



BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Petition of)	DOCKET NO. SP21-412
)	
MAHI SOLAR, LLC)	FINDINGS OF FACT, CONCLUSIONS
)	OF LAW AND DECISION AND ORDER;
)	AND CERTIFICATE OF SERVICE
For a Special Use Permit to Establish)	
a Solar Energy Facility on)	
approximately 620- acres of land)	
within the State Land Use)	
Agricultural District at 'Ewa District)	
of O'ahu, Hawai'i; Tax Map Key)	
No. (1) 9-2-001:020(por.), and)	
(1) 9-2-004:003 (por.), 006 (por.), 010 (por.))	
<u>And 012 (por.)</u>)	

**FINDINGS OF FACT, CONCLUSIONS OF
LAW AND DECISION AND ORDER**

AND

CERTIFICATE OF SERVICE

This is to certify that this is a true and correct copy of the document on file in the office of the State Land Use Commission, Honolulu, Hawai'i.

September 17, 2021 by

Executive Officer



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**FINDINGS OF FACT, CONCLUSIONS OF
LAW AND DECISION AND ORDER**

The Land Use Commission ("Commission"), having examined the complete record of the proceedings on State Special Use Permit (“SUP”) SP21-412, filed by Applicant Mahi Solar, LLC ("Applicant"), to construct an approximately 120 Megawatt alternating current (Mwac) solar and energy storage facility that will also incorporate a 480 Mw-hour (“MWh”) Battery Energy Storage System, and a 34.5 kilovolt (“kV”) substation and accessory uses and structures ("Project"), on approximately 620 acres of land in the State Agricultural District (County AG-1 Restricted Agriculture) identified by Tax Map Key No. (1) 9-2-001:020(por.), and (1) 9-2-004:003 (por.), 006 (por.), 010 (por.) and 012 (por.) in the ‘Ewa

District of O‘ahu, Hawai‘i ("Petition Area"), and upon consideration of the matters discussed therein, hereby makes the following findings of fact, conclusions of law, and decision and order:

FINDINGS OF FACT

PROCEDURAL MATTERS

1. On April 9, 2021, the City and County of Honolulu, Department of Planning and Permitting (the “DPP”), accepted the SUP Application, pursuant to Section 205-6, Hawaii Revised Statutes (“HRS”), and Section 15-15-95 et seq., Hawaii Administrative Rules (“HAR”).

2. On June 23, 2021, the Planning Commission considered the Petition. Public testimony was received at the hearing. After due deliberation, the Planning Commission recommended approval of the Petition to the State Land Use Commission (the “LUC”), subject to certain conditions. The Land Use Commission received the Petition on August 6, 2021.

DESCRIPTION OF THE PROPERTY

3. As shown in the table below, the Project is located on portions of TMKs (1) 9-2-001:020 and (1) 9-2-004: 003, 006, 010, and 012 in Kunia, O‘ahu, Hawai‘i. The site will be developed in those certain areas identified as Areas 1, 2A, 2B, 2C, 3, 4A, 4B, 4C, and 5, across five TMK parcels, as shown on Exhibit “A” attached hereto. The site lies within the traditional moku of ‘Ewa and the ahupua‘a of Honouliuli. The Project consists of the solar energy facility (“SEF”) and ancillary support facilities located on multiple sites within the Petition Area and totals approximately 620 acres.

Land Ownership				
TMK	Project Area Number	Project Area (acres)	Total Parcel Area (acres)	Landowner
(1) 9-2-001:020	5	40.7	1,688.8	Monsanto Technology LLC
(1) 9-2-004:003	3	12.1	19.3	Hartung Brothers Hawai'i LLC
(1) 9-2-004:006	1, 2A, 2B, 2C, & 3	240.1	724.9	Hartung Brothers Hawai'i LLC
(1) 9-2-004:010	4A, 4B, & 4C	305.6	426.0	Fat Law's Farm Inc.
(1) 9-2-004: 012	1	21.5	93.3	Hartung Brothers Hawai'i LLC
Total Area:		620.0 acres	2,952.3 acres	

4. The Petition Area encompasses portions of five TMKs referred to hereinabove. The Petitioner will lease the lands from three separate landowners, Monsanto Technology, LLC (“Monsanto”), Hartung Brothers Hawai‘i LLC (“Hartung Brothers”), and Fat Law’s Farm Inc. (“Fat Law’s Farm”), for the duration of the Project.

5. A portion of the Project will be built on three parcels owned by Hartung Brothers. The Petition Area is crossing portions of these parcel boundaries, therefore a Conditional Use Permit (“CUP”) (minor) for Joint Development of TMKs (1) 9-2-004:003, 006 (por.), 012 (por.) was submitted to and approved by the DPP (File No. 2020/CUP-48). The legal lots of record are described as Lot M-9-A (19.296 acres), Lot 169 (0.693 acre), Lot 878 (432.503 acres), Lot 880 (93.117 acres), and Lot 416 (91.99 acres). These jointly developed parcels total 637.599 acres.

6. The Project is situated on lands planned for “Agriculture and Preservation” uses within both the recently adopted City and County of Honolulu Central O‘ahu Sustainable Communities Plan (“SCP”) (Ordinance 21-6) and the 2020 amended ‘Ewa Development Plan (“DP”) (Ordinance 20-46).

7. Over the course of a year, the temperature varies between 65°F to 87°F. During the hot season months of June through October the average daily high temperature is above 85°F.

During the cool season months from December to March the average daily high temperature is below 81°F. The Petition Area experiences an average rainfall of approximately 30 inches. The average hourly wind speed in the area varies significantly over the seasons, with the windier part of the year being between June to September, with average wind speeds of more than 14.4 miles per hour.

8. The Petition Area contains multiple soil classifications and groups to include the following: Helemano silty clay, 30 to 90 percent slopes (HLMG); Kawaihapai clay loam, 0 to 2 percent slopes (K1A); Kawaihapai clay loam, 2 to 6 percent slopes (K1B); Kawaihapai stony clay loam, 2 to 6 percent slopes (K1aB); Kolekole silty clay loam, 1 to 6 percent slopes (KuB); Kolekole silty clay loam, 6 to 12 percent slopes (KuC); Kolekole silty clay loam, 12 to 25 percent slopes (KuD); Kunia silty clay, 0 to 3 percent slopes (KyA); Kunia silty clay, 3 to 8 percent slopes (KyB); Kunia silty clay, 8 to 15 percent slopes (KyC); Lahaina silty clay, 7 to 15 percent slopes, severely erode (LaC3); Mahana silty clay loam, 12 to 20 percent slopes, eroded (McD2); Mahana silty clay loam, 20 to 35 percent slopes, eroded (McE2); Tropohumults-Dystrandeps association (rTP); Wahiawa silty clay, 0 to 3 percent slopes (WaA); and Water > 40 acres (W).

9. The Petition Area includes soils rated by the Land Study Bureau of the University of Hawai‘i (“LSB”) as Class B, C, D, and E. The Petition Area does not contain soils designated as Class A. Hawaii Revised Statutes Section 205-4.5(21) permits SEFs on land classified by LSB as Class B and C, with approval of a SUP. A SUP is not required for development for lands classified as LSB D and E.

10. Of the total 620-acre Petition Area, approximately 69.5 acres is located within lands designated as Important Agricultural Lands (“IAL”). Approximately 29.3 acres of IAL is located within Area 1 of the Project (TMK (1) 9-2-004: 012). This land was voluntarily petitioned by the

landowner, Hartung Brothers, and approved on June 1, 2018 (see LUC Docket DR18-61). Additionally, 40.2 acres of IAL are located within Area 5 of the Project (TMK (1) 9-2-001:020). The land was voluntarily petitioned by the landowner, Monsanto, and approved on November 15, 2017 (see LUC Docket DR17-59).

11. The Petition Area is bounded by agricultural land to the north, south, and east and the Honouliuli Forest Reserve, zoned as conservation land, to the west. As previously described, lands surrounding the Petition Area are used for crop production and open space. Kunia Loa Ridge Farmlands located directly adjacent to Areas 4A, 4B, and 4C is comprised of 99 lots leased to farmers and dedicated for agriculture uses, including crop production and ranching, and includes structures related to agriculture activities, including farm dwellings. The National Park Service Honouliuli National Historic Site is located near a small portion of the Petition Area to the south (Area 5).

12. Beyond the immediate surroundings of the site, the Petition Area is surrounded by residential communities including: Makakilo to the southwest; 'Ewa and Kapolei further south; Mililani Town to the northeast; and Waipahu and Royal Kunia subdivision to the southeast. Further north of the Petition Area is the Wheeler Air Force Base. Residential uses extend two to four miles away from the Petition Area.

13. Access to the Petition Area is via three established entrances from Kunia Road (approximately 3 miles north of the H-1 freeway) and an existing network of dirt access roads which are actively maintained in support of the surrounding agricultural operations. Three established access points have been designated at the following locations: Site Access #1, located at Kunia Road and Plantation Road; Site Access #2 located at Kunia Road and an unnamed private driveway into the Monsanto property, and Site Access #3 located at Kunia Road and Pālāwai Road,

which is also a private driveway. No other transportation facilities (e.g., bus stops, bicycle lanes, etc.) occur in the vicinity of the Petition Area.

DESCRIPTION OF THE PROPOSED USE

14. The Project is a 120-megawatt alternating current (“MWac”) solar and energy storage facility located in Kunia, O’ahu. The Project includes 370,000 ground-mounted, single-axis tracking photovoltaic (“PV”) arrays, a 480 megawatt-hour (“MWh”) Battery Energy Storage System (“BESS”), and a 34.5 kilovolt (“kV”)/138 kV substation. The Project will interconnect through a new 138 kV switchyard, also called a “switching station” adjacent to the existing Kahe-Waiou 138 kV transmission circuit west of Kunia Road. The 138kV transmission line is not currently serving other renewable projects, and no additional easements or rights of way are required.

15. Each PV panel is approximately 48 inches wide and 79 inches long, dark in color, and stands approximately 6 to 8 feet above ground level when flat (0-degree tilt). At maximum rotation or 50-degree tilt, the height of the PV panel reaches approximately 9 to 12 feet high and is approximately 1 to 3 feet off of the ground. Each PV panel is made up of thin-film Cadmium Telluride semiconductor cells or equivalent. The cells are linked together and function as a single unit.

16. The PV panels will be installed on single-axis trackers aligned in a north-south direction, which will vary in length. The single-axis trackers will rotate the panels to follow the sun during the day to maximize solar exposure to the face of the module. Trackers are supported by steel pile foundations at intervals. The PV panels may be mounted in either a portrait or landscape orientation, in single or double combination. Based on the preliminary design criteria for the Project, there will be approximately one foundation for every eight to ten panels.

Foundation spacing will be dependent upon the final chosen panel orientation. The array of approximately 370,000 ground mounted PV panels will have a combined capacity of 120MWac.

17. PV panels will be mounted on a rack with steel and aluminum construction and will be designed with a wind resistance to meet wind loading requirements per the adopted building code. There will be an approximately 9-foot wide aisle between adjacent arrays of PV panels when they are in the horizontal position or 0-degree tilt.

18. The Project's PV panels will be connected in series, referred to as a "string". The maximum string size is limited by a maximum system voltage of 1,500 volts direct current. For this Project's design, a string is a DC circuit of approximately 6 panels each. Each string is connected to a combiner box with a fused disconnect. Typically, a group of approximately 16-30 strings will be connected at the combiner boxes and are limited by the 400 amp fuse size. A group of approximately 20-30 combiner boxes are connected via DC feeders into a DC/alternating current ("AC") inverter which connects to the AC power system.

19. The AC power system consists of pad-mounted equipment, including the inverters, step up transformer and communication equipment, which increases the power from 400-600 volts to a medium voltage of approximately 34.5 kV. Each pad will tie into the 34.5 kV collector system which terminates at the high-voltage AC substation, whereby the voltage will be increased to 138 kV.

20. Power from the PV system may be stored in the BESS and may be discharged from the BESS at any time of day or night. The BESS will be located in Area 3 of the Project.

21. The BESS provides a four-hour discharge duration and storage capacity of 120 MW/480 MWh. The BESS consists of lithium-ion battery cells that are connected in series into a battery module or array. The battery modules are typically stacked and connected into vertical

racks containing several modules. The racks are then collected via cables and fed into DC to AC converters that feeds into the BESS inverter. The BESS transformer steps up the voltage from the BESS inverter from 400–600 volts to 34.5kV. The BESS will typically come equipped with controls and communications systems that integrate into the Project’s Supervisory Control and Data Acquisition system that allows for the remote monitoring and control of select facility functions. The battery racks will be stored in cabinets/enclosures and laid on top of a gravel pad. The enclosures will contain an internal thermal management system and/or Heating, Ventilation, and Air Conditioning units to support battery temperature management. The battery enclosures are also rated for outdoor use. Each BESS container is approximately 15 feet high.

22. The operational support facilities will consist of an outdoor electrical substation, switchyard, and two control enclosures. The support facilities will be located in Area 3.

23. The two control enclosures will each have an area of approximately 798 square feet, and a height of approximately 13 feet. The control enclosures will house the PV and BESS plant control systems, Hawaiian Electric Company (“HECO”) remote terminal units, communications equipment, and relays and meters. Within the control enclosures, there will be a small battery system to serve as a back-up power system for data collection.

24. The Project will also include 32 PV inverter stations. The inverter stations will be located within the PV solar array field and include inverters and medium voltage transformers. Inverters rated at 3.95-4.2 MWac will be used to convert the DC electricity from the PV modules to AC. The AC electricity will be stepped up with a medium voltage transformer at the inverter station and connected to the substation by an underground or overhead medium voltage line.

25. The total building area or lot coverage of the facilities and equipment at the Project site will be approximately 6,620,251 square feet (approximately 152 acres). The Project will be

interconnected to HECO's Kahe-Waiiau 138 kV transmission circuit located west of Kunia Road. The medium voltage collection system will transmit generation from the solar array inverters to the BESS and substation along overhead lines to be installed as part of the Project.

26. The collector lines will be installed from the solar inverters to the BESS yard and Project substation, overhead on new wooden structures, along existing roadways where required by existing land use regulations, and underground where crossing existing electrical lines.

27. The BESS and substation will be connected to the HECO-owned switchyard via an overhead bus structure. A new transmission line extension, consisting of an overhead portion and an underground portion, will connect HECO's existing Kahe-Waiiau transmission circuit to the proposed ring bus in the switchyard.

28. The Project site currently consists of actively farmed areas, undeveloped and fallow agricultural land, overgrown natural vegetation, and structures associated with farming and business operations. After construction of the Project is completed, Petitioner intends to work with local farmers and ranchers to implement multiple different agricultural activities that will be co-located at the Project. The common term for this is "agrivoltaics."

29. Agrivoltaics describes the use of the same area for both solar PV energy and agriculture. Agrivoltaic projects such as Mahi Solar are designed to share land and sunlight between agriculture and PV panels, and to study which crops, or livestock can co-produce with solar most successfully. The co-location of solar energy production and agriculture results in a more efficient use of land, which is important on O'ahu where both local farming and local clean energy are priorities, but land resources are limited.

30. Most of the Petition Area will be leased or licensed to local farmers and ranchers at a nominal cost to grow various crops or livestock beneath and between the PV panels. These

farmers will be provided with access to water (also at a nominal cost) and start-up funding. The Project's Agricultural Plan dedicates the land to long-term agricultural uses, supports the sustained growth of agriculture uses, supports the sustained growth of the agricultural industry, and meets the objectives of IAL land articulated by Section 205-42, HRS. In addition, the use of currently unused land for agrivoltaics will expand the agricultural footprint of the land by allowing farmers to explore new uses for land under the PV panels. The Agrivoltaic Program of the Project's Agricultural Plan will actually put more land into productive agriculture and food production than currently exists at the site.

31. Kunia Water Association ("KWA") provides water service to the Petition Area and surrounding agricultural lands. The design of the Project includes an onsite water supply to support the farming activities. The Project will have access to water for agriculture through its lease agreements for the property. Irrigation infrastructure will be installed as needed to support crop production.

32. There is no city storm drainage system in the Petition Area and the state storm drainage system is limited to concrete culverts crossing Kunia Road. There is no subsurface drainage system on the Petition Area. Drainage on site currently exists in the form of surface runoff on the natural topography, with rainfall and run-off eventually flowing into the various ephemeral tributaries of Honouliuli Stream. Because grading will be limited, the Project will not significantly alter existing drainage patterns.

33. The Petitioner has consulted with the Hawai'i Agricultural Research Center ("HARC"), the Hawai'i Farm Bureau, Hawai'i Agricultural Foundation, Hartung Brothers, Fat Law's Farms and several local farmers, beekeepers and ranchers to help develop an informed plan for co-locating solar photovoltaic energy generation and realistic agricultural activities together at

the site . In the initial research phase of this Agricultural Plan, HARC will conduct farming trials of different crops at an existing solar project in Mililani in a collaboration with Clearway Energy. HARC’s research will happen prior to completion of the Mahi Solar project to determine what crops are economically and viably suited for cultivation at the Mahi Solar project on a large scale. After construction is complete and the solar project is operational, the Agrivoltaic Program will work with local farmers and ranchers to support commercial agricultural activities under and between the PV panels for the duration of the entire operational life of the Project.

34. While HARC’s research is just beginning, crops that are anticipated to grow well at a solar project in the Kunia area are those that are shade tolerant and do not grow too tall to interfere with the panels, such as lettuce, basil, mint, sweet potato and flowering plants that support honeybees, as well as alfalfa and legumes that could be used for animal forage. Several local farmers and ranchers have already expressed interest in participating in the Agrivoltaic Program, including HARC, Hartung Brothers (alfalfa forage), O’ahu Grazers (livestock grazing), Kunia Country Farms (hydroponic lettuce), Alluvion (nursery products), Fat Law Farms (basil) and Island Bee Removals (honey production).

NEED FOR THE PROJECT

35. Hawai‘i is the most petroleum-dependent state in the United States. In 2003, petroleum accounted for 90 percent of the state’s energy portfolio. In response to this dependency, the State of Hawai‘i created the Hawai‘i Clean Energy Initiative (“HCEI”) in 2008 and in 2015, set a goal of having 100 percent of electricity sales come from renewable sources by the year 2045 (Act 97). This was followed in 2018 by the passage of Act 15, which required Hawai‘i to become net carbon negative “as soon as practicable, but no later than 2045”.

36. While the State’s petroleum dependence has gradually been reduced, in 2019, the State still imported 26.4 million barrels of crude oil and 646 million gallons of refined petroleum (Hawai’i State Energy Office (“HSEO”), 2020). The State’s imports of petroleum, petroleum products, and coal were 57 percent of the total tons of cargo imports and exceeded all other products and materials imported overall (HSEO, 2020). By 2019, the State’s largest electricity production source was petroleum, at 63.2 percent, followed by coal at 12 percent, for a fossil fuel total of 75.2 percent. Renewable energy sources accounted for 20.3 percent of electricity production, still far short of the state’s 100 percent goal. By contrast, in 2019, 37 percent of electricity in the U.S. was generated using petroleum. Dependence on petroleum directly affects the state’s citizens, who pay more than double the national average for electricity due to the fluctuations in the price of oil (HSEO, 2020).

37. Electricity for the island of O‘ahu is provided by HECO. The purpose of the Project is to provide low-cost renewable energy in the form of solar electric power to HECO’s existing power grid. Selected as part of HECO’s competitive Request for Proposal process, Mahi Solar is one of 15 HECO Stage 2 renewable energy projects. The 620-acre Mahi Solar project is projected to generate a total of 120 MW of energy, which is enough to power approximately 37,000 O‘ahu homes or 4 percent of the island’s electricity annually. The Project will be capable of generating up to 271,525 MWh per year (Ramboll, 2020). Inputting this energy value into the Environmental Protection Agency’s Greenhouse Gas (“GHG”) Equivalencies Calculator, a GHG Analysis run for the Project produces an oil consumption equivalence of 444,472 barrels of oil per year – or over 18 million gallons of oil per year. With a constant generation of electricity, the Project is estimated to avert the consumption of 11,111,800 barrels of oil and save O‘ahu consumers \$175 million over a 25-year lifespan: nearly half a billion gallons of oil use avoided over 25 years. As

such, development of the Project will move the state forward in achieving its HCEI goal while also improving Hawai‘i’s environment by reducing GHG emissions, dependency on foreign imports of fossil fuels and associated price variations, and the environmental risk of spills during the transport and storage of fossil fuel to the state.

IMPACTS UPON RESOURCES OF THE AREA

Agricultural Resources

38. Through the Agrivoltaic Program, local farmers and ranchers will have the opportunity to license or sub-lease plots of land at the Project site for agricultural activities. The Agrivoltaic Program is designed as a flexible system to support different business models. Land and water will be provided to farmers at a nominal cost to support these activities at a commercial scale. Petitioner will also add or upgrade agricultural infrastructure across the Project. The Agricultural Plan ensures that agricultural productivity and food production is not only retained on the land but is increased overall. Of the 620-acre proposed Project area, only 306 acres are currently in active agricultural production. Of these 306 acres, only 98.8 acres are currently for food production. A portion of Area 4B is used to grow basil, and Area 4C is used to cultivate other vegetables. Approximately 314 acres of the Petition Area consists of land that is not currently being used for agricultural activity.

39. The proposed Agricultural Plan would utilize approximately 610 acres of the solar farm (excluding the high-voltage areas of the substation/switchyard/BESS) for active agriculture, 488.9 acres of which will be cultivated for local food production for crops including but not limited to the following: alfalfa, other forage grass/legumes; hydroponic lettuce; basil, sweet potato and other vegetables; livestock grazing; and pollinator plants/honey. Agricultural activity will be

implemented throughout the Petition Area in all areas used for solar, however the land area (acres) allotted for each activity will not be finalized until after construction.

40. The Project and Agricultural Plan for the site support the state’s intent for the use of agriculturally zoned lands. The Project will increase agricultural productivity on the existing land that will be used for the Project, thereby increasing the overall acreage used for agriculture in the region.

Archaeological and Cultural Resources

41. An Archaeological Inventory Survey (“AIS”) for the Petition Area was completed in compliance with Section 6E-42, HRS. Fieldwork for the AIS was carried out between August 2020 and January 2021 and the report was completed in April 2021 and submitted to the State Historic Preservation Division (“SHPD”) in April 2021 (Project No. 2021PR00380).

42. As a result of the fieldwork effort two sites were defined, State Inventory Historic Places (“SIHP”) Site 2268 (Waiāhole Ditch) and SIHP Site 7346 (Oahu Sugar Company Irrigation features). The Waiāhole Ditch has been previously documented in other portions of O’ahu and was built between 1913 and 1916 by the Waiāhole Water Company, a subsidiary of the Oahu Sugar Company. Site 7346, a feature of which was previously recorded to the west of the Petition Area, is described in the AIS as a collection of plantation-era irrigation infrastructure features associated with commercial cultivation of the Petition Area likely beginning after 1916, a date marking the availability of water in the Petition Area brought by the Waiāhole Ditch.

43. Research and consultation were also conducted regarding the Pohakea Trail. No physical evidence of the Trail is evident in the Petition Area as it appears it was superseded by a roadway that runs along and outside the boundaries of the Petition Area.

44. SIHP Site 2268 (Waiāhole Ditch) was evaluated as significant under Criterion a and Criterion c, the significance of this site with respect to both its engineering aspects and its effects on O‘ahu’s physical and political landscapes cannot be overstated. As the Waiāhole Ditch continues to be a functioning water source for irrigation and other purposes, and as it will remain beyond the footprint of any Mahi Solar ground lease areas, per Section 13-284-8 (a)(1)(A), HAR, the recommended treatment for this site with respect to the current project was “avoidance and protection” during development activities.

45. SIHP Site 7346 (Oahu Sugar Company Irrigation infrastructure) was evaluated as significant under Criterion a as the agricultural fields that this infrastructure supported were significant in Hawaii’s plantation history. As the study of this site (both archaeologically and cartographically) has yielded information on 20th century land use practices, SIHP Site 7436 was also evaluated as significant under Criterion d. While it was the contention of the AIS that the archaeological research potential for SIHP Site 7436 within the Petition Area had likely been exhausted, the possibility (albeit remote) remains that as of yet significant undiscovered aspects of this site, or archaeological resources that predate this site, could be encountered within the Petition Area; therefore, per Section 13-284-8(a)(1)(C), HAR, the recommended treatment for this site with respect to the Project is “monitoring” during development activities.

46. As evidence indicates that the Pohakea Trail passes outside the Petition Area, no recommendations were made with respect to that resource.

47. A Ka Pa‘akai O Ka ‘Āina Cultural Practices and Resources Analysis (“Cultural Practices Analysis”) was prepared for the Petition Area. The Cultural Practices Analysis is intended to aid the Petitioner and the State of Hawai‘i and its associated agencies with addressing

preservation and protection of traditional and customary rights with respect to the Petition Area.

The Cultural Practices Analysis assesses the following:

- a. The identity and scope of “valued cultural, historical, or natural resources” in the Petition Area, including the extent to which traditional and customary native Hawaiian rights are exercised in the Petition Area;
- b. The extent to which those resources—including traditional and customary native Hawaiian rights—will be affected or impaired by the proposed action; and
- c. The feasible action, if any, to be taken by the LUC to reasonably protect native Hawaiian rights if they are found to exist.

48. The Cultural Practices Analysis relies on historical archival sources, prior cultural and archaeological studies, and consultation with community members who have genealogical ties and long-standing residency to the proposed Petition Area to identify whether any valued cultural, historical, or natural resources are present within said area.

49. The following have been identified as traditional customary practices that formerly took place within the general vicinity of the Petition Area:

- a. The Pohakea Trail is a trail that connects the lands of Honouliuli (‘Ewa) and Lualualei (Wai‘anae) via the Wai‘anae Mountains and it is referenced in both traditional literature and by consulted parties. The trail has been described as passing near the northern section of the Petition Area. The access is currently blocked by a gate that is outside the Petition Area and controlled by other parties, not the Petitioner.
- b. The following native plant regimes were referenced throughout Honouliuli: ma‘o (*Gossypium tomentosum*) blossoms, ‘ilima (*Sida fallax*), ōhai (*Sesbania tomentosa*), koai‘a (*Acacia koaia*), kukui (*Aleurites moluccanus*), wiliwili (*Erythrina*

sandwicensis), nohu (*Tribulus cistoides*), ‘ōhi‘a lehua (*Metrosideros polymorpha*), and kauno‘a (*Cuscuta sandwichiana*), red pilipili grass (*Chrysopogon aciculatus*). The results from consultation suggest that no traditional agricultural practices nor traditional gathering of plant resources is currently taking place in the Petition Area.

c. Warfare took place in Honouliuli over centuries as warring chiefs from inter-island polities sought more land and political prestige. While warfare in the Petition Area has not taken place for many generations, the consulted individuals recognize the area as an important aspect of O‘ahu’s Hawaiian history and heritage. Historical records indicate that the battle occurred on the plains of Keahumoa which is located to the area north of the Petition Area. It is unlikely the proposed Project would have any direct adverse impacts to the battle site.

d. The southwestern portion of the Petition Area is situated at the base of Pu‘u Ku‘ua and was known for its extensive stands of sandalwood. Consultants describe a heiau atop Pu‘u Ku‘ua as being culturally significant. Astronomical observations also occurred in Pu‘u Ku‘ua and a population of kauā once lived in Pu‘u Ku‘ua. However, by the early 19th century, Pu‘u Ku‘ua and the surrounding area was sparsely populated and nearly abandoned.

e. All of the consulted parties acknowledged the history of intensive agriculture practices and its resulting impacts on the natural and cultural resources once located in the Petition Area. However, since historical agricultural practices, such as sugarcane and pineapple cultivation, were often not conducted in gulches, ravines, and ridgelines there is a possibility of finding remnant cultural sites in those areas. There is also the possibility of finding remnant subsurface features in formerly cultivated areas.

Flora and Fauna

50. With respect to flora, no threatened, endangered, or special species were seen in the Petition Area. Because the habitat observed was transformed by previous land use it is either dominated by non-native invasive species or used for cultivation of crops.

51. Within the Petition Area, there are three state listed and federally listed species that could be found foraging or using the site for breeding habitat. The Hawaiian hoary bat, ‘elepaio, and Hawaiian short-eared owl (pueo) are known to be present adjacent to or at times within the site. While other state and federally listed species are present on O‘ahu, none require implementation of specific study or mitigation measures.

Visual Resources

52. The Project will be developed on agricultural lands and will not be visible from distant view sheds articulated in the Central O‘ahu SCP and ‘Ewa DP. The Project will have a relatively low profile and will run with the existing topography of the land. At peak height, the PV panels will be no more than 12 feet above ground level.

53. The Project may be visible from some locations along Kunia Road, but, in most cases, it is blocked by existing berms and vegetation. The Project is not located near residential communities however, the Project may be slightly visible to the public from distant areas along the H-1 freeway or mauka of the Project such as Makakilo Drive and from Pearl City; however, the Project is not anticipated to substantially affect these existing distant views.

54. Landscaping will be incorporated on top of the existing 5-foot tall berm to ensure screening, particularly along Kunia Road. Landscape treatments include visual screening plants ranging in mature height from 2 to 8 feet tall, and proposed trees range in mature height from 12 to 15 feet tall.

55. Landscape treatments identified for other portions of the Project are comprised of low visual screening plants. These plants will provide appropriate landscaping that would avoid blocking necessary sunlight on the panels which is vital for generating solar power.

56. The PV panels in the Petition Area will be most visible from Pālāwai Street, which is an agricultural road used to access Kunia Loa Ridge Farmlands. However, landscaping will be integrated along the Project boundary to provide screening. Mahi Solar has conducted outreach with the existing members of the Kunia Loa Ridge Farmlands to discuss the Project.

ENVIRONMENTAL IMPACTS Chapter 343, HRS

57. The Project does not trigger the need to complete an Environmental Assessment or Environmental Impact Statement under Chapter 343, HRS.

Air Quality

58. The Project is not expected to have a substantial negative impact on air quality. There will be short-term impacts during the construction period in the form of exhaust from increased traffic and fugitive dust generated by the construction activity. A dust control management plan will be developed and effects on air quality during construction will be mitigated by compliance with provisions of Section 11-60.1-33, HAR, on Fugitive Dust. Operations at the Project site will not adversely affect air quality. No odors will be generated directly from the operation of the SEF.

Noise

59. Short-term noise impacts may result if supplemental grass trimming by mechanical means is required for maintenance of the Project. During construction, short-term noise levels and air impacts are likely to occur as a result of earth moving equipment and construction vehicles. Construction activities will comply with applicable state regulations.

Water Quality

60. Based on the Project design, no adverse effect to water resources, including Honouliuli Stream or its tributaries, is anticipated. Grading will be outside of the channel and limited to where it is needed, so the Project will not significantly alter existing drainage patterns. Stormwater runoff will be appropriately addressed through design features that incorporate temporary erosion controls and post-construction Best Management Practices (“BMPs”) to minimize the quantity and water quality impacts of the runoff. BMPs will be identified as part of a Temporary Erosion and Sediment Control Plan (“ESCP”) and Permanent Post-Construction BMP Plan, which will be prepared and submitted for approval in accordance with the requirements of Department of Health’s (“DOH”) National Pollutant Discharge Elimination System (“NPDES”) permit and DPP’s Water Quality Rules. Temporary BMPs will include minimization of soil disturbance (particularly during periods of heavy rain), erosion prevention and sediment control measures (e.g., silt fencing, sediment traps/basins, etc.), proper stabilization and stockpiling procedures, and other good housekeeping measures. Permanent BMPs will include retention, biofiltration, or filtration treatment controls. Given the relatively short duration of construction, and with implementation of BMPs as part of an approved ESCP and Post-Construction Storm Water Quality Plan, the potential for sedimentation or increased pollutants in stormwater runoff is expected to be minimal.

SOCIO-ECONOMIC IMPACTS

61. The investment of solar development in Hawai‘i will support the state’s economy by using vacant agricultural lands for a revenue generating project which will be spent in the state. The Project will result in construction spending, collection of applicable state and county taxes, and the creation of short-term construction-related jobs and long-term operational positions. The

Agricultural Plan developed for the Project will also support the state’s agriculture industry. The Project will help farmers by providing land and water at a nominal cost, allowing farmers to test agricultural activities at a commercial scale. Results from Mahi Solar and HARC’s data of farming practices at the site are intended to be shared so that farmers and solar developers can find new and more productive ways of using Hawai‘i’s agricultural land for both farming and renewable energy.

62. The Project would also create approximately 340 jobs during the peak of construction and another 2-3 long-term positions during operations, as well as supporting local farming and increasing the number of acres of LSB Class B and C land in active agricultural use.

ADEQUACY OF PUBLIC SERVICES AND FACILITIES

Roadways

63. The Project will generate a negligible amount of vehicle traffic when the Project is fully constructed and operational. The volume of traffic generated by construction of the Project is not expected to result in the need for roadway enhancements. However, the addition of vehicles, particularly large trucks, turning into and out of the site access road intersections along Kunia Road, may require temporary signage to raise driver awareness and enhance safety.

64. To minimize the potential impacts to traffic operations, particularly during construction of the Project, the following elements in the construction traffic management plan (“CTMP”) will be included:

- a. Install temporary signage on mauka-bound and makai-bound Kunia Road prior to approaching the site access intersections to indicate the presence of trucks entering/exiting the roadway near each of the three site access roads.

b. Field verify available sight distance and maintain adequate sight distance for drivers exiting site access locations and turning onto Kunia Road. Maintenance may include pruning vegetation and not installing signage or other barriers that could block a driver's field of vision at the intersection.

c. Extend the painted median solid double yellow line delineating the "Do Not Pass" zone for mauka-bound vehicles at least an additional 500 feet approaching the site access intersections.

d. The trips generated by the Project once it is fully operational are negligible and no traffic improvements are required. Upon completion of the Project construction, the extension of the "Do Not Pass" zone could be maintained or eliminated at the discretion of Hawai'i Department of Transportation ("HDOT").

Water

65. No occupied facilities are planned for the Project; therefore, domestic and fire protection water service is not required. Onsite water demand is anticipated to be minimal and limited to a drip irrigation system or the use of water trucks to provide start up irrigation for screening plants. As compared to a spray irrigation system, a drip irrigation system will minimize water waste due to the reduction of overspray on roads and non-planted areas and will also reduce losses as a result of evaporation and wind drift. Runoff and soil erosion will be minimized as low volumes of water are directed towards individual plants near the soil surface. The irrigation system will be operated during the evenings or early morning hours to further lessen the water losses due to evaporation.

66. Onsite water supply for supporting the farming activities will be designed into the solar farm to ensure compatibility with the operation and maintenance activities. The Project will

have access to water for agriculture through its lease agreements for the property. Irrigation infrastructure will be installed as needed with soft-material hoses and drip feeder lines strategically located to support crop production. The site layout for the Project will be designed to minimize impacts to existing KWA water lines. If necessary, KWA water lines will be relocated to avoid conflicts and provide access for maintenance and repair.

Drainage

67. Based on the Project design, no adverse effect to water resources, including Honouliuli Stream or its tributaries, is anticipated. Grading will be outside of the channel and limited to where it is needed, so the Project will not significantly alter existing drainage patterns. Stormwater runoff will be appropriately addressed through design features that incorporate temporary erosion controls and post-construction BMPs to minimize the quantity and water quality impacts of the runoff. BMPs will be identified as part of a Temporary ESCP and Permanent Post-Construction BMP Plan, which will be prepared and submitted for approval in accordance with the requirements of DOH's NPDES permit and DPP's Water Quality Rules. Temporary BMPs will include minimization of soil disturbance (particularly during periods of heavy rain), erosion prevention and sediment control measures (e.g., silt fencing, sediment traps/basins, etc.), proper stabilization and stockpiling procedures, and other good housekeeping measures. Permanent BMPs will include retention, biofiltration, or filtration treatment controls. Given the relatively short duration of construction and with implementation of BMPs as part of an approved ESCP and Post-Construction Storm Water Quality Plan, the potential for sedimentation or increased pollutants in stormwater runoff is expected to be minimal.

Wastewater

68. The Project will be constructed on a vacant portion of the Project properties. Occupied facilities will not be located on the site, as such no wastewater facilities are required.

Solid Wastes

69. The nearest solid waste facility is the Waimānalo Gulch Sanitary Landfill, located approximately seven miles southwest of the Project site. The PVT Land Company Integrated Solid Waste Management Facility, which accepts construction and demolition waste, is also readily accessible from the Project site. Construction and operation of the Project is not anticipated to generate a significant amount of solid waste. During construction, waste will be temporarily stored onsite and periodically transported and properly disposed of at a permitted facility. Little to no waste will be generated during operation.

Police and Fire Protection

70. Impacts to the police and fire departments' operations or ability to provide adequate protection services to the surrounding community are also not anticipated. No residential use is being proposed as part of the Project, therefore, there will be no increase to the existing population in the area that will require additional public service needs.

71. Primary fire protection of the Project site is provided by the Honolulu Fire Department ("HFD") Station 12 located at 94-121 Leonui Street in Waipahu, approximately 2.7 miles south of the site. The Project is not expected to affect HFD operations or ability to provide fire protection services to the Project and surrounding area. Design of the site, structures, and fire access for the Project will be based on applicable requirements of the State Fire Code.

72. "Clear" areas which are buffers around the Project equipment area where combustible vegetation has been removed in order to slow or stop the spread of wildfire will be integrated into the Project design. A minimum clear area of 10 feet around ground-mounted solar

PV installations will be provided. Particular attention will be paid to clearing areas around transformers, under power lines, and around the BESS cabinets. Fencing will also be provided around the perimeter of PV panel areas, at the Project substation, HECO switchyard, and BESS area. Batteries will be installed in self-contained enclosures that are constructed across an open-air gravel pad. The self-contained enclosures are remotely monitored and are intended to contain/suppress fires with no active fire response necessary from HFD.

Schools

73. The Project will not require improvements to schools, as there will be no population increase with the Project's development. The Project site is located in the State Department of Education Leeward District, Campbell-Kapolei Complex Area. Educational facilities geographically located nearest to the Project site are within the Pearl-City Waipahu Complex Area and include the following:

- a. Kalei'opu'u Elementary located at 94-665 Ka'aholo Street in Waipahu.
- b. Honowai Elementary located at 94-600 Honowai Street in Waipahu.
- c. Waipahu Elementary School located at 94-465 Waipahu Street in Waipahu.
- d. Waipahu Intermediate School located at 94-455 Farrington Highway in Waipahu.
- e. Waipahu High School located at 94-1211 Farrington Highway in Waipahu.

74. No facilities associated with the Project will be occupied; therefore, the Project is not expected to adversely affect existing educational facilities or operations near the Project site.

Air Operation Areas

75. A Glare Study was completed for the Project to assess glare resulting from the SEF. The study identifies sensitive viewers near the Project, including the Kunia Loa Ridge Farmlands,

Kunia Road (State Highway Route 750), Kalaeloa Airport, and Wheeler Army Airfield. Results of the analysis determined that no potential glare will be visible from the proposed solar operations due to the orientation of the single-axis true tracking PV panels and distance from sensitive views to the Project. As such, it was determined that no glare related impacts to airport operations, nearby structures, and motorists on Kunia Road would occur as a result of the Project's development. Additionally, the heat island effect of PV panels has been studied, and there is no evidence that the presence of the SEF will raise temperatures of the area.

CONFORMANCE WITH THE COASTAL ZONE MANAGEMENT PROGRAM

76. The Coastal Zone Management Program (the "CZMP") is a comprehensive nationwide program that establishes and enforces standards and policies to guide the development of public and private lands within the coastal areas. In the State of Hawai'i, the CZMP is articulated in the State CZM Law in Chapter 205A, HRS. Virtually all subject areas relate to potential development impacts on the shoreline, near shore, and ocean area environments. The Project site is located far mauka of any coastal recreational area, therefore the Project does not directly provide for or affect coastal recreation access to the public and will not impact coastal resources of significant value.

CONFORMANCE WITH THE SUP GUIDELINES

77. Under the City and County of Honolulu Administrative Rules Part I - Rules of the Planning Commission, Section 2-45 identifies tests consisting of five guidelines to be applied to determine if a project is considered an unusual and reasonable use. These guidelines and the Project's applicability are detailed below.

- a. *The use will not be contrary to the objectives of the State Land Use Law and regulations;*

Under the State Land Use Law, SEFs on lands with soil classified by the LSB's detailed land classification as overall master productivity rating B or C, for which a SUP is granted pursuant to Section 205-6, HRS, are permitted, provided that the Project is made subject to three conditions:

“1. The area occupied by the solar energy facilities is also made available for compatible agricultural activities at a lease rate that is at least fifty percent below the fair market rent for comparable properties.” The Petitioner will provide land plots and water to farmers at a nominal cost, which will be at a rate below fifty percent of the fair market rent for compatible properties, to support the cultivation and testing of agricultural activities at commercial scale. The Agricultural Plan includes an Agrivoltaic Program that will be implemented in cooperation with HARC. Plots of agricultural land located directly between and under the PV panels will be cultivated for compatible market crops, such as lettuce and basil. Livestock grazing and the establishment of nitrogen-fixing legumes such as alfalfa and perennial peanut, and high quality, low growing grasses such as bahia grass, oats, and barley are also proposed.

“2. Proof of financial security to decommission the facility is provided to the satisfaction of the appropriate county planning commission prior to the date of commencement of commercial generation.” Prior to the closing of a building permit for the SEF, the Petitioner will submit to the DPP proof of financial security to decommission the Project and restore the Petition Area to substantially the same physical condition as existed prior to development of the Project. Such proof may include, but not be limited to, a posted letter of credit, performance bond, escrow

account, or similar mechanism from a creditworthy financial institution. This will be in favor of the owners of the land subject to the SUP, in the amount based on the used acreage of that landowner by the Project multiplied by the 2020 estimated rate of decommissioning established by the Petitioner's consultant, Engineering Analytics, Incorporated (\$6,830 per acre of the constructed solar project, escalated per year for inflation), which security will remain in place for the duration of the SUP.

“3. Solar energy facilities shall be decommissioned at the owner's expense according to the following requirements: a) Removal of all equipment related to the solar energy facility within twelve months of the conclusion of operation or useful life; and b) Restoration of the disturbed earth to substantially the same physical condition as existed prior to the development of the solar energy facility.” The decommissioning plan for the Project covers all of these requirements. The decommissioning activities will include the complete removal of the foundational piles and modules and all associated components to a depth of 24 inches below grade, which include any concrete foundations within 12 months of the conclusion of operation or useful life. The site will be restored to the original topography and revegetated.

b. The use would not adversely affect surrounding property;

The existing development pattern in the vicinity of the Project follows existing zoning and is consistent with the land use character and development pattern that is called for in the City and County of Honolulu's Central O'ahu SCP and the 'Ewa Development Plan DP. The proposed use of this agricultural land

for the solar project is compatible with the existing land use of the site and surrounding area.

The nearest residential areas to the Project are Royal Kunia, located approximately 1.2 miles southeast, and Waipahu, located approximately 2 miles southeast. The westernmost portion of Mililani Town is located approximately 1.9 miles to the east. A view study was conducted for the Project which found that visibility is minimal and is not expected to result in significant adverse impacts. The SEF will be developed on agricultural lands and will have a relatively low profile that will run with the existing topography of the land. Landscaping will also be integrated to provide privacy and screen distant views of the Project. Landscaping along Kunia Road will be planted on top of the existing five-foot tall berm to ensure screening.

Noise or odors are not anticipated to adversely affect surrounding properties. During construction, short-term noise levels and air impacts are likely to occur as a result of earth moving equipment and construction vehicles. Construction activities will comply with applicable county and state regulations.

Impacts relating to glare resulting from the Project are also not anticipated. A Glare Study was completed which determined no potential glare will be visible from the proposed solar operations due to the orientation of the PV panels and distance from sensitive views to the Project. As such, it was determined that no glare related impacts to airport operations, nearby structures, and motorists on Kunia Road would occur as a result of the Project's development.

Significant traffic related impacts are not anticipated to occur with the Project's development. The Project is not expected to result in the need for typical roadway capacity enhancements. However, during construction, the addition of vehicles, particularly large trucks, turning into and out of the site access road intersections along Kunia Road, may necessitate some modification of traffic control devices in the area to raise driver awareness and enhance safety. To minimize the potential for short-term traffic impacts, a CTMP will be prepared and implemented for the Project.

c. The use would not unreasonably burden public agencies to provide infrastructure (i.e., roads, wastewater, water, drainage and school improvements, police, and fire protection);

The Project will not require public agencies to provide infrastructure, including new roads, wastewater, water, and drainage to support the Project. The Project will not require improvements to schools, as there will be no population increase with the Project's development. Impacts to the police and fire departments' operations or ability to provide adequate protection services to the surrounding community are also not anticipated. No residential use is being proposed as part of the Project, therefore, there will be no increase to the existing population in the area that will require additional public service needs.

d. Trends and needs have arisen since the district boundaries and regulations were established; and

Hawai'i is the most petroleum-dependent state in the United States. In response to this dependency, the State of Hawaii created the HCEI in 2008 and in 2015, set

a goal of having 100 percent of electricity sales come from renewable sources by the year 2045 (Act 97). With this, the need for utility-scale SEFs on O‘ahu has continued to increase as the State of Hawai‘i works towards achieving energy efficiency and renewable energy.

The purpose of the Project is to provide low-cost renewable energy in the form of solar electric power to HECO’s existing power grid. Selected as part of HECO’s competitive Request for Proposal process, Mahi Solar is one of 15 HECO Stage 2 renewable energy projects. The 620-acre Petition Area is projected to generate a total of 120 MW of energy, which is enough to power approximately 37,000 O‘ahu homes or 4 percent of the island’s electricity annually.

e. The land upon which the proposed use is sought is unsuited for the uses permitted within the district.

The land upon which the Project is sought is suited for uses permitted within the Agricultural District, including agricultural cultivation and SEFs. However, the co-location of agricultural uses with SEF on LSB-rated B and C lands is allowed by Section 205-4.5, HRS only by SUP and thus considered suitable for the establishment of the Project.

78. The LUC concurs with the assessment and recommendations of Petitioner’s Archaeological Inventory Survey for the two identified historic sites, the Waiahole Ditch and the Oahu Sugar Company irrigation infrastructure.

79. The LUC concurs that based upon the record presented, 1) the identified valued cultural, historic and natural resources include, Pohakea Trail, Ali‘i battle sites, a heiau atop Pu‘u Ku‘ua, traditional agricultural practices, cultural visual corridor to Mauna Kapu, 2) the potential impacts

of the project to these valued resources include, impact of access to Pohakea Trail, access of native tenants to gather plant resources for cultural purposes, potential impacts to the cultural visual corridor to Mauna Kapu, impacts to the Waiahole Ditch, and 3) the mitigation measures to address the potential impacts shall include the Project shall not impede reasonable access to Pohakea Trail or to gather plant resources for cultural purposes, shall not adversely impact the Waiahole Ditch, and shall coordinate with knowledgeable cultural resources, including Mr. Philpot, mitigation to minimize the impact to the visual corridor to Mauna Kapu.

RULINGS ON PROPOSED FINDINGS OF FACT

Any of the proposed Findings of Fact submitted by any party not already ruled upon by the Planning Commission by adoption, or rejected by clearly contrary Findings of Fact, are hereby denied and rejected.

Any Conclusions of Law herein improperly designated as a Findings of Fact should be deemed or construed as a Conclusion of Law; and Findings of Fact herein improperly designated as a Conclusion of Law should be deemed or construed as a Findings of Fact.

CONCLUSIONS OF LAW

1. The LUC has jurisdiction over this matter pursuant to HRS §205-6, and HAR §§15-15-95 and 15-15-96.
2. Based upon the record and pursuant to HRS §205-6, HRS and HAR §15-15-95 *et seq.*, the LUC finds that the Project meets the guidelines for determining an "unusual and reasonable use" and "would promote the effectiveness and objectives" of HRS Chapter 205 within the State Land Use Agricultural District.

3. The Project constitutes an unusual and reasonable use within the agricultural district other than those for which the district is classified, and complies with §205-6(a), HRS.

4. The Project constitutes an exceptional situation where the use desired would not change the essential character of the district nor be inconsistent therewith. Save Sunset Beach Coalition v. City and County of Honolulu, 102 Haw. 465, 78 P.3d 1 (2003).

5. The Project constitutes a use that would promote the effectiveness and objectives of HRS Chapter 205, and complies with §205-6(c), HRS.

6. The Project is consistent with the "overarching purpose" of HRS Chapter 205 which is to "protect and conserve natural resources and foster intelligent, effective, and orderly land allocation and development." Kaua'i Springs v. Planning Commission, 130 Haw. 407, 312 P.3d 283 (2013).

7. The Project's Agricultural Plan dedicates the land to long-term agricultural uses, supports the sustained growth of agriculture uses, supports the sustained growth of the agricultural industry, and meets the objectives of IAL land articulated by Section 205-42, HRS.

8. Article XI, section 1, of the Hawai'i State Constitution requires the State to conserve and protect Hawai'i's natural beauty and all natural resources, including land, water, air, minerals, and energy sources, and to promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the State.

9. The LUC has considered Article XI, Section 1, of the Hawai'i State Constitution and finds that the Project is in compliance and non-violative therewith. Article XI, Section 1, of the Hawai'i State Constitution states that all public natural resources are held in trust by the State for the benefit of the people. When an agency is confronted with its duty to perform as a public

trustee under the public trust doctrine, it must preserve the rights of present and future generations in the waters of the State. The agency's duty and authority is to maintain the purity and flow of our waters or future generations and to assure that the waters of our land are put to reasonable and beneficial use for the public's benefit pursuant to FOF Nos. 57-75.

10. Article XI, Section 3, of the Hawai'i State Constitution requires the State to conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency, and assure the availability of agriculturally suitable lands. The Petition Area has approximately 69.5 acres located within lands classified as Important Agricultural Land under Part III of HRS chapter 205.

11. The LUC has considered Article XI, section 3, of the Hawai'i State Constitution and finds that the Project is in compliance and non-violative therewith pursuant to FOF Nos. 76-77.

12. Article XII, Section 7, of the Hawai'i State Constitution requires the State to protect Native Hawaiian traditional and customary rights. The State reaffirms and shall protect all rights, customarily and traditionally exercised for subsistence, cultural, and religious purposes and possessed by ahupua'a tenants who are descendants of Native Hawaiians who inhabited the Hawaiian Islands prior to 1778, subject to the right of the State to regulate such rights.

13. The LUC has considered Article XII, Section 7, of the Hawai'i State Constitution and finds that the Project is in compliance and non-violative therewith pursuant to FOF Nos. 41-49 and 78-79.

14. The State, Counties and their agencies are obligated to protect the reasonable exercise of customarily and traditionally exercised Native Hawaiian rights to the extent feasible.

Public Access Shoreline Hawai'i v. Hawai'i County Planning Commission, 79 Hawai'i 425, 903,

P.2d 1246, certiorari denied, 517 U.S. 1163, 116 S.Ct. 1559, 134 L.Ed.2d 660 (1996). The LUC has considered such responsibilities and obligations and finds the Project to be consistent and non-violative therewith.

15. The LUC is empowered to preserve and protect customary and traditional rights of Native Hawaiians. Ka Pa 'akai O Ka 'Aina v. Land Use Commission, 94 Hawai'i 31. The LUC has considered such responsibilities and obligations and finds the Project to be consistent and non-violative therewith pursuant to FOF No.s 47-49.

16. HRS §205-4.5(a)(21), permits Solar Energy Facilities ("SEF") on lands with soil classified by the LSB's detailed land classification as overall (master) productivity rating B or C for which an SUP is granted pursuant to HRS § 205-6; provided that:

(A) The area occupied by the SEF is also made available for compatible agricultural activities at a lease rate that is at least 50 percent below the fair market rent for comparable properties;

(B) Proof of financial security to decommission the facility is provided to the satisfaction of the appropriate county planning commission prior to date of commencement of commercial generation; and

(C) SEF shall be decommissioned at the owner's expense according to the following requirements:

(i) Removal of all equipment related to the SEF within 12 months of the conclusion of operation or useful life; and

(ii) Restoration of the disturbed earth to substantially the same physical condition as existed prior to the development of the SEF.

17. The LUC finds the Project has satisfied the requirements of Section 205-4.5(a)(21), HRS pursuant to COL paragraph 16.

18. The LUC finds DPP and the Applicant have satisfied the Notice requirements contained in HRS §205-6; HAR §15-15-95(d); and Planning Commission Rules Subchapter 4.

19. The Project is consistent with the Legislature’s statement of energy policy, as set forth in HRS§196-1, HRS §226-18, and the State of Hawaii’s stated policy to mitigate its greenhouse gas emissions by sequestering more atmospheric carbon and greenhouse gases than the State produces as quickly as practicable, but no later than 2045 pursuant to HRS Chapter 225P, HRS§225P-1.

DECISION AND ORDER

Having duly considered the complete record in this matter and the oral arguments presented by the Petitioner in this proceeding, and a motion having been duly made and seconded at a meeting conducted on September 9, 2021, in Honolulu, Hawaii, and the motion having received the affirmative votes required by section 15-15-13, HAR, and there being good cause for the motion, the LUC hereby APPROVES the Petition for a State special Permit for the Project, consisting of approximately 620 acres of land in the State Land Use Agricultural District identified by TMK Nos. (1) 9-2-001:020 por. and (1) 9-2-004:003 por., 006 por., 010 por., and 012 por. in the AG-1 Restricted Agricultural District of O‘ahu, Hawaii, and shown approximately on Exhibit “A”, attached hereto and incorporated by reference herein, subject to the following conditions:

1. Usable lands of the Petition Area, as required under Section 205-4.5(a)(21)(A), HRS, shall be made available for compatible agricultural use at a lease rate that is at least 50 percent below the fair market rent for comparable properties, as long as the Project is in operation.

Compatible agricultural operations shall be established, or the Petitioner shall be actively seeking to have such operations established, within six months of the start of commercial power generation (referred to as the “initial six-month period”). Extensions to this deadline may be granted by the Director of the DPP due to unforeseen circumstances that were beyond the control of the Applicant. The Agricultural Plan, approved by the Director of the DPP, shall include the following:

- a. The Agrivoltaics Program as outlined in the Petition as ‘proof-of-concept’ to determine the suitability of the to-be-determined agricultural activities to be researched and field trialed by the HARC.
- b. A collaborative process establishing an organization or association between the Petitioner and the individual agricultural operators interested in and working in the Petition Area for agricultural productions including livestock, crops, or hydroponics.
- c. An irrigation system proposed for future agricultural activities that may occur under and adjacent to the solar panel arrays.
- d. Fencing and gating to be in place prior to full operation of the Project to prepare for the needs of the anticipated agricultural activities.

2. If at any time during the term of the SUP no compatible agricultural operations exist on the usable lands of the Petition Area for six months after the initial six-month period (referred to as the “subsequent six-month periods”), the Petitioner shall notify the Planning Commission and the Director of the DPP in writing within 30 days of the end of any subsequent six-month periods. If requested by the Planning Commission, the Petitioner shall attend a meeting of the Planning Commission and submit a report to the Planning Commission detailing the Petitioner’s actual and reasonable efforts to actively seek the establishment of compatible agricultural operations on the usable lands of the Petition Area. The Planning Commission shall

determine whether probable cause exists to re-evaluate the SUP and to hold a hearing pursuant to Section 2-49 of the Rules of the Planning Commission. Extension to any subsequent six-month period's deadlines may be granted by the Planning Commission for unforeseen extenuating circumstances.

3. This SUP operational period shall be valid for a period of 25 years plus a 10-year extension preceded by three-years of construction and 12 months of decommissioning from the date of the State LUC Decision and Order approving the SUP, subject to further extensions upon a timely request for extension filed with the Planning Commission at least 120 days prior to the SUP's 39-year expiration. Approval of time extensions shall be required from the Land Use Commission.

4. The Petitioner shall establish the Project within three years of the date of the LUC's Decision and Order approving the SUP. Requests for extension of this deadline shall be submitted to the Director of the DPP prior to the expiration of the deadline. The Land Use Commission may grant an extension to the deadline to establish the Project due to unforeseen circumstances that were beyond the control of the Petitioner.

5. Approval of the AIS from the SHPD shall be obtained prior to the issuance of building permits. Any specific required conditions of such approval may be added to the CUP or grading permit or building permit at the discretion of the Director of the DPP.

6. The Petitioner shall submit for review and obtain the approval of the following from the Director of the DPP, prior to any subdivision action or the issuance of a grading or building permit:

a. The Agricultural Plan listed in Condition No. 1 with a site plan showing the minimum land area to be made available and the types of agricultural activity proposed for compatible agricultural use.

b. A revised landscape plan showing a proposed landscape treatment to screen the Project along the southern (makai) boundary of Petition Area Number 5, adjacent to Honouliuli National Historic site. If the Project creates a negative visual impact to the Honouliuli National Historic site in the future, and vegetative visual screening is requested by the National Park Service, the Petitioner shall install such screening.

7. Upon the conclusion of Project operations, the Petitioner, its assignees, or the landowner, shall cause the decommissioning of the Project at the Petitioner's, assignee's, or owner's expense by removing all of the equipment related to the SEF by no more than 12 months of the conclusion of operation or its useful life and the restoration of the disturbed earth to substantially the same physical condition as existed prior to the development of the SEF.

8. Prior to the closing of a building permit for the SEF, the Petitioner shall submit to the DPP proof of financial security to decommission the Project and restore the Petition Area to substantially the same physical condition as existed prior to development of the Project. Such proof may include, but not be limited to, a posted letter of credit, performance bond, escrow account, or similar mechanism from a creditworthy financial institution. This shall be in favor of the owners of the land subject to the SUP, in the amount based on the used acreage of that landowner by the Project multiplied by the 2020 estimated rate of decommissioning established by the Petitioner's consultant, Engineering Analytics, Incorporated (\$6,830 per acre of the constructed Project, escalated per year for inflation), which security shall remain in place for the duration of the SUP.

9. The Petitioner shall comply with the recommendations of the State of Hawaii, Department of Land and Natural Resources, Division of Forestry and Wildlife (“DOFAW”), regarding the protection of endangered, threatened, and native flora and fauna species and their associated habitat should be monitored and observed. If identified in the Petition Area, the Petitioner shall follow the mitigation, monitoring, and avoidance measures contained in the Biological Resource Report prepared for the Project.

10. On or before December 31 of each year that the SUP is in effect, the Petitioner or its successor shall file an annual report to the DPP, the State Office of Planning and Sustainable Development, the State Department of Agriculture and the Land Use Commission that demonstrates the Petitioner’s compliance with conditions of the SUP. The annual report shall also include, but not be limited to:

- a. The total acreage per type of agricultural activity, their yields, amount sold locally and out-of-state, and revenues in aggregate for each agricultural activity.
- b. Evidence of proof of financial security for decommissioning of the Project.
- c. Detailed records of inspection of deceased wildlife as a result of natural causes or facility operations; the hours spent by specialists training operations staff in the proper response, documentation, and reporting of any downed wildlife observed; the results of the established and implemented Downed Wildlife Observation Program; the recorded fatalities of state-listed species, federally-listed species, or species protected under the Migratory Bird Treaty Act that were reported to the DOFAW and the United States Fish and Wildlife Service; and invasive species found in the Petition Area that were reported to the Oahu Invasive Species Committee.

d. Avoidance and mitigation measures conducted to protect and preserve historic, cultural, and archeological features, sites, and resources.

e. Quantities of water demand, storage, pumping, delivery, availability by source for each of the five Project Areas prior to Phase Two of the Agrivoltaics Program of the Agricultural Plan.

11. Major modifications to: (1) The Project plans, including but not limited to significant increases in the number of PV panels; (2) Amendments to the conditions of approval; (3) Significant expansions of the approved area; or (4) Change in uses stated herein, shall be subject to the review and approval of the Planning Commission and the LUC. Minor modifications including minor additions to accessory uses and structures, and new incidental uses and structures in the approved area are subject to review and approval by the Director of the DPP.

12. The Petitioner and/or landowner shall notify the Director of the DPP of:

- a. Any change or transfer of licensee on the property;
- b. Any change in uses on the property;
- c. Termination of any uses on the property; and/or
- d. Transfer in ownership of the property.

The Planning Commission, in consultation with the Director of the DPP, shall determine the disposition of this SUP, and the facilities permitted herein.

13. Enforcement of the conditions of the SUP shall be pursuant to the Rules of the Planning Commission and the Land Use Commission, including the issuance of an order to show cause as to the reason the SUP should not be revoked if the Planning Commission has reason to believe that there has been a failure to perform consistent with representations made by the Petitioner or the conditions imposed herein.

14. The Applicant shall develop and operate the facility, including the implementation of measures to mitigate potential impacts of the Project, in substantial compliance with the representations made to the Planning Commission and the LUC as reflected in this Decision and Order. Such mitigation measures include, but are not limited to, the use of temporary and permanent BMPs to ensure that the development and operation of the facility does not result in an increase in stormwater runoff that adversely impacts downstream properties. Failure to so develop the Petition Area may result in revocation of the SP.

15. In the event that historic resources, including human skeletal remains, structural remains, cultural deposits, artifacts, sand deposits, or sink holes, are identified during demolition and/or construction activities, all work shall cease in the immediate vicinity of the find, the find shall be protected from additional disturbance, and the SHPD and O‘ahu Island Burial Council, as applicable, shall be contacted immediately. Without any limitation to any other condition found herein, if any burials or archaeological or historic sites are discovered during the course of construction of the facility, all construction activity in the vicinity of the discovery shall stop until the issuance of an archaeological clearance from the SHPD that mitigation measures have been implemented to its satisfaction. An Archaeological Monitoring Plan (“AMP”) that satisfies the requirements of HAR section 13-279-4, shall be prepared to guide monitoring and be reviewed and accepted by SHPD before work begins.

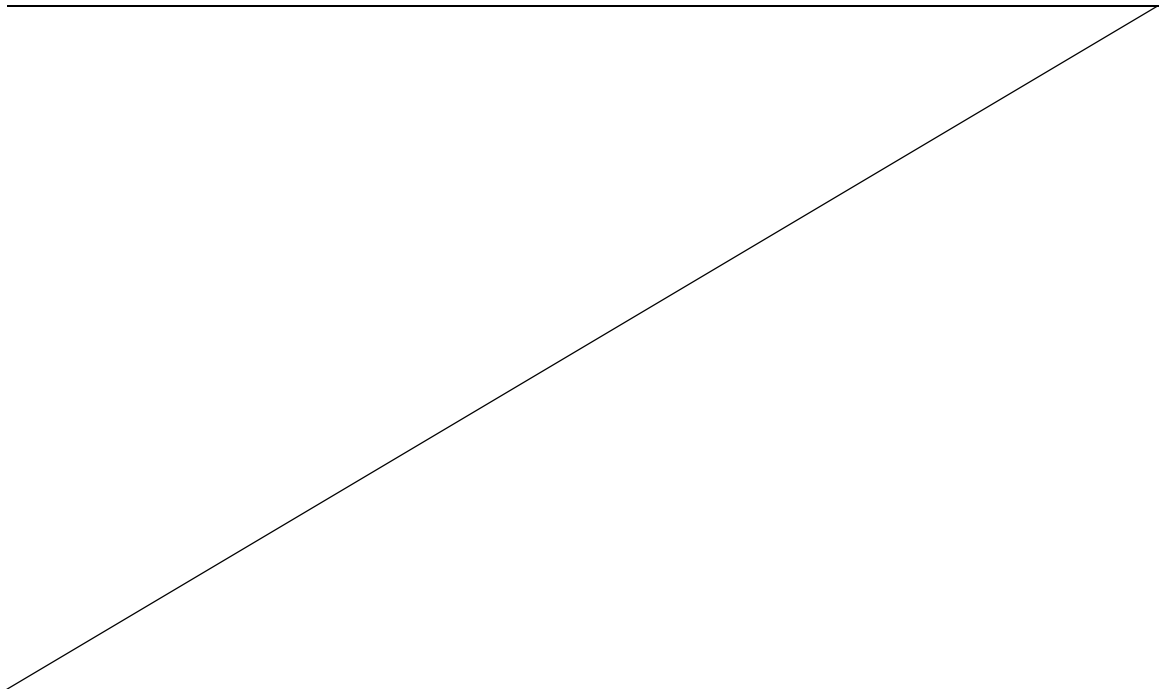
16. The Applicant will comply with the recommendations made in the Archaeological Inventory Survey with regards to the:

- Waiahole Ditch – avoidance and protection during development activities

- Oahu Sugar Company irrigation infrastructure – conduct archaeological monitoring during development activities and prepare an archaeological monitoring plan subject to acceptance by the State Historic Preservation Division prior to ground-disturbing activities.

17. The Applicant and its successors shall (1) maintain the surface and aboveground areas of the easement of the Waiahole Ditch where it traverses the Petition Area and shall have non-exclusive access to such areas; and (2) not interrupt or impair delivery of Waiahole Ditch water during construction and operation of the Project.

18. As recommended by Petitioner’s Ka Paakai O Ka Aina analysis to mitigate impacts to traditional and customary practices, Petitioner shall consult with appropriate agencies and persons who have knowledge of the Pohakea trail’s historical location and possible status and incorporate consultation recommendations in its development plans. Petitioner shall also identify and avoid all native plant communities and their associated habitats.



ADOPTION OF ORDER

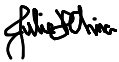
This ORDER shall take effect upon the date this ORDER is certified by this Commission.

Done at Honolulu, Hawai'i, this 17th, day of September, 2021, per motion on September 9, 2021.

LAND USE COMMISSION

APPROVED AS TO FORM

STATE OF HAWAI'I



Deputy Attorney General

By _____
JONATHAN LIKEKE SCHEUER
Chairperson and Commissioner

Filed and effective on:

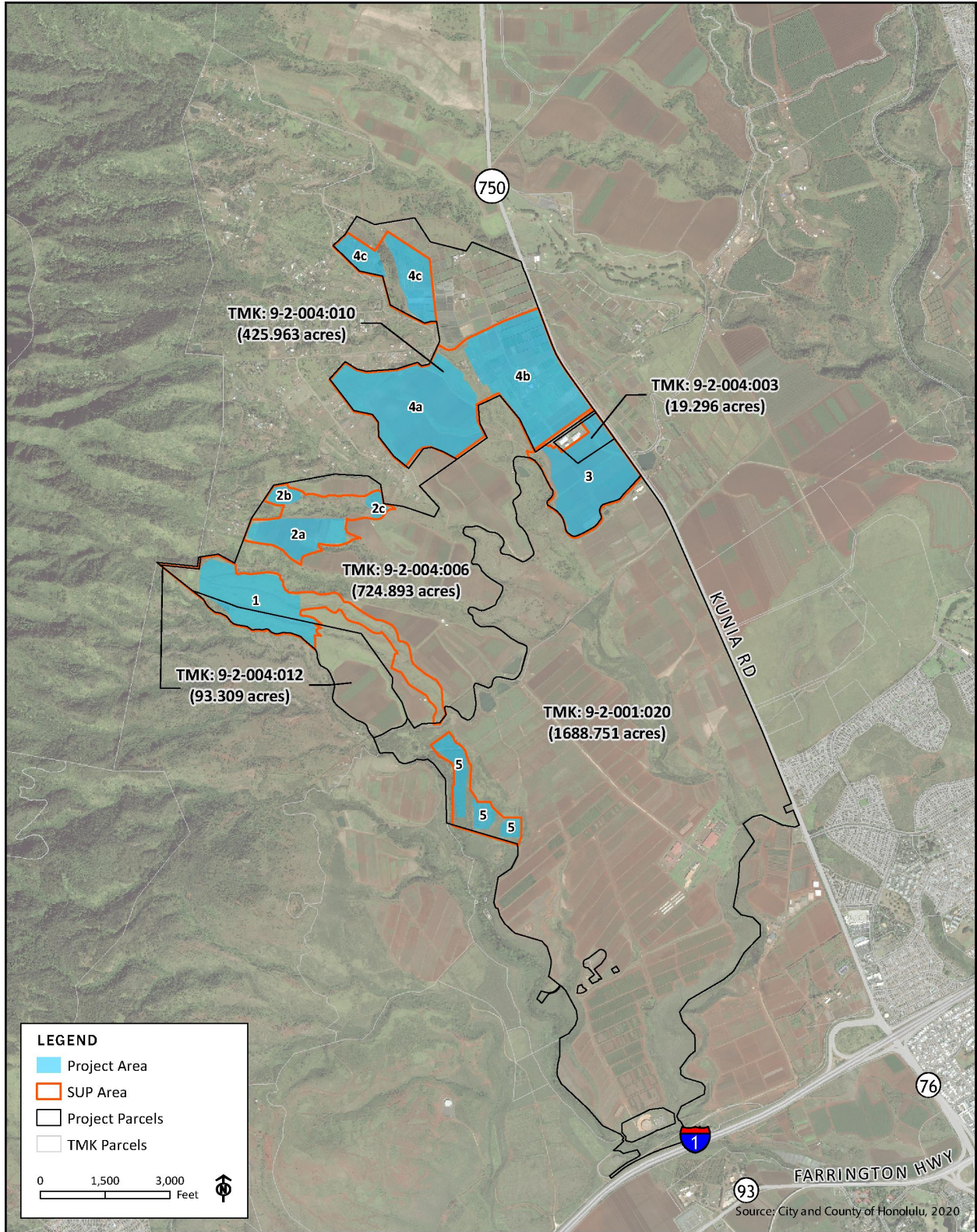
9/17/2021_____

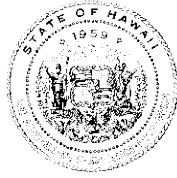
Certified by:



DANIEL ORODENKER
Executive Officer

EXHIBIT "A"





BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII

the Matter of the Petition of) DOCKET NO. SP21-412
)
MAHI SOLAR, LLC) CERTIFICATE OF SERVICE
)
)
For a Special Use Permit to Establish)
a Solar Energy Facility on)
approximately 620- acres of land)
within the State Land Use)
Agricultural District at 'Ewa District)
of O'ahu, Hawai'i; Tax Map Key)
No. (1) 9-2-001:020(por.), and)
(1) 9-2-004:003 (por.), 006 (por.), 010 (por.))
And 012 (por.)

CERTIFICATE OF SERVICE

I hereby certify that a copy of the FINDINGS OF FACT, CONCLUSIONS OF LAW. AND DECISION AND ORDER was served upon the following by either hand delivery or depositing the same in the U. S. Postal Service by regular mail as noted:

MARY ALICE EVANS, DIRECTOR
State of Hawai'i
Office of Planning
235 South Beretania Street
Room 600, Leiopapa A Kamehameha Bldg.
Honolulu, HI 96813

REGULAR MAIL

ALISON S. KATO, ESQ.
Deputy Attorney General
State of Hawai'i
Department of the Attorney General
425 Queen Street
Honolulu, HI 96813

REGULAR MAIL

DEAN UCHIDA, DIRECTOR
City and County of Honolulu
Department of Planning and Permitting
650 South King Street, 7th Floor
Honolulu, HI 96813

REGULAR MAIL

DUANE W.H. PANG, ESQ.
Deputy Corporation Counsel
City and County of Honolulu
Department of Corporation Counsel
530 S King Street, Room 110
Honolulu, HI 96813

REGULAR MAIL

RANDALL SAKUMOTO, Esq..
Five Waterfront Plaza, 4th Floor
500 Ala Moana Boulevard
Honolulu, Hawaii 96813

CERTIFIED MAIL
RETURN RECEIPT
REQUESTED

DATED: Honolulu, Hawaii, this 17th day of September , 2021.



DANIEL ORODENKER
Executive Officer