨ A2PP PROJECT SITE
- ▨ GAS PIPELINE PROJECT BOUNDARY
- ▨ 85 FOOT CONSTRUCTION CORRIDOR
- ▨ 200 FOOT STUDY CORRIDOR

**PIPELINE CROSSINGS**

- ▨ HAMMER BORE
- ▨ HDD
- ▨ JACK & BORE
- ▨ OPEN CUT

Approx  
60 FT. = LENGTH OF CROSSING

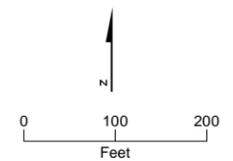
**POTENTIAL WATERS OF THE US**

- HARDING DRAIN
- PRAIRIE FLOWER DRAIN
- RIVER HIGH FLOW CHANNEL

**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

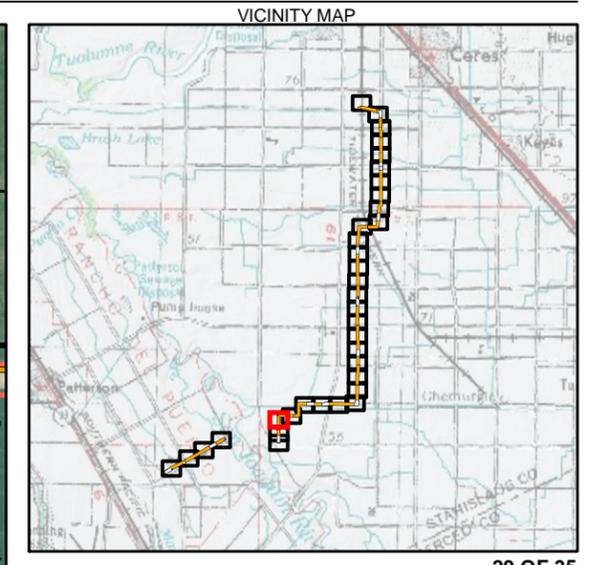
- CANAL
- DITCH
- DRAIN

\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.



**APPENDIX G-28**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

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 \\ZION\SACGIS\PROJ\TURLOCKIRRIGATION\DIS\383194\MAPFILES\WETLANDDELINERATION\_NG\_29MAR2010.MXD MCLAY1 4/19/2010



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**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
- JACK & BORE
- OPEN CUT
- TEMPORARY LAYDOWN AREA
- A2PP PROJECT SITE
- GAS PIPELINE PROJECT BOUNDARY
- 85 FOOT CONSTRUCTION CORRIDOR
- 200 FOOT STUDY CORRIDOR

**PIPELINE CROSSINGS**

- HAMMER BORE
- HDD
- JACK & BORE
- OPEN CUT

Approx  
60 FT. = LENGTH OF CROSSING

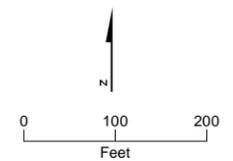
**POTENTIAL WATERS OF THE US**

- HARDING DRAIN
- PRAIRIE FLOWER DRAIN
- RIVER HIGH FLOW CHANNEL

**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

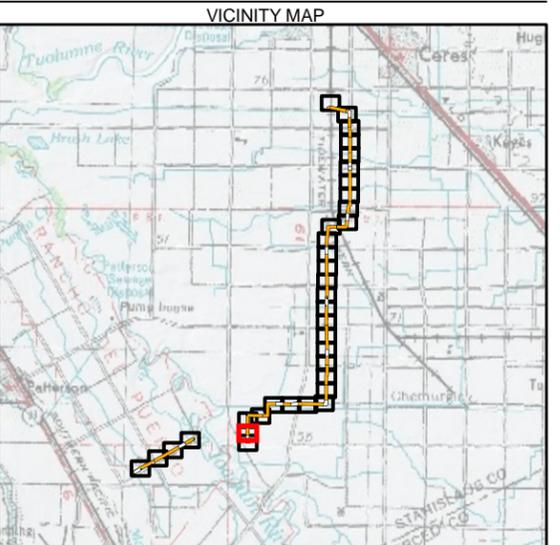
- CANAL
- DITCH
- DRAIN

\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.



**APPENDIX G-29**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

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**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
- JACK & BORE
- OPEN CUT
- TEMPORARY LAYDOWN AREA
- A2PP PROJECT SITE
- GAS PIPELINE PROJECT BOUNDARY
- 85 FOOT CONSTRUCTION CORRIDOR
- 200 FOOT STUDY CORRIDOR

**PIPELINE CROSSINGS**

- ▨ HAMMER BORE
- ▨ HDD
- ▨ JACK & BORE
- ▨ OPEN CUT

Approx  
60 FT. = LENGTH OF CROSSING

**POTENTIAL WATERS OF THE US**

- HARDING DRAIN
- PRAIRIE FLOWER DRAIN
- - - RIVER HIGH FLOW CHANNEL

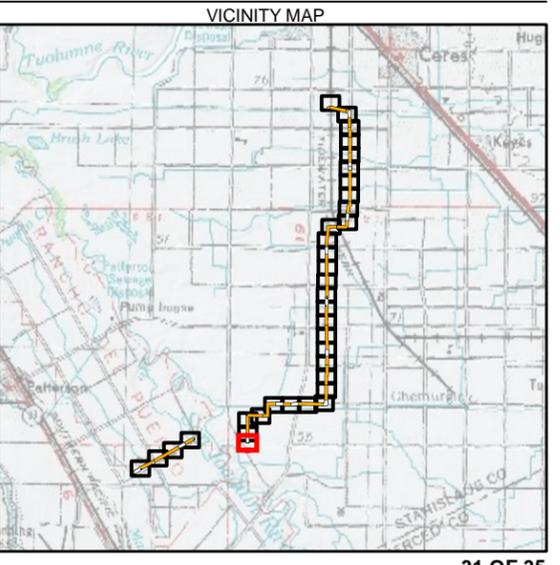
**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

- CANAL
- DITCH
- DRAIN

\*Areas were mapped, in part, with aerial photographs.  
*Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)*  
 Source: Biological Surveys, 2009 - 2010.

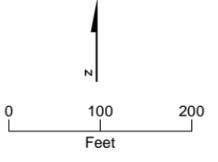
**APPENDIX G-30**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.  
 \\ZION\SACGIS\PROJECTURLOCKIRRIGATIONDIS\383194\MAPFILES\WETLANDDELINERATION\_NG\_29MAR2010.MXD MCLAY1 4/19/2010



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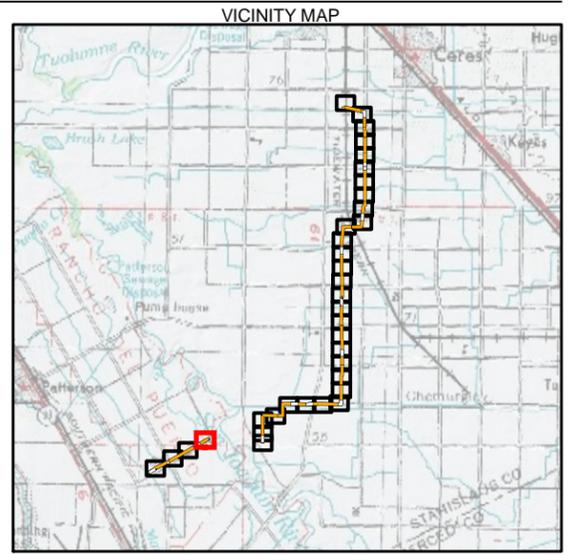
- LEGEND**
- PREFERRED ALIGNMENT
  - REINFORCEMENT SEGMENT
  - HDD
  - HAMMER BORE
  - JACK & BORE
  - OPEN CUT
  - TEMPORARY LAYDOWN AREA
  - A2PP PROJECT SITE
  - GAS PIPELINE PROJECT BOUNDARY
  - 85 FOOT CONSTRUCTION CORRIDOR
  - 200 FOOT STUDY CORRIDOR
- PIPELINE CROSSINGS**
- HAMMER BORE
  - HDD
  - JACK & BORE
  - OPEN CUT
- Approx  
60 FT. = LENGTH OF CROSSING
- POTENTIAL WATERS OF THE US**
- HARDING DRAIN
  - PRAIRIE FLOWER DRAIN
  - - - RIVER HIGH FLOW CHANNEL
- POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**
- CANAL
  - DITCH
  - DRAIN



\*Areas were mapped, in part, with aerial photographs.  
**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.

**APPENDIX G-31**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

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**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
- JACK & BORE
- OPEN CUT
- TEMPORARY LAYDOWN AREA
- A2PP PROJECT SITE
- GAS PIPELINE PROJECT BOUNDARY
- 85 FOOT CONSTRUCTION CORRIDOR
- 200 FOOT STUDY CORRIDOR

**PIPELINE CROSSINGS**

- HAMMER BORE
- HDD
- JACK & BORE
- OPEN CUT

Approx  
60 FT. = LENGTH OF CROSSING

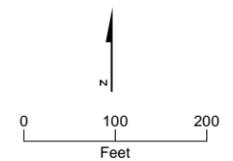
**POTENTIAL WATERS OF THE US**

- HARDING DRAIN
- PRAIRIE FLOWER DRAIN
- RIVER HIGH FLOW CHANNEL

**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

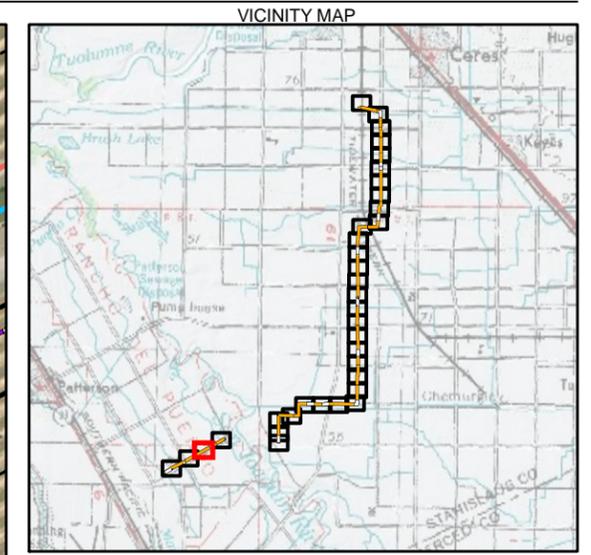
- CANAL
- DITCH
- DRAIN

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**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.



**APPENDIX G-32**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

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**LEGEND**

- PREFERRED ALIGNMENT
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- HDD
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- HAMMER BORE
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Approx  
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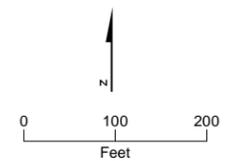
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- RIVER HIGH FLOW CHANNEL

**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

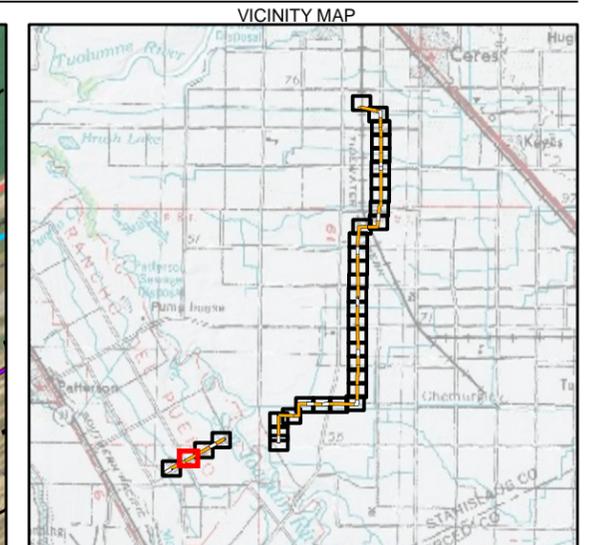
- CANAL
- DITCH
- DRAIN

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 Source: Biological Surveys, 2009 - 2010.



**APPENDIX G-33**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

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34 OF 35

**LEGEND**

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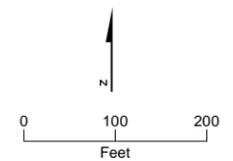
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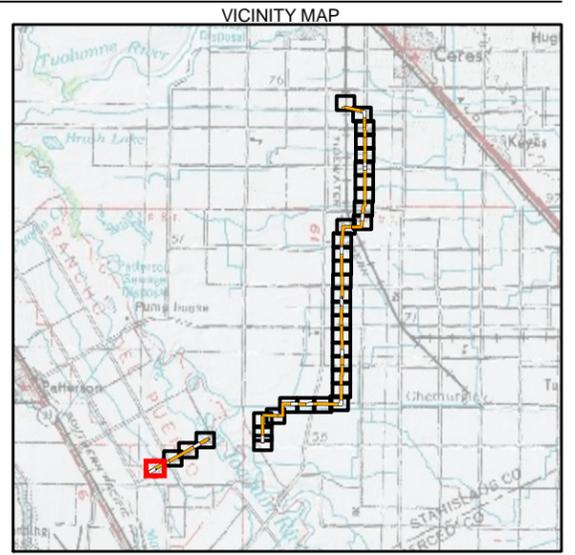
- CANAL
- DITCH
- DRAIN

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**Lateral No 1 (90) = Drain/Canal/Ditch Name (ID Number)**  
 Source: Biological Surveys, 2009 - 2010.



**APPENDIX G-34**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

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35 OF 35

**LEGEND**

- PREFERRED ALIGNMENT
- REINFORCEMENT SEGMENT
- HDD
- HAMMER BORE
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**PIPELINE CROSSINGS**

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- ▨ HDD
- ▨ JACK & BORE
- ▨ OPEN CUT

Approx  
60 FT. = LENGTH OF CROSSING

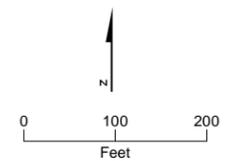
**POTENTIAL WATERS OF THE US**

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**POTENTIAL NON-JURISDICTIONAL WATERS OF THE US**

- CANAL
- DITCH
- DRAIN

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 Source: Biological Surveys, 2009 - 2010.



**APPENDIX G-35**  
**WETLAND DELINEATION MAP -**  
**LINE 7216-03 PROJECT**  
 LINE 7216-03 PROJECT  
 CERES, CALIFORNIA

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Date & Time: Tue Mar 2 13:55:36 PST 2010  
Position: +037.4333° / -120.8995°  
Altitude: 58ft  
Azimuth/Bearing: 111° S69E  
Elevation Angle: -14.1°  
Horizon Angle: +00.8°  
Zoom: 1X



*Photo H-1 - Harding Drain to east of proposed crossing showing culvert beneath Crows Landing Road- along the natural gas pipeline alignment*



Date & Time: Tue Mar 2 13:55:58 PST 2010  
Position: +037.4836° / -120.8684°  
Altitude: 48ft  
Azimuth/Bearing: 275° N85W  
Elevation Angle: -12.1°  
Horizon Angle: +02.2°  
Zoom: 1X

*Photo H-2 - Harding Drain to west of proposed crossing- along Line 215*

Date & Time: Tue Mar 2 14:31:27 PST 2010  
Position: -037.4596° / -121.0148°  
Altitude: 56ft  
Azimuth/Bearing: 040° N40E  
Elevation Angle: -05.9°  
Horizon Angle: +00.8°  
Zoom: 1X



*Photo H-3 - Prairie Flower Drain to north of proposed crossing- along Line 215*

Date & Time: Tue Mar 2 14:31:15 PST 2010  
Position: +037.4597° / -121.0148°  
Altitude: 69ft  
Azimuth/Bearing: 232° S52W  
Elevation Angle: -08.8°  
Horizon Angle: -00.6°  
Zoom: 1X



*Photo H-4 - Prairie Flower Drain to south of proposed crossing - along Line 215*

Date & Time: Tue Mar 2 12:12:04 PST 2010  
Position: +037.5278° / -120.9854°  
Altitude: 92ft  
Azimuth/Bearing: 249° S69W  
Elevation Angle: -22.1°  
Horizon Angle: +00.5°  
Zoom: 1X



*Photo H-5 - Unvegetated portion of potentially jurisdictional wetland (SP2) south of E. Zeering Road along Line 215*



*Photo H-6 - Soil Pit at potentially jurisdictional wetland (SP2) south of E. Zeering Road along Line 215*

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Project/Site: TID ALMOND 2 POWER PLANT City/County: CERES/STANISLAUS Sampling Date: 2 MAR 10  
 Applicant/Owner: TURLOCK IRRIGATION DISTRICT State: CA Sampling Point: SP-2  
 Investigator(s): S. LONG ; M. CLARY Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): NONE Slope (%): 0-1%  
 Subregion (LRR): C: CALIFORNIA CV Lat: 37°31'40.14"N Long: 120°59'07.52"W Datum: \_\_\_\_\_  
 Soil Map Unit Name: FcA: Fresno fine sandy loam, mod. saline-alk., 0-1% NWI classification: NONE  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____ Remarks: _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
--	--

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

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
4. _____	_____	_____	_____	
_____ = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				
1. <u>Adenostoma fasciculatum</u>	<u>30</u>	<u>Y</u>	<u>NL</u>	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>83</u> x 2 = <u>166</u> FAC species <u>1</u> x 3 = <u>3</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>31</u> x 5 = <u>155</u> Column Totals: <u>115</u> (A) <u>324</u> (B) Prevalence Index = B/A = <u>2.82</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>30</u> = Total Cover				
<b>Herb Stratum (Plot size: _____)</b>				
1. <u>Hordeum brachyantherum</u>	<u>80</u>	<u>Y</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> _____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Distichlis spicata</u>	<u>3</u>	<u>N</u>	<u>FACW</u>	
3. <u>Senecio vulgaris</u>	<u>1</u>	<u>N</u>	<u>NI</u>	
4. <u>Penstemon sp.</u>	<u>1</u>	<u>N</u>	<u>FAC*</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>85</u> = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust <u>0</u>		
Remarks: <u>Penstemon wetland indicator status based on P. rydbergii, the most conservative of spp. found in Jepson Manual.</u>				

SOIL

Sampling Point: SP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	2.5Y 4/3	98	2.5Y 2.5/1	2	OM	Root Channels	fSL	m m sbk, friable v few fine roots
8-14	2.5Y 4/3	60	2.5Y 2.5/1	40	OM	Ped surfaces	sicL	m m platy, firm v few v fine roots
14-17+	2.5Y 4/3		NONE	-	-	-	sicL	m m sbk, v. firm-hard no roots

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histic Epipedon (A2)	<input checked="" type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)		<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)		<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)		<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)		<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (FB)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)			

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):  
 Type: Hardpan sicL  
 Depth (inches): 14 inches bgs

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biolic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)
<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>17+</u>	
Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>17+</u>	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
Evidence of surface water ponding against roadway fill. Bare soil area.



BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT  
COMMISSION OF THE STATE OF CALIFORNIA  
1516 NINTH STREET, SACRAMENTO, CA 95814  
1-800-822-6228 – [WWW.ENERGY.CA.GOV](http://WWW.ENERGY.CA.GOV)

**APPLICATION FOR CERTIFICATION  
FOR THE TID ALMOND 2  
POWER PLANT PROJECT**

**Docket No. 09-AFC-2**

**PROOF OF SERVICE  
(Revised 2/8/10)**

**APPLICANT**

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**DECLARATION OF SERVICE**

I, Haneefah Walker, declare that on April 23, 2010, I served and filed copies of the attached, Delineation of Wetlands and Waters of the U.S. for Line 7216-03: Turlock Irrigation District (09-AFC-02), dated, February 16, 2010. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: **<http://www.energy.ca.gov/sitingcases/almond>**.

The documents have been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

**(Check all that Apply)**

**FOR SERVICE TO ALL OTHER PARTIES:**

sent electronically to all email addresses on the Proof of Service list;

by personal delivery or by depositing in the United States mail at Sacramento, CA with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses NOT marked "email preferred."

**AND**

**FOR FILING WITH THE ENERGY COMMISSION:**

sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (***preferred method***);

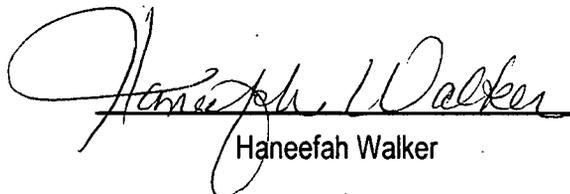
**OR**

depositing in the mail an original and 12 paper copies, as follows:

**CALIFORNIA ENERGY COMMISSION**

Attn: Docket No. 09-AFC-2  
1516 Ninth Street, MS-4  
Sacramento, CA 95814-5512  
[docket@energy.state.ca.us](mailto:docket@energy.state.ca.us)

I declare under penalty of perjury that the foregoing is true and correct.

  
Haneefah Walker