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Project Title:	Willow Rock Energy Storage Center
TN #:	265126
Document Title:	Willow Rock Data Request 6 Response, Attachment DR126-1
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Filer:	Kathryn Stevens
Organization:	WSP USA Inc.
Submitter Role:	Applicant Consultant
Submission Date:	7/29/2025 11:41:01 PM
Docketed Date:	7/29/2025

SUPPLEMENTAL JOSHUA TREE CENSUS REPORT

2025 ADDENDUM UPDATE

WILLOW ROCK ENERGY STORAGE CENTER

ANSEL, KERN COUNTY, CALIFORNIA

Submitted to:

GEM A-CAES LLC

1125 17th St #700
Denver, CO 80202

Submitted by:

WSP USA Inc.

Wells Fargo Bank Building,
401 B Street, Suite 1650 92101-4245
San Diego
(619)-338-9376

January 2025

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January 27, 2025

Attention: Laurel Lees
GEM A-CAES, LLC
1125 17th St #700
Denver, CO 80202

Subject: **SUPPLEMENTAL WESTERN JOSHUA TREE CENSUS REPORT**
GEM A-CAES, LLC
1125 17th St #700
Denver, CO 80202
WSP Project Number 2025US368167

Dear Ms. Lees:

WSP is pleased to submit this Supplemental Joshua Tree Census Report 2025 for the Willow Rock Energy Storage Center (WRESC) Project. Pursuant to Title 20, California Code of Regulations, section 1716, California Energy Commission (CEC) Staff on January 13, 2025, docketed Data Requests Set 6. Data Requests Set 6 presents a list of questions associated with Joshua Tree census data.

As part of the supplemental AFC, submitted on March 1st 2024, GEM-ACAES provided a Joshua Tree Census Report (TN 258311). During the review of the report, CEC staff requested that a report be provided that synthesizes Western Joshua tree census data collected for the Project to-date. This updated addendum report is intended to provide a cohesive synthesis on Western Joshua Tree data for the Project.

If you have any questions concerning the findings presented in this report, please contact us at Jeremy Paris or Kate Moss at your earliest convenience.

Jeremy Paris, PWS
WSP USA Inc.
Vice President/Project Manager
(619) 338-9376

Kate Moss, RPBio
WSP Canada Inc.
Principal Biologist

1.0 INTRODUCTION

WSP USA (WSP) was contracted by GEM A-CAES LLC (GEM) to perform a Western Joshua Tree Census for the proposed Willow Rock Energy Storage Center (WRESC) in Kern County, California. The Western Joshua tree (*Yucca brevifolia*) (WJT) census was performed in accordance with guidelines outlined in the California Department of Fish and Wildlife (CDFW) website titled, *Census Instructions* (CDFW 2024a).

On March 1, 2024, GEM docketed the Supplemental Application for Certification (SAFC) Volume 1 for the Willow Rock Energy Storage Center (WRESC; 21-AFC-02). On July 16, 2024, the Executive Director recommended that the Committee accept the Supplemental AFC as complete, and that the 12-month timeline to reach a decision on the AFC, as required by Public Resources Code section 25540.6, should begin.

Pursuant to Title 20, California Code of Regulations, section 1716, California Energy Commission (CEC) Staff on January 13, 2025, docketed Data Requests Set 6. Data Requests Set 6 presents a list of questions associated with the resource topic areas of Biological and Water Resources. CEC staff in Data Request 126 requested that GEM provide refined Western Joshua tree census data for the project in a single report.

This report builds on information previously presented in the following reports:

- Willow Rock Western Joshua Tree Census Addendum, docketed August 5, 2024 (TN# 258311)
- Western Joshua Tree Report (1 of 2), docketed March 4, 2024 (TN# 254820)
- Western Joshua Tree Report (2 of 2), docketed March 4, 2024 (TN# 254821)

1.1 Project Description

The WRESC project design includes:

- the main WRESC site, which would contain the WRESC facility (88.6 acres),
- P1, which would be used during Project construction (74.7 acres)
- P2 North, which would include power poles and the gen-tie line (46.9 acres),
- P2 South, which would be used as a laydown area, if needed (9.98 acres)
- Villa Haines, which could be used for storage of western Joshua trees (79.4 acres), and
- the gen-tie transmission right-of-way, including preferred and optional alignment (gen-tie alignments) (Figure 1, Regional Location).

In the context of this report, “project site” specifically refers to the energy storage facility, all linear transmission lines and alternatives, and other supporting workspace areas**.**

1.2 Project Location and Topography

The survey area is located on public and private property in and around the rural community of Ansel within the 7.5-minute Soledad Mountain and Rosamond, California, U.S. Geological Survey topographic quadrangle (topo quad). P2 North and P2 South are located east of State Route 14 and the gen-tie alignments are located west of State Route 14 (Figure 1, Regional Location). The project site is located within portions of Sections 31, 32, and 33 of Township 10 North and Range 12 West; portions of Section 4 of Township 9 North and Range 12 West; and portions of Sections 14, 15, of Township 9 North and Range 13 West (Figure 2, Historic USGS Topographic Map).

Topography in the survey area slopes from northwest to southeast, with flat areas in the southern portions and gently rolling hills in the central portion of the project site. Elevations range from approximately 2,400 feet (732 meters) to 2,720 feet (830 meters) along Dawn Road (Figure 3, Local Vicinity).

2.0 BACKGROUND ON WESTERN JOSHUA TREE AND WESTERN JOSHUA TREE CONSERVATION ACT

The WJT is characterized by its tall, spiky leaves that cluster at the ends of long, branching limbs. WJTs belong to the Agavaceae family and are adapted to the arid conditions of their native arid desert habitat. The species exhibits a slow growth rate, with some WJTs taking several decades to reach maturity. Typically, they can grow to 15 to 40 feet (4.5 to 12 meters), and their lifespan extends for centuries, making them one of the longest-living yucca species. Its distinctive leaves have a waxy coating that helps reduce water loss through transpiration, and the tree is equipped with an extensive root system that enables it to access water from deep within the soil. Additionally, the WJT relies on a specialized pollination relationship with the yucca moth. The moth lays its eggs in the tree's flowers, and as the larvae develop, they consume some of the developing seeds, ensuring the WJT's reproductive success.

WJT is native to the southwestern United States (Arizona, California, Nevada, and Utah) and northwestern Mexico. This range mostly coincides with the geographical reach of the Mojave Desert, where it is considered one of the major indicator species for the desert. It occurs at elevations between 1,300 and 5,900 feet (400 and 1,800 meters).

Climate plays a crucial role in the distribution of WJTs, as these trees are well-suited to the extreme temperatures and low precipitation of the Mojave Desert. They are particularly vulnerable to environmental changes, including climate fluctuations and habitat disturbances. Conservation efforts are underway to protect these trees and their unique ecosystem, as they serve as vital components of the desert landscape and provide habitat for various wildlife species.

Wildfires, invasive grasses, and poor migration patterns for the WJT's seeds are all additional factors in the species' imperilment. In July 2023, the Western Joshua Tree Conservation Act (WJTCA) was enacted which prohibits the importation, export, take, possession, purchase, or sale of any WJT in California unless authorized by the CDFW.

The act authorizes CDFW to issue permits for the incidental take of one or more WJT if the permittee meets certain conditions. Permittees may pay specified fees in lieu of conducting mitigation activities. The act also authorizes CDFW to issue permits for the removal of dead WJTs and the trimming of live trees under certain circumstances (CDFW 2023). By adopting this approach and collecting mitigation fees, the WJTCA aims to offset the negative impacts of authorized projects in WJT habitat, contributing to the broader conservation of the species at a landscape scale. All fees collected as alternatives to mitigation activities are directed to the Western Joshua Tree Conservation Fund, exclusively used by CDFW for acquiring, conserving, and managing WJT conservation lands.

Further, the act mandates collaboration between CDFW, governmental agencies, California Native American Tribes, and the public in developing and implementing a comprehensive WJT Conservation Plan. The plan's finalized draft must be presented to the Fish and Game Commission for review and approval by December 31, 2024. CDFW is further obligated to produce annual reports on the WJT's conservation status, submitted to the commission and the state legislature annually starting from 2025 (CDFW 2024b).

Section 1927.3, subdivision (a)(4)(A) of the California Fish and Game Code gives CDFW authority to require WJTCA incidental take permit (ITP) permittees to relocate one or more WJTs. The CDFW issued the Western Joshua Relocation Guidelines and Protocols in July 2024, which provides guidance on how and when to relocate WJT to minimize impacts to populations, prevent habitat fragmentation, and preserve connectivity corridors for gene flow and pollinator migration. Furthermore, pursuant to that subdivision, where relocation is required, permittees must implement reasonable measures required by CDFW to facilitate the successful relocation and survival of salvage trees (CDFW 2024c).

CDFW will determine whether relocation will be required under a WJTCA ITP during the permit application review process. Factors that CDFW may consider in making this determination for each project site include the following:

- Number of trees to be lethally taken (greater than 20 trees removed)
- Area of impacted western WJT habitat within a project site (greater than 20 acres impacted)
- Avoidance and minimization measures proposed by the applicant to reduce project impacts to WJT
- Quality of habitat on, and adjacent to, the project site (e.g., ecologically core or intact)
- Overall population health on the project site (e.g., declining versus stable or increasing)
- Whether the project is within predicted climate refugia for WJT
- Extent of permanent project impacts
- Density of clonal growth
- Anticipated temporal impacts of a project including operation or maintenance activities, where applicable

3.0 METHODS

Information on WJT presence and suitable habitat was obtained from a background literature review, which was reported in WSP (2024). Data collected and reported in WSP (2023, 2024) was verified as part of the field surveys discussed in this report using the field methods described below.

3.1 Western Joshua Tree Census Surveys

WJT census surveys were previously completed by WSP biologists in April 2024 and verified December 4 and 5 2024. WJT census surveys were based on the census instructions outlined on the CDFW website (CDFW 2024a). Surveys were conducted in a study area that included the project site and a 290 buffer around all project components except for the gen-tie transmission line alignments. The majority of the study area was accessible via public road rights-of-way, parcels owned by the applicant, or parcels with right-of-entry agreements. Portions of the transmission line options were not accessible and therefore tree measurements and photographs could not be taken.

The study area was systematically searched by crews of two biologists using parallel survey transects spaced approximately 5 meters apart.

Each WJT stem or trunk growing independently from the ground was recorded with a global positioning system device and assigned a unique identifier. Data were also collected electronically to gather information about each tree, including tree health, size, and flowering/fruiting status. Photographs were taken of each WJT recorded.

A tree was considered dead if it met one of the following conditions:

- It had not undergone burning and exhibited no green leaves, no recent growth on the main stem, and no sprouts at the base.
- It had experienced partial or complete burning at least 18 months prior, lacking green leaves, showing no new growth on the main stem, and displaying no sprouts at the base.
- It had fallen and was entirely detached from its roots, or it had fallen, and its roots were no longer in contact with the soil.

A tape measure or measuring pole was used to measure the height of each tree, measuring from the middle of the trunk's base to the top of the furthest leaf from the base. In cases where the main trunk followed an unusual path, two measurements were taken to accurately capture the tree's true growth, with a limit of no more than two

measurements per tree. Mature trees were defined as those having produced flowers/fruits in the past, or that had at least one set of branches. All WJTs were classified into one of three height categories:

- Class A: Less than 3.3 feet (1 meter) in height
- Class B: 3.3 feet (1 meter) or greater but less than 16.4 feet (5 meters) in height
- Class C: 16.4 feet (5 meters) or greater in height

4.0 RESULTS

A total of 3,970 WJTs were recorded in the survey area during the 2024 verification census (Figure 4 [submitted under repeated Application for Confidentiality]). Most of the trees documented were live (3,755 individuals, 95%). Class B was the most common size class recorded (2,107 individuals, 53%); followed by Class A (1,642, 41%), with Class C being the least common class encountered (221 individuals, 6%). Table 1 provides a summary of WJT distribution in the study area. Note that not all WJT summarized in Table 1 will be removed or impacted by the Project.

Table 1. Summary of WJT status and size class across the Study area

Attribute		**WRESC Site**	**P1**	**P2 North and South**	**Villa Hains (Additional Workspace Area)**	**Gen-tie**
Live	Alive	1,383 (93%)	477 (95%)	799 (95%)	996 (97%)	100 (97%)
	Dead	108 (7%)	24 (5%)	45 (5%)	35 (3%)	3 (3%)
Size Class	Class A	501 (34%)	200 (40%)	316 (37%)	569 (55%)	56 (54%)
	Class B	903 (61%)	278 (55%)	456 (54%)	424 (41%)	46 (45%)
	Class C	87 (5%)	23 (5%)	72 (9%)	38 (4%)	1 (1%)
Total		**1,491**	**501**	**844**	**1,031**	**103**

All WJT locations (i.e., latitude/longitude), size class, vitality status, and maturity status were documented electronically and recorded in the Field Maps Application. Data collected is available through the WRESC SharePoint site (https://wsponlinenam.sharepoint.com/sites/US-WRESC-Western-Jos/Lists/WJT%20Combined%20Scenario%20Database/AllItems.aspx). Read-only access will be provided upon request.

5.0 DISCUSSION AND CONCLUSIONS

Verification of the WJT census was conducted in December 2024 to confirm previously recorded data and capture potential changes in WJT abundance. A total of 3,781 WJT were recorded during previous surveys, 189 less than the verification survey reported here. This variation is due to additional access to buffer areas.

Since the WJT is a candidate for state listing under the California Endangered Species Act, compliance with the California Endangered Species Act (CESA) is required if impacts to WJTs are proposed. Avoidance, minimization, and mitigation measures may include, but are not limited to selection of temporary laydown areas, WJT relocation, and payment of the WJTCA fees (based on tree size). If trees are to be relocated, the *Western Joshua*

Tree Relocation Guidelines and Protocols will be implemented, and a Relocation Plan will be included as part of the Biological Resources Management Plan (CDFW 2024c).

Data collected via the census verification survey will be used to guide project-specific avoidance, minimization, and relocation strategies and plans. These plans will be provided to regulators as part of post-Certification project permitting, such as Incidental Take Applications.

6.0 REFERENCES

California Department of Fish and Wildlife (CDFW). 2023. Western Joshua Tree Conservation Act. July. Accessed online at: https://wildlife.ca.gov/Conservation/Environmental-Review/WJT/WJTCA.

CDFW. 2024a. Census Instructions. Accessed January 2024. Accessed online at: https://wildlife.ca.gov/Conservation/Environmental-Review/WJT/Permitting/Census-Instructions.

CDFW. 2024b. Western Joshua Tree Conservation Plan. Accessed online at: https://wildlife.ca.gov/Conservation/Environmental-Review/WJT/Conservation-Plan.

CDFW. 2024c. Western Joshua Tree Relocation Guidelines and Protocols. Accessed online at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=224036&inline.

WSP USA Environnent & Infrastructure Inc. (WSP). 2024. Willow Rock Energy Storage Center Project Results of Swainson's Hawk Focused Surveys. February.

7.0 LIMITATIONS

This document has been prepared for the exclusive use of Hydrostor and its Construction Contract(s) in support of the preparation of the CEC's Application for Certification for the Willow Rock Energy Storage Center Project. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. WSP accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

This report was prepared, based in part, on information obtained from historic information sources. In evaluating the subject site, WSP has relied in good faith on information provided. We accept no responsibility for any deficiency or inaccuracy contained in this report as a result of our reliance on the aforementioned information.

The findings and conclusions documented in this report have been prepared for the specific application to this project and have been developed in a manner consistent with that level of care normally exercised by environmental professionals currently practicing under similar conditions in the jurisdiction.

With respect to regulatory compliance issues, regulatory statutes are subject to interpretation. These interpretations may change over time, and should be reviewed.

If new information is discovered during future work, the conclusions of this report should be re-evaluated and the report amended as required prior to any reliance upon the information presented herein.

Appendix A Figures

WRESC Site

Bear Valley Springs
Golden Hill
Tehachapi
California City
Mojave Airport
Mojave
Boron
Rogers Lake
Edwards
Edwards Air Force Base
Rosamond
Rosamond Lake
Frazier Park
Hungry Valley State Vehicle Recreation Area
Antelope Valley CA Poppy Reserve
Lancaster
Saddleback Butte State Park
El Mirage OHV Recreation Area
Lake Los Angeles
Palmdale Regional Airport
Palmdale
Lake Hughes
Angeles National Forest
E Palmdale Blvd
E Avenue J
W Avenue I
90th St E
170th St E

LAKE BED
TEJON HILLS
EITO HILLS
TEHACHAPI MOUNTAINS
FRAZIER MOUNTAIN
ALAMO MOUNTAIN
LIEBRE MOUNTAIN
SAWMILL MOUNTAIN
BISSELL HILLS
ROSAMOND HILLS
ANTELOPE VALLEY
PEERLESS VALLEY
FREMONT VALLEY
SHADOW MOUNTAINS

7746 ft
6354 ft
8016 ft
4114 ft

El Paso Creek
Piru Creek

KERN
LOS ANGELES
SAN BERNARDINO

204
99
184
166
202
58
395
14
5
138

LEGEND

- Freeway
- Major Road
- Secondary Road
- Local Connecting Road
- Important Local Road

Proposed Transmission Line

- Preferred Route, Aboveground
- Preferred Route, Underground
- Preferred Route Option, Aboveground
- Preferred Route Option, Underground
- Superseeded Preferred Route, Aboveground
- Whirlwind Sub SCE Segment, Aboveground

Project Components

- WRESC Site
- Other Project Parcels
- Project Boundary
- SCE Whirlwind Substation
- Project ROW

KEY MAP

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CLIENT
GEM A-CAES LLC

CONSULTANT
wsp

YYYY-MM-DD	2025-01-27
DESIGNED	MK
PREPARED	KO
REVIEWED	NN
APPROVED	JP

PROJECT
WILLOW ROCK ENERGY STORAGE CENTER
JOSHUA TREE FOCUSED SURVEY

TITLE
REGIONAL LOCATION MAP

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WRESC Site

LEGEND

Proposed Transmission Line
- Preferred Route, Aboveground
- Preferred Route, Underground
- Preferred Route Option, Aboveground
- Preferred Route Option, Underground
- Superseeded Preferred Route, Aboveground
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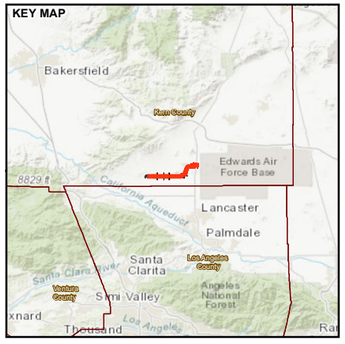

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CLIENT
GEM A-CAES LLC

CONSULTANT
wsp

YYYY-MM-DD	2025-01-27
DESIGNED	MK
PREPARED	KO
REVIEWED	NN
APPROVED	JP

PROJECT
WILLOW ROCK ENERGY STORAGE CENTER
JOSHUA TREE FOCUSED SURVEY

TITLE
USGS TOPOGRAPHIC MAP

PROJECT NO.	PHASE	REV.	FIGURE
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LEGEND

Proposed Transmission Line
- Preferred Route, Aboveground
- Preferred Route, Underground
- Preferred Route Option, Aboveground
- Preferred Route Option, Underground
- Superseeded Preferred Route, Aboveground
- Whirlwind Sub SCE Segment, Aboveground

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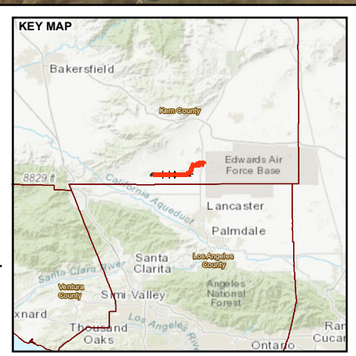
KEY MAP



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NOTE(S)
1. PROJECT ROW IS A 62.5 FT BUFFER ON EITHER SIDE OF THE TRANSMISSION LINE.

REFERENCE(S)
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GEM A-CAES LLC

PROJECT
WILLOW ROCK ENERGY STORAGE CENTER
JOSHUATREE FOCUSED SURVEY

CONSULTANT
wsp

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PREPARED	KO
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LOCAL VICINITY MAP

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