

DOCKETED

Docket Number:	08-AFC-08A
Project Title:	Hydrogen Energy Center Application for Certification Amendment
TN #:	201007
Document Title:	Requested Information for Notification of Lake or Streambed Alteration for the Hydrogen Energy Project
Description:	N/A
Filer:	URS
Organization:	URS Corporation
Submitter Role:	Applicant Consultant
Submission Date:	10/22/2013 5:01:44 PM
Docketed Date:	10/22/2013



October 21, 2013

Attn: Kyle Stoner
California Department of Fish & Wildlife – Central Region
1234 East Shaw Avenue
Fresno, California, 93710

Re: Requested Information for Notification of Lake or Streambed Alteration for the Hydrogen Energy California Project, Kern County, California
CDFW File No. 1600-2013-0079-R4

Dear Mr. Stoner:

This letter transmits the revised Notification of Lake or Streambed Alteration for the Hydrogen Energy California, LLC (HECA). The enclosed Notification has been revised to address the items identified in CDFW's letter dated September 11, 2013, which requested the following:

1. A clearer description of the HDD plan including depth and length of boring.
2. Clarification that the Kern River Flood Control Channel (KRFCC) and the Outlet Canal are the only crossings that are considered jurisdictional by CDFW. The CDFW also requested clarification whether both of these features would be affected by the proposed project activities.
3. For the purposes of estimating the appropriate Notification fee, each individual activity (i.e. each crossing) is considered a separate project (still filed as one Notification).
4. Original ink signature from the applicant.

The revised Notification also reflects clarifications based on your telephone conversations with URS Senior Biologist Jan Novak on September 26 and October 8, 2013.

Revisions to the Notification are summarized below:

1. HDD Plan – As discussed on the telephone, a final HDD plan will be developed during project design but is not available at this time. The final plan will be consistent with the HDD depth of 50-100 feet below ground surface and the location of the entry/exit pits as presented in the enclosed draft HDD Plan and the figures included in the enclosed Notification package, which indicate the locations of the entry/exit pits. Based on the telephone conversation, we understand that this information will be acceptable to CDFW for review of the Notification.

2. All references to non-jurisdictional features have been removed from the Notification. The revised Notification indicates that only the Outlet Canal and the KRFCC are considered jurisdictional features. The CO2 pipeline will be constructed beneath both features using a single HDD. No direct impacts to the bed or banks of either feature are proposed as part of this project.
3. Per your discussion with Jan Novak on September 26th, the HDD under the KRFCC and the Outlet Canal would be considered one project. Therefore, no change in project fee is necessary. A check in the amount of \$4,482.75 payable to the California Department of Fish and Wildlife was previously provided on May 2, 2013 with the original submittal.
4. The original, ink signature from the applicant's representative, James Coyle is included with the enclosed Notification.

We look forward to continuing our work with you towards the successful completion of this process. Please contact Steve Leach, at (510) 874-3205 or Jan Novak at (510) 874-1733 regarding the enclosed documents.

Sincerely,

URS Corporation



Dale Shileikis
Project Manager
URS Corporation

Enclosures:

- 1) HECA Section 1602 Notification of Lake and Streambed Alteration
- 2) HECA Section 1602 Lake and Streambed Alteration Agreement Supplemental Information.

cc: Marisa Mascaro, HECA

FOR DEPARTMENT USE ONLY

<i>Date Received</i>	<i>Amount Received</i>	<i>Amount Due</i>	<i>Date Complete</i>	<i>Notification No.</i>
	\$	\$		



STATE OF CALIFORNIA
DEPARTMENT OF FISH AND GAME
NOTIFICATION OF LAKE OR STREAMBED ALTERATION



Complete EACH field, unless otherwise indicated, following the enclosed instructions and submit ALL required enclosures. Attach additional pages, if necessary.

1. APPLICANT PROPOSING PROJECT

Name	James L. Croyle			
Business/Agency	Hydrogen Energy California, LLC			
Street Address	30 Monument Square, Suite 235			
City, State, Zip	Concord, MA, 01742			
Telephone	(978) 287-9529	Fax	(978) 287-9512	
Email	jcroyle@scsenergyllc.com			

2. CONTACT PERSON *(Complete only if different from applicant)*

Name	Dale Shileikis			
Street Address	One Montgomery Street, Suite 900			
City, State, Zip	San Francisco, CA, 94194			
Telephone	(415) 896-5858	Fax	(415) 882-9261	
Email	dale.shileikis@urs.com			

3. PROPERTY OWNER *(Complete only if different from applicant)*

Name	Hydrogen Energy International LLC, c/o BP Alternative Energy, ATTN: Dane Peacock			
Street Address	700 Louisiana Street, 32nd Floor			
City, State, Zip	Houston, TX 77002			
Telephone		Fax		
Email				

4. PROJECT NAME AND AGREEMENT TERM

A. Project Name		Hydrogen Energy California (HECA)		
B. Agreement Term Requested		<input checked="" type="checkbox"/> Regular (5 years or less) <input type="checkbox"/> Long-term (greater than 5 years)		
C. Project Term		D. Seasonal Work Period		E. Number of Work Days
Beginning (year)	Ending (year)	Start Date (month/day)	End Date (month/day)	
2014	2019			1,825.00

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

5. AGREEMENT TYPE

Check the applicable box. If box B, C, D, or E is checked, complete the specified attachment.

A.	<input checked="" type="checkbox"/> Standard (Most construction projects, excluding the categories listed below)
B.	<input type="checkbox"/> Gravel/Sand/Rock Extraction (Attachment A) Mine I.D. Number: _____
C.	<input type="checkbox"/> Timber Harvesting (Attachment B) THP Number: _____
D.	<input type="checkbox"/> Water Diversion/Extraction/Impoundment (Attachment C) SWRCB Number: _____
E.	<input type="checkbox"/> Routine Maintenance (Attachment D)
F.	<input type="checkbox"/> DFG Fisheries Restoration Grant Program (FRGP) FRGP Contract Number: _____
G.	<input type="checkbox"/> Master
H.	<input type="checkbox"/> Master Timber Harvesting

6. FEES

Please see the current fee schedule to determine the appropriate notification fee. Itemize each project's estimated cost and corresponding fee. **Note: The Department may not process this notification until the correct fee has been received.**

	A. Project	B. Project Cost	C. Project Fee
1	Hydrogen Energy California (HECA)	\$500,000.00	
2			
3			
4			
5			
		D. Base Fee (if applicable)	\$4,482.75
		E. TOTAL FEE ENCLOSED	\$4,482.75

7. PRIOR NOTIFICATION OR ORDER

A. Has a notification previously been submitted to, or a Lake or Streambed Alteration Agreement previously been issued by, the Department for the project described in this notification?

Yes (Provide the information below) No

Applicant: _____ Notification Number: _____ Date: _____

B. Is this notification being submitted in response to an order, notice, or other directive ("order") by a court or administrative agency (including the Department)?

No Yes (Enclose a copy of the order, notice, or other directive. If the directive is not in writing, identify the person who directed the applicant to submit this notification and the agency he or she represents, and describe the circumstances relating to the order.)

Continued on additional page(s)

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

8. PROJECT LOCATION

A. Address or description of project location. (Include a map that marks the location of the project with a reference to the nearest city or town, and provide driving directions from a major road or highway)				
The Main Project Site will be located near the unincorporated community of Tupman in western Kern County, California at the address listed below: 7361 Adohr Road, Buttonwillow, CA 93206 Additionally, the Project would involve the construction of off-site linear utilities (identified in this Notification as Project linears). The locations of the Project linears and more details on the project location are described in Box 10 (Project Description) of this application and in the attached Supplemental Information.				
<input checked="" type="checkbox"/> Continued on additional page(s)				
B. River, stream, or lake affected by the project.		See Supplemental Information.		
C. What water body is the river, stream, or lake tributary to?		Tulare lake (KRFCC); Canals/Aqueducts are closed system		
D. Is the river or stream segment affected by the project listed in the state or federal Wild and Scenic Rivers Acts?			<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
E. County			Kern	
F. USGS 7.5 Minute Quad Map Name	G. Township	H. Range	I. Section	J. ¼ Section
East Elk Hills (Main Project Site)	30 South	24 East	10	
See Supplemental Information (Project Linears)				
<input checked="" type="checkbox"/> Continued on additional page(s)				
K. Meridian (check one)		<input type="checkbox"/> Humboldt <input checked="" type="checkbox"/> Mt. Diablo <input type="checkbox"/> San Bernardino		
L. Assessor's Parcel Number(s)				
See attached Supplemental Information (Section 1.8.1) for details.				
<input checked="" type="checkbox"/> Continued on additional page(s)				
M. Coordinates (If available, provide at least latitude/longitude or UTM coordinates and check appropriate boxes)				
Latitude/Longitude	Latitude: 35.332642		Longitude: -119.389247	
	<input type="checkbox"/> Degrees/Minutes/Seconds		<input checked="" type="checkbox"/> Decimal Degrees	
UTM	Easting: 282842.2365 m		Northing: 3912552.2121 m	
	<input type="checkbox"/> Zone 10		<input checked="" type="checkbox"/> Zone 11	
Datum used for Latitude/Longitude or UTM		<input type="checkbox"/> NAD 27		<input checked="" type="checkbox"/> NAD 83 or WGS 84

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

9. PROJECT CATEGORY AND WORK TYPE (Check each box that applies)

PROJECT CATEGORY	NEW CONSTRUCTION	REPLACE EXISTING STRUCTURE	REPAIR/MAINTAIN EXISTING STRUCTURE
Bank stabilization – bioengineering/recontouring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bank stabilization – rip-rap/retaining wall/gabion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boat dock/pier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boat ramp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bridge	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Channel clearing/vegetation management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Culvert	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Debris basin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diversion structure – weir or pump intake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Filling of wetland, river, stream, or lake	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Geotechnical survey	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Habitat enhancement – revegetation/mitigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Levee	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low water crossing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Road/trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sediment removal – pond, stream, or marina	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Storm drain outfall structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temporary stream crossing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Utility crossing : Horizontal Directional Drilling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jack/bore	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Open trench	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

10. PROJECT DESCRIPTION

A. Describe the project in detail. Photographs of the project location and immediate surrounding area should be included.

- Include any structures (e.g., rip-rap, culverts, or channel clearing) that will be placed, built, or completed in or near the stream, river, or lake.
- Specify the type and volume of materials that will be used.
- If water will be diverted or drafted, specify the purpose or use.

Enclose diagrams, drawings, plans, and/or maps that provide all of the following: site specific construction details; the dimensions of each structure and/or extent of each activity in the bed, channel, bank or floodplain; an overview of the entire project area (i.e., "bird's-eye view") showing the location of each structure and/or activity, significant area features, and where the equipment/machinery will enter and exit the project area.

A brief overview of project activities and their anticipated impacts is presented below. For more detailed information, please see Box 10 of the Supplemental Information, as well as the Project Description (included as an appendix to the Supplemental Information).

The 453-acre HECA Project Site is the area where the Integrated Gasification Combined-Cycle polygeneration facility would be built. The HECA Project Site would be surrounded by the Controlled Area, which would remain as agriculture lands except for 91 acres adjacent to the Project Site that will be utilized for temporary staging and laydown during construction.

The HECA Project would also require the construction and installation of several offsite linear utility lines, or Project linears. The Project linears consist of a CO2 pipeline, railroad spur, electrical transmission line, natural gas pipeline, and water supply pipelines. The construction of these features would require temporary and permanent impacts to irrigation canals that are addressed in this Notification. No aquatic features addressed in this Notification are located within the HECA Project Site.

Furthermore, the HECA Project involves an agreement to supply carbon dioxide (CO2) to the adjacent Elk Hills Oil Field, which is owned and operated by Occidental of Elk Hills, Inc (OEHI). While the transport of CO2 to OEHI is a separate project (hereafter referred to as the OEHI Project), this LSAA is being submitted to cover both the HECA Project and the OEHI Project.

Continued on additional page(s)

B. Specify the equipment and machinery that will be used to complete the project.

Refer to the Box 10 project description in the attached supplemental information for the construction methods that will be used to complete the proposed project.

Continued on additional page(s)

C. Will water be present during the proposed work period (specified in box 4.D) in the stream, river, or lake (specified in box 8.B).

Yes No (*Skip to box 11*)

D. Will the proposed project require work in the wetted portion of the channel?

Yes (*Enclose a plan to divert water around work site*)
 No

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

11. PROJECT IMPACTS

A. Describe impacts to the bed, channel, and bank of the river, stream, or lake, and the associated riparian habitat. Specify the dimensions of the modifications in length (linear feet) and area (square feet or acres) and the type and volume of material (cubic yards) that will be moved, displaced, or otherwise disturbed, if applicable.

The installation of off-site utility lines would affect irrigation canals, as described in the Supplemental Information for Box 11. These impacts would be temporary and would result from activities during pipeline or rail spur construction that include ground excavation, trenching, grading, and the backfill of excavated areas. See attached Supplemental Information for more details.

Continued on additional page(s)

B. Will the project affect any vegetation? Yes (Complete the tables below) No

Vegetation Type	Temporary Impact	Permanent Impact
See attached supplemental information	Linear feet: _____ Total area: _____	Linear feet: _____ Total area: _____
	Linear feet: _____ Total area: _____	Linear feet: _____ Total area: _____

Tree Species	Number of Trees to be Removed	Trunk Diameter (range)
No trees will be removed as part of the project.	0	

Continued on additional page(s)

C. Are any special status animal or plant species, or habitat that could support such species, known to be present on or near the project site?

Yes (List each species and/or describe the habitat below) No Unknown

Blunt-nosed leopard lizard, giant kangaroo rat, Tipton kangaroo rat, San Joaquin kit fox, Buena Vista Lake Shrew

Continued on additional page(s)

D. Identify the source(s) of information that supports a “yes” or “no” answer above in Box 11.C.

Draft Biological Assessment (attached), Incidental Take Permit application (CDFW - submitted concurrently), Amended Application for Certification (CEC).

Continued on additional page(s)

E. Has a biological study been completed for the project site?

Yes (Enclose the biological study) No

Note: A biological assessment or study may be required to evaluate potential project impacts on biological resources.

F. Has a hydrological study been completed for the project or project site?

Yes (Enclose the hydrological study) No

Note: A hydrological study or other information on site hydraulics (e.g., flows, channel characteristics, and/or flood recurrence intervals) may be required to evaluate potential project impacts on hydrology.

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

12. MEASURES TO PROTECT FISH, WILDLIFE, AND PLANT RESOURCES

A. Describe the techniques that will be used to prevent sediment from entering watercourses during and after construction.

Best Management Practices (BMPs) would be implemented during construction activities. A Storm Water Pollution Prevention Plan (SWPPP) would be developed and implemented. A frac-out response plan would be developed for HDD activities. Temporary disturbance areas, would be restored to their pre-project condition following construction.

See Supplemental Information for details.

Continued on additional page(s)

B. Describe project avoidance and/or minimization measures to protect fish, wildlife, and plant resources.

See the Supplemental Information for Box 12 for description of the proposed avoidance and minimization measures. Also see Special Status Plant and Wildlife Avoidance and Minimization Measures, Sections 2.3.4 and 2.3.5 in the Biological Assessment (attached).

Continued on additional page(s)

C. Describe any project mitigation and/or compensation measures to protect fish, wildlife, and plant resources.

See the Supplemental Text for Box 12 for a summary of project avoidance and minimization measures to protect fish, wildlife and plant resources. Additional details are provided in the description of the Special Status Plant and Wildlife Avoidance and Minimization Measures, Sections 2.3.4 and 2.3.5 in the Biological Assessment (attached) and Incidental Take Permit application.

Continued on additional page(s)

13. PERMITS

List any local, state, and federal permits required for the project and check the corresponding box(es). Enclose a copy of each permit that has been issued.

- A. _____ Section 404 CWA (Dredge and Fill) Applied Issued
- B. _____ Section 401 CWA (Water Quality Certification) Applied Issued
- C. _____ Section 7 ESA (Biological Assessment) Applied Issued
- D. Unknown whether local, state, or federal permit is needed for the project. (Check each box that applies)

Continued on additional page(s)

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

14. ENVIRONMENTAL REVIEW

A. Has a draft or final document been prepared for the project pursuant to the California Environmental Quality Act (CEQA), National Environmental Protection Act (NEPA), California Endangered Species Act (CESA) and/or federal Endangered Species Act (ESA)?			
<input type="checkbox"/> Yes (Check the box for each CEQA, NEPA, CESA, and ESA document that has been prepared and enclose a copy of each) <input checked="" type="checkbox"/> No (Check the box for each CEQA, NEPA, CESA, and ESA document listed below that will be or is being prepared)			
<input type="checkbox"/> Notice of Exemption	<input type="checkbox"/> Mitigated Negative Declaration	<input checked="" type="checkbox"/> NEPA document (type): <u>DOE EIS</u>	
<input type="checkbox"/> Initial Study	<input type="checkbox"/> Environmental Impact Report	<input checked="" type="checkbox"/> CESA document (type): <u>CEC FSA/EIR</u>	
<input type="checkbox"/> Negative Declaration	<input type="checkbox"/> Notice of Determination (Enclose)	<input checked="" type="checkbox"/> ESA document (type): <u>BA</u>	
<input type="checkbox"/> THP/ NTMP	<input type="checkbox"/> Mitigation, Monitoring, Reporting Plan		
B. State Clearinghouse Number (if applicable)			
C. Has a CEQA lead agency been determined?		<input checked="" type="checkbox"/> Yes (Complete boxes D, E, and F) <input type="checkbox"/> No (Skip to box 14.G)	
D. CEQA Lead Agency	California Energy Commission		
E. Contact Person	John Heiser	F. Telephone Number	(916) 653-8236
G. If the project described in this notification is part of a larger project or plan, briefly describe that larger project or plan.			
<p>The HECA Project described in this Notification is the entire project, including actions that are proposed as part of the OEHI Project for CO2 EOR.</p> <p style="text-align: right;"><input type="checkbox"/> Continued on additional page(s)</p>			
H. Has an environmental filing fee (Fish and Game Code section 711.4) been paid?			
<input type="checkbox"/> Yes (Enclose proof of payment) <input checked="" type="checkbox"/> No (Briefly explain below the reason a filing fee has not been paid)			
<p>Filing fee will be provided to the California Energy Commission following the Commission's decision on the Project's Application for Certification.</p> <p><i>Note: If a filing fee is required, the Department may not finalize a Lake or Streambed Alteration Agreement until the filing fee is paid.</i></p>			

15. SITE INSPECTION

Check one box only.	
<input type="checkbox"/> In the event the Department determines that a site inspection is necessary, I hereby authorize a Department representative to enter the property where the project described in this notification will take place at any reasonable time, and hereby certify that I am authorized to grant the Department such entry.	
<input checked="" type="checkbox"/> I request the Department to first contact (insert name) <u>Marisa Mascaro</u> at (insert telephone number) <u>(978) 287-9529</u> to schedule a date and time to enter the property where the project described in this notification will take place. I understand that this may delay the Department's determination as to whether a Lake or Streambed Alteration Agreement is required and/or the Department's issuance of a draft agreement pursuant to this notification.	

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

16. DIGITAL FORMAT

Is any of the information included as part of the notification available in digital format (i.e., CD, DVD, etc.)?

Yes (Please enclose the information via digital media with the completed notification form)

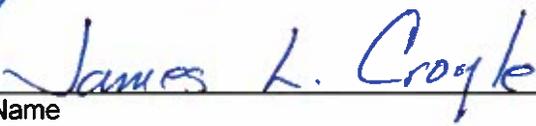
No

17. SIGNATURE

I hereby certify that to the best of my knowledge the information in this notification is true and correct and that I am authorized to sign this notification as, or on behalf of, the applicant. I understand that if any information in this notification is found to be untrue or incorrect, the Department may suspend processing this notification or suspend or revoke any draft or final Lake or Streambed Alteration Agreement issued pursuant to this notification. I understand also that if any information in this notification is found to be untrue or incorrect and the project described in this notification has already begun, I and/or the applicant may be subject to civil or criminal prosecution. I understand that this notification applies only to the project(s) described herein and that I and/or the applicant may be subject to civil or criminal prosecution for undertaking any project not described herein unless the Department has been separately notified of that project in accordance with Fish and Game Code section 1602 or 1611.



Signature of Applicant or Applicant's Authorized Representative



Print Name

10/17/13

Date

**HYDROGEN ENERGY CALIFORNIA
KERN COUNTY, CALIFORNIA**

**SECTION 1602 LAKE AND STREAMBED
ALTERATION AGREEMENT
SUPPLEMENTAL INFORMATION**

Prepared for:

Hydrogen Energy California, LLC
30 Monument Square, Suite 235
Concord, MA 01742
Contact: Marisa Mascaro
(978) 287-9529

Prepared by:

URS Corporation
Post Montgomery Center
One Montgomery Street, Suite 900
San Francisco, CA 94104-4538
Contact: Dale Shileikis
(415) 896-5858

URS Project Number 28068052

April 2013, Revised October 2013

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Acronyms

APN	Assessor Parcel Number
BMP	best management practice
BRMIMP	Biological Resources Mitigation Implementation and Monitoring Plan
BVWSD	Buena Vista Water Storage District
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CO ₂	carbon dioxide
DOE	U.S. Department of Energy
EOR	enhanced oil recovery
HDD	horizontal directional drilling
HDDP	Horizontal Directional Drilling Plan
HECA	Hydrogen Energy California
IGCC	Integrated Gasification Combined Cycle
KRFCC	Kern River Flood Control Channel
NPDES	National Pollutant Discharge Elimination System
OEHI	Occidental of Elk Hills, Inc.
petcoke	petroleum coke
PG&E	Pacific Gas and Electric
ROW	right-of-way
SJVRR	San Joaquin Valley Railroad
syngas	synthesis gas
USFWS	U.S. Fish and Wildlife Service
WKWD	West Kern Water District
WS	Waters of the State
WUS	Water of the United States

INTRODUCTION

The following sections contain supplemental information for the Hydrogen Energy California (HECA) Project Section 1602 Lake and Streambed Alteration Agreement submitted to the California Department of Fish and Wildlife (CDFW [formerly California Department of Fish and Game]). Information is organized by box and corresponding subject based on the Notification of Lake or Streambed Alteration form.

A complete and detailed project description is provided as an appendix (Appendix A). The information presented in this supplemental text addresses each question fully and completely, but only presents the Project information that is relevant to the activities that would occur in waters subject to the jurisdiction of CDFW.

Hydrogen Energy California LLC (HECA LLC) is proposing to build an Integrated Gasification Combined Cycle (IGCC) polygeneration project (HECA or the Project) in Kern County, California (Figure 1). HECA LLC is owned by SCS Energy California LLC. The Project will gasify a 75 percent coal and 25 percent petroleum coke (petcoke) fuel blend to produce synthesis gas (syngas). Syngas produced via gasification will be purified to hydrogen-rich fuel, which will be used to generate low carbon baseload electricity in a Combined-Cycle Power Block, low carbon nitrogen-based products in an integrated Manufacturing Complex, and carbon dioxide (CO₂) for use in enhanced oil recovery (EOR).

The Project will gasify blends of petcoke and coal, as needed, to produce hydrogen to fuel a combustion turbine operating in combined-cycle mode. The Gasification Block feeds a 390-gross-megawatt combined-cycle plant. The net electrical generation output from the Project will provide California with approximately 300-megawatt output of low carbon baseload electrical power to the grid. The Project will use the hydrogen produced in the gasifier to produce low carbon nitrogen-based products in an integrated Manufacturing Complex.

The fertilizers and power produced by the HECA Project will have a low carbon footprint, because more than 90 percent of the CO₂ in the syngas will be captured and approximately 3 million tons per year of CO₂ will be transported via pipeline for use in EOR, which results in simultaneous sequestration (storage) of the CO₂ in a secure geologic formation (HECA, 2012). CO₂ will be transported (via an approximately 3.4-mile-long pipeline) for use in EOR in the adjacent Elk Hills Oil Field (EHOF), which is owned and operated by Occidental of Elk Hills, Inc. (OEHI) (hereafter referred to as the OEHI Project).

The U.S. Department of Energy (DOE) is providing financial assistance to the HECA Project under the Clean Coal Power Initiative Round 3 via a cost-sharing agreement with HECA LLC.

The following terms are used throughout the application and are defined below.

- HECA Project (or “Project”) – Referring to the Hydrogen Energy California Project as a whole.
- HECA Project Site (or “Project Site”) – The 453-acre site where the power-generating facility and associated structures would be constructed.

Supplemental Information

- OEHI Project – The transport of CO₂ from the HECA Project Site to OEHI for simultaneous EOR and carbon sequestration.
- Controlled Areas –HECA has an agreement to purchase an additional 653 acres that are immediately adjacent to the HECA Project Site. With the exception of temporary construction impacts for linear facilities and construction laydown, current plans are to continue to use the Controlled Area for agricultural purposes during construction and operations.
- Project Linears – Any or all of the linear utility components (such as rail lines or pipelines) that would be built offsite (i.e., not on the Project Site) as part of the Project.

BOX 8 – PROJECT LOCATION

A brief description of the Project components and their location is provided below. For more information, see the attached Project Description (Appendix A).

Project Site

The Project Site consists of approximately 453 acres in Kern County, California, as shown on Figure 1. The Project Site is approximately 2 miles northwest of the unincorporated community of Tupman. The street address of the Project Site is 7361 Adohr Road, Buttonwillow, California, 93206. The Project Site is in the East Elk Hills USGS 7.5-minute quadrangle, Section 10 of Township 30 South, Range 24 East in Kern County. The Project Site Assessor's Parcel Numbers (APNs) are as follows:

- Part of 159-040-02
- Part of 159-040-16
- Part of 159-040-18

The 653-acre Controlled Area is shown on Figure 2. The APNs associated with the Controlled Area are as follows:

- All of 159-040-04
- All of 159-040-11
- All of 159-040-17
- All of 159-190-09
- Remnant part of 159-040-02
- Remnant part of 159-040-16
- Remnant part of 159-040-18

The Project Site is predominantly used for agricultural purposes, including cultivation of cotton, alfalfa, and onions. Land use in the vicinity of the Project Site is primarily agricultural. Adjacent land uses include Adohr Road and agricultural uses to the north; Tupman Road and agricultural uses to the east; agricultural uses and an irrigation canal to the south; and Dairy Road right-of-way (ROW) and agricultural uses to the west. The West Side Canal (and the Outlet

Canal, Kern River Flood Control Channel (KRFCC), and the California Aqueduct (State Water Project) are approximately 500, 700, and 1,900 feet south of the Project Site, respectively.

Project Linears

In addition to the Project Site, the Project requires the construction and installation of several offsite linear components (Figure 3). The utility lines and linear facilities associated with the proposed Project include the following:

- **Electrical transmission line.** An approximately 2-mile electrical transmission line will be constructed between the Project Site and a future Pacific Gas and Electric (PG&E) switching station located east of the Project Site.
- **Natural gas supply pipeline.** An approximately 13-mile natural gas pipeline will connect the Project Site to an existing PG&E natural gas pipeline located to the north.
- **Water supply pipelines.** The Project will use brackish groundwater for process water, supplied from Buena Vista Water Storage District (BVWSD) wells that will be located to the northwest of the Project Site. The raw water supply pipeline will be approximately 15 miles in length, and connect to five new groundwater wells. Potable water for drinking and sanitary use will be supplied by West Kern Water District (WKWD) to the east. The potable water supply pipeline will be approximately 1 mile in length, and parallel the electrical transmission line route.
- **CO₂ pipeline.** An approximately 3-mile CO₂ pipeline will transfer the CO₂ captured from the Project Site south to the OEHI CO₂ processing facility.
- **Industrial railroad spur.** A new, approximately 5-mile railroad spur will be constructed to connect the Project Site to the existing San Joaquin Valley Railroad (SJVRR) Buttonwillow railroad line, north of the Project Site. The railroad spur will deliver coal to the Project Site, as well as export products during operations. If available, the railroad spur will also be used to deliver plant equipment during construction. Public and private at-grade crossings will also be constructed.

The Project linears begin at the Project Site and are aligned generally along existing ROWs such as roads, railroads, or canals until their termini at various locations up to 15 miles from the Project Site. The Project linears are located within the Tupman, East Elk Hills, West Elk Hills, Lokern, Buttonwillow, and Rio Bravo USGS quads. A list containing parcel and landowner information for all properties adjacent to or within the ROW of these features is provided in Appendix B.

Directions to Project Site

The following directions are for travel from downtown Sacramento, California to the Project Site:

Supplemental Information

- Head south on Interstate 5 (Approximately 265 miles)
- Take Exit 253 for Stockdale Highway/Bellevue Road (0.3 mile)
- Turn right to continue west on Stockdale Highway/Bellevue Road (3.2 miles)
- Turn left to head south on Dairy Road (1.0 mile)
- The Project Site is located at the intersection of Dairy Road and Adohr Road.

The Project Site is bordered by Adohr Road to the north and Tupman Road to the east.

The routes of the Project linears are not all accessible by road, depending on segment. An overview of the proposed routes of each of the Project linears is presented on Figure 3.

BOX 10 – PROJECT DESCRIPTION

Construction of the Project Site facilities will not impact aquatic or upland habitats regulated under Section 1600 of the California Fish and Game Code. However, some of the Project linears could potentially affect water features, as described under Project Impacts (Box 11), below. A brief description of the Project Site is also included below for reference, in addition to descriptions of the proposed linear facilities. See the attached Project Description (Appendix A) for more information.

Project Components

Project Site

The proposed IGCC polygeneration project would be built on the 453-acre Project Site.

Construction of the IGCC within the Project Site will occur during a 48-month construction period. All construction laydown and parking areas will be within the HECA Project Site and a 91-acre construction staging area in the adjacent Controlled Area. Onsite construction activities will include clearing and grubbing, grading, hauling, layout of equipment, delivery and handling of materials and supplies, and HECA Project construction and testing operations. The HECA Project Site occurs in an area of relatively flat topography. Site grading will occur as necessary to form level building pads for major process units.

Construction site access will be via Dairy Road for truck deliveries and Adohr Road for construction craft vehicles arriving and departing the site. Initial site preparation will include construction of temporary access roads, parking, laydown areas, office and warehouse facilities, installation of erosion control measures, and other improvements necessary for construction. Erosion control measures will include construction of stormwater retention basins and related site drainage facilities to control runoff within the Project Site boundary. Existing drainage patterns outside the Project Site boundary will remain unchanged, and no runoff from outside the Project Site boundary will flow onto the Project Site.

Natural Gas Supply Line

A new natural gas pipeline will interconnect with the existing PG&E natural gas pipeline located north of the Project Site. The interconnect will consist of one tap off the existing natural gas line

and one metering station at the beginning of the natural gas pipeline adjacent to the PG&E Inlet. The metering station will be up to 100 feet by 100 feet, surrounded by a chain-link fence. In addition, there will be a metering station at the end of the natural gas pipeline, on the southwestern side of the Project Site, and a pressure-limiting station on the Project Site. HECA or PG&E will construct the natural gas pipeline. PG&E will own the natural gas pipeline. The natural gas line is approximately 13 miles in length, including 5.28 miles that would be located within the railroad spur line ROW.

Construction of the natural gas pipeline interconnection will include the following standard pipeline construction activities: clearing and grubbing, hauling and stringing of the pipe along the route; welding, radiographic inspection, and coating of the pipe welds; trenching; lowering of the pipe into the trench; backfill of the trench; hydrostatic testing of the pipeline; tie-in to the existing pipeline; purging the pipeline; and cleanup and restoration of construction areas. The hydrotest water will be sampled, tested, and disposed of in compliance with National Pollutant Discharge Elimination System (NPDES) permit(s). Roads and ROWs will be restored to specifications of the Project and affected agencies.

Construction of the natural gas pipeline interconnection will take approximately 6 months. It is scheduled to be finished and operational in time to provide test gas to the Project. Construction will occur in accordance with a traffic management plan to minimize impacts to traffic. Grade cuts will be restored to their original contours, and affected areas will be restored to their original condition to minimize erosion. No new access roads will be constructed for maintenance and operation of the natural gas pipeline because existing access roads are adequate for this purpose.

PG&E will own, operate, and maintain the natural gas pipeline. Maintenance of the natural gas pipeline will follow PG&E corporate policies and protocols. Long-term maintenance needs of the natural gas pipeline will be minimal during the 25-year lifespan of the Project.

Water Supply Lines

For process water, the Project will use brackish groundwater supplied from the BVWSD. BVWSD will construct and own the process water pipeline. The process water pipeline route runs from Seventh Standard Road to the Project Site, along the existing BVWSD road on the northeastern side of the West Side Canal. The 30-inch-diameter process water supply pipeline will be approximately 15 miles in length. The construction ROW will be approximately 50 feet wide, and the permanent ROW for maintenance and operation of the pipeline will be approximately 25 feet wide.

BVWSD will construct and own a well field for the Project process water supply that will be located in the western portion of BVWSD's service area near the West Side Canal in the vicinity of Seventh Standard Road, at the northern end of the 15-mile-long process water line. It is currently anticipated that there will be up to five groundwater extraction wells. Two of these wells will provide operational redundancy. The maximum depth of the wells will be approximately 300 feet below ground surface. The brackish water will be treated on the Project Site to meet all process and utility water requirements.

Supplemental Information

For drinking and sanitary use, the Project will use potable water supplied by WKWD. The potable water line will be constructed and owned by HECA LLC. The potable water supply pipeline route runs approximately 1 mile east from the northeastern corner of the Project Site. This pipeline will be placed within the electrical transmission corridor ROW, and will not require additional easements.

Installation of the water supply pipelines will include standard construction activities for pipelines, including clearing and grubbing; trenching; hauling and stringing of pipe along the route; welding; radiographic inspection and coating of pipe welds; lowering welded pipe into the trench; hydrostatic testing; and backfilling and restoring the approximate surface grade. Construction of the process water pipeline is expected to take approximately 6 months to complete. The source of the water to be used for hydrostatic testing of the pipelines will be an on-site irrigation well, supplemented by potable water from WKWD. The hydrotest water will be sampled, tested, and disposed of in compliance with NPDES permit(s). Clean water with suitable chemistry will be routed to the stormwater retention basin. Water that is not suitable for routing to the retention basin will be transported by truck to an appropriately licensed off-site treatment or disposal facility.

BVWSD will own, operate, and maintain the approximately 15-mile process water pipeline and associated wells. Annual maintenance of the process water pipeline and associated groundwater wells will be conducted by BVWSD. Maintenance activities of the wells and the pipeline will follow BVWSD corporate policies and protocols.

Long-term maintenance needs of the process water pipeline will be minimal during the 25-year lifespan of the Project. HECA will own, operate, and maintain the approximately 1-mile potable water pipeline. Maintenance activities of the pipeline will include:

- Annual reconnaissance of the pipeline ROW
- Annual inspection and exercising (opening and closing for one cycle) of valves, as necessary
- Annual vegetation removal, re-grading, and application of dirt for the access road after wet periods and pipe work, as necessary
- As determined necessary by routine inspection, replacement of pipeline components (lining and coating, valves, and joints)

Long-term maintenance needs of the potable water pipeline will be minimal during the 25-year lifespan of the Project; therefore, they are not quantified in this document.

Carbon Dioxide Pipeline

A 12-inch-diameter CO₂ pipeline will be constructed to transfer the CO₂ produced by the HECA Project to the OEHI CO₂ Processing Facility used by OEHI for injection into deep underground hydrocarbon reservoirs for CO₂ EOR. The CO₂ pipeline route will leave the southwestern portion of the HECA Project Site and will use horizontal directional drilling (HDD) to pass

under the West Side Canal, Outlet Canal, the KRFCC, and the California Aqueduct. The number of HDD entry and exit pits will be determined based on field conditions. HDD will also be used to avoid disturbance of archaeological sites. On the southern side of the aqueduct, the route extends southeast and south to the OEHI CO₂ Processing Facility, and parallels existing private roads. The construction ROW will be 80 feet wide along the linear length plus the two 120-foot by 100-foot entry pits, and two 75-foot by 100-foot exit pits needed for HDD. The permanent ROW will be 25 feet wide. OEHI will construct and own the CO₂ pipeline.

With the exception of the proposed HDD crossings, where the depth of the CO₂ pipeline will be approximately 50 to 100 feet below grade, the pipeline will be buried approximately 5 feet below grade, and will be protected by cathodic protection and monitored by independent leak-detection systems. Construction of the CO₂ pipeline interconnection will include standard pipeline construction activities: clearing and grubbing; trenching; hauling and stringing of the pipe along the route; welding; radiographic inspection; coating of the pipe welds; lowering of the pipe into the trench; backfill of the trench; hydrostatic testing of the pipeline; purging the pipeline; and cleanup and restoration of construction areas. The hydrostatic test water will be sampled, tested, and disposed of in compliance with NPDES permit(s). Grade cuts will be restored to their original contours, and affected areas will be restored to their original state to minimize erosion. Construction of the CO₂ pipeline will take approximately 6 months.

OEHI will own, operate, and maintain the CO₂ pipeline. Maintenance of the CO₂ linear will follow OEHI corporate policies and protocols. Long-term maintenance needs of the CO₂ pipeline will be minimal during the 25-year lifespan of the Project.

Horizontal Directional Drilling

HDD will be used to install the CO₂ pipeline under the West Side Canal, the Outlet Canal, the KRFCC, and the California Aqueduct. The depth of HDD under these water bodies will comply with all applicable federal and state regulations.

The California Department of Water Resources, Encroachment Permit Guidelines—June 2005, identifies specific requirements regarding the use of HDD for the crossing of the California Aqueduct. The principal requirements include, but are not limited to, the following:

- A site-specific geotechnical report must be submitted to the California Department of Water Resources with the Encroachment Permit application.
- Pipe sleeves are required with any pipeline carrying hazardous materials or pollutants.
- The minimum separation between the bottom of the aqueduct channel and the top of pipe is 25 feet; further separation may be required depending on the actual pipe diameter.
- Drawings submitted with the Encroachment Permit Application must include the following information for buried pipelines (at a minimum):
 - Aqueduct mileposts at each crossing, pipe size, location, and type of material transported

Supplemental Information

- Maximum operating pressure, type of pipe and pipe joints, pipe wall thickness, maximum test pressure, and description of test procedures
- Type of sleeve/casing, including diameter, joints, and wall thickness
- Protection coatings and a description of control measures
- Method employed to accommodate pipeline expansion and contraction
- Thrust block location and details
- Pipeline coatings and corrosion control measures
- Location of shutoff valves on each side of the crossing
- List of applicable design codes
- Location, including depth of the buried aqueduct communication and control cables
- Identification of existing utility easements or encroachments in the immediate vicinity of the proposed crossing

The HDD method includes a drilling rig that will bore a horizontal hole under the water crossings. At each of these crossings, laydown areas (or entry/exit pits) have been identified on either side of the water course to accommodate the HDD installation. Best management practices for HDD are described in the response to Box 12 below.

Railroad Industrial Spur

The industrial railroad spur would require a 75-foot construction ROW, a 60-foot permanent ROW, and a 3-acre rail laydown area. Construction of the railroad spur will occur early in the Project construction timeline so that the railroad spur could be used to deliver additional equipment. Construction of the railroad spur is expected to span approximately 5 months. Construction of the railroad spur will use earthwork and track construction equipment typically used on similar rail projects throughout California and the United States. The following is a summary of the construction sequence and methods anticipated to be used for the railroad spur.

Because the majority of the alignment is traversing previously disturbed agricultural areas, minimal clearing and grubbing of the proposed ROW will be required to remove vegetation. Once the ROW is cleared, rough grading work will begin. Earth-moving equipment will create a track embankment section and drainage ditches using standard equipment consisting of bulldozers, scrapers, dump trucks, roadway graders, and vibratory compactors. Utility relocation work will also be performed as part of this initial grading work. Existing local service power lines and underground irrigation piping will be relocated or protected in place. The natural gas linear will follow the railroad spur linear from the Project Site to its interconnection with the existing SJVRR line. The natural gas linear will be installed 25 feet from the centerline of the track.

A laydown area for track construction materials will be located near the proposed interconnection to the existing SJVRR track, totaling approximately 3 acres of temporary disturbance. Along the new rail spur, truck turnaround points will be required about every 0.25 mile. These truck turnaround points will be typical hammerhead design of about 30 feet by 75 feet. All work will be performed within the proposed 75-foot railway construction ROW.

HECA anticipates that it will own, operate, and maintain the approximately 5-mile railroad spur. Regardless of final ownership of the spur, maintenance activities will consist of routine annual maintenance activities, and programmed maintenance conducted on a periodic basis. Annual

maintenance activities consist of visual inspections, vegetation control, spot surfacing and lining of rough spots in the track, and adjusting/lubrication of turnouts. In addition, any warning devices at road crossings will be inspected as frequently as monthly.

Programmed major maintenance consists of surfacing and lining the rail line, typically every 3 to 5 years; and replacing the rail, potentially once during the life of the plant. If timber ties are used rather than concrete ties, 15 percent of the timber ties will need to be replaced on a 10-year cycle. Major maintenance activities will be conducted using on-track equipment. Replaced materials will be removed from the ROW and recycled. Timber ties will be disposed of by incineration, landfill disposal, or other approved disposal options.

Project Schedule

Details of the Project schedule are still under development; however, Project construction activities are anticipated to start as early as late-2013, with completion of Project activities to occur roughly 48 months later.

Completion of California Energy Commission (CEC) permitting process ...late 2013
Commencement of pre-construction and construction activities.....late 2013
Commencement of commercial operation of the Project2017

Construction Equipment and Machinery

Within the Project Site, construction equipment and machinery will include a variety of cranes, tractors, and trucks. Equipment estimates are provided in Appendix A, Project Description.

Construction of the Project linears will include the use of clearing and grubbing equipment to prepare the site, excavators for ditching, and pipe layers, cranes, and heavy trucks for pipe installation.

HDD will involve the use of standard HDD equipment and machinery, including drilling rig, mud system, mud rotors, downhole tools, guidance system, and rig safety systems.

BOX 11 – PROJECT IMPACTS

Affected Water Bodies

Based on direction from CDFW and the CEC, only major channels, canals, and aqueducts are considered jurisdictional waters for evaluation in this Notification. These features are presented on Figure 4. Other water features in the study area, including engineered agricultural irrigation ditches and isolated detention basins, are not considered jurisdictional and are not addressed in this Notification. A Preliminary Jurisdictional Delineation of wetlands and other waters of the United States has been prepared and submitted to the U.S. Army Corps of Engineers, and is provided separately as Appendix C.

Table 1 presents the aquatic features potentially regulated under Section 1600 of the California Fish and Game Code that will be affected by the Project.

**Table 1
Affected Water Bodies**

Feature	Name (if applicable)	Jurisdiction	Temporary		Permanent	
			Impact Area (acre)	Impact Length (feet)	Impact Area (acre)	Impact Length (feet)
WS 25	Outlet Canal	State	—*	—*	—	—
WUS 54	Kern River Flood Control Channel	Federal	—*	—*	—	—
Total			—*	—*	—	—
*Crossings of these features would be constructed using horizontal directional drilling; therefore, no impacts are anticipated. WS = Waters of the State WUS = Waters of the United States						

Impacts Discussion

WS 25, WUS 54 (Outlet Canal, Kern River Flood Control Channel)

The CO₂ pipeline will be installed beneath features WS 25 and WUS 54 (the Outlet Canal and the KRFCC, respectively). Impacts to these features will be avoided by using HDD to construct the pipeline. HDD operations will be needed for the pipeline installation at the crossing of the Outlet Canal and KRFCC. The Outlet Canal/KRFCC crossing will be approximately 2,000 feet in length. The pipeline will be installed at a depth of up to 50 to 100 feet below grade to avoid impacts to the bed or banks of these features.

A Horizontal Directional Drilling Plan (HDDP) will be submitted to CDFW before any HDD activities occur. The HDDP includes a frac-out (unexpected discharges of hydraulic drilling fluid) spill response plan. In the case of a frac-out, any hydraulic fluid that reaches the surface will be contained and removed, resulting only in temporary disturbance. The draft HDDP is attached in Appendix D; the final HDDP will be prepared during final design. Prior to installation of the pipeline using HDD, a small gauge wire line may need to be installed across the ground surface of the channel to measure progress of the drilling process. This wire line will not have any temporary or permanent impacts to vegetation or aquatic habitats.

Vegetation Impacts

No vegetation impacts will occur as part of the proposed canal crossings. The impacted water crossings evaluated in this application are generally unvegetated, or support minimal ruderal vegetation. Other components of the proposed Project will involve vegetation impacts, but they are not related to or located in any water features.

Table 2 presents the acres of impact to vegetation communities for each Project component. The Natural/Ruderal habitat in the Project Area is mostly composed of allscale scrub vegetation. No trees will be removed as part of the Project.

Table 2
Area of Direct Effects to Habitats and Existing Land Use Types within the Action Area

Habitat/ Land Use Types ¹	Project Site		Construction Staging Area		Railroad Spur		Railroad Spur Laydown Yard		Natural Gas Pipeline		Process Water Supply Pipeline and BVWSD Well Field		Transmission Line/PG&E Switching Station/Potable Water Pipeline		OEHI CO ₂ Pipeline ²		OEHI EOR Facilities ²		Total		
	(Acres)																				
	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary
Alfalfa	-	118.0	59.8	-	1.7	5.3	2.0	-	3.4	-	5.9	1.15	2.8	3.29	-	-	-	-	-	75.6	127.74
Other Row Crop	-	317.3	20.0	-	3.5	16.2	-	-	9.4	0.23	1.7	-	-	-	-	-	-	-	-	34.6	333.73
Orchards	-	-	-	-	1.1	4.5	-	-	0.6	-	2	-	0.7	0.01	-	-	-	-	-	4.4	4.51
Natural/Ruderal	-	-	-	-	-	-	-	-	3.7	-	-	-	-	-	28.89	0.11	-	63.79	32.59	63.90	
Developed/Disturbed	-	17.7	11.2	-	3.3	12.4	1.0	-	30.1	-	79.5	-	3.7	0.85	-	-	-	-	-	128.8	30.95
Total	-	453.0	91.0	-	9.6	38.4	3.0	-	47.2³	0.23	89.1	1.15⁴	7.2	4.15	28.89	0.11	-	63.79	275.99	560.83	

Notes:

¹ Areas not designated as crop land or Natural/Ruderal land have been classified as Developed/Disturbed.

² Source: DOE Data Request – Initial Injection Phase Project Description (Stantec, 2012c).

³ The area of temporary habitat disturbance along the portion of the natural gas linear that follows the railroad spur from the Project Site to the interconnection of the railroad with the existing San Joaquin Valley Railroad line is included in the temporary effects for the railroad spur.

⁴ The area that would be permanently affected is based on five wells that would occupy approximately 100 feet by 100 feet each. The exact well locations are not known, but the entire area is assumed to be within alfalfa fields.

BVWSD = Buena Vista Water Storage District

CO₂ = carbon dioxide

DOE = Department of Energy

EOR = enhanced oil recovery

OEHI = Occidental of Elk Hills, Incorporated

PG&E = Pacific Gas and Electric Company

Supplemental Information

Wildlife Impacts

A number of State and Federally Threatened/Endangered Species potentially occur in the Project Area (see Table 3). A Biological Assessment has been submitted to the U.S. Fish and Wildlife Service (USFWS) that addresses potential impacts to species listed under the federal Endangered Species Act, and an Incidental Take Permit Application was submitted concurrently to the CDFW that addresses potential impacts to species listed under the California Endangered Species Act. In addition, an Amended Application for Certification was submitted to the CEC in May 2012.

Table 3
Listed Species with Potential to Occur

Common Name	Scientific Name	State Status	Federal Status
Plants			
California jewel-flower	<i>Caulanthus californicus</i>	Endangered	Endangered
Kern mallow	<i>Eremalche kernensis</i>	None	Endangered
San Joaquin woollythreads	<i>Monolopia congdonii</i>	None	Endangered
Reptiles			
Blunt-nosed leopard lizard	<i>Gambelia sila</i>	Endangered/ Fully Protected	Endangered
Birds			
Swainson's Hawk	<i>Buteo swainsoni</i>	Threatened	None
Mammals			
Buena Vista Lake shrew	<i>Sorex ornatus relictus</i>	Species of Concern	Endangered
Giant kangaroo rat	<i>Dipodomys ingens</i>	Endangered	Endangered
Tipton kangaroo rat	<i>Dipodomys nitratooides nitratooides</i>	Endangered	Endangered
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	Threatened	Endangered
Nelson's Antelope Squirrel	<i>Ammospermophilus nelsoni</i>	Threatened	None

The Outlet Canal is intensively managed and maintained for irrigation water conveyance, and are bordered by actively cultivated fields. The KRFCC, which will be avoided using HDD construction, includes some ruderal habitats and natural vegetation that may provide limited habitat for special-status species, including the Buena Vista Lake shrew and the San Joaquin kit fox.

BOX 12 – DESCRIPTION OF AVOIDANCE, MINIMIZATION, AND COMPENSATION

Avoidance and Minimization

Special-Status Plant and Wildlife Avoidance and Minimization Measures will be implemented as described in Sections 2.3.4 and 2.3.5 in the Biological Assessment (Appendix E; provided

separately), and in Section 4.0 of the Incidental Take Permit (provided concurrently with this application). In addition, the following erosion control measures will be implemented within the HECA Project Site:

- Strategically placed berms, swales, and culverts will be used to redirect runoff toward the stormwater retention basins.
- Sandbags, filter bales, silt fences, and/or temporary dams will be installed, as needed, to minimize the volume of sediment carried by storm runoff, and to prevent the erosion of slopes and temporary drainage facilities.
- Grades will be designed to prevent the effects of ruts and ponding.
- Following each significant precipitation event, a site review of the effectiveness of the erosion control plan will take place.
- Stormwater will be retained on site for impoundment in the stormwater retention basins, located as shown on Figure 5.

Any work within 50 feet of waters of the U.S. and/or within 15 feet of waters of the State (WS) will incorporate Best Management Practices (BMPs) to minimize fill and/or degradation of waters. BMPs will include the following:

- Signs or other markers will be used to clearly demarcate the extent of work zones.
- Refueling of construction equipment and storage of fuel or other hazardous chemicals will not occur within 50 feet of any jurisdictional waters of the U.S. or within 15 feet of waters of the State.
- Work zones will be periodically inspected to ensure that BMP practices are being adhered to.

BMPs to be implemented during construction activities for installation of the Project linears include:

- Material excavated from trenches will be stockpiled outside of any canal banks or other water features.
- Excavated trench material will generally be used as backfill.
- Temporarily disturbed canal or other water features will be returned to their pre-construction contours to the extent practicable.
- Energy dissipation devices will be used for discharging water from hydrostatic testing of the pipeline.

Supplemental Information

- Implementation of soil erosion control measures, as needed, to prevent runoff and impacts to water quality. Erosion control measures will be similar to those described for the HECA Project Site above.

In addition to the above measures, best management practices for HDD will include:

- Installation of silt fencing around the drill sites
- Selection of drilling fluids for environmental compatibility
- Removal of spent fluids from the areas immediately adjacent to the water bodies for safe disposal and to prevent contamination
- Preparation and review of a HDDP before construction (see Appendix D for a draft HDDP)
- Reporting on work adjacent to wetlands will be included in the pending Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP). The BRMIMP will be prepared as part of the environmental mitigation measures presented in HECA's Application for Certification. A quarterly BRMIMP report will be submitted to the CEC, CDFW, and USFWS, as specified in BIO 17 of the Application for Certification.

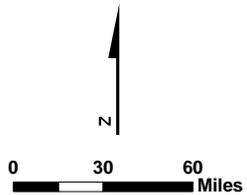
Restoration and Compensation

No compensatory mitigation or other compensation is proposed for this project, because no impacts are anticipated. Should the HDD crossing result in an unintended frac-out, it will be addressed in the manner presented in the containment and controls section of the Draft HDDP (Appendix D).



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- Major Cities
- Minor Cities
- Major Highways
- State Boundaries
- County Boundaries



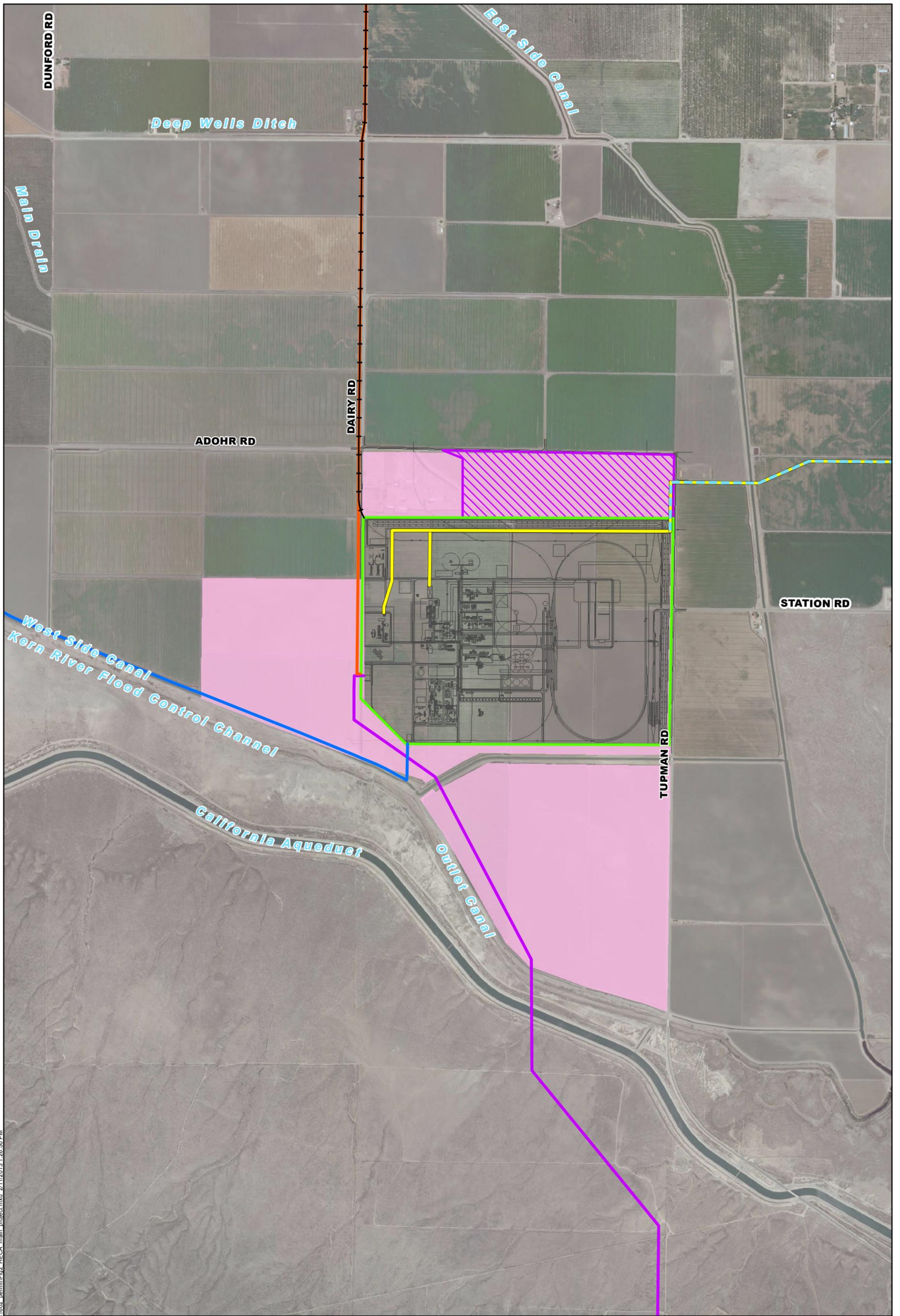
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PROJECT VICINITY

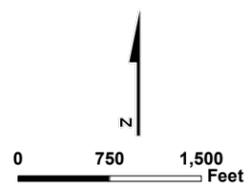
Hydrogen Energy California (HECA)
Kern County, California

FIGURE 1



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- Project Site
- Construction Staging Area
- Controlled Area
- Carbon Dioxide
- Natural Gas
- Potable Water
- Process Water
- Railroad
- Transmission



SITE PLAN

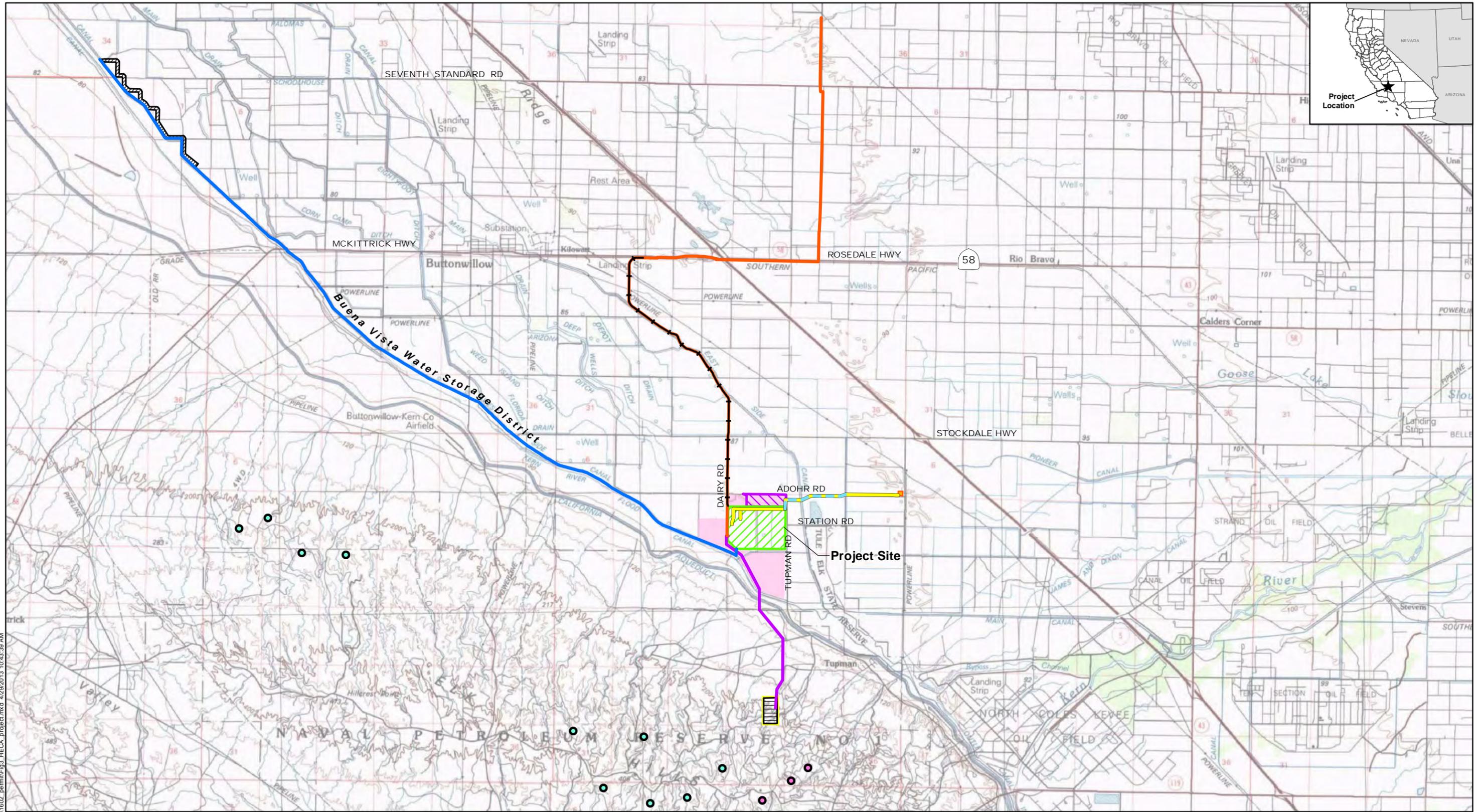
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Hydrogen Energy California (HECA)
Kern County, California

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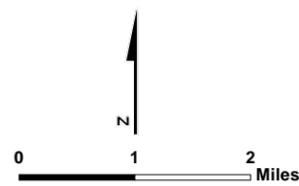
FIGURE 2

Source: Aerial Photo, Digital Globe, 2008.



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- | | | |
|---|---|--|
|  Project Site |  EOR Processing Facility |  Carbon Dioxide |
|  Construction Staging Area | feature |  Natural Gas |
|  Controlled Area |  EOR Satellite Gathering Station (Demonstration Phase) |  Potable Water |
|  BVWSD Well Field |  EOR Satellite Gathering Station (Conceptual) |  Process Water |
|  Electrical Switching Station | |  Railroad |
| | |  Transmission |



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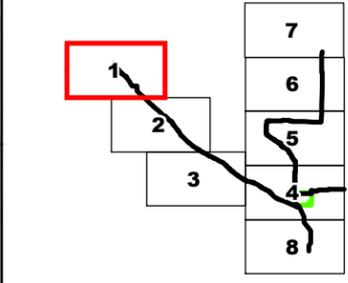
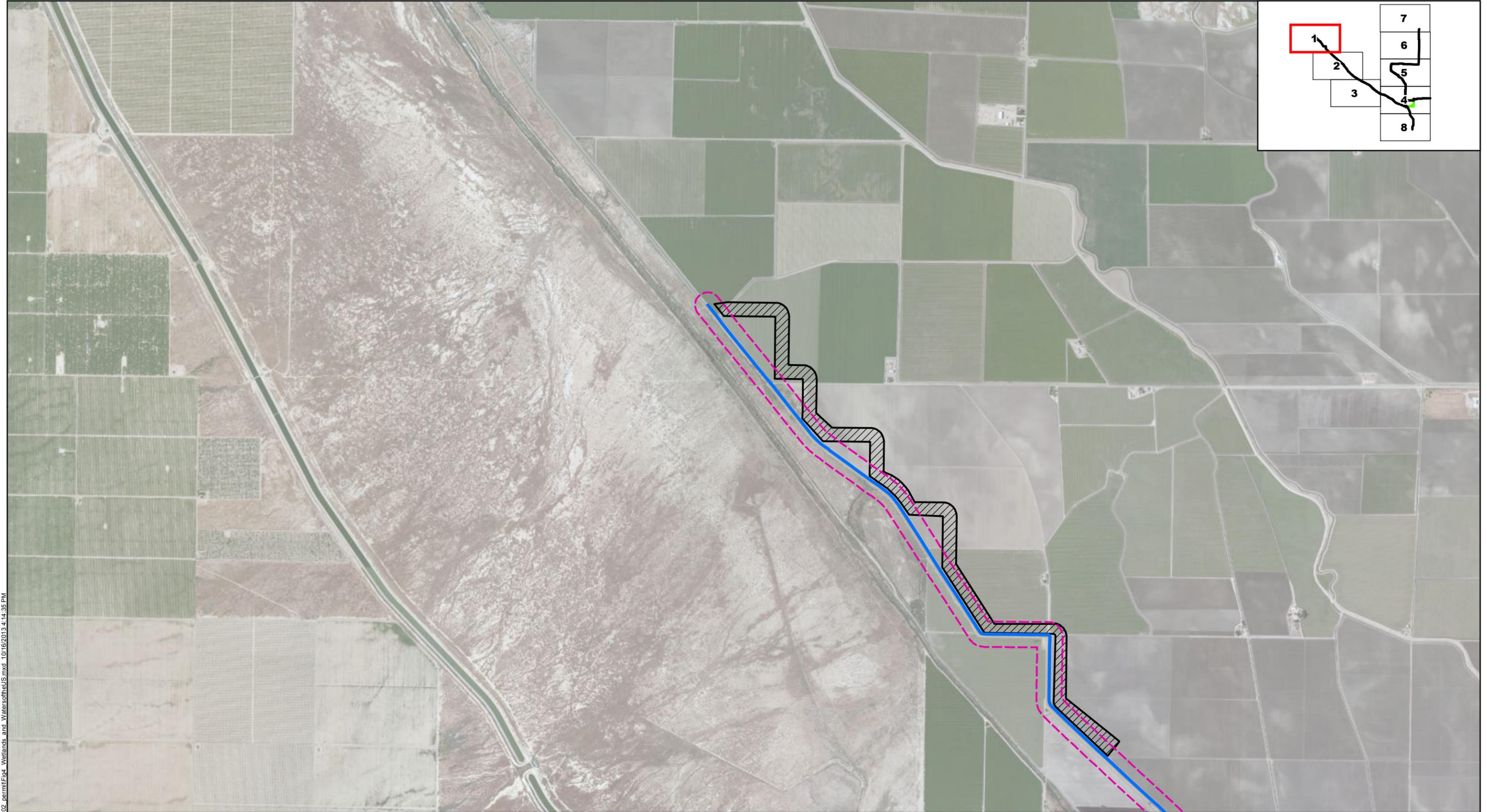


PROJECT OVERVIEW

Hydrogen Energy California (HECA)
Kern County, California

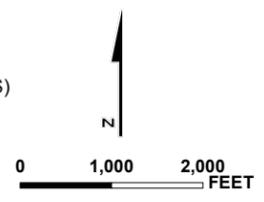
FIGURE 3

Source: USGS (30'x60' quads: Taft 1982, Delano 1982). Created using TOPOI, ©2006 National Geographic Maps, All Rights Reserved. Kern County and State of California (proposed and approved projects).



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- | | | | |
|------------------------------|---|----------------|--------------------------------|
| Project Site | 250-foot Buffer from Disturbance Area | Carbon Dioxide | Waters of the State (WS) |
| Construction Staging Area | EOR Processing Facility | Natural Gas | Other waters of the U.S. (WUS) |
| Controlled Area | EOR Satellite Gathering Station (Demonstration Phase) | Potable Water | Area Not Surveyed |
| BVWSD Well Field | EOR Satellite Gathering Station (Conceptual) | Process Water | Railroad |
| HDD Entry/Exit Pits | | Transmission | |
| Electrical Switching Station | | | |



IMPACTED WATERS OF THE UNITED STATES AND WATERS OF THE STATE WITHIN CDFW JURISDICTION

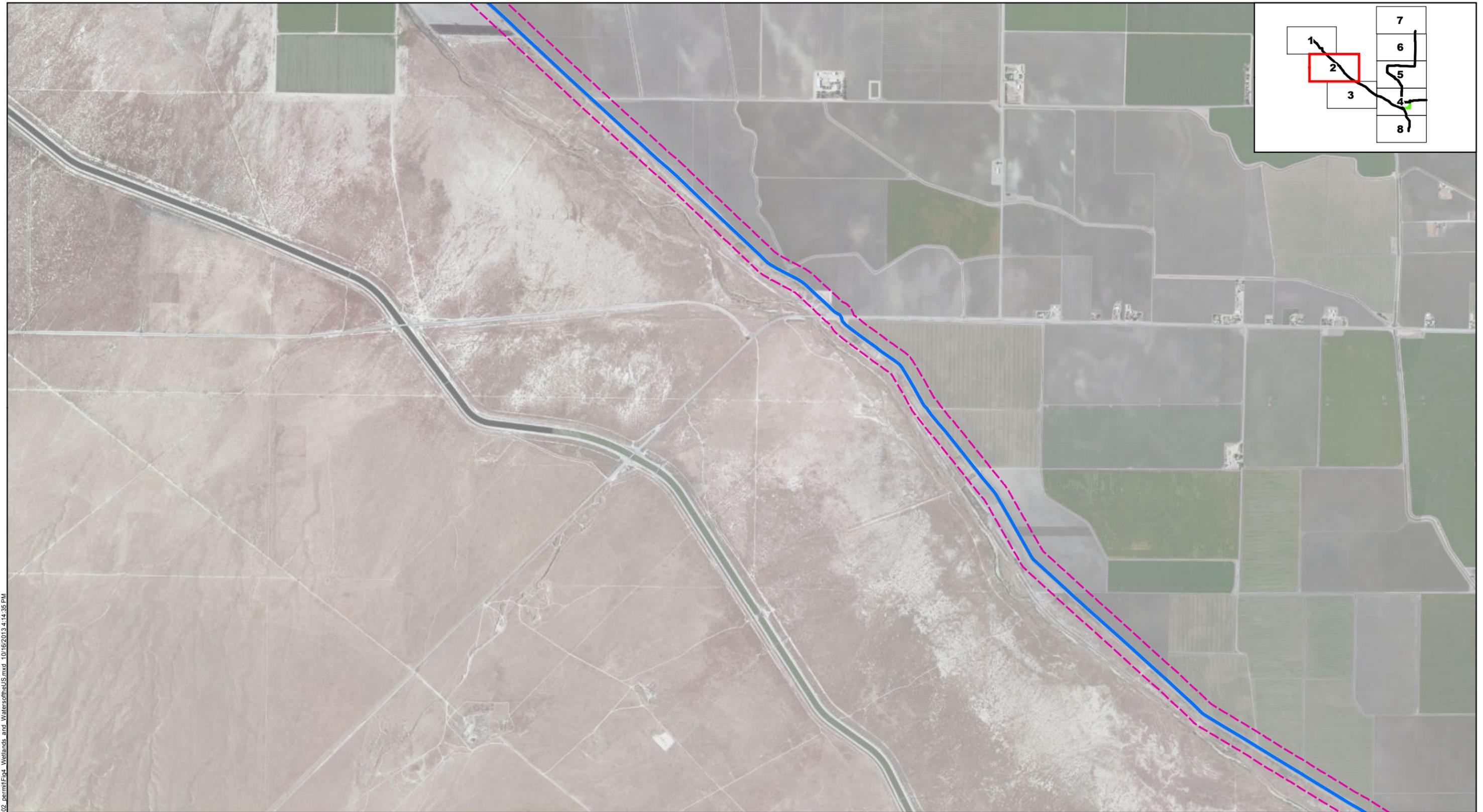
October 2013
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Hydrogen Energy California (HECA)
Kern County, California



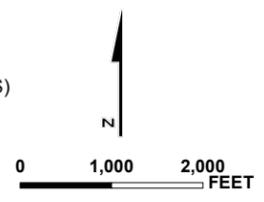
FIGURE 4 - SHEET 1

Source: Aerial Imagery, Bing Maps, 2009.



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- | | | | |
|------------------------------|---|-----------------------|--------------------------------|
| Project Site | 250-foot Buffer from Disturbance Area | Carbon Dioxide Waters | Waters of the State (WS) |
| Construction Staging Area | EOR Processing Facility | Natural Gas | Other waters of the U.S. (WUS) |
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| BVWSD Well Field | EOR Satellite Gathering Station (Conceptual) | Process Water | |
| HDD Entry/Exit Pits | | Railroad | |
| Electrical Switching Station | | Transmission | |



**IMPACTED WATERS OF THE UNITED STATES
AND WATERS OF THE STATE WITHIN CDFW JURISDICTION**

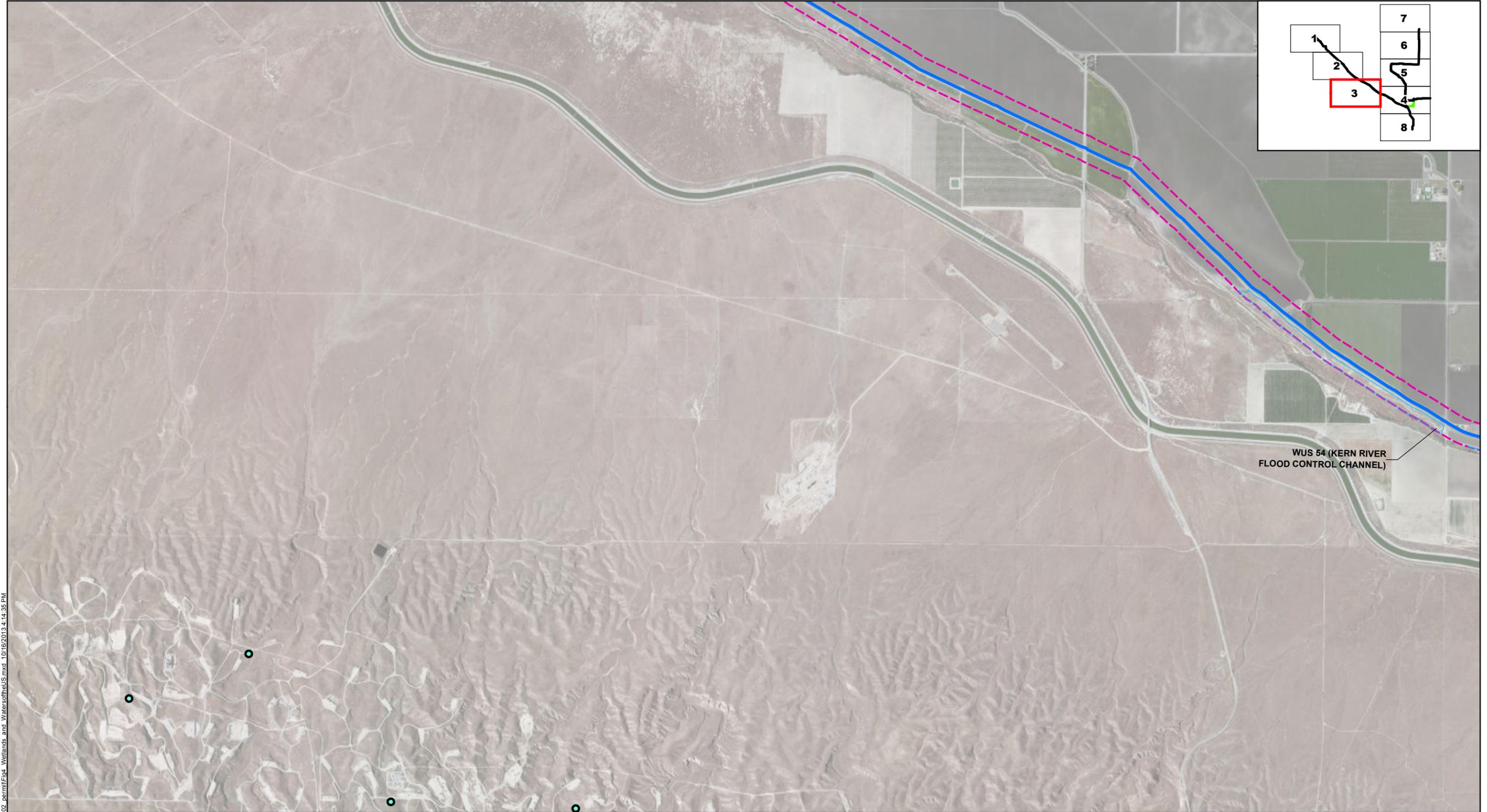
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Hydrogen Energy California (HECA)
Kern County, California



FIGURE 4 - SHEET 2

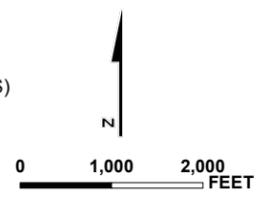
Source: Aerial Imagery, Bing Maps, 2009.



WUS 54 (KERN RIVER FLOOD CONTROL CHANNEL)

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- | | | | |
|------------------------------|---|----------------|--------------------------------|
| Project Site | 250-foot Buffer from Disturbance Area | Carbon Dioxide | Waters |
| Construction Staging Area | EOR Processing Facility | Natural Gas | Waters of the State (WS) |
| Controlled Area | EOR Satellite Gathering Station (Demonstration Phase) | Potable Water | Other waters of the U.S. (WUS) |
| BVWSD Well Field | EOR Satellite Gathering Station (Conceptual) | Process Water | Area Not Surveyed |
| HDD Entry/Exit Pits | | Railroad | |
| Electrical Switching Station | | Transmission | |



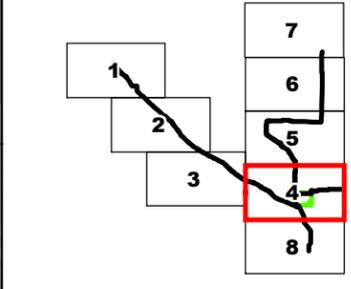
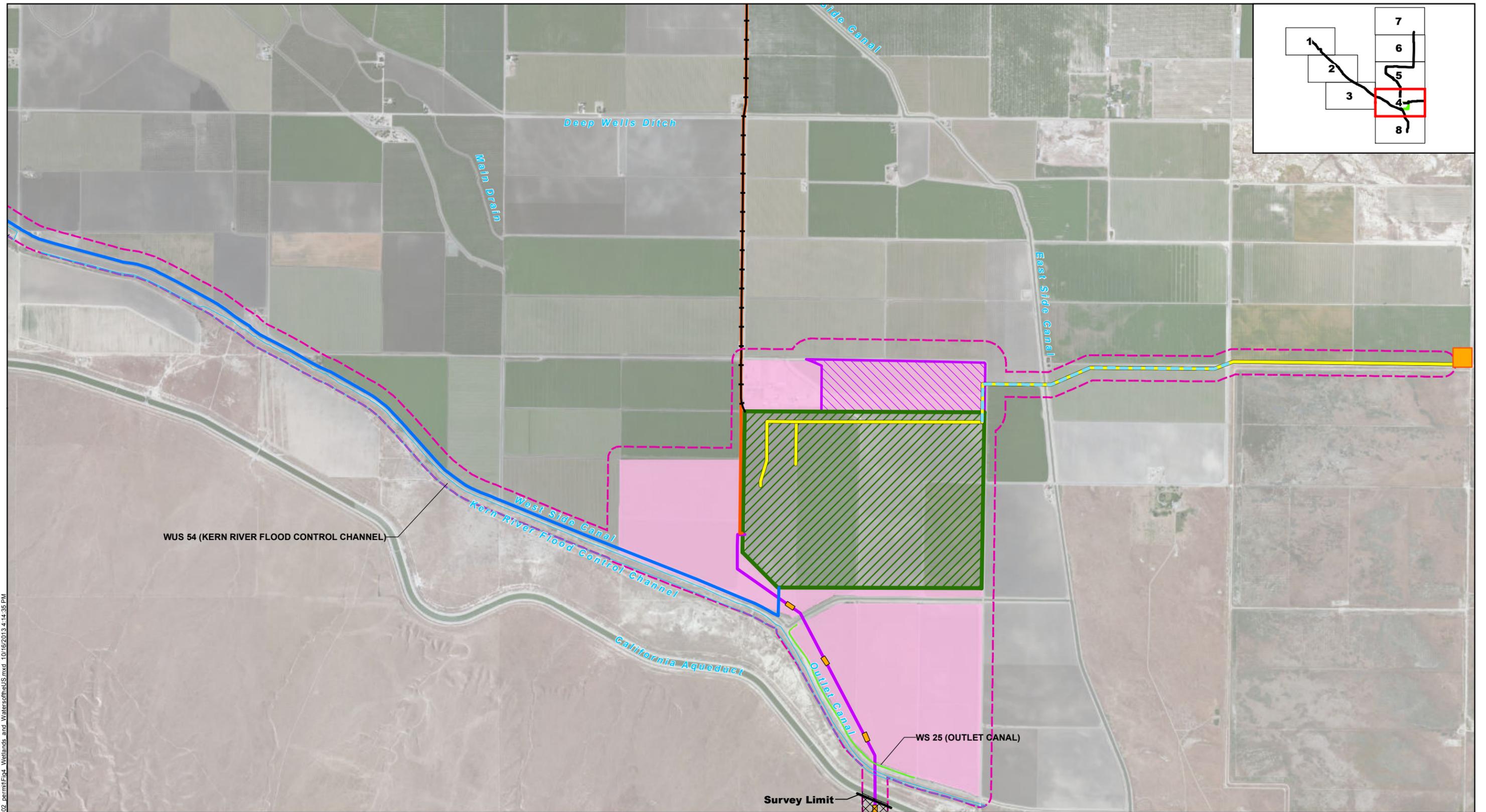
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Hydrogen Energy California (HECA)
Kern County, California



FIGURE 4 - SHEET 3

Source: Aerial Imagery, Bing Maps, 2009.



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Source: Aerial Imagery, Bing Maps, 2009.

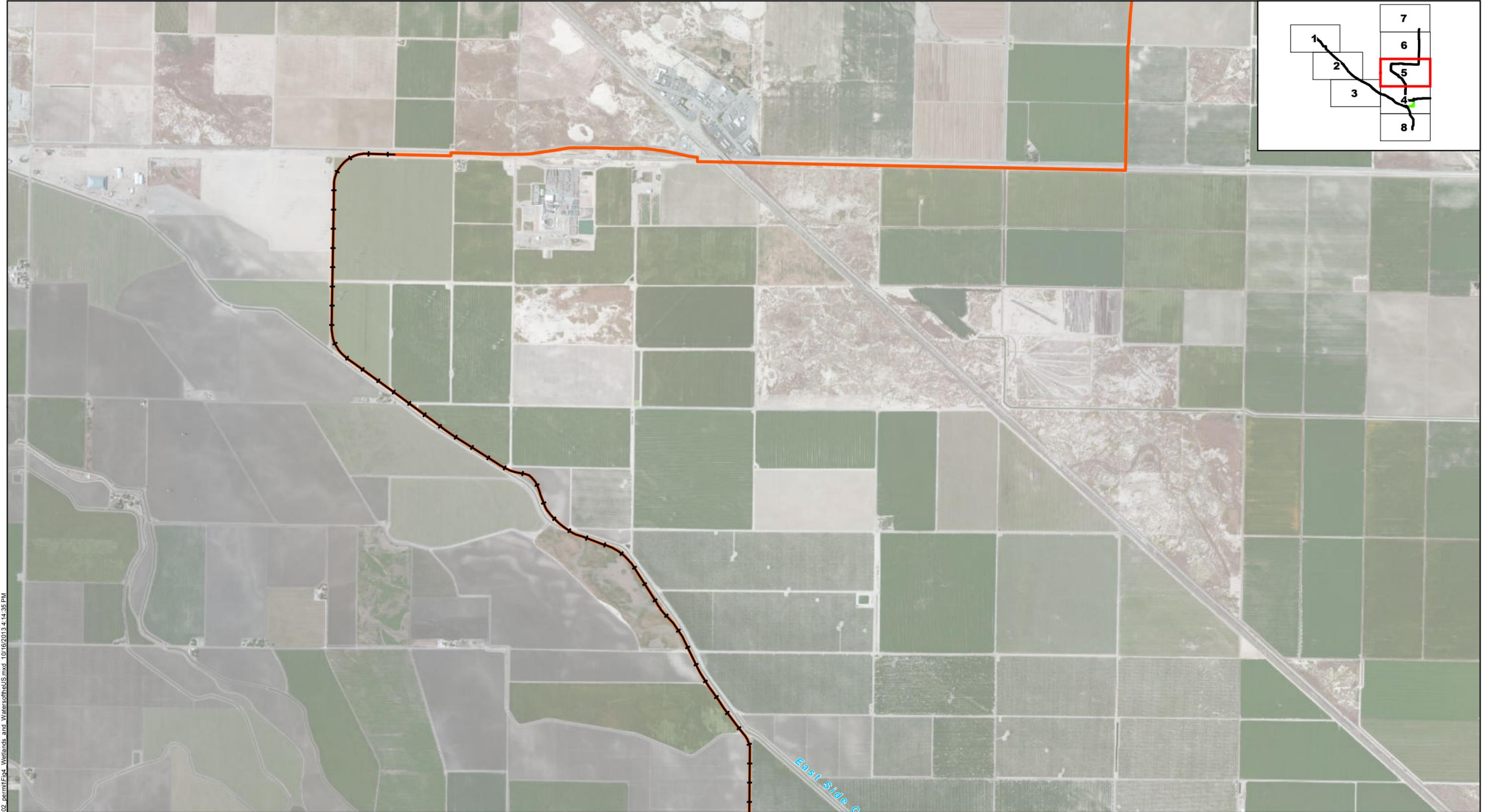
IMPACTED WATERS OF THE UNITED STATES AND WATERS OF THE STATE WITHIN CDFW JURISDICTION

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Hydrogen Energy California (HECA)
Kern County, California

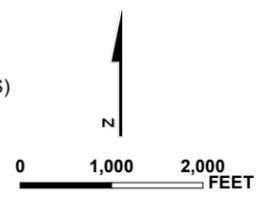


FIGURE 4 - SHEET 4



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- | | | | |
|------------------------------|---|----------------|--------------------------------|
| Project Site | 250-foot Buffer from Disturbance Area | Carbon Dioxide | Waters |
| Construction Staging Area | EOR Processing Facility | Natural Gas | Waters of the State (WS) |
| Controlled Area | EOR Satellite Gathering Station (Demonstration Phase) | Potable Water | Other waters of the U.S. (WUS) |
| BVWSD Well Field | EOR Satellite Gathering Station (Conceptual) | Process Water | Area Not Surveyed |
| HDD Entry/Exit Pits | | Railroad | |
| Electrical Switching Station | | Transmission | |



**IMPACTED WATERS OF THE UNITED STATES
AND WATERS OF THE STATE WITHIN CDFW JURISDICTION**

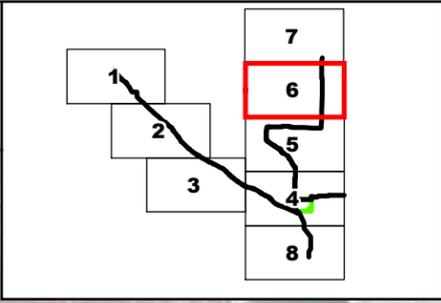
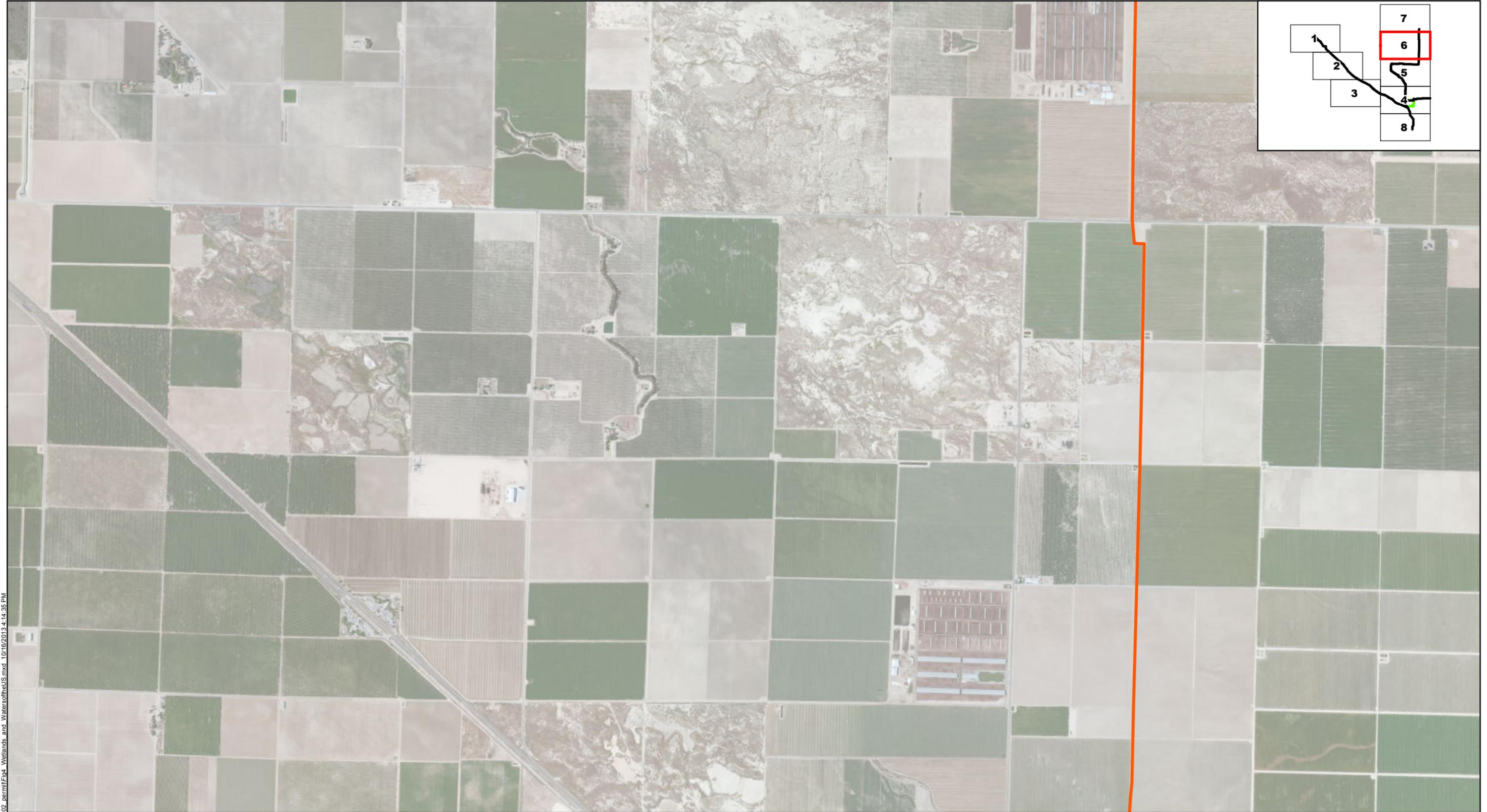
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Hydrogen Energy California (HECA)
Kern County, California



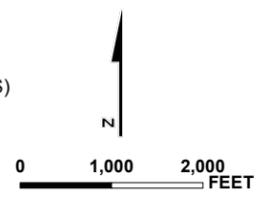
FIGURE 4 - SHEET 5

Source: Aerial Imagery, Bing Maps, 2009.



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|------------------------------|---|-----------------------|--------------------------------|
| Project Site | 250-foot Buffer from Disturbance Area | Carbon Dioxide Waters | Waters of the State (WS) |
| Construction Staging Area | EOR Processing Facility | Natural Gas | Other waters of the U.S. (WUS) |
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| HDD Entry/Exit Pits | | Transmission | |
| Electrical Switching Station | | | |



IMPACTED WATERS OF THE UNITED STATES AND WATERS OF THE STATE WITHIN CDFW JURISDICTION

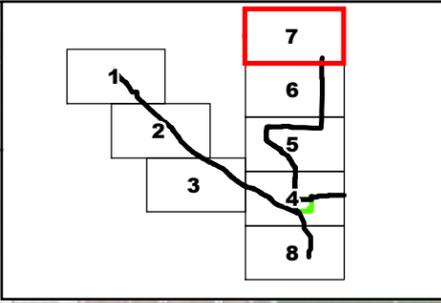
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Hydrogen Energy California (HECA)
Kern County, California



FIGURE 4 - SHEET 6

Source: Aerial Imagery, Bing Maps, 2009.

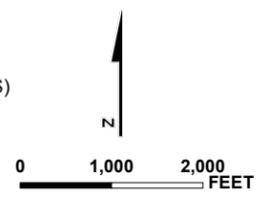


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- Project Site
- Construction Staging Area
- Controlled Area
- BVWSD Well Field
- HDD Entry/Exit Pits
- Electrical Switching Station

- 250-foot Buffer from Disturbance Area
- EOR Processing Facility
- EOR Satellite Gathering Station (Demonstration Phase)
- EOR Satellite Gathering Station (Conceptual)

- Carbon Dioxide
- Natural Gas
- Potable Water
- Process Water
- Railroad
- Transmission
- Waters of the State (WS)
- Other waters of the U.S. (WUS)
- Area Not Surveyed



IMPACTED WATERS OF THE UNITED STATES AND WATERS OF THE STATE WITHIN CDFW JURISDICTION

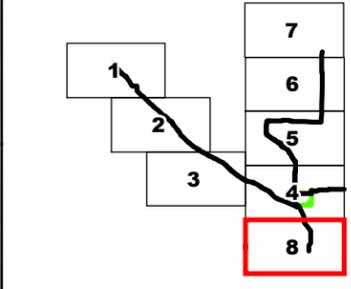
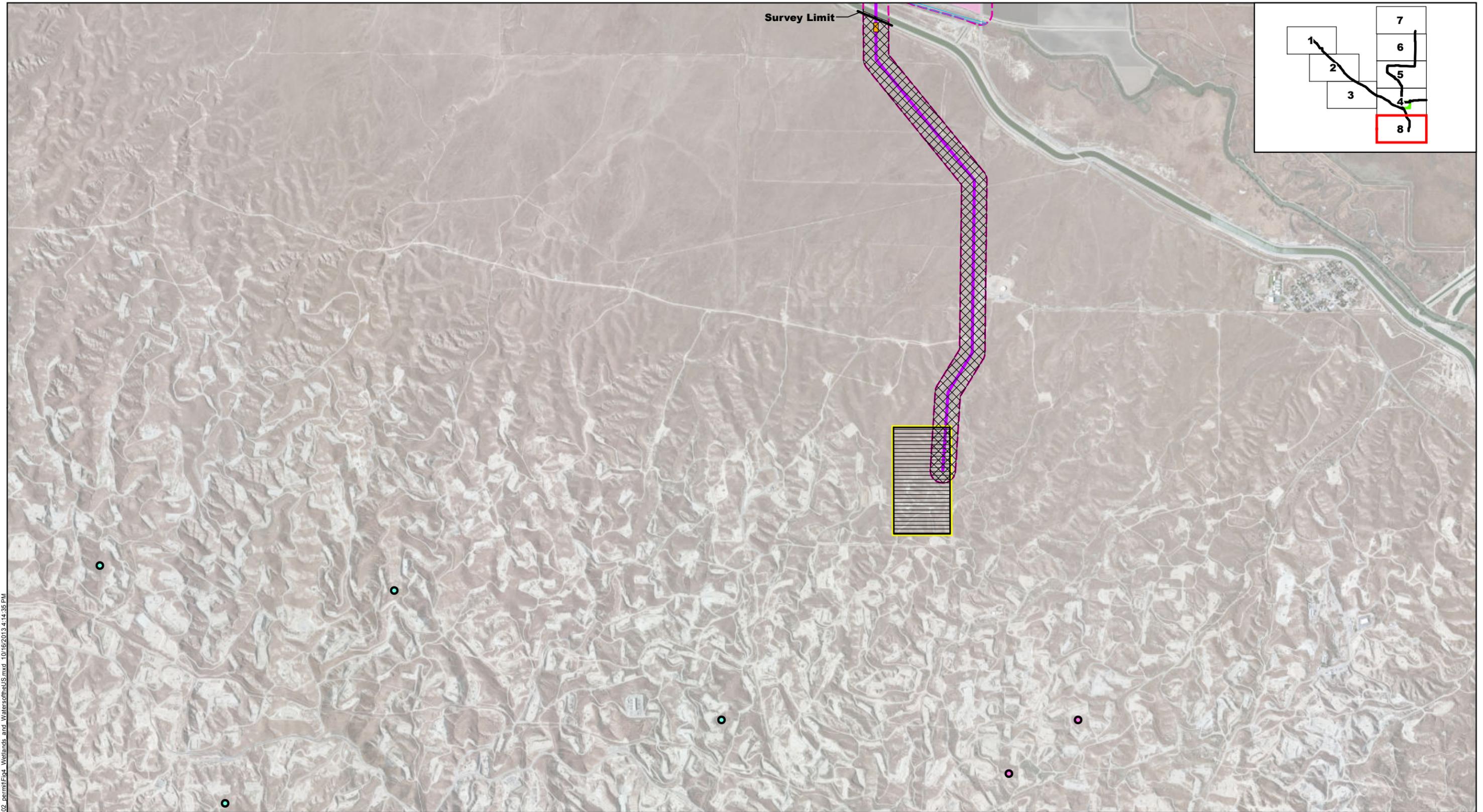
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Kern County, California



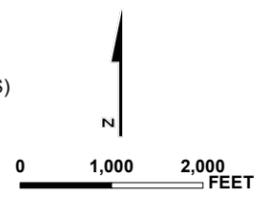
FIGURE 4 - SHEET 7

Source: Aerial Imagery, Bing Maps, 2009.



- Project Site
- Construction Staging Area
- Controlled Area
- BVWSD Well Field
- HDD Entry/Exit Pits
- Electrical Switching Station
- 250-foot Buffer from Disturbance Area
- EOR Processing Facility
- EOR Satellite Gathering Station (Demonstration Phase)
- EOR Satellite Gathering Station (Conceptual)

- Carbon Dioxide
- Natural Gas
- Potable Water
- Process Water
- Railroad
- Transmission
- Waters
- Waters of the State (WS)
- Other waters of the U.S. (WUS)
- Area Not Surveyed



**IMPACTED WATERS OF THE UNITED STATES
AND WATERS OF THE STATE WITHIN CDFW JURISDICTION**

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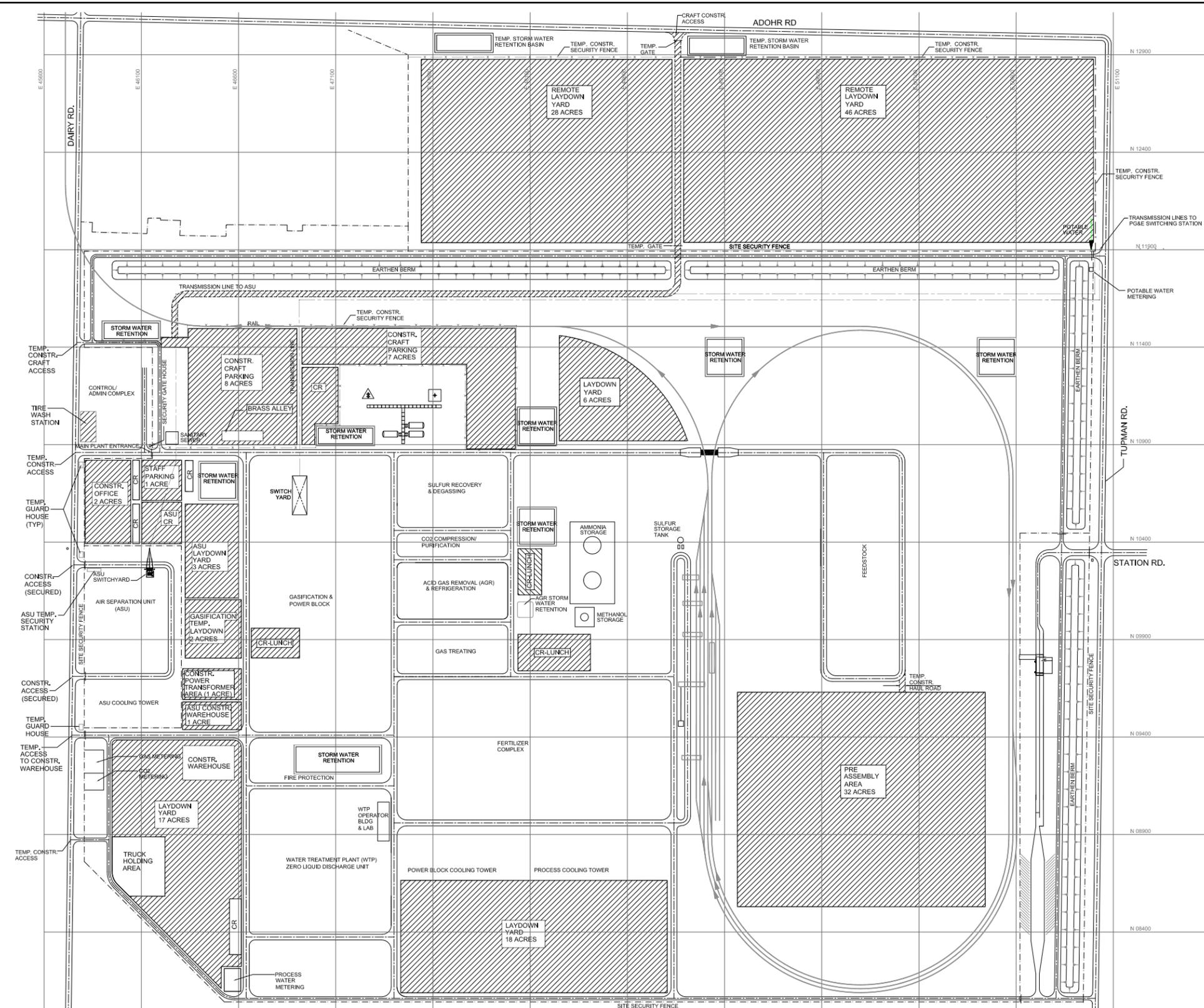
Hydrogen Energy California (HECA)
Kern County, California



FIGURE 4 - SHEET 8

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Source: Aerial Imagery, Bing Maps, 2009.



- LEGEND**
- TEMPORARY FACILITIES AREA
 - TRAFFIC FLOW
 - FENCE
 - TEMPORARY CONSTRUCTION SECURITY FENCE
 - TEMPORARY CONSTRUCTION ROAD
 - CRAFT CHANGING/LUNCH AREA

AREA ACREAGES

453 AC	OVERALL SITE (INSIDE PERIMETER FENCE)
102 AC	INTERIOR TEMP. CONST. FACIL.
91 AC	EXTERIOR TEMP. CONST. FACIL.



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Source:
 Fluor; HECA-SCS, 2012 AFC Update; Preliminary Temporary Construction Facilities Plan;
 Drawing No: A4UV-000-10-SK-0004, Rev. D (4/11/12)