DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
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SACRAMENTO CA 95814-2922

CESPK-RDC-S 24 July 2024

MEMORANDUM FOR RECORD

SUBJECT: US Army Corps of Engineers (Corps) Approved Jurisdictional Determination in accordance with the "Revised Definition of 'Waters of the United States'"; (88 FR 3004 (January 18, 2023) as amended by the "Revised Definition of 'Waters of the United States'; Conforming" (8 September 2023) ,[1] [SPK-2024-00318].

1. BACKGROUND: An Approved Jurisdictional Determination (AJD) is a Corps document stating the presence or absence of waters of the United States on a parcel or a written statement and map identifying the limits of waters of the United States on a parcel. AJDs are clearly designated appealable actions and will include a basis of JD with the document.[2] AJDs are case-specific and are typically made in response to a request. AJDs are valid for a period of five years unless new information warrants revision of the determination before the expiration date or a District Engineer has identified, after public notice and comment, that specific geographic areas with rapidly changing environmental conditions merit re-verification on a more frequent basis.[3]

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

This Memorandum for Record (MFR) constitutes the basis of jurisdiction for a Corps AJD as defined in 33 CFR §331.2. For the purposes of this AJD, we have relied on Section 10 of the Rivers and Harbors Act of 1899 (RHA),[4] the 2023 Rule as amended, as well as other applicable guidance, relevant case law, and longstanding practice in evaluating jurisdiction.

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[1] While the Revised Definition of "Waters of the United States"; Conforming had no effect on some categories of waters covered under the CWA, and no effect on any waters covered under RHA, all categories are included in this Memorandum for Record for efficiency.
[2] 33 CFR 331.2.
[3] Regulatory Guidance Letter 05-02.
[4] USACE has authority under both Section 9 and Section 10 of the Rivers and Harbors Act of 1899 but for convenience, in this MFR, jurisdiction under RHA will be referred to as Section 10.

2. SUMMARY OF CONCLUSIONS:

a. Provide a list of each individual feature within the review area and the jurisdictional status of each one (i.e., identify whether each feature is/is not a water of the United States and/or a navigable water of the United States).

(1) Unnamed Stream (R3): non-jurisdictional under Section 404 of the CWA.

(2) Unnamed Stream (R5): non-jurisdictional under Section 404 of the CWA.

3. REFERENCES:

a. “Revised Definition of ‘Waters of the United States,’” 88 FR 3004 (January 18, 2023) (“2023 Rule”)

b. “Revised Definition of ‘Waters of the United States’; Conforming” 88 FR 61964 (September 8, 2023))

c. *Sackett v. EPA*, 598 U.S. _, 143 S. Ct. 1322 (2023)

4. REVIEW AREA: The approximately 1,112-acre review area, which encompasses a 1,052 acres proposed solar project (“Larrea Solar Project”) and 59 acres Gen-tie Route, is located south of Highway 160. The northeastern section of the review area is accessible from Tecopa Road. The review area centroid is located [redacted] south of the Town of Pahrump, Nye County, Nevada (AJD MFR Enclosures 1 and 2). The Review Area is located within the Mojave Basin and Range Level III Ecoregion of North America. The average annual precipitation amount received, as approximated from a WETS Station 10 miles from the site, is approximately 4.90 inches with 4.60 inches received as rainfall and 0.30 inches received as snow. The vegetation community is predominantly composed of creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*).

5. NEAREST TRADITIONAL NAVIGABLE WATER (TNW), THE TERRITORIAL SEAS, OR INTERSTATE WATER TO WHICH THE AQUATIC RESOURCE IS CONNECTED: The nearest TNW’s are the Colorado River, 56.5 miles straight-line distance to the east, and Owens Lake, 117 miles straight-line distance to the west of the review area,

approximated using the Corps Navigable Waters layer in Google Earth. The aquatic resources within the review area have no downstream connection.[5]

6. FLOWPATH FROM THE SUBJECT AQUATIC RESOURCES TO A TNW, THE TERRITORIAL SEAS, OR INTERSTATE WATER: From headwaters upstream of the review area, the second order Unnamed Stream (R3) under review then flows through a series of third and fourth order streams before the flowpath terminates in a dry lakebed within the Nopah Range Wilderness Area. The second order, Unnamed Stream (R5), appears to terminate distinct flowpath at or before the southwestern project area boundary.

7. SECTION 10 JURISDICTIONAL WATERS[6]: Describe aquatic resources or other features within the review area determined to be jurisdictional in accordance with Section 10 of the Rivers and Harbors Act of 1899. Include the size of each aquatic resource or other feature within the review area and how it was determined to be jurisdictional in accordance with Section 10.[7] N/A.

8. SECTION 404 JURISDICTIONAL WATERS: Describe the aquatic resources within the review area that were found to meet the definition of waters of the United States in accordance with the 2023 Rule as amended, consistent with the Supreme Court's decision in *Sackett*. List each aquatic resource separately, by name, consistent with the naming convention used in section 1, above. Include a rationale for each aquatic resource, supporting that the aquatic resource meets the relevant category of "waters of the United States" in the 2023 Rule as amended. The rationale should also include a written description of, or reference to a map in the administrative record that shows, the lateral limits of jurisdiction for each aquatic resource, including how that limit was determined, and incorporate relevant references used. Include the size of each aquatic resource in acres or linear feet and attach and reference related figures as needed.

a. Traditional Navigable Waters (TNWs) (a)(1)(i): N/A.

[5] This MFR should not be used to complete a new stand-alone TNW determination. A stand-alone TNW determination for a water that is not subject to Section 9 or 10 of the Rivers and Harbors Act of 1899 (RHA) is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where upstream or downstream limits or lake borders are established.
[6] 33 CFR 329.9(a) A waterbody which was navigable in its natural or improved state, or which was susceptible of reasonable improvement (as discussed in § 329.8(b) of this part) retains its character as "navigable in law" even though it is not presently used for commerce, or is presently incapable of such use because of changed conditions or the presence of obstructions.
[7] This MFR is not to be used to make a report of findings to support a determination that the water is a navigable water of the United States. The district must follow the procedures outlined in 33 CFR part 329.14 to make a determination that water is a navigable water of the United States subject to Section 10 of the RHA.

b. The Territorial Seas (a)(1)(ii): N/A.

c. Interstate Waters (a)(1)(iii): N/A.

d. Impoundments (a)(2): N/A.

e. Tributaries (a)(3): N/A.

f. Adjacent Wetlands (a)(4): N/A.

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

9. NON-JURISDICTIONAL AQUATIC RESOURCES AND FEATURES:

a. Describe aquatic resources and other features within the review area identified in the 2023 Rule as amended as not “waters of the United States” even where they otherwise meet the terms of paragraphs (a)(2) through (5). Include the type of excluded aquatic resource or feature, the size of the aquatic resource or feature within the review area and describe how it was determined to meet one of the exclusions listed in 33 CFR 328.3(b).[8] N/A

b. Describe aquatic resources and features within the review area that were determined to be non-jurisdictional because they do not meet one or more categories of waters of the United States under the 2023 Rule as amended (e.g., tributaries that are non-relatively permanent waters; non-tidal wetlands that do not have a continuous surface connection to a jurisdictional water). The Unnamed Streams are features that do not meet the relatively permanent standard as (a)(3) tributaries. The flow regime of these features is characterized as ephemeral, due to their flow being derived from direct precipitation and associated stormwater runoff. The Unnamed Stream (R3) feature totals 1.682 acres (5,859.85 linear feet; average width 12.5 feet)) and the Unnamed Stream (R5) feature totals 0.837-acre (12,153.47 linear feet; average width 3.0 feet).

10. DATA SOURCES: List sources of data/information used in making determination. Include titles and dates of sources used and ensure that information referenced is available in the administrative record.

a. Desk evaluation was conducted through June and July 2024.

[8] 88 FR 3004 (January 18, 2023)

b. Maps, plans, plots or plat submitted by or on behalf of the applicant- Aquatic Resources Delineation Report Larrea Solar Project Clark County, Nevada [redacted] dated April 2024 (Updated June 2024; Encl. 1).

c. USACE National Regulatory Viewer 3DEP DEM LiDAR Layer- Accessed July 16, 2024 (Encl. 3).

d. USACE ERDC Antecedent Precipitation Tool- Retrieved July 9, 2024 (Encl. 4).

e. USACE Google Earth Layers- Accessed July 12, 2024 (Encl. 5).

f. USGS National Map Viewer National Hydrography Dataset and Flow Path Layers-Accessed July 3 and 12, 2024 (Encl. 6).

g. National Wetlands Inventory (Enc. 7)

e. Digital Globe Aerial Photographs, Archive Dated November 20, 2011, and June 29, 2017 (Encl. 8).

11. OTHER SUPPORTING INFORMATION: Aquatic Resources Delineation Report Larrea Solar Project Lark County, Nevada [redacted] dated April 2024 (Updated June 2024; Encl. 1). Map identifying stream channels generated by USACE in ArcGIS Pro (Encl. 2).

12. NOTE: The structure and format of this MFR were developed in coordination with the EPA and Department of the Army. The MFR's structure and format may be subject to future modification or may be rescinded as needed to implement additional guidance from the agencies; however, the approved jurisdictional determination described herein is a final agency action.

[redacted]

7 Encls
Enclosure 1 ARD
Enclosure 2 Streams Map
Enclosure 3 National Regulatory Viewer
Enclosure 4 Antecedent Precipitation Tool Reports
Enclosure 5 USACE Google Earth
Enclosure 6USGS National Map
Enclosure 7 National Wetlands Inventory
Enclosure 8 Digital Globe Imagery

Aquatic Resources Delineation Report
Larrea Solar Project
Clark County, Nevada

Prepared for

[redacted]

Prepared by

[redacted]

April 2024 (Updated June 2024)

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[redacted]

EXECUTIVE SUMMARY

At the request of [redacted] conducted an Aquatic Resources Delineation (ARD) within the Larrea Solar Project Development area [redacted] (ARD "Review Area"). The purpose of this ARD is to provide technical information for the Corps to determine if the aquatic resources delineated within the Review Area are potentially subject to: (1) US Army Corps of Engineers (Corps) and US Environmental Protection Agency (US EPA) jurisdiction under Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344) based on consistency with the August 29, 2023 WOTUS Rule, and (2) Corps jurisdiction under the Rivers and Harbors Act of 1899 (RHA) (33 U.S.C. Sec. 401 et seq.).

Data collection, analysis, identification, and delineation of aquatic resources potentially subject to CWA was conducted consistent with the August 29, 2023 WOTUS Rule and supporting Corps and US EPA guidance document including the *Corps' 1987 Wetlands Delineation Manual* (Corps Delineation Manual), the *Corps' 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (Regional Supplement), and the *OHWM Field Guide* (Lichvar and McColley 2008), and the *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams: Interim Version* (Gabrielle, et al., 2022) and the *2021 User Manual for a Beta Streamflow Duration Assessment Method for the Arid West of the United States. Version 1.0* (SDAM) (Mazor, R.D., et al. 2021).

Aquatic resources in the form of streams with an OHWM were found within the Review Area. No wetlands were found within the Review Area. Appendix A, Figure 6a Overview Map, and Figure 6b Mapbook show the aquatic resources identified and delineated which are potentially subject to Corps and USEPA Section 404 CWA jurisdiction. Through onsite observation and SDAM analysis, the streams with OHWMs are determined to have ephemeral flow. This report, originally published in April 2024, has been updated to include the Corps' official OHWM data sheets (Appendix E).

Based on a review of the August 29, 2023 WOTUS Rule, these streams/tributaries would not be subject to Corps/USEPA CWA Section 404 jurisdiction because they only flow during, and briefly following, precipitation events that generate stormwater runoff and therefore do not have a relatively permanent, standing or continuous flow.

No RHA Section 10 navigable waters were found within the Review area that are designated on the Corps' list as presently used, or have been used in the past, or might be susceptible for use to transport interstate or foreign commerce as Navigable Waters.

1.0 INTRODUCTION

1.1 Background

At the request of [redacted] (Applicant), [redacted] conducted an Aquatic Resources Delineation (ARD) within the Larrea Solar Project Development area in [redacted] (ARD "Review Area"). The purpose of this ARD is to provide technical information for the Corps to determine if the aquatic resources delineated within the Review Area are potentially subject to: (1) US Army Corps of Engineers (Corps) and US Environmental Protection Agency (US EPA) jurisdiction under Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344) based on consistency with the August 29, 2023 WOTUS Rule, and (2) Corps jurisdiction under the Rivers and Harbors Act of 1899 (RHA) (33 U.S.C. Sec. 401 et seq.). This report, originally published in April 2024, has been updated to include the Corps' official OHWM data sheets (Appendix E).

1.2 Review Area Location

The center point of the approximately 1,112.20-acre Review Area (Larrea Solar Project layout = 1,052.60 acres; Gen-tie Route = 59.60 acres). The Review Area for the ARD is south of Highway 160 (Appendix A, Figures 1 - 3). [redacted]

1.3 Directions to the Review Area

See Appendix B for driving directions.

1.4 Contact Information

Applicant	Wetland Consultants
[redacted]	[redacted]

1.5 Environmental Setting

This section presents background environmental information on the Review Area from published sources, which is augmented with observations made during the initial site reconnaissance.

1.5.1 Land Use

The Review Area consists of undeveloped lands (Appendix A, Figure 3).

1.5.2 Topography

[redacted] The landscape consists of a long alluvial fan with fan remnants and inset fans with slopes ranging from 0 to 15 percent (NRCS 2022). Elevation within the area of study ranges from approximately 2,750 to 3,000 feet MSL[1].

1.5.3 Geology

The Review Area consists of a mosaic of fan remnants, alluvial flats, fan skirts, lakebeds (relict), and lake terraces composed of alluvium derived from limestone and dolomite, mixed alluvium derived from limestone and sandstone, lacustrine deposits, residuum from lacustrine deposits derived from limestone, and mixed alluvium over lacustrine deposits (NRCS 2023).

1.5.4 Vegetation

The Review Area is located within the Mojave Basin and Range Level III Ecoregion of North America (https://www.epa.gov/eco-research/ecoregions-north-america). Sparse desert vegetation, predominantly creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*) dominate. Associated species include fourwing saltbrush (*Atriplex canescens*), desert holly (*Atriplex hymenelytra*), brittlebrush (*Encelia farinosa*), Mormon tea (*Ephedra nevadensis*), wolfberry (*Lycium andersonii*), beavertail pricklypear (*Opuntia basilaris*), desert trumpet (*Eriogonum inflatum*), and wooly grass (*Dasyochloa pulchella*).

1.5.5 Soils

Soil survey information for the Review Area was obtained from the National Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2022) (Appendix C). Four (4) different soil types (Commski-Oldspan-Lastchance association; Pahrump-Wodavar-Vegastorm association; Corncreek-Badland-Pahrump association; and Tanazza-Wechech-Wodavar association) are mapped by NRCS within the Review Area as described in Appendix C, Table 1. The table summarizes the soil units and soil associations, together with their physical and hydrologic characteristics that were identified as being present based on a *Natural Resources Conservation Service Custom Soil Resources Report* prepared for the Review Area.

1.5.6 Climate.

Based on WETS Station [redacted] precipitation and temperature data for the period of record (1971 – 2022), the average annual precipitation amount received approximately 10 miles from the site is approximately 4.90 inches with 4.60 inches received as rainfall and 0.30 inch received as snow. The average maximum and minimum precipitation range is between 0.79 and 0.06 inches. The wettest months, in which average monthly rainfall exceeds 0.5 inches, are January, February, March, and December (0.68, 0.79, 0.63, and 0.55 inches) with the lowest average amount occurring in June (0.06 inches). Record data also indicates that the annual average daily temperature is 62.6° F. Average high and low temperatures range between 78.8° F and 46.4° F with the coldest months typically including January, February, and December where temperatures are in the low to mid-40s and the hottest months being July and August where temperatures are in the low 80s. The annual growing season with a 50% probability of having days above 32° F is 219 days (March 29 to November 3), and, with a 70% probability of having days above 32° F, is 235 days (March 21 to November 11) (Appendix D).

[1] MSL = Mean Sea Level.

1.5.7 Hydrology

Watersheds. Review of the US Geological Survey (USGS) National Hydrography Dataset (NHD) Hydrologic Unit Code (HUC) data show that the Review Area lies within the 8-digit HUC (16060015) “Ivanpah-Pahrump Valleys” subbasin, and 12-digit HUC (160600150504) “Trout Canyon-Frontal Pahrump Valley” and (160600150404) “Stump Spring-Calvada Springs” subwatersheds.

Direction of Surface Water Flow. Surface water which flows within the Review Area is the direct result of precipitation and associated stormwater runoff. The remaining surface water flows within the Review Area are directed southwest by a stream-tributary system continuing largely uninterrupted across the Nevada-California border (Appendix F).

1.5.8 FEMA Flood Zone

FEMA Flood Insurance Rate Maps for “Clark County” 32003C2450E (Effective Date: 09/27/2002) and 32003C2800E (Effective Date: 09/27/2002) indicate the Review Area is not within FEMA zoning associated with an annual chance flood hazard (Appendix A, Figure 4).

1.5.9 Aquatic Resources

National Wetlands Inventory. Appendix A, Figure 5a, U.S. Fish and Wildlife Service National Wetlands Inventory Mapping, shows Palustrine, Scrub-Shrub, temporarily Flooded (PSSA); Palustrine, Unconsolidated Bottom, semi-permanently flooded (PUBF); Riverine, Streambed, Intermittent, seasonally flooded (R4SBC); and Riverine, Streambed, Intermittent, Intermittently Flooded (R4SBJ) wetlands within the Review Area.

1.6 Disclaimer

[redacted] on behalf of the Applicant, has made a good-faith effort herein to thoroughly describe and document the presence of potential factors that the Corps may consider in asserting jurisdiction pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Nevertheless, the Applicant reserves the right to challenge or seek revision to any areas over which the Corps may assert such jurisdiction, should such jurisdiction be further clarified or altered through formal guidance, assertions, or disclaimers of jurisdiction over other properties, court decisions, or other relevant actions.

2.0 DELINEATION METHODS

2.1 Overview

[redacted] investigation focused on the identification and delineation of aquatic resource areas which potentially meet:

1. the definition of Waters of the US (33 CFR 328.3 (a)(1)-(5)) as wetlands or in the absence of wetlands have an Ordinary High Water Mark (OHWM).

2. the definition of Navigable Waters (33 CFR 329.4) by having an OHWM or Mean High Tide Line.

2.2 Preparation

In preparation for detailed field investigations, HBG identified existing landforms within the Review Area that would likely contain aquatic resources which may potentially meet the definition of WOTUS (wetlands and non-wetlands) and/or Navigable Waters by reviewing available on-line information sources to include: Google Earth Pro and ESRI most current and historical aerial photography and imagery; USGS National Hydrography Dataset watershed mapping; FEMA mapping; National Wetlands Inventory mapping; a NRCS Custom Soil Resources Report; and most current and historical USGS topographic mapping. Review Area specific LIDAR topographic mapping was also reviewed.

2.3 Field Investigations

HBG conducted field investigations on April 19 - 21, 2023 to:

1. Determine the presence or absence of hydrophytic vegetation, hydric soil, and wetland hydrology indicators and document the indicators observed and their location.

2. Determine if the wetland field indicators observed may be “significantly disturbed” or “naturally problematic.”

3. Determine within any drainage and depressional area found if a high water mark is present and document the type of water mark indicators observed and location.

2.3.1 CWA Wetlands Definition and Delineation Methodology

Wetlands are defined at 33 CFR § 328.3 (c)(1) as:

The term *wetlands* means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

The methodology described in the Corps’ Delineation Manual, Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (Regional Supplement), was followed to determine the presence or absence of vegetation, soil, and hydrology indicators. If there was uncertainty regarding application of the delineation methodology or interpretation of field data, the Corps' 1987 Delineation Manual was referred to.

Vegetation, soil, and hydrology observations were made at sampling locations determined to be representative of landform areas where the soils may potentially flood, pond, and/or saturate. Vegetation was sampled first. Soil, vegetation, and hydrology observations were recorded on Corps data forms (*Wetland Determination Data Form – Arid West Region*; Version 2.0) (Appendix E). Sample point locations were documented as polygonal and point features, respectfully using ESRI Apps (Field Maps) in conjunction with a Trimble DA2 Global Positioning System (GPS) receiver with sub-meter accuracy after geo-processing. The data collected was incorporated into the Project database using GIS software.

2.3.2 CWA OTHER WATERS DEFINITION AND DELINEATION METHODOLOGY

Other types of CWA WOTUS aquatic resources that are not wetlands as defined at 33 CFR § 328.3 (a) have the following limits of jurisdiction as:

(a) Territorial Seas. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles. (See 33 CFR § 329.12)
(b) Tidal waters of the United States. The landward limits of jurisdiction in tidal waters:
  (1) Extends to the high tide line, or
  (2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in paragraph (c) of this section.
(c) Non-tidal waters of the United States. The limits of jurisdiction in non-tidal waters:
  (1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or
  (2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.

  (3) When the water of the United States consists only of wetlands the jurisdiction extends to the limit of the wetland.

The meaning of adjacent, high tide line, ordinary high water mark, and tidal waters as described above are defined by 33 CFR § 328.3 (c) follows:

> *Adjacent* means having a continuous surface connection. 33 CFR § 328.3 (c)(2)
>
> *High tide line* means the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm. 33 CFR§ 328.3 (c)(3)

> *Ordinary high water mark* means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. 33 CFR§ 328.3 (c)(4)
>
> *Tidal waters* means those waters that rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by hydrologic, wind, or other effects. 33 CFR§ 328.3 (c)(5)

Field observations of physical features such as those described above which are indicative of a WOTUS Ordinary High Water (OHW) were recorded, if present, on the Corps' *Interim Draft Rapid Ordinary High Water Mark (OHWM) Field Identification Data Sheet* (ENG Form 6250, Dec 2022). The methodology used to identify and define an OHWM, if present, was based on the OHWM Field Guide (Lichvar and McColley 2008) and the *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams: Interim Version* (Gabrielle, et al., 2022). Given the Review Area is an inland desert, no observations were made to determine the presence/absence of indicators of an HTL. If present, OHWM sample point locations were documented as point features, respectfully using ESRI Apps (Field Maps) in conjunction with a Trimble DA2 Global Positioning System (GPS) receiver with sub-meter accuracy after geo-processing. The data collected was incorporated into the Project database using GIS software.

A determination of whether the annual flow regime observed is representative of a "Relatively permanent, standing or continuously flowing body of water" (August 29, 2023 WOTUS definition) was made within representative active streams following the methodology provided by the *2021 User Manuel for a Beta Streamflow Duration Assessment Method for the Arid West of the United States. Version 1.0 (*SDAM) (Mazor, R.D., et al. 2021) (Appendix E).

2.3.3 RHA NAVIGABLE WATERS DEFINITION AND DELINEATION METHODOLOGY

Navigable Waters as defined at 33 CFR § 329.4 have the following limits of jurisdiction as:

Non-Tidal Waters

> …. 1. The "ordinary high water mark" on non-tidal rivers is the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding areas. 33 CFR § 329.11 (Geographic and Jurisdictional Limits of Rivers and Lakes)…

Corps wetland determination data forms were used to record field observations of physical features indicative of ordinary high water marks (Wetland Determination Data Form – Arid West Region; Version 2.0) (Appendix E).

Navigable Water such as those described above which indicate the presence of a non-tidal Ordinary High Water (OHW) were recorded, if present, on Corps' *Interim Draft Rapid Ordinary High Water Mark (OHWM) Field Identification Data Sheet (ENG Form 6250, Dec 2022)*. OHWM sample point locations were documented as point features using ESRI Apps (Field Maps) in conjunction with a Trimble DA2 Global Positioning System (GPS) receiver with sub-meter accuracy after geo-processing. The data collected was incorporated into the Project database using GIS software.

A determination of whether the annual flow regime under normally hydrology conditions is representative of a "Relatively permanent, standing or continuously flowing body of water" (August 29, 2023 WOTUS definition) was made within each depressional area (ditches and streams) following the methodology provided by the *2021 User Manual for a Beta Streamflow Duration Assessment Method for the Arid West of the United States. Version 1.0 (*SDAM) (Mazor, R.D., et al. 2021).

2.4 Rainfall Analysis

The Corps' Antecedent Precipitation Tool (APT) was used to assess precipitation conditions within the Review Area 90 days prior to field investigations. The rainfall analysis followed the latest Corps guidance. The purpose of the antecedent precipitation analysis was to aid in: (1) determining if the climatic/hydrologic conditions observed on the site are typical for the time of year in which field investigations were conducted (e.g., rainy season versus dry season); and (2) establishing whether observations made of surface and near-surface hydrology indicators or the lack thereof are the result of naturally problematic hydrology conditions (e.g., drought year, extreme precipitation/stormwater runoff event) preceding the field investigations. The APT assesses the presence of drought conditions and facilitates the comparison of recent rainfall conditions for a given location to the range of normal rainfall conditions that occurred during the preceding 30 years.

2.5 Mapping

2.5.1 CWA Wetland and Other Waters Observations

The GPS data collected during field sampling were incorporated into an HBG Project database using Geographic Information System (GIS) software and were geo-referenced in overlay fashion onto a digital topographic base map (LIDAR) and an orthorectified digital aerial photograph following national mapping standards. Data overlays of indicator observations were mapped to assist in the analysis to determine if areas meet the Corps' WOTUS definition. The geographic extent of areas identified as being potential wetlands or other waters were mapped and classified to the class level using the US Fish and Wildlife Service's Classification System for Wetland and Deepwater Habitats (Cowardin et al. 1979).

2.5.2 RHA Navigable Waters Observations

The GPS data collected during field sampling were incorporated into an HBG Project database using Geographic Information System (GIS) software and were geo-referenced in overlay fashion onto a digital topographic base map (LIDAR) and an orthorectified digital aerial photograph following national mapping standards. Data overlays of indicator observations were mapped to assist in the analysis to determine if areas meet the Corps' Navigable Waters definition. The geographic extent of areas identified as being potential Navigable Waters were mapped and classified to the class level using the

US Fish and Wildlife Service's Classification System for Wetland and Deepwater Habitats (Cowardin et al. 1979).

3.0 TECHNICAL FINDINGS

Section 3.1 provides the technical findings regarding an analysis of whether climatic/hydrologic conditions within the Review Area are typical for the time of year in which field studies were conducted. Section 3.2 provides the results of an analysis to determine if normal circumstances occur in the Review Area. Section 3.3 provides technical findings regarding the collective presence or absence of a dominance of wetland hydrophytic vegetation, hydric soil, and wetland hydrology indicators observed in potential aquatic resource landforms within the Review Area. Section 3.4 describes technical findings regarding the presence of an Ordinary High Water Mark (OHWM) observed in potential aquatic resource landforms within the Review Area.

3.1. Precipitation Analysis

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions (Appendix D).

3.2 Normal Circumstances Analysis

An analysis was conducted to determine if “Normal Circumstances” are present in the Review Area. The following information was considered during the analysis:

The Corps’ Delineation Manual interprets "normal circumstances" as:

> …. the soil and hydrologic conditions that are normally present, without regard to whether the vegetation has been removed [7 CFR 12.31(b)(2)(i)] [Manual page 71].

The expired Corps Regulatory Guidance Letter (RGL 90-07) states:

> …. 4. The primary consideration in determining whether a disturbed area qualifies as a Section 404 wetland under "normal circumstances" involves an evaluation of the extent and relative permanence of the physical alteration of wetlands hydrology and hydro-phytic vegetation. In addition, consideration is given to the purpose and cause of the physical alterations to hydrology and vegetation. For example, we have always maintained that areas where individuals have destroyed hydrophytic vegetation in an attempt to eliminate the regulatory requirements of Section 404 remain part of the overall aquatic system and are subject to regulation under Section 404. In such a case, where the Corps can determine or reasonably infer that the purpose of the physical disturbance to hydrophytic vegetation was to avoid regulation, the Corps will continue to assert Section 404 jurisdictions. …..

Detailed review of Google Earth Pro aerial photography and imagery from December 1985 to January 2022 shows that land use in the Review Area consists of undeveloped lands.

Based on consideration of the above, normal circumstances are determined to be present given the long-standing nature of the land use.

3.3 Wetland Aquatic Resources

3.3.1 Field Indicators of Wetland Vegetation

<u>Significantly Disturbed Hydrophytic Vegetation Analysis and Determination:</u> Detailed review of Google

Earth Pro aerial imagery of the Review Area and onsite inspection (see Appendix G) indicated vegetation conditions are not significantly disturbed[2].

Naturally Problematic Hydrophytic Vegetation Analysis and Determination: Vegetation was determined not to be naturally problematic.[3]

Presence of Hydrophytic Vegetation Indicators. No dominant hydrophytic vegetation was found. Areas adjacent to stream channels were dominated by patches of the following upland species: creosote bush (*Larrea tridentata*), white bursage (*Ambrosia Dumosa*), brittlebrush (*Encelia farinosa*), and Mormon tea (*Ephedra nevadensis*). The facultative species red fescue (*Festuca rubra*) was occasionally present[4].

3.3.2 Field Indicators of Hydric Soils

Significantly Disturbed Soil Analysis and Determination. A detailed review of Google Earth Pro aerial photography and imagery of the Review Area and onsite inspection (see Appendix G) indicated soil conditions are not significantly disturbed.

Naturally Problematic Soil Analysis and Determination. The NRCS Custom Soil Resources Report in Appendix C provides detailed soil mapping and descriptions for the Review Area. Onsite examination of soils found that the NRCS soil mapping provided in the report is relatively accurate and the soils examined were determined not naturally problematic.

Presence of Hydric Soil Indicators. Hydric soil indicators were not found.

3.3.3 Field Indicators of Wetland Hydrology

Significantly Disturbed Hydrology Analysis and Determination. A detailed review of Google Earth Pro aerial photography and imagery of the Review Area and onsite inspection (see Appendix G) indicated soil conditions are not significantly disturbed.

Naturally Problematic Hydrology Analysis and Determination. Based on a review of November 2023 aerial imagery (Appendix A, Figure 3) and onsite APT analysis data (Appendix D), field indicators of wetland hydrology conditions were determined to not be naturally problematic. Based on the APT analysis, wetter than normal precipitation conditions occurred within the Review Area before site investigations.

Presence of Wetland Hydrology Indicators. Wetland hydrology indicators (B1 – Water Marks; B2 - Sediment Deposits; B3 – Drift Deposits) were found within the Review Area in the stream channels. However, these indicators provided no evidence of flooding, ponding, or soil saturation for long periods of time as is evidenced by the absence of hydric soils and a dominance of hydrophytic vegetation as described in Sections 3.1 and 3.2, above.

3.3.4 Wetland Aquatic Resources Identified and Delineated

[2] Disturbed areas consist of sites where vegetation, soil, or hydrology indicators may be impacted (obscured or absent) due to recent human activities or natural events.

[3] Naturally problematic refers to problem areas that are naturally occurring wetland types that lack indicators of hydrophytic vegetation, hydric soil, or wetland hydrology periodically due to normal seasonal or annual variability, or permanently due to the nature of the soils or plant species on the site.

[4] https://cwbi-app.sec.usace.army.mil/nwpl_static/v34/home/home.html

No dominance of hydrophytic vegetation or hydric soils was found. No aquatic resources meeting the CWA Section 404 definition of wetlands as provided in Section 4.1(4), below were found due to lack of the required collective presence of wetland vegetation, hydric soil, and wetland hydrology indicators.

3.4 Aquatic Resources with a High Water Mark

3.4.1 Field Indicators of Ordinary High Water

The following describes indicators of an OHWM in stream channels within the Review Area.

Observable physical features of OHWMs were found within streams at 43 sample point locations within the Review Area. Physically, streams exhibited geomorphic indicators of OHWM to include breaks in channel slope (on the bank, undercut bank); shelving (shelf at top of bank); channel bars (shelving (berms) on bar, unvegetated, vegetation transition, sediment transition, upper limit of deposition on bar); instream bedforms and other bedload transport evidence (erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)); sediment indicators (changes in particle-sized distribution: silt deposits). Streams also exhibited vegetation indicators (change in vegetation types) and ancillary indicators (presence of organic litter). Appendix A, Figure 6a Overview Map and Figure 6b Mapbook shows locations where streams having an OHWM were identified and measured. Appendix E provides field data sheets. Appendix E provides OHWM widths and latitude/longitude locations where OHWM determinations were made within the Review Area. Appendix E and Appendix G both provide representative photographs of stream channel features within the Review Area.

3.4.2 Formation

Detailed review of Google Earth Pro historical aerial imagery and onsite inspection indicate the stream channels within the Review Area are naturally formed.

3.4.3 Flow Characteristics

Flow. Online USGS National Hydrography Dataset mapping indicates surface water flow patterns within stream channels are in a southwesterly direction.[5]

Flow Duration: The Review Area is within the USGS HUC 8 Ivanpah-Pahrump Valleys (16060015) subbasin. Appendix A, Figures 1 and 2 show the Review Area location within the USGS HUC 12 Stump Spring-Calvada Springs (160600150404) and Trout Canyon (160600150504) subwatersheds. Ephemeral Stream channels within the Review Area direct stormwater flows to the southwest with some crossing the Nevada-California state border (Appendix F).[6]

Streams

Mazor, R.D., et al. (2021) define ephemeral, intermittent, and perennial flows as follows:

> Ephemeral streams are channels that flow only in direct response to precipitation. Water typically flows at the surface only during and/or shortly after large precipitation events, the streambed is always above the water table, and stormwater runoff is the primary water source.

[5] http://nhd.usgs.gov

[6] http://nhd.usgs.gov

Intermittent reaches are channels that contain sustained flowing surface water for only part of the year, typically during the wet season, where the streambed may be below the water table and/or where the snowmelt from surrounding uplands provides sustained flow. The flow may vary greatly with stormwater runoff.

Perennial reaches are channels that contain flowing surface water continuously during a year of normal rainfall, often with the streambed located below the water table for most of the year. Groundwater typically supplies the baseflow for perennial reaches, but the baseflow may also be supplemented by stormwater runoff and/or snowmelt.

Based on an SDAM analysis of representative stream channels, the streams within the Review Area exhibit ephemeral flows (Appendix E). This result indicates that surface water flow is not relatively permanent, standing or continuous.

3.4.4 Aquatic Resources having a High Water Mark Identified and Delineated

Non-tidal aquatic resource areas consisting of stream channels with OHWMs were observed within the Review Area (Appendix E).

4.0 POTENTIAL WATERS OF THE US (WOTUS)

This section identifies and delineates the geographic extent of aquatic resources found which meet the Clean Water Act (CWA) Section 404 definition of Waters of the US (WOTUS) (33 CFR 328.3 (a)(1)-(5)) based on the technical findings provided in Sections 3.3 and 3.4.

4.1 Definition of WOTUS

33 CFR 328.3 (a)(1)-(5) defines WOTUS as:

(1) Waters which are:

(i) Currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (ii) The territorial seas; or (iii) Interstate waters;

(2) Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under paragraph (a)(5) of this section;

(3) Tributaries of waters identified in paragraph (a)(1) or (2) of this section that are relatively permanent, standing or continuously flowing bodies of water;

(4) Wetlands adjacent to the following waters: (i) Waters identified in paragraph (a)(1) of this section; or (ii) Relatively permanent, standing or continuously flowing bodies of water identified in paragraph (a)(2) or (a)(3) of this section <u>and</u> with a continuous surface connection to those waters;

(5) Intrastate lakes and ponds, streams, or wetlands not identified in paragraphs (a)(1) through (4) of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in paragraph (a)(1) or (a)(3) of this section.

4.2 Geographical Limits of WOTUS

The geographical limit of federal jurisdiction as applies to WOTUS under Section 404 of the CWA are defined at 33 CFR Part 328.4 in the following manner:

(a) *Territorial Seas.* The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles. (See 33 CFR 329.12)

(b) *Tidal waters of the United States.* The landward limits of jurisdiction in tidal waters: (1) Extends to the high tide line, or (2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in paragraph (c) of this section.

(c) *Non-tidal waters of the United States.* The limits of jurisdiction in non-tidal waters: (1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or (2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands, or (3) When the water of the United States consists only of wetlands jurisdiction extends to the limit of the wetlands.

33 CFR 328.3(c) provides the following relevant definitions regarding the above-defined geographical limits of federal jurisdiction:

(1) *Wetlands* means those areas that are inundated or saturated by surface or ground water at a frequency

and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

(2) *Adjacent* means having a continuous surface connection.

(3) *High tide line* means the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

(4) *Ordinary high water mark* means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

(5) *Tidal waters* means those waters that rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by hydrologic, wind, or other effects.

4.3 Aquatic Resources within the Review Area

4.3.1 Wetlands

Based on analysis of the technical findings in Section 3.3.3, aquatic resource areas were identified and delineated within the Review Area that meet the above CWA Section 404 definition of wetlands. This analysis consisted of determining whether at a given location there was a collective presence of hydric soil, wetland hydrology, and hydrophytic vegetation field indicators as required by the 1987 Corps Delineation Manual criteria.

4.3.2 Aquatic Resources with An Ordinary High Water Mark

Ephemeral streams having an OHWM were identified and delineated within the Review Area (Section 3.4.4). Appendix A, Figure 6b Mapbook shows the aquatic resources, other than wetlands, which are potentially subject to Corps and USEPA Section 404 CWA jurisdiction as WOTUS. The ephemeral stream channels within the Review Area direct stormwater flows to the southwest with some crossing the Nevada-California state border (Appendix F).

4.4 Conclusions

Aquatic resources consisting of ephemeral stream channels were found within the Review Area. Appendix A, Figure 6a Overview Map, and Figure 6b Mapbook show the aquatic resources identified and delineated which are potentially subject to Corps and USEPA Section 404 CWA jurisdiction.

Based on review of the August 29, 2023 WOTUS Rule, these streams/tributaries would not be subject to Corps/USEPA CWA Section 404 jurisdiction because they only flow during, and briefly following, precipitation events which generate storm water runoff and therefore do not have a relatively permanent, standing or continuous flow to Waters as defined by 33 CFR 328.3 (a)(1)-(3).

5.0 POTENTIAL NAVIGABLE WATERS

This section identifies and delineates the presence or absence of aquatic resources which may meet the definition of Navigable Waters (33 CFR 329.4) based on the technical findings provided in Sections 3.3 and 3.4.

5.1 Definition of Navigable Waters

Navigable waters are defined in 33 CFR 329.4:

> Navigable waters of the United States are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity.

5.2 Geographical Limit of Navigable Waters

The geographical limit of federal jurisdiction as applies to Navigable Waters under Section 10 of the RHA (33 CFR 329.5) requires the following to be present:

> "… (a) past, present, or potential presence of interstate or foreign commerce: (b) physical capabilities for use by commerce…, and (c) defined geographic limits of the waterbody (i.e., presence of an OHWM)."

5.3 Aquatic Resources with an OHWM within the Review Area

The Aquatic resources identified in the Review Area as shown by Appendix A, Figure 6a Overview Map, and Figure 6b Mapbook have an OHWM. The aquatic resources include the stream channels, all of which are non-tidal drainages.

5.4 Conclusion

Based upon consideration of the above definition and criteria, the stream channels (aquatic resources) identified and delineated as having an OHWM mark do not meet the definition of Navigable Waters. This conclusion is based on the finding that the aquatic resources having an OHWM are non-tidal and are not designated on the Corps' list as presently used, or have been used in the past, or might be susceptible for use to transport interstate or foreign commerce as Navigable Waters.

6.0 REFERENCES

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Appendix A

Figures

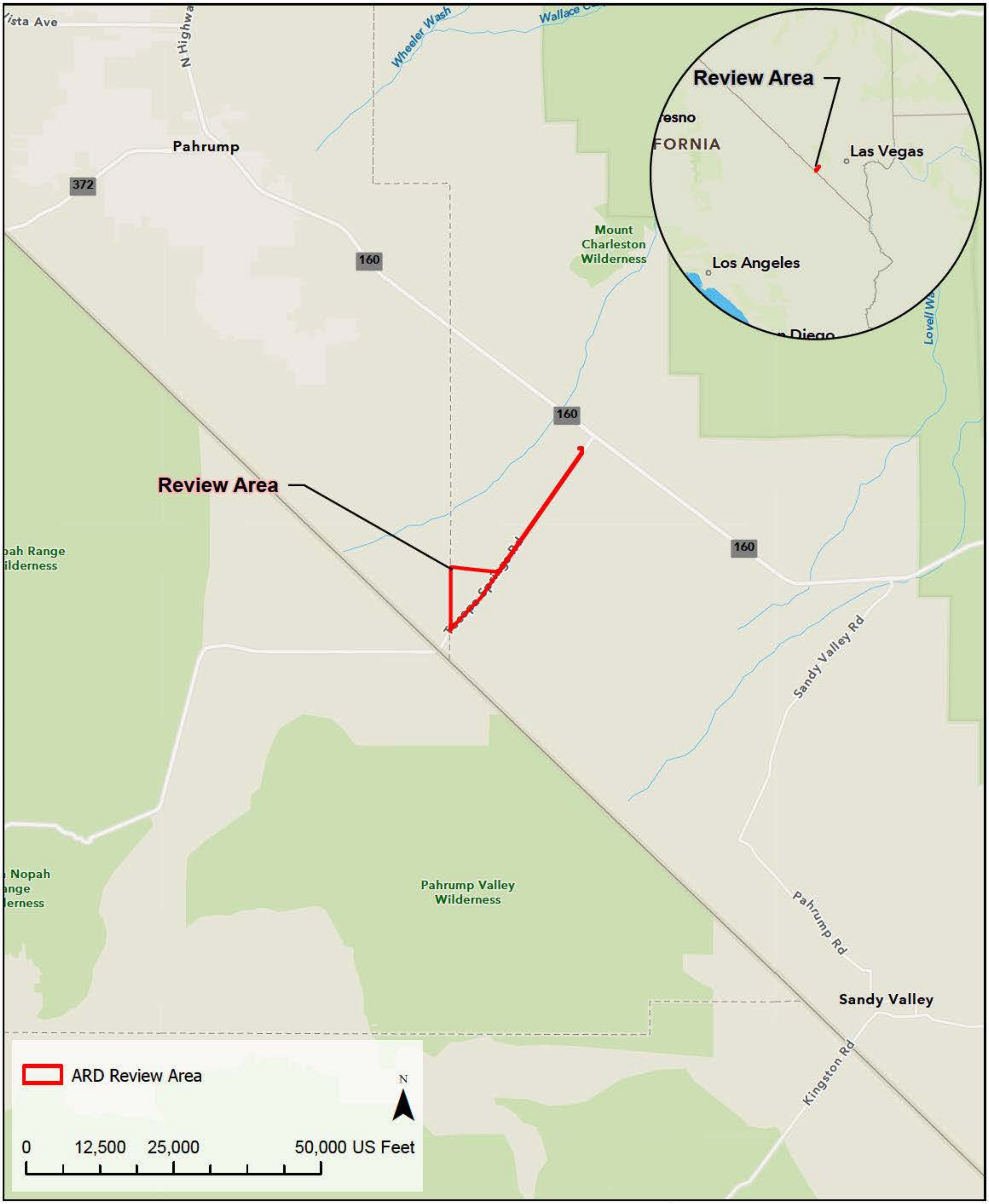

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Figure 1. Review Area Location

Larrea Solar Farm Project
Clark County, Nevada

Enclosure 1

[redacted]

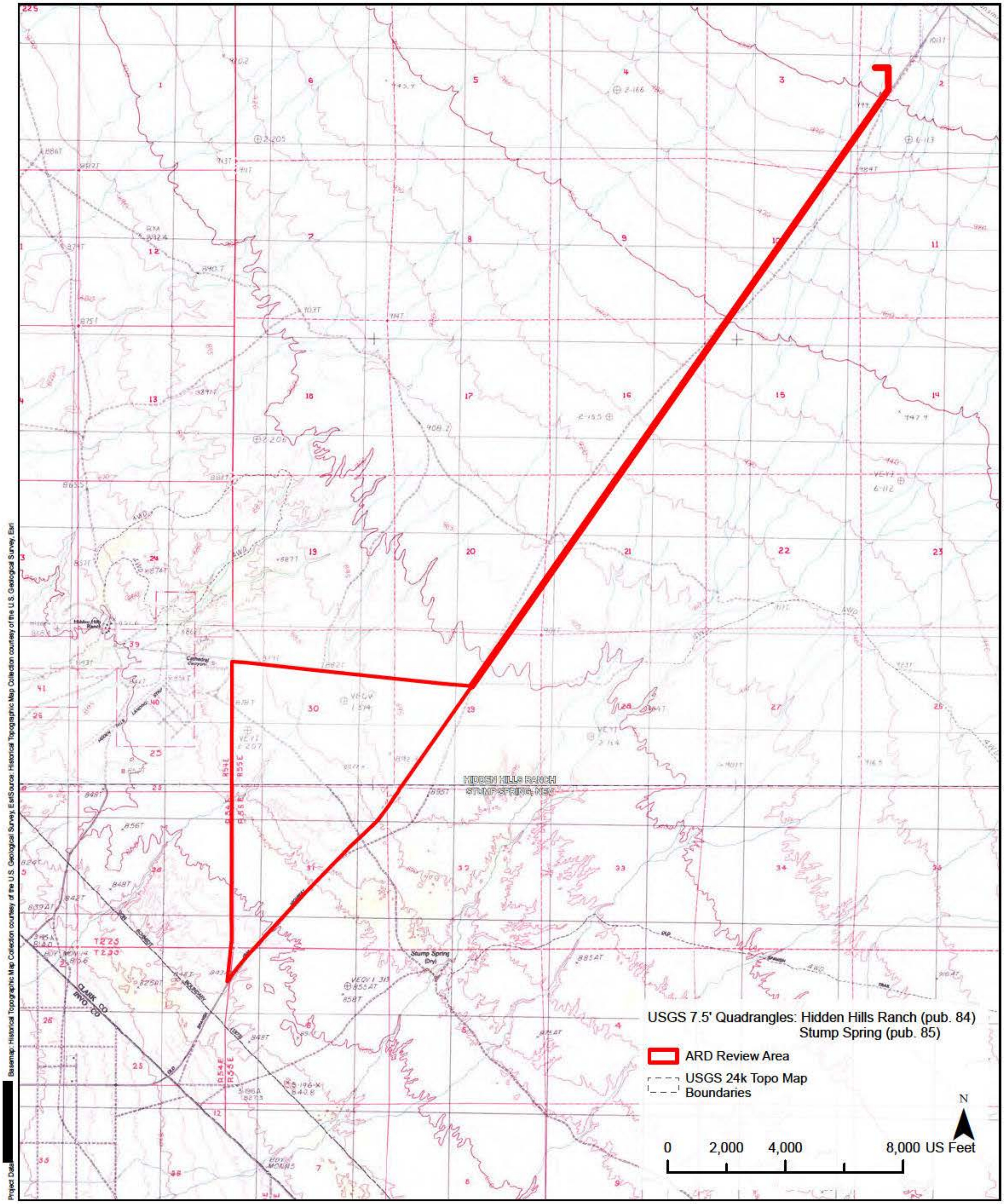
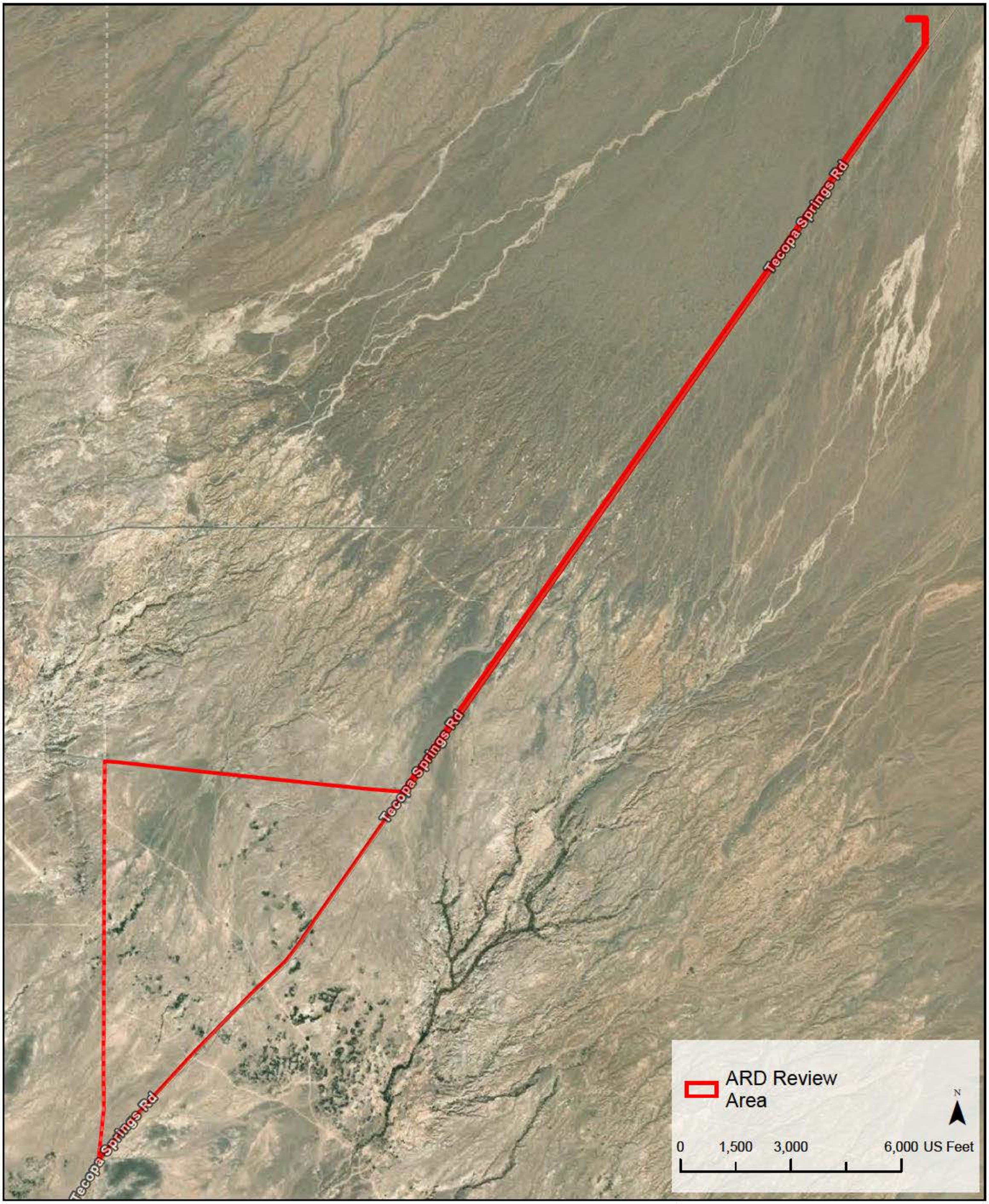


Figure 2. USGS Topographic Map of the Review Area

Larrea Solar Farm Project
Clark County, Nevada

Enclosure 1

[redacted]



Project Data [redacted], LLC.; Basemap Imagery Credits: California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS, Earthstar Geographics;
Imagery Date: 11/17/2023.

Figure 3. Aerial Image of the Review Area

Larrea Solar Farm Project
Clark County, Nevada

Enclosure 1

[redacted]

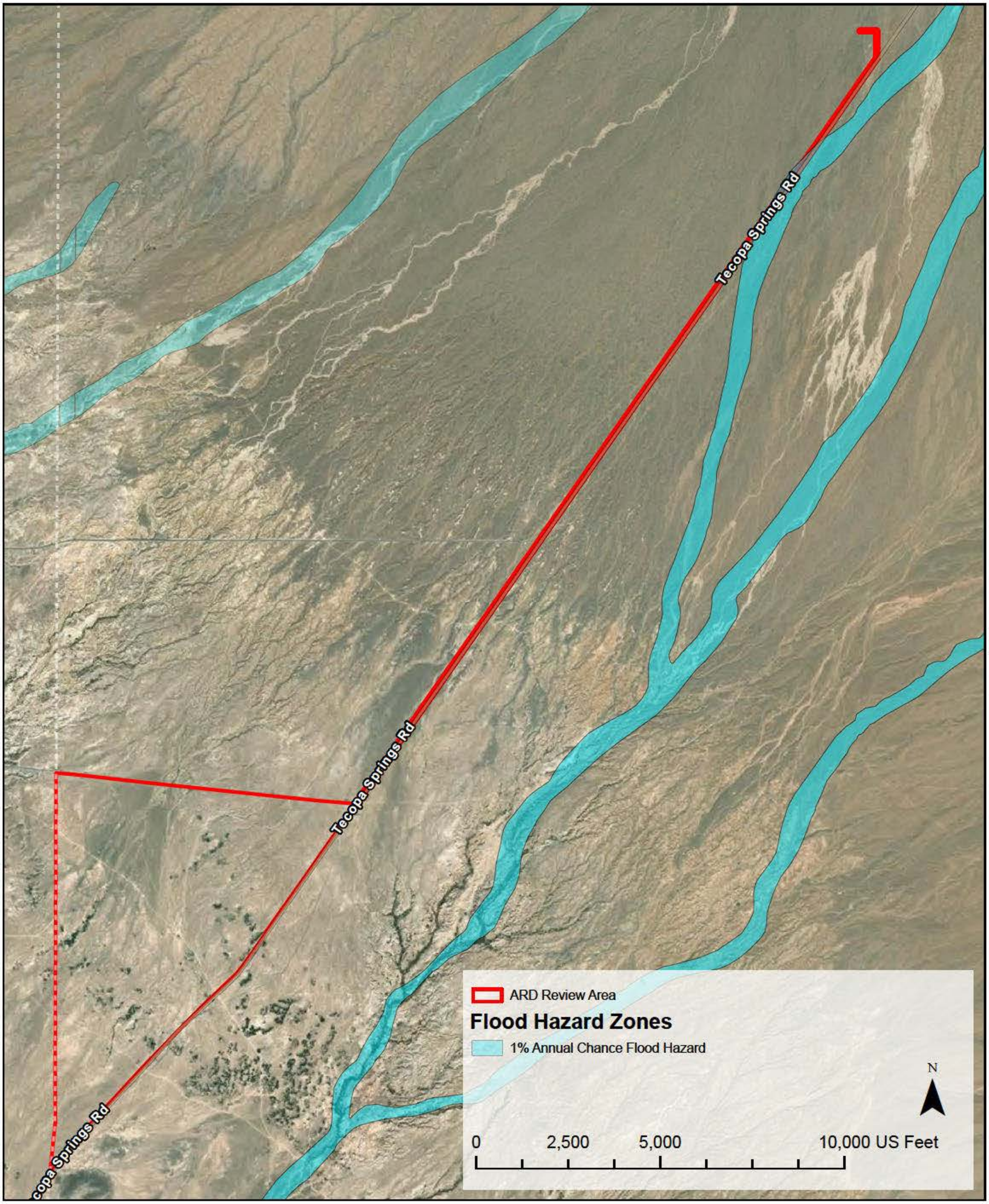


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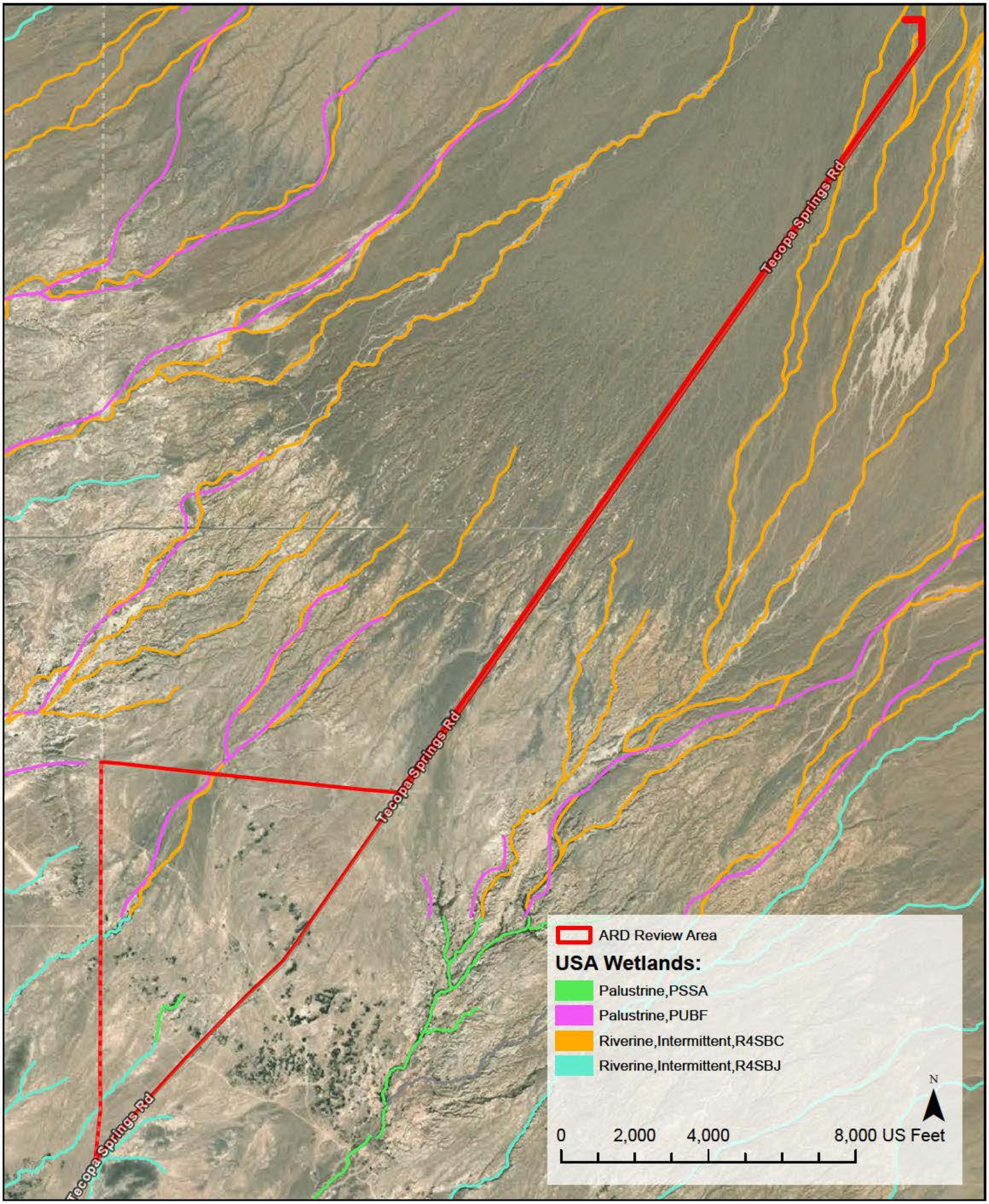
Figure 4. FEMA Flood Zone Mapping

Larrea Solar Farm Project
Clark County, Nevada

Enclosure 1

[redacted]



Project Data [redacted]; Wetlands: U.S. Fish and Wildlife Service, https://fwspublicservices.wim.usgs.gov/wetlandsmapservice/services/Wetlands/MapServer/WMSServer?request=GetCapabilities&service=WMS; Basemap: California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS, Earthstar Geographics; Imagery Date: 11/17/2023.

Figure 5a. USFWS National Wetlands Inventory Mapping

Larrea Solar Farm Project
Clark County, Nevada

Enclosure 1

[redacted]

NWI Wetlands and Deepwater Map Code Diagram

System / Subsystem / Class / Subclass

- **M - Marine** (System)
  - **1 - Subtidal** (Subsystem)
    - RB – Rock Bottom: 1 Bedrock; 2 Rubble
    - UB – Unconsolidated Bottom: 1 Cobble-Gravel; 2 Sand; 3 Mud
    - AB – Aquatic Bed: 1 Algal; 3 Rooted Vascular
    - RF – Reef: 1 Coral; 3 Worm
  - **2 - Intertidal** (Subsystem)
    - AB – Aquatic Bed: 1 Algal; 3 Rooted Vascular
    - RF – Reef: 1 Coral; 3 Worm
    - RS – Rocky Shore: 1 Bedrock; 2 Rubble
    - US – Unconsolidated Shore: 1 Cobble-Gravel; 2 Sand; 3 Mud; 4 Organic

- **E - Estuarine** (System)
  - **1 - Subtidal** (Subsystem)
    - RB – Rock Bottom: 1 Bedrock; 2 Rubble
    - UB – Unconsolidated Bottom: 1 Cobble-Gravel; 2 Sand; 3 Mud; 4 Organic
    - AB – Aquatic Bed: 1 Algal; 3 Rooted Vascular; 4 Floating Vascular
    - RF – Reef: 2 Mollusk; 3 Worm
  - **2 - Intertidal** (Subsystem)
    - AB – Aquatic Bed: 1 Algal; 3 Rooted Vascular; 4 Floating Vascular
    - RF – Reef: 2 Mollusk; 3 Worm
    - SB – Streambed: 1 Bedrock; 2 Rubble; 3 Cobble-Gravel; 4 Sand; 5 Mud; 6 Organic
    - RS – Rocky Shore: 1 Bedrock; 2 Rubble
    - US – Unconsolidated Shore: 1 Cobble-Gravel; 2 Sand; 3 Mud; 4 Organic
    - EM – Emergent: 1 Persistent; 2 Non-persistent; 5 *Phragmites australis*
    - SS – Scrub-Shrub: 1 Broad-Leaved Deciduous; 2 Needle-Leaved Deciduous; 3 Broad-Leaved Evergreen; 4 Needle-Leaved Evergreen; 5 Dead; 6 Deciduous; 7 Evergreen
    - FO – Forested: 1 Broad-Leaved Deciduous; 2 Needle-Leaved Deciduous; 3 Broad-Leaved Evergreen; 4 Needle-Leaved Evergreen; 5 Dead; 6 Deciduous; 7 Evergreen

- **R - Riverine** (System)
  - Subsystems: 1 - Tidal; 2 – Lower Perennial; 3 – Upper Perennial; 4* - Intermittent
    - RB** – Rock Bottom: 1 Bedrock; 2 Rubble
    - UB – Unconsolidated Bottom: 1 Cobble-Gravel; 2 Sand; 3 Mud; 4 Organic
    - AB – Aquatic Bed: 1 Algal; 2 Aquatic Moss; 3 Rooted Vascular; 4 Floating Vascular
    - SB***– Streambed: 1 Bedrock; 2 Rubble; 3 Cobble-Gravel; 4 Sand; 5 Mud; 6 Organic; 7 Vegetated
    - RS – Rocky Shore: 1 Bedrock; 2 Rubble
    - US – Unconsolidated Shore: 1 Cobble-Gravel; 2 Sand; 3 Mud; 4 Organic; 5 Vegetated
    - EM – Emergent: 2 Nonpersistent

* **Intermittent** is limited to the **Streambed** Class;
** **Rock Bottom** is not permitted for the **Lower Perennial** Subsystem;
*** **Streambed** is limited to **Tidal** and **Intermittent** Subsystems

Figure 5b. NWI Wetlands and Deepwater Code Map Diagram, Part 1

Enclosure I

Classification of Wetlands and Deepwater Habitats of the United States, Cowardin *et al*. 1979

NWI Wetlands and Deepwater Map Code Diagram

System: L - Lacustrine

Subsystem: 1 - Limnetic

Class	RB – Rock Bottom	UB – Unconsolidated Bottom	AB – Aquatic Bed
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular

Subsystem: 2 - Littoral

Class	RB – Rock Bottom	UB – Unconsolidated Bottom	AB – Aquatic Bed	RS – Rocky Shore	US – Unconsolidated Shore	EM – Emergent
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	2 Nonpersistent

System: P - Palustrine

Class	RB – Rock Bottom	UB – Unconsolidated Bottom	AB – Aquatic Bed	US – Unconsolidated Shore	ML – Moss-Lichen	EM – Emergent	SS – Scrub-Shrub	FO – Forested
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	1 Moss 2 Lichen	1 Persistent 2 Nonpersistent 5 *Phragmites australis*	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen

MODIFIERS

In order to more adequately describe the wetland and deepwater habitats, one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy.

Water Regime			Special Modifiers	Water Chemistry		Soil
Nontidal	**Saltwater Tidal**	**Freshwater Tidal**		**Halinity/Salinity**	**pH Modifiers for Fresh Water**	
A Temporarily Flooded	L Subtidal	S Temporarily Flooded- Fresh Tidal	b Beaver	1 Hyperhaline / Hypersaline	a Acid	g Organic
B Seasonally Saturated	M Irregularly Exposed	Q Regularly Flooded-Fresh Tidal	d Partly Drained/Ditched	2 Euhaline / Eusaline	t Circumneutral	n Mineral
C Seasonally Flooded	N Regularly Flooded	R Seasonally Flooded-Fresh Tidal	f Farmed	3 Mixohaline / Mixosaline (Brackish)	i Alkaline	
D Continuously Saturated	P Irregularly Flooded	T Semipermanently Flooded-Fresh Tidal	m Managed	4 Polyhaline		
E Seasonally Flooded / Saturated		V Permanently Flooded-Fresh Tidal	h Diked/Impounded	5 Mesohaline		
			r Artificial Substrate	6 Oligohaline		
F Semipermanently Flooded			s Spoil	0 Fresh		
G Intermittently Exposed			x Excavated			
H Permanently Flooded						
J Intermittently Flooded						
K Artificially Flooded						

Figure 5c. NWI Wetlands and Deepwater Code Map Diagram, Part 2

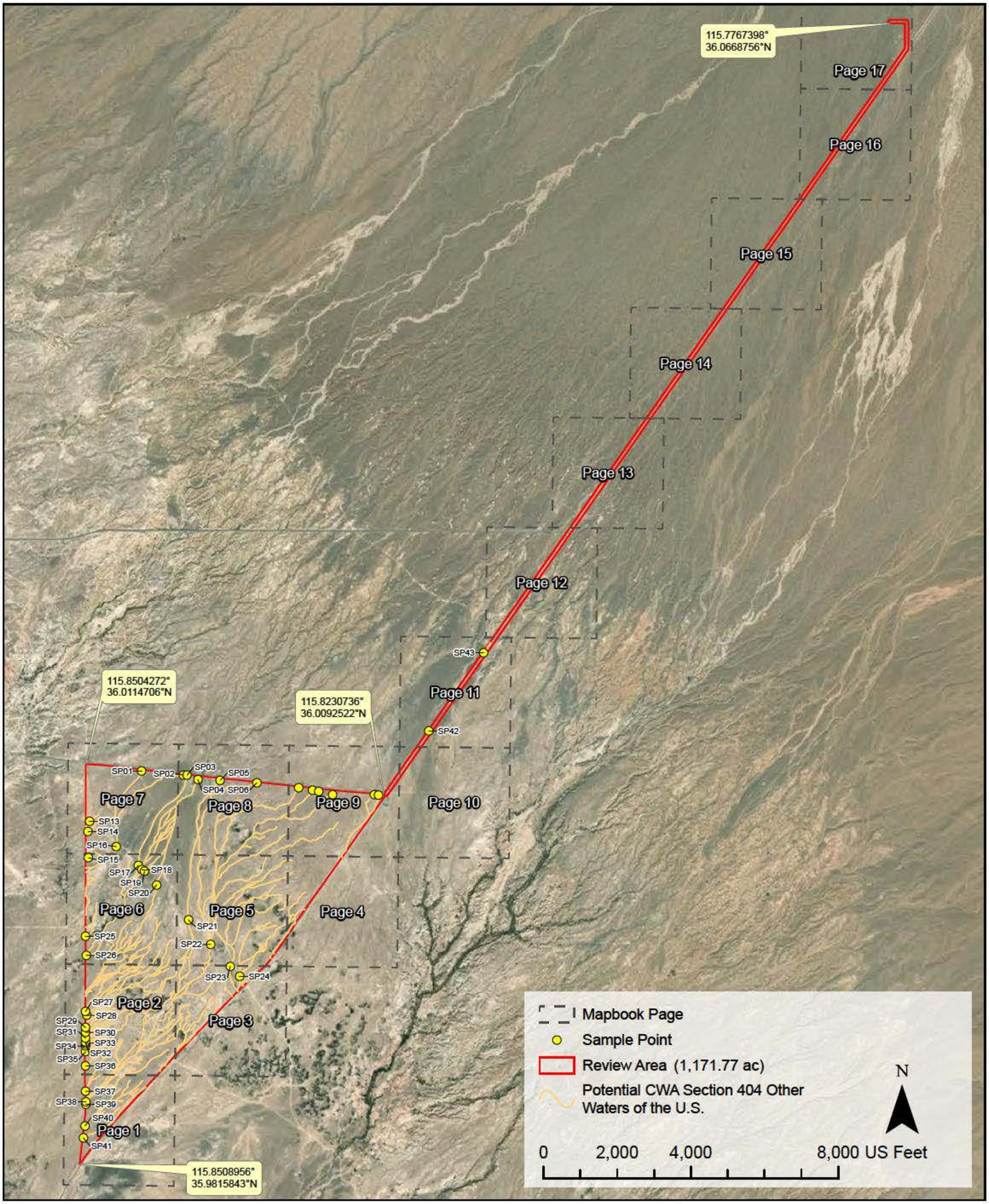


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Figure 6a. Aquatic Resource Delineation Overview Map

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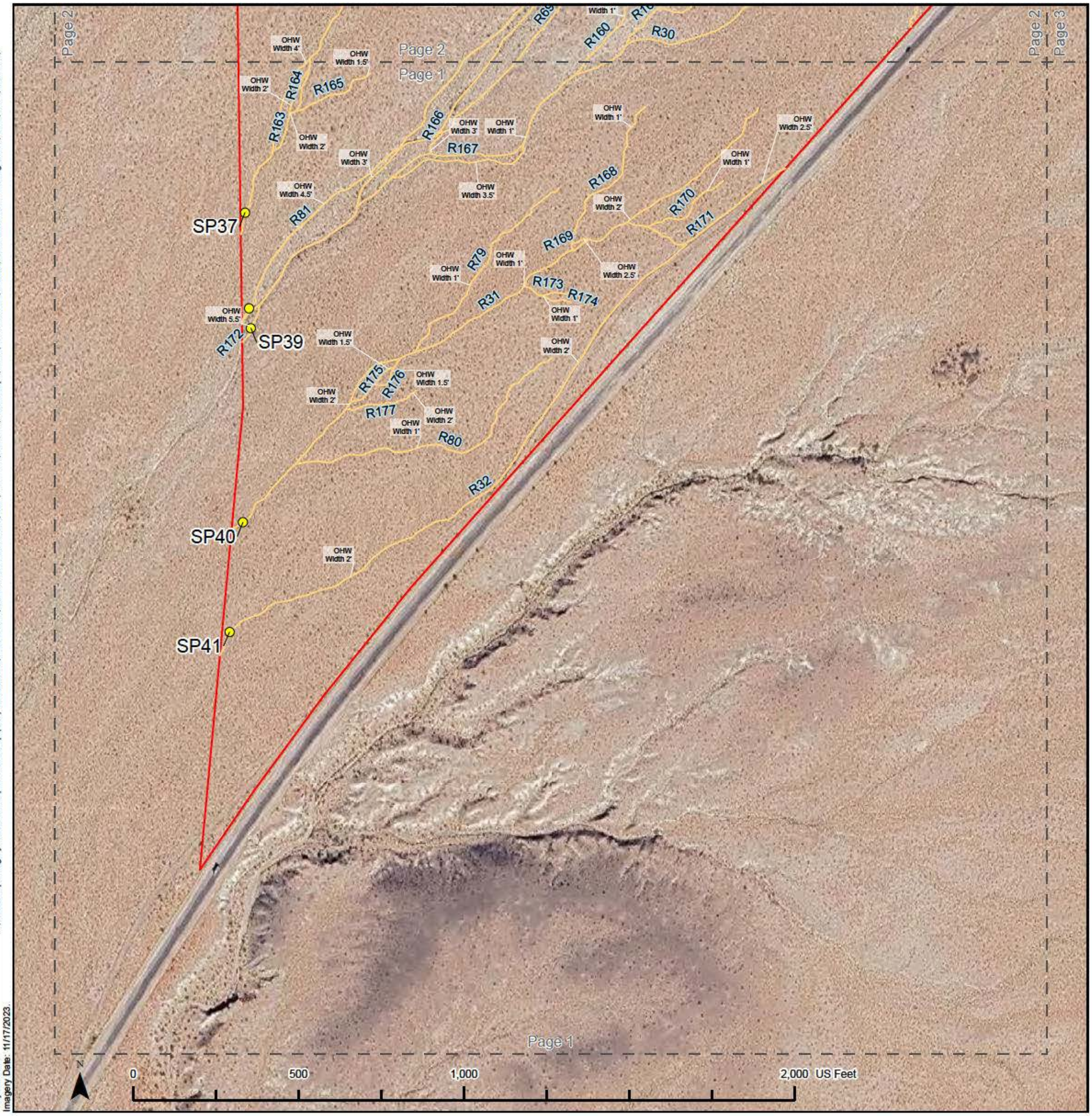

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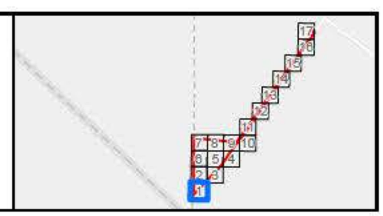

Figure 6b. Aquatic Resource Delineation Mapbook - Page 1

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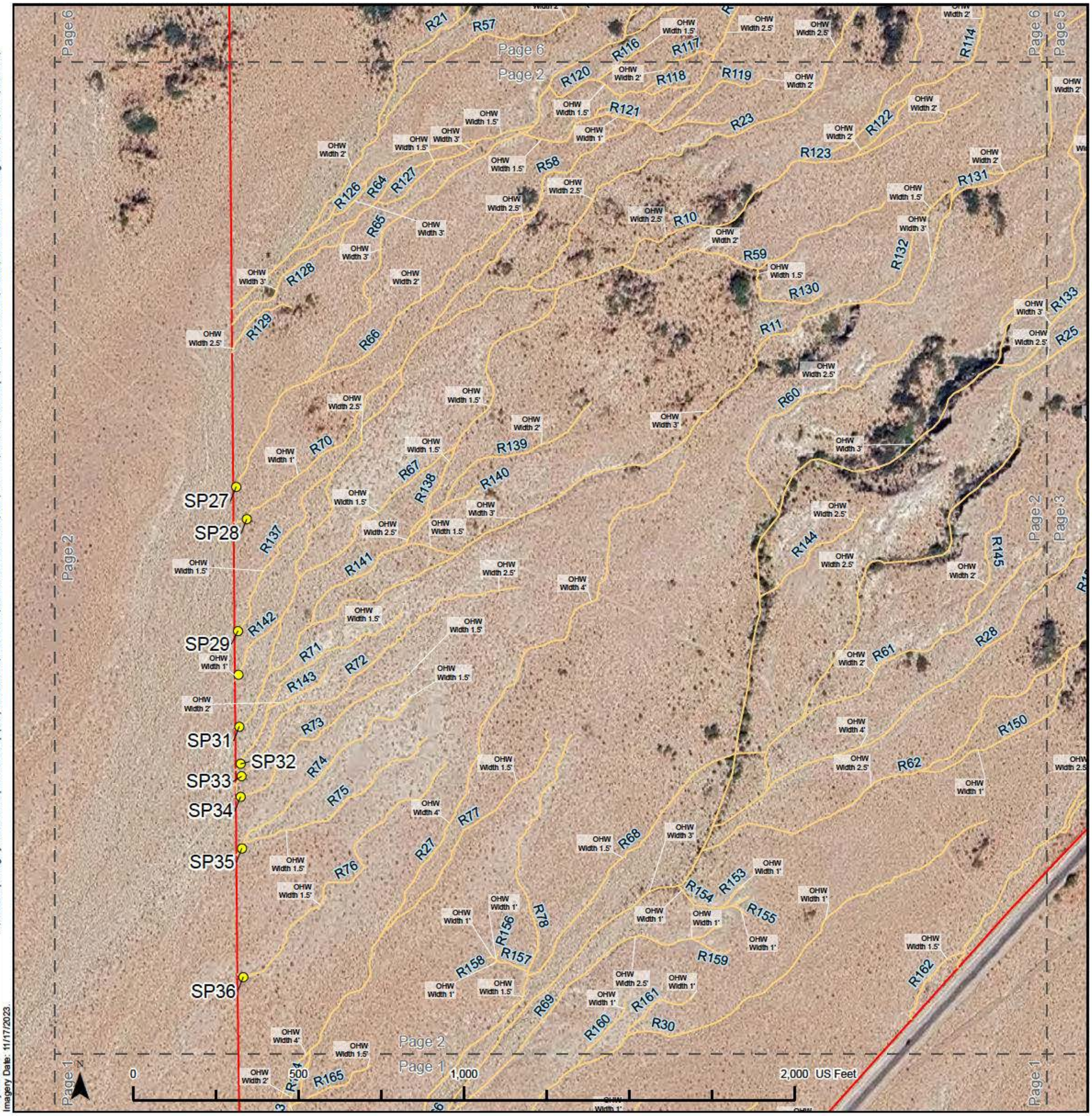

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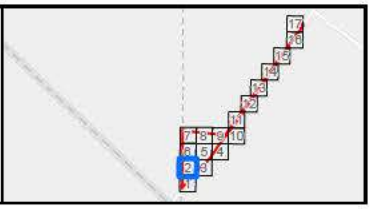

Figure 6b. Aquatic Resource Delineation Mapbook - Page 2

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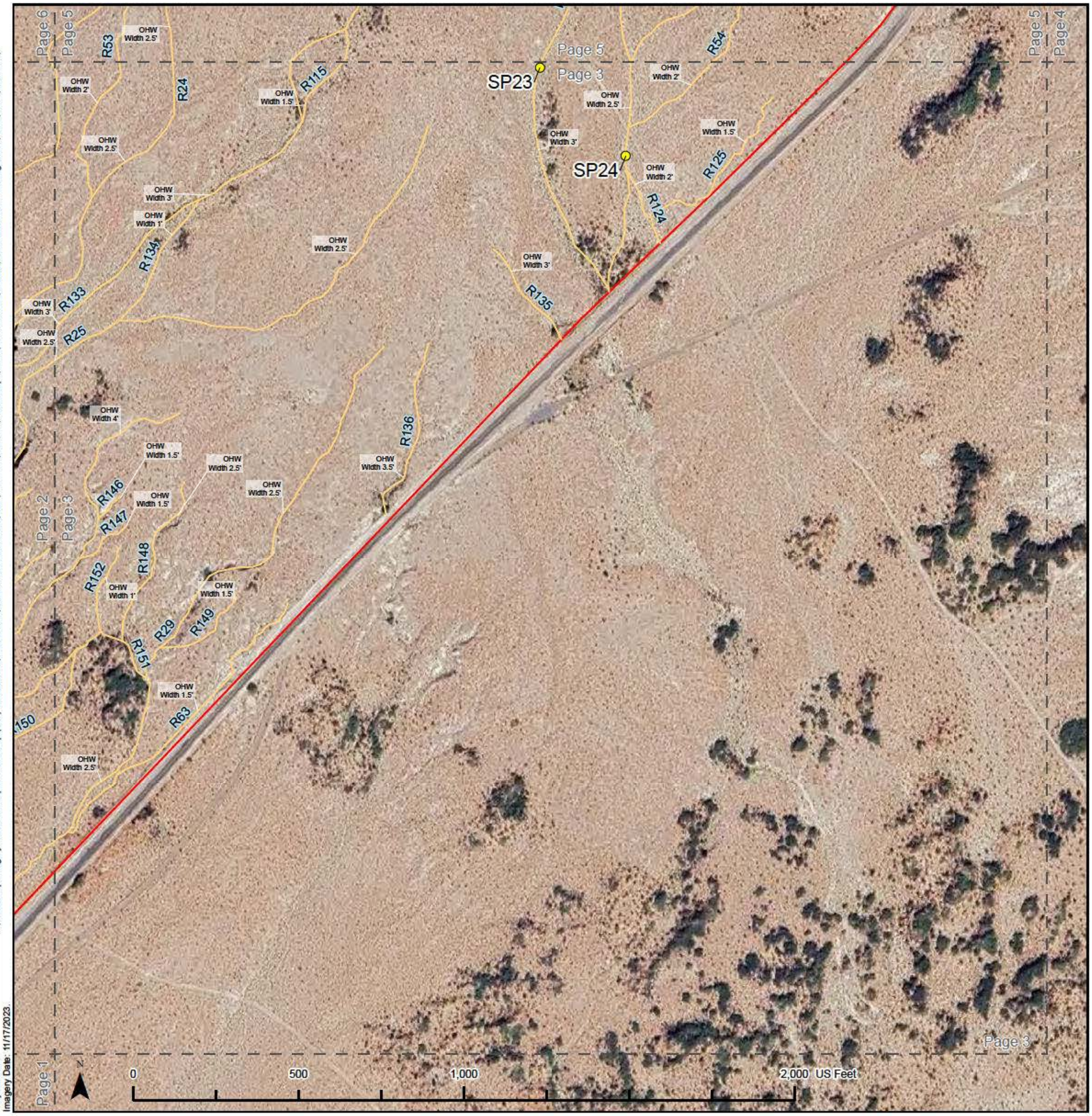

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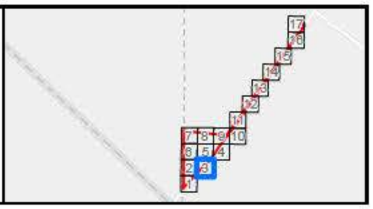

Figure 6b. Aquatic Resource Delineation Mapbook - Page 3

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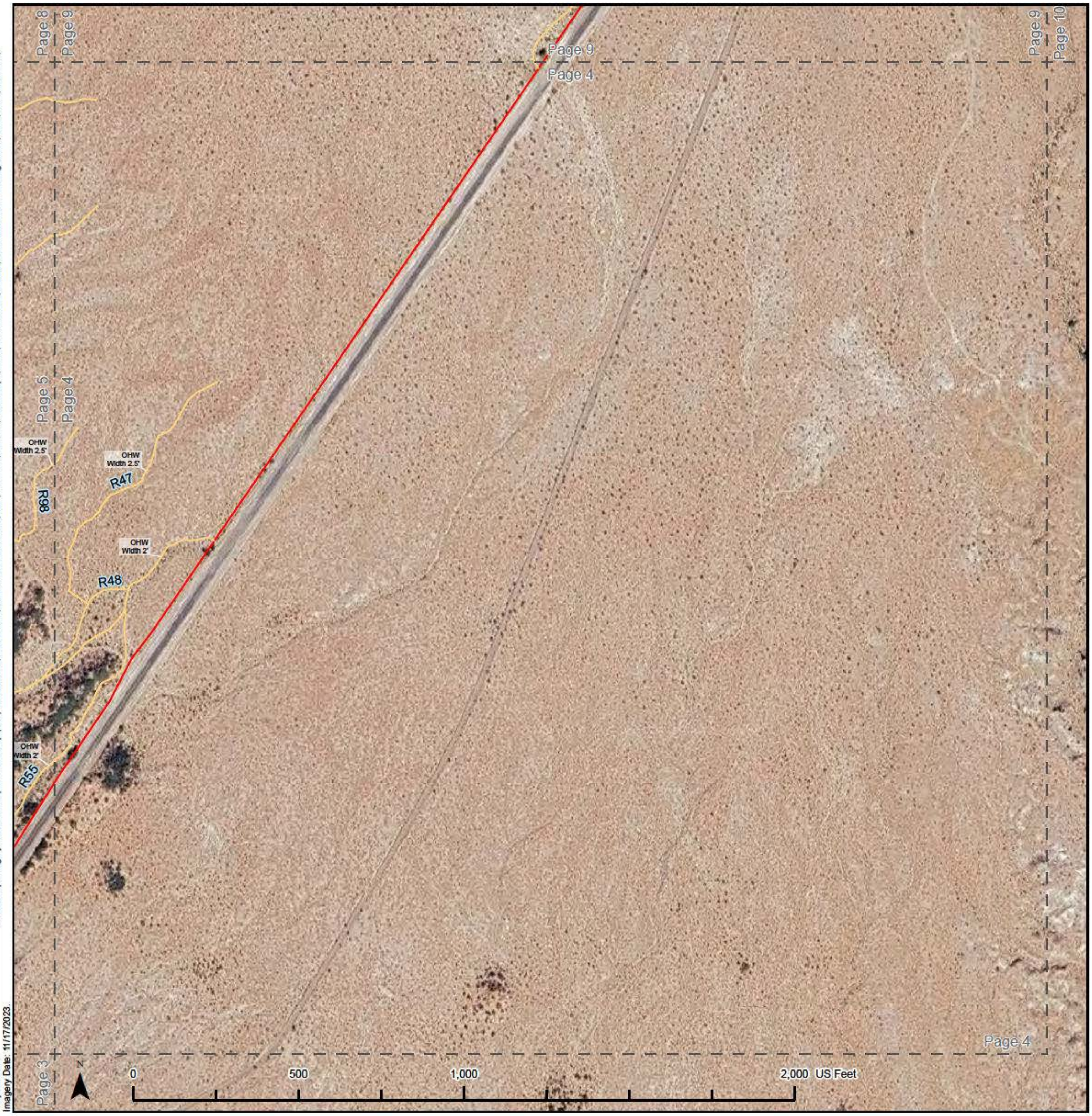

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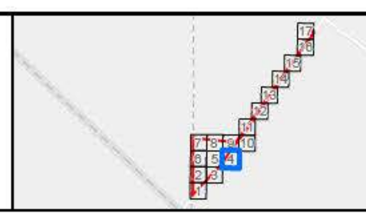

Figure 6b. Aquatic Resource Delineation Mapbook - Page 4

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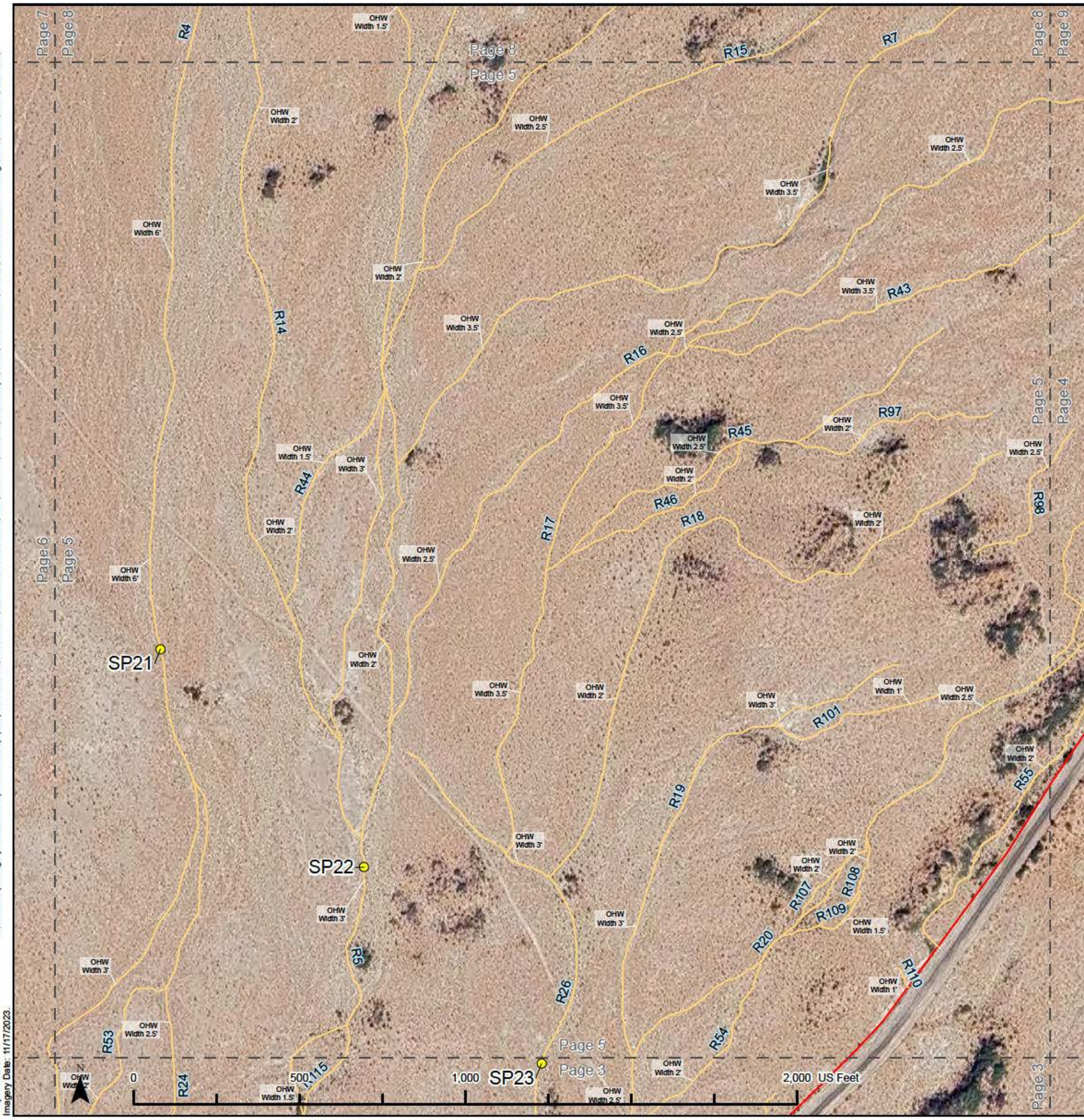

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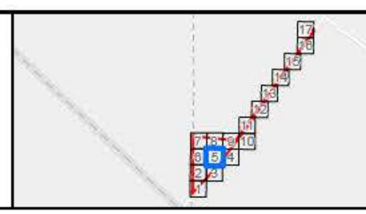

Figure 6b. Aquatic Resource Delineation Mapbook - Page 5

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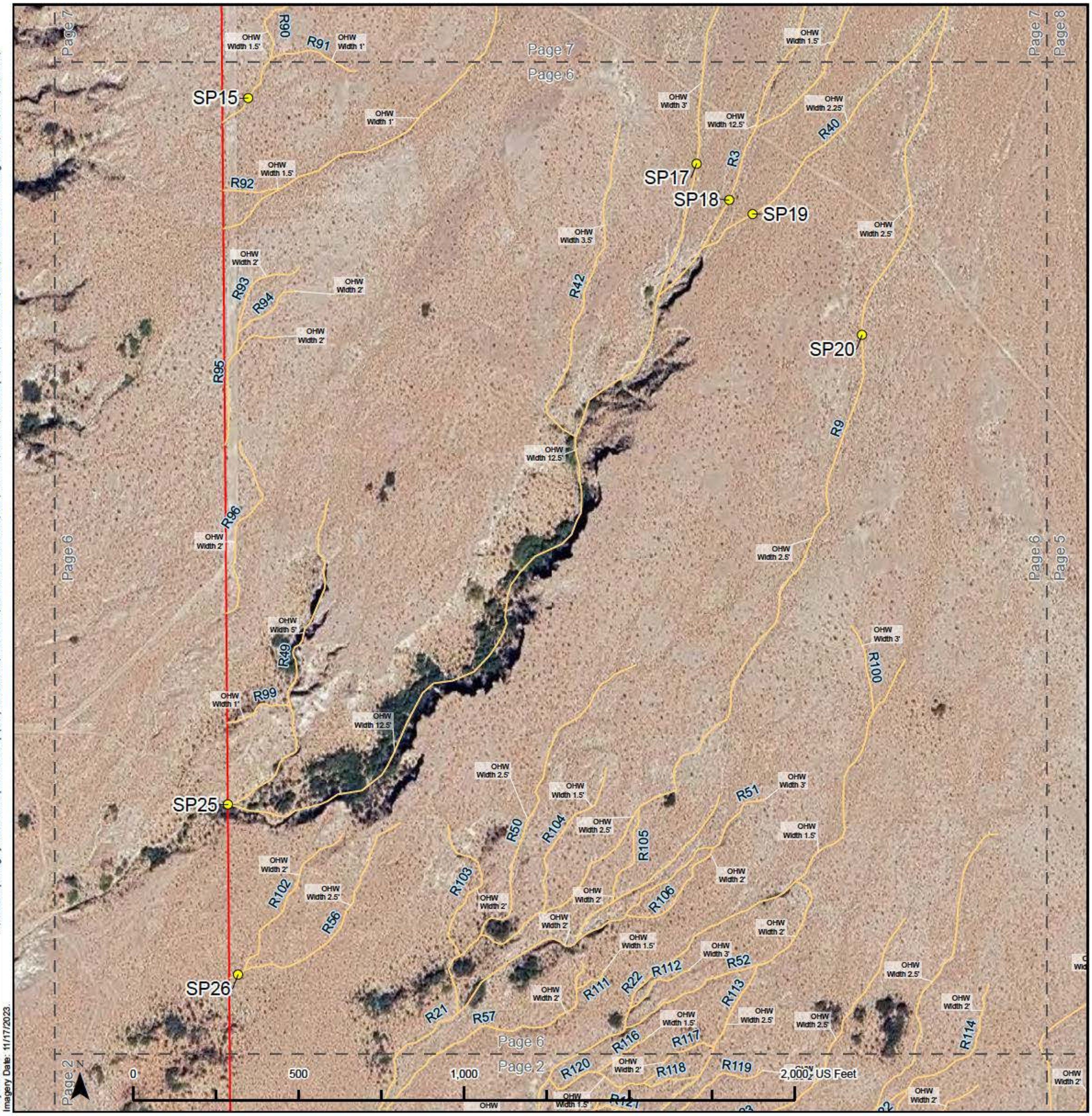

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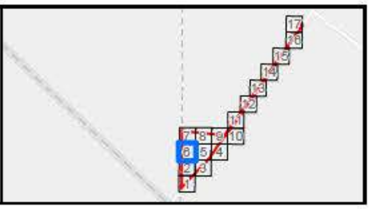

Figure 6b. Aquatic Resource Delineation Mapbook - Page 6

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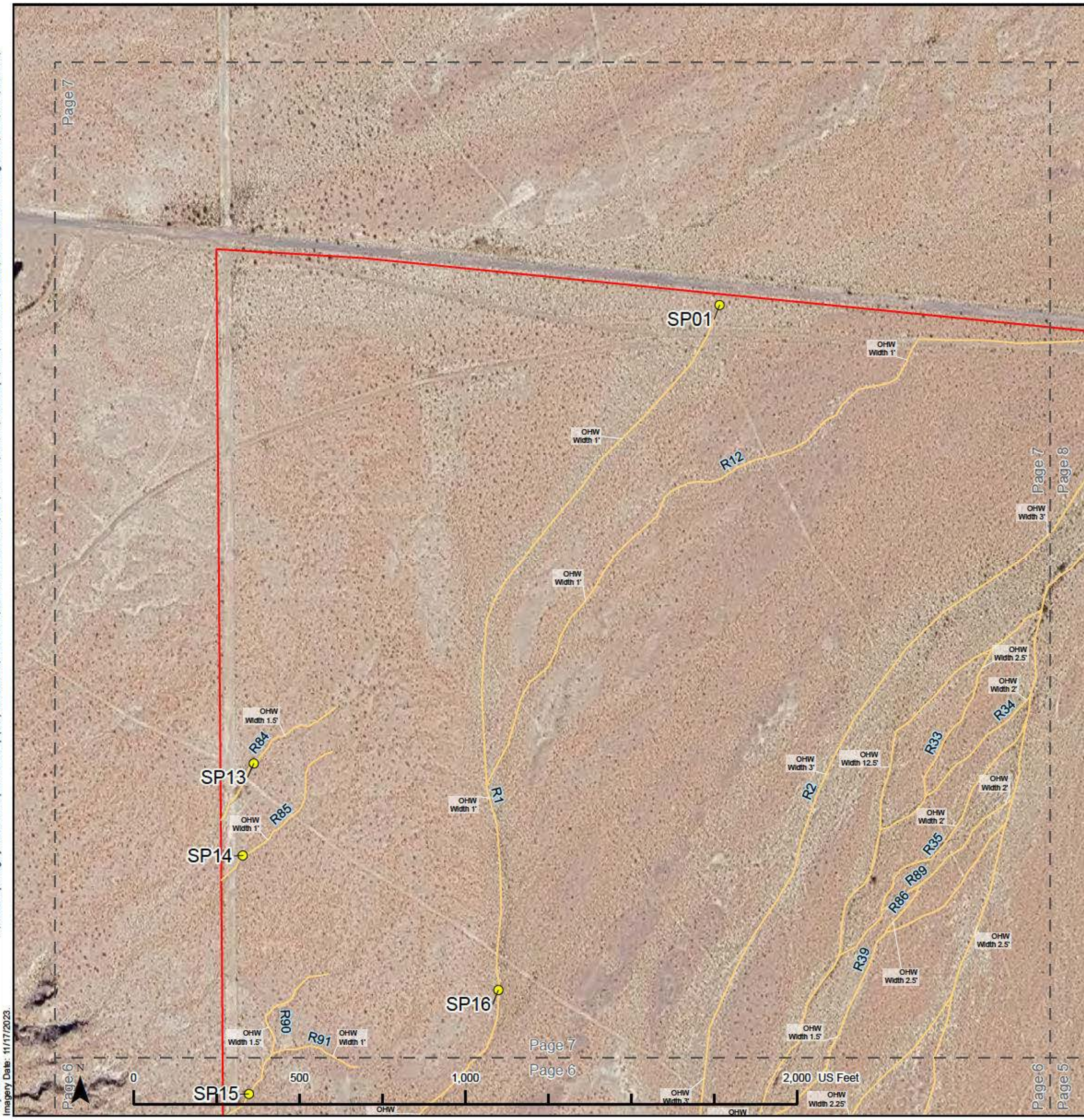

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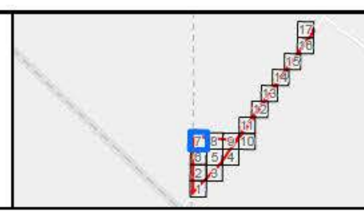

Figure 6b. Aquatic Resource Delineation Mapbook - Page 7

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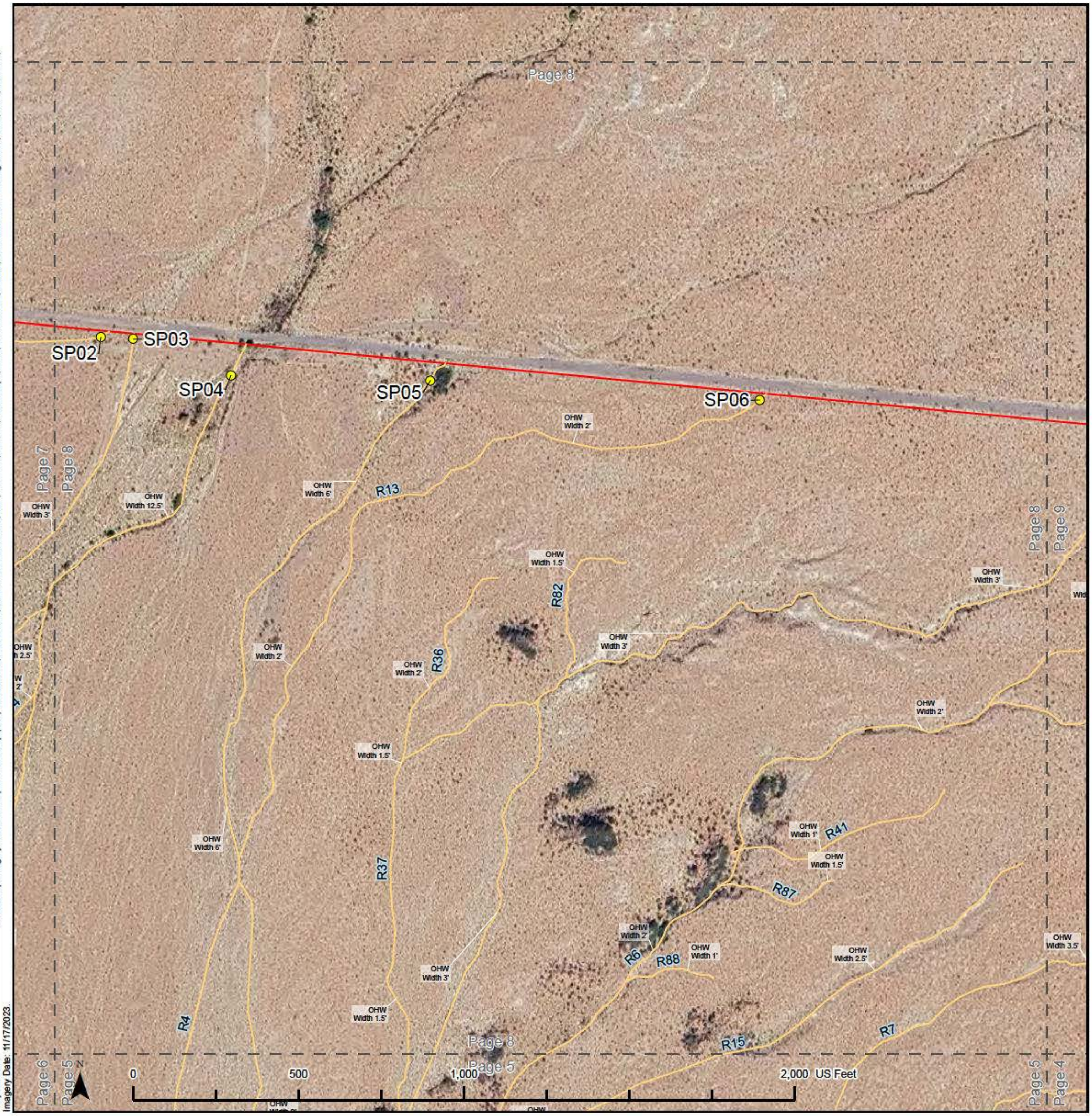

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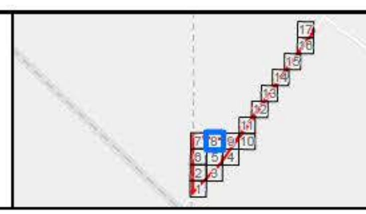

Figure 6b. Aquatic Resource Delineation Mapbook - Page 8

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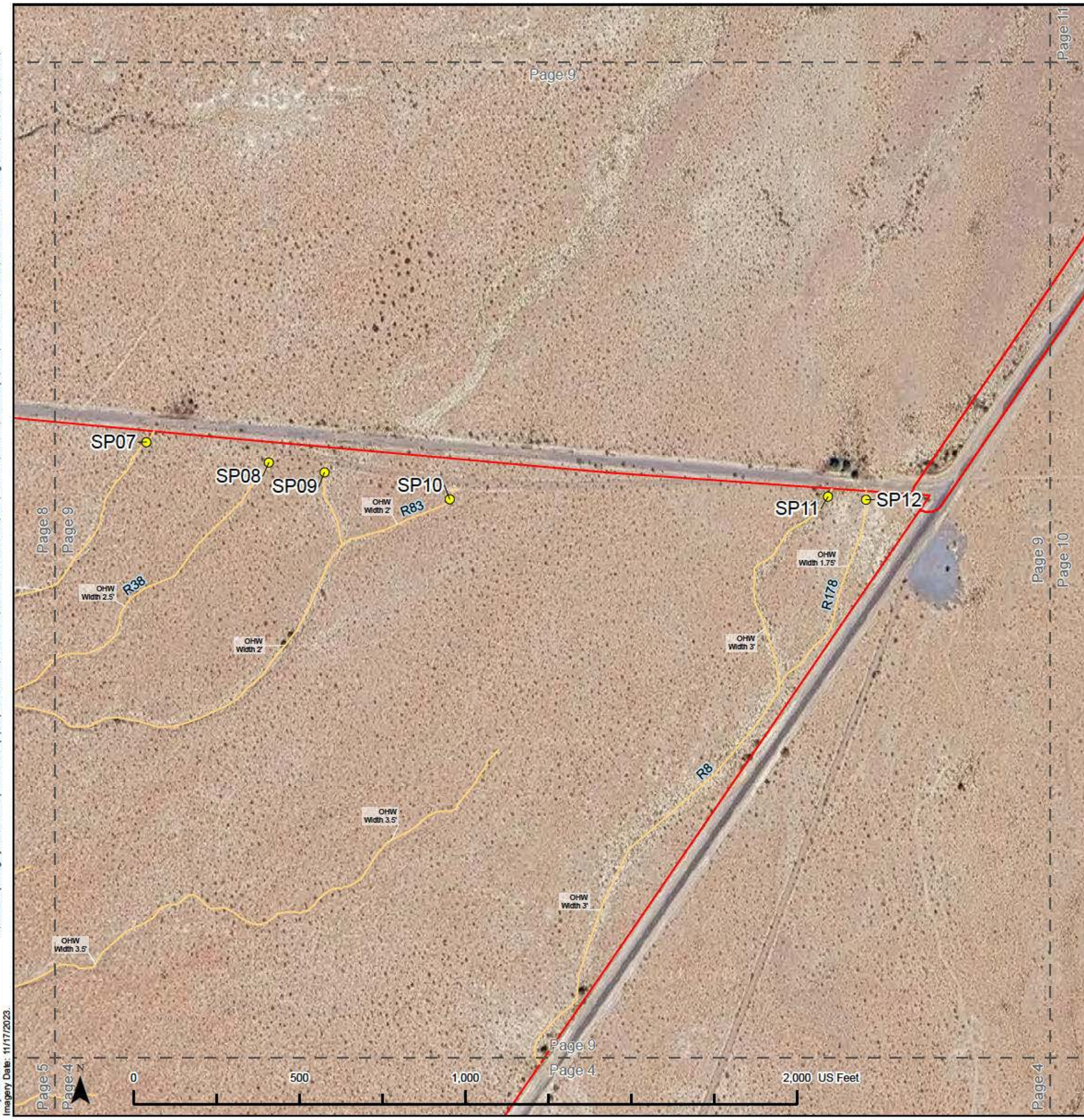

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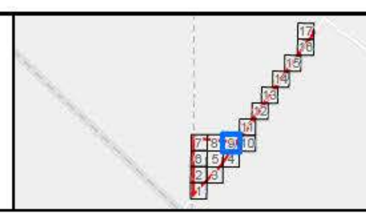

Figure 6b. Aquatic Resource Delineation Mapbook - Page 9

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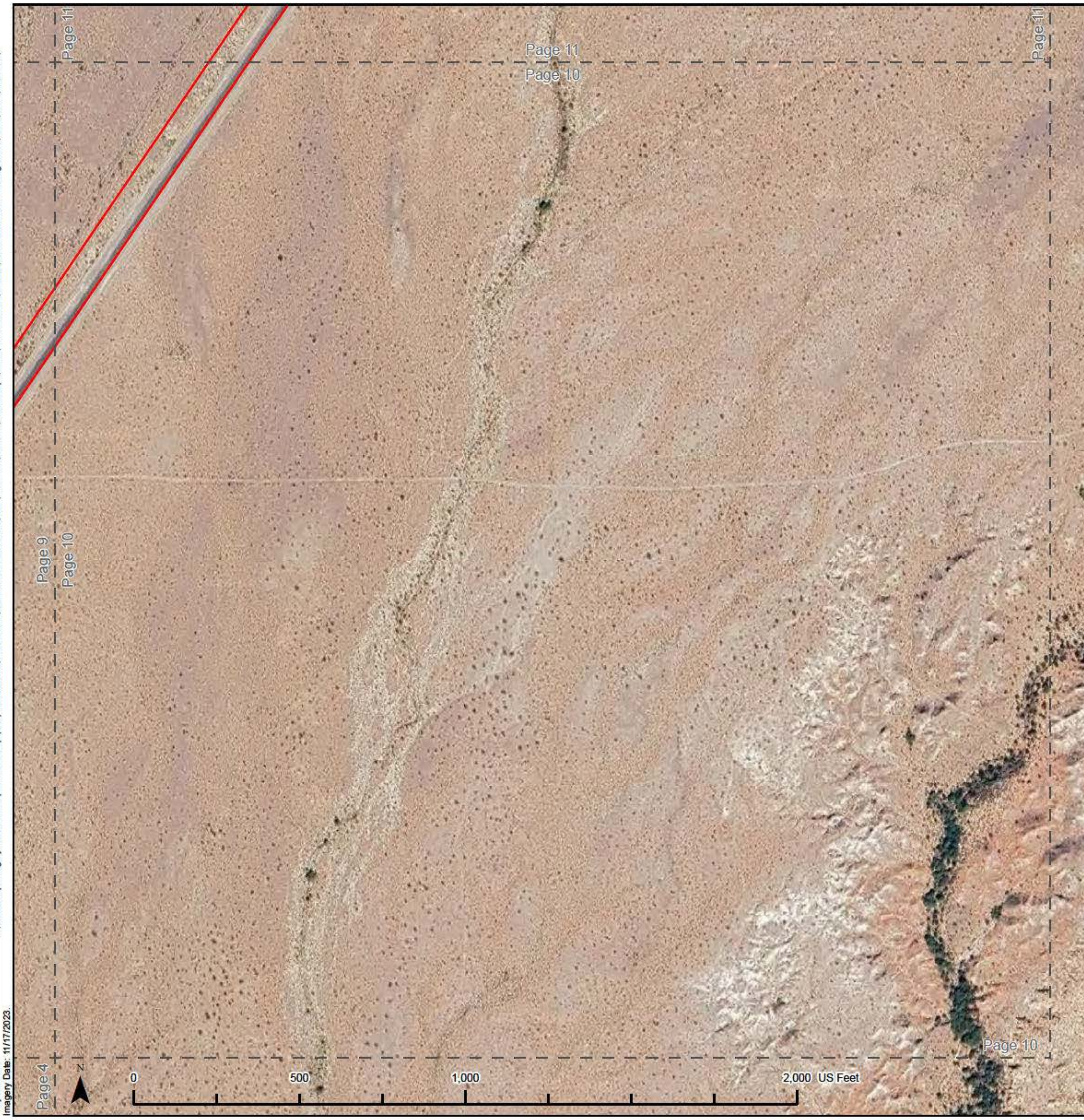

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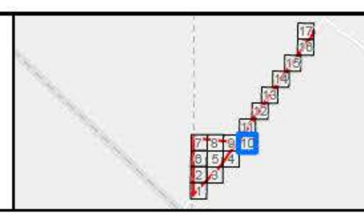

Figure 6b. Aquatic Resource Delineation Mapbook - Page 10

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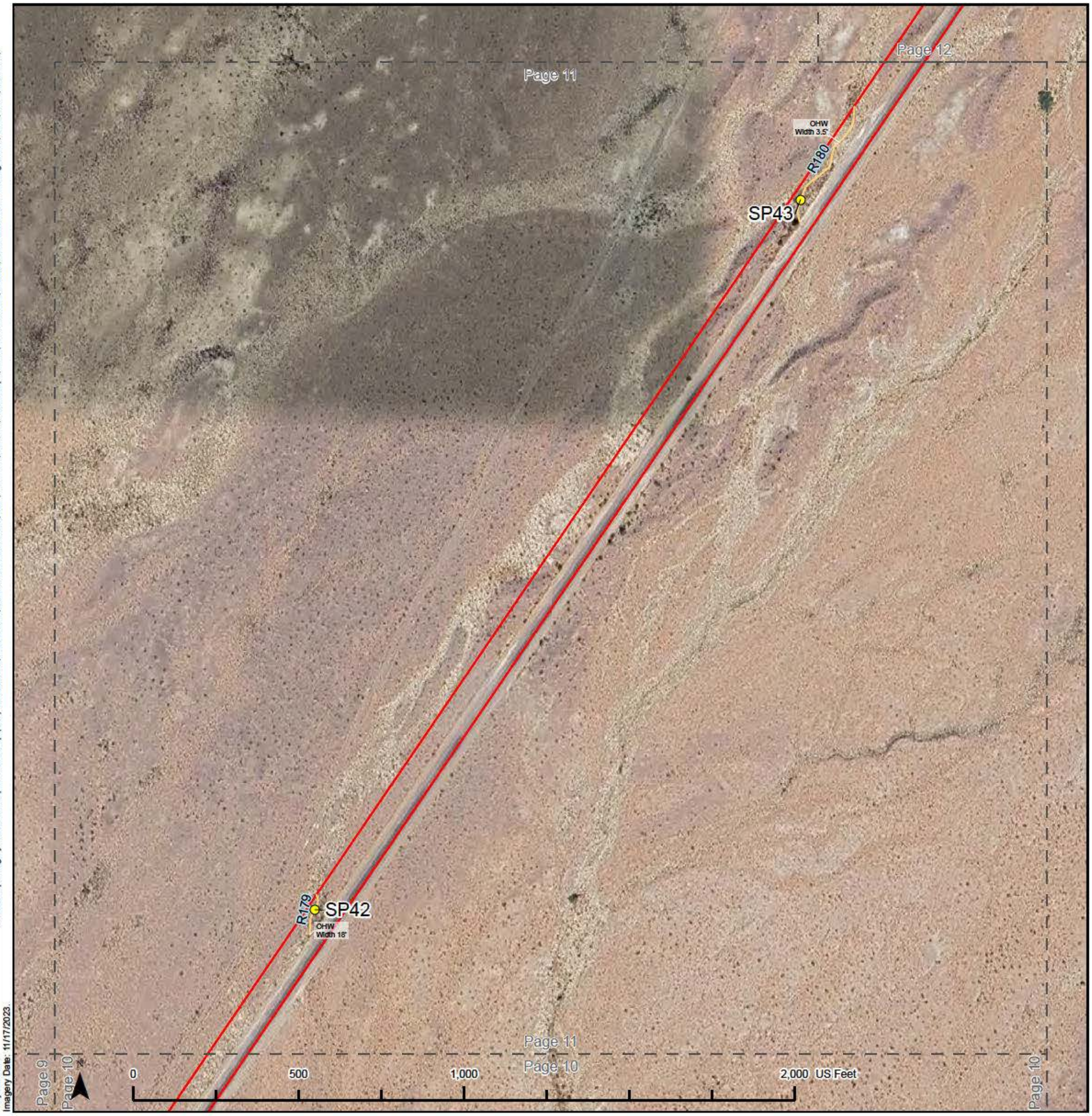

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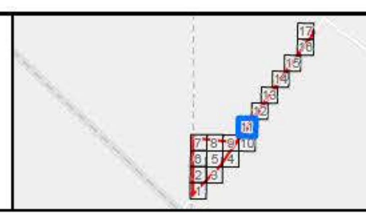

Figure 6b. Aquatic Resource Delineation Mapbook - Page 11

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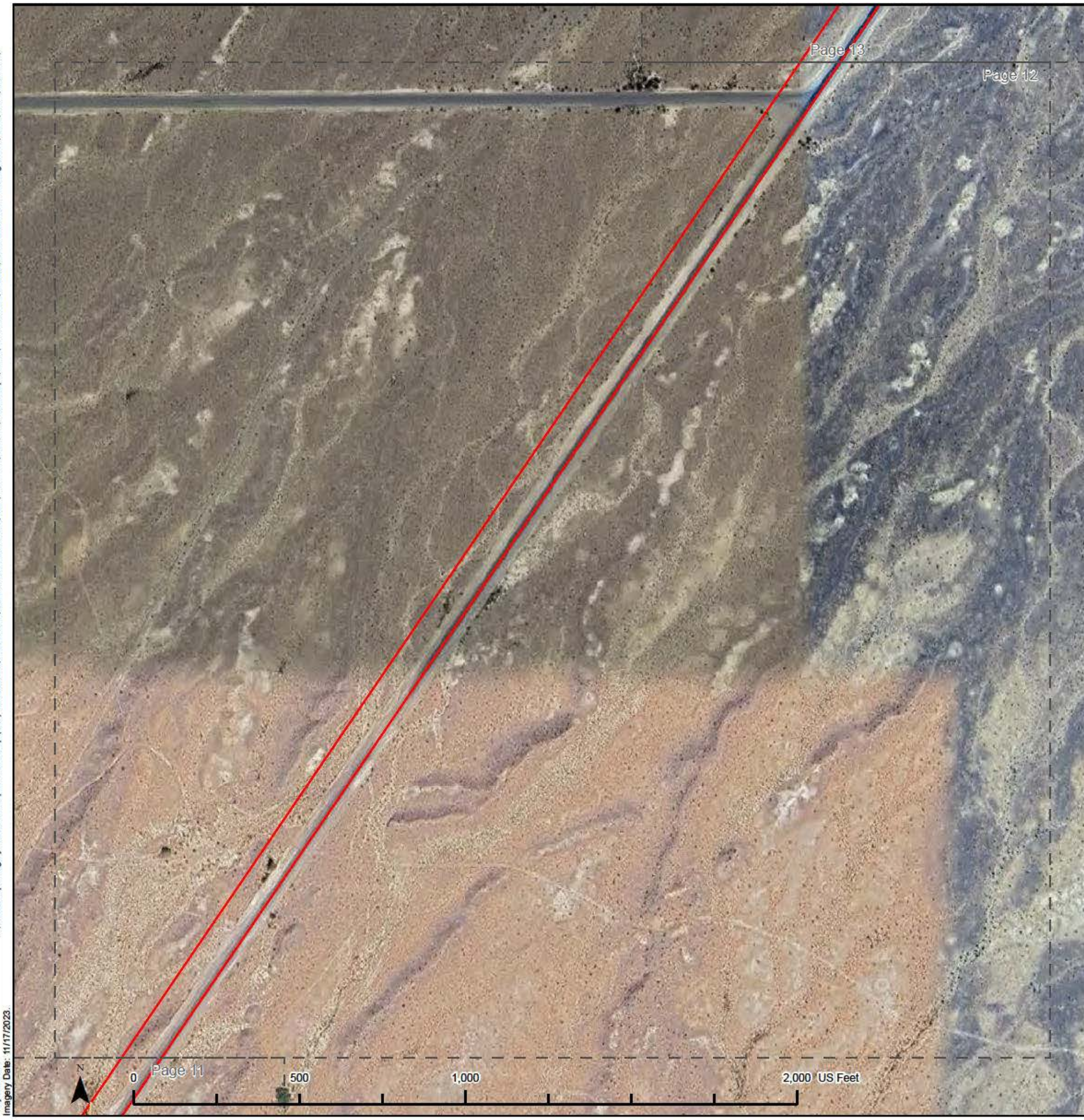

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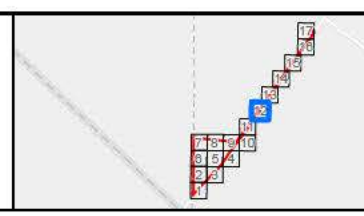

Figure 6b. Aquatic Resource Delineation Mapbook - Page 12

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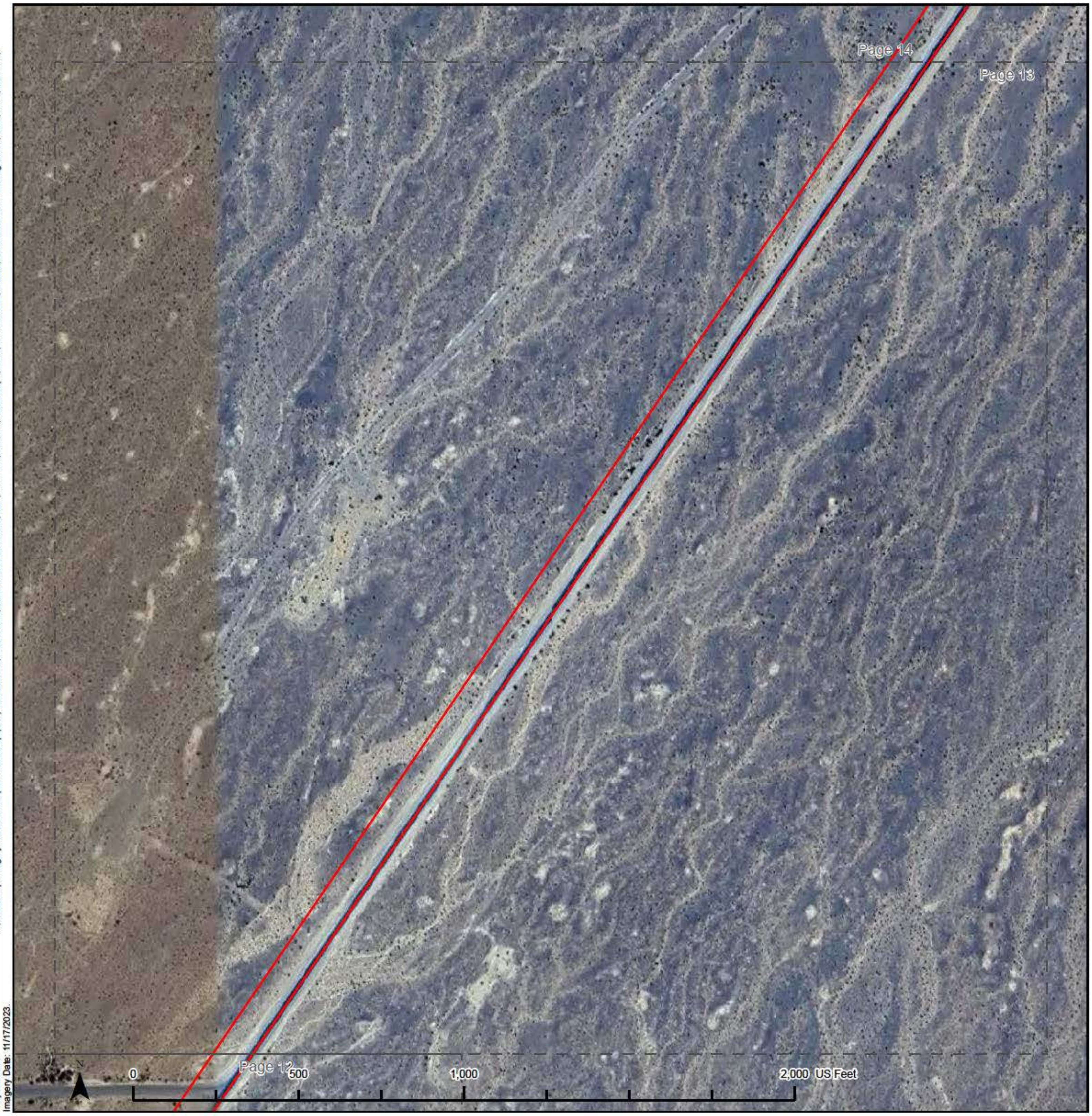

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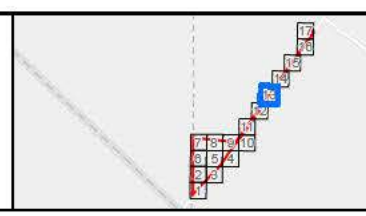

Figure 6b. Aquatic Resource Delineation Mapbook - Page 13

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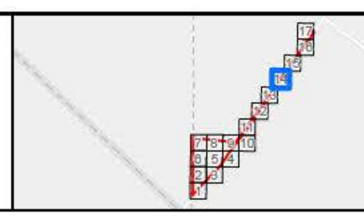

Figure 6b. Aquatic Resource Delineation Mapbook - Page 14

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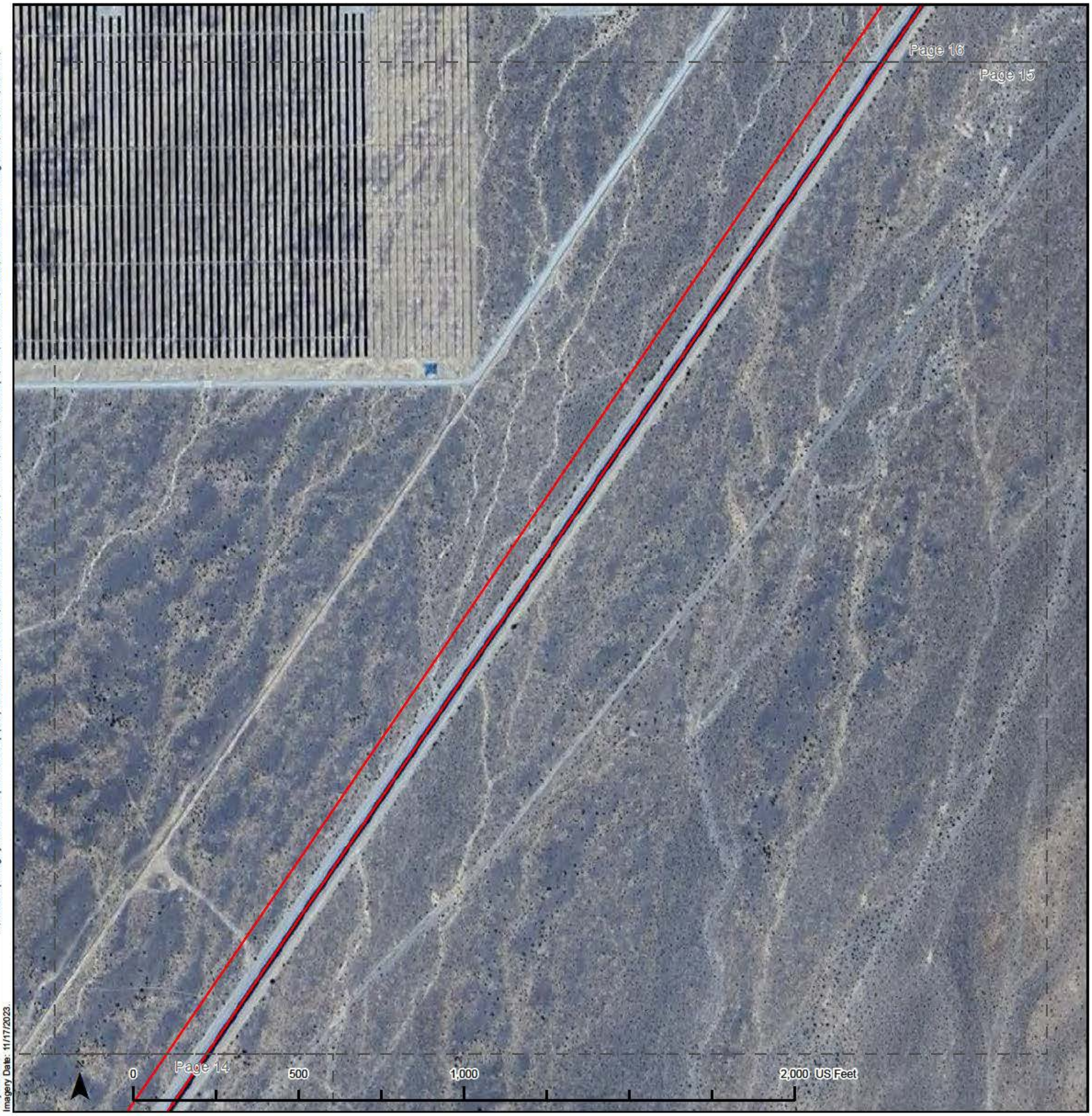

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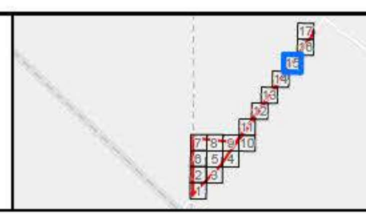

Figure 6b. Aquatic Resource Delineation Mapbook - Page 15

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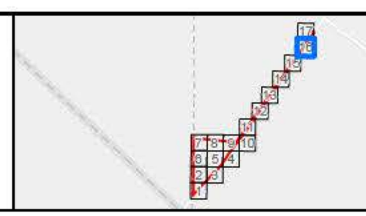

Figure 6b. Aquatic Resource Delineation Mapbook - Page 16

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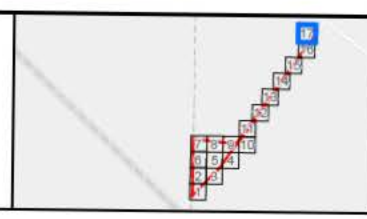

Figure 6b. Aquatic Resource Delineation Mapbook - Page 17

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Larrea Solar Farm Project
Clark County, Nevada

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Appendix B

Driving Directions

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Larrea Solar Project

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Appendix C

NRCS Custom Soil Resource Report

United States Department of Agriculture

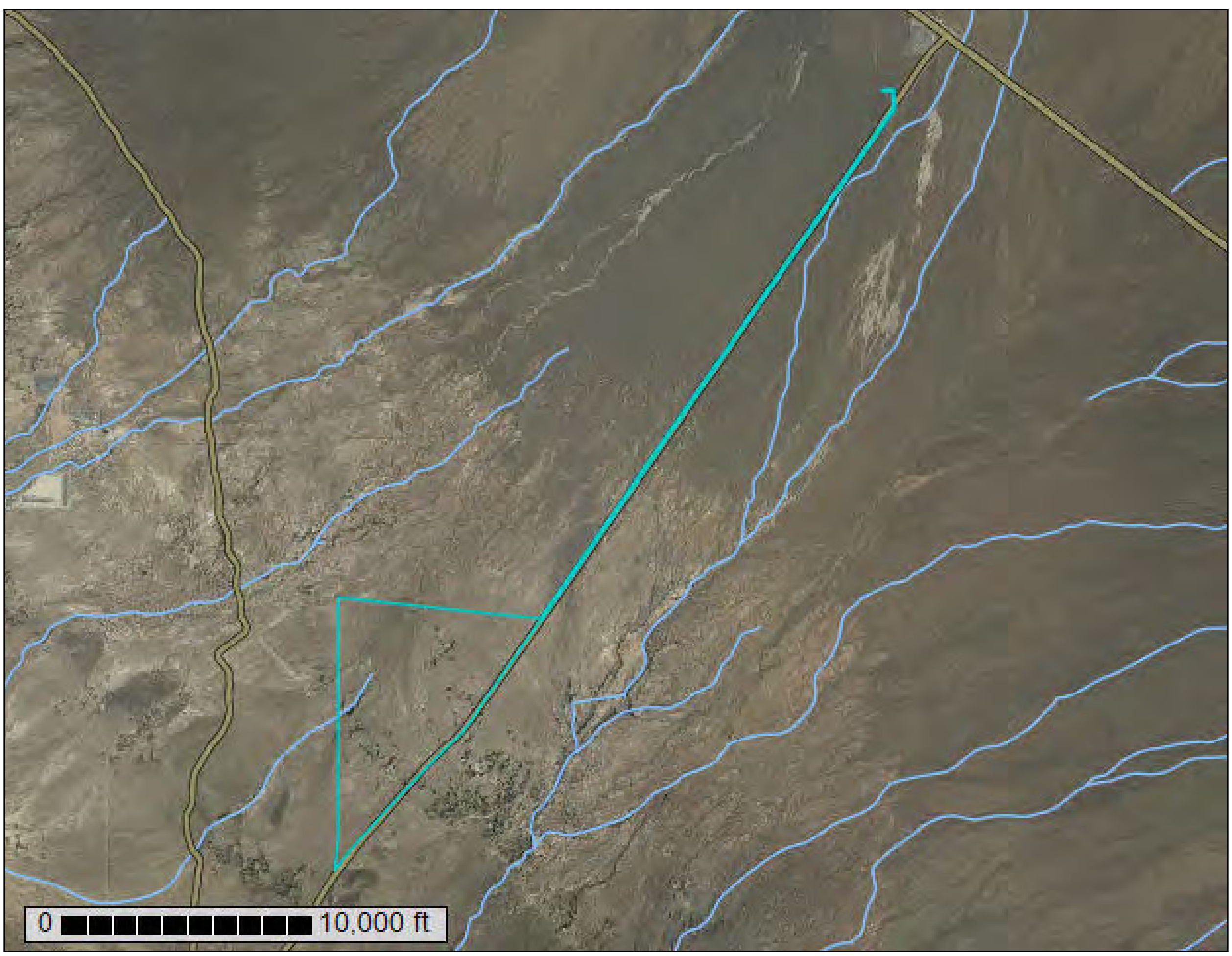
Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Clark County Area, Nevada

Larrea Solar Project



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March 26, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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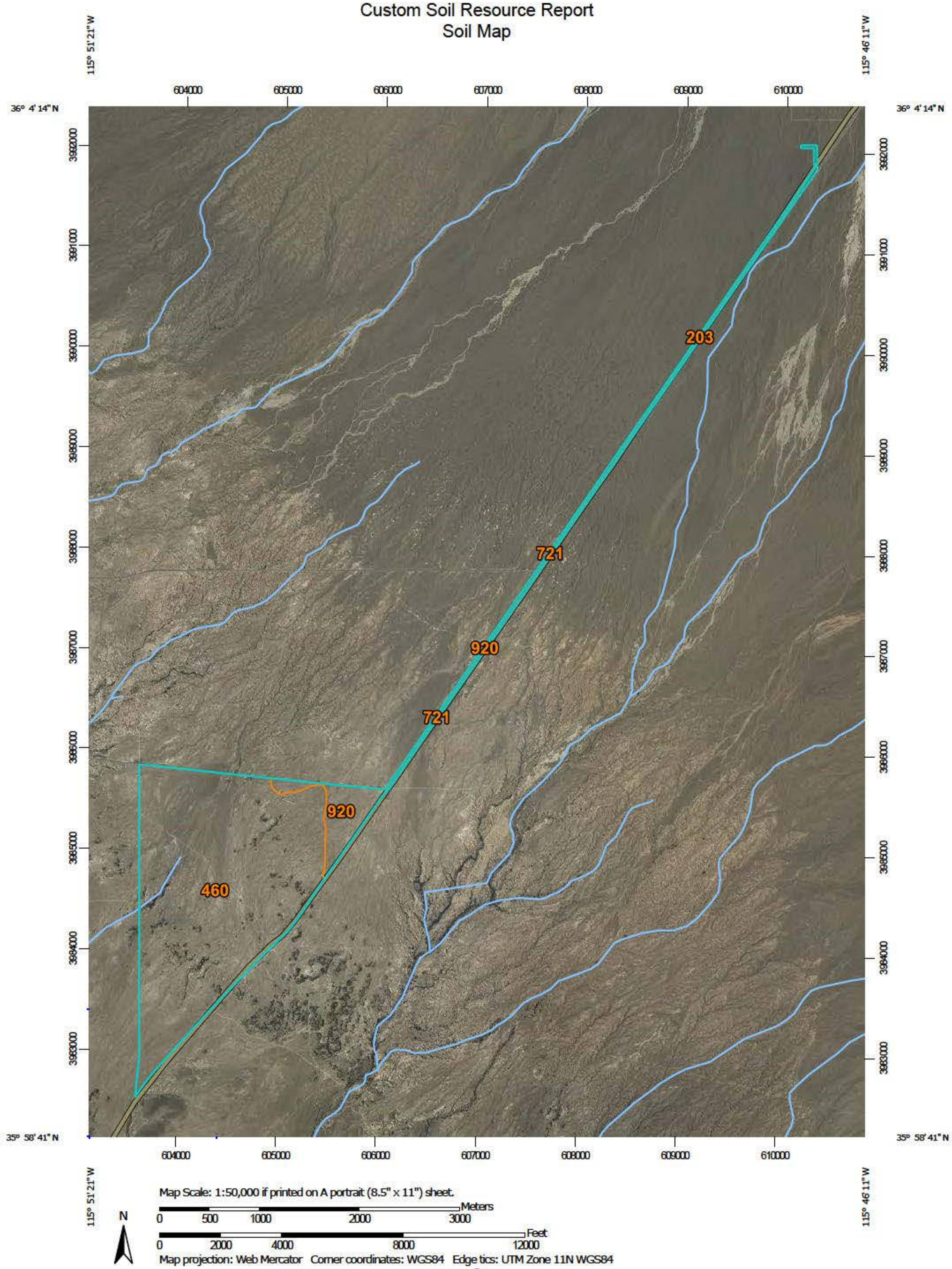
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map



Enclosure 1

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Clark County Area, Nevada
Survey Area Data: Version 19, Sep 8, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 3, 2019—May 14, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
203	Commski-Oldspan-Lastchance association	33.0	3.0%
460	Pahrump-Wodavar-Vegastorm association	969.6	87.2%
721	Corncreek-Badland-Pahrump association	13.4	1.2%
920	Tanazza-Wechech-Wodavar association	95.6	8.6%
Totals for Area of Interest		**1,112.4**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Clark County Area, Nevada

203—Commski-Oldspan-Lastchance association

Map Unit Setting

National map unit symbol: sknw
Elevation: 2,690 to 4,100 feet
Mean annual precipitation: 3 to 7 inches
Mean annual air temperature: 57 to 70 degrees F
Frost-free period: 180 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Commski and similar soils: 35 percent
Oldspan and similar soils: 30 percent
Lastchance and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Commski

Setting

Landform: Fan remnants
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Alluvium derived from limestone and dolomite

Typical profile

H1 - 0 to 5 inches: very gravelly fine sandy loam
H2 - 5 to 60 inches: extremely gravelly sandy loam

Properties and qualities

Slope: 2 to 8 percent
Surface area covered with cobbles, stones or boulders: 5.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 45 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 12.0
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: R030XA007NV - GRAVELLY LOAM 5-7 P.Z.
Other vegetative classification: Calcareous Loam 5-7 p.z. (030XA066NV_1)
Hydric soil rating: No

Description of Oldspan

Setting

Landform: Fan remnants
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium derived from limestone and sandstone

Typical profile

H1 - 0 to 3 inches: gravelly fine sandy loam
H2 - 3 to 10 inches: fine sandy loam
H3 - 10 to 20 inches: loam
H4 - 20 to 40 inches: stratified extremely gravelly loam to extremely gravelly loamy coarse sand
H5 - 40 to 60 inches: stratified extremely gravelly fine sandy loam to extremely gravelly loamy coarse sand

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 60 percent
Maximum salinity: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 45.0
Available water supply, 0 to 60 inches: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: R030XY092NV - DESERT PATINA
Hydric soil rating: No

Description of Lastchance

Setting

Landform: Fan remnants
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Alluvium derived from limestone and dolomite

Typical profile

H1 - 0 to 2 inches: extremely gravelly loam
H2 - 2 to 20 inches: very gravelly loam
H3 - 20 to 60 inches: cemented material

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: 20 to 30 inches to petrocalcic
Drainage class: Well drained

Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 50 percent
Maximum salinity: Nonsaline to slightly saline (0.4 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 13.0
Available water supply, 0 to 60 inches: Very low (about 1.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: R030XA007NV - GRAVELLY LOAM 5-7 P.Z.
Other vegetative classification: LIMY 5-7 P.Z. (030XA058NV_1)
Hydric soil rating: No

Minor Components

Weiser

Percent of map unit: 6 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R030XB102NV - GRAVELLY LOAM 5-7 P.Z.
Hydric soil rating: No

Lastchance

Percent of map unit: 4 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R030XA067NV - LIMY HILL 3-5 P.Z.
Other vegetative classification: Limy 3-5 p.z. (030XB019NV_2)
Hydric soil rating: No

Weiser

Percent of map unit: 3 percent
Landform: Fan remnants
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R030XB075NV - GRAVELLY FAN 5-7 P.Z.
Other vegetative classification: Gravelly Fan 5-7 p.z. (030XB075NV_1)
Hydric soil rating: No

Threelakes

Percent of map unit: 2 percent
Landform: Fan remnants
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R030XB066NV - BASALTIC FAN 5-7 P.Z.
Other vegetative classification: Calcareous Loam 5-7 p.z. (030XA066NV_1)
Hydric soil rating: No

460—Pahrump-Wodavar-Vegastorm association

Map Unit Setting

National map unit symbol: hqxg
Elevation: 2,390 to 3,120 feet
Mean annual precipitation: 3 to 7 inches
Mean annual air temperature: 55 to 66 degrees F
Frost-free period: 180 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Pahrump and similar soils: 40 percent
Wodavar and similar soils: 25 percent
Vegastorm and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pahrump

Setting

Landform: Lake terraces
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum from lacustrine deposits derived from limestone

Typical profile

A - 0 to 2 inches: gravelly loam
A - 2 to 6 inches: loam
Bk1 - 6 to 13 inches: very gravelly loam
Bk2 - 13 to 21 inches: very gravelly loam
Bk3 - 21 to 46 inches: very gravelly silt loam
C - 46 to 60 inches: silt loam

Properties and qualities

Slope: 4 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 0.99 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Slightly saline to strongly saline (4.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0

Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7c
Hydrologic Soil Group: C
Ecological site: R030XA053NV - CALCAREOUS LOAM 3-5 P.Z.
Other vegetative classification: CALCAREOUS LOAM 3-5 P.Z. (030XA053NV_1)
Hydric soil rating: No

Description of Wodavar

Setting

Landform: Alluvial flats
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum from lacustrine deposits derived from limestone

Typical profile

A - 0 to 3 inches: extremely gravelly fine sandy loam
Bk - 3 to 16 inches: very gravelly sandy loam
Bkm1 - 16 to 22 inches: cemented material
Bkm2 - 22 to 33 inches: cemented material
Bk - 33 to 60 inches: extremely gravelly loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: 16 inches to petrocalcic
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Very low (about 0.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R030XA066NV - CALCAREOUS LOAM 5-7 P.Z.
Other vegetative classification: Calcareous Loam 5-7 p.z. (030XA066NV_1)
Hydric soil rating: No

Description of Vegastorm

Setting

Landform: Alluvial flats
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium over lacustrine deposits

Typical profile

A - 0 to 3 inches: gravelly fine sandy loam
Bk1 - 3 to 12 inches: gravelly sandy loam
Bk2 - 12 to 20 inches: loam
2Bk3 - 20 to 26 inches: silt loam
3Bkq1 - 26 to 42 inches: gravelly sandy loam
3Bkq2 - 42 to 60 inches: loam

Properties and qualities

Slope: 0 to 4 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 0.99 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Very rare
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: R030XA066NV - CALCAREOUS LOAM 5-7 P.Z.
Other vegetative classification: Calcareous Loam 5-7 p.z. (030XA066NV_1)
Hydric soil rating: No

Minor Components

Bluepoint

Percent of map unit: 7 percent
Landform: Dunes
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R030XY045NV - DUNES 3-7 P.Z.
Other vegetative classification: DUNE 3-5" P.Z. (030XY045NV)
Hydric soil rating: No

Weiser

Percent of map unit: 4 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R030XB075NV - GRAVELLY FAN 5-7 P.Z.
Other vegetative classification: Gravelly Fan 5-7 p.z. (030XB075NV_1)
Hydric soil rating: No

Badland

Percent of map unit: 3 percent
Landform: Lake terraces

Landform position (two-dimensional): Backslope
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Grapevine

Percent of map unit: 1 percent
Landform: Alluvial flats
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R030XY046NV - OUTWASH PLAIN
Hydric soil rating: No

721—Corncreek-Badland-Pahrump association

Map Unit Setting

National map unit symbol: hqz7
Elevation: 2,760 to 3,150 feet
Mean annual precipitation: 3 to 7 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 180 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

Corncreek and similar soils: 35 percent
Badland: 30 percent
Pahrump and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Corncreek

Setting

Landform: Fan skirts
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Alluvium derived from limestone and dolomite over lacustrine deposits

Typical profile

H1 - 0 to 1 inches: extremely gravelly fine sandy loam
H2 - 1 to 4 inches: gravelly fine sandy loam
H3 - 4 to 31 inches: extremely gravelly sandy loam
H4 - 31 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 4 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 95 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 30.0
Available water supply, 0 to 60 inches: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: R030XA066NV - CALCAREOUS LOAM 5-7 P.Z.
Hydric soil rating: No

Description of Badland

Setting

Landform: Lakebeds (relict)
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Lacustrine deposits and/or marine deposits

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Description of Pahrump

Setting

Landform: Lake terraces
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum from lacustrine deposits derived from limestone

Typical profile

A - 0 to 2 inches: gravelly loam
Bk1 - 2 to 6 inches: loam
Bk - 6 to 46 inches: very gravelly silt loam
C - 46 to 60 inches: silt loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Frequency of ponding: None
Calcium carbonate, maximum content: 60 percent
Maximum salinity: Slightly saline to strongly saline (4.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 30.0
Available water supply, 0 to 60 inches: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7c
Hydrologic Soil Group: C
Ecological site: R030XA066NV - CALCAREOUS LOAM 5-7 P.Z.
Hydric soil rating: No

Minor Components

Pahrump

Percent of map unit: 5 percent
Landform: Lake terraces
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R030XA053NV - CALCAREOUS LOAM 3-5 P.Z.
Hydric soil rating: No

Pahrump, rarely flooded

Percent of map unit: 4 percent
Landform: Fan remnants
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R030XY013NV - SHALLOW SILTY
Hydric soil rating: No

Weiser

Percent of map unit: 4 percent
Landform: Fan remnants
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R030XB005NV - Arid Active Alluvial Fans
Hydric soil rating: No

Haymont, rarely flooded

Percent of map unit: 2 percent
Landform: Fan skirts
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R030XY046NV - OUTWASH PLAIN
Hydric soil rating: No

920—Tanazza-Wechech-Wodavar association

Map Unit Setting

National map unit symbol: hr0d
Elevation: 2,690 to 3,020 feet
Mean annual precipitation: 3 to 7 inches
Mean annual air temperature: 57 to 69 degrees F
Frost-free period: 180 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Tanazza and similar soils: 36 percent
Wechech and similar soils: 35 percent
Wodavar and similar soils: 15 percent
Minor components: 14 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tanazza

Setting

Landform: Lake terraces
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Lacustrine deposits

Typical profile

H1 - 0 to 2 inches: fine sandy loam
H2 - 2 to 4 inches: fine sandy loam
H3 - 4 to 15 inches: silt loam
H4 - 15 to 31 inches: silty clay loam
H5 - 31 to 37 inches: gypsiferous material
H6 - 37 to 45 inches: silty clay loam
H7 - 45 to 60 inches: gypsiferous material

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 80 percent
Gypsum, maximum content: 80 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)

Sodium adsorption ratio, maximum: 5.0
Available water supply, 0 to 60 inches: Moderate (about 7.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7c
Hydrologic Soil Group: C
Ecological site: R030XY049NV - BREAKS 3-7 P.Z.
Other vegetative classification: Breaks 3-8 inches (030XY049NV)
Hydric soil rating: No

Description of Wechech

Setting

Landform: Fan remnants
Landform position (two-dimensional): Summit
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Alluvium derived from limestone and dolomite

Typical profile

H1 - 0 to 2 inches: very gravelly sandy loam
H2 - 2 to 7 inches: very gravelly sandy loam
H3 - 7 to 13 inches: very gravelly sandy loam
H4 - 13 to 60 inches: cemented material

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: 8 to 14 inches to petrocalcic
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 50 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water supply, 0 to 60 inches: Very low (about 0.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R030XB005NV - Arid Active Alluvial Fans
Hydric soil rating: No

Description of Wodavar

Setting

Landform: Alluvial flats
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Residuum from lacustrine deposits derived from limestone

Typical profile

H1 - 0 to 3 inches: extremely gravelly fine sandy loam

H2 - 3 to 16 inches: very gravelly sandy loam
H3 - 16 to 33 inches: cemented material
H4 - 33 to 60 inches: extremely gravelly loam

Properties and qualities
Slope: 2 to 8 percent
Depth to restrictive feature: 10 to 20 inches to petrocalcic
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 60 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 12.0
Available water supply, 0 to 60 inches: Very low (about 0.9 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R030XA066NV - CALCAREOUS LOAM 5-7 P.Z.
Other vegetative classification: Calcareous Loam 5-7 p.z. (030XA066NV_1)
Hydric soil rating: No

Minor Components

Typic haplocalcids
Percent of map unit: 6 percent
Landform: Alluvial flats
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R030XA050NV - LOAMY 3-5 P.Z.
Other vegetative classification: CALCAREOUS LOAM 3-5 P.Z. (030XA053NV_1)
Hydric soil rating: No

Typic haplocalcids
Percent of map unit: 5 percent
Landform: Alluvial flats
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R030XA053NV - CALCAREOUS LOAM 3-5 P.Z.
Other vegetative classification: LOAMY 3-5 P.Z. (030XA050NV_1)
Hydric soil rating: No

Bluepoint
Percent of map unit: 3 percent
Landform: Sand sheets
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R030XY045NV - DUNES 3-7 P.Z.
Other vegetative classification: DUNE 3-5" P.Z. (030XY045NV)
Hydric soil rating: No

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Appendix C Table 1. Summary of Pertinent Characteristics of Soils Mapped Onsite by NRCS										
Mapunit Name	**Soil Series Name**	**Landform**	**Parent Material**	**Typical Profile**	**% Slope**	**Drainage Class**	**Runoff Class**	**Ksat**	**Flooding Frequency - Dominant Condition**	**Ponding Frequency - Presence**
Commski-Oldspan-Lastchance association	Oldspan	fan remnants	mixed alluvium derived from limestone and sandstone	H1 - 0 to 3 inches: Gravelly fine sandy loam; H2 - 3 to 10 inches: Fine sandy loam; H3 - 10 to 20 inches: Loam; H4 - 20 to 40 inches: Stratified extremely gravelly loam to extremely gravelly loamy coarse sand; H5 - 40 to 60 inches: Stratified extremely gravelly fine sandy loam to extremely gravelly loamy coarse sand	2 to 8 percent	Well drained	Low	0.57 to 1.98 in/hr	None	None
Commski-Oldspan-Lastchance association	Lastchance	fan remnants	alluvium derived from limestone and dolomite	H1 - 0 to 2 inches: Extremely gravelly loam; H2 - 2 to 20 inches: Very gravelly loam; H3 - 20 to 60 inches: Cemented material	2 to 8 percent	Well drained	High	0 to 0.2 in/hr	None	None
Commski-Oldspan-Lastchance association	Commski	fan remnants	alluvium derived from limestone and dolomite	H1 - 0 to 5 inches: Very gravelly fine sandy loam; H2 - 5 to 60 inches: Extremely gravelly sandy loam	2 to 8 percent	Well drained	Medium	1.98 to 5.95 in/hr	None	None
Commski-Oldspan-Lastchance association	Lastchance	fan remnants	alluvium derived from limestone and dolomite	H1 - 0 to 2 inches: Very gravelly sandy loam; H2 - 2 to 13 inches: Very gravelly fine sandy loam; H3 - 13 to 17 inches: Cemented material	0 to 4 percent	Well drained	Very high	0 to 0 in/hr	None	None
Corncreek-Badland-Pahrump association	Badland	lakebeds (relict)	lacustrine deposits and/or marine deposits	- to inches:	30 to 75 percent	Well drained		to in/hr	None	None
Corncreek-Badland-Pahrump association	Corncreek	fan skirts	alluvium derived from limestone and dolomite over lacustrine deposits	H1 - 0 to 1 inches: Extremely gravelly fine sandy loam; H2 - 1 to 4 inches: Gravelly fine sandy loam; H3 - 4 to 31 inches: Extremely gravelly sandy loam; H4 - 31 to 60 inches: Silt loam	0 to 4 percent	Well drained	Very low	0.57 to 1.98 in/hr	None	None
Corncreek-Badland-Pahrump association	Pahrump	fan remnants	lacustrine deposits	H1 - 0 to 2 inches: Gravelly loam; H2 - 2 to 16 inches: Stratified very fine sandy loam to loam; H3 - 16 to 42 inches: Stratified very gravelly silt loam to very gravelly silty clay loam; H4 - 42 to 60 inches: Very fine sandy loam	0 to 4 percent	Well drained	Low	0.2 to 0.57 in/hr	None	None
Corncreek-Badland-Pahrump association	Pahrump	lake terraces	residuum from lacustrine deposits derived from limestone	A - 0 to 2 inches: Gravelly loam; Bk - 6 to 46 inches: Very gravelly silt loam; Bk1 - 2 to 6 inches: Loam; C - 46 to 60 inches: Silt loam	2 to 8 percent	Well drained	Low	0.2 to 0.57 in/hr	None	None

Appendix C Table 1. Summary of Pertinent Characteristics of Soils Mapped Onsite by NRCS										
Mapunit Name	**Soil Series Name**	**Landform**	**Parent Material**	**Typical Profile**	**% Slope**	**Drainage Class**	**Runoff Class**	**Ksat**	**Flooding Frequency - Dominant Condition**	**Ponding Frequency - Presence**
Corncreek-Badland-Pahrump association	Pahrump	lake terraces	lacustrine deposits	Bk1 - 2 to 6 inches: Loam; H1 - 0 to 2 inches: Gravelly loam; H3 - 6 to 46 inches: Stratified very gravelly silt loam to very gravelly silty clay loam; H4 - 46 to 60 inches: Very fine sandy loam	4 to 15 percent	Well drained	Medium	0.2 to 0.57 in/hr	None	None
Pahrump-Wodavar-Vegastorm association	Vegastorm	alluvial flats	mixed alluvium over lacustrine deposits	2Bk3 - 20 to 26 inches: Silt loam; 3Bkq1 - 26 to 42 inches: Gravelly sandy loam; 3Bkq2 - 42 to 60 inches: Loam; A - 0 to 3 inches: Gravelly fine sandy loam; Bk1 - 3 to 12 inches: Gravelly sandy loam; Bk2 - 12 to 20 inches: Loam	0 to 4 percent	Well drained	Low	0.14 to 0.99 in/hr	None	None
Pahrump-Wodavar-Vegastorm association	Pahrump	lake terraces	residuum from lacustrine deposits derived from limestone	A - 0 to 2 inches: Gravelly loam; A - 2 to 6 inches: Loam; Bk1 - 6 to 13 inches: Very gravelly loam; Bk2 - 13 to 21 inches: Very gravelly loam; Bk3 - 21 to 46 inches: Very gravelly silt loam; C - 46 to 60 inches: Silt loam	4 to 15 percent	Well drained	Low	0.14 to 0.99 in/hr	None	None
Pahrump-Wodavar-Vegastorm association	Wodavar	alluvial flats	residuum from lacustrine deposits derived from limestone	A - 0 to 3 inches: Extremely gravelly fine sandy loam; Bk - 33 to 60 inches: Extremely gravelly loam; Bk - 3 to 16 inches: Very gravelly sandy loam; Bkm1 - 16 to 22 inches: Cemented material; Bkm2 - 22 to 33 inches: Cemented material	2 to 8 percent	Well drained	Very high	0 to 0.01 in/hr	None	None
Tanazza-Wechech-Wodavar association	Wodavar	alluvial flats	residuum from lacustrine deposits derived from limestone	H1 - 0 to 3 inches: Extremely gravelly fine sandy loam; H2 - 3 to 16 inches: Very gravelly sandy loam; H3 - 16 to 33 inches: Cemented material; H4 - 33 to 60 inches: Extremely gravelly loam	2 to 8 percent	Well drained	Very high	0 to 0 in/hr	None	None

Appendix C Table 1. Summary of Pertinent Characteristics of S ils Mapped Onsite by NRCS										
Mapunit Name	**Soil Series Name**	**Landform**	**Parent Material**	**Typical Profile**	**% Slope**	**Drainage Class**	**Runoff Class**	**Ksat**	**Flooding Frequency - Dominant Condition**	**Ponding Frequency - Presence**
Tanazza-Wechech-Wodavar association	Wechech	fan remnants	alluvium derived from limestone and dolomite	H1 - 0 to 2 inches: Very gravelly sandy loam; H2 - 2 to 7 inches: Very gravelly sandy loam; H3 - 7 to 13 inches: Very gravelly sandy loam; H4 - 13 to 60 inches: Cemented material	2 to 8 percent	Well drained	Very high	0 to 0 in/hr	None	None
Tanazza-Wechech-Wodavar association	Tanazza	lake terraces	lacustrine deposits	H1 - 0 to 2 inches: Fine sandy loam; H2 - 2 to 4 inches: Fine sandy loam; H3 - 4 to 15 inches: Silt loam; H4 - 15 to 31 inches: Silty clay loam; H5 - 31 to 37 inches: Gypsiferous material; H6 - 37 to 45 inches: Silty clay loam; H7 - 45 to 60 inches: Gypsiferous material;	2 to 8 percent	Well drained	Medium	0.2 to 0.57 in/hr	None	None

Appendix D

Precipitation Analysis

WETS Table

WETS Station [redacted] NW, NV								
Requested years: 1971 - 2022								
Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0.10 or more	Avg Snowfall
Jan	58.1	28.2	43.1	0.68	0.25	0.72	2	0.1
Feb	62.5	32.6	47.6	0.79	0.20	0.82	2	0.0
Mar	68.6	38.6	53.6	0.63	0.21	0.66	2	0.0
Apr	76.1	44.5	60.3	0.32	0.09	0.31	1	0.0
May	84.9	53.0	69.0	0.22	0.07	0.21	1	0.0
Jun	95.9	61.5	78.7	0.06	0.00	0.04	0	0.0
Jul	101.3	68.3	84.8	0.41	0.10	0.37	1	0.0
Aug	99.7	66.2	83.0	0.32	0.10	0.30	1	0.0
Sep	92.7	57.5	75.1	0.29	0.06	0.26	1	0.0
Oct	80.9	45.4	63.2	0.32	0.07	0.26	1	0.0
Nov	67.3	34.1	50.7	0.32	0.00	0.27	1	0.0
Dec	57.4	27.3	42.4	0.55	0.17	0.57	1	0.1
Annual:					3.53	5.99		
Average	78.8	46.4	62.6	-	-	-	-	-
Total	-	-	-	4.90			13	0.3

GROWING SEASON DATES			
Years with missing data:	24 deg = 8	28 deg = 7	32 deg = 6
Years with no occurrence:	24 deg = 0	28 deg = 0	32 deg = 0
Data years used:	24 deg = 44	28 deg = 45	32 deg = 46
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	2/19 to 11/21: 275 days	3/7 to 11/13: 251 days	3/29 to 11/3: 219 days
70 percent *	2/12 to 11/29: 290 days	2/28 to 11/20: 265 days	3/21 to 11/11: 235 days
* Percent chance of the growing season occurring between the Beginning and Ending dates.			

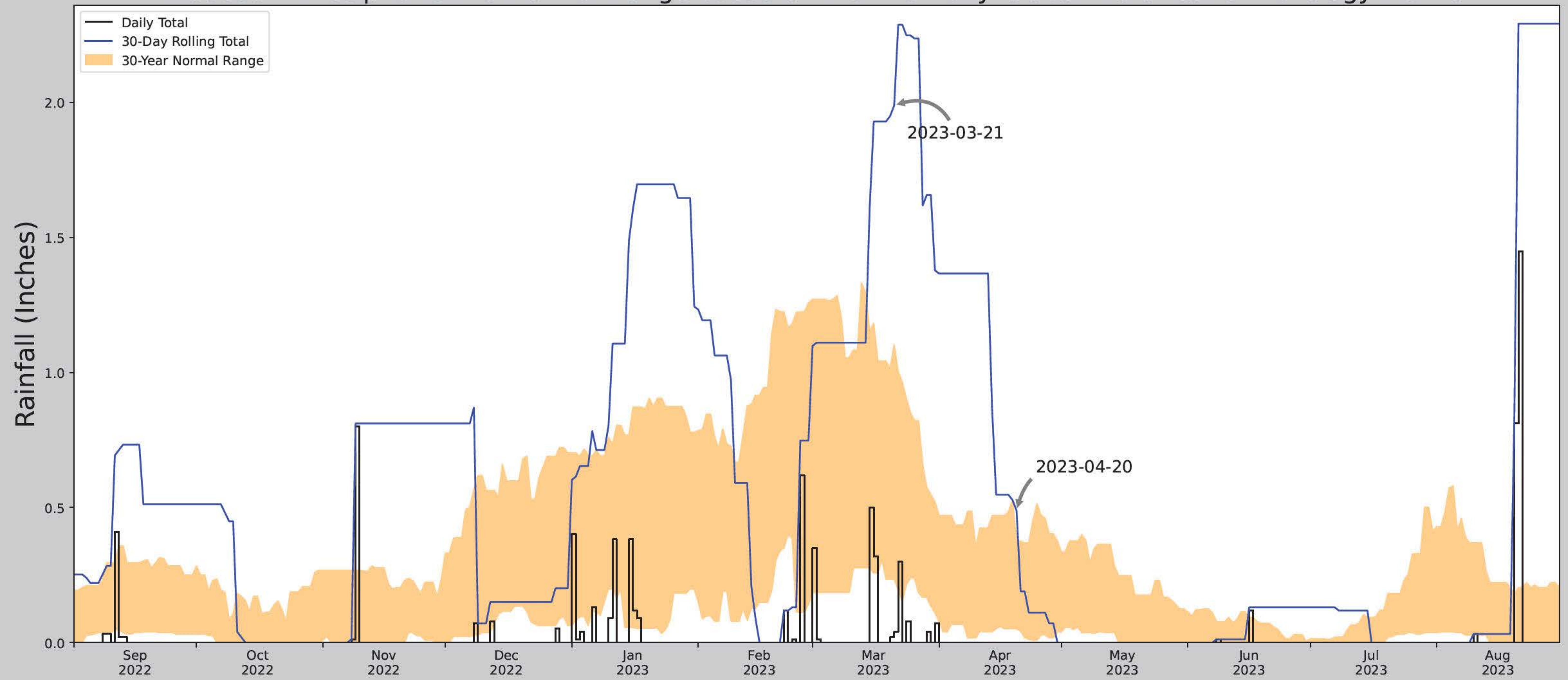
STATS TABLE - total precipitation (inches)													
Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annl
1914			0.14	1.56	T	0.09		0.02	0.42	0.05	0.00	1.01	3.29
1915	1.20	1.40											2.60
1916							0.64	0.42			0.00	0.58	1.64
1917	1.13	0.13	0.10	0.49		0.00							1.85
1918	0.13	1.15	1.83		M0.37							2.25	5.73
1919									M0.32	0.00	M0.03	M0.50	0.85
1920	0.94	1.31	0.72	0.07	0.79	1.10	0.21	0.40	0.00	1.25	0.12	0.35	7.26
1921	1.27	0.25	0.42	0.05			0.00	0.31	0.05	0.25	T	M0.82	3.42
1922	M0.91	M0.65	0.59	0.37	M0.14	0.21	0.39	M0.80		0.10	0.10	0.50	4.76
1923	1.03	0.30	0.00	0.10	T	0.00	0.20		1.45			0.53	3.61

1924	0.15		M0.01	0.08	0.00	0.00	MT	0.00	0.00	0.00	0.00	0.71	0.95
1925	T	0.00	0.55							0.29	T	0.00	0.84
1926													
1927													
1928													
1929													
1930													
1931													
1932													
1933													
1934													
1935													
1936													
1937													
1938													
1939													
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948											0.00	0.45	0.45
1949	1.11	1.68	0.96	0.03	0.81	0.30	0.12	0.08	0.05	0.08	0.45	0.06	5.73
1950	T	0.32	0.02	0.02	0.00	0.00	0.56	T	0.80	0.00	0.16	0.00	1.88
1951	1.06	0.19	0.03										1.28
1952				0.39	0.00	0.00	0.16	0.00	0.69	0.00	0.65	M0.70	2.59
1953													
1954													
1955													
1956													
1957													
1958							0.11	0.71	0.23	0.52	0.50	0.00	2.07
1959	0.18	1.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	T	0.73	M0.58	2.79
1960	0.66	0.91	0.21	0.10	0.00	0.00	0.00	0.00	0.35	0.85	1.69	T	4.77
1961	0.70	0.00	0.00	0.08	0.00	0.00	0.04	0.48	0.00	0.00	1.00		2.30
1962	M0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.91	0.55	0.00	0.50	2.46
1963	0.00	1.00	0.24	0.00	0.00	T	0.00	0.34	1.20	0.26	0.54	0.00	3.58
1964			0.29	0.16	0.14	0.00	0.22	0.26	T	T	0.14	T	1.21
1965	0.06	T	0.32	2.37	0.29	T	0.72	1.01	T	0.00	1.97	2.38	9.12
1966	0.50	0.21	0.01	0.05	T	T	0.37	0.00	0.10	0.07	0.06	0.21	1.58
1967	0.54	0.00	0.00	0.59	0.00								1.13
1968													
1969		3.35	0.45	0.05	0.55	0.88	0.07	0.00	0.04	0.01	0.01	0.00	5.41
1970	0.08	0.60	0.64	0.01	0.00	0.00	0.05	0.59	0.00	T	0.51	0.45	2.93

1971	0.00	0.11	0.00	0.06	0.75	0.00	0.00	0.10	0.00	0.00	0.00	1.02	2.04
1972	0.00	0.00	0.00	0.06	0.30	0.35	0.00	0.25	1.66	0.54	0.83	T	3.99
1973	0.70	1.09	1.85	0.00	0.04	T	0.00	0.43	0.00	0.00	0.04	0.06	4.21
1974	1.04	M0.00	0.13	0.00	0.01	0.00	0.21	0.40	0.02	0.77	0.13	0.64	3.35
1975	0.05	0.14	0.81	0.65	0.12	0.05	0.01	T	0.17	0.02	0.01	0.01	2.04
1976	0.00	2.55	0.13	0.26	0.50	0.00	0.82	0.00	1.64	0.74	0.01	0.08	6.73
1977	0.24	0.00	0.04	0.00	1.42	0.12	0.00	0.60	0.27	0.07	0.00	1.34	4.10
1978	1.29	1.24	M2.05	0.97	0.37	0.00	0.03	0.06	0.08	0.70	1.02	0.97	8.78
1979	M1.52	2.66	1.19	0.39	0.09	0.00	0.73	0.21	0.03	0.00	0.00	0.22	7.04
1980	2.35	2.27	1.28	0.66	0.47	0.05	0.66	0.00	0.09		0.00	0.00	7.83
1981	0.48	0.12	1.19	0.18	0.61	0.00	0.00	0.18	0.10	0.18	0.58		3.62
1982	0.65	0.60	1.55	0.19	0.35	T	0.04	0.25	0.26	0.04	0.83	0.35	5.11
1983	0.82	0.93	1.81	0.47	0.00	0.00	0.00	3.05	0.17	0.12	0.48	0.70	8.55
1984	0.00	0.10	0.00	0.27	0.00	0.01	0.92	3.11	0.04	0.02	2.08	1.86	8.41
1985	0.35	0.04	0.02	0.01	0.14	0.00	0.46	0.00	0.33	M0.02	0.85	0.23	2.45
1986	0.15	0.24	0.82	0.11	0.14	0.01	0.11	0.46	0.02	0.11	M0.96	0.10	3.23
1987	0.82	0.35	0.71	0.55	0.62	0.27	1.25	0.00	0.03	0.59	1.33	0.89	7.41
1988	1.15	0.20	0.04	2.34	0.01	0.01	0.01		0.02	0.00	0.10	M0.15	4.03
1989	0.72	0.15	0.49	0.00	0.33	0.00	0.00	0.17	0.22	0.03	0.00	0.00	2.11
1990	M0.57	0.90	0.24	T	0.09	0.36	3.10	0.30	0.37	0.05	0.09	0.08	6.15
1991	0.29	0.70	1.99	0.00	T	MT	0.80	0.08	0.41	0.15	T	0.68	5.10
1992	0.73	1.67	2.94	0.14	0.28	0.00	0.54	0.17	0.08	0.38	0.00	1.41	8.34
1993	2.23	2.89	0.84	0.00	0.00	0.46	0.00	0.56	0.03	0.14	0.10	0.46	7.71
1994	0.24	0.42	0.19	0.08	0.07	0.00	0.04	0.16	0.13	0.13	0.23	1.49	3.18
1995	3.87	0.08		0.21	0.82	0.01	0.04	0.35	0.00	T	0.00	0.05	5.43
1996	0.02	0.49	0.12	T	0.15	0.05	0.03	T	0.00	0.50	0.54	M0.52	2.42
1997	0.58	0.04	0.00	0.01	T	0.31	0.13	T	1.82	0.00	0.57	0.31	3.77
1998	0.26	3.32	1.06	0.43	0.95	0.42	1.06	0.19	M0.58	0.04	0.07	M0.11	8.49
1999	0.44	0.05	0.05	1.09	0.20	0.24	0.82	0.06	0.69	0.00	0.00	0.00	3.64
2000	0.25	1.80	0.69	0.24	0.00	0.02	0.00	0.45	0.02	0.23	0.00	0.02	3.72
2001	1.09	1.21	0.14	0.56	0.09	0.00	0.80	0.00	0.05	0.10	0.04	0.16	4.24
2002	T	T	0.09	0.00	0.00	T	0.16	0.00	T	0.22	0.01	0.34	0.82
2003	0.01	2.20	0.60	1.42	0.06	0.00	0.50	0.95	0.50	0.00	0.72	1.29	8.25
2004	T	2.25	0.52	0.06	T	T	0.08	0.20	0.36	1.79	M1.04	1.21	7.51

2005	2.48	2.16	0.27	0.21	0.00	0.00	0.56	0.60	0.31	1.38	0.08	0.00	8.05
2006	0.26	0.36	1.33	0.32	T	T	0.28	T	0.27	0.35	M0.00	0.06	3.23
2007	0.00	0.09	T	0.12	T	0.00	0.03	0.21	2.74	0.00	T	0.71	3.90
2008	0.67	0.15	T	0.00	0.05	T	0.12	0.00	T	0.01	M0.20	M0.27	1.47
2009	0.10	1.16	MT	M0.19	0.15	T	T	M0.07	0.00	0.00	T	0.64	2.31
2010	1.43	1.37	M0.21	0.08	0.04	T	0.00	0.05	0.05	0.72	0.25	M3.11	7.31
2011	M0.09	0.45	0.23	MT	M0.14	M0.00	M0.01	MT	M0.24	M0.04	0.04	M0.11	1.35
2012	0.05	MT	0.31	0.54	0.00	0.00	1.74	0.30	MT	1.15	M0.00	0.68	4.77
2013	0.55	0.08	0.33	0.05	0.12	0.00	0.65	0.25	0.20	0.20	0.83	0.00	3.26
2014	0.00	0.01	M0.36	0.39	0.29	0.00	0.31	1.00	0.17	0.00	0.00	1.23	3.76
2015	0.70	0.62	0.26	0.44	0.07	0.00	0.48	0.15	0.04	2.48	0.14	0.06	5.44
2016	0.87	0.70	0.28	1.03	0.06	0.18	0.75	0.07	0.03	1.13	0.13	0.93	6.16
2017	1.93	0.97	0.00	0.00	0.04	0.00	0.16	0.13	0.31	0.00	0.00	0.00	3.54
2018	1.13	0.20	0.60	0.01	0.42	0.00	0.23	0.00	0.03	0.05	0.35	0.30	3.32
2019	0.89	1.56	1.72	0.37	0.96	0.00	T	0.00	0.03	0.00	1.12	1.15	7.80
2020	T	0.31	1.99	1.05	0.00	0.00	T	0.00	0.00	0.00	0.03	0.06	3.44
2021	0.74	0.02	T	0.00	T	0.06	1.82	0.02	0.04	0.37	0.00	0.77	3.84
2022	0.07	0.02	0.05	0.03	0.00	0.07	0.47	0.30	0.51	M0.00			1.52
Notes: Data missing in any month have an "M" flag. A "T" indicates a trace of precipitation.													
Data missing for all days in a month or year is blank.													
Creation date: 2022-10-24													

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	36.002763, -115.838626
Observation Date	2023-04-20
Elevation (ft)	2891.652
Drought Index (PDSI)	Mild wetness
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-04-20	0.051181	0.374803	0.488189	Wet	3	3	9
2023-03-21	0.235039	1.102362	1.988189	Wet	3	2	6
2023-02-19	0.19252	1.14252	0.0	Dry	1	1	1
Result							Wetter than Normal - 16

US Army Corps of Engineers

ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
PAHRUMP 4 NW	36.2614, -116.0564	2573.163	21.611	318.489	16.608	11122	90
PAHRUMP 6.3 SSE	36.1656, -115.9844	2641.076	7.741	67.913	4.009	169	0
PAHRUMP 10.5 SSE	36.122, -115.9215	2732.94	12.221	159.777	7.452	2	0
SHOSHONE	35.9717, -116.2708	1545.932	23.321	1027.231	34.451	56	0
RED ROCK CANYON - SPG MT RCH S	36.0686, -115.4603	3779.856	35.82	1206.693	59.343	4	0

Enclosure 1

Appendix E

Aquatic Resource Field Data and SDAM Analysis

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

The public reporting burden for this collection of information, 0710-OHWM, is estimated to average 30 **minutes** per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Project ID #: Larrea Solar Project	Site Name: SP01	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- ☐ gage data
- ☑ LiDAR
- ☑ geologic maps
- ☑ climatic data
- ☑ satellite imagery
- ☐ land use maps
- ☑ aerial photos
- ☑ topographic maps
- ☑ Other: APT Analysis (see

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- ☑ **Break in slope:** a
  - ☑ *on the bank:* a
  - ☐ *undercut bank:*
  - ☐ *valley bottom:*
  - ☐ Other: ____________
- ☐ **Shelving:**
  - ☐ *shelf at top of bank:*
  - ☐ *natural levee:*
  - ☐ *man-made berms or levees:*
  - ☐ *other berms:* ____________
- ☐ **Channel bar:**
  - ☐ *shelving (berms) on bar:*
  - ☐ *unvegetated:*
  - ☐ *vegetation transition (go to veg. indicators)*
  - ☐ *sediment transition (go to sed. indicators)*
  - ☐ *upper limit of deposition on bar:*
- ☑ **Instream bedforms and other bedload transport evidence:** x
  - ☐ *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - ☐ *bedforms (e.g., pools, riffles, steps, etc.):*
  - ☑ *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- ☐ **Secondary channels:**

Sediment indicators

- ☐ **Soil development:**
- ☐ **Changes in character of soil:**
- ☐ **Mudcracks:**
- ☑ **Changes in particle-sized distribution:** x
  - ☐ *transition from* ______ to ______
  - ☐ *upper limit of sand-sized particles*
  - ☑ *silt deposits:*

Vegetation Indicators

- ☑ **Change in vegetation type and/or density:** a

  Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

  - ☑ *vegetation absent to:* absent
  - ☐ *moss to:*
  - ☐ *forbs to:*
  - ☐ *graminoids to:*
  - ☐ *woody shrubs to:*
  - ☐ *deciduous trees to:*
  - ☐ *coniferous trees to:*
- ☐ **Vegetation matted down and/or bent:**
- ☐ **Exposed roots below intact soil layer:**

Ancillary indicators

- ☑ **Wracking/presence of organic litter:** a
- ☐ **Presence of large wood:**
- ☐ **Leaf litter disturbed or washed away:**
- ☐ **Water staining:**
- ☐ **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP01 SDAM Analysis in Appendix E. The SDAM analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not: ______

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP01	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources — **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved - OMB No. 0710-0025

Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP02	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* a
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other:
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:*
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ___ to ___
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* absent
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** a
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP02 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP02	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)
INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET
The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
Expires: 01-31-2025

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Project ID #: Larrea Solar Project	Site Name: SP03	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* a
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ________________
- [x] **Shelving:** x
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ________________
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** x

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* absent
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [x] **Exposed roots below intact soil layer:** x

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP03 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP03	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?

d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?

e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.

f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved - OMB No. 0710-0025

Expires: 01-31-2025

Project ID #: Larrea Solar Project	Site Name: SP04	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** x
  - [x] *on the bank:* a
  - [x] *undercut bank:* x
  - [ ] *valley bottom:*
  - [ ] Other:
- [x] **Shelving:** x
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:*
- [x] **Channel bar:** x
  - [x] *shelving (berms) on bar:* x
  - [x] *unvegetated:* b
  - [x] *vegetation transition (go to veg. indicators)* x
  - [x] *sediment transition (go to sed. indicators)* x
  - [x] *upper limit of deposition on bar:* a
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [x] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)* x
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [x] **Secondary channels:** a

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** x

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [x] **Exposed roots below intact soil layer:** b

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP04 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP04	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data	e. topographic maps
b. aerial photos	f. geologic maps
c. satellite imagery	g. land use maps
d. LiDAR	h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
  Evidence of erosion: obstacle marks, scour, armoring
  Bedforms; riffles, pools, steps, knickpoints/headcuts
  Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

*Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -

OMB No. 0710-0025

Expires: 01-31-2025

Project ID #: Larrea Solar Project	Site Name: SP05	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* a
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other:
- [x] **Shelving:** x
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:*
- [x] **Channel bar:** x
  - [ ] *shelving (berms) on bar:*
  - [x] *unvegetated:* x
  - [x] *vegetation transition (go to veg. indicators)* x
  - [x] *sediment transition (go to sed. indicators)* x
  - [x] *upper limit of deposition on bar:* a
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [x] **Exposed roots below intact soil layer:** x

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP05 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SPO5	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
 i. Overall land use and change if known
 ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
b. Consider the following to inform weighting of evidence observed during field visit.
 i. What physical characteristics are likely to be observed in specific environments?
 ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
 iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
 i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
 ii. Are there any secondary and/or floodplain channels?
 iii. Are there obvious man-made alterations to the system?
 iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
 i. Where does the flow converge on the landscape?
 ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
 i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
 ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
 Evidence of erosion: obstacle marks, scour, armoring
 Bedforms; riffles, pools, steps, knickpoints/headcuts
 Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE) **INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET** The proponent agency is Headquarters USACE CECW-CO-R.	*Form Approved -* *OMB No. 0710-0025* *Expires: 01-31-2025*

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP06	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* a
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other:
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:*
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** b
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ____ to ____
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP06 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP06	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
  Evidence of erosion: obstacle marks, scour, armoring
  Bedforms; riffles, pools, steps, knickpoints/headcuts
  Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE) **INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET** The proponent agency is Headquarters USACE CECW-CO-R.	***Form Approved -*** ***OMB No. 0710-0025*** ***Expires: 01-31-2025***

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP07	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- ☐ gage data
- ✓ LiDAR
- ✓ geologic maps
- ✓ climatic data
- ✓ satellite imagery
- ☐ land use maps
- ✓ aerial photos
- ✓ topographic maps
- ✓ Other: APT Analysis (see

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- ✓ **Break in slope:** a
  - ✓ *on the bank:* a
  - ✓ *undercut bank:* x
  - ☐ *valley bottom:*
  - ☐ Other: ______
- ✓ **Shelving:** x
  - ☐ *shelf at top of bank:*
  - ☐ *natural levee:*
  - ☐ *man-made berms or levees:*
  - ☐ *other berms:* ______
- ✓ **Channel bar:** x
  - ✓ *shelving (berms) on bar:* b
  - ✓ *unvegetated:* x
  - ✓ *vegetation transition (go to veg. indicators)* a
  - ✓ *sediment transition (go to sed. indicators)* x
  - ✓ *upper limit of deposition on bar:* x
- ✓ **Instream bedforms and other bedload transport evidence:** x
  - ☐ *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - ☐ *bedforms (e.g., pools, riffles, steps, etc.):*
  - ✓ *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- ✓ **Secondary channels:** a

Sediment indicators

- ☐ **Soil development:**
- ☐ **Changes in character of soil:**
- ☐ **Mudcracks:**
- ✓ **Changes in particle-sized distribution:** b
  - ☐ *transition from* ______ to ______
  - ☐ *upper limit of sand-sized particles*
  - ✓ *silt deposits:*

Vegetation Indicators

- ✓ **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- ✓ *vegetation absent to:* woody shrubs
- ☐ *moss to:*
- ☐ *forbs to:*
- ☐ *graminoids to:*
- ☐ *woody shrubs to:*
- ☐ *deciduous trees to:*
- ☐ *coniferous trees to:*
- ☐ **Vegetation matted down and/or bent:**
- ☐ **Exposed roots below intact soil layer:**

Ancillary indicators

- ✓ **Wracking/presence of organic litter:** x
- ☐ **Presence of large wood:**
- ☐ **Leaf litter disturbed or washed away:**
- ☐ **Water staining:**
- ☐ **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP07 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not: ____________

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP07	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	Sediment and soil indicators	Vegetation Indicators	Ancillary indicators
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
  Evidence of erosion: obstacle marks, scour, armoring
  Bedforms; riffles, pools, steps, knickpoints/headcuts
  Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved - OMB No. 0710-0025 Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP08	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* a
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ____
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ____
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ____ to ____
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP08 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP08	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
   i. Overall land use and change if known
   ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
b. Consider the following to inform weighting of evidence observed during field visit.
   i. What physical characteristics are likely to be observed in specific environments?
   ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
   iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
   i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
   ii. Are there any secondary and/or floodplain channels?
   iii. Are there obvious man-made alterations to the system?
   iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
   i. Where does the flow converge on the landscape?
   ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
   i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
   ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)
INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET
The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP09	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** b
  - [ ] *on the bank:*
  - [x] *undercut bank:* b
  - [ ] *valley bottom:*
  - [ ] Other:
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:*
- [x] **Channel bar:** x
  - [ ] *shelving (berms) on bar:*
  - [x] *unvegetated:* x
  - [x] *vegetation transition (go to veg. indicators)* a
  - [x] *sediment transition (go to sed. indicators)* b
  - [x] *upper limit of deposition on bar:* x
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No   If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP09 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No   If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP09	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

*Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP10	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ____
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ____
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ____ to ____
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP10 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP10	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data	e. topographic maps
b. aerial photos	f. geologic maps
c. satellite imagery	g. land use maps
d. LiDAR	h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
- i. Overall land use and change if known
- ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
- i. What physical characteristics are likely to be observed in specific environments?
- ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
- iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.

b. Walk up and down the assessment area noting all the potential OHWM indicators.

c. Note broad trends in channel shape, vegetation, and sediment characteristics.
- i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
- ii. Are there any secondary and/or floodplain channels?
- iii. Are there obvious man-made alterations to the system?
- iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?

d. Look for signs of recurring fluvial action.
- i. Where does the flow converge on the landscape?
- ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?

e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.

f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
- i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
- ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.

b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
- *Evidence of erosion: obstacle marks, scour, armoring*
- *Bedforms; riffles, pools, steps, knickpoints/headcuts*
- *Evidence of deposition: imbricated clasts, gravel sheets, etc.*

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP11	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other:
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:*
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP11 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP11	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
  Evidence of erosion: obstacle marks, scour, armoring
  Bedforms; riffles, pools, steps, knickpoints/headcuts
  Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
Expires: 01-31-2025

Project ID #: Larrea Solar Project	Site Name: SP12	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources

Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.

Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ______
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ______
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP12 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP12	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data	e. topographic maps
b. aerial photos	f. geologic maps
c. satellite imagery	g. land use maps
d. LiDAR	h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
- i. Overall land use and change if known
- ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
- i. What physical characteristics are likely to be observed in specific environments?
- ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
- iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.

b. Walk up and down the assessment area noting all the potential OHWM indicators.

c. Note broad trends in channel shape, vegetation, and sediment characteristics.
- i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
- ii. Are there any secondary and/or floodplain channels?
- iii. Are there obvious man-made alterations to the system?
- iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?

d. Look for signs of recurring fluvial action.
- i. Where does the flow converge on the landscape?
- ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?

e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.

f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
- i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
- ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.

b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
- *Evidence of erosion: obstacle marks, scour, armoring*
- *Bedforms; riffles, pools, steps, knickpoints/headcuts*
- *Evidence of deposition: imbricated clasts, gravel sheets, etc.*

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved - OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

The public reporting burden for this collection of information, 0710-OHWM, is estimated to average 30 **minutes** per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Project ID #: Larrea Solar Project	Site Name: SP13	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- ☐ gage data
- ☑ LiDAR
- ☑ geologic maps
- ☑ climatic data
- ☑ satellite imagery
- ☐ land use maps
- ☑ aerial photos
- ☑ topographic maps
- ☑ Other: APT Analysis (see

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- ☑ **Break in slope:** a
  - ☑ *on the bank:* x
  - ☐ *undercut bank:*
  - ☐ *valley bottom:*
  - ☐ Other: ____
- ☐ **Shelving:**
  - ☐ *shelf at top of bank:*
  - ☐ *natural levee:*
  - ☐ *man-made berms or levees:*
  - ☐ *other berms:* ____
- ☐ **Channel bar:**
  - ☐ *shelving (berms) on bar:*
  - ☐ *unvegetated:*
  - ☐ *vegetation transition (go to veg. indicators)*
  - ☐ *sediment transition (go to sed. indicators)*
  - ☐ *upper limit of deposition on bar:*
- ☑ **Instream bedforms and other bedload transport evidence:** x
  - ☐ *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - ☐ *bedforms (e.g., pools, riffles, steps, etc.):*
  - ☑ *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- ☐ **Secondary channels:**

Sediment indicators

- ☐ **Soil development:**
- ☐ **Changes in character of soil:**
- ☐ **Mudcracks:**
- ☑ **Changes in particle-sized distribution:** b
  - ☐ *transition from* ____ to ____
  - ☐ *upper limit of sand-sized particles*
  - ☑ *silt deposits:*

Vegetation Indicators

- ☑ **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs). **Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- ☑ *vegetation absent to:* woody shrubs
- ☐ *moss to:*
- ☐ *forbs to:*
- ☐ *graminoids to:*
- ☐ *woody shrubs to:*
- ☐ *deciduous trees to:*
- ☐ *coniferous trees to:*
- ☐ **Vegetation matted down and/or bent:**
- ☐ **Exposed roots below intact soil layer:**

Ancillary indicators

- ☑ **Wracking/presence of organic litter:** x
- ☐ **Presence of large wood:**
- ☐ **Leaf litter disturbed or washed away:**
- ☐ **Water staining:**
- ☐ **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP13 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☐ Yes ☑ No If no, explain why not: Image file corrupted.

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
  Evidence of erosion: obstacle marks, scour, armoring
  Bedforms; riffles, pools, steps, knickpoints/headcuts
  Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP14	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ____________
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ____________
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** x

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP14 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not: ______

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP14	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
  Evidence of erosion: obstacle marks, scour, armoring
  Bedforms; riffles, pools, steps, knickpoints/headcuts
  Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

*Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

*Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved - OMB No. 0710-0025 Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP15	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ____________
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ____________
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP15 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
	Channel photo file corrupted.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
   i. Overall land use and change if known
   ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
b. Consider the following to inform weighting of evidence observed during field visit.
   i. What physical characteristics are likely to be observed in specific environments?
   ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
   iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
   i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
   ii. Are there any secondary and/or floodplain channels?
   iii. Are there obvious man-made alterations to the system?
   iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
   i. Where does the flow converge on the landscape?
   ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
   i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
   ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP16	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ______
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ______
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☑ Yes ☐ No If yes, describe and attach information to datasheet:

Flowlines/lineations within channel bed

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above within the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP16 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP16	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data	e. topographic maps
b. aerial photos	f. geologic maps
c. satellite imagery	g. land use maps
d. LiDAR	h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
 i. Overall land use and change if known
 ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
 i. What physical characteristics are likely to be observed in specific environments?
 ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
 iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.

b. Walk up and down the assessment area noting all the potential OHWM indicators.

c. Note broad trends in channel shape, vegetation, and sediment characteristics.
 i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
 ii. Are there any secondary and/or floodplain channels?
 iii. Are there obvious man-made alterations to the system?
 iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?

d. Look for signs of recurring fluvial action.
 i. Where does the flow converge on the landscape?
 ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?

e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.

f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
 i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
 ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.

b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators
Where are the breaks in slope?
Are there identifiable banks?
Is there an easily identifiable top of bank?
Are the banks actively eroding?
Are the banks undercut?
Are the banks armored?
Is the channel confined by the surrounding hillslopes?
Are there natural or man-made berms and levees?
Are there fluvial terraces?
Are there channel bars?

Sediment and soil indicators
Where does evidence of soil formation appear?

Are there mudcracks present?

Is there evidence of sediment sorting by grain size?

Vegetation Indicators
Where are the significant transitions in vegetation species, density, and age?

Is there vegetation growing on the channel bed?

If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel?

Where are the significant transitions in vegetation?

Is the vegetation tolerant of flowing water?

Has any vegetation been flattened by flowing water?

Ancillary indicators
Is there organic litter present?

Is there any leaf litter disturbed or washed away?

Is there large wood deposition?

Is there evidence of water staining?

Are the following features of fluvial transport present?
 Evidence of erosion: obstacle marks, scour, armoring
 Bedforms; riffles, pools, steps, knickpoints/headcuts
 Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE) **INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET** The proponent agency is Headquarters USACE CECW-CO-R.	*Form Approved -* *OMB No. 0710-0025* *Expires: 01-31-2025*

AGENCY DISCLOSURE NOTICE

The public reporting burden for this collection of information, 0710-OHWM, is estimated to average 30 **minutes** per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Project ID #: Larrea Solar Project	Site Name: SP17	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ______
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ______
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** b
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP17 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP17	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data	e. topographic maps
b. aerial photos	f. geologic maps
c. satellite imagery	g. land use maps
d. LiDAR	h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
- i. Overall land use and change if known
- ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
- i. What physical characteristics are likely to be observed in specific environments?
- ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
- iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.

b. Walk up and down the assessment area noting all the potential OHWM indicators.

c. Note broad trends in channel shape, vegetation, and sediment characteristics.
- i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
- ii. Are there any secondary and/or floodplain channels?
- iii. Are there obvious man-made alterations to the system?
- iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?

d. Look for signs of recurring fluvial action.
- i. Where does the flow converge on the landscape?
- ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?

e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.

f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
- i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
- ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.

b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
- *Evidence of erosion: obstacle marks, scour, armoring*
- *Bedforms; riffles, pools, steps, knickpoints/headcuts*
- *Evidence of deposition: imbricated clasts, gravel sheets, etc.*

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP18	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- ☐ gage data
- ☑ LiDAR
- ☑ geologic maps
- ☑ climatic data
- ☑ satellite imagery
- ☐ land use maps
- ☑ aerial photos
- ☑ topographic maps
- ☑ Other: APT Analysis (see

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- ☑ **Break in slope:** a
  - ☑ *on the bank:* x
  - ☐ *undercut bank:*
  - ☐ *valley bottom:*
  - ☐ Other: ______
- ☐ **Shelving:**
  - ☐ *shelf at top of bank:*
  - ☐ *natural levee:*
  - ☐ *man-made berms or levees:*
  - ☐ *other berms:* ______
- ☑ **Channel bar:** x
  - ☑ *shelving (berms) on bar:* b
  - ☑ *unvegetated:* x
  - ☑ *vegetation transition (go to veg. indicators)* a
  - ☑ *sediment transition (go to sed. indicators)* x
  - ☑ *upper limit of deposition on bar:* x
- ☑ **Instream bedforms and other bedload transport evidence:** x
  - ☐ *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - ☐ *bedforms (e.g., pools, riffles, steps, etc.):*
  - ☑ *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- ☐ **Secondary channels:**

Sediment indicators

- ☐ **Soil development:**
- ☐ **Changes in character of soil:**
- ☐ **Mudcracks:**
- ☑ **Changes in particle-sized distribution:** b
  - ☐ *transition from* ______ to ______
  - ☐ *upper limit of sand-sized particles*
  - ☑ *silt deposits:*

Vegetation Indicators

- ☑ **Change in vegetation type and/or density:** a

  Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs). **Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***
  - ☑ *vegetation absent to:* woody shrubs
  - ☐ *moss to:*
  - ☐ *forbs to:*
  - ☐ *graminoids to:*
  - ☐ *woody shrubs to:*
  - ☐ *deciduous trees to:*
  - ☐ *coniferous trees to:*
- ☐ **Vegetation matted down and/or bent:**
- ☐ **Exposed roots below intact soil layer:**

Ancillary indicators

- ☑ **Wracking/presence of organic litter:** x
- ☐ **Presence of large wood:**
- ☐ **Leaf litter disturbed or washed away:**
- ☐ **Water staining:**
- ☐ **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☑ Yes ☐ No If yes, describe and attach information to datasheet:

Flowlines/lineations within channel bed

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP18 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP18	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

- a. gage data
- b. aerial photos
- c. satellite imagery
- d. LiDAR
- e. topographic maps
- f. geologic maps
- g. land use maps
- h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
   i. Overall land use and change if known
   ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
   i. What physical characteristics are likely to be observed in specific environments?
   ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
   iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.

b. Walk up and down the assessment area noting all the potential OHWM indicators.

c. Note broad trends in channel shape, vegetation, and sediment characteristics.
   i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
   ii. Are there any secondary and/or floodplain channels?
   iii. Are there obvious man-made alterations to the system?
   iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?

d. Look for signs of recurring fluvial action.
   i. Where does the flow converge on the landscape?
   ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?

e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.

f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
   i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
   ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.

b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	Sediment and soil indicators	Vegetation Indicators	Ancillary indicators
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved - OMB No. 0710-0025

Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP19	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.

Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ______
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ______
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP19 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not: ____

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP19	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)
INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET
The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP20	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other:
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:*
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* absent
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP20 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP20	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources — **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
 i. Overall land use and change if known
 ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
 i. What physical characteristics are likely to be observed in specific environments?
 ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
 iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
 i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
 ii. Are there any secondary and/or floodplain channels?
 iii. Are there obvious man-made alterations to the system?
 iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
 i. Where does the flow converge on the landscape?
 ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
 i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
 ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
 Evidence of erosion: obstacle marks, scour, armoring
 Bedforms; riffles, pools, steps, knickpoints/headcuts
 Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved - OMB No. 0710-0025

Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP21	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- ☐ gage data
- ☑ LiDAR
- ☑ geologic maps
- ☑ climatic data
- ☑ satellite imagery
- ☐ land use maps
- ☑ aerial photos
- ☑ topographic maps
- ☑ Other: APT Analysis (see

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- ☑ **Break in slope:** a
  - ☑ *on the bank:* x
  - ☐ *undercut bank:*
  - ☐ *valley bottom:*
  - ☐ Other: ____
- ☐ **Shelving:**
  - ☐ *shelf at top of bank:*
  - ☐ *natural levee:*
  - ☐ *man-made berms or levees:*
  - ☐ *other berms:* ____
- ☐ **Channel bar:**
  - ☐ *shelving (berms) on bar:*
  - ☐ *unvegetated:*
  - ☐ *vegetation transition (go to veg. indicators)*
  - ☐ *sediment transition (go to sed. indicators)*
  - ☐ *upper limit of deposition on bar:*
- ☑ **Instream bedforms and other bedload transport evidence:** x
  - ☐ *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - ☐ *bedforms (e.g., pools, riffles, steps, etc.):*
  - ☑ *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- ☐ **Secondary channels:**

Sediment indicators

- ☐ **Soil development:**
- ☐ **Changes in character of soil:**
- ☐ **Mudcracks:**
- ☑ **Changes in particle-sized distribution:** b
  - ☐ *transition from* ____ to ____
  - ☐ *upper limit of sand-sized particles*
  - ☑ *silt deposits:*

Vegetation Indicators

- ☑ **Change in vegetation type and/or density:** a

  Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***
  - ☑ *vegetation absent to:* woody shrubs
  - ☐ *moss to:*
  - ☐ *forbs to:*
  - ☐ *graminoids to:*
  - ☐ *woody shrubs to:*
  - ☐ *deciduous trees to:*
  - ☐ *coniferous trees to:*
- ☐ **Vegetation matted down and/or bent:**
- ☐ **Exposed roots below intact soil layer:**

Ancillary indicators

- ☑ **Wracking/presence of organic litter:** x
- ☐ **Presence of large wood:**
- ☐ **Leaf litter disturbed or washed away:**
- ☐ **Water staining:**
- ☐ **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP21 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP21	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data	e. topographic maps
b. aerial photos	f. geologic maps
c. satellite imagery	g. land use maps
d. LiDAR	h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
- i. Overall land use and change if known
- ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
- i. What physical characteristics are likely to be observed in specific environments?
- ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
- iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.

b. Walk up and down the assessment area noting all the potential OHWM indicators.

c. Note broad trends in channel shape, vegetation, and sediment characteristics.
- i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
- ii. Are there any secondary and/or floodplain channels?
- iii. Are there obvious man-made alterations to the system?
- iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?

d. Look for signs of recurring fluvial action.
- i. Where does the flow converge on the landscape?
- ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?

e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.

f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
- i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
- ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.

b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
- *Evidence of erosion: obstacle marks, scour, armoring*
- *Bedforms; riffles, pools, steps, knickpoints/headcuts*
- *Evidence of deposition: imbricated clasts, gravel sheets, etc.*

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

The public reporting burden for this collection of information, 0710-OHWM, is estimated to average 30 **minutes** per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Project ID #: Larrea Solar Project	Site Name: SP22	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ____________
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ____________
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP22 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP22	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

- a. gage data
- b. aerial photos
- c. satellite imagery
- d. LiDAR
- e. topographic maps
- f. geologic maps
- g. land use maps
- h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
- i. Overall land use and change if known
- ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
- i. What physical characteristics are likely to be observed in specific environments?
- ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
- iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.

b. Walk up and down the assessment area noting all the potential OHWM indicators.

c. Note broad trends in channel shape, vegetation, and sediment characteristics.
- i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
- ii. Are there any secondary and/or floodplain channels?
- iii. Are there obvious man-made alterations to the system?
- iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?

d. Look for signs of recurring fluvial action.
- i. Where does the flow converge on the landscape?
- ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?

e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.

f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
- i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
- ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.

b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators

Where are the breaks in slope?
Are there identifiable banks?
Is there an easily identifiable top of bank?
Are the banks actively eroding?
Are the banks undercut?
Are the banks armored?
Is the channel confined by the surrounding hillslopes?
Are there natural or man-made berms and levees?
Are there fluvial terraces?
Are there channel bars?

Sediment and soil indicators

Where does evidence of soil formation appear?

Are there mudcracks present?

Is there evidence of sediment sorting by grain size?

Vegetation Indicators

Where are the significant transitions in vegetation species, density, and age?

Is there vegetation growing on the channel bed?

If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel?

Where are the significant transitions in vegetation?

Is the vegetation tolerant of flowing water?

Has any vegetation been flattened by flowing water?

Ancillary indicators

Is there organic litter present?

Is there any leaf litter disturbed or washed away?

Is there large wood deposition?

Is there evidence of water staining?

Are the following features of fluvial transport present?

Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP23	Date and Time:

Location (lat/long): [redacted] Investigator(s): [redacted]

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ______
- [ ] **Shelving:** x
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ______
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP23 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP23	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 **Site overview from remote and online resources** **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data	e. topographic maps
b. aerial photos	f. geologic maps
c. satellite imagery	g. land use maps
d. LiDAR	h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
- i. Overall land use and change if known
- ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
- i. What physical characteristics are likely to be observed in specific environments?
- ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
- iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 **Site conditions during the field assessment (assemble evidence)**

a. Identify the assessment area.

b. Walk up and down the assessment area noting all the potential OHWM indicators.

c. Note broad trends in channel shape, vegetation, and sediment characteristics.
- i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
- ii. Are there any secondary and/or floodplain channels?
- iii. Are there obvious man-made alterations to the system?
- iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?

d. Look for signs of recurring fluvial action.
- i. Where does the flow converge on the landscape?
- ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?

e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.

f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
- i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
- ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a **List evidence**

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.

b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
- *Evidence of erosion: obstacle marks, scour, armoring*
- *Bedforms; riffles, pools, steps, knickpoints/headcuts*
- *Evidence of deposition: imbricated clasts, gravel sheets, etc.*

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -

OMB No. 0710-0025

Expires: 01-31-2025

Project ID #: Larrea Solar Project	Site Name: SP24	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ____
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ____
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ____ to ____
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP24 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP24	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

- a. gage data
- b. aerial photos
- c. satellite imagery
- d. LiDAR
- e. topographic maps
- f. geologic maps
- g. land use maps
- h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
- i. Overall land use and change if known
- ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
- i. What physical characteristics are likely to be observed in specific environments?
- ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
- iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.

b. Walk up and down the assessment area noting all the potential OHWM indicators.

c. Note broad trends in channel shape, vegetation, and sediment characteristics.
- i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
- ii. Are there any secondary and/or floodplain channels?
- iii. Are there obvious man-made alterations to the system?
- iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?

d. Look for signs of recurring fluvial action.
- i. Where does the flow converge on the landscape?
- ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?

e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.

f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
- i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
- ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.

b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
- *Evidence of erosion: obstacle marks, scour, armoring*
- *Bedforms; riffles, pools, steps, knickpoints/headcuts*
- *Evidence of deposition: imbricated clasts, gravel sheets, etc.*

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved - OMB No. 0710-0025

Expires: 01-31-2025

Project ID #: Larrea Solar Project | Site Name: SP25 | Date and Time:

Location (lat/long): [redacted] | Investigator(s): [redacted]

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other:
- [x] **Shelving:** x
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:*
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* absent
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP25 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP25	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	Sediment and soil indicators	Vegetation Indicators	Ancillary indicators
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP26	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [x] *undercut bank:* x
  - [ ] *valley bottom:*
  - [ ] Other: ______
- [x] **Shelving:** x
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ______
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP26 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not: ____________

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP26	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
   i. Overall land use and change if known
   ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
b. Consider the following to inform weighting of evidence observed during field visit.
   i. What physical characteristics are likely to be observed in specific environments?
   ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
   iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
   i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
   ii. Are there any secondary and/or floodplain channels?
   iii. Are there obvious man-made alterations to the system?
   iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
   i. Where does the flow converge on the landscape?
   ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
   i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
   ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -

OMB No. 0710-0025

Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP27	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other:
- [ ] **Shelving:** x
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:*
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP27 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP27	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data	e. topographic maps
b. aerial photos	f. geologic maps
c. satellite imagery	g. land use maps
d. LiDAR	h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
   i. Overall land use and change if known
   ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
   i. What physical characteristics are likely to be observed in specific environments?
   ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
   iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.

b. Walk up and down the assessment area noting all the potential OHWM indicators.

c. Note broad trends in channel shape, vegetation, and sediment characteristics.
   i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
   ii. Are there any secondary and/or floodplain channels?
   iii. Are there obvious man-made alterations to the system?
   iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?

d. Look for signs of recurring fluvial action.
   i. Where does the flow converge on the landscape?
   ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?

e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.

f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
   i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
   ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.

b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved - OMB No. 0710-0025 Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

The public reporting burden for this collection of information, 0710-OHWM, is estimated to average 30 **minutes** per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Project ID #: Larrea Solar Project	Site Name: SP28	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other:
- [ ] **Shelving:** x
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:*
- [ ] **Channel bar:** x
  - [ ] *shelving (berms) on bar:* b
  - [ ] *unvegetated:* x
  - [ ] *vegetation transition (go to veg. indicators)* a
  - [ ] *sediment transition (go to sed. indicators)* x
  - [ ] *upper limit of deposition on bar:* x
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP28 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP28	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.

b. Walk up and down the assessment area noting all the potential OHWM indicators.

c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?

d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?

e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.

f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.

b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	Sediment and soil indicators	Vegetation Indicators	Ancillary indicators
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved - OMB No. 0710-0025

Expires: 01-31-2025

Project ID #: Larrea Solar Project	Site Name: SP29	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources

Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.

Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other:
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:*
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP29 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP29	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data	e. topographic maps
b. aerial photos	f. geologic maps
c. satellite imagery	g. land use maps
d. LiDAR	h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
- i. Overall land use and change if known
- ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
- i. What physical characteristics are likely to be observed in specific environments?
- ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
- iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.

b. Walk up and down the assessment area noting all the potential OHWM indicators.

c. Note broad trends in channel shape, vegetation, and sediment characteristics.
- i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
- ii. Are there any secondary and/or floodplain channels?
- iii. Are there obvious man-made alterations to the system?
- iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?

d. Look for signs of recurring fluvial action.
- i. Where does the flow converge on the landscape?
- ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?

e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.

f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
- i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
- ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.

b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	Sediment and soil indicators	Vegetation Indicators	Ancillary indicators
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
- *Evidence of erosion: obstacle marks, scour, armoring*
- *Bedforms; riffles, pools, steps, knickpoints/headcuts*
- *Evidence of deposition: imbricated clasts, gravel sheets, etc.*

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
Expires: 01-31-2025

Project ID #: Larrea Solar Project	Site Name: SP30	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- ☐ gage data
- ☑ LiDAR
- ☑ geologic maps
- ☑ climatic data
- ☑ satellite imagery
- ☐ land use maps
- ☑ aerial photos
- ☑ topographic maps
- ☑ Other: APT Analysis (see

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- ☑ **Break in slope:** a
  - ☑ *on the bank:* x
  - ☐ *undercut bank:*
  - ☐ *valley bottom:*
  - ☐ Other: ____
- ☐ **Shelving:**
  - ☐ *shelf at top of bank:*
  - ☐ *natural levee:*
  - ☐ *man-made berms or levees:*
  - ☐ *other berms:* ____
- ☐ **Channel bar:**
  - ☐ *shelving (berms) on bar:*
  - ☐ *unvegetated:*
  - ☐ *vegetation transition (go to veg. indicators)*
  - ☐ *sediment transition (go to sed. indicators)*
  - ☐ *upper limit of deposition on bar:*
- ☑ **Instream bedforms and other bedload transport evidence:** x
  - ☐ *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - ☐ *bedforms (e.g., pools, riffles, steps, etc.):*
  - ☑ *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- ☐ **Secondary channels:**

Sediment indicators

- ☐ **Soil development:**
- ☐ **Changes in character of soil:**
- ☐ **Mudcracks:**
- ☑ **Changes in particle-sized distribution:** b
  - ☐ *transition from* ____ to ____
  - ☐ *upper limit of sand-sized particles*
  - ☑ *silt deposits:*

Vegetation Indicators

- ☑ **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- ☑ *vegetation absent to:* woody shrubs
- ☐ *moss to:*
- ☐ *forbs to:*
- ☐ *graminoids to:*
- ☐ *woody shrubs to:*
- ☐ *deciduous trees to:*
- ☐ *coniferous trees to:*
- ☐ **Vegetation matted down and/or bent:**
- ☐ **Exposed roots below intact soil layer:**

Ancillary indicators

- ☑ **Wracking/presence of organic litter:** x
- ☐ **Presence of large wood:**
- ☐ **Leaf litter disturbed or washed away:**
- ☐ **Water staining:**
- ☐ **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP30 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP30	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

- a. gage data
- b. aerial photos
- c. satellite imagery
- d. LiDAR
- e. topographic maps
- f. geologic maps
- g. land use maps
- h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
- i. Overall land use and change if known
- ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
- i. What physical characteristics are likely to be observed in specific environments?
- ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
- iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.

b. Walk up and down the assessment area noting all the potential OHWM indicators.

c. Note broad trends in channel shape, vegetation, and sediment characteristics.
- i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
- ii. Are there any secondary and/or floodplain channels?
- iii. Are there obvious man-made alterations to the system?
- iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?

d. Look for signs of recurring fluvial action.
- i. Where does the flow converge on the landscape?
- ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?

e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.

f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
- i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
- ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.

b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
- *Evidence of erosion: obstacle marks, scour, armoring*
- *Bedforms; riffles, pools, steps, knickpoints/headcuts*
- *Evidence of deposition: imbricated clasts, gravel sheets, etc.*

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)
INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET
The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved - OMB No. 0710-0025 Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

The public reporting burden for this collection of information, 0710-OHWM, is estimated to average 30 **minutes** per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Project ID #: Larrea Solar Project	Site Name: SP31	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ______
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ______
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs). **Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP31 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP31	

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?

d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	Sediment and soil indicators	Vegetation Indicators	Ancillary indicators
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved - OMB No. 0710-0025

Expires: 01-31-2025

Project ID #: Larrea Solar Project	Site Name: SP32	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources

Check boxes for online resources used to evaluate site:

- ☐ gage data
- ☑ LiDAR
- ☑ geologic maps
- ☑ climatic data
- ☑ satellite imagery
- ☐ land use maps
- ☑ aerial photos
- ☑ topographic maps
- ☑ Other: APT Analysis (see

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.

Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- ☑ **Break in slope:** a
  - ☑ *on the bank:* x
  - ☐ *undercut bank:*
  - ☐ *valley bottom:*
  - ☐ Other: ____
- ☐ **Shelving:**
  - ☐ *shelf at top of bank:*
  - ☐ *natural levee:*
  - ☐ *man-made berms or levees:*
  - ☐ *other berms:* ____
- ☐ **Channel bar:**
  - ☐ *shelving (berms) on bar:*
  - ☐ *unvegetated:*
  - ☐ *vegetation transition (go to veg. indicators)*
  - ☐ *sediment transition (go to sed. indicators)*
  - ☐ *upper limit of deposition on bar:*
- ☑ **Instream bedforms and other bedload transport evidence:** x
  - ☐ *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - ☐ *bedforms (e.g., pools, riffles, steps, etc.):*
  - ☑ *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- ☐ **Secondary channels:**

Sediment indicators

- ☐ **Soil development:**
- ☐ **Changes in character of soil:**
- ☐ **Mudcracks:**
- ☑ **Changes in particle-sized distribution:** b
  - ☐ *transition from* ____ to ____
  - ☐ *upper limit of sand-sized particles*
  - ☑ *silt deposits:*

Vegetation Indicators

- ☑ **Change in vegetation type and/or density:** a

  Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***
  - ☑ *vegetation absent to:* woody shrubs
  - ☐ *moss to:*
  - ☐ *forbs to:*
  - ☐ *graminoids to:*
  - ☐ *woody shrubs to:*
  - ☐ *deciduous trees to:*
  - ☐ *coniferous trees to:*
- ☐ **Vegetation matted down and/or bent:**
- ☐ **Exposed roots below intact soil layer:**

Ancillary indicators

- ☑ **Wracking/presence of organic litter:** x
- ☐ **Presence of large wood:**
- ☐ **Leaf litter disturbed or washed away:**
- ☐ **Water staining:**
- ☐ **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP32 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not: ______

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP32	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

The public reporting burden for this collection of information, 0710-OHWM, is estimated to average 30 **minutes** per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Project ID #: Larrea Solar Project	Site Name: SP33	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ____________
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ____________
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP33 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP33	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)
INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET
The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

The public reporting burden for this collection of information, 0710-OHWM, is estimated to average 30 **minutes** per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Project ID #: Larrea Solar Project | Site Name: SP34 | Date and Time:

Location (lat/long): [redacted] | Investigator(s): [redacted]

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ____
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ____
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ____ to ____
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP34 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not: ______

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP34	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data	e. topographic maps
b. aerial photos	f. geologic maps
c. satellite imagery	g. land use maps
d. LiDAR	h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
- i. Overall land use and change if known
- ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
- i. What physical characteristics are likely to be observed in specific environments?
- ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
- iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.

b. Walk up and down the assessment area noting all the potential OHWM indicators.

c. Note broad trends in channel shape, vegetation, and sediment characteristics.
- i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
- ii. Are there any secondary and/or floodplain channels?
- iii. Are there obvious man-made alterations to the system?
- iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?

d. Look for signs of recurring fluvial action.
- i. Where does the flow converge on the landscape?
- ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?

e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.

f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
- i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
- ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.

b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
- *Evidence of erosion: obstacle marks, scour, armoring*
- *Bedforms; riffles, pools, steps, knickpoints/headcuts*
- *Evidence of deposition: imbricated clasts, gravel sheets, etc.*

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved - OMB No. 0710-0025 Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP35	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [ ] Other: ____

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* a
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ____
- [x] **Shelving:** x
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ____
- [x] **Channel bar:** x
  - [x] *shelving (berms) on bar:* b
  - [x] *unvegetated:* x
  - [x] *vegetation transition (go to veg. indicators)* a
  - [x] *sediment transition (go to sed. indicators)* x
  - [x] *upper limit of deposition on bar:* x
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ____ to ____
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* absent
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☑ Yes ☐ No If yes, describe and attach information to datasheet:

Flowlines/lineations within channel bed

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above within the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP35 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP35	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
   i. Overall land use and change if known
   ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
b. Consider the following to inform weighting of evidence observed during field visit.
   i. What physical characteristics are likely to be observed in specific environments?
   ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
   iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
   i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
   ii. Are there any secondary and/or floodplain channels?
   iii. Are there obvious man-made alterations to the system?
   iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
   i. Where does the flow converge on the landscape?
   ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
   i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
   ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved - OMB No. 0710-0025

Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP36	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.

Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ______
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ______
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP36 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not: ____

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP36	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data	e. topographic maps
b. aerial photos	f. geologic maps
c. satellite imagery	g. land use maps
d. LiDAR	h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
 i. Overall land use and change if known
 ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
 i. What physical characteristics are likely to be observed in specific environments?
 ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
 iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.

b. Walk up and down the assessment area noting all the potential OHWM indicators.

c. Note broad trends in channel shape, vegetation, and sediment characteristics.
 i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
 ii. Are there any secondary and/or floodplain channels?
 iii. Are there obvious man-made alterations to the system?
 iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?

d. Look for signs of recurring fluvial action.
 i. Where does the flow converge on the landscape?
 ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?

e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.

f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
 i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
 ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.

b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
 Evidence of erosion: obstacle marks, scour, armoring
 Bedforms; riffles, pools, steps, knickpoints/headcuts
 Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved - OMB No. 0710-0025

Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP37	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources

Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.

Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ____________
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ____________
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* absent
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP37 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP37	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

- a. gage data
- b. aerial photos
- c. satellite imagery
- d. LiDAR
- e. topographic maps
- f. geologic maps
- g. land use maps
- h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
- i. Overall land use and change if known
- ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
- i. What physical characteristics are likely to be observed in specific environments?
- ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
- iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.

b. Walk up and down the assessment area noting all the potential OHWM indicators.

c. Note broad trends in channel shape, vegetation, and sediment characteristics.
- i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
- ii. Are there any secondary and/or floodplain channels?
- iii. Are there obvious man-made alterations to the system?
- iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?

d. Look for signs of recurring fluvial action.
- i. Where does the flow converge on the landscape?
- ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?

e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.

f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
- i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
- ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.

b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?

Evidence of erosion: obstacle marks, scour, armoring

Bedforms; riffles, pools, steps, knickpoints/headcuts

Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved -
OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP38	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ______
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ______
- [x] **Channel bar:** x
  - [x] *shelving (berms) on bar:* b
  - [x] *unvegetated:* b
  - [x] *vegetation transition (go to veg. indicators)* a
  - [x] *sediment transition (go to sed. indicators)* b
  - [x] *upper limit of deposition on bar:* x
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP38 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP38	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data	e. topographic maps
b. aerial photos	f. geologic maps
c. satellite imagery	g. land use maps
d. LiDAR	h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?

d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
  Evidence of erosion: obstacle marks, scour, armoring
  Bedforms; riffles, pools, steps, knickpoints/headcuts
  Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)
INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET
The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved - OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

The public reporting burden for this collection of information, 0710-OHWM, is estimated to average 30 **minutes** per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Project ID #: Larrea Solar Project	Site Name: SP39	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ______
- [x] **Shelving:** x
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ______
- [x] **Channel bar:** x
  - [ ] *shelving (berms) on bar:*
  - [x] *unvegetated:* x
  - [x] *vegetation transition (go to veg. indicators)* a
  - [x] *sediment transition (go to sed. indicators)* x
  - [x] *upper limit of deposition on bar:* x
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP39 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP39	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data	e. topographic maps
b. aerial photos	f. geologic maps
c. satellite imagery	g. land use maps
d. LiDAR	h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators
Where are the breaks in slope?
Are there identifiable banks?
Is there an easily identifiable top of bank?
Are the banks actively eroding?
Are the banks undercut?
Are the banks armored?
Is the channel confined by the surrounding hillslopes?
Are there natural or man-made berms and levees?
Are there fluvial terraces?
Are there channel bars?

Sediment and soil indicators
Where does evidence of soil formation appear?

Are there mudcracks present?

Is there evidence of sediment sorting by grain size?

Vegetation Indicators
Where are the significant transitions in vegetation species, density, and age?

Is there vegetation growing on the channel bed?

If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel?

Where are the significant transitions in vegetation?

Is the vegetation tolerant of flowing water?

Has any vegetation been flattened by flowing water?

Ancillary indicators
Is there organic litter present?

Is there any leaf litter disturbed or washed away?

Is there large wood deposition?

Is there evidence of water staining?

Are the following features of fluvial transport present?
  Evidence of erosion: obstacle marks, scour, armoring
  Bedforms; riffles, pools, steps, knickpoints/headcuts
  Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved - OMB No. 0710-0025

Expires: 01-31-2025

Project ID #: Larrea Solar Project	Site Name: SP40	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ____
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ____
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ____ to ____
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs).* ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP40 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not: ______

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP40	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data	e. topographic maps
b. aerial photos	f. geologic maps
c. satellite imagery	g. land use maps
d. LiDAR	h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
- i. Overall land use and change if known
- ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)

b. Consider the following to inform weighting of evidence observed during field visit.
- i. What physical characteristics are likely to be observed in specific environments?
- ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
- iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.

b. Walk up and down the assessment area noting all the potential OHWM indicators.

c. Note broad trends in channel shape, vegetation, and sediment characteristics.
- i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
- ii. Are there any secondary and/or floodplain channels?
- iii. Are there obvious man-made alterations to the system?
- iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?

d. Look for signs of recurring fluvial action.
- i. Where does the flow converge on the landscape?
- ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?

e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.

f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
- i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
- ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.

b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
- *Evidence of erosion: obstacle marks, scour, armoring*
- *Bedforms; riffles, pools, steps, knickpoints/headcuts*
- *Evidence of deposition: imbricated clasts, gravel sheets, etc.*

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)

INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved - OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

The public reporting burden for this collection of information, 0710-OHWM, is estimated to average 30 **minutes** per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Project ID #: Larrea Solar Project	Site Name: SP41	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other: ____
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:* ____
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ____ to ____
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** a

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP41 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP41	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
  Evidence of erosion: obstacle marks, scour, armoring
  Bedforms; riffles, pools, steps, knickpoints/headcuts
  Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE) **INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET** The proponent agency is Headquarters USACE CECW-CO-R.	***Form Approved -*** ***OMB No. 0710-0025*** ***Expires: 01-31-2025***

AGENCY DISCLOSURE NOTICE

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Project ID #: Larrea Solar Project	Site Name: SP42	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources. Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [ ] *undercut bank:*
  - [ ] *valley bottom:*
  - [ ] Other:
- [ ] **Shelving:**
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:*
- [ ] **Channel bar:** x
  - [ ] *shelving (berms) on bar:* b
  - [ ] *unvegetated:* x
  - [ ] *vegetation transition (go to veg. indicators)* a
  - [ ] *sediment transition (go to sed. indicators)* x
  - [ ] *upper limit of deposition on bar:* x
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** x

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [x] *vegetation absent to:* woody shrubs
- [ ] *moss to:*
- [ ] *forbs to:*
- [ ] *graminoids to:*
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP42 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not: ______

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP42	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation Indicators**	**Ancillary indicators**
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
  Evidence of erosion: obstacle marks, scour, armoring
  Bedforms; riffles, pools, steps, knickpoints/headcuts
  Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

U.S. Army Corps of Engineers (USACE)
INTERIM DRAFT RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET
The proponent agency is Headquarters USACE CECW-CO-R.

Form Approved - OMB No. 0710-0025
Expires: 01-31-2025

AGENCY DISCLOSURE NOTICE

Project ID #: Larrea Solar Project	Site Name: SP43	Date and Time:
Location (lat/long): [redacted]	Investigator(s): [redacted]	

Step 1 Site overview from remote and online resources
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [x] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [x] Other: APT Analysis (see

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?

According to APT analysis results, the March 2023 field survey for wetland vegetation, hydric soils, and hydrology field indicators and OHWM indicators was conducted during the dry season with a mild wetness drought index within the watershed following a 90-day period of wetter than normal precipitation conditions.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or man-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls etc.

There are several roadways that impact site surface water hydrology by directing flows to stormwater detention areas and then through culverts to the downstream side of the roadways. These include Highway 160, East Hidden Hills Road, and Prairie Fire Road to the north and Tecopa Road to the east (see HBG AJD Appendix A, Figures 1 -3). No near-surface high groundwater levels were found and no groundwater discharge areas that would contribute to streamflow were observed.

Step 3 Check the boxes next to the indicators used to identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators that are used to determine location may be just below and above the OHWM. From the drop-down menu next to each indicator, select the appropriate location of the indicator by selecting either just below `b', at `x', or just above `a' the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and to attach a photo log.

Geomorphic indicators

- [x] **Break in slope:** a
  - [x] *on the bank:* x
  - [x] *undercut bank:* b
  - [ ] *valley bottom:*
  - [ ] Other:
- [x] **Shelving:** x
  - [ ] *shelf at top of bank:*
  - [ ] *natural levee:*
  - [ ] *man-made berms or levees:*
  - [ ] *other berms:*
- [ ] **Channel bar:**
  - [ ] *shelving (berms) on bar:*
  - [ ] *unvegetated:*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar:*
- [x] **Instream bedforms and other bedload transport evidence:** x
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.):*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)* x
- [ ] **Secondary channels:**

Sediment indicators

- [ ] **Soil development:**
- [ ] **Changes in character of soil:**
- [ ] **Mudcracks:**
- [x] **Changes in particle-sized distribution:** b
  - [ ] *transition from* ______ to ______
  - [ ] *upper limit of sand-sized particles*
  - [x] *silt deposits:*

Vegetation Indicators

- [x] **Change in vegetation type and/or density:** b

Check the appropriate boxes and select the general vegetation change *(e.g., graminoids to woody shrubs)*. ***Describe the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain.***

- [ ] *vegetation absent to:*
- [ ] *moss to:*
- [ ] *forbs to:*
- [x] *graminoids to:* woody shrubs
- [ ] *woody shrubs to:*
- [ ] *deciduous trees to:*
- [ ] *coniferous trees to:*
- [ ] **Vegetation matted down and/or bent:**
- [ ] **Exposed roots below intact soil layer:**

Ancillary indicators

- [x] **Wracking/presence of organic litter:** x
- [ ] **Presence of large wood:**
- [ ] **Leaf litter disturbed or washed away:**
- [ ] **Water staining:**
- [ ] **Weathered clasts or bedrock:**

Other observed indicators? Describe:

Project ID #: Larrea Solar Project

Step 4 Is additional information needed to support this determination? ☐ Yes ☑ No If yes, describe and attach information to datasheet:

Step 5 Describe rationale for location of OHWM

Defined based on evidence of indicators described above between the stream channel on channel bank slope.

Additional observations or notes

See cross-section for SP43 SDAM Analysis in Appendix E. The analysis determined that an ephemeral stream was present.

Attach a photo log of the site. Use the table below, or attach separately.

Photo log attached? ☑ Yes ☐ No If no, explain why not:

List photographs and include descriptions in the table below.

Number photographs in the order that they are taken. Attach photographs and include annotations of features.

Photo Number	Photograph description
SP43	Photograph of OHW section of ephemeral drainage.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on datasheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape.

a. **Note on the datasheet under Step 1:**
  i. Overall land use and change if known
  ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
b. Consider the following to inform weighting of evidence observed during field visit.
  i. What physical characteristics are likely to be observed in specific environments?
  ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
  iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
  i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
  ii. Are there any secondary and/or floodplain channels?
  iii. Are there obvious man-made alterations to the system?
  iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
  i. Where does the flow converge on the landscape?
  ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the datasheet** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
  i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
  ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence

Assemble evidence by checking the boxes next to each line of evidence:

a. If needed, use a separate scratch datasheet to check boxes next to possible indicators, or check boxes of possible indicators in pencil and use pen for final decision.
b. If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	Sediment and soil indicators	Vegetation Indicators	Ancillary indicators
Where are the breaks in slope? Are there identifiable banks? Is there an easily identifiable top of bank? Are the banks actively eroding? Are the banks undercut? Are the banks armored? Is the channel confined by the surrounding hillslopes? Are there natural or man-made berms and levees? Are there fluvial terraces? Are there channel bars?	Where does evidence of soil formation appear? Are there mudcracks present? Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation species, density, and age? Is there vegetation growing on the channel bed? If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel? Where are the significant transitions in vegetation? Is the vegetation tolerant of flowing water? Has any vegetation been flattened by flowing water?	Is there organic litter present? Is there any leaf litter disturbed or washed away? Is there large wood deposition? Is there evidence of water staining?

Are the following features of fluvial transport present?
Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Datasheet Instructions and Field Procedure

Step 3b Weight each line of evidence and weigh body of evidence

Weight each indicator by considering its importance based upon:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows?

Tips on how to assess the indicator relative to type of flow:

Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages? Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low flow indicator. The difference between high and extreme flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***Information in Chapter 2 of the OHWM field manual provides information on specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.**

ii. Did recent extreme events and/or land use affect this indicator?

1. Recent floods may have left many extreme flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.
2. Droughts may cause field evidence of OHWM to be obscured, because there has been an extended time since the last high flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.
3. Both man-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can all alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provides specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describes each indicator in detail and provides examples of areas where indicators are difficult to interpret.

d. Weigh body of evidence:

i. Combine weights: integrate the weighted line of evidence (relevance, strength, reliability) of each indicator.

ii. For each of the observed indicators, which are more heavily weighted? Where do high value indicators co-occur along the stream reach? Do they co-occur at a similar elevation along the banks relative to water surface (or channel bed if there is no water).

iii. On datasheet, select the indicators used to identify the OHWM. Information in Chapter 2 of the OHWM field manual provides descriptions of specific indicators which can assist in putting these in context and determining relevance, strength, and reliability.

e. Take photographs of indicators and attach a log using either page 2 of datasheet or another method of logging photos.

i. Annotate photos with descriptions of indicators.

Step 4 Is additional information needed? Are other resources needed to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling, weighting, and weighing evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were needed to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the datasheet.

Step 5 Describe rationale for location of OHWM:

a. Why do the combination of indicators represent the OHWM?

b. If there are multiple possibilities for the OHWM, explain why there are two (or more) possibilities. Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the datasheet under Step 5.

Representative OHWM Photographs

Larrea Solar Farm Project

[redacted]

Sample Point ID: SP01

Related Drainage - R1

OHW Width (feet): 0.5

Sample Point ID: SP02

Related Drainage - R012

OHW Width (feet): 1

Sample Point ID: SP03

Related Drainage - R2

OHW Width (feet): 1.5

Sample Point ID: SP04

Related Drainage - R3

OHW Width (feet): 5.5

Sample Point ID: SP05

Related Drainage - R4

OHW Width (feet): 4.5

Sample Point ID: SP06

Related Drainage - R013

OHW Width (feet): 2

Sample Point ID: SP07

Related Drainage - R5

OHW Width (feet): 3

Sample Point ID: SP08

Related Drainage - R038

OHW Width (feet): 2.5

Sample Point ID: SP09

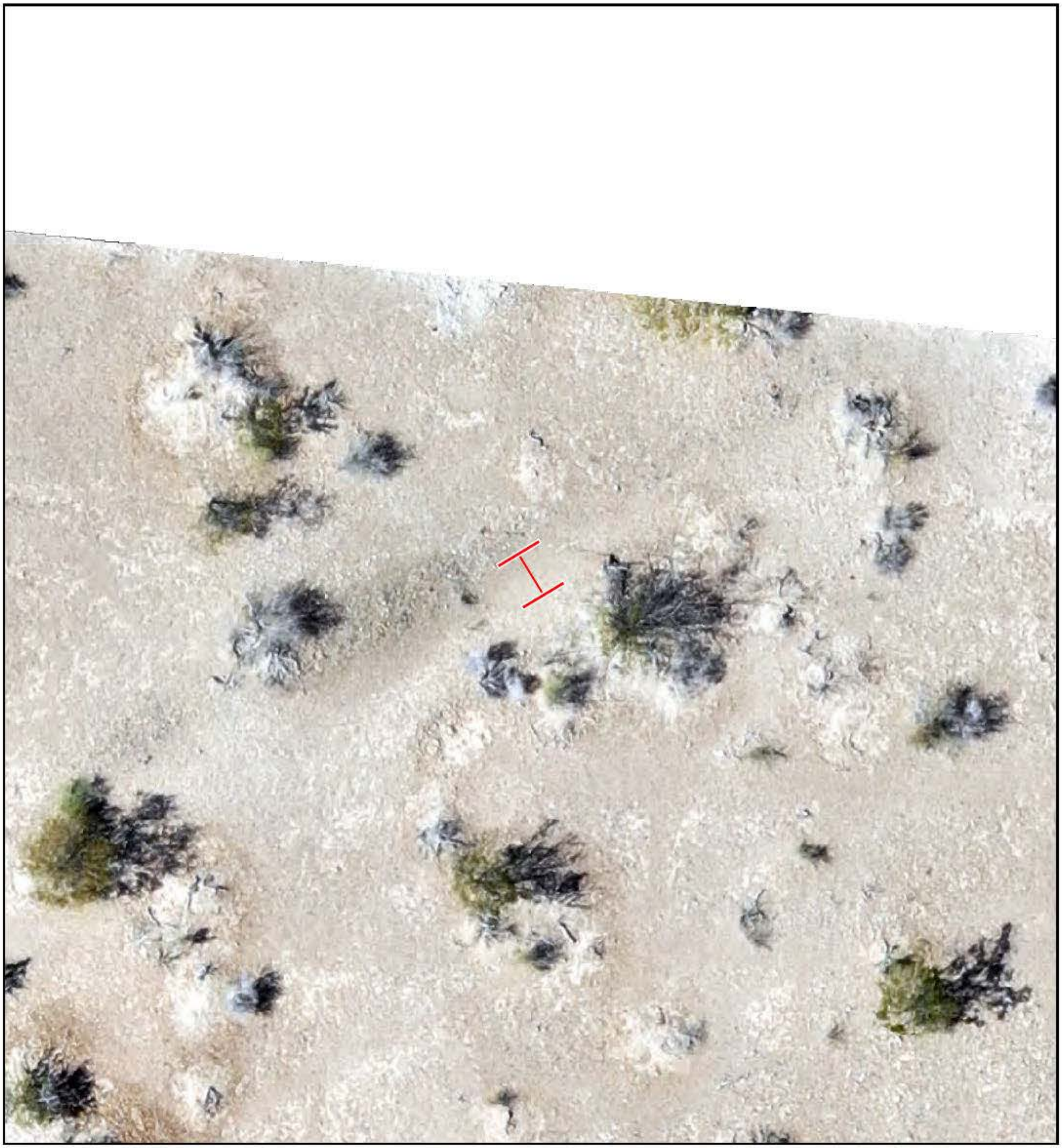
Related Drainage - R6

OHW Width (feet): 2

Sample Point ID: SP10

Related Drainage - R083

OHW Width (feet): 2



Sample Point ID: SP11

Related Drainage - R8

OHW Width (feet): 3

Sample Point ID: SP12

Related Drainage - R183

OHW Width (feet): 1.75

Sample Point ID: SP14

Related Drainage - R085

OHW Width (feet): 1

Sample Point ID: SP16

Related Drainage - R1

OHW Width (feet): 1

Sample Point ID: SP17

Related Drainage - R2

OHW Width (feet): 3

Sample Point ID: SP18

Related Drainage - R3

OHW Width (feet): 18

Sample Point ID: SP19

Related Drainage - R040

OHW Width (feet): 2.25

Sample Point ID: SP20

Related Drainage - R9

OHW Width (feet): 2.5

Sample Point ID: SP21

Related Drainage - R4

OHW Width (feet): 6

Sample Point ID: SP22

Related Drainage - R5

OHW Width (feet): 3

Sample Point ID: SP23

Related Drainage - R026

OHW Width (feet): 3

Sample Point ID: SP24

Related Drainage - R020

OHW Width (feet): 2.5

Sample Point ID: SP25

Related Drainage - R3

OHW Width (feet): 15.5

Sample Point ID: SP26

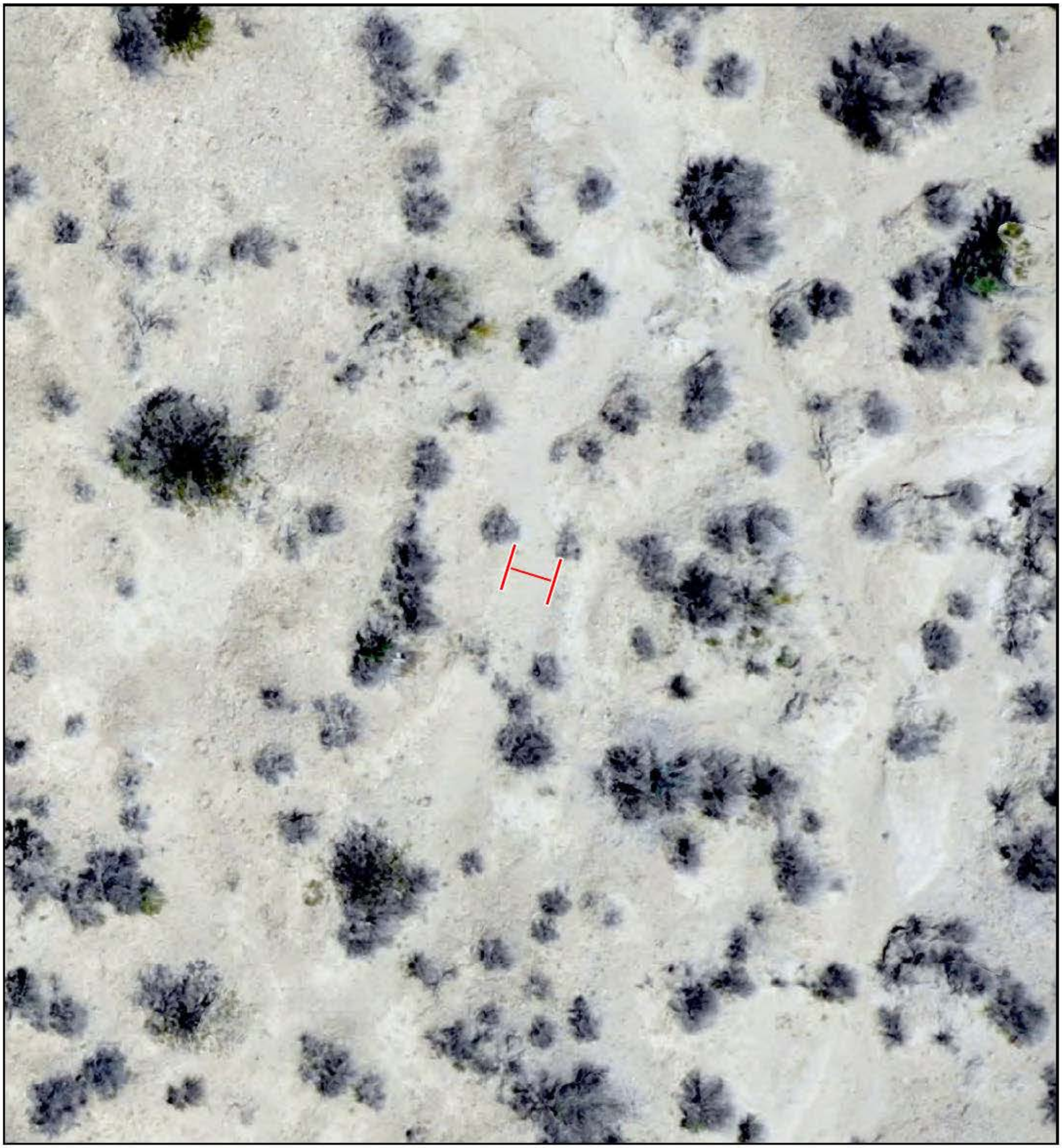
Related Drainage - R056

OHW Width (feet): 2.5

Sample Point ID: SP27

Related Drainage - R066

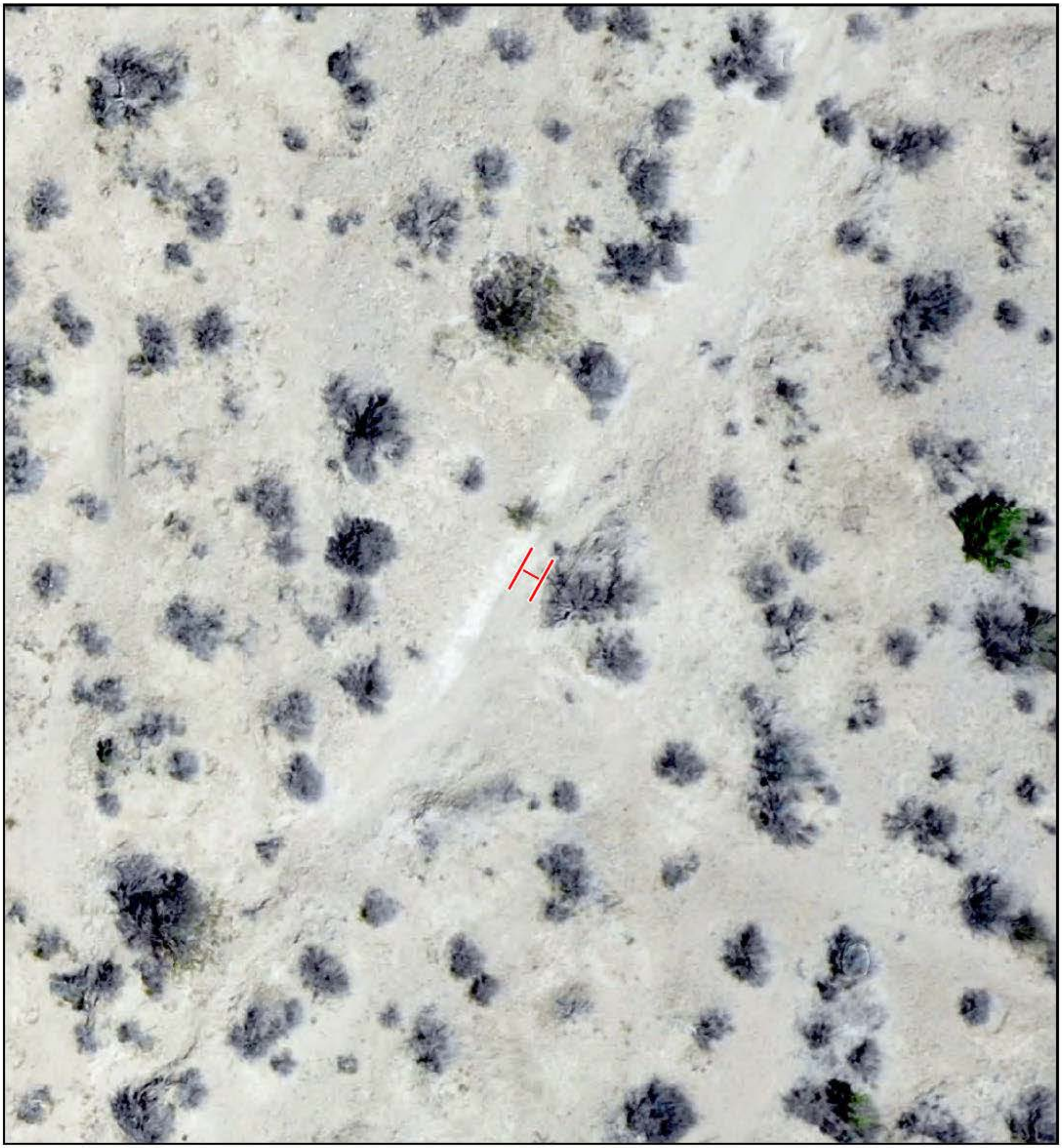
OHW Width (feet): 2



Sample Point ID: SP28

Related Drainage - R70

OHW Width (feet): 1



Sample Point ID: SP29

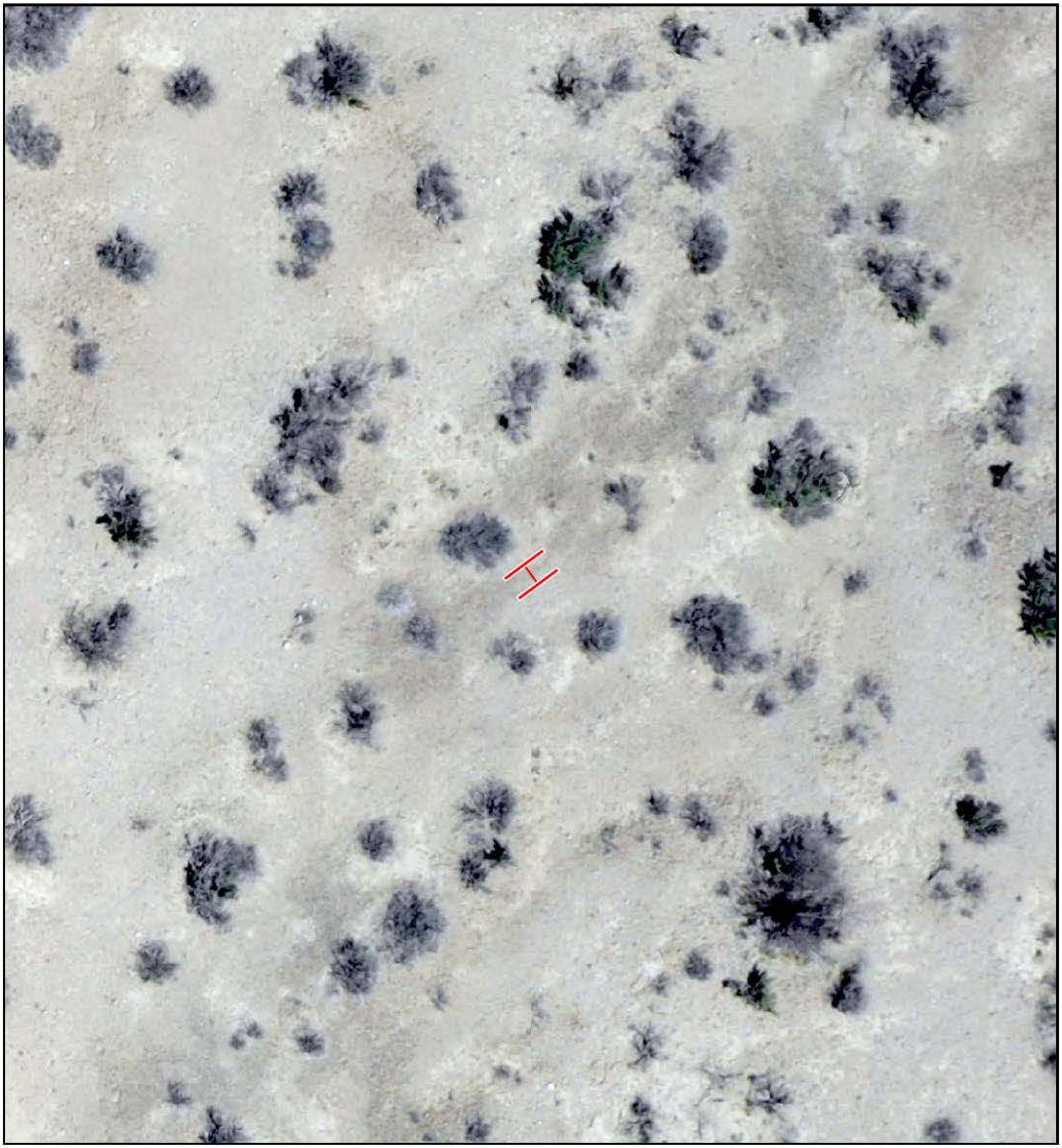
Related Drainage - R140

OHW Width (feet): 1.5

Sample Point ID: SP30

Related Drainage - R145

OHW Width (feet): 1



Sample Point ID: SP31

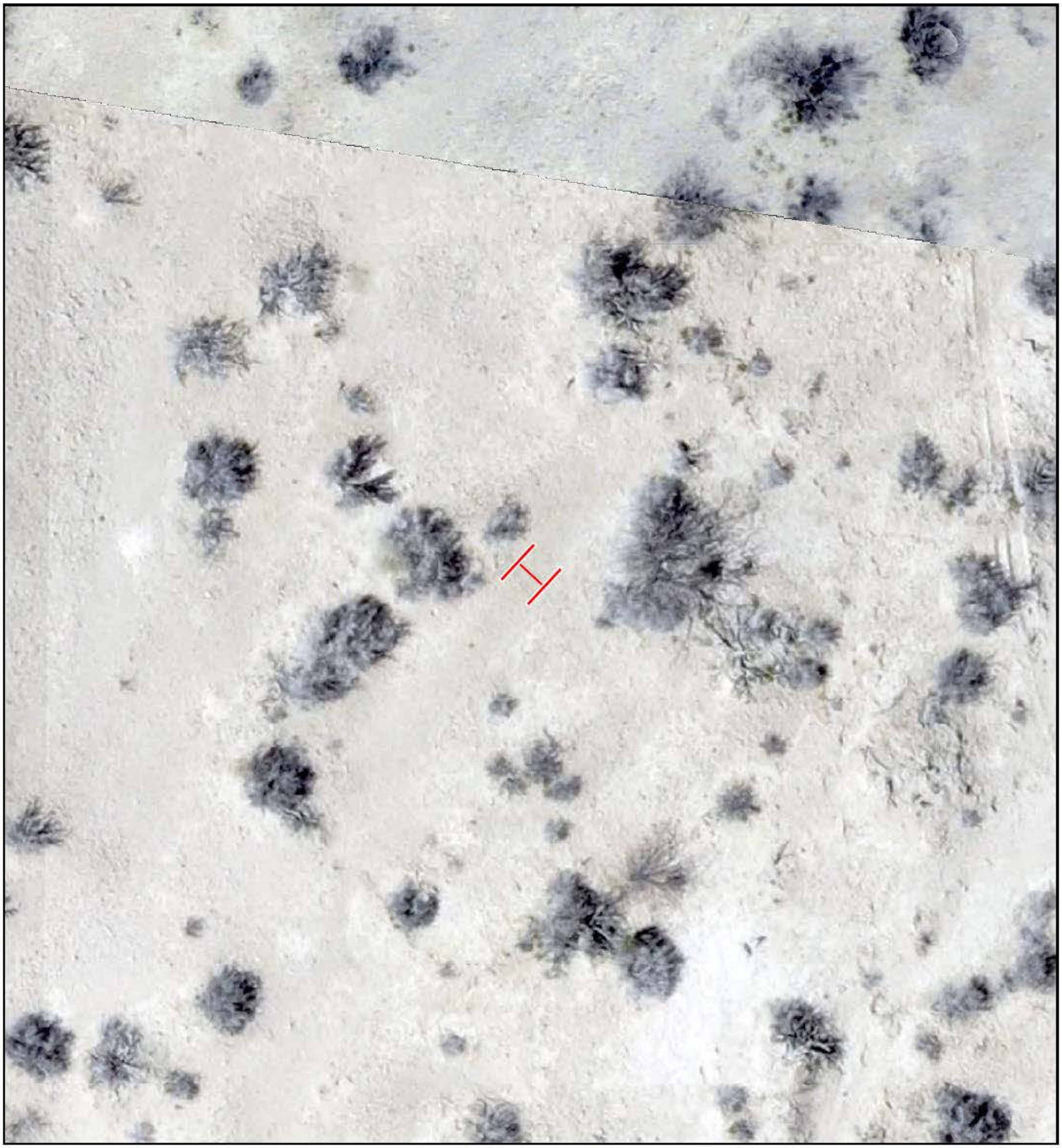
Related Drainage - R011

OHW Width (feet): 3

Sample Point ID: SP32

Related Drainage - R071

OHW Width (feet): 1.5



Sample Point ID: SP33

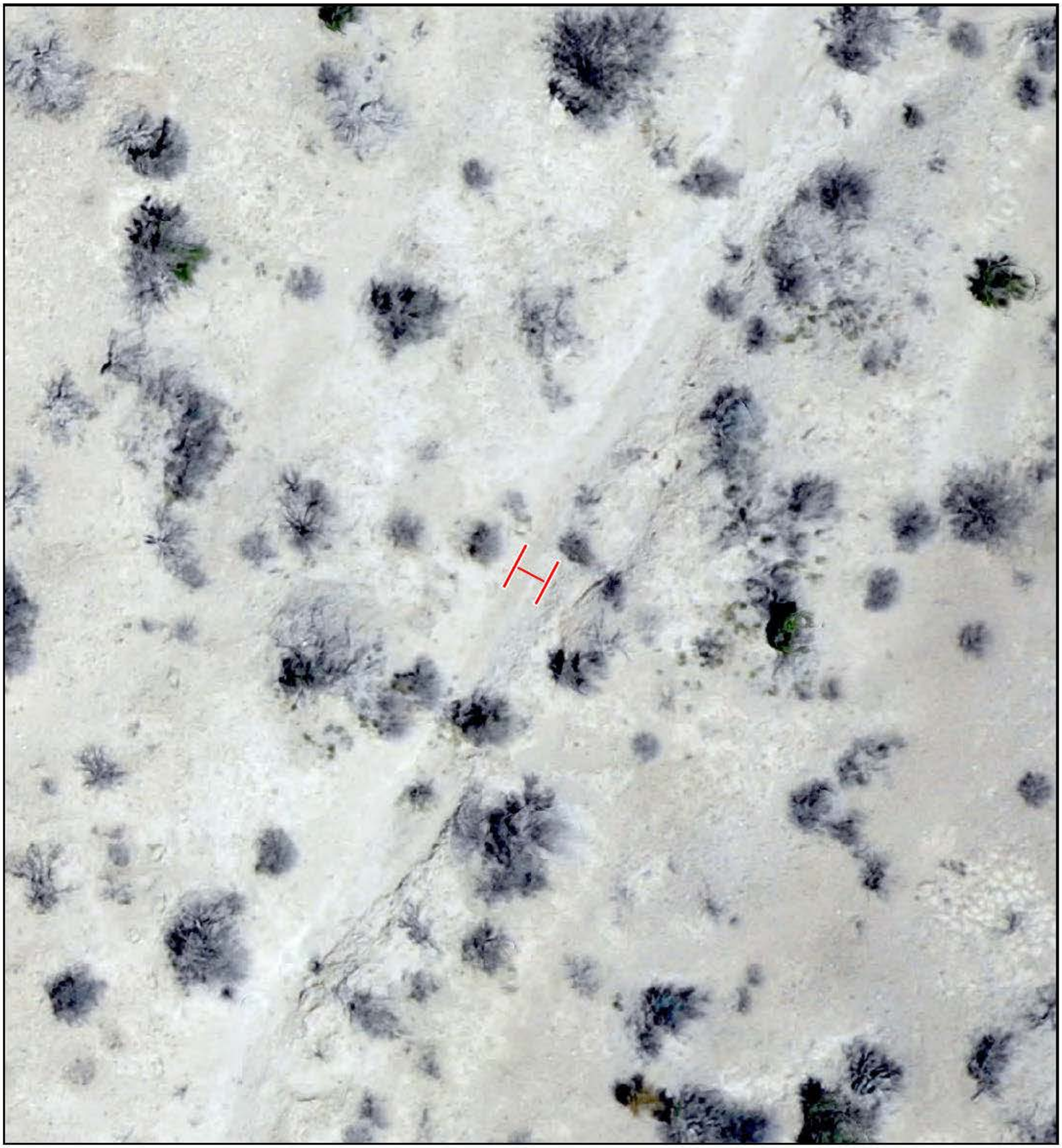
Related Drainage - R072

OHW Width (feet): 2.5

Sample Point ID: SP34

Related Drainage - R073

OHW Width (feet): 2.5



Sample Point ID: SP35

Related Drainage - R074

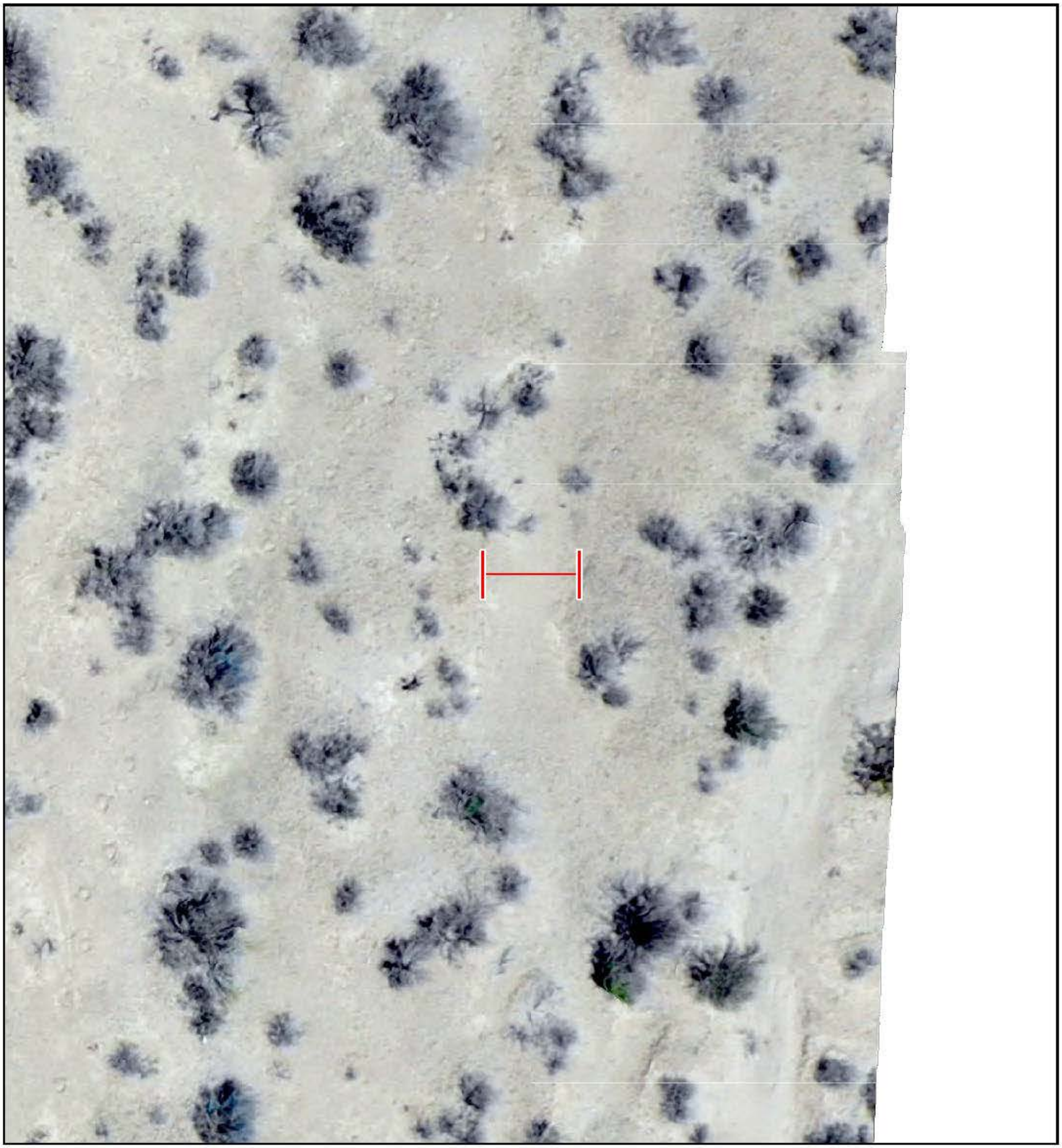
OHW Width (feet): 1.5

Sample Point ID: SP36

Related Drainage - R076

OHW Width (feet): 1.5

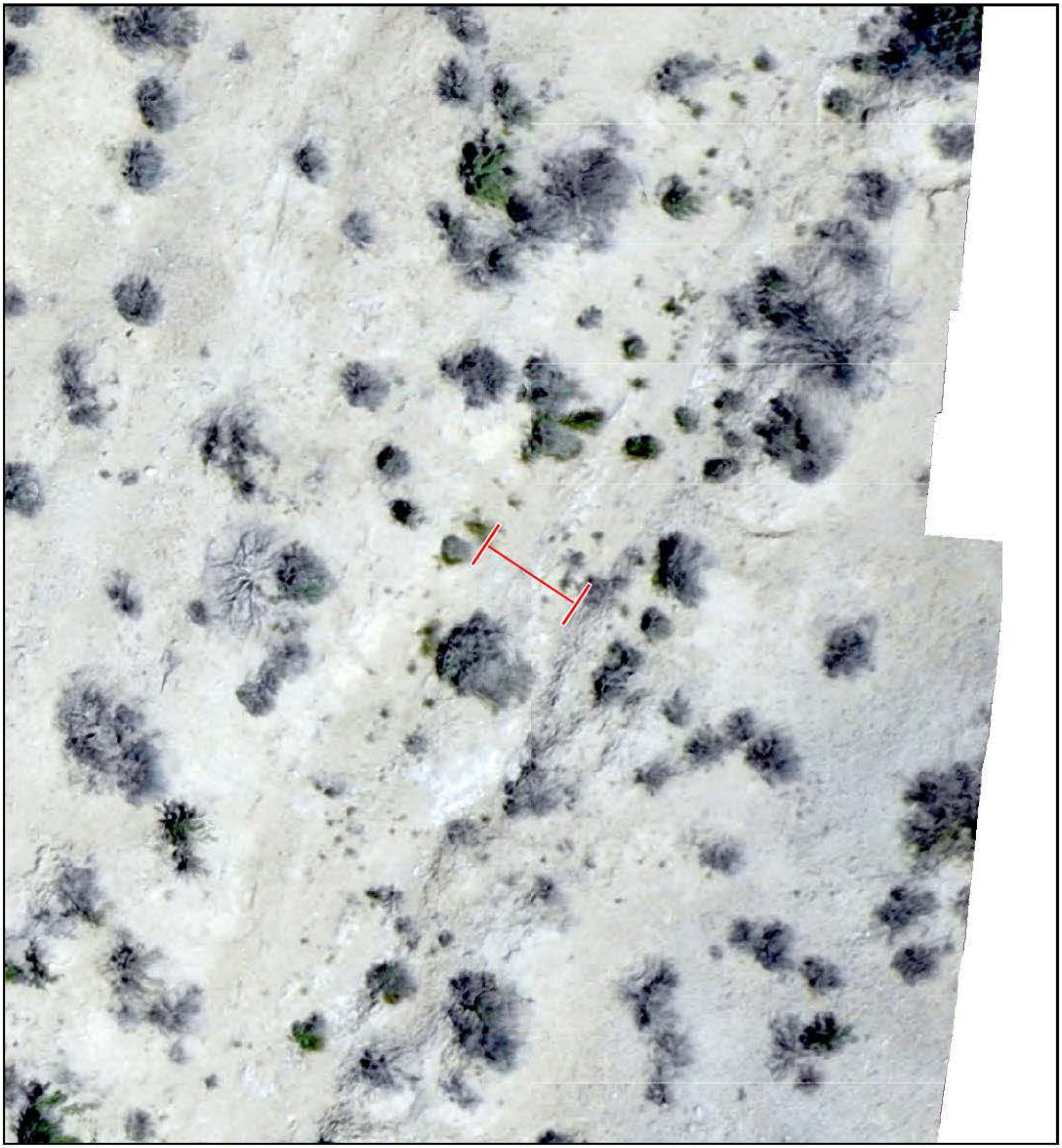
Sample Point ID: SP37
Related Drainage - R027
OHW Width (feet): 4



Sample Point ID: SP38

Related Drainage - R081

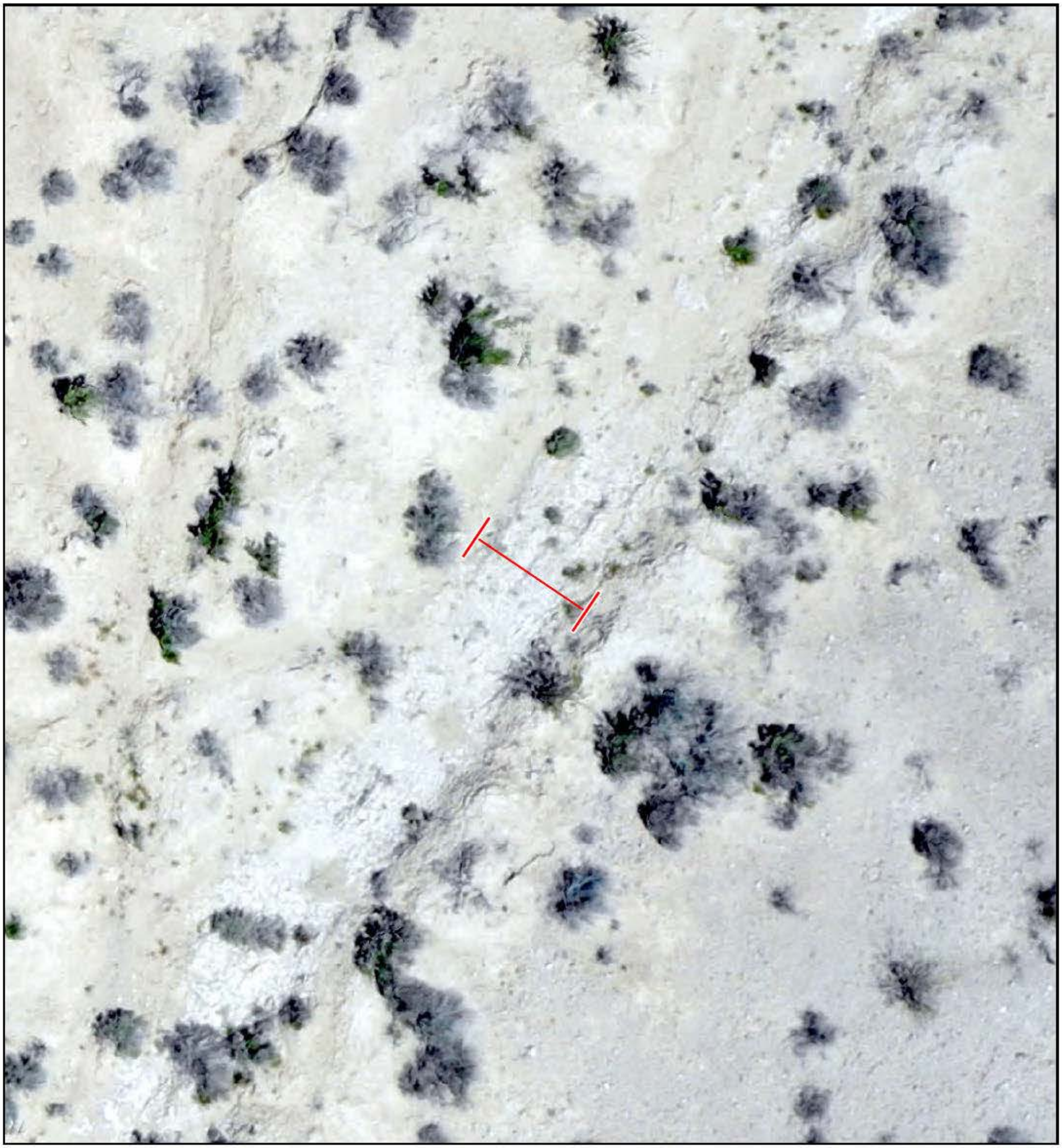
OHW Width (feet): 4.5



Sample Point ID: SP39

Related Drainage - R176

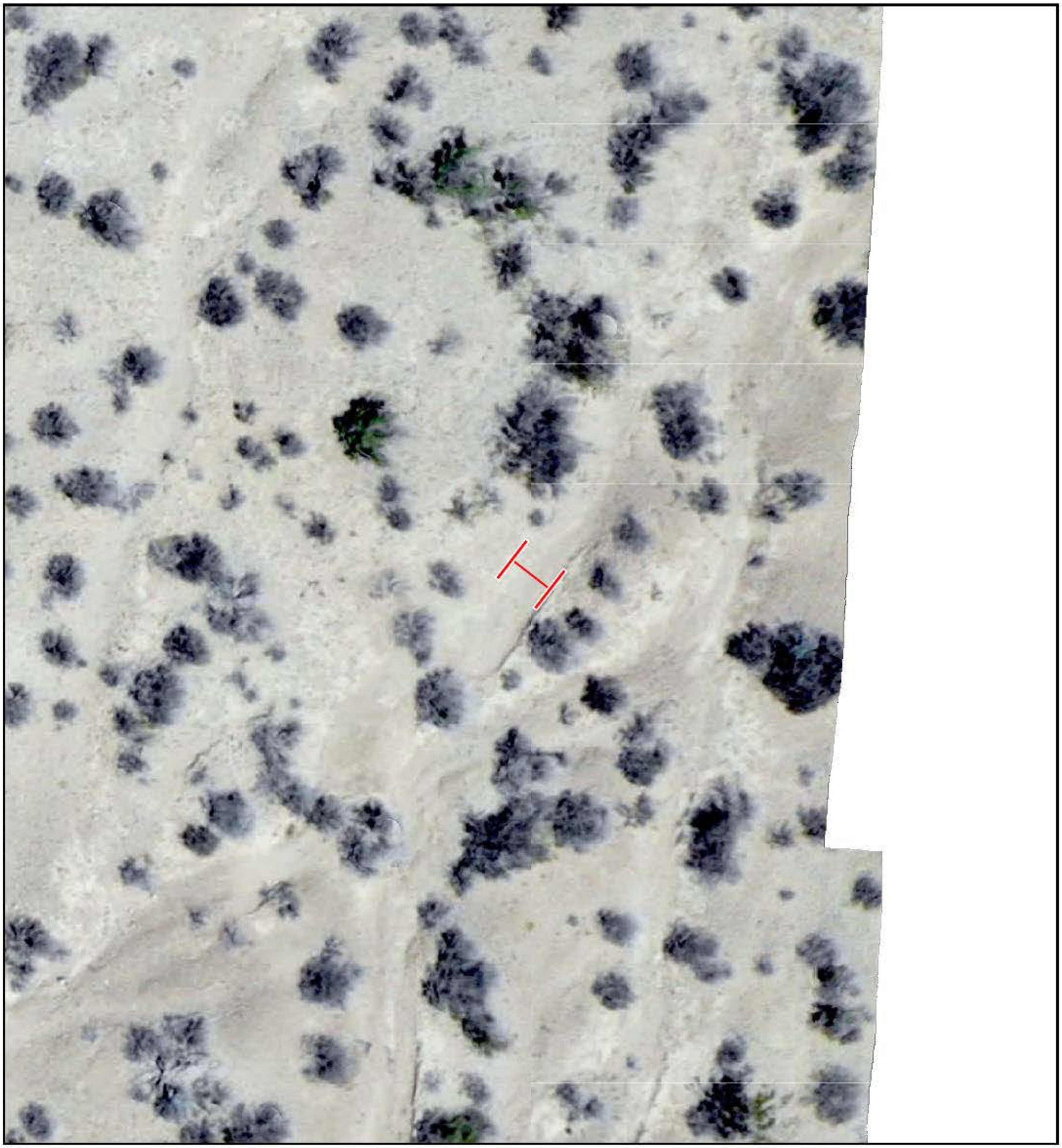
OHW Width (feet): 5.5



Sample Point ID: SP40

Related Drainage - R031

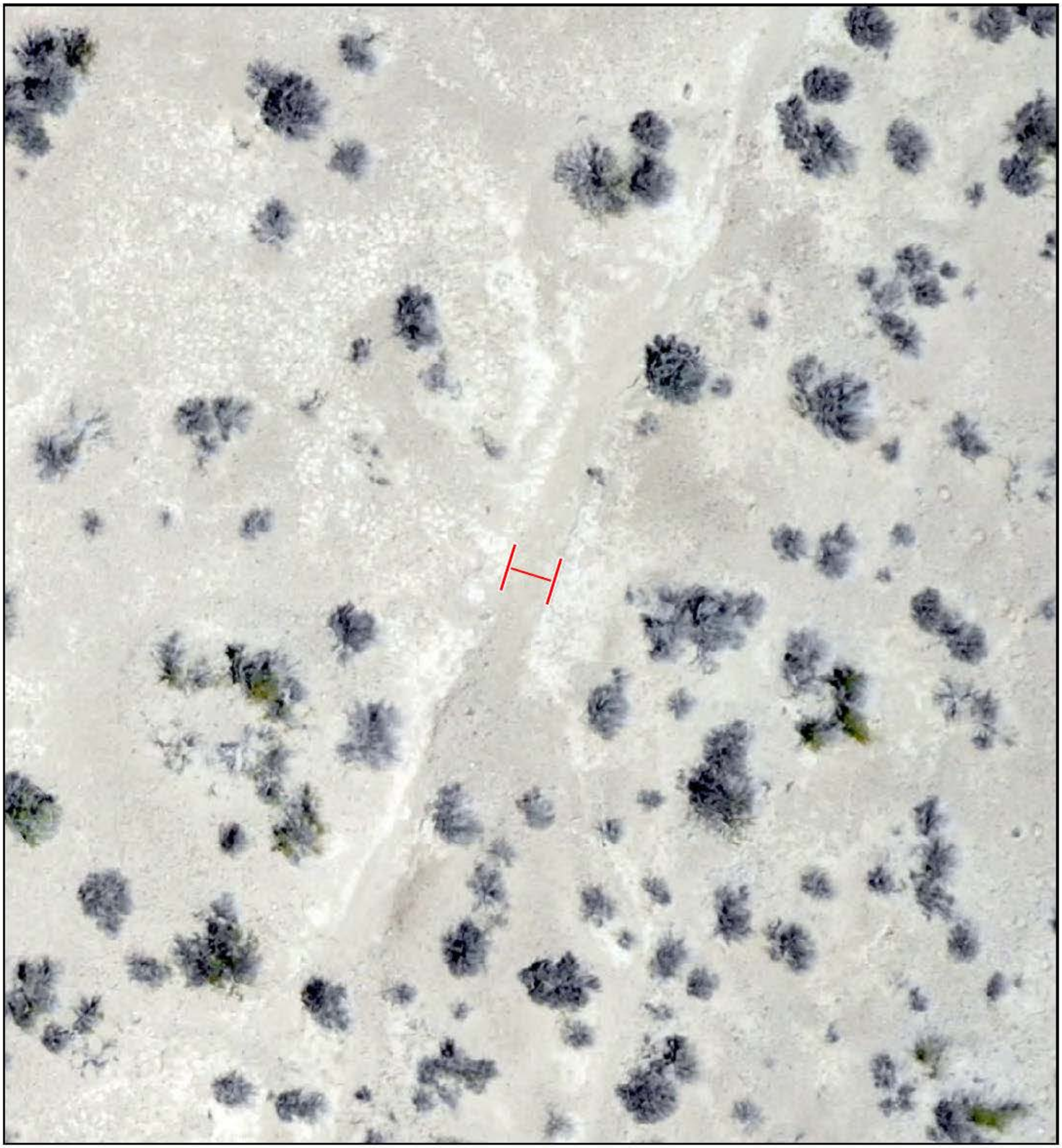
OHW Width (feet): 2



Sample Point ID: SP41

Related Drainage - R032

OHW Width (feet): 2



Sample Point ID: SP42
Related Drainage - R179
OHW Width (feet): 18

Sample Point ID: SP43

Related Drainage - R180

OHW Width (feet): 3.5

Map and Photo Source Credits - Project Data and Photos: [redacted]; Drone Imagery: [redacted], Imagery date 4/20/2023; Basemap Reference Data:

Photo Count: {COUNT:Sort}
Date Report Created: 6/25/2024

Other Waters Stream Channel Data

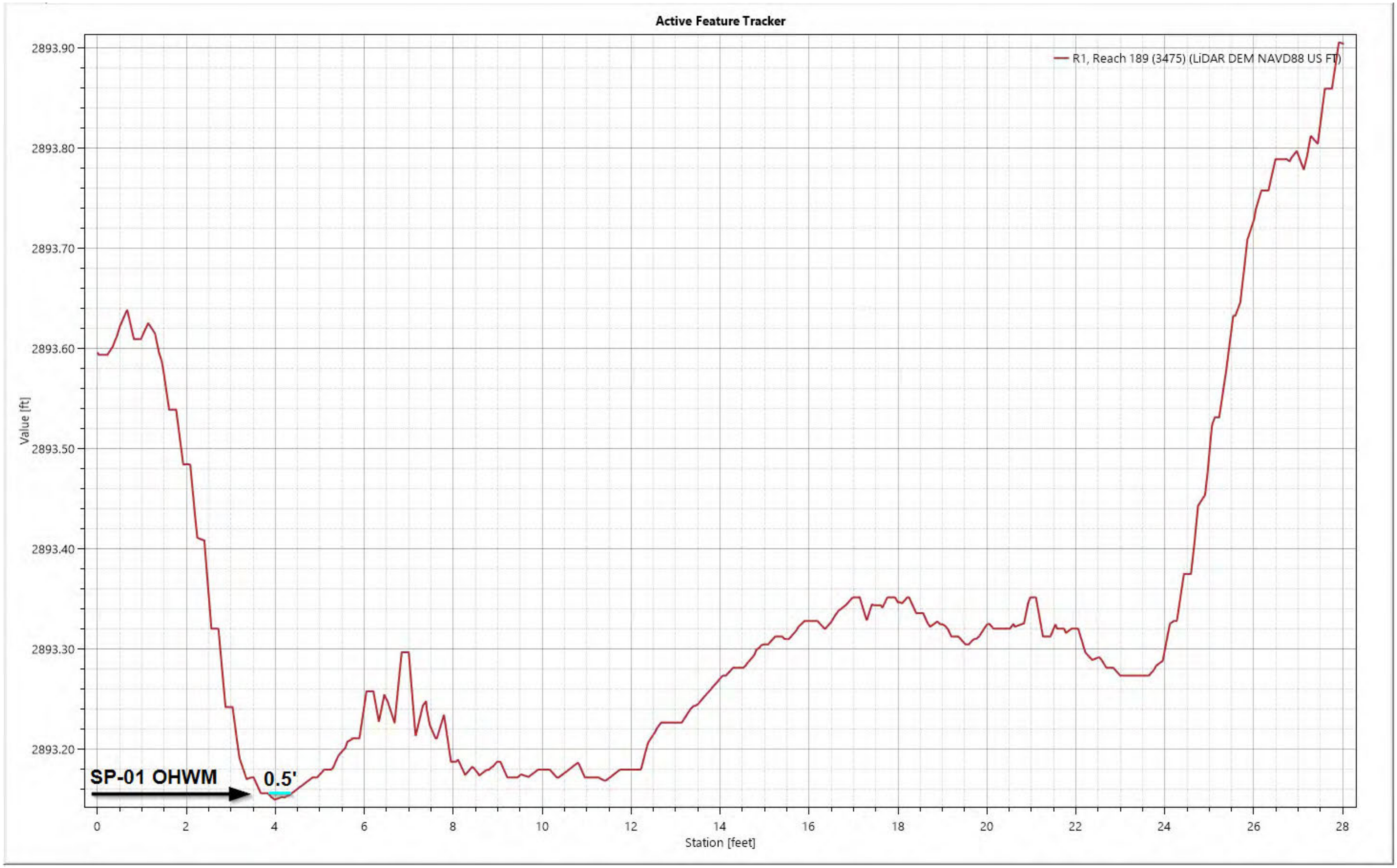
Appendix E. Table 1 Other Waters Stream Channel Data									
Label	Cowardin Code	Type	Average Stream Width	Length in Feet	Acres	Latitude Start	Longitude Start	Latitude End	Longitude End
R1	R6	Ephemeral	1	3495.57	0.080	[redacted]	[redacted]	[redacted]	[redacted]
R2	R6	Ephemeral	3	3327.64	0.229	[redacted]	[redacted]	[redacted]	[redacted]
R3	R6	Ephemeral	12.5	5859.85	1.682	[redacted]	[redacted]	[redacted]	[redacted]
R4	R6	Ephemeral	6	4584.13	0.631	[redacted]	[redacted]	[redacted]	[redacted]
R5	R6	Ephemeral	3	12153.47	0.837	[redacted]	[redacted]	[redacted]	[redacted]
R6	R6	Ephemeral	2	6080.50	0.279	[redacted]	[redacted]	[redacted]	[redacted]
R7	R6	Ephemeral	3.5	4435.22	0.356	[redacted]	[redacted]	[redacted]	[redacted]
R8	R6	Ephemeral	3	2119.73	0.146	[redacted]	[redacted]	[redacted]	[redacted]
R9	R6	Ephemeral	2.5	4327.38	0.248	[redacted]	[redacted]	[redacted]	[redacted]
R10	R6	Ephemeral	2.5	3495.93	0.201	[redacted]	[redacted]	[redacted]	[redacted]
R11	R6	Ephemeral	3	4578.71	0.315	[redacted]	[redacted]	[redacted]	[redacted]
R12	R6	Ephemeral	1	2555.40	0.059	[redacted]	[redacted]	[redacted]	[redacted]
R13	R6	Ephemeral	2	2537.90	0.117	[redacted]	[redacted]	[redacted]	[redacted]
R14	R6	Ephemeral	2	2697.67	0.124	[redacted]	[redacted]	[redacted]	[redacted]
R15	R6	Ephemeral	2.5	2270.91	0.130	[redacted]	[redacted]	[redacted]	[redacted]
R16	R6	Ephemeral	2.5	3150.46	0.181	[redacted]	[redacted]	[redacted]	[redacted]
R17	R6	Ephemeral	3.5	2057.53	0.165	[redacted]	[redacted]	[redacted]	[redacted]
R18	R6	Ephemeral	2	2357.70	0.108	[redacted]	[redacted]	[redacted]	[redacted]
R19	R6	Ephemeral	3	1646.53	0.113	[redacted]	[redacted]	[redacted]	[redacted]
R20	R6	Ephemeral	2.5	2865.90	0.164	[redacted]	[redacted]	[redacted]	[redacted]
R21	R6	Ephemeral	2	2266.62	0.104	[redacted]	[redacted]	[redacted]	[redacted]
R22	R6	Ephemeral	1.5	2717.95	0.094	[redacted]	[redacted]	[redacted]	[redacted]
R23	R6	Ephemeral	2.5	1729.32	0.099	[redacted]	[redacted]	[redacted]	[redacted]
R24	R6	Ephemeral	2.5	1912.26	0.110	[redacted]	[redacted]	[redacted]	[redacted]
R25	R6	Ephemeral	2.5	3005.94	0.173	[redacted]	[redacted]	[redacted]	[redacted]
R26	R6	Ephemeral	3	1921.44	0.132	[redacted]	[redacted]	[redacted]	[redacted]
R27	R6	Ephemeral	4	2883.09	0.265	[redacted]	[redacted]	[redacted]	[redacted]
R28	R6	Ephemeral	4	2056.84	0.189	[redacted]	[redacted]	[redacted]	[redacted]
R29	R6	Ephemeral	2.5	2421.78	0.139	[redacted]	[redacted]	[redacted]	[redacted]
R30	R6	Ephemeral	1	2380.11	0.055	[redacted]	[redacted]	[redacted]	[redacted]
R31	R6	Ephemeral	2	2124.26	0.098	[redacted]	[redacted]	[redacted]	[redacted]
R32	R6	Ephemeral	2	1954.64	0.090	[redacted]	[redacted]	[redacted]	[redacted]
R33	R6	Ephemeral	2.5	677.14	0.039	[redacted]	[redacted]	[redacted]	[redacted]
R34	R6	Ephemeral	2	707.24	0.032	[redacted]	[redacted]	[redacted]	[redacted]
R35	R6	Ephemeral	2	1027.20	0.047	[redacted]	[redacted]	[redacted]	[redacted]
R36	R6	Ephemeral	2	686.77	0.032	[redacted]	[redacted]	[redacted]	[redacted]
R37	R6	Ephemeral	1.5	1620.43	0.056	[redacted]	[redacted]	[redacted]	[redacted]
R38	R6	Ephemeral	2.5	1185.56	0.068	[redacted]	[redacted]	[redacted]	[redacted]
R39	R6	Ephemeral	1.5	1223.04	0.042	[redacted]	[redacted]	[redacted]	[redacted]
R40	R6	Ephemeral	2.3	1076.60	0.056	[redacted]	[redacted]	[redacted]	[redacted]
R41	R6	Ephemeral	1	724.96	0.017	[redacted]	[redacted]	[redacted]	[redacted]
R42	R6	Ephemeral	3.5	1037.76	0.083	[redacted]	[redacted]	[redacted]	[redacted]
R43	R6	Ephemeral	3.5	1357.41	0.109	[redacted]	[redacted]	[redacted]	[redacted]
R44	R6	Ephemeral	1.5	747.21	0.026	[redacted]	[redacted]	[redacted]	[redacted]
R45	R6	Ephemeral	2.5	1495.83	0.086	[redacted]	[redacted]	[redacted]	[redacted]
R46	R6	Ephemeral	2	661.04	0.030	[redacted]	[redacted]	[redacted]	[redacted]
R47	R6	Ephemeral	2.5	913.27	0.052	[redacted]	[redacted]	[redacted]	[redacted]
R48	R6	Ephemeral	2	739.55	0.034	[redacted]	[redacted]	[redacted]	[redacted]
R49	R6	Ephemeral	5	1087.72	0.125	[redacted]	[redacted]	[redacted]	[redacted]
R50	R6	Ephemeral	2.5	1318.72	0.076	[redacted]	[redacted]	[redacted]	[redacted]
R51	R6	Ephemeral	3	759.34	0.052	[redacted]	[redacted]	[redacted]	[redacted]
R52	R6	Ephemeral	2	811.90	0.037	[redacted]	[redacted]	[redacted]	[redacted]
R53	R6	Ephemeral	2	792.69	0.036	[redacted]	[redacted]	[redacted]	[redacted]
R54	R6	Ephemeral	2	662.93	0.030	[redacted]	[redacted]	[redacted]	[redacted]
R55	R6	Ephemeral	2	1271.58	0.058	[redacted]	[redacted]	[redacted]	[redacted]
R56	R6	Ephemeral	2.5	776.92	0.045	[redacted]	[redacted]	[redacted]	[redacted]
R57	R6	Ephemeral	2	897.12	0.041	[redacted]	[redacted]	[redacted]	[redacted]
R58	R6	Ephemeral	2.5	1244.83	0.071	[redacted]	[redacted]	[redacted]	[redacted]
R59	R6	Ephemeral	2	910.46	0.042	[redacted]	[redacted]	[redacted]	[redacted]
R60	R6	Ephemeral	2.5	869.01	0.050	[redacted]	[redacted]	[redacted]	[redacted]
R61	R6	Ephemeral	2	1201.75	0.055	[redacted]	[redacted]	[redacted]	[redacted]
R62	R6	Ephemeral	2.5	1467.93	0.084	[redacted]	[redacted]	[redacted]	[redacted]
R63	R6	Ephemeral	1.5	1024.64	0.035	[redacted]	[redacted]	[redacted]	[redacted]
R64	R6	Ephemeral	3	666.60	0.046	[redacted]	[redacted]	[redacted]	[redacted]
R65	R6	Ephemeral	3	1132.57	0.078	[redacted]	[redacted]	[redacted]	[redacted]
R66	R6	Ephemeral	2	1319.17	0.061	[redacted]	[redacted]	[redacted]	[redacted]

Appendix E. Table 1 Other Waters Stream Channel Data									
Label	Cowardin Code	Type	Average Stream Width	Length in Feet	Acres	Latitude Start	Longitude Start	Latitude End	Longitude End
R67	R6	Ephemeral	1.5	1583.66	0.055	[redacted]			
R68	R6	Ephemeral	1.5	1049.03	0.036				
R69	R6	Ephemeral	2.5	1121.70	0.064				
R70	R6	Ephemeral	1	738.24	0.017				
R71	R6	Ephemeral	1.5	746.55	0.026				
R72	R6	Ephemeral	2.5	1153.23	0.066				
R73	R6	Ephemeral	1.5	687.55	0.024				
R74	R6	Ephemeral	1.5	754.92	0.026				
R75	R6	Ephemeral	1.5	681.73	0.023				
R76	R6	Ephemeral	1.5	1033.56	0.036				
R77	R6	Ephemeral	1.5	821.80	0.028				
R78	R6	Ephemeral	1.5	1456.71	0.050				
R79	R6	Ephemeral	1	705.65	0.016				
R80	R6	Ephemeral	1	954.05	0.022				
R81	R6	Ephemeral	4.5	758.12	0.078				
R82	R6	Ephemeral	1.5	530.20	0.018				
R83	R6	Ephemeral	2	395.75	0.018				
R84	R6	Ephemeral	1.5	515.24	0.018				
R85	R6	Ephemeral	1	548.64	0.013				
R86	R6	Ephemeral	2.5	186.09	0.011				
R87	R6	Ephemeral	1.5	382.44	0.013				
R88	R6	Ephemeral	1	283.76	0.007				
R89	R6	Ephemeral	2	525.05	0.024				
R90	R6	Ephemeral	1.5	617.20	0.021				
R91	R6	Ephemeral	1	279.78	0.006				
R92	R6	Ephemeral	1.5	176.00	0.006				
R93	R6	Ephemeral	2	378.14	0.017				
R94	R6	Ephemeral	2	232.87	0.011				
R95	R6	Ephemeral	2	442.54	0.020				
R96	R6	Ephemeral	2	596.35	0.027				
R97	R6	Ephemeral	2	655.82	0.030				
R98	R6	Ephemeral	2.5	561.95	0.032				
R99	R6	Ephemeral	1	217.37	0.005				
R100	R6	Ephemeral	3	274.77	0.019				
R101	R6	Ephemeral	1	575.84	0.013				
R102	R6	Ephemeral	2	548.28	0.025				
R103	R6	Ephemeral	2	497.16	0.023				
R104	R6	Ephemeral	1.5	515.97	0.018				
R105	R6	Ephemeral	2	311.47	0.014				
R106	R6	Ephemeral	2	379.80	0.017				
R107	R6	Ephemeral	2	202.27	0.009				
R108	R6	Ephemeral	2	447.96	0.021				
R109	R6	Ephemeral	1.5	189.30	0.007				
R110	R6	Ephemeral	1	68.43	0.002				
R111	R6	Ephemeral	1.5	108.88	0.004				
R112	R6	Ephemeral	3	233.24	0.016				
R113	R6	Ephemeral	2.5	579.64	0.033				
R114	R6	Ephemeral	2	557.72	0.026				
R115	R6	Ephemeral	1.5	329.66	0.011				
R116	R6	Ephemeral	1.5	193.39	0.007				
R117	R6	Ephemeral	2	263.53	0.012				
R118	R6	Ephemeral	1.5	621.64	0.021				
R119	R6	Ephemeral	2	340.30	0.016				
R120	R6	Ephemeral	1.5	272.68	0.009				
R121	R6	Ephemeral	1	141.29	0.003				
R122	R6	Ephemeral	2	243.60	0.011				
R123	R6	Ephemeral	2	607.66	0.028				
R124	R6	Ephemeral	2	249.80	0.011				
R125	R6	Ephemeral	1.5	594.14	0.020				
R126	R6	Ephemeral	3	156.37	0.011				
R127	R6	Ephemeral	1.5	236.51	0.008				
R128	R6	Ephemeral	3	532.28	0.037				
R129	R6	Ephemeral	2.5	254.64	0.015				
R130	R6	Ephemeral	1.5	295.39	0.010				
R131	R6	Ephemeral	2	197.54	0.009				
R132	R6	Ephemeral	1.5	463.20	0.016				

Appendix E. Table 1 Other Waters Stream Channel Data									
Label	Cowardin Code	Type	Average Stream Width	Length in Feet	Acres	Latitude Start	Longitude Start	Latitude End	Longitude End
R133	R6	Ephemeral	3	362.12	0.025	[redacted]			
R134	R6	Ephemeral	1	440.95	0.010				
R135	R6	Ephemeral	3	349.73	0.024				
R136	R6	Ephemeral	3.5	567.77	0.046				
R137	R6	Ephemeral	1.5	628.58	0.022				
R138	R6	Ephemeral	1.5	308.72	0.011				
R139	R6	Ephemeral	2	576.94	0.026				
R140	R6	Ephemeral	2.5	296.89	0.017				
R141	R6	Ephemeral	1.5	565.42	0.019				
R142	R6	Ephemeral	1	248.15	0.006				
R143	R6	Ephemeral	2	233.09	0.011				
R144	R6	Ephemeral	2.5	431.62	0.025				
R145	R6	Ephemeral	2	501.04	0.023				
R146	R6	Ephemeral	1.5	99.74	0.003				
R147	R6	Ephemeral	1.5	181.93	0.006				
R148	R6	Ephemeral	2.5	553.71	0.032				
R149	R6	Ephemeral	1.5	317.71	0.011				
R150	R6	Ephemeral	1	648.17	0.015				
R151	R6	Ephemeral	1	139.75	0.003				
R152	R6	Ephemeral	1	344.66	0.008				
R153	R6	Ephemeral	1	98.85	0.002				
R154	R6	Ephemeral	1	250.15	0.006				
R155	R6	Ephemeral	1	50.68	0.001				
R156	R6	Ephemeral	1	26.06	0.001				
R157	R6	Ephemeral	1	136.26	0.003				
R158	R6	Ephemeral	1	23.79	0.001				
R159	R6	Ephemeral	1	133.69	0.003				
R160	R6	Ephemeral	1	252.68	0.006				
R161	R6	Ephemeral	1	268.91	0.006				
R162	R6	Ephemeral	1.5	286.21	0.010				
R163	R6	Ephemeral	2	310.88	0.014				
R164	R6	Ephemeral	2	154.08	0.007				
R165	R6	Ephemeral	1.5	264.05	0.009				
R166	R6	Ephemeral	3	79.27	0.005				
R167	R6	Ephemeral	3.5	460.60	0.037				
R168	R6	Ephemeral	1	536.02	0.012				
R169	R6	Ephemeral	2.5	57.78	0.003				
R170	R6	Ephemeral	1	290.27	0.007				
R171	R6	Ephemeral	2.5	577.53	0.033				
R172	R6	Ephemeral	5.5	126.04	0.016				
R173	R6	Ephemeral	1	190.60	0.004				
R174	R6	Ephemeral	1	90.64	0.002				
R175	R6	Ephemeral	1.5	176.51	0.006				
R176	R6	Ephemeral	1.5	127.27	0.004				
R177	R6	Ephemeral	2	231.16	0.011				
R178	R6	Ephemeral	1.8	665.80	0.027				
R179	R6	Ephemeral	18	127.61	0.053				
R180	R6	Ephemeral	3.5	409.41	0.033				

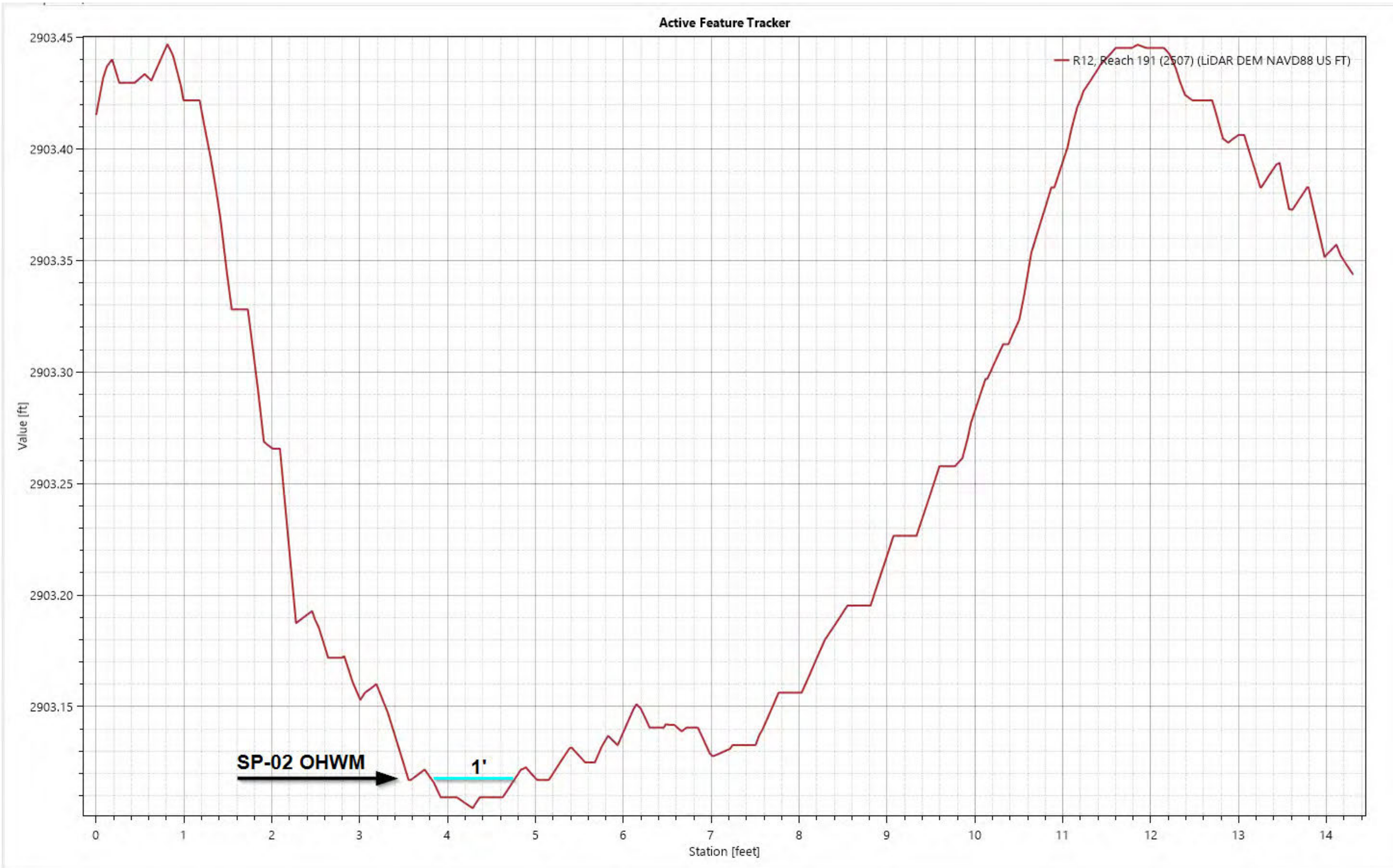
Appendix E. Table 2 Other Waters Stream Channel Sample Point Data						
Sample Point	Lat	Long	Cowardin Code	Type	OHW Width	Related Drainage
SP01	[redacted]	[redacted]	R6	Ephemeral	0.5	R1
SP02	[redacted]	[redacted]	R6	Ephemeral	1	R012
SP03	[redacted]	[redacted]	R6	Ephemeral	1.5	R2
SP04	[redacted]	[redacted]	R6	Ephemeral	5.5	R3
SP05	[redacted]	[redacted]	R6	Ephemeral	4.5	R4
SP06	[redacted]	[redacted]	R6	Ephemeral	2	R013
SP07	[redacted]	[redacted]	R6	Ephemeral	3	R5
SP08	[redacted]	[redacted]	R6	Ephemeral	2.5	R038
SP09	[redacted]	[redacted]	R6	Ephemeral	2	R6
SP10	[redacted]	[redacted]	R6	Ephemeral	2	R083
SP11	[redacted]	[redacted]	R6	Ephemeral	3	R8
SP12	[redacted]	[redacted]	R6	Ephemeral	1.75	R183
SP13	[redacted]	[redacted]	R6	Ephemeral	1.5	R084
SP14	[redacted]	[redacted]	R6	Ephemeral	1	R085
SP15	[redacted]	[redacted]	R6	Ephemeral	1.5	R090
SP16	[redacted]	[redacted]	R6	Ephemeral	1	R1
SP17	[redacted]	[redacted]	R6	Ephemeral	3	R2
SP18	[redacted]	[redacted]	R6	Ephemeral	18	R3
SP19	[redacted]	[redacted]	R6	Ephemeral	2.25	R040
SP20	[redacted]	[redacted]	R6	Ephemeral	2.5	R9
SP21	[redacted]	[redacted]	R6	Ephemeral	6	R4
SP22	[redacted]	[redacted]	R6	Ephemeral	3	R5
SP23	[redacted]	[redacted]	R6	Ephemeral	3	R026
SP24	[redacted]	[redacted]	R6	Ephemeral	2.5	R020
SP25	[redacted]	[redacted]	R6	Ephemeral	15.5	R3
SP26	[redacted]	[redacted]	R6	Ephemeral	2.5	R056
SP27	[redacted]	[redacted]	R6	Ephemeral	2	R066
SP28	[redacted]	[redacted]	R6	Ephemeral	1	R70
SP29	[redacted]	[redacted]	R6	Ephemeral	1.5	R140
SP30	[redacted]	[redacted]	R6	Ephemeral	1	R145
SP31	[redacted]	[redacted]	R6	Ephemeral	3	R011
SP32	[redacted]	[redacted]	R6	Ephemeral	1.5	R071
SP33	[redacted]	[redacted]	R6	Ephemeral	2.5	R072
SP34	[redacted]	[redacted]	R6	Ephemeral	2.5	R073
SP35	[redacted]	[redacted]	R6	Ephemeral	1.5	R074
SP36	[redacted]	[redacted]	R6	Ephemeral	1.5	R076
SP37	[redacted]	[redacted]	R6	Ephemeral	4	R027
SP38	[redacted]	[redacted]	R6	Ephemeral	4.5	R081
SP39	[redacted]	[redacted]	R6	Ephemeral	5.5	R176
SP40	[redacted]	[redacted]	R6	Ephemeral	2	R031
SP41	[redacted]	[redacted]	R6	Ephemeral	2	R032
SP42	[redacted]	[redacted]	R6	Ephemeral	18	R179
SP43	[redacted]	[redacted]	R6	Ephemeral	3.5	R180

Cross Sections

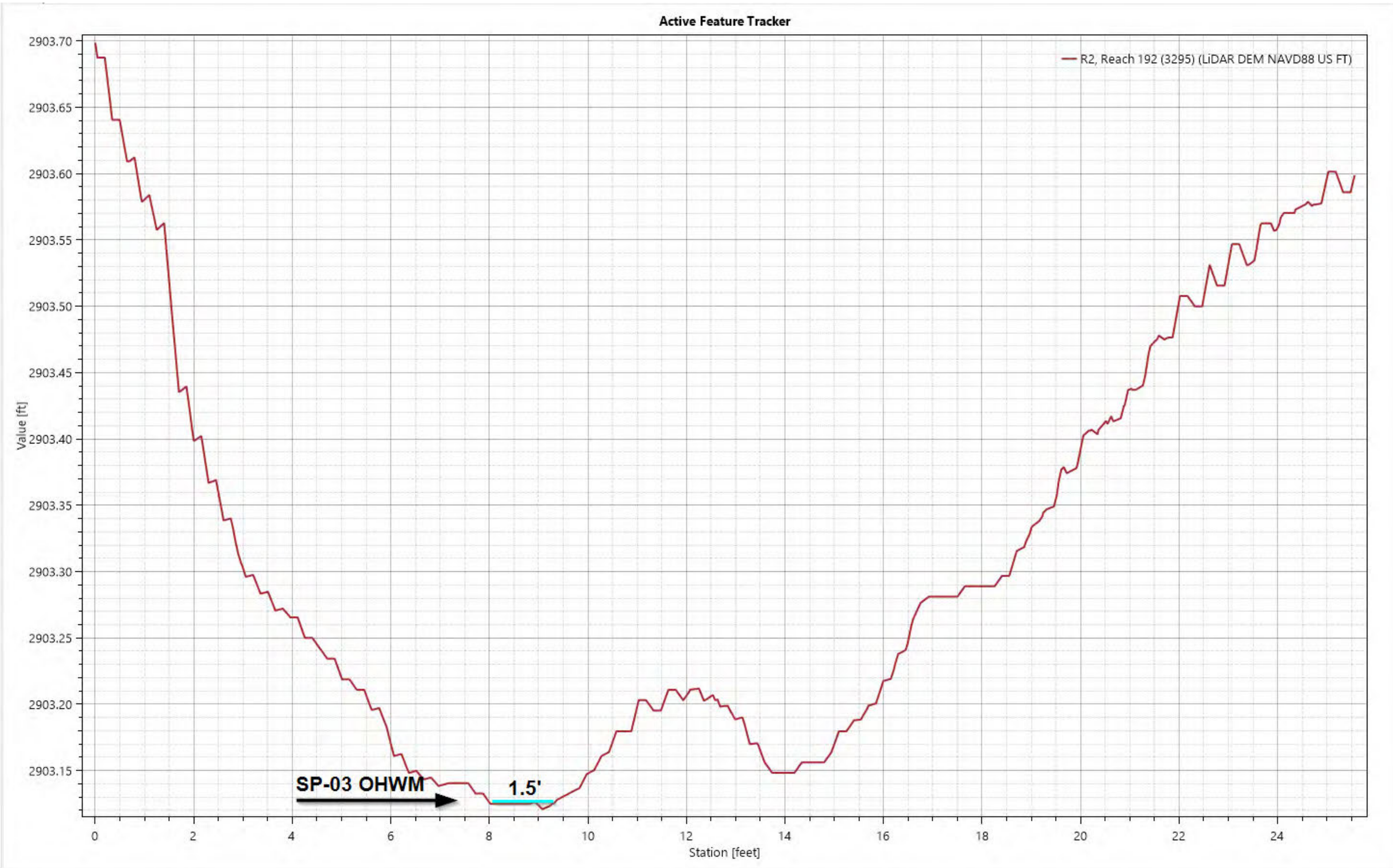


Active Feature Tracker
R1, Reach 189 (3475) (LiDAR DEM NAVD88 US FT)
Value [ft]
2893.90
2893.80
2893.70
2893.60
2893.50
2893.40
2893.30
2893.20
SP-01 OHWM
0.5'
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
Station [feet]

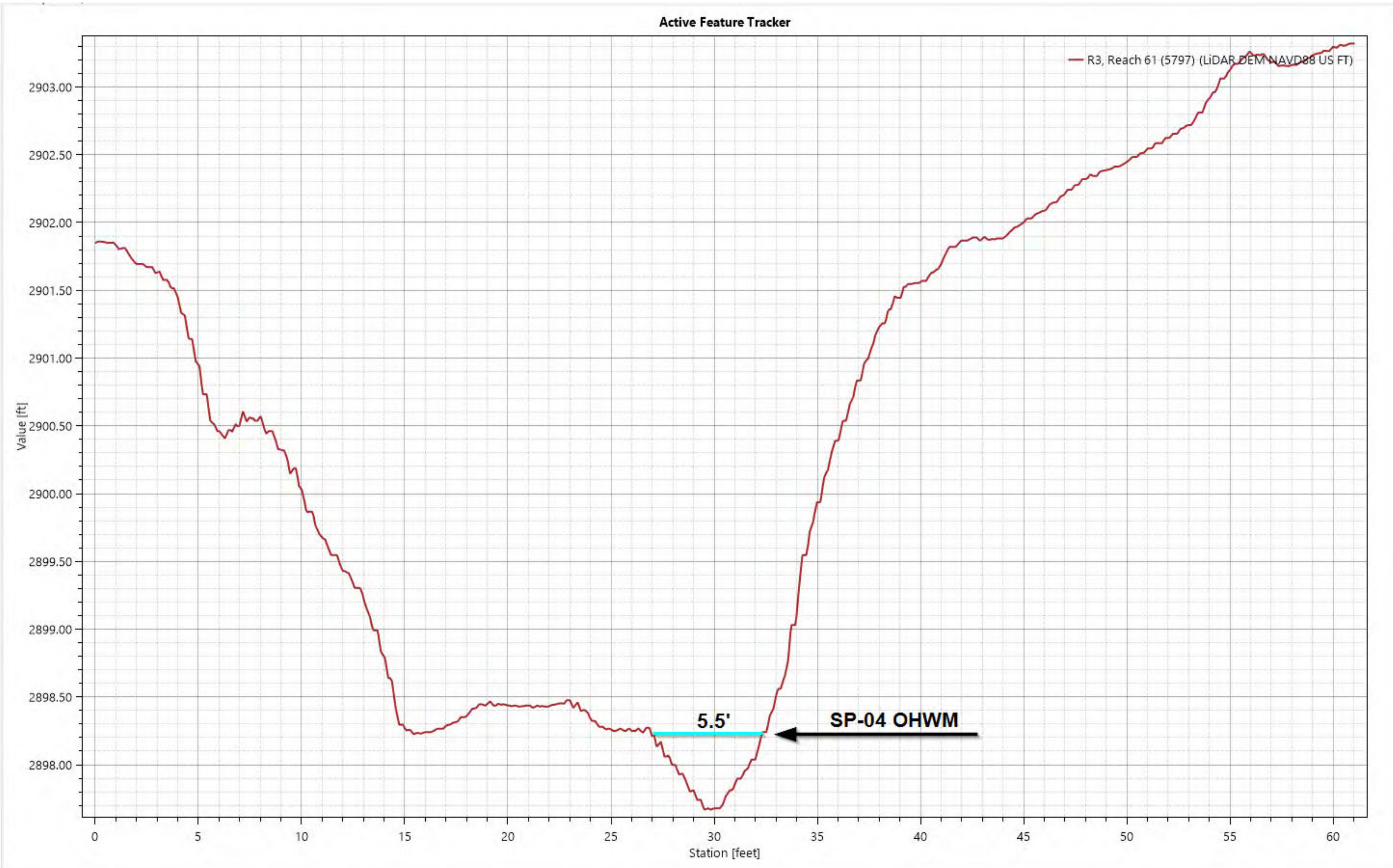
Enclosure 1


Active Feature Tracker
R12, Reach 191 (2507) (LiDAR DEM NAVD88 US FT)
2903.45
2903.40
2903.35
2903.30
2903.25
2903.20
2903.15
Value [ft]
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Station [feet]
SP-02 OHWM
1'

Enclosure 1

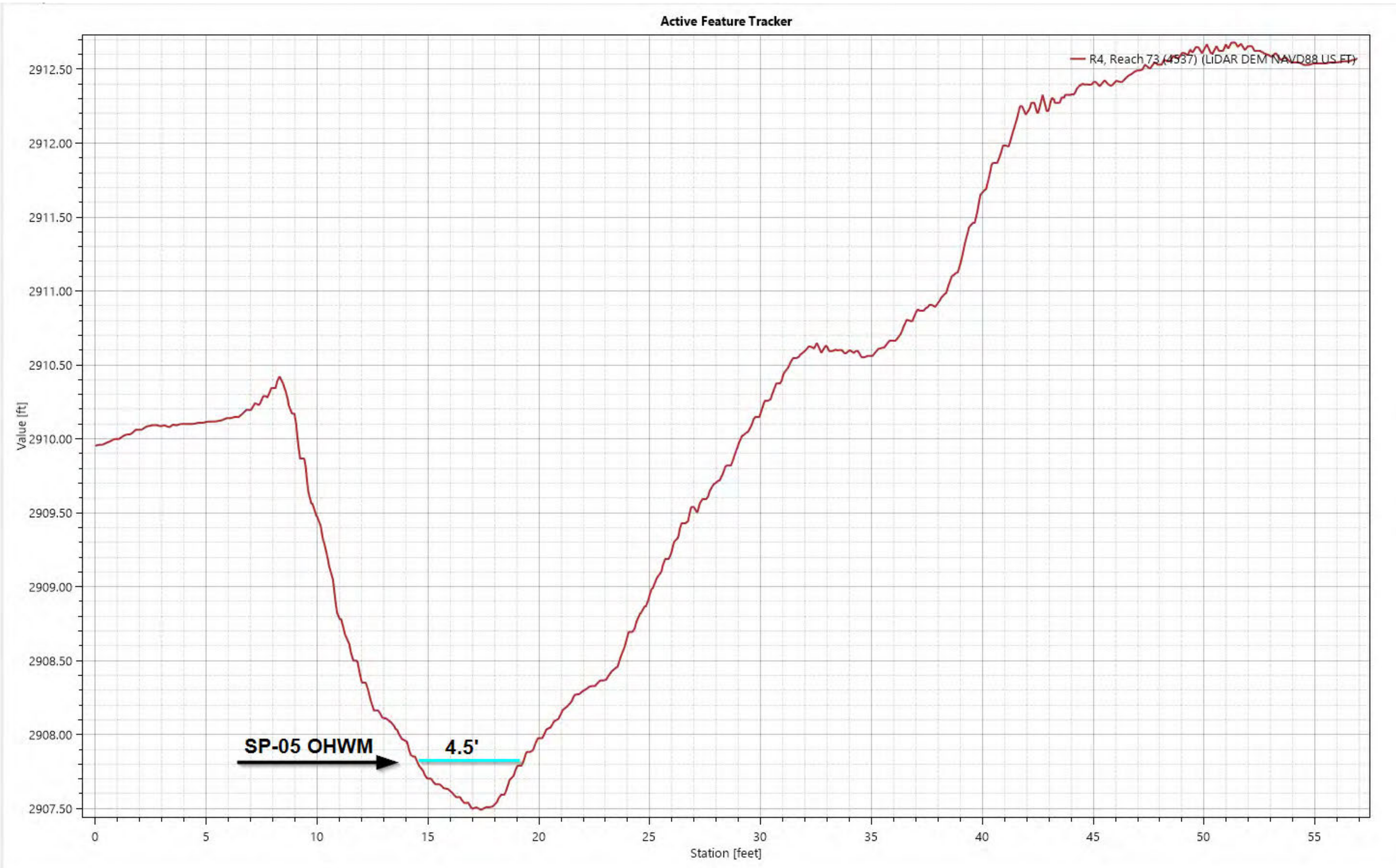

Active Feature Tracker
R2, Reach 192 (3295) (LiDAR DEM NAVD88 US FT)
2903.70
2903.65
2903.60
2903.55
2903.50
2903.45
2903.40
2903.35
2903.30
2903.25
2903.20
2903.15
Value [ft]
0
2
4
6
8
10
12
14
16
18
20
22
24
Station [feet]
SP-03 OHWM
1.5'

Enclosure 1

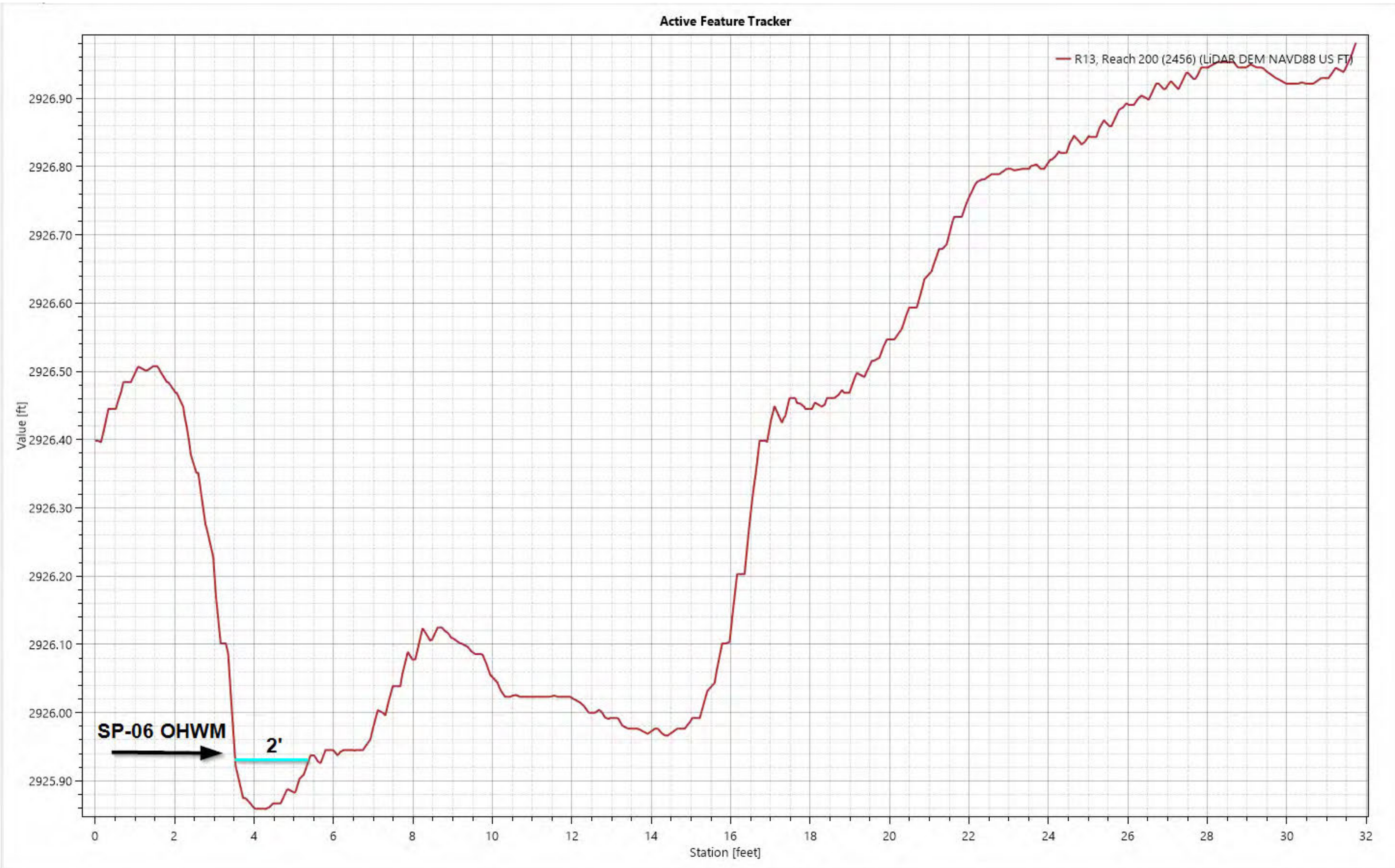


Active Feature Tracker
R3, Reach 61 (5797) (LiDAR DEM NAVD88 US FT)
Value [ft]
2903.00
2902.50
2902.00
2901.50
2901.00
2900.50
2900.00
2899.50
2899.00
2898.50
2898.00
0
5
10
15
20
25
30
35
40
45
50
55
60
Station [feet]
5.5'
SP-04 OHWM

Enclosure 1

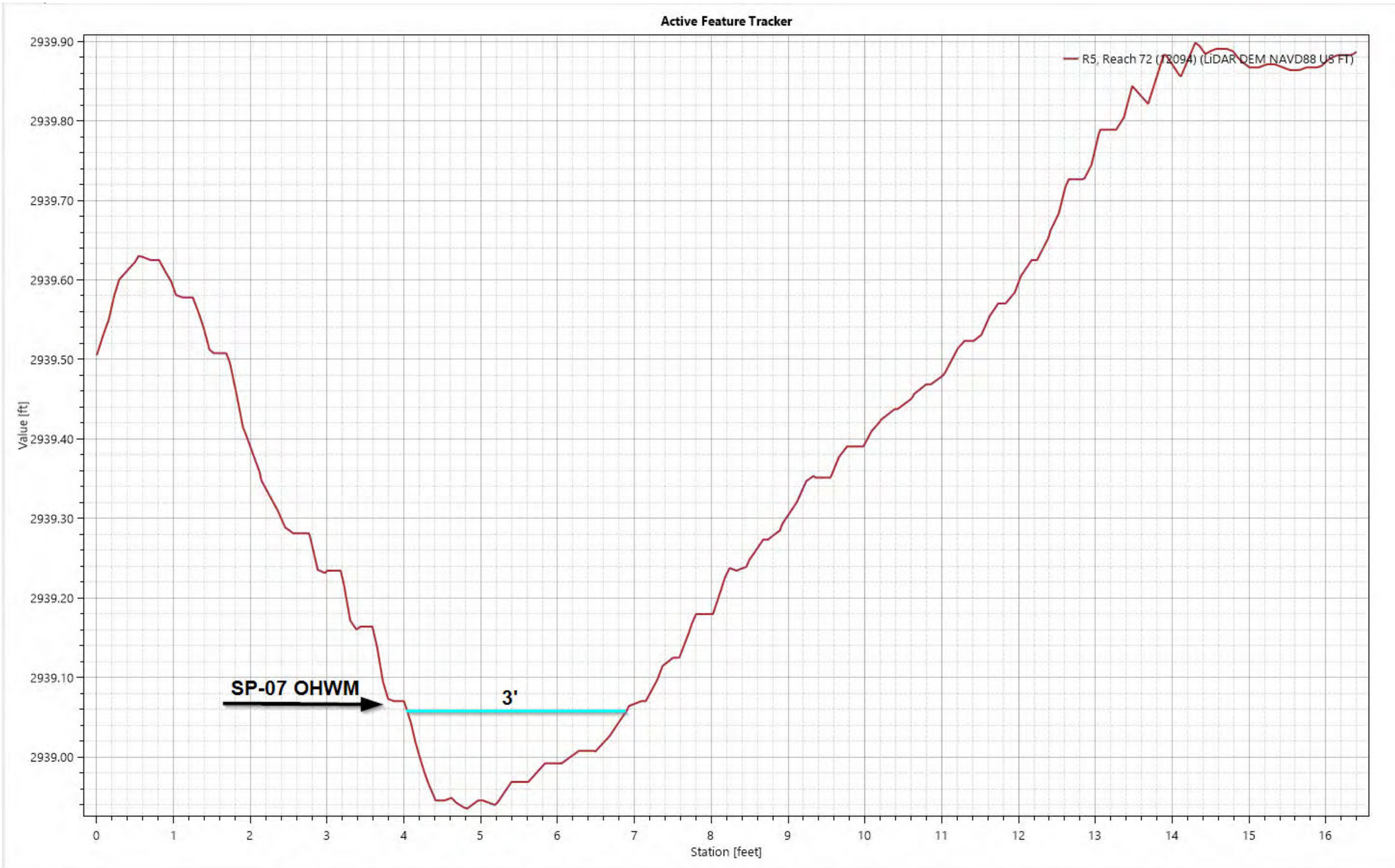

Active Feature Tracker
R4, Reach 73 (4537) (LIDAR DEM NAVD88 US FT)
Value [ft]
Station [feet]
SP-05 OHWM
4.5'
2912.50
2912.00
2911.50
2911.00
2910.50
2910.00
2909.50
2909.00
2908.50
2908.00
2907.50
0
5
10
15
20
25
30
35
40
45
50
55

Enclosure 1

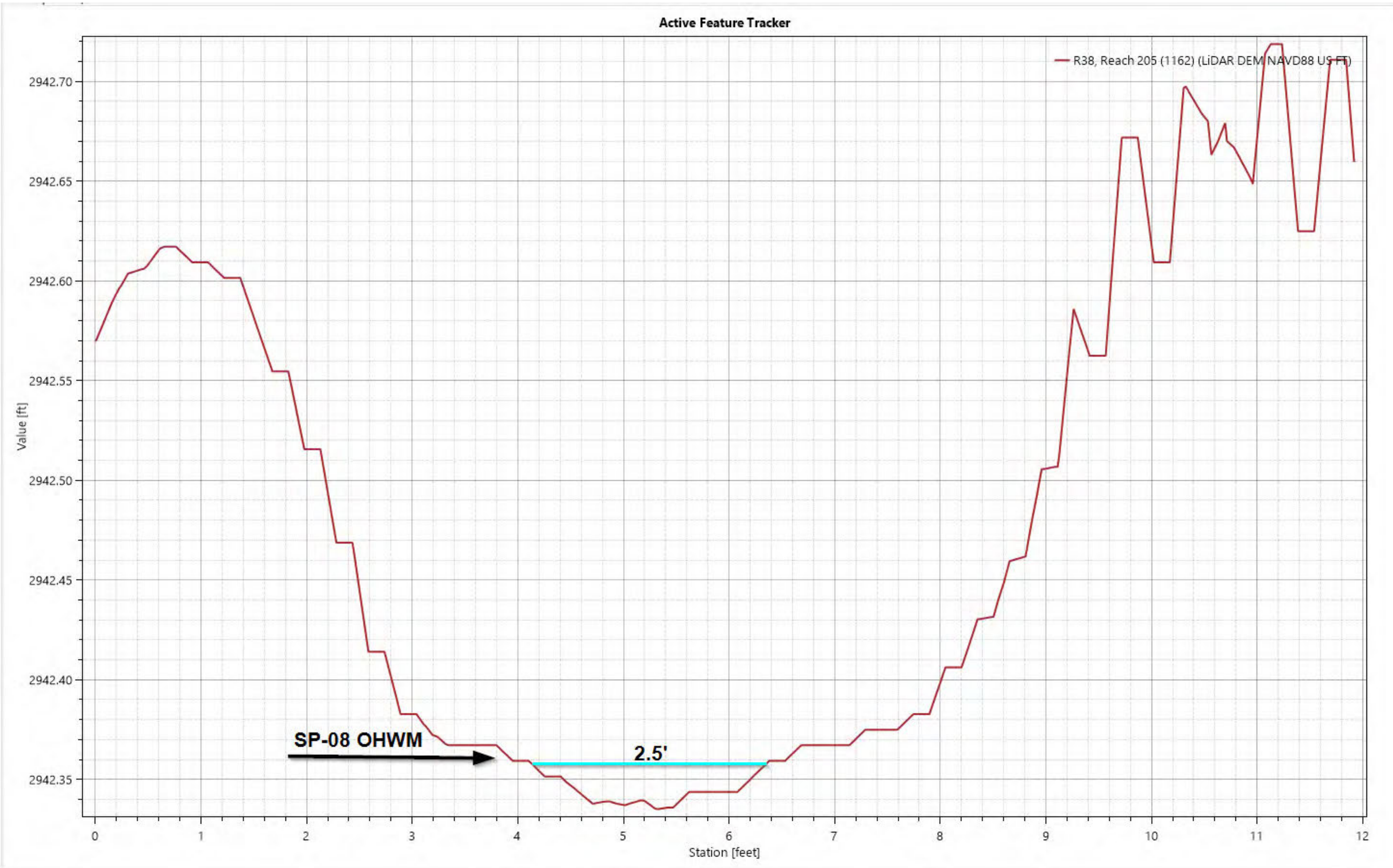


Active Feature Tracker
R13, Reach 200 (2456) (LiDAR DEM NAVD88 US FT)
2926.90
2926.80
2926.70
2926.60
2926.50
2926.40
2926.30
2926.20
2926.10
2926.00
2925.90
Value [ft]
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
Station [feet]
SP-06 OHWM
2'

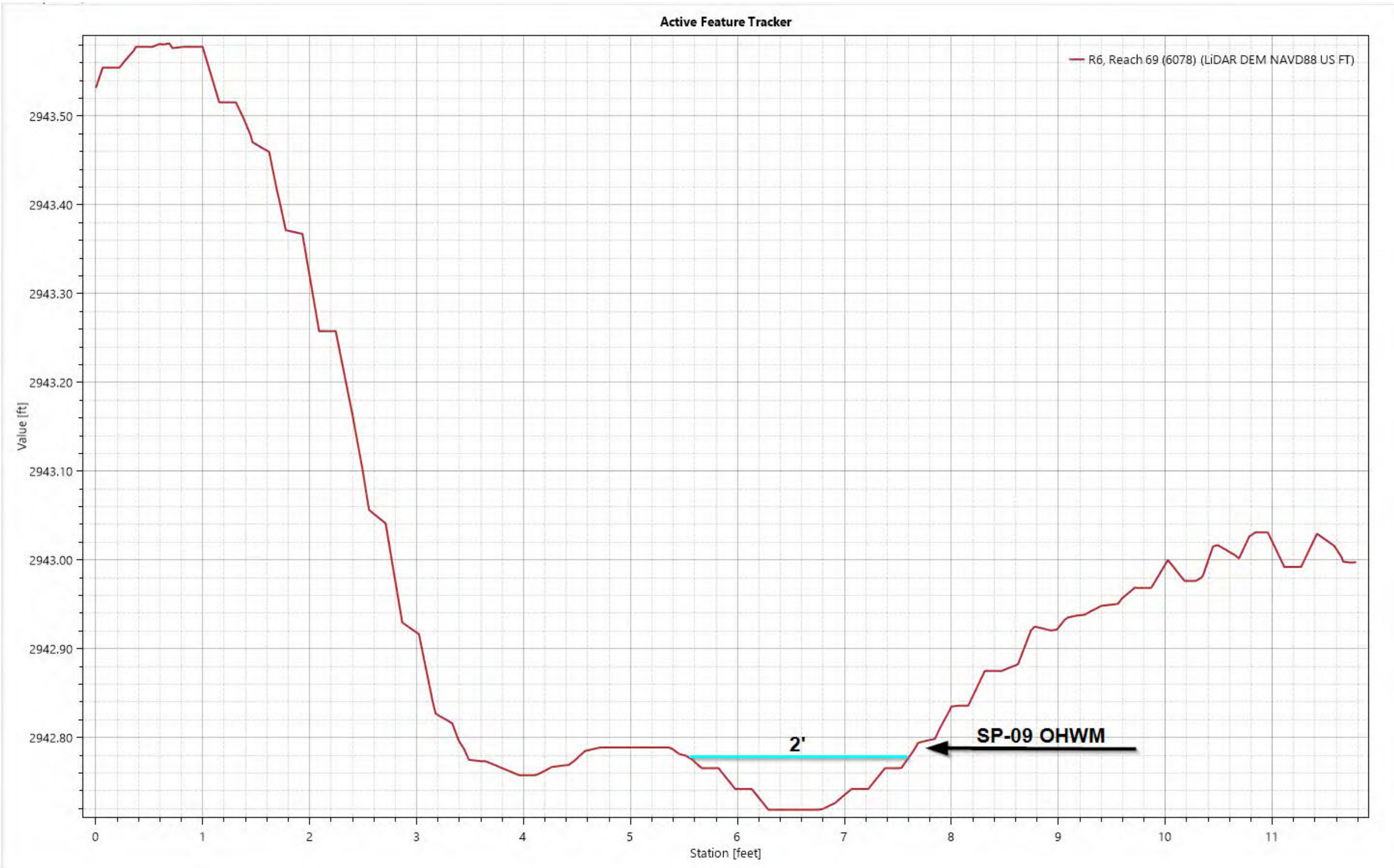
Enclosure 1



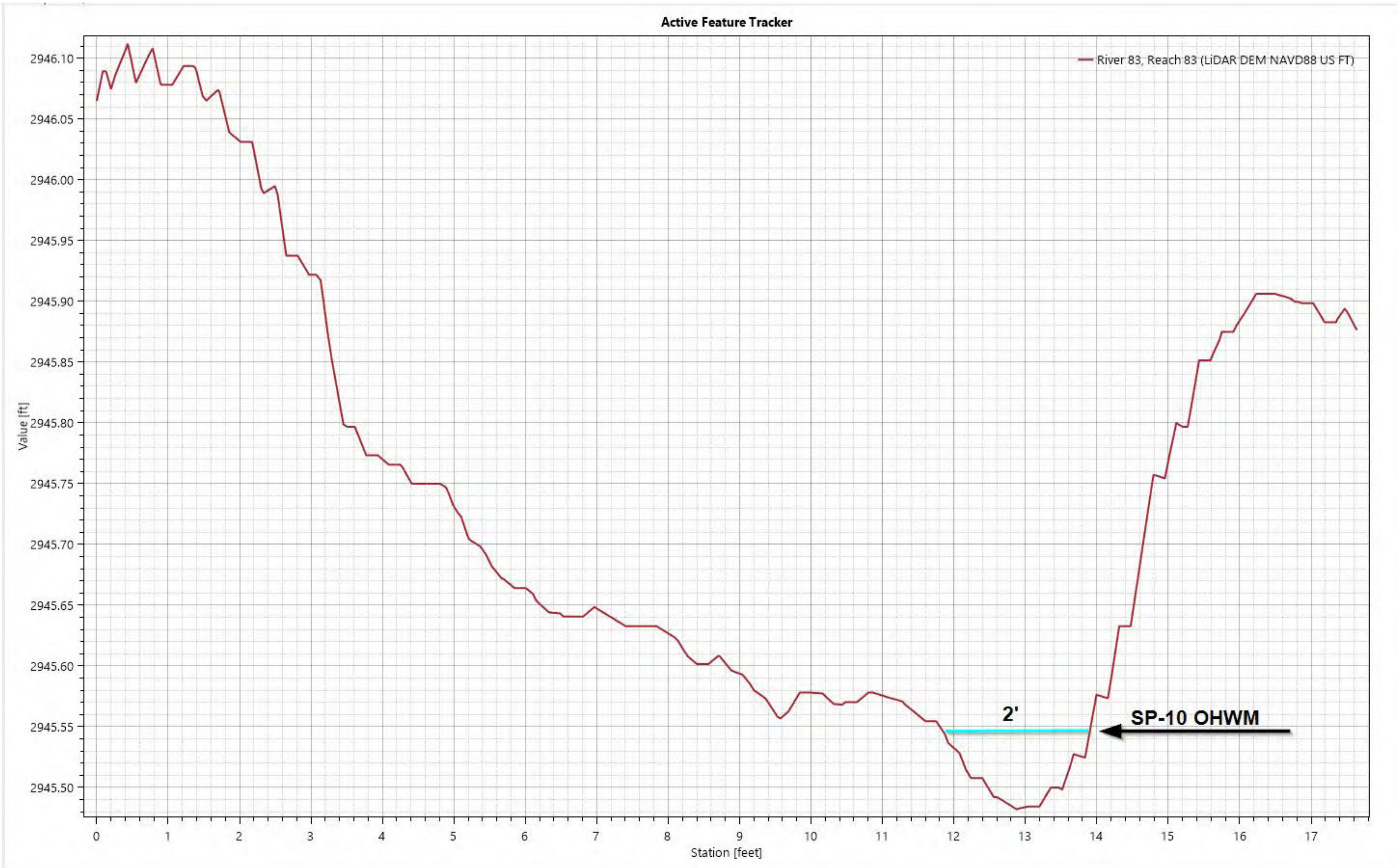
Active Feature Tracker
R5, Reach 72 (12094) (LiDAR DEM NAVD88 US FT)
2939.90
2939.80
2939.70
2939.60
2939.50
2939.40
2939.30
2939.20
2939.10
2939.00
Value [ft]
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Station [feet]
SP-07 OHWM
3'


Active Feature Tracker
R38, Reach 205 (1162) (LiDAR DEM NAVD88 US FT)
Value [ft]
2942.70
2942.65
2942.60
2942.55
2942.50
2942.45
2942.40
2942.35
SP-08 OHWM
2.5'
0
1
2
3
4
5
6
7
8
9
10
11
12
Station [feet]

Enclosure 1

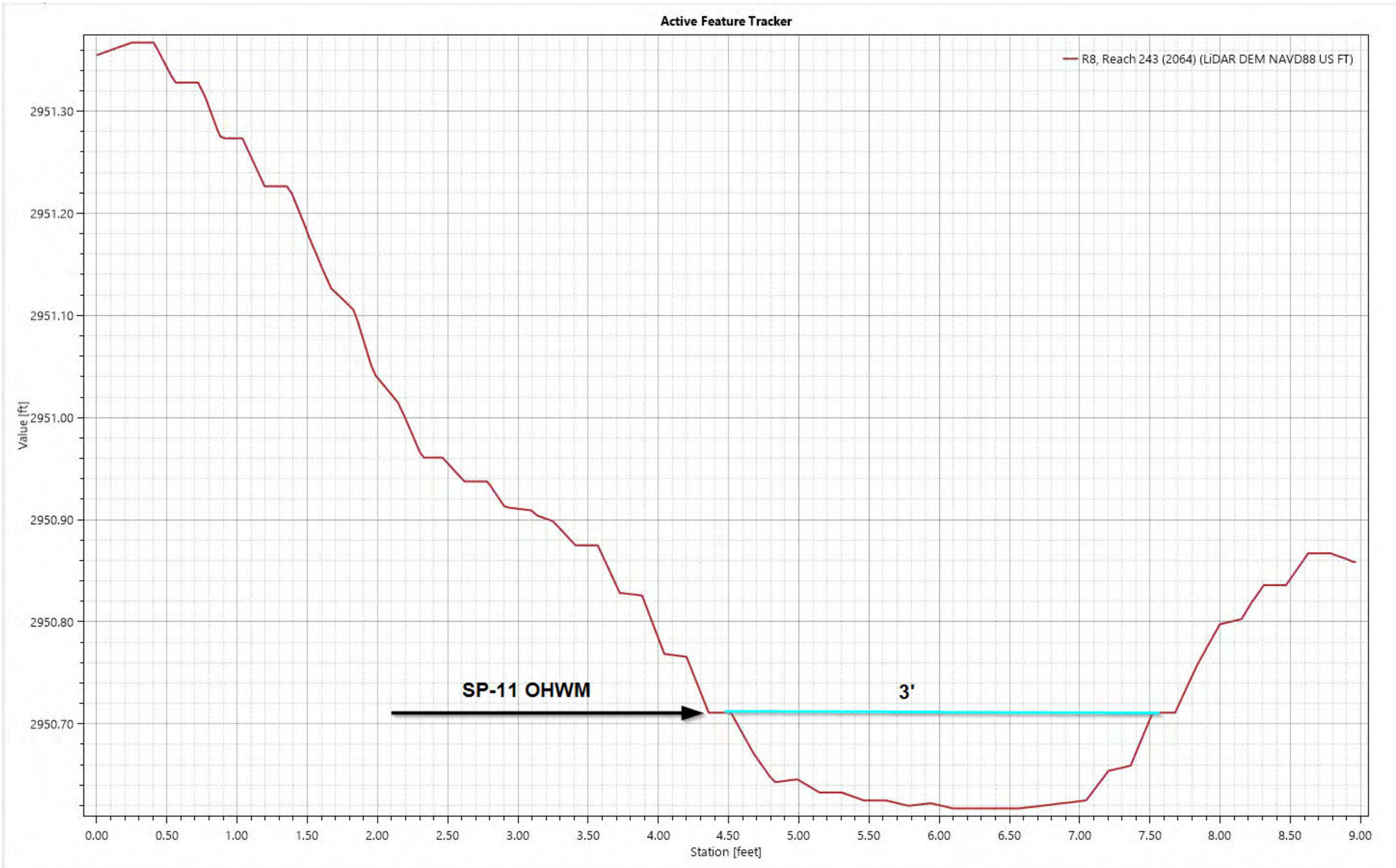


Active Feature Tracker
R6, Reach 69 (6078) (LiDAR DEM NAVD88 US FT)
2943.50
2943.40
2943.30
2943.20
2943.10
2943.00
2942.90
2942.80
Value [ft]
0
1
2
3
4
5
6
7
8
9
10
11
Station [feet]
2'
SP-09 OHWM

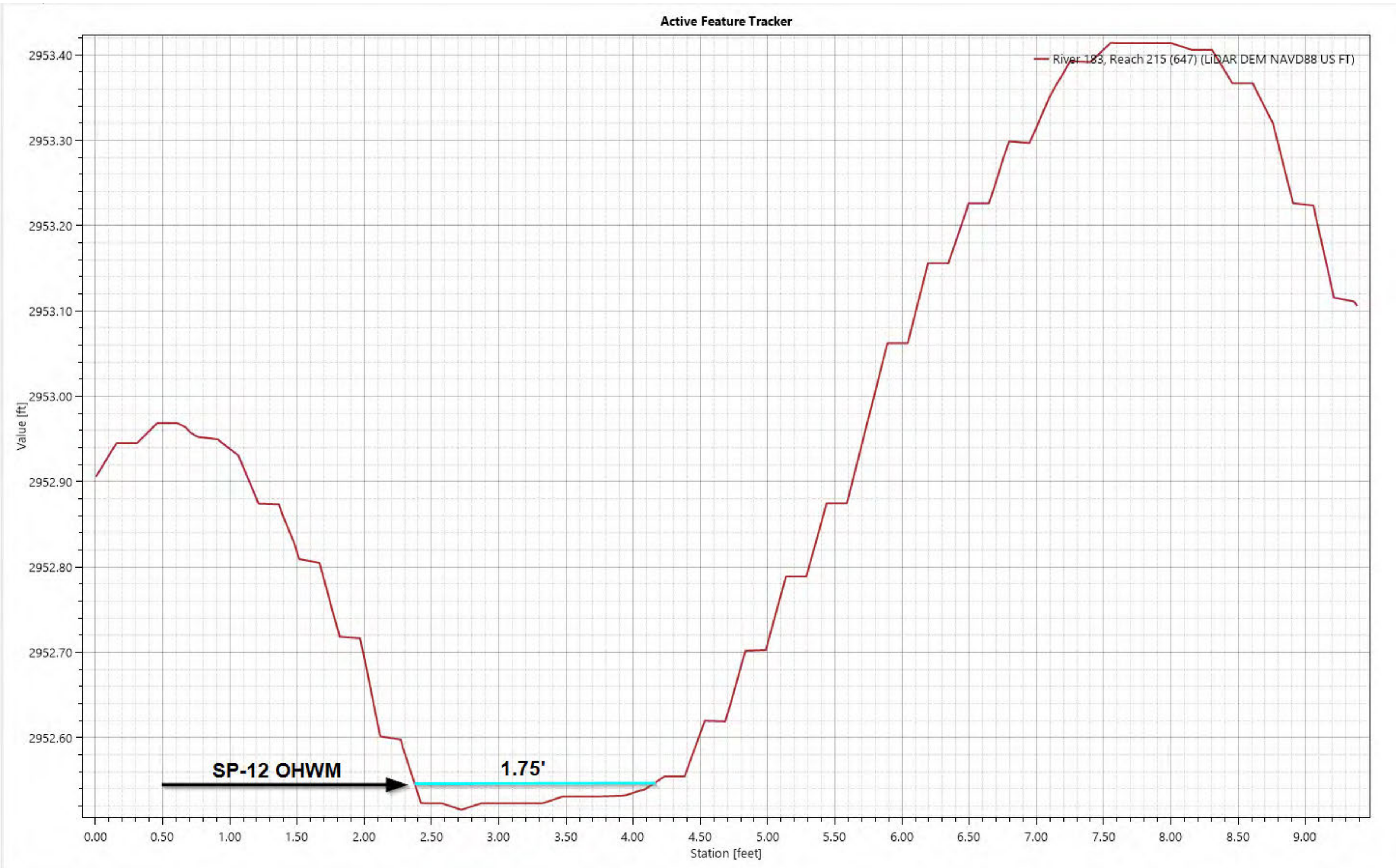


Active Feature Tracker
River 83, Reach 83 (LiDAR DEM NAVD88 US FT)
2946.10
2946.05
2946.00
2945.95
2945.90
2945.85
2945.80
2945.75
2945.70
2945.65
2945.60
2945.55
2945.50
Value [ft]
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Station [feet]
2'
SP-10 OHWM

Enclosure 1

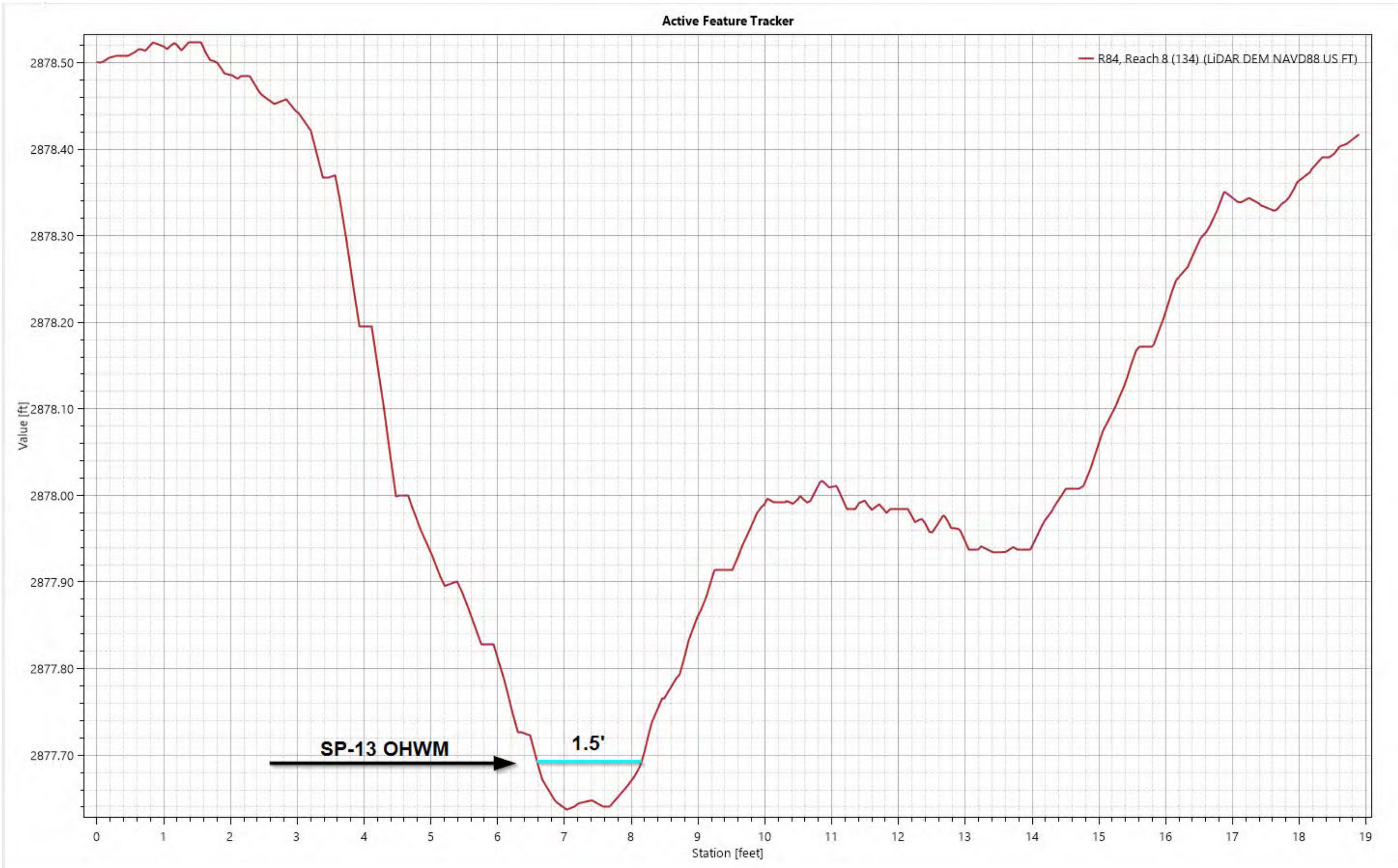

Active Feature Tracker
R8, Reach 243 (2064) (LiDAR DEM NAVD88 US FT)
Value [ft]
2951.30
2951.20
2951.10
2951.00
2950.90
2950.80
2950.70
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
5.50
6.00
6.50
7.00
7.50
8.00
8.50
9.00
Station [feet]
SP-11 OHWM
3'

Enclosure 1



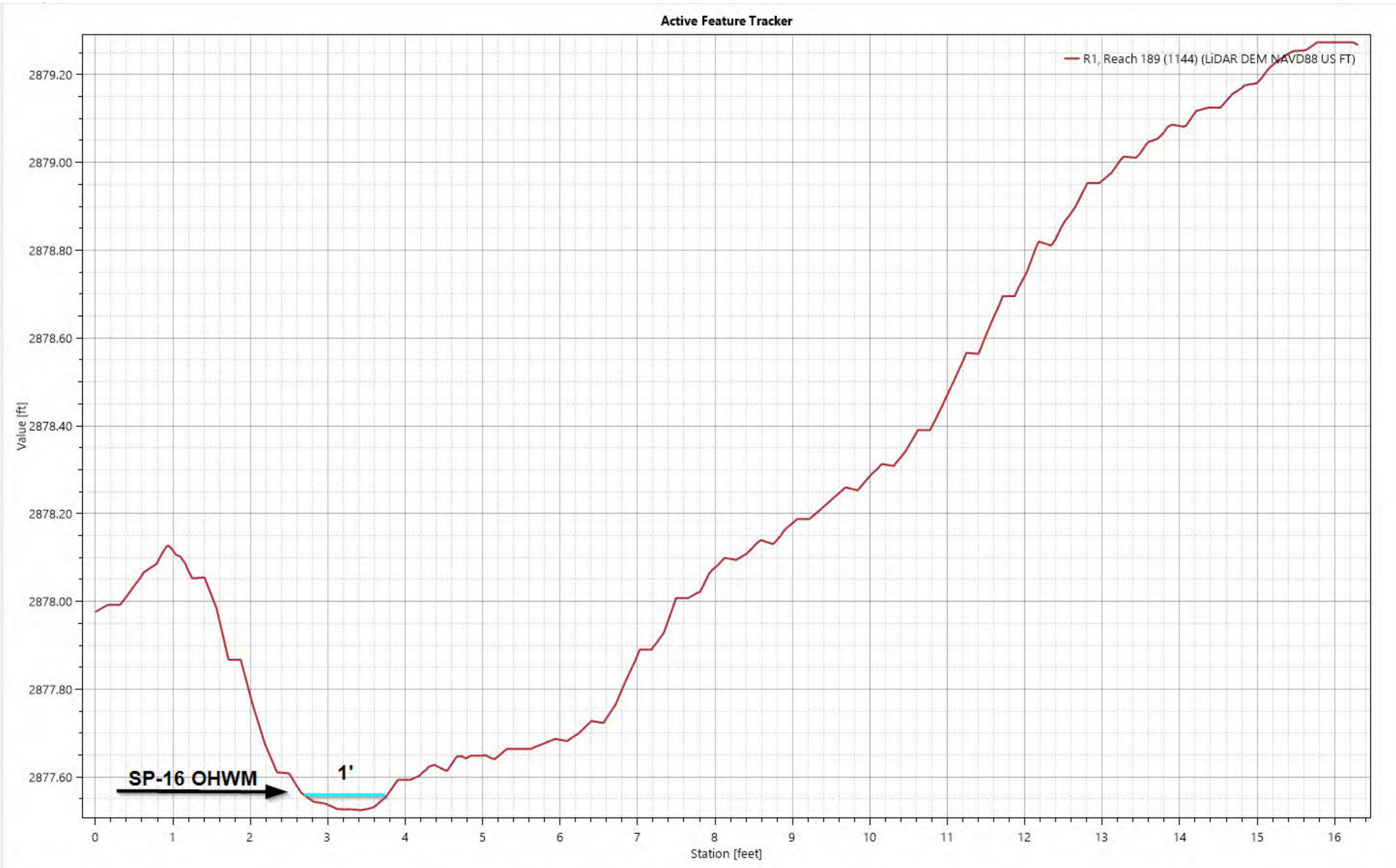
Active Feature Tracker
River 183, Reach 215 (647) (LiDAR DEM NAVD88 US FT)
2953.40
2953.30
2953.20
2953.10
2953.00
2952.90
2952.80
2952.70
2952.60
Value [ft]
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
5.50
6.00
6.50
7.00
7.50
8.00
8.50
9.00
Station [feet]
SP-12 OHWM
1.75'

Enclosure 1

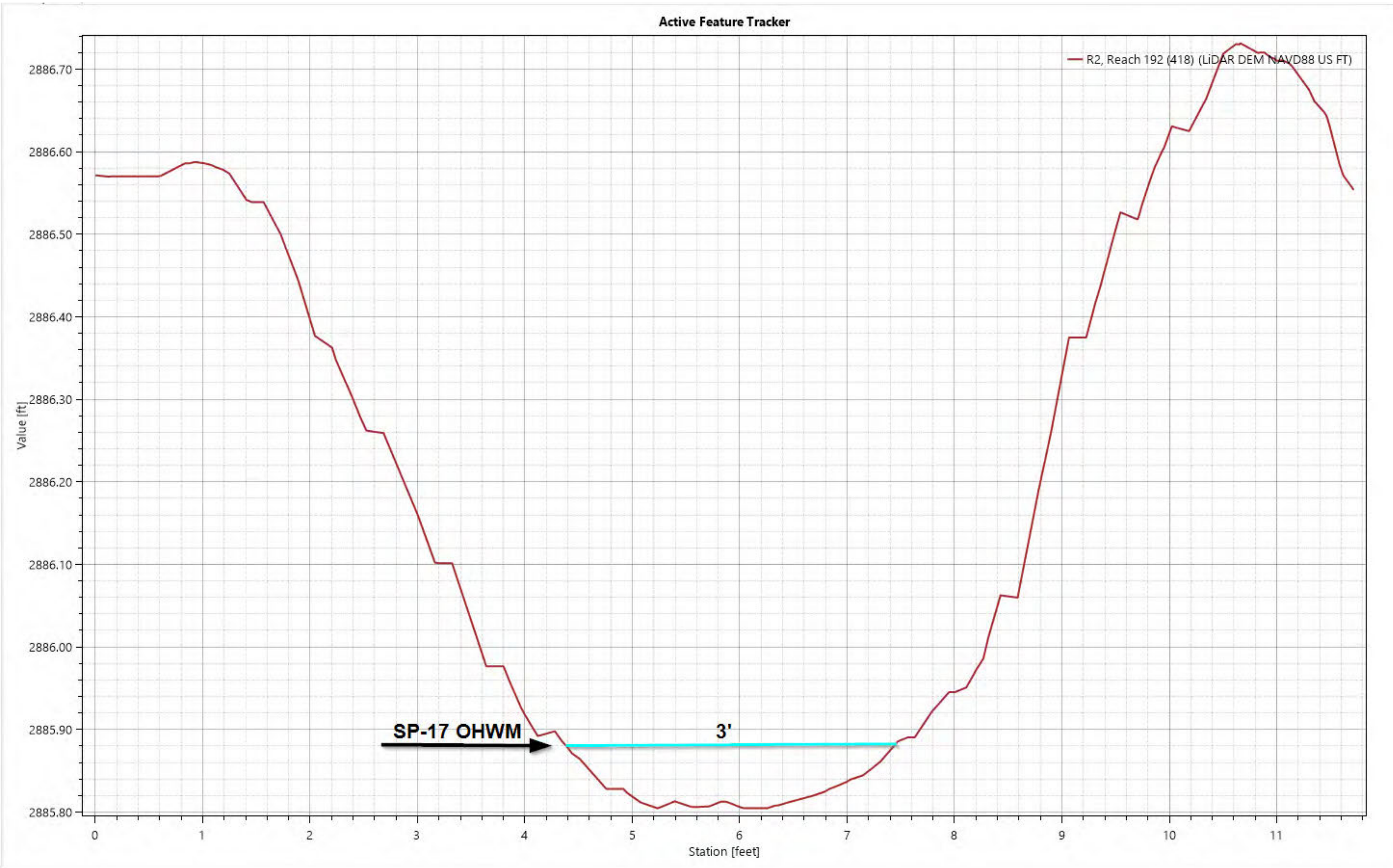


Active Feature Tracker
R84, Reach 8 (134) (LiDAR DEM NAVD88 US FT)
2878.50
2878.40
2878.30
2878.20
2878.10
2878.00
2877.90
2877.80
2877.70
Value [ft]
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
Station [feet]
SP-13 OHWM
1.5'

Enclosure 1

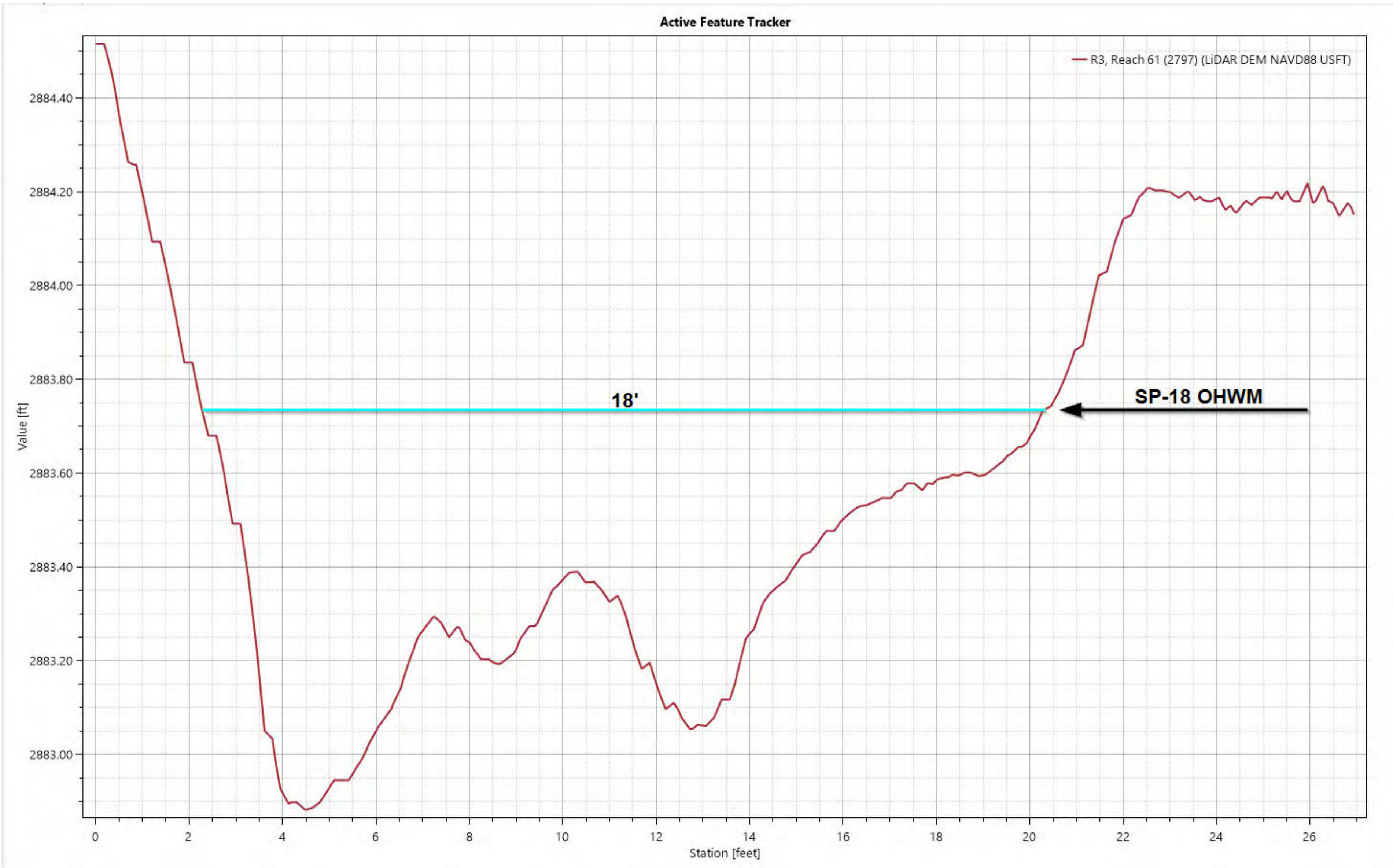

Active Feature Tracker
R1, Reach 189 (1144) (LiDAR DEM NAVD88 US FT)
Value [ft]
2879.20
2879.00
2878.80
2878.60
2878.40
2878.20
2878.00
2877.80
2877.60
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Station [feet]
SP-16 OHWM
1'

Enclosure 1

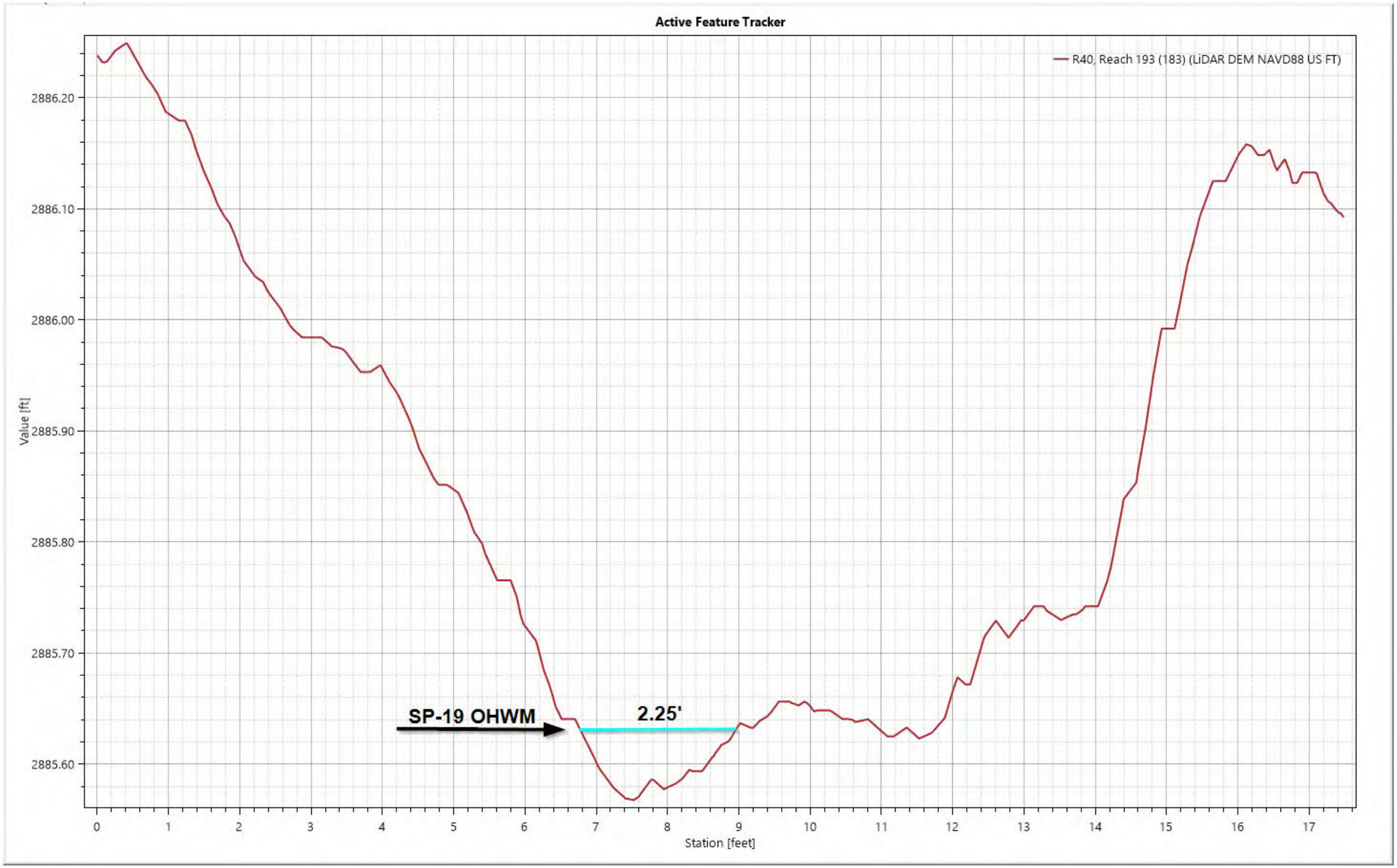


Active Feature Tracker
R2, Reach 192 (418) (LiDAR DEM NAVD88 US FT)
2886.70
2886.60
2886.50
2886.40
2886.30
2886.20
2886.10
2886.00
2885.90
2885.80
Value [ft]
0
1
2
3
4
5
6
7
8
9
10
11
Station [feet]
SP-17 OHWM
3'

Enclosure 1

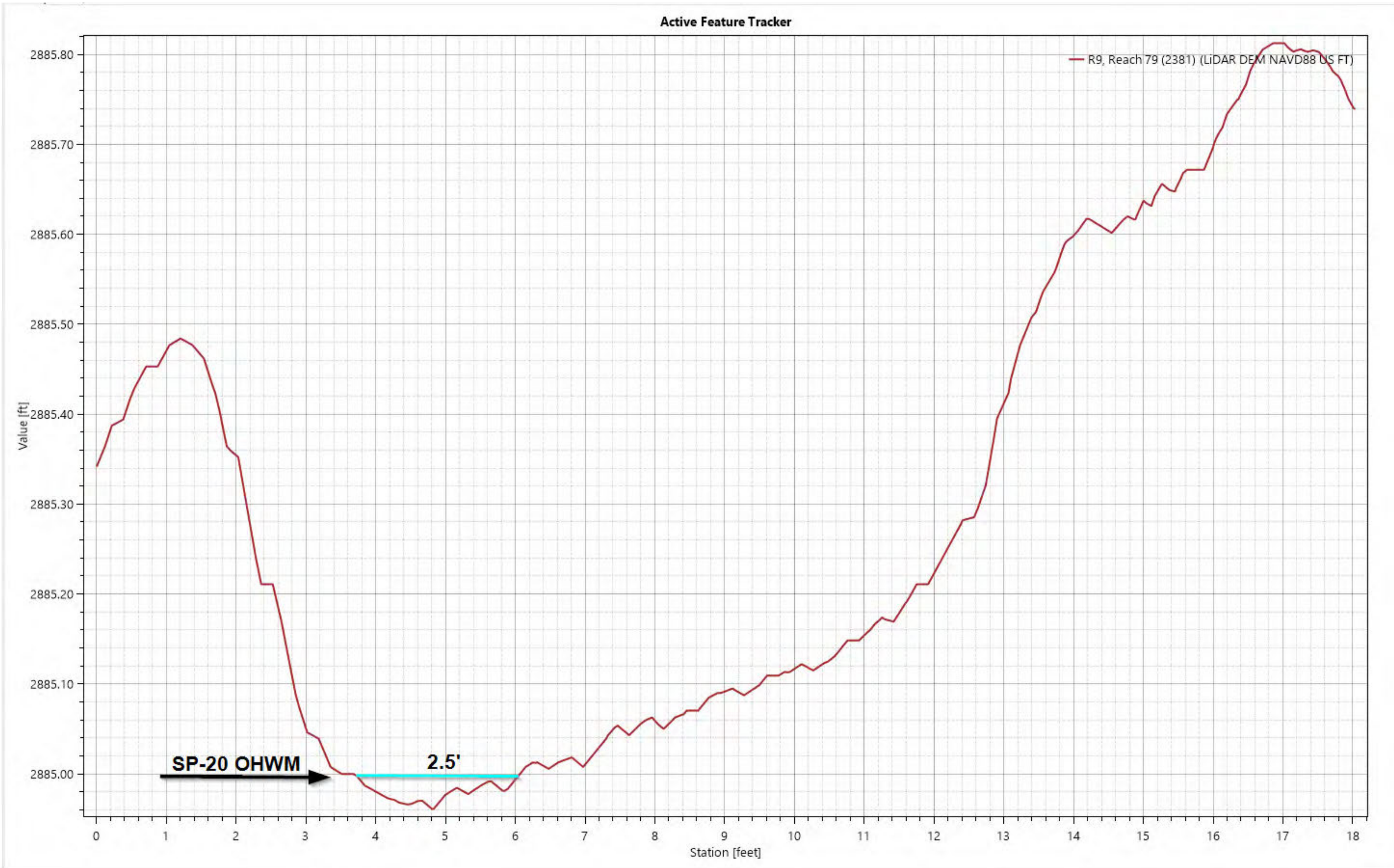

Active Feature Tracker
R3, Reach 61 (2797) (LiDAR DEM NAVD88 USFT)
18'
SP-18 OHWM
Value [ft]
2884.40
2884.20
2884.00
2883.80
2883.60
2883.40
2883.20
2883.00
Station [feet]
0
2
4
6
8
10
12
14
16
18
20
22
24
26

Enclosure 1



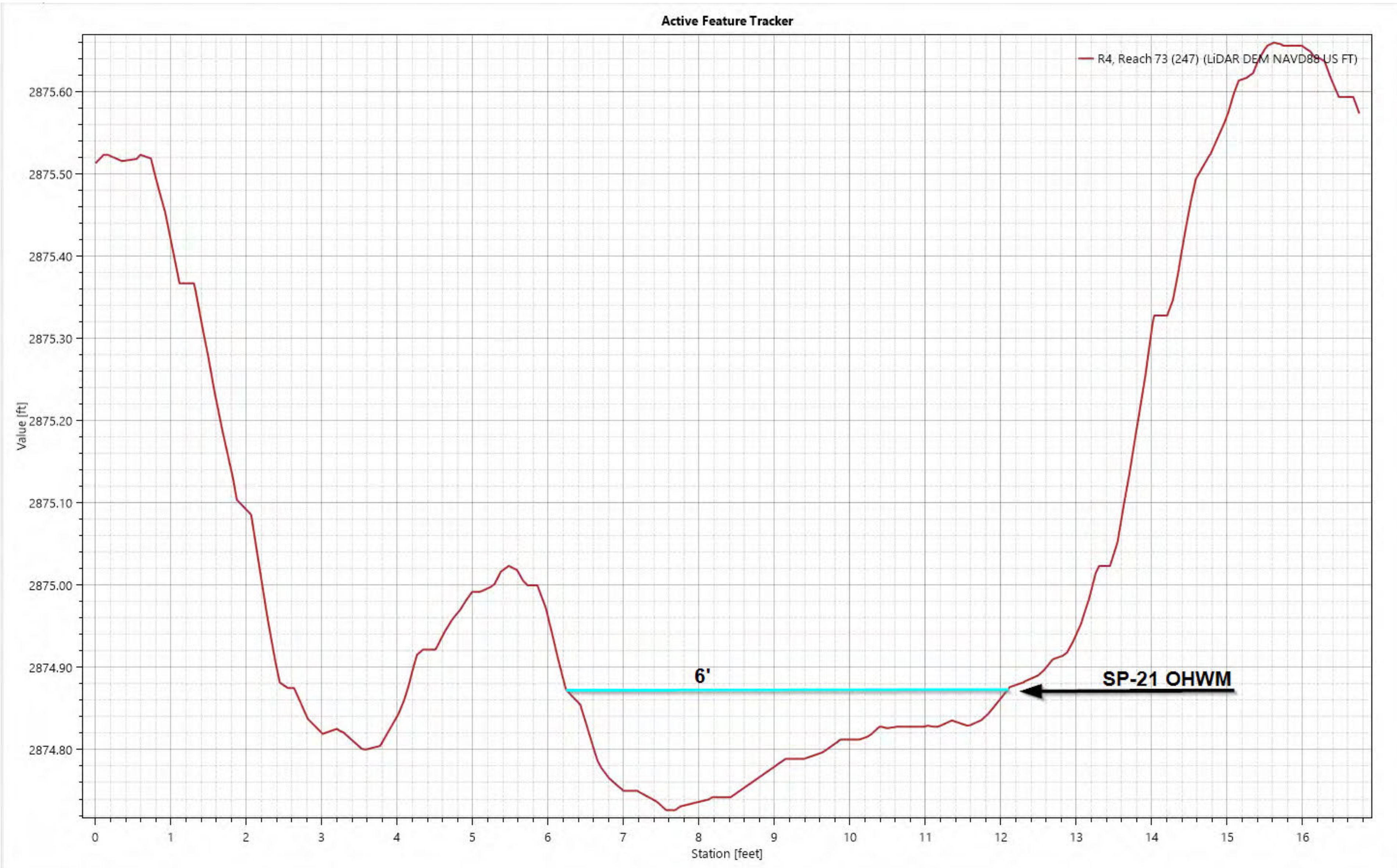
Active Feature Tracker
R40, Reach 193 (183) (LiDAR DEM NAVD88 US FT)
Value [ft]
2886.20
2886.10
2886.00
2885.90
2885.80
2885.70
2885.60
Station [feet]
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
SP-19 OHWM
2.25'

Enclosure 1



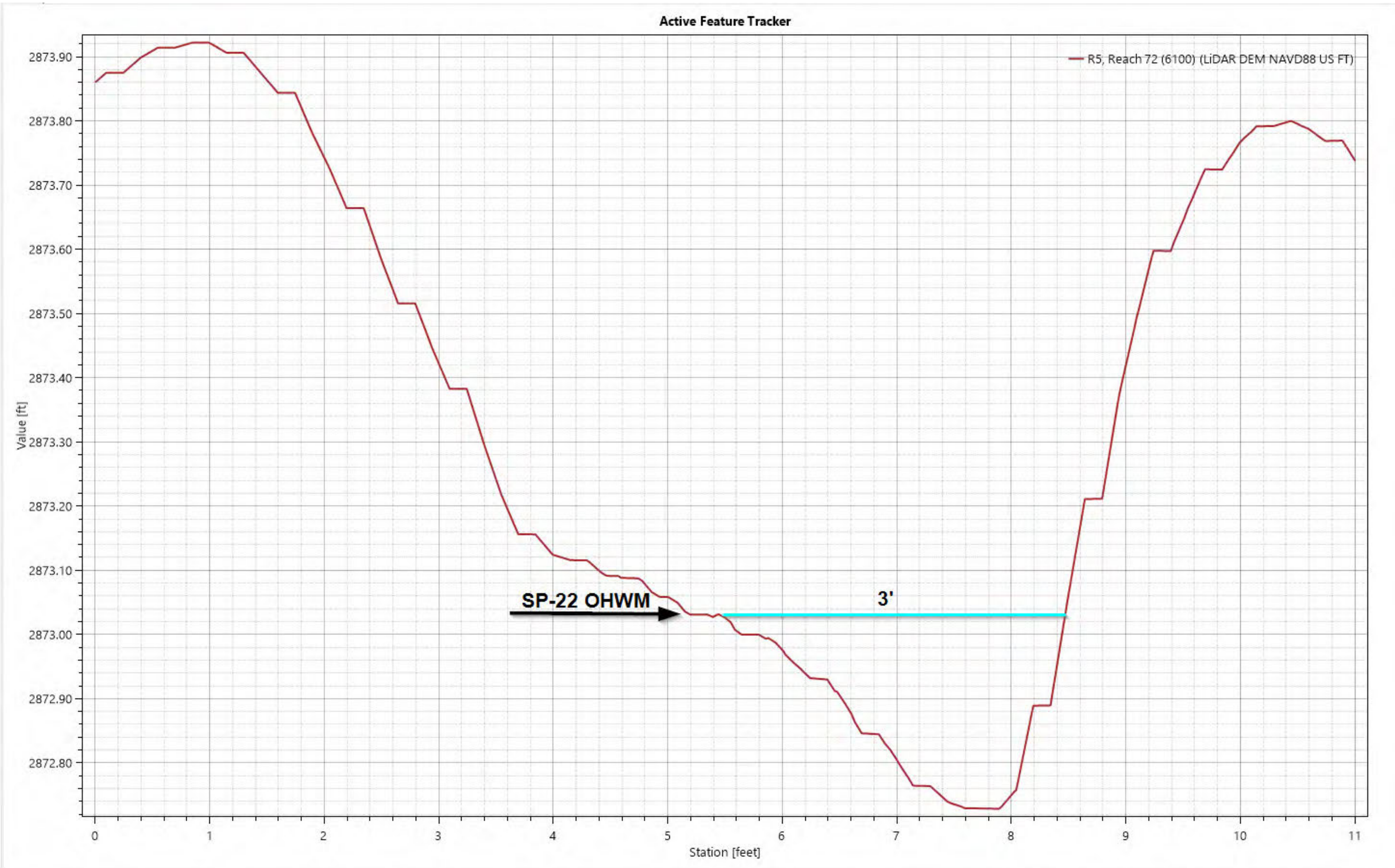
Active Feature Tracker
R9, Reach 79 (2381) (LiDAR DEM NAVD88 US FT)
2885.80
2885.70
2885.60
2885.50
2885.40
2885.30
2885.20
2885.10
2885.00
Value [ft]
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
Station [feet]
SP-20 OHWM
2.5'

Enclosure 1

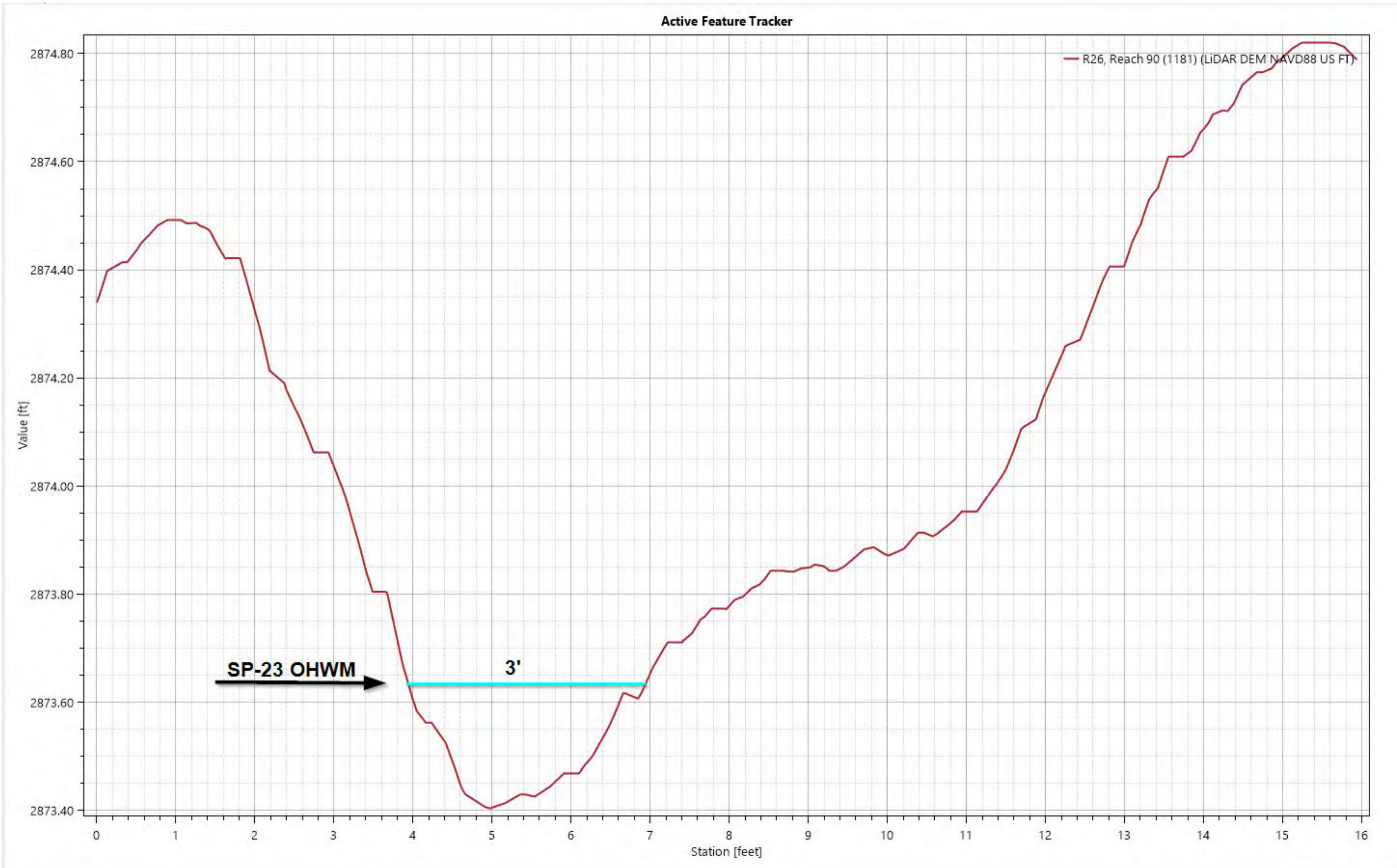


Active Feature Tracker
R4, Reach 73 (247) (LiDAR DEM NAVD88 US FT)
Value [ft]
2875.60
2875.50
2875.40
2875.30
2875.20
2875.10
2875.00
2874.90
2874.80
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Station [feet]
6'
SP-21 OHWM

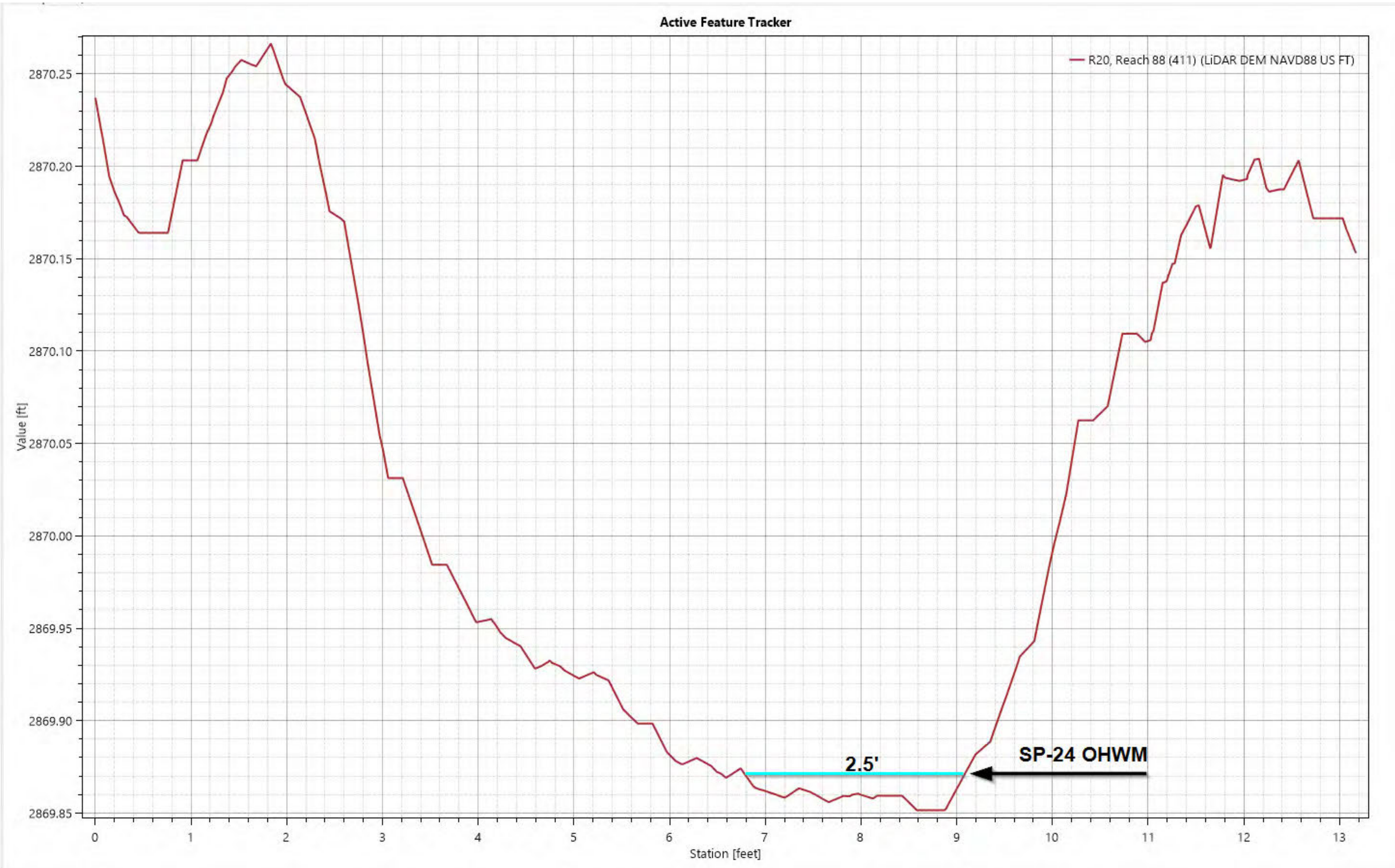
Enclosure 1


Active Feature Tracker
R5, Reach 72 (6100) (LiDAR DEM NAVD88 US FT)
Value [ft]
2873.90
2873.80
2873.70
2873.60
2873.50
2873.40
2873.30
2873.20
2873.10
2873.00
2872.90
2872.80
SP-22 OHWM
3'
0
1
2
3
4
5
6
7
8
9
10
11
Station [feet]

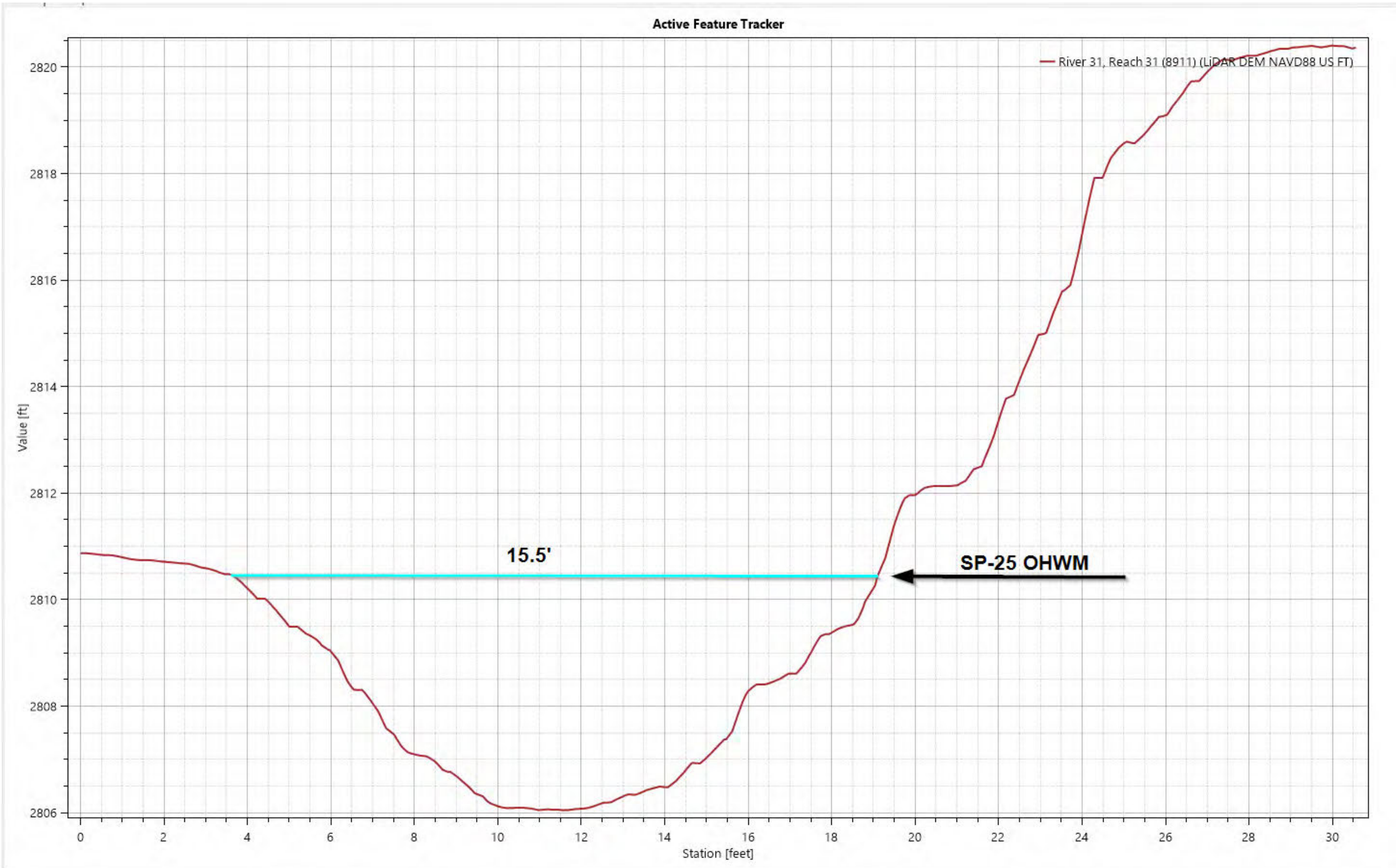
Enclosure 1


Active Feature Tracker
R26, Reach 90 (1181) (LiDAR DEM NAVD88 US FT)
2874.80
2874.60
2874.40
2874.20
2874.00
2873.80
2873.60
2873.40
Value [ft]
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Station [feet]
SP-23 OHWM
3'

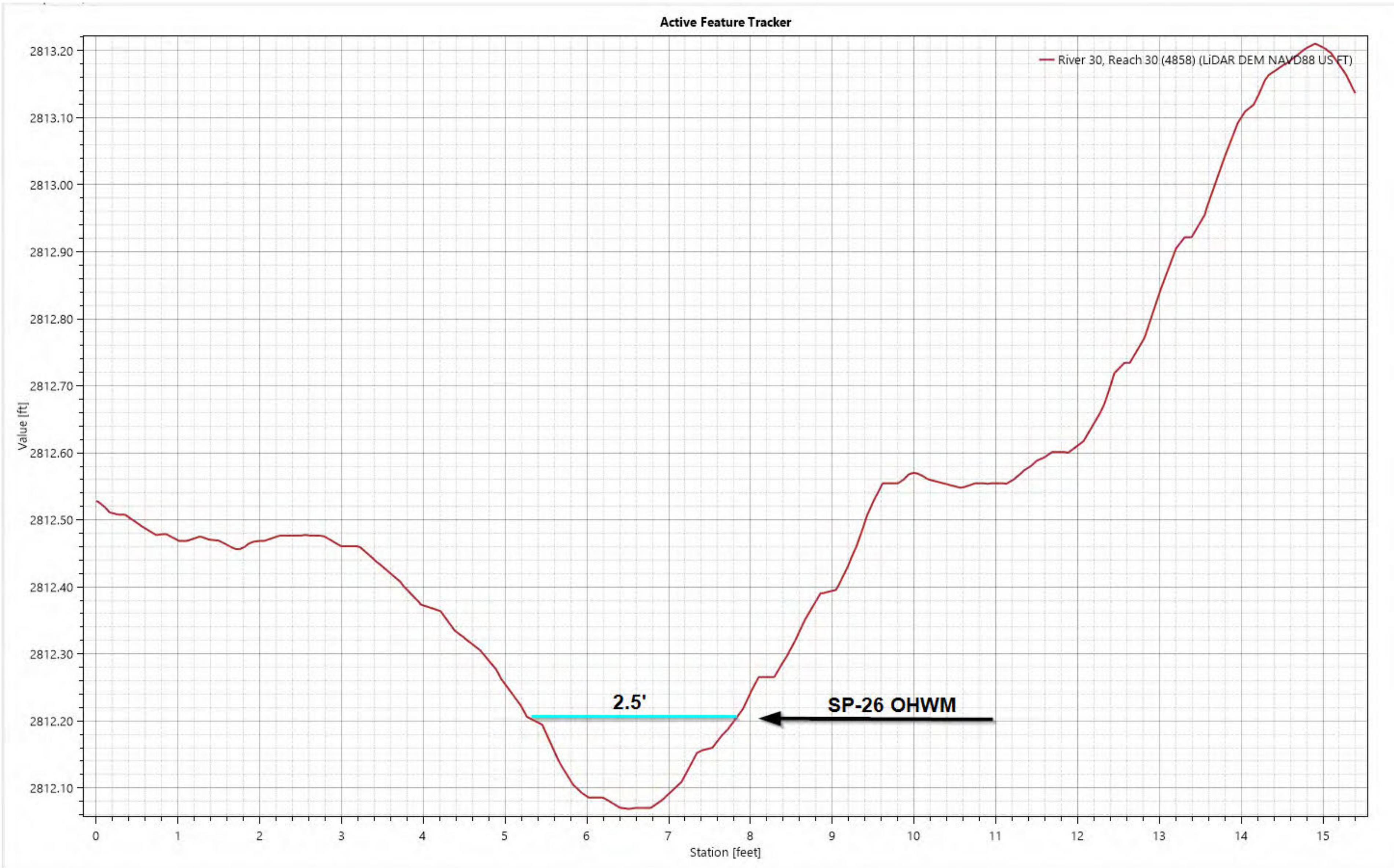
Enclosure 1


Active Feature Tracker
R20, Reach 88 (411) (LiDAR DEM NAVD88 US FT)
Value [ft]
2870.25
2870.20
2870.15
2870.10
2870.05
2870.00
2869.95
2869.90
2869.85
0
1
2
3
4
5
6
7
8
9
10
11
12
13
Station [feet]
2.5'
SP-24 OHWM

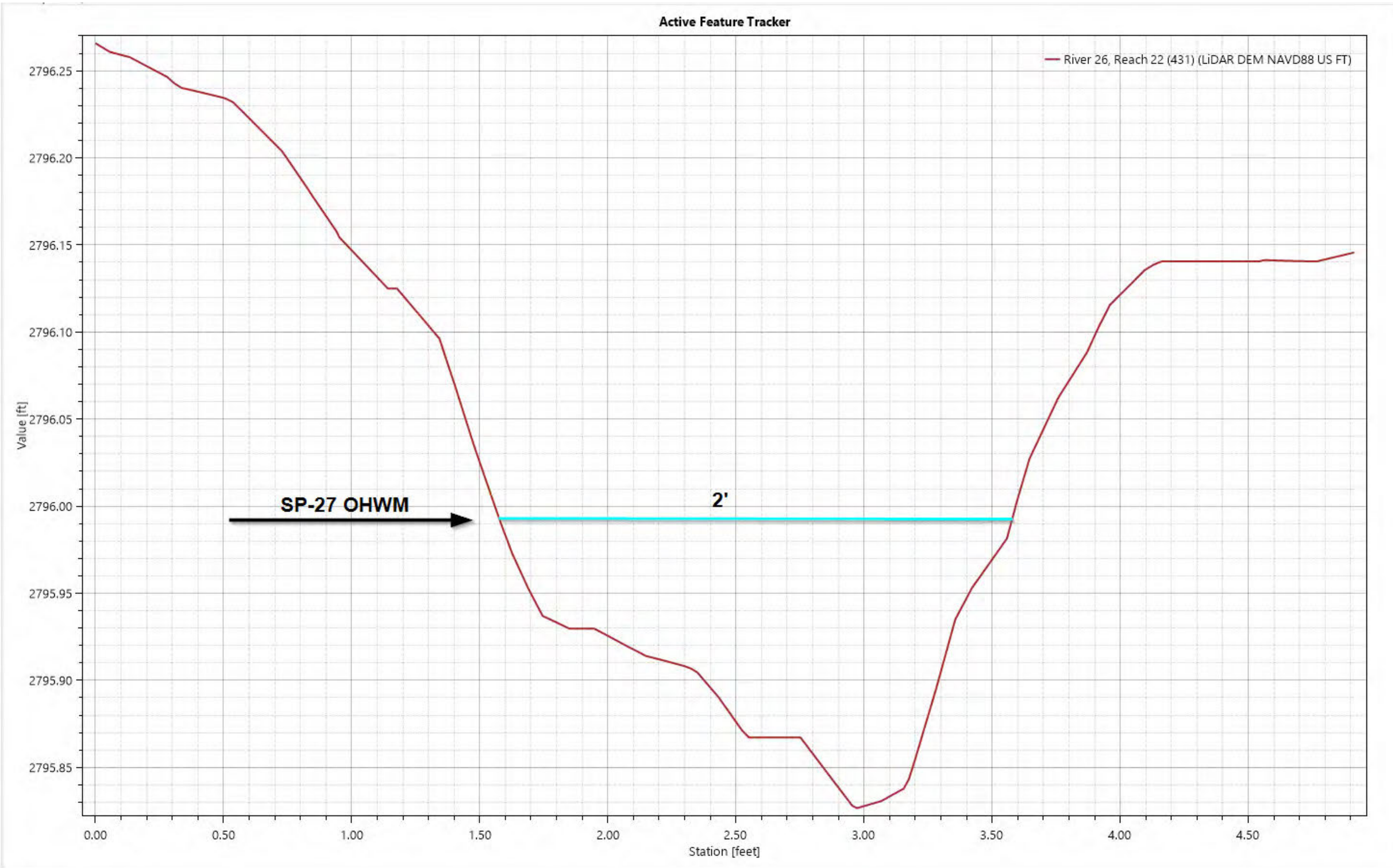
Enclosure 1


Active Feature Tracker
River 31, Reach 31 (8911) (LiDAR DEM NAVD88 US FT)
15.5'
SP-25 OHWM
Value [ft]
Station [feet]
2806
2808
2810
2812
2814
2816
2818
2820
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30

Enclosure 1

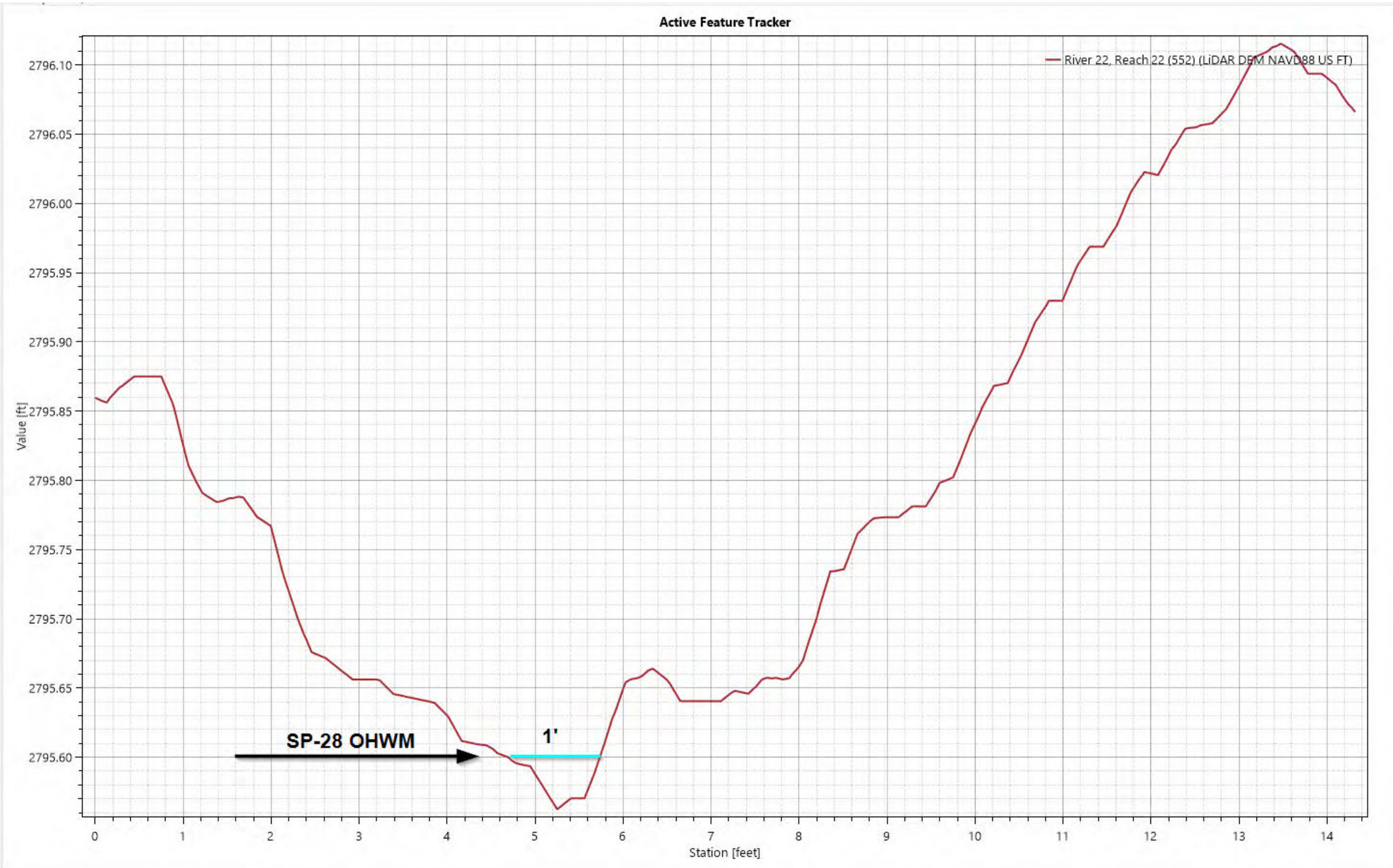

Active Feature Tracker
River 30, Reach 30 (4858) (LiDAR DEM NAVD88 US FT)
Value [ft]
2813.20
2813.10
2813.00
2812.90
2812.80
2812.70
2812.60
2812.50
2812.40
2812.30
2812.20
2812.10
Station [feet]
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
2.5'
SP-26 OHWM

Enclosure 1

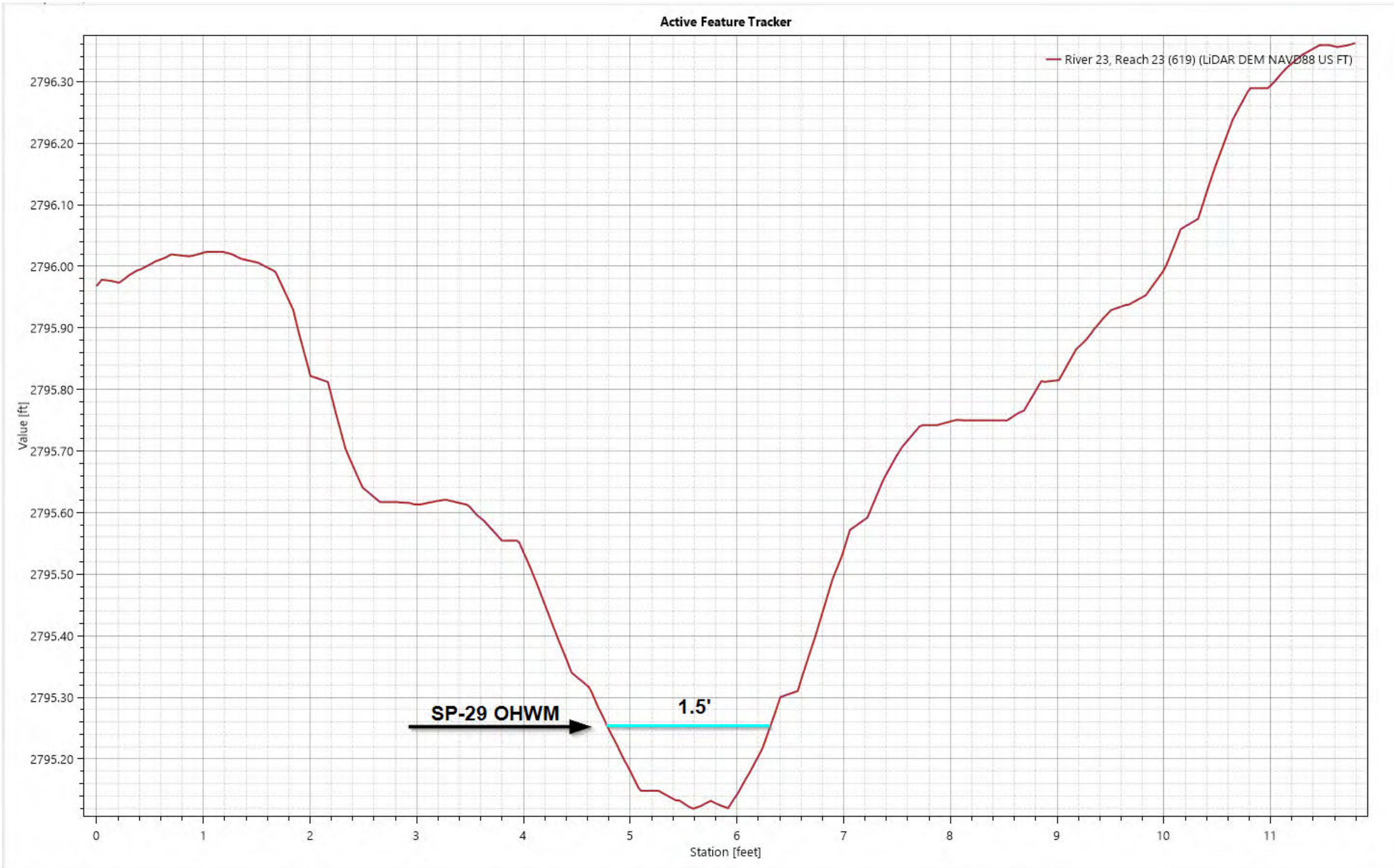


Active Feature Tracker
River 26, Reach 22 (431) (LiDAR DEM NAVD88 US FT)
2796.25
2796.20
2796.15
2796.10
2796.05
2796.00
2795.95
2795.90
2795.85
Value [ft]
SP-27 OHWM
2'
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
Station [feet]

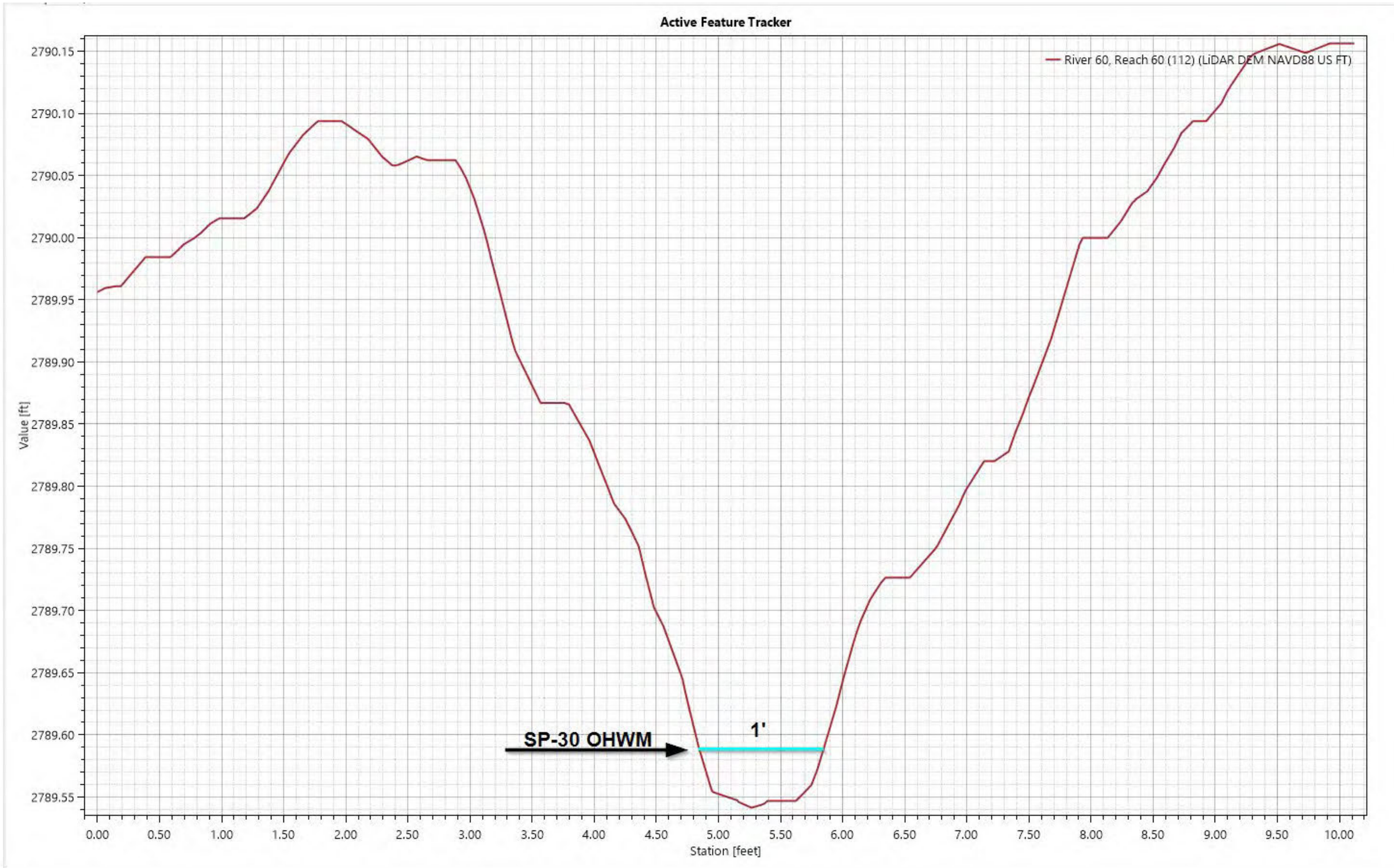
Enclosure 1


Active Feature Tracker
River 22, Reach 22 (552) (LiDAR DEM NAVD88 US FT)
SP-28 OHWM
1'
Value [ft]
2796.10
2796.05
2796.00
2795.95
2795.90
2795.85
2795.80
2795.75
2795.70
2795.65
2795.60
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Station [feet]

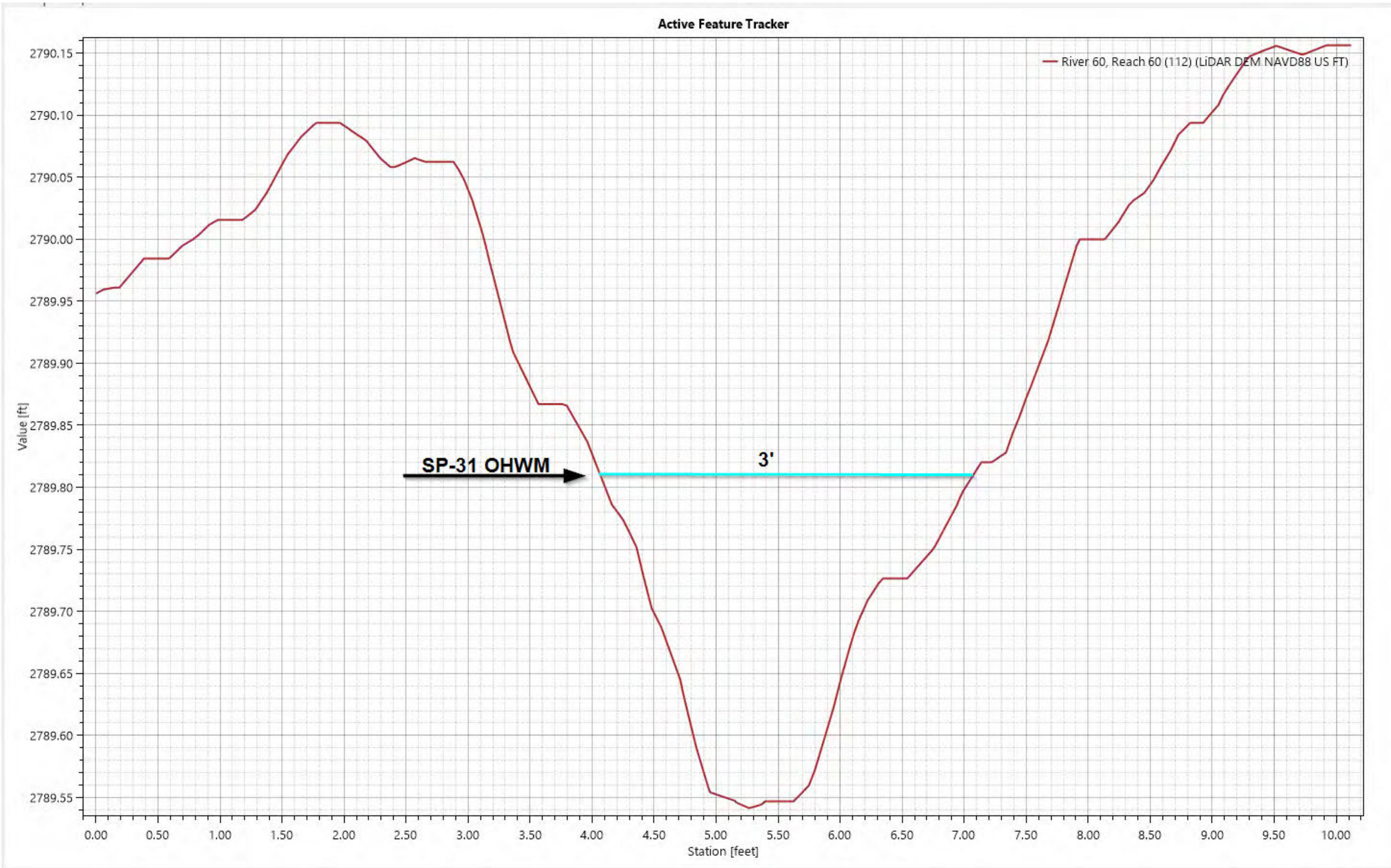
Enclosure 1


Active Feature Tracker
River 23, Reach 23 (619) (LiDAR DEM NAVD88 US FT)
2796.30
2796.20
2796.10
2796.00
2795.90
2795.80
2795.70
2795.60
2795.50
2795.40
2795.30
2795.20
Value [ft]
0
1
2
3
4
5
6
7
8
9
10
11
Station [feet]
SP-29 OHWM
1.5'

Enclosure 1

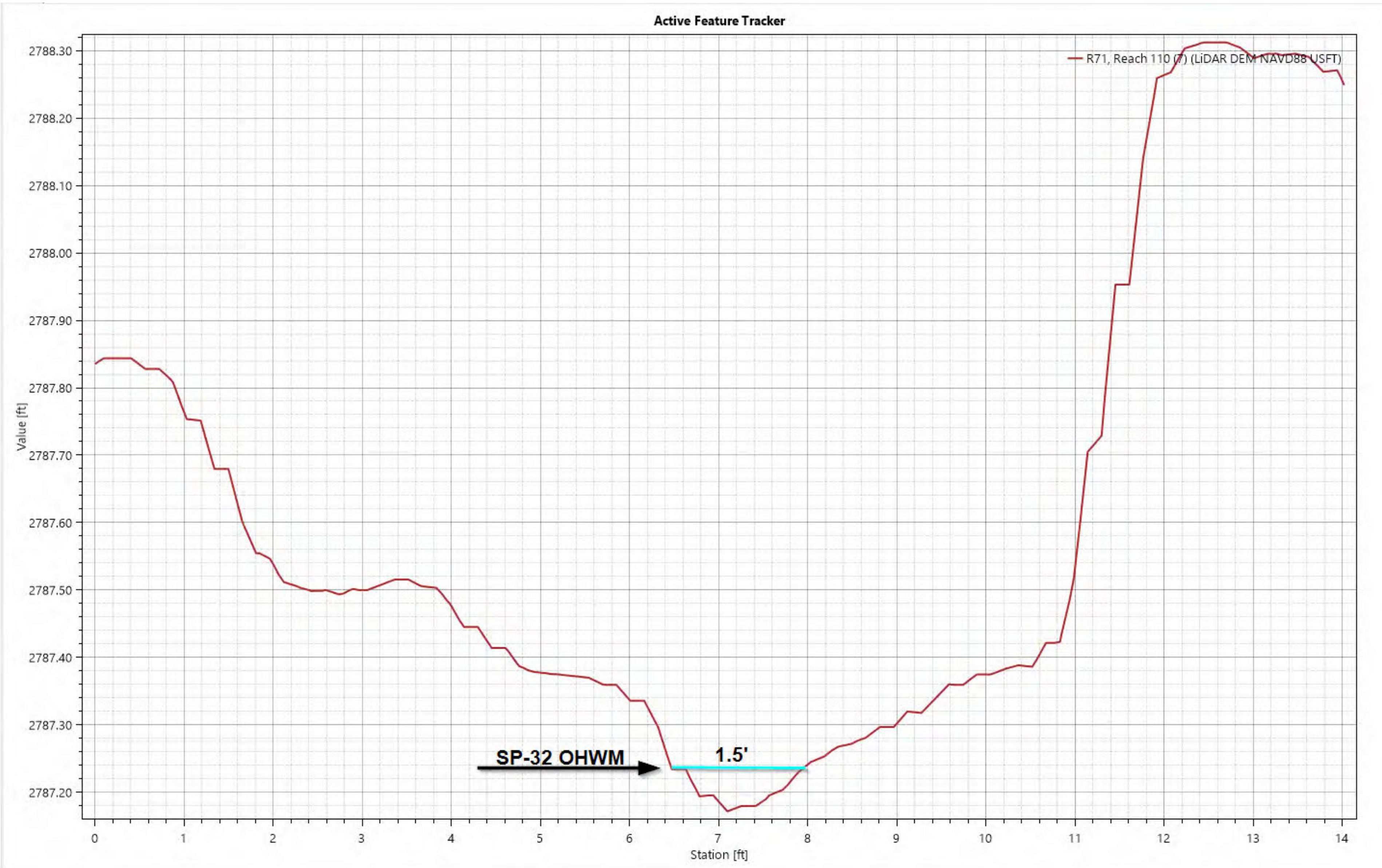

Active Feature Tracker
River 60, Reach 60 (112) (LiDAR DEM NAVD88 US FT)
2790.15
2790.10
2790.05
2790.00
2789.95
2789.90
2789.85
2789.80
2789.75
2789.70
2789.65
2789.60
2789.55
Value [ft]
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
5.50
6.00
6.50
7.00
7.50
8.00
8.50
9.00
9.50
10.00
Station [feet]
SP-30 OHWM
1'

Enclosure 1



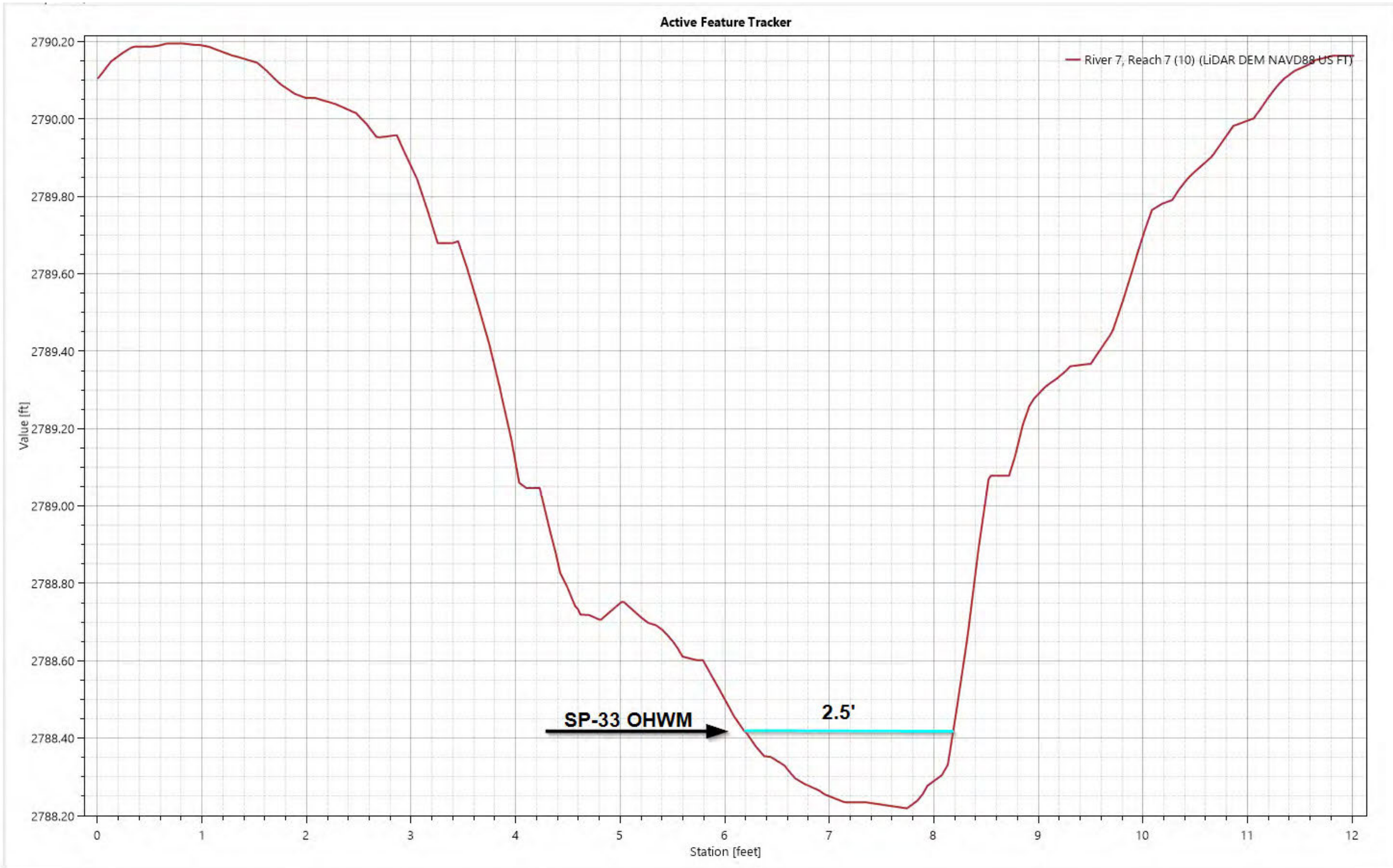
Active Feature Tracker
River 60, Reach 60 (112) (LiDAR DEM NAVD88 US FT)
SP-31 OHWM
3'
Value [ft]
Station [feet]
2790.15
2790.10
2790.05
2790.00
2789.95
2789.90
2789.85
2789.80
2789.75
2789.70
2789.65
2789.60
2789.55
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
5.50
6.00
6.50
7.00
7.50
8.00
8.50
9.00
9.50
10.00

Enclosure 1



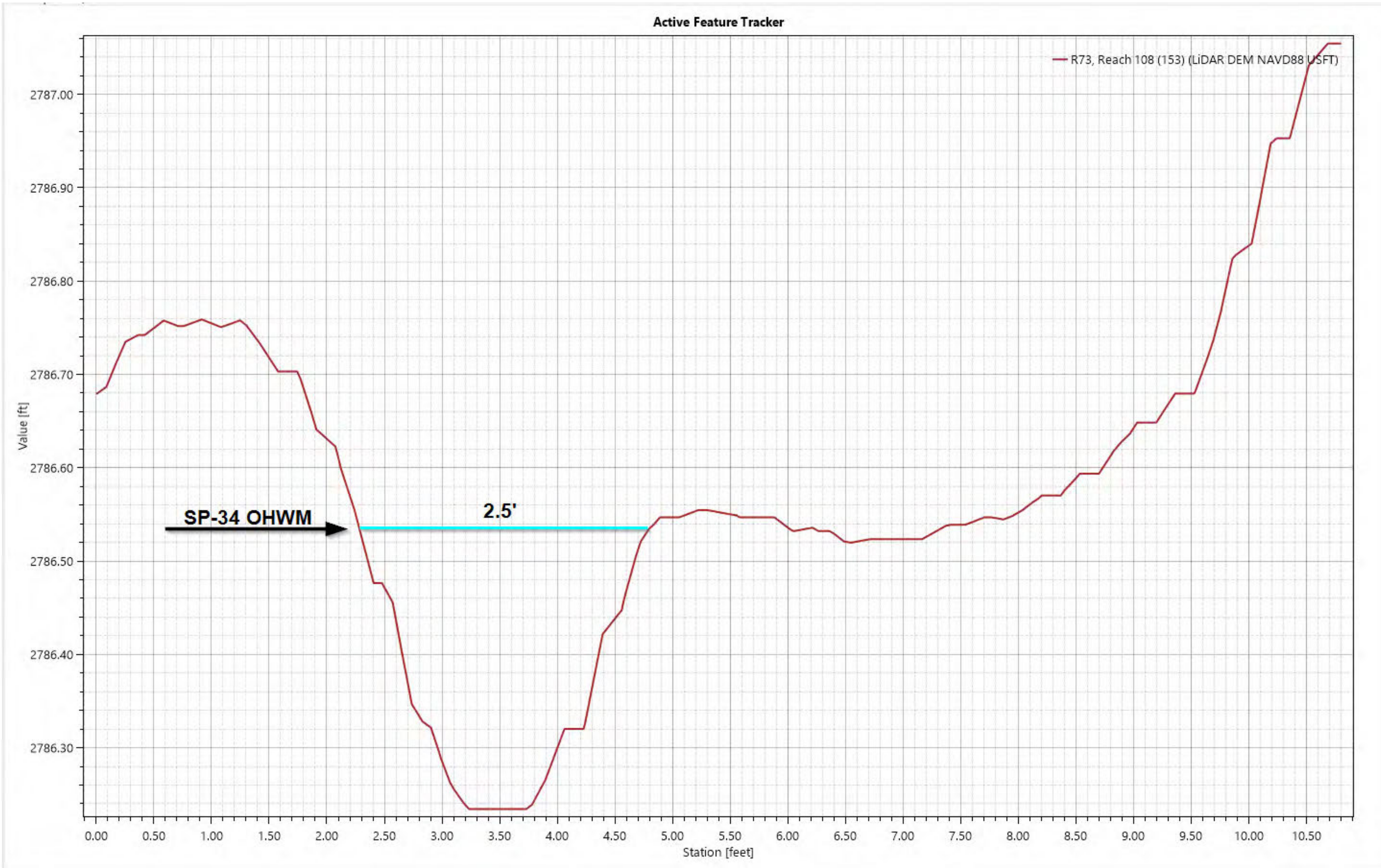
Active Feature Tracker
R71, Reach 110 (7) (LiDAR DEM NAVD88 USFT)
2788.30
2788.20
2788.10
2788.00
2787.90
2787.80
2787.70
2787.60
2787.50
2787.40
2787.30
2787.20
Value [ft]
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Station [ft]
SP-32 OHWM
1.5'

Enclosure 1



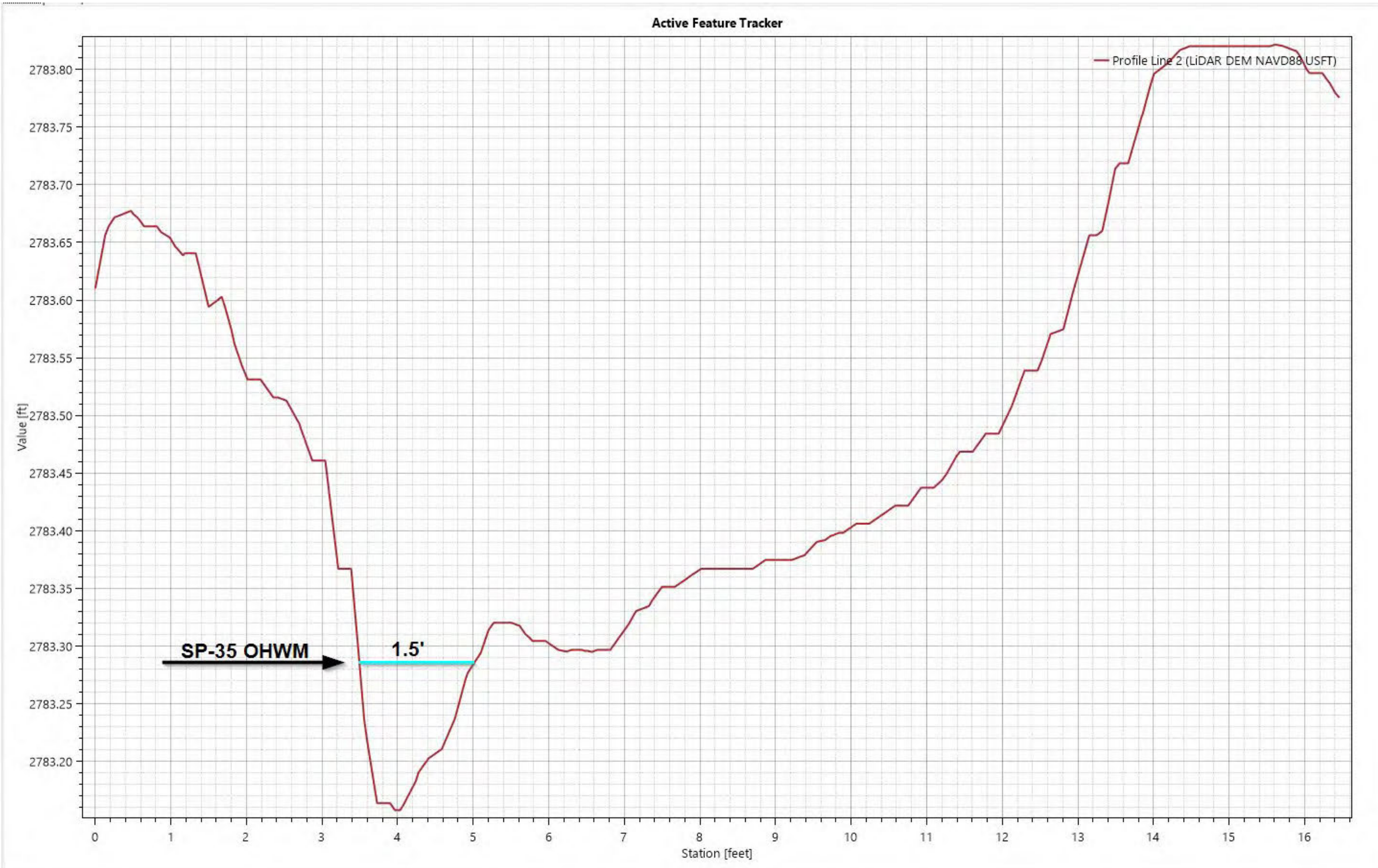
Active Feature Tracker
River 7, Reach 7 (10) (LiDAR DEM NAVD88 US FT)
Value [ft]
Station [feet]
SP-33 OHWM
2.5'

Enclosure 1



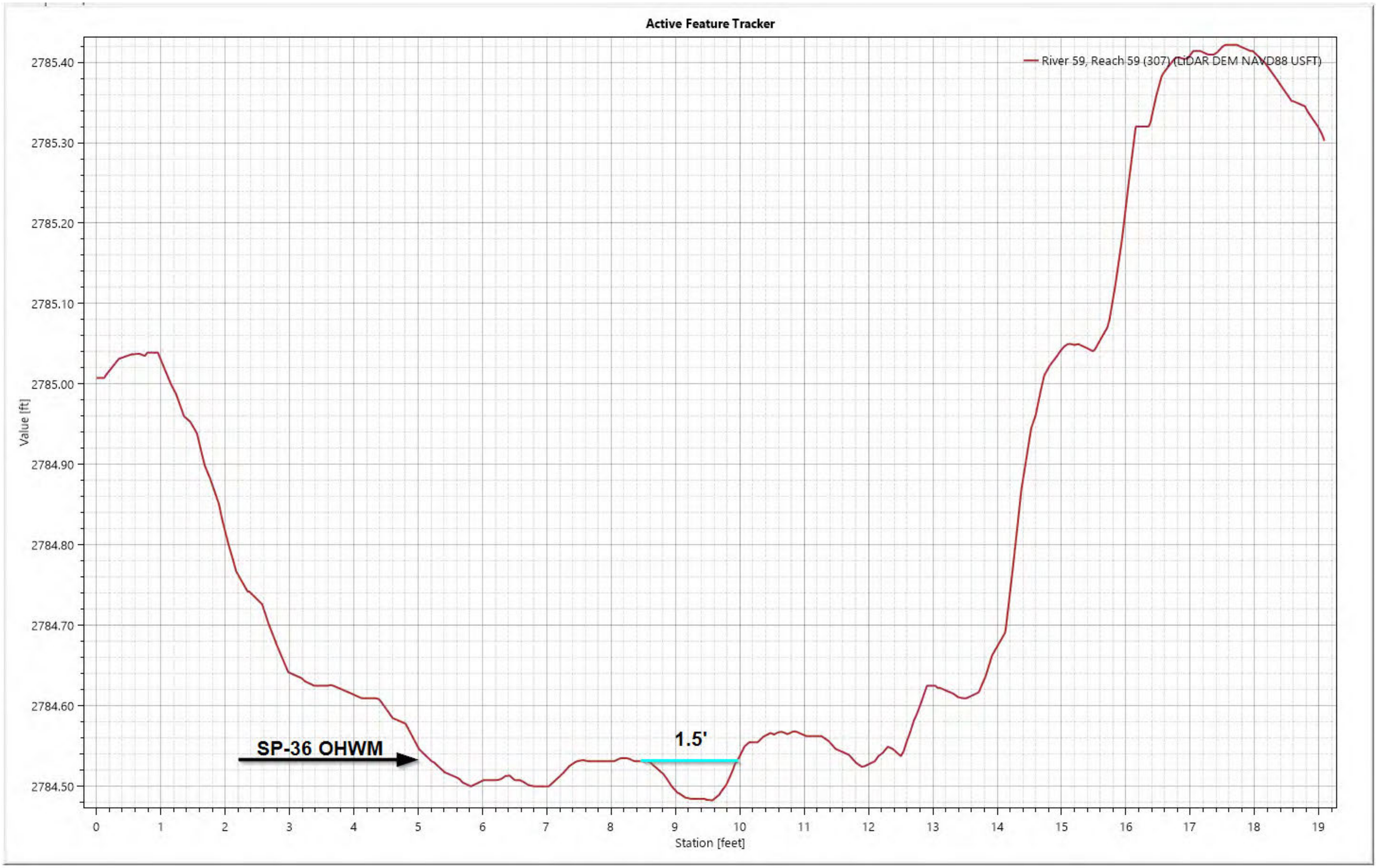
Active Feature Tracker
R73, Reach 108 (153) (LiDAR DEM NAVD88 USFT)
Value [ft]
2787.00
2786.90
2786.80
2786.70
2786.60
2786.50
2786.40
2786.30
SP-34 OHWM
2.5'
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
5.50
6.00
6.50
7.00
7.50
8.00
8.50
9.00
9.50
10.00
10.50
Station [feet]

Enclosure 1



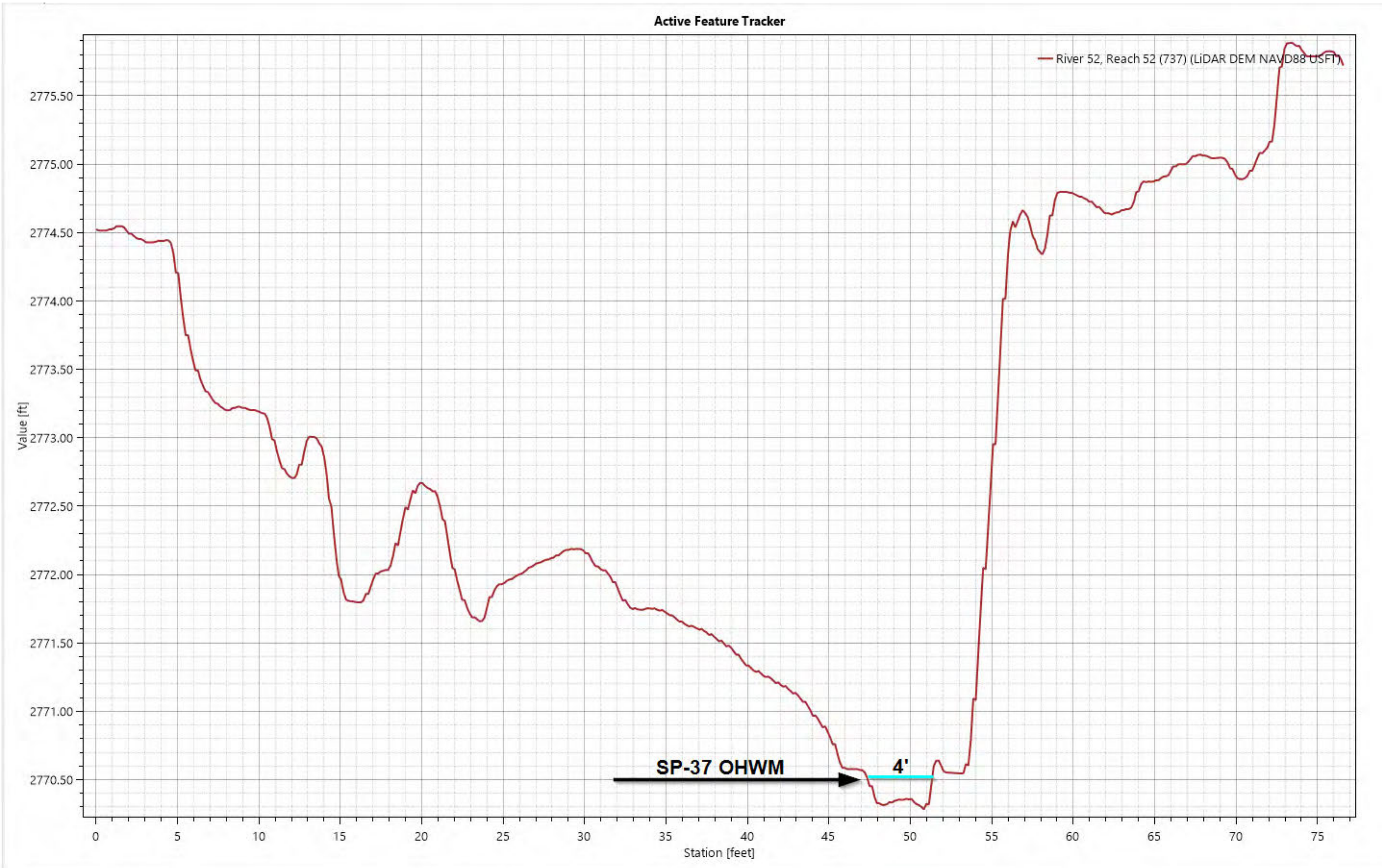
Active Feature Tracker
Profile Line 2 (LiDAR DEM NAVD88 USFT)
Value [ft]
2783.80
2783.75
2783.70
2783.65
2783.60
2783.55
2783.50
2783.45
2783.40
2783.35
2783.30
2783.25
2783.20
SP-35 OHWM
1.5'
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Station [feet]

Enclosure 1

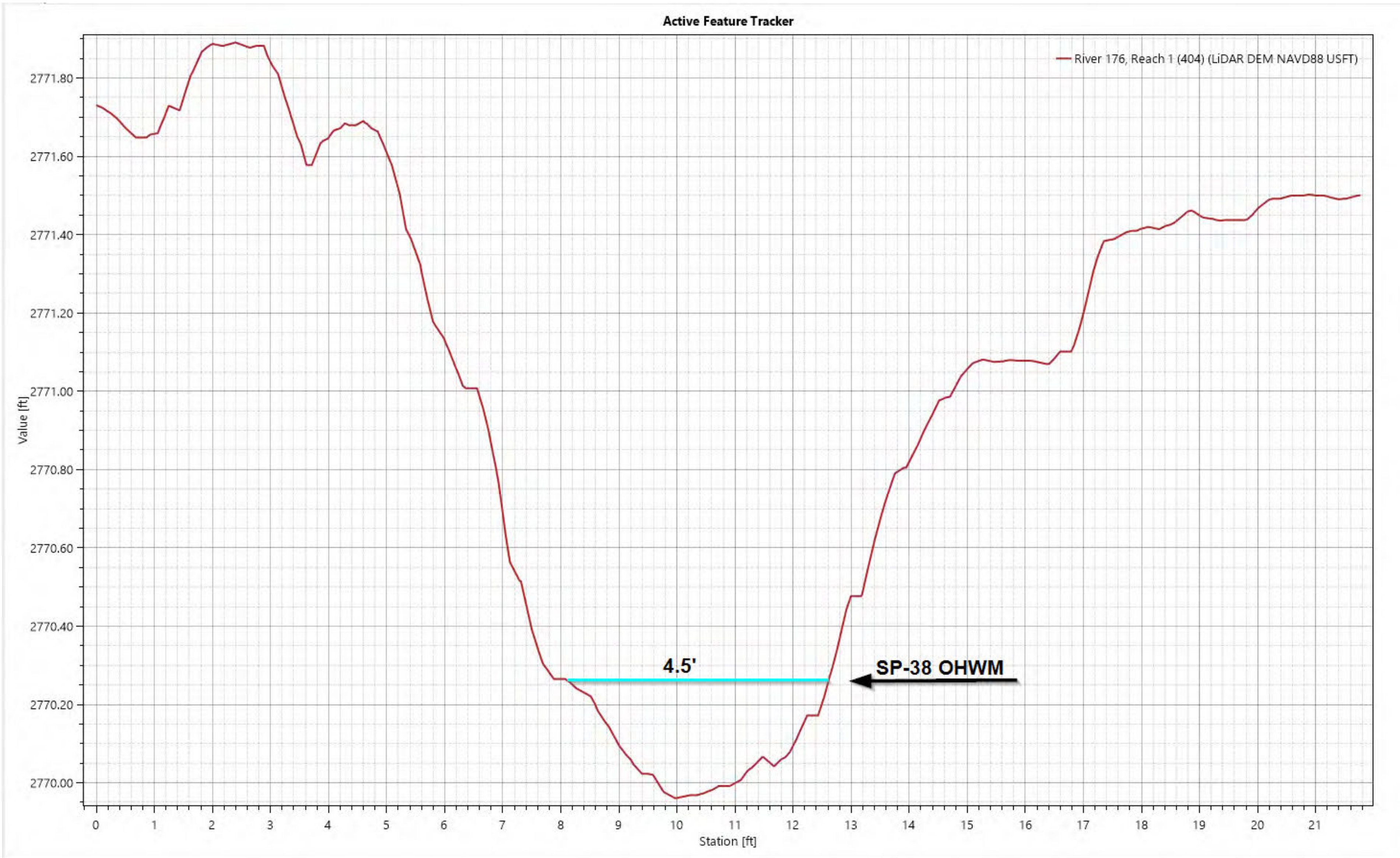


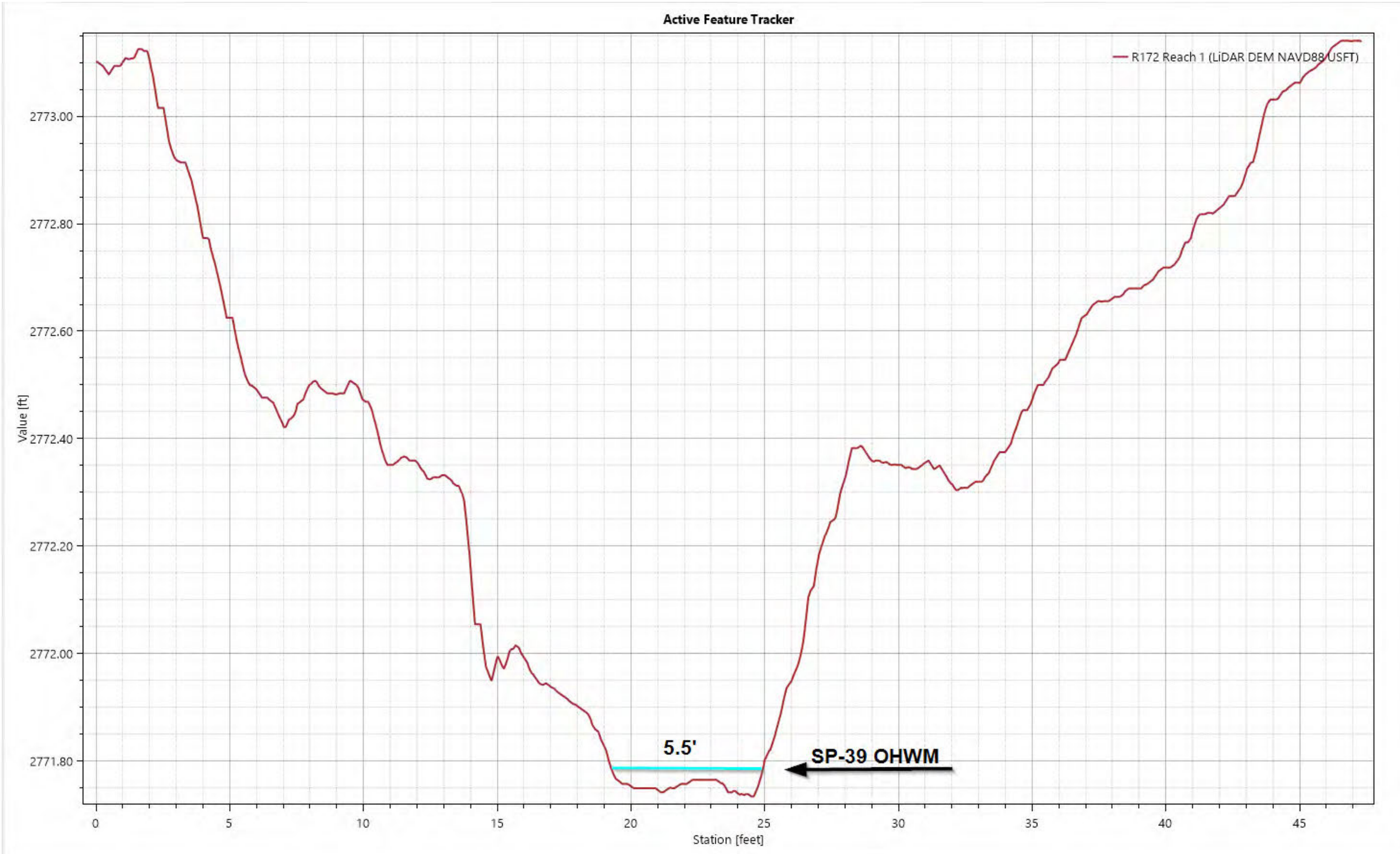
Active Feature Tracker
River 59, Reach 59 (307) (LiDAR DEM NAVD88 USFT)
Value [ft]
2785.40
2785.30
2785.20
2785.10
2785.00
2784.90
2784.80
2784.70
2784.60
2784.50
Station [feet]
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
SP-36 OHWM
1.5'

Enclosure 1


Active Feature Tracker
River 52, Reach 52 (737) (LiDAR DEM NAVD88 USFT)
2775.50
2775.00
2774.50
2774.00
2773.50
2773.00
2772.50
2772.00
2771.50
2771.00
2770.50
Value [ft]
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
Station [feet]
SP-37 OHWM
4'

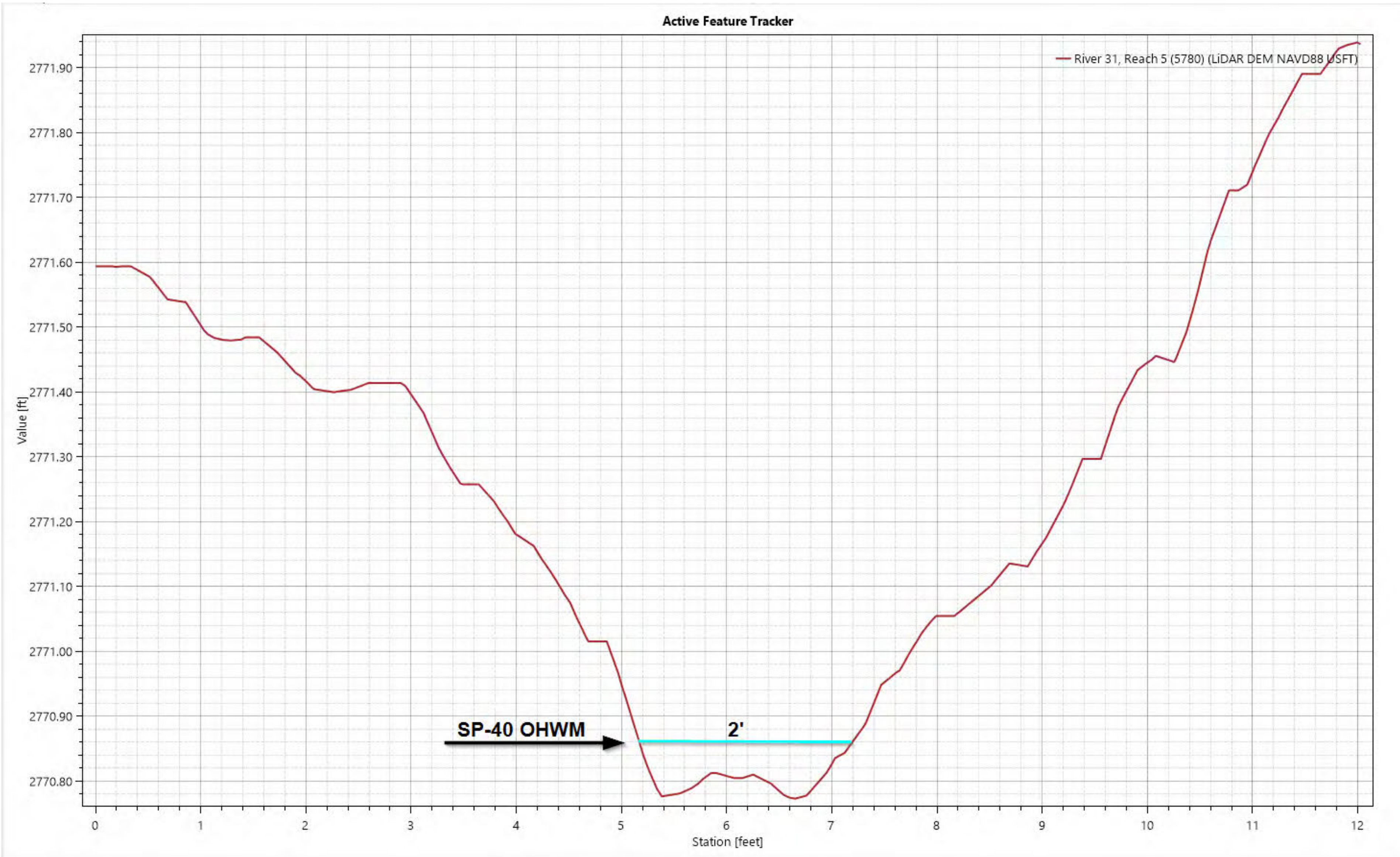
Enclosure 1


Active Feature Tracker
River 176, Reach 1 (404) (LiDAR DEM NAVD88 USFT)
2771.80
2771.60
2771.40
2771.20
2771.00
2770.80
2770.60
2770.40
2770.20
2770.00
Value [ft]
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
Station [ft]
4.5'
SP-38 OHWM



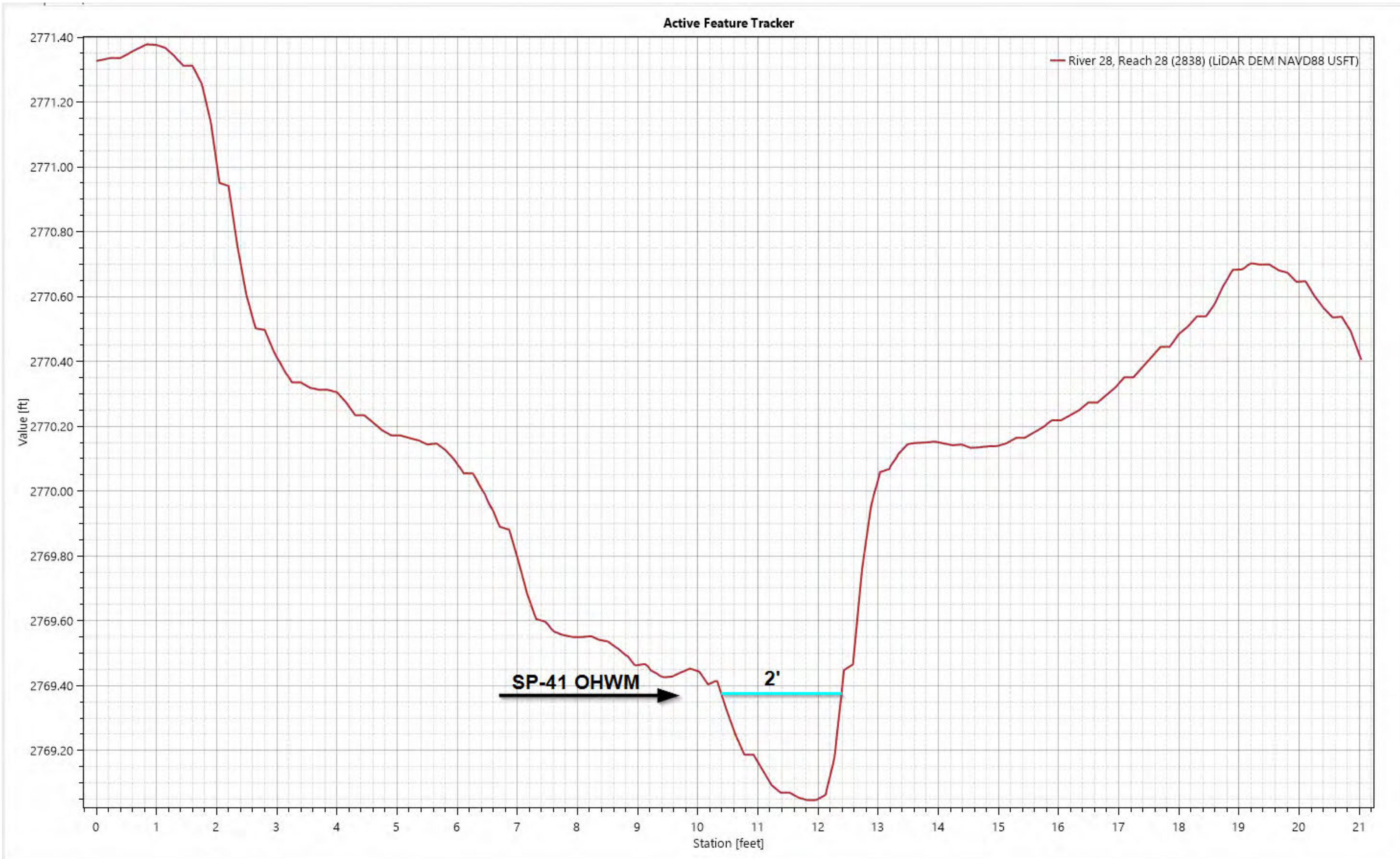
Active Feature Tracker
R172 Reach 1 (LiDAR DEM NAVD88 USFT)
2773.00
2772.80
2772.60
2772.40
2772.20
2772.00
2771.80
Value [ft]
0
5
10
15
20
25
30
35
40
45
Station [feet]
5.5'
SP-39 OHWM

Enclosure 1



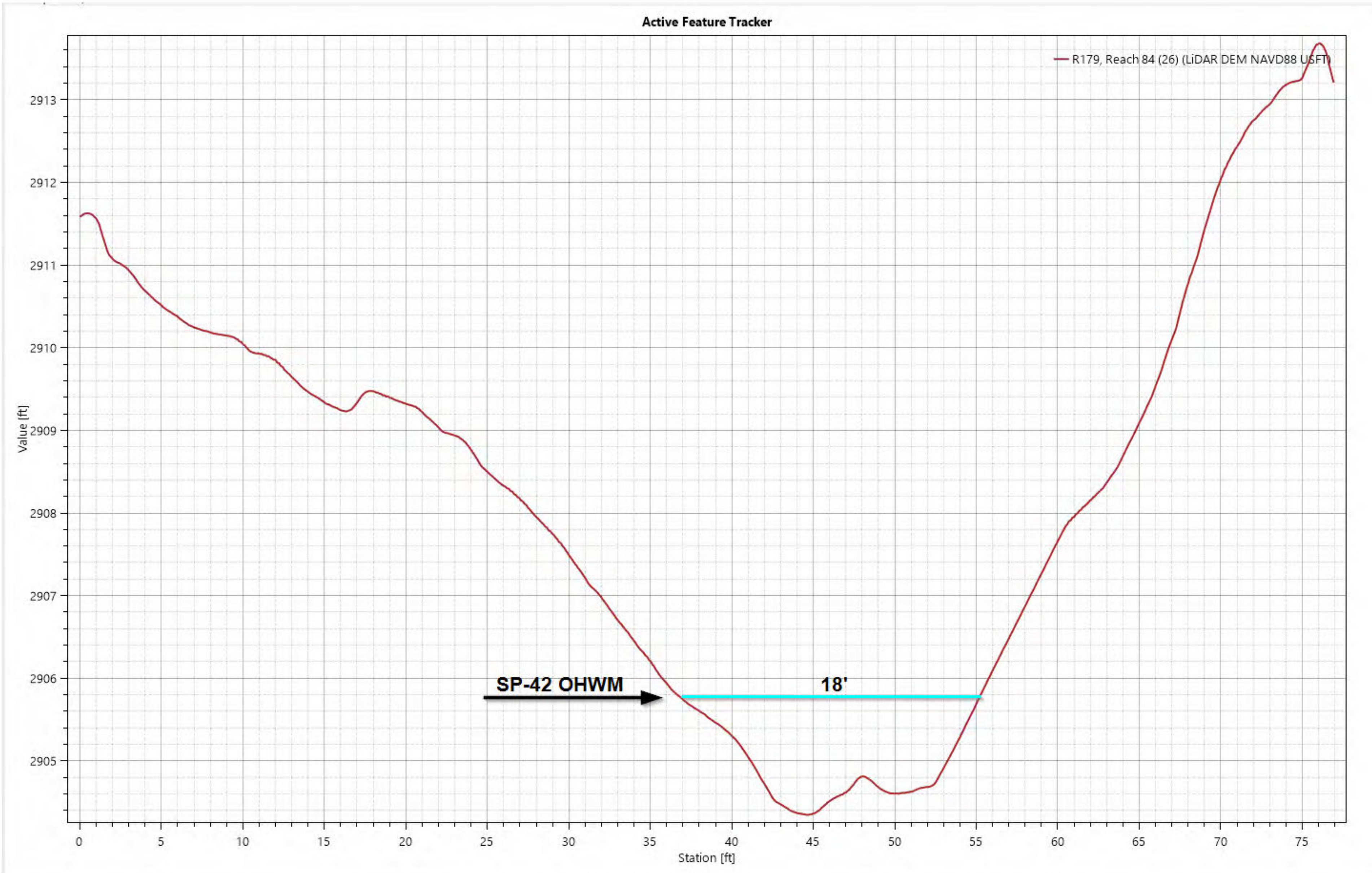
Active Feature Tracker
River 31, Reach 5 (5780) (LiDAR DEM NAVD88 USFT)
2771.90
2771.80
2771.70
2771.60
2771.50
2771.40
2771.30
2771.20
2771.10
2771.00
2770.90
2770.80
Value [ft]
0
1
2
3
4
5
6
7
8
9
10
11
12
Station [feet]
SP-40 OHWM
2'

Enclosure 1

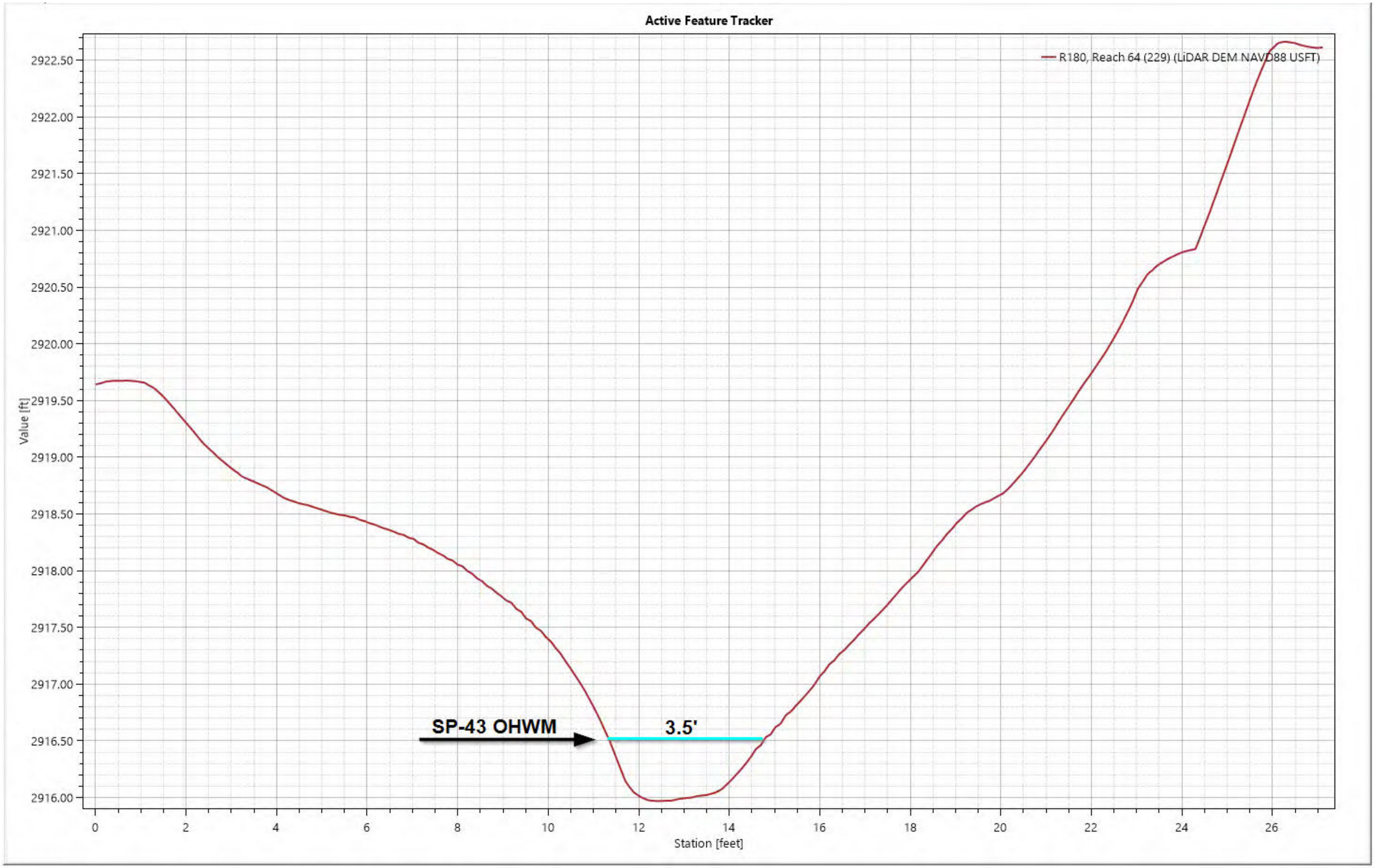


Active Feature Tracker
River 28, Reach 28 (2838) (LiDAR DEM NAVD88 USFT)
Value [ft]
2771.40
2771.20
2771.00
2770.80
2770.60
2770.40
2770.20
2770.00
2769.80
2769.60
2769.40
2769.20
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
Station [feet]
SP-41 OHWM
2'

Enclosure 1


Active Feature Tracker
R179, Reach 84 (26) (LiDAR DEM NAVD88 USFT)
2913
2912
2911
2910
2909
2908
2907
2906
2905
Value [ft]
SP-42 OHWM
18'
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
Station [ft]

Enclosure 1



Active Feature Tracker
R180, Reach 64 (229) (LiDAR DEM NAVD88 USFT)
Value [ft]
2922.50
2922.00
2921.50
2921.00
2920.50
2920.00
2919.50
2919.00
2918.50
2918.00
2917.50
2917.00
2916.50
2916.00
0
2
4
6
8
10
12
14
16
18
20
22
24
26
Station [feet]
SP-43 OHWM
3.5'

Enclosure 1

SDAM Analysis

Streamflow Duration Assessment Method for the Arid West Classification Report

Online Report Generating Tool Version 1.1

Report generated on: April 11, 2024

Classification:

Ephemeral

General Site Information

Site code or identifier:

R2

Project name or number:

Larrea Solar Project

Assessor(s):

[redacted]

Waterway name:

R2

This stream is classified as: Ephemeral

Visit date:

4/20/2023

Current weather conditions:

Clear/Sunny

Notes on current or recent weather conditions:

Wetter than normal. APT -16

Location:

[redacted]

Datum:

USGS 1984; NAVD88 US FT

Surrounding land use within 100 m:

Natural Other

Description of reach boundaries:

Unmodified Dry Wash Drainage

Mean channel width (m):

0.91

Reach length (m):

200

Disturbed or difficult conditions:

None

Notes on disturbances or difficult site conditions:

None

Observed hydrology:

Percent of reach with surface flow:

0

Percent of reach with surface and sub-surface flows:

0

Number of isolated pools:

0

Comments on observed hydrology:

None

Site Photos

Top of reach looking downstream:

Middle of reach looking upstream:

Middle of reach looking downstream:

Bottom of reach looking upstream:

Site Sketch

[redacted]

Hydrophytic Vegetation

Hydrophytic species found in or near the channel:

`0 species`

Notes on hydrophytic vegetation:

`Drainage Unvegetated`

Aquatic Invertebrates

Number of individuals observed:

`None`

Are EPT present?

`No`

Notes on aquatic invertebrates

`None`

Algae Cover

Cover of live or dead algae in the streambed:

`Not detected`

`NA`

Notes on algae cover:

`No algae observed.`

Single Indicators

Fish:

No fish observed

Algae cover:

Not detected

Supplemental Information

APT Analysis. [redacted]

Additional photo(s)

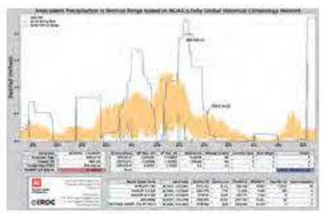


Figure 1: April 20, 2023

Additional notes about the assessment:

Enter text...

Streamflow Duration Assessment Method for the Arid West Classification Report

Online Report Generating Tool Version 1.1

Report generated on: April 11, 2024

Classification:

Ephemeral

General Site Information

Site code or identifier:

R3

Project name or number:

Larrea Solar Project

Assessor(s):

[redacted]

Waterway name:

R3

This stream is classified as: Ephemeral

Visit date:

4/20/2023

Current weather conditions:

Clear/Sunny

Notes on current or recent weather conditions:

Wetter than normal. APT -16

Location:

[redacted]

Datum:

USGS 1984; NAVD88 US FT

Surrounding land use within 100 m:

Natural Other

Description of reach boundaries:

`Unmodified Dry Wash Drainage`

Mean channel width (m):

`3.81`

Reach length (m):

`200`

Disturbed or difficult conditions:

`None`

Notes on disturbances or difficult site conditions:

`None`

Observed hydrology:

Percent of reach with surface flow:

`0`

Percent of reach with surface and sub-surface flows:

`0`

Number of isolated pools:

`0`

Comments on observed hydrology:

`None`

Site Photos

Top of reach looking downstream:

Middle of reach looking upstream:

Middle of reach looking downstream:

Bottom of reach looking upstream:

Site Sketch

Hydrophytic Vegetation

Hydrophytic species found in or near the channel:

`0 species`

Notes on hydrophytic vegetation:

`Drainage Unvegetated`

Aquatic Invertebrates

Number of individuals observed:

`None`

Are EPT present?

`No`

Notes on aquatic invertebrates

`None`

Algae Cover

Cover of live or dead algae in the streambed:

`Not detected`

`NA`

Notes on algae cover:

`No algae observed.`

Single Indicators

Fish:

No fish observed

Algae cover:

Not detected

Supplemental Information

APT Analysis. [redacted]

Additional photo(s)

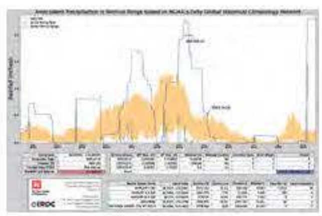


Figure 1: April 20, 2023

Additional notes about the assessment:

Enter text...

Streamflow Duration Assessment Method for the Arid West Classification Report

Online Report Generating Tool Version 1.1

Report generated on: April 11, 2024

Classification:

Ephemeral

General Site Information

Site code or identifier:

R5

Project name or number:

Larrea Solar Project

Assessor(s):

[redacted]

Waterway name:

R5

This stream is classified as: Ephemeral

Visit date:

4/20/2023

Current weather conditions:

Clear/Sunny

Notes on current or recent weather conditions:

Wetter than normal. APT -16

Location:

[redacted]

Datum:

USGS 1984; NAVD88 US FT

Surrounding land use within 100 m:

Natural Other

Description of reach boundaries:

Unmodified Dry Wash Drainage

Mean channel width (m):

0.91

Reach length (m):

200

Disturbed or difficult conditions:

None

Notes on disturbances or difficult site conditions:

None

Observed hydrology:

Percent of reach with surface flow:

0

Percent of reach with surface and sub-surface flows:

0

Number of isolated pools:

0

Comments on observed hydrology:

None

Site Photos

Top of reach looking downstream:

Middle of reach looking upstream:

Middle of reach looking downstream:

Bottom of reach looking upstream:

Site Sketch

Hydrophytic Vegetation

Hydrophytic species found in or near the channel:

`0 species`

Notes on hydrophytic vegetation:

`Drainage Unvegetated`

Aquatic Invertebrates

Number of individuals observed:

`None`

Are EPT present?

`No`

Notes on aquatic invertebrates

`None`

Algae Cover

Cover of live or dead algae in the streambed:

`Not detected`

`NA`

Notes on algae cover:

`No algae observed.`

Single Indicators

Fish:

No fish observed

Algae cover:

Not detected

Supplemental Information

APT Analysis. [redacted]

Additional photo(s)

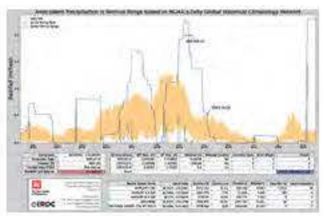


Figure 1: April 20, 2023

Additional notes about the assessment:

Enter text...

Streamflow Duration Assessment Method for the Arid West Classification Report

Online Report Generating Tool Version 1.1

Report generated on: April 11, 2024

Classification:

Ephemeral

General Site Information

Site code or identifier:

R6

Project name or number:

Larrea Solar Project

Assessor(s):

[redacted]

Waterway name:

R6

This stream is classified as: Ephemeral

Visit date:

4/20/2023

Current weather conditions:

Clear/Sunny

Notes on current or recent weather conditions:

Wetter than normal. APT -16

Location:

[redacted]

Datum:

USGS 1984; NAVD88 US FT

Surrounding land use within 100 m:

Natural Other

Description of reach boundaries:

Unmodified Dry Wash Drainage

Mean channel width (m):

0.61

Reach length (m):

200

Disturbed or difficult conditions:

None

Notes on disturbances or difficult site conditions:

None

Observed hydrology:

Percent of reach with surface flow:

0

Percent of reach with surface and sub-surface flows:

0

Number of isolated pools:

0

Comments on observed hydrology:

None

Site Photos

Top of reach looking downstream:

Middle of reach looking upstream:

Middle of reach looking downstream:

Bottom of reach looking upstream:

Site Sketch

Hydrophytic Vegetation

Hydrophytic species found in or near the channel:

`0 species`

Notes on hydrophytic vegetation:

`Drainage Unvegetated`

Aquatic Invertebrates

Number of individuals observed:

`None`

Are EPT present?

`No`

Notes on aquatic invertebrates

`None`

Algae Cover

Cover of live or dead algae in the streambed:

`Not detected`

`NA`

Notes on algae cover:

`No algae observed.`

Single Indicators

Fish:

No fish observed

Algae cover:

Not detected

Supplemental Information

APT Analysis. [redacted]

Additional photo(s)

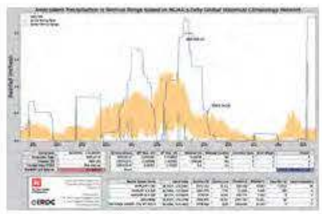


Figure 1: April 20, 2023

Additional notes about the assessment:

Enter text...

Streamflow Duration Assessment Method for the Arid West Classification Report

Online Report Generating Tool Version 1.1

Report generated on: April 11, 2024

Classification:

Ephemeral

General Site Information

Site code or identifier:

R11

Project name or number:

Larrea Solar Project

Assessor(s):

[redacted]

Waterway name:

R11

This stream is classified as: Ephemeral

Visit date:

4/20/2023

Current weather conditions:

Clear/Sunny

Notes on current or recent weather conditions:

Wetter than normal. APT -16

Location:

35.998767 N, -115.84066 W

Datum:

USGS 1984; NAVD88 US FT

Surrounding land use within 100 m:

Other natural

Description of reach boundaries:

Unmodified Dry Wash Drainage

Mean channel width (m):

0.91

Reach length (m):

200

Disturbed or difficult conditions:

None

Notes on disturbances or difficult site conditions:

None

Observed hydrology:

Percent of reach with surface flow:

0

Percent of reach with surface and sub-surface flows:

0

Number of isolated pools:

0

Comments on observed hydrology:

None

Site Photos

Top of reach looking downstream:

Middle of reach looking upstream:

Middle of reach looking downstream:

Bottom of reach looking upstream:

Site Sketch

Hydrophytic Vegetation

Hydrophytic species found in or near the channel:

`0 species`

Notes on hydrophytic vegetation:

`Drainage Unvegetated`

Aquatic Invertebrates

Number of individuals observed:

`None`

Are EPT present?

`No`

Notes on aquatic invertebrates

`None`

Algae Cover

Cover of live or dead algae in the streambed:

`Not detected`

NA

Notes on algae cover:

No algae observed.

Single Indicators

Fish:

No fish observed

Algae cover:

Not detected

Supplemental Information

APT Analysis. [redacted]

Additional photo(s)

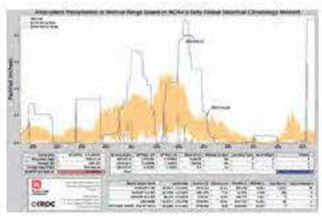


Figure 1: April 20, 2023

Additional notes about the assessment:

Enter text...

Streamflow Duration Assessment Method for the Arid West Classification Report

Online Report Generating Tool Version 1.1

Report generated on: April 11, 2024

Classification:

Ephemeral

General Site Information

Site code or identifier:

R27

Project name or number:

Larrea Solar Project

Assessor(s):

[redacted]

Waterway name:

R27

This stream is classified as: Ephemeral

Visit date:

4/20/2023

Current weather conditions:

Clear/Sunny

Notes on current or recent weather conditions:

Wetter than normal. APT -16

Location:

[redacted]

Datum:

USGS 1984; NAVD88 US FT

Surrounding land use within 100 m:

Other natural

Description of reach boundaries:

Unmodified Dry Wash Drainage

Mean channel width (m):

1.22

Reach length (m):

200

Disturbed or difficult conditions:

None

Notes on disturbances or difficult site conditions:

None

Observed hydrology:

Percent of reach with surface flow:

0

Percent of reach with surface and sub-surface flows:

0

Number of isolated pools:

0

Comments on observed hydrology:

None

Site Photos

Top of reach looking downstream:

Middle of reach looking upstream:

Middle of reach looking downstream:

Bottom of reach looking upstream:

Site Sketch

[redacted]

Hydrophytic Vegetation

Hydrophytic species found in or near the channel:

`0 species`

Notes on hydrophytic vegetation:

`Drainage Unvegetated`

Aquatic Invertebrates

Number of individuals observed:

`None`

Are EPT present?

`No`

Notes on aquatic invertebrates

`None`

Algae Cover

Cover of live or dead algae in the streambed:

`Not detected`

`NA`

Notes on algae cover:

`No algae observed.`

Single Indicators

Fish:

No fish observed

Algae cover:

Not detected

Supplemental Information

APT Analysis. [redacted]

Additional photo(s)

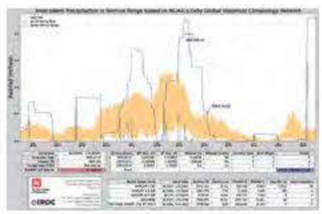


Figure 1: April 20, 2023

Additional notes about the assessment:

Enter text...

Streamflow Duration Assessment Method for the Arid West Classification Report

Online Report Generating Tool Version 1.1

Report generated on: April 11, 2024

Classification:

Ephemeral

General Site Information

Site code or identifier:

R85

Project name or number:

Larrea Solar Project

Assessor(s):

[redacted]

Waterway name:

R85

This stream is classified as: Ephemeral

Visit date:

4/20/2023

Current weather conditions:

Clear/Sunny

Notes on current or recent weather conditions:

Wetter than normal. APT -16

Location:

[redacted]

Datum:

USGS 1984; NAVD88 US FT

Surrounding land use within 100 m:

Other natural

Description of reach boundaries:

Unmodified Dry Wash Drainage

Mean channel width (m):

0.3

Reach length (m):

167

Disturbed or difficult conditions:

None

Notes on disturbances or difficult site conditions:

None

Observed hydrology:

Percent of reach with surface flow:

0

Percent of reach with surface and sub-surface flows:

0

Number of isolated pools:

0

Comments on observed hydrology:

None

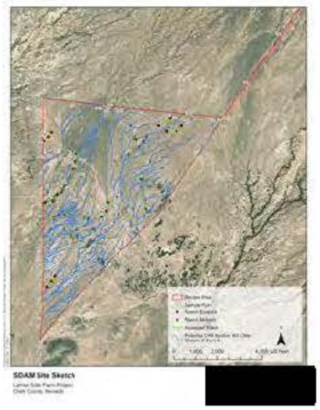
Site Photos

Top of reach looking downstream:

Middle of reach looking upstream:

Bottom of reach looking upstream:

Site Sketch



Hydrophytic Vegetation

Hydrophytic species found in or near the channel:

`0 species`

Notes on hydrophytic vegetation:

`Drainage Unvegetated`

Aquatic Invertebrates

Number of individuals observed:

`None`

Are EPT present?

`No`

Notes on aquatic invertebrates

None

Algae Cover

Cover of live or dead algae in the streambed:

Not detected

NA

Notes on algae cover:

No algae observed.

Single Indicators

Fish:

No fish observed

Algae cover:

Not detected

Supplemental Information

APT Analysis. [redacted]

Additional photo(s)

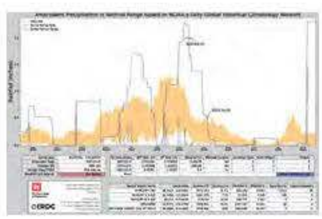


Figure 1: April 20, 2023

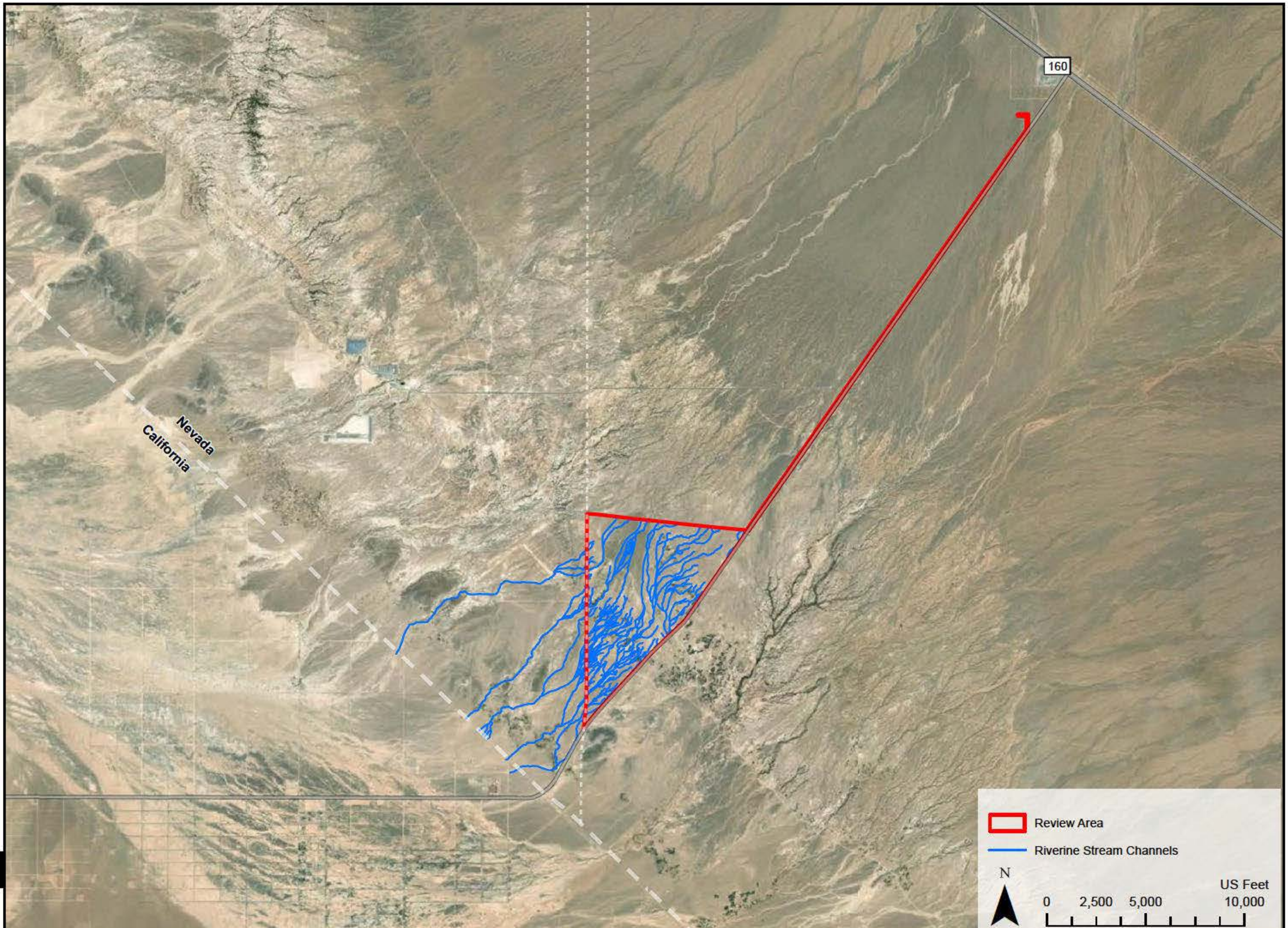
Additional notes about the assessment:

Enter text...

Appendix F

Potential CWA Section 404 Other Waters of the U.S. Showing Intrastate and Interstate Aquatic Resources

Project Data: [redacted] Basemap Imagery Credits: California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS, Earthstar Geographics; Imagery Date: 11/2023.



Appendix H. Potential CWA Section 404 Other Waters of the U.S. Showing Intrastate and Interstate Aquatic Resources

Larrea Solar Farm Project
Clark County, Nevada

Enclosure 1

[redacted]

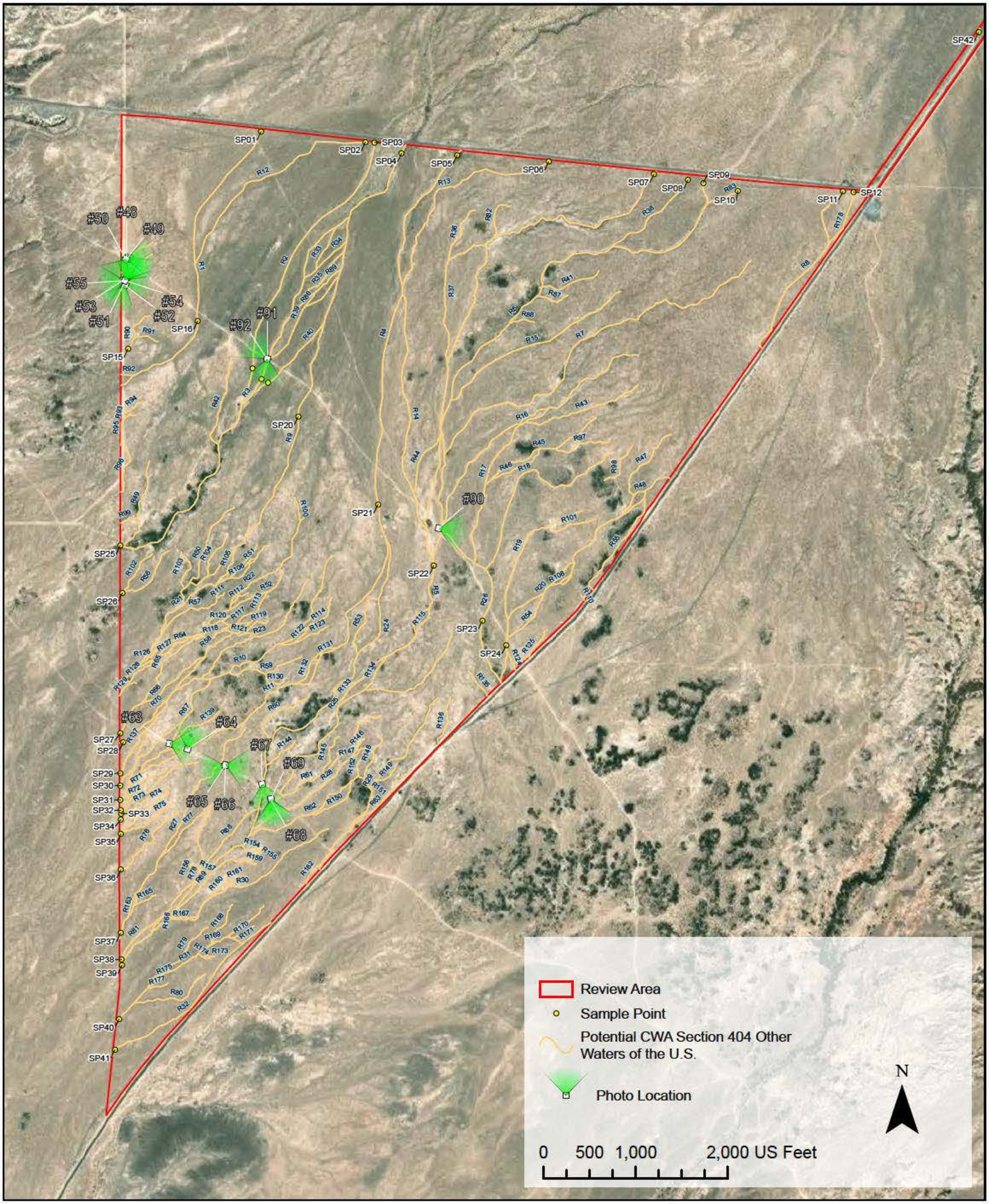
Appendix G

Representative Review Area Photographs

Representative Review Area Photographs

Larrea Solar Farm Project

[redacted]



Project Date: [redacted]
Imagery Date: 11/17/2023. Basemap Imagery Credits: Maxar;

Photo Report Overview

Larrea Solar Farm Project
Clark County, Nevada

Enclosure 1

[redacted]

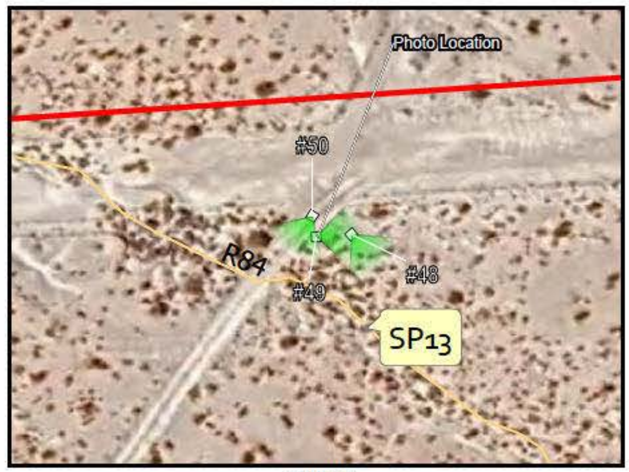
Photo ID: 48

Date Inspected: 20-Apr-23
Notes: Representative View of R84 and SP13 Area

1:2500

Photo ID: 49

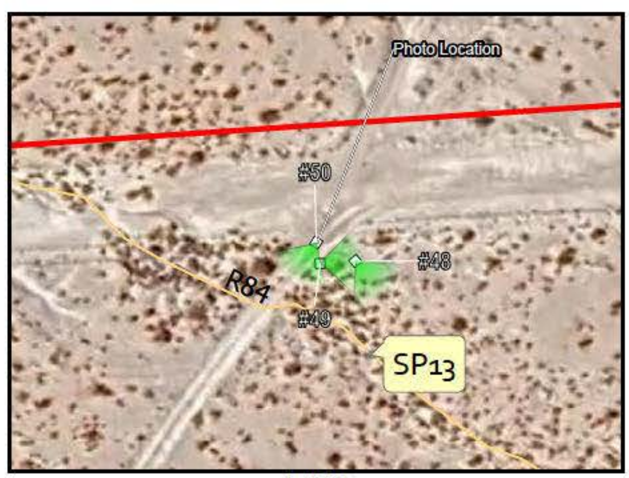
Date Inspected: 20-Apr-23
Notes: Representative View of R84 and SP13 Area



1:2500

Photo ID: 50

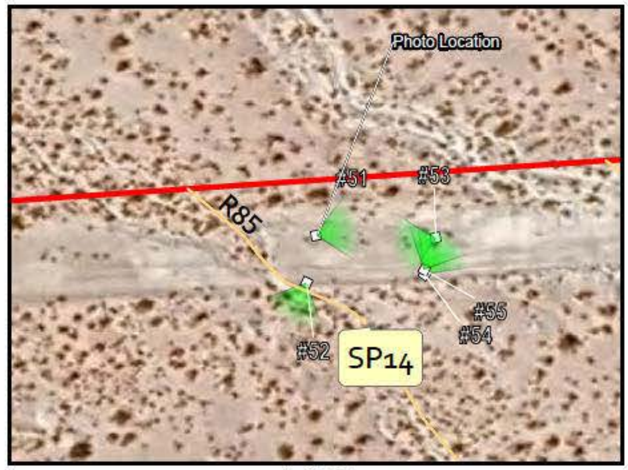
Date Inspected: 20-Apr-23
Notes: Representative View of R84 and SP13 Area



1:2500

Photo ID: 51

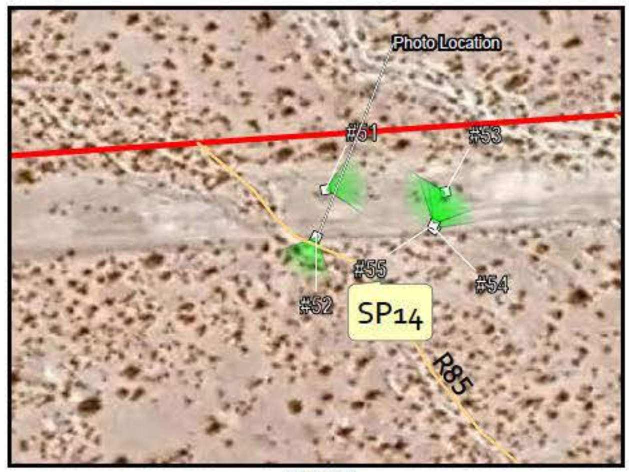
Date Inspected: 20-Apr-23
Notes: Representative View of R85 and SP14 Area



1:2500

Photo ID: 52

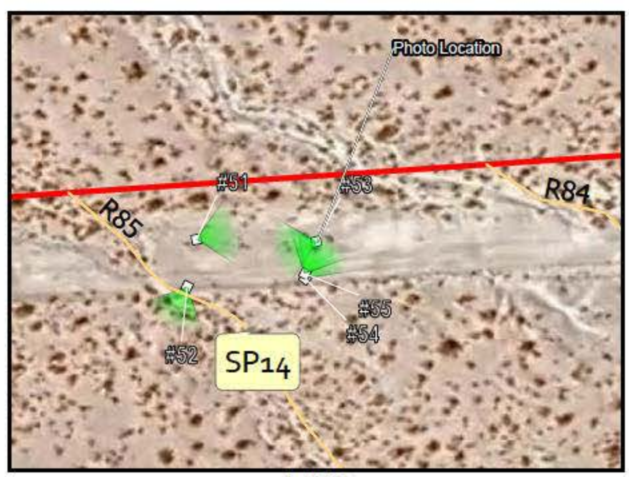
Date Inspected: 20-Apr-23
Notes: Representative View of R85 and SP14 Area



1:2500

Photo ID: 53

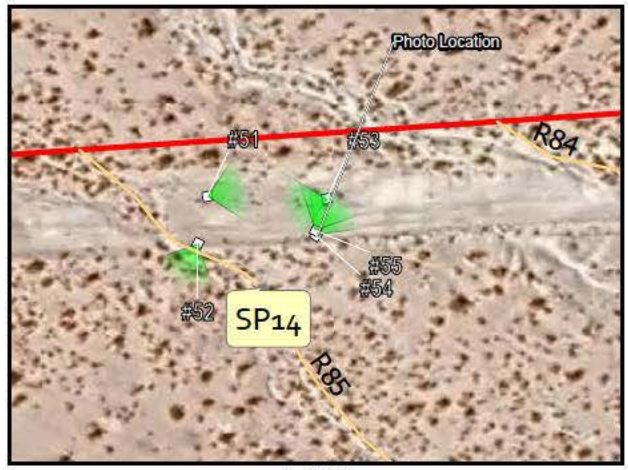
Date Inspected: 20-Apr-23
Notes: Representative View of R85 and SP14 Area



1:2500

Photo ID: 54

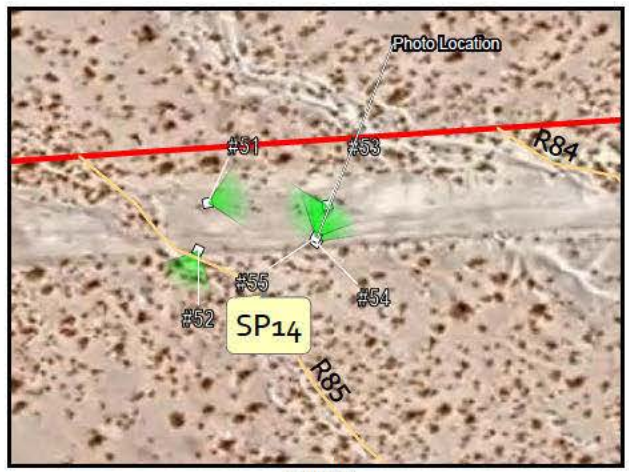
Date Inspected: 20-Apr-23
Notes: Representative View of R85 and SP14 Area



1:2500

Photo ID: 55

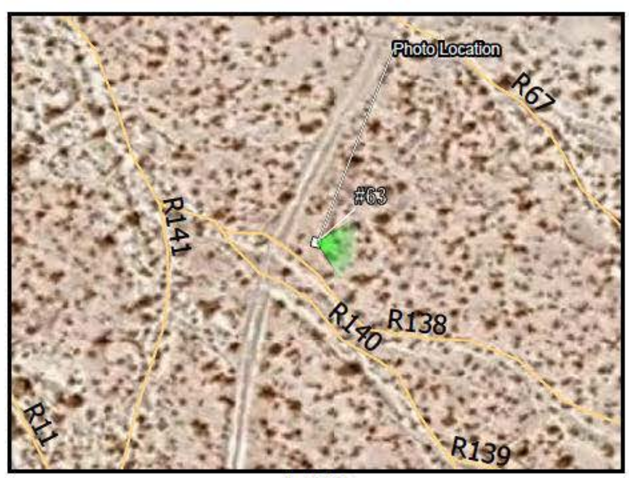
Date Inspected: 20-Apr-23
Notes: Representative View of R85 and SP14 Area



1:2500

Photo ID: 63

Date Inspected: 20-Apr-23
Notes: Representative View of R138 Area



1:2500

Photo ID: 64

Date Inspected: 20-Apr-23
Notes: Representative View of R11 Area

1:2500

Photo ID: 65

Date Inspected: 20-Apr-23
Notes: Representative View of R27 Area

1:2500

Photo ID: 66

Date Inspected: 20-Apr-23
Notes: Representative View of R27 Area

1:2500

Photo ID: 67

Date Inspected: 20-Apr-23
Notes: Representative View of R5 Area

1:2500

Photo ID: 68

Date Inspected: 20-Apr-23
Notes: Representative View of R61 Area

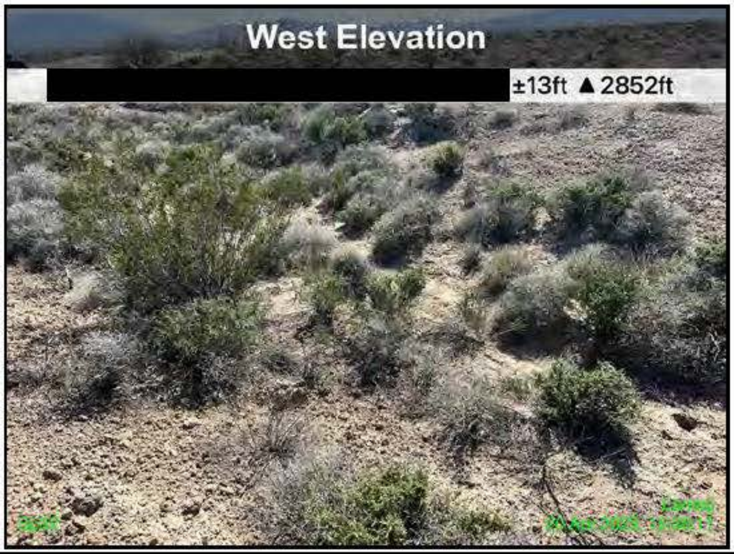
1:2500

Photo ID: 69

Date Inspected: 20-Apr-23
Notes: Representative View of R61 Area

1:2500

Photo ID: 90



Date Inspected: 20-Apr-23
Notes: Representative View of R6 Area

1:2500

Photo ID: 91

Date Inspected: 20-Apr-23
Notes: Representative View of R3 and SP18 Area

1:2500

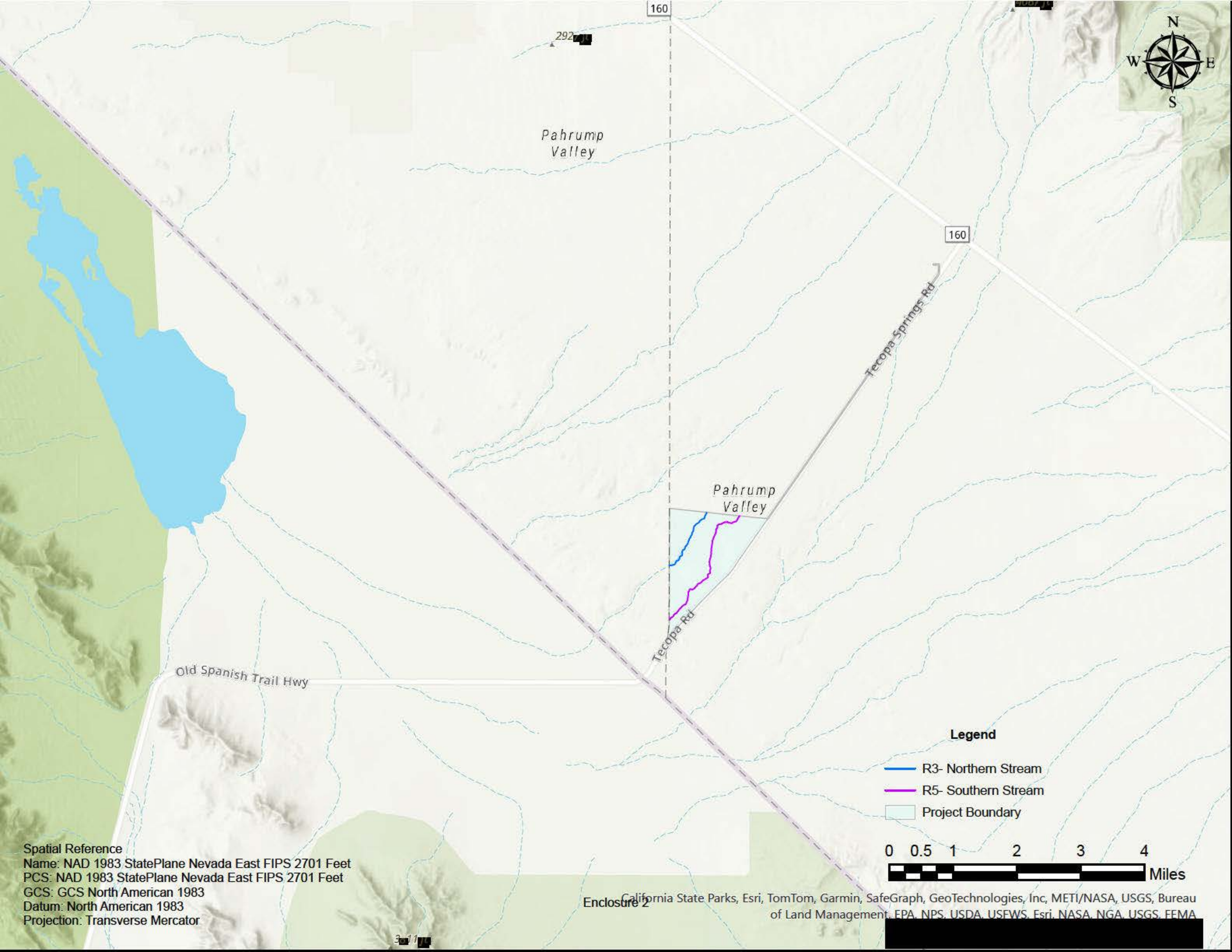
Photo ID: 92

Date Inspected: 20-Apr-23
Notes: Representative View of R3 and SP18 Area

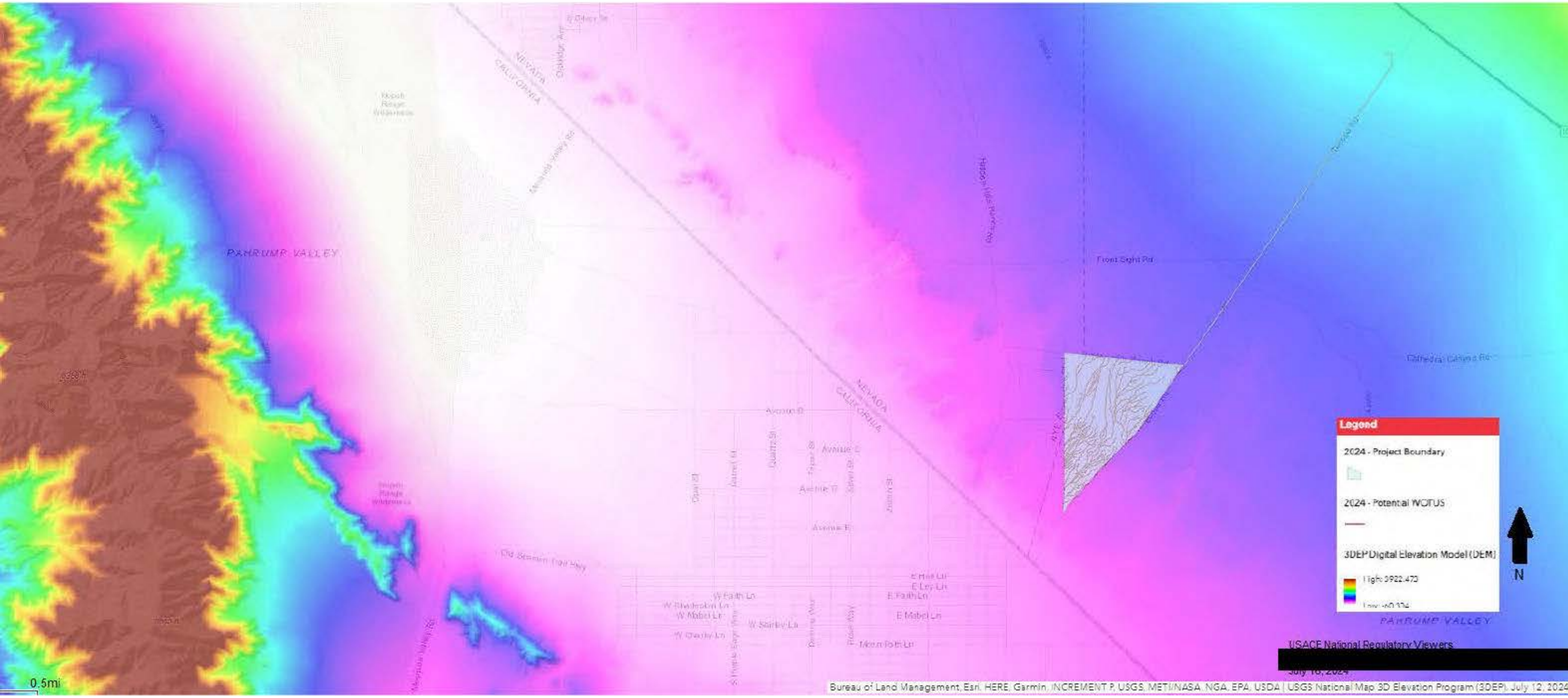
1:2500

Map and Photo Source Credits - Project Data and Photos: [redacted]; Aerial Imagery: Google Earth, Imagery date 11/2023; Basemap Reference Data:

Photo Count: 18
Date Report Created: 4/11/2024


160
292 [redacted]
[redacted]
N
W
E
S
Pahrump Valley
160
Tecopa Springs Rd
Pahrump Valley
Tecopa Rd
Old Spanish Trail Hwy
Legend
R3- Northern Stream
R5- Southern Stream
Project Boundary
0 0.5 1 2 3 4
Miles
Spatial Reference
Name: NAD 1983 StatePlane Nevada East FIPS 2701 Feet
PCS: NAD 1983 StatePlane Nevada East FIPS 2701 Feet
GCS: GCS North American 1983
Datum: North American 1983
Projection: Transverse Mercator
California State Parks, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS, Esri, NASA, NGA, USGS, FEMA
[redacted]
3 [redacted]

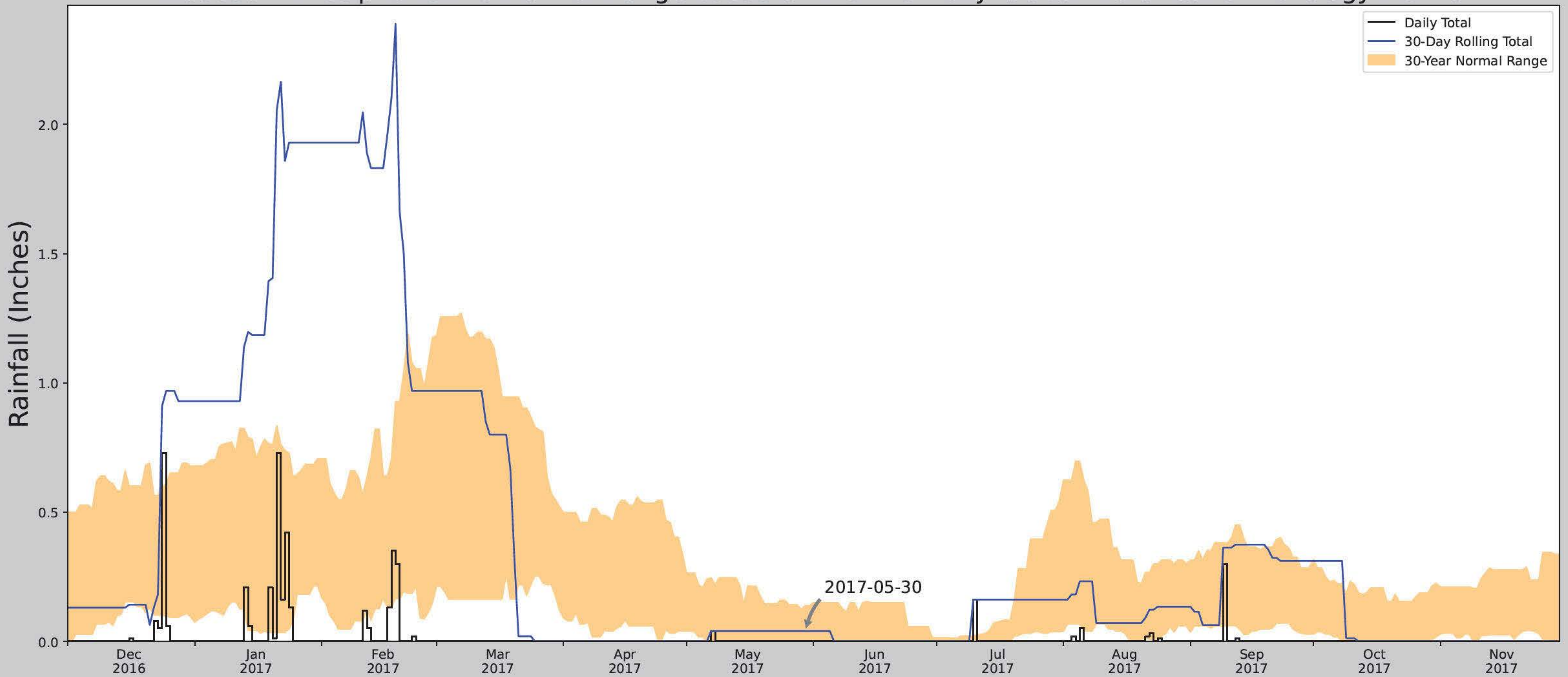
Enclosure 2



PAHRUMP VALLEY
NEVADA
CALIFORNIA
NEVADA
CALIFORNIA
Old Spanish Trail Hwy
Avenue E
Legend
2024 - Project Boundary
2024 - Potential WOTUS
3DEP Digital Elevation Model (DEM)
N
PAHRUMP VALLEY
USACE National Regulatory Viewers
[redacted]
0.5mi
Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA | USGS National Map 3D Elevation Program (3DEP), July 12, 2024.

Enclosure 3

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	[redacted]
Observation Date	2017-06-29
Elevation (ft)	2885.291
Drought Index (PDSI)	Incipient drought
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2017-06-29	0.0	0.057087	0.0	Normal	2	3	6
2017-05-30	0.0	0.137795	0.03937	Normal	2	2	4
2017-04-30	0.03937	0.340157	0.0	Dry	1	1	1
Result							Normal Conditions - 11

US Army Corps of Engineers

ERDC

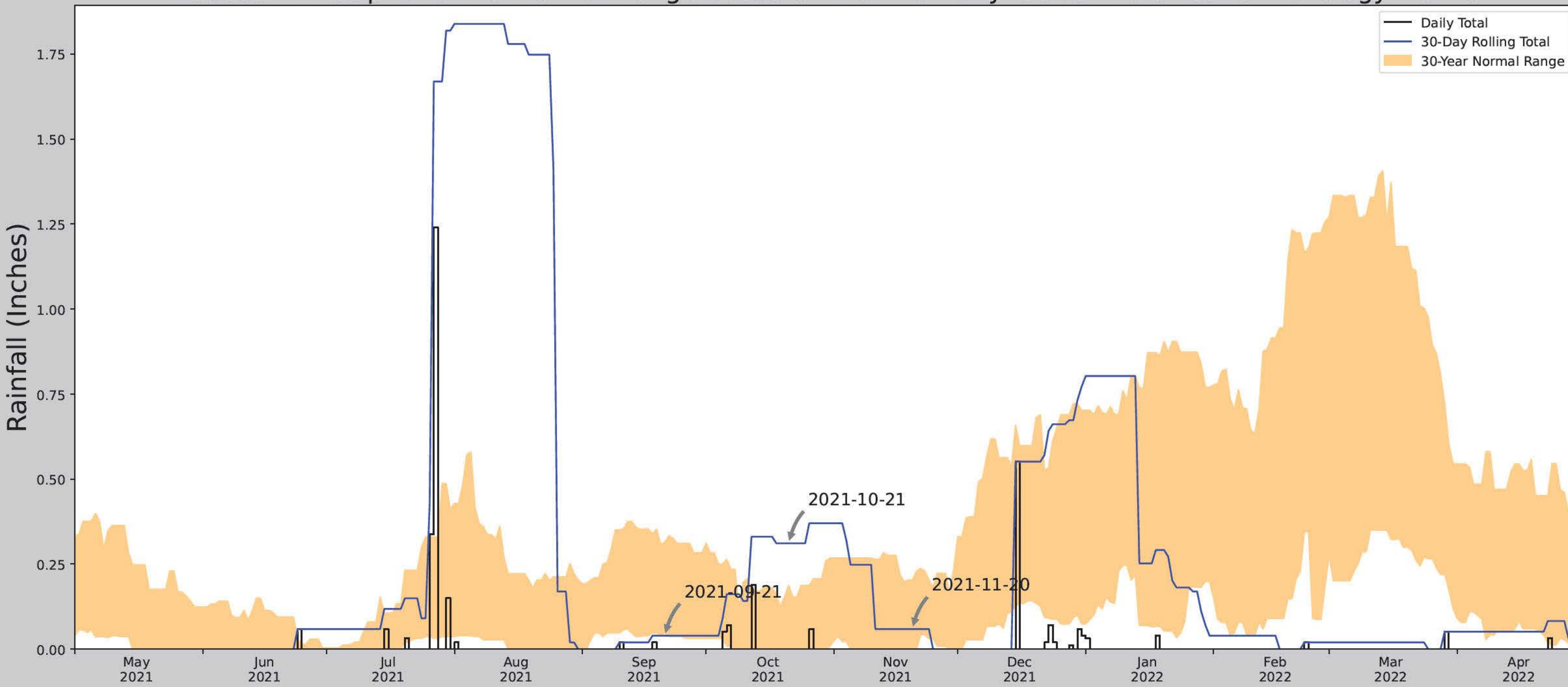
Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
PAHRUMP 4 NW	36.2614, -116.0564	2573.163	21.411	312.128	16.318	11086	90
PAHRUMP 6.3 SSE	36.1656, -115.9844	2641.076	7.741	67.913	4.009	169	0
PAHRUMP 10.5 SSE	36.122, -115.9215	2732.94	12.221	159.777	7.452	2	0
SHOSHONE	35.9717, -116.2708	1545.932	23.321	1027.231	34.451	91	0
RED ROCK CANYON - SPG MT RCH S	36.0686, -115.4603	3779.856	35.82	1206.693	59.343	4	0
MT CHARLESTON FIRE STN	36.26, -115.645	7459.974	22.92	4886.811	122.32	1	0

Enclosure 4

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	36.003619, -115.843455
Observation Date	2021-11-20
Elevation (ft)	2885.291
Drought Index (PDSI)	Severe drought
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2021-11-20	0.0	0.203543	0.059055	Normal	2	3	6
2021-10-21	0.0	0.187008	0.311024	Wet	3	2	6
2021-09-21	0.047638	0.314567	0.03937	Dry	1	1	1
Result							Normal Conditions - 13

US Army Corps of Engineers

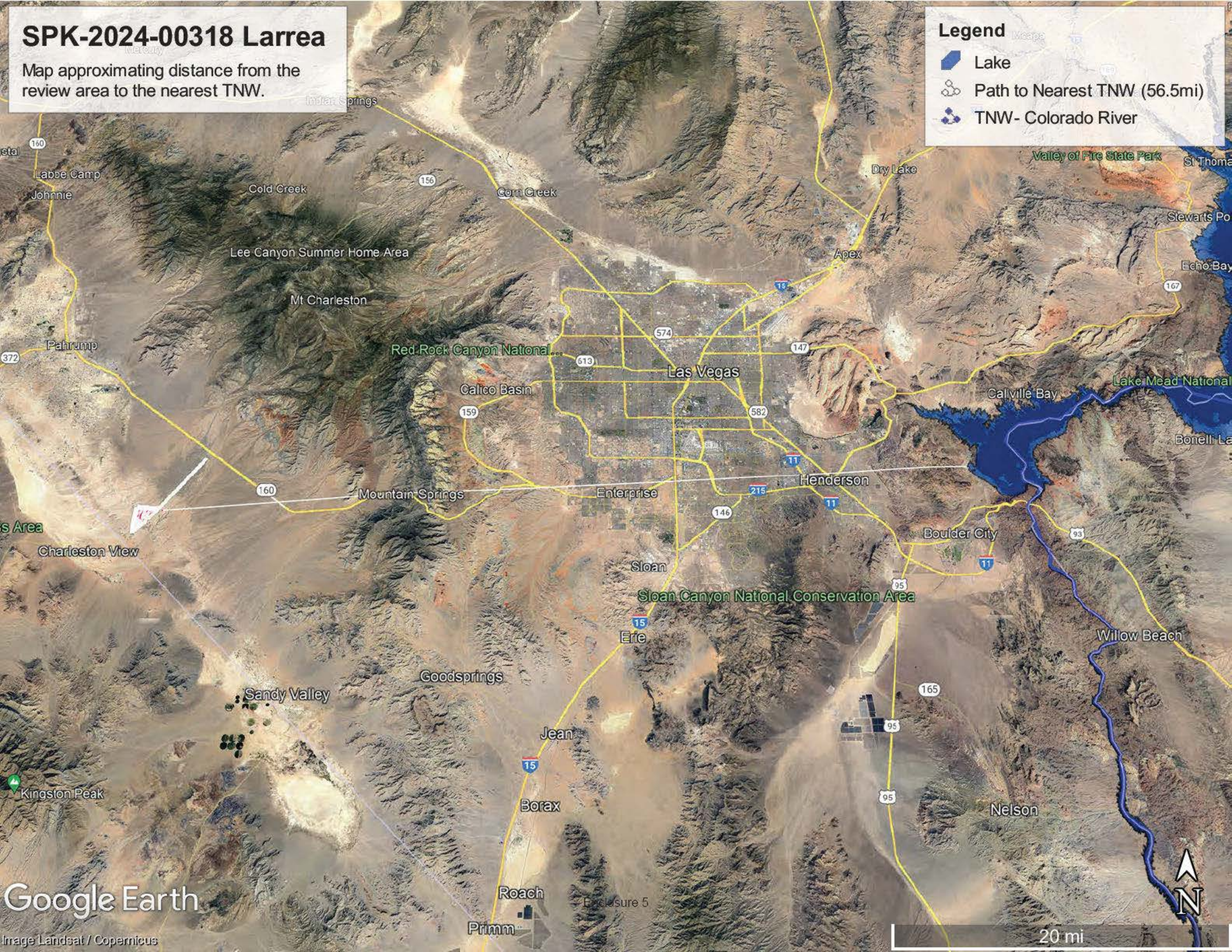
ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by:
U.S. Army Corps of Engineers and
U.S. Army Engineer Research and
Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
PAHRUMP 4 NW	36.2614, -116.0564	2573.163	21.411	312.128	16.318	11121	90
PAHRUMP 6.3 SSE	36.1656, -115.9844	2641.076	7.741	67.913	4.009	169	0
PAHRUMP 10.5 SSE	36.122, -115.9215	2732.94	12.221	159.777	7.452	2	0
SHOSHONE	35.9717, -116.2708	1545.932	23.321	1027.231	34.451	57	0
RED ROCK CANYON - SPG MT RCH S	36.0686, -115.4603	3779.856	35.82	1206.693	59.343	4	0

Enclosure 4

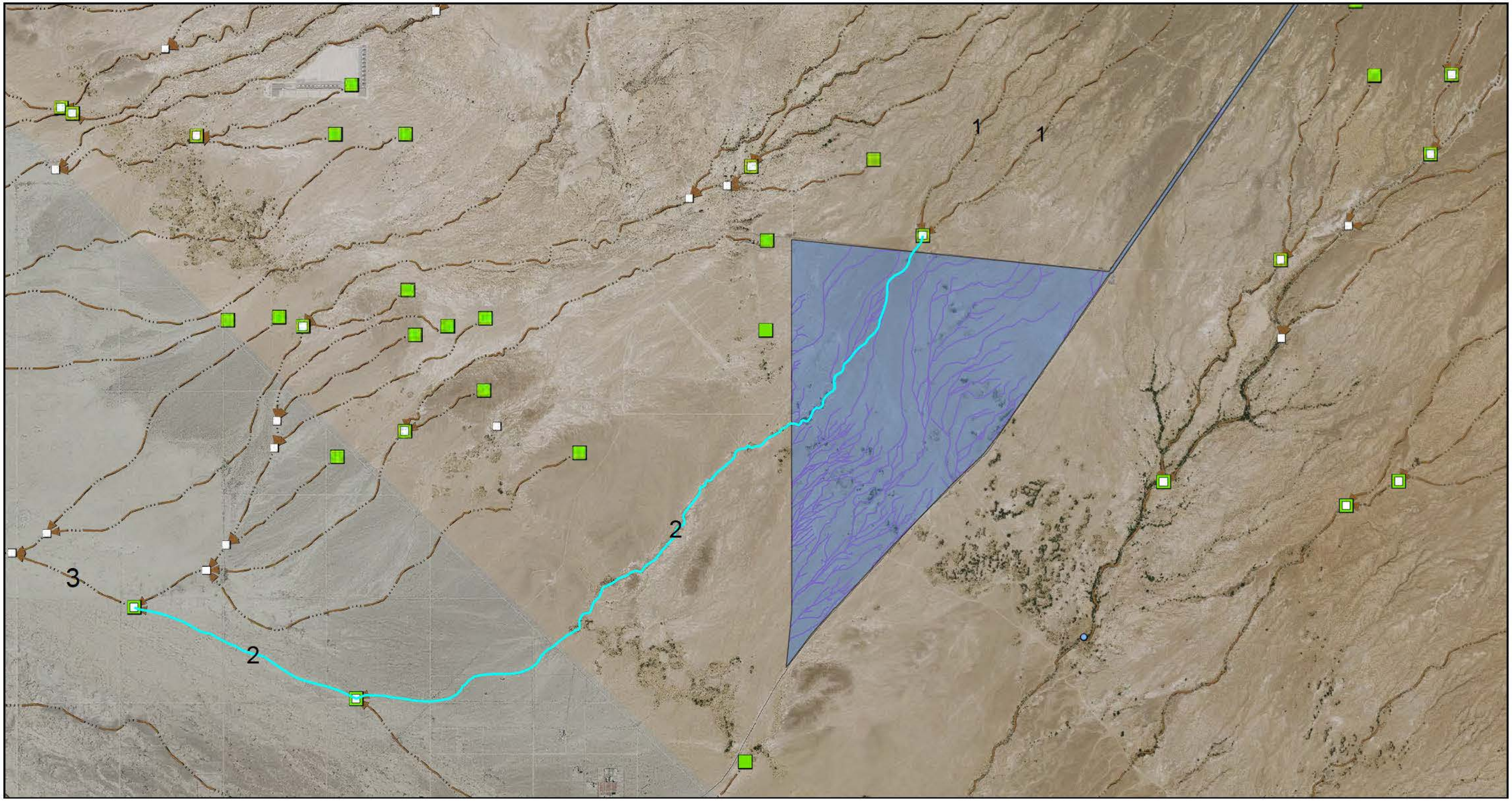


SPK-2024-00318 Larrea
Map approximating distance from the review area to the nearest TNW.
Legend
Lake
Path to Nearest TNW (56.5mi)
TNW- Colorado River
Indian Springs
Labbe Camp
Johnnie
Cold Creek
Corn Creek
Dry Lake
Valley of Fire State Park
St Thoma
Stewarts Po
Lee Canyon Summer Home Area
Apex
Echo Bay
Mt Charleston
Pahrump
Red Rock Canyon National...
Las Vegas
Calico Basin
Callville Bay
Lake Mead National
Bonelli La
Henderson
Mountain Springs
Enterprise
Charleston View
Boulder City
Sloan
Sloan Canyon National Conservation Area
Erie
Willow Beach
Goodsprings
Sandy Valley
Jean
Kingston Peak
Borax
Nelson
Roach
Primm
Google Earth
Image Landsat / Copernicus
20 mi
N

SPK-2024-00318 Larrea

Map approximating distance from the review area to the nearest TNW.

SPK-2024-00318 (Aerial)



7/12/2024, 9:12:39 AM

2024 - Project Boundary

2024 - Potential WOTUS

Reach Code, External Connection

Reachcode End

Reachcode Start

NHDWaterbody

LakePond

FlowDirection

StreamRiver - Ephemeral

Artificial Path

NetworkNHDFlowline

Ephemeral

Artificial Path

NHDPoint

Other

1-4 Strahler Stream Order

1:36,112

0 0.35 0.7 1.4 mi

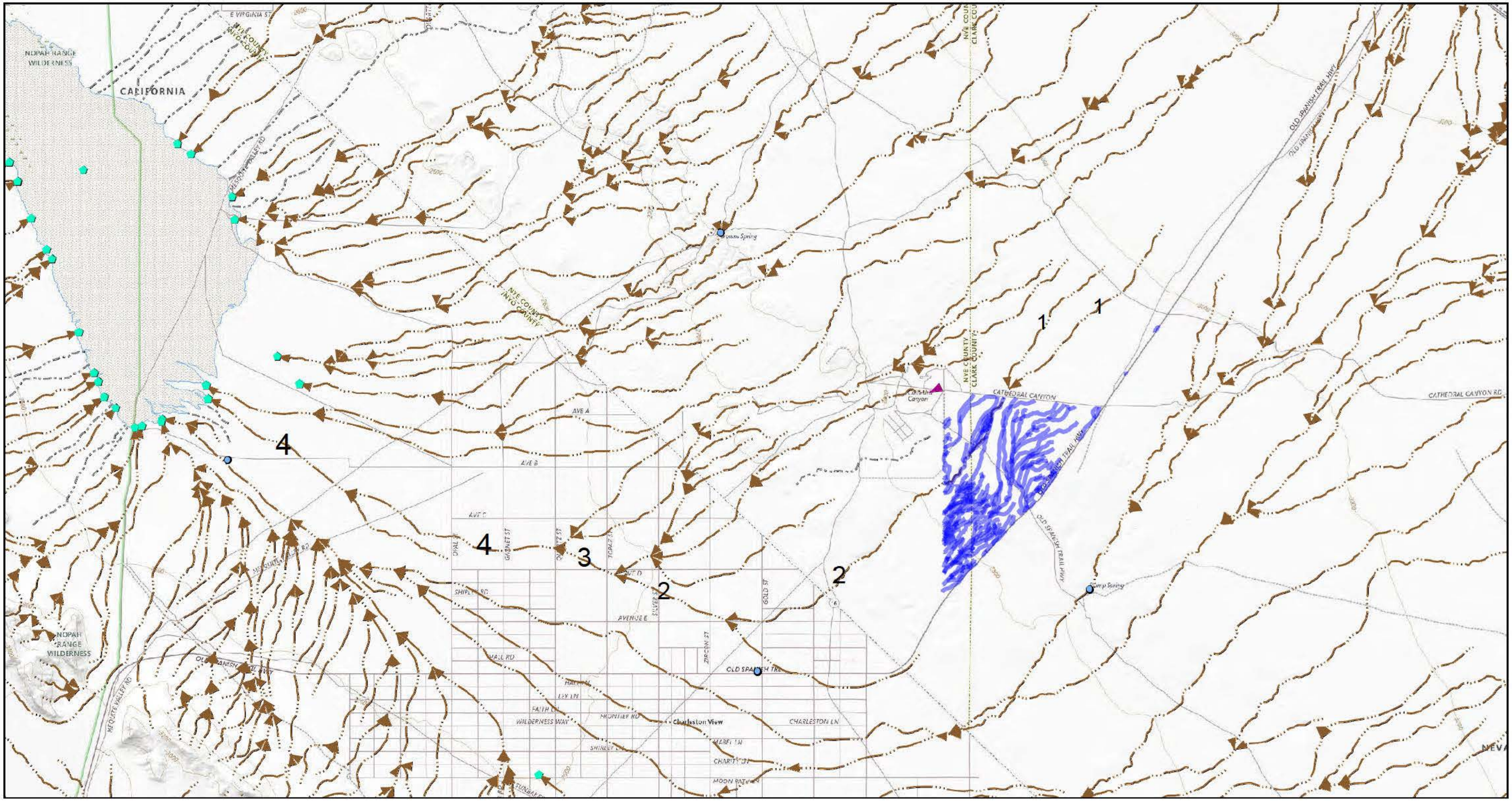
0 0.5 1 2 km

USGS TNM – National Hydrography Dataset Plus High Resolution (NHDPlus HR). Data refreshed October, 2022., USGS TNM / NGTOC – 3D National Hydrographic Program (3DHP.) Data refreshed March 2024., USDA, USGS The National Map: Orthoimagery. Data refreshed

[redacted]

Enclosure 6

SPK-2024-00318



7/3/2024, 1:35:52 PM

1:72,224

0 0.75 1.5 3 mi
0 1 2 4 km

style0 Delineated Waters

NHDArea
- Area of Complex Channels
- Area to be Submerged
- BayInlet
- Bridge
- CanalDitch
- DamWeir
- Flume
- Foreshore
- Hazard Zone
- Inundation Area
- Lock Chamber
- Rapids
- SeaOcean
- Special Use Zone
- Spillway
- StreamRiver
- Submerged Stream
- Wash
- Water IntakeOutflow

FlowDirection
- StreamRiver
- StreamRiver - Perennial
- StreamRiver - Intermittent
- StreamRiver - Ephemeral
- Artificial Path
- Drainageway
- CanalDitch
- Connector
- Pipeline
- Underground Conduit
- NonNetworkNHDFlowline

NetworkNHDFlowline
- Perennial
- Intermittent
- Ephemeral
- Artificial Path
- Drainageway
- Canal Ditch
- Coastline
- Connector
- Pipeline
- Underground Conduit

NHDPoint
- Dam/Weir
- Other
- NHDPlusSink

1-4 Strahler Stream Order

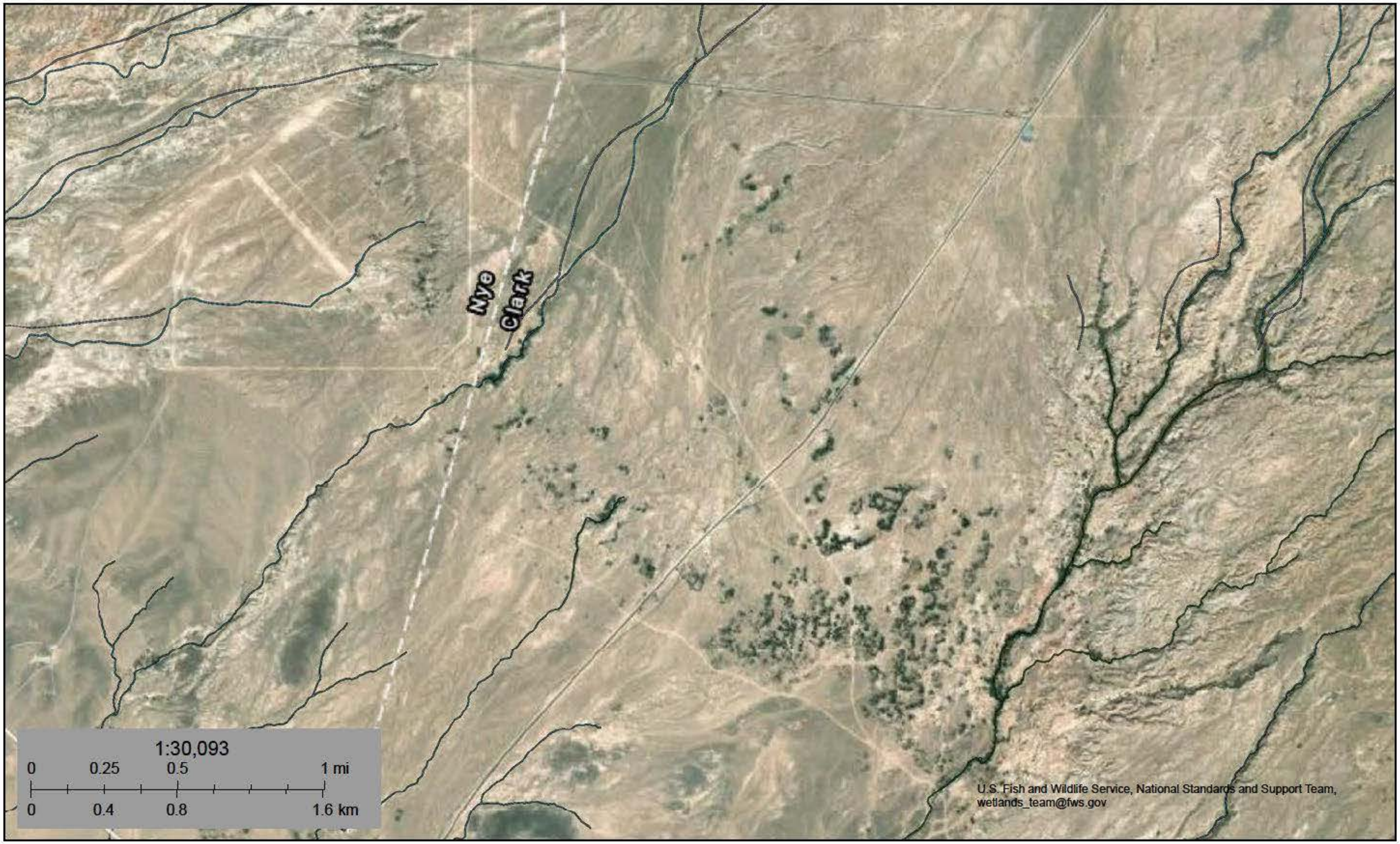
Enclosure 6

USGS TNM – National Hydrography Dataset Plus High Resolution (NHDPlus HR). Data refreshed October, 2022., USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset,

[redacted]

2021 USGS

SPK-2024-00318 Larrea

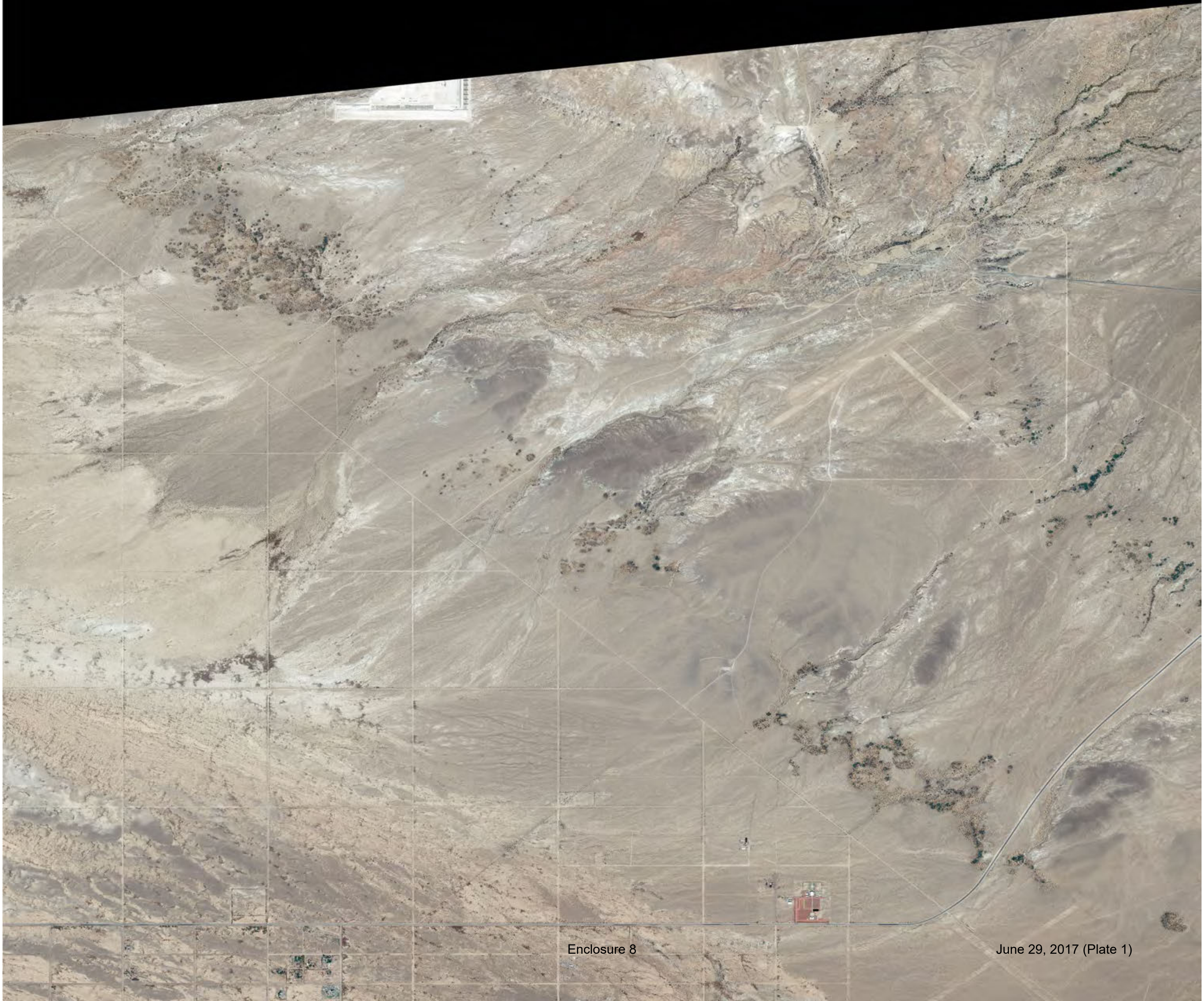


July 16, 2024

Wetlands

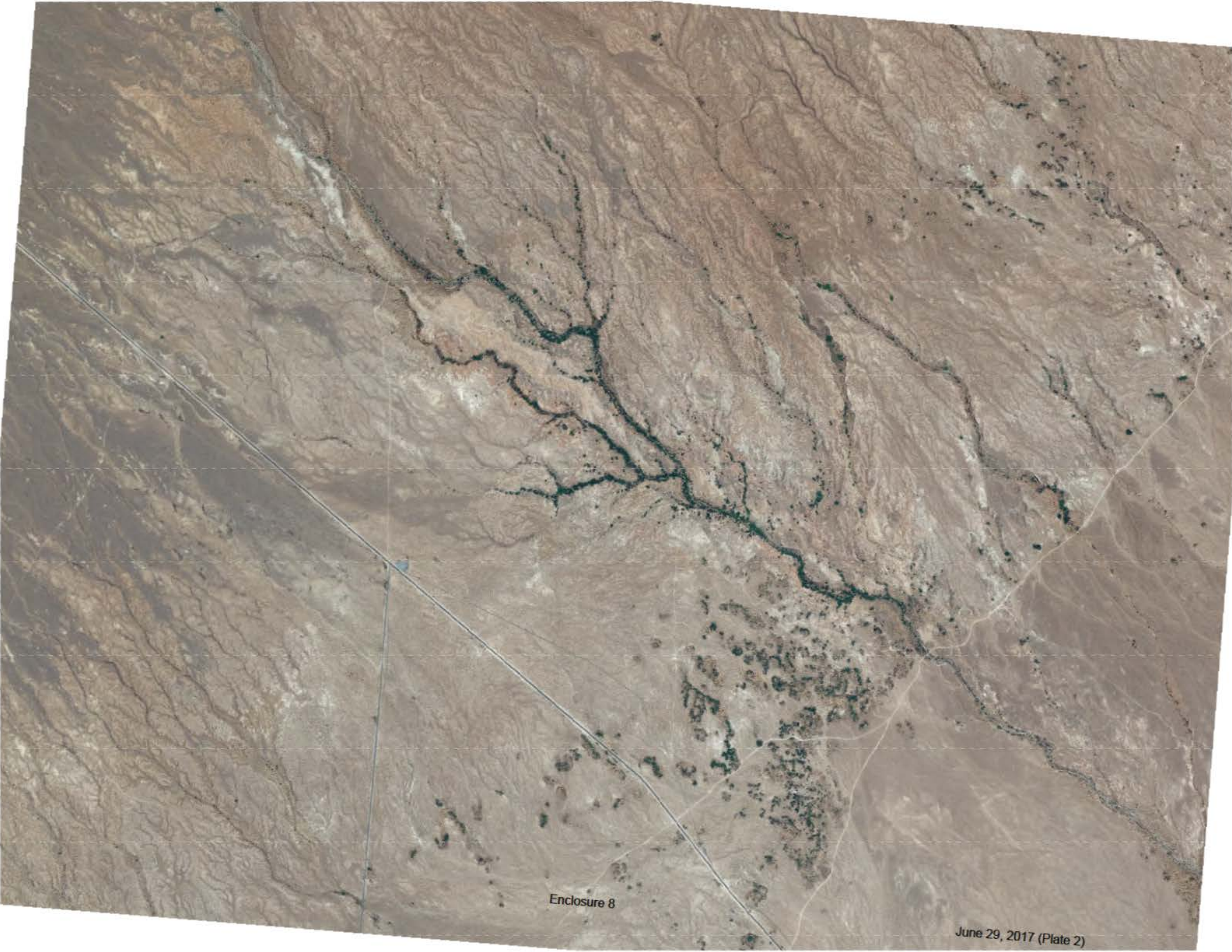
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

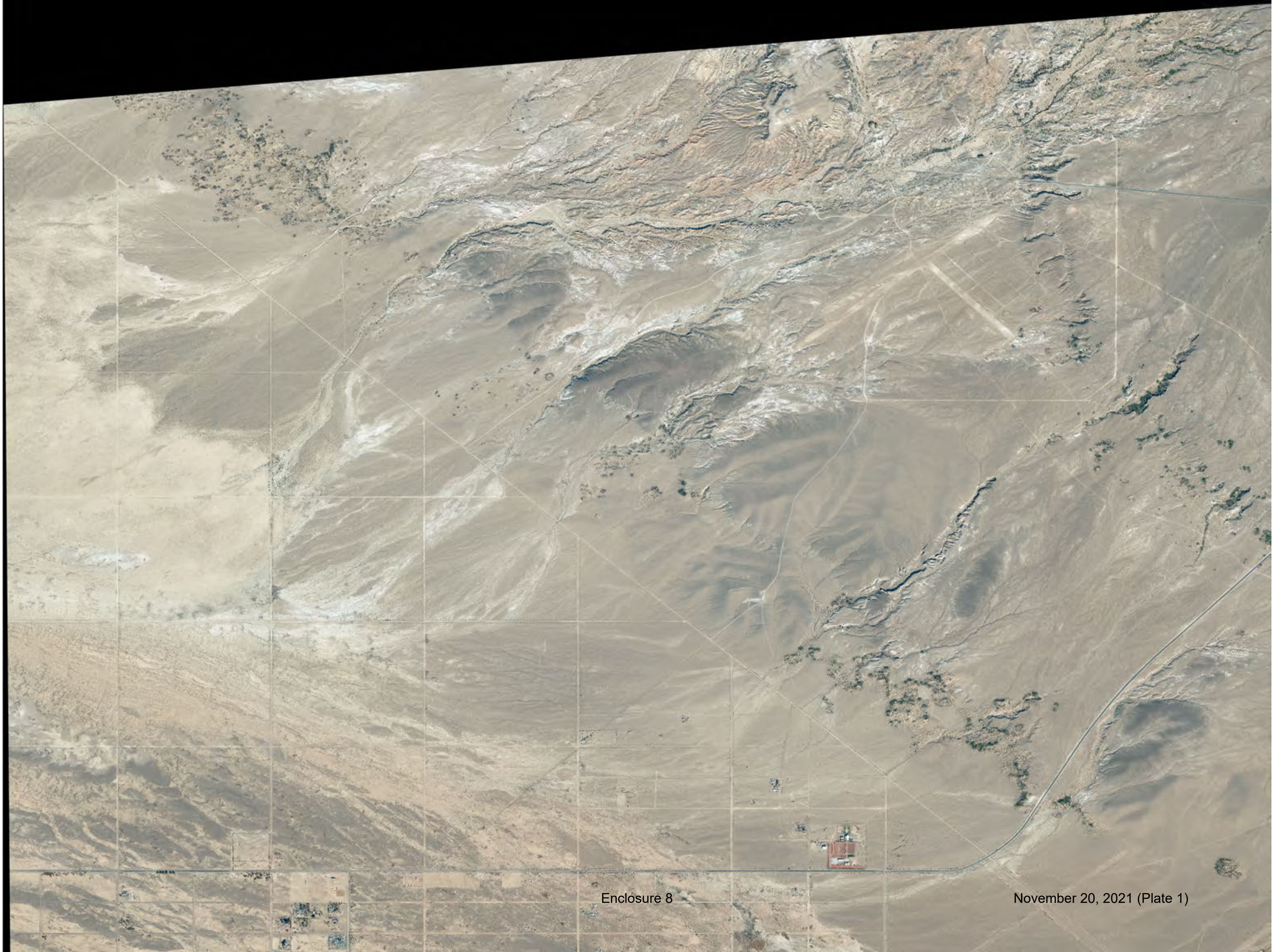
Enclosure 7



Enclosure 8

June 29, 2017 (Plate 1)


Enclosure 8
June 29, 2017 (Plate 2)



Enclosure 8

November 20, 2021 (Plate 2)