

**WETLANDS OF THE MALIBU JEWISH
CENTER & SYNAGOGUE
24855 PACIFIC COAST HIGHWAY
MALIBU, CALIFORNIA**



Prepared for:

CITY OF MALIBU

On behalf of:

DAVID LAWRENCE GRAY ARCHITECTS

October 2018

DMEC Mission Statement

*To provide quality environmental consulting
services with integrity that protect and
enhance the human and natural environment*



**Wetlands of the Malibu Jewish Center
& Synagogue
24855 Pacific Coast Highway
Malibu, California**

Prepared for:

City of Malibu

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SECTION I. INTRODUCTION

BACKGROUND

David Magney Environmental Consulting (DMEC) was contracted to delineate, describe, and map the wetland habitats present on the subject property at the request of Mark Meyer of David Lawrence Gray Architects, project architect. The project site and grading plans were prepared by David Lawrence Gray Architects, of Los Angeles, California. DMEC previously prepared a report on the biological resources (DMEC 2017a) and a tree assessment report (DMEC 2017b) for the proposed project.

PROJECT PURPOSE AND SCOPE

The proposed project involves the demolition of existing structures and construction of a new two-story school with basement garage and chapel facility. The parcel is approximately 4.63 acres in size (Los Angeles County parcel data indicates an area of 202,078 square feet). The total footprint of the structures to be built is approximately 11,167 sf (0.256 acre). The school building footprint is almost entirely within the footprint of the existing structures is entirely within a previously approved CDP.

Mitigation proposed in the biological resources assessment report recommended removal of the invasive exotic grass, *Arundo donax* (Giant Reed) from Puerco Canyon Creek. To perform that work, a permit from the California Department of Fish and Wildlife (CDFW) will be required and the City of Malibu has requested that the expected boundary of the riparian habitat under CDFW jurisdiction be delineated and mapped.

PROJECT LOCATION

The project site is located in the City of Malibu in western Los Angeles County (Figure 1 – General Project Site Location). The Malibu Jewish Center & Synagogue (project site) is located at 24855 Pacific Coast Highway (PCH), Malibu, Los Angeles County, California (AIN 4458-032-027). The project site is east of Corral Canyon Road, and between PCH and Puerco Canyon Creek, as shown on Figure 2 – Project Site and Project Footprint. The site is in the Malibu Beach Quadrangle (USGS 7.5-minute Series) at the approximate geographic coordinates of 34.034°N latitude and -118.717°W longitude, located in the Topanga Malibu Sequit Mexican Land Grant, at the logical location of SW¼ NE¼ Section 1 T3S R18W, San Bernardino Base Line, as illustrated on Figure 1.

The Malibu Jewish Center & Synagogue is partially in the Puerco Canyon watershed at an elevation of approximately 160 feet (50 meters) above mean sea level. The parcel is wedge-shaped trending east-west, as illustrated on Figure 1 and Figure 2. The project site, and all of Puerco Canyon, is within the Coastal Zone. The project site and the proposed facilities are illustrated on Figure 2.

Figure 1 – General Project Site Location

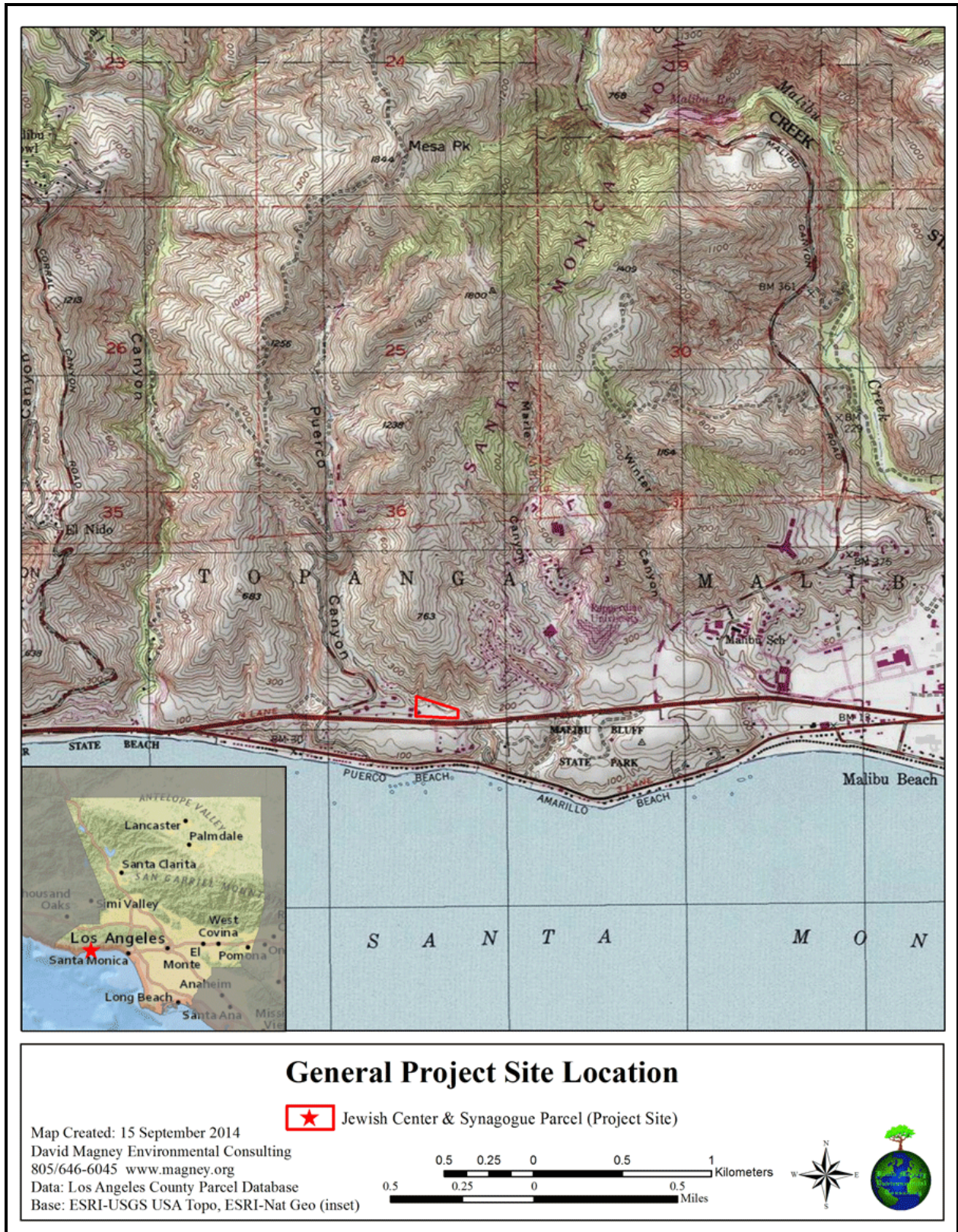




Figure 2 – Project Site and Project Footprint



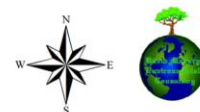
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Project Site and Building Footprint

-  Existing Buildings
-  Malibu Jewish Center & Synagogue Parcel



Map Created: 29 July 2017
David Magney Environmental Consulting
P.O. Box 1539, Cedar Ridge, CA 95924
530/273-1799 * www.magney.org
Datum: NAD83 Projection: State Plane CA Zone V Feet
Source: DMEC, ESRI, David Lawrence Gray Architects



SECTION II. EXISTING CONDITIONS

METHODS

DMEC biologist David Magney conducted a survey of the project site on 29 June 2018 to delineate the boundaries of riparian wetland habitat meeting CDFW jurisdiction. DMEC biologists Magney and Evan Lashly previously conducted surveys of the biological and tree resources on the project site on 3 September 2014 and 28 February 2017.

The main objective of survey was to determine the boundaries of CDFW jurisdiction. Mr. Magney walked the southern edge of Puerco Canyon Creek as access through the dense vegetation would allow, avoiding patches of *Toxicodendron diversilobum* (Western Poison Oak), and noting dominant and characteristic plant species. A Global Positioning System (GPS) unit (Garmin GPSMAP 62stc) was carried to track survey paths and to mark waypoints of wetland data points. Photographs were taken of the riparian habitat and conditions at select points using a Canon EOS 4Ti digital camera.

The general methods used to determine wetlands under jurisdiction of the U.S. Army Corps of Engineers, as described in the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and the Arid Southwest regional supplement (Corps 2008) in that the evidence of wetland hydrology, hydric soils, and hydrophytic vegetation was examined to characterize onsite conditions. The results were then applied to the CDFW jurisdiction criteria that only requires one of the three parameters. In this case, the presence of a clearly defined bed and bank and a predominance of riparian vegetation dominated by hydrophytes (Lickvar et al. 2016) were sufficient to determine CDFW jurisdiction.

Areas of Puerco Canyon Creek not accessible due to extremely dense vegetation and *Toxicodendron diversilobum* were mapped as jurisdictional riparian vegetation where wetland hydrophytes dominated the vegetation. The boundaries were mapped on a high-resolution color aerial photograph provided by DigitalGlobe through ESRI.

PHYSICAL CONDITION

The project site is located at the base of the Malibu foothills, approximately 1,000 feet north of the Pacific Ocean. The project parcel is adjacent to the PCH and situated on the north side of the highway. Puerco Canyon and Puerco Canyon Creek run south and bend eastward just north of the project site, entering the parcel on the northwest corner and exiting on the east end, and passing through the northern section of the parcel. Puerco Canyon Creek bends southward again just east of the project site before passing under the PCH and into the Pacific Ocean.

The project site sits atop the ridge just south of Puerco Canyon Creek, with most of the developed area draining southward towards PCH and the remainder draining into Puerco Canyon. The proposed project footprint is situated directly atop the ridge, in a largely artificially flattened area due to development. Just to the north of the proposed project footprint, a north-facing slope of varied steepness and dominated by mixed Coast Live Oak Woodland drops approximately 20 vertical feet to the creek bottom, which is dominated by riparian vegetation,



both native and non-native. North of the creek bottom a south-facing slope that is dominated by Coastal Sage Scrub rises again.

The soils of the project site consist of Calcic Argixerolls (in the creek bottom and north of the creek) and Danville-Urban Land Complex (atop the ridge at and south of the proposed project footprint, NRCS 2014). Calcic Argixerolls are well-drained soils with high runoff potential derived from weathered calcareous sandstone. Danville-Urban Land Complex is a complex of urban uses with well drained soils with high runoff potential, derived from metavolcanics and/or sedimentary rock.

FLORA

A total of forty-four (44) vascular plant species were observed onsite. Of these, twenty-four (26, or 59%) of the vascular plants are native species and fourteen (18, or 41%) are nonnative or exotic species, excluding landscape ornamentals. The proportions of native and nonnative taxa onsite are dissimilar to the 75% native: 25% nonnative for other regions of California and for the entire flora of California (Hickman 1993), indicative of the generally disturbed and urban nature to the project site.

The 44 vascular plants that were observed are listed below in Table 1 – Plant Species Observed at the Project Site. Of these, eight species are considered to be hydrophytes, with a Wetland Indicator Status of FAC or FACW (Lichvar et al. 2014). No OBL species were observed onsite. Extensive experience delineating wetlands in California suggest that two additional species should be considered as FAC species. A total of 16 taxa were observed in Puerco Canyon Creek onsite, which are shaded blue in Table 1.

Table 1 – Plant Species Observed at the Project Site

| Scientific Name ¹ | Common Name | Habit ² | WIS ³ | Family ⁴ |
|---|----------------------------|--------------------|------------------|---------------------|
| <i>Artemisia californica</i> | California Sagebrush | S | - | Asteraceae |
| <i>Artemisia douglasiana</i> | Mugwort | PH | FAC | Asteraceae |
| <i>Arundo donax</i> * | Giant Reed | PG | FACW | Poaceae |
| <i>Baccharis pilularis</i> ssp. <i>consanguinea</i> | Coyote Brush | S | (FAC) | Asteraceae |
| <i>Baccharis plummerae</i> ssp. <i>plummerae</i> | Plummer's Baccharis | S | - | Asteraceae |
| <i>Brachypodium distachyon</i> * | Short-pediceled Brome | AG | - | Poaceae |
| <i>Bromus diandrus</i> ssp. <i>diandrus</i> * | Rippgut Brome | AG | - | Poaceae |
| <i>Carpobrotus chilensis</i> * | Sea Fig | PH | FACU | Aizoaceae |

¹ * = Introduced plant species that have become naturalized. **Bold** typeface indicates special-status species. Scientific names of the plant species follow *The Jepson Manual* 2nd Edition (Baldwin et al. 2012) and Flora of North America Committee (1993+).

² Habit definitions: AG = annual graminoid; AH = annual herb; AV = annual vine; PG = perennial graminoid; PH = perennial herb; PV = perennial vine; S = shrub; T = tree.

³ WIS = Wetland Indicator Status. The following code definitions are according to Lichvar et al. (2016):
 OBL = obligate wetland species, occurs almost always in wetlands (>99% probability).
 FACW = facultative wetland species, usually found in wetlands (67-99% probability).
 FAC = facultative species, equally likely to occur in wetlands or nonwetlands (34-66% probability).
 FACU = facultative upland species, usually found in nonwetlands (67-99% probability).
 () = Parentheses indicate a wetland status suggested by David L. Magney based on extensive field observations.

⁴ Family taxonomy follows Flora of North America Committee (1993+).



| Scientific Name ¹ | Common Name | Habit ² | WIS ³ | Family ⁴ |
|--|---|--------------------|------------------|---------------------|
| <i>Chenopodium album</i> * | Lambsquarters | AH | FACU | Chenopodiaceae |
| <i>Cortaderia cf. jubata</i> * | Pampas Grass | PG | FACU | Poaceae |
| <i>Distichlis spicata</i> | Saltgrass | PG | FAC | Poaceae |
| <i>Elymus condensatus</i> | Giant Wildrye | PG | FACU | Poaceae |
| <i>Encelia californica</i> | California Bush Sunflower | S | - | Asteraceae |
| <i>Eriogonum cinereum</i> | Coastal Buckwheat | S | - | Polygonaceae |
| <i>Euphorbia peplus</i> * | Petty Spurge | AH | - | Euphorbiaceae |
| <i>Euphorbia terracina</i> var. <i>terracina</i> * | False Caper | PH | - | Euphorbiaceae |
| <i>Foeniculum vulgare</i> * | Sweet Fennel | PH | (FACU) | Apiaceae |
| <i>Hazardia squarrosa</i> var. ? | Sawtooth Goldenbush | S | - | Asteraceae |
| <i>Heteromeles arbutifolia</i> | Toyon | S/T | - | Rosaceae |
| <i>Heterotheca grandiflora</i> | Telegraph Weed | AH | - | Asteraceae |
| <i>Hirschfeldia incana</i> * | Summer Mustard | BH | (FACU) | Brassicaceae |
| <i>Isocoma menziesii</i> var. <i>vernonioides</i> | Coastal Goldenbush | S | FAC | Asteraceae |
| <i>Juglans californica</i> | Southern California Black Walnut | T/S | FACU | Juglandaceae |
| <i>Malacothrix saxatilis</i> var. <i>tenuifolia</i> | Tenuate-leaved Cliff-aster | PH | - | Asteraceae |
| <i>Malosma laurina</i> | Laurelleaf Sumac | S | - | Anacardiaceae |
| <i>Malva parviflora</i> * | Cheeseweed | AH | - | Malvaceae |
| <i>Myoporum laetum</i> * | Lollypop Tree | S/T | FACU | Scrophulariaceae |
| <i>Nicotiana glauca</i> * | Tobacco Tree | S/T | FAC | Solanaceae |
| <i>Pennisetum clandestinum</i> * | Kikuyu Grass | PG | - | Poaceae |
| <i>Platanus racemosa</i> var. <i>racemosa</i> | Western Sycamore | T | FAC | Platanaceae |
| <i>Quercus agrifolia</i> var. <i>agrifolia</i> | Coast Live Oak | T | (FACU) | Fagaceae |
| <i>Rhamnus ilicifolia</i> | Hollyleaf Redberry | S | - | Rhamnaceae |
| <i>Rhus integrifolia</i> | Lemonade Berry | S | - | Anacardiaceae |
| <i>Ribes speciosum</i> | Fuchsia-flowered Gooseberry | S | - | Grossulariaceae |
| <i>Ricinus communis</i> * | Castor Bean | S | FACU | Euphorbiaceae |
| <i>Rubus ursinus</i> | California Blackberry | V | FAC | Rosaceae |
| <i>Salix lasiolepis</i> var. <i>lasiolepis</i> | Arroyo Willow | S/T | FACW | Salicaceae |
| <i>Salsola tragus</i> * | Tumbleweed | AH | FACU | Chenopodiaceae |
| <i>Salvia mellifera</i> | Black Sage | S | - | Lamiaceae |
| <i>Sonchus oleraceus</i> * | Common Sow-thistle | AH | UPL | Asteraceae |
| <i>Stipa miliacea</i> * | Smilo Grass | PG | (FACU) | Poaceae |
| <i>Symphoricarpos cf. albus</i> var. <i>laevigatus</i> | Snowberry | PH | FACU | Caprifoliaceae |
| <i>Toxicodendron diversilobum</i> | Western Poison Oak | V/S | FACU | Anacardiaceae |
| <i>Venegasia carpesioides</i> | Canyon Sunflower | S | - | Asteraceae |

HABITATS

A total of five (5) habitat and land cover types were identified on the Malibu Jewish Center & Synagogue parcel and adjacent areas, which are described in detail in the Biological Resources report (DMEC 2017a). The natural vegetation and land cover types present onsite were mapped and are illustrated on Figure 3, Vegetation Communities and Land Cover of the Project Site.

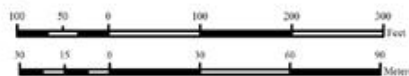
Figure 3 – Vegetation Communities and Land Cover of the Project Site



Project Site Vegetation and Land Use

Habitat

- | | | |
|-----------------------------|---------------------------|---|
| Arundo donax Stand | Mixed Oak-Walnut Woodland | Existing Buildings |
| Coastal Sage Scrub | Willow Woodland | Malibu Jewish Center & Synagogue Parcel |
| Mixed Oak-Sycamore Woodland | Ruderal | |
| | Developed/Ornamental | |



Map Created: 29 July 2017
 David Magney Environmental Consulting
 P.O. Box 1539, Cedar Ridge, CA 95924
 530/273-1799 * www.magney.org
 Datum: NAD83 Projection: State Plane CA Zone V Feet
 Source: DMEC, ESRI, David Lawrence Gray Architects



The vegetation communities mapped and described previously (DMEC 2017a) includes: *Quercus agrifolia* Woodland Alliance, *Arundo donax* Semi-Natural Alliance, *Salix lasiolepis* Shrubland Alliance, *Eriogonum cinereum* Shrubland Alliance, and *Bromus diandrus* Semi-Natural Herbaceous Alliance. Of these *Arundo donax* Semi-Natural Alliance and *Salix lasiolepis* Shrubland Alliance compose the riparian wetland communities, with *Quercus agrifolia* Woodland Alliance occurring on the periphery of the canyon, occupying approximately 0.729 acre of the parcel.

Riparian Habitats

Riparian habitats are those plant communities that occur on the banks of perennial, intermittent, and ephemeral streams.

Arundo donax Semi-natural Alliance

Arundo donax Semi-natural Alliance is plant community characterized by the dominance of *Arundo donax* (Giant Reed). *Arundo donax* is a perennial grass species with alternate, long, tapered, grey-green leaves and hollow stems. It generally grows to heights of <8 meters and resembles bamboo. *Arundo donax* is an aggressive invasive species and one of the fastest growing terrestrial plants in the world (Sawyer et al. 2009). It can form dense mats and clumps that choke stream channels, crowd out native species, increase fire potential, and reduce wildlife habitat. It propagates primarily through rhizomes and the rhizomes of detached clumps.



Photo 1 (left). View westward of riparian community (*Arundo donax*) below hillside mixed Oak-Walnut Woodland.
Photo 2 (right). View northward of dense *Arundo donax* stand in Puerco Canyon Creek.



Photo 3 (left). View of dense *Arundo donax* dominating Puerco Canyon Creek in June 2018, not significantly changed from 2014. Photo 4 (right). View eastward/downstream adjacent to dense *Arundo donax* showing open herbaceous vegetation just outside of jurisdictional wetlands.

Arundo donax forms a nearly impenetrably dense stand on the project site. Several individuals of *Salix lasiolepis* exist within the stands of *A. donax*; however, *S. lasiolepis* is the dominant riparian species in areas not containing *A. donax*. This stand dominates the creek bed on the northwest corner of the project parcel and exists in the adjacent parcels to the north and west. This stand of *A. donax* appears to be the only significant stand within Puerco Canyon Creek drainage. Areas on the project site dominated by *A. donax* are mapped as “Arundo Stand”. The project site contains approximately 0.35 acre of *A. donax*.

***Salix lasiolepis* Shrubland Alliance**

Salix lasiolepis Shrubland Alliance is a plant community characterized by the dominance of *Salix lasiolepis* var. *lasiolepis* (Arroyo Willow) (Sawyer et al. 2009). *Salix lasiolepis* is a riparian shrub or small tree, growing up to 8 meters in height. It has long strap-shaped to obovate leaves with entire to toothed margins. *Salix lasiolepis* grows in seasonally or intermittently flooded areas such as stream beds, banks, and benches and is typically shrubby and many stemmed (Sawyer et al. 2009). It can form an open or continuous canopy and often has a variable herbaceous understory. *Salix lasiolepis* is well adapted to flood disturbance and easily colonizes in moist areas where it can become “weedy”.

Salix lasiolepis Shrubland Alliance dominates the streambed on the project site in areas where *Arundo donax* does not occur. *Salix lasiolepis* and *A. donax* do occur together, but in areas where *A. donax* forms dense stands, *S. lasiolepis* is forced out. Areas of the project site dominated by *S. lasiolepis* are mapped as “Willow Thicket”. The project site contains approximately 0.29 acre of Arroyo Willow Thicket.



*Photo 5 (left). View eastward (downstream) of creek bed and Arroyo Willow Thicket with understory.
Photo 6 (right). View westward (upstream) of creek bed and Arroyo Willow Thicket with understory.*



*Photo 7(left). View northward across the creek into thick Arroyo Willow Thicket with understory.
Photo 8 (right). View northwestward (upstream) of creek bed and Arroyo Willow Thicket from top of bank.*



*Photo 9 (left). View westward of mixed Oak-Sycamore Woodland with modified (ruderal) understory.
Photo 10 (right). View eastward of mixed Oak-Walnut Woodland natural understory adjacent to Arundo donax.
These photos show habitats outside of jurisdictional wetlands.*

SECTION III. WETLAND JURISDICTION

Wetland habitats are regulated by the U.S. Army Corps of Engineers (Corps) pursuant to Section 404 of the Clean Water Act. The Corps determines its jurisdiction by following specific methods described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Arid West Region* (Corps 2008).

Waters of the State are nearly identical to that for the Corps (U.S.); however, the State of California lacks a formal method to determine its area of jurisdiction other than as described in Section 1600 et seq. of the California Fish and Game Code. The Code identifies jurisdictional streams as areas with a clear bed and bank and adjacent riparian vegetation; however, the Code provides no formal definition of wetlands. Waters (wetlands) of the State are quite similar to that for the nation but can be more expansive in some circumstances. Furthermore, all streams and internally drained depressions are jurisdictional with the State while some such areas are not under Corps jurisdiction.

Many activities occurring in waters of the State are regulated by the CDFW through the California Fish and Game Code Section 1600 et seq., requiring a Streambed Alteration Agreement for impacts to riparian and wetland habitats. CDFW does not have a formal methodology to determine their jurisdictional boundary; however, it generally includes all water courses with a defined bed and bank. Puerto Canyon Creek is such a regulated wetland.

The total area of waters of the state on the project parcel equals approximately 1.411 acres, as shown on Figure 4, Riparian Wetland Jurisdictional Area. Corps jurisdiction is approximately 0.729 acre, entirely within the waters of the state.

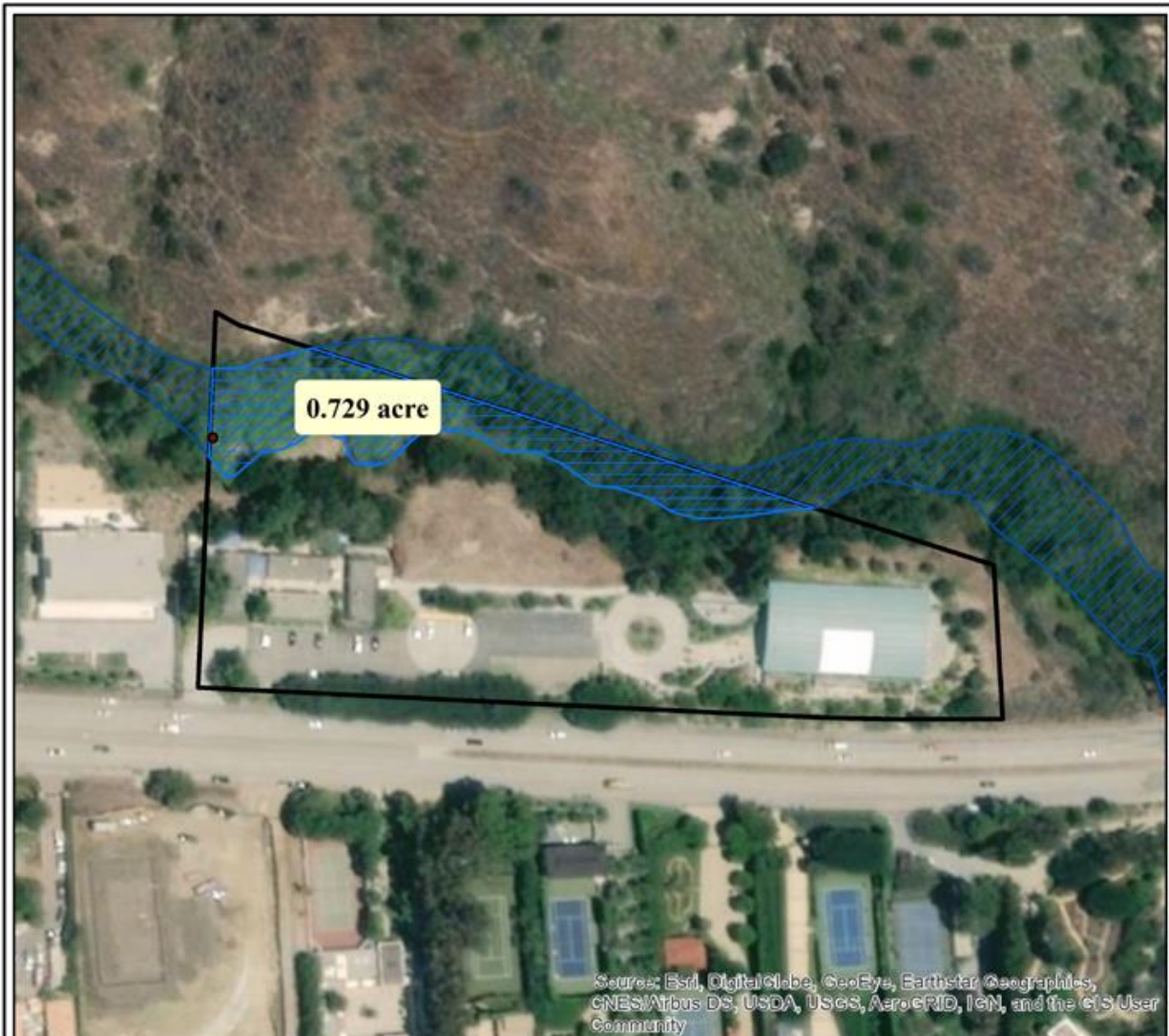
REGULATORY PERMITTING

The Corps, pursuant to Section 404 of the Clean Water Act, regulates the discharge of fill into waters of the United States. The Corps does not regulate removal of vegetation from jurisdictional waters of the U.S.; therefore, no permit is required from the Corps.

The CDFW, pursuant to Section 1600 et seq. of the California Fish and Game Code, regulates all activities within waters of the State, including removal of natural vegetation.

The Malibu Jewish Center and Synagogue proposes to eradicate *Arundo donax*, and invasive exotic grass, from that portion of Puerco Creek Canyon on its property onsite as a means to mitigate encroachment into Riparian ESHA setback buffer, resulting in improving riparian wetland functions onsite.


Figure 4 – Riparian Wetland Corps Jurisdictional Area

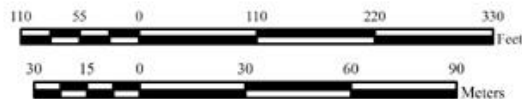


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Riparian Wetland Jurisdictional Area

 Puerco Canyon Riparian Wetlands  Riparian Wetlands Onsite

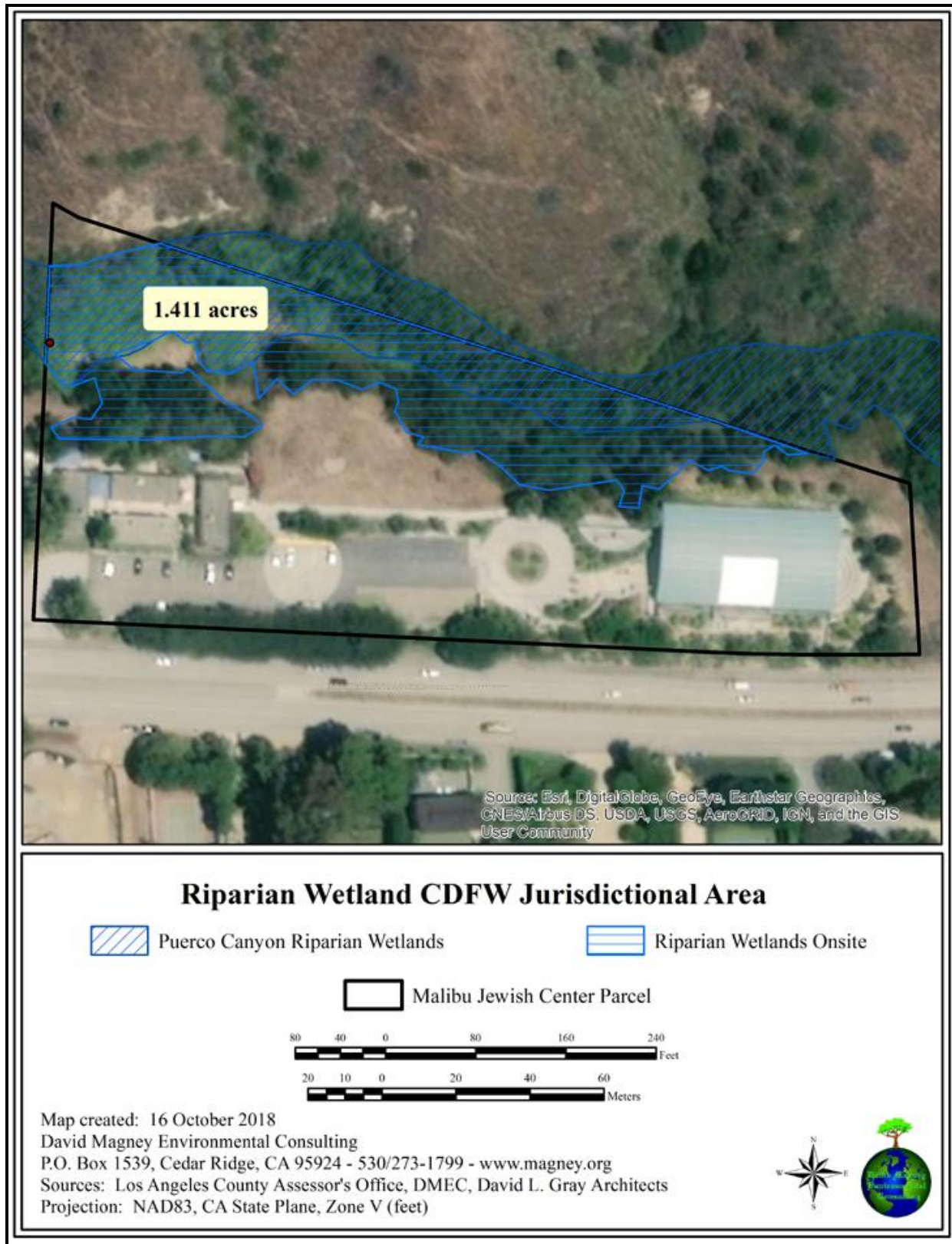
 Malibu Jewish Center Parcel



Map created: 17 August 2018
 David Magney Environmental Consulting
 P.O. Box 1539, Cedar Ridge, CA 95924 - 530/273-1799 - www.magney.org
 Sources: Los Angeles County Assessor's Office, DMEC, David L. Gray Architects
 Projection: NAD83, CA State Plane, Zone V (feet)



Figure 5 – Riparian Wetland CDFW Jurisdictional Area



SECTION V. CONCLUSIONS

DMEC determined that 0.729 acre of riparian wetland habitat is present onsite that is under the jurisdiction of the Corps, and CDFW jurisdiction is approximately 1.411 acres.

The Corps typically does not take jurisdiction of adjacent riparian habitats upslope of the ordinary high water mark, hence a narrow area of jurisdiction along Puerco Canyon Creek.

Habitat restoration activities such as removal of the invasive exotic grass, *Arundo donax*, occurs within the area considered under CDFW jurisdiction, for which the Malibu Jewish Center and Synagogue will need to obtain a permit to do that work.

This report is intended to provide CDFW with information on site conditions to facilitate issuance of a Streambed Alteration Agreement to remove *Arundo donax* from Puerco Canyon Creek onsite to satisfy City of Malibu permit requirements.

SECTION VI. ACKNOWLEDGEMENTS

This report was written by David Magney. Graphics were created by Mr. Lashly, Vickie Peters, and Mr. Magney.

Mark Meyer of David Lawrence Gray Architects, provided guidance and assistance with the project description and provided current project plans and drawings.

David Crawford, City of Malibu biologist, reviewed a draft of this report and provided guidance on improvements.

SECTION VII. CITATIONS

REFERENCES CITED

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