Appendix H:
Applicant Participant Inclusion Plans

Kaua‘i Seabird Habitat Conservation Program (KSHCP)

Participant Inclusion Plan (PIP)

Name of Applicant/Participant

Alexander & Baldwin, Inc.

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Appendix B2 – Seabird Awareness and Response Training Program (McBryde Facilities)

Appendix C – Standard Operating Procedures

Appendix D – A&B Downed Seabird Recovery Report Form

PART 1: Landowner & Property Information; Description of the Facilities; Avoidance & Minimization Measures; Monitoring of Take

Item 1. Provide the name of the landowner, business, agency, or institution and complete contact information. If the applicant/participant is different from the landowner, please attach power of attorney (or other documentation) allowing the party to act on the landowner's behalf.

Participant/Applicant Name:	Alexander & Baldwin, Inc. (including its subsidiaries/related entities: A & B Properties Hawaii, LLC Alexander & Baldwin, LLC McBryde Sugar Company, LLC McBryde Resources, Inc. ABP LR1 LLC ABP LR2 LLC ABP LR3 LLC Kukuiʻula Village LLC ABP Waipouli LLC KDC, LLC Kukuiʻula Development Company (Hawaii), LLC)
Physical Address/Location of Facility:	Various (see Item 2)
Mailing Address:	822 Bishop Street Honolulu, HI 96813

Primary Contact:	Ownership Name:	
	Address:	
	Email:	
	Telephone:	
Alternate Contact:	Name:	
	Address:	
	Telephone:	
	Email:	

Preparer Contact:	Name:	Lisa A. Bail, Esq.
	Address:	Goodsill Anderson Quinn & Stifel LLP 999 Bishop St., Suite 1600 Honolulu, HI 96813
	Email:	lbail@goodsill.com
	Telephone:	(808) 547-5787
Preparer Contact:	Name:	Reginald David
	Address:	Rana Biological Consulting, Inc. P.O. Box 1371 Kailua-Kona, HI 96740
	Email:	davidr003@hawaii.rr.com
	Telephone:	(808) 937-0124

Item 2. Provide the legal description of the property at which the existing facilities and Covered Activities are located, including Tax Map Key (TMK) number. Provide a survey of the property and site plan drawings showing the locations of the Covered Activities (lights), property boundaries, buildings & structures, and site features. If properties containing the Covered Activities comprise separate parcels please include all Tax Map Key numbers and maps.

The following A&B facilities are proposed for inclusion. Copies of the TMK maps and site plans for the properties below are included in Appendix A. Lighting information is indicated in Tables 1(a) through 1(m) below.

	Property Name/Description	**Owner**	**TMK Number**	**Size**
a.	Port Allen Solar Farm (solar power array) McBryde Resources, Inc. operator	McBryde Sugar Company LLC	(4) 2-1-001:051	20 acres
b.	Port Allen Center I and II (commercial/warehouse facilities)	A & B Properties Hawaii, LLC	(4) 2-1-003:004	2.67 acres
c.	Port Allen south parcels	A & B Properties Hawaii, LLC	(4) 2-1-003:029 (BEI parcel) (4) 2-1-003:030 (shore parcel)	0.813 acres 1.283 acres
d.	Port Allen parking lots	Alexander & Baldwin LLC	(4) 2-1-003:025 (4) 2-1-003:026	0.6614 acres 1.2618 acres
e.	Port Allen Steel Warehouse (commercial/warehouse facilities)	A & B Properties Hawaii, LLC	(4) 2-1-003:028	3.598 acres
f.	Port Allen Marina Center (commercial/retail center)	A & B Properties Hawaii, LLC	(4) 2-1-003:040	1.71 acres
g.	Pump 3 Hanapepe Valley (irrigation pump station) McBryde Resources, Inc. operator	McBryde Sugar Company, LLC	(4) 2-1-001:010 (portion)	0.45 acres (of 123.0683 acres)
h.	Kalaheo Powerhouse (hydroelectric plant) McBryde Resources, Inc. operator	McBryde Sugar Company, LLC	(4) 2-4-016:013 portion	0.6 acres (of 48.064 acres)
i.	Wainiha Powerhouse (hydroelectric plant) McBryde Resources, Inc. operator	McBryde Sugar Company LLC	(4) 5-8-003:003 portion	1.5 acres (of 30.87 acres)

j.	Hokulei Shopping Village (shopping center)	ABP LR1 LLC ABP LR2 LLC ABP LR3 LLC	(4) 3-3-003:046, 049, 050, 051, 052, 053	14.598 acres
k.	The Shops at Kukuiʻula (retail center)	Kukuiʻula Village LLC	(4) 2-6-015:010	10.241 acres
l.	Waipouli Town Center, Kapaa (shopping center)	ABP Waipouli LLC	(4) 4-3-008:002	4.267 acres
m.	Kukuiʻula Development (Plantation Core/The Club)	KDC, LLC	(4) 2-6-019:031 (Plantation Core)	15.264 acres

This Participant Inclusion Plan uses the foregoing letter identifications to reference the above properties throughout this document. For example, the Port Allen Solar Farm will be referenced in Table 1(a), 2(a), 3(a), etc. and Kukui'ula Development will be referenced in table 1(m), 2(m), 3(m), etc.

Item 3. Describe the existing Covered Activities for which incidental take authorization is sought. Include list of buildings, type and description of lights present, purpose and location of lights and current seabird lighting accommodation in place (e.g. shielding, downward pointing, switched off during fledging season etc.). For "Types of lights" please use the following categories:

- **Parking Lights**
- **Signage Illumination**
- **Wall-pack Building Lights**
- **Landscaping/Grounds/Accent/Bollards**
- **Indoor lights visible from outdoors**
- **Roof Floodlights**
- **Other Lights**

Facility lighting plan may be submitted as lighting inventory. Photos may be attached. The suggested light table, and Green Sea Turtle assessment table below may each be modified as needed to provide the necessary information.

Port Allen Solar Farm

Table 1(a): Lighting at Port Allen Solar Farm

List of Buildings	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
Control building	Fully shielded down pointed over door LED lights.	Over two doors on the exterior of the building.	Safety if an emergency occurs at night and service access is required.	Both lights are fully dark sky compliant and lights are not illuminated except when a night time service call is required.

Port Allen Solar Farm

Table 2(a): Green Sea Turtle Assessment for Port Allen Solar Farm

Please provide the information requested below to help determine if measures to avoid impacts to the Green Sea Turtle(s) from the effects of light attraction are required to be implemented at any of the facility(s), parcel(s), or site(s) included in this PIP. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the Green Sea Turtle, and provide further guidance.		
Are any of the facilities located adjacent to a beach?	Yes	**If yes, provide length of beach frontage & brief description of facilities & lights adjacent to the beach** This parcel includes about 60 feet of beach frontage. The solar facility itself is at least 300 feet from the beach, and there are no lights on the beach. The only lights at this facility are about 1,000 feet from the beach (and are normally off).
Are any of the Covered Activities (lights) visible from a beach?	A&B's lights are not visible from the beach.	**If yes, describe the specific lights (type, , height, purpose) & specific location; provide map & photos showing distance from beach**
Have green sea turtles been known to nest on any beaches adjacent to the facilities?	No	**If yes, provide information about nesting occurrences, if known, including location and date and any other information**

Port Allen Center I and II

Table 1(b): Lighting at Port Allen Center I and II

List of Buildings	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
Port Allen Center 1: One warehouse split into six bays, fronting Waialo Road, totaling 28,000 sq. ft.	12 flat LED panel lights	Mounted on steel building pointed down and shielded.	Safety and security	A lighting audit was conducted of the property and most of the unshielded lighting was replaced with LED that are dark sky compliant. KSHCP Table 5-1 (Biological Goals) requires that lighting avoidance and minimization be implemented "by the end of Year 1." A&B will complete its lighting and minimization by the end of Year 1.
"	4 fully shielded cylinder lights	Mounted on steel building pointed down and shielded.	Safety and security	A lighting audit was conducted of the property and most of the unshielded lighting was replaced with LED that are dark sky compliant. KSHCP Table 5-1 (Biological Goals) requires that lighting avoidance and minimization be implemented "by the end of Year 1." A&B will complete its lighting and minimization by the end of Year 1.
"	2 large fully shielded lights	On either side of the Brew Pub entrance.	Safety and security	A lighting audit was conducted of the property and most of the unshielded lighting was replaced with LED that are dark sky compliant. KSHCP Table 5-1 (Biological Goals) requires that lighting avoidance and minimization be implemented "by the end of Year 1."

				A&B will complete its lighting and minimization by the end of Year 1.
"	Eight fixtures of various types which have been deactivated	Back side of the building.	Not used anymore.	These fixtures will either be replaced, modified to make them dark sky compliant, or deactivated. KSHCP Table 5-1 (Biological Goals) requires that lighting avoidance and minimization be implemented "by the end of Year 1." A&B will complete its lighting and minimization by the end of Year 1.
Port Allen Center 2: One warehouse split into seven bays, totaling 13,198 sq. ft.	3 flat low wattage LED panels mounted so that they point straight down	On west facing wall overlooking the parking lot.	Safety and security.	A lighting audit was conducted of the property and most of the unshielded lighting was replaced with LED that are dark sky compliant. KSHCP Table 5-1 (Biological Goals) requires that lighting avoidance and minimization be implemented "by the end of Year 1." A&B will complete its lighting and minimization by the end of Year 1.
	1 bare bulb floods with two lights each	On west facing wall overlooking the parking lot.	Safety and security, only used occasionally businesses are not open at night.	These fixtures will either be replaced, modified to make them dark sky compliant, or deactivated. KSHCP Table 5-1 (Biological Goals) requires that lighting avoidance and minimization be implemented "by the end of Year 1." A&B will complete its lighting and minimization by the end of Year 1.

	I motion triggered flat LED fixture	On west facing wall overlooking the parking lot.	Safety and security.	A lighting audit was conducted of the property and most of the unshielded lighting was replaced with LEDs that are dark sky compliant. KSHCP Table 5-1 (Biological Goals) requires that lighting avoidance and minimization be implemented "by the end of Year 1." A&B will complete its lighting and minimization by the end of Year 1.
	3 bare bulbs	One on the back of the building and two by NAPA.	Safety and security, only used occasionally businesses are not open at night.	These fixtures will be replaced or modified to make them dark sky compliant or will be deactivated. KSHCP Table 5-1 (Biological Goals) requires that lighting avoidance and minimization be implemented "by the end of Year 1." A&B will complete its lighting and minimization by the end of Year 1.

Port Allen Center I and II

Table 2(b): Green Sea Turtle Assessment for Port Allen Center I and II

Please provide the information requested below to help determine if measures to avoid impacts to the Green Sea Turtle(s) from the effects of light attraction are required to be implemented at any of the facility(s), parcel(s), or site(s) included in this PIP. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the Green Sea Turtle, and provide further guidance.		
Are any of the facilities located adjacent to a beach?	No	**If yes, provide length of beach frontage & brief description of facilities & lights adjacent to the beach**
Are any of the Covered Activities (lights) visible from a beach?	No	**If yes, describe the specific lights (type, , height, purpose) & specific location; provide map & photos showing distance from beach**
Have green sea turtles been known to nest on any beaches adjacent to the facilities?	No	**If yes, provide information about nesting occurrences, if known, including location and date and any other information**

Port Allen South Parcels

Table 1(c): Lighting at Port Allen South Parcels

List of Buildings	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
Vacant Shoreline Parcel - none	None	N/A	N/A	N/A
BEI Parcel – two buildings, plus a shipping container converted to a building.	1 flat flood light	Mounted on power pole		Light is no longer functional.
"	1 unshielded streetlight, deactivated	In yard		Light is no longer functional.

Port Allen South Parcels

Table 2(c): Green Sea Turtle Assessment for Port Allen South Parcels

Please provide the information requested below to help determine if measures to avoid impacts to the Green Sea Turtle(s) from the effects of light attraction are required to be implemented at any of the facility(s), parcel(s), or site(s) included in this PIP. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the Green Sea Turtle, and provide further guidance.		
Are any of the facilities located adjacent to a beach? The vacant lot is adjacent to the shoreline but has no "facilities" other than a fuel pipeline operated by Island Energy Services The BEI lot is not adjacent to the shoreline	No	**If yes, provide length of beach frontage & brief description of facilities & lights adjacent to the beach** The vacant lot fronts the ocean. There are approximately 600 feet of shoreline frontage and no lights adjacent to the shoreline. There is no beach; the shoreline is a rock cliff
Are any of the Covered Activities (lights) visible from a beach?	No	**If yes, describe the specific lights (type, , height, purpose) & specific location; provide map & photos showing distance from beach**
Have green sea turtles been known to nest on any beaches adjacent to the facilities?	No	**If yes, provide information about nesting occurrences, if known, including location and date and any other information**

Port Allen Parking Lots

Table 1(d): Lighting at Port Allen Parking Lots

List of Buildings	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
None – unpaved parking lot located ocean side of the Marina Center.	Three LED fully shielded streetlights	Fronting Aka Ula Road *makai* of the Marina Center	Safety and security	Selected fully shielded streetlights – there are regular streetlights along Waialo Road which are operated by KIUC.

Port Allen Parking Lots

Table 2(d): Green Sea Turtle Assessment for Port Allen Parking Lots

Please provide the information requested below to help determine if measures to avoid impacts to the Green Sea Turtle(s) from the effects of light attraction are required to be implemented at any of the facility(s), parcel(s), or site(s) included in this PIP. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the Green Sea Turtle, and provide further guidance.		
Are any of the facilities located adjacent to a beach?	No (there is shoreline frontage, but no beach).	**If yes, provide length of beach frontage & brief description of facilities & lights adjacent to the beach** There are approximately 300 feet of shoreline frontage and no lights adjacent to the shoreline. There is no beach; the shoreline is rocky.
Are any of the Covered Activities (lights) visible from a beach?	No	**If yes, describe the specific lights (type, , height, purpose) & specific location; provide map & photos showing distance from beach** A&B lighting is inland of the Navy and HDOT-DOT lighting
Have green sea turtles been known to nest on any beaches adjacent to the facilities?	No	**If yes, provide information about nesting occurrences, if known, including location and date and any other information**

Port Allen Steel Warehouse

Table 1(e): Lighting at Port Allen Steel Warehouse

List of Buildings	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
One Steel warehouse building divided into seven bays totally 22,622 sq. ft.	Seven rectangular wall sconces with foil shield	Attached to the building sides	Safety and security	Most of these fixtures are no longer functional.
"	Six motion sensor activated LED panels	Attached to the building sides	Safety and security	Lights turn on only when someone approaches the building and turn off when they leave.
"	Four double bulb flood lights	Attached to building	Safety and security	These are no longer active.
"	Two downward pointed floods triggered by motion sensors	Attached to building	Safety and security	Lights turn on only when someone approaches the building and turn off when they leave.
"	Five other non-shielded fixtures	Attached to building	No longer in use	These fixtures have been deactivated, and will be removed .

Port Allen Steel Warehouse

Table 2(e): Green Sea Turtle Assessment for Port Allen Steel Warehouse

Please provide the information requested below to help determine if measures to avoid impacts to the Green Sea Turtle(s) from the effects of light attraction are required to be implemented at any of the facility(s), parcel(s), or site(s) included in this PIP. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the Green Sea Turtle, and provide further guidance.		
Are any of the facilities located adjacent to a beach?	No (there is shoreline frontage, but no beach)	**If yes, provide length of beach frontage & brief description of facilities & lights adjacent to the beach** This property fronts the ocean. There are approximately 400 feet of shoreline frontage and no lights on the makai side of the building, and all other lights on the building are motion sensor triggered. There is no beach; the shoreline is rocky.
Are any of the Covered Activities (lights) visible from a beach?	No	**If yes, describe the specific lights (type, , height, purpose) & specific location; provide map & photos showing distance from beach**
Have green sea turtles been known to nest on any beaches adjacent to the facilities?	No	**If yes, provide information about nesting occurrences, if known, including location and date and any other information**

Port Allen Marina Center

Table 1(f): Lighting at Port Allen Marina Center

List of Buildings	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
Two buildings connected by a courtyard.	56 Low wattage wall sconces	Attached to the walls of the buildings under an overhang.	Security and safety	The wattage of the bulbs has been lowered as much as they can be and still provide adequate lighting for shoppers. During the fledging season every other light is turned off at 9:00 pm.
"	Ten fully shielded down pointing streetlights	Located in the parking lots and along the front of the shopping center.	Security and safety	
"	Eight fluorescent signage illuminators, completely shielded by metal shielding	On the front of the building lighting individual store signs.	Illuminate shop signs	
"	Two CFL floods	Pointed at the entrance to the bar. Under the eaves of the building.	Illuminate bar entrance	

Port Allen Marina Center

Table 2(f): Green Sea Turtle Assessment for Port Allen Marina Center

Please provide the information requested below to help determine if measures to avoid impacts to the Green Sea Turtle(s) from the effects of light attraction are required to be implemented at any of the facility(s), parcel(s), or site(s) included in this PIP. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the Green Sea Turtle, and provide further guidance.		
Are any of the facilities located adjacent to a beach?	No	**If yes, provide length of beach frontage & brief description of facilities & lights adjacent to the beach**
Are any of the Covered Activities (lights) visible from a beach?	No	**If yes, describe the specific lights (type, , height, purpose) & specific location; provide map & photos showing distance from beach**
Have green sea turtles been known to nest on any beaches adjacent to the facilities?	No	**If yes, provide information about nesting occurrences, if known, including location and date and any other information**

Pump 3 Hanapepe Valley

Table 1(g): Lighting at Pump 3 Hanapepe Valley

List of Buildings	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
Control building	One deactivated light	Over door into the control building	Nighttime emergency service calls	These lights are no longer functional.
Pump shed	Two unshielded flood lights	Lighting the pumps	Nighttime emergency service calls	These lights are not turned on unless there is an emergency repair needed at night. Also, they are located under an open-sided roofed structure.
Switching yard	None			

Pump 3 Hanapepe Valley

Table 2(g): Green Sea Turtle Assessment for Pump 3 Hanapepe Valley

Please provide the information requested below to help determine if measures to avoid impacts to the Green Sea Turtle(s) from the effects of light attraction are required to be implemented at any of the facility(s), parcel(s), or site(s) included in this PIP. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the Green Sea Turtle, and provide further guidance.		
Are any of the facilities located adjacent to a beach?	No	**If yes, provide length of beach frontage & brief description of facilities & lights adjacent to the beach**
Are any of the Covered Activities (lights) visible from a beach?	No	**If yes, describe the specific lights (type, , height, purpose) & specific location; provide map & photos showing distance from beach**
Have green sea turtles been known to nest on any beaches adjacent to the facilities?	No	**If yes, provide information about nesting occurrences, if known, including location and date and any other information**

Kalaheo Powerhouse

Table 1(h): Lighting at Kalaheo Powerhouse

List of Buildings	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
Powerhouse	One three bulb fixture completely shielded	On powerhouse walls	Repairs at night	These lights are not usually turned on
"	One downward pointed circular low wattage LED fixture	This fixture is under the eaves and is not visible from the sky	Repairs at night	
"	Two small wall sconces – no longer active			

Kalaheo Powerhouse

Table 2(h): Green Sea Turtle Assessment for Kalaheo Powerhouse

Please provide the information requested below to help determine if measures to avoid impacts to the Green Sea Turtle(s) from the effects of light attraction are required to be implemented at any of the facility(s), parcel(s), or site(s) included in this PIP. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the Green Sea Turtle, and provide further guidance.		
Are any of the facilities located adjacent to a beach?	No	**If yes, provide length of beach frontage & brief description of facilities & lights adjacent to the beach**
Are any of the Covered Activities (lights) visible from a beach?	No	**If yes, describe the specific lights (type, , height, purpose) & specific location; provide map & photos showing distance from beach**
Have green sea turtles been known to nest on any beaches adjacent to the facilities?	No	**If yes, provide information about nesting occurrences, if known, including location and date and any other information**

Wainiha Powerhouse

Table 1(i): Lighting at Wainiha Powerhouse

List of Buildings	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
Powerhouse	Three small full cutoff fixtures	Attached to the powerhouse walls.	Emergency nighttime repairs.	These lights are not turned on except in the case of nighttime emergencies.
Substation	None			

Wainiha Powerhouse

Table 2(i): Green Sea Turtle Assessment for Wainiha Powerhouse

Please provide the information requested below to help determine if measures to avoid impacts to the Green Sea Turtle(s) from the effects of light attraction are required to be implemented at any of the facility(s), parcel(s), or site(s) included in this PIP. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the Green Sea Turtle, and provide further guidance.		
Are any of the facilities located adjacent to a beach?	No	**If yes, provide length of beach frontage & brief description of facilities & lights adjacent to the beach**
Are any of the Covered Activities (lights) visible from a beach?	No	**If yes, describe the specific lights (type, , height, purpose) & specific location; provide map & photos showing distance from beach**
Have green sea turtles been known to nest on any beaches adjacent to the facilities?	No	**If yes, provide information about nesting occurrences, if known, including location and date and any other information**

Hokulei Shopping Village

Table 1(j): Lighting at Hokulei Shopping Village

List of Buildings	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
The shopping center contains 10 buildings (please see site plan in Appendix A).	101 full cutoff low wattage streetlights, three configurations	Within the parking lot	Security and customer safety	All lights are dark sky compliant and use low wattage LED luminaires.
	111 bucket wall lights, low wattage LEDs	Mounted on the store walls	Security and customer safety	All lights are dark sky compliant and use low wattage LED bulbs.
	94 cylindrical tube lights – low wattage LEDs	Mounted on the store walls	Security and customer safety	All lights are dark sky compliant, use low wattage LED bulbs, and can't be seen from the sky.
	30 recessed can lights, low wattage LEDs	Mounted in the ceilings along the covered walkways	Security and customer safety	All lights are dark sky compliant, use low wattage LED bulbs, and can't be seen from the sky.
	26 tube lights, two configurations	Mounted under awnings around the shopping center	Security and customer safety	All lights are dark sky compliant, use low wattage LED bulbs, and can't be seen from the sky.
	1 large ceiling mounted flat panel LED	Mounted in the ceiling above a covered walkway	Security and customer safety	All lights are dark sky compliant, use low wattage LED bulbs, and can't be seen from the sky.

	2 cylindrical UFO LED lights	Mounted on the exterior walls of the Jack in the Box	Security and customer safety	All lights are dark sky compliant, use low wattage LED bulbs, and can't be seen from the sky.
	2 can flood lights	Mounted on the exterior walls of the Wendy's	Security and customer safety	All lights are dark sky compliant, use low wattage LED bulbs, and can't be seen from the sky.
	4 emergency exit box lights, CFL bulbs	Mounted above the emergency exit doors on the Petco Store	Emergency exit illumination	These lights only turn on when the power is interrupted and the stores are open.
	10 in ceiling CFL panels	Mounted in the ceiling above the gas pumps in the Chevron Station	Security and customer safety	
	7 wall mounted shielded can LED lights	Mounted on the exterior walls of American Savings	Security and customer safety	All lights are dark sky compliant and use low wattage LED bulbs.
	9 wall mounted tulip LED can lights	Mounted on the exterior walls of American Savings	Security and customer safety	All lights are dark sky compliant and use low wattage LED bulbs.

	16 LED wall mounted shielded LED box lights	Mounted on the exterior walls of American Savings	Security and customer safety	All lights are dark sky compliant and use low wattage LED bulbs.
	1 LED fully shielded box light	Mounted beneath an awning at the drive through of American Savings	Security and customer safety	All lights are dark sky compliant and use low wattage LED bulbs.
	5 fully shielded LED Bollard lights	Installed along the eastern entrance road to the shopping Center	Security and customer safety	All lights are dark sky compliant and use low wattage LED bulbs.
	23 flat fully shielded LED panel lights	Mounted on the exterior walls of the Safeway Store	Security and customer safety	All lights are dark sky compliant, use low wattage LED bulbs, and can't be seen from the sky.
	4 ceiling mounted can lights	Mounted on the ceiling of the entrance to the Safeway Store	Security and customer safety	All lights are dark sky compliant, use low wattage LED bulbs, and can't be seen from the sky.
	5 in wall LED safety lights	Mounted in the walls of the Safeway loading dock	Security and employee safety	

Hokulei Shopping Village

Table 2(j): Green Sea Turtle Assessment for Hokulei Shopping Village

Please provide the information requested below to help determine if measures to avoid impacts to the Green Sea Turtle(s) from the effects of light attraction are required to be implemented at any of the facility(s), parcel(s), or site(s) included in this PIP. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the Green Sea Turtle, and provide further guidance.		
Are any of the facilities located adjacent to a beach?	No	**If yes, provide length of beach frontage & brief description of facilities & lights adjacent to the beach**
Are any of the Covered Activities (lights) visible from a beach?	No	**If yes, describe the specific lights (type, , height, purpose) & specific location; provide map & photos showing distance from beach**
Have green sea turtles been known to nest on any beaches adjacent to the facilities?	No	**If yes, provide information about nesting occurrences, if known, including location and date and any other information**

The Shops at Kukuiʻula

Table 1(k): Lighting at The Shops at Kukuiʻula

List of Buildings	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
Shopping Center	67 LED streetlights full cutoff, pointed parallel to the ground	Parking lot	Safety and security	
"	6 flat panel LED parking lot lights	Employee Parking Lot	Safety and security	
"	Numerous lights with wide range of designs and wattages illuminating the shops	On and around the shops	Safety and security	The shopping center is in the process of developing a lighting plan for this facility that will reduce light emissions, and replace lights with dark sky compliant fixtures and/ or lamps. KSHCP Table 5-1 (Biological Goals) requires that lighting avoidance and minimization be implemented "by the end of Year 1." A&B will complete its lighting and minimization by the end of Year 1.

The Shops at Kukuiʻula

Table 2(k): Green Sea Turtle Assessment for The Shops at Kukuiʻula

Please provide the information requested below to help determine if measures to avoid impacts to the Green Sea Turtle(s) from the effects of light attraction are required to be implemented at any of the facility(s), parcel(s), or site(s) included in this PIP. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the Green Sea Turtle, and provide further guidance.		
Are any of the facilities located adjacent to a beach?	No	**If yes, provide length of beach frontage & brief description of facilities & lights adjacent to the beach**
Are any of the Covered Activities (lights) visible from a beach?	No	**If yes, describe the specific lights (type, , height, purpose) & specific location; provide map & photos showing distance from beach**
Have green sea turtles been known to nest on any beaches adjacent to the facilities?	No	**If yes, provide information about nesting occurrences, if known, including location and date and any other information**

Waipouli Town Center

Table 1(l): Lighting at Waipouli Town Center

List of Buildings	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
Shopping Center and a separate McDonalds building	Twenty-five full cutoff shielded parking lot streetlights in various configurations	In the parking lot	Safety and security	Full cutoff fixtures
	Thirteen wall pack LED fixtures	Attached to the outside walls of the shopping center	Safety and security	Full cutoff fixtures
	Two flat panel full cutoff LED wall packs	Attached to the outside walls of the shopping center in the loading dock area	Safety and security	Full cutoff fixtures
	Two, two light bulb flood light fixtures, motion sensor triggered	Back wall of the shopping center	Safety and security	Motion triggered, not usually on

	Thirty-one fully shielded low wattage LED ceiling fixtures	Mounted to the ceilings above the covered walkways – not visible from the sky	Safety and security	Full cutoff fixtures, not visible from the sky
	One floodlight under roof	Flood light under roof pointed at the cashier station of the McDonalds restaurant	Safety and security	Masked by roof overhang

Waipouli Town Center

Table 2(l): Green Sea Turtle Assessment for Waipouli Town Center

Please provide the information requested below to help determine if measures to avoid impacts to the Green Sea Turtle(s) from the effects of light attraction are required to be implemented at any of the facility(s), parcel(s), or site(s) included in this PIP. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the Green Sea Turtle, and provide further guidance.		
Are any of the facilities located adjacent to a beach?	No	**If yes, provide length of beach frontage & brief description of facilities & lights adjacent to the beach**
Are any of the Covered Activities (lights) visible from a beach?	No	**If yes, describe the specific lights (type, , height, purpose) & specific location; provide map & photos showing distance from beach**
Have green sea turtles been known to nest on any beaches adjacent to the facilities?	No	**If yes, provide information about nesting occurrences, if known, including location and date and any other information**

Kukuiʻula Development (Plantation Core/The Club)

Table 1(m): Lighting at Kukuiʻula Development (Plantation Core/The Club)

List of Buildings	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
Parking Lots	3 walkway "mushroom" lights which are completely shielded and have low wattage LEDs	Along walkways	Path lighting and safety and security	Completely shielded low wattage dark sky LED fixtures.
"	79 tree-mounted fully shielded pencil can lights	In trees (lights are downward pointed in parking lot)	Parking lot safety and security	Completely shielded low wattage dark sky LED fixtures.
Cart Barn and Mechanicals Building	15 low wattage CFL bulb lights in glass fixtures	Mounted on the walls	Safety and security	Low wattage CFLs.
"	2 flood lights with CFL bulbs	Mounted at the loading dock bay	Deliveries and service at night	Under eves, downward pointed and only turned on when needed.
Porte Cochere	2 walkway "mushroom" lights which are completely shielded, low wattage LEDs	Along walkways	Path lighting and safety and security	Completely shielded low wattage dark sky LED fixtures.
"	8 gas candle lanterns	Along driveway and framing the entrance	Accent and mood	Very dim gas lanterns.

"	8 tree mounted fully shielded pencil can lights	In trees downward pointed in trees	Accent and mood lighting	Completely shielded low wattage dark sky LED fixtures.
Kukui‘ula Realty	4 wall-mounted lantern lights with milk glass domes, shielded from above	Mounted on entrance wall	Safety and security	Low wattage, shielded from above and under eves of the building.
The Lodge	4 panel LED lights	West side exterior wall	Safety and security	Low wattage LEDs, all other lights are interior lights or completely shielded by the building.
The Club	17 oil lamp style low wattage lamps in brass fixture	Exterior walls	Safety and security	Low wattage, shielded from above, under eves, most under eves.
"	4 wall-mounted lantern lights in milk glass domes, shielded from above	Mounted on entrance wall	Safety and security	Low wattage, shielded from above and under eves of the building.
"	9 gas candle lanterns	Exterior	Accent and mood	Very dim gas lanterns.
"	10 wall-mounted lantern lights in milk glass domes, shielded from above	Mounted on buildings	Safety and security	Low wattage, shielded from above and most under eves of the buildings.

"	16 square “ship” lantern fixtures, LED frosted glass	Mounted on buildings	Safety and security	Low wattage, shielded from above and under eves of the buildings.
Pool area structures	8 wall-mounted lantern lights in milk glass domes, shielded from above	Mounted on buildings	Safety and security	Low wattage, shielded from above and most under eves of the buildings.
"	2 white glass lanterns, shielded from above	Mounted on buildings	Safety and security	Low wattage, shielded from above and under eves of the buildings.
"	51 white pencil cylinder can lights, LED	Mounted inside the cabanas on the underside of the roof pointed at the ground	Safety and security and mood lighting	Low wattage, dark sky compliant, shielded completely under roof in the cabanas, not visible from above.
"	The pool is lit with low wattage 38 watt LED fixtures	Mounted on the pool floor and walls	Safety and security	
Landscaping	61 walkway “mushroom” lights which are completely shielded and have low wattage LEDs	Along walkways	Path lighting and safety and security	Completely shielded low wattage dark sky LED fixtures.
"	36 tree-mounted fully shielded pencil can lights	In trees, downward pointed in the ground	Safety and security and mood lighting	Completely shielded low wattage dark sky LED fixtures.

"	20 in-wall, fully shielded, 20 watt step lights, shielded, low wattage	Mounted in the rock sides of the exterior stairs	Safety and security and mood lighting	Completely shielded low wattage dark sky LED fixtures.

Kukuiʻula Development (Plantation Core/The Club)

Table 2(m): Green Sea Turtle Assessment for Kukuiʻula Development (Plantation Core/The Club)

Please provide the information requested below to help determine if measures to avoid impacts to the Green Sea Turtle(s) from the effects of light attraction are required to be implemented at any of the facility(s), parcel(s), or site(s) included in this PIP. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the Green Sea Turtle, and provide further guidance.		
Are any of the facilities located adjacent to a beach?	No	**If yes, provide length of beach frontage & brief description of facilities & lights adjacent to the beach**
Are any of the Covered Activities (lights) visible from a beach?	No	**If yes, describe the specific lights (type, , height, purpose) & specific location; provide map & photos showing distance from beach**
Have green sea turtles been known to nest on any beaches adjacent to the facilities?	No	**If yes, provide information about nesting occurrences, if known, including location and date and any other information**

Item 4. If applicable, describe any lighting standards (e.g., foot candles/area) required for facility operations or other requirements that necessitate the use of lighting (e.g., required for security, safety, operations). Describe the relevant standard, or regulation, and the areas and Covered Activities at the site (e.g., type of lighting) to which it applies.

There are no specific lighting standards, rules, restrictions or requirements that the properties in this Participant Inclusion Plan must comply with, beyond assuring that lighting is adequate to ensure safety and security for employees and, if applicable, guests. Pre-seabird season lighting audits are conducted by a seabird biologist and necessary adjustments to the lighting are completed prior to the start of the seabird season each year.

Item 5. Describe any plans/proposals for future facilities or expansion of existing facilities. Include any proposed structures and lighting by type, purpose, and location. Plans (architecture and site plans), photos, and drawings can be attached.

Port Allen Solar Farm
At the present time, McBryde has no future plans for the Port Allen Solar Farm that would require the installation of additional exterior lights.

Port Allen Center I and II
At the present time, A&B has no future plans for Port Allen Center I and II that would require the installation of additional exterior lights.

Port Allen South Parcels
At the present time, A&B has no future plans for the Port Allen south parcels that would require the installation of additional exterior lights.

Port Allen Parking Lots
At the present time, A&B has no future plans for the Port Allen Parking Lots that would require the installation of additional exterior lights.

Port Allen Steel Warehouse
At the present time, A&B has no future plans for the Port Allen Steel Warehouse that would require the installation of additional exterior lights.

Port Allen Marina Center
At the present time, A&B has no future plans for the Port Allen Marina Center that would require the installation of additional exterior lights.

Pump 3 Hanapepe Valley
At the present time, A&B has no future plans for Pump 3 in Hanapepe Valley that would require the installation of additional exterior lights.

Kalaheo Powerhouse
At the present time, McBryde has no future plans for the Kalaheo Powerhouse that would require the installation of additional exterior lights.

Wainiha Powerhouse
At the present time, McBryde has no future plans for the Kalaheo Powerhouse that would require the installation of additional exterior lights.

Hokulei Shopping Village
Currently there is a plan to construct a free standing Walgreen's store on this property. All lights that will be installed will be dark sky compliant, full cut off lights, most likely low wattage LEDs.

The Shops at Kukuiʻula
A&B is currently working on developing a new lighting plan for this shopping center. Significant changes will be made to the exterior lighting, with the goal of reducing light emissions. KSHCP Table 5-1 (Biological Goals) requires that lighting avoidance and minimization be implemented "by the end of Year 1." A&B will complete its lighting and minimization by the end of Year 1.

Waipouli Town Center
At the present time, A&B has no future plans for the Waipouli Town Center that would require the installation of additional exterior lights.

Kukuiʻula Development (Plantation Core/The Club)
At the present time, Kukuiʻula Development Company has no future plans for the Plantation Core/The Club that would require the installation of additional exterior lights.

Item 6. Pursuant to the Endangered Species Act (ESA), Section 10 (a)(2)(A)(iii), describe alternatives to avoid the taking considered and evaluated. Provide reasons why those alternatives are not being utilized. Alternatives can include operational or facility design changes (attach pages as needed). The tables below may be altered as needed.

Port Allen Solar Farm

Table 3(a): Light Attraction Alternatives to the Taking at Port Allen Solar Farm

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives are not Being Utilized (provide justification)
▪ **Deactivate all outdoor artificial lights from dusk to dawn during the fledgling fall-out season September 15 to December 15**	Lights are not turned on except when a nighttime emergency requires maintenance.
▪ **Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daylight hours)**	N/A
▪ **Shield all lights from visibility from the beach, or screen all Green Sea Turtle nests, from May 15 to December 15 to avoid impacting the green sea turtle (Green Sea Turtle)**	N/A
▪ **Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered**	N/A

Port Allen Center I and II

Table 3(b): Light Attraction Alternatives to the Taking at Port Allen Center I and II

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives are not Being Utilized (provide justification)
▪ **Deactivate all outdoor artificial lights from dusk to dawn during the fledgling fall-out season September 15 to December 15**	Lighting at both of these facilities is minimal. Safety and security preclude completely turning off all lights at night.
▪ **Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daylight hours)**	Not practicable
▪ **Shield all lights from visibility from the beach, or screen all Green Sea Turtle nests, from May 15 to December 15 to avoid impacting the green sea turtle (Green Sea Turtle)**	N/A
▪ **Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered**	

Port Allen South Parcels

Table 3(c): Light Attraction Alternatives to the Taking at Port Allen South Parcels

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives are not Being Utilized (provide justification)
▪ **Deactivate all outdoor artificial lights from dusk to dawn during the fledgling fall-out season September 15 to December 15**	Completed
▪ **Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daylight hours)**	N/A
▪ **Shield all lights from visibility from the beach, or screen all Green Sea Turtle nests, from May 15 to December 15 to avoid impacting the green sea turtle (Green Sea Turtle)**	All streetlights are full cutoff dark sky compliant fixtures.
▪ **Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered**	N/A

Port Allen Parking Lots

Table 3(d): Light Attraction Alternatives to the Taking at Port Allen Parking Lots

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives are not Being Utilized (provide justification)
▪ **Deactivate all outdoor artificial lights from dusk to dawn during the fledgling fall-out season September 15 to December 15**	Safety and security preclude completely turning off all streetlights at night.
▪ **Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daylight hours)**	N/A
▪ **Shield all lights from visibility from the beach, or screen all Green Sea Turtle nests, from May 15 to December 15 to avoid impacting the green sea turtle (Green Sea Turtle)**	The parking lot lights are shielded.
▪ **Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered**	

Port Allen Steel Warehouse

Table 3(e): Light Attraction Alternatives to the Taking at Port Allen Steel Warehouse

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives are not Being Utilized (provide justification)
▪ **Deactivate all outdoor artificial lights from dusk to dawn during the fledgling fall-out season September 15 to December 15**	Has been completed.
▪ **Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daylight hours)**	See above.
▪ **Shield all lights from visibility from the beach, or screen all Green Sea Turtle nests, from May 15 to December 15 to avoid impacting the green sea turtle (Green Sea Turtle)**	N/A
▪ **Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered**	N/A

Port Allen Marina Center

Table 3(f): Light Attraction Alternatives to the Taking at Port Allen Marina Center

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives are not Being Utilized (provide justification)
▪ **Deactivate all outdoor artificial lights from dusk to dawn during the fledgling fall-out season September 15 to December 15**	Safety and security preclude completely turning off all lights at night. Half of the wall sconces are turned off at 8:00 pm during the seabird fledging season. A&B has also lowered the wattage of the bulbs in the wall sconces.
▪ **Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daylight hours)**	Not practicable. Safety and security preclude completely turning off all lights at night.
▪ **Shield all lights from visibility from the beach, or screen all Green Sea Turtle nests, from May 15 to December 15 to avoid impacting the green sea turtle (Green Sea Turtle)**	N/A
▪ **Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered**	Modification and/or replacement of wall sconce lighting is being evaluated.

Pump 3 Hanapepe Valley

Table 3(g): Light Attraction Alternatives to the Taking at Pump 3 Hanapepe Valley

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives are not Being Utilized (provide justification)
▪ **Deactivate all outdoor artificial lights from dusk to dawn during the fledgling fall-out season September 15 to December 15**	Completed
▪ **Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daylight hours)**	N/A
▪ **Shield all lights from visibility from the beach, or screen all Green Sea Turtle nests, from May 15 to December 15 to avoid impacting the green sea turtle (Green Sea Turtle)**	N/A
▪ **Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered**	N/A

Kalaheo Powerhouse

Table 3(h): Light Attraction Alternatives to the Taking at Kalaheo Powerhouse

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives are not Being Utilized (provide justification)
▪ **Deactivate all outdoor artificial lights from dusk to dawn during the fledgling fall-out season September 15 to December 15**	Completed
▪ **Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daylight hours)**	N/A
▪ **Shield all lights from visibility from the beach, or screen all Green Sea Turtle nests, from May 15 to December 15 to avoid impacting the green sea turtle (Green Sea Turtle)**	N/A
▪ **Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered**	N/A

Wainiha Powerhouse

Table 3(i): Light Attraction Alternatives to the Taking at Wainiha Powerhouse

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives are not Being Utilized (provide justification)
▪ **Deactivate all outdoor artificial lights from dusk to dawn during the fledgling fall-out season September 15 to December 15**	Completed
▪ **Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daylight hours)**	N/A
▪ **Shield all lights from visibility from the beach, or screen all Green Sea Turtle nests, from May 15 to December 15 to avoid impacting the green sea turtle (Green Sea Turtle)**	N/A
▪ **Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered**	N/A

Hokulei Shopping Village

Table 3(j): Light Attraction Alternatives to the Taking at Hokulei Shopping Village

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives are not Being Utilized (provide justification)
▪ **Deactivate all outdoor artificial lights from dusk to dawn during the fledgling fall-out season September 15 to December 15**	Safety and security preclude completely turning off all lights at night.
▪ **Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daylight hours)**	Safety and security preclude completely turning off all lights at night.
▪ **Shield all lights from visibility from the beach, or screen all Green Sea Turtle nests, from May 15 to December 15 to avoid impacting the green sea turtle (Green Sea Turtle)**	N/A
▪ **Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered**	N/A

The Shops at Kukuiʻula

Table 3(k): Light Attraction Alternatives to the Taking at The Shops at Kukuiʻula

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives are not Being Utilized (provide justification)
▪ **Deactivate all outdoor artificial lights from dusk to dawn during the fledgling fall-out season September 15 to December 15**	Safety and security preclude completely turning off all lights at night.
▪ **Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daylight hours)**	Safety and security preclude completely turning off all lights at night.
▪ **Shield all lights from visibility from the beach, or screen all Green Sea Turtle nests, from May 15 to December 15 to avoid impacting the green sea turtle (Green Sea Turtle)**	N/A
▪ **Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered**	A&B is currently working on re-designing the lighting at the shopping Center to reduce light attraction.

Waipouli Town Center

Table 3(l): Light Attraction Alternatives to the Taking at Waipouli Town Center

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives are not Being Utilized (provide justification)
▪ **Deactivate all outdoor artificial lights from dusk to dawn during the fledgling fall-out season September 15 to December 15**	Safety and security preclude completely turning off all lights at night.
▪ **Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daylight hours)**	Safety and security preclude completely turning off all lights at night.
▪ **Shield all lights from visibility from the beach, or screen all Green Sea Turtle nests, from May 15 to December 15 to avoid impacting the green sea turtle (Green Sea Turtle)**	N/A
▪ **Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered**	N/A

Kukuiʻula Development - Plantation Core/The Club

Table 3(m): Light Attraction Alternatives to the Taking at Kukuiʻula Development - Plantation Core/The Club

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives are not Being Utilized (provide justification)
▪ **Deactivate all outdoor artificial lights from dusk to dawn during the fledgling fall-out season September 15 to December 15**	Safety and security preclude completely turning off all lights at night
▪ **Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daylight hours)**	Safety and security preclude completely turning off all lights at night
▪ **Shield all lights from visibility from the beach, or screen all Green Sea Turtle nests, from May 15 to December 15 to avoid impacting the green sea turtle (Green Sea Turtle)**	N/A
▪ **Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered**	N/A

Item 7. Describe all site-specific seabird minimization measures considered for the Covered Activities. This item should follow KSHCP minimization objectives and measures as specified in *Appendix E (Guidelines for Adjusting Lighting at Facilities)* of the KSHCP document. Please consult with staff from the DOFAW and the USFWS as needed. The suggested tables below can be altered as needed.

Minimization measures modify the Covered Activities to reduce the effects of the activity on the Covered Species. KSHCP Participants will be required to implement minimization measures that apply to the facility to the "maximum extent practicable" per applicable state and federal laws which regulate incidental take license/permit issuance by the DLNR and the USFWS.

Minimization also entails searching and recovering grounded seabirds to minimize the chance of mortality. In addition, the presence of on-site predators (i.e. feral cats, dogs) should be controlled and removed because these animals can prey on grounded seabirds.

Provide justification, such as policies, regulations, or other rationale for measures that will not be implemented.

Port Allen Solar Farm

Table 4(a): Seabird Light Attraction Minimization Measures Considered at Port Allen Solar Farm

Minimization Measures Considered	Feasible? (Y / N)	If not Feasible to Implement Measures, Provide Reason
▪ **Change time of light use (lights off earlier)**	**Yes / No**	Currently the two over door lights are not turned on unless there is an emergency.
▪ **Deactivate unnecessary lights**	**Yes / No**	This is a relatively new facility and there are no extraneous lighting fixtures.
▪ **Replace all outdoor lights with full cut-off fixtures**	**Yes / No**	
▪ **Shield all outdoor lights with full cut-off shields**	**Yes / No**	
▪ **Angle all lights downward**	**Yes / No**	
▪ **Lower intensity (lumens) of outdoor lights**	**Yes / No**	
▪ **Change bulb color to non-white spectrum**	**Yes / No**	
▪ **Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers**	**Yes / No**	
▪ **Provide Worker Seabird Awareness Training to staff**	**Yes / No**	
▪ **Provide outreach materials to staff & guests**	**Yes / No**	Not applicable – this is a power generation facility and there are no guests.
▪ **Host Save Our Shearwaters (SOS) Aid Station**	**Yes / No**	There is an SOS Aid Station close by next to the Island Energy Services Fuel Tank Farm.

Port Allen Center I and II

Table 4(b): Seabird Light Attraction Minimization Measures Considered at Port Allen Center I and II

Minimization Measures Considered	Feasible? (Y / N)	If not Feasible to Implement Measures, Provide Reason
▪ **Change time of light use (lights off earlier)**	**Yes / No**	
▪ **Deactivate unnecessary lights**	**Yes / No**	Numerous older light fixtures have been deactivated or replaced with new fixtures in the past five years.
▪ **Replace all outdoor lights with full cut-off fixtures**	**Yes / No**	
▪ **Shield all outdoor lights with full cut-off shields**	**Yes / No**	
▪ **Angle all lights downward**	**Yes / No**	
▪ **Lower intensity (lumens) of outdoor lights**	**Yes / No**	All new lighting fixtures are low wattage LEDs.
▪ **Change bulb color to non-white spectrum**	**Yes / No**	
▪ **Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers**	**Yes / No**	
▪ **Provide Worker Seabird Awareness Training to staff**	**Yes / No**	
▪ **Provide outreach materials to staff & guests**	**Yes / No**	
▪ **Host Save Our Shearwaters (SOS) Aid Station**	**Yes / No**	There is an SOS Aid Station close by next to the Island Energy Services Fuel Tank Farm.

Port Allen South Parcels

Table 4(c): Seabird Light Attraction Minimization Measures Considered at Port Allen South Parcels

Minimization Measures Considered	Feasible? (Y / N)	If not Feasible to Implement Measures, Provide Reason
▪ **Change time of light use (lights off earlier)**	**Yes / <u>No</u>**	There are no lights on either of these parcels.
▪ **Deactivate unnecessary lights**	**<u>Yes</u> / No**	Complete
▪ **Replace all outdoor lights with full cut-off fixtures**	**Yes / <u>No</u>**	There are no lights on either of these parcels.
▪ **Shield all outdoor lights with full cut-off shields**	**Yes / <u>No</u>**	There are no lights on either of these parcels.
▪ **Angle all lights downward**	**Yes / <u>No</u>**	There are no lights on either of these parcels.
▪ **Lower intensity (lumens) of outdoor lights**	**Yes / <u>No</u>**	There are no lights on either of these parcels.
▪ **Change bulb color to non-white spectrum**	**Yes / <u>No</u>**	There are no lights on either of these parcels.
▪ **Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers**	**<u>Yes</u> / No**	
▪ **Provide Worker Seabird Awareness Training to staff**	**<u>Yes</u> / <u>No</u>**	A&B has no workers on the vacant lot or the BEI parcel, but A&B will provide seabird awareness training to its property management staff.
▪ **Provide outreach materials to staff & guests**	**<u>Yes</u> / <u>No</u>**	
▪ **Host Save Our Shearwaters (SOS) Aid Station**	**Yes / <u>No</u>**	There is an SOS Aid Station close by next to the Island Energy Services Fuel Tank Farm.

Port Allen Parking Lots

Table 4(d): Seabird Light Attraction Minimization Measures Considered at Port Allen Parking Lots

Minimization Measures Considered	Feasible? (Y / N)	If not Feasible to Implement Measures, Provide Reason
▪ **Change time of light use (lights off earlier)**	**Yes / <u>No</u>**	For safety and security reasons, lighting is needed in the parking lot.
▪ **Deactivate unnecessary lights**	**<u>Yes</u> / No**	
▪ **Replace all outdoor lights with full cut-off fixtures**	**<u>Yes</u> / No**	
▪ **Shield all outdoor lights with full cut-off shields**	**<u>Yes</u> / No**	
▪ **Angle all lights downward**	**<u>Yes</u> / No**	
▪ **Lower intensity (lumens) of outdoor lights**	**<u>Yes</u> / No**	
▪ **Change bulb color to non-white spectrum**	**<u>Yes</u> / No**	
▪ **Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers**	**<u>Yes</u> / No**	These restrictions are in place for the Marina Center served by the parking lot. However, this parking lot is not fenced and is between two harbor/launch facilities. It is impossible to effectively control all predators in the greater harbor area.
▪ **Provide Worker Seabird Awareness Training to staff**	**<u>Yes</u> / No**	
▪ **Provide outreach materials to staff & guests**	**<u>Yes</u> / No**	
▪ **Host Save Our Shearwaters (SOS) Aid Station**	**Yes / <u>No</u>**	There is an SOS Aid Station close by next to the Island Energy Services Fuel Tank Farm

Port Allen Steel Warehouse

Table 4(e): Seabird Light Attraction Minimization Measures Considered at Port Allen Steel Warehouse

Minimization Measures Considered	Feasible? (Y / N)	If not Feasible to Implement Measures, Provide Reason
▪ **Change time of light use (lights off earlier)**	**Yes / No**	Exterior lighting is motion activated so it is usually dark at night.
▪ **Deactivate unnecessary lights**	**Yes / No**	
▪ **Replace all outdoor lights with full cut-off fixtures**	**Yes / No**	
▪ **Shield all outdoor lights with full cut-off shields**	**Yes / No**	
▪ **Angle all lights downward**	**Yes / No**	
▪ **Lower intensity (lumens) of outdoor lights**	**Yes / No**	
▪ **Change bulb color to non-white spectrum**	**Yes / No**	
▪ **Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers**	**Yes / No**	Due to high crime, one tenant maintains watchdogs within his fenced yard.
▪ **Provide Worker Seabird Awareness Training to staff**	**Yes / No**	
▪ **Provide outreach materials to staff & guests**	**Yes / No**	
▪ **Host Save Our Shearwaters (SOS) Aid Station**	**Yes / No**	There is an SOS Aid Station close by next to the Island Energy Services Fuel Tank Farm.

Port Allen Marina Center
Table 4(f): Seabird Light Attraction Minimization Measures Considered at Port Allen Marina Center

Minimization Measures Considered	Feasible? (Y / N)	If not Feasible to Implement Measures, Provide Reason
▪ **Change time of light use (lights off earlier)**	**Yes / No**	Most of the stores in the center are closed after dark, and their interior lights turned off. The Marina Center turns off every other wall sconce light at 9:00 pm during the seabird fallout season.
▪ **Deactivate unnecessary lights**	**Yes / No**	
▪ **Replace all outdoor lights with full cut-off fixtures**	**Yes / No**	
▪ **Shield all outdoor lights with full cut-off shields**	**Yes / No**	
▪ **Angle all lights downward**	**Yes / No**	
▪ **Lower intensity (lumens) of outdoor lights**	**Yes / No**	
▪ **Change bulb color to non-white spectrum**	**Yes / No**	
▪ **Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers**	**Yes / No**	
▪ **Provide Worker Seabird Awareness Training to staff**	**Yes / No**	
▪ **Provide outreach materials to staff & guests**	**Yes / No**	
▪ **Host Save Our Shearwaters (SOS) Aid Station**	**Yes / No**	There is an SOS Aid Station close by next to the Island Energy Services Fuel Tank Farm.

Pump 3 Hanapepe Valley
Table 4(g): Seabird Light Attraction Minimization Measures Considered at Pump 3 Hanapepe Valley

Minimization Measures Considered	Feasible? (Y / N)	If not Feasible to Implement Measures, Provide Reason
▪ **Change time of light use (lights off earlier)**	**Yes / No**	Lights are not turned on unless emergency nighttime repairs are required.
▪ **Deactivate unnecessary lights**	**Yes / No**	
▪ **Replace all outdoor lights with full cut-off fixtures**	**Yes / No**	
▪ **Shield all outdoor lights with full cut-off shields**	**Yes / No**	
▪ **Angle all lights downward**	**Yes / No**	
▪ **Lower intensity (lumens) of outdoor lights**	**Yes / No**	
▪ **Change bulb color to non-white spectrum**	**Yes / No**	
▪ **Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers**	**Yes / No**	Predatory animal control is not feasible outside of the fenced portion of the facility as this is a rural area.
▪ **Provide Worker Seabird Awareness Training to staff**	**Yes / No**	
▪ **Provide outreach materials to staff & guests**	**Yes / No**	
▪ **Host Save Our Shearwaters (SOS) Aid Station**	**Yes / No**	This area is too isolated to warrant an aid station, and no downed seabirds have ever been recovered from this site.

Kalaheo Powerhouse

Table 4(h): Seabird Light Attraction Minimization Measures Considered at Kalaheo Powerhouse

Minimization Measures Considered	Feasible? (Y / N)	If not Feasible to Implement Measures, Provide Reason
▪ **Change time of light use (lights off earlier)**	**Yes / No**	Lights are not turned on unless emergency nighttime repairs are required.
▪ **Deactivate unnecessary lights**	**Yes / No**	
▪ **Replace all outdoor lights with full cut-off fixtures**	**Yes / No**	
▪ **Shield all outdoor lights with full cut-off shields**	**Yes / No**	
▪ **Angle all lights downward**	**Yes / No**	
▪ **Lower intensity (lumens) of outdoor lights**	**Yes / No**	
▪ **Change bulb color to non-white spectrum**	**Yes / No**	
▪ **Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers**	**Yes / No**	Predator control is not feasible outside the fenced portion of the facility due to the rural area.
▪ **Provide Worker Seabird Awareness Training to staff**	**Yes / No**	
▪ **Provide outreach materials to staff & guests**	**Yes / No**	
▪ **Host Save Our Shearwaters (SOS) Aid Station**	**Yes / No**	This area is too isolated to warrant an aid station, and no downed seabirds have ever been recovered from this site.

Wainiha Powerhouse

Table 4(i): Seabird Light Attraction Minimization Measures Considered at Wainiha Powerhouse

Minimization Measures Considered	Feasible? (Y / N)	If not Feasible to Implement Measures, Provide Reason
▪ **Change time of light use (lights off earlier)**	**Yes / No**	Lights are not turned on unless emergency nighttime repairs are required.
▪ **Deactivate unnecessary lights**	**Yes / No**	
▪ **Replace all outdoor lights with full cut-off fixtures**	**Yes / No**	
▪ **Shield all outdoor lights with full cut-off shields**	**Yes / No**	
▪ **Angle all lights downward**	**Yes / No**	
▪ **Lower intensity (lumens) of outdoor lights**	**Yes / No**	
▪ **Change bulb color to non-white spectrum**	**Yes / No**	
▪ **Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers**	**Yes / No**	Predator control is not feasible outside the fenced portion of the facility as this is a wildland area.
▪ **Provide Worker Seabird Awareness Training to staff**	**Yes / No**	
▪ **Provide outreach materials to staff & guests**	**Yes / No**	
▪ **Host Save Our Shearwaters (SOS) Aid Station**	**Yes / No**	This area is too remote to warrant an aid station.

Hokulei Shopping Village

Table 4(j): Seabird Light Attraction Minimization Measures Considered at Hokulei Shopping Village

Minimization Measures Considered	Feasible? (Y / N)	If not Feasible to Implement Measures, Provide Reason
▪ **Change time of light use (lights off earlier)**	**Yes / <u>No</u>**	Security and safety of employees and guests preclude this option.
▪ **Deactivate unnecessary lights**	**<u>Yes</u> / No**	This is a new shopping center where lighting was designed to be dark sky compliant.
▪ **Replace all outdoor lights with full cut-off fixtures**	**<u>Yes</u> / No**	
▪ **Shield all outdoor lights with full cut-off shields**	**<u>Yes</u> / No**	
▪ **Angle all lights downward**	**<u>Yes</u> / No**	
▪ **Lower intensity (lumens) of outdoor lights**	**<u>Yes</u> / No**	
▪ **Change bulb color to non-white spectrum**	**<u>Yes</u> / No**	
▪ **Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers**	**<u>Yes</u> / No**	
▪ **Provide Worker Seabird Awareness Training to staff**	**<u>Yes</u> / No**	
▪ **Provide outreach materials to staff & guests**	**<u>Yes</u> / No**	
▪ **Host Save Our Shearwaters (SOS) Aid Station**	**Yes / <u>No</u>**	The Līhuʻe Fire Station Aid Station is located less than two miles away.

The Shops at Kukuiʻula
Table 4(k): Seabird Light Attraction Minimization Measures Considered at The Shops at Kukuiʻula

Minimization Measures Considered	Feasible? (Y / N)	If not Feasible to Implement Measures, Provide Reason
▪ **Change time of light use (lights off earlier)**	**Yes / <u>No</u>**	Security and safety of employees and guests preclude this option.
▪ **Deactivate unnecessary lights**	**<u>Yes</u> / No**	
▪ **Replace all outdoor lights with full cut-off fixtures**	**<u>Yes</u> / No**	
▪ **Shield all outdoor lights with full cut-off shields**	**<u>Yes</u> / No**	
▪ **Angle all lights downward**	**<u>Yes</u> / No**	
▪ **Lower intensity (lumens) of outdoor lights**	**<u>Yes</u> / No**	
▪ **Change bulb color to non-white spectrum**	**<u>Yes</u> / No**	
▪ **Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers**	**<u>Yes</u> / No**	
▪ **Provide Worker Seabird Awareness Training to staff**	**<u>Yes</u> / No**	
▪ **Provide outreach materials to staff & guests**	**<u>Yes</u> / No**	
▪ **Host Save Our Shearwaters (SOS) Aid Station**	**Yes / <u>No</u>**	The Kōloa Fire Station Aid Station is located about one quarter mile away.

Waipouli Town Center
Table 4(l): Seabird Light Attraction Minimization Measures Considered at Waipouli Town Center

Minimization Measures Considered	Feasible? (Y / N)	If not Feasible to Implement Measures, Provide Reason
▪ **Change time of light use (lights off earlier)**	**Yes / <u>No</u>**	Security and safety of employees and guests preclude this option.
▪ **Deactivate unnecessary lights**	**<u>Yes</u> / No**	
▪ **Replace all outdoor lights with full cut-off fixtures**	**<u>Yes</u> / No**	
▪ **Shield all outdoor lights with full cut-off shields**	**<u>Yes</u> / No**	
▪ **Angle all lights downward**	**<u>Yes</u> / No**	
▪ **Lower intensity (lumens) of outdoor lights**	**<u>Yes</u> / No**	
▪ **Change bulb color to non-white spectrum**	**<u>Yes</u> / No**	
▪ **Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers**	**<u>Yes</u> / No**	Effective predator control may not be feasible due to a feral cat colony that is being maintained in close proximity to this facility. Outside agencies need to play a role in controlling the feral cats which are known to decimate seabird populations.
▪ **Provide Worker Seabird Awareness Training to staff**	**<u>Yes</u> / No**	
▪ **Provide outreach materials to staff & guests**	**<u>Yes</u> / No**	
▪ **Host Save Our Shearwaters (SOS) Aid Station**	**Yes / <u>No</u>**	There is an SOS Aid Station at the Kapaʻa Fire Station, immediately adjacent to this property.

Kukuiʻula Development - Plantation Core/The Club
Table 4(m): Seabird Light Attraction Minimization Measures Considered at Kukuiʻula Development - Plantation Core/The Club

Minimization Measures Considered	Feasible? (Y / N)	If not Feasible to Implement Measures, Provide Reason
▪ **Change time of light use (lights off earlier)**	**Yes / <u>No</u>**	Security and safety of employees and guests preclude this option.
▪ **Deactivate unnecessary lights**	**<u>Yes</u> / No**	This is a relatively new facility designed to be seabird friendly. There are no unnecessary lights to deactivate.
▪ **Replace all outdoor lights with full cut-off fixtures**	**<u>Yes</u> / No**	
▪ **Shield all outdoor lights with full cut-off shields**	**<u>Yes</u> / No**	
▪ **Angle all lights downward**	**<u>Yes</u> / No**	
▪ **Lower intensity (lumens) of outdoor lights**	**<u>Yes</u> / No**	
▪ **Change bulb color to non-white spectrum**	**<u>Yes</u> / No**	
▪ **Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers**	**<u>Yes</u> / No**	
▪ **Provide Worker Seabird Awareness Training to staff**	**<u>Yes</u> / No**	
▪ **Provide outreach materials to staff & guests**	**<u>Yes</u> / No**	
▪ **Host Save Our Shearwaters (SOS) Aid Station**	**Yes / <u>No</u>**	There is an SOS Aid Station at the Poʻipū Fire Station, located close to this facility.

Item 8. <u>Minimization Plans</u>. Provide a plan to minimize the effects to the Covered Seabirds due to the Covered Activities. KSHCP Participants will be required to minimize the effects of the Covered Activities to the "maximum extent practicable" per applicable state and federal laws which regulate take license/permit issuance. The KSHCP document provides minimization objectives and measures to follow.

The Minimization Plans should include the proposed minimization measures, timeline, and estimated cost for each facility. In this item, the Participant can include measures already completed or in place (new lights, shields, operational changes). Timeline should include estimated completion schedule, and annual schedule for minimization that will occur only during fledging season.

Minimization measures not yet determined but anticipated to occur at the facility; this section should include an estimated cost that will be earmarked for future minimization measures.

If applicable, the participant must provide the reasoning why certain measures will not be implemented. The suggested table below may each be altered to best describe the Minimization Plan. Attach additional pages, photos, and drawings as needed.

Port Allen Solar Farm

Table 5(a): Lighting Minimization Measures at Port Allen Solar Farm

List of Buildings	Minimization Measures	Cost to Implement	Responsible Staff	Timeline
Control building	There are two completely shielded LED dark sky compliant lights over the building doors. They are only turned on in the event repairs need to be made at night.	N/A	McBryde Resources, Inc.	Completed

Port Allen Solar Farm

Table 6(a): Seabird Mortality Minimization Plan at Port Allen Solar Farm

Minimization Measures	Describe minimization method (e.g. trapping, outreach, enact policy)	Cost to Implement	Responsible Staff
Remove & control loose predatory animals at the facility. (Loose animals can kill grounded seabirds and this measure aims to prevent seabird mortality by animals.)	A&B will meet the goal stated in KSHCP Table 5-1 (Biological Goals), "implent[ation] of actions to reduce presence of free-roaming seabird predators."	N/A	Operations
Prohibit outdoor feeding of predatory animals. (Feeding animals attracts them to the site and this measure aims to reduce the presence of animals that can cause seabird mortality.)	The facility implements this measure. This is a secure site with no public access.	N/A	Operations
Conduct nightly/morning searches to recover downed birds at the property & turn them into SOS following protocols (see monitoring plan below).	Properties with lights which are normally turned off and rarely or never used, will not be searched.	N/A	
Train staff to follow minimization measures.	Training will be provided to staff to ensure their understanding and compliance with minimization measures	N/A	Operations

Port Allen Center I and II

Table 5(b): Lighting Minimization Measures at Port Allen Center I and II

List of Buildings	Minimization Measures	Cost to Implement	Responsible Staff	Timeline
Two steel commercial buildings	A lighting audit was conducted in 2012. Following that audit the exterior lights were replaced with dark sky compliant fixtures.	N/A	Property Manager	Complete

Port Allen Center I and II

Table 6(b): Seabird Mortality Minimization Plan at Port Allen Center I and II

Minimization Measures	Describe minimization method (e.g. trapping, outreach, enact policy)	Cost to Implement	Responsible Staff
Remove & control loose predatory animals at the facility. (Loose animals can kill grounded seabirds and this measure aims to prevent seabird mortality by animals.)	In the event that cats or dogs are reported on the property, county animal control is notified or a pest control company is hired to remove the predators. A&B will meet the goal stated in KSHCP Table 5-1 (Biological Goals), "implent[ation] of actions to reduce presence of free-roaming seabird predators."	N/A	Property Manager
Prohibit outdoor feeding of predatory animals. (Feeding animals attracts them to the site and this measure aims to reduce the presence of animals that can cause seabird mortality.)	Policy enacted	N/A	Property Manager
Conduct nightly/morning searches to recover downed birds at the property & turn them into SOS following protocols (see monitoring plan below).	Searches will be conducted as per KSHCP guidance.	N/A	Property Manager
Train staff to follow minimization measures.	Training will be conducted annually.	N/A	Property Manager

Port Allen South Parcels

Table 5(c): Lighting Minimization Measures at Port Allen South Parcels

List of Buildings	Minimization Measures	Cost to Implement	Responsible Staff	Timeline
Shoreline Parcel – no buildings	N/A	N/A	Property Manager	Complete
BEI Property (three small industrial buildings)	Lighting has been deactivated	N/A	BEI (tenant)	Complete

Port Allen South Parcels

Table 6(c): Seabird Mortality Minimization Plan at Port Allen South Parcels

Minimization Measures	Describe minimization method (e.g. trapping, outreach, enact policy)	Cost to Implement	Responsible Staff
Remove & control loose predatory animals at the facility. (Loose animals can kill grounded seabirds and this measure aims to prevent seabird mortality by animals.)	Shoreline parcel: Vacant land, no predator control is conducted. BEI parcel: In the event that cats or dogs are reported on the property, county animal control is notified or a pest control company is hired to remove the predators. A&B will meet the goal stated in KSHCP Table 5-1 (Biological Goals), "implent[ation] of actions to reduce presence of free-roaming seabird predators."	N/A	Property Manager
Prohibit outdoor feeding of predatory animals. (Feeding animals attracts them to the site and this measure aims to reduce the presence of animals that can cause seabird mortality.)	Policy enacted	N/A	Property Manager
Conduct nightly/morning searches to recover downed birds at the property & turn them into SOS following protocols (see monitoring plan below).	Shoreline parcel: this is an empty lot where no searches are conducted. BEI Parcel: searches will be conducted.	N/A	Property Manager

Train staff to follow minimization measures.	Empty Lot – no employees to train	N/A	Property Manager

Port Allen Parking Lots

Table 5(d): Lighting Minimization Measures at Port Allen Parking Lots

List of Buildings	Minimization Measures	Cost to Implement	Responsible Staff	Timeline
None	Streetlights are dark sky compliant	N/A	Property Manager	Complete

Port Allen Parking Lots

Table 6(d): Seabird Mortality Minimization Plan at Port Allen Parking Lots

Minimization Measures	Describe minimization method (e.g. trapping, outreach, enact policy)	Cost to Implement	Responsible Staff
Remove & control loose predatory animals at the facility. (Loose animals can kill grounded seabirds and this measure aims to prevent seabird mortality by animals.)	In the event that cats or dogs are reported on the property, county animal control is notified or a pest control company is hired to remove the predators. A&B will meet the goal stated in KSHCP Table 5-1 (Biological Goals), "implent[ation] of actions to reduce presence of free-roaming seabird predators."	N/A	Property Manager
Prohibit outdoor feeding of predatory animals. (Feeding animals attracts them to the site and this measure aims to reduce the presence of animals that can cause seabird mortality.)	Policy implemented	N/A	Property Manager
Conduct nightly/morning searches to recover downed birds at the property & turn them into SOS following protocols (see monitoring plan below).	Searches will be conducted as per KSHCP guidance	N/A	Property Manager
Train staff to follow minimization measures.	Training will be conducted annually	N/A	Property Manager

Port Allen Steel Warehouse

Table 5(e): Lighting Minimization Measures at Port Allen Steel Warehouse

List of Buildings	Minimization Measures	Cost to Implement	Responsible Staff	Timeline
Steel Warehouse	A lighting audit was conducted in 2012, following that audit the exterior lights were replaced with motion activated LED lighting fixtures.	N/A	Property Manager	Complete

Port Allen Steel Warehouse

Table 6(e): Seabird Mortality Minimization Plan at Port Allen Steel Warehouse

Minimization Measures	Describe minimization method (e.g. trapping, outreach, enact policy)	Cost to Implement	Responsible Staff
Remove & control loose predatory animals at the facility. (Loose animals can kill grounded seabirds and this measure aims to prevent seabird mortality by animals.)	In the event that cats or dogs are reported on the property, county animal control is notified or a pest control company is hired to remove the predators. A&B will meet the goal stated in KSHCP Table 5-1 (Biological Goals), "implent[ation] of actions to reduce presence of free-roaming seabird predators."	N/A	Property Manager
Prohibit outdoor feeding of predatory animals. (Feeding animals attracts them to the site and this measure aims to reduce the presence of animals that can cause seabird mortality.)	Policy implemented	N/A	Property Manager
Conduct nightly/morning searches to recover downed birds at the property & turn them into SOS following protocols (see monitoring plan below).	Searches will be conducted as per KSHCP guidance.	N/A	Property Manager
Train staff to follow minimization measures.	Training will be conducted annually.	N/A	Property Manager

Port Allen Marina Center

Table 5(f): Lighting Minimization Measures at Port Allen Marina Center

List of Buildings	Minimization Measures	Cost to Implement	Responsible Staff	Timeline
56 low wattage wall sconces mounted on building walls	During the seabird fallout season every other light is turned off at 8:00 pm. Bulbs in the fixtures have been changed out to lower wattage bulbs.	Cost for new bulbs is negligible. Cost for new fixtures will be determined by future lighting plan.[1]	Property Manger	Timeline for fixture replacement will be determined by future lighting plan.[1]

Port Allen Marina Center

Table 6(f): Seabird Mortality Minimization Plan at Port Allen Marina Center

Minimization Measures	Describe minimization method (e.g. trapping, outreach, enact policy)	Cost to Implement	Responsible Staff
Remove & control loose predatory animals at the facility. (Loose animals can kill grounded seabirds and this measure aims to prevent seabird mortality by animals.)	In the event that cats or dogs are reported on the property, county animal control is notified or a pest control company is hired to remove the predators. A&B will meet the goal stated in KSHCP Table 5-1 (Biological Goals), "implent[ation] of actions to reduce presence of free-roaming seabird predators."	N/A	Property Manager
Prohibit outdoor feeding of predatory animals. (Feeding animals attracts them to the site and this measure aims to reduce the presence of animals that can cause seabird mortality.)	Policy implemented.	N/A	Property Manager
Conduct nightly/morning searches to recover downed birds at the property & turn them into SOS following protocols (see monitoring plan below).	Searches will be conducted as per KSHCP guidance.	N/A	Property Manager
Train staff to follow minimization measures.	Training will be conducted annually.	N/A	Property Manager

Pump 3 Hanapepe Valley

Table 5(g): Lighting Minimization Measures at Pump 3 Hanapepe Valley

List of Buildings	Minimization Measures	Cost to Implement	Responsible Staff	Timeline
Control Building	One light has been deactivated	N/A	McBryde Resources operator	Complete
Pump Facility	2 flood lights – not turned on except in emergencies	N/A	McBryde Resources operator	Complete

Pump 3 Hanapepe Valley

Table 6(g): Seabird Mortality Minimization Plan at Pump 3 Hanapepe Valley

Minimization Measures	Describe minimization method (e.g. trapping, outreach, enact policy)	Cost to Implement	Responsible Staff
Remove & control loose predatory animals at the facility. (Loose animals can kill grounded seabirds and this measure aims to prevent seabird mortality by animals.)	In the event that cats or dogs are reported within the fenced facility, county animal control is notified or a pest control company is hired to remove the predators. A&B will meet the goal stated in KSHCP Table 5-1 (Biological Goals), "implent[ation] of actions to reduce presence of free-roaming seabird predators."	N/A	McBryde Resources operator
Prohibit outdoor feeding of predatory animals. (Feeding animals attracts them to the site and this measure aims to reduce the presence of animals that can cause seabird mortality.)	Policy implemented.	N/A	McBryde Resources operator
Conduct nightly/morning searches to recover downed birds at the property & turn them into SOS following protocols (see monitoring plan below).	Properties with lights which are normally turned off and rarely or never used, will not be searched.	N/A	McBryde Resources operator
Train staff to follow minimization measures.	Training will be conducted annually	N/A	McBryde Sugar operator

Kalaheo Powerhouse

Table 5(h): Lighting Minimization Measures at Kalaheo Powerhouse

List of Buildings	Minimization Measures	Cost to Implement	Responsible Staff	Timeline
4 lights	All lights are dark sky complaint or not visible from the sky. They are only turned on in the case of nighttime emergencies.	N/A	McBryde Resource operator	Complete
2 small wall sconces	These have been deactivated.	N/A	McBryde Resources operator	Complete

Kalaheo Powerhouse

Table 6(h): Seabird Mortality Minimization Plan at Kalaheo Powerhouse

Minimization Measures	Describe minimization method (e.g. trapping, outreach, enact policy)	Cost to Implement	Responsible Staff
Remove & control loose predatory animals at the facility. (Loose animals can kill grounded seabirds and this measure aims to prevent seabird mortality by animals.)	In the event that cats or dogs are reported on the property, a pest control company will be hired to remove the predators. A&B will meet the goal stated in KSHCP Table 5-1 (Biological Goals), "implent[ation] of actions to reduce presence of free-roaming seabird predators."	N/A	McBryde Resources operator
Prohibit outdoor feeding of predatory animals. (Feeding animals attracts them to the site and this measure aims to reduce the presence of animals that can cause seabird mortality.)	Policy implemented.	N/A	McBryde Resources operator
Conduct nightly/morning searches to recover downed birds at the property & turn them into SOS following protocols (see monitoring plan below).	Properties with lights which are normally turned off and rarely or never used, will not be searched.	N/A	McBryde Resources operator
Train staff to follow minimization measures.	Training will be conducted annually.	N/A	McBryde Resources operator

Wainiha Powerhouse

Table 5(i): Lighting Minimization Measures at Wainiha Powerhouse

List of Buildings	Minimization Measures	Cost to Implement	Responsible Staff	Timeline
Powerhouse wall lights (3)	All lights are full-cutoff, dark sky compliant fixtures that were recently replaced. They are not turned on except in the event of a nighttime emergency.	N/A	McBryde Resources operator	Complete

Wainiha Powerhouse

Table 6(i): Seabird Mortality Minimization Plan at Wainiha Powerhouse

Minimization Measures	Describe minimization method (e.g. trapping, outreach, enact policy)	Cost to Implement	Responsible Staff
Remove & control loose predatory animals at the facility. (Loose animals can kill grounded seabirds and this measure aims to prevent seabird mortality by animals.)	In the event that cats or dogs are reported within the fenced facility, county animal control is notified or a pest control company is hired to remove the predators. A&B will meet the goal stated in KSHCP Table 5-1 (Biological Goals), "implent[ation] of actions to reduce presence of free-roaming seabird predators."	N/A	McBryde Resources operator
Prohibit outdoor feeding of predatory animals. (Feeding animals attracts them to the site and this measure aims to reduce the presence of animals that can cause seabird mortality.)	Policy implemented	N/A	McBryde Resources operator
Conduct nightly/morning searches to recover downed birds at the property & turn them into SOS following protocols (see monitoring plan below).	Properties with lights which are normally turned off and rarely or never used, will not be searched.	N/A	McBryde Resources operator
Train staff to follow minimization measures.	Training will be conducted annually	N/A	McBryde Resources operator

Hokulei Shopping Village

Table 5(j): Lighting Minimization Measures at Hokulei Shopping Village

List of Buildings	Minimization Measures	Cost to Implement	Responsible Staff	Timeline
Shopping Center	This is a new shopping center which was designed to have dark sky compliant lighting	N/A	Property Manager	Complete
	There are six emergency exit lights which are not totally shielded, but are only turned on when there is an emergency and a power outage	N/A	Property Manager	Complete

Hokulei Shopping Village

Table 6(j): Seabird Mortality Minimization Plan at Hokulei Shopping Village

Minimization Measures	Describe minimization method (e.g. trapping, outreach, enact policy)	Cost to Implement	Responsible Staff
Remove & control loose predatory animals at the facility. (Loose animals can kill grounded seabirds and this measure aims to prevent seabird mortality by animals.)	In the event that cats or dogs are reported on the property, county animal control is notified or a pest control company is hired to remove the predators. A&B will meet the goal stated in KSHCP Table 5-1 (Biological Goals), "implent[ation] of actions to reduce presence of free-roaming seabird predators."	N/A	Property Manager
Prohibit outdoor feeding of predatory animals. (Feeding animals attracts them to the site and this measure aims to reduce the presence of animals that can cause seabird mortality.)	Policy implemented.	N/A	Property Manager
Conduct nightly/morning searches to recover downed birds at the property & turn them into SOS following protocols (see monitoring plan below).	Searches will be conducted as per KSHCP guidance.	N/A	Property Manager
Train staff to follow minimization measures.	Training will be conducted annually.	N/A	Property Manager

The Shops at Kukuiʻula

Table 5(k): Lighting Minimization Measures at The Shops at Kukuiʻula

List of Buildings	Minimization Measures	Cost to Implement	Responsible Staff	Timeline
67 LED Streetlights	These fixtures are full cutoff dark sky compliant.	N/A	Property Manager	Complete
6 Flat panel LED Parking Lights	These fixtures are full cutoff dark sky compliant.	N/A	Property Manager	Complete
Numerous shop lighting fixtures	Management and ownership are developing a lighting plan to address fixtures that are not currently dark sky compliant.[1]	Cost for new fixtures will be determined by future lighting plan.[1]	Property Manager	Timeline for fixture replacement will be determined by future lighting plan.[1]

[1] KSHCP Table 5-1 (Biological Goals) requires that lighting avoidance and minimization be implemented "by the end of Year 1." A&B will complete its lighting and minimization by the end of Year 1.

The Shops at Kukuiʻula

Table 6(k): Seabird Mortality Minimization Plan at The Shops at Kukuiʻula

Minimization Measures	Describe minimization method (e.g. trapping, outreach, enact policy)	Cost to Implement	Responsible Staff
Remove & control loose predatory animals at the facility. (Loose animals can kill grounded seabirds and this measure aims to prevent seabird mortality by animals.)	In the event that cats or dogs are reported on the property, county animal control is notified or a pest control company is hired to remove the predators. A&B will meet the goal stated in KSHCP Table 5-1 (Biological Goals), "implent[ation] of actions to reduce presence of free-roaming seabird predators."	N/A	Property Manager
Prohibit outdoor feeding of predatory animals. (Feeding animals attracts them to the site and this measure aims to reduce the presence of animals that can cause seabird mortality.)	Policy implemented.	N/A	Property Manager
Conduct nightly/morning searches to recover downed birds at the property & turn them into SOS following protocols (see monitoring plan below).	Searches will be conducted as per KSHCP guidance.	N/A	Property Manager
Train staff to follow minimization measures.	Training will be conducted annually.	N/A	Property Manager

Waipouli Town Center

Table 5(l): Lighting Minimization Measures at Waipouli Town Center

List of Buildings	Minimization Measures	Cost to Implement	Responsible Staff	Timeline
Shopping Center	All of the lights at this newly purchased shopping center are dark sky compliant. Any replacement of older fixtures will be done with dark sky full cutoff fixtures.	N/A	Property Manager	Complete

Waipouli Town Center

Table 6(l): Seabird Mortality Minimization Plan at Waipouli Town Center

Minimization Measures	Describe minimization method (e.g. trapping, outreach, enact policy)	Cost to Implement	Responsible Staff
Remove & control loose predatory animals at the facility. (Loose animals can kill grounded seabirds and this measure aims to prevent seabird mortality by animals.)	Effective predator control at this property is not possible unless action is taken by outside agencies to discourage ongoing maintenance of a feral cat population immediately adjacent to the property. Until that time, predator control will be limited to dogs, and in the event dogs are reported on the property, county animal control is notified or a pest control company is hired to remove the predators.	N/A	Property Manager
Prohibit outdoor feeding of predatory animals. (Feeding animals attracts them to the site and this measure aims to reduce the presence of animals that can cause seabird mortality.)	Policy implemented.	N/A	Property Manager
Conduct nightly/morning searches to recover downed birds at the property & turn them into SOS following protocols (see monitoring plan below).	Searches will be conducted as per KSHCP guidance.	N/A	Property Manager
Train staff to follow minimization measures.	Training will be conducted annually.	N/A	Property Manager

Kukuiʻula Development (Plantation Core/The Club)

Table 5(m): Lighting Minimization Measures at Kukuiʻula Development (Plantation Core/The Club)

List of Buildings	Minimization Measures	Cost to Implement	Responsible Staff	Timeline
Parking Lots	All lighting is fully shielded, low wattage, and dark sky compliant.	N/A	Engineering Senior Manager	Complete
Cart Barn and Mechanicals	Wall lights are low wattage LEDs, masked by vegetation. The two downward pointing CFL floods at the loading dock are under eves and are only turned on when needed.	N/A	Engineering Senior Manager	Complete
Porte Cochere	All lighting is fully shielded, low wattage and dark sky compliant.	N/A	Engineering Senior Manager	Complete
Kukuiʻula Realty	All lighting is fully shielded, low wattage and dark sky compliant.	N/A	Engineering Senior Manager	Complete
The Club	All lighting fixtures are shielded from above and most are under eaves. The gas pencil light fixtures are extremely dim and are shielded from above.	N/A	Engineering Senior Manager	Complete
Pool area structures	All lighting is fully shielded, low wattage, and dark sky compliant.	N/A	Engineering Senior Manager	Complete
Swimming Pool	All lighting is the lowest wattage necessary for human safety and security.	N/A	Engineering Senior Manager	Complete
Landscaping	All lighting is fully shielded low wattage and dark sky compliant.	N/A	Engineering Senior Manager	Complete

Kukuiʻula Development (Plantation Core/The Club)

Table 6(m): Seabird Mortality Minimization Plan at Kukuiʻula Development (Plantation Core/The Club)

Minimization Measures	Describe minimization method (e.g. trapping, outreach, enact policy)	Cost to Implement	Responsible Staff
Remove & control loose predatory animals at the facility. (Loose animals can kill grounded seabirds and this measure aims to prevent seabird mortality by animals.)	In the event that cats or dogs are reported on the property, county animal control is notified or a pest control company is hired to remove the predators. A&B will meet the goal stated in KSHCP Table 5-1 (Biological Goals), "implent[ation] of actions to reduce presence of free-roaming seabird predators."	N/A	Property Manager
Prohibit outdoor feeding of predatory animals. (Feeding animals attracts them to the site and this measure aims to reduce the presence of animals that can cause seabird mortality.)	Policy implemented.	N/A	Property Manager
Conduct nightly/morning searches to recover downed birds at the property & turn them into SOS following protocols (see monitoring plan below).	Searches will be conducted as per KSHCP guidance.	N/A	Property Manager
Train staff to follow minimization measures.	Training will be conducted annually.	N/A	Property Manager

Item 9. Take Monitoring Plan. Provide a plan to monitor take of the Covered Seabirds at the facilities proposed to be covered by the incidental take permit/license. The take monitoring plan describes how the property will be searched for downed Covered Seabirds. The KSHCP document provides standards and guidelines for take monitoring to ensure that take of the species is accurately measured and recorded. **The regulatory agencies will make the final determination as to the adequacy of the take monitoring plan.**

Take monitoring is described in Tables 7(a) through 7(m), below. Additionally, Standard Operating Procedures are included as Appendix C.

Port Allen Solar Farm

Table 7(a): Covered Seabird Take Monitoring Protocols at Port Allen Solar Farm

Please provide the following information for the protocol items below		
Item	**Protocol (fill in protocol & provide reasons)**	**KSHCP Guideline**
Percentage of the total property that will be searched & the total area to be searched	There are only two small full cutoff dark sky light fixtures on the control building. They are only illuminated in the case of a nighttime emergency requiring service in the control building. The site will therefore not be searched for downed birds.	**Search as much area as possible**
Frequency of searches (# per day or per week)	N/A	**Twice daily**
Time of day of searches	N/A	**2-3 hours after sunset, and within 3 hours after sunrise**
Number of searchers per search area	N/A	**Depends on site conditions and safety considerations and vegetation, nearby hazards/threats**
Proposed training	Seabird Awareness training will be conducted for employees and operators once a year. See Appendix B1.	**Annual training covering seabird identification, seabird handling, response procedures, verified and documented**

Port Allen Center I and II

Table 7(b): Covered Seabird Take Monitoring Protocols at Port Allen Center I and II

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Percentage of the total property that will be searched & the total area to be searched	100%	**Search as much area as possible**
Frequency of searches (# per day or per week)	Twice daily.	**Twice daily**
Time of day of searches	2-3 hours after sunset, and within 3 hours after sunrise.	**2-3 hours after sunset, and within 3 hours after sunrise**
Number of searchers per search area	1-2 searchers, depending on safety considerations.	**Depends on site conditions and safety considerations and vegetation, nearby hazards/threats**
Proposed training	Seabird Awareness training will be conducted for employees and operators once a year. See Appendix B1.	**Annual training covering seabird identification, seabird handling, response procedures, verified and documented**

Port Allen South Parcels

Table 7(c): Covered Seabird Take Monitoring Protocols at Port Allen South Parcels

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Percentage of the total property that will be searched & the total area to be searched	Shoreline Parcel will not be searched as there are no lights associated with it.	**Search as much area as possible**
Frequency of searches (# per day or per week)	The BEI parcel will be searched twice daily.	**Twice daily**
Time of day of searches	The BEI parcel will be searched 2-3 hours after sunset, and within 3 hours after sunrise.	**2-3 hours after sunset, and within 3 hours after sunrise**
Number of searchers per search area	One searcher for the BEI parcel.	**Depends on site conditions and safety considerations and vegetation, nearby hazards/threats**
Proposed training	Seabird Awareness training will be conducted for employees and operators once a year. See Appendix B1.	**Annual training covering seabird identification, seabird handling, response procedures, verified and documented**

Port Allen Parking Lots

Table 7(d): Covered Seabird Take Monitoring Protocols at Port Allen Parking Lots

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Percentage of the total property that will be searched & the total area to be searched	100%	**Search as much area as possible**
Frequency of searches (# per day or per week)	Twice daily.	**Twice daily**
Time of day of searches	2-3 hours after sunset, and within 3 hours after sunrise.	**2-3 hours after sunset, and within 3 hours after sunrise**
Number of searchers per search area	One	**Depends on site conditions and safety considerations and vegetation, nearby hazards/threats**
Proposed training	Seabird Awareness training will be conducted for employees and operators once a year. See Appendix B1.	**Annual training covering seabird identification, seabird handling, response procedures, verified and documented**

Port Allen Steel Warehouse

Table 7(e): Covered Seabird Take Monitoring Protocols at Port Allen Steel Warehouse

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Percentage of the total property that will be searched & the total area to be searched	Approximately 80% of the property will be searched. Due to high crime, one tenant maintains watchdogs within his fenced yard, rendering about 20% of the property inaccessible to searchers.	**Search as much area as possible**
Frequency of searches (# per day or per week)	Twice daily.	**Twice daily**
Time of day of searches	2-3 hours after sunset, and within 3 hours after sunrise.	**2-3 hours after sunset, and within 3 hours after sunrise**
Number of searchers per search area	One	**Depends on site conditions and safety considerations and vegetation, nearby hazards/threats**
Proposed training	Seabird Awareness training will be conducted for employees and operators once a year. See Appendix B1.	**Annual training covering seabird identification, seabird handling, response procedures, verified and documented**

Port Allen Marina Center

Table 7(f): Covered Seabird Take Monitoring Protocols at Port Allen Marina Center

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Percentage of the total property that will be searched & the total area to be searched	100% of this site is searchable, as it is paved or built on.	**Search as much area as possible**
Frequency of searches (# per day or per week)	Twice daily	**Twice daily**
Time of day of searches	2-3 hours after sunset, and within 3 hours after sunrise.	**2-3 hours after sunset, and within 3 hours after sunrise**
Number of searchers per search area	One	**Depends on site conditions and safety considerations and vegetation, nearby hazards/threats**
Proposed training	Seabird Awareness training will be conducted for employees and operators once a year. See Appendix B1.	**Annual training covering seabird identification, seabird handling, response procedures, verified and documented**

Pump 3 Hanapepe Valley

Table 7(g): Covered Seabird Take Monitoring Protocols at Pump 3 Hanapepe Valley

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Percentage of the total property that will be searched & the total area to be searched	Properties with lights which are normally turned off and rarely or never used, will not be searched.	**Search as much area as possible**
Frequency of searches (# per day or per week)	N/A	**Twice daily**
Time of day of searches	N/A	**2-3 hours after sunset, and within 3 hours after sunrise**
Number of searchers per search area	One	**Depends on site conditions and safety considerations and vegetation, nearby hazards/threats**
Proposed training	Seabird Awareness training will be conducted for employees and operators once a year. See Appendix B1.	**Annual training covering seabird identification, seabird handling, response procedures, verified and documented**

Kalaheo Powerhouse

Table 7(h): Covered Seabird Take Monitoring Protocols at Kalaheo Powerhouse

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Percentage of the total property that will be searched & the total area to be searched	Properties with lights which are normally turned off and rarely or never used, will not be searched.	**Search as much area as possible**
Frequency of searches (# per day or per week)	N/A	**Twice daily**
Time of day of searches	N/A	**2-3 hours after sunset, and within 3 hours after sunrise**
Number of searchers per search area	One	**Depends on site conditions and safety considerations and vegetation, nearby hazards/threats**
Proposed training	Seabird Awareness training will be conducted for employees and operators once a year. See Appendix B1.	**Annual training covering seabird identification, seabird handling, response procedures, verified and documented**

Wainiha Powerhouse

Table 7(i): Covered Seabird Take Monitoring Protocols at Wainiha Powerhouse

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Percentage of the total property that will be searched & the total area to be searched	Properties with lights which are normally turned off and rarely or never used, will not be searched.	**Search as much area as possible**
Frequency of searches (# per day or per week)	N/A	**Twice daily**
Time of day of searches	N/A	**2-3 hours after sunset, and within 3 hours after sunrise**
Number of searchers per search area	One	**Depends on site conditions and safety considerations and vegetation, nearby hazards/threats**
Proposed training	Seabird Awareness training will be conducted for employees and operators once a year. See Appendix B1.	**Annual training covering seabird identification, seabird handling, response procedures, verified and documented**

Hokulei Shopping Village

Table 7(j): Covered Seabird Take Monitoring Protocols at Hokulei Shopping Village

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Percentage of the total property that will be searched & the total area to be searched	100% of this site is searchable.	**Search as much area as possible**
Frequency of searches (# per day or per week)	A minimum of twice daily.	**Twice daily**
Time of day of searches	2-3 hours after sunset, and within 3 hours after sunrise.	**2-3 hours after sunset, and within 3 hours after sunrise**
Number of searchers per search area	One to three.	**Depends on site conditions and safety considerations and vegetation, nearby hazards/threats**
Proposed training	Seabird Awareness training will be conducted for employees and operators once a year. See Appendix B1.	**Annual training covering seabird identification, seabird handling, response procedures, verified and documented**

The Shops at Kukuiʻula

Table 7(k): Covered Seabird Take Monitoring Protocols at The Shops at Kukuiʻula

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Percentage of the total property that will be searched & the total area to be searched	100% of this site is searchable.	**Search as much area as possible**
Frequency of searches (# per day or per week)	A minimum of twice daily.	**Twice daily**
Time of day of searches	2-3 hours after sunset, and within 3 hours after sunrise.	**2-3 hours after sunset, and within 3 hours after sunrise**
Number of searchers per search area	One to three.	**Depends on site conditions and safety considerations and vegetation, nearby hazards/threats**
Proposed training	Seabird Awareness training will be conducted for employees and operators once a year. See Appendix B1.	**Annual training covering seabird identification, seabird handling, response procedures, verified and documented**

Waipouli Town Center

Table 7(l): Covered Seabird Take Monitoring Protocols at Waipouli Town Center

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Percentage of the total property that will be searched & the total area to be searched	100% of this site is searchable as it is paved or built on.	**Search as much area as possible**
Frequency of searches (# per day or per week)	A minimum of twice daily.	**Twice daily**
Time of day of searches	2-3 hours after sunset, and within 3 hours after sunrise.	**2-3 hours after sunset, and within 3 hours after sunrise**
Number of searchers per search area	One to three.	**Depends on site conditions and safety considerations and vegetation, nearby hazards/threats**
Proposed training	Seabird Awareness training will be conducted for employees and operators once a year. See Appendix B1.	**Annual training covering seabird identification, seabird handling, response procedures, verified and documented**

Kukuiʻula Development (Plantation Core/The Club)

Table 7(m): Covered Seabird Take Monitoring Protocols at Kukuiʻula Development (Plantation Core/The Club)

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Percentage of the total property that will be searched & the total area to be searched	100% of this site is searchable.	**Search as much area as possible**
Frequency of searches (# per day or per week)	A minimum of twice daily.	**Twice daily**
Time of day of searches	2-3 hours after sunset, and within 3 hours after sunrise.	**2-3 hours after sunset, and within 3 hours after sunrise**
Number of searchers per search area	One to three.	**Depends on site conditions and safety considerations and vegetation, nearby hazards/threats**
Proposed training	Seabird Awareness training will be conducted for employees and operators once a year. See Appendix B1.	**Annual training covering seabird identification, seabird handling, response procedures, verified and documented**

Item 10. Components of the Green Sea Turtle Minimization and Monitoring Plan (if required). Monitoring and minimization for the Green Sea Turtle is in two parts: A) Monitoring to detect nests and B) Monitoring and minimizing impacts to nests detected.

Part A: Monitoring to detect Green Sea Turtle Nests
Please provide the following information; the table below may be used and altered as needed.

1) **Detailed location and description of beaches, including linear distance, at which searching for nests of the green sea turtle will take place. Searches should take place at any beach from which light at the facility can be viewed;**

2) **Monitoring protocols indicating:**
    a) **Annual training of searchers;**
    b) **Frequency of searches;**
    c) **Conduct active searching (searching the beach width);**
    d) **Sufficient number of trained searchers to cover the area; and**
    e) **Record results of search monitoring.**

3) **All Participants are required to record the results of search efforts. Records should provide:**
    a) **Evidence (what was seen). Include description and provide photographs**
    b) **Location on the beach (GPS) and physically mark the location if possible**
    c) **Date and time of day**
    d) **Description of surrounding land use (e.g., vacant, or developed), and**
    e) **Proximity to the facility.**

Part B: Monitoring of Identified Green Sea Turtle Nests

Each identified nest of the green sea turtle should be monitored and protected from light attraction. Please provide the following monitoring protocols; the tables below may be used and altered as needed.

1. **Light avoidance measure for identified nests (either shield/deactivate lights at the facility or install and maintain a light shield around each identified nest);**
2. **Frequency of searches;**
3. **Number of searches monitoring the nests. The number of needed to monitor active nests will depend on number of nests identified and amount of beach needed to be covered;**
4. **Record the results of nest monitoring. Monitoring should provide:**
    a. **Evidence of hatchling emergence (description and photos):**
    b. **Date and time of emergence,**
    c. **Direction of tracks,**
    d. **Condition of the nest area (e.g., disturbed or not).**

Coverage for take of Green Sea Turtle (Honu) is not being sought under this application.

Port Allen Solar Farm

Table 8(a): Green Sea Turtle Monitoring Protocols – Part A: Monitoring to Detect Nests at Port Allen Solar Farm

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Location & description of the beach, or beaches, surveyed and the linear distance of the beach	Not applicable	**Beach area surveyed should coincide with visibility from the facility with the lights**
Frequency of searches (# per day or per week)	Not applicable	**Weekly during nesting season (typ. May 15 to end of August)**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**
Proposed training	Not applicable	**Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See item 9a)**

Port Allen Solar Farm

Table 9(a): Green Sea Turtle Monitoring Protocols – Part B: Monitoring of Identified Nests & Minimization for Port Allen Solar Farm

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Frequency of checks (# per day or per week)	Not applicable	**Active nests should be monitored every 1-2 days; then daily during expected hatching date**
Light avoidance	Not applicable	**If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**

Port Allen Center I and II

Table 8(b): Green Sea Turtle Monitoring Protocols – Part A: Monitoring to Detect Nests at Port Allen Center I and II

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Location & description of the beach, or beaches, surveyed and the linear distance of the beach	Not applicable	**Beach area surveyed should coincide with visibility from the facility with the lights**
Frequency of searches (# per day or per week)	Not applicable	**Weekly during nesting season (typ. May 15 to end of August)**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**
Proposed training	Not applicable	**Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See item 9a)**

Port Allen Center I and II

Table 9(b): Green Sea Turtle Monitoring Protocols – Part B: Monitoring of Identified Nests & Minimization for Port Allen Center I and II

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Frequency of checks (# per day or per week)	Not applicable	**Active nests should be monitored every 1-2 days; then daily during expected hatching date**
Light avoidance	Not applicable	**If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**

Port Allen South Parcels

Table 8(c): Green Sea Turtle Monitoring Protocols – Part A: Monitoring to Detect Nests at Port Allen South Parcels

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Location & description of the beach, or beaches, surveyed and the linear distance of the beach	Not applicable	**Beach area surveyed should coincide with visibility from the facility with the lights**
Frequency of searches (# per day or per week)	Not applicable	**Weekly during nesting season (typ. May 15 to end of August)**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**
Proposed training	Not applicable	**Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See item 9a)**

Port Allen South Parcels

Table 9(c): Green Sea Turtle Monitoring Protocols – Part B: Monitoring of Identified Nests & Minimization for Port Allen South Parcels

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Frequency of checks (# per day or per week)	Not applicable	**Active nests should be monitored every 1-2 days; then daily during expected hatching date**
Light avoidance	Not applicable	**If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**

Port Allen Parking Lots

Table 8(d): Green Sea Turtle Monitoring Protocols – Part A: Monitoring to Detect Nests at Port Allen Parking Lots

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Location & description of the beach, or beaches, surveyed and the linear distance of the beach	Not applicable	**Beach area surveyed should coincide with visibility from the facility with the lights**
Frequency of searches (# per day or per week)	Not applicable	**Weekly during nesting season (typ. May 15 to end of August)**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**
Proposed training	Not applicable	**Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See item 9a)**

Port Allen Parking Lots

Table 9(d): Green Sea Turtle Monitoring Protocols – Part B: Monitoring of Identified Nests & Minimization for Port Allen Parking Lots

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Frequency of checks (# per day or per week)	Not applicable	**Active nests should be monitored every 1-2 days; then daily during expected hatching date**
Light avoidance	Not applicable	**If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**

Port Allen Steel Warehouse

Table 8(e): Green Sea Turtle Monitoring Protocols – Part A: Monitoring to Detect Nests at Port Allen Steel Warehouse

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Location & description of the beach, or beaches, surveyed and the linear distance of the beach	Not applicable	**Beach area surveyed should coincide with visibility from the facility with the lights**
Frequency of searches (# per day or per week)	Not applicable	**Weekly during nesting season (typ. May 15 to end of August)**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**
Proposed training	Not applicable	**Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See item 9a)**

Port Allen Steel Warehouse

Table 9(e): Green Sea Turtle Monitoring Protocols – Part B: Monitoring of Identified Nests & Minimization for Port Allen Steel Warehouse

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Frequency of checks (# per day or per week)	Not applicable	**Active nests should be monitored every 1-2 days; then daily during expected hatching date**
Light avoidance	Not applicable	**If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**

Port Allen Marina Center

Table 8(f): Green Sea Turtle Monitoring Protocols – Part A: Monitoring to Detect Nests at Port Allen Marina Center

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Location & description of the beach, or beaches, surveyed and the linear distance of the beach	Not applicable	**Beach area surveyed should coincide with visibility from the facility with the lights**
Frequency of searches (# per day or per week)	Not applicable	**Weekly during nesting season (typ. May 15 to end of August)**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**
Proposed training	Not applicable	**Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See item 9a)**

Port Allen Marina Center

Table 9(f): Green Sea Turtle Monitoring Protocols – Part B: Monitoring of Identified Nests & Minimization for Port Allen Marina Center

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Frequency of checks (# per day or per week)	Not applicable	**Active nests should be monitored every 1-2 days; then daily during expected hatching date**
Light avoidance	Not applicable	**If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**
Proposed training	Not applicable	**Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See item 9a)**

Pump 3 Hanapepe Valley

Table 8(g): Green Sea Turtle Monitoring Protocols – Part A: Monitoring to Detect Nests at Pump 3 Hanapepe Valley

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Location & description of the beach, or beaches, surveyed and the linear distance of the beach	Not applicable	**Beach area surveyed should coincide with visibility from the facility with the lights**
Frequency of searches (# per day or per week)	Not applicable	**Weekly during nesting season (typ. May 15 to end of August)**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**
Proposed training	Not applicable	**Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See item 9a)**

Pump 3 Hanapepe Valley

Table 9(g): Green Sea Turtle Monitoring Protocols – Part B: Monitoring of Identified Nests & Minimization for Pump 3 Hanapepe Valley

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Frequency of checks (# per day or per week)	Not applicable	**Active nests should be monitored every 1-2 days; then daily during expected hatching date**
Light avoidance	Not applicable	**If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**
Proposed training	Not applicable	**Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See item 9a)**

Kalaheo Powerhouse

Table 8(h): Green Sea Turtle Monitoring Protocols – Part A: Monitoring to Detect Nests at Kalaheo Powerhouse

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Location & description of the beach, or beaches, surveyed and the linear distance of the beach	Not applicable	**Beach area surveyed should coincide with visibility from the facility with the lights**
Frequency of searches (# per day or per week)	Not applicable	**Weekly during nesting season (typ. May 15 to end of August)**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**
Proposed training	Not applicable	**Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See item 9a)**

Kalaheo Powerhouse

Table 9(h): Green Sea Turtle Monitoring Protocols – Part B: Monitoring of Identified Nests & Minimization for Kalaheo Powerhouse

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Frequency of checks (# per day or per week)	Not applicable	**Active nests should be monitored every 1-2 days; then daily during expected hatching date**
Light avoidance	Not applicable	**If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**
Proposed training	Not applicable	**Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See item 9a)**

Wainiha Powerhouse

Table 8(i): Green Sea Turtle Monitoring Protocols – Part A: Monitoring to Detect Nests at Wainiha Powerhouse

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Location & description of the beach, or beaches, surveyed and the linear distance of the beach	Not applicable	**Beach area surveyed should coincide with visibility from the facility with the lights**
Frequency of searches (# per day or per week)	Not applicable	**Weekly during nesting season (typ. May 15 to end of August)**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**
Proposed training	Not applicable	**Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See item 9a)**

Wainiha Powerhouse

Table 9(i): Green Sea Turtle Monitoring Protocols – Part B: Monitoring of Identified Nests & Minimization for Wainiha Powerhouse

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Frequency of checks (# per day or per week)	Not applicable	**Active nests should be monitored every 1-2 days; then daily during expected hatching date**
Light avoidance	Not applicable	**If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**
Proposed training	Not applicable	**Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See item 9a)**

Hokulei Shopping Village

Table 8(j): Green Sea Turtle Monitoring Protocols – Part A: Monitoring to Detect Nests at Hokulei Shopping Village

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Location & description of the beach, or beaches, surveyed and the linear distance of the beach	Not applicable	**Beach area surveyed should coincide with visibility from the facility with the lights**
Frequency of searches (# per day or per week)	Not applicable	**Weekly during nesting season (typ. May 15 to end of August)**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**
Proposed training	Not applicable	**Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See item 9a)**

Hokulei Shopping Village

Table 9(j): Green Sea Turtle Monitoring Protocols – Part B: Monitoring of Identified Nests & Minimization for Hokulei Shopping Village

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Frequency of checks (# per day or per week)	Not applicable	**Active nests should be monitored every 1-2 days; then daily during expected hatching date**
Light avoidance	Not applicable	**If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**
Proposed training	Not applicable	**Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See item 9a)**

The Shops at Kukuiʻula

Table 8(k): Green Sea Turtle Monitoring Protocols – Part A: Monitoring to Detect Nests at The Shops at Kukuiʻula

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Location & description of the beach, or beaches, surveyed and the linear distance of the beach	Not applicable	**Beach area surveyed should coincide with visibility from the facility with the lights**
Frequency of searches (# per day or per week)	Not applicable	**Weekly during nesting season (typ. May 15 to end of August)**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**
Proposed training	Not applicable	**Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See item 9a)**

The Shops at Kukuiʻula

Table 9(k): Green Sea Turtle Monitoring Protocols – Part B: Monitoring of Identified Nests & Minimization for The Shops at Kukuiʻula

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Frequency of checks (# per day or per week)	Not applicable	**Active nests should be monitored every 1-2 days; then daily during expected hatching date**
Light avoidance	Not applicable	**If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**
Proposed training	Not applicable	**Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See item 9a)**

Waipouli Town Center

Table 8(l): Green Sea Turtle Monitoring Protocols – Part A: Monitoring to Detect Nests at Waipouli Town Center at Waipouli Town Center

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Location & description of the beach, or beaches, surveyed and the linear distance of the beach	Not applicable	**Beach area surveyed should coincide with visibility from the facility with the lights**
Frequency of searches (# per day or per week)	Not applicable	**Weekly during nesting season (typ. May 15 to end of August)**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**
Proposed training	Not applicable	**Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See item 9a)**

Waipouli Town Center

Table 9(l): Green Sea Turtle Monitoring Protocols – Part B: Monitoring of Identified Nests & Minimization at Waipouli Town Center

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Frequency of checks (# per day or per week)	Not applicable	**Active nests should be monitored every 1-2 days; then daily during expected hatching date**
Light avoidance	Not applicable	**If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**
Proposed training	Not applicable	**Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See item 9a)**

Kukuiʻula Development (Plantation Core/The Club)

Table 8(m): Green Sea Turtle Monitoring Protocols – Part A: Monitoring to Detect Nests at Kukuiʻula Development (Plantation Core/The Club)

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Location & description of the beach, or beaches, surveyed and the linear distance of the beach	Not applicable	**Beach area surveyed should coincide with visibility from the facility with the lights**
Frequency of searches (# per day or per week)	Not applicable	**Weekly during nesting season (typ. May 15 to end of August)**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**
Proposed training	Not applicable	**Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See item 9a)**

Kukuiʻula Development (Plantation Core/The Club)

Table 9(m): Green Sea Turtle Monitoring Protocols – Part B: Monitoring of Identified Nests & Minimization at Kukuiʻula Development (Plantation Core/The Club)

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Frequency of checks (# per day or per week)	Not applicable	**Active nests should be monitored every 1-2 days; then daily during expected hatching date**
Light avoidance	Not applicable	**If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light**
Number of searchers per search area	Not applicable	**Depends on site conditions and safety considerations**
Proposed training	Not applicable	**Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See item 9a)**

Item 11. Describe the schedule that will be followed to provide training for staff. Training must be provided to those that will conduct and oversee the searches at the facility.

The training should include:

1. Summary of regulations protecting the Covered Species;
2. Search procedures, route, frequency and timing specific to the facility's monitoring plan, for seabirds and green sea turtle nests (if applicable);
3. Response procedures including safe and proper techniques for handling seabirds;
4. Recognizing evidence of green sea turtle nests, proper nest light screening, and hatchling activity (if green sea turtle minimization and monitoring plan is applicable);
5. Procedures to document the results of searches;
6. Downed wildlife agency contacts; and
7. Nearest SOS aid station.

Please refer to Appendix C for detailed Standard Operating Procedures.

<u>Port Allen Solar Farm</u>
Seabird Awareness and Response Training will be provided to all McBryde Resources staff on an annual basis. A copy of the PowerPoint training module is attached as Appendix B2. See also Standard Operating Procedures (SOP) (Appendix C).

<u>Port Allen Center I and II</u>
Seabird Awareness and Response Training will be provided to the Alexander & Baldwin Property Managers and staff that will be conducting the daily seabird searches during the fallout season. A copy of the PowerPoint training module is attached as Appendix B1. See also Standard Operating Procedures (SOP) (Appendix C).

<u>Port Allen South Parcels</u>
Seabird Awareness and Response Training will be provided to the Alexander & Baldwin Property Managers and staff that will be conducting the daily seabird searches on the BEI parcel during the fallout season. A copy of the PowerPoint training module is attached as Appendix B1. See also Standard Operating Procedures (SOP) (Appendix C).

<u>Port Allen Parking Lots</u>
Seabird Awareness and Response Training will be provided to the Alexander & Baldwin Property Managers and staff that will be conducting the daily seabird searches during the fallout season. A copy of the PowerPoint training module is attached as Appendix B1. See also Standard Operating Procedures (SOP) (Appendix C).

Port Allen Steel Warehouse
Seabird Awareness and Response Training will be provided to the Alexander & Baldwin Property Managers and staff that will be conducting the daily seabird searches during the fallout season. A copy of the PowerPoint training module is attached as Appendix B1. See also Standard Operating Procedures (SOP) (Appendix C).

Port Allen Marina Center
Seabird Awareness and Response Training will be provided to the Alexander & Baldwin Property Managers and staff that will be conducting the daily seabird searches during the fallout season. A copy of the PowerPoint training module is attached as Appendix B1. See also Standard Operating Procedures (SOP) (Appendix C).

Pump 3 Hanapepe Valley
Seabird Awareness and Response Training will be provided to the McBryde Resources staff. A copy of the PowerPoint training module is attached as Appendix B2. See also Standard Operating Procedures (SOP) (Appendix C).

Kalaheo Powerhouse
Seabird Awareness and Response Training will be provided to the McBryde Resources staff. A copy of the PowerPoint training module is attached as Appendix B2. See also Standard Operating Procedures (SOP) (Appendix C).

Wainiha Powerhouse
Seabird Awareness and Response Training will be provided to the McBryde Resources staff. A copy of the PowerPoint training module is attached as Appendix B2. See also Standard Operating Procedures (SOP) (Appendix C).

Hokulei Shopping Village
Seabird Awareness and Response Training will be provided to the Alexander & Baldwin Property Managers, individual shopping center managers and the staff that will be conducting the daily seabird searches during the fallout season. A copy of the PowerPoint training module is attached as Appendix B1. See also Standard Operating Procedures (SOP) (Appendix C).

The Shops at Kukuiʻula
Seabird Awareness and Response Training will be provided to the Alexander & Baldwin Property Managers, individual shopping center managers and the staff that will be conducting the daily seabird searches during the fallout season. A copy of the PowerPoint training module is attached as Appendix B1. See also Standard Operating Procedures (SOP) (Appendix C).

Waipouli Town Center

Seabird Awareness and Response Training will be provided to the Alexander & Baldwin Property Managers, individual shopping center managers and the staff that will be conducting the daily seabird searches during the fallout season. A copy of the PowerPoint training module is attached as Appendix B1. See also Standard Operating Procedures (SOP) (Appendix C).

Kukui‘ula Development (Plantation Core/The Club)

Seabird Awareness and Response Training will be provided to Kukui‘ula staff that will be conducting the daily seabird searches during the fallout season. A copy of the PowerPoint training module is attached as Appendix B1. See also Standard Operating Procedures (SOP) (Appendix C).

Item 12. Describe any outreach conducted (e.g., handing out pamphlets on seabird awareness to facility employees or guests, etc):

Port Allen Solar Farm

The Port Allen Solar Farm will do outreach to staff during the permit term. During the seabird fledging season they will:

- Distribute seabird awareness pamphlets to McBryde Resources employees and to contractors working outdoors at night at McBryde facilities.
- Post seabird awareness materials in a conspicuous location at the facility.

Port Allen Center I and II

The Port Allen Center I and II will do outreach to staff during the permit term. During the seabird fledging season they will:

- Distribute seabird awareness pamphlets to A&B employees and to contractors working outdoors at night at the Port Allen facilities.
- Distribute seabird awareness pamphlets to all tenants of the facility.
- Encourage tenants to post seabird awareness materials in a conspicuous location at their facilities.

Port Allen South Parcels

The Port Allen South Parcels will do outreach to staff during the permit term. During the seabird fledging season they will:

- Distribute seabird awareness pamphlets to A&B employees and to contractors working outdoors at night at the Port Allen facilities.
- Distribute seabird awareness pamphlets to all tenants of the facility.
- Encourage tenants to post seabird awareness materials in a conspicuous location at their facilities.

Port Allen Parking Lots

Outreach for the Port Allen Parking Lots will consist of posting a seabird informational flyer in the parking lots during the fledging season.

Port Allen Steel Warehouse

The Port Allen Steel Warehouse will do outreach to staff during the permit term. During the seabird fledging season they will:

- Distribute seabird awareness pamphlets to A&B employees and to contractors working outdoors at night at the Port Allen facilities.
- Distribute seabird awareness pamphlets to all tenants of the facility.
- Encourage tenants to post seabird awareness materials in a conspicuous location at their facilities.

Port Allen Marina Center

The Port Allen Marina Center will do outreach to staff during the permit term. During the seabird fledging season they will:

- Distribute seabird awareness pamphlets to A&B employees and to contractors working outdoors at night at the Port Allen facilities.
- Distribute seabird awareness pamphlets to all tenants of the facility.
- Encourage tenants to post seabird awareness materials in a conspicuous location at their facilities.

Pump 3 Hanapepe Valley

The Pump 3 Hanapepe Valley will do outreach to existing staff during the permit term. During the seabird fledging season they will:

- Distribute seabird awareness pamphlets to McBryde Resources employees and to contractors who will be working outdoors at night at McBryde facilities.
- Post seabird awareness materials in a conspicuous location at the facility.

Kalaheo Powerhouse

The Kalaheo Powerhouse will do outreach to staff during the permit term. During the seabird fledging season they will:

- Distribute seabird awareness pamphlets to McBryde Resources employees and to contractors who will be working outdoors at night at McBryde facilities.
- Post seabird awareness materials in a conspicuous location at the facility.

Wainiha Powerhouse

The Wainiha Powerhouse will do outreach to staff during the permit term. During the seabird fledging season they will:

- Distribute seabird awareness pamphlets to McBryde Resources employees and to contractors who will be working outdoors at night at McBryde facilities.
- Post seabird awareness materials in a conspicuous location at the facility.

Hokulei Shopping Village

The Hokulei Shopping Village will do outreach to staff during the permit term. During the seabird fledging season they will:

- Distribute seabird awareness pamphlets to A&B employees and to contractors working outdoors at night at the shopping center.
- Distribute seabird awareness pamphlets to all tenants of the facility.
- Encourage tenants to post seabird awareness materials in a conspicuous location at their facilities.

The Shops at Kukuiʻula

The Shops at Kukuiʻula will do outreach to staff during the permit term. During the seabird fledging season they will:

- Distribute seabird awareness pamphlets to A&B employees and to contractors working outdoors at night at the shopping center.
- Distribute seabird awareness pamphlets to all tenants of the facility.
- Encourage tenants to post seabird awareness materials in a conspicuous location at their facilities.

Waipouli Town Center

The Waipouli Town Center will do outreach to staff during the permit term. During the seabird fledging season they will:

- Distribute seabird awareness pamphlets to A&B employees and to contractors working at the shopping center.
- Distribute seabird awareness pamphlets to all tenants of the facility.
- Encourage tenants to post seabird awareness materials in a conspicuous location at their facilities.

Kukuiʻula Development (Plantation Core/The Club)

Kukuiʻula Development will do outreach to staff during the permit term. During the seabird fledging season they will:

- Distribute seabird awareness pamphlets to Kukuiʻula employees, each of the facilities within the Plantation Core and to contractors working outdoors at night at the facilities.
- Make outreach materials available to guests at various locations around the facilities.
- Post seabird awareness materials in conspicuous locations at the facilities.

PART 2: Take Estimate1, Requested Amount of Take Authorization, and Funding

Item 1. Show the calculation of estimated take for each of the Covered Species.

Following the take estimation methods in the KSHCP for estimating a Participant's take (Section 6.2.2), the tables below show the take estimate calculation for the facility(s) for each of the Covered Seabirds.

The KSHCP take estimate method utilizes the average of the most recent 5 years of SOS recovery data for the facility. Applied to the data is an adjustment for downed birds not found, based on a 50% discovery rate and an adjustment based on SOS mortality (birds dead on arrival or those that die in care) – average SOS mortality is 12%.

If the landowner-applicant submits a take estimate with an alternate discovery rate, they must provide the reasons why an alternate rate was used to estimate take, including relevant information supporting their reasoning (% of searchable area, search protocols that will be used, any searcher efficiency trials that have been or will be conducted at facilities and/or demonstration of quick, effective recovery of birds). Please include narrative and/or photos and maps to support this.

Table 10: Annual Lethal Estimated Take Calculation[i]

	Newell's Shearwater	Hawaiian Petrel	Band-rumped Storm Petrel
1. Annual average number (SOS data – or – monitoring data) of downed NESH (5 most recent years), HAPE or BRSP (15 most recent years)	3	0	0
2. Annual observed lethal take estimate (12% of 1, all downed birds)	.36	0	0
3. Annual unobserved lethal take estimate (e.g. 100% of 1, all downed birds if 50% searcher efficiency assumed)	3	0	0
4. Total estimated annual lethal take from light attraction (2+3)	3.36	0	0
Requested Annual Lethal Take	3.46	.1	.033
Requested Take Over Permit Term	104	3	1

[i] Title of table revised per email from K. Cullison 4/10/20.

Preliminary take limits for the license/permit term are provided below. Estimates provided are combined estimates for all A&B facilities listed in this application.

Item 2. Select the requested take authorization and permit/license term coverage for each of the Covered Species.

Table 11: Newell's Shearwater:

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or Sub-Adults	Take Limit for License/Permit Term
Mortality (Lethal)	3.36[i]	0	104[ii]
Injury (Non-lethal)	2.64[iii]	0	79.2[iv]

[i] This number is repeated from Line 4 of Table 10, above, and should not be added to the number in Table 10.

[ii] This number is A&B's requested take limit, repeated from the last line of Table 10, above, and should not be added to the number in Table 10.

[iii] This number of nonlethal take is derived by using the formula in KSHCP Section 6.2.2.1. As set forth in Section 6.2.2.1, "Lethal Take =100% undiscovered birds + 12% of birds that are discovered and turned into SOS." It follows, then, that nonlethal take is 88% of birds that are discovered and turned into SOS, or 88% of Line 1 of Table 10.

[iv] This number is derived by multiplying 2.64 by 30 years.

Table 12: Hawaiian Petrel:

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or Sub-Adults	Take Limit for License/Permit Term
Mortality (Lethal)	0[i]	0	3[ii]
Injury (Non-lethal)	0	0	3[iii]

[i] This number is repeated from Line 4 of Table 10, above, and should not be added to the number in Table 10. It is different than A&B's requested annual take for Hawaiian Petrels in Table 10, above, which is 0.1.

[ii] This number is A&B's requested take limit, repeated from the last line of Table 10, above, and should not be added to the number in Table 10.

[iii] This is A&B's requested coverage for nonlethal take.

Table 13: Band-rumped Storm Petrel:

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or Sub-Adults	Take Limit for License/Permit Term
Mortality (Lethal)	0[i]	0	1[ii]
Injury (Non-lethal)	0	0	1[iii]

[i] This number is repeated from Line 4 of Table 10, above, and should not be added to the number in Table 10. It is different than A&B's requested annual take for Band-rumped Storm Petrels in Table 10, above, which is 0.033.

[ii] This number is A&B's requested take limit, repeated from the last line of Table 10, above, and should not be added to the number in Table 10.

[iii] This is A&B's requested coverage for nonlethal take.

Item 3. Funding Assurance. Provide proof of adequate funding (see KSHCP document). All participants must demonstrate requisite funding prior to permit/license approval to ensure that the proposed measures and actions, including monitoring, will be undertaken in accordance with the terms and schedule of the KSHCP.

Alexander & Baldwin, Inc. and its subsidiaries/related entities currently undertake all minimization and conduct all monitoring using existing staff, or outside contractors, as part of annual operating budget, and will continue to do so through the term of the KSHCP. Alexander & Baldwin, Inc. will provide financial assurances as required by the KSHCP.

Signature of Participant:

Date: 5-13-2020

Printed Name :

Nelson Chun Exec. V.P.

The undersigned affirms that all the information included is true and accurate to the best of the participant's knowledge and that this PIP is voluntarily submitted.

☐ check to waive confidentiality

Appendices

Appendix A – TMK Maps and Site Plans

Appendix B1 – Seabird Awareness and Response Training Program (Commercial Properties)

Appendix B2 – Seabird Awareness and Response Training Program (McBryde Facilities)

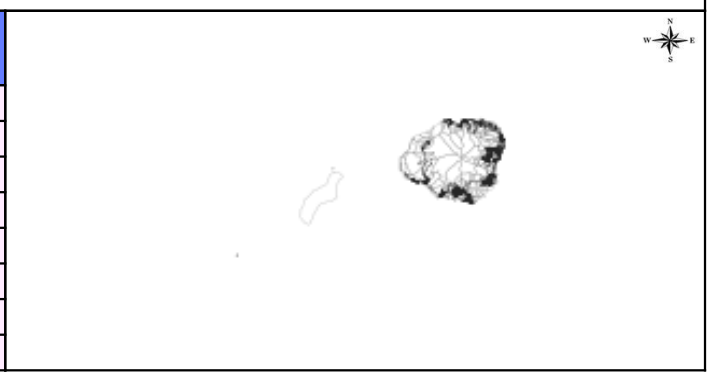
Appendix C – Standard Operating Procedures

Appendix D – A&B Downed Seabird Recovery Report Form

Appendix A

(a) Port Allen Solar Farm - TMK Map

Port Allen Solar Farm			
Parcel: 210010510000 Acres:			
Name:		Land Value	
Site:		Building Value	
Sale:		Misc Value	
Mail:		Just Value	
		Assessed Value	
		Exempt Value	
		Taxable Value	



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Date printed: 05/16/19 : 05:43:14

(a) Port Allen Solar Farm - Site Plan

Site Plan - Port Allen Solar Farm

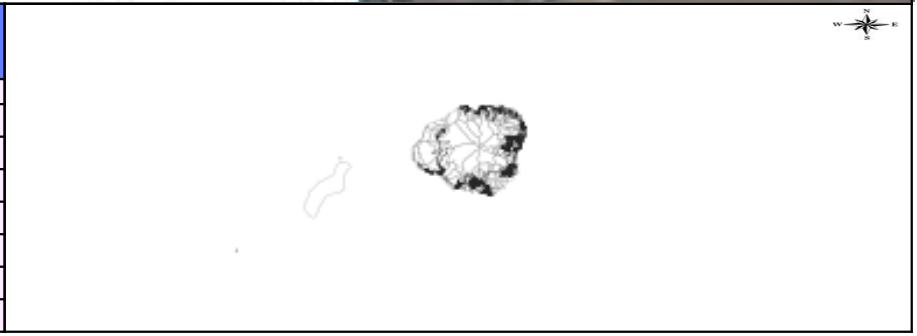
TMK Nos. (4) 2-1-001:051

(a) through (f) Port Allen Commercial Properties – Overview

Port Allen Commercial Properties – Overview
(Note: Letters on map do not coincide with PIP letter designations for the corresponding properties.)
A - Port Allen Marina Center (TMK No. (4) 2-1-003:040)
B - Port Allen Center I (TMK No. (4) 2-1-003:004)
C - Port Allen Center II (TMK No. (4) 2-1-003:004)
D - Steel Warehouse (TMK No. (4) 2-1-003:028)
E - Small Parking Lot (TMK No. (4) 2-1-003:025)
F - Large Parking Lot (TMK No. (4) 2-1-003:026)

(b) Port Allen Center I and II - TMK Map

Port Allen Center I and II			
Parcel: 210030040000 Acres:			
Name:		Land Value	
Site:		Building Value	
Sale:		Misc Value	
Mail:		Just Value	
		Assessed Value	
		Exempt Value	
		Taxable Value	



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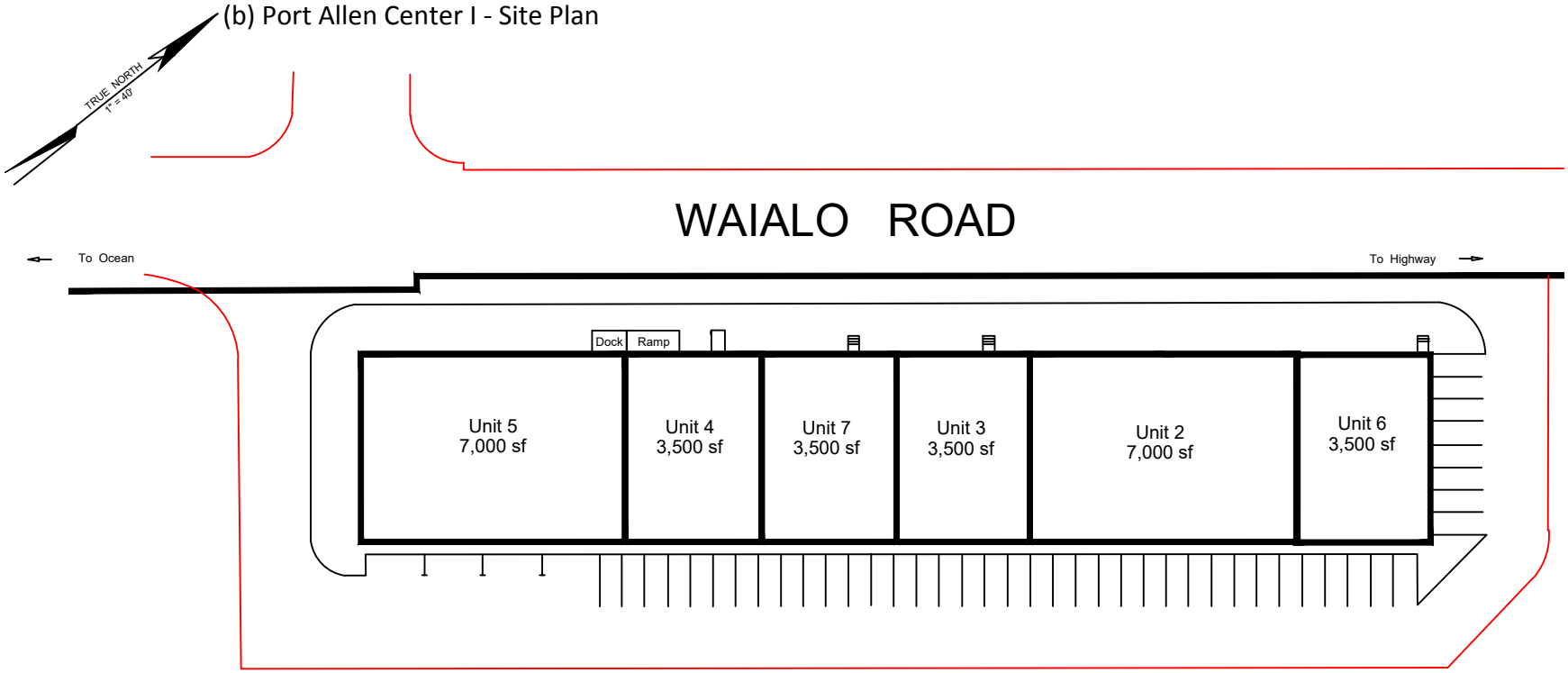
Date printed: 05/16/19 : 05:27:31

(b) Port Allen Center I and II - Site Plan

Port Allen Center I and II – Site Plan

TMK No. (4) 2-1-003:004

(b) Port Allen Center I - Site Plan



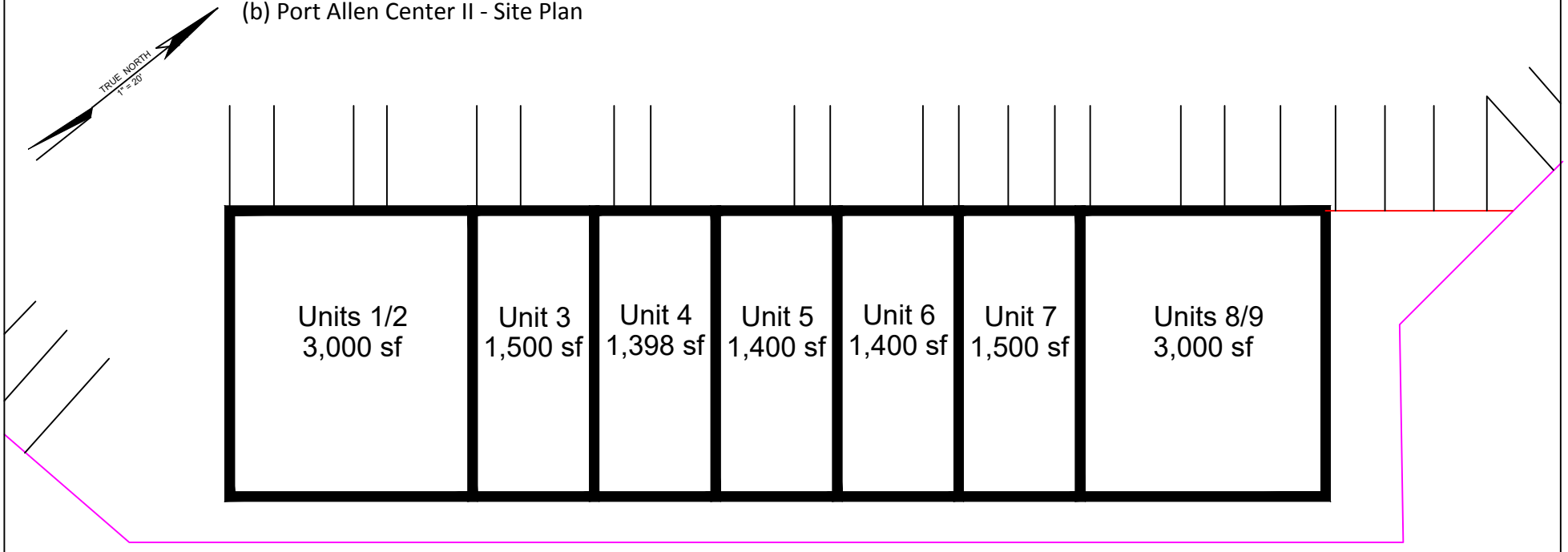
PORT ALLEN CENTER

9-2-2016

Tax Map Key: (4) 2-1-003-004

11" x 17"

(b) Port Allen Center II - Site Plan



PORT ALLEN CENTER 2

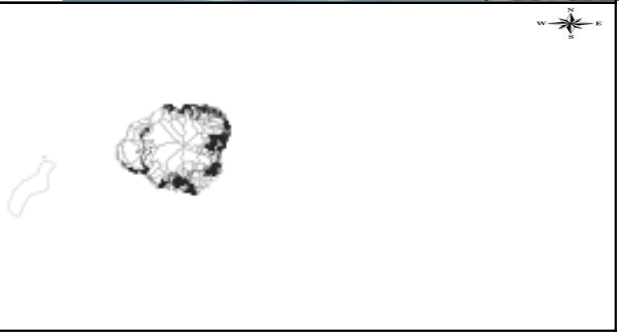
9-29-2014

Tax Map Key: (4) 2-1-003-004

11" x 17"

(c) Port Allen South Parcels - TMK Map (shoreline parcel)

Port Allen Shoreline Parcel			
Parcel: 210030300000 Acres:			
Name:		Land Value	
Site:		Building Value	
Sale:		Misc Value	
Mail:		Just Value	
		Assessed Value	
		Exempt Value	
		Taxable Value	



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(c) Port Allen South Parcels - TMK Map (BEI parcel)

Port Allen BEI Parcel			
Parcel: 210030290000 Acres:			
Name:		Land Value	
Site:		Building Value	
Sale:		Misc Value	
Mail:		Just Value	
		Assessed Value	
		Exempt Value	
		Taxable Value	

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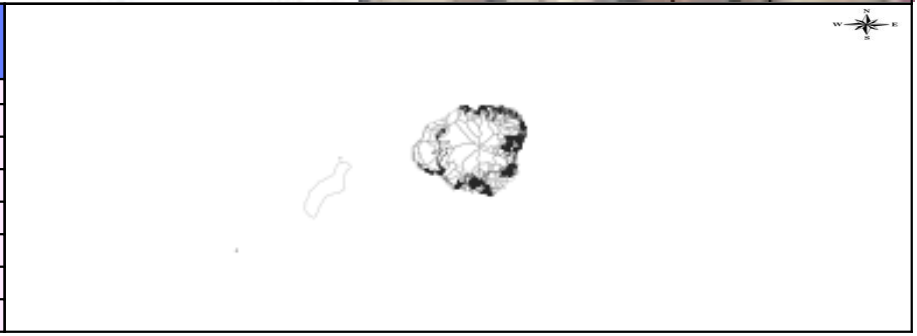
(c) Port Allen South Parcels - Site Plan

Port Allen South Parcels – Site Plan

BEI Fertilizer Facility (TMK No. (4) 2-1-003:029)
Shoreline Parcel (TMK No. (4) 2-1-003:030)

(d) Port Allen Parking Lots - TMK Map (Small Parking Lot)

Port Allen small parking lot			
Parcel: 210030250000 Acres:			
Name:		Land Value	
Site:		Building Value	
Sale:		Misc Value	
Mail:		Just Value	
		Assessed Value	
		Exempt Value	
		Taxable Value	



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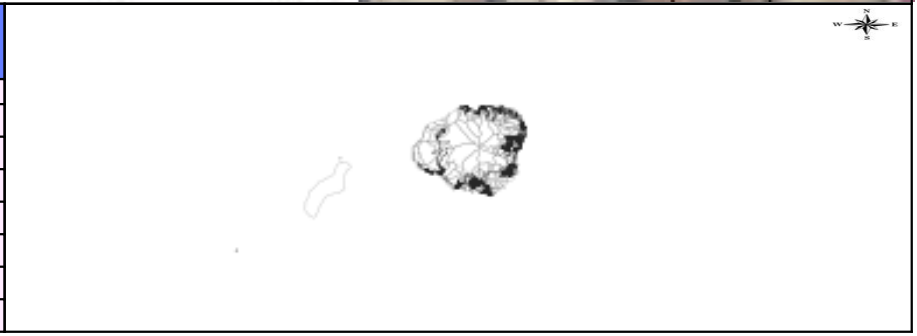
Date printed: 05/16/19 : 05:29:54

(d) Port Allen Parking Lots - TMK Map (Large Parking Lot)

Port Allen large parking lot			
Parcel: 210030260000 Acres:			
Name:		Land Value	
Site:		Building Value	
Sale:		Misc Value	
Mail:		Just Value	
		Assessed Value	
		Exempt Value	
		Taxable Value	



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Date printed: 05/16/19 : 05:30:44

(d) Port Allen Parking Lots - Site Plan

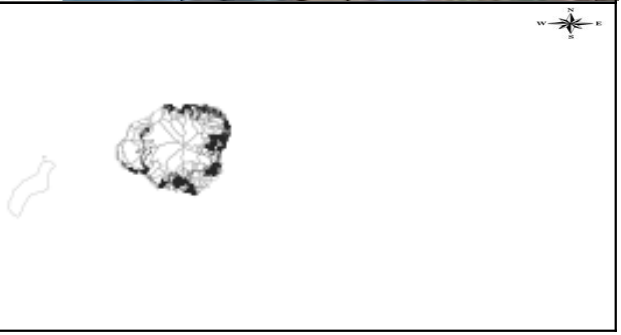
Port Allen Parking Lots – Site Plan

TMK Nos. (4) 2-1-003:025 (small lot) and (4) 2-1-003:026 (large lot)

Note three orange asterisks along Waialo Road and one at intersection of Olali Street and Aka Ula Road denote locations of off-site street lamps.

(e) Port Allen Steel Warehouse - TMK Map

Port Allen Steel Warehouse			
Parcel: 210030280000 Acres:			
Name:		Land Value	
Site:		Building Value	
Sale:		Misc Value	
Mail:		Just Value	
		Assessed Value	
		Exempt Value	
		Taxable Value	



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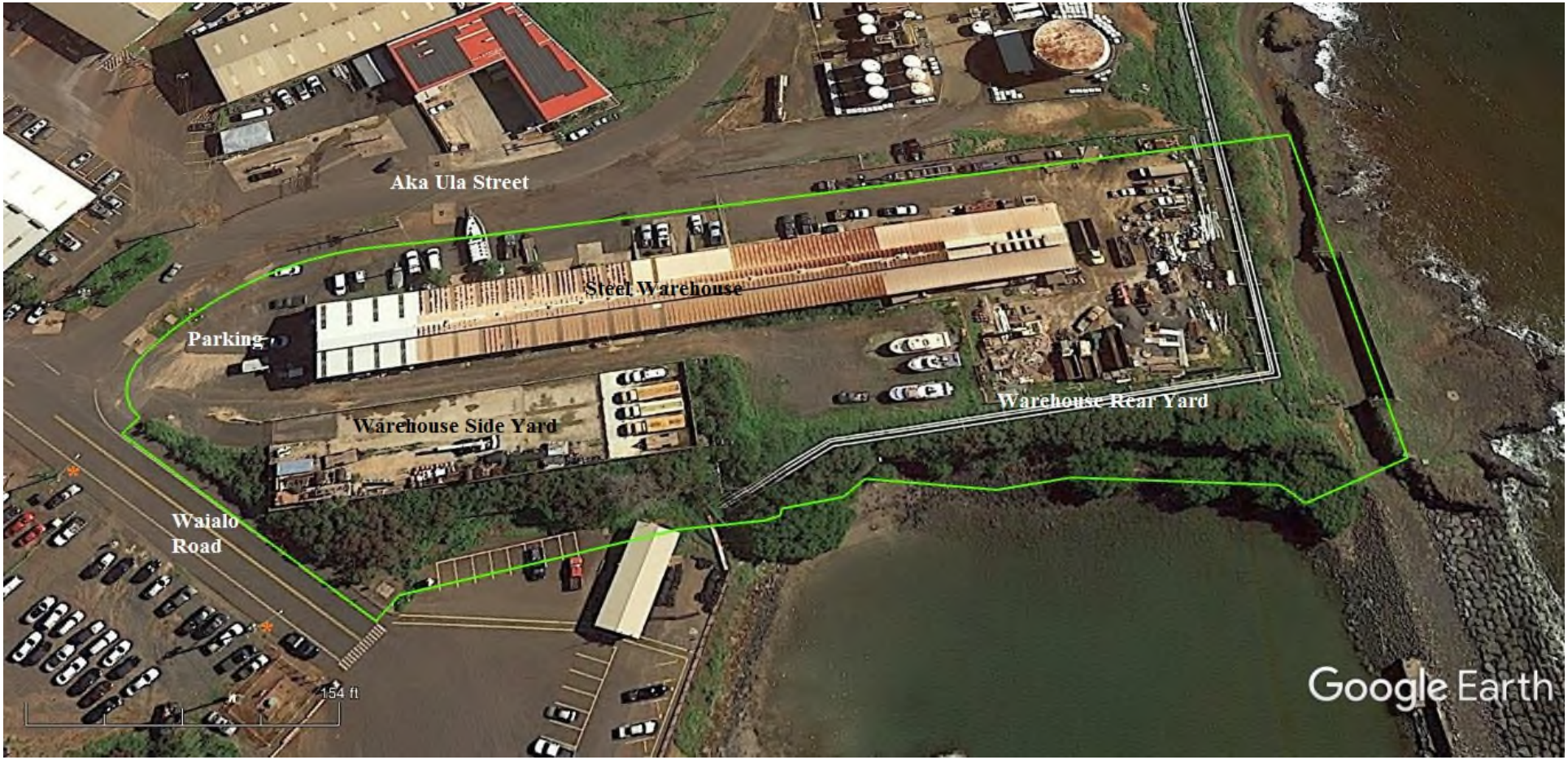
Date printed: 05/16/19 : 05:32:36

(e) Port Allen Steel Warehouse - Site Plan (1 of 2)

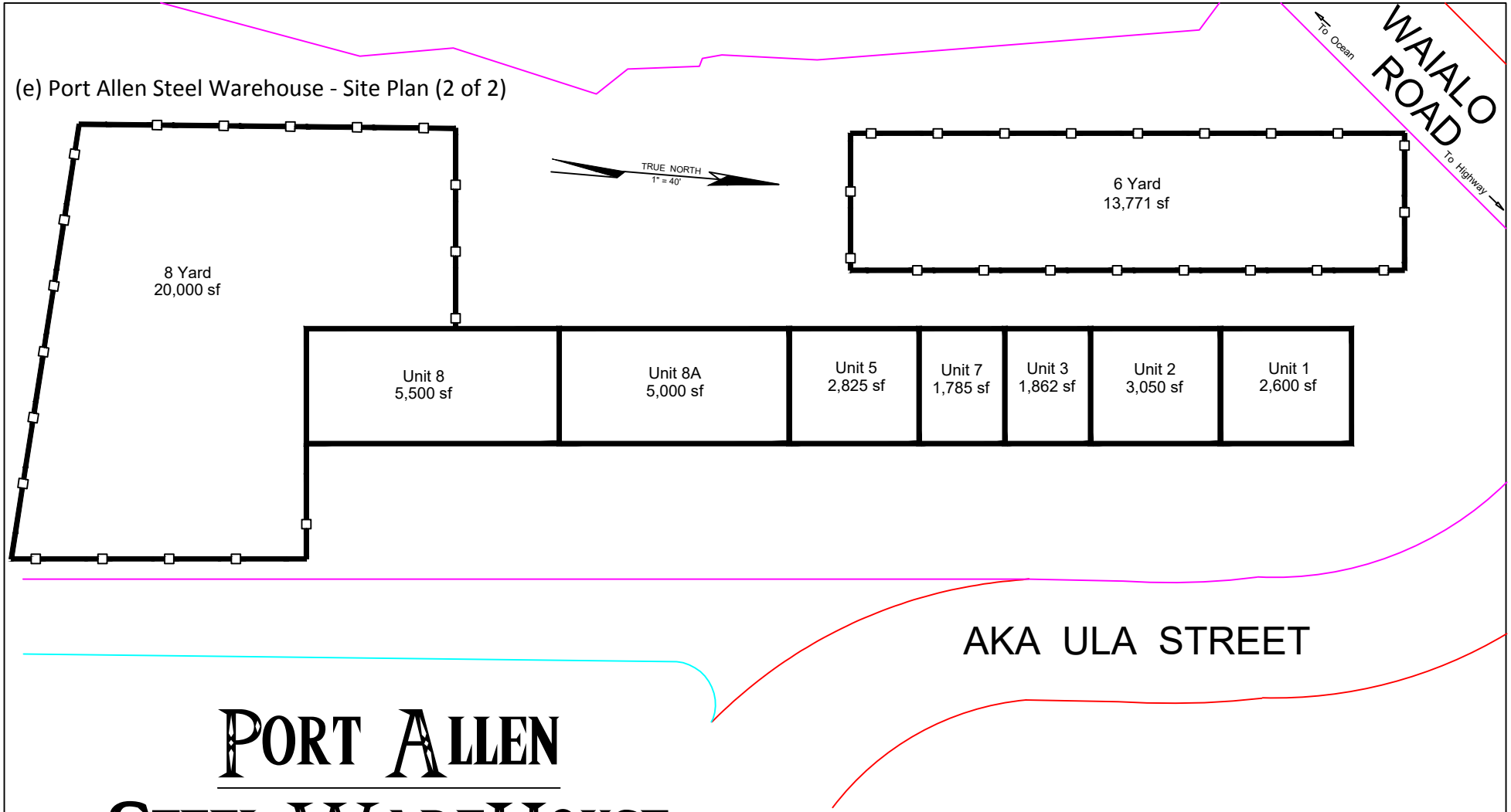


Port Allen Steel Warehouse – Site Plan

TMK No. (4) 2-1-003:028

Note two orange asterisks along Waialo Road denote locations of off-site street lamps.

(e) Port Allen Steel Warehouse - Site Plan (2 of 2)



PORT ALLEN STEEL WAREHOUSE

Lease Expirations

A16

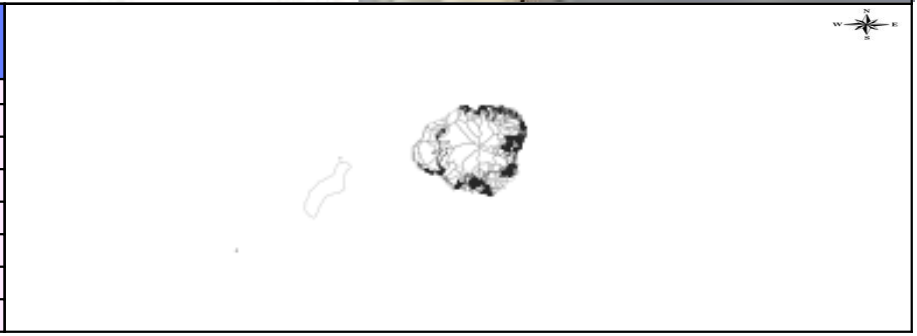
9-2-2016

Tax Map Key: (4) 2-1-003-028

11" x 17"

(f) Port Allen Marina Center - TMK Map

Port Allen Marina Center			
Parcel: 210030400000 Acres:			
Name:		Land Value	
Site:		Building Value	
Sale:		Misc Value	
Mail:		Just Value	
		Assessed Value	
		Exempt Value	
		Taxable Value	



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Date printed: 05/16/19 : 05:34:02

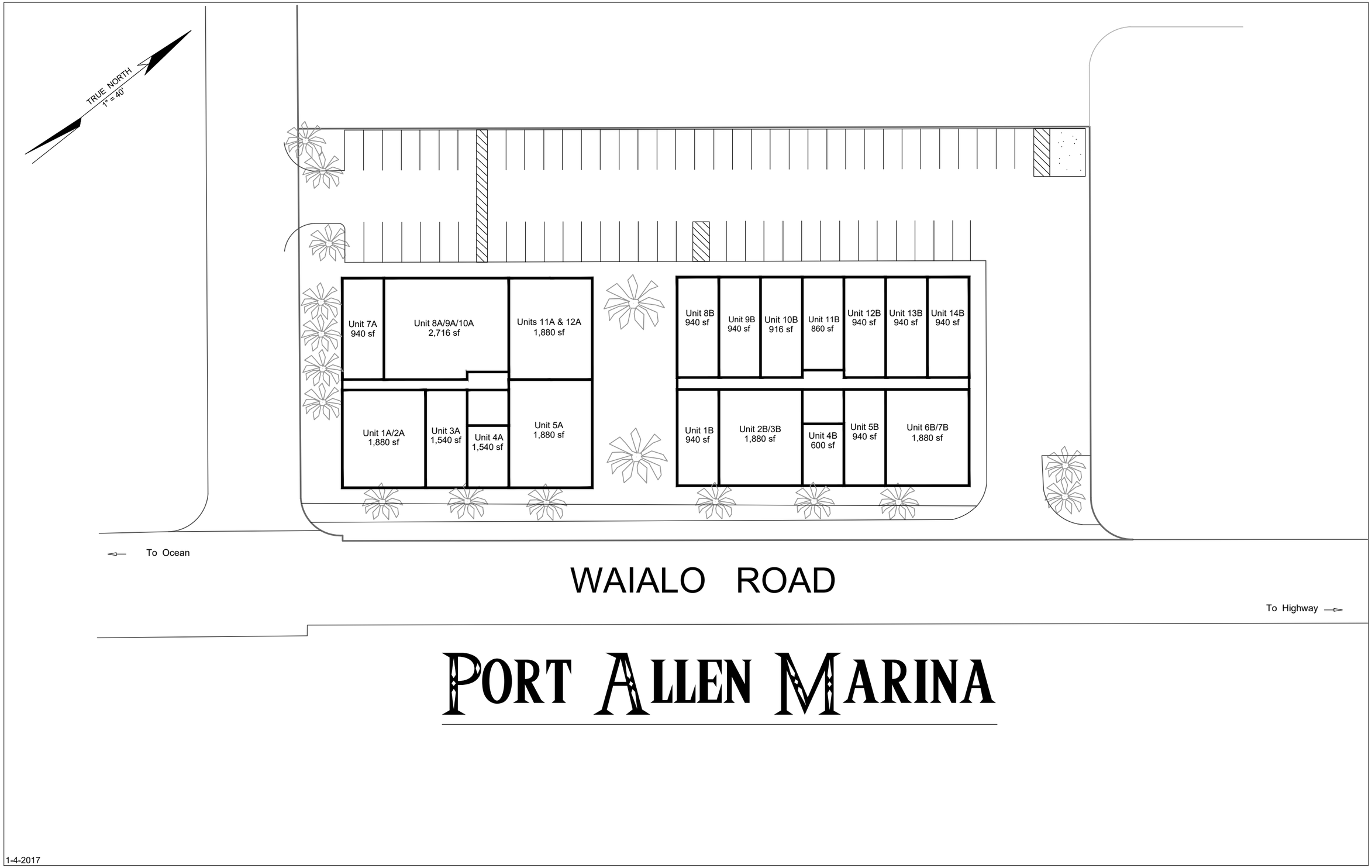
(f) Port Allen Marina Center - Site Plan (1 of 2)

Port Allen Marina Center – Site Plan

TMK No. (4) 2-1-003:040

Note orange asterisk at corner of Waialo Road and Aka Ula Road denotes location of off-site street lamp.

(f) Port Allen Marina Center - Site Plan (2 of 2)



1-4-2017

Tax Map Key: (4) 2-1-003-040

11" x 17"

(g) Pump 3 Hanapepe Valley - TMK Map

Pump 3			
Parcel: 210010100000 Acres:			
Name:		Land Value	
Site:		Building Value	
Sale:		Misc Value	
Mail:		Just Value	
		Assessed Value	
		Exempt Value	
		Taxable Value	

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Date printed: 05/16/19 : 08:04:05

(g) Pump 3 Hanapepe Valley - Site Plan (1 of 2)

Pump 3 Hanapepe Valley Location Map

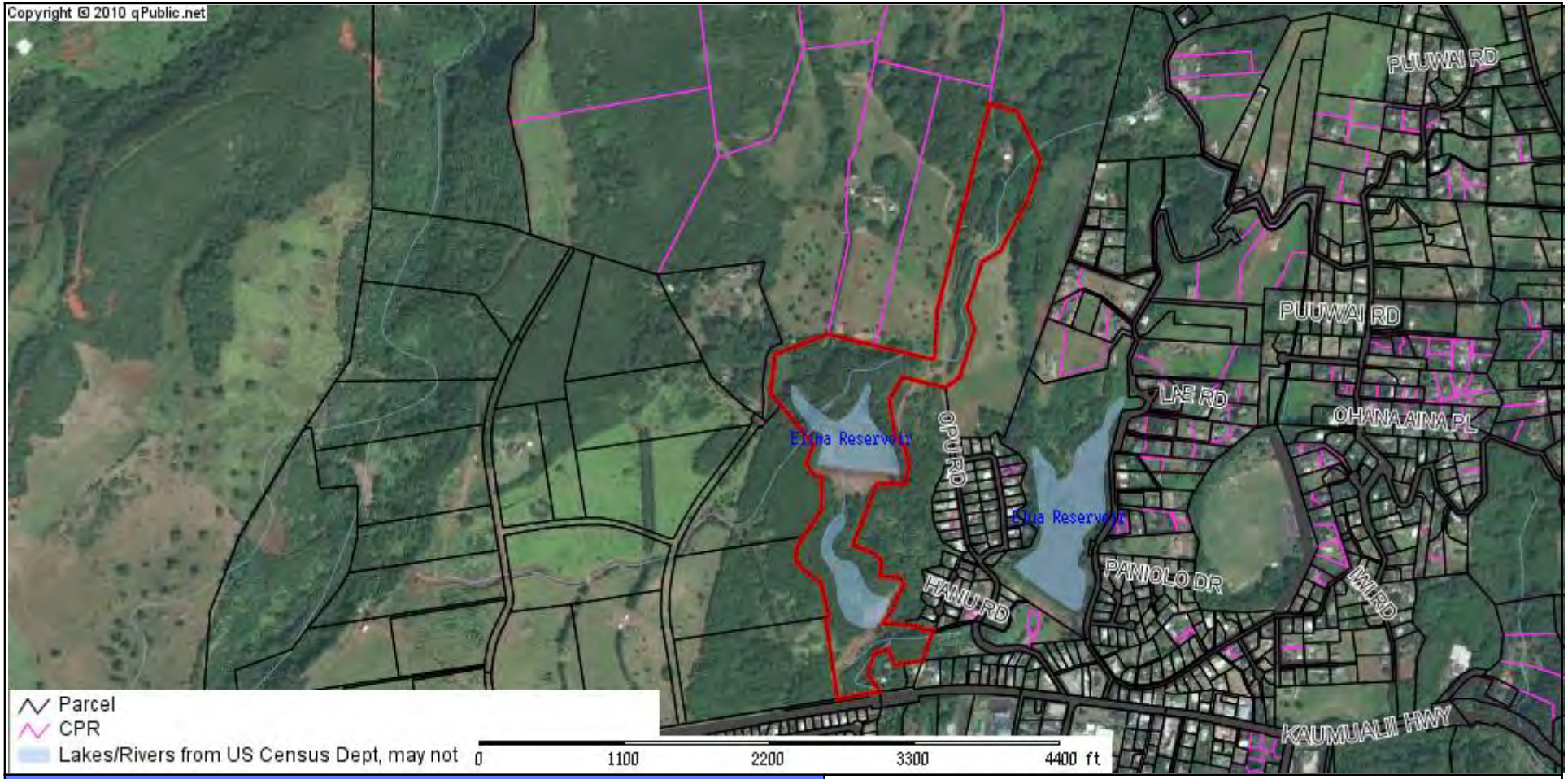
TMK No. (4) 2-1-001:010 (portion)

(g) Pump 3 Hanapepe Valley - Site Plan (2 of 2)

Pump 3 – Site Plan

TMK No. (4) 2-1-001:010 (portion)

(h) Kalaheo Powerhouse - TMK Map



Kalaheo Powerhouse			
Parcel: 240160130000 Acres:			
Name:		Land Value	
Site:		Building Value	
Sale:		Misc Value	
Mail:		Just Value	
		Assessed Value	
		Exempt Value	
		Taxable Value	

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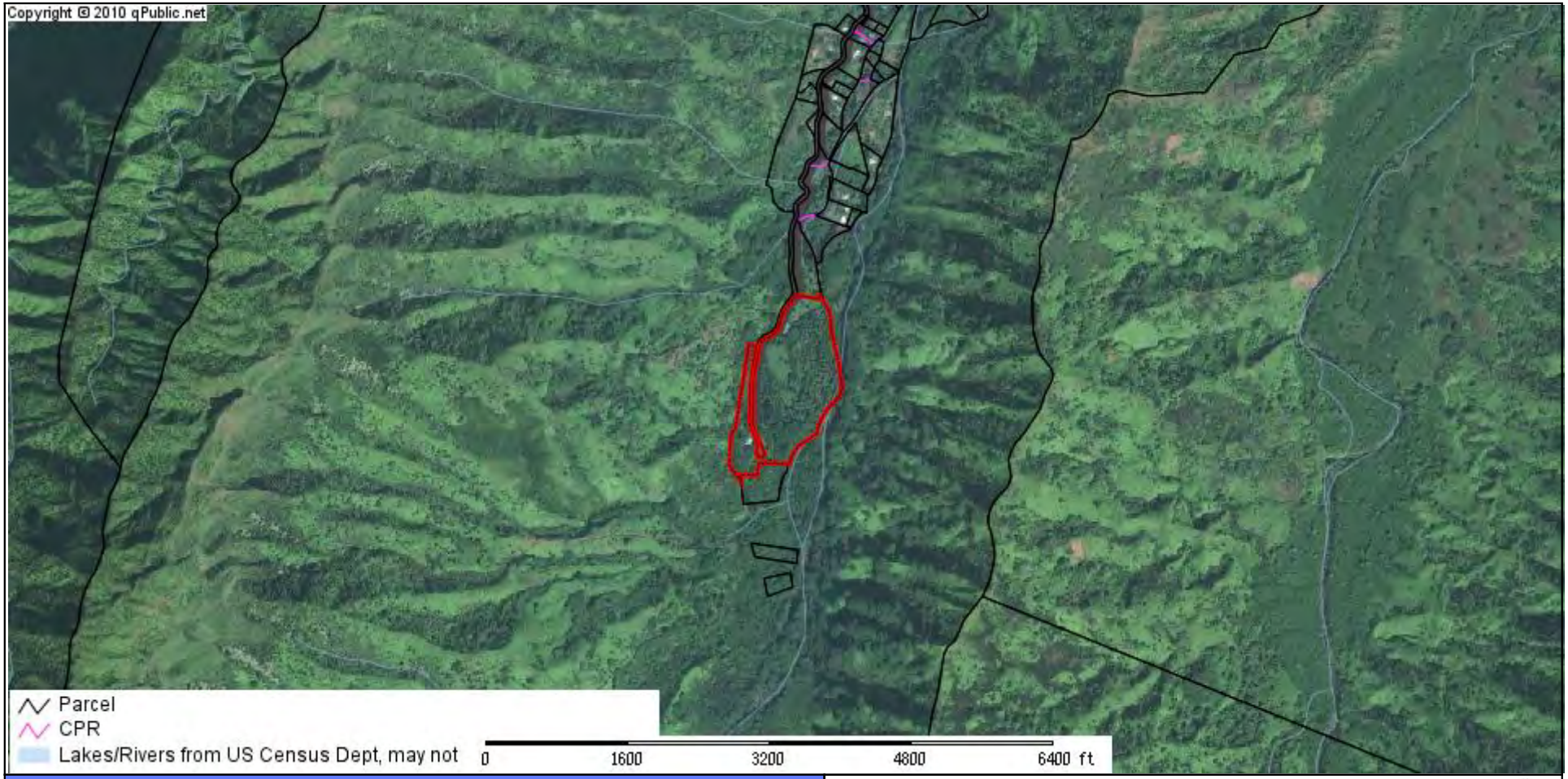
Date printed: 05/16/19 : 08:12:02

(h) Kalaheo Powerhouse - Site Plan

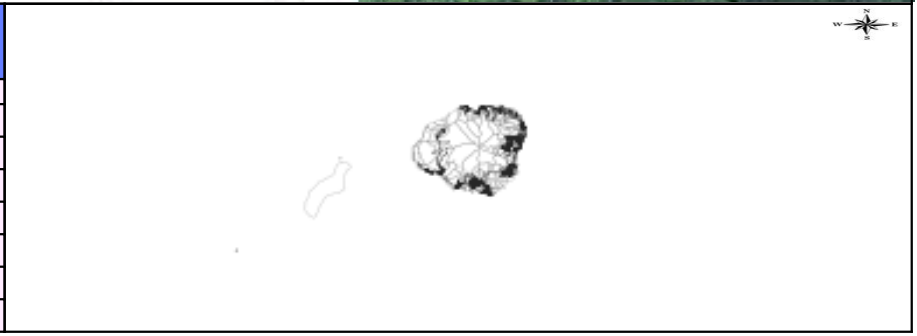
Kalaheo Hydro Powerhouse Site Plan

TMK No. (4) 2-4-016:013 (portion)

(i) Wainiha Powerhouse - TMK Map



Kauai County Assessor			
Parcel: 580030030000 Acres:			
Name:		Land Value	
Site:		Building Value	
Sale:		Misc Value	
Mail:		Just Value	
		Assessed Value	
		Exempt Value	
		Taxable Value	



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Date printed: 05/28/19 : 03:27:07

(i) Wainiha Powerhouse - Site Plan

Wainiha Hydro Powerhouse Site Plan

TMK No. (4) 5-8-003:003 (portion)

(j) Hokulei Shopping Village - TMK Map (1 of 6)

Hokulei Shopping Village			
Parcel: 330030460000 Acres:			
Name:		Land Value	
Site:		Building Value	
Sale:		Misc Value	
Mail:		Just Value	
		Assessed Value	
		Exempt Value	
		Taxable Value	

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Date printed: 05/16/19 : 06:52:17

(j) Hokulei Shopping Village - TMK Map (2 of 6)

Hokulei Shopping Village			
Parcel: 330030490000 Acres:			
Name:		Land Value	
Site:		Building Value	
Sale:		Misc Value	
Mail:		Just Value	
		Assessed Value	
		Exempt Value	
		Taxable Value	

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Date printed: 05/16/19 : 06:54:38

(j) Hokulei Shopping Village - TMK Map (3 of 6)

Hokulei Shopping Village			
Parcel: 330030500000 Acres:			
Name:		Land Value	
Site:		Building Value	
Sale:		Misc Value	
Mail:		Just Value	
		Assessed Value	
		Exempt Value	
		Taxable Value	

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Date printed: 05/16/19 : 06:56:23

(j) Hokulei Shopping Village - TMK Map (4 of 6)

Hokulei Shopping Village			
Parcel: 330030510000 Acres:			
Name:		Land Value	
Site:		Building Value	
Sale:		Misc Value	
Mail:		Just Value	
		Assessed Value	
		Exempt Value	
		Taxable Value	

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Date printed: 05/16/19 : 06:57:18

(j) Hokulei Shopping Village - TMK Map (5 of 6)

Hokulei Shopping Village			
Parcel: 330030520000 Acres:			
Name:		Land Value	
Site:		Building Value	
Sale:		Misc Value	
Mail:		Just Value	
		Assessed Value	
		Exempt Value	
		Taxable Value	

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Date printed: 05/16/19 : 06:58:43

(j) Hokulei Shopping Village - TMK Map (6 of 6)

Hokulei Shopping Village			
Parcel: 330030530000 Acres:			
Name:		Land Value	
Site:		Building Value	
Sale:		Misc Value	
Mail:		Just Value	
		Assessed Value	
		Exempt Value	
		Taxable Value	

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Date printed: 05/16/19 : 06:59:28

(j) Hokulei Shopping Village - Site Plan (1 of 2)

Hokulei Village

4454 Nuhou Street
Lihue, HI 96766

ALEXANDER & BALDWIN
PARTNERS FOR HAWAI'I

Last updated: 1/2/2019

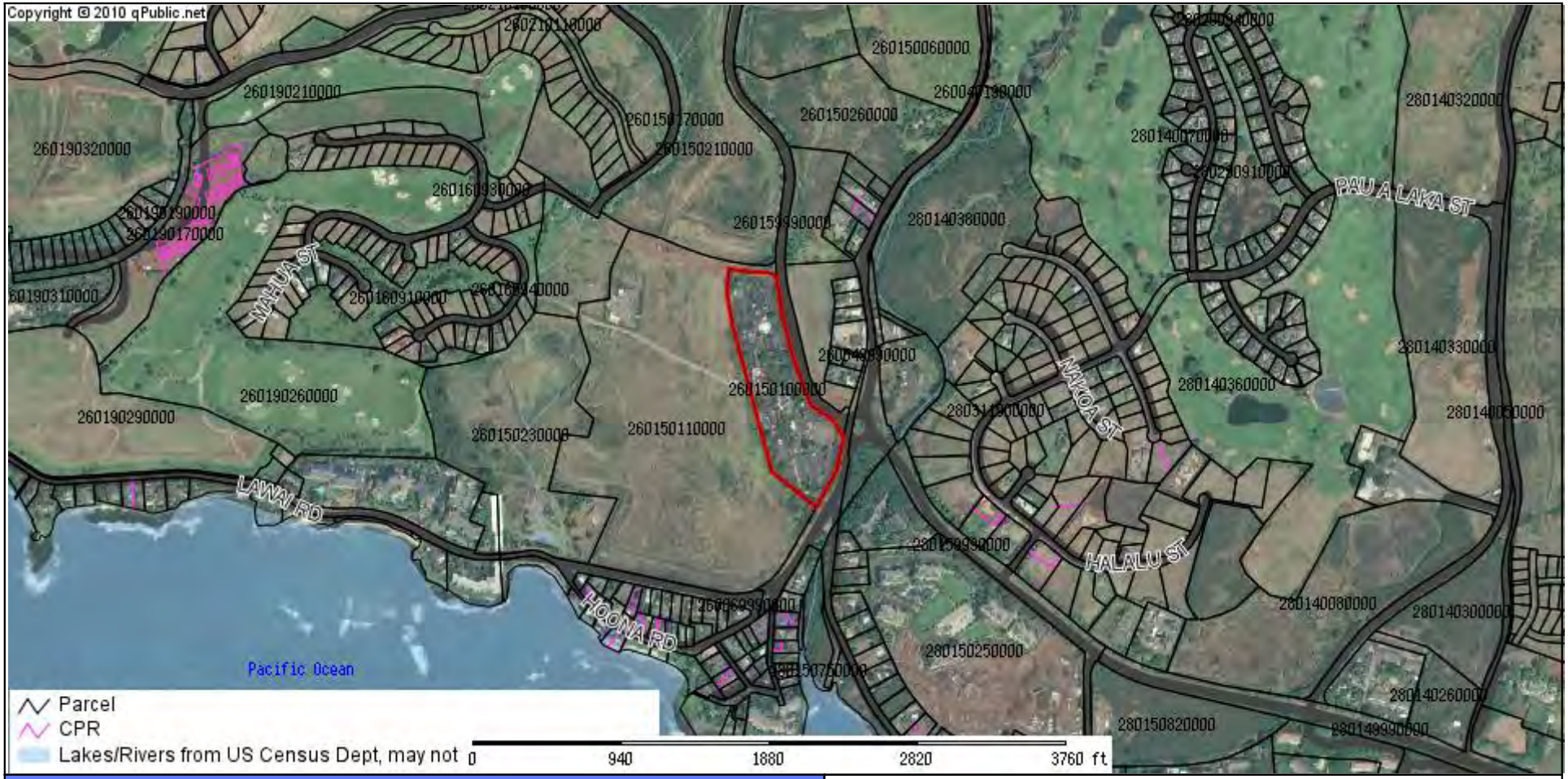
(j) Hokulei Village - Site Plan (2 of 2)

Hokulei Shopping Village

TMK Nos. (4) 3-3-003:046, 049, 050, 051, 052, 053 (No aerial of completed shopping center available on Google Earth)

Note: TMK No. (4) 3-3-003:054 (NE corner of shopping center) is owned by American Savings Bank and is not part of the property.

(k) Shops at Kukuiula - TMK Map



Kukuiula Village Shopping Center			
Parcel: 260150100000 Acres:			
Name:		Land Value	
Site:		Building Value	
Sale:		Misc Value	
Mail:		Just Value	
		Assessed Value	
		Exempt Value	
		Taxable Value	

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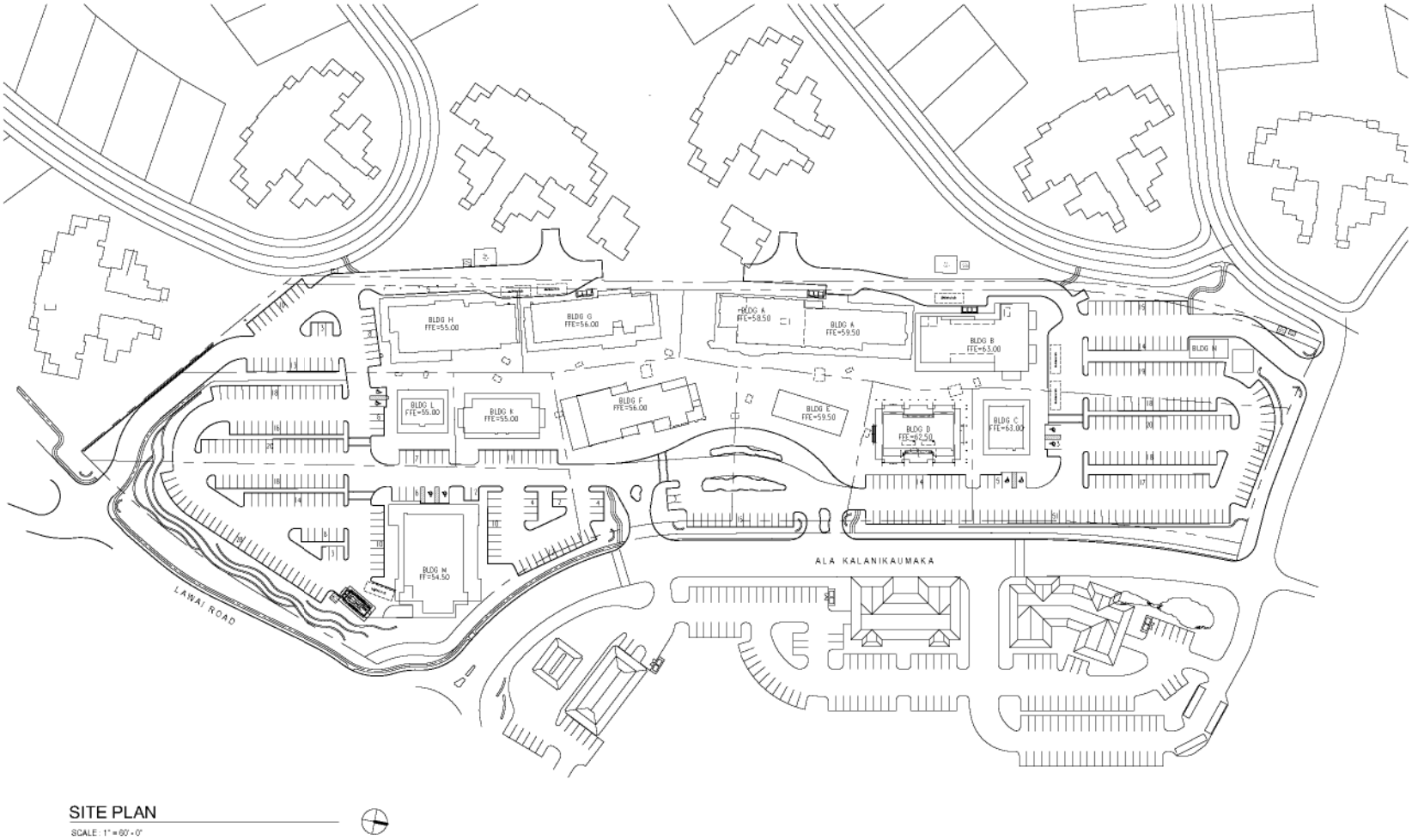
Date printed: 05/15/19 : 22:59:07

(k) Shops at Kukuiula - Site Plan (1 of 2)

The Shops at Kukui'ula Site Plan

TMK No. (4) 2-6-015:010

(k) Shops at Kukuiula - Site Plan (2 of 2)

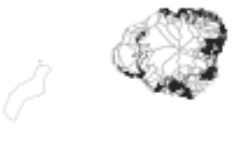


SITE PLAN

SCALE : 1" = 60' - 0"

(I) Waipouli Town Center - TMK Map

Waipouli Town Center			
Parcel: 430080020000 Acres:			
Name:		Land Value	
Site:		Building Value	
Sale:		Misc Value	
Mail:		Just Value	
		Assessed Value	
		Exempt Value	
		Taxable Value	



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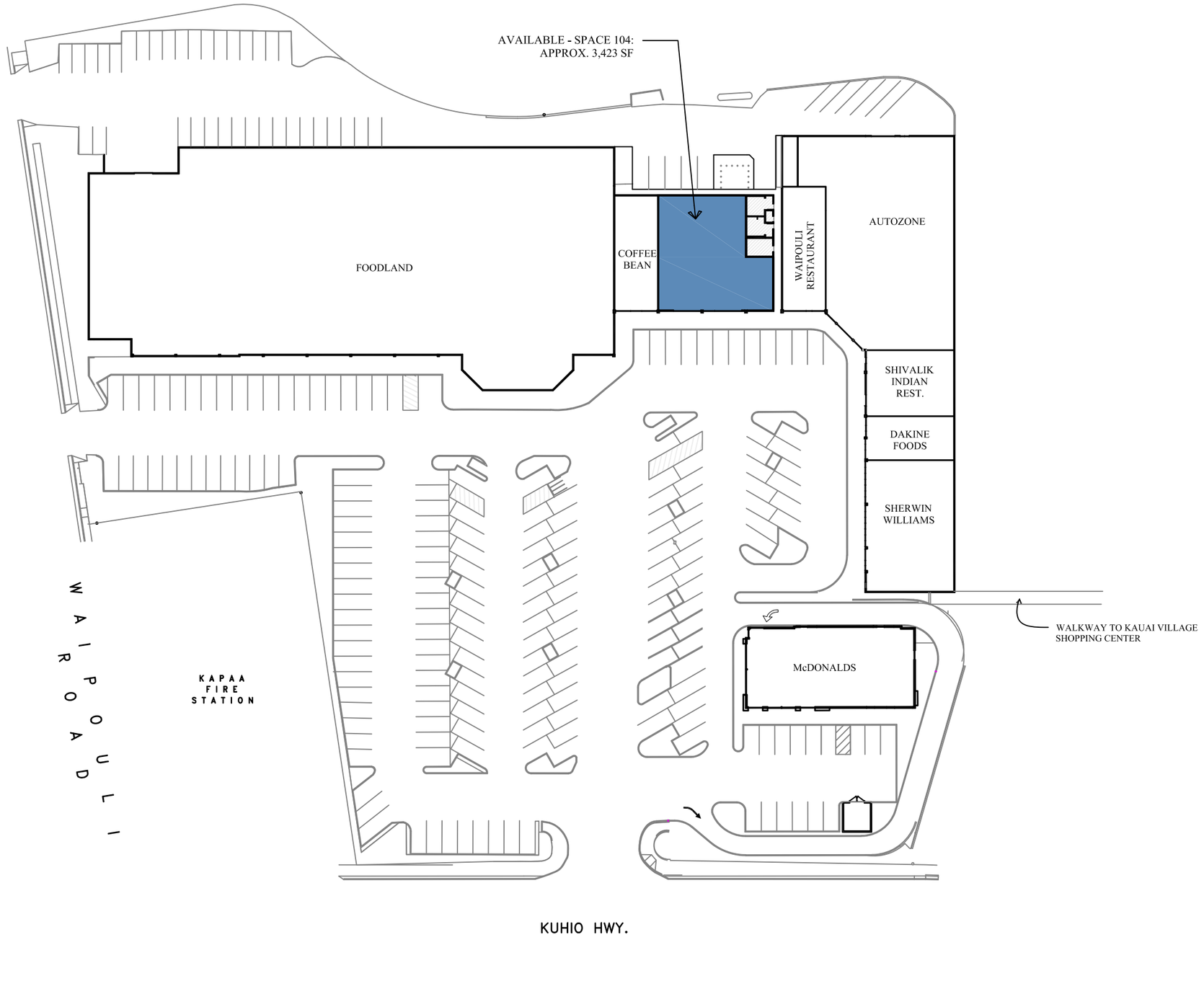
Date printed: 05/16/19 : 05:45:56

Waipouli Town Center (Kapaa) Site Plan

TMK No. (4) 4-3-008:002

(I) Waipouli Town Center - Site Plan (2 of 2)



WAIPOULI TOWN CENTER
4-771 KUHIO HIGHWAY: KAUAI, KAPAA, HAWAII

EXEC. MEETING - DATE: 01.12.18

(m) Kukui'ula Development (Plantation Core/The Club) - TMK Map

Kukui'ula The Club			
Parcel: 260190310000 Acres:			
Name:		Land Value	
Site:		Building Value	
Sale:		Misc Value	
Mail:		Just Value	
		Assessed Value	
		Exempt Value	
		Taxable Value	

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Date printed: 05/28/19 : 05:28:52

(m) Kukui'ula Development (Plantation Core/The Club) - Site Plan

Kukui'ula Development – The Club/Plantation Core Site Plan

TMK No. (4) 2-6-019:031

Appendix B1

A & B Commercial Properties
2019 Seabird Awareness and Response Training

Purpose of Training

- Native seabird species including endangered species may “fallout” on any of commercial properties on Kaua‘i on a seasonal basis
- Alexander & Baldwin is committed to the protection of these species
- Alexander & Baldwin has specific endangered bird protocols in place that all personnel must follow
- There are potentially significant legal implications if any of these protocols are not followed

Why do Protected Seabirds Land in our Commercial Properties?

- Seabirds that fly at night are often attracted to lights
- Fledgling birds (*keiki'*s) on their way to sea for the first time are often attracted to lights and can be confused by them
- Confused birds may collide with structures, or simply land on the ground, too tired to continue flying
- Once on the ground, they cannot take off again and will die from starvation or be killed by predators if not rescued
- The vast majority of seabird fallout on Kaua'i occurs between September 15 and December 15 each year
- During fledging season, extra vigilance for downed seabirds is necessary, and additional measures to minimize light attraction may be implemented

Regulatory Setting - Protected Species

Federal -

The Endangered Species Act of 1973 (ESA)

Migratory Bird Treaty Act (MBTA)

State of Hawai'i -

Hawaii Revised Statutes Chapter 195D

IT IS ILLEGAL TO:

"harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" any species listed under any of these statutes

Agency and Endangered Species Program Contacts
Who to Call

State Department Land & Natural Resources DOFAW

Thomas Kaiakapu: Wildlife Manager: (808) 274-3440

Alexander & Baldwin Program Coordinators

Port Allen Properties:

Trinette Kaui: Office (808) 335-2850 - Cell (808) 335-9708

Hokulei Shopping Village - Shops at Kukuiula - Waipouli Town Center

Stacie Chiba-Miquel: (808) 742-9002 – Cell (808) 320-7790

The Club - Kukui'ula

Lindsay Crawford (808)742-3046 – Cell (808)652-9379

Reggie David: Cell: (808) 937-0124, email: davidr003@hawaii.rr.com

Endangered Seabird Species Present on Kaua'i

Seabird Issues cont.

- Once on the ground, seabirds cannot take off again and will die from starvation or be killed by predators if not rescued
- If the seabirds are recovered and turned into the Save Our Shearwaters Program (SOS), almost 90% of them can be returned to the wild
- To protect the seabirds, A&B's commercial properties
  - minimize or shield lights to protect the seabirds
  - search properties to locate downed seabirds

Downed Seabird Response Protocols

- If a downed seabird is found, immediately call your supervisor and as soon as possible the appropriate A & B contact for your property
- First responders will immediately respond to the scene with protective gloves, a clean towel, pet carrier and a digital camera
- Before touching the downed seabird take at least one photo of the scene showing the bird in situ
- Put on protective gloves
- Carefully wrap the bird in a clean towel, place in pet carrier
- Transport the bird to the closest Shearwater Aid Station

Downed Seabird Response cont.

- Summon assistance, and once there are two people on hand remove the bird from the pet carrier and take at least two identification photographs of the animal
- Place the bird in the Shearwater Aid Station
- Fill in the Shearwater Aid Station white board log and prepare and submit a security report, submit to security manager and to respective A&B shopping center point of contact.

Take-Home Message

- Harming listed seabirds may be construed as "take" under the ESA, and/or HRS 195D.
- The minimization and avoidance of "take" to the maximum extent practicable is required under both federal and State of Hawaii endangered species statutes
- Penalties include civil fines of up to $25,000 per incident, and criminal fines of up to $50,000, and up to one year federal imprisonment per incident.
- **Noncompliance with endangered species rules and protocols may result in fines or criminal prosecution.**

Mahalo

Alexander & Baldwin thanks you for your attention to and your assistance with this program

Alexander & Baldwin takes pride in our continued efforts to protect the natural resources on the Island of Kaua'i

Protection of these native birds is everyone's responsibility, and is in the common interest of the Island community and future generations

Appendix B2

McBryde Resources, Inc. Facilities
Seabird Awareness and Response Training - 2019

Purpose of Training

- Native seabird species including endangered species may “fallout” on any of our facilities on Kaua‘i on a seasonal basis
- McBryde Resources and Alexander & Baldwin are committed to the protection of these species
- McBryde Resources and Alexander & Baldwin have specific endangered bird protocols in place that all McBryde personnel must follow
- There are potentially significant legal implications if any of these protocols are not followed

Why do Protected Seabirds Land in our Facilities?

- Seabirds that fly at night are often attracted to lights
- Fledgling birds (*keiki*'s) on their way to sea for the first time are often attracted to lights and can be confused by them
- Confused birds may collide with structures, or simply land on the ground too tired to continue flying
- Once on the ground, they cannot take off again and will die from starvation or be killed by predators if not rescued
- The vast majority of Seabird fallout on Kaua'i occurs between September 15 and December 15 each year
- During fledging season, extra vigilance for downed seabirds is necessary, and additional measures to minimize light attraction may be implemented

Regulatory Setting - Protected Species

Federal -

The Endangered Species Act of 1973, as amended (ESA)

Migratory Bird Treaty Act (MBTA)

State of Hawai'i -

Hawaii Revised Statutes Chapter 195D

IT IS ILLEGAL TO:

"harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" any species listed under any of these statutes

Agency and Endangered Species Program Contacts
Who to Call

State Department Land & Natural Resources DOFAW

Thomas Kaiakapu: Wildlife Manager: (808) 274-3440

McBryde Resources, Inc. Program Coordinators

Dan Sargent: (808) 335-0247, Cell: (808) 645-6386

A&B Biologist

Reggie David: Cell: (808) 937-0124, email: davidr003@hawaii.rr.com

Endangered Seabird Species Present on Kaua‘i

Seabird Issues cont.

- Once on the ground they cannot take off again and will die from starvation or be killed by predators if not rescued
- If the seabirds are recovered and turned into the Save Our Shearwaters Program (SOS), almost 90% of them can be returned to the wild
- To protect the seabirds, A&B and McBryde
  - minimize or shield lights to protect the seabirds
  - search properties to locate downed seabirds

Downed Seabird Response Protocols

- If a downed seabird is found, immediately call your supervisor and as soon as possible the appropriate A & B or McBryde contact for your facility
- First responders will immediately respond to the scene with protective gloves, a clean towel, pet carrier and a digital camera
- Before touching the downed seabird take at least one photo of the scene showing the bird in situ
- Put on protective gloves
- Carefully wrap the bird in a clean towel, place in pet carrier
- Transport the bird to the closest Shearwater Aid Station

Downed Seabird Response cont.

- Summon assistance, and once there are two people on hand remove the bird from the pet carrier and take at least two identification photographs of the animal
- Place the bird in the Shearwater Aid Station
- Fill in the Shearwater Aid Station white board log and prepare and submit a security report, submit to security manager and to respective McBryde facility point of contact.

Take-Home Message

- Harming of listed seabirds may be construed as "take" under the ESA, and/or HRS 195D.
- The minimization and avoidance of "take" to the maximum extent practicable is required under both federal and State of Hawaii endangered species statutes
- Penalties include civil fines of up to $25,000 per incident, and criminal fines of up to $50,000, and up to one year federal imprisonment per incident.
- **Noncompliance with endangered species rules and protocols may result in fines or criminal prosecution.**

Mahalo

McBryde Resources, and Alexander & Baldwin thanks you for your attention to and your assistance with this program

McBryde Resources, and Alexander & Baldwin takes pride in our continued efforts to protect the natural resources on the Island of Kaua'i

Protection of these native birds is everyone's responsibility, and is in the common interest of the Island community and future generations

Appendix C

A&B STANDARD OPERATING PROCEDURES
Seabird Conservation Awareness Plan

PURPOSE: To establish a procedure and seabird awareness training ensuring that that A&B, its subsidiaries and related entities ("A&B") are working partners with federal and State of Hawaiʻi wildlife conservation and regulatory agencies in efforts to conserve our native Seabirds.

PROCEDURE/SCOPE:

This procedure shall be followed at all A&B properties participating in the Kauai Seabird Habitat Conservation Plan (KSHCP).

From September 15th to December 15theach year, A&B will participate in the search for, and recovery and collection of, downed seabirds (Newell's Shearwater, Hawaiian Petrel, Band-rumped Storm-Petrel and other non-listed seabird species) on its properties.

Training and Awareness

A&B staff at each of the covered properties will participate in an annual Seabird Awareness and Response training.

Property/Facility Managers will educate tenants by sending a letter each year explaining our seabird conservation efforts, the SOS (Save our Shearwaters) Program and the KSHCP, and the role played by A&B, its tenants, contractors, vendors, and guests in protecting seabirds.

A&B will educate its employees about seabird conservation through handouts, individual shopping center quarterly operational meetings and its tenant manuals. Seabird Awareness and Response discussions will also be incorporated into regular pre-shift and operational meetings.

Prior to the start of the seabird fallout season, Property/Facility Managers will conduct a lighting audit at each property with a qualified seabird biologist. The objective of that survey is to identify any lights on A&B's properties that might attract seabirds to the properties. Property/Facility Managers will make the appropriate adjustments to light fixtures as needed.

DLNR and the SOS Program will place SOS Aid Stations on certain properties on or around September 15th each year, including at all of the fire stations around the island and at selected resort properties. There are no SOS Aid Stations on any of the A&B properties covered by this procedure. The location of the nearest aid station to each property will be identified during the annual Seabird Awareness and Response Training.

Property/Facility Managers will ensure that a Downed Seabird Recovery Report Form is completed for each seabird found on or near their respective properties, and will maintain a log for each property of all birds recovered, with all pertinent data. Each time the log is updated, the Property/Facility Manager shall transmit a copy to the A&B Director of Environmental Affairs, who shall maintain a master log of all A&B Properties for periodic comparison to SOS records.

For each bird delivered to an SOS Aid Station, Property/Facility Managers will also ensure that entries are made on the "White Board" at the aid station with the following information:

Date:	
Time:	
Location found:	
Condition of bird:	(Good) (Injured) (Dead)
Type:	Newell's Shearwater, Hawaiian Petrel, Band-rumped Storm-Petrel, or other (if known).

Monitoring

Individual Property/Facility Managers will be responsible to ensure that searchers, first responder personnel and all other staff will make it part of their duties during the seabird season to be vigilant about looking for downed seabirds during their respective work shifts, and to follow the downed seabird protocols.

Staff will follow the "Recovery Procedure" below whenever a downed seabird is found on or near the property.

Recovery Procedure:

Deploy the Seabird Recovery Kit. At least one Seabird Recovery Kit shall be available for use at each covered property and shall be stored in a designated location (shared kits may be utilized for multiple properties located in close proximity to each other, such as at Port Allen). Each Kit shall contain the following items:

- Latex or nitrite gloves
- Three towels
- Hand Sanitizer
- Flashlight
- Clip Board, pen, "Downed Seabird Recovery Report Form"

- Bird Carrier (cardboard box or pet carrier; if a box is used, ensure it has adequate ventilation holes) conspicuously marked “Live Animal”

Live Bird Handling and Procedures:

1. Take the Seabird Recovery Kit to the downed seabird.
2. Put on gloves.
3. Using a towel to gently cover the bird, pick up the seabird.
4. Place the seabird inside and cover or close the pet carrier/box.
5. Take at least one photograph of the bird and sufficient photographs of the location where it was found to allow the location to be identified again later. Submit photographs electronically to the Property/Facility Manager or designee with the corresponding Downed Seabird Recovery Report Form.
6. Put the gloves and towel back in the Seabird Recovery Kit.
7. Take the bird and pet carrier to the nearest SOS Aid Station.
8. Transfer the bird to the Aid Station and fill out the White Board.
9. Call SOS at 635-5117 or 632-0610.
10. Return the Seabird Recovery Kit to its designated storage location. Replace towel and clean cage with bleach or replace box, if dirty.
11. Complete the Downed Seabird Recovery Report Form. If the bird was found off the property (including on an adjacent public road or sidewalk), ensure this is reflected on the form.
12. Turn in the completed form to the appropriate Property/Facility Manager or designee, who will then make the corresponding log entry.

Dead Bird Handling and Procedures:

1. Take the Seabird Recovery Kit to the downed seabird.
2. Put on gloves.
3. Take several photographs of the bird and sufficient photographs of the location where it was found to allow the location to be identified again later. Submit photographs electronically to the Property/Facility Manager or designee with the corresponding Downed Seabird Recovery Report Form.
4. Double bag dead seabirds in two, two-gallon Ziploc plastic bags.
5. Write the date and the name of the property on the outer bag with a permanent marker.
6. Place in a refrigerator.
7. Complete the Downed Seabird Recovery Report Form. If the bird was found off the property (including on an adjacent public road or sidewalk), ensure this is reflected on the form.
8. Turn in the completed form to the appropriate Property/Facility Manager or designee, who will then make the corresponding log entry.

Reporting to Agencies:

In the case of recovered live birds, the responsible Property/Facility Manager or their designee shall call the USFWS and DOFAW within 24 hours of a downed bird being recovered on the property.

If a dead bird is recovered, follow the dead bird handling procedures. The responsible Property/Facility Manager or their designee shall IMMEDIATELY call the DOFAW-Kauai Branch, and follow their instructions. They will most likely pick up the carcass, but in some circumstances may instruct the property owner to dispose of the carcass. If instructed to dispose of the carcass by DOFAW, document this information on the Downed Seabird Recovery Report Form, including the name of the person spoken to at DOFAW.

The responsible Property/Facility Manager shall notify the A&B Director, Environmental Affairs upon discovery of any downed seabird and shall forward by email a copy of the Downed Seabird Recovery Report Form, including any photographs taken. All Property/Facility Managers are encouraged to consult with the A&B Director, Environmental Affairs prior to making reports to regulatory agencies; however, such consultation must not delay reporting beyond the specified deadline.

Review and Update:

This policy shall be periodically reviewed and updated to ensure that it is kept current and accurate.

Contacts:

USFWS	To be determined
DLNR-DOFAW	274-3433
Save Our Shearwaters	635-5117 or 632-0610
A&B Environmental Affairs	283-8907

These contacts will be entered/updated once the agencies identify their point people for the KSHCP.

Appendix D

A&B Downed Seabird Recovery Report Form

Please fill in all space and return hard copy to the Property Manager or their designee

Date: _____ **Time:** _____

Location: _____
Be specific as possible, i.e. Next to the planter in front of Safeway

Who first reported the bird: _____

Who responded: _____

Photo Y/N: _____

Condition of bird; Alive and Well (A), Injured (I), Dead (D): _____

Disposition: _____
Where did the bird end up: SOS Aid Station, SOS or DOFAW

SOS AID Station: _____
Which SOS AID Station was the bird delivered too.

SOS Log Confirmation: _____
Confirmation that The SOS Aid Station "White Board" log was completely filled in:

Species if Known: NESH HAPE BRSP Other

Circle the appropriate species Newell's Shearwater (NESH) Hawaiian Petrel HAPE Band-rumped Storm-Petrel BRSP. Other also includes a bird you can't identify

Notes or other information that you think might be helpful:

Kaua‘i Seabird Habitat Conservation Program (KSHCP)

Participant Inclusion Plan (PIP)

Name of Applicant/Participant: County of Kaua‘i

Part 1: Landowner & Property Information; Description of the Facilities; Avoidance & Minimization Measures; Monitoring of Take

Item 1. Provide the name of the landowner, business, agency, or institution and complete contact information. If the applicant/participant is different from the landowner, please attach power of attorney (or other documentation) allowing the party to act on the landowner's behalf.

Submitted on behalf of the County of Kaua'i by:

Director, Department of Parks & Recreation, County of Kaua'i
4444 Rice Street, Suite 105
Līhu'e, Hawai'i 96766

Note: Power of attorney for the County cannot be granted without the concurrence of the County Council.

Primary Contact:

Chief of Planning and Development, Department of Parks and Recreation

Item 2. Provide the legal description of the property at which the existing facilities and Covered Activities are located, including Tax Map Key (TMK) number. Provide a survey of the property and site plan drawings showing the locations of the Covered Activities (lights), property boundaries, buildings & structures, and site features. If properties containing the Covered Activities comprise separate parcels please include all Tax Map Key numbers and maps.

Existing facilities at which the Covered Activities occur are the same facilities at which take authorization is sought. As such, responses to Item 2 and Item 3 are addressed together. Please see Item 3.

Item 3. Describe the existing Covered Activities for which incidental take authorization is sought. Include list of buildings, type and description of lights present, purpose and location of lights and current seabird lighting accommodation in place (e.g. shielding, downward pointing, switched off during fledging season, etc.). For "Types of lights" please use the following categories:

- ***Parking Lights***
- ***Signage Illumination***
- ***Wall-pack Building Lights***
- ***Landscaping/Grounds/Accent/Bollards***
- ***Indoor Lights Visible from Outdoors***
- ***Roof Floodlights***
- ***Other Lights***

Facility lighting plan may be submitted as lighting inventory. Photos may be attached. The suggested light table, and Green Sea Turtle assessment table below may each be modified as needed to provide the necessary information.

The County of Kaua'i (the "County") wishes to have all of its facilities included in the Kaua'i Seabird Habitat Conservation Plan ("KSHCP") and covered by the Incidental Take Permit/Incidental Take License (ITP/ITL) that will be issued if this application is approved.

Lighting Inventory

The County uses a wide variety of lights at its facilities. Over the past decade, stray light has been minimized to the maximum extent practicable by either replacing or modifying the fixtures, or by instituting operational procedures and controls that prevent or minimize their use during periods when they are likely to disorient protected seabirds.

It is not practicable or useful to list every fixture showing all makes, models, and styles in use. Even if that were practicable, ensuring that such a list is kept up-to-date for every fixture would be administratively burdensome without yielding commensurate benefit. Consequently, for the purpose of this application, the County has worked with KSHCP staff to establish categories of facilities characterized primarily by the types of lighting and uses present at each of its facilities. These categories are shown below in Table 1.

The facilities that fall into each of the five categories are listed in alphabetical order and by category in Attachment A, *County Facility Listing to the KSHCP*. Attachment A contains a list of the facilities (current as of October 31, 2018) that the County wishes to be covered under the ITL/ITP. The County will update the list of facilities annually to the best of its ability and will make the then-current version of the listing available to the agencies in its annual report. Please note that unlit and very minor, lit facilities which do not have the potential to affect Covered Species are included in the listing.

Attachment B contains maps and graphics showing the location and characteristics of lighting at County facilities for which the County believes site-specific information is relevant. This demonstrates that the County is complying with the requirements of downward directed, shielded lighting, and the placement of lights under eaves. The County has already adjusted lighting at certain facilities to ensure that it does not employ more lighting than is needed for public safety and effective operation.

Attachment C, Attachment D, Attachment E, and Attachment F contain photographs illustrating the types of lighting in each of the four categories of lighted facilities. These are examples illustrating the specific fixtures; they are not intended to depict the possibilities, nor to prescribe specific makes, models, or styles. There are circumstances that will require the use of portable flood lights by County personnel and its contractors. In order to address any impacts this activity may have on the Covered Species, a draft policy and standard operating procedure is included as Attachment H.

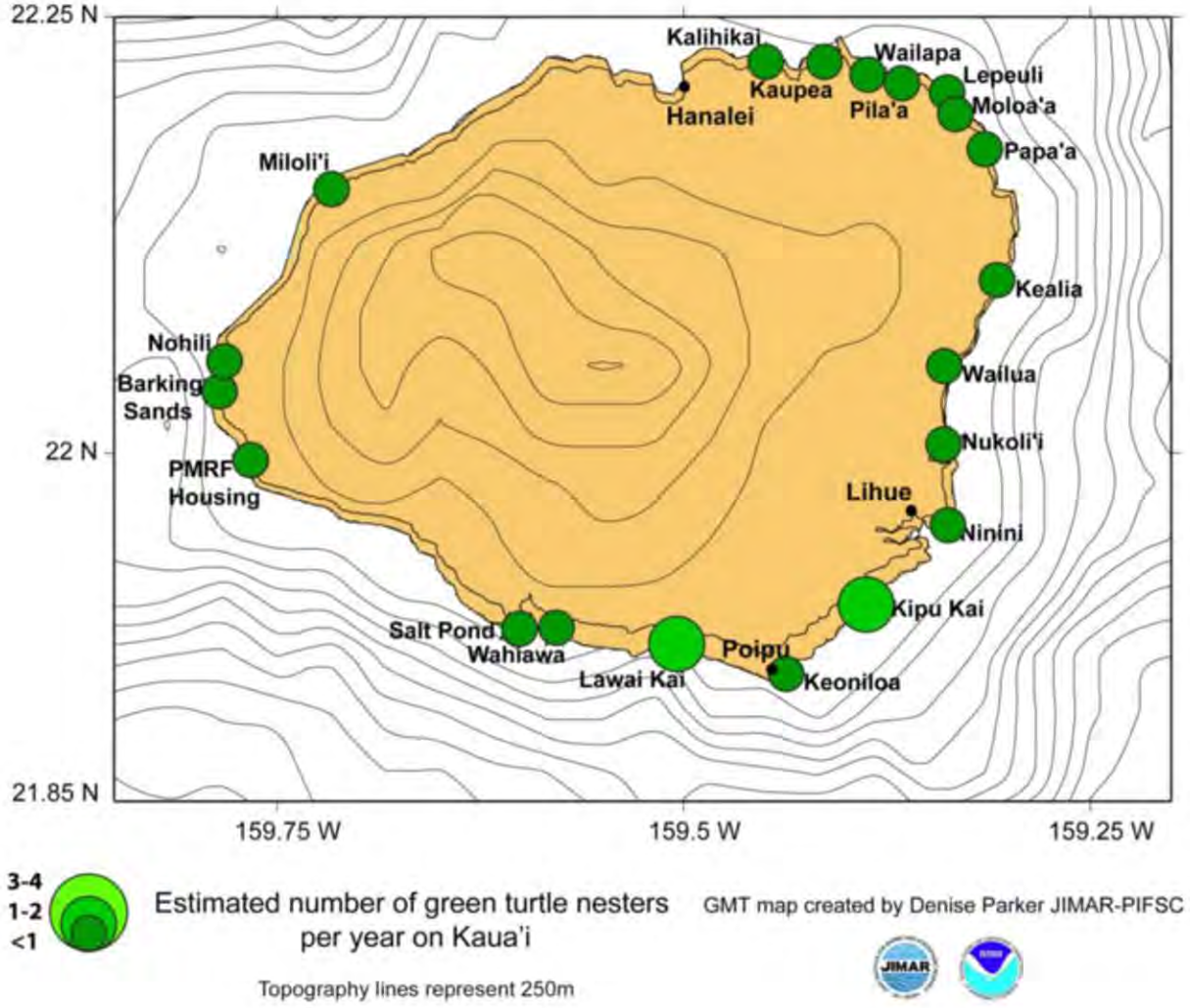
Table 1. Facility Classification

CATEGORY	NO. OF FACILITIES	USAGE
1. Confirmed Unlit Facilities	47	Unlit facilities.
2. Minimal Lighting	75	Facilities with minimal structural and/or parking lighting and/or lights are used infrequently. This includes such things as bus stops, neighborhood centers, base yards, and some beach parks. Some of the facilities in this category have lights that are under eaves or in similar situations which prevent the light from shining directly outward. In general, none of the lamps present exceed 100 watts.
3. Limited External Lighting	37	Facilities with low levels (in lumens or on-time) of external building lighting or lit parking areas. In general, these facilities have a sufficient number of external lights to prevent their inclusion in Category 2, but whose lights can be managed and/or readily retrofitted so as to limit the release of stray light to insignificant levels and/or very short periods of time during sensitive periods.
4. Substantial Exterior Area & Court Lighting	11	Facilities with multiple high intensity lights and with significant area coverage. This category includes court lights (e.g., basketball courts, tennis courts, skateboard parks, volleyball courts, etc.) or significant external lighting such as parking or recreational areas (e.g. Kaua'i War Memorial Convention Center). Lighting at these facilities are off from Sept. 15 through Dec. 15.
5. High-Intensity Stadium & Field Lighting	12	Facilities which have numerous, frequently used, high-intensity light fixtures and whose use cannot be limited to non-seabird seasons. This category includes facilities that have field and stadium lights on high poles which by their nature are difficult to minimize. Lighting at these facilities are off from Sept. 15 through Dec. 15.
Note 1:	Tabulation was taken as of October 31, 2018. The number of facilities, and possibly the categorization of individual facilities, will change over time as the County removes old facilities, adds new ones, and replaces older lighting fixtures.	
Note 2:	Attachment C illustrates Category 3 lighting; Attachment D illustrates Category 4 lighting; and Attachments E and F illustrate Category 5 lighting.	
Note 3:	Where lights are removed from a facility, qualifying it for a lower category designation, that change will be documented in the annual report submitted by the County.	
Note 4:	In the decade since the KSHCP process began, the County facilities in Category 5 have been minimized to the extent that the County no longer has facilities which meet the Category 5 definition.	

Honu - Green Sea Turtle (*Chelonian mydas*) Assessment
Potential for Harm at Known Sea Turtle Nesting Areas.

Denise Parker and George Balazs (December 2015) of the NOAA-PIFSC Marine Turtle Research Program prepared a report showing known marine turtle nesting and basking areas in the Hawaiian Islands. Known nesting locations on Kaua'i, as identified in the report, are reproduced as Figure 1- NOAA - PIFSC and Table 2 - NOAA-PIFSC.

Figure 1. Known Green Sea Turtle Nesting Locations on Kaua'i



Source: Denise Parker and George Balazs (December 2015), *Map Guide to Marine Turtle Nesting and Basking in the Hawaiian Islands*, page 19.

Table 2. Green turtle (*Chelonia mydas*) nesting locations recorded on Kaua'i

PLACE NAME	*LATITUDE (N)*	*LONGITUDE (W)*	*MAGNITUDE*	*FREQUENCY*
Lāwa'i Kai	21° 53.3'	159° 30.1'	1-2	Regular
Wahiawa	21° 53.8'	159° 34.5'	<1	Intermittent
Salt Pond County Beach Park	21° 54.0'	159° 36.4'	<1	Intermittent
PMRF, Pacific Missile Range Facility Housing	21° 59.8'	159° 46.1'	<1	Intermittent
Barking Sands	22° 3.9'	159° 46.9'	<1	Intermittent
Nohili ditch	22° 3.2'	159° 47.0'	<1	Intermittent
Miloli'i	22° 9.1'	159° 43.1'	<1	Intermittent
Kalihikai	22° 13.6'	159° 26.9'	<1	Intermittent
Kauapea (Secret Beach)	22° 13.4'	159° 24.7'	<1	Unknown
Wailapa	22° 13.0'	159° 23.1'	<1	Unknown
Pila'a	22° 12.7'	159° 21.9'	<1	Unknown
Lepe'uli, (Larsen's Beach)	22° 12.3'	159° 20.3'	<1	Unknown
Moloa'a	22° 11.6'	159° 20.0'	<1	Unknown
Papa	22° 10.4'	159° 18.8'	<1	Unknown
Keālia	22° 5.9'	159° 18.3'	<1	Unknown
Wailua	22° 3.0'	159° 20.2'	<1	Unknown
Nukoli'i	22° 0.4'	159° 20.2'	<1	Unknown
Ninini, Nāwiliwili	21° 57.5'	159° 20.3'	<1	Unknown
Kīpū Kai	21° 54.8'	159° 23.6'	1-2	Regular
Keoniloa, Po'ipū	21° 51.5'	159° 26.3'	<1	Intermittent

Source: Denise Parker and George Balazs (December 2015), *Map Guide to Marine Turtle Nesting and Basking in the Hawaiian Islands*, page 20.

Table 3 contains specific information about County facilities that have characteristics (e.g., sandy beaches, reported turtle nesting, or basking area) that make interaction possible. Of all the known nesting locations on Kaua'i, only two are adjacent to land owned by the County, Salt Pond Park and Wailua Beach Park. The County facilities at those locations are not lighted during the turtle nesting season and, thus, do not have the potential for light attraction. The nesting locations themselves are below the certified shoreline and are subject to State rather than County jurisdiction. Consequently, the County is not in a position to erect blinds or other visual barriers that would prevent light attraction.

*Potential for Harm at **Potential** Sea Turtle Nesting Areas.*

In preparing this application, the County considered the possibility that during the term of the permit turtles might nest at locations where such behavior has not previously been documented (i.e., do not appear in Parker and Balazs' report) but which have suitable shoreline characteristics. Table 3 lists all the facilities that the County owns and operates that are near potential nesting areas. None of the facilities have lights visible from areas suitable for nesting and, thus, present no risk of harm.

Table 3. Green Sea Turtle Assessment

LOCATION	TAX MAP KEY	Light Type	No. Of Lamps	Regular Usage	Frequency of Night Usage	Duration of Night Usage	Observed Nesting?	Observed Basking?	Sandy Shoreline	Risk of Harm
Anahola Beach Park	4-8-014-006	No exterior lights.	0	n/a	None	n/a	No	No	Yes	No. No lights visible from areas suitable for nesting.
Anini Beach Park	5-3-05-05	No exterior lights.	0	n/a	None	n/a	No	No	Yes	No. No lights visible from areas suitable for nesting.
Blackpot Beach Park	5-5-001-004	No exterior lights, but vehicle lights.	0	n/a	None	n/a	No	No	Yes	No. No lights visible from areas suitable for nesting.
Hāʻena Beach Park	5-9-05-19	No exterior lights.	0	n/a	None	n/a	No	No	Yes	No. No lights visible from areas suitable for nesting.
Hanalei Pavilion	5-5-02-19	No exterior lights.	0	n/a	None	n/a	No	Yes	Yes	No. No lights visible from areas suitable for nesting.
Hanamāʻulu Beach Park Pavilion	3-7-03-08	No exterior lights.	0	n/a	None	n/a	No	No	Yes	No. No lights visible from areas suitable for nesting.
Hanapepe River Mouth Open Park Pavilion	1-9-08-07	No exterior lights.	0	n/a	None	n/a	No	No	No	No. No lights visible from areas suitable for nesting.
Kapa'a Beach Park	4-5-11-06	No exterior lights.	0	n/a	None	n/a	No	No	No	No. No lights visible from areas suitable for nesting.
Kapa'a Neighborhood Center	4-5-012-015	HPS Parking Lot Lights, Exterior Security Lights	4	Y	M-F Nights Only	6:00-7:30PM	No	No	No	No. No lights visible from areas suitable for nesting.
Kapa'a Swimming Pool & Bath House	4-5-012-001	4 1000-watt Pool Lights	0	n/a	None	n/a	No	No	No	No. No lights visible from areas suitable for nesting.
Kauai Sands Pump Station	4-3-02-12	No exterior lights.	2	Y	All week	All night	No	No	No	No. No lights visible from areas suitable for nesting.
Lucy Wright Park	1-6-06-01	HPS Parking Lot Lights	2	Y	Daily	Dusk to dawn	No	No	No	No. No lights visible from areas suitable for nesting.

LOCATION	TAX MAP KEY	Light Type	No. Of Lamps	Regular Usage	Frequency of Night Usage	Duration of Night Usage	Observed Nesting?	Observed Basking?	Sandy Shoreline	Risk of Harm
Lydgate	3-9-06-01	100-watt sodium	7	Y	Daily	Dusk to dawn	No	No	No	No. No lights visible from areas suitable for nesting.
Nāwiliwili Park	3-2-04-05	No exterior lights	0	n/a	None	n/a	No	No	No	No. No lights visible from areas suitable for nesting.
Niumalu Park	3-2-02-01	No exterior lights.	0	n/a	None	n/a	No	No	No	No. No lights visible from areas suitable for nesting.
Po'ipū Beach Park	2-8-17-01	No exterior lights.	0	n/a	None	n/a	No	No	No	No. No lights visible from areas suitable for nesting.
Salt Pond Park	1-8-08-43	HPS Parking Lot	6	Y	Upon request.	6:00-10:00 PM	Yes	No	Yes	No. No lights visible from areas suitable for nesting.
Wailua Beach Lifeguard Station (Park)	4-1-04-20	No exterior lights.	6	Y	5-7 days a week	Upon request.	Yes	No	Yes	No. No lights visible from areas suitable for nesting.
Wailua Golf Course	3-9-02-04	7 Mercury Vapor Parking Lot Lights, 2 Mercury Vapor Putting Green Lights, 4 Driving Range Lights, 2 Flood Lamps	0	n/a	None	n/a	No	No	Yes	No
Wai'oli Town Park	5-5-06-08	8 Metal Halide Lamps	0	n/a	None	n/a	No	No	No	No
Wai'oli Beach Park	5-5-04-02	No exterior lights.	0	N	None	n/a	No	No	Yes	No

Note 1: Nesting data is from "Map Guide to Marine Turtle Nesting and Basking in the Hawaiian Islands, December 2015, Data mapping product by NOAA-PIFSC Marine Turtle Research Program."

Note 2: Low-intensity inside lights, lights under roof that point downward, and other small lights that do not shine toward ocean are not classified as exterior lights.

Note 3: All of these facilities are inland of the certified shoreline which is typically defined as the vegetation line.

Item 4. If applicable, describe any lighting standards (e.g., foot candles/area) required for facility operations or other requirements that necessitate the use of lighting (e.g., required for security, safety, operations). Describe the relevant standard, or regulation, and the areas and Covered Activities at the site (e.g., type of lighting) to which it applies.

There are numerous regulations that govern the use and desirable intensity of lights at County facilities. Some of these are regulatory standards, while others are simply recommendations and guidance documents. Relevant standards for County operations are summarized below. The County is not in a position to impose other conditions on private development.

- The County has adopted the International Building Code, and all construction and renovation must comply with the provisions of the code, including those related to lighting.
- The County must comply with the requirements of the State of Hawai'i Occupational Safety and Health Program (which implements the Federal Occupational Safety and Health Act of 1970) as they pertain to workplace lighting. The Hawai'i Department of Labor and Industrial Relations administers the Hawai'i OSH Law (Chapter 396, H.R.S.) through its Hawai'i Occupational Safety and Health Division (HIOSH) and has the authority to enforce all laws and standards concerning safety and health at the worksite. HIOSH standards or rules are contained within Title 12, Subtitle 8 of the Hawai'i Administrative Rules.
- The Illuminating Engineering Society of North America publishes the *Lighting Handbook* (now in its tenth edition). It contains recommendations for lighting in a wide range of applications. While not regulatory, the *Lighting Handbook* does define best practices and, therefore, forms the basis for possible lawsuits against the County in areas where these practices are not followed. Consequently, the County generally follows the recommendations in the handbook when designing and retrofitting its facilities.
- The Illuminating Engineering Society of North America also publishes a handbook that provides design guidance specifically for sports and recreational areas *[Sports and Recreational Area Lighting (Report ID: RP-6-01)*]. As is true of the recommendations in the Lighting Handbook, the design guidelines that are laid out in the document are not regulatory in nature, but they do establish "best management practices" that the County must follow if it is to limit possible liability.

Item 5. Describe any plans/proposals for future facilities or expansion of existing facilities. Include any proposed structures and lighting by type, purpose, location, and quantity. Plans (architecture and site plans), photos, and drawings can be attached.

Please note that the County's long-range Capital Improvement Plan includes a number of possible future facilities that have not yet been fully funded or constructed. This list includes facilities in various stages of design and/or construction, and proposed facilities. The completion dates of these facilities, and whether these will ultimately be constructed, depend upon competing priorities of the County Administration(s), consequently, all dates are approximate and the list is subject to change. These facilities will have limited outdoor lighting qualifying each as Category 3 or less and none are expected to result in the take of Covered Species. Those facilities are listed in Table 4 below.

Table 4. Proposed Future Facilities and Expansions

Project	*Expected Date of Completion*	*Description*	*Category*
Adolescent Treatment and Healing Center	2019	Construction activity limited to daylight hours during peak seabird fallout period; all outdoor lights will be shielded to prevent upward radiation; and exterior lights not needed for safety and security will be off during the fledgling period.	2
Bryan J. Baptiste Sports Complex Soccer Field	2025	New facility will include a lit comfort station. Low-output, fully shielded lights will be placed only at the entrance. Any use of external lighting will comply with the KSHCP.	3 or less
Helicopter Hangar	2020	Hangar will be on leased space at Līhu'e Airport. Site will include apron lighting and be run 24/7 in accordance with Airport policy set by the State Department of Transportation. (Location undetermined.)	3
Kapa'a Armory Building/ Mahelona Hospital Renovation	2020	Drawings are not yet available. The current Kapa'a Armory Building is being used by the Kaua'i Police Department as a substation under an Executive Order from the state. The project may entail a new addition to the Kapa'a Armory B for additional office space or the construction of a new facility on the Mahelona Hospital grounds.	2
Koa'e Affordable Housing Development	2020	All outdoor lights will be shielded to prevent upward radiation. Construction activity will follow the mitigation recommendations received in the EA and any use of external lighting will comply with the KSHCP.	3
Līhu'e County Building and Annex (Pi'ikoi Office Renovation)	2020	Renovation of the existing Pi'ikoi building within the Civic Center complex to create additional office space for county workers. No additional exterior lights will be installed.	2
Līhu'e Town Core Mobility Project	2019	All outdoor lights will be shielded to prevent upward radiation. Construction activity will follow the mitigation recommendations received in the EA and any use of external lighting will comply with the KSHCP.	2
Līhu'e Wastewater Treatment Plant Food Waste to Energy Addition	2020	The existing facility will add a food waste to energy operation. The addition will be constructed with low-wattage, fully shielded lights to be placed at the entrance. They will be controlled by motion sensors, with a manual control override for use only under special circumstances.	3 or less

Project	*Expected Date of Completion*	*Description*	*Category*
Lima Ola Affordable Housing Development	2021	All outdoor lights will be shielded to prevent upward radiation. Construction activity will follow the mitigation recommendations received in the EA and any use of external lighting will comply with the KSHCP.	3
New Landfill Facilities	2023	The facilities are not yet fully defined and drawings are not yet available, thus, the expected completion date is unknown. The site is close to the mountains, in relatively flat, open pastureland. Because operations are anticipated to be 7 am to 5 pm (i.e., during daylight hours), no outside lighting is needed. Once the new landfill facilities come online, the old landfill will be decommissioned. Material Recovery Facilities that may be constructed at or near the landfill will not be owned or operated by the County.	1 or 2

Item 6. Pursuant to the Endangered Species Act (ESA), Section 10 (a)(2)(A)(iii), describe alternatives to avoid the taking considered and evaluated. Provide reasons why those alternatives are not being utilized. Alternatives can include operational or facility design changes (attach pages as needed). The tables below may be altered as needed.

Attachment A, *County Facility Listing to the KSHCP*, contains a complete list of all covered County facilities and a discussion of specific avoidance and minimization measures for each facility and category. All lights are either fully shielded or off during the fledgling season with the exception of a few as indicated on Attachment A. The exceptions are needed for the safety of the public and/or to allow the facilities to perform their intended public function. All of the County's choices fall into the "Restricted Usage of Lighting" alternative described in Section 8.3 of the KSHCP.

In addition to the detailed listing contained in Attachment A, information concerning the alternatives considered is summarized in Table 5.

Table 5. Seabird Light Attraction Minimization Measures Considered

Minimization Measures Considered	Feasible?	If not Feasible, Provide Reason
▪ Change time of light use (lights off earlier)	Yes	
▪ Deactivate unnecessary lights	Yes	
▪ Replace all outdoor lights with full cut-off fixtures	Partial	The County has done this at all facilities where such lights provide satisfactory lighting.
▪ Shield all outdoor lights with full cut-off shields	Partial	The County has done this at all facilities where such lights provide satisfactory lighting.
▪ Angle all lights downward	Partial	The County has done this at all facilities where such lights provide satisfactory lighting.
▪ Lower intensity (lumens) of outdoor lights	Yes	
▪ Change bulb color to non-white spectrum	Yes	
▪ Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers	Yes	
▪ Provide Worker Seabird Awareness Training to staff	Yes	
▪ Provide outreach materials to staff & guests	Yes	
▪ Host Save Our Shearwaters (SOS) Aid Station	Yes	

Item 7. Describe all site-specific seabird minimization measures considered for the Covered Activities. This item should follow KSHCP minimization objectives and measures as specified in the KSHCP document. Please consult with staff from the DOFAW and the USFWS as needed. The suggested tables below can be altered as needed.

Minimization measures modify the Covered Activities to reduce the effects of the activity on the Covered Species. KSHCP Participants will be required to implement minimization measures that apply to the facility to the "maximum extent practicable" per applicable state and federal laws which regulate incidental take license/permit issuance by the DLNR and the USFWS.

Minimization also entails searching and recovering grounded seabirds to minimize the chance of mortality. In addition, the presence of on-site predators (i.e. feral cats, dogs) should be controlled and removed because these animals can prey on grounded seabirds.

Provide justification, such as policies, regulations, or other rationale for measures that will not be implemented.

a. The County has retrofitted all but one of its Category 4 and 5 facilities with shielded lighting. The exception is Waimea Tennis Courts, which will not be allowed for light use at all during the fledgling season. Furthermore, lighting has been removed altogether from the Wai'oli Town Park (Basketball Court) after it was decided that the facility no longer needed to be available for nighttime use.

In addition to the cut-off retrofits, a new lighting control system has been installed for the facilities listed in Table 6. This system allows the County to completely control the lighting system and track its usage. County staff can schedule when the lights are available as well as review its actual usage. This means that the County can ensure that all of the lighting at these sites are turned off during the seabird fledgling season. For these sites, even if a user breaks into a control box at the park, they will not be able to turn the lights on during the seabird fledgling season.

Table 6. Facilities with Lighting Control Systems

Facilities with Lighting Control Systems	*Category*
Anahola Village Park (Basketball Court)	4
Bryan J. Baptiste Sports Complex (formerly known as Kapa'a New Town Park) (Softball, Tennis Court, Basketball Court, Hockey Rink)	4
Hanapēpē Stadium (Tennis Court)	5
Kalawai Park (Softball field, Tennis Court)	5
Kekaha Faye Park (Softball, Tennis Court, Basketball Court)	5
Kōloa Park Field (Softball, Tennis Court, Basketball Court)	5
Līhu'e County Park (Tennis Court)	4
Vidinha Stadium (Baseball Field)	5
Wailua Homestead Park (Tennis Court)	5
Wailua Houselots Park (Tennis Court)	4
Waimea Canyon Park (Softball, Basketball Court)	5

Facilities with outdoor lighting systems controlled strictly by staff and the controls are in a secure location (e.g., office, lock box, etc.) are listed in Table 7.

Table 7. Facilities with Secured Lighting Controls

Facilities with Secured Lighting Controls	*Category*
Bryan J. Baptiste Sports Complex (formerly known as Kapa'a New Town Park) (Stadium)	5
Hanapēpē Stadium (Stadium)	5
Kīlauea Park (Softball Field)	5
Peter Rayno Park (Softball Field)	5
Vidinha Stadium (Stadium)	5

With the exception of certain nights, the County has not and will not allow any of its Category 4 and 5 outdoor recreational facilities to have high-intensity lighting illuminated during the fledging season.

During the non-fledging season, the County will:

- Have timers set to turn off lights after a specified amount of time (e.g., one hour) to avoid lights being on with no users. Users can continue use of lights by pressing a 'restart' button at the site;
- continue to shut off ALL high-intensity lighting at its outdoor recreation facilities no later than 10:00 PM; and
- limit use of lights at softball fields and stadiums to permitted users only.

Together, the retrofitted lighting and operational procedures at its facilities (including prohibitions on the use of high-intensity/unshielded lights at most locations during the fledgling season) will avoid and/or minimize the impact of the County's facilities on the Covered Species.

As an implemented policy, the County now requires all of its new facilities to comply with KSHCP recommendations for full cut-off fixtures to minimize light pollution.

County parks staff typically check light timers at least twice a month as part of their overall maintenance responsibilities. When they find a timer that is malfunctioning, staff report the information to their supervisor. In turn, the supervisor works with other County Staff as appropriate to schedule repairs and/or replacement. Lights are inoperable when timers are inoperable.

For all new construction and maintenance work where light fixtures are installed or replaced, the County will do its utmost to comply with KSHCP lighting recommendations for full cut-off fixtures. Only in those unusual circumstances (e.g., DUI checkpoints where motorists are subject to unannounced traffic stops, or emergency rescue and response), where the use of full cut-off fixtures would make it impossible to meet the operational requirements (e.g., where they would not provide sufficient illumination to meet safety codes or provide adequate safety or security), will the County consider the use of other types of lighting.

b. In addition to the many avoidance and minimization measures that are described above that the County has implemented concurrently with the development of the KSHCP, the County proposes to implement the following additional conservation measures:

    1. For all County facilities listed in Categories 2 and 3, over time the County will replace all lighting so as to comply with KSHCP recommendations for full cut-off fixtures; this will be done as the existing fixtures reach the end of their useful lives. These retrofits will occur as part of the normal renovation and replacement of County facilities, or sooner where any specific problem of take might occur. All such replacements are anticipated to be completed within ten (10) years of issuance of an ITP/ITL the County is requesting. Finally, in addition to the physical changes, the County has altered its operations and the use of its facilities as much as it possibly can while prioritizing and ensuring the public's safety. The County believes that this represents the maximum extent practicable for Category 2 and 3 facilities for the following reasons:

        a. The lights and activities that are located at Category 2 facilities are of such a "*de minimis*" character (e.g., 60-, 75-, and 100-watt incandescent bulbs in fixtures mounted on the sides of buildings; 40-watt fluorescent tubes under cover of roofs; etc.) that they have no quantifiable potential for light attraction. In view of this, the County believes that ensuring that these fixtures are replaced with fully shielded fixtures at the end of their useful lives minimizes the potential for adverse effect to the maximum extent practicable.

        b. Most of the lights at Category 3 facilities are of the same "*de minimis*" sort as those discussed above for Category 2 facilities. The County believes that for these lights upgrading at the end of their useful lives minimizes the potential for adverse effect to the maximum extent practicable. Certain lights at Category 3 facilities (e.g., 150-watt floodlights at police and fire stations) cast more light than the lower-wattage fixtures, and the County proposes to minimize the potential for adverse effect from these by: (i) turning these lights on only when needed to maintain safe and secure operations and (ii) using them only for the shortest reasonable length of time. That will be accomplished through the use of devices such as motion-sensors (which will keep lights off when there is no activity) and increased awareness training of County personnel.

2. For Category 4 facilities (i.e. playing areas for field sports such as baseball and soccer and for tennis and basketball courts), as indicated in Attachment A:

   a. The County will not illuminate Category 4 playing fields from September 15 through December 15 (i.e., during the fledging season), thereby eliminating all potential for light-related take at those facilities during this period.

   b. The County will not allow any Category 4 playing courts to be lit from September 15 through December 15, thereby eliminating all potential for light-related take at those facilities during this period.

3. As described in detail in the attachments to this application, for Category 5 facilities (particularly football stadiums) where night games currently occur during the fledgling season, the County will maintain the partially shielded fixtures that it installed following review and approval by the USFWS. Where nighttime events at stadiums that have shielded lighting are allowed, the County will monitor those events in accordance with the provisions outlined in the Memorandum of Understanding between the County and USFWS, effective September 13, 2018 (Attachment J). The results of the County's monitoring of games during the 2017, 2018, and 2019 seabird fledgling season indicates that the modifications that it has made to the stadium lighting have greatly reduced the potential for light attraction. Because of this, the County will continue to allow night-time light use at some facilities; provided the selected nights avoid the peak fledgling migration period and are timed to the moon phase such that fallout is deemed low-risk; provided further that such use does not cause it to exceed the take that is authorized if this application is approved. If the real-time results of monitoring during any year indicate that it is likely to result in take in excess of the authorized amount for the then-current calendar year, the remaining night-time use dates will be rescheduled to a time and/or place where light attraction will not result. In response to agency suggestions, the County has considered and carefully evaluated a County-wide or County facility-wide ordinance that would require the use of seabird-friendly lighting for all new development within the County. A number of considerations, however, make such a measure infeasible at this time. Therefore, the County Administration is not proposing such a measure as part of this application.

   Proposing such a measure would not in any way ensure that it would become law since the Kaua'i County Council would ultimately vote on any such measure. In addition, imposing such a requirement on the people of Kaua'i differs from other commitments that are part of the County's application in two fundamental ways:

   - First, it would impose requirements on parties (such as individual home and business owners seeking building permits) other than the County itself.
   - Second, it would burden the County with a costly enforcement role that it does not presently have.

   Moreover, if the County were to impose such requirements on parties other than itself, it would constitute substantial "mitigation" that should offset unavoidable take by County-owned facilities. In the absence of a mechanism by which the magnitude of that benefit

could be fairly judged, it could not be adequately addressed in any decision related to the adequacy of the overall avoidance, minimization, and mitigation package.

Notwithstanding the foregoing, the County is investigating the possibility of adding advisory language to certain building and development permit forms that will inform applicants that all property owners must comply with federal and state endangered species requirements. The language could be modeled on the following language that is currently included in County Film Permit applications:

IMPORTANT! The applicant acknowledges that the fledgling season for the endangered 'U'au or Hawaiian Petrel and threatened 'A'o or Newell's Shearwater is from September 15 – December 15. The applicant acknowledges and understands that it is responsible to comply with the Endangered Species Act of 1973 (7 U.S.C. sect. 136, 16 U.S.C. sect. 1531 et seq.) and Hawai'i Revised Statutes Chapter 195D for any activities that could cause any take of endangered or threatened species, including the installation and use of any lights while filming during the fledgling season at any property. To minimize adverse impacts on listed endangered and threatened species, the applicant shall use only the following types of external lights: shielded lights, cut-off luminaries, or indirect lighting, all preferably having a 90-degree cut-off. Spotlights aimed upward or spotlighting of structures, landscaping, or the ocean shall be prohibited. Applicants should contact the United States Fish and Wildlife Service to obtain an Incidental Take Permit (ITP) and/or the Department of Land and Natural Resources, Division of Forestry and Wildlife to obtain an Incidental Take License (ITL) for any activities that could cause take of threatened or endangered species.

The applicant agrees and understands that it shall defend, indemnify, and hold harmless the County of Kaua`i, its officers, agents, assigns, and employees from and against any and all claims arising directly or indirectly out of the applicant's activities that affects any endangered or threatened species, including the use of lights during the fledgling season.

c. Measures which the County will take in order to avoid or minimize the impact of future facilities include:

    1. Continue to install and use seabird-friendly lighting at all new County facilities.
    2. Promote seabird-friendly practices by County employees and users of County facilities through education and training.

d. The County will deploy as necessary traps or other appropriate mechanisms during the seabird fallout period to reduce the presence of predators at facilities where minimization measures are not likely to result in the avoidance of seabird take.

e. It is unlawful for any person to lead or let loose any domestic animal at County parks and recreation facilities.

Item 8. Minimization Plans. Provide a plan to minimize the effects to the Covered Seabirds due to the Covered Activities. KSHCP Participants will be required to minimize the effects of the Covered Activities to the "maximum extent practicable" per applicable state and federal laws which regulate take license/permit issuance. The KSHCP document provides minimization objectives and measures to follow.

The Minimization Plans should include the proposed minimization measures, an estimated completion schedule, and estimated cost for each facility. In this item, the Participant can include measures already completed or in place (new lights, shields, operational changes).

For minimization measures not yet determined but anticipated to occur at the facility, this section should include an estimated cost that will be earmarked to future minimization measures and a process to determine how and when those measures will be evaluated, selected, and decided (such as a cost-benefit analysis).

If applicable, the participant must provide the reasoning why certain measures will not be implemented. The suggested table below may each be altered to best describe the Minimization Plan. Attach additional pages, photos, and drawings as needed.

With the exception of the Waimea Tennis Court due to budget constraints, all of the Category 4 and 5 facilities have already been retrofitted with shielded lighting. Furthermore, a new light control system has been installed and implemented at most of the Category 4 and 5 facilities. In addition, the County has already implemented procedures to minimize use of all of its lights at all of its facilities. Please see Attachments A-F for details on the County's minimization measures. In addition, all minimization measures described in Items 7 and 8 will be applied to any new facilities constructed, acquired, and operated by the County during the term of the take authorization.

Item 9. Take Monitoring Plan. Provide a plan to monitor take of the Covered Species at the facilities proposed to be covered by the incidental take permit/license. The take monitoring plan describes how the property will be searched for downed Covered Seabirds. The KSHCP document provides standards and guidelines for take monitoring to ensure that take of the species is accurately measured and recorded.

The KSHCP document provides two options for accomplishing monitoring of take at facilities covered under an incidental take permit/license issued to a landowner:

***Option 1**: "Self-monitoring." Participants arrange for monitoring of take at their facilities and fund the DLNR to conduct calibration of the monitoring. Self-monitoring can be accomplished with "in-house" staff trained as searchers, or other means such as contracting for the service; or*

***Option 2**: Participants fund the DLNR to conduct compliance monitoring of take at their facilities (requires consultation with DLNR-DOFAW).*

The KSHCP document provides details including terms and conditions that apply to these two options. For large-scale facilities, Participants should consult with the USFWS and the DLNR for monitoring methods that are scale-appropriate to the size and scale of the facility.

The regulatory agencies will make the final determination as to the adequacy of the take monitoring plan.

KSHCP Options for Monitoring of Take	***Check box (****leave unchecked if not sure)*
Option 1. "Self-monitoring" of take.	☒
Option 2. The DLNR conducts monitoring of take (requires Participant funding & DLNR consultation).	☐

Since fulfilling the terms and conditions of probation, the County has continued to monitor its facilities by searching and reporting any grounded or downed seabirds (there have been none) at its facilities lighted with retrofitted lights. At Category 3 facilities, for example, during the fledgling season, Fire Department personnel walk a 10-foot perimeter around the fire stations to locate, record, and report any downed seabirds at the beginning of their shifts at around 7:00am. The facility maintenance personnel with the Department of Public Works (now with the Department of Parks and Recreation) also conduct a search of the Līhu'e Civic Center at the beginning of their shifts. In addition, during the 2017,2018, and 2019 KIF football seasons when night games were held, the County coordinated with the State of Hawai'i Department of Education, the Kaua'i Endangered Seabird Recovery Program (KESRP), the State of Hawai'i Department of Land and Natural Resources (DLNR), and the USFWS to monitor, record, and report any circling or downed seabirds.

Aside from the incidental observations that designated personnel would make as they carry out their regular duties, the County does not anticipate undertaking any monitoring of facilities in Categories 1 and 2.

County staff will continue to ensure that there are no unintended changes in facilities or operating procedures that would compromise their qualification for that category. For example, staff will periodically check the facilities to ensure that there has been no damage that has compromised light shielding, removed controls designed to limit light use, etc.

As described earlier in this PIP, the County has categorized its facilities primarily by the types of lighting and uses present at each of its facilities. These categories are shown in Table 1, above, and are listed in alphabetical order and by category in Attachment A. In Attachment I the County has chosen a facility for each category as representative of that category and, using that representative facility, has illustrated the monitoring plan that the County will employ for each category. While the search route will vary slightly, the frequency, personnel, time required, dates, problem areas, and data to be collected are consistent by category.

The County's monitoring plans for Category 5 facilities call for monitoring similar to that conducted at select facilities in 2017, 2018, and 2019. Specifically, whenever lights are on at night at any County-operated Category 5 facility between September 15 and December 15, the County will coordinate with the KSHCP staff to ensure that the facility grounds are monitored by an appropriately sized group of persons trained by KSHCP staff or other agency-designated personnel. The monitoring will include: documentation of the number, species, timing, height and flight patterns of observed seabirds; the number and species of seabirds that appear to have been grounded or downed, as well as seabirds that appeared to be headed for grounding but were not found; and information on the

condition of any recovered grounded or downed seabirds. In addition, before turning off the lights immediately following the nighttime use of facilities, the facility grounds will be searched for any grounded or downed Covered Species.

The County will maintain detailed records of the monitoring results which will be provided to the agencies in its annual report in accordance with the terms of the ITP/ITL and KSHCP. The data will include the location, times, dates, and personnel (including volunteers utilized) involved in the monitoring; and the location, condition, identification, in situ photographs, and fate of each recovered Covered Species. Any grounded Covered Species encountered during such monitoring will be reported to the USFWS and DOFAW, and all retrieved Covered Species will be transferred to the Save Our Shearwater ("SOS") program in conformance with recommendations of that program.

Table 8. Monitoring Plan

CATEGORY	No. of Facilities	USAGE	FREQUENCY (Fledgling Season, Sept. 15- Dec. 15)	FREQUENCY (Non-Fledgling Season, Dec. 16- Sept. 14)	% OF TOTAL PROPERTY THAT WILL BE SEARCHED & TOTAL AREA	TIME OF DAY OF SEARCHES	# OF SEARCHERS	PROPOSED TRAINING
1. Confirmed Unlit Facilities	47	Unlit facilities	None	None	None	None	None	New-hire orientation training
2. Minimal Lighting	75	Facilities with minimal structural and/or parking lighting and/or lights are used infrequently. This includes such things as neighborhood centers, base yards, and some beach parks. Some of the facilities in this category have lights that are under eaves or in other situations which prevent the light from shining directly outward. In general, none of the lamps present exceed 100 watts.	None	None	None	None	None	New-hire orientation training
3. Limited External Lighting	37	Facilities with low levels (in lumens or on-time) of external building lighting or lit parking areas. In general, these facilities have a sufficient number of external lights to prevent their inclusion in Category 2, but whose lights can be managed and/or readily retrofitted so as to limit the release of stray light to insignificant levels and/or very short periods of time during sensitive periods.	If report is received, daily	Only if report is received, weekly	An area up to 10' around the area where downing is reported	A.M. prior to the start of employees shifts.	1	New-hire orientation and annual training

CATEGORY	No. of Facilities	USAGE	FREQUENCY (Fledgling Season, Sept. 15- Dec. 15)	FREQUENCY (Non-Fledgling Season, Dec. 16- Sept. 14)	% OF TOTAL PROPERTY THAT WILL BE SEARCHED & TOTAL AREA	TIME OF DAY OF SEARCHES	# OF SEARCHERS	PROPOSED TRAINING
4. Substantial Exterior Area & Court Lighting	11	Facilities with multiple high intensity lights and with significant area coverage. This category includes court lights (e.g., basketball courts, tennis courts, skateboard parks, volleyball courts, etc.) or significant external lighting such as parking or recreational areas (e.g. Kaua'i War Memorial Convention Center).	If report is received, daily	Only if report is received, weekly.	The entire site.	A.M. prior to the start of employees shifts.	1 or 2	New-hire orientation and annual training
5. Stadium & Field Lighting	12	Facilities which have numerous, frequently used, high-intensity light fixtures and whose use cannot be limited to non-seabird seasons. This category includes facilities that have field and stadium lights on high poles which by their nature are difficult to minimize.	If in use, then when in use: daily	If in use, then weekly.	The entire site.	A.M. prior to the start of employees shifts. When in use during the fledgling season, the facility grounds will be searched immediately after lights are turned off.	1 or 2; during the fledgling season, up to 4.	New-hire orientation and annual training

Note 1: Tabulation was taken as of October 31, 2018. The number of facilities, and possibly the categorization of individual facilities, will change over time as the County removes old facilities, adds new ones, and replaces older lighting fixtures.

Note 2: See Attachment A for facilities listing by category; Attachment C for illustrations of category 2 and 3 lighting; Attachment D for illustrations of category 4 lighting; and Attachment E and F for illustrations of category 5 lighting.

Item 10. Components of the Green Sea Turtle Minimization and Monitoring Plan (if required). Monitoring and minimization for the Green Sea Turtle is in two parts: A) Monitoring to detect nests and B) Monitoring and minimizing impacts to nests detected.

For reasons discussed in Item 3 above, available data suggest that County facilities will not adversely affect Green Sea Turtles and the County has not, therefore, prepared a Green Sea Turtle (Honu) Minimization and Monitoring Plan.

Part A: Monitoring to detect Green Sea Turtle Nests

Please provide the following information; the table below may be used and altered as needed.

1) *Detailed location and description of beaches, including linear distance, at which searching for nests of the green sea turtle will take place. Searches should take place at any beach from which light at the facility can be viewed;*

2) *Monitoring protocols indicating:*
    a) *Annual training of searchers;*
    b) *Frequency of searches (every other day or as much as possible);*
    c) *Conduct active searching (searching the beach width);*
    d) *Sufficient number of trained searchers to cover the area; and*
    e) *Record results of search monitoring.*

3) *All Participants conducting self-monitoring are required to record the results of search efforts. Records should provide:*
    a) *Evidence (what was seen). Include description and provide photographs*
    b) *Location on the beach (GPS) and physically mark the location if possible*
    c) *Date and time of day*
    d) *Description of surrounding land use (e.g., vacant, or developed), and*
    e) *Proximity to the facility.*

Part B: Monitoring of Identified Green Sea Turtle Nests

Each identified nest of the green sea turtle should be monitored and protected from light attraction. Please provide the following monitoring protocols; the tables below may be used and altered as needed.

1. *Light avoidance measure for identified nests (either shield/deactivate lights at the facility or install and maintain a light shield around each identified nest);*
2. *Frequency of searches. Searches should take place every 1-2 days. Incubation takes approximately 45 days at which time monitoring should increase in frequency (e.g. daily);*
3. *Number of searches monitoring the nests. The number of needed to monitor active nests will depend on number of nests identified and amount of beach needed to be covered;*
4. *Record the results of nest monitoring. Monitoring should provide:*
    a. *Evidence of hatchling emergence (description and photos):*
    b. *Date and time of emergence,*
    c. *Direction of tracks*
    d. *Condition of the nest area (e.g., disturbed or not).*

Green Sea Turtle Take Monitoring Protocols – Part A: Monitoring to Detect Nests

Please provide search protocols for detecting nests of the green sea turtle *(Attach pages as needed)*		
Item	***Protocol*** *(fill in protocol & provide reasons)*	***KSHCP Guideline***
Location & description of the beach, or beaches, surveyed and the linear distance of the beach.		*Beach area surveyed should coincide with visibility from the facility with the lights.*
Frequency of searches (# per day or per week)		*Every other day during nesting season (typ. May 15 to end of August)*
Number of searchers per search area		*Depends on site conditions and safety considerations*
Proposed training		*Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee. See* ***item 9a****.*

Green Sea Turtle Take Monitoring Protocols – Part B: Monitoring of Identified Nests & Minimization

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle *(Attach pages as needed)*		
Item	***Protocol*** *(fill in protocol & provide reasons)*	***KSHCP Guideline***
Frequency of searches (# per day or per week)		*Active nests should be monitored every 1-2 days; then daily during expected hatching date*
Light avoidance		*If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light.*
Number of searchers per search area		*Depends on site conditions and safety considerations*

Item 11. Training. Describe the schedule that will be followed to provide training for staff. Training must be provided to those that will conduct and oversee the searches at the facility.

The "self-monitoring" training should include:

1. *Summary of regulations protecting the Covered Species;*
2. *Search procedures, route, frequency and timing specific to the facility's monitoring plan, for seabirds and green sea turtle nests;*
3. *Response procedures including safe and proper techniques for handling seabirds;*
4. *Recognizing evidence of green sea turtle nests (if lights shine on a beach), proper nest light screening, and hatchling activity (e.g., emergence);*
5. *Procedures to document the results of searches;*
6. *Downed wildlife agency contacts; and*
7. *Nearest SOS aid station.*

Rescuing Downed Seabirds—Standard Operating Procedures (SOP)

The following steps provide the procedure for recovering downed seabirds found:

1. *Take the seabird recovery kit and pet carrier to the downed seabird.*
2. *Put on gloves.*
3. *Using towel to gently cover the bird, pick up the seabird.*
4. *Place the seabird in the pet carrier, and close the pet carrier.*
5. *Put the gloves and towel back in the seabird rescue kit.*
6. *Take the bird and pet carrier to an SOS Aid Station.*
7. *Transfer the bird to the Aid Station's pet carrier.*
8. *Call SOS at 632-0610 or 635-5117.*
9. *Return the seabird rescue kit and pet carrier.*
10. *Complete the Bird Take Field Report.*
11. *Give the completed "Bird Take Field Report" to the General Manager, or other responsible staff person at the facility.*

Contents of Seabird Recovery Kit

1. *Latex or nitrile gloves;*
2. *Three towels;*
3. *Hand sanitizer;*
4. *Flashlight or headlamp;*
5. *Clipboard, pen and blank "Bird Take Field Reports", or similar; and*
6. *Pet carrier –medium sized. If a box is used it must be well ventilated and marked conspicuously "LIVE ANIMAL".*

During probation, the County was required to train its officers and employees. That training was recorded and is accessible to all County personnel on demand on the County intranet. Upon issuance of an ITL/ITP, all new County personnel will be required to watch the recorded training via the County on-boarding website and will be required to provide an acknowledgment of completion of the training during new-hire orientation. In addition, all new hires will be provided the Monitoring Policy and Procedure (Attachment I) during the new-hire orientation.

Upon issuance of an ITL/ITP, all County personnel that are required to perform self-monitoring tasks, will receive annual training in August. This will incorporate the volunteer monitor training presentation that the County provides pursuant to protocols established by USFWS as indicated in Attachment J. The County may incorporate or replace the current training with the detailed slide show proposed to be created by the Prime Contractor under the KSHCP and/or Appendix F of the KSHCP. The current training includes general information on the KSHCP, Covered Species biology and identification, cultural and ecological importance of the Covered Species, light attraction and harm, federal and state laws, County efforts, rescue procedures, and the SOS program.

Item 12. Describe any outreach conducted (e.g., handing out pamphlets on seabird awareness to facility employees or guests, etc.):

The County will provide educational flyers to all organizations that use Category 3, 4, and 5 facilities. The flyers will inform the users of the possible presence of Covered Species, the impacts of the use of lights during the fledgling season, and what to do should the users see seabirds being impacted by the lights. In addition, the County will post signage at all lighted softball fields, basketball courts, and tennis courts, where users are able to manually turn on the lights. The signage will be installed immediately adjacent to the light switches and controllers. The signage will be based on the notices that the County already posts at all lighted facilities during the fledgling season. Please see Attachment G for the sample flyers. The County posted the following notice on its Parks and Recreation website, which lists all County facilities, informing the public of the time of year and reason for prohibiting the use of lights at night at County facilities.

Figure 2. Department of Parks and Recreation Website Notice

Source: https://www.kauai.gov/Government/Departments-Agencies/Parks-Recreation/Facilities

From 2009 through the present, the County has conducted a number of outreach activities which included:

- conducting a county-wide training on the cultural, biological, and historical importance of the covered species to over a thousand (1,000) county employees;

- television appearances on the Mayor's Show, County Council, Hiki Nō, and Wala'au where we discussed the cultural, biological, and historical importance of the covered species; featuring our "Sherman Saves Christmas" performance at our county-wide Holly Jolly Competition;
- presenting the training on the cultural, biological, and historical importance of the covered species to Kapa'a High School teachers and students;
- presenting the training on the cultural, biological, and historical importance of the covered species to Kaua'i High School teachers and coaches; and
- conducting an endangered/threatened species law and government case study class for the Waimea High School ROTC Program and Close Up class, and Leadership Kaua'i.

Part 2. Take Estimate, Requested Take Authorization, & Funding

Item 1. Show the calculation of estimated take for each of the Covered Species.

Following the take estimation methods in the KSHCP for estimating a Participant's take (Section 6.2.2), the tables below show the take estimate calculation for the facility(s) for each of the Covered Seabirds.

The KSHCP take estimate method utilizes the average of the most recent 5 years of SOS recovery data for the facility, and/or results of KSHCP monitoring data if available. Applied to the data is an adjustment for downed birds not found, based on a 50 % discovery rate and an adjustment based on SOS mortality (birds dead on arrival or those that die in care) – average SOS mortality is 12%.

If the landowner-applicant submits a take estimate with an alternate discovery rate, they must provide the reasons why an alternate rate was used to estimate take, including relevant information supporting their reasoning (% of searchable area, search protocols that will be used, any searcher efficiency trials that have been or will be conducted at facilities and/or demonstration of quick, effective recovery of birds). Please include narrative and/or photos and maps to support this.

Responses to Item 1 and Item 2 are addressed together in Item 2.

Item 2. Select the requested take authorization and permit/license term coverage for each of the Covered Species.

Estimated Take for Newell's Shearwaters (NESH or 'A'o)

The County is accepting the estimate for NESH direct fallout by existing facilities and operations which were provided to it by KSHCP staff in June 2016 and anticipates that level of take will continue at non-stadium facilities. This includes 4.2 birds per year found at the facilities themselves and the same number of birds that are attracted but are never found (i.e., a "discovery rate" of 50%). This results in an estimate of 3.696 non-lethal take per year.

The County is also requesting take coverage for potential take related to night-time use of some Category 5 facilities, as previously mentioned in Part 1, Item 7 above. While there has been no take in 2017, 2018, and 2019, conservatively, the County accepts the estimates provided to it during technical assistance that such use could result in 4.48 lethal and 3.52 non-lethal takes each year during the term of the permit.

Estimated Average Annual Take for Hawaiian Petrel (HAPE or 'Ua'u)

The County also accepts KSHCP staff's estimate that take of Hawaiian Petrel will average 0.63 birds per year, of this, it is estimated that 0.5 will be lethal and 0.13 will be non-lethal.

Estimated Average Annual Take for Band-Rumped Storm Petrel ('Ake'ake)

SOS and other data suggest that it is very unlikely that County facilities will be responsible for the take of any Band-Rumped Storm Petrel. However, as such a possibility cannot be completely discounted, the County requests coverage for an average annual lethal take of 0.1 birds per year and no non-lethal take.

30-Year Estimated Take

Based on the estimated annual take numbers given above for each of the three species, the County is requesting 30-year take authorization totals summarized in Table 9 below.

Table 9. Requested Annual Take Authorization

	Newell's Shearwater	Hawaiian Petrel	Band-rumped Storm Petrel
Annual average number of downed NESH (5 most recent yrs), HAPE or BRSP (15 most recent years)	4.2	0.5	0.1
Annual observed lethal take estimate (12% of 1, all downed birds)	.504	0.06	0.012
Annual unobserved lethal take estimate (e.g. 100% of 1, all downed birds if 50% searcher efficiency assumed)	4.2	0.5	0.1
Total estimated annual lethal take from light attraction	4.704	0.56	0.112
Total Requested Annual Lethal Take	9.184[1]	0.56	0.112
Estimated 30 Year Lethal Seabird Take	**276[2]**	**17[3]**	**4[4]**
Estimated 30 Year Non-Lethal	**217[5]**	**4[6]**	**0**
Total Take Authorization	**493**	**21**	**4**

[1] As allowed in the KSHCP, sec. 6.2.2.1(b)(5), and as described above, the County is requesting additional take of 'A'o to provide a cushion so that it does not have unpermitted take. This additional take request is based on the SOS data and technical assistance from the agencies dated May 16, 2018 and further clarified on May 7, 2020.
[2] Per April 27, 2020 agency comment, calculation is rounded up from 275.52.
[3] Per April 27, 2020 agency comment, calculation is rounded up from 16.8.
[4] Per April 27, 2020 agency comment, calculation is rounded up from 3.36.
[5] Per April 27, 2020 agency comment, calculation is rounded up from 216.48.
[6] Per April 27, 2020 agency comment, calculation is rounded up from 3.9.

Item 3. Funding Assurance. Provide proof of adequate funding (see KSHCP document). All participants must demonstrate requisite funding prior to permit/license approval to ensure that the proposed measures and actions, including monitoring, will be undertaken in accordance with the terms and schedule of the KSHCP.

The County guarantees adequate funding for this permit for the first year. For the remaining term of the permit, the County commits only to including funding for the HCP permit as a line item in the proposed County budget. The County will certify in is Annual Report that it will request in its annual budget and, if appropriated and allocated, expend the operating funds necessary to continue its obligations throughout the term of its ITP and ITL. The County will promptly notify the Prime Contractor and regulatory agencies if the funds requested are not appropriated and allocated. Please note that all commitments expressed in this application are subject to Kaua'i County Council approval.

Signature of Participant: Patrick Porter
Patrick Porter (May 11, 2020)

Printed Name : Patrick Porter

Date: May 11, 2020

The undersigned affirms that all the information included is true and accurate to the best of the participant's knowledge and that this PIP is voluntarily submitted.

☐ check to waive confidentiality

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List of Attachments

Attachment A List of the facilities (current as of October 31, 2018)
Attachment B Illustrates the location and characteristics of lighting at County facilities
Attachment C Illustrates Category 3 lighting
Attachment D Illustrates Category 4 lighting
Attachments E and F Illustrates Category 5 lighting
Attachment G Sample fliers
Attachment H Portable Floodlight Policy
Attachment I Monitoring Policy and Procedure
Attachment J Night-time Category 5 events protocol

REVISED DRAFT County of Kauai KSHCP - PIP

Final Audit Report 2020-05-12

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Attachment A: List of the facilities (current as of October 31, 2018)

Stop Name	Stop Lat.	Stop Lon.	Light Type	Assigned Category	No. of Lamps	Regular Usage	Frequency of Night Usage	Duration of Night Usage	Legal Requirement for Lighting	Notes	Proposed Minimization Measure
A/C ANAHOLA POST OFFICE BUS STOP	22.144802	-159.315134	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
A/C FISH EXPRESS BUS STOP	21.984315	-159.366730	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
A/C GARDEN ISLAND INN BUS STOP	21.959135	-159.353530	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
A/C KAPAHI FOOD MART BUS STOP	22.098746	-159.333962	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
A/C KILAUEA FOOD MART BUS STOP	22.207063	-159.411902	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
A/C KUKUIHALE RD BUS STOP	22.137867	-159.305339	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
A/C LAWAI POST OFFICE BUS STOP	21.923095	-159.500927	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
A/C MAHELONA HOSPITAL BUS STOP	22.087896	-159.314204	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
ANAHOLA POST OFFICE BUS STOP	22.144430	-159.314854	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
BRYDESWOOD BUS STOP	21.923630	-159.535684	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
EIWA STREET BUS STOP	21.975985	-159.367620	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
ELEELE NANI BUS STOP	21.908371	-159.579651	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
ELEPAIO RD/IWA RD-100 BUS STOP	21.965943	-159.711295	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
ELEPAIO RD/PUEO RD BUS STOP	21.963150	-159.707044	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
ELEPAIO/AKIALOA 100 BUS STOP	21.973379	-159.721669	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
ELEPAIO/IO RD 100 BUS STOP	21.968251	-159.714675	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
GARDEN ISLAND INN BUS STOP	21.958856	-159.353736	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
HANAPEPE 1ST UNITED CHURCH BUS STOP	21.909179	-159.588288	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
HANAPEPE ARMORY BUS STOP	21.908012	-159.594447	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
HOKULEI VILLAGE-KAUMUALII HWY BUS STOP	21.970182	-159.385905	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
HOKULEI VILLAGE-NUHOU RD BUS STOP	21.968705	-159.387906	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
ISHIHARA MARKET BUS STOP	21.954368	-159.666603	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
KALAHEO NC BUS STOP	21.924895	-159.527261	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
KALEPA VILLAGE BUS STOP	21.995901	-159.352767	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
KAPAA HONGWANJI BUS STOP	22.070617	-159.319442	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
KAPAA NC BUS STOP	22.079914	-159.314210	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
KAUMUALII HWY-A/C KCC BUS STOP	21.967286	-159.394800	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
KAUMUALII HWY-KCC BUS STOP	21.967670	-159.394486	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
KAWAIHAU RD/KAHANA RD BUS STOP	22.095799	-159.327202	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
KAWAIHAU RD/MALAKIA RD BUS STOP	22.094408	-159.321490	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
KEKAHA NC BUS STOP	21.970078	-159.717569	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
KILAUEA FOOD MART BUS STOP	22.207325	-159.411795	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
KOLOA RD/HORITA RD BUS STOP	21.918092	-159.498174	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
KUHIO MEDICAL CENTER BUS STOP	21.982619	-159.367291	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
KUKUIHALE RD-500 BUS STOP	22.138002	-159.305229	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
LAUKONA RD 400 BUS STOP	21.993616	-159.356917	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
LAUKONA RD-500 BUS STOP	21.993393	-159.357269	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
LAWAI POST OFFICE BUS STOP	21.923205	-159.501274	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
MARIKO STORE BUS STOP	21.908000	-159.595096	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
PETER RAYNO PARK BUS STOP	21.995761	-159.352763	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
PONO KAI BUS STOP	22.073597	-159.319132	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
WAILUA HOMESTEADS PARK BUS STOP	22.057400	-159.369016	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
WAIMEA 1ST HAWAIIAN BANK BUS STOP	21.954450	-159.666585	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
WAIPOULI COURTYARDS BUS STOP	22.053065	-159.332470	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
WESTSIDE PHARMACY BUS STOP	21.909299	-159.587642	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
A/C PRINCEVILLE LIBRARY BUS STOP	22.21311	-159.47345	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
COURTYARDS AT WAIPOULI BUS STOP	22.0531	-159.33243	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
PRINCEVILLE SHOPPING CENTER BUS STOP	22.21312	-159.47407	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
KAPAHI PARK BUS STOP	22.0998	-159.34708	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
WAIPOULI BEACH RESORT BUS STOP	22.061987	-159.320205	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
KAPAA LIBRARY BUS STOP	22.0777766	-159.316181	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
KEALIA BEACH BUS STOP	22.098658	-159.305478	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
A/C KEALIA BEACH BUS STOP	22.09814	-159.30587	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
KAPAA SKATE PARK BUS STOP	22.076975	-159.321851	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized

KEALAULA SUBDIVISION BUS STOP	21.903364	-159.586039	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
KAPAHI FORD MART BUS STOP	22.098676	-159.333942	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
WAIMEA ATHLETIC FIELD BUS STOP	21.958927	-159.674159	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized
A/C WAIMEA ATHLETIC FIELD BUS STOP	21.958824	-159.674196	LED	2	1	Yes	Daily	Dusk till Dawn	Liability, Safety & Security	Photo-sensor	Already Fully Minimized

LOCATION	TAX MAP KEY	Light Type	Assigned Category	No. of Lamps	Regular Usage	Frequency of Night Usage	Duration of Night Usage	Legal Requirement for Lighting	Notes
ALAWAI ROAD GENERATOR/PUMP STATION	1-6-02-07	No exterior lights	1	0	N	N/A	N/A	N/A	
ANAHOLA BEACH PARK	4-8-14-06	No exterior lights	1	0	N	N/A	N/A	N/A	
ANAHOLA COMMUNICATIONS BUILDING	4-8-03-23	No exterior lights	1	0	N	N/A	N/A	N/A	
ANINI BEACH PARK	5-3-05-05	No exterior lights	1	0	N	N/A	N/A	N/A	
BLACKPOT BEACH PARK	5-5-01-04	No exterior lights	1	0	N	N/A	N/A	N/A	
CAPTAIN COOK PUMP STATION	1-6-07-49	No exterior lights	1	0	N	N/A	N/A	N/A	
ELE'ELE PARK	2-1-04-49	No exterior lights	1	0	N	N/A	N/A	N/A	
FRANCIS CHING PARK	1-6-05-17	No exterior lights	1	0	N	N/A	N/A	N/A	
HAENA BEACH PARK	5-9-05-19	No exterior lights	1	0	N	N/A	N/A	N/A	
HALEHAKA FLARE FACILITY	3-3-03-01	No exterior lights	1	0	N	N/A	N/A	N/A	
HANALEI PAVILION	5-5-02-19	No exterior lights	1	0	N	N/A	N/A	N/A	
HANAMAULU BEACH PARK PAVILION	3-7-03-08	No exterior lights	1	0	N	N/A	N/A	N/A	
HANAPEPE HEIGHTS PARK	1-8-11-23	No exterior lights	1	0	N	N/A	N/A	N/A	
HANAPEPE RIVER MOUTH OPEN PARK PAVILION	1-9-08-07	No exterior lights	1	0	N	N/A	N/A	N/A	
HANAPEPE TOWN PARK	1-9-05-48	No exterior lights	1	0	N	N/A	N/A	N/A	
HANAPEPE VETERAN'S CEMETERY PAVILION	1-8-08-38	No exterior lights	1	0	N	N/A	N/A	N/A	
KALENA PARK	3-6-05-03	No exterior lights	1	0	N	N/A	N/A	N/A	
KALEPA COMMUNICATIONS BUILDING	3-8-02-05	No exterior lights	1	0	N	N/A	N/A	N/A	
KAPA'A BEACH PARK	4-5-11-06	No exterior lights	1	0	N	N/A	N/A	N/A	
KAPA'A CIVIL DEFENSE	4-6-14-30	No exterior lights	1	0	N	N/A	N/A	N/A	
KAPA'A FIRE STATION	4-3-08-09	No exterior lights	1	0	N	N/A	N/A	N/A	
KAPAHI PARK	4-6-11-04	No exterior lights	1	0	N	N/A	N/A	N/A	
KAUAI HUMANE SOCIETY OFFICE AND KENNEL	1-8-08-63	No exterior lights	1	0	N	N/A	N/A	N/A	
KAUAI SANDS PUMP STATION	4-3-02-12	No exterior lights	1	0	N	N/A	N/A	N/A	
KAUMAKANI NEIGHBORHOOD PARK & CENTER	1-7-06-08	No exterior lights	1	0	N	N/A	N/A	N/A	
KILAUEA CIVIL DEFENSE	5-2-04-103	No exterior lights	1	0	N	N/A	N/A	N/A	
KOKEE COMMUNICATIONS BUILDING	1-2-01-09	No exterior lights	1	0	N	N/A	N/A	N/A	
KUKUIOLONO COMMUNICATIONS BUILDING	2-3-05-10	No exterior lights	1	0	N	N/A	N/A	N/A	
KUKUI'ULA LANDING COMFORT	2-6-11-10	No exterior lights	1	0	N	N/A	N/A	N/A	
LIHI PARK	4-5-02-01	No exterior lights	1	0	N	N/A	N/A	N/A	
LIHUE INDUSTRIAL II PUMP STATION/GENERATOR BUILDING	3-5-03-69	No exterior lights	1	0	N	N/A	N/A	N/A	
LIHUE PARK	3-6-02-03	No exterior lights	1	0	N	N/A	N/A	N/A	
MT. KAHILI CIVIL DEFENSE BUILDING	2-4-09-06	No exterior lights	1	0	N	N/A	N/A	N/A	
NĀWILIWILI (MARRIOTT) PUMP STATION/GENERATOR	3-5-02-15	No exterior lights	1	0	N	N/A	N/A	N/A	
NĀWILIWILI PARK	3-2-04-05	No exterior lights	1	0	N	N/A	N/A	N/A	
NIUMALU PARK	3-2-02-01	No exterior lights	1	0	N	N/A	N/A	N/A	
PLANTATION HALE & MOKIHANA/COCONUT BEACH PUMP STATIONS	4-3-02-4	No exterior lights	1	0	N	N/A	N/A	N/A	
POLICE PISTOL RANGE	3-4-06-01	No exterior lights	1	0	N	N/A	N/A	N/A	
POLIHALE CIVIL DEFENSE BUILDING	1-2-02-01	No exterior lights	1	0	N	N/A	N/A	N/A	
PORT ALLEN PUMP STATION	1-9-10-14	No exterior lights	1	0	N	N/A	N/A	N/A	
PRINCE KUHIO PARK	2-6-04-02	No exterior lights	1	0	N	N/A	N/A	N/A	
PUA LOKE PARK - PAVILION	3-6-10-54	No exterior lights	1	0	N	N/A	N/A	N/A	
PUHI PARK PAVILION	3-3-05-08	No exterior lights	1	0	N	N/A	N/A	N/A	
WAIKOMO PARK	2-8-26-01	No exterior lights	1	0	N	N/A	N/A	N/A	
WAILUA BEACH LIFEGUARD STATION (PARK)	4-1-04-20	No exterior lights	1	0	N	N/A	N/A	N/A	
WAI'OLI TOWN PARK	5-5-06-08	No exterior lights	1	0	N	N/A	N/A	N/A	Lighting removed June 2016 due to rotting poles. Replacement TBD./ For illumunating the basketball court
WAOILI BEACH PARK	5-5-04-02	No exterior lights	1	0	N	N/A	N/A	N/A	
ANAHOLA HAWN HOMES PARK	4-8-15-48	Fluorescent Lamps Under roof	2	2	Y	Daily	Dusk To Dawn	Liability, safety & security.	All lights are shielded or under eaves.
COCO PALMS PUMP STATION /GENERATOR BLDG	4-1-03-44	High Pressure Sodium (HPS)	2	1	Y	Daily	Dusk to Dawn	Liability, safety & security.	Light is not functional; timetable for repairs unknown.
HALEKO PUMP STATION GENERATOR BUILDING	3-8-04-14	High Pressure Sodium (HPS)	2	2	Y	No	N/A	N/A	Not connected to power.
HANALEI REFUSE TRANSFER STATION	5-3-01-17	A = 100 watt Fluorescent Flood Lights B = Fluorescent Accent Lights	2	A x 3 B x 1	Flood = Yes Fluorescent = No	Floods are used during evenings only, accent light is used in early mornings when necessary.	Dusk to Dawn	Liability, safety & security.	All flood lights are angled down. Fluorescent accent light is currently not working.
HANAMAULU PUMP STATION / GENERATOR BLDG	3-7-03-12	Wall Mounted Incandescent Bulbs	2	3	N	As needed	As needed	Liability, safety & security.	All lights are under eaves.
HANAPEPE RIVER PUMP STATION	1-9-07-13	Lightpole with incandescent fluorescent	2	1	N	Emergencies only.	N/A	Liability, safety & security.	
KALAHEO NEIGHBORHOOD CENTER	2-3-03-08	A = Parking Lamp B = Fluorescent Lamps	2	A x 1 B x 5	Y	Daily	Dusk To Dawn	Liability, safety & security.	Wall mounted & shielded fluorescent lamps.
KAPA'A PARKS & BEAUTIFICATION BASEYARD	4-5-09-33	100 watt wall mounted security lights	2	6	Y	Daily	As needed	Liability, safety & security.	Light is photo cell activated & mounted under the eaves.
KAPA'A TOWN PUMP STATION	4-5-12-39	High Pressure Sodium (HPS)	2	1	Y	Daily	Dusk To Dawn	Liability, safety & security.	
KAPAIA PUMP STATION/GENERATOR BUILDING	3-8-02-12	Wall Mounted Incandescent Bulbs	2	3	N	As needed	As needed	No	All lights are under eaves.
KEKAHA GARDENS PARK	1-2-02-38	Fluorescent Lamps Under roof	2	2	Y	Daily	Dusk To Dawn	Liability, safety & security.	All lights are shielded or under eaves.
KEKAHA NEIGHBORHOOD CENTER	1-3-01-02	150 watt HPS Parking Lights	2	8	Y	Daily	Dusk To Dawn	Liability, safety & security.	All facility lights are fully shielded.
KOLOA FIRE STATION (NEW)	2-6-04-41	Fluorescent Lamps Under roof	2	2	Y	Daily	Dusk To Dawn	Liability, safety & security.	All lights are shielded or under eaves.
LIHUE FIRE STATION & KALENA PARK	3-6-09-38	Wall Mounted Incandescent Bulbs	2	2	Y	Daily	Dusk To Dawn	Liability, safety & security.	All facility lights are fully shielded.
MENEHUNE ROAD GENERATOR/PUMP STATION	1-6-05-17	100 watt Flood Lights	2	2	N	As needed	As needed	Liability, safety & security.	Only for after hours repairs.
POIPU BEACH PARK	2-8-17-01	Fluorescent Lamps Under roof	2	6	Y	Daily	Dusk To Dawn	Liability, safety & security.	All lights are shielded or under eaves.
WELIWELI PARK	2-8-22-14	Fluorescent Lamps Under roof	2	2	Y	Daily	Dusk To Dawn	Liability, safety & security.	Weliweli Park, 9.00 Acres - Neighborhood Park, Basketball Court, Open Field, Comfort Station
ARZADON INDUSTRIAL PUMP STATION/GENERATOR BLDG	4-3-09-69	High Pressure Sodium (HPS)	3	2	Y	Daily	Dusk to Dawn	Liability, safety & security.	
HANALEI BASEYARD	5-5-03-02	A = 750 watt High Pressure Sodium (HPS) B = Fluorescent T8 32 watt	3	A x 1 B x 2	Y	As Needed	A = 4:00-8:00 AM B = only used during nighttime emergencies.	Liability, safety & security.	Illuminates work area to check equipment
HANALEI COURTHOUSE	5-5-03-02	13 watt LED (Shielded)	3	3	Y	Daily	Dusk To Dawn	Liability, safety & security.	All lights are under eaves and shielded.

LOCATION	TAX MAP KEY	Light Type	Assigned Category	No. of Lamps	Regular Usage	Frequency of Night Usage	Duration of Night Usage	Legal Requirement for Lighting	Notes
HANALEI FIRE AND POLICE	5-4-24-24	A = 9 watt Compact Fluorescent Lights B = 13 watt Compact Fluorescent Lights C = 120 watt Metal Halide Lamps D = T-12 Fluorescent Lamps E = 150 watt Mercury Vapor F = 150 watt High Pressure Sodium Parking Lights	3	A x 16 B x 15 C x 1 D x 4 E x 2 F x 4	A, B, D & F = Y C and E = No	A, B, D & F = Dusk To Dawn C and E = As Needed	Dusk to Dawn	Liability, safety & security.	A and B = under eaves C = for open carport under roof D = 2 under eaves and 2 on open ground for signs E = for gas pump and open patio F = under eaves and angled/shielded
HANAPEPE BASEYARD OFFICE	1-8-08-79	A = 250 watt High Pressure Sodium Flood Lights B = Compact 90 watt fixtures	3	A x 1 B x 50	Y	Daily	A = 4:00 AM and 5:00 AM B = all night	Liability, safety & security.	All lights are under eaves.
HANAPEPE FIRE STATION	1-9-05-47	A = 150 watt HPS Wall Mount B = 9 watt Compact Fluorescent C = 9 watt Compact Fluorescent	3	A x 3 B x 4 C x 3	Y	A and B = Daily C = As needed	A & B = Dusk to Dawn C = As needed	Liability, safety & security.	All lights are under eaves.
HANAPEPE REFUSE TRANSFER STATION	1-8-08-79	A = Facility Lights B = Flood Light	3	A x 3 B x 1	A = No B = Y	B = evenings only	Dusk to Dawn for the floodlight.	Liability, safety & security.	A = bulbs removed and not replaced due to threat to shearwaters. B = angled
KALAHEO FIRE STATION	2-3-03-08	A = 150 watt Height Pressure Sodium Wall Mounts B = 9 watt Compact Fluorescent C = 70 watt High Pressure Sodium	3	A x 4 B x 4 C x 1	A and C = No B = Y	Daily	Dusk to Dawn	Liability, safety & security.	All lights are under eaves.
KALEPA VILLAGE APARTMENTS PHASE I, II, III, & IV	3-8-002:014	A = 70 watt metal halide B = 60 watt incandescent bulb C = 9 watt flourescent bulb D = 40 watt 8" flourescent circulene E = 20 watt 6" flourescent circulene F = 175 watt metal halide G = 13 watt single CFL H = 13 watt double CFL I = 32 watt double CFL J = 90 watt double halagen K = 75 watt halogen L = 70 watt single metal halide M = 75 watt halogen	3	A x 18 B x 22 C x 18 D x 1 E x 2 F x 10 G x 30 H x 28 I x 12 J x 4 K x 5 L x 7 M x 7	Y	Daily	Dusk To Dawn	Liability, safety & security.	A and F = angle and shielded B-E and G-M = under eaves.
KANIKOO ELDERLY HOUSING PHASE I & II	3-6-004:009	A = 1500 lumens pole lights B = 40 watt CFL doorway entrance C = 100 watt LED driveway/sidewalk D = 18 watt LED	3	A x 13 B x 54 C x 24 D x 28	Y	Daily	Dusk To Dawn	Liability, safety & security.	A = angled and shielded B & D = under eaves C = under eaves and luminous at 90 degrees of emplacement (sideway opaque lighting)
KAPA'A NEIGHBORHOOD CENTER	4-5-12-15	A = 150 watt HPS Parking Lights B = Exterior Security Lights	3	A x 6 B x 13	Y	Daily	Dusk To Dawn	Liability, safety & security.	A = shielded B = under eaves
KAPA'A REFUSE TRANSFER STATION	4-6-12-04	150 Watt Fluorescent Floodlight	3	4	Y	Daily	Dusk to Dawn	Liability, safety & security.	All lights are shielded.
KAPA'A SWIMMING POOL & BATH HOUSE	4-5-12-01	1000 watt Pool Lights	3	4	Y	M-F Nights Only	6:00-7:30PM Off During Fledgling Season	Liability, safety & security.	Used for swim practices
KAPA'A TOWN GENERATOR BUILDING	4-5-11-54	High Pressure Sodium (HPS)	3	1	Y	Daily	Dusk to Dawn	Liability, safety & security.	
KAUAI ECONOMIC OPPORTUNITY (KEO)	3-8-005:001	A = 100 watt high pressure sodium B = 175 watt Metal Highlide Lamp C = 32 watt two-lamp flourescent D = 32 watt CFL	3	A x 3 B x 4 C x 4 D x 42	Y	A & B: Daily,	Dusk To Dawn	Liability, safety & security.	A and B = angled and shielded C and D = andgled, shielded, and under eaves
KOA'E WORKFORCE HOUSING DEVELOPMENT	2-6-004:019		3						Proposed Development; lighting associated with the proposed development will not be under County ownership, use, or control.
KOLOPUA WORKFORCE HOUSING APARTMENTS	5-4-024:024	A = 52 watt LED B = 13 watt florescent tube	3	A x 22 B x 85	Y	Daily	A on auto sensor	Liability, safety & security.	A = angled and shielded B = under eaves
LIHUE CIVIC CENTER	3-6-05-27 & 28	A = Compact 13 watt B = HPS 70 watt C = Compact 26 watt D = 75 watt floodlights E = 250 watt HPS Parking Lights F = 32 watt 4-foot VTs G = 100 watt Metal Halide	3	A x 101 B x 20 C x 37 D x 2 E x 32 F x 6 G x 4	Y	Daily	Dusk To Dawn	Liability, safety & security.	All have eaves or roof above them except for parking lights which are angled.
LIHUE COUNTY BUILDING & ANNEX	3-6-05:02 & 03	A = Compact 13 watt B = HPS 70 watt C = Compact 26 watt D = 75 watt floodlights E = 250 watt HPS Parking Lights	3	A x 20 B x 10 C x 15 D x 10 E x 6	Y	Daily	Dusk To Dawn	Liability, safety & security.	All have eaves or roof above them except for parking lights which are angled.
LIHUE NEIGHBORHOOD CENTER (OLD)	3-8-15-24	100 watt Security Lights	3	8	Y	Daily	Dusk to Dawn	Liability, safety & security.	All lights are shielded or under eaves.
LIHUE REFUSE TRANSFER STATION	3-7-02-14	A = Work Bay Lights B = Floodlights	3	A x 6 B x 6	N	Only used during emergency night work.	As needed	Liability, safety & security.	
LIMA OLA WORKFORCE HOUSING DEVELOPMENT	2-1-001:054		3						Proposed Development; lighting associated with the proposed development will not be under County ownership, use, or control.
LUCY WRIGHT PARK	1-6-06-01	Sodium parking lot lights	3	2	Y	Daily	Dusk To Dawn	Liability, safety & security.	All lights are shielded.
LYDGATE PARK	3-9-06-01	150 watt Height Pressure Sodium	3	7	Y	Daily	Dusk to Dawn	Liability, safety & security.	
PAANAU VILLAGE APARTMENTS PHASE I	2-6-004:046	A = 70 watt high pressure sodium B = 60 watt flourescent tube C = 15 watt flourescent bulb	3	A x 18 B x 13 C x 96	Y	A & B: Daily	Dusk To Dawn	Liability, safety & security.	A = angled and shielded B & C = under eaves
PAANAU VILLAGE APARTMENTS PHASE II	2-6-004:046	A = 53 watt LED B = 13 watt compact flourescent C = 26 watt double compact flourescent tube lamp D = 14 watt LED	3	A x 16 B x 6 C x 121 D x 25	Y	A & B: Daily	Dusk To Dawn	Liability, safety & security.	A = angled and shielded; B-D = under eaves

LOCATION	TAX MAP KEY	Light Type	Assigned Category	No. of Lamps	Regular Usage	Frequency of Night Usage	Duration of Night Usage	Legal Requirement for Lighting	Notes
POLICE/EOC/OPA MAIN FACILITY	3-6-02-18	A = 100 watt HPS Parking Lot Lights B = 150 watt HPS Roadway Lights C = 42 watt Recessed Compact Fluorescent Lights D = 70 watt HPS Flood Accent Lights E = 18 watt Compact Fluorescent Wall Sconce F = 70 watt HPS Walkway Bollard G = 32 watt Fluorescent VT Fixtures	3	A x 39 B x 9 C x 18 D x 4 E x 18 F x 24 G x 4	Y	Daily	Parking lights half are on all night, half are on 6:00-10:00PM and again from 4:00Am-6:00AM. The rest are on all night, 6:00PM-6:00AM.	Liability, safety & security.	A and B = angled and shielded. C-G = under eaves.
SALT POND PARK	1-8-08-43	150 watt Height Pressure Sodium	3	6	Y	Daily	Pavilions Upon Request Parking = Dusk To Dawn	Liability, safety & security.	Pavilion lights under eaves. Parking lot lights fully shielded.
SMOKEY VALLEY CLUBHOUSE	1-6-04-12	Flood Lights	3	4	Y	Daily On Motion Sensor	Dusk to Dawn	Liability, safety & security.	
SPOUTING HORN PARK	2-6-03-19	A = Parking Lot lights 100 watt HPS B = under-roof lights Compact 13 watt	3	A x 4 B x 4	Y	Daily	Dusk to Dawn	Liability, safety & security.	
TRANSPORTATION BASEYARD OFFICE	3-3-13-25	A = 50 watt HPS Wall Mount Fixtures B = 150 watt HPS Pole Lights C = 250 watt HPS Pole Lights D 60 watt Incandescent Soffit Mounts	3	A x 5 B x 5 C x 6 D x 6	Y	Daily	Dusk to Dawn	Liability, safety & security.	A = under eaves B and C = angled and shielded D under eaves in recessed soffit
WAIMEA FIRE AND POLICE	1-6-07-48	A = 150 watt High Pressure Sodium Poles Lights B = 9 watt Compact Fluorescent Lamps	3	A x 5 B x 20	Y	Daily	Dusk to Dawn	Liability, safety & security.	B = 9 are under the eaves, 1 is on an open wall.
WAIMEA NEIGHBORHOOD CENTER	1-6-09-23	A = Parking Lot Lights B = Fluorescent Fixtures	3	A x 4 B x 31	Y	Daily	Dusk To Dawn	Liability, safety & security.	
WAIMEA POOL	1-6-09-23	1000 watt Pool Deck Lights	3	4	Y	M-F	6:00-7:30PM Off During Fledgling Season	Liability, safety & security.	Used for swim practice.
WAIMEA TENNIS COURT	1-6-10-05	Fluorescent	3	24	Y	Daily	6:00 PM To 10:00 PM; Off During Fledgling Season	Liability, safety & security.	
WAIMEA THEATRE	1-6-009:008	A = 70 watt metal halide lamp B = 32 watt two-lamp flourescent C = 32 watt flourescent light	3	A x 5 B x 16 C x 12	Y	As needed	As needed	Liability, safety & security.	A = angled and shielded B and C = under eaves C = luminous at 90 degrees emplacement (sideway opaque lighting); light hours not confirmed by operating manager Frequency of night use: only during scheduled movies miscellaneous community events
WAIMEA WASTEWATER TREATMENT PLANT	1-2-06-36	Sodium Lights A, 60 watt Lights B	3	A x 4 B x 2	A = N B = Y	A= Not in use, B = Nightly	A is used only for after hours repairs. B is used 15 hours a day.	Liability, safety & security.	
ANAHOLA VILLAGE PARK	4-8-09-01	1,000 watt Metal Halide	4	5	Y	Daily	6:00 - 10:00 PM Off During Fledgling Season	Liability, safety & security.	Basketball Court (On-Demand By User) Off During Fledgling Season
ELE'ELE WASTEWATER TREATMENT PLANT	2-1-01-43	A = Sodium Parking Lot Lights B = Sodium Flood Lights C = Exterior Wall Fixtures	4	A x 14 B x 4 C x 6	A & B = N C = Y	A & B = Evening Hours C = Daily	A & B = N/A C = All Night	Liability, safety & security.	Parking, Court lighting
KAPA'A NEW BASE YARD	4-5-15-04	A = 9 watt Compact Lights B = 27 watt Compact Lights C = 150 watt HPS Lamps	4	A x 26 B x 3 C x 4	Y	Daily	A & B = 6:00PM-6:00AM C = 4:00AM-5:00AM	Liability, safety & security.	All facility lights are fully shielded.
KAUAI WAR MEMORIAL CONVENTION HALL & OFFICES	3-6-02-09	A = 60 watt Spring Lamps B= 60 watt Spring Lamps C= 25 watt CFL Lamps D= 25 watt CFL Lamps	4	A x 4 B x 22 C x 41 D x 40	Y	A = Daily B = Special Events Only C = Daily D = Evening Hours Events	A = Dusk To Dawn B = 6:00-11:30PM C = Dusk To Dawn D = 6:00-11:30PM	Liability, safety & security.	Building, parking lighting C and D under eaves.
KEKAHA LANDFILL	1-2-02-09	A = 400 watt Sodium Street Lamps B = 50 watt Sodium Recessed Blg. Lights C = 75 watt Incandescent D = HPS Lamps	4	A x 9 B x 5 C x 4 D x 3	A = Dec.- Mar. Mornings, B- D = All Week	Daily	Dusk To Dawn	Liability, safety & security.	All facility lights are fully shielded.
KOLOA NEIGHBORHOOD CENTER	2-8-08-17	A = 150 watt HPS Parking Lights B = Fluorescent Exterior Security Lights	4	A x 5 B x 16	Y	Daily	Dusk To Dawn	Liability, safety & security.	All facility lights are fully shielded.
LIHUE AUTO MAINTENANCE GARAGE/OFFICE	3-8-05-17	Sodium Security Lights	4	5	Y	Daily	Dusk To Dawn	Liability, safety & security.	
LIHUE TENNIS COURT - TENNIS SHELTER	3-6-02-10	1000 watt Incandescent	4	12	Y	Daily	6:00 PM To 10:00PM; Off During Fledgling Season	Liability, safety & security.	Tennis Court (On-Demand By User) Off During Fledgling Season
LIHUE WASTEWATER TREATMENT PLANT	3-5-01-30	A = Sodium Parking Lights B = Sodium Flood Lights C = Fluorescent Lights D = Incandescent Lights	4	A x 19 B x 9 C x 14 D x 17	N	As needed	As needed	Liability, safety & security.	A = light poles B = Shielded C & D = Under eaves.
WAILUA HOUSELOTS PARK	4-1-16-42	A = 100 watt Sodium Lamps B = 1,000 watt Metal Halide	4	A x 4 B x 12	Y	Daily	A = Dusk To Dawn B = 6:00 PM To 10:00 PM; Off During Fledgling Season	Liability, safety & security.	A = parking lots B = tennis courts (On-Demand By User) Off During Fledgling Season
WAILUA WASTEWATER TREATMENT PLANT	3-9-06-19	A = Sodium Parking Lot Lights B = Sodium Flood Lights C = Fluorescent Lights	4	A x 12 B x 2 C x 2	A and C = N B = Y	A and C = evening hours B = Daily	A & C = only during events B = Dusk To Dawn	Liability, safety & security.	
FAYE PARK (KEKAHA)	1-3-02-57	A = 1,000 watt Metal Halide B = 1,500 watt Metal Halide	5	A x 16 B x 24	Y	Daily	6:00 - 10:00 PM; Off During Fledgling Season	Liability, safety & security.	Basketball Court & Tennis Court (On-Demand By User) Softball Field (By Permit, On-Demand By User) Off During Fledgling Season
HANAPEPE STADIUM	1-9-09-01	A = 1,000 watt Metal Halide B = 1,500 watt Metal Halide	5	A x 16 B x 46	Y	Daily	6:00 PM To 10:00 PM; Off During Fledgling Season	Liability, safety & security.	Tennis Court (On-Demand By User) Field (By Permit) Off During Fledgling Season

LOCATION	TAX MAP KEY	Light Type	Assigned Category	No. of Lamps	Regular Usage	Frequency of Night Usage	Duration of Night Usage	Legal Requirement for Lighting	Notes
ISENBERG PARK	3-8-15-24	1,500 watt Metal Halide	5	40	Y	Daily	6:00 PM To 10:00 PM; Off During Fledgling Season	Liability, safety & security.	Basketball Court (On-Demand By User) Softball Field (By Permit, On-Demand By User) Off During Fledgling Season

Attachment B: Illustrates the location and characteristics of lighting at County facilities

Facility Name:

Anahola Beach Park

Facility Type:

Beach Park

Size:

Unknown

TMK Parcel No.:

4-8-14:06

Facility Lighting:

Yes

Lighting Controls:

Manual

Lighting Information:

-The comfort station is lit by interior and exterior fluorescent lights.

Anahola Beach Park Facility Sheet 2008-07-29.cdr

Facility Name:

Haena Beach Park

Facility Type:

Beach Park

Size:

Unknown

TMK Parcel No.:

Unknown

Facility Lighting:

Yes

Lighting Controls:

Manual

Lighting Information:

-The comfort station is lit by interior and exterior fluorescent lights.

Haena Beach Park Facility Sheet 2008-07-23.cdr

Facility Name:	TMK Parcel No.:	Lighting Information:
Hanalei Pavilion Park	5-5-002:019	-Pavilion and comfort station are lit by interior and exterior fluorescent lights.
Facility Type:	**Facility Lighting:**	
Beach Park	Yes	
Size:	**Lighting Controls:**	
Unknown	Manual	

Hanalei Pavilion 2008-07-30.cdr

Facility Name:

Hanalei Refuse Transfer Station

Facility Type:

Transfer Station

Size:

1.454 Ac.

TMK Parcel No.:

5-3-01-17

Facility Lighting:

Yes

Lighting Controls:

Manual

Lighting Information:

-The compactor area, comfort station and sheds have external lighting.

Hanalei Refuse Transfer Station 2009-08-31.cdr

Facility Name:	TMK Parcel No.:	Lighting Information:
Kapaa Refuse Transfer Station	4-6-12:4	-Compactor, Operator's Shed and Comfort Station are all lit.
Facility Type:	**Facility Lighting:**	
Transfer Station	Yes	
Size:	**Lighting Controls:**	
12.451 Ac.	Unknown	

Kapaa Refuse Transfer Station 2009-08-31.cdr

Facility Name:
Lîhuʻe Civic Center

Facility Type:
Office Buildings

Size:
1.5369 Ac.

TMK Parcel No.:
3-6-5:27

Facility Lighting:
Yes

Lighting Controls:
Unknown

Lighting Information:
-Moʻikeha, Kapule and Piʻikoi Buildings all have area and parking lighting.

Lihue Civic Center 2009-08-31.cdr

Facility Name:	TMK Parcel No.:	Lighting Information:
Lydgate Park	3-9-60:01	-Lydgate park consists of a complex of comfort stations, picnic shelters, pavilions, and ocean pools connected by bike/jogging paths.
Facility Type:	**Facility Lighting:**	
Regional Park (Type I)	Yes	
Size:	**Lighting Controls:**	
57.85 Ac.	Staff Operated	

Lydgate Park 2008-08-04.cdr

Facility Name:

Wai'oli Town Park

Facility Type:

Neighborhood Park (Type IV)

Size:

24.2 Ac.

TMK Parcel No.:

5-5-06:08

Facility Lighting:

Yes

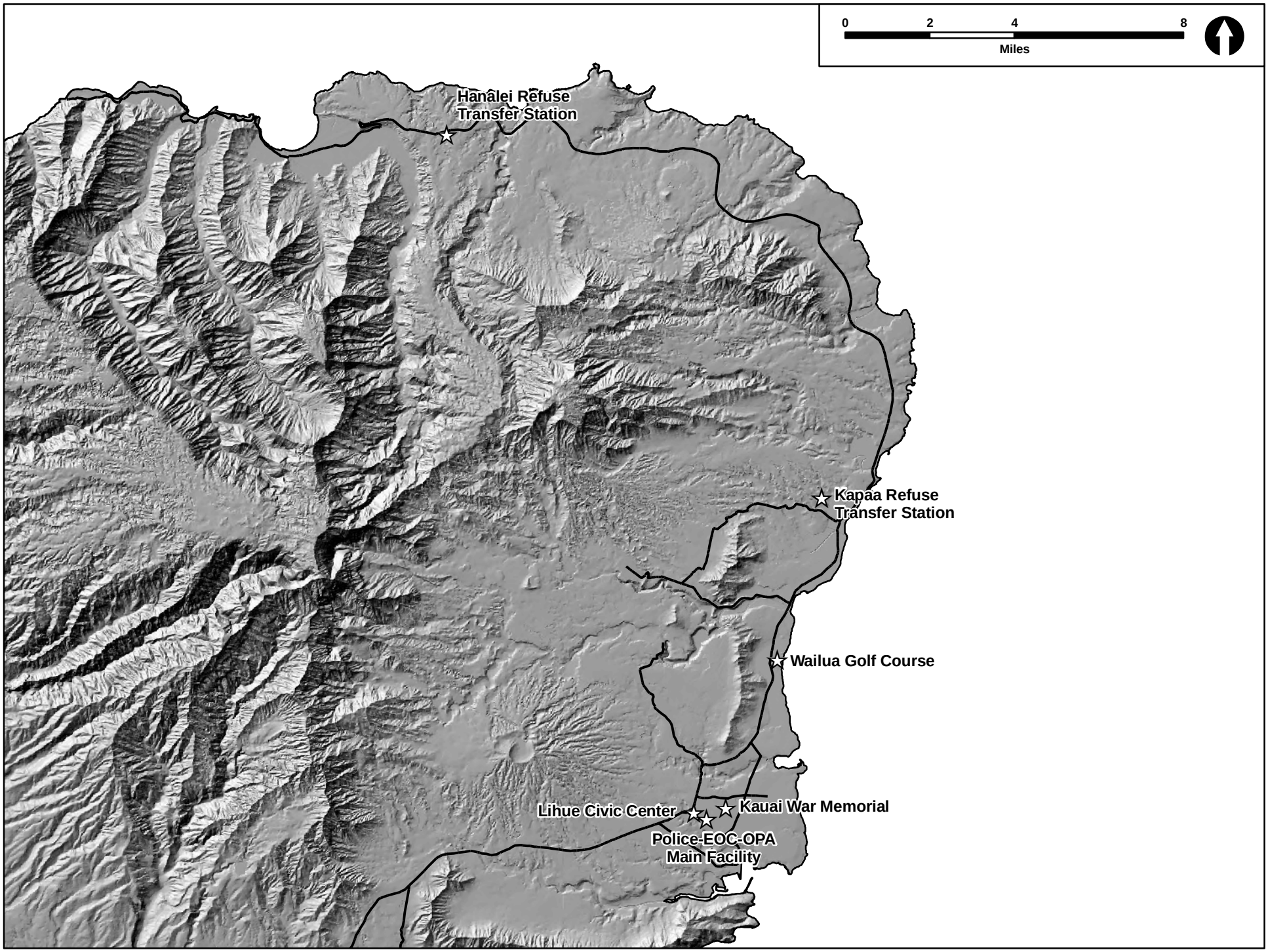
Lighting Controls:

n/a

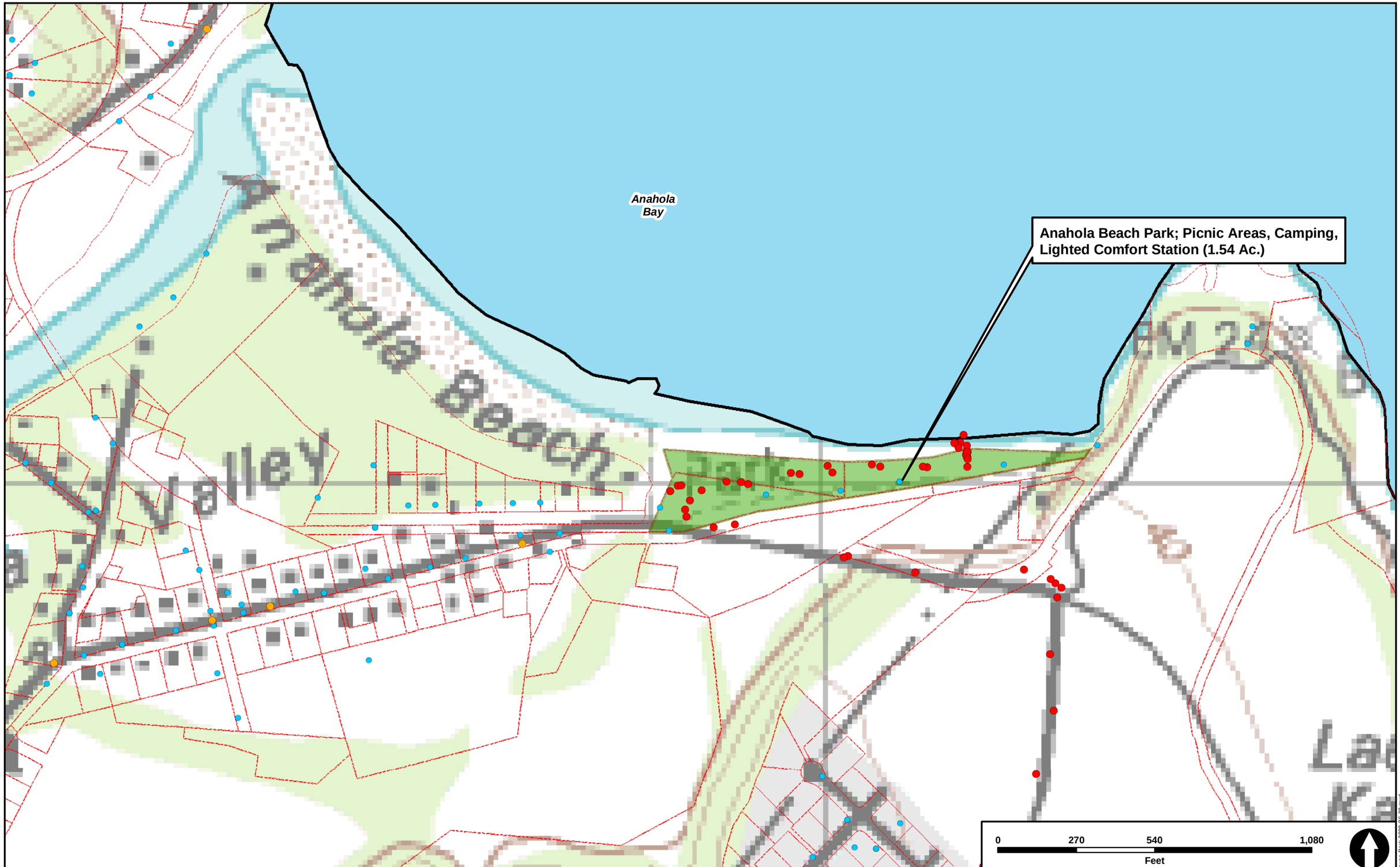
Lighting Information:

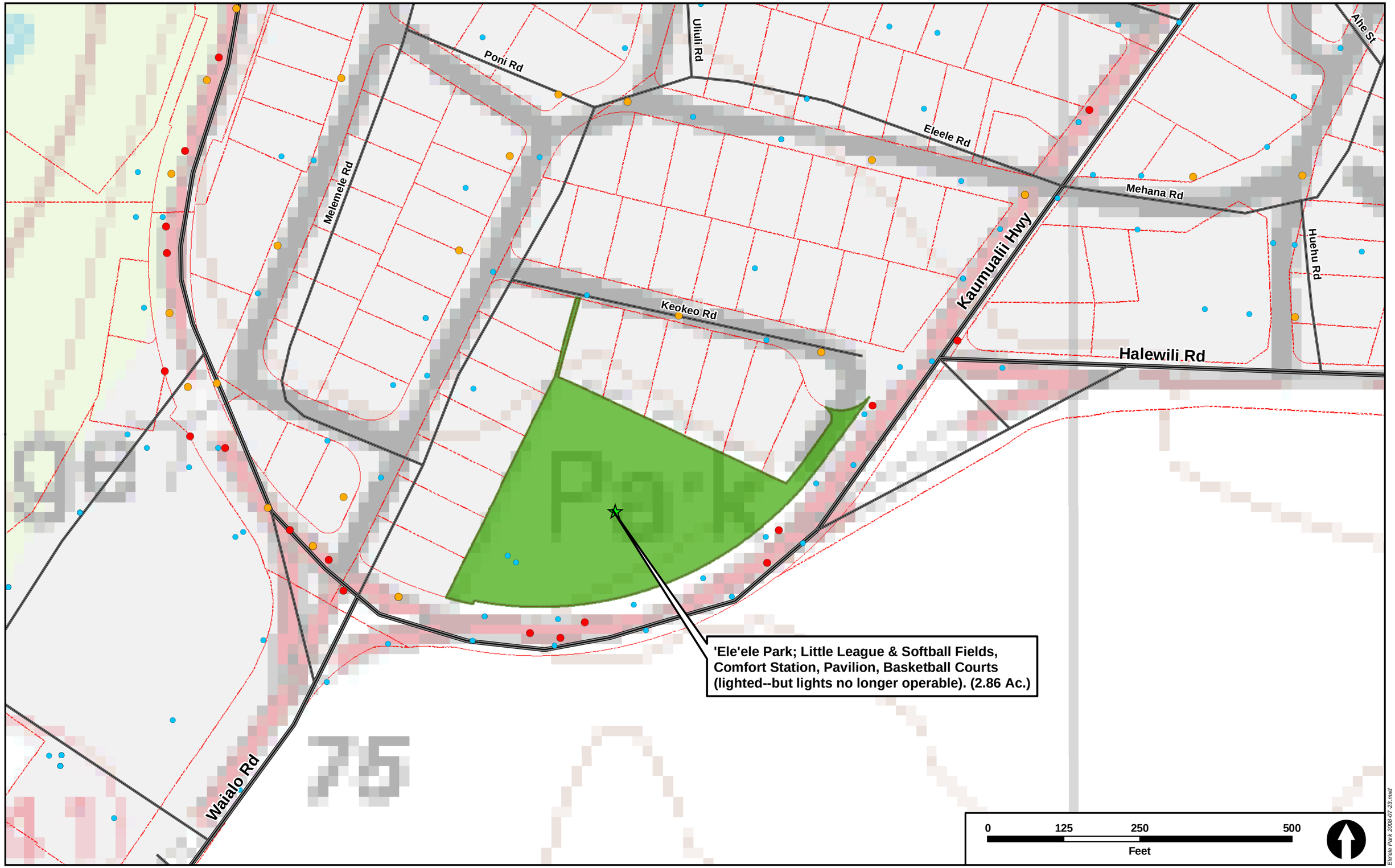
-The basketball court and soccer field are now unlit. The poles were removed in February, 2016.

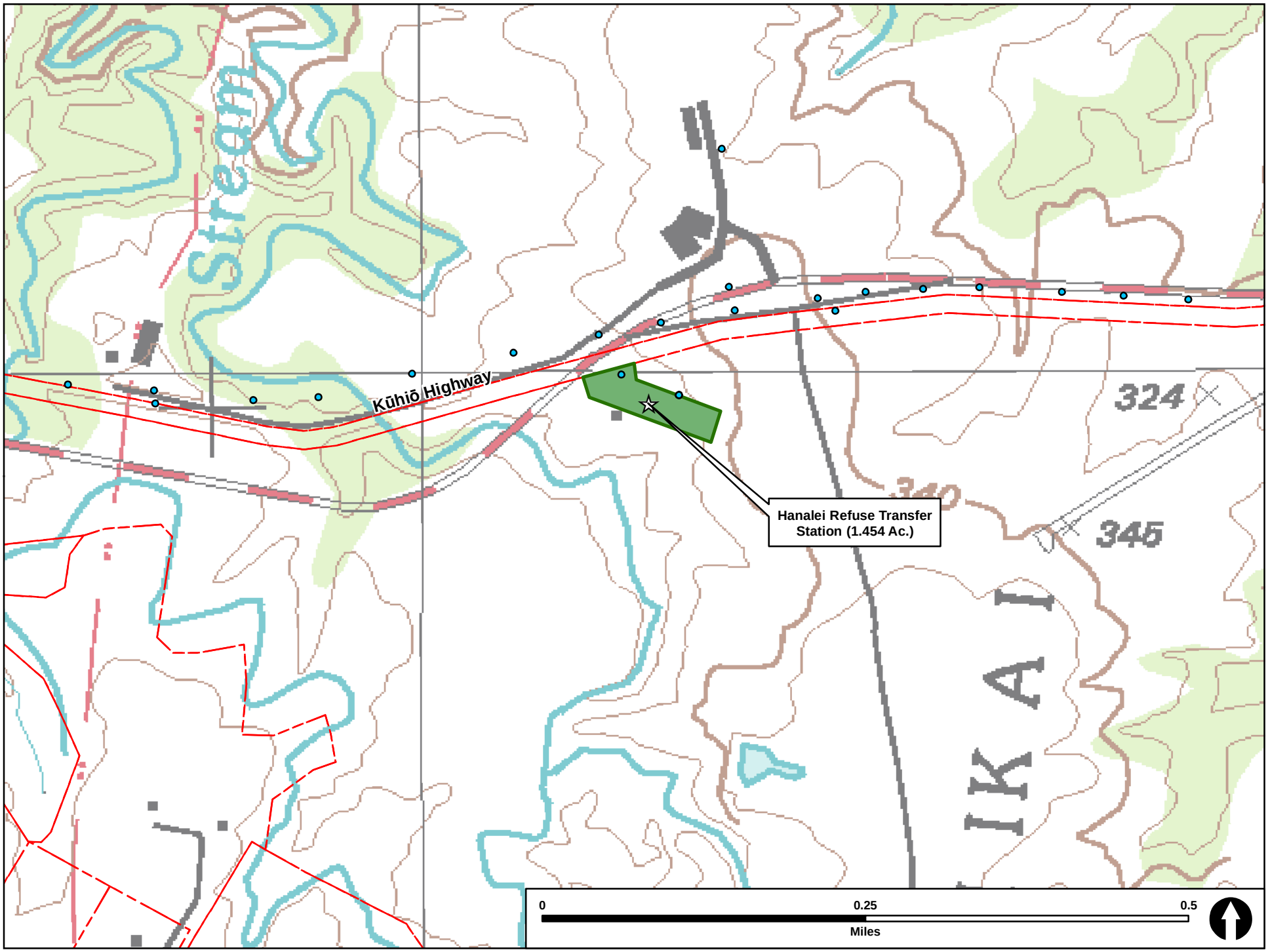
Waioli Town park 2016-08-02.cdr



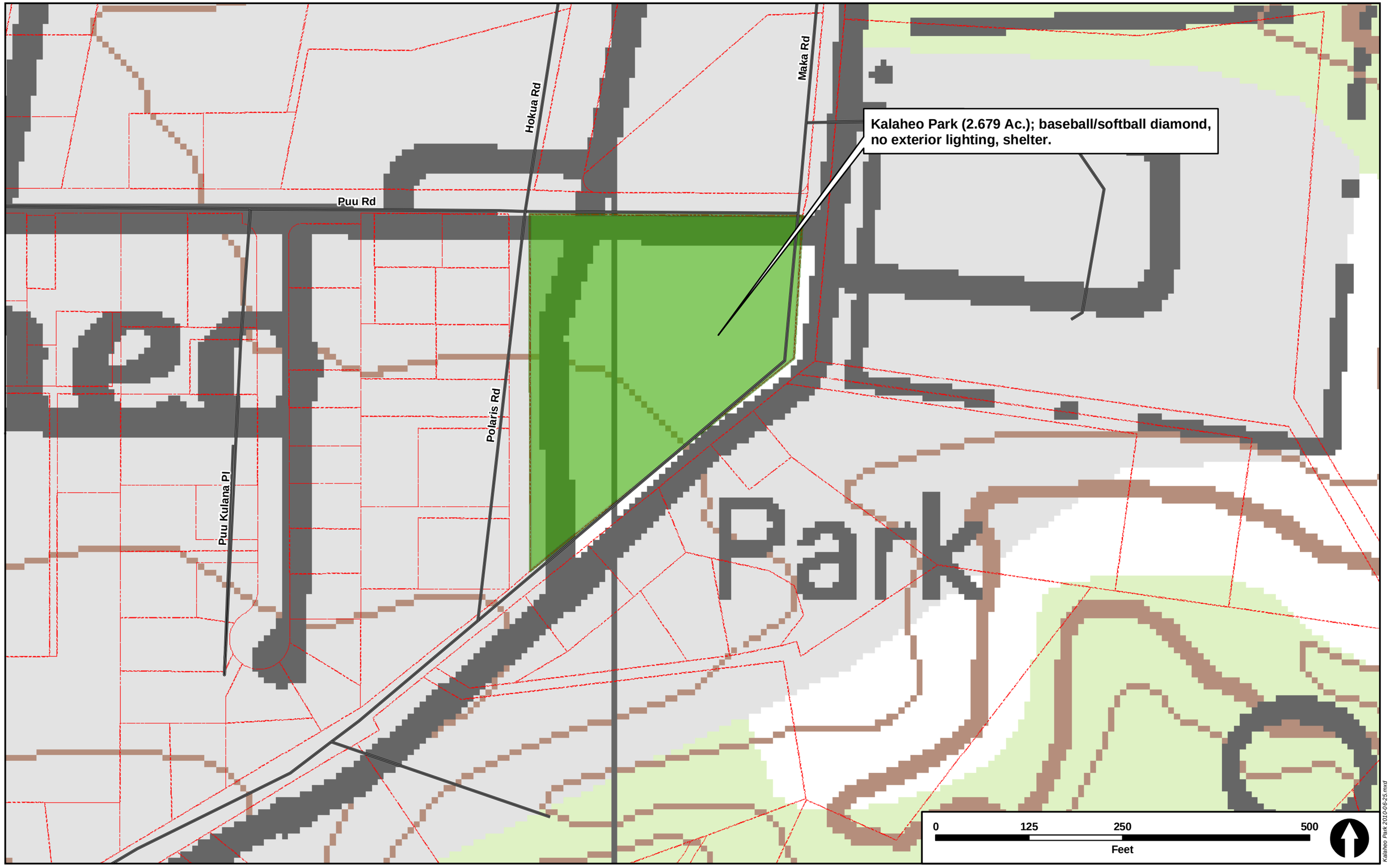
Kauai County Other Lighted Facilities 2009-03-12.mxd

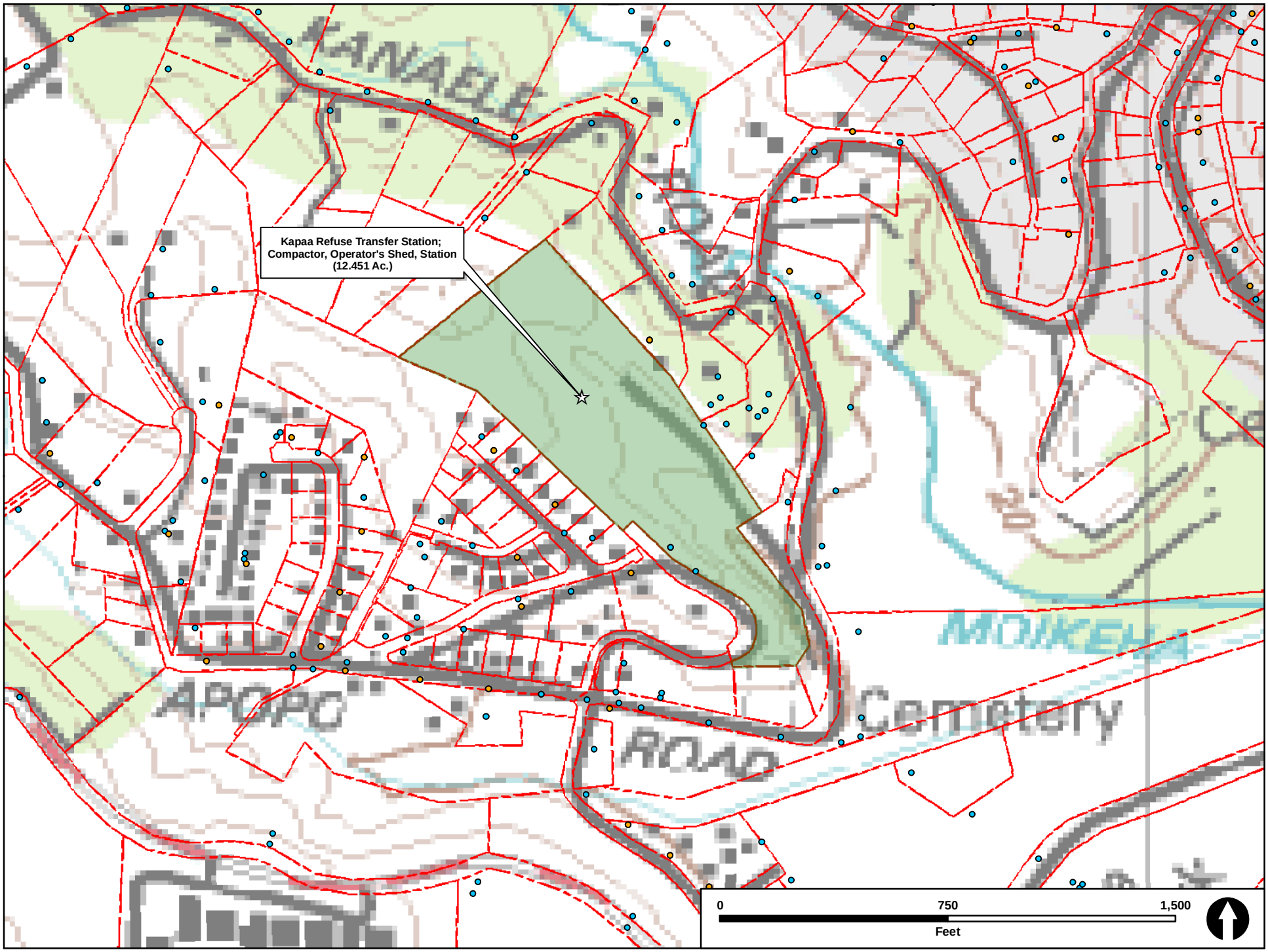

Anahola Bay
Anahola Beach Park; Picnic Areas, Camping, Lighted Comfort Station (1.54 Ac.)
Anahola Beach
Valley
0
270
540
1,080
Feet
Kilauea Park 2008-06-20.mxd


Poni Rd
Ululi Rd
Eleele Rd
Ahe St
Mehana Rd
Melemele Rd
Kaumualii Hwy
Huehu Rd
Keokeo Rd
Halewili Rd
Waialo Rd
'Ele'ele Park; Little League & Softball Fields, Comfort Station, Pavilion, Basketball Courts (lighted--but lights no longer operable). (2.86 Ac.)
0
125
250
500
Feet
Ele'ele Park 2008-07-23.mxd

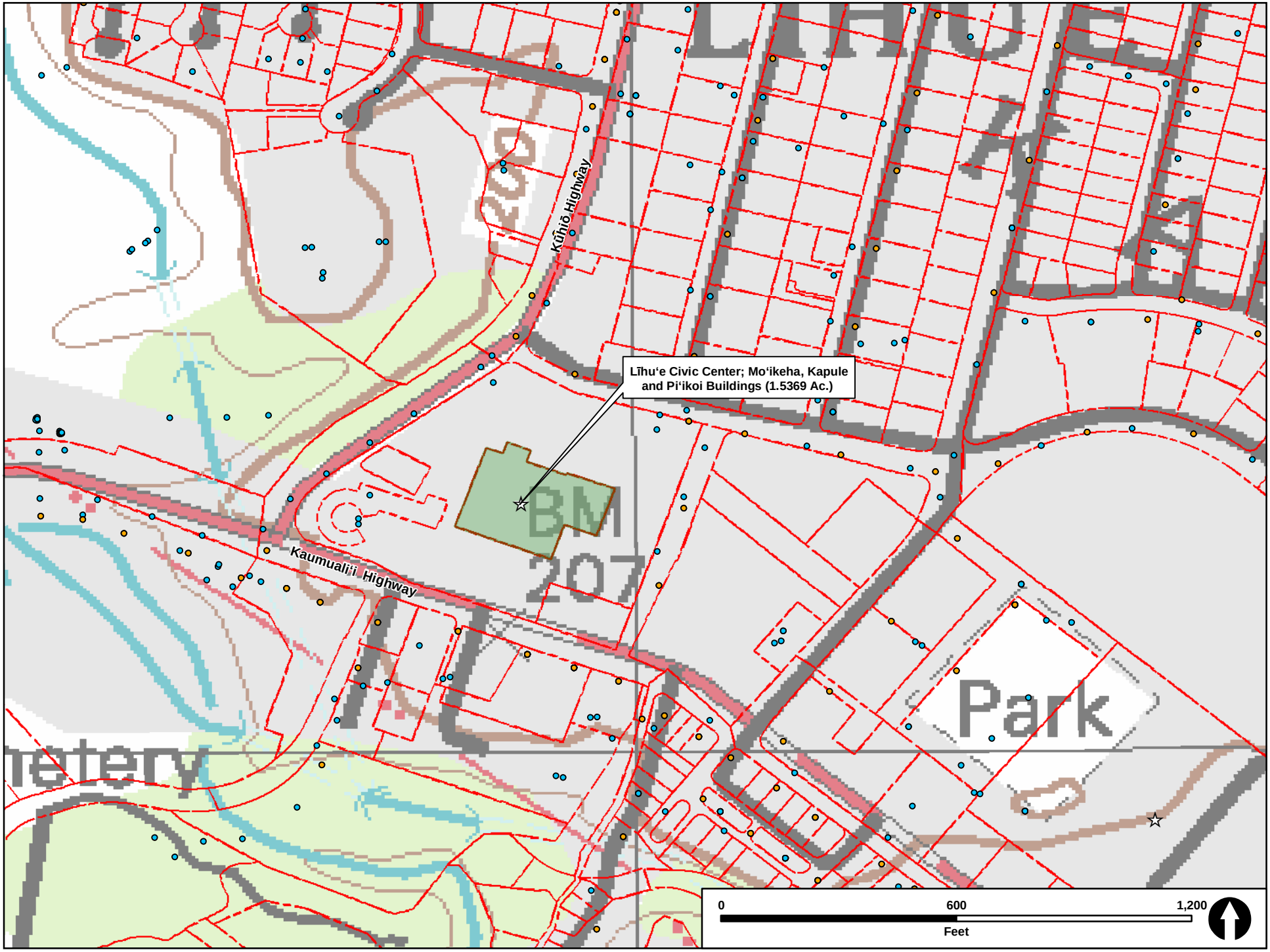


Hanalei Refuse Transfer Station.mxd

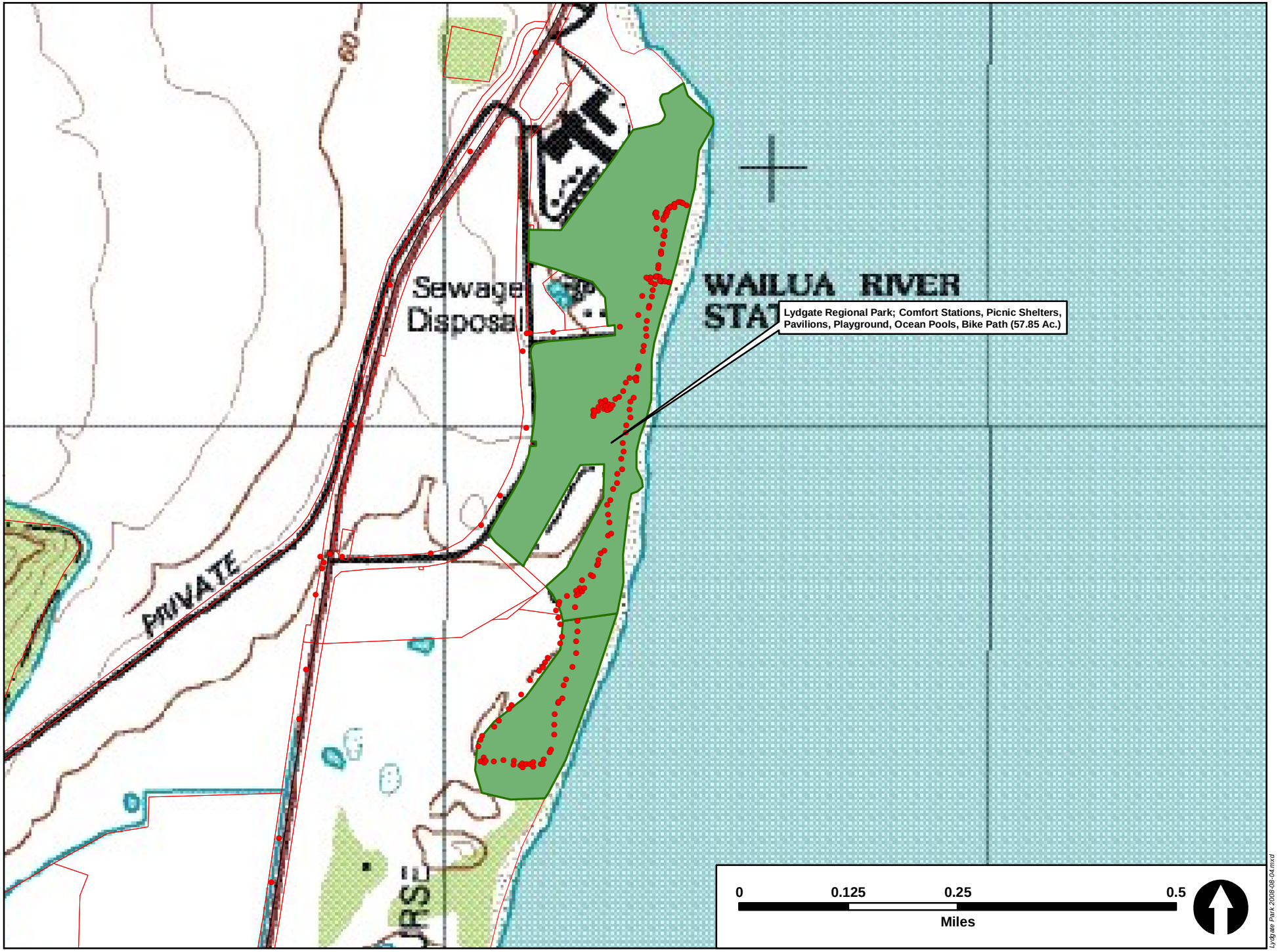

Kalaheo Park (2.679 Ac.); baseball/softball diamond, no exterior lighting, shelter.
Hokua Rd
Maka Rd
Puu Rd
Polaris Rd
Puu Kulana Pl
Park
0
125
250
500
Feet
Kalaheo Park 2010-06-25.mxd

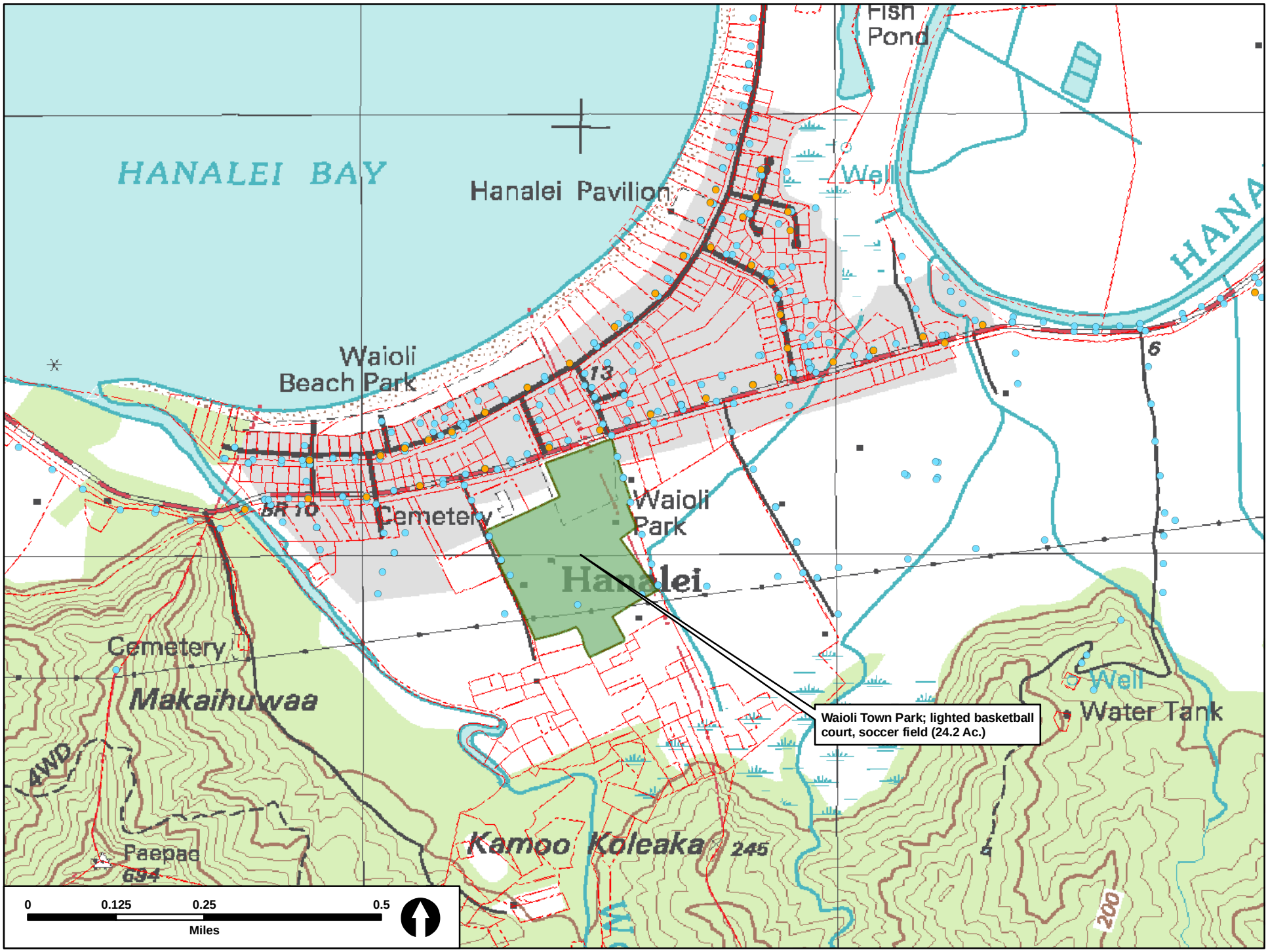


Kapaa Refuse Transfer Station 2009-08-31.mxd



Lihue Civic Center 2009-09-01.mxd


Sewage
Disposal
WAILUA RIVER
STAT
Lydgate Regional Park; Comfort Stations, Picnic Shelters, Pavilions, Playground, Ocean Pools, Bike Path (57.85 Ac.)
PRIVATE
0
0.125
0.25
0.5
Miles
Lydgate Park 2008-08-04.mxd



Survey of Kauai County Parks 2008-08-06.mxd

Facility Name:

Anahola Village Park

Facility Type:

Neighborhood Park (Type IV)

Size:

6.99 Acres

TMK Parcel No.:

4-8-09:01

Facility Lighting:

Yes

Lighting Controls:

Programmed online with a one-hour manual switch also.

Lighting Information:

-Pavilion and comfort station have external and internal fluorescent lighting.

-Basketball court has two poles with two fixtures each; all are shielded.

-Play field and playground are unlit.

Anahola Village Park Facility Sheet 2016-08-02.cdr

Facility Name:	TMK Parcel No.:	Lighting Information:
Ele'ele Sewage Treatment Plant	2-1-01:43	-14 x Sodium Parking Lights
Facility Type:	**Facility Lighting:**	-4 x Sodium Flood Lights
Sanitation	Yes	-6 x Exterior Wall Fixtures
Size:	**Lighting Controls:**	
4.7 Ac.	Unknown	

Ele'ele Sewage Treatment Plant 2010-03-29.cdr

Facility Name:

Kapa'a New Base Yard

Facility Type:

Base Yard

Size:

8 Ac.

TMK Parcel No.:

4-5-15:04

Facility Lighting:

Yes

Lighting Controls:

6:00PM-6:00AM

Lighting Information:

-26 x 9 watt Compact Fluorescent Lights

-3 x 27 watt Compact Fluorescent Lights

-4 x 150 watt High Pressure Sodium Lights

-Lights are in use all week, from dusk until dawn.

Kapaa New Base Yard 2010-03-25.cdr

Facility Name:
Kauai War Memorial Convention Hall

Facility Type:
Convention Hall & Office Building

Size:
9.043 Ac.

TMK Parcel No.:
3-6-2:9

Facility Lighting:
Yes

Lighting Controls:
Unknown

Lighting Information:
-Convention hall, office buildings, office trailers and parking all have area lighting.

Kauai War Memorial Convention Hall 2009-08-31.cdr

Facility Name:	TMK Parcel No.:	Lighting Information:
Kekaha Landfill	1-2-02:09	-9 x 400 watt Sodium Parking Lights
Facility Type:	**Facility Lighting:**	-5 x 50 watt Recessed Sodium Building Lights
Sanitation	Yes	-5 x 75 watt Incandescent Lights
Size:	**Lighting Controls:**	-3 x High Pressure Sodium Lights
35.67 Ac.	Unknown	-Lights are in use all week, from dusk until dawn.

Kekaha Landfill 2010-03-25.cdr

Facility Name:

Kôloa Neighborhood Center

Facility Type:

Community Center

Size:

0.97 Ac.

TMK Parcel No.:

2-8-08:17

Facility Lighting:

Yes

Lighting Controls:

7:00PM-7:00AM

Lighting Information:

-5 x 150 watt High Pressure Sodium Lights

-16 x Fluorescent Exterior Security Lights

-6 x Exterior Wall Fixtures

-Lights are on all night.

Koloa Neighborhood Center 2010-03-29.cdr

Facility Name:
Līhu'e Auto Maintenance Garage & Office

Facility Type:
Maintenance Garage

Size:
1.54 Ac.

TMK Parcel No.:
3-8-05:17

Facility Lighting:
Yes

Lighting Controls:
Unknown

Lighting Information:

-5 x Sodium Security Lights

-Lights are on nightly from sundown until sunrise.

Līhue Auto Maintenance Garage & Office 2010-03-30.cdr

Facility Name:

Līhu'e Sewage Treatment Plant

Facility Type:

Sanitation

Size:

5 Ac.

TMK Parcel No.:

3-5-01:30

Facility Lighting:

Yes

Lighting Controls:

Unknown

Lighting Information:

-19 x Sodium Parking Lights

-9 x Sodium Flood Lights

-14 x Fluorescent Lights

-17 x Incandescent Lighs

-Lights are used only as needed.

Līhue Sewage Treatment Plant 2010-03-30.cdr

Facility Name:

Līhu'e Tennis Courts & Shelter

Facility Type:

Neighborhood Park (Type IV)

Size:

1.1 Ac.

TMK Parcel No.:

3-6-02:10

Facility Lighting:

Yes

Lighting Controls:

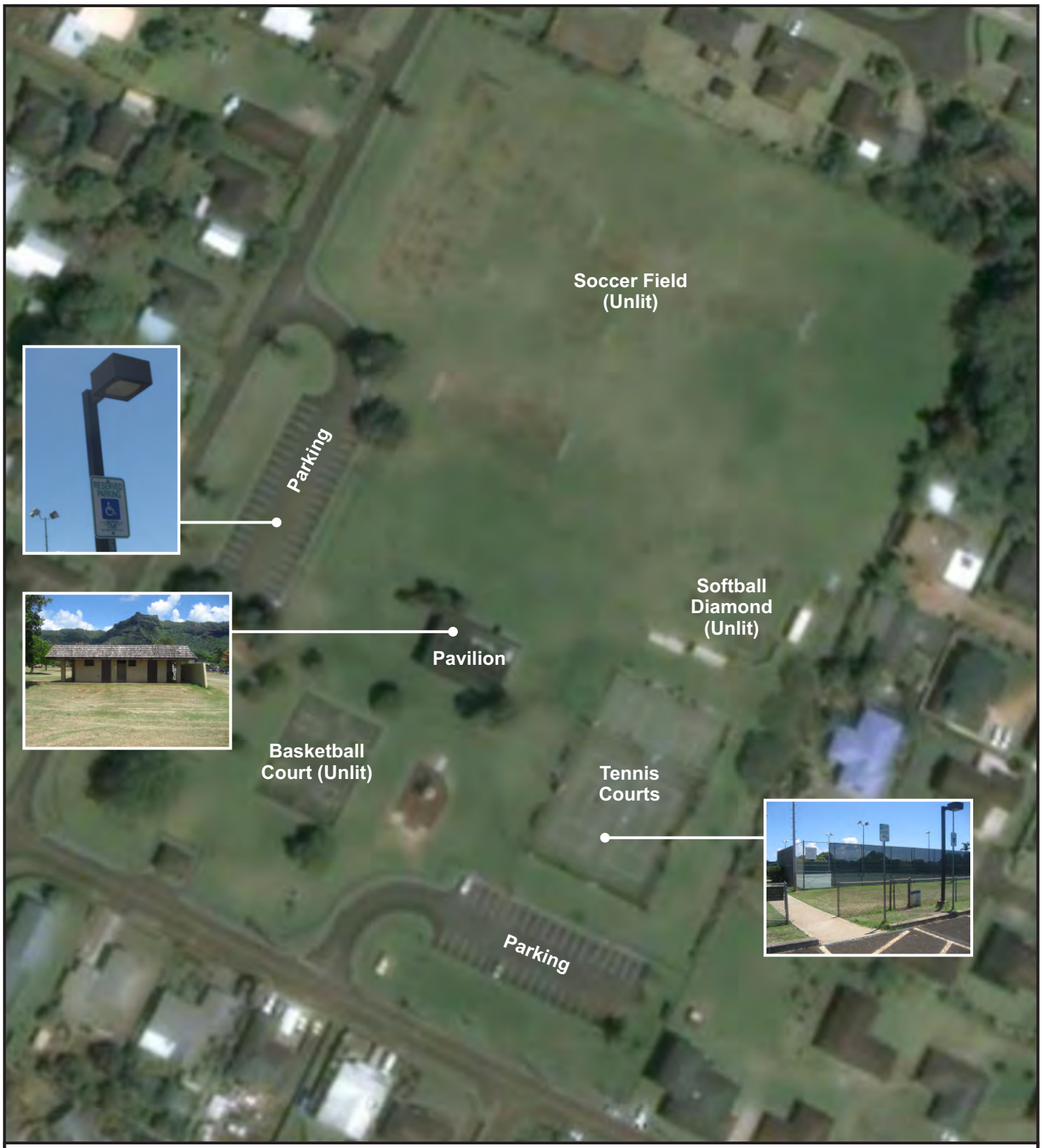
Programmed online.

Lighting Information:

-12 x 1,000 watt Court Lights

-Lights are on daily until 10:00 PM, and until 8:00 PM during fallout season.

Lihue Tennis Court & Shelter 2016-08-02.cdr



Facility Name:	TMK Parcel No.:	Lighting Information:
Wailua Houselots Park	4-1-16:42	-Parking is lit by two shielded streetlights. -11 shielded lights illuminate the tennis courts. -The comfort station and pavilion are lit by manually controlled fluorescent lights. -The basketball court, softball diamond and soccer field are unlit.
Facility Type:	**Facility Lighting:**	
Neighborhood Park (Type III)	Yes	
Size:	**Lighting Controls:**	
10.05 Acres	-Pavilion is manual; tennis court is programmed online or turned on by user. -Parking area has 10:00PM timed shut off.	

Wailua Houselots Park Facility Sheet 2016-08-02.cdr

Facility Name:

Wailua Sewage Treatment Plant

Facility Type:

Sanitation

Size:

2.03 Ac.

TMK Parcel No.:

3-9-06:19

Facility Lighting:

Yes

Lighting Controls:

Unknown

Lighting Information:

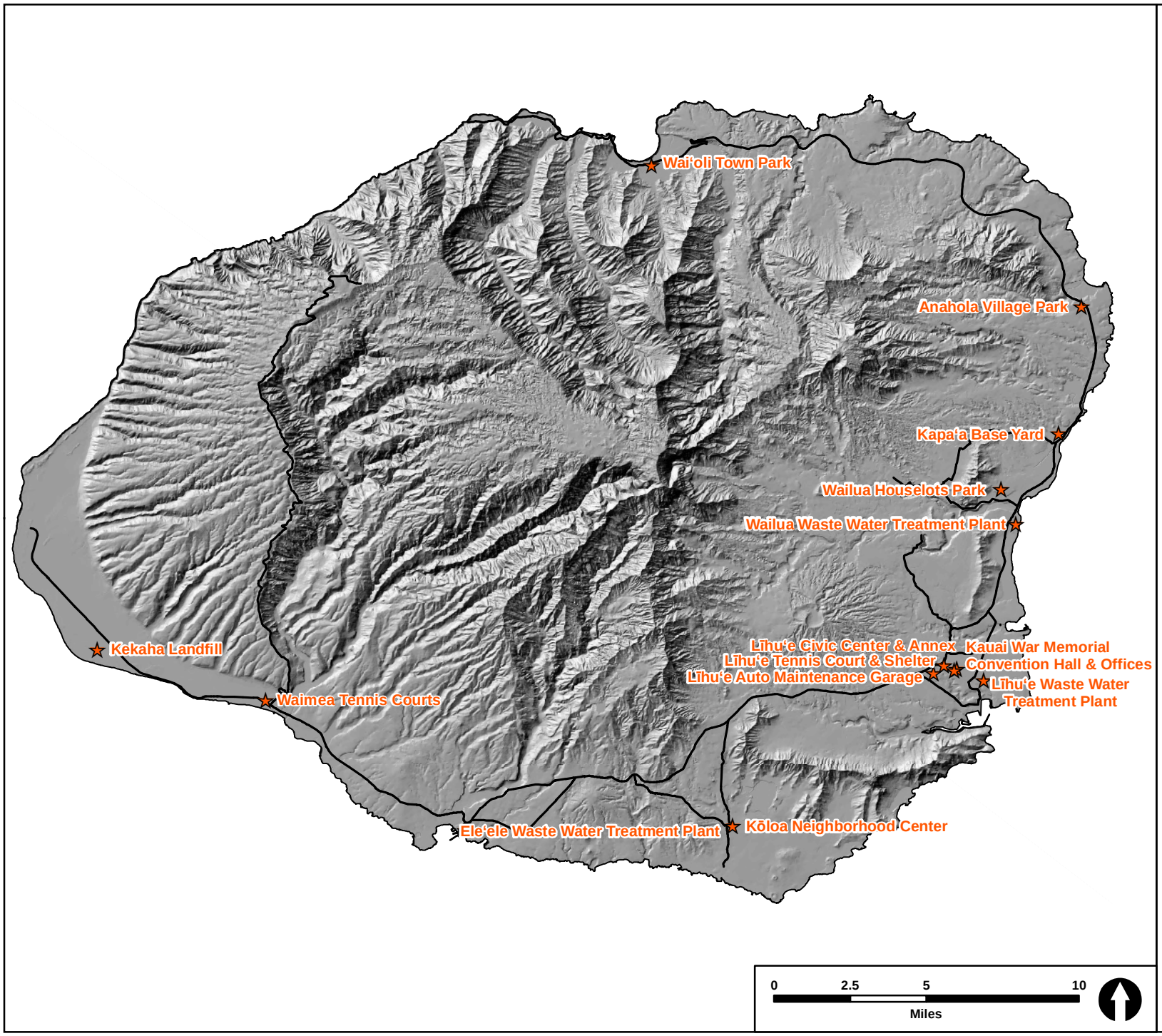
-12 x Sodium Parking Lights

-2 x Sodium Floodlights

-2 x Flourescent Building Lights

-Floodlights are on all night, all other lights are only used during emergencies or special events.

Wailua Sewage Treatment Plant 2010-03-25.cdr



Legend:

County Facilities in Category 4: Exterior Area & Court Lights

Prepared For:

County of Kauai

Prepared By:

PLANNING SOLUTIONS

Source::

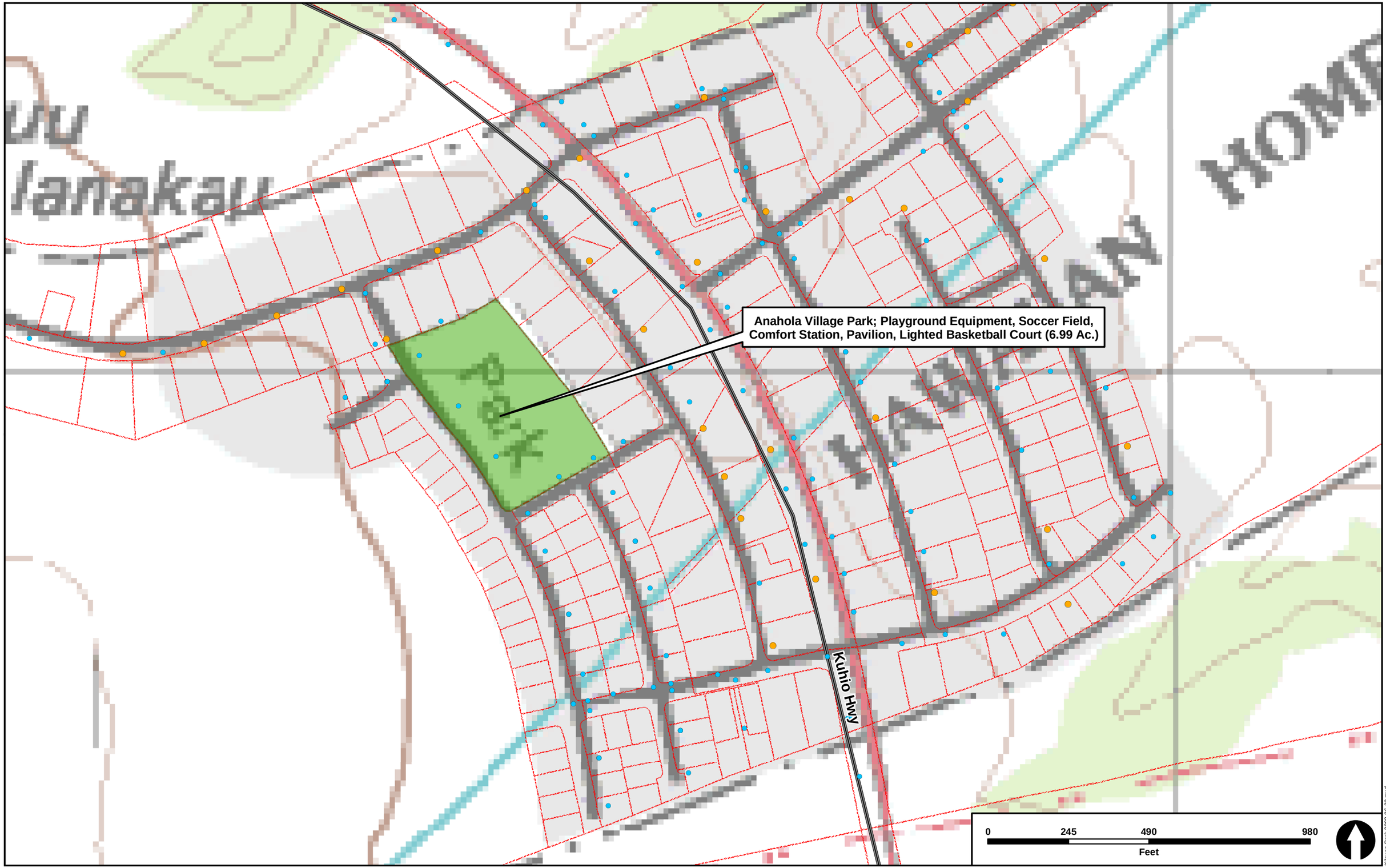
-State of Hawaii GIS
-Planning Solutions, Inc.

Figure:

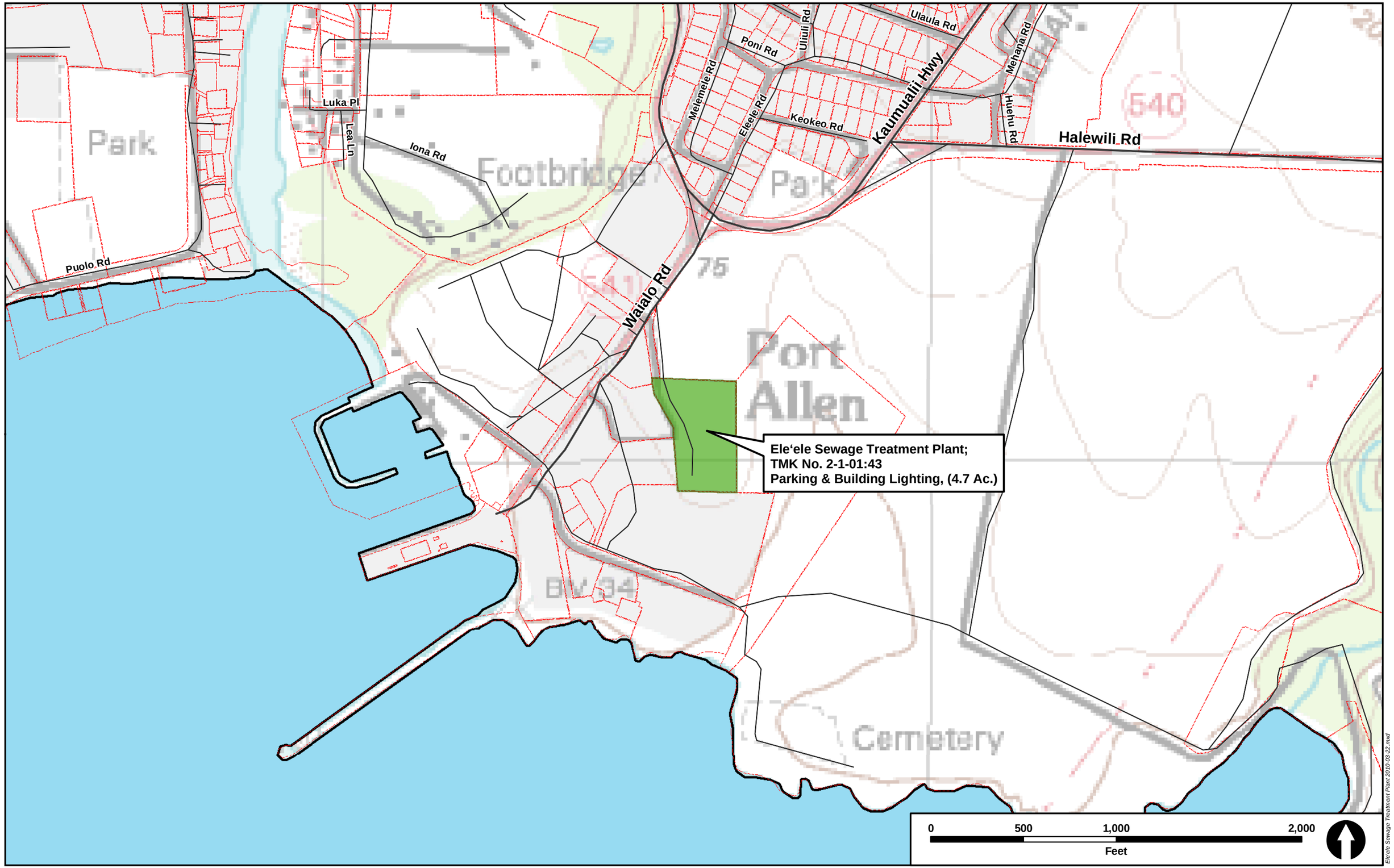
Locations of Category 4 Facilities

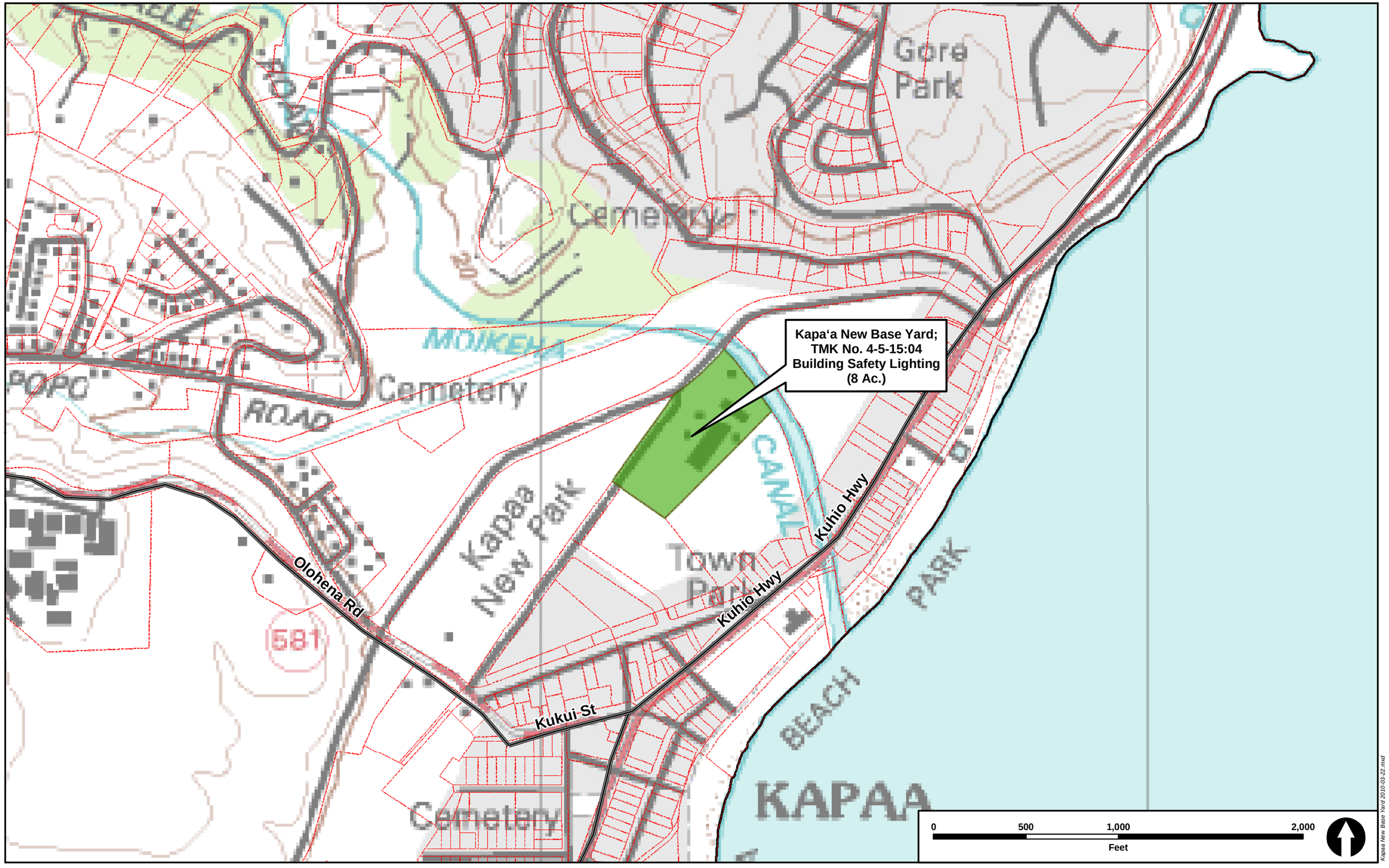
Kauai County Habitat Conservation Plan

Category 4 County Facilities 2011-01-17.mxd

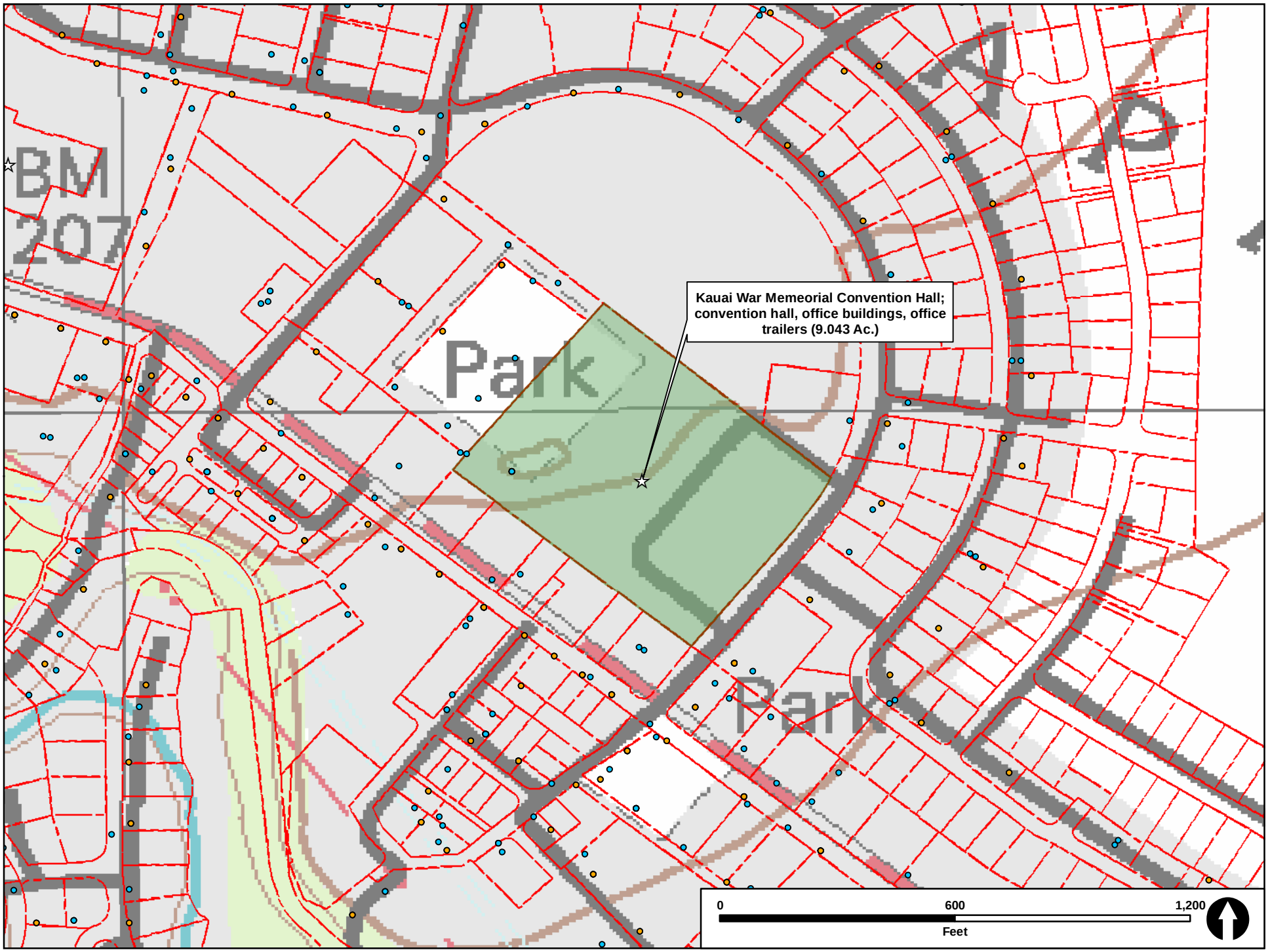


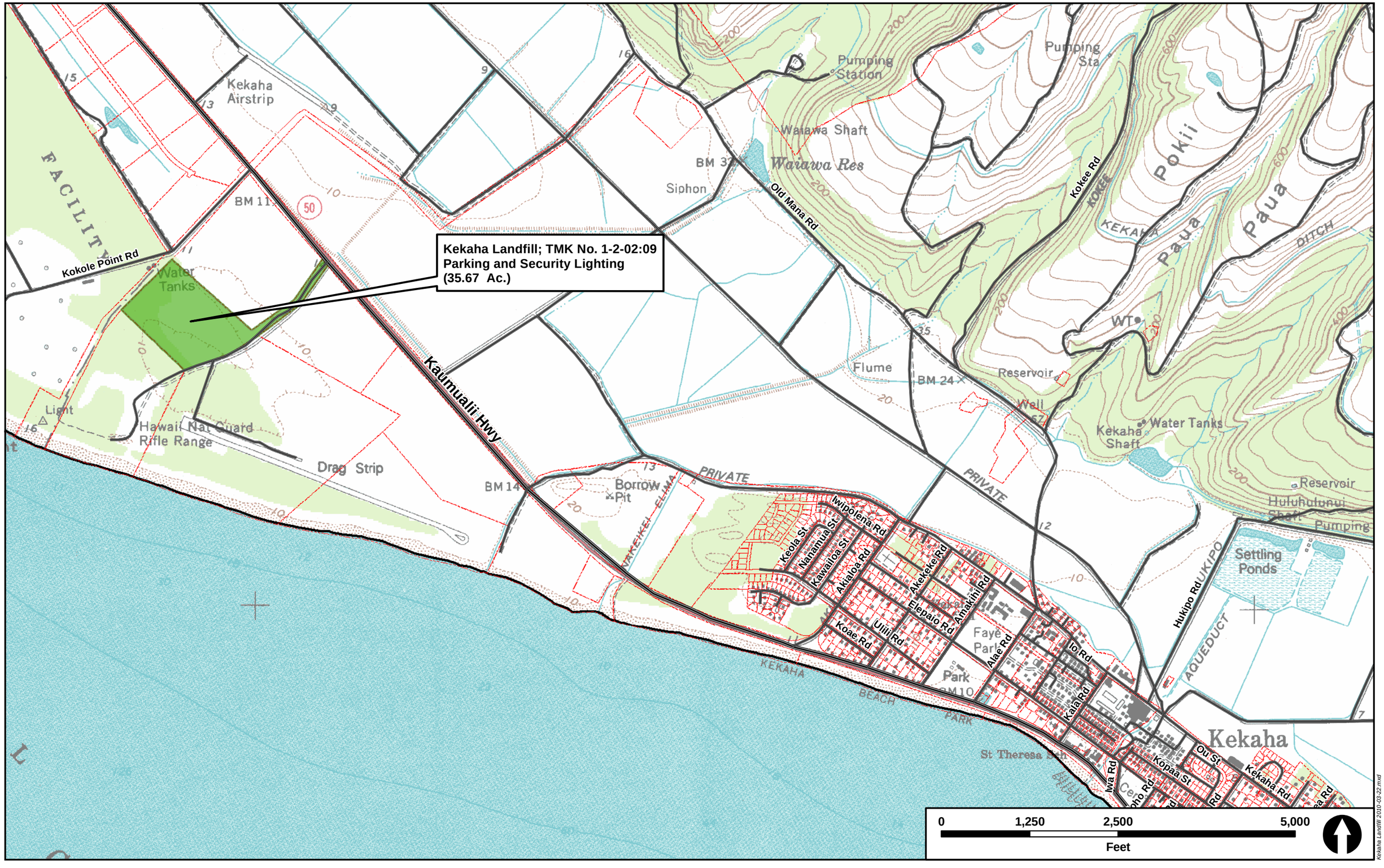
Kilauea Park 2008-06-20.mxd


Ele'ele Sewage Treatment Plant;
TMK No. 2-1-01:43
Parking & Building Lighting, (4.7 Ac.)
Park
Luka Pl
Lea Ln
Iona Rd
Footbridge
Park
Puolo Rd
Waialo Rd
Melemele Rd
Eleele Rd
Poni Rd
Uliuli Rd
Ulaula Rd
Keokeo Rd
Kaumualii Hwy
Mehana Rd
Huehu Rd
Halewili Rd
540
75
Port
Allen
BW 34
Cemetery
0
500
1,000
2,000
Feet
Ele'ele Sewage Treatment Plant 2010-03-22.mxd

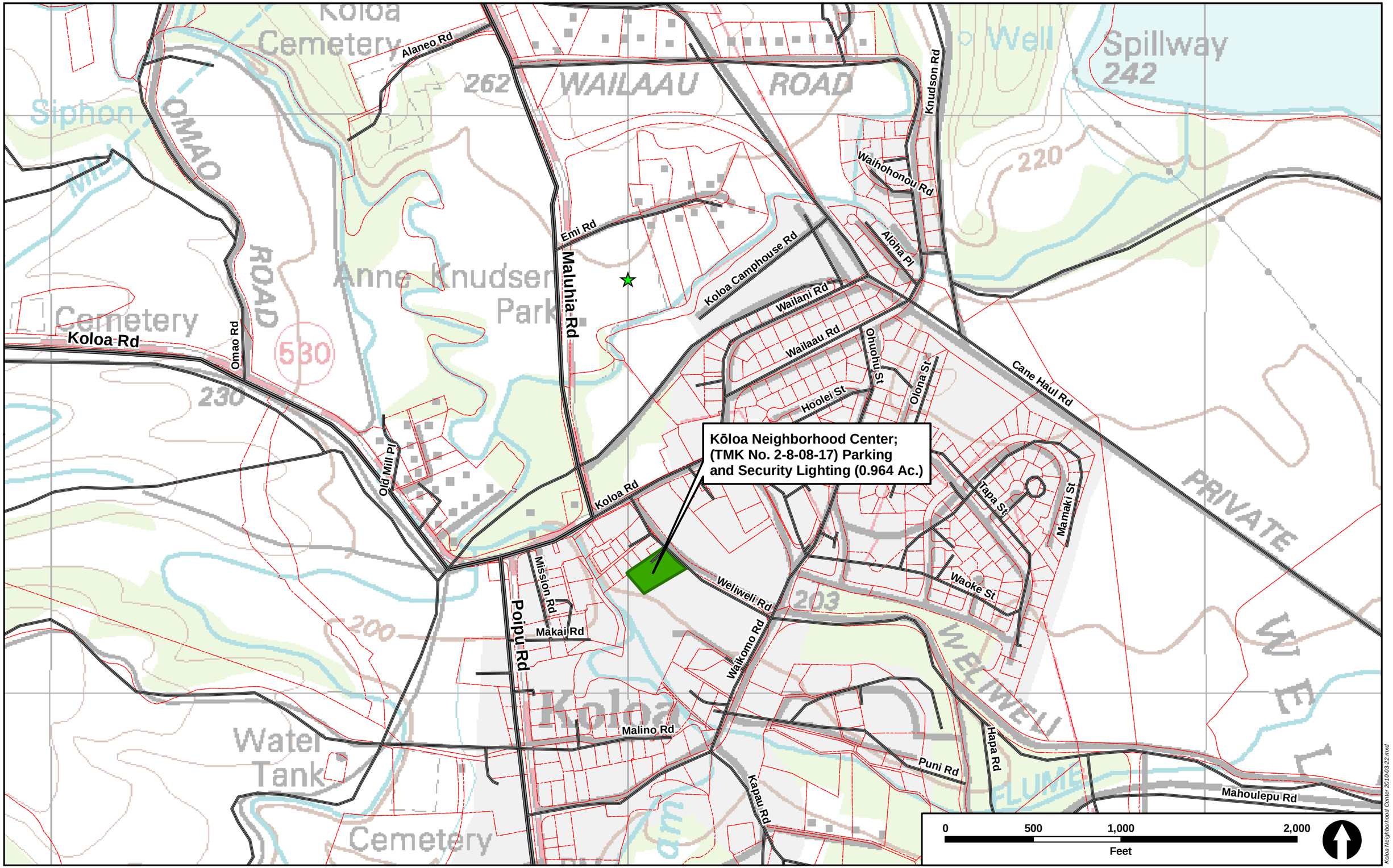


Kapaa New Base Yard 2010-03-22.mxd


Kauai War Memeorial Convention Hall; convention hall, office buildings, office trailers (9.043 Ac.)
BM
207
Park
Park
0
600
1,200
Feet
Kauai War Memorial Convention Hall 2009-08-31.mxd

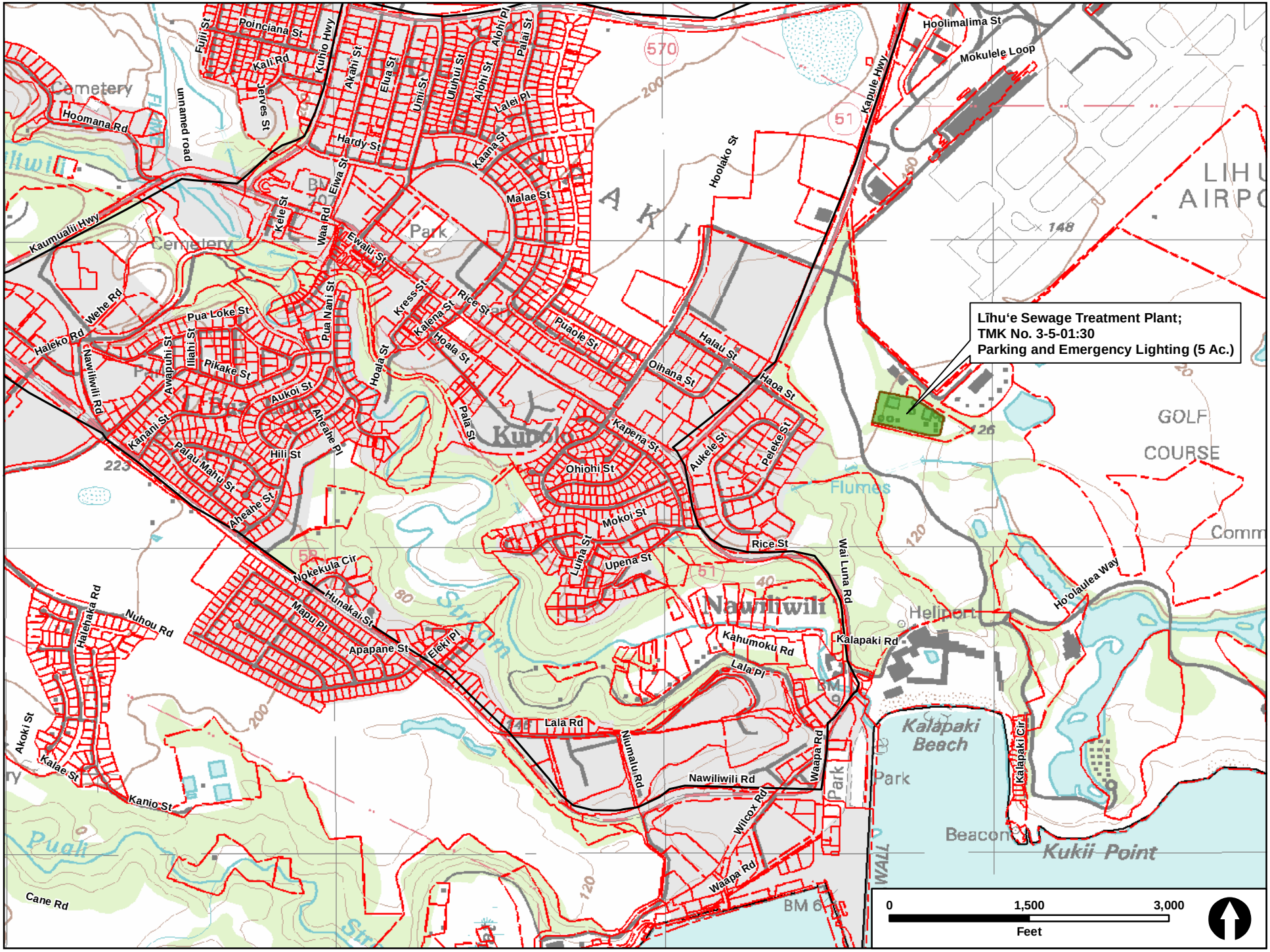


Kekaha Landfill 2010-03-22.mxd

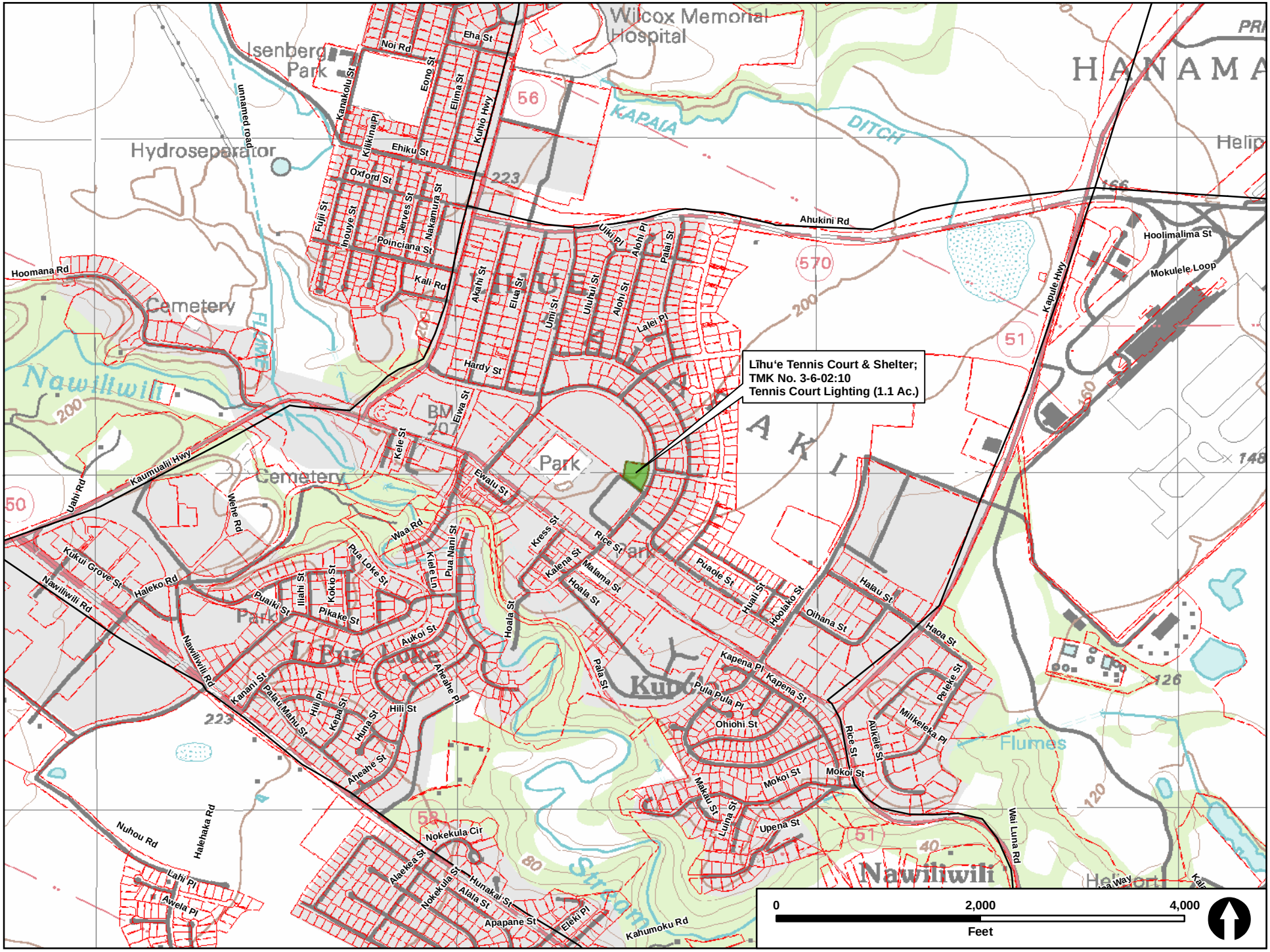


Koloa Neighborhood Center 2010-03-22.mxd

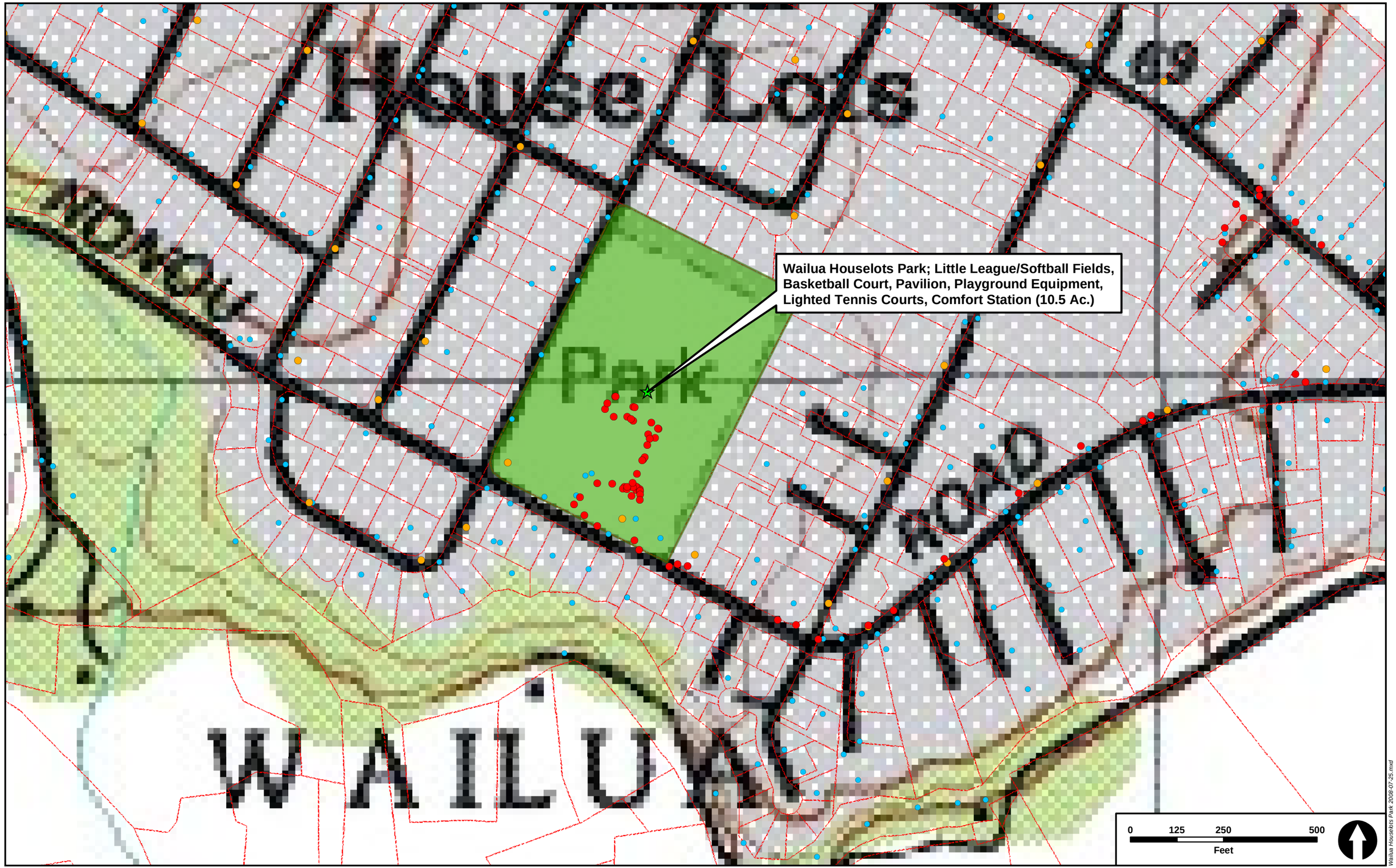
Lihue Auto Maintenance Garage 2010-03-22.mxd



LihueSewage Treatment Plant2010-03-22.mxd

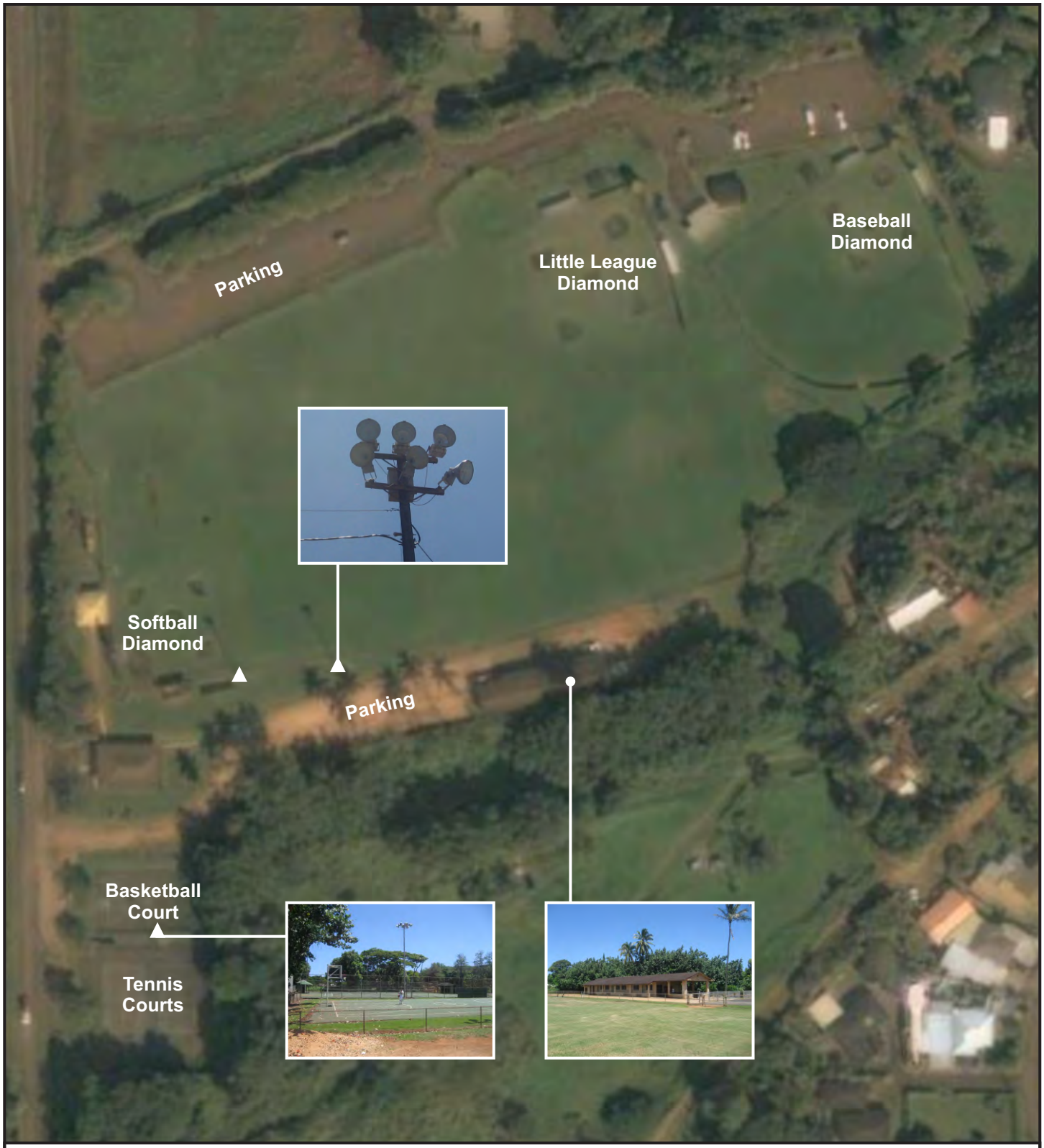


Lihue Tennis Court & Shelter 2010-03-23.mxd



Wailua Houselots Park 2008-07-25.mxd

Wailea Sewage Treatment Plant 2010-03-23.mxd



Facility Name:

Anne Knudsen Koloa Park

Facility Type:

District Park (Type II)

Size:

11.28 Acres

TMK Parcel No.:

2-8-05:04, 2-8-05:17, 18, & 19

Facility Lighting:

Yes

Lighting Controls:

-Tennis and basketball programmed online.
-Softball programmed online by permit.

Lighting Information:

-Baseball diamond is lit by 6 poles with 3-5 floodlights each.

-Softball diamond is lit by 2 poles with 6 floodlights.

-Basketball court and conjoined tennis courts are illuminated by 2 poles with 4 floodlights each, manually controlled.

-Pavilion is lit by interior and exterior fluorescent lights.

Anne Knudsen Koloa Park Facility Sheet 2016-08-02.cdr

Facility Name:

Hanapepe Park and Stadium

Facility Type:

Stadium & District Park (Type I)

Size:

14.68 Acres

TMK Parcel No.:

1-9-09:01

Facility Lighting:

Yes

Lighting Controls:

-Football field is manual by permit.
-Tennis court programmed online and manually by users.

Lighting Information:

-Football & baseball fields are each illuminated by 6 poles carrying ~14 floodlights per pole.

-Tennis courts have 6 poles with 2-4 streetlight type lights per pole.

-Comfort station, pavilion, announcer's tower, bleachers, recreation center and storerooms all have external fluorescent lighting under the eaves.

Hanapepe Park Facility Sheet 2016-08-02.cdr

Facility Name:

Isenberg Park

Facility Type:

Neighborhood Park (Type III)

Size:

9.16 Ac.

TMK Parcel No.:

3-8-15:24

Facility Lighting:

Yes

Lighting Controls:

-Softball field is manual by permit.
-Basketball court is manual.
-Parking lot is automatic.

Lighting Information:

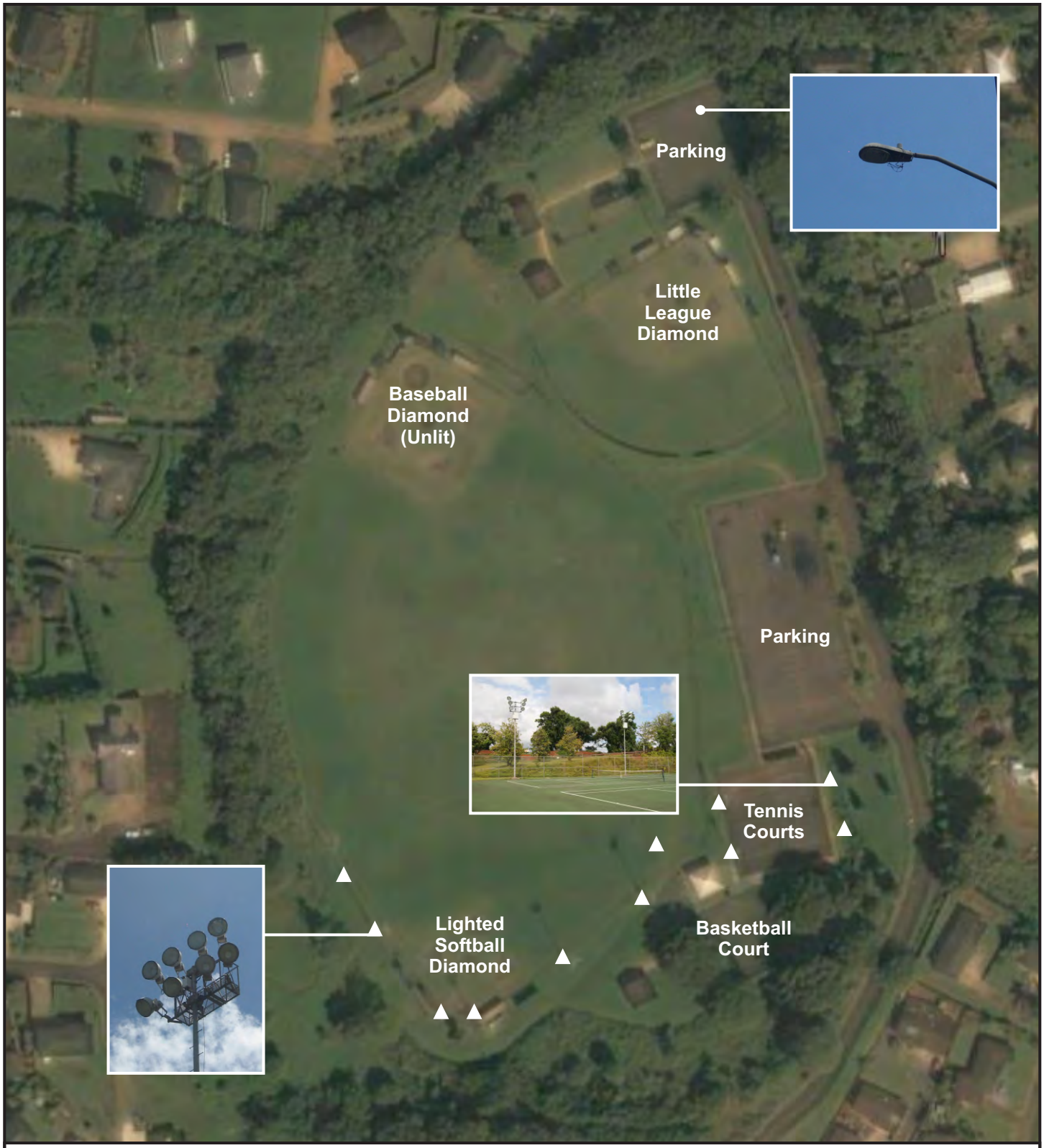
-Parking lot is lit with 5 unshielded streetlights.

-Basketball court is illuminated by 4 poles supporting 2 floodlights each.

-Baseball diamond and soccer field are lit by 8 poles with 4 to 6 floodlights each. All are unshielded.

-The rec. center and gymnasium are lit with exterior fluorescent lights.

Isenberg Park 2016-08-02.cdr



Facility Name:	TMK Parcel No.:	Lighting Information:
Kalawai Park	2-4-05:13	-Softball field is lit by 6 poles with 6-8 floodlights each.
Facility Type: District Park (Type II)	**Facility Lighting:** Yes	-Tennis court has 4 poles with 6 floodlights each.
Size: 21.04 Ac.	**Lighting Controls:** -Programmed online -Tennis on demand - Softball by permit.	-Bathrooms and 2 storerooms are lit by interior and exterior fluorescent lights.
		-Basketball court and playground equipment are unlit.
		-Access road has truncated streetlights.

Kalawai Park 2016-08-02.cdr

Facility Name:	TMK Parcel No.:	Lighting Information:
Kapaa (New) Park	4-5-15:32	-Football and soccer fields are lit by twelve towers with banks of floodlights, turned on by staff. -Tennis courts and roller hockey rink are lit by streetlight type poles with manual controls. -Pavilion is lit with manually controlled fluorescent lights. -Baseball diamond, parking and skate park are unlit.
Facility Type: District Park (Type II)	**Facility Lighting:** Yes	
Size: 18.08 Ac.	**Lighting Controls:** Basketball and tennis courts programmed online; others are manual.	

Kapaa New Park 2016-08-02.cdr

Facility Name:

Kekaha Faye Park

Facility Type:

District Park (Type II)

Size:

8.51 Ac.

TMK Parcel No.:

1-3-002:057

Facility Lighting:

Yes

Lighting Controls:

-Softball programmed online by permit.
-Basketball and tennis on demand.

Lighting Information:

-6 poles with 8-10 floodlights each illuminate the baseball diamond and are manually controlled.

-2 streetlight type poles illuminate an auxiliary parking area.

-Comfort station lit with strip fluorescent lights.

-Basketball court and football practice field are unlit.

Kekaha Faye Park 2016-08-02.cdr

Facility Name:	TMK Parcel No.:	Lighting Information:
Kilauea Park	5-2-08:54	-The softball diamond is lit by six poles supporting approximately 6 floodlights each; the seventh pole at the far end has three fixtures. -The rec. center is lit by interior and exterior fluorescent lights.
Facility Type:	**Facility Lighting:**	
District Park (Type II)	Yes	
Size:	**Lighting Controls:**	
4.93 Ac.	Manual by permit.	

Kilauea Park 2016-08-02.cdr

Facility Name:

Peter Rayno Hanamaulu Park

Facility Type:

Neighborhood Park (Type III)

Size:

3.59 Ac.

TMK Parcel No.:

3-7-003:009

Facility Lighting:

Yes

Lighting Controls:

Manually operated by staff.

Lighting Information:

-6 poles light the softball diamond; 3 poles have 3 floodlights each, and 3 have 6 floodlights each.

-The basketball court and comfort station are unlit.

Peter Rayno Hanamaulu Park 2016-08-02.cdr

Facility Name:

Vidinha Stadium

Facility Type:

Stadium & District Park (Type I)

Size:

34 Acres

TMK Parcel No.:

3-6-02:16 & 3-6-02:19

Facility Lighting:

Yes

Lighting Controls:

-Stadium and baseball field controlled by staff.
-Parking lighting is automatic.

Lighting Information:

-Parking area has 23 poles with streetlight-type lighting, with 1-2 lights per pole.

-Stadium has six large poles with 18 floodlights each.

-Entrance lighting consists of 6 lights contained within a tinted plexiglass lampshade.

-The stadium building is lit with external and internal fluorescent lights, seven per side.

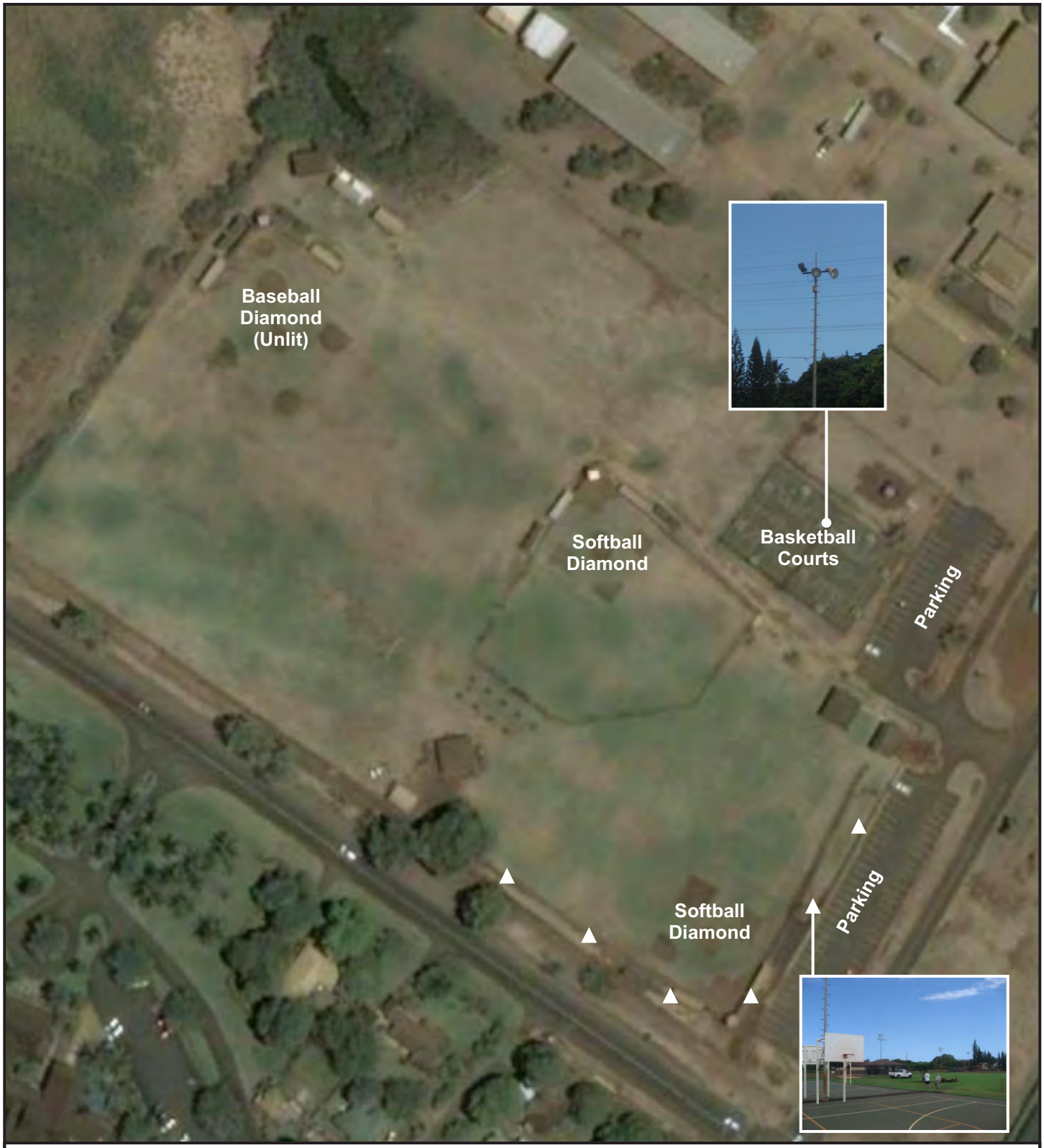
Vidinha Stadium Facility Sheet 2016-08-02.cdr

Facility Name:	TMK Parcel No.:	Lighting Information:
Wailua County Golf Course	3-9-2:4 & 3-9-5:1	-Lit facilities at Wailua County Golf Course include the clubhouse, rental shed, cart barn, starter's shed, maintenance building, score board.
Facility Type:	**Facility Lighting:**	
Golf Course	Yes	
Size:	**Lighting Controls:**	
131.66 Ac.	Staff Operated	

Wailua Golf Course 2016-08-05.cdr

Facility Name:	TMK Parcel No.:	Lighting Information:
Wailua Homesteads Park	4-2-03:18	-Two shielded streetlight type poles illuminate the parking area. -Tennis court is lit by 9 poles with a total of 12 shielded lights. -Comfort station and pavilion have internal and external fluorescent lighting. -Tennis court and pavilion can be turned on manually by user. -Basketball court is unlit.
Facility Type:	**Facility Lighting:**	
Neighborhood Park (Type III)	Yes	
Size:	**Lighting Controls:**	
16.63 Acres	Programmed Online and Manual	

Wailua Homesteads Park Facility Sheet 2016-08-02.cdr



Facility Name:

Waimea Athletic Field Park

Facility Type:

District Park (Type II)

Size:

11.73 Ac.

TMK Parcel No.:

1-2-06:38

Facility Lighting:

Yes

Lighting Controls:

-Softball by permit.
-Basketball on demand.
-All others programmed online.

Lighting Information:

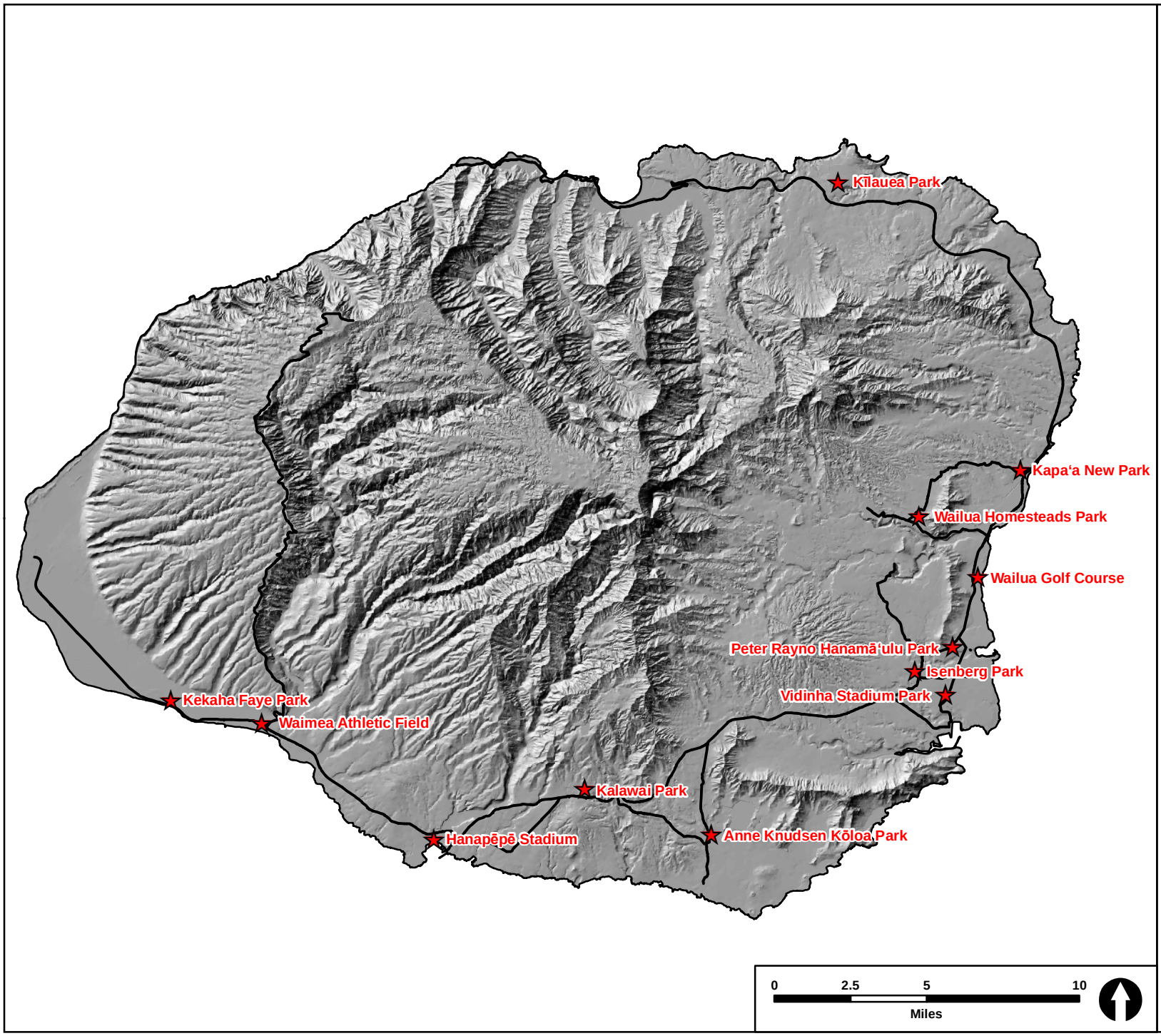
-Softball diamond is lit with 6 poles of 2-6 floodlights each.

-Basketball court is illuminated by 4 poles with 2 street-lights each.

-Comfort station and pavilion are lit with strip fluorescent lighting.

-Other facilities are unlit.

Waimea Athletic Field 2016-08-02.cdr



Legend:

County Facilities in Category 5: Field & Stadium Lighting

Prepared For:

County of Kauai

Prepared By:

PLANNING SOLUTIONS

Source::

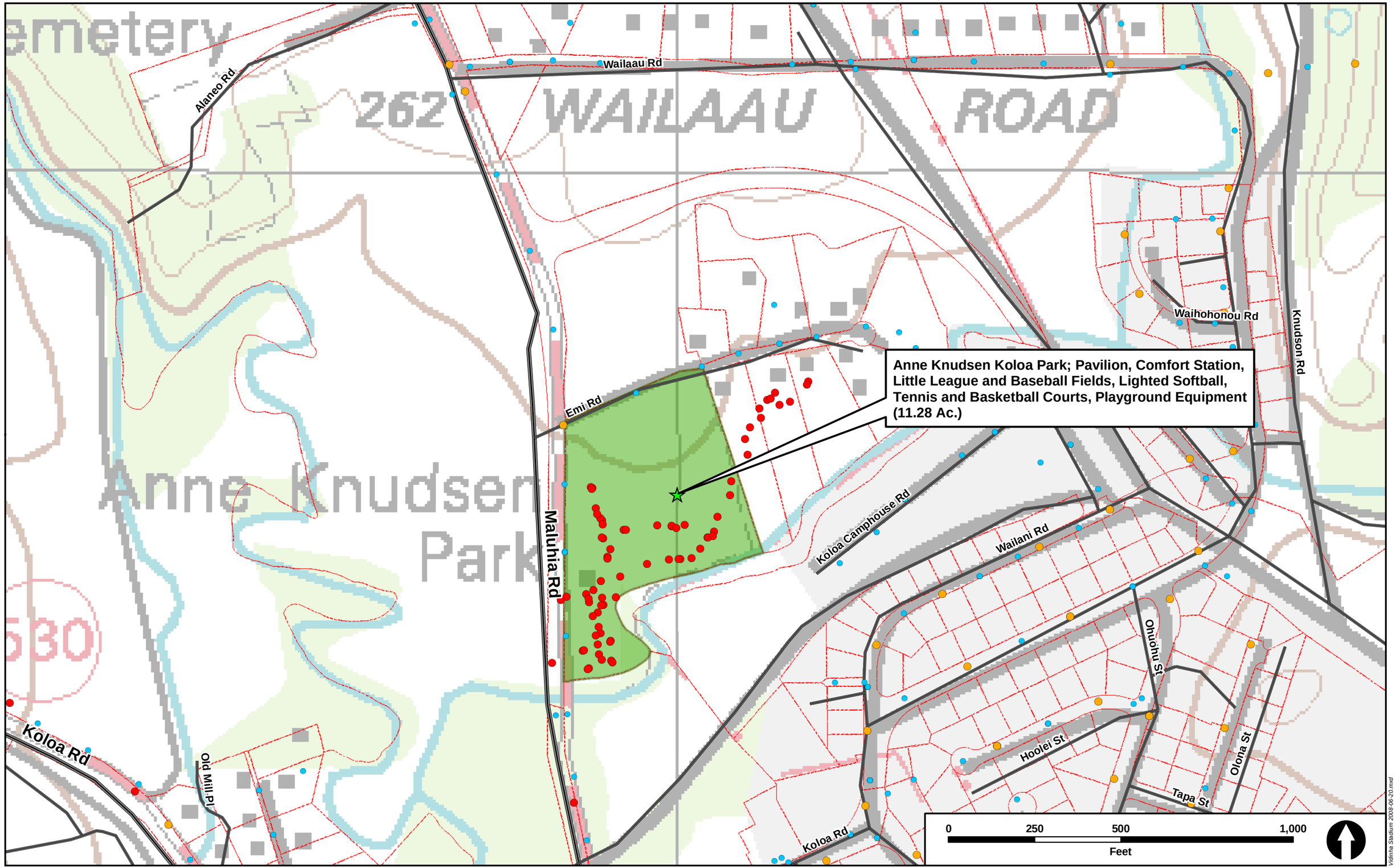
-State of Hawaii GIS
-Planning Solutions, Inc.

Figure:

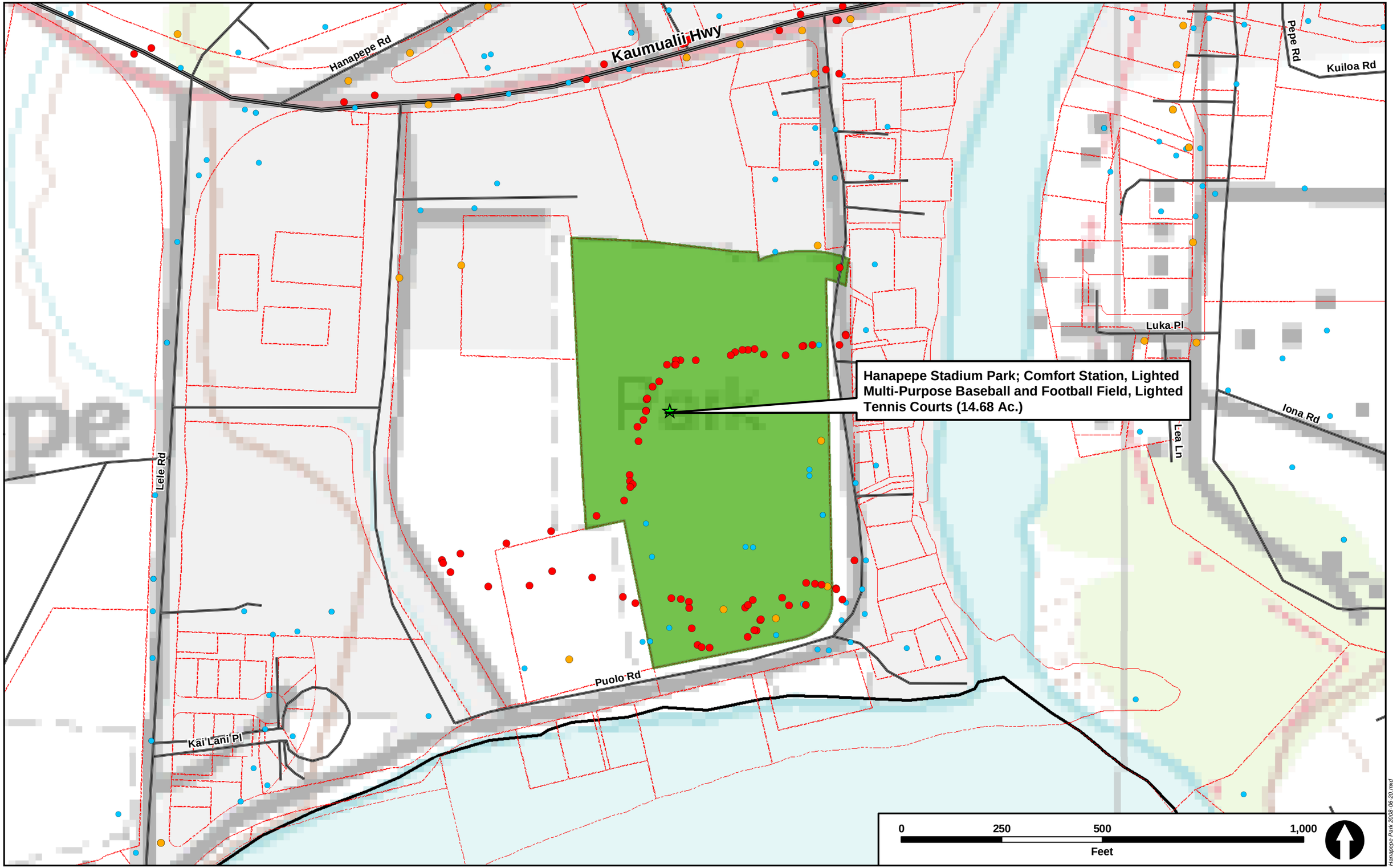
Locations of Category 5 Facilities

Kauai County Habitat Conservation Plan

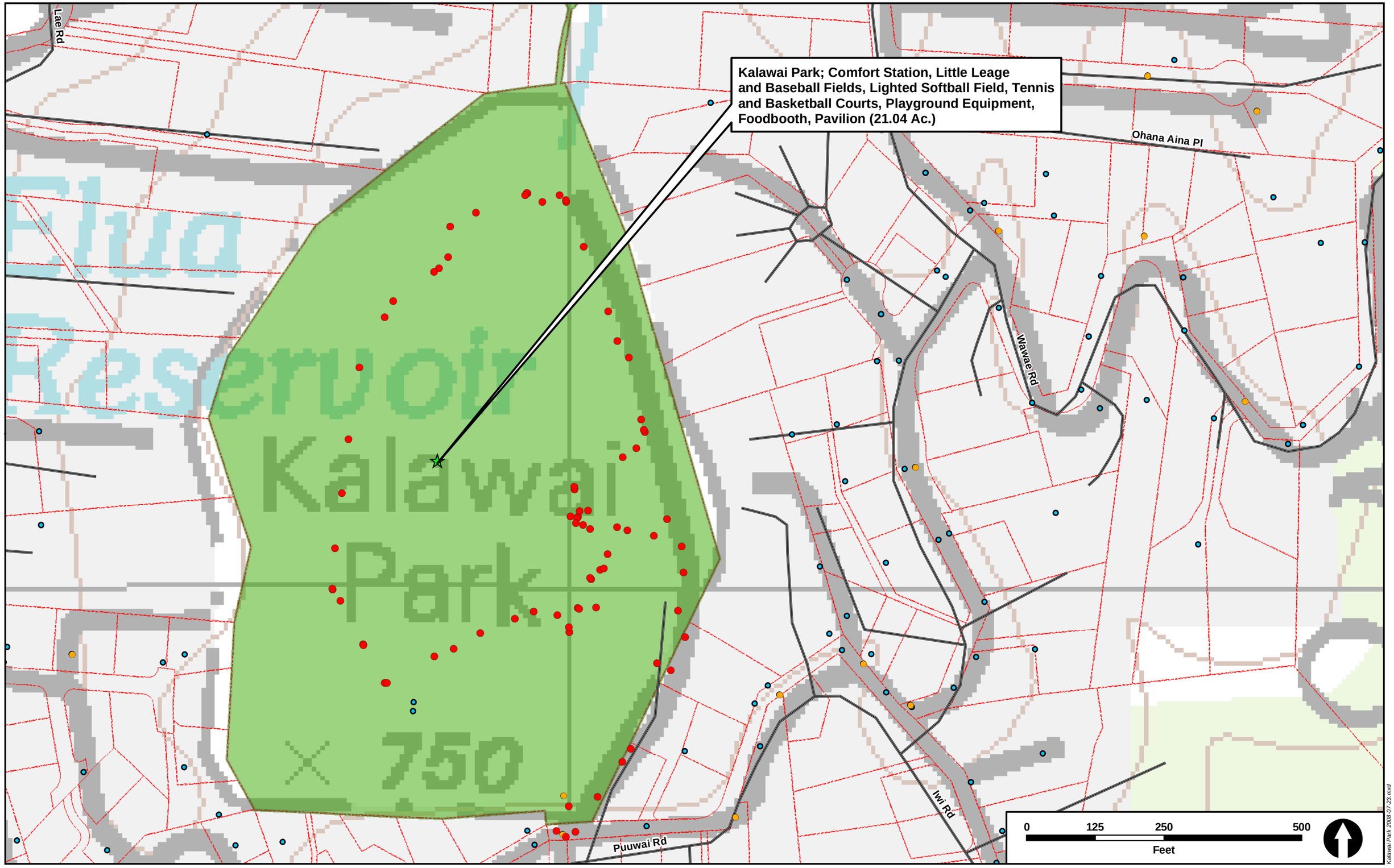
Category 5 County Facilities 2011-01-17.mxd

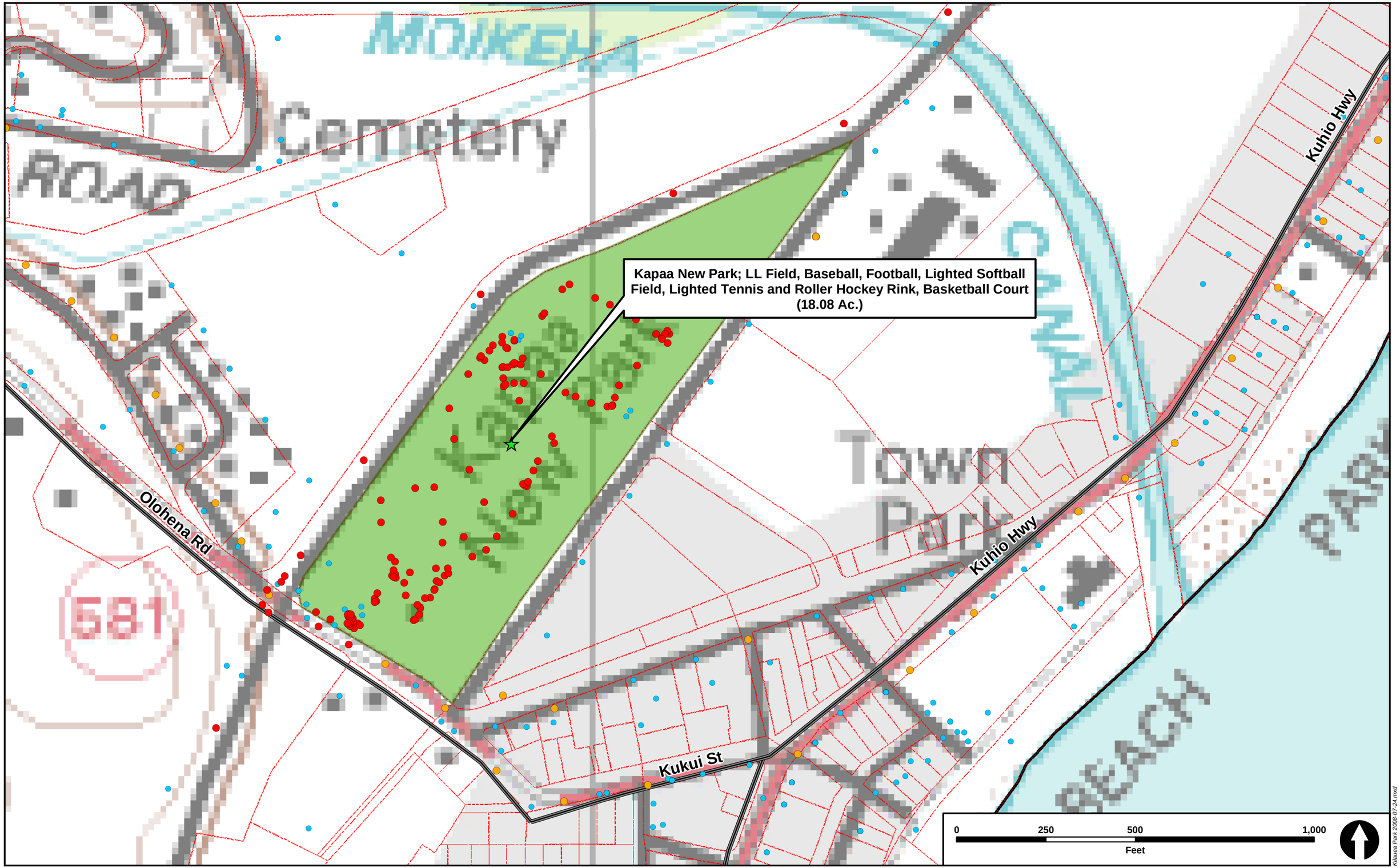


Vidinha Stadium 2008-06-20.mxd

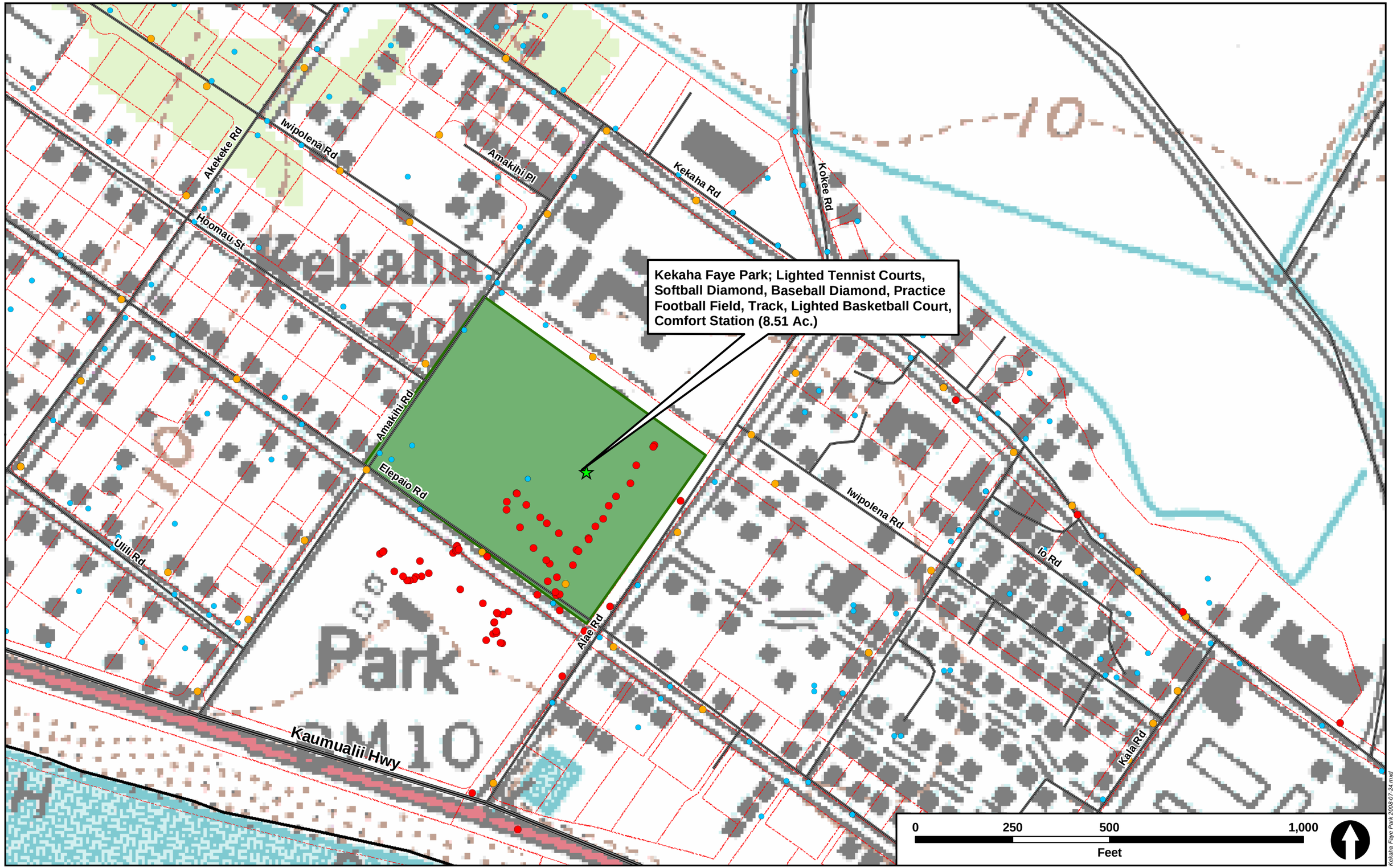

Hanapepe Rd
Kaumualii Hwy
Pepe Rd
Kuiloa Rd
Luka Pl
Hanapepe Stadium Park; Comfort Station, Lighted Multi-Purpose Baseball and Football Field, Lighted Tennis Courts (14.68 Ac.)
Iona Rd
Lea Ln
Lele Rd
Puolo Rd
Kai'Lani Pl
0
250
500
1,000
Feet
Hanapepe Park 2008-06-20.mxd

Isenberg Park 2008-07-23.mxd

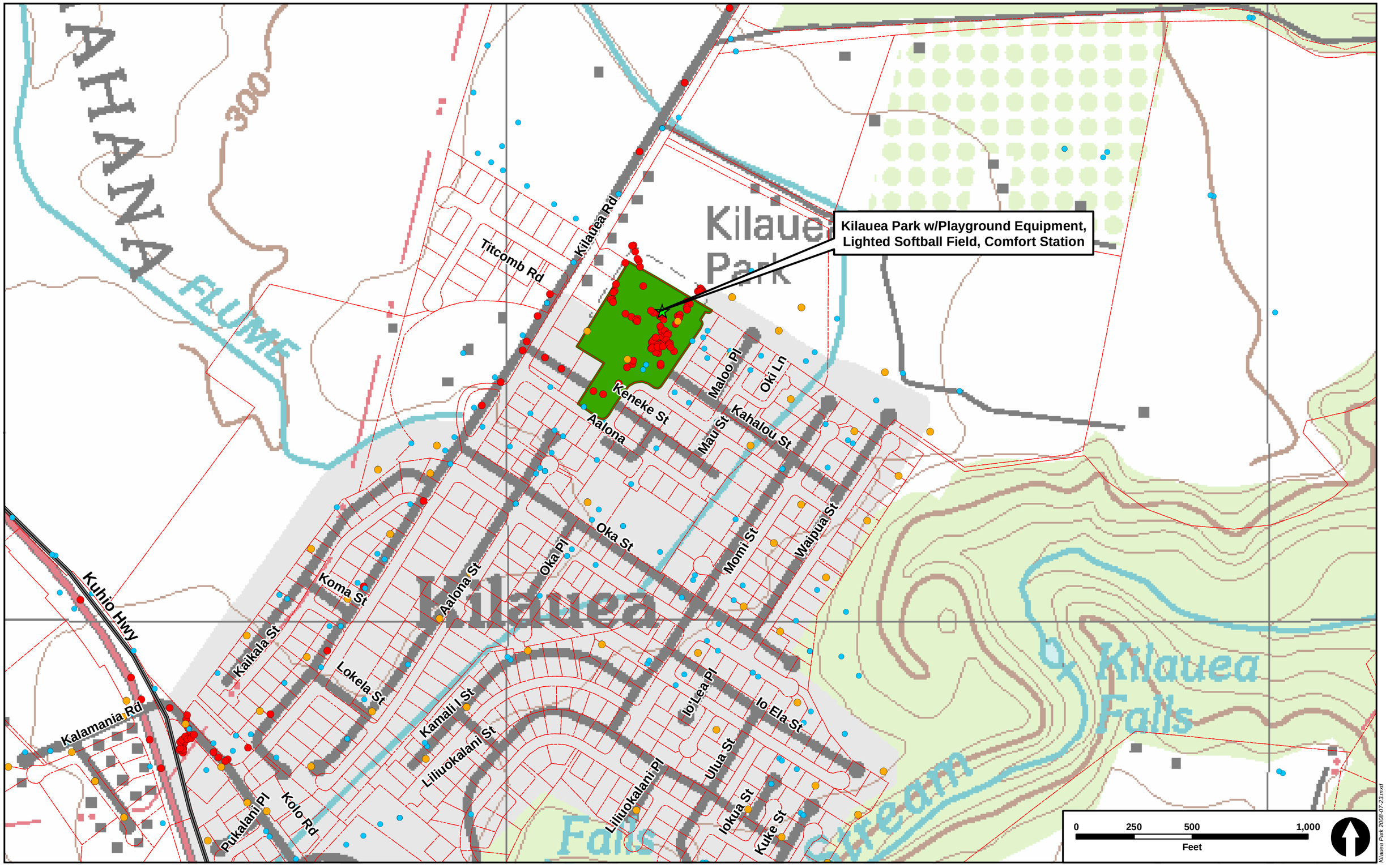

Kalawai Park; Comfort Station, Little Leage and Baseball Fields, Lighted Softball Field, Tennis and Basketball Courts, Playground Equipment, Foodbooth, Pavilion (21.04 Ac.)
Lae Rd
Ohana Aina Pl
Wawae Rd
Iwi Rd
Puuwai Rd
Kalawai Park
750
0
125
250
500
Feet
Kalawai Park 2008-07-23.mxd



Kilauea Park 2008-07-24.mxd

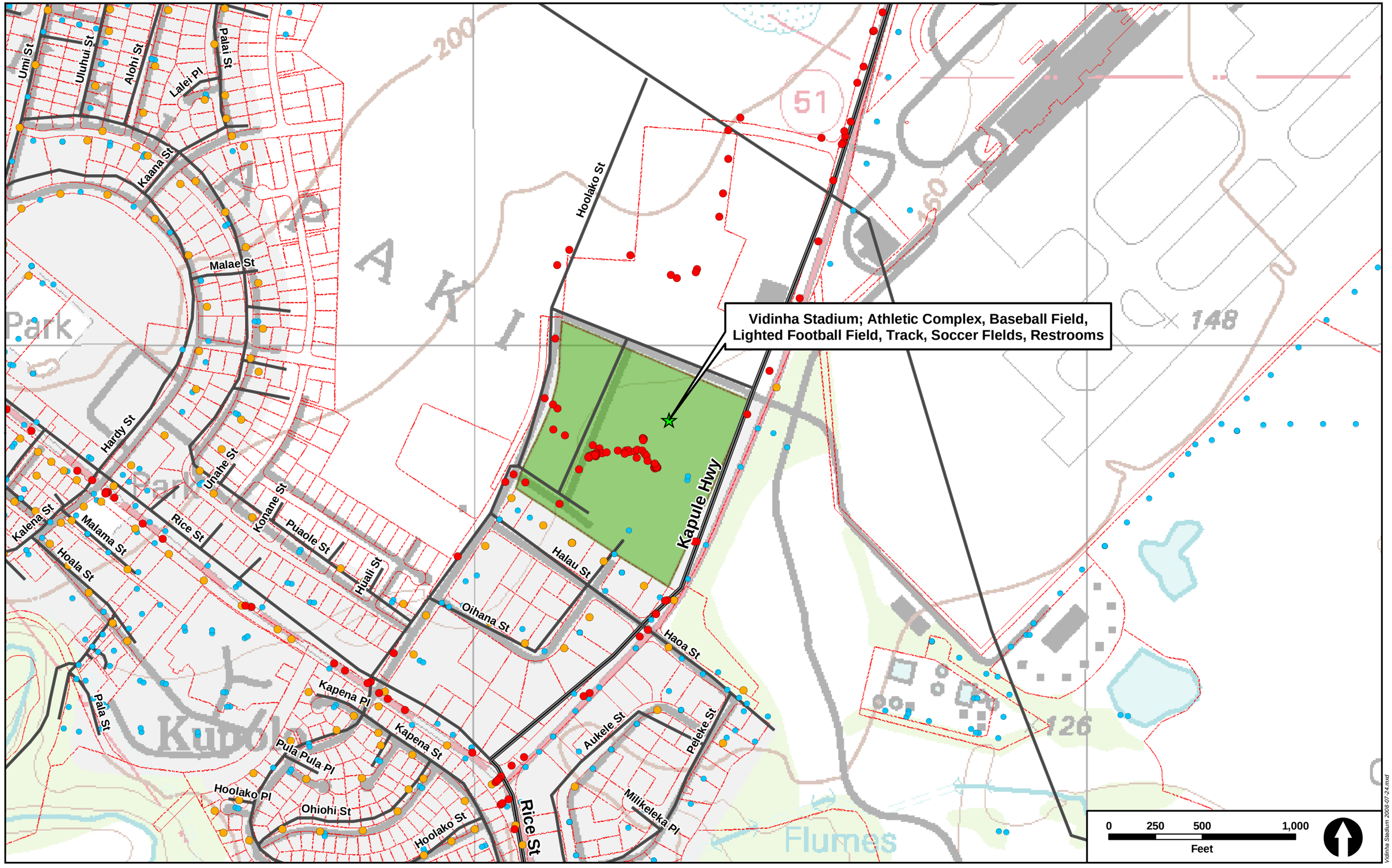


Kekaha Faye Park 2008-07-24.mxd

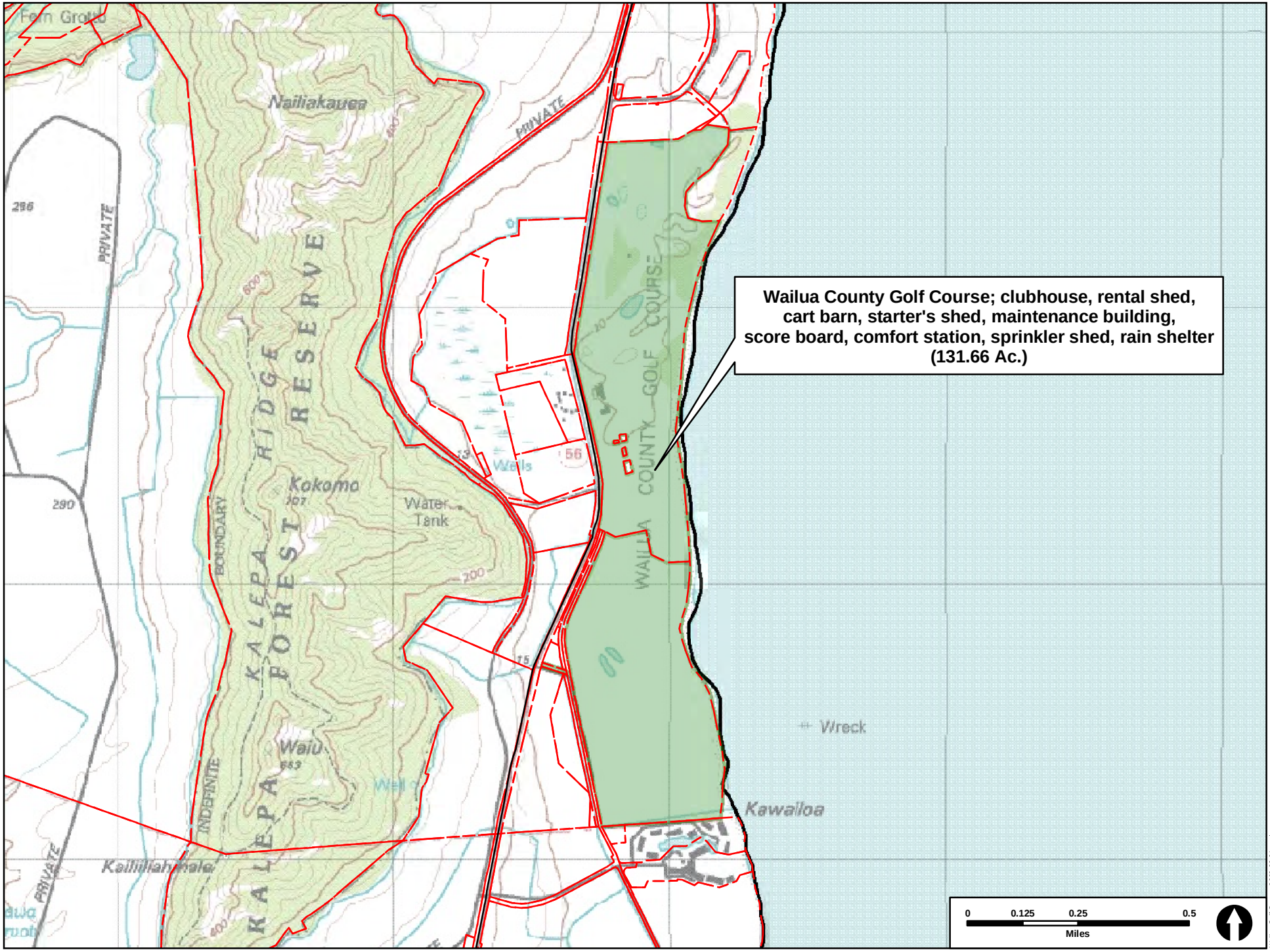


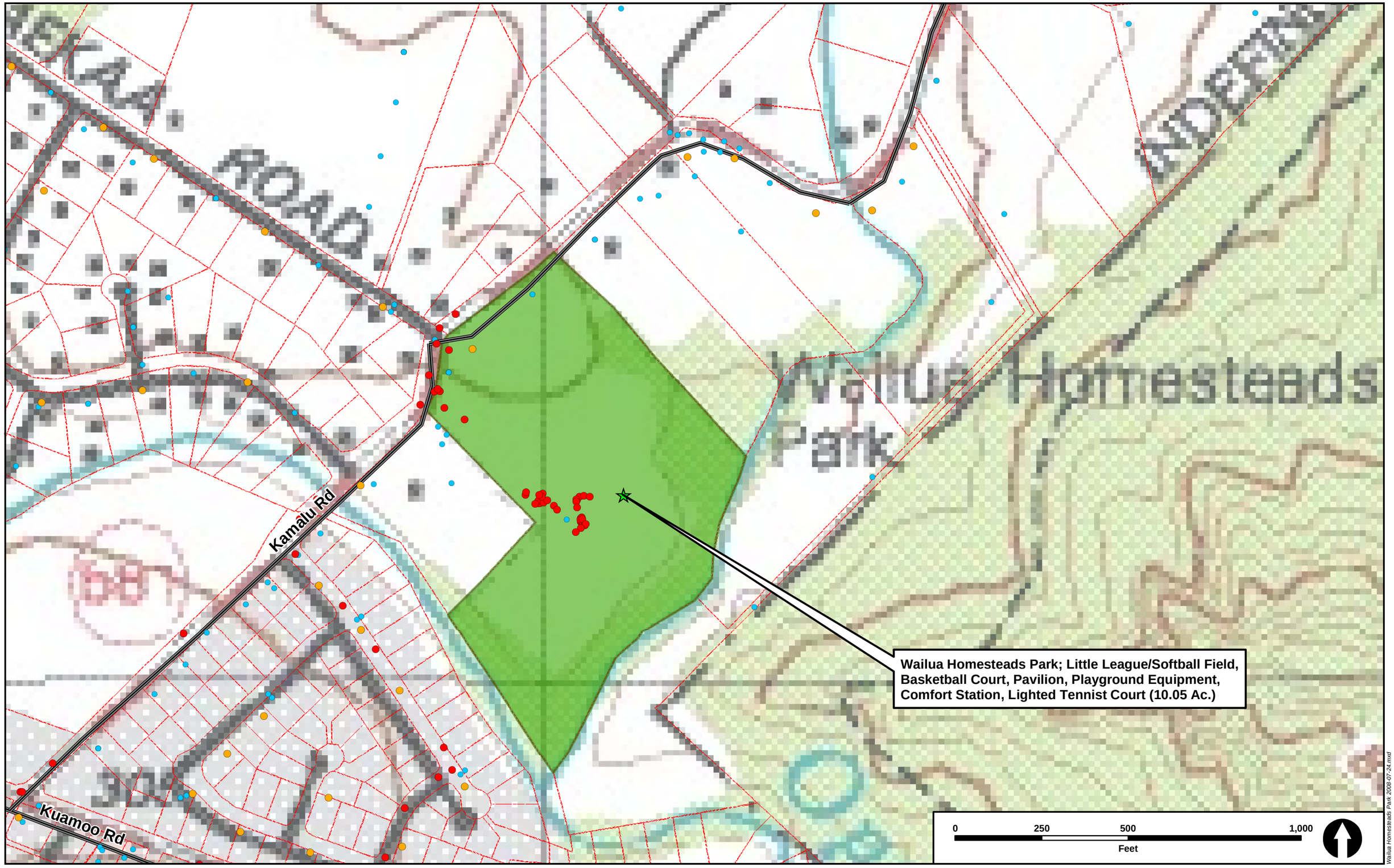
Kilauea Park 2008-07-23.mxd

Peter Rayno Lihue Park 2008-07-24.mxd

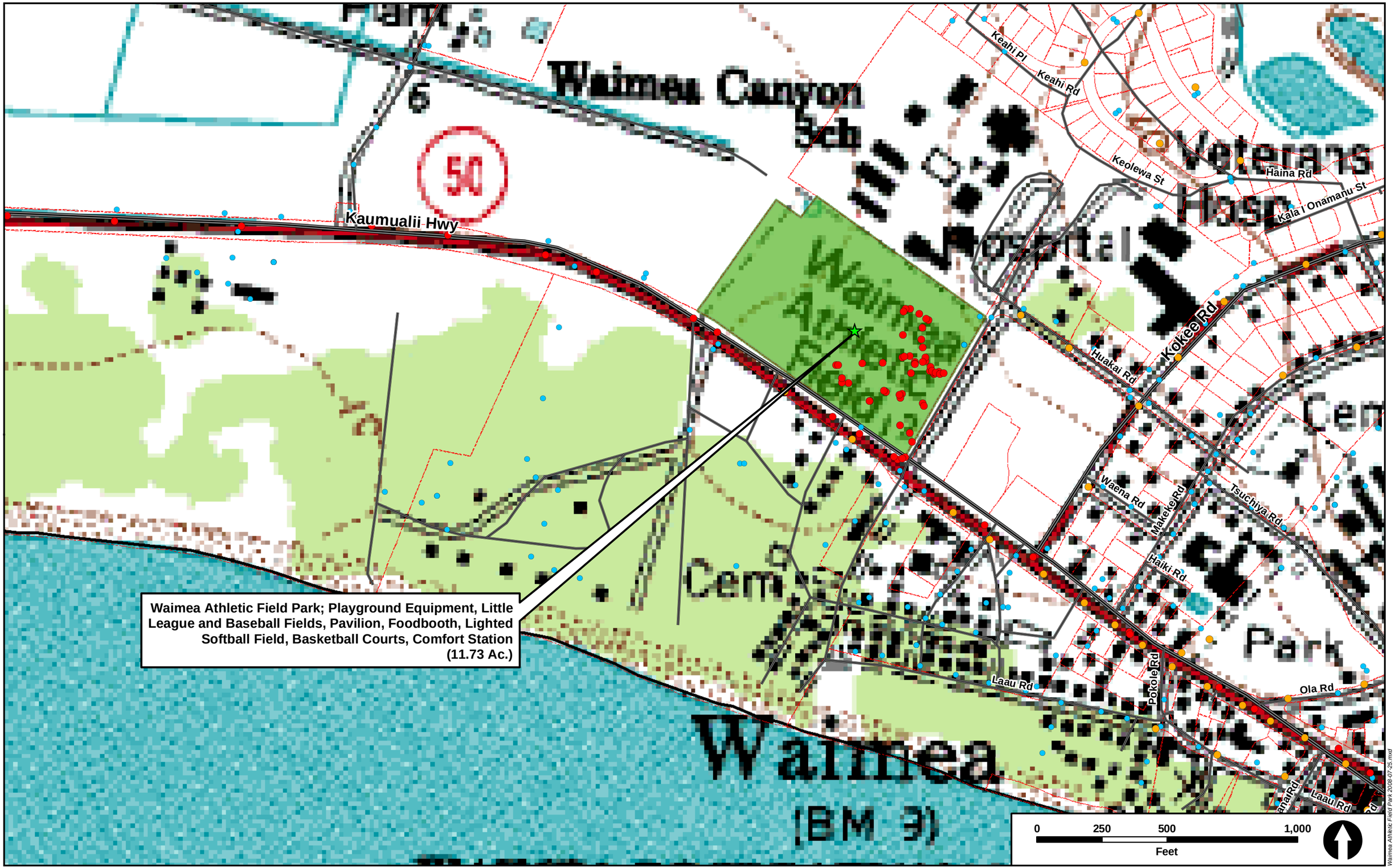


Vidinha Stadium 2008-07-24.mxd


Wailua County Golf Course; clubhouse, rental shed, cart barn, starter's shed, maintenance building, score board, comfort station, sprinkler shed, rain shelter (131.66 Ac.)
Fern Grotto
Nailiakauea
PRIVATE
KALEPA RIDGE FOREST RESERVE
Kokomo
Water Tank
Wells
WAILUA COUNTY GOLF COURSE
Waiu
Well
Kailiiliahinale
Kawailoa
Wreck
BOUNDARY
INDEFINITE
0
0.125
0.25
0.5
Miles
Wailua Golf Course 2009-09-01.mxd



Wailua Homesteads Park 2008-07-24.mxd



Waimea Athletic Field Park; Playground Equipment, Little League and Baseball Fields, Pavilion, Foodbooth, Lighted Softball Field, Basketball Courts, Comfort Station (11.73 Ac.)

Waimea Athletic Field Park 2008-07-25.mxd

Attachment C: Illustrates Category 3 lighting

Prepared For:	Prepared By:	Source:	Project:	Attachment C:
Kauai County	PLANNING SOLUTIONS	PSI	Kauai County KSHCP Application	**Limited Exterior Lighting**

Attachment D: Illustrates Category 4 lighting

Prepared For:	Prepared By:	Source:	Project:	Attachment D:
Kauai County	PLANNING SOLUTIONS	PSI	Kauai County KSHCP Application	**Substantial Exterior & Court Lighting**

Attachments E and F: Illustrates Category 5 lighting

Prepared For:	Prepared By:	Source:	Project:	Attachment E:
Kauai County	PLANNING SOLUTIONS	PSI	Kauai County KSHCP Application	**High-Intensity Stadium Lighting**

Attachment E - High Intensity Stadium Lighting 2016-09-08.cdr

Prepared For:	Prepared By:	Source:	Project:	Attachment F:
Kauai County	PLANNING SOLUTIONS	PSI	Kauai County KSHCP Application	**Field Lighting**

Attachment F - Field Lighting 2016-09-06.cdr

Attachment G: Sample fliers

The `a`o (Newell Shearwater) helps Kaua‘i’s fishermen find fish at sea and only breeds here in our islands.

KAUA‘I NATIVE SEABIRDS NEED OUR HELP!

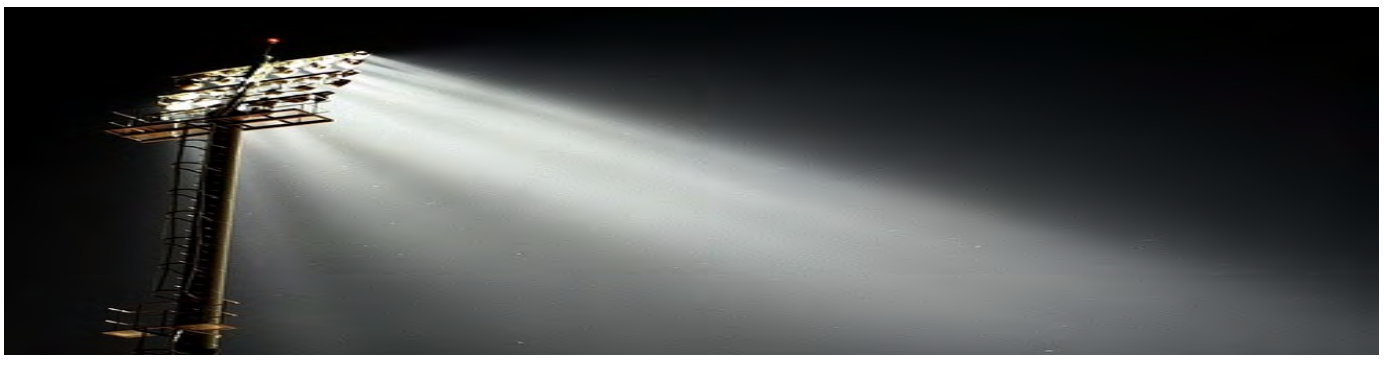
From September 15 through December 15, Kaua`i County asks for your KŌKUA while we strive to perpetuate the lives of our native birds by keeping facility lights

TURNED OFF.

If you see birds on the ground, PLEASE KŌKUA, and bring them to the nearest Fire Department Aid Station.

The `ua`u (Hawaiian Petrel) is considered by some to be `aumakua (family guardian).

“Ho`okahi nō hua a ka `a`o”



A message brought to you by

The County of Kaua‘i

The ‘a’o (Newell Shearwater) is the only seabird endemic to Hawai’i and only breeds here, in our islands.

KAUA’I NATIVE SEABIRDS NEED OUR HELP!

PLEASE TURN OFF THE LIGHTS WHEN YOU LEAVE!

If you see birds on the ground, PLEASE KOKUA, and bring them to the nearest Fire Department Aid Station.

The ‘ua’u (Hawaiian Petrel) is considered by some to be ‘aumakua.

“Ho’okahi no hua a ka ‘a’o”

The ‘a’o (Newell Shearwater) is the only seabird endemic to Hawai’i and only breeds here, in our islands.

KAUA’I NATIVE SEABIRDS NEED OUR HELP!

From September 15 through December 15, Kaua’i County asks for your KOKUA while we strive to perpetuate the lives of our native birds by keeping facility lights TURNED OFF.

If you see birds on the ground, PLEASE KOKUA, and bring them to the nearest Fire Department Aid Station.

The ‘ua’u (Hawaiian Petrel) is considered by some to be ‘aumakua.

“Ho’okahi no hua a ka ‘a’o”

Attachment H: Portable Floodlight Policy

	POLICY AND STANDARD OPERATING PROCEDURE	Documentation Number:
County of Kauai	USE OF FLOOD LIGHTS ON COUNTY FACILITIES	Revision

POLICY: It is the policy of the County of Kaua'i to manage the use of temporary flood lights on County of Kaua'i roads and facilities during the fledgling season of the endangered seabirds that nest on the island (principally Newell's Shearwaters and Hawaiian Petrel) by limiting extraneous light insofar as it is reasonably practicable .

PURPOSE: From September 15 through December 15 (the "Fallout Season"), fledglings leave their nesting sites for the first time and fly out to sea. The young birds can be attracted and/or confused by bright artificial lights and, when this occurs, they sometimes circle until they become exhausted and fall to the ground, where they may be injured or killed. Such attraction constitutes harm as defined in State and Federal endangered species laws and regulations and is illegal. The intent of this policy, established in this document is to avoid and/or minimize the unnecessary use of bright artificial lighting on county roads and facilities to minimize the risk to the County of Kaua'i from the consequences of the law.

APPLICABILITY: This policy applies to the use and or the approval for the use of bright artificial lights on County roads and facilities for all nighttime construction work during the Fallout Season.

PROCEDURE: Night work utilizing flood lights during the period beginning September 15 and ending December 15 shall conform to the following.

- Emergency Work: Work on County roads and facilities will be carried out during the Fallout Season as necessary due to emergencies. The amount of light used will be the minimum required to complete the emergency repairs in a safe and efficient manner. This policy will apply to all construction activities of the County, its contractors and/or private organizations working under the authority of the County.

Prepared by: kt	**Date last revised:**	Page 1 of 2
Original release date: 03/20/11	**Reviewed by :** **Approved by:** **BERNARD CARVALHO, Jr.** **Mayor**	

- Planned Work During the Fallout Season:
  - Work on county roads and facilities by county personnel will adhere to the following insofar as practicable:
    - Limited use of outdoor construction lighting is permissible during the hours of 2100 to 0430, inclusive.
    - Lighting fixtures shall be shielded and directed downwards to the maximum extent practicable.
    - County employees required to work at night utilizing floods lights shall be trained in how to handle any downed birds and will have appropriate equipment onsite to hold and transport any retrieved downed birds to an appropriate Save Our Shearwater (SOS) facility.
    - Training for County employees in handling downed birds shall occur on an annual basis. Attendance to training sessions shall be documented.
  - Work on County roads and facilities by others:
    - The following statement shall be incorporated in all road permits and notes on drawings or specifications and any agreements with the County for all work which occurs on County roads and other County facilities: "*If system conditions require non-emergency nighttime work during the autumn seabird fallout season (September 15 through December 15), use of lighting will be restricted to between 2100 and 0430. If lighting of the work area is required in such situation, all lights will be shielded (minimum light spill towards the sky) and directed downwards to the maximum extent practicable. Minimum requirements for lighting by HIOSH and OSHA will be provided and assured by the contractor. The contractor shall train all employees working at night (records retained by the contractor) in how to handle any downed birds and will have appropriate equipment as approved by Save Our Shearwaters (SOS) on site to hold and transport any retrieved downed birds to an SOS facility. This requirement does not allow lighting as may be restricted by other government agencies.*"

Attachment I: Monitoring Policy and Procedure

OFFICE OF THE COUNTY ATTORNEY
THE COUNTY OF KAUA'I

DEREK S. K. KAWAKAMI, MAYOR
MICHAEL A. DAHILIG, MANAGING DIRECTOR

MATTHEW M. BRACKEN
COUNTY ATTORNEY

NICHOLAS R. COURSON
FIRST DEPUTY

PROTECTED SEABIRD MONITORING POLICY AND PROCEDURE

May 1, 2019

POLICY:

It is the policy of the County to monitor all County facilities with external lights used from dusk to dawn throughout each calendar year, with more frequent monitoring during the Fledgling Season, to avoid or minimize Take of protected seabirds as required by law and document any Take.

PURPOSE:

The purpose of this policy is to comply with the Federal Endangered Species Act; its state counterpart, Hawai'i Revised Statutes § 195D; and the Kaua'i Seabird Habitat Conservation Plan, in which the County is a participant. It is a violation of federal and state law to Take a protected species. A "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect endangered or threatened species, or to attempt to engage in any of these acts.

It is also the purpose and intent of this policy to establish the level and frequency of monitoring during Fledgling Season and all other times of the year, and document any Take at Applicable Facilities.

APPLICABILITY:

This policy applies to all County facilities with external lights used from dusk to dawn, including the real property on which the facility is situated ("Applicable Facility/Facilities"). This policy applies throughout the year with increased monitoring during the period of time 'A'o fledglings leave their nesting sites to head out to sea beginning September 15 and ending December 15 ("Fledgling Season"). The protected seabirds to which this policy applies are:

- 'A'o - Newell's shearwater (*Puffinus newelli*) (listed as threatened)
- 'Ua'u - Hawaiian Petrel (*Pterodroma sandwichensis*) (listed as endangered)
- 'Akē'akē -Band-rumped Storm Petrel (*Oceanodroma castro*) (listed as endangered)

PROCEDURE:

1. Monitoring.

   i. Each and every Applicable Facility shall be monitored through visual inspections of the facility exterior including under and around objects and, when the inspection occurs prior to sunrise, with the assistance of a flashlight to ensure comprehensive examination of the property in accordance with this policy.

   ii. Each inspection will include a search for downed protected seabirds or carcasses. If any protected seabird is observed at an Applicable Facility, County personnel shall follow the documentation and notification procedures of this policy.

   iii. Attachment C provides the strategy, general route of visual inspections to be employed, and likely problem areas of facilities, by category, and is to be used to ensure compliance with this policy.

2. Facility Category and Monitoring Frequency.

   i. Departments are to refer to Attachment A - County Facility Listing to the KSHCP for the classification of their respective Applicable Facilities.

      a) All Category 4 and 5 Applicable Facilities will keep at least one rescue kit in the main office consisting of:

         1) Latex or nitrile gloves;
         2) Three towels;
         3) Hand sanitizer;
         4) Flashlight or headlamp;
         5) Clipboard, pen, and blank "Bird Take Field Reports", or similar; and
         6) Animal safe carrier –medium sized, well ventilated, and marked conspicuously "LIVE ANIMAL."

   ii. Departments are to refer to Attachment C - Monitoring Plan for illustrations of search areas for respective categories.

   iii. All Applicable Facilities shall be monitored at the frequencies and utilizing the number of facility staff as follows by Category:

a) Category 3 - Limited External Lighting:

1) Fledgling Season: If a report is received one employee will conduct inspections each morning for at least the first thirty minutes of the employee's shift of the perimeter and pocket areas of the Applicable Facility.

2) All other times: If a report is received, one employee will conduct inspections weekly during the first thirty minutes of the employee's shift of an area up to ten (10) feet around the area where the reported Take occurred.

b) Category 4 - Substantial Exterior Area and Court Lighting:

1) Fledgling Season: Up to two employees will conduct inspections each morning up to the first hour of the employees' shift of the perimeter and pocket areas of the Applicable Facility.

2) All other times: If a report is received, up to two employees will conduct inspections weekly up to the first hour of the employee's shift of the perimeter and pocket areas of the Applicable Facility.

c) Category 5 - Stadium and Field Lighting:

1) Fledgling Season: If the Applicable Facility is in use, up to four employees will conduct inspections each morning up to the first hour of the employees' shift and up to four employees will conduct inspections up to an hour immediately after the Applicable Facility lights are turned off of the perimeter and pocket areas of the Applicable Facility.

2) All other times: If the Applicable Facility is in use, up to two employees will conduct inspections weekly each morning up to the first hour of the employees' shift of the perimeter and pocket areas of the Applicable Facility.

iv. Monitoring Personnel

a) All Departments with an Applicable Facility shall be responsible for ensuring the Applicable Facility has the necessary personnel to conduct the monitoring required by this policy.

b) All Departments with an Applicable Facility shall be responsible for ensuring designated personnel comply with the training, monitoring, and documentation and notice obligations required of this policy.

v. Education and Signage for Facility Users

a) Educational flyers. The County will provide educational flyers to all organizations who use lighted category 3, 4, and 5 facilities. The flyers will inform the users of the possible presence of protected seabirds, the impacts of the use of lights during the fledgling season, and what to do should the users see protected seabirds being impacted by the lights. Please see Attachment B for the sample flyers.

b) Signage. In addition, the County will post signage at all lighted softball fields, basketball courts, and tennis courts, where users are able to manually turn on the lights. The signage will be installed immediately adjacent to the light switches and controllers. The signage will be based on the notices that the County already posts at all lighted facilities during the fledgling season.

3. <u>Documentation and Notification.</u>

i. Immediately upon discovery of a downed (alive) protected seabird, County personnel shall:

a) Use the following rescue procedures:

1) Take the seabird rescue kit and animal safe carrier to the downed seabird;
2) With gloves on and using a towel and approaching from behind, wrap the towel completely around the seabird's back and wings, being careful to avoid the long, pointed bill;
3) Place the seabird in an animal safe carrier and close;
4) Return the gloves and towel to the rescue kit and return the rescue kit;
5) Keep the animal safe carrier covered and in a quiet, shaded location;
6) Do not feed, water, or handle it (other than to place the seabird in the carrier);
7) County personnel will not attempt to release the seabird;
8) Immediately contact the Kaua'i Humane Society and Save Our Shearwaters for pickup at 632-0610 or 635-5117.

b) Submit notice of the downed seabird immediately to the KSHCP Coordinator including the following information: date, time, and exact location where found; description of any external lights nearby; species (if known); and condition of the downed seabird. Photographs of the downed seabird and the

location it was found at should be taken and provided to the KSHCP Coordinator.

1) Within 24 hours, the KSHCP Coordinator will submit notice via phone, email, or other written form to the USFWS, DLNR, Kaua'i DOFAW office, SOS, and the Office of the County Attorney including all documentation provided by the County personnel that discovered the downed seabird.

2) Within one week of discovery, the KSHCP Coordinator shall provide USFWS and DLNR Honolulu the completed "KSHCP Downed Seabird Form" and a description of any further actions taken or considered to minimize fallout at the incident location.

ii. Immediately upon discovery of a protected seabird carcass, County personnel shall place the carcass in a ziplock bag and store in a freezer or cool place and contact the DLNR Kauai Seabird HCP Office for collection and shall file a report with the KSHCP Coordinator. The report must include: the date, time, and exact location where the carcass was found; description of any external lights nearby; species (if known); and condition of the downed seabird. Photographs of the carcass and the location it was found at should be taken and provided to the DLNR Kauai Seabird HCP Office and the KSHCP Coordinator.

iii. Each Department shall compile and maintain a monthly log of protected seabirds discovered at their respective Applicable Facilities for each calendar year. No later than December 31 of each calendar year, Departments shall submit their monthly logs covering the calendar year that just ended to the KSHCP Coordinator.

4. Contact Information.

i. KSHCP Coordinator.

a) The KSHCP Coordinator is [NAME], [DEPARTMENT].

b) Reports of Take(s). If a downed seabird is discovered, immediately after following the above rescue procedures, or if a carcass is discovered, the Take(s) are to be reported to the KSHCP Coordinator at (808) [PHONE NUMBER]. All such phone reports will be followed by an email to the KSHCP Coordinator at [EMAIL] with a cc to the Office of the County Attorney at countyattorney@kauai.gov.

ii. Kaua'i Division of Forestry & Wildlife (DOFAW) Wildlife Management

Staff, as listed below. If the first contact on the priority list is not available, leave a voicemail message, but then call the next person on the contact list. It is essential that person-to-person contact be made with Kaua'i DOFAW staff – simply leaving a voicemail message is not adequate.

a) DOFAW to provide;
b) DOFAW to provide.

iii. If the Kaua'i DOFAW contacts identified above cannot be reached, call Kaua'i Police Dispatch at 241-1711 and request they contact "Wildlife."

iv. U.S. Fish and Wildlife Service:

a. USFWS to provide;
b. USFWS to provide.

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COUNTY ATTORNEY

NICHOLAS R. COURSON
FIRST DEPUTY

Attachment A - County Facility Listing to the KSHCP

Placeholder

www.kauai.gov
4444 Rice Street Suite 220 • Līhu'e, Hawai'i 96766 • (808) 241-4930 (b) • (808) 241-6319 (f)
An Equal Opportunity Employer

The `a`o (Newell Shearwater) helps Kaua'i's fishermen find fish at sea and only breeds here in our islands.

KAUA'I NATIVE SEABIRDS

NEED OUR HELP!

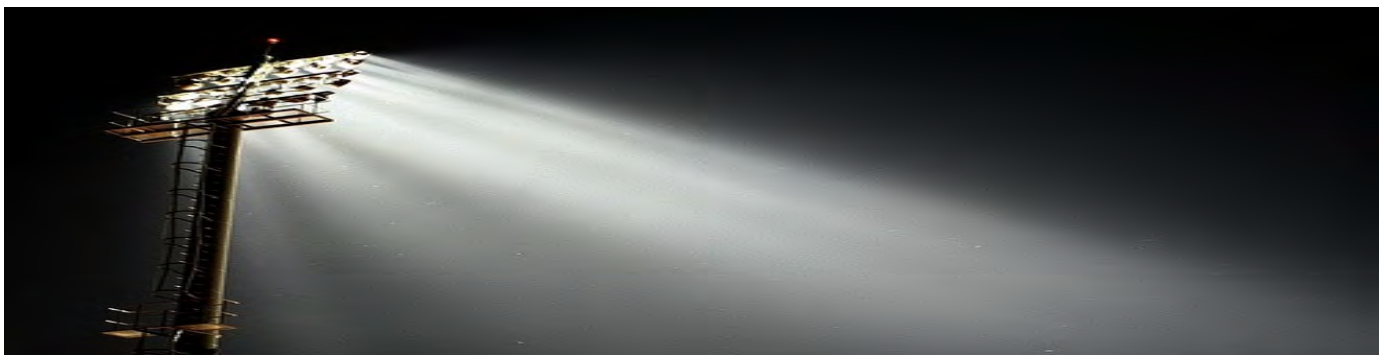
From September 15 through December 15, Kaua`i County asks for your KŌKUA while we strive to perpetuate the lives of our native birds by keeping facility lights

TURNED OFF.

If you see birds on the ground, PLEASE KŌKUA, and bring them to the nearest Fire Department Aid Station.

The `ua`u (Hawaiian Petrel) is considered by some to be `aumakua (family guardian).

"Ho`okahi nō hua a ka `a`o"



A message brought to you by

The County of Kaua'i

The ‘a’o (Newell Shearwater) is the only seabird endemic to Hawai’i and only breeds here, in our islands.

KAUA’I NATIVE SEABIRDS NEED OUR HELP!

PLEASE TURN OFF THE LIGHTS WHEN YOU LEAVE!

If you see birds on the ground, PLEASE KOKUA, and bring them to the nearest Fire Department Aid Station.

The ‘ua’u (Hawaiian Petrel) is considered by some to be ‘aumakua.

“Ho’okahi no hua a ka ‘a’o”

The ‘a’o (Newell Shearwater) is the only seabird endemic to Hawai’i and only breeds here, in our islands.

KAUA’I NATIVE SEABIRDS NEED OUR HELP!

From September 15 through December 15, Kaua’i County asks for your KOKUA while we strive to perpetuate the lives of our native birds by keeping facility lights TURNED OFF.

If you see birds on the ground, PLEASE KOKUA, and bring them to the nearest Fire Department Aid Station.

The ‘ua’u (Hawaiian Petrel) is considered by some to be ‘aumakua.

“Ho’okahi no hua a ka ‘a’o”

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Attachment C - Monitoring Plan

Category 3 Limited External Lighting - Representative facility: Līhuʻe Civic Center

The search strategy employed at Līhuʻe Civic Center will include visual inspection of the perimeter of the facility site and pockets of areas within the facility site as illustrated in the Līhuʻe Civic Center facility sheet below.

The perimeter visual inspection may be performed on foot or using a vehicle. Visual inspection will include searching under any cars parked in the area and under and around ground cover and buildings.

The pockets of areas are likely problem locations due to the proximity of lights and ground cover and buildings which may obstruct visual inspection of the area, as a result, the visual inspections of these areas will be conducted on foot. Visual inspection of these areas will focus on areas near the lighting fixtures and under and around ground cover and buildings.

The perimeter and the pocket area searches will and should overlap to a certain extent to ensure the facility is thoroughly inspected.

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Category 4 Substantial Exterior Area & Court Lighting - Representative facility: Kaua'i War Memorial Convention Hall

The search strategy employed at Kaua'i War Memorial Convention Hall will include visual inspection of the perimeter of the facility site and pockets of areas within the facility site as illustrated in the Kaua'i War Memorial Convention Hall facility sheet below.

The perimeter visual inspection may be performed on foot or using a vehicle. Visual inspection will include searching under any cars parked in the area and under and around ground cover and buildings.

The pockets of areas are likely problem locations due to the proximity of lights and ground cover and buildings which may obstruct visual inspection of the area, as a result, the visual inspections of these areas will be conducted on foot. Visual inspection of these areas will focus on areas near the lighting fixtures and under and around ground cover and buildings.

The perimeter and the pocket area searches will and should overlap to a certain extent to ensure the facility is thoroughly inspected.

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Category 5 High-Intensity Stadium & Field Lighting - Representative facility: Vidinha Stadium.

The search strategy employed at Vidihina will include visual inspection of the perimeter of the facility site and pockets of areas within the facility site as illustrated in the Vidinha facility sheet below.

The perimeter visual inspection may be performed on foot or using a vehicle. Visual inspection will include searching under any cars parked in the area and under and around ground cover and buildings.

The pockets of areas are likely problem locations due to the proximity of lights and ground cover and buildings which may obstruct visual inspection of the area, as a result, the visual inspections of these areas will be conducted on foot. Visual inspection of these areas will focus on areas near the lighting fixtures and under and around ground cover and buildings.

The perimeter and the pocket area searches will and should overlap to a certain extent to ensure the facility is thoroughly inspected.

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Attachment J: Night-time Category 5 events protocol

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawaii 96850

In Reply Refer To:
01EPIF00-2018-TA-0435

Memorandum of Understanding
between
County of Kauai
and
U.S. Fish and Wildlife Service

A. Purpose

The U.S. Fish and Wildlife Service (Service) and County of Kauai (County) (collectively referred to as the "Parties") have entered into this Memorandum of Understanding (MOU) for the purpose of conserving seabird species listed as endangered or threatened under the Endangered Species Act (ESA).

The County owns and operates football stadium lights. These lights may harm or kill ("take") the following species in violation of state and federal laws: the endangered band-rumped storm-petrel (*Oceanodroma castro*) and Hawaiian petrel (*Pterodroma sandwichensis*), and the threatened Newell's shearwater (*Puffinus auricularis newelli*) (hereafter collectively referred to as "seabirds").

The Kauai Seabird Habitat Conservation Plan (KSHCP) is currently being developed by the State of Hawaii, Department of Land and Natural Resources, Division of Forestry and Wildlife (DLNR-DOFAW). The County proposes to include all of its facilities (including its football stadiums) as covered activities in the KSHCP, and apply for a federal incidental take permit (ITP) and state incidental take license (ITL) to address the anticipated take of seabirds. In the interim, the County would like to work with the Service to address the potential take of seabirds resulting from its stadium lights. This MOU addresses this narrow concern.

B. Legal authority:

The Service enters into this MOU pursuant to legal authority provided by the Fish and Wildlife Coordination Act (16 U.S.C. §661 et seq.) and the Endangered Species Act (16 U.S.C. § 1531 et seq.). .

C. Responsibilities of the Parties

1. Responsibilities of the County

a. In the interim period while awaiting completion of the KSHCP, no stadium lighting will be on at any County-operated football facility, including but not limited to Vidinha and Hanapepe, in the evenings between September 15, 2018 and December 15, 2018 except as described below:

i. The following football games of the 2018 season may be scheduled for a time that would require the use of the stadium lights at nighttime, in recognition that the games are early in the fledging season and that shielding of the stadium lighting and/or moon presence in the evening will minimize any anticipated takings: September 21 and September 28. Lighting will be turned off within one hour after the end of each night game.
ii. The following football games of the 2018 season may not be scheduled for a time that would require the use of the stadium lights at nighttime due to the medium to high risk of anticipated taking associated with absence of moon in the evening and/or timing of the fledging season: October 5, October 12, October 19, and October 26.
iii. Football game dates in November 2018 are outside of the regularly scheduled football season, but if a game(s) is held in November it may not be scheduled for a time that would require the use of the stadium lights at nighttime due to the medium to high risk of anticipated taking associated with absence of moon in the evening and/or timing of the fledging season.

b. The County will establish, at its sole cost and expense, an escrow account, no later than November 15, 2018, in the amount of $30,000 to be used in the event that a seabird(s) are found downed for the purpose of mitigating impacts to the seabird(s). If, in the sole judgment of the Service, such an event occurs on either of the September 21 or September 28 dates, for each such event, the County will direct the escrow agent to transfer $15,000 from the escrow account to a qualified entity selected by the County in consultation with, and with approval from, the DLNR-DOFAW for use in mitigating the takings of seabirds on Kauai. The amounts to be spent on mitigation have been set to reflect levels of effort sufficient for the Service to exercise its discretion to agree to the terms of this MOU. Any funds remaining in the escrow account as of January 30, 2019, may be returned to the County. Notwithstanding the above, should the number of such takings equal or exceed two seabirds during the September 21 game, the September 28 game may not occur at night.

c. Whenever lights are on at night at any County-operated football facility between September 15, 2018 and December 15, 2018, the County will monitor the facility grounds. The County will coordinate monitoring with at least four biologists from the DLNR-DOFAW, the Kauai Endangered Seabird Recovery Project, or PIFWO whom will assist the County in monitoring seabirds at each of the games. Such monitoring shall include: (1) documentation of number, species, timing, height and flight patterns of observed seabirds; (2) the number of apparently downed seabirds that were searched for and in fact found to be downed; (3) the number of apparently downed seabirds that were searched for and not found; (4) the number of apparently downed seabirds that were not searched for with an explanation of why a search was not conducted; (5) the number of seabirds found downed that did not correspond to an observed apparent downing; and (6) information on the condition of any recovered downed seabirds. Such monitoring will further include, immediately upon conclusion of any game and before the lights

are turned off, a search of the facility grounds for any downed seabirds. For all such monitoring, the County will maintain records of the location, times, dates, and biologists involved, as well as the location, condition, identification, in situ photographs, and fate of each recovered bird. Any seabird encountered during such monitoring will be reported by the County via telephone or email to the Service, Pacific Islands Fish and Wildlife Office (PIFWO) and the Service, Office of Law Enforcement (OLE) within 48 hours. Unless otherwise directed by the OLE, all retrieved seabirds will be transferred to the Save Our Shearwaters program in conformance with recommendations of that program, along with all associated location and photographic data for each bird.

d. Whenever lights are on at night at any County-operated football facility for a publicly attended event, held between September 15, 2018 and December 15, 2018, the County shall ensure that public service announcements regarding seabirds, mutually agreeable and reviewed by PIFWO and OLE, are delivered over the loudspeakers during any such event.

e. The County will complete and provide to PIFWO and OLE, no later than June 1, 2019, a report documenting the results of its monitoring and other observations from the 2018 football season.

2. Responsibilities of the Service

a. By entering into this MOU, the PIFWO is taking an "action" as defined in 50 C.F.R. §402.02. PIFWO will conduct consultation pursuant to Section 7 of the ESA on the provisions of the MOU and, if appropriate, provide an incidental take statement.

b. To the extent possible, PIFWO will continue to provide technical assistance to the County on steps to minimize the impacts of its activities on the seabirds.

3. The Parties Jointly Agree That –

a. The County will comply with the terms of this MOU in good faith, and provide timely notification to the Service of any known or suspected taking ESA-protected seabirds. The Service will conduct consultation on its action pursuant to Section 7 of the ESA, prepare a biological opinion, and exempt incidental take for seabirds as appropriate and only as described in the biological opinion and incidental take statement for the MOU. The County will be responsible for implementing the MOU as described in the biological opinion and incidental take statement for the MOU, including implementation of the mandatory terms and conditions of the incidental take statement.

b. This MOU memorializes the understanding of the parties that, during the interim period while the KSHCP is being actively developed in good faith, the County will minimize and mitigate take of seabirds in accordance with the terms of this MOU.

c. This MOU is unique to the special circumstances presented by this matter and is not intended to be, nor should it be construed as, precedent for any other action by the U.S. Fish and Wildlife Service or the U.S. Department of the Interior of matters of a similar type or subject matter.

D. Administrative Provision

1. Nothing in the MOU may be construed to obligate the Service to any current or future expenditure of funds or resources in advance of the availability of appropriations from Congress, or to expend any funds or resources if they are available.

2. The MOU is effective on the date it is signed by the Service and expires on the date the report documenting the results of the County's monitoring is received by PIFWO and OLE.

3. Either party may terminate its participation in the MOU with advanced written notice to the other party. Termination will immediately invalidate the ESA section 7 incidental take statement on the MOU.

4. In the event that the County fails to comply with the mandatory terms and conditions contained in the incidental take statement, this MOU will automatically terminate.

5. This MOU is not intended to be a legally enforceable contract in any administrative or judicial body.

6. This MOU is not intended to benefit any third-party, and is not enforceable by any third-party.

Mary M Abrams
Service Field Supervisor

13 Sept 2018
Date

County of Kauai

8/28/2018
Date

Kauai Seabird Habitat Conservation Program (KSHCP)

Participant Inclusion Plan (PIP)

Name of Applicant/Participant: Hawaii Department of Transportation (HDOT)

This Participant Inclusion Plan (PIP) template provides a convenient method for non-federal entities to provide the required information to apply for incidental take authorization under the terms of the KSHCP (the Program). Each applicant is required to complete and submit a PIP as part of their application materials in order to apply for an Incidental Take License (ITL) from the State of Hawaii Department of Land and Natural Resources (DLNR) and an Incidental Take Permit (ITP) from the U.S. Fish and Wildlife Service (USFWS) under the KSHCP.

All applicants should consult the KSHCP document for the terms and conditions and the approval process through which the PIP will be evaluated by the DLNR and the USFWS. Staff from the USFWS and the DLNR can provide assistance with completion of this PIP. State of Hawaii DLNR may require fees for this service under the state's habitat conservation "technical assistance program."

All capitalized terms used in this PIP are as defined in the KSHCP, unless indicated otherwise.

General Provisions Applicable to this Application.

> Neither this PIP, nor the information contained therein, including without limitation all tables, information, data, estimates of take, costs, nor any action taken by the State pursuant to the PIP shall in any way be construed as an admission by the State of any liability, wrongdoing, or violation of law, regulation, contract or policy, or violation of federal, state or local statute or regulation.

KSHCP Participant Inclusion Plan (PIP)

Thank you for your interest in the Kauai Seabird HCP.

Instructions: Please complete all items in **Part I and II** of this form by providing information requested for each item below. Additional pages may be attached to this template as needed to adequately provide the necessary information. Non-federal entities should consult the KSHCP document for items requested in this PIP template and the terms and conditions of the KSHCP (a separate USFWS process is available for federal entities or entities with a federal nexus).

Staff from the DLNR and/or the USFWS may contact the applicant regarding any incomplete information or items needing further clarification. This PIP must be deemed complete before they are able to be processed; incomplete PIP forms will not be processed.

Part 1: Landowner & Property Information; Description of the Facilities; Avoidance & Minimization Measures; Monitoring of Take

Kauai Harbors Item 1. Provide the name of the landowner, business, agency, or institution and complete contact information. If the applicant/participant is different from the landowner, please attach power of attorney (or other documentation) allowing the party to act on the landowner's behalf.

Participant/Applicant Name: Hawaii Department of Transportation—Harbors Division (HDOT-H)

Physical Address/Location of Facility:
Nawiliwili Harbor
3242 Waapa Road
Lihue, Hawaii 96766

Port Allen Harbor
4300 Waialo Road
Eleele, Hawaii 96705

Mailing Address:
Harbors Administration Kauai District
3242 Waapa Road
Lihue, Hawaii 96766

Primary Contact:
Ownership Name:
Address:
Hawaii Department of Transportation

Email:
Telephone:

Alternate Contact:
Name: Deputy Director
Address:
Hawaii Department of Transportation
Aliiaimoku Hale, 5th Floor, 869 Punchbowl Street
Honolulu, Hawaii 96813
Telephone: (808) 587-2150
Email:

Alternate Contact:
Name: Paul J. Conry, Senior Associate Ecologist
Address:
H. T. Harvey & Associates
745 Fort Street, Suite 2003
Honolulu, Hawaii 96813-3820
Telephone: (808) 441-2081
Email: pconry@harveyecology.com

Lihue Airport Item 1. Provide the name of the landowner, business, agency, or institution and complete contact information. If the applicant/participant is different from the landowner, please attach power of attorney (or other documentation) allowing the party to act on the landowner's behalf.

Participant/Applicant Name: Hawaii Department of Transportation—Airports Division (HDOT-A)

Physical Address/Location of Facility:
Lihue Airport
3901 Mokulele Loop #6
Lihue, Hawaii

Mailing Address:
Lihue Airport
3901 Mokulele Loop #6
Lihue, HI 96766

Primary Contact:
Ownership Name:
Address:
Hawaii Department of Transportation

Email:
Telephone:

Alternate Contact:
Name: Deputy Director
Address:
Hawaii Department of Transportation

Aliiaimoku Hale, 5th Floor, 869 Punchbowl Street
Honolulu, Hawaii 96813
Telephone: (808) 587-2150
Email:

Alternate Contact:
Name: Paul J. Conry, Senior Associate Ecologist
Address:
H. T. Harvey & Associates
745 Fort Street, Suite 2003
Honolulu, Hawaii 96813-3820
Telephone: (808) 441-2081
Email: pconry@harveyecology.com

Kauai Harbors Item 2. Provide the legal description of the property at which the existing facilities and Covered Activities are located, including Tax Map Key (TMK) number. Provide a survey of the property and site plan drawings showing the locations of the Covered Activities (lights), property boundaries, buildings & structures, and site features. If properties containing the Covered Activities comprise separate parcels please include all Tax Map Key numbers and maps.

Nawiliwili Harbor: Portions of Tax Map Key plats (4) 3-2-03, and (4) 3-2-04. A list of the Nawiliwili Harbor TMK parcels being covered under this HCP are detailed in Kauai Harbors Table 1. The boundary of Nawiliwili Harbor is shown in Kauai Harbors Figure 1.

Port Allen Harbor: Portion of Tax Map Key plat (4) 2-1-03. The boundary of Port Allen Harbor is shown in Kauai Harbors Figure 2. The Port Allen Harbor TMK parcels being covered under this HCP are listed below and shown in Kauai Harbors Figure 2.

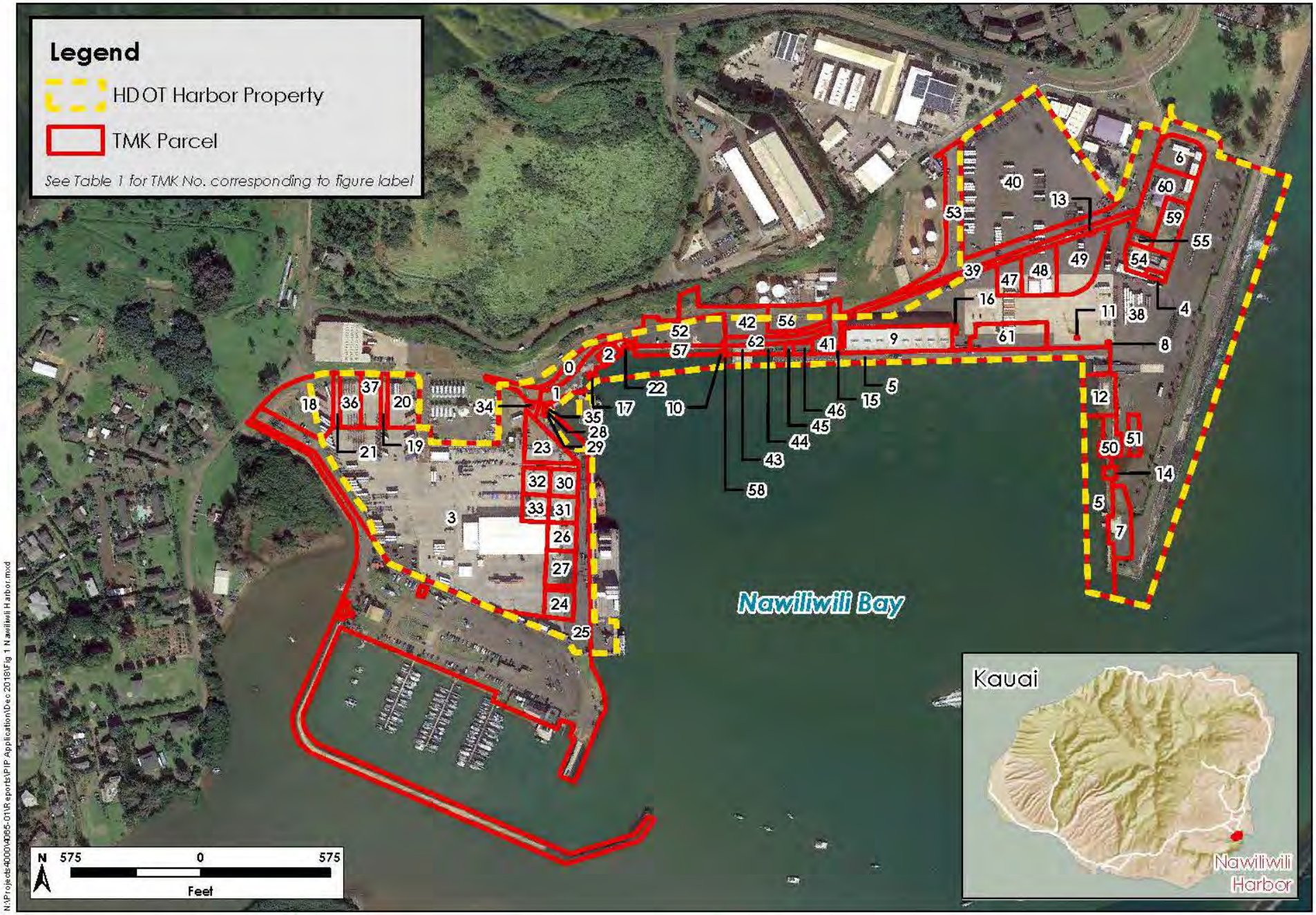
Label ID	TMK No.	Amount
0	421003021	
1	421003033	
2	421003006	Partial
3	421003015	
4	421003022	
5	421003019	Partial
6	421003020	

An aerial view of Nawiliwili Harbor, the location of buildings and structures with exterior lights that are covered by the HCP, and other site features of the property, are provided in Kauai Harbors Figure 3.

An aerial view of Port Allen Harbor, the location of buildings and structures with exterior lights that are covered by the HCP, and other site features of the property, are provided in Kauai Harbors Figure 4.

Kauai Harbors Table 1. A List of the Nawiliwili Harbor Tax Map Key Parcels Being Covered under the KSHCP and Referenced in Kauai Harbors Figure 1

Label ID	TMK No.	Amount	Label ID	TMK No.	Amount
0	432003001		34	432003055	
1	432003002		35	432003057	
2	432003003		36	432003072	
3	432003007	Partial	37	432003073	
4	432004052		38	432004002	Partial
5	432004054		39	432004008	Partial
6	432004057		40	432004015	
7	432004059		41	432004018	Partial
8	432004061		42	432004019	Partial
9	432004063		43	432004024	
10	432004064		44	432004025	
11	432004065		45	432004026	
12	432004067		46	432004027	
13	432004070		47	432004028	
14	432004072		48	432004029	
15	432004074		49	432004030	
16	432004075		50	432004031	
17	432003023		51	432004032	
18	432003031	Partial	52	432004034	Partial
19	432003032		53	432004035	Partial
20	432003033		54	432004036	
21	432003038		55	432004037	
22	432003040		56	432004039	Partial
23	432003041		57	432004042	
24	432003042		58	432004043	
25	432003043	Partial	59	432004044	
26	432003045		60	432004048	
27	432003046		61	432004051	
28	432003047		62	432003999	
29	432003048				
30	432003051				
31	432003052				
32	432003053				
33	432003054				



Kauai Harbors Figure 1. Nawiliwili Harbor Tax Map Key Parcel Boundaries

Kauai Harbors Figure 2. Port Allen Harbor Tax Map Key Boundaries

Kauai Harbors Figure 3. Aerial View of Nawiliwili Harbor Showing the Location Buildings and Harbor Facilities with Exterior Lighting

Kauai Harbors Figure 4. Aerial View of Port Allen Harbor Showing the Location of Buildings and Harbor Facilities with Exterior Lighting

Lihue Airport Item 2. Provide the legal description of the property at which the existing facilities and Covered Activities are located, including Tax Map Key (TMK) number. Provide a survey of the property and site plan drawings showing the locations of the Covered Activities (lights), property boundaries, buildings & structures, and site features. If properties containing the Covered Activities comprise separate parcels please include all Tax Map Key numbers and maps.

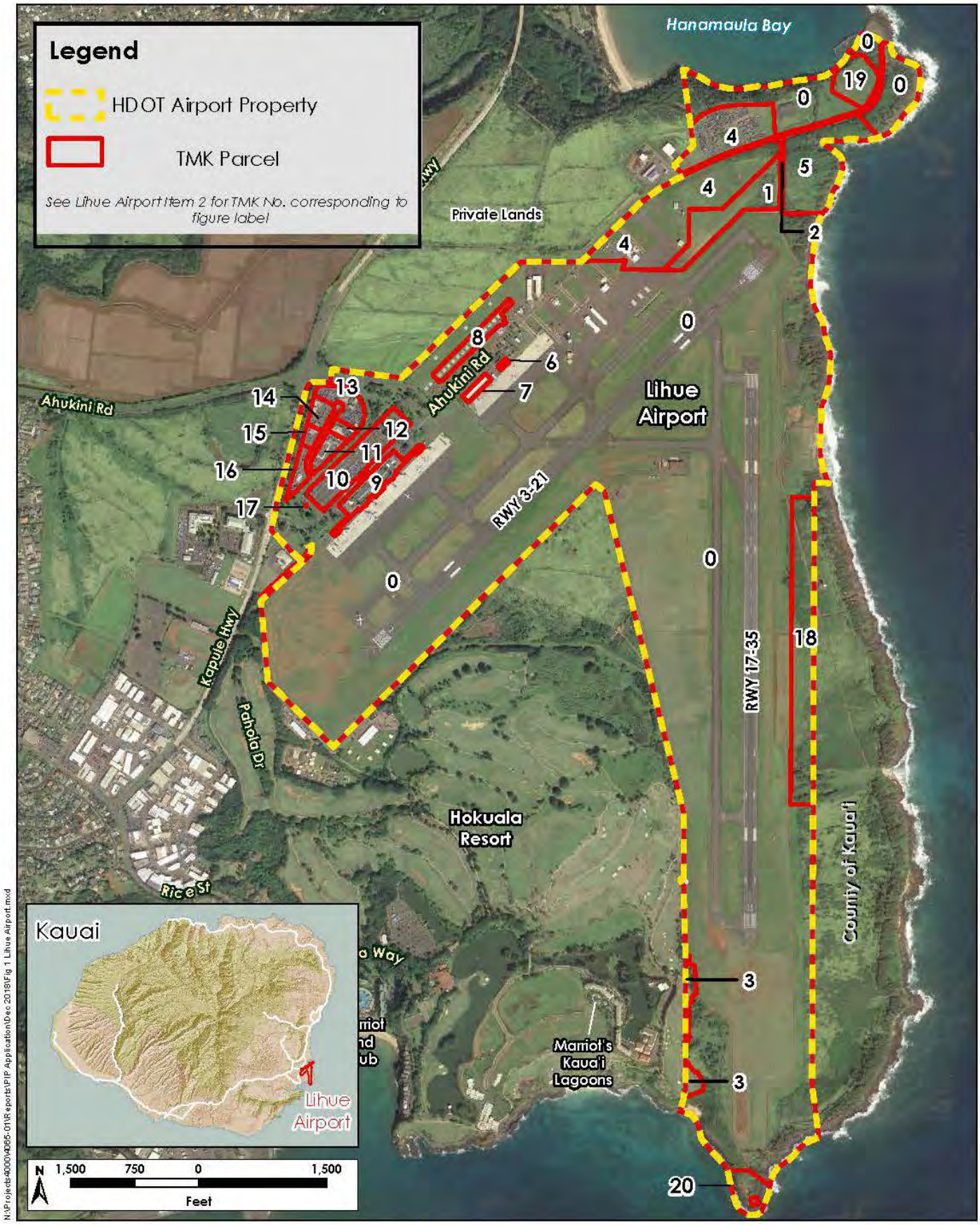
See Lihue Airport Figures 1 and 2, depicting the Lihue Airport (915 Acres, 1.5 miles east of Lihue, 153 feet above mean sea level):

__X__ Portion of Tax Map Key plat (4) 3-5-01. The Lihue Airport TMK parcels being covered under this HCP are listed below and shown in Lihue Airport Figure 1. The boundary of Port Allen Harbor is shown in Kauai Harbors Figure 2.

Label ID	TMK No.	Amount
0	435001008	
1	435001009	
2	435001092	
3	435001109	
4	435001158	
5	435001160	
6	435001147	
7	435001146	
8	435001148	
9	435001135	
10	435001091	
11	435001134	
12	435001133	
13	435001132	
14	435001131	
15	435001130	
16	435001129	
17	435001137	
18	435001005	
19	435001159	
20	435001128	Partial

__X__ Lihue Airport survey map (Lihue Airport Figure 1)
__X__ Map of property (airport layout plan) (Lihue Airport Figure 2)

An aerial view of Lihue Airport, the location of buildings and structures with exterior lights that are covered by the HCP other site features of the property, are provided in Lihue Airport Figure 2.



Lihue Airport Figure 1. Lihue Airport Tax Map Key Parcels

Lihue Airport Figure 2. Lihue Airport Boundary and Location of Facilities with Outdoor Lighting.

Kauai Harbors Item 3. Describe the existing Covered Activities for which incidental take authorization is sought. Include list of buildings, type and description of lights present, purpose and location of lights and current seabird lighting accommodation in place (e.g. shielding, downward pointing, switched off during fledging season, etc.). For "Types of lights" please use the following categories:

- **Parking Lights**
- **Signage Illumination**
- **Wall-pack Building Lights**
- **Landscaping/Grounds/Accent/Bollards**
- **Indoor lights visible from outdoors**
- **Roof Floodlights**
- **High-mast Lights**
- **Other Lights**

Facility lighting plan may be submitted as lighting inventory. Photos may be attached. The suggested light table and Green Sea Turtle assessment table below may each be modified as needed to provide the necessary information.

Kauai is served by two deep-draft commercial harbors, Nawiliwili Harbor and Port Allen Harbor. A general description of each is provided below. For its lawful land, water, and ocean use activities, HDOT is applying for an ITP under the KSHCP for the Newell's shearwater (*Puffinus newelli*), Hawaiian petrel (*Pterodroma sandwichensis*), and band-rumped storm petrel (*Oceanodroma castro*).

Nawiliwili Harbor

Nawiliwili Harbor is owned and operated by the State of Hawaii and is the island's primary commercial and transportation center, located 1 mile from the county seat in Lihue. It is located on the southeast coast of Kauai and is just 4 miles from Lihue Airport, with easy access to the island's highway system through Waapa Road. Facilities include piers for the handling of both overseas and interisland containerized and general cargo, as well as cruise ship passengers and crews.

Nawiliwili Harbor is a human-made port, dredged from naturally formed Nawiliwili Bay. The ocean frontage consists of concrete piers or large rock and boulder fill. The existing harbor facilities include three piers providing over 1,800 feet of berthing space:

- Piers 1 and 2 together are 1,214 feet long with a depth of 34 feet at pier side.
- Pier 3, completed in 1994, is 635 feet long and contains over 16 acres of paved yard.

In addition, construction of a segmented pier approximately 100 feet long was completed in 2008.

The harbor basin is 1,540 feet wide by 1,950 feet long and is protected by a rock-faced jetty and a 2,150-foot-long breakwater. Kauai Harbors Table 2 and Kauai Harbors Figure 3 provides details of the existing facilities and external lighting, which is mandated for security and safety reasons for lawful operational activities at Nawiliwili Harbor. Lighting is important especially during twilight hours and from sunset to sunrise to protect this critical infrastructure, in compliance with federal requirements.

Adjacent to the commercial harbor is the Nawiliwili Small Boat Harbor, managed by DLNR's Division of Boating and Ocean Recreation. Nawiliwili Harbor does not have any beach area along its ocean frontage; the nearest beach area is at Nawiliwili Park and Kalapaki Beach, fronting the Kauai Marriot Beach Resort more than 900 feet from the property. The beach is 980 feet from the closest light feature at the harbor.

Nawiliwili Harbor and its operational and administrative activities are regulated by the U.S. Coast Guard (USGC) and Customs and Border Protection (CBP), U.S. Department of Homeland Security (DHS), Occupational Safety and Health Administration (OSHA), and the U.S. Department of Labor. Additionally, the portions of the harbor behind security fencing are designated and regulated by the CBP as "secured or sterile" (restricted) areas. These designated and restricted areas are accessible only by individuals who successfully complete a stringent Security Threat Assessment and Criminal History Security Check and who are issued a Transportation Worker Identification Card, which must be visibly displayed on their persons at all times. Entry by unauthorized individuals into these restricted areas is a federal violation. Containerized imported cargo must be inspected by CBP, and imported and exported products are inspected by the Hawaii Department of Agriculture. HDOT-H provides 24-hour security for the facilities through a contract with a private security services firm. On behalf of HDOT-H, each contracted private security officer must be qualified and certified to conduct their security duties at the facility as well as to successfully complete a Security Threat Assessment and Criminal History Security Check. Restricted areas are surrounded by a security fence, which serves to restrict access by unauthorized individuals, but also controls access by feral dogs or cats that may opportunistically prey on downed seabirds. All security requirements imposed on Nawiliwili Harbor are mandated under a Facility Security Plan (FSP), which is co-approved by a representative of the USCG and a designed official of Nawiliwili Harbor. The contents of the FSP are classified as Security Sensitive Information (SSI) and can be reviewed only "on an as needed basis" and released with proper written authorization.

Nawiliwili Harbor is the island's primary port of call, through which most maritime cargo is imported and through which island products are exported. All of Kauai's containerized cargo is received here and the harbor is the preferred destination for cruise ships, limited to vessels with lengths not exceeding 1000 feet. In addition to cruise ship passengers the harbor handles commodities including darkened molasses; construction materials such as lumber, rebar, and cement; petroleum products such as gasoline; jet fuel and liquefied natural gas and propane; and scrap metal.

Nawiliwili Harbor has regularly scheduled cargo services by Matson, Inc. and Young Brothers, Limited shipping lines. Matson Inc. has weekly tug and barge service to Nawiliwili on Friday and Sunday, operating out of Pier 2. Matson vessels typically operate during day light hours and are in port from 7:00 am – 2:00 pm on Friday and 7:00 am – 3:00 pm on Sundays. Night operational lighting is typically not used unless departure is delayed for some reason.

Young Brothers has weekly tug and barge cargo service to Nawiliwili Harbor on Tuesday and Friday, operating out of Pier 3. Young Brothers tug and barge vessels typically arrive in the morning and depart later that same day after dark. The vessels are usually in port until 8:00 – 10:00 pm requiring full operational night lighting when vessels are actively loading and unloading with heavy equipment operators present.

The cruise ship Pride of America is the other vessel that makes regularly scheduled overnight visits to Nawiliwili Harbor, operating out of Pier 2. It arrives at 7:00 am on Thursday and departs at 2:00 pm on Friday. It requires night operational lights while in port, but Pier 2 has a reduced amount of lighting with three high-mast poles illuminating the pier. Only those portions of Pier 2 where lighting is needed for passenger access and safety are illuminated with night operational lights.

Nawiliwili is considered a daylight port for large vessels such as cruise ships, fuel tankers, and propane vessels which typically enter and leave port in a single day during daylight hours. Container cargo operations, such as Matson and Young Brothers, arrive by tug and barges and are not limited by daylight port only operations. The fuel tanker stays overnight, but does not require port side operational lights during these periods. Large cruise ships that do visit typically do so in a single day and do not stay overnight, but may not depart port until after dark, requiring elevated lighting levels to support those operations.

Port Allen Harbor

Port Allen Harbor is Kauai's second commercial harbor, located on the south coast of the island, 20 miles from Lihue Airport and 106 nautical miles from Honolulu Harbor. Port Allen Harbor is nestled in the naturally formed Hanapepe Bay. The Hanapepe River flows into the bay, but because much of the water has been diverted for irrigation purposes, sediments deposited by the river are minimal. The bay is surrounded by the old plantation communities of Hanapepe and Eleele to the north. Waialo Road provides access to the harbor from Kaumualii Highway. The dimension of the harbor basin is 1,200 feet by 1,500 feet and is protected by a 1,200-foot breakwater. The entrance channel is 500 feet wide with a depth of 35 feet. Adjacent to the commercial harbor is the Port Allen Small Boat Harbor managed by the DLNR Division of Boating and Ocean Recreation.

Port Allen Harbor is a smaller facility that serves the military, petroleum suppliers, and more recently, small charter and excursion boat operators. The harbor facilities include two 600-foot-long piers located on opposite sides of the primary pier structure. The north pier has a depth of 25 feet, while the south pier has a depth of 35 feet. The U.S. Navy Pacific Missile Range Facility (PMRF) leases the north pier berths, while the south pier berths are used by charters and excursion operators. Port Allen has facilities for liquid bulk (e.g., petroleum) cargo. There are roughly 1.5 acres of shed and open storage space at the facility. The north side of the pier used by PMRF has security fencing across the pier entrance and at the end of the PMRF-leased space. Port Allen is not regulated by a USCG FSP.

Port Allen Harbor is considered a daylight port and does not have high-mast lights to illuminate large vessel night operations. The regularly scheduled service by a large vessel is the fuel barge that visits every other Monday. The vessel arrives at first light and departs by 3:00 pm. The smaller sized charter and excursion operators use the pier in the early evening and at night, to service their boats. The south side of the facility is not fenced and is open to public access. The pier is a popular fishing spot and heavily used by the public for night fishing. The harbor is staffed by a harbor agent during the day, Monday - Friday and is unmanned on weekends and at night. Night lighting for facility security is on a timer and comes on at dusk and stays on overnight. The night lighting is limited to every other light along the Pier Shed. Tenants also provide their own external lighting to illuminate their work areas.

Kauai Harbors Figures 3 and 4 above show the location of buildings and features at Nawiliwili Harbor and Port Allen Harbor. Kauai Harbors Tables 2 and 3 below describe the type of lights at the building locations shown in these figures, their purpose, and measures implemented to avoid or minimize take impacts to Covered Species. Appendix A provides information on the specifications of the various types of lights used at each facility.

Kauai Harbors Table 2. Outdoor Lighting at Nawiliwili Harbor

List of Buildings/ Facilities	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
Harbor Yard	LED High-mast Lighting, Pole mounted at 82 ft high, 4000K, Dimmable (Holophane HMLED2 12 4K)	Paved container yard supporting Piers 1, 2, and 3	To provide operational safety and port security for yard operations, dock operations, yard storage, and yard parking areas	With the 2016 energy-savings program, high-pressure sodium light fixtures were replaced with downward pointed, full cut-off LED light fixtures. High-mast light fixtures are compliant with night sky protection strategy under HRS Section 201-8.5. Further, lights are dimmed when no pier operations are in progress.
Harbor Yard Roadways	LED High-mast Lighting, Pole mounted at 28-44 ft high, 4000K, (Holophane HMLED2 06 4K)	Internal roadway between Piers 2 and 3	To provide operational safety and port security for internal yard roadway	With the 2016 energy-savings program, high-pressure sodium light fixtures were replaced with downward pointed, full cut-off LED light fixtures. Street light fixtures are compliant with night sky protection strategy under HRS Section 201-8.5.
	LED Roadway Lighting, D series area luminaire, Pole mounted at 30 ft high, 4000K, (Lithonia DSX0 LED 20C 1000 40K)	Paved roadway off Waapa Road to Young Brothers entry gate to Pier 3.	To provide operational safety and port security for access roadway off Waapa Road	Downward pointed, full cut-off fixtures are compliant with night sky protection strategy under HRS Section 201-8.5.
Harbor Administration Building	LED Wall-pack Building Lights, 4000K. (RAB WPLED13N/PC2	Harbor Administration Offices Compound	To provide operational safety and security for harbor administrative office compound	Downward pointed, full cut-off fixture, all wall-pack building lights are mounted under eaves and are compliant with night sky protection strategy under HRS Section 201-8.5.
	LED Recessed Ceiling Mount Downlight Building Lights, 4000K, (Precision RF6LED5G4-277)	Harbor Administration Offices Compound	To provide operational safety and security for harbor administrative office compound	Downward pointed, full cut-off fixture, all wall-pack building lights are mounted under eaves and are compliant with night sky protection strategy under HRS Section 201-8.5.
	LED Ceiling Mount Canopy Downlight Building Lights, 4000K, (Cree CPY250-A-DM-F-C-UL-SV-PML)	Harbor Administration Offices Compound	To provide operational safety and security for harbor administrative office compound	Downward pointed, full cut-off fixture, all wall-pack building lights are mounted under eaves and are compliant with night sky protection strategy under HRS Section 201-8.5.

List of Buildings/ Facilities	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
Harbor Maintenance Baseyard Buildings	LED Wall-pack Building Lights, 4000K. (RAB WPLED13N/PC2)	Harbor Administration Compound	To provide operational safety and security for harbor administrative office compound	Downward pointed, full cut-off fixture, all wall-pack building lights are mounted under eaves and are compliant with night sky protection strategy under HRS Section 201-8.5.
	LED Flood Light Fixture – Flood or shoebox mount, LED, 4000K, (Holophane PMLED-03-4K)	Harbor Administration Compound	To provide operational safety and security for harbor administrative office compound	Downward pointed, full cut-off function achieved by aiming angle, all wall-pack building lights are mounted under eaves and are compliant with night sky protection strategy under HRS Section 201-8.5.
	LED Ceiling/wall mount Florescent Strip Fixture; 4000K, (Precision SIL-1X8-XL-F-UL-40K-CW8-JP)	Harbor Administration Compound	To provide operational safety and security for harbor administrative office compound	Downward pointed, full cut-off fixture, all ceiling/wall-pack building lights are mounted under eaves and are compliant with night sky protection strategy under HRS Section 201-8.5.
Warehouse Pier 2 Building (occupied by Matson)	LED Wall-pack Building Lights, 4000K, dusk to dawn timer. (RAB WPLED3T78NW/PC2)	Pier 2	To provide operational safety and security for Matson processing and storage facilities.	Downward pointed, full cut-off fixture, all wall-pack building lights are mounted under eaves and are compliant with night sky protection strategy under HRS Section 201-8.5.
	LED Flood Light Fixture, Flood or shoebox mount, 4000K, (Holophane PMLED-04-4K)	Pier 2	To provide operational safety and security for Matson processing and storage facilities	Downward pointed, full cut-off function achieved by aiming angle, all wall-pack building lights are mounted under eaves and are compliant with night sky protection strategy under HRS Section 201-8.5.
Warehouse Pier 3 Building (occupied by Young Brothers)	LED High Bay Fixture, ceiling mounted high bay, 4 LED modules, 4000K, (Cree PKG-304-5M-DM-04)	Pier 3	To provide operational safety and security for Young Brothers processing and storage facilities	Downward pointed, full cut-off fixture, all ceiling/wall-pack building lights are mounted under eaves and are compliant with night sky protection strategy under HRS Section 201-8.5.

Kauai Harbors Table 3. Outdoor Lighting at Port Allen Harbor

List of Buildings	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
Port Allen South Pier Shed Buildings	LED Wall-pack Building Lights, 4000K, dusk to dawn timer (RAB WPLED13N/PC2, RAB WPLED18N/PC2, RAB WPLED26N/PC2)	South Pier Shed Berths Walls	To provide operational safety and security for harbor offices, tenants, and the public	Downward pointed, full cut-off fixture, all wall-pack building lights are mounted under eaves, night time setting of every other light turned off and are compliant with night sky protection strategy under HRS Section 201-8.5.
Port Allen South Pier Shed Buildings	LED Flood Light Fixture, Flood mount, 4000K (Holopane PMLED-03-4K, Holopane PMLED-04-4K)	South Pier Shed Walkway, Berth Walls	To provide operational safety and security for harbor offices, tenants, and the public	Downward pointed, full cut-off function achieved by aiming angle, all wall-pack building lights are mounted under eaves, turned off when no operations in progress and are compliant with night sky protection strategy under HRS Section 201-8.5.
Port Allen South Pier Shed Parking Lot	LED Flood Light Fixture, Flood mount on side of building, 4000K (Holopane PMLED-03-4K, Holopane PMLED-04-4K)	South Pier Shed East End Parking Lot	To provide operational safety and security for harbor offices, tenants, and the public	Downward pointed, full cut-off function achieved by aiming angle and are compliant with night sky protection strategy under HRS Section 201-8.5.
Port Allen South Pier Parking Lot Storage Shed	LED Flood Light Fixture, Flood mount, 4000K (Holopane PMLED-03-4K, Holopane PMLED-04-4K)	South Pier Storage Building at back of Parking Lot	To provide operational safety and security for harbor offices, tenants, and the public	Downward pointed, full cut-off function achieved by aiming angle, wall-pack building light mounted under eaves.
Port Allen North Pier Shed Buildings	LED Wall-pack Building Lights, 4000K	North Pier Shed	To provide operational safety and security for U.S. Navy PMRF pier facilities	The lights that illuminate the northern berths are controlled by the U.S. Navy PMRF. Any measures taken to minimize take impacts are the responsibility of the U.S. Navy PMRF.
	LED Flood Light Fixture, Flood mount, 4000K	North Pier Shed	To provide operational safety and security for U.S. Navy PMRF pier facilities	The lights that illuminate the northern berths are controlled by the U.S. Navy PMRF. Any measures taken to minimize take impacts are the responsibility of the U.S. Navy PMRF.

Kauai Harbors Table 4. Green Sea Turtle (Honu) Assessment for the Site and Facility

Please provide the information requested below for each facility, parcel, and site to help determine if potential exists for take (pages may be attached). If potential exists for take of the green sea turtle, measures to avoid impacts to the honu from the effects of light attraction may be required. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the honu, and provide further guidance.		
Are any of the facilities located adjacent to a beach?	**Yes / No**	**If yes, provide length of beach frontage & brief description of facilities & lights adjacent to the beach**
Nawiliwili Harbor	No	
Port Allen Harbor	No	
Are any of the Covered Activities (lights) visible from a beach?	**Yes / No**	**If yes, describe the specific lights (type, quantity, height, purpose) & specific location; provide map & photos showing distance from beach**
Nawiliwili Harbor	No	
Port Allen Harbor	No	
Have green sea turtles been known to nest on any beaches adjacent to the facilities?	**Yes / No**	**If yes, provide information about nesting occurrences, if known, including location and date and any other information**
Nawiliwili Harbor	No	
Port Allen Harbor	No	

Lihue Airport Item 3. Describe the existing Covered Activities for which incidental take authorization is sought. Include list of buildings, type and description of lights present, purpose and location of lights and current seabird lighting accommodation in place (e.g. shielding, downward pointing, switched off during fledging season, etc.). For "Types of lights" please use the following categories:

- **Parking Lights**
- **Signage Illumination**
- **Wall-pack Building Lights**
- **Landscaping/Grounds/Accent/Bollards**
- **Indoor lights visible from outdoors**
- **Roof Floodlights**
- **Other Lights**

Facility lighting plan may be submitted as lighting inventory. Photos may be attached. The suggested light table and green sea turtle assessment table below may each be modified as needed to provide the necessary information.

Lihue Airport

Lihue Airport is part of a statewide system that includes most of the major air carrier and general aviation airports in the Hawaiian Islands. It is part of the Kauai Island District.

Lihue Airport is classified by the FAA as a Class 1 Airport, certified to serve scheduled and unscheduled operations of large air carrier aircraft. In order to serve air carrier operations, Lihue Airport is required to have 14 CFR Part 139 Airport Certification and hold a Part 139 Air Operating Certificate issued by the FAA, to ensure safety in air transportation. To obtain a certificate, an airport must agree to certain operational and safety standards, including having Part 139 compliant runway/taxiway and apron lighting and signage, lighting, and obstruction lighting. Lihue Airport is also governed by the provisions of Chapters 261, 262, and 263 of the Hawaii Revised Statutes. HDOT-A has compiled and published "Administrative Rules for Public Airports" (Title 19), promulgating rules and regulations for operation of the Airports Division (HDOT-A) and the individual airports throughout the state.

Lihue Airport occupies 915 acres and is situated about 1.5 miles east of Lihue, on the southeast coast of the island of Kauai. The airport promotes the freedom of movement of passengers and commerce and provides passenger and aircraft facilities for domestic overseas carriers, interisland carriers, commuter/air taxis, air cargo, and general aviation activities. Airfield facilities include two runways (6,500 by 150 feet), taxiways, aprons, eight gates, navigational aids (ILS, VORTAC, DME, and PAPI/VASI), an airport traffic control tower, and helipads.

Vehicular access to the airport is provided by Ahukini Road, which extends from Kapule Highway. The passenger terminal is served by a one-way loop roadway branching off Ahukini Road and encircling a public parking lot. The remaining facilities are served directly by Ahukini Road.

Airport support elements include the Federal Aviation Administration (FAA) air traffic control tower, aircraft rescue and firefighting facilities, National Weather Service office and balloon launch facility,

HDOT-A Airport Maintenance facilities, fuel storage and loading facilities, concessions (food and beverage, retail, Wifi, rental cars) and airport service roads.

Airspace usage in the Lihue terminal area is influenced by urban development, resort and recreational areas (golf course), military activities, and terrain features. Some of these activities and operations may attract avian activity, but must comply with safety, security, and health regulations, some limit the use of airspace, and some do both.

There are currently no restrictions that influence aircraft performance on approaches or departures. The control tower advises arriving and departing aircraft to minimize overflights of the town of Lihue to the southwest. With respect to approach procedures, air traffic from the north must maintain an altitude of 1,500 feet until final approach.

Lihue Airport Figure 1 above shows the TMK parcels that compose the airport property. Lihue Airport Figure 2 above uses Google Earth imagery to show the landscape-scale features of Lihue Airport and identifies those buildings and features that have outdoor lights. Lihue Airport Table 1 describes the outdoor airport lighting. Appendix A provides information on the specifications of the various types of lights used at the facility.

Lihue Airport Table 1. Outdoor Lighting at Lihue Airport

List of Buildings/ Facilities	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
Main Ramp/Apron (Aircraft Operating Area)	HPS High-mast Lighting, Pole-Mounted Flood Fixture, High Pressure Sodium, (6) 1000W lamps, on timer from dusk to 12:30 a.m.	The aircraft apron, ramp and taxiways servicing the main passenger terminal.	To provide operational safety and security for aircraft movement, servicing, maintenance, baggage handling, and passenger service	Downward pointed, full cut-off function achieved by aiming angle, turned off at 12:30 am after the last flight departs for the night.
	HPS Apron Flood Lighting, Pole-Mounted Flood Fixture, High Pressure Sodium, (4) 1000W lamps			Downward pointed, full cut-off function achieved by aiming angle, turned off at 12:30 am after departure of the last flight.
	LED Wall-pack Building Lights, 4000K, (Cree SEC EDG 3MB WM 04 D 40k)			Downward pointed, full cut-off fixture.
	LED Wall-pack Building Lights, 4000K, (RAB WPLED18N)			Downward pointed, full cut-off fixture.
Terminal Building (Public Access)	LED Wall-pack Building Lights, 4000K, (Cree SEC EDG 3MB WM 04 D 40k)	Main terminal public access areas, vehicle and pedestrian access	To provide operational safety and security for public, airport workers, and tenants.	Downward pointed, full cut-off fixture
	LED Wall-pack Building Lights, 4000K, (RAB WPLED13N)			Downward pointed, full cut-off fixture
	LED Ceiling Mount High Bay Parking Structure Luminaire, 4000K, (Cree PKG 304 PS DM 04-40K)			Downward pointed, full cut-off fixture
	LED Ceiling Mount, Recessed Can, 4000K, (Precolite RLF6LEDG4 6LFLED7G4-40k)			Downward pointed, full cut-off fixture
	LED Ceiling Mount, High Bay Canopy Light, 4300K, (Cree CAN EDG 5S DM 04 43K)			Downward pointed, full cut-off fixture
Terminal Building (Public Access Indoor Lighting)	LED Interior Indoor Lights Visible from Outside. LED Fluorescent Light. On motion sensor to dim to 10% level when not occupied.	Main terminal public access passenger holding areas, pedestrian access	To provide operational safety and security for public, airport workers, and tenants.	Internal building lighting, passenger holding areas on motion sensor to dim to 10% level when not occupied.

List of Buildings/ Facilities	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
Public Parking Lot	LED Pole Mounted Parking Lot Light, 4000K, Solar Powered dusk to dawn timer. Holophane - ATB2 40BLEDE70 120 R2 GY NR DCDRIVER & EG-340 LED Bollard Walkway light, 3 ft high, 5500K, Solar Powered dusk to dawn timer. First Light PLB 102 BZ SYM 55K 04 SEC)	Public Car Park	To provide public safety and security for visitors to airport and enable surveillance of parking areas to maintain airport security.	Downward pointed, full cut-off fixture Downward pointed, full cut-off fixture
Rental Car Lots (public access road)	LED Roadway Light, LED Pole Mounted, 4000K, Solar Powered dusk to dawn timer. (Holophane - ATB2 40BLEDE70 120 R2 GY NR DCDRIVER & EG-340)	Rental car facilities access road	To provide safe driving, walking and working conditions for public, workers, and businesses.	Downward pointed, full cut-off fixture.
Ahukini Road	LED Roadway Light, LED Pole Mounted, 4000K, Solar Powered dusk to dawn timer. (Holophane - ATB2 40BLEDE70 120 R2, R4, R5 GY NR DCDRIVER & EG-340) LED Sign Illumination, flood solar light, 2-light system, 2700K, dimmable. (Solar Illuminations FL57 2 lamp system 45W Panel)	Airport access road to main terminal, cargo and commuter terminal, and heliport Sign lighting along roadway	To provide safe driving, walking and working conditions for the public, airport workers, and tenants	Downward pointed, full cut-off fixture. Mounted above sign. Downward pointed
Cargo Ramp/Apron (Aircraft Operating Area)	HPS High-mast Lighting, Pole-Mounted Flood Fixture, High Pressure Sodium, (6) 1000W lamps HPS Apron Flood Lighting, Pole-Mounted Flood Fixture, High Pressure Sodium, (4) 1000W lamps MH Metal Halide Lighting, Pole-Mounted Flood Fixture, Metal Halide, (4) 750W lamps, Magnetic ballast	Aircraft apron, parking stalls, and taxiways for the main terminal	To provide operational safety and security for aircraft movement, servicing, and maintenance, baggage handling for passenger service.	Downward pointed, full cut-off function achieved by aiming angle. Downward pointed, full cut-off function achieved by aiming angle. Downward pointed, full cut-off function achieved by aiming angle.

List of Buildings/ Facilities	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
Commuter Terminal and Cargo Building (Public Access)	LED Wall-pack Building Lights, 4000K, (Cree SEC EDG 3MB WM 04 D 40k)	Cargo and Commuter terminal public access areas, vehicle and pedestrian access	To provide operational safety and security for public, airport workers, and tenants and handling of cargo.	Downward pointed, full cut-off fixture
	LED Wall-pack Building Lights, 4000K, (RAB WPLED18N)			Downward pointed, full cut-off fixture
	LED Ceiling Mount, Recessed Can, 4000K, (Precolite RLF6LEDG4 6LFLED7G4-40k)			Downward pointed, full cut-off fixture
	LED Pole mounted shoebox area light, 4000K (Cree ARE EDG 3M DA 04 E 40K)			Downward pointed, full cut-off fixture
Heliport Apron (Aircraft Operating Area, T-hangers)	LED Wall-pack Building Lights, 4000K, (RAB WPLED13N)	Helicopter apron, T-Hangers, and service area within secure part of airport.	To provide safety and security for aircraft movement, servicing, and maintenance.	Downward pointed, full cut-off fixture, turned off when no operations are in progress.
	LED Area Flood Light, wall mounted, 4000K, (Cree ARE EDG 4M DA 10 E UL BZ 525 40K PML + WM2)			Downward pointed, full cut-off fixture, turned off when no operations are in progress.
	LED Area Flood Light, pole mounted, 4000K, (Cree ARE EDG 4M DA 10 E UL BZ 525 40K PML + WM2)			Downward pointed, full cut-off fixture, turned off when no operations are in progress.
	LED Area light, wall mounted, 4000K (Cree ARE EDG 4M AA 04 E UL BZ 700 40K R + WM-2)			Downward pointed, full cut-off fixture, turned off when no operations are in progress.
	LED Area Light, pole mounted shoebox fixture, 4000K, (Cree ARE EDG 3M DA 04 E UL BZ 525 R)			Downward pointed, full cut-off fixture, turned off when no operations are in progress.
	LED Roadway Light, LED Pole Mounted, 4000K, Solar Powered dusk to dawn timer. (Holophane - ATB2 40BLEDE70 120 R2 GY NR DCDRIVER & EG-340)			Downward pointed, full cut-off fixture.

List of Buildings/ Facilities	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
Maintenance Area Building	LED Roadway Light, LED Pole Mounted, 4000K, Solar Powered dusk to dawn timer. (Holophane - ATB2 40BLEDE70 120 R2 GY NR DCDRIVER & EG-340)	Airport Maintenance Area across from Heliport and Cargo and Commuter Terminal	To provide operational safety and security for airport maintenance personnel and work.	Downward pointed, full cut-off fixture.
	LED Wall-pack Building Lights, 4000K, (Cree SEC EDG 3MB WM 04 D 40k)			Downward pointed, full cut-off fixture.
	LED Wall-pack Building Lights, 4000K, (Cree SEC EDG 4M WM 02 E - 40k)			Downward pointed, full cut-off fixture.
	LED Wall-pack Building Lights, 4000K, (RAB WPLED18N)			Downward pointed, full cut-off fixture
	LED Wall-pack Building Lights, 4000K, (RAB WPLED13N)			Downward pointed, full cut-off fixture
Fire Department	LED Flood light, Wall mounted, 4000K (Cree FLD EDG 70 AA 04 D UL BZ 525)	Airport airfield adjacent to runways	To provide operational safety and security for airport fire station, worker safety and facility security	Downward pointed, full cut-off function achieved by aiming angle
	LED Wall-pack Building Lights, 4000K, (Cree SEC EDG 3MB WM 04 D 40k			Downward pointed, full cut-off fixture
	LED Area Light, Pole mounted, 4000K, (Cree ARE EDG 3M DA 06 D UL BZZ 700 40K P)			Downward pointed, full cut-off fixture
	LED Ceiling Mount, Recessed Can, 4000K, Dimmable (Precolite RLF6LEDG4 6LFLED7G4-40k)			Downward pointed, full cut-off fixture

Lihue Airport Table 2. Green Sea Turtle (Honu) Assessment for the Site and Facility

Please provide the information requested below for each facility, parcel, and site to help determine if potential exists for take (pages may be attached). If potential exists for take of the green sea turtle, measures to avoid impacts to the honu from the effects of light attraction may be required. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the honu, and provide further guidance.		
Are any of the facilities located adjacent to a beach? **Lihue Airport**	**Yes / No** **No**	**If yes, provide length of beach frontage & brief description of facilities & lights adjacent to the beach**
Are any of the Covered Activities (lights) visible from a beach? **Lihue Airport**	**Yes / No** **No**	**If yes, describe the specific lights (type, quantity, height, purpose) & specific location; provide map & photos showing distance from beach**
Have green sea turtles been known to nest on any beaches adjacent to the facilities? **Lihue Airport**	**Yes / No** **No**	**If yes, provide information about nesting occurrences, if known, including location and date and any other information**

Kauai Harbors Item 4. If applicable, describe any lighting standards (e.g., foot-candles/area) required for facility operations or other requirements that necessitate the use of lighting (e.g., required for security, safety, operations). Describe the relevant standard, or regulation, and the areas and Covered Activities at the site (e.g., type of lighting) to which it applies.

U.S. Coast Guard. Harbors Operations

The USCG operates under the Pacific Area Instructions 16611. Lighting for harbor facilities is regulated and governed by paragraph #5 of this document, which reads as follows:

5. Lighting

    A. Facilities should be illuminated at least to the level of twilight and should be provided sunset to sunrise. The minimum standard for illumination should be one-foot candle at 1 meter above ground. Dock work areas, container unloading and loading areas, waterfront, perimeter, restricted areas and all access points should have 5 foot-candle illumination.

    B. Lighting should conform to federal regulations (e.g. OSHA) and comply with voluntary agreements such as U.S. Customs Sea Carrier or Super Carrier Initiatives (if applicable).

    C. Updated lighting technology should be used, such as high-pressure sodium, mercury vapor, or metal halide lighting.

    D. Lighting should be directed downward, away from guards or offices, or navigable waterways and should produce high contrast with few shadows.

U.S. Coast Guard Code of Federal Regulations Title 33, Chapter I, Subchapter H, Part 105 Maritime Security: Facilities, Subpart B Facility Security Requirements, Section 105.275 Security measures for monitoring, which reads as follows.

A. *General.* The facility owner or operator must ensure the implementation of security measures in this section and have the capability to continuously monitor, through a combination of lighting, security guards, waterborne patrols, automatic intrusion-detection devices, or surveillance equipment, as specified in the approved Facility Security Plan (FSP), the:

    1. Facility and its approaches, on land and water;

    2. Restricted areas within the facility; and

    3. Vessels at the facility and areas surrounding the vessels.

B. *MARSEC Level 1.* At MARSEC Level 1, the facility owner or operator must ensure the security measures in this section are implemented at all times, including the period from sunset to sunrise and periods of limited visibility. For each facility, ensure monitoring capability that:

1. When automatic intrusion-detection devices are used, activates an audible or visual alarm, or both, at a location that is continuously attended or monitored;

2. Is able to function continually, including consideration of the possible effects of weather or of a power disruption;

3. Monitors the facility area, including shore and waterside access to it;

4. Monitors access points, barriers and restricted areas;

5. Monitors access and movements adjacent to vessels using the facility, including augmentation of lighting provided by the vessel itself; and

6. Limits lighting effects, such as glare, and their impact on safety, navigation, and other security activities.

C. *MARSEC Level 2.* In addition to the security measures for MARSEC Level 1 in this section, at MARSEC Level 2, the facility owner or operator must also ensure the implementation of additional security measures, as specified for MARSEC Level 2 in the approved FSP. These additional measures may include:

1. Increasing the coverage and intensity of surveillance equipment, including the provision of additional surveillance coverage;

2. Increasing the frequency of foot, vehicle or waterborne patrols;

3. Assigning additional security personnel to monitor and patrol; or

4. Increasing the coverage and intensity of lighting, including the provision of additional lighting and coverage.

D. *MARSEC Level 3.* In addition to the security measures for MARSEC Level 1 and MARSEC Level 2, at MARSEC Level 3, the facility owner or operator must also ensure implementation of additional security measures, as specified for MARSEC Level 3 in the approved FSP. These additional security measures may include:

1. Switching on all lighting within, or illuminating the vicinity of, the facility;

2. Switching on all surveillance equipment capable of recording activities within or adjacent to the facility;

3. Maximizing the length of time such surveillance equipment can continue to record; or

4. Complying with the instructions issued by those responding to the security incident.

U.S. Coast Guard Code of Federal Regulations Title 33, Chapter I, Subchapter L, Part 126, Section 126.15 Conditions for designation as designated waterfront facility (33 CFR 126.15), the relevant parts of which read as follows:

> (l) Lighting. That subject to applicable dim-out and blackout regulations, such waterfront facility is adequately illuminated during the handling, storing, stowing, loading, discharging or transporting of dangerous cargo thereon; and that kerosene and gasoline lamps and lanterns are not used on such waterfront facility.
>
> ****
>
> (n) Adequacy of guarding, fire extinguishing equipment, and lighting. That the word ‘‘adequate’’, as used in paragraphs (a), (j), and (l) of this section with respect to guarding, fire extinguishing equipment, and lighting, respectively, means that determination which a reasonable person would make under the circumstances of the particular case. Unless there is gross noncompliance, the judgment and determination of the operator of the facility will be acceptable as fulfilling the requirements unless and until the Captain of the Port inspects the facility and notifies the operator thereof in writing in what respect the guarding, fire extinguishing equipment, or lighting, is deemed inadequate and affords such operator an opportunity to correct the deficiency.

U.S. Coast Guard Code of Federal Regulations Title 33, Part 127 – Waterfront Facilities Handling Liquefied Natural Gas and Liquefied Hazardous Gas, Subpart B – Waterfront Facilities Handling Natural Gas, provides:

§127.109 Lighting systems.

A. The marine transfer area for LNG must have a lighting system and separate emergency lighting.

B. All outdoor lighting must be located or shielded so that it is not confused with any aids to navigation and does not interfere with navigation on the adjacent waterways.

C. The lighting system must provide an average illumination on a horizontal plane one meter (3.3 feet) above the deck that is—

    1. 54 lux (five foot-candles) at any loading flange; and

    2. 11 lux (one foot-candle) at each work area.

D. The emergency lighting must provide lighting for the operation of the—

    1. Emergency shutdown system;

    2. Communications equipment; and

    3. Firefighting equipment.

U.S. Coast Guard Code of Federal Regulations Title 33, Part 154, Facilities Transferring Oil or Hazardous Material in Bulk, Subpart C – Equipment Requirements, provides:

§154.570 - Lighting.

A. Except as provided in paragraph (c) of this section, for operations between sunset and sunrise, a facility must have fixed lighting that adequately illuminates:

    1. Each transfer connection point on the facility;

    2. Each transfer connection point in use on any barge moored at the facility to or from which oil or hazardous material is being transferred;

    3. Each transfer operations work area on the facility; and

    4. Each transfer operation work area on any barge moored at the facility to or from which oil or hazardous material is being transferred.

B. Where the illumination is apparently inadequate, the COTP may require verification by instrument of the levels of illumination. On a horizontal plane 3 feet above the barge deck or walking surface, illumination must measure at least:

    1. 5.0 foot-candles at transfer connection points; and

    2. 1.0 foot-candle in transfer operations work areas.

C. For small or remote facilities, the COTP may authorize operations with an adequate level of illumination provided by the vessel or by portable means.

D. Lighting must be located or shielded so as not to mislead or otherwise interfere with navigation on the adjacent waterways.

[CGD 75-124, 45 FR 7172, Jan. 31, 1980, as amended by CGD 86-034, 55 FR 36253, Sept. 4, 1990]

U.S. Department of Labor, Occupational Safety and Health Administration (OSHA)

OSHA Code of Federal Regulation Title 29, Part 1917, Marine Terminals, Subpart F - Terminal Facilities, provides:

§1917.123 Illumination.

A. Working and walking areas shall be illuminated. Unless conditions described in the regulations of the United States Coast Guard (33 CFR 126.15(1) and (n), and 33 CFR 154.570) exist in the case of specific operations, illumination in active work areas (for example, cargo transfer points) shall be of an average minimum light intensity of 5 foot-candles. The illumination in other work areas (for example, farm areas) shall be of an average minimum light intensity of 1 foot-candle except for security purposes when a minimum light intensity of 1/2 foot-candle shall be maintained. Where occasional work

tasks require more light than that which is consistently and permanently provided, supplemental lighting shall be used.

B. The lighting intensity shall be measured at the task/working surface in the plane in which the task/working surface is present.

C. Lights shall, so far as possible, be placed so that they will not shine in the eyes of employees.

Footnote: The United State Coast Guard, at 33 CFR 126.15(1) and (n), and 33 CFR 154.570 sets out requirements for illumination at "designated waterfront facilities" and "large oil transfer facilities." [48 FR 30909, July 5, 1983, as amended at 62 FR 40201, July 25, 1997]

Illuminating Engineering Society Standards

ANSI/IES RP-8-14. Roadway Lighting. IES RP-8-14 provides recommended practices for design of fixed lighting for roadways, streets, adjacent bikeways, and pedestrian ways. Its primary purpose is to provide recommended practices for designing new continuous lighting systems for roadways and streets to allow accurate and comfortable visibility at night of possible hazards in sufficient time to allow appropriate action. For a pedestrian, this can mean better visibility of the surrounds and the sidewalk, while for the driver of a motor vehicle, it will mean time to stop or to maneuver around an obstacle. The IES recommended illuminance values for continuously lighted intersections varies from 0.8-3.4 foot-candles corresponding to low to high pedestrian conflict areas at local to major streets and intersections.

American Association of State Highway and Transportation Organization (AASHTO) highway lighting requirements

The roadway lighting at harbor facilities was designed to meet safety standards established by AASHTO in their roadway lighting design guide. The AASHTO standards are the primary source for highway lighting policy, design and warranting used by state departments of transportation.

State of Hawaii Night Sky Protection Strategy, HRS Section 201-8.5

The provision requires all exterior light fixtures to be installed to be fully shielded, defined as “when the lighting fixture is shielded in such a manner that all light rays emitted by the fixture, either directly from the lamp, or indirectly from the fixture, are projected below a horizontal plane running through the lowest point of the fixture.” It also requires “every new outdoor lamp light fixture emitting more than three thousand lumens shall be required to be fully shielded and to have a correlated color temperature of four thousand Kelvin or less”.

Navigational lights that are required for waterway, open ocean, and aircraft safety; and outdoor lighting fixtures that are necessary for compliance with applicable federal, state, or county design standards or guidelines that are related to health and safety for the general public are exempt. Fully shielded replacement lighting fixtures for state managed roadways and highways shall be installed on a case-by-case basis, subject to the availability of capital improvement project funding and compliance with applicable federal, state, or county design standards or guidelines.

Lihue Airport Item 4. If applicable, describe any lighting standards (e.g., foot candles/area) required for facility operations or other requirements that necessitate the use of lighting (e.g., required for security, safety, operations). Describe the relevant standard, or regulation, and the areas and Covered Activities at the site (e.g., type of lighting) to which it applies.

Detailed regulations and standards addressing lighting requirements at airports are prescribed in the following documents.

FAA Advisory Circulars (AC)

AC 150/5345-46E—Specifications for Runway and Taxiway Light Fixtures
https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5345-46E.pdf

Errata sheet for AC 150/5345-46E
https://www.faa.gov/documentLibrary/media/Advisory_Circular/errata-sheet-150-5345-46E.pdf

This FAA advisory circular contains the Federal Aviation Administration (FAA) specifications for light fixtures to be used on airport runways and taxiways. These specifications cover the requirements for various types of runway and taxiway light fixtures and specifies the light type, use, light direction and color. When installed, these lights must be directional or omnidirectional and a specific color for visibility by pilots. All lighting designs contained in this standard are the only means acceptable for the airport to meet the lighting requirements of Title 14 CFR Part 139, Certification of Airports, Section 139.311, Marking, Signs and Lighting.

AC 150/5300-13—Airport Design (dated 2/26/2014)
https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5300-13A-chg1-interactive-201705.pdf

Much of the concentrated outdoor lighting at airports is directed at aircraft parked at aprons located in the nonmovement area of an airport near or adjacent to the terminal area. The function of an apron is to accommodate aircraft during loading and unloading of passengers and or cargo. Activities such as fueling, maintenance and short/long-term parking take place on an apron. Apron layout depends on aircraft gate positions; aircraft and ground vehicle circulation needs; and aircraft clearance requirements. FAA advisory circular AC 150-5300-13A, Section 510 and A5-8 on marking and lighting of aprons, stipulates that "area lighting of apron areas is desirable, especially at terminal gates. The area light beams must be directed downward and away from runway approaches and control towers. Shielding of the lights may be needed to minimize unwanted glare. Area light spread should cover aircraft service areas. Refer to Illuminating Engineering Society of North America (IES), Recommended Practice for Airport Service Area Lighting, for additional guidance on apron area lighting."

Illuminating Engineering Society Standards

IES RP-37-15 Outdoor Lighting for Airport Environments. IES RP-37-15 provides recommended practices for all outdoor lighting - air side and land side – for commercial airports. It is essential to provide at least minimum levels of light for safety and efficiency in conducting all work tasks in various areas of the airport. IES RP-37-15 provides guidance for an adequate and safe lighted environment while emphasizing restrictions, regulations and best practices for aircraft servicing and

apron areas; aircraft support services, i.e., fueling, cargo, baggage load/unload; passenger loading and unloading; roadways; vehicle parking facilities; and pedestrian walkways. Aprons and ramp lighting needs to provide illumination of aircraft from nose to tail for servicing and between 2-5-foot candles for tasks such as maintenance, fueling, and cargo loading and unloading. IES recommends illumination standards of between 1-5-foot candles for the landside areas of the airport including parking facilities, parking lots, pedestrian walkways, vehicle transaction areas, and between 0.8-3.4. IES standards for roadway intersections, and 3.0-foot candles for secure access search area parking and roadways. Roadway lighting should eliminate the uplight component. IES standard for security includes vertical lighting in all cases where there is a need to identify people's face and body language and minimize shadows or a silhouette effect as the person moves through a space.

American Association of State Highway and Transportation Organization (AASHTO) highway lighting requirements

The roadway lighting at the Lihue Airport was designed to meet safety standards established by AASHTO in their roadway lighting design guide. The AASHTO standards are the primary source for highway lighting policy, design and warranting used by state departments of transportation.

TSA Airport Security Requirements

Airport security is regulated by TSA under Title 49 Code of Federal Regulations (CFR), part 1542. TSA requires that lighting be of sufficient intensity installed in areas requiring such protection to sufficiently light those areas where vehicles and aircraft maneuver so that such maneuvering may be done safely. In addition, lighting must be sufficient to detect the presences of persons or vehicles and afford positive identification during hours of darkness. Lighting must not affect the night vision requirements of the flight crew members, nor cause direct glare conditions. Lighting must be provided along the airport perimeter and at manned access gates.

State of Hawaii Night Sky Protection Strategy, HRS Section 201-8.5

The provision requires all exterior light fixtures to be installed to be fully shielded, defined as "when the lighting fixture is shielded in such a manner that all light rays emitted by the fixture, either directly from the lamp, or indirectly from the fixture, are projected below a horizontal plane running through the lowest point of the fixture." It also requires "every new outdoor lamp light fixture emitting more than three thousand lumens shall be required to be fully shielded and to have a correlated color temperature of four thousand Kelvin or less". Navigational lights that are required for waterway, open-ocean, and aircraft safety; and outdoor lighting fixtures that are necessary for compliance with applicable federal, state, or county design standards or guidelines that are related to health and safety for the general public are exempt. Fully shielded replacement lighting fixtures for state managed roadways and highways shall be installed on a case-by-case basis, subject to the availability of capital improvement project funding and compliance with applicable federal, state, or county design standards or guidelines.

Kauai Harbors Item 5. Describe any plans/proposals for future facilities or expansion of existing facilities. Include any proposed structures and lighting by type, purpose, and location. Plans (architecture and site plans), photos, and drawings can be attached.

The Harbors Modernization Plan identifies proposed future facilities for HDOT-H. The plan does not contain proposals for future facilities or expansion of existing facilities on the island of Kauai. During December 2013, HDOT-H executed a 20-year term contract with Johnson Controls, Inc. (JCI), to address current and future energy conservation needs, as well as to be dark sky friendly in compliance with HRS § 201-8.5 and to serve as a model for other agencies to follow. In September 2015, the Harbors Division negotiated a $26,200,000 energy savings improvement contract with JCI for approximately 1,030,443 square feet of buildings and 18,025,128 square feet of exterior lighted areas, with a projected 40% average annual energy savings. Approximately 2,346 high-mast light fixtures and 3,381 interior, roadway, and parking lot light fixtures were replaced with variable controls to be in compliance with Occupational Safety and Health Administration (OSHA) rules and the USCG 5-foot candle power requirement in working areas. The new fixtures feature the ability to dim and turn off lighting when not needed, in compliance with Hawaii Revised Statutes section 201-8.5—night sky protection strategy (dark sky friendly). Nawiliwili Harbor has completed its lighting upgrade with full cut-off lights at a cost of $1,209,561.

JCI, HDOT-H's lighting contractor, has completed the lighting upgrades at Port Allen Harbor. These upgrades also include full cut-off lights at a cost of $102,715.

The HDOT-H designed its lighting to be compliant with the dark sky strategy under HRS § 201-8.5. Accordingly, the HDOT-H has worked toward light fixture designs with light cut-offs to prevent flooding or light pollution above light fixtures. The Kauai Harbors lights were designed to address one concern that may attract migratory birds. The HDOT-H is willing to explore the feasibility of installing light filters to reduce the white/blue hues of the LED light fixtures within safety and security considerations and is currently testing such light filters at Hilo Harbor.

Lihue Airport Item 5. Describe any plans/proposals for future facilities or expansion of existing facilities. Include any proposed structures and lighting by type, purpose, and location. Plans (architecture and site plans), photos, and drawings can be attached.

An HDOT-A contract to repave the runway at Lihue Airport has been awarded. Initially, the repaving was scheduled to take place during evening hours to accommodate the landing and taking off of aircraft. Due to concerns regarding construction lights and airfield lighting during the 2018 seabird fallout season, completion of this project is currently on hold.

HDOT-A has completed Phase 1 lighting upgrade at Lihue Airport that included new full cut-off solar street lights along Ahukini road, full cut-off solar lights in parking lots and maintenance baseyard, new LED site lighting at fire department and maintenance hangars, and new LED light fixtures in the passenger loading and unloading, baggage handling, and interior holding areas in the terminal. Phase 1 improvements at Lihue cost $5,809,601 and were completed in 2016.

HDOT-A has initiated a contract for Phase 2 airport lighting upgrade that will include new full cut-off LED exterior light fixtures with pole, wall and bollard mounting locations. Phase 2 will upgrade exterior lighting in the T-hangers, commuter terminal, maintenance area, cargo terminal, FedEx building, walkway in public parking lot, and wall mounted lighting in the main apron (ramp) area. Phase 2 improvements at Lihue will cost $1,179,314 and are scheduled to be completed in 2018.

HDOT-A has initiated planning with its lighting contractor for Phase 3 of lighting improvements to upgrade 45 high mast lights at its main and cargo apron (ramp) at Lihue and other airports. A pilot

project is being conducted at Hilo Airport to identify the appropriate lighting upgrade that will meet FAA and TSA safety and security requirements, and incorporate any new research on lighting conditions that can reduce artificial light attraction for seabirds. The implementation of Phase 3 will depend on identification of an appropriate light fixture that improves conditions and on securing funding for construction through the legislative budget process. The estimated budget for Phase 3 improvements is $1,917,386, and the tentative timeline for implementation is 2020-2025.

Kauai Harbors Item 6. Pursuant to the Endangered Species Act (ESA), Section 10 (a)(2)(A)(iii), describe alternatives to avoid the taking considered and evaluated. Provide reasons why those alternatives are not being utilized. Alternatives can include operational or facility design changes (attach pages as needed). The tables below may be altered as needed.

Nawiliwili Harbor and its operational and administrative activities are regulated by DHS, USCG, CBP, and OSHA. See Kauai Harbors Item 4, above.

USCG and OSHA regulate lighting located in operational areas of the port for security and safety compliance. USCG regulates maritime security nationally and sets security requirements for maritime facilities. Facility owners or operators in general must implement facility security measures and continuously monitor facilities through a combination of lighting, security guards, patrols, detection devices, or surveillance equipment, including the period from sunset to sunrise and periods of limited visibility. USCG requires and approves a FSP for each regulated commercial harbor to identify, prevent, and detect terrorist-related activities in accordance with Title 33, Code of Federal Regulations, Part 105, Subpart D Facility Security Plan (33 CFR 105.405). Known or perceived threats are reflected by assignment of Maritime Security threat codes, which require that applicable security measures be implemented in accordance with the FSP. As threat levels increase, the facility may need to increase coverage and intensity of lighting to higher security levels.

USCG also approves all DHS grants under the Port Security Grant Programs, including the Homeland Security Communications Project (security cameras) and the Port Grant Maritime Network Project. These projects centralize security cameras for surveillance at all regulated commercial harbors in Hawaii, in compliance with the Area Maritime Transportation Security Plans, to strengthen core security capabilities and critical port infrastructure and help achieve the National Preparedness Goal.

Because of USCG security monitoring requirements and OSHA worker safety regulations, alternatives or minimization measures that require operational or facility design changes are limited to those that can comply with existing national security and safety requirements.

1. Avoidance Alternative-The “No Incidental Take” Alternative: Turn off/deactivate all outdoor lights from dusk to dawn during the fledgling fallout season, September 15 to December 15.

   This is not a viable alternative for Nawiliwili Harbor and Port Allen Harbor because of USCG and OSHA security and safety requirements.

   a. Nawiliwili Harbor (Kauai Harbors Table 5).

      Nawiliwili Harbor is Kauai’s primary cargo and cruise ship port, supporting the island’s economy with essential shipments of food, clothing, building materials, cars

and fuel. Interisland cruise ships (Norwegian Cruise Lines, Princess, and others) and seasonal foreign cruise ships use Nawiliwili Harbor, accommodating visitors who support the island's economy.

1. Maritime shipping and cruise ship schedules have vessels in port during all or portions of the night on a regular schedule, necessitating terminal operations at night. The cargo loading areas are lighted when cargo vessels are at berth and during off-loading and on-loading of cargo. The terminal also remains operational when cruise ships remain at berth overnight, allowing passengers to leave the ships to enjoy local activities, dining, and shopping, and eventually to return to the ships.

2. OSHA requires that terminal lights provide illumination at a measurement of five foot-candles for active work areas, and one foot-candle in other work areas, and ½ foot-candle for security purposes (OSHA 29 CFR 1917.123). Terminal lights must thus be activated at specified intensities to enhance worker and public safety during night cargo and passenger operations.

3. USCG oversees the security precautions, hazardous cargo handling, and port operations of Nawiliwili Harbor. USCG regulations and guidance published as Navigation and Vessel Inspection Circulars (NVICs), dictate that terminal lights provide security illumination throughout the night as a security measure for protection of passengers, facilities, personnel, vessels, cargo, and critical infrastructure, as well as for the prevention of terrorist attack (USCG 33 CFR 105.260, 105.275). USCG regulations require that harbor facilities have adequate illumination during the handling, storing, stowing, loading, discharging, or transporting of dangerous cargo between sunset and sunrise, and that fixed lighting provide illumination of between 1 to 5 foot-candles in operation areas (USCG 33 CFR 154.570, 127.109, 126.15)

b. Port Allen Harbor (Kauai Harbors Table 6).

Port Allen Harbor services liquid bulk cargo oil shipments, excursion and charter boats, and commercial fishing operations at its southern berths. Liquid bulk cargo and excursion and charter boat activities are generally daylight operations. Charter and excursion tenants service their boats in late afternoon and into early evening. Commercial fishing boats will occasionally berth on the southern pier and perform maintenance operations at night. The southern pier is open to public access and heavily used by the public for night fishing. The southern berths are illuminated by wall-mounted shed lights, which are shielded and fully cut off. The pier's northern berths are leased to the U.S. Navy PMRF. These berths are also illuminated by wall-mounted shed lights. The parking lot is illuminated by two shed-mounted flood lights.

1. Commercial fishing boats and excursion and charter boats may use the south pier for 24-hour maintenance needs and emergency shelter. The public uses the pier for access to commercial charters and excursion operators, which can come and go after dark. The pier is also used by the public for recreational fishing at night. As a public commercial harbor that provides maritime cargo

operations and passenger services, night lighting is needed for passenger, worker, and public safety (OSHA 29 CFR 1917.123, USCG 33 CFR 126.15, 154.570).

2. The U.S. Navy leases the northern berths and requires overnight lighting for security purposes.

2. Avoidance Alternative-Restricted Usage of Lighting Alternative: Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daytime hours)

   This is not a viable alternative for Nawiliwili Harbor and Port Allen Harbor because of USCG and OSHA security and safety requirements.

   a. Nawiliwili Harbor (Kauai Harbors Table 5).

      Maritime shipping and cruise ship schedules have vessels arriving, departing, and in port during all or portions of night. USCG and OSHA regulations require nighttime lighting for security, cargo handling operations, cruise line passenger service, and worker safety whenever vessels and workers are at the port between sunset and sunrise (OSHA 29 CFR 1917.123; USCG 33 CFR 105.275, 126.15, 127.109, 154.570). As a designated commercial port, Nawiliwili needs to provide these nighttime services to accommodate maritime commerce and maritime emergencies. Provision of these services cannot be shifted entirely to daytime hours.

   b. Port Allen Harbor (Kauai Harbors Table 6).

      Commercial fishing boats and excursion and charter boats may use the south pier for maintenance and emergency shelter during all portions of the night. Public access to commercial charters and excursion operators and to recreational fishing, occurs at night. USCG and OSHA regulations require nighttime lighting for cargo handling, passenger service, and worker safety whenever vessels and workers are at the port between sunset and sunrise (OSHA 29 CFR 1917.123; USCG 33 CFR 126.15, 154.570). As a public commercial harbor, Port Allen needs to provide these nighttime services to accommodate maritime commerce and maritime emergencies. Provision of these services cannot be shifted entirely to daytime hours. The U.S. Navy lights its berths for security purposes throughout the night.

   The HDOT-H designed its lighting to be compliant with the dark sky strategy under HRS § 201-8.5. Accordingly, the HDOT-H has worked toward light fixture designs with light cut-offs to prevent flooding or light pollution above light fixtures. The Kauai Harbors lights were designed to address one concern that may attract migratory birds. The HDOT-H is willing to explore the feasibility of installing light filters to reduce the white/blue hues of the LED light fixtures within safety and security considerations, and is currently testing such light filters at Hilo Harbor.

Kauai Harbors Table 5. Light Attraction Alternatives to the Taking—Nawiliwili Harbor

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives Are Not Being Utilized (Provide Justification)
Avoidance Alternative-The "No Incidental Take" Alternative: **Deactivate all outdoor artificial lights from dusk to dawn during the fledgling fallout season (September 15 to December 15)**	Nawiliwili Harbor is Kauai's primary cargo and cruise ship port. Maritime shipping and cruise ship schedules have vessels in port during all or portions of night. USCG regulation 33 CFR sections 105.275, 126.15, 127.109, and 154.570 require that marine terminal facilities provide adequate illumination throughout the night for security and safe handling of hazardous cargo. OSHA regulation 29 CFR section 1917.123 requires that marine terminal facilities provide illumination at a measurement of one to five foot-candles in work areas and ½ foot-candle for worker safety. Whenever cargo handling and cruise line passenger services are provided after dark, facility lights must be activated at specified intensities to enhance worker and public safety. Because of security and safety requirements, this is not a viable alternative for Nawiliwili Harbor.
Avoidance Alternative-Restricted Usage of Lighting Alternative: **Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daytime hours)**	Nawiliwili Harbor: Maritime shipping and cruise ship schedules have vessels in port during all or portions of night. USCG and OSHA require night lighting for security and worker and public safety (OSHA 29 CFR 1917.123; USCG 33 CFR 105.275, 126.15, 127.109, 154.570). Nawiliwili Harbor needs to provide these nighttime services to accommodate maritime commerce and maritime emergencies. Provision of these services cannot be shifted entirely to daytime hours. Because of security and safety requirements, this is not a viable alternative for Nawiliwili Harbor.
Avoidance Alternative-Restricted Usage of Lighting Alternative: **Shield all lights from visibility from the beach, or screen all honu nests, from May 15 to December 15 to avoid impacting the green sea turtle (honu)**	Nawiliwili Harbor: Not applicable. No beach area is adjacent to Nawiliwili Harbor.
Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered	Not applicable.

Kauai Harbors Table 6. Light Attraction Alternatives to the Taking— Port Allen Harbor

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives Are Not Being Utilized (Provide Justification)
Avoidance Alternative-The "No Incidental Take" Alternative: **Deactivate all outdoor artificial lights from dusk to dawn during the fledgling fallout season (September 15 to December 15)**	Port Allen Harbor services liquid bulk cargo, excursion/charter boats, and commercial fishing operations. Most are generally daylight operations, but commercial fishing boats and excursion/charter boats may use the south pier for maintenance and emergency shelter. The public uses the pier for access to commercial charters and excursion operators, which can come and go after dark. The pier is also used by the public for recreational fishing at night. As a public commercial harbor that provides maritime cargo operations, passenger services, and public access, night lighting is needed for passenger, worker, and public safety (OSHA 29 CFR 1917.123, USCG 33 CFR 126.15, 154.570). The U.S. Navy leases the northern berths, which are lighted overnight. The U.S. Navy requires lights for security purposes. Because of security and safety requirements, this is not a viable alternative for Port Allen Harbor.
Avoidance Alternative-Restricted Usage of Lighting Alternative: **Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daytime hours)**	Port Allen Harbor: Commercial fishing boats and excursion/charter boats may use the south pier for maintenance and emergency shelter during all portions of the night. Public access to commercial charters and excursion operators, and recreational fishing, occurs at night. USCG and OSHA regulations require nighttime lighting for cargo handling, passenger service, and worker safety whenever vessels and workers are at the port between sunset and sunrise (OSHA 29 CFR 1917.123, USCG 33 CFR 126.15, 154.570). As a public commercial harbor, Port Allen needs to provide these nighttime services to accommodate maritime commerce and maritime emergencies. Provision of these services cannot be shifted entirely to daytime hours. The U.S. Navy lights its berths for security purposes all night. Because of security and safety requirements, this is not a viable alternative for Port Allen Harbor.
Avoidance Alternative-Restricted Usage of Lighting Alternative: **Shield all lights from visibility from the beach, or screen all honu nests, from May 15 to December 15 to avoid impacting the green sea turtle (honu)**	Port Allen: Not applicable. No beach areas are adjacent to Port Allen Harbor.
Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered	Not applicable.

Lihue Airport Item 6. Pursuant to the Endangered Species Act (ESA), Section 10 (a)(2)(A)(iii), describe alternatives to avoid the taking considered and evaluated. Provide reasons why those alternatives are not being utilized. Alternatives can include operational or facility design changes (attach pages as needed). The tables below may be altered as needed.

Avoidance measures seek to avoid adverse effects of lighting on covered seabird species, thereby reducing the chance of incidental take. Kauai Seabird HCP Applicants will be required to implement avoidance alternatives to the "maximum extent practicable" per applicable state and federal laws to receive an incidental take permit/license.

Avoidance measures are those which cease or suspend lighting activities posing threats to the Covered Species. If avoidance measures are not deemed practicable due to facility safety or security reasons, then the applicant must utilize minimization measures to reduce their threats to seabirds.

Kauai Seabird HCP applicants are required to provide justification, such as policies, regulations, or other rationale, for avoidance measures that will not be implemented.

Avoidance Alternatives Considered

Lihue Airport is classified by the FAA as a Class I Airport, certified to serve scheduled and unscheduled operations of large air carrier aircraft. In order to serve air carrier operations, Lihue Airport is required to hold a Part 139 Air Operating Certificate issued by the FAA, to ensure safety in air transportation. To obtain a certificate, an airport must meet certain operational and safety standards, including having Part 139 compliant runway/taxiway and apron lighting and signage, lighting, and obstruction lighting. It also operates under an Airport Security Program (ASP) approved by the Transportation Security Administration (TSA) requiring security and safety measures be implemented at Lihue Airport. NOTE: The ASP is classified and its contents are Sensitive Security Information. The airport provides passenger and aircraft facilities for domestic overseas carriers, interisland carriers, commuter air taxi, air cargo, concession, tenant, and general aviation activities, with well over 100,000 aircraft operations per year. Aircraft operations and servicing occur during nighttime hours and require adequate lighting.

Avoidance alternatives considered for HDOT-A facilities on Kauai are described below and in Lihue Airport Table 3. Each alternative description below is followed by a feasibility determination.

1. Avoidance Alternative-The "No Incidental Take" Alternative: Deactivate all outdoor artificial lights from dusk to dawn during the seabird fallout period (September 15–December 15) each year.

   This is not a viable alternative for Lihue Airport because of FAA and TSA security and safety requirements and regulations.

   a. Lihue Airport is a FAA Class I Airport certified to serve scheduled and unscheduled operations of large air carrier aircraft day and night. Airport lights are required by the FAA for aeronautical safety. The FAA requires specified lighting for runway, taxiway, apron (ramp) operations, and passenger terminal operations. Runway and taxiway lights, by regulation, face skyward to ensure safe aeronautical operations. These lights cannot be deactivated without endangering the lives of passengers and flight crews.

Additionally, the FAA will levy penalties and sanctions if runway, taxiway, and apron lights are not activated during flight operations. TSA also requires lighting for security and safety reasons. The IES has established public safety standards for outdoor lighting for the various airport environments that specify lighting during periods when the public or workers are present and minimum light levels for security. Because the airport is open 24 hours per day, nighttime lighting is required for aspects of airport operations during all or portions of the night.

b. Ahukini Road is an internal airport roadway under HDOT-A's jurisdiction open to the public 24 hours a day. The American Association of State Highway and Transportation Organization (AASHTO) and IES have established lighting standards for public highways and airport roadways to ensure adequate visibility for safe motorist and pedestrian use. Ahukini Road lights meet the AASHTO and IES guidelines. Because public safety is of primary concern, Ahukini Road must remain illuminated during the night. HDOT would be liable for accidents and fatalities if Ahukini Road were inadequately illuminated.

2. Avoidance Alternative-Restricted Usage of Lighting Alternative: Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daytime hours)

   This is not a viable alternative for Lihue Airport due to FAA and TSA security and safety requirements and regulations.

   a. Lihue Airport is an FAA Class I Airport certified to serve scheduled and unscheduled operations of large air carrier aircraft day and night. Airport lights are required by the FAA for aeronautical safety. TSA requires lighting for security and safety.

   b. Ahukini Road lights must operate at night to ensure motorist and pedestrian safety as required by the AASHTO and IES guidelines for driver safety. This road needs to be accessible to motorists 24 hours a day.

Lihue Airport Table 3. Light Attraction Alternatives to the Taking

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives Are Not Being Utilized (Provide Justification)
Avoidance Alternative-The "No Incidental Take" Alternative: **Deactivate <u>all</u> outdoor artificial lights from dusk to dawn during the fledgling fallout season (September 15 to December 15)**	a. It is not feasible for HDOT-A to deactivate all outdoor lights from dusk to dawn at any time of the year. Lihue Airport operates year-round and is subject to FAA and TSA lighting safety and security regulations. Airport lights are required by the FAA for aeronautical safety. The FAA requires specified lighting for runway, taxiway, and apron operations. These lights cannot be deactivated without endangering the lives of passengers and flight crews. Additionally, the FAA will levy penalties and sanctions if runway, taxiway, and apron lights are not activated during flight operations. TSA also requires adequate lighting for security and safety. IES provides recommended practices for all outdoor lighting - air side and land side – for commercial airports to provide an adequate and safe lighted environment. b. Ahukini Road, which fronts Lihue Airport, is under the HDOT-A's jurisdiction. Ahukini Road lights are required for motorist and pedestrian safety. AASHTO and IES have established lighting standards for adequate and safe public use of Ahukini Road. Ahukini Road is open to public use 24 hours per day, and deactivating lights would present a safety hazard. Because motorist safety is of primary concern, Ahukini Road must remain illuminated at night for pedestrian and motorist safety.
Avoidance Alternative-Restricted Usage of Lighting Alternative: **Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daytime hours)**	a. It is not feasible for HDOT-A to change operations to eliminate the need for outdoor artificial lighting at Lihue Airport. Given the nature of the airport's 24 hours per day, 7 days a week operations, it is necessary for outdoor lights to be illuminated during nighttime hours, to ensure safety for air travel, air carriers, passengers, and workers. Additionally, FAA requires specific lighting for runways, taxiways, and aprons. TSA also requires adequate lighting for security purposes. The airport and public access roadway are open 24 hours per day and require adequate and safe lighting during nighttime hours.
Shield all lights from visibility from the beach, or screen all honu nests, from May 15 to December 15 to avoid impacting the green sea turtle (honu).	Not applicable
Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered.	Not applicable

Kauai Harbors Item 7. Describe all site-specific seabird minimization measures considered for the Covered Activities. This item should follow KSHCP minimization objectives and measures as specified in *Appendix E (Guidelines for Adjusting Lighting at Facilities)* of the KSHCP document. Please consult with staff from the DOFAW and the USFWS as needed. The suggested tables below can be altered as needed.

Minimization measures modify the Covered Activities to reduce the effects of the activity on the Covered Species. KSHCP Participants will be required to implement minimization measures that apply to the facility to the "maximum extent practicable" per applicable state and federal laws, which regulate incidental take license/permit issuance by the DLNR and the USFWS.

Minimization also entails searching for and recovering grounded seabirds to minimize the chance of mortality. In addition, the presence of on-site predators (i.e., feral cats, dogs) should be controlled and removed because these animals can prey on grounded seabirds.

Provide justification, such as policies, regulations, or other rationale for measures that will not be implemented.

The following section and tables discuss minimization alternatives that HDOT-A considered for Nawiliwili and Port Allen Harbors to reduce impacts to the "maximum extent practicable":

1. Minimization Alternative: Transition to shielded and/or full cut-off fixtures.

    a. Nawiliwili Harbor.

    USCG and OSHA regulate the lighting located in operational areas for security and safety compliance. USCG regulates maritime security nationally and sets security requirements for maritime facilities. Facility owners or operators in general must implement facility security measures and continuously monitor facilities through a combination of lighting, security guards, patrols, detection devices, or surveillance equipment, including the period from sunset to sunrise and periods of limited visibility. USCG also approves all DHS grants under the Port Security Grant Programs, including the Homeland Security Communications Project (security cameras) and the Port Grant Maritime Network Project. These projects centralize security cameras for all regulated commercial harbors in Hawaii, in compliance with the Area Maritime Transportation Security Plans, to strengthen core security capabilities and critical port infrastructure and help achieve the National Preparedness Goal. USCG also requires a FSP for each regulated commercial harbor to identify, prevent, and detect terrorist-related activities in accordance with Title 33, Code of Federal Regulations, Parts 105, Section 105.405.

    Nawiliwili Harbor already has completed a lighting upgrade to full cut-off LED lights. The harbor has replaced high-mast flood lighting in the cargo operations areas with high-mast, full cut-off LED fixtures.

    b. Port Allen Harbor.

The pier's southern berths are illuminated by wall-mounted shed lights, which have been upgraded to full cut-off fixtures. The pier shed has flood lights that illuminate the parking area and are installed with an aiming angle to achieve full cut-off functionality. HDOT-H will investigate if additional shielding may reduce horizontal light escapement within safety and security lighting requirements.

The pier's northern berths are under lease and control of the U.S. Navy PMRF. PMRF is responsible for implementing minimization measures under its ESA obligations.

2. Minimization Alternative: Reduce the number of lights activated from dusk to dawn during the fledgling fallout season (September 15 to December 15).

    a. Nawiliwili Harbor.

    Nawiliwili Harbor's terminal yard lights have been wired so that a portion of the bulbs in the high-mast light fixtures can be turned off (dimmed) during non-operational hours, leaving a smaller portion of the bulbs activated when no operations are in progress. The deactivation varies per light fixture and location, but all of the high mast light fixtures upgraded during Phase 1 improvements have dimming capability. The usual night lighting at Nawiliwili Harbor involves dimming high-mast LED yard lights when no operations are in progress, and turning on to full illuminance only when active cargo or passenger operations are occurring, and only at the specific pier and portion of the pier where those operations are in progress (normally dusk to 10:00 pm on Tuesdays and Fridays at Pier 3, and overnight on Thursdays for the cruise line terminal at Pier 2). When passenger or cargo operations are not in progress, the high mast lights are dimmed and building lights are turned off, with the exception of wall pack lights for security purposes. HDOT will provide outreach and training to staff and harbor tenants to manage light attraction risks and to turn off external lighting when work is completed.

    b. Port Allen.

    HDOT-H has implemented an upgrade of lights at Port Allen Harbor to full cut-off fixtures. There are no high mast lights at this facility, and the lights that illuminate the southern berths are wall-mounted shed lights. The wall pack night lighting for Port Allen is set on a timer to turn on from dusk to dawn, but to turn on only every other wall pack fixture to provide security and safety lighting. HDOT will provide outreach and training to staff and harbor tenants to manage light attraction risks and to turn off external lighting when work is completed. The lights that illuminate the northern berths are controlled by the U.S. Navy PMRF. Any reduction in the number of lights activated on the north pier must be coordinated with and approved by the PMRF.

    Additional minimization alternatives are discussed in Kauai Harbors Tables 7 and 8.

Kauai Harbors Table 7. Seabird Light Attraction Minimization Measures Considered—Nawiliwili Harbor

Minimization Measures Considered	Feasible? (Y/N)	If Not Feasible, Provide Reason
Change time of light use (lights off earlier)	**Partially**	Full illumination of lights is used only when longshoremen personnel require them. Lights are dimmed or switched off once cargo loading and unloading is finished. The usual night lighting at Nawiliwili Harbor for the high-mast LED yard lights is a dimmed setting. The high-mast lights are turned on to full illuminance only when active cargo or passenger operations are occurring and only at the specific pier where those operations are in progress (normally dusk to 10:00 pm on Tuesdays and Fridays at Pier 3, and overnight on Thursdays for the cruise line terminal at Pier 2).
Deactivate unnecessary lights	**Partially**	Most harbors lights are dimmed during non-operational hours. High-mast LED yard lights are turned on full illuminance only on the specific days and at the specific piers where active cargo or passenger operations are occurring, and only while those operations are in progress. HDOT will provide outreach and training to staff and harbor tenants to manage light attraction risks and to turn off external lighting when work is completed.
Replace all outdoor lights with full cut-off fixtures	**Yes**	Nawiliwili Harbor has completed a light transition plan. HDOT-H has replaced high-mast flood lights with new, full cut-off, downward-pointing LED fixtures. Full cut-off functionality for flood lights is achieved by aiming angle.
Shield all outdoor lights with full cut-off shields	**Yes**	Nawiliwili Harbor has completed a transition plan to replace outdoor lights with downward-pointing, full cut-off fixtures. The cut-off specifications are inherent in the fixture, and no additional shielding is needed. Full cut-off functionality for some flood lights is achieved by aiming angle. HDOT-H will investigate if additional shielding may reduce horizontal light escapement within safety and security lighting requirements.
Angle all lights downward	**Yes**	Nawiliwili Harbor has completed a transition plan to replace outdoor lights with downward-pointing, full cut-off fixtures. Full cut-off functionality for flood lights is achieved by aiming angle.
Lower intensity (lumens) of outdoor lights	**Partially**	The usual night lighting at Nawiliwili Harbor for the high-mast LED yard lights is a dimmed setting. The high-mast lights are turned on to full illuminance only when active cargo or passenger operations are occurring, and only at the specific pier where those operations are in progress (normally dusk to 10:00 pm on Tuesdays and Fridays at Pier 3, and overnight on Thursdays for the cruise line terminal at Pier 2). The lumen levels of the lights cannot be permanently lowered because it does not provide the foot-candle illumination required by USCG and OSHA for adequate worker and public safety while cargo and passenger services are being provided (OSHA 29 CFR 1917.123; USCG 33 CFR 154.570, 127.109, 126.15).
Change bulb color to non-white spectrum	**No**	The new LED lights installed by HDOT-H are phosphor coasted to 4000k and cannot be individually changed. To change the bulb color from white 4000k spectrum would require replacing the entire light fixture at a high cost. Additional research is needed on what light spectrum is not an attraction to seabirds for future lighting improvements. The HDOT-H designed its lighting to be compliant with the dark sky strategy under HRS § 201-8.5. Accordingly, the HDOT-H has worked toward light fixture designs with light cut-offs to prevent flooding or light pollution above light fixtures. The Kauai Harbors lights were designed to address one concern that may attract migratory birds. The HDOT-H will explore the use of electronic filters for lights to produce a non-white spectrum within safety and security considerations for future light improvements. HDOT-A is currently testing such light filters at Hilo Airport. Additionally, USCG and OSHA regulations (OSHA 29 CFR 1917.123; USCG 33 CFR 154.570, 127.109, 126.15) require minimum lighting standards for security and safety. Non-white spectrum bulbs would have to meet the foot–candle illumination required for safety and security. The

Minimization Measures Considered	Feasible? (Y/N)	If Not Feasible, Provide Reason
		implementation of future improvements will depend on securing funding for construction through the legislative budget process.
Lower height of light poles	**No**	Cargo operations in limited terminal acreage result in containers being stacked four to five units high. Container stacks could reach as high as 40 feet (containers are generally 8 feet high). Cargo terminal lights must therefore be mounted on poles at significant heights above the containers. This height ensures the containers will not block the lights and that the aisles between rows of stacked containers are satisfactorily illuminated. Nawiliwili Harbor terminal lights are thus mounted on high poles to provide the requisite lighting for ground-level operations (OSHA 29 CFR 1917.123; USCG 33 CFR 154.570, 127.109, 126.15).
Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers	**Yes**	HDOT-H staff will, or contract with USDA Wildlife Services (WS) or other contractor to, conduct animal control as part of its management responsibility. Animal control includes trapping and removing cats and conducting surveillance to detect and remove dogs that may enter the facilities. All rubbish is contained in sealed depositories that are removed routinely by the County.
Provide Worker Seabird Awareness Training to staff	**Yes**	USDA WS or other contractor will provide seabird awareness training to HDOT-H staff and harbor security personnel in August prior to the seabird fallout season and on a routine and regular basis throughout the season; workers and security personnel are given summary orientation that enables them to identify seabird species under differing scenarios, including in flight and grounded (alive, injured, dead) and provides written instructions on how to handle and report observations or encounters with grounded seabirds. All new hires during fallout season will be shown the training slideshow on first day of work by the trainer, or human resources office.
Provide outreach materials to staff & visitors	**Yes**	As part of the awareness training provided for staff, USDA WS or other contractor will provide KSHCP outreach materials (pamphlets and fliers that contain bulleted information and graphics) to staff, harbor security, and tenants. Information will remain in each harbor vehicle that is used on and around the harbor facilities. Cruise ship visitors are provided with these or similar materials to facilitate seabird light-attraction sensitivity training and enable visitors to report their observations to appropriate personnel, either while aboard ship or in the harbor area and surrounding community.
Host Save Our Shearwaters (SOS) Aid Station	**Partially**	HDOT-H will provide internal SOS aid provisions, but because of security restrictions, is not able to host a public SOS aid station. Any inquiries from the public will be directed to County SOS aid stations.

Kauai Harbors Table 8. Seabird Light Attraction Minimization Measures Considered—Port Allen Harbor

Minimization Measures Considered	Feasible? (Y/N)	If Not Feasible, Provide Reason
Change time of light use (lights off earlier)	**Partially**	There are no tall high-mast lights at the facility and all lights are full cut-off wall and shed mounted fixtures. Port Allen Harbor lights are on a timer and come on from dusk to dawn. The usual night lighting is set to illuminate every other wall light along the pier shed. Nighttime lighting is necessary for safety and security and to meet OSHA and USCG regulations (OSHA 29 CFR 1917.123, USCG 33 CFR 126.15). The U.S. Navy PMRF has security requirements for the north pier.
Deactivate unnecessary lights	**Partially**	Terminal lights will be reduced to lower lighting levels during non-operational hours. Port Allen lights are on a timer and come on from dusk to dawn. The usual night lighting is set to illuminate every other wall light along the pier shed. Nighttime lighting is necessary for safety and security and to meet OSHA and USCG regulations (OSHA 29 CFR 1917.123, USCG 33 CFR 126.15). HDOT will provide outreach and training to staff and harbor tenants to manage light attraction risks and to turn off external lighting when work is completed.
Replace all outdoor lights with full cut-off fixtures	**Yes**	Port Allen Harbor has completed a transition plan to replace outdoor lights with full cut-off fixtures in the HDOT-H-operated south pier. Full cut-off functionality for flood lights is achieved by aiming angle. The U.S. Navy is responsible for implementation on the north pier.
Shield all outdoor lights with full cut-off shields	**Yes**	Port Allen Harbor has completed a transition plan to replace outdoor lights with full cut-off fixtures in the HDOT-H-operated south pier. The cut-off specifications are inherent in the fixture, and no additional shielding is needed. Full cut-off functionality for some flood lights is achieved by aiming angle. HDOT-H will investigate if additional shielding may reduce horizontal light escapement within safety and security lighting requirements. The U.S. Navy is responsible for implementation on the north pier.
Angle all lights downward	**Yes**	Port Allen Harbor has completed a transition plan to replace outdoor lights with downward-pointing, full cut-off fixtures. Full cut-off functionality for flood lights is achieved by aiming angle.
Lower intensity (lumens) of outdoor lights	**Partially**	Terminal lights will be reduced to lower lighting levels during non-operational hours. Port Allen lights are on a timer and come on from dusk to dawn. The usual night lighting is set to illuminate every other wall light along the pier shed. Nighttime lighting is necessary for safety and security and to meet OSHA and USCG regulations (OSHA 29 CFR 1917.123, USCG 33 CFR 126.15).
Change bulb color to non-white spectrum	**No**	The new LED lights installed by HDOT-H are phosphor coasted to 4000k and cannot be individually changed. To change the bulb color from white 4000k spectrum would require replacing the entire light fixture at a high cost. Additional research is needed on what light spectrum is not an attraction to seabirds for future lighting improvements. The HDOT-H designed its lighting to be compliant with the dark sky strategy under HRS § 201-8.5. Accordingly, the HDOT-H has worked toward light fixture designs with light cut-offs to prevent flooding or light pollution above light fixtures. The Kauai Harbors lights were designed to address one concern that may attract migratory birds. The HDOT-H will explore the use of electronic filters for lights to produce a non-white spectrum within safety and security considerations for future light improvements. HDOT-A is currently testing such light filters at Hilo Airport. Additionally, USCG and OSHA regulations (OSHA 29 CFR 1917.123; USCG 33 CFR 154.570, 127.109, 126.15) require minimum lighting standards for security and

Minimization Measures Considered	Feasible? (Y/N)	If Not Feasible, Provide Reason
		safety. Non-white spectrum bulbs would have to meet the foot–candle illumination required for safety and security. The implementation of future improvements will depend on securing funding for construction through the legislative budget process.
Lower height of light poles	**No**	Not applicable; there are no pole lights at the facility.
Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers	**Yes**	HDOT-H will contract with USDA Wildlife Services (WS) or another contractor to, conduct animal control at the harbor. Animal control includes trapping and removing stray cats and dogs roaming at the facilities. All rubbish is contained in sealed depositories that are removed routinely by the County
Provide Worker Seabird Awareness Training to staff	**Yes**	HDOT will contract with USDA Wildlife Services (WS) or other contractor to provide annual seabird awareness training to all staff and tenants during August. Staff and tenants are given summary orientation that enables them to identify seabird species and written instructions on how to handle and report observations or encounters with grounded seabirds. All new hires during fallout season will be shown the training slideshow on first day of work by the trainer, or human resources office.
Provide outreach materials to staff & guests	**Yes**	As part of the awareness training provided for staff, USDA Wildlife Services (WS) or other contractor will provide KSHCP outreach materials (pamphlets and fliers that contain bulleted information and graphics) to staff and tenants to put in staff vehicles used at the harbor. Tenants will be asked to display and share outreach materials with their customers.
Host Save Our Shearwaters (SOS) Aid Station	**No**	HDOT will provide seabird aid training and protocol to staff and tenants, but because this facility is open to the public and not manned 24 hours, an SOS aid station will not be set up.

Lihue Airport Item 7. Describe all site-specific seabird minimization measures considered for the Covered Activities. This item should follow KSHCP minimization objectives and measures as specified in the KSHCP document. Please consult with staff from the DOFAW and the USFWS as needed. The suggested tables below can be altered as needed.

Minimization measures modify the Covered Activities to reduce the effects of the activity on the Covered Species. KSHCP Participants will be required to implement minimization measures that apply to the facility to the "maximum extent practicable" per applicable state and federal laws which regulate incidental take license/permit issuance by the DLNR and the USFWS.

Minimization also entails searching and recovering grounded seabirds to minimize the chance of mortality. In addition, the presence of on-site predators (i.e., feral cats, dogs) should be controlled and removed because these animals can prey on grounded seabirds.

Provide justification, such as policies, regulations, or other rationale for measures that will not be implemented.

Minimization Alternatives Considered

The ability to modify operations at Lihue Airport is limited. Lihue Airport is classified by the FAA as a Class I Airport, certified to serve scheduled and unscheduled operations of large air carrier aircraft. As such, Lihue Airport is required to meet numerous lighting requirements specified by the FAA (see response to Lihue Airport Item 4 above) and cannot implement any measures that would prevent compliance with these standards. It also operates under an ASP approved by the TSA requiring security and safety measures be implemented at Lihue Airport. NOTE: The ASP is classified and its contents are Sensitive Security Information. Lihue Airport cannot implement measures that would preclude compliance with TSA security measures. Further safety standards established by IES, prescribe certain levels of lighting necessary to maintain public safety in airport terminals, passenger loading and unloading areas, pedestrian walkways, roadways, and parking facilities. Lihue Airport provides passenger and aircraft facilities for domestic overseas carriers, interisland carriers, commuter air taxis, air cargo, concession, tenant, and general aviation activities, with well over 100,000 aircraft operations per year. Airport operations and maintenance and servicing of aircraft occur during night hours and require adequate lighting for security and safety measures and are implemented on a 24-hour, 7 days per week basis.

HDOT-A has implemented a number of allowable minimization measures at Lihue Airport. Lihue Airport Table 4 describes these measures and explains the basis for the conclusion that other measures are not feasible.

Lihue Airport Table 4. Seabird Light Attraction Minimization Measures Considered

Minimization Measures Considered	Feasible? (Y/N)	If Not Feasible to Implement Measures, Provide Reason
Change time of light use (lights off earlier)	**Partially**	Lihue Airport is open 24 hours per day and 365 days per year. As a Class I airport, it services both scheduled and unscheduled large air carrier aircraft throughout the day, including during nighttime operations and emergency response. Airport lights are required for aeronautical safety by the FAA and for airport security by the TSA. FAA establishes standards for apron (ramp) area lights (FAA AC 150/5300 13A, IES RP-37-15 Outdoor Lighting for Airport Environments), requiring that lights be on and illuminate aircraft and workers on the apron when present. Shutting off high-mast apron lights when no aircraft or workers are present is feasible to reduce seabird attraction. The Airport Operations Center turns off the high-mast apron lights when they are not required for aircraft servicing and apron operations, during the seabird fallout season (September 15 through December 15). The apron lights are turned off after the last flight has departed for the night. Airport lighting such as for passenger loading and unloading, passenger walkways, parking facilities, and roadways are open 24 hours per day and 365 days per year. Public safety standards necessitate that these areas remain lit whenever they are occupied. Internal terminal lighting in passenger holding areas visible from outside are on motion detectors that dim lights when rooms are not occupied.
Deactivate unnecessary lights	**Partially**	Airport lights are required for aeronautical safety by the FAA and for airport security by the TSA. FAA establishes standards for apron (ramp) area lights (FAA AC 150/5300 13A, IES RP-37-15 Outdoor Lighting for Airport Environments), requiring that lights be on and illuminate aircraft and workers on the apron when present. Shutting off high-mast apron lights when no aircraft or workers are present is feasible to reduce seabird attraction. The Airport Operations Center turns off the high-mast apron lights when they are not required for aircraft servicing and apron operations, during the seabird fallout season (September 15 through December 15) after the last nightly flight has departed. HDOT will provide outreach and training to airport staff and tenants to manage light attraction risks and to turn off external lighting when work is completed.
Replace all outdoor lights with full cut-off fixtures	**Partially**	HDOT-A completed the Phase 1 lighting upgrades at Lihue Airport in 2016, with full cut-off LED fixtures (Lihue Airport Table 1) in parking area, roadway, maintenance area, terminal passenger loading and unloading areas, and baggage handling areas. Phase 2 lighting in which HDOT-A plans to install additional full cut-off (fully shielded), LED lights, including pole mounted, wall mounted, bollard type, and solar powered LED light fixtures in the T-hangers, commuter terminal, cargo terminal, FedEx buildings, and maintenance areas of the airport, and wall packs on main apron. Phase 2 is scheduled to be implemented in 2018. Full cut-off functionality for some flood lights is achieved by aiming angle. Phase 3 lighting improvements are being planned to upgrade 45 high-mast lights at the main and cargo apron (ramp) that will install full cut-off LED fixtures. A pilot project is being conducted at Hilo Airport to identify the appropriate lighting upgrade that will meet FAA and TSA safety and security requirements and incorporate any new research on lighting conditions that can reduce artificial light attraction for seabirds. The implementation of Phase 3 will depend on identification of an appropriate light fixture that improves conditions and securing funding for construction through the legislative budget process. The tentative timeline for this is 2020-2025. This measure is not applicable to taxiway and runway lights, which must comply with FAA safety regulations for specific visibility, and where the lights must be directed upward so that they can be seen by pilots operating aircraft in the movement areas (FAA AC 150/5345-46E).

Minimization Measures Considered	Feasible? (Y/N)	If Not Feasible to Implement Measures, Provide Reason
Shield all outdoor lights with full cut-off shields	**Partially**	HDOT-A completed the Phase 1 lighting upgrades at Lihue Airport in 2016, with full cut-off fixtures (Lihue Airport Table 1) in parking area, roadway, maintenance area, terminal passenger loading and unloading areas, and baggage handling areas. Phase 2 lighting in which HDOT-A plans to install additional full cut-off (fully shielded), LED lights, including pole mounted, wall mounted, bollard type, and solar powered LED light fixtures in the T-hangers, commuter terminal, cargo terminal, FedEx buildings, maintenance areas of the airport. Phase 2 is scheduled to be implemented in 2018. Full cut-off functionality for some flood lights is achieved by aiming angle. HDOT-A will investigate if additional shielding may reduce horizontal light escapement within safety and security lighting requirements. Phase 3 lighting improvements are being planned to upgrade 45 high-mast lights at the main and cargo apron (ramp) that will install full cut-off LED fixtures. A pilot project is being conducted at Hilo Airport to identify the appropriate lighting upgrade that will meet FAA and TSA safety and security requirements and incorporate any new research on lighting conditions that can reduce artificial light attraction for seabirds. The implementation of Phase 3 will depend on identification of an appropriate light fixture that improves conditions and securing funding for construction through the legislative budget process. The tentative timeline for this is 2020-2025. This measure is not applicable to taxiway and runway lights, which must comply with FAA safety regulations for specific visibility, and where the lights must be directed upward so that they can be seen by pilots operating aircraft in the movement areas (FAA AC 150/5345-46E).
Angle all lights downward	**Yes**	HDOT-A completed the Phase 1 lighting upgrades at Lihue Airport in 2016, with full cut-off fixtures (Lihue Airport Table 1) in parking area, roadway, maintenance area, terminal passenger loading and unloading areas, and baggage handling areas. Phase 2 lighting in which HDOT-A plans to install additional full cut-off (fully shielded), LED lights, including pole mounted, wall mounted, bollard type, and solar powered LED light fixtures in the T-hangers, commuter terminal, cargo terminal, FedEx buildings, and maintenance areas of the airport. Phase 2 is scheduled to be implemented in 2018. Phase 3 lighting improvements are being planned to upgrade 45 high-mast lights at the main and cargo apron (ramp) that will install full cut-off LED fixtures. A pilot project is being conducted at Hilo Airport to identify the appropriate lighting upgrade that will meet FAA and TSA safety and security requirements and incorporate any new research on lighting conditions that can reduce artificial light attraction for seabirds. The implementation of Phase 3 will depend on identification of an appropriate light fixture that improves conditions and securing funding for construction through the legislative budget process. The tentative timeline for this is 2020-2025. This measure is not applicable to taxiway and runway lights, which must comply with FAA safety regulations for specific visibility, and where the lights must be directed upward so that they can be seen by pilots operating aircraft in the movement areas (FAA AC 150/5345-46E).
Lower intensity (lumens) of outdoor lights	**No**	This measure does not provide the foot-candle illumination required by FAA for adequate safety and security lighting for servicing aircraft on active aprons (ramps) and support facilities (FAA AC 150/5300-13A, IES RP-37-15 Outdoor Lighting for Airport Environments). Additionally, lowering intensity of lighting is not applicable for taxiway and runway lights, which must comply with FAA safety regulations for specific visibility and colors of lights at different areas of runways and taxiways (FAA AC 150/5345-46E).
Change bulb color to non-white spectrum	**No**	The Phase 1 and Phase 2 new LED lights installed by HDOT-A are phosphor coated to 4000k and cannot be individually changed. To change the bulb color from white 4000k spectrum would require replacing the entire light fixture at a high cost; changing bulb color is not applicable for taxiway and runway lights, which must comply with FAA safety regulations for specific visibility and colors of lights at different areas of runways and

Minimization Measures Considered	Feasible? (Y/N)	If Not Feasible to Implement Measures, Provide Reason
		taxiways (FAA AC 150/5345-46E). Additional research is needed on what light spectrum is not an attraction to seabirds to be evaluated in future light replacement at the main and cargo aprons/ramps; where feasible and permitted under applicable rules, HDOT-A will explore the use of electronic filters for lights to produce a non-white spectrum. A pilot project is being conducted at Hilo Airport to identify the appropriate lighting upgrade that will meet FAA and TSA safety and security requirements and to incorporate any new research on lighting conditions that can reduce artificial light attraction for seabirds. The implementation of Phase 3 will depend on identification of an appropriate light fixture that improves conditions and on securing funding for construction through the legislative budget process.
Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers	**Yes**	HDOT-A prohibits unleashed predatory animals such as cats and dogs and the outdoor feeding of animals on the Lihue Airport premises. The U.S. Department of Agriculture (USDA) Wildlife Services (WS) conducts animal control as part of its management responsibility. Animal control includes trapping and removing cats and conducting surveillance to detect and remove dogs that may enter the airfield and introduced barn owls that may present a hazard to aircraft operations and downed seabirds. All rubbish is contained in sealed depositories that are removed routinely by the County.
Provide Worker Seabird Awareness Training to staff	**Yes**	USDA WS or other contractor will provide seabird awareness training to HDOT airport staff, airport security, tenants, and contractor personnel in August prior to the seabird fallout season. HDOT airport operations workers and contract security personnel are given a summary orientation that enables them to identify seabird species under different scenarios, including in flight and grounded (alive, injured, dead), and provides written instructions on how to handle and report observations or encounters with grounded seabirds. All new hires during fallout season will be shown the training slideshow on first day of work by the trainer, or human resources office.
Provide outreach materials to staff & guests	**Yes**	As part of the awareness training provided for staff, USDA WS or other contractor will provide KSHCP outreach materials (pamphlets and fliers that contain bulleted information and graphics) to HDOT airport staff, airport security, and tenants. HDOT fliers and information will be provided for each airport operations and security vehicle operating on airport facilities.
Host Save Our Shearwaters (SOS) Aid Station	**Partially**	USDA WS will provide an internal SOS aid station in the secure area of the airport, but because of security restrictions, will not be able to host a public SOS aid station. Any seabirds encountered on airport grounds will be documented, temporarily cared for, and turned over to County SOS aid stations as soon as possible. Any inquiries from the public will be directed to County SOS aid stations.

Kauai Harbors Item 8. <u>Minimization Plans</u>. Provide a plan to minimize the effects to the Covered Seabirds due to the Covered Activities. KSHCP Participants will be required to minimize the effects of the Covered Activities to the "maximum extent practicable" per applicable state and federal laws which regulate take license/permit issuance. The KSHCP document provides minimization objectives and measures to follow.

The Minimization Plans should include the proposed minimization measures, timeline, and estimated cost for each facility. In this item, the Participant can include measures already completed or in place (new lights, shields, operational changes). Timeline should include estimated completion schedule, and annual schedule for minimization that will occur only during fledging season.

For minimization measures not yet determined but anticipated to occur at the facility, this section should include an estimated cost that will be earmarked for future minimization measures.

If applicable, the Participant must provide the reasoning why certain measures will not be implemented. The suggested tables below may each be altered to best describe the Minimization Plan. Attach additional pages, photos, and drawings as needed.

Minimization plans for Nawiliwili Harbor and Port Allen Harbor are described in Kauai Harbors Tables 9-12.

Kauai Harbors Table 9. Light Attraction Minimization Plan—Nawiliwili Harbor

List of Buildings/Facilities	Minimization Measures	Cost to Implement	Responsible Staff	Timeline
Container yard pole lights – High-mast Lights	1. Install full cut-off fixtures 2. Reduce number of lights activated when operations not in progress	$843,292 $0	Harbors Kauai District Manager; Engineering	Completed 2017 2018 and ongoing
Container Yard Roadway lights	1. Install full cut-off fixtures 2. Reduce number of lights activated when operations not in progress	$4,517 $0	Harbors Kauai District Manager; Engineering	Completed 2017 2018 and ongoing
Harbor Administration Building lights	1. Install full cut-off fixtures 2. Reduce number of lights activated when operations not in progress	$79,179 $0	Harbors Kauai District Manager; Engineering	Completed 2017 2018 and ongoing
Harbor Maintenance Compound Building lights	1. Install full cut-off fixtures 2. Test and install additional shielding on floodlights 3. Reduce number of lights activated when operations not in progress	$44,610 $4,000 $0	Harbors Kauai District Manager; Engineering	Completed 2017 2018 2018 and ongoing
Warehouse Pier 2 Building lights (occupied by Matson)	1. Install full cut-off function 2. Test and install additional shielding on floodlights 3. Reduce number of lights activated when operations not in progress	$138,049 $4,000 $0	Harbors Kauai District Manager; Engineering	Completed 2017 2018 2018 and ongoing
Warehouse Pier 3 Building lights (occupied by Young Brothers)	1. Install full cut-off function 2. Reduce number of lights activated when operations not in progress	$99,913 $0	Harbors Kauai District Manager; Engineering	Completed 2017 2018 and ongoing

Kauai Harbors Table 10. Light Attraction Avoidance and Minimization Plan—Port Allen Harbor

List of Buildings/Facilities	Minimization Measures	Cost to Implement	Responsible Staff	Timeline
South Pier				
Port Allen South Pier Shed Buildings Wall-pack building lights	1. Install downward-pointing, full cut-off fixtures 2. Reduce number of lights activated. 3. Turn off external lights when work is completed. 4. Lower wall mounted lights to reduce glare	$23,502 $0 $0 $10,000	Harbors Kauai District Manager; Harbors Engineering	Completed 2017 2018 and ongoing 2018 and ongoing 2021
Port Allen South Pier Parking Lot Wall-pack flood lights	1. Install downward-pointing fixture with full cut-off function achieved by aiming angle 2. Test and install additional shielding on floodlights	$20,603 $4,000	Harbors Kauai District Manager; Harbors Engineering	Completed 2017 2018

Kauai Harbors Table 11. Seabird Mortality Minimization Plan—Nawiliwili Harbor

Minimization Measures	Describe Minimization Method (e.g., Trapping, Outreach, Enact Policy)	Cost to Implement	Responsible Staff
Remove and control loose predatory animals at the facility. (Loose animals can kill grounded seabirds, and this measure aims to prevent seabird mortality by animals.)	HDOT-H will contract with USDA WS or another contractor to conduct predator control at harbors. USDA WS will live-trap and remove feral cats and dogs from the facility during seabird fallout period (September 15–December 15).	$10,000	Harbors Kauai District Manager
Prohibit outdoor feeding of predatory animals. (Feeding animals attracts them to the site, and this measure aims to reduce the presence of animals that can cause seabird mortality.)	HDOT-H Kauai District Manager will enact a policy that prohibits outdoor feeding of feral cats and dogs at the facility during seabird fallout period (September 15–December 15).	$0	Harbors Kauai District Manager
Conduct nightly searches to recover downed birds at the property and turn them into SOS following protocols (see monitoring plan below).	1. HDOT-H will contract with USDA WS or another wildlife monitor to coordinate and implement an annual seabird monitoring program at Kauai harbors. 2. HDOT-H will include seabird awareness and response activities into the contract with Nawiliwili Harbor Security Staff as part of its hourly security patrols around the facility.	$30,000 $0	Harbors Kauai District Manager
Train staff to follow minimization measures.	HDOT will contract with USDA WS or another wildlife monitor to coordinate and implement an annual seabird monitoring program at Kauai harbors, including an annual training program for staff and tenants.	$0 (cost included in task above)	Harbors Kauai District Manager

Kauai Harbors Table 12. Seabird Mortality Minimization Plan—Port Allen Harbor

Minimization Measures	Describe Minimization Method (e.g., Trapping, Outreach, Enact Policy)	Cost to Implement	Responsible Staff
Remove and control loose predatory animals at the facility. (Loose animals can kill grounded seabirds, and this measure aims to prevent seabird mortality by animals.)	HDOT-H will contract with USDA WS or another contractor to live-trap and remove feral cats and dogs from the facility during seabird fallout period (September 15–December 15).	$10,000	Harbors Kauai District Manager
Prohibit outdoor feeding of predatory animals. (Feeding animals attracts them to the site, and this measure aims to reduce the presence of animals that can cause seabird mortality.)	HDOT-H Kauai District Manager will enact a policy that prohibits outdoor feeding of feral cats and dogs at the facility during seabird fallout period (September 15–December 15).	$0	Harbors Kauai District Manager
Conduct nightly/morning searches to recover downed birds at the property and turn them into SOS following protocols (see monitoring plan below).	1. HDOT will contract with USDA WS or another wildlife monitor to coordinate and implement an annual seabird monitoring program at Kauai harbors. 2. Port Allen Harbor staff will incorporate a seabird awareness and response plan into its daily routine at the facility.	$30,000 $0	Harbors Kauai District Manager Port Allen Harbor Agent
Train staff to follow minimization measures.	HDOT will contract with USDA WS or another wildlife monitor to coordinate and implement an annual seabird monitoring program at Kauai harbors, including an annual training program for staff and tenants.	$0 (cost included in task above)	Harbors Kauai District Manager

Lihue Airport Item 8. <u>Minimization Plans</u>. Provide a plan to minimize the effects to the Covered Seabirds due to the Covered Activities. KSHCP Participants will be required to minimize the effects of the Covered Activities to the "maximum extent practicable" per applicable state and federal laws which regulate take license/permit issuance. The KSHCP document provides minimization objectives and measures to follow.

The Minimization Plans should include the proposed minimization measures, an estimated completion schedule, and estimated cost for each facility. In this item, the Participant can include measures already completed or in place (new lights, shields, operational changes).

For minimization measures not yet determined but anticipated to occur at the facility, this section should include an estimated cost that will be earmarked to future minimization measures and a process to determine how and when those measures will be evaluated, selected, and decided (such as a cost-benefit analysis).

If applicable, the Participant must provide the reasoning why certain measures will not be implemented. The suggested tables below may each be altered to best describe the Minimization Plan. Attach additional pages, photos, and drawings as needed.

Minimization plans for Lihue Airport are described in Lihue Airport Tables 5 and 6.

Lihue Airport Table 5. Seabird Light Attraction Minimization Plan—Lihue Airport

List of Buildings/features	Avoidance and Minimization Measures	Cost to Implement	Responsible Staff	Timeline
Parking lot lights	**Minimization Measures** 1. All overhead lights in the parking lot were replaced with full cut-off solar light fixtures during Phase 1 of HDOT-A's lighting contract. 2. Phase 2 lighting upgrade. HDOT-A plans to upgrade 18 paired (36 lamps) pedestrian pathway lights in the public parking lot to bollard style, cut-off optics, solar powered LED low-level commercial pathway lighting. The upgrade is scheduled to be implemented in 2018.	$8,029 $171,565	Airports Kauai District Manager Airports Kauai District Manager	Completed 2016 2018
Ahukini Road	**Minimization Measures** 1. Lights along Ahukini Road and access road to the rental car facilities were replaced with full cut-off solar light fixtures during Phase 1 of HDOT-A lighting contract.	$4,003,204	Airports Kauai District Manager	Completed 2016
Signage lights	**Minimization Measures** 1. HDOT-A will turn off the lighted airport entrance sign at 10:00 p.m. Lighted waterfalls will be timed to turn off at 10:00 p.m. 2. Lights are directed downward at signs and waterfalls, and there is no upward lighting.	$0 $0	Airports Kauai District Manager Maintenance	2018 Completed 2016
Main Terminal Apron, Cargo Apron, Commuter terminal lighting, helicopter maintenance lighting.	**Minimization Measures** 1. HDOT-A completed the Phase 1 lighting upgrades at Lihue Airport in 2016 with full cut-off fixtures (Lihue Airport Table 1). Phase 1 included new LED terminal passenger loading and unloading areas, baggage handling areas, 2. Phase 2 lighting. HDOT-A plans to install additional full cut-off (fully shielded) LED lights, including pole-mounted and wall-mounted LED light fixtures in the T-hangers, commuter terminal, cargo terminal, FedEx buildings, maintenance areas of the airport. Phase 2 is scheduled to be implemented in 2018. 3. Test and install additional shielding on floodlights in maintenance area and at fire station. 4. Phase 3. HDOT-A plans to upgrade roughly 45 overhead high-mast lights at the main apron (ramp) and cargo main apron (ramp) with full cut-off (fully shielded) LED lights. A pilot project is being conducted at Hilo Airport to select best light characteristics. Funding would have to be secured to implement the project. Estimated completion date is 2020-2025 and would be dependent on Legislative funding. 5. The Airport Operations Center will turn off the high-mast apron lights when they are not required for airport operation during the seabird	$1,798,367 $1,007,749 $8,000 $1,917,386 $0	Airports Kauai District Manager Airports Kauai District Manager Airports Kauai District Manager Airports Kauai District Manager Airports Kauai District Manager	Completed 2016 2018 2018 2020-2025 2018

List of Buildings/features	Avoidance and Minimization Measures	Cost to Implement	Responsible Staff	Timeline
	fallout season (September 15 through December 15). The Airport Operations Center has area control of the high-mast apron lights, rather than individual pole-level control, and is able to turn off each apron area lights when no operations are in progress. 6. Airport Operations Center will provide outreach and training to staff and airport tenants to manage light attraction risks and to turn off external lighting when work is completed.	$0	Airports Kauai District Manager	2018 and ongoing
Landscaping and grounds lighting	**Minimization Measures** 1. All grounds and accent lights will be directed downward by grounds maintenance staff.	$0	Maintenance	Completed 2017
Other minimization	A letter requiring compliance with seabird-friendly lighting standards will be sent to airport rental tenants as part of seabird awareness training.	$0	Airports Kauai District Manager	2018

Lihue Airport Table 6. Seabird Mortality Minimization Plan

Minimization Measures	Describe Minimization Method (e.g., Trapping, Outreach, Enact Policy)	Cost to Implement	Responsible Staff
Remove and control loose predatory animals at the facility. (Loose animals can kill grounded seabirds, and this measure aims to prevent seabird mortality by animals.)	USDA WS routinely traps feral cats year-round at Lihue Airport as part of the wildlife hazard management operations. During the seabird fallout season, the control of feral cats throughout the airport improves the survival and recovery of Covered Seabirds that have been grounded at the airport. Trapping for mongoose also is conducted at the airport for a few weeks after a reported sighting.	$10,000	District Manager
Prohibit feeding of predatory animals. (Feeding animals attracts them to the site, and this measure aims to reduce the presence of animals that can cause seabird mortality.)	The HDOT-A Kauai Airport District Manager will enact a policy that prohibits outdoor feeding of feral cats and dogs at the Lihue Airport during seabird fallout season (September 15–December 15).	$0	District Manager
Conduct nightly/morning searches to recover downed birds at the property and turn them into SOS following protocols (see monitoring plan below).	HDOT will contract with USDA WS to implement an annual comprehensive seabird monitoring program at Lihue Airport, including the areas outside of the airport secure areas, such as the parking lot. See monitoring plan.	$50,000	District Manager
Train staff to follow minimization measures.	HDOT will contract with USDA WS to implement an annual training program for all staff to include seabird identification, seabird handling, and response procedures, as well as data recording and documentation techniques.	$0 (cost included in task above)	District Manager

Kauai Harbors Item 9. Monitoring Plan. Provide a plan to monitor take of the Covered Species at the facilities proposed to be covered by the incidental take permit/license. The monitoring plan describes how the property will be searched for downed Covered Seabirds. The KSHCP document provides standards and guidelines for take monitoring to ensure that take of the species is accurately measured and recorded.

The regulatory agencies will make the final determination as to the adequacy of the take monitoring plan.

HDOT will contract with USDA WS or another wildlife monitor to coordinate and implement an annual seabird monitoring program at Nawiliwili and Port Allen harbors. The components of the monitoring program are described in Kauai Harbors Tables 13 and 14, and the details of the monitoring protocol, data collection sheets, instructions, and maps of area monitored are provided in Appendix B.

Kauai Harbors Table 13. Covered Seabird Take Monitoring Protocols—Nawiliwili Harbor

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol and provide reasons)	**KSHCP Guideline**
Percentage of the total property that will be searched and the total area to be searched	1. USDA WS or other contract wildlife monitor: Driving and foot searches of harbor property during the fallout season. Combination of driving and walking survey to cover 100% of harbor property. 2. HDOT-H contract security staff: Driving survey of 100% of secure areas of harbor property. 3. HDOT-H operations staff and tenants: Opportunistic encounters of seabirds in active work areas during the fallout season when cargo or cruise ship operations are in progress. 4. Employees must search underneath all vehicles before they are moved at night and first thing in the morning. 5. Intensive monitoring will be implemented in areas containing vegetation/landscaping and various types of vehicles and moveable equipment, and facility vegetation maintenance will include vegetation trimming to help locate fallout birds.	Search as much area as possible
Frequency of searches (number of searches per day or per week)	1. USDA WS or other contract wildlife monitor: Once nightly driving and foot searches of harbor property during the fallout season. 2. HDOT-H security staff: Hourly driving survey of secure areas of harbor property year-round (24 times per day). 3. HDOT-H operations staff and tenants: Opportunistic encounters of seabirds in active work areas during the fallout season when cargo or cruise ship operations are in progress. A monitoring program combining a single nightly search by a dedicated searcher, with hourly routine patrols by HDOT-H security staff provided a 90% detection rate at Nawiliwili Harbor (see Appendix C for details of Searcher Efficiency Trials at Nawiliwili Harbor). These results indicated that once-nightly searches by dedicated searchers, in conjunction with regular patrols by facility security staff, is highly effective and would meet the standard of the KSHCP.	Twice daily
Time of day of searches	1. USDA WS or other contract wildlife monitor: Once nightly search of property during the fallout season, 2-4 hours after sunset. 2. HDOT-H security staff: Hourly driving survey, including the 2-hour period before sunrise. 3. HDOT-H operations staff and tenants: Opportunistic encounters of seabirds in active work areas during the fallout season, 7:00 a.m. to 10:00 p.m., when cargo or cruise ship operations are in progress.	2-3 hours after sunset and within 3 hours after sunrise
Number of searchers per search area	1. USDA WS or other contract wildlife monitor: One staff person per survey. Driving and foot survey through harbor property. 2. HDOT-H security staff: One staff person per survey. 3. HDOT-H operations staff and tenants: Variable number of cargo or cruise ship staff members when operations are in progress.	Depends on site conditions and safety considerations and vegetation, nearby hazards/threats

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol and provide reasons)	**KSHCP Guideline**
Proposed training	1. USDA WS or other contract wildlife monitor: Annual training refresher with County SOS program prior to fallout season. 2. HDOT-H security staff: Annual training prior to fallout season. 3. HDOT-H operations staff and tenants: Annual training prior to fallout season. 4. All new hires during fallout season will be shown the training slideshow on first day of work by the trainer, or human resources office.	Annual training covering seabird identification, seabird handling, and response procedures; verified and documented

Kauai Harbors Table 14. Covered Seabird Take Monitoring Protocols—Port Allen Harbor

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol and provide reasons)	**KSHCP Guideline**
Percentage of the total property that will be searched and the total area to be searched	1. USDA WS or other contract wildlife monitor: Foot searches of harbor property during the fallout season. Foot survey to cover 100% of harbor property. 2. HDOT-H operations staff and tenants: Harbor agent conducts a walk-through of the south pier facilities each work day (weekends and State holidays are not included); if harbor agent is on leave, Kauai harbor master deploys another employee to conduct the walk-through. Tenants report opportunistic encounters of seabirds when commercial vessel operations are in progress. 3. Employees must search underneath all vehicles before they are moved at night and first thing in the morning. 4. Intensive monitoring will be implemented in areas containing vegetation/landscaping and various types of vehicles and moveable equipment, and facility vegetation maintenance will include vegetation trimming to help locate fallout birds.	Search as much area as possible
Frequency of searches (number of searches per day or per week)	1. USDA WS or other contract wildlife monitor: Twice-daily foot searches of harbor property during the fallout season. 2. HDOT-H operations staff and tenants: Harbor agent conducts a walk-through of the south pier facilities each work day (weekends and State holidays are not included); if harbor agent is on leave, Kauai harbor master deploys another employee to conduct the walk-through. Tenants report opportunistic encounters of seabirds in active work areas when commercial vessel operations are in progress.	Twice daily
Time of day of searches	1. USDA WS or other contract wildlife monitor: Twice-daily searches of property during the fallout season, 2-4 hours after sunset and during the 2-hour period before sunrise. 2. HDOT-H operations staff and tenants: Harbor agent conducts a walk-through of the south pier facilities each work day (weekends and State holidays are not included) at 7:00–7:30 a.m.; if harbor agent is on leave, Kauai harbor master deploys another employee to conduct the walk-through. Tenants report opportunistic encounters of seabirds in active work areas when commercial vessel operations are in progress.	2-3 hours after sunset and within 3 hours after sunrise

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol and provide reasons)	**KSHCP Guideline**
Number of searchers per search area	1. USDA WS or other contract wildlife monitor: One staff person per survey. Foot searches through harbor property. 2. HDOT-H operations staff and tenants: Harbor agent conducts a walk-through of the south pier facilities each work day (weekends and State holidays are not included); if harbor agent is on leave, Kauai harbor master deploys another employee to conduct the walk-through. Tenants have a variable number of staff members present when commercial operations are in progress.	Depends on site conditions and safety considerations and vegetation, nearby hazards/threats
Proposed training	1. USDA WS or other contract wildlife monitor: Annual training prior to fallout season. 2. HDOT-H operations staff and tenants: Annual training prior to fallout season. 3. All new hires during fallout season will be shown the training slideshow on first day of work by the trainer, or human resources office.	Annual training covering seabird identification, seabird handling, and response procedures; verified and documented

Lihue Airport Item 9. Monitoring Plan. Provide a plan to monitor take of the Covered Species at the facilities proposed to be covered by the incidental take permit/license. The monitoring plan describes how the property will be searched for downed Covered Seabirds. A monitoring plan is also required for the green sea turtle if potential exist for take of that species. The KSHCP document provides standards and guidelines for take monitoring to ensure that take of the species is accurately measured and recorded.

The regulatory agencies will make the final determination as to the adequacy of the take monitoring plan.

HDOT-A will contract with USDA WS or another wildlife monitor to coordinate and implement an annual seabird monitoring program at Lihue Airport. The components of the monitoring program are described in Lihue Airport Table 7, and the details of the monitoring protocol, data collection sheets, instructions, and maps of area monitored are provided in Appendix B.

Lihue Airport Table 7. Covered Seabird Take Monitoring Protocols—Lihue Airport

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol and provide reasons)	**KSHCP Guideline**
Percentage of the total property that will be searched and the total area to be searched	1. USDA WS or other contract wildlife monitor: Driving and foot searches of lighted portions of airport, including main apron (ramp), main terminal (exterior) main cargo apron (ramp), heliport, maintenance compound, parking lots, Ahukini Road public access areas (see survey route map in Appendix B). 2. DOT-A security staff: Driving survey of 100% of public access areas. Security staff will be trained to recognize seabirds and how to address if down seabird encountered. Opportunistic encounters of seabirds during the fallout season. 3. HDOT-A operations staff and tenants: Will be provided with information regarding seabirds and given instruction as to how to address downed birds. Opportunistic encounters of seabirds in active work areas during the fallout season. 4, Employees must search underneath all vehicles before they are moved at night and first thing in the morning. 5. Intensive monitoring will be implemented in areas containing vegetation/landscaping and various types of vehicles and moveable equipment, and facility vegetation maintenance will include vegetation trimming to help locate fallout birds.	Search as much area as possible
Frequency of searches (number of searches per day or per week)	1. USDA WS or other contract wildlife monitor: Once-daily driving and foot searches of airport property by dedicated staff, plus regular patrols by WS staff throughout the day during the fallout season. 2. HDOT-A security staff: Hourly driving survey of public access areas (24x per day). Opportunistic encounters of seabirds during the fallout season. 3. HDOT-A operations staff and tenants: Opportunistic encounters of seabirds in active work areas during the fallout season. A monitoring program combining a single nightly search by a dedicated searcher, with hourly routine patrols by HDOT-H security staff provided a 90% detection rate at Nawiliwili Harbor (see Appendix C for details of Searcher Efficiency Trials at Nawiliwili Harbor). These results indicated that once-nightly searches by dedicated searchers, in conjunction with regular patrols by facility security staff, is highly effective and a similar program implemented at Lihue Airport by WS and HDOT-A staff and security would meet the standard of the KSHCP.	Twice daily
Time of day of searches	1. USDA WS or other contract wildlife monitor: Once-daily dedicated search of property during the fallout season, 2-4 hours after sunset. 2. USDA WS staff: Routine regular patrols by WS staff in morning, during the 2-hour period before sunrise, and throughout the day. 3. HDOT-A security staff: Hourly driving survey, including the 2-hour period before sunrise. 4. HDOT-A operations staff and tenants: Opportunistic encounters of seabirds in active work areas during the fallout season.	2-3 hours after sunset and within 3 hours after sunrise
Number of searchers per search area	1. USDA WS or other contract wildlife monitor: One staff person per survey through airport property. 2. HDOT-A security staff: One staff person per survey with two to three staff conducting survey rounds per hour. 3. HDOT-A operations staff and tenants: Variable number of staff members when operations are in progress.	Depends on site conditions and safety considerations

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol and provide reasons)	**KSHCP Guideline**
Proposed training	1. USDA WS or other contract wildlife monitor: Annual training refresher with County SOS program or WS or other contract wildlife monitor trainer in August, prior to fallout season. 2. HDOT-A security staff: Annual training with WS or other contract wildlife monitor trainer in August, prior to fallout season. 3. HDOT-A operations staff and tenants: Annual training with WS or other contract wildlife monitor trainer in August, prior to fallout season. 4. All new hires during fallout season will be shown the training slideshow on first day of work by the trainer, or human resources office.	Annual training covering seabird identification, seabird handling, and response procedures; verified and documented

Kauai Harbors Item 10. Components of the Green Sea Turtle Minimization and Monitoring Plan (if required). Monitoring and minimization for the green sea turtle is in two parts: A) Monitoring to detect nests and B) Monitoring and minimizing impacts to nests detected.

This section does not apply to Nawiliwili Harbor and Port Allen Harbor.

Part A: Monitoring to detect Green Sea Turtle Nests

Please provide the following information; the table below may be used and altered as needed.

1. Detailed location and description of beaches, including linear distance, at which searching for nests of the green sea turtle will take place. Searches should take place at any beach from which light at the facility can be viewed;

2. Monitoring protocols indicating:
    a. Annual training of searchers;
    b. Frequency of searches (every other day or as much as possible);
    c. Conduct active searching (searching the beach width);
    d. Sufficient number of trained searchers to cover the area; and
    e. Record results of search monitoring.

3. All Participants conducting self-monitoring are required to record the results of search efforts. Records should provide:
    a. Evidence (what was seen). Include description and provide photographs
    b. Location on the beach (GPS) and physically mark the location if possible
    c. Date and time of day
    d. Description of surrounding land use (e.g., vacant, or developed), and
    e. Proximity to the facility.

Part B: Monitoring of Identified Green Sea Turtle Nests

Each identified nest of the green sea turtle should be monitored and protected from light attraction. Please provide the following monitoring protocols; the tables below may be used and altered as needed.

1. Light avoidance measure for identified nests (either shield/deactivate lights at the facility or install and maintain a light shield around each identified nest);
2. Frequency of searches.
3. Number of searches monitoring the nests. The number of needed to monitor active nests will depend on number of nests identified and amount of beach needed to be covered;
4. Record the results of nest monitoring. Monitoring should provide:
    a. Evidence of hatchling emergence (description and photos):
    b. Date and time of emergence,
    c. Direction of tracks
    d. Condition of the nest area (e.g., disturbed or not).

Kauai Harbors Table 15. Green Sea Turtle Take Monitoring Protocols – Part A: Monitoring to Detect Nests

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Location & description of the beach, or beaches, surveyed and the linear distance of the beach.	Not applicable	Beach area surveyed should coincide with visibility from the facility with the lights.
Frequency of searches (# per day or per week)	Not applicable	Every other day during nesting season (typ. May 15 to end of August)
Number of searchers per search area	Not applicable	Depends on site conditions and safety considerations
Proposed training	Not applicable	Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee.

Kauai Harbors Table 16. Green Sea Turtle Take Monitoring Protocols – Part B: Monitoring of Identified Nests & Minimization

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Frequency of checks (# per day or per week)	Not applicable	Active nests should be monitored every 1-2 days; then daily during expected hatching date
Light avoidance	Not applicable	If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light.
Number of searchers per search area	Not applicable	Depends on site conditions and safety considerations

Lihue Airport Item 10. Components of the Green Sea Turtle (Honu) Minimization and Monitoring Plan (if required). Monitoring and minimization for the green sea turtle is in two parts: A) Monitoring to detect nests and B) Monitoring and minimizing impacts to nests detected.

This section does not apply to Lihue Airport.

Part A: Monitoring to detect Green Sea Turtle Nests

Please provide the following information; the table below may be used and altered as needed.

1. Detailed location and description of beaches, including linear distance, at which searching for nests of the green sea turtle will take place. Searches should take place at any beach from which light at the facility can be viewed;

2. Monitoring protocols indicating:
    a. Annual training of searchers;
    b. Frequency of searches (every other day or as much as possible);
    c. Conduct active searching (searching the beach width);
    d. Sufficient number of trained searchers to cover the area; and
    e. Record results of search monitoring.

3. All Participants conducting self-monitoring are required to record the results of search efforts. Records should provide:
    a. Evidence (what was seen). Include description and provide photographs
    b. Location on the beach (GPS) and physically mark the location if possible
    c. Date and time of day
    d. Description of surrounding land use (e.g., vacant, or developed), and
    e. Proximity to the facility.

Part B: Monitoring of Identified Green Sea Turtle Nests

Each identified nest of the green sea turtle should be monitored and protected from light attraction. Please provide the following monitoring protocols; the tables below may be used and altered as needed.

1. Light avoidance measure for identified nests (either shield/deactivate lights at the facility or install and maintain a light shield around each identified nest);
2. Frequency of searches.
3. Number of searches monitoring the nests. The number of needed to monitor active nests will depend on number of nests identified and amount of beach needed to be covered;
4. Record the results of nest monitoring. Monitoring should provide:

    a. Evidence of hatchling emergence (description and photos):
    b. Date and time of emergence,
    c. Direction of tracks
    d. Condition of the nest area (e.g., disturbed or not).

Lihue Airport Table 8. Green Sea Turtle Take Monitoring Protocols – Part A: Monitoring to Detect Nests

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol and provide reasons)	**KSHCP Guideline**
Location and description of the beach, or beaches, surveyed and the linear distance of the beach.	Not applicable	Beach area surveyed should coincide with visibility from the facility with the lights.
Frequency of searches (# per day or per week)	Not applicable	Every other day during nesting season (typ. May 15 to end of August)
Number of searchers per search area	Not applicable	Depends on site conditions and safety considerations
Proposed training	Not applicable	Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee.

Lihue Airport Table 9. Green Sea Turtle Take Monitoring Protocols – Part B: Monitoring of Identified Nests and Minimization

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol and provide reasons)	**KSHCP Guideline**
Frequency of searches (# per day or per week)	Not applicable	Active nests should be monitored every 1-2 days; then daily during expected hatching date
Light avoidance	Not applicable	If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light.
Number of searchers per search area	Not applicable	Depends on site conditions and safety considerations

Kauai Harbors Item 11. Describe the schedule that will be followed to provide training for staff. Training must be provided to those that will conduct and oversee the searches at the facility.

The training should include:

1. Summary of regulations protecting the Covered Species;
2. Search procedures, route, frequency and timing specific to the facility's monitoring plan, for seabirds and green sea turtle nests (if applicable);
3. Response procedures including safe and proper techniques for handling seabirds;
4. Recognizing evidence of green sea turtle nests, proper nest light screening, and hatchling activity (if green sea turtle minimization and monitoring plan is applicable);
5. Procedures to document the results of searches;
6. Downed wildlife agency contacts; and
7. Nearest SOS aid station.

USDA WS or other wildlife monitor, under contract with HDOT-H, will provide annual Worker Seabird Awareness and Response Training (WSART) to the Kauai District harbor operations staff, and contract security staff who may encounter fallen seabirds in the performance of their duties. The training will take place during the month of August, before the start of each seabird fallout season (September 15 to December 15). The training will cover the regulatory setting; consequences for noncompliance; standard monitoring, response, and reporting procedures; techniques for proper handling of fallen seabirds; personal protection; agency contacts; and facility locations. The training will incorporate an annual refresher update from the County SOS program.

All recipients of training will sign an attendance sheet, and HDOT will submit the forms with its annual compliance reporting.

The seabird fallout training, including proper handling and care instructions and reporting procedures, will be provided to the following HDOT-H staff:

Nawiliwili Harbor

- Harbors District Manager
- Harbors Assistant Manager
- Harbor Operations
- Harbor Security Officer
- Engineer
- Maintenance Supervisor
- Harbor Agent
- Maintenance Staff
- Contract Security Staff
- USDA Wildlife Services Staff or Contract Monitoring Staff

Port Allen Harbor

- Harbor Agent

- USDA Wildlife Services Staff or Contract Monitoring Staff

Rescuing Downed Seabirds—Standard Operating Procedures (SOP)

The following steps provide the procedure for recovering downed seabirds:

1. Take the seabird recovery kit and pet carrier to the downed seabird.
2. Put on gloves.
3. Using towel to gently cover the bird, pick up the seabird.
4. Place the seabird in the pet carrier, and close the pet carrier.
5. Put the gloves and towel back in the seabird rescue kit.
6. Take the bird and pet carrier to an SOS Aid Station.
7. Transfer the bird to the Aid Station's pet carrier.
8. Call SOS at 632-0610 or 635-5117.
9. Return the seabird rescue kit and pet carrier.
10. Complete the Bird Take Field Report.
11. Give the completed "Bird Take Field Report" to the General Manager, or other responsible staff person at the facility.

Contents of Seabird Recovery Kit

1. Latex or nitrile gloves;
2. Three towels;
3. Hand sanitizer;
4. Flashlight or headlamp;
5. Clipboard, pen, and blank "Bird Take Field Reports", or similar form; and
6. Pet carrier –medium sized. If a box is used it must be well ventilated and marked conspicuously "LIVE ANIMAL".

Lihue Airport Item 11. Describe the schedule that will be followed to provide training for staff. Training must be provided to those that will conduct and oversee the searches at the facility.

The training should include:

1. Summary of regulations protecting the Covered Species;
2. Search procedures, route, frequency, and timing specific to the facility's monitoring plan, for seabirds and green sea turtle nests;
3. Response procedures including safe and proper techniques for handling seabirds;
4. Recognizing evidence of green sea turtle nests (if lights shine on a beach), proper nest light screening, and hatchling activity (e.g., emergence);
5. Procedures to document the results of searches;
6. Downed wildlife agency contacts; and
7. Nearest SOS aid station.

USDA WS or other wildlife monitor, under contract with HDOT-A, will provide annual Worker Seabird Awareness and Response Training (WSART) to the Kauai District airport operations staff, and contract security staff who may encounter fallen seabirds in the performance of their duties. The training will take place during the month of August, before the start of each seabird fallout season

(September 15 to December 15). The training will cover the regulatory setting; consequences for noncompliance; standard monitoring, response, and reporting procedures; techniques for proper handling of fallen seabirds; personal protection; agency contacts; and facility locations. The training will incorporate an annual refresher update from the County SOS program.

All recipients of training will sign an attendance sheet, and HDOT will submit the forms with its annual compliance reporting.

The seabird fallout training, including proper handling and care instructions, and reporting procedures will be provided to the following HDOT-A staff:

- Airports District Manager
- Assistant Air Superintendent V
- Assistant Air Superintendent VI
- Security
- Airport Operations Controller
- Airports Operations Controller II
- Contract Security Staff
- USDA Wildlife Services Staff or Contract Monitoring Staff

Rescuing Downed Seabirds—Standard Operating Procedures (SOP)

The following steps provide the procedure for recovering downed seabirds:

1. Take the seabird recovery kit and pet carrier to the downed seabird.
2. Put on gloves.
3. Using towel to gently cover the bird, pick up the seabird.
4. Place the seabird in the pet carrier, and close the pet carrier.
5. Put the gloves and towel back in the seabird rescue kit.
6. Take the bird and pet carrier to an SOS Aid Station.
7. Transfer the bird to the Aid Station's pet carrier.
8. Call SOS at 632-0610 or 635-5117.
9. Return the seabird rescue kit and pet carrier.
10. Complete the Bird Take Field Report.
11. Give the completed "Bird Take Field Report" to the USDA WS staff or District Manager.

Contents of Seabird Recovery Kit

1. Latex or nitrile gloves
2. Three towels
3. Hand sanitizer
4. Flashlight or headlamp
5. Clipboard, pen, and blank "Bird Take Field Reports," or similar
6. Pet carrier—medium sized. If a box is used, it must be well ventilated and marked conspicuously "LIVE ANIMAL"

Kauai Harbors Item 12. Describe any outreach conducted (e.g., handing out pamphlets on seabird awareness to facility employees or guests):

HDOT-H will display SOS posters and provide outreach materials to staff and tenants annually during the fallout season (September 15–December 15).

Lihue Airport Item 12. Describe any outreach conducted (e.g., handing out pamphlets on seabird awareness to facility employees or guests):

HDOT-A will display SOS posters and provide outreach materials to staff and tenants annually during the fallout season (September 15–December 15).

PART 2. Take Estimate, Requested Amount of Take Authorization, and Funding

Kauai Harbors Item 1. Show the calculation of estimated take for each of the Covered Species.

Following the take estimation methods in the KSHCP for estimating a Participant's take, the tables and charts below show the take estimate calculation for the facility for each of the Covered Seabirds.

The KSHCP take estimate method utilizes the average of the most recent 5 years of SOS recovery data for the facility. Applied to the data is an adjustment for downed birds not found, assumed at 50 percent.

If the landowner-applicant submits a take estimate with an alternate discovery rate, they must provide the reasons why an alternate rate was used to estimate take, including relevant information supporting their reasoning.

Kauai Harbors Table 17. Annual Take Estimate Calculation for Nawiliwili Harbor

Participant/Facility Name: Nawiliwili Harbor	Newell's Shearwater	Hawaiian Petrel[2]	Band-rumped Storm Petrel
Avg. from SOS data–or—monitoring data if available (5 most recent yrs.: 2013-2017 for Newell's Shearwater and 2003-2017 for Hawaiian Petrel and Band-rumped Storm Petrel)[1]	1.8	0.2	0.0
Unobserved lethal take [90% discovery rate (0.9) as per SEEF Trials–Appendix C, take value calculated as ((1-0.9)/0.9* number observed)].	0.2	0.02	0.0
Total direct take from light attraction (observed + unobserved)	2.0	0.22	0.0
Annual Take Estimate	2.0	0.22	0.0

[1] Average take for Covered Species was based on a combination of information provided in a memo from KSHCP dated April 21, 2016 for the period 2003-2010, SOS data for 2011-2016, SOS data for 2017, and HDOT self-monitoring results for 2017. See Appendix D for a summary of monitoring results for HDOT properties in 2017, and Appendix E for a summary of fall out records used to determine average annual take at each facility.
[2] The average take number for Hawaiian Petrel was reported as a combined take for Nawiliwili Harbor and Port Allen Harbor, and totaled one bird in 2003 and 2008. Pending receipt of SOS data with which to clarify the location, it is assumed that both fallout records occurred at Nawiliwili Harbor. One additional Hawaiian Petrel was recorded at Nawiliwili in 2017 yielding a 15-year total of 3 birds, or an annual average of 0.2 bird per year.

Kauai Harbors Table 18. Annual Take Estimate Calculation for Port Allen Harbor

Participant/Facility Name: Port Allen Harbor	Newell's Shearwater	Hawaiian Petrel	Band-rumped Storm Petrel
Avg. from SOS data–or—monitoring data if available (5 most recent yrs.: 2013-2017 for Newell's Shearwater and 2003-2017 for Hawaiian Petrel and Band-rumped Storm Petrel) [1]	2.0	0.0	0.0
Unobserved lethal take [50% discovery rate (0.5) as typical, take value calculated as ((1-0.5)/0.5*number observed)].	2.0	0.0	0.0
Total direct take from light attraction (observed + unobserved)	4.0	0.0	0.0
Annual Take Estimate	4.0	0.0	0.0

[1] Average take for Covered Species was based on a combination of information provided in a memo from KSHCP dated April 21, 2016 for the period 2003-2010, SOS data for 2011-2016, SOS data for 2017, and HDOT self-monitoring results for 2017. See Appendix D for a summary of monitoring results for HDOT properties in 2017, and Appendix E for a summary of fallout records used to determine average annual take at each facility.

Lihue Airport Item 1. Show the calculation of estimated take for each of the Covered Species.

Following the take estimation methods in the KSHCP for estimating a Participant's take, the tables and charts below show the take estimate calculation for the facility for each of the Covered Seabirds.

The KSHCP take estimate method utilizes the average of the most recent 5 years of SOS recovery data for the facility. Applied to the data is an adjustment for downed birds not found, assumed at 50 percent.

If the landowner-applicant submits a take estimate with an alternate discovery rate, they must provide the reasons why an alternate rate was used to estimate take, including relevant information supporting their reasoning.

Lihue Airport Table 10. Annual Take Estimate Calculation for Lihue Airport

Participant/Facility Name: Lihue Airport	Newell's Shearwater	Hawaiian Petrel	Band-rumped Storm Petrel[2]
Avg. from SOS data–or—monitoring data if available *(5 most recent yrs.: 2013-2017 for Newell's Shearwater and 2003-2017 for Hawaiian Petrel and Band-rumped Storm Petrel)*[1]	1.6	0.2	0.07
Unobserved lethal take [75% discovery rate (0.75), take value calculated as ((1-0.75)/0.75*number observed). A 75% discovery rate is proposed for Lihue Airport based on the 90% searcher efficiency rates obtained in SEEF Trials at Nawiliwili Harbor (Appendix C) under similar conditions, staffing coverage, procedures, and monitoring frequency].	0.53	0.07	0.02
Total direct take from light attraction (observed + unobserved)	2.13	0.27	0.09
Annual Take Estimate	2.13	0.27	0.09

[1] Average take for Covered Species was based on a combination of information provided in a memo from KSHCP dated April 21, 2016 for the period 2003-2010, SOS data for 2011-2016, SOS data for 2017, and HDOT self-monitoring results for 2017. See Appendix D for a summary of monitoring results for HDOT properties in 2017, and Appendix E for a summary of fall out records used to determine average annual take at each facility.
[2] Information provided in a memo from KSHCP dated April 21, 2016 detailed one fallout record of a Band-rumped Storm Petrel at Lihue Airport in 2007. The values used in the table are reproduced from the April 21, 2016 memo. Note that USDA Wildlife Services recovery records for Lihue Airport do not show recoveries for this species.

Kauai Harbors Item 2. Select the requested take authorization and permit/license term coverage for each of the Covered Species.

Kauai Harbors Table 19. Requested take authorization and permit/license term coverage for 'a 'o - Newell's Shearwater (*Puffinus Newelli*) for Nawiliwili Harbor

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or sub-adults	Take Limit for License/Permit Term (30 yrs)
Mortality (Lethal) (Lethal take = unobserved lethal take + 12% SOS birds that are not released)	0.42	0.0	12.6
Injury (Non-lethal) (Annual take estimate – lethal take estimate)	1.58	0.0	47.4

Kauai Harbors Table 20. Requested take authorization and permit/license term coverage for ‘a ‘o - Newell’s Shearwater (*Puffinus Newelli*) at Port Allen Harbor

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or sub-adults	Take Limit for License/Permit Term (30 yrs)
Mortality (Lethal) (Lethal take = unobserved lethal take + 12% SOS birds that are not released)	2.24	0.0	67.2
Injury (Non-lethal) (Annual take estimate – lethal take estimate)	1.76	0.0	52.8

Kauai Harbors Table 21. Requested take authorization and permit/license term coverage for ‘ua‘u – Hawaiian Petrel (*Pterodroma sandwichensis*) at Nawiliwili Harbor

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or sub-adults	Take Limit for License/Permit Term (30 yrs)
Mortality (Lethal) (Lethal take = unobserved lethal take + 12% SOS birds that are not released)	0.04	0.0	1.2
Injury (Non-lethal) (Annual take estimate – lethal take estimate)	0.18	0.0	5.4

Lihue Airport Item 2. Select the requested take authorization and permit/license term coverage for each of the Covered Species.

Lihue Airport Table 11. Requested take authorization and permit/license term coverage for ‘a ‘o - Newell’s Shearwater (*Puffinus Newelli*) for Lihue Airport

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or sub-adults	Take Limit for License/Permit Term (30 yrs)
Mortality (Lethal) (*Lethal take = unobserved lethal take + 12% SOS birds that are not released)*	0.72	0.0	21.6
Injury (Non-lethal) (*Annual take estimate – lethal take estimate*)	1.41	0.0	42.3

Lihue Airport Table 12. Requested take authorization and permit/license term coverage for ‘ua‘u – Hawaiian Petrel (*Pterodroma sandwichensis*) for Lihue Airport

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or sub-adults	Take Limit for License/Permit Term (30 yrs)
Mortality (Lethal) (*Lethal take = unobserved lethal take + 12% SOS birds that are not released)*	0.09	0.0	2.7
Injury (Non-lethal) (*Annual take estimate – lethal take estimate*)	0.18	0.0	5.4

Lihue Airport Table 13. Requested take authorization and permit/license term coverage for ʻakēʻakē –Band-Rumped Storm Petrel (*Oceanodroma castro*) for Lihue Airport

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or sub-adults	Take Limit for License/Permit Term (30 yrs)
Mortality (Lethal) (*Lethal take = unobserved lethal take + 12% SOS birds that are not released)*	0.03	0.0	0.9
Injury (Non-lethal) (*Annual take estimate – lethal take estimate*)	0.06	0.0	1.8

Note: USDA WS take records for LIH do not show recoveries for this species.

Kauai Harbors Item 3. Funding Assurance. Provide proof of adequate funding (see KSHCP document). All participants must demonstrate requisite funding prior to permit/license approval to ensure that the proposed measures and actions, including monitoring, will be undertaken in accordance with the terms and schedule of the KSHCP[1].

HDOT is statutorily required to generate its own funds for its transportation programs and projects. Independent special funds were thus established for each division. Special funds strive to generate sufficient revenues for program operations, maintenance, and capital improvement costs, and are dependent on revenue generated by facilities operations and tenants.

HDOT-H will provide funding for implementation of the KSHCP from its Harbors Special Fund (B). The amount needed to fund HDOT-H's obligation will be included in the Harbors Division biennium and supplemental budget requests and is limited to the amounts approved in the legislative approval process for those specific fiscal periods. No funds beyond specific fiscal years can be appropriated without legislative approval. HDOT-H will make annual budget requests consistent with the budget approved as part of the KSHCP.

NOTE: HDOT-H is proposing that funds normally used to satisfy the "recovery" provisions of Hawaii Revised Statutes 195D be directed to scientific research on lighting.

[1] The applicant shall post a bond, provide an irrevocable letter of credit, insurance, or surety bond, or provide other similar financial tools, including depositing a sum of money in the endangered species trust fund created by section 195D-31, or provide other means approved by the board, adequate to ensure monitoring of the species by the State and to ensure that the applicant takes all actions necessary to minimize and mitigate the impacts of the take.

Lihue Airport Item 3. Funding Assurance. Provide proof of adequate funding (see KSHCP document). All participants must demonstrate requisite funding prior to permit/license approval to ensure that the proposed measures and actions, including monitoring, will be undertaken in accordance with the terms and schedule of the KSHCP[2].

HDOT-A is statutorily required to generate its own funds for its transportation programs and projects. Independent special funds were thus established for each of the division's major programs. Each fund strives to generate sufficient revenues for program operation, maintenance costs, and the State General Fund fee for central services. This fee is set at five percent of each special fund's gross revenues after debt service.

These special funds must also provide a higher level of cash financing in the Capital Improvement Program to ease the burden on debt service. Since the Capital Improvement Program is large, HDOT-A continues to rely on reimbursable General Obligation Bonds and federal aid (largely through the U.S. Department of Transportation's FAA) to help finance its programs and projects.

Airport Special Revenue Fund

The Airport Special Revenue Fund was created under Section 261-5, Hawaii Revised Statutes. Its primary revenue sources are the aviation fuel tax, landing fees, airport use charges, concession fees, and investment income. Other revenue sources include rentals and miscellaneous earnings.

HDOT-A will provide funding for implementation of the KSHCP from its Airport Special Revenue Fund (B). The amount needed to fund HDOT-A's obligation will be included in the HDOT-A biennium and supplemental budget requests and is limited to the amounts approved in the legislative approval process for those specific fiscal periods. No funds beyond specific fiscal years can be appropriated without legislative approval. HDOT will make annual budget requests consistent with the budget approved as part of the KSHCP.

Note: HDOT-A is proposing that funds normally used to satisfy the "recovery" provisions of Hawaii Revised Statutes 195D be directed to scientific research on lighting.

The State of Hawaii cannot commit funds that have not been approved by the Legislature, so a provision in the PIP and HCP must be noted that any type of payment is based on approval and availability.

Signature of Participant: _____

Printed Name: Jade Butay _____ Date: May 14, 2020 _____

The undersigned affirms that all the information included is true and accurate to the best of the Participant's knowledge and that this PIP is voluntarily submitted.

☑ check to waive confidentiality

[2] The applicant shall post a bond, provide an irrevocable letter of credit, insurance, or surety bond, or provide other similar financial tools, including depositing a sum of money in the endangered species trust fund created by section 195D-31, or provide other means approved by the board, adequate to ensure monitoring of the species by the State and to ensure that the applicant takes all actions necessary to minimize and mitigate the impacts of the take.

Contact Us

Call the KSHCP Office at (808) 245-9160 or visit our office at 4272-B Rice Street, Lihue HI, 96766. Visit the project website: www.Kauai-seabirdhcp.info. We look forward to working with you toward helping Hawaii's unique species!

Kauai Harbors PIP Completion Checklist Form

Item		Completion Check Is each item thoroughly described and information submitted?	Complete? (Y/N)	Information Needed to Make Item Complete or Outstanding Issues Remaining
Part I: Landowner & Property Information; Description of the Facilities; Avoidance & Minimization Measures; Monitoring of Take				
1	Landowner applicant information	▪ Landowner name/organization ▪ Contact information		
2	Property & Facility description	▪ TMK or Legal description ▪ Maps, site plans. ▪ Narrative Description		
3	Covered Activities	▪ Light table/inventory ▪ Honu assessment ▪ Description of Utility structures & support structures ▪ Maps, site plans, photos. ▪ Heights and configurations		
4	Standards for Covered Activities	▪ Regulations provided ▪ Operational needs		
5	Future facility plans	▪ Proposed plans provided ▪ Site plans, arch drawings, ▪ Other information		
6	Alternatives to the Taking	▪ Alternatives addressed ▪ Reasons provided		
7	Minimization measures considered	▪ Minimization measures table (or other info.) completed ▪ Reasons provided ▪ Each Covered Activity ▪ Covered Seabirds and Honu		
8	Minimization plan	▪ Minimization measures provided ▪ Timeline and funding ▪ Plan and process for future minimization measures (e.g., cost-benefit, earmarked funding) ▪ Each Covered Activity (lights & utility) ▪ Covered Seabirds and Honu		
9	Monitoring Plan	▪ Selected self-monitoring or DLNR ▪ Completed plan with protocols ▪ Adequate protocols ▪ Each Covered Activity ▪ Covered Seabird & Honu ▪ Training for searchers		
Part II: Take Estimate, Requested Amount of Take Authorization, and Funding				
1	Take Estimate Calculation	▪ 5-year SOS average ▪ Discovery rate ▪ Covered Seabirds ▪ Honu		
2	Requested take authorization & permit term	▪ Each Covered Species ▪ Reason provided for discrepancy between estimate and requested amount		

3	Proof of Adequate Funding	▪ Financial mechanism ▪ Demonstrated ability to fund		
	Signature	Signed by landowner, facility owner, or authorized responsible party		

Lihue Airport PIP Completion Checklist Form

Item		**Completion Check** Is each item thoroughly described and information submitted?	**Complete? (Y/N)**	**Information Needed to Make Item Complete or Outstanding Issues Remaining**
Part I: Landowner & Property Information; Description of the Facilities; Avoidance & Minimization Measures; Monitoring of Take				
1	Landowner applicant information	▪ Landowner name/organization ▪ Contact information		
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5	Future facility plans	▪ Proposed plans provided ▪ Site plans, arch drawings, ▪ Other information		
6	Alternatives to the Taking	▪ Alternatives addressed ▪ Reasons provided		
7	Minimization measures considered	▪ Minimization measures table (or other info.) completed ▪ Reasons provided ▪ Each Covered Activity ▪ Covered Seabirds and Honu		
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9	Monitoring Plan	▪ Selected self-monitoring or DLNR ▪ Completed plan with protocols ▪ Adequate protocols ▪ Each Covered Activity ▪ Covered Seabird & Honu ▪ Training for searchers		
Part II: Take Estimate, Requested Amount of Take Authorization, and Funding				
1	Take Estimate Calculation	▪ 5-year SOS average ▪ Discovery rate ▪ Covered Seabirds ▪ Honu		

2	Requested take authorization & permit term	▪ Each Covered Species ▪ Reason provided for discrepancy between estimate and requested amount		
3	Proof of Adequate Funding	▪ Financial mechanism ▪ Demonstrated ability to fund		
	Signature	Signed by landowner, facility owner, or authorized responsible party		

Appendix A. Technical Specifications of Outdoor Lights at Nawiliwili Harbor, Port Allen Harbor, and Lihue Airport, Kauai.

Johnson Controls

Lighting Material Manuals

Nawiliwili Harbor

HDOT Harbors, Highways, & Tunnels

JCI Contract: 4PX0-0031

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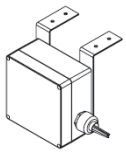
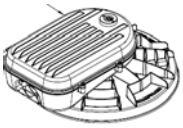
Catalog

Part Name	Image	Additional Description
ELWG0CXXGC		GE - LIGHTGRID GATEWAY
ELWK0A5		GE - LIGHTGRID NODE BOX ASSY 277V
ELWM0CXV		GE - LIGHTGRID CELLULAR MODEM
ELWN0A5		GE - LIGHTGRID NODE 277V
CREE CPY250-A-DM		CPY250-A-DM-F-UL-SV-PML
CREE CR14-22L Troffer		CR14-22L-40K-10V
CREE CR2220L Troffer		CR22-20L-40K-10V
Holo DSX0LED 40C 530		DSX0 LED 20C 530 40K T3M MVOLT
Holo HMLED2 06 4K-480V		HMLED2 12 4K AH G F P7 RFD211068

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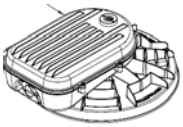
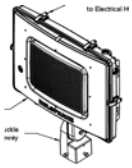
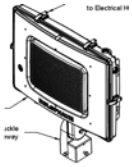
Catalog

Part Name	Image	Additional Description
Holo HMLED2 06 4K-480V		HMLED2 06 4K AH G F P7 RFD211069
Precision LLW2-40-LW-F-U		LLW2-40-LW-F-U
Precision LLW4-40-LW-F-U		LLW4-40-LW-F-U
CREE PKG-304		PKG-304-PD-04-E-UL-SV-525-PML
CREE PKG-304		PKG-304-PD-06-E-UL-SV-525-PML
Holo PMLED 03 4K-277V		PMLED-03-4K-07A-AS-66-1-L-ZP PMLED FV-Z
Holo PMLED 04 4K-277V		PMLED-04-4K-07A-AS-66-1-L-ZP PMLED FV-Z
Precision RF6LED5G4-277		RF6LED5G4-277-HDM-6LFLED5G4-40K-WH-WT

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Catalog

Part Name	Image	Additional Description
Precision SIL-1X4-XL		SIL-1X4-XL-F-UL-40K-CW8-JP
Precision SIL-1X8-XL		SIL-1X8-XL-F-UL-40K-CW8-JP
RAB WPLED13NPC2		WPLED13N/PC2
RAB WPLED 13N/PC2		WPLED13N/PC2

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ELWG-0-C-XX-G-C

GE
Lighting

LightGrid™ Gateway

Outdoor Wireless Control System

Description

LightGrid™ Outdoor Wireless Control System from GE allows remote monitoring and control, utility-grade energy measurement and GPS mapping of streetlights.

Product Features

- GPS module in every gateway
- Automatic gateway registration and display in MAP view
- Real-time update of the status of all the fixtures
- Self-forming & self-restoring mesh network
- Addressable via IPv6
- Nodes, gateway can be spaced up to 500m apart (Clear line of sight)
- Reliable and Secure Encrypted Communications

Applications

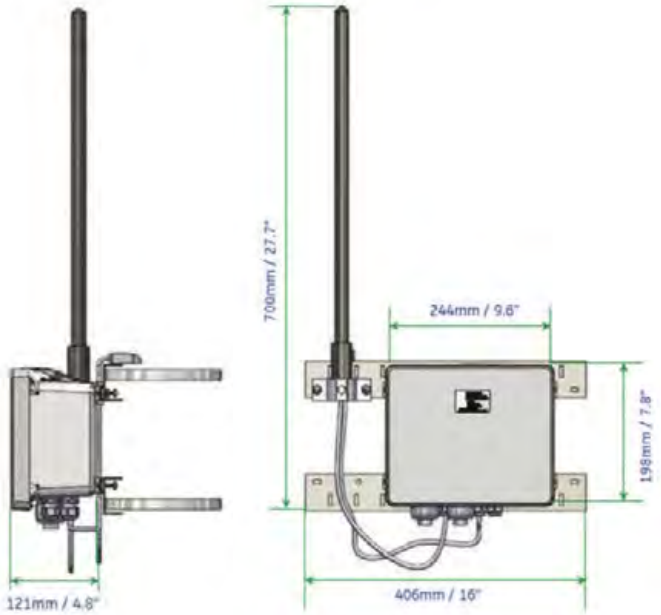
- Street Lighting
- Area Lighting

2014 PROGRESS Report SELECTION

Product Specifications

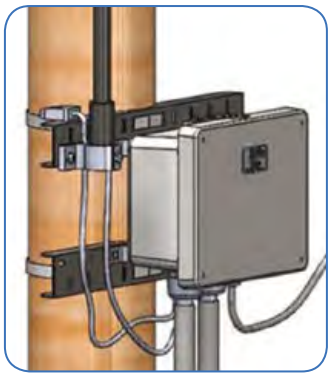
- Input Voltage: 120-277V, 347V—480V
- Operating Temperature: -40 to +50C
- Surge: Meets ANSI C62.41 6KV, 3KA Combination Wave
- Power Consumption: < 3W
- Frequency: 915 MHz ISM Band
- GPS: Accuracy 3m (clear open sky)
- Addressing: IPv6
- Security: AES Encryption, Certificate Based
- Network Communication: IEEE 802.15.4, 6LoWPAN, 50 Channel FHSS
- Backhaul Communication: Ethernet or Cell (with modem)
- Complies with FCC Part 15 Required Sub Sections
- Complies with UL 916
- Weight: 7 lbs.
- Warranty: 3 years

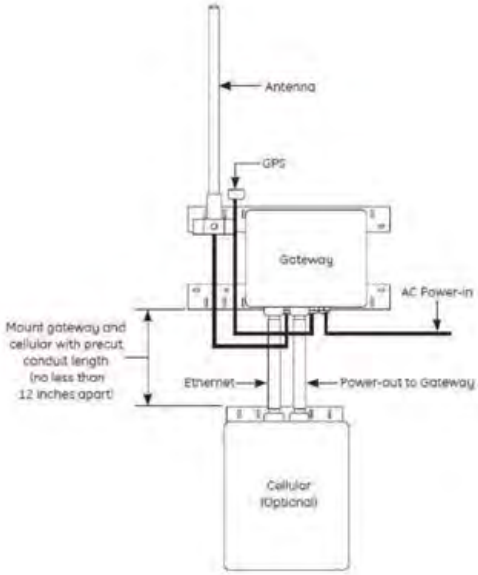
Product Dimensions



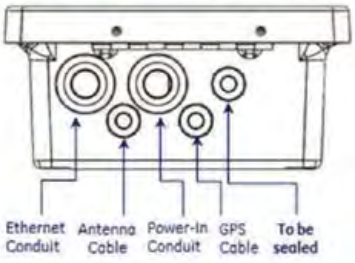
Installation

Gateway will contain two ¾" liquid-tight conduit fittings, and three liquid-tight glands to accommodate customer installation flexibility according to the diagram below, which may require customer to cap or seal unused fittings during installation.

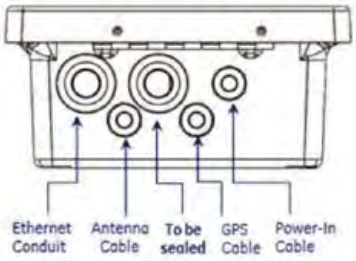




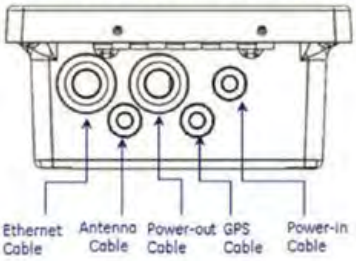
OPTION 1: Power & Ethernet input using conduit (**NO** power-out to external device)



OPTION 2: Power-in via cable. Ethernet in via conduit (**NO** power-out to external device)



OPTION 3: Power-in via cable; Power & Ethernet out to cellular modem via conduit



Packaging

- 1 Gateway Enclosure
- Conduit fittings (2 pcs mounted to enclosure)
- Gland fittings (3 pcs mounted to enclosure)
- GPS module and cable (1 pcs mounted to gland)
- Antenna Cable (1 pc mounted to gland)
- Antenna Pole (1 pc to be installed)
- Pole Mounting Bracket (2 pcs mounted to enclosure)

Ordering Number Logic

E L W G _ C _ G C _

PRODUCT ID	VOLTAGE (UL)	ANTENNA	COUNTRY/POLE	GPS	IP COMMUNICATION	NETWORK CONFIGURATION
E L W G	**0** = 120/277 **H** = 480* * 480V Gateway = 120-277V Gateway + 480V to 277V Step Down Transformer	**C** = Standard 18"	**XX** = Default (US) **AR** = Argentina **BR** = Braziil **EL** = El Salvador	**G** = GPS Capability	**C** = Cat 5 Cable Only	**B** = Network B **None** = Default

www.gelighting.com

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CTRL002 (Rev 06/10/15)

ELWM-0-C-X-V

GE
Lighting

LightGrid™ Cell Modem

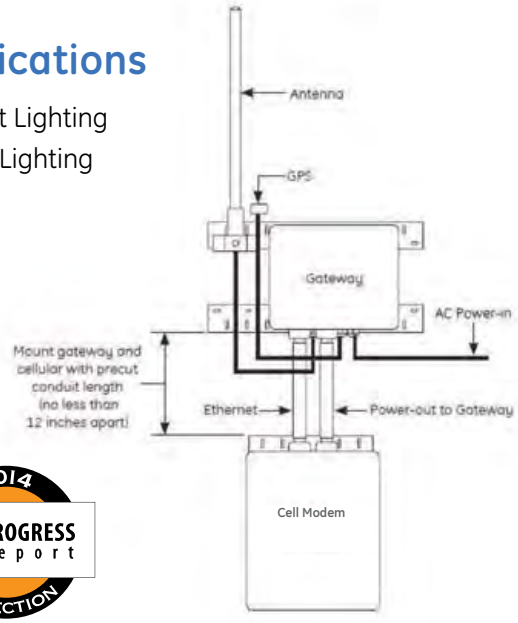
Outdoor Wireless Control System

Description

LightGrid™ Outdoor Wireless Control System from GE allows remote monitoring and control, utility-grade energy measurement and GPS mapping of streetlights.

Applications

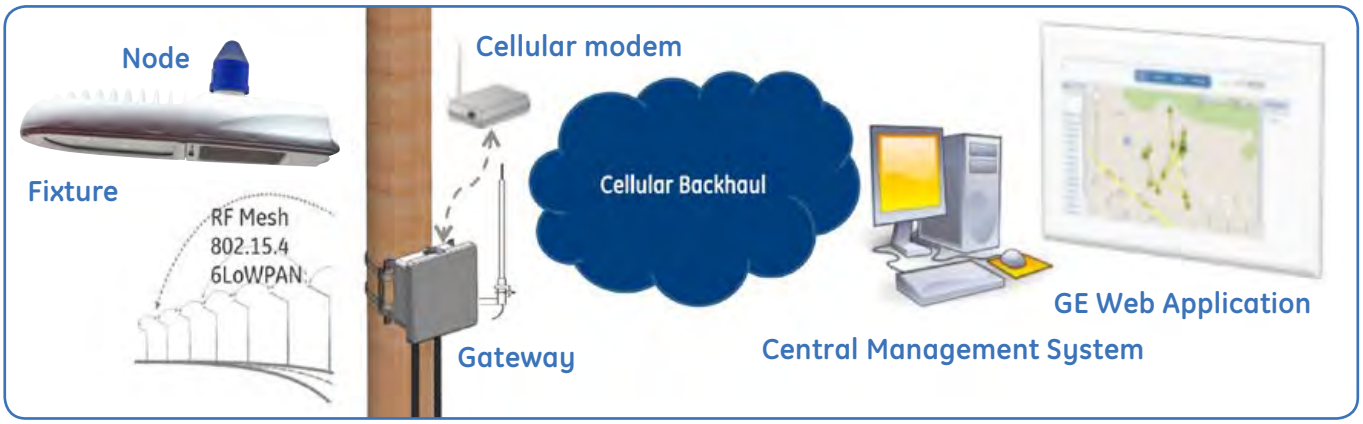
- Street Lighting
- Area Lighting



Specifications

- Input Voltage: 120-277V, 347V—480V
- Weight: 8 lbs
- Dimensions: 15 in. x 13 in. x 7 in
- Mounting Height: 27 ft.–40 ft.
- Warranty: 3 years

Cell Based Network



Packaging

- Cellular enclosure (1pc)
- Conduit fitting (2pcs, mounted to enclosure)
- Flexible conduit (2pc)
- Power cable, stripped ends (1pc)
- Ethernet cable (1pc)
- Pole mounting bracket (2pcs, mounted to enclosure)

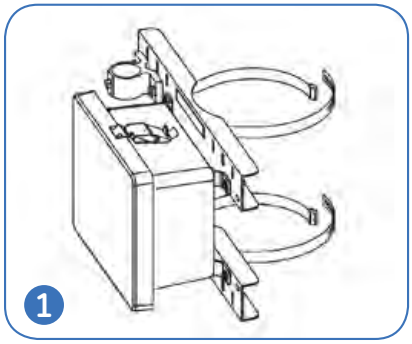
Ordering Number Logic

E L W M — O — C — X — _

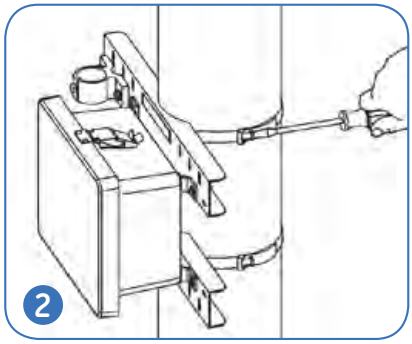
PRODUCT ID	VOLTAGE	IP COMMUNICATION	FUTURE USE	PROVIDER
E L W M	0 = 120-277	C = CAT 5 Cable only	X	V = Verizon R = Rogers X = Future Use

Mounting Gateway and Cellular

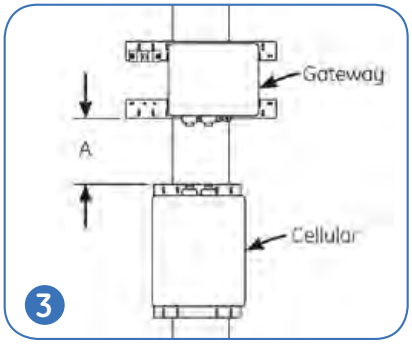
Carefully unpack unit from its packaging. Properly inspect for defects before installing.



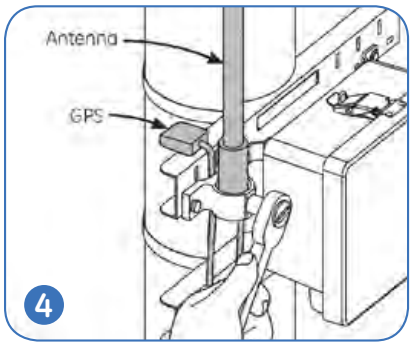
Before attaching gateway enclosure to pole, ensure the mount band clamps are correctly oriented. **NOTE:** Adjustable steel band allows mounting on pole diameters up to 15 inches.



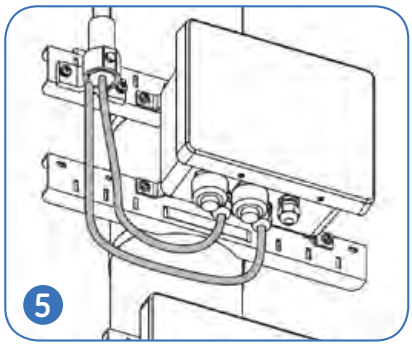
Attach gateway enclosure to pole by tightening steel band clamps. Fold or trim excess metal band if needed.



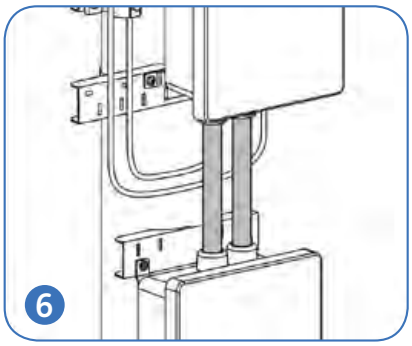
Position cellular enclosure below the gateway enclosure and attach to pole by tightening both steel band clamps. **NOTE:** The distance (A) between the two enclosures should be adjusted to accommodate the length of the Ethernet cable and power-in/out cable.



Install GPS and antenna into bracket and tighten bolt (45 lbs-in. torque).



Insert GPS and antenna wires through two glands in bottom of gateway enclosure.



Install two 0.75-inch diameter nonmetallic Type B liquid-tight conduit between gateway and cellular enclosures.

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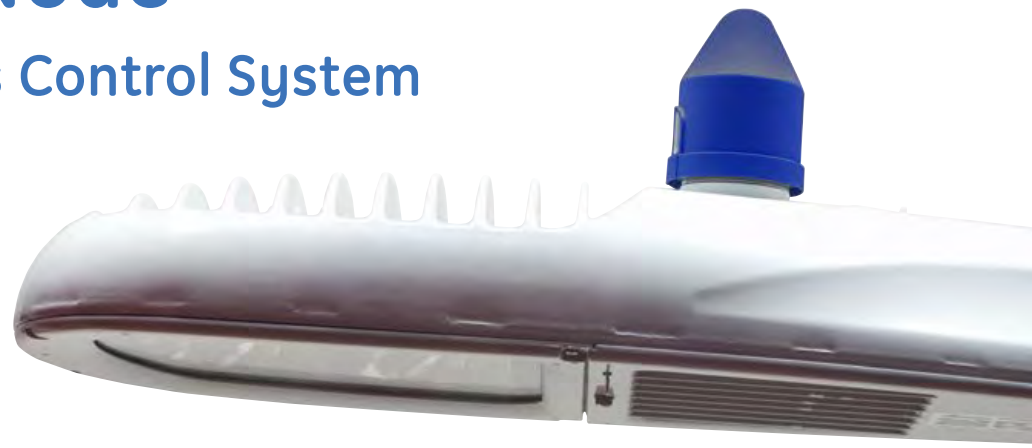
CTRL009 (Rev 06/10/15)

ELWN0A5

GE
Lighting

LightGrid™ Node

Outdoor Wireless Control System



Description

LightGrid™ Outdoor Wireless Control System from GE allows remote monitoring and control, utility-grade energy measurement and GPS mapping of streetlights.

Applications

- Street Lighting
- Area Lighting

2014 PROGRESS Report SELECTION

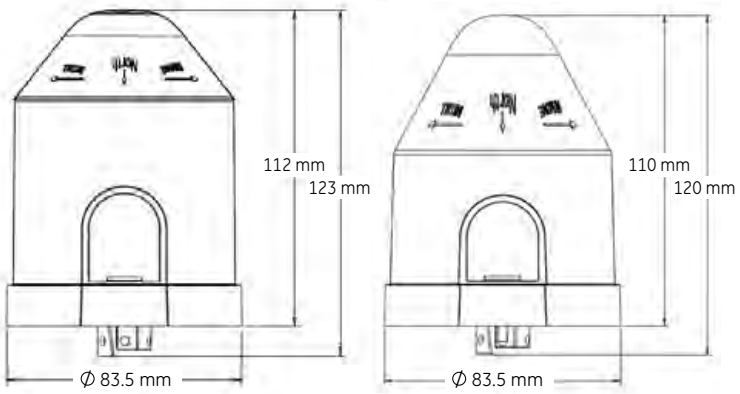
Product Features

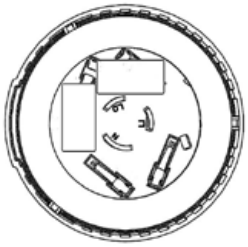
- Utility Grade Measurement up to 0.5% Accuracy
- Self-forming & self-restoring mesh network
- Static IPV6 data addressing and routing
- Reliable and Secure Encrypted Communications
- Nodes, gateway can be spaced up to 500m apart (Clear Line of Sight)
- Utility grade 15 minute time of use Energy consumption reporting
- Full Autonomous Photocell Functionality (No wireless network required)
- Time Based Lighting schedules to maximize energy savings
- Integrated GPS in each node for Real time Asset Reporting
- Dynamic Lumen Output Level Control
- Real time measurement and storage of Voltage, Current, Wattage, Power Factor, and Hours of operation

Product Specifications

- Input Voltage: 120-277V, 347V and 480V
- Radio Frequency: 915 MHz ISM Band
- Network Communication: IEEE 802.15.4, 6LoWPAN, 50 Channel FHSS
- Addressing: IPv6
- Dimming: 0-10V
- Operating Temperature: -40 to +50C
- Surge: Meets ANSI C62.41 6KV, 3KA Combination Wave
- Power consumption i.e. <2W 120-277V, < 3W 347 and 480V
- Photocell: Complies with ANSI C136.10-2006
- GPS: Accuracy 3m (clear open sky)
- Security: AES Encryption and Certificate based authentication
- Utility Grade Energy Measurement: Complies with relevant sections of ANSI C12.20
- Complies with FCC Part 15 required sub sections
- Complies with UL 773, Wet Rated, Type 2 Outdoor
- Complies with ANSI C136.41-2013 (ANSI Dimming)
- Warranty: 5 yrs Standard. 10 yrs Extended Warranty Available

Product Dimensions





ANSI Dimming

GE Dimming

Ordering Number Logic

E L W N _ _ 5 _ G 5 _ _

PRODUCT ID	VOLTAGE	PIN CONFIGURATION	PINS	METERING	GPS	MAX WATTAGE	NETWORK CONFIGURATION	COUNTRY/POLE
E L W N	**0** = 120/277 **5** = 480	**D** = GE Dimming **A** = ANSI Dimming	**5** = 5 Pin	**R** = 2% Revenue Grade **U** = 0.5% Utility Grade	**G** = GPS Capability	**5** = 450 Watts	**S** = Stand Alone **B** = Network B **None** = Default	**None** = Default (US)

www.gelighting.com

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CTRL001 (Rev 06/10/15)

CPY250-A-DM-D / F-B

CPY Series LED Canopy / Soffit Luminaire –
Direct Mount – Drop / Flat Lens – 122 Watts

Product Description

Slim, low profile, easy mounting from below the deck. Luminaire housing constructed of rugged cast aluminum with integral heat sink specifically designed for LED. Luminaire mounts directly to the canopy deck in a 2.0″ (51mm) to 4.0″ (102mm) round hole and is secured in place with self-sealing screws that provide water-tight seal. Suitable for use in single or double skin canopies with a minimum 4.0″ (102mm) wide panels and a minimum 22 gauge, 0.030″ (0.7mm) canopy thickness. Direct imaging of LEDs is eliminated with high efficiency patterned flat or 0.91″ (23mm) drop glass lens.

Performance Summary

Made in the U.S.A. of U.S. and imported parts

CRI: Minimum 70 CRI

CCT: 5700K (+ / - 500K) Standard, 4000K (+ / - 300K)

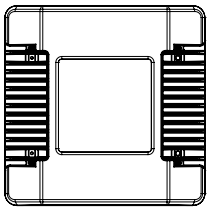
Limited Warranty†: 10 years on luminaire / 10 years on Colorfast DeltaGuard® finish

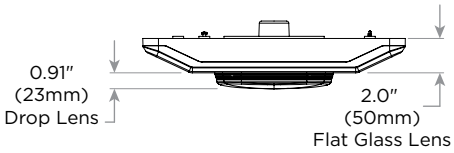
Accessories

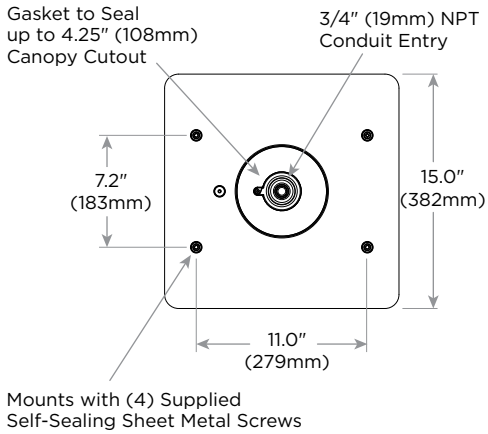
Field Installed Accessories	
XA-BXCCMW Upgrade Kit for use with Jet-Phillips canopy luminaires	**XA-BXCCJBOX** Junction Box / Stem Kit - 6.0″ (152mm) H x 3/4″ (19mm) NPT Stem
XA-BXCCNW Upgrade Kit for use with Elsco Franciscan canopy luminaires	**XA-BXCCBPW** Beauty Plate
XA-BXCCPW Upgrade Kit for use with LSI Dakota or Masters canopy luminaires	**XA-BXCCBPB12W** Beauty Plate w/ 12″ (305mm) Backer
XA-BXCCQW Upgrade Kit for use with Whiteway Riviera or Rig-A-Lite canopy luminaires	**XA-BXCCBPB16W** Beauty Plate w/ 16″ (406mm) Backer
XA-BXCCRW Upgrade Kit for use with Elsco Merrit canopy luminaires	**TPS-2** Tamper Resistant Driver Bit
XA-BXCCSW Upgrade Kit for use with LSI Richmond or Whiteway Civic canopy luminaires	**XA-SENSREM** Hand-Held Remote - For successful implementation of the programmable multi-level option, a minimum of one hand-held remote is required

Drop Lens

Flat Lens







QUICKSHIP™

Click below to select Quick Ship products

For full list of Cree Quick Ship products visit **www.cree.com/lighting/quickship**

Ordering Information

Example: CPY250-A-DM-D-B-UL-WH-OPTIONS

CPY250	A	DM		B			
Product	**Version**	**Mounting**	**Optic**	**Input Power Designator**	**Voltage**	**Color Options**	**Options**
CPY250	**A**	**DM** Direct	**D** 0.91″ (23mm)Drop **Lens** **F** Flat Lens	**B** 122W	**UL** Universal 120–277V **UH** Universal 347–480V*	**WH** White (Standard) **SV** Silver **BK** Black **BZ** Bronze **PB** Platinum Bronze	**40K 4000K Color Temperature** - Color temperature per luminaire **DIM 0–10V Dimming** - Control by others - Refer to dimming spec sheet for details - Can't exceed specified input power **ML Multi-Level (100% / 30% Power)** - Refer to ML spec sheet for details **PML Programmable Multi-Level** - Refer to PML spec sheet for details

† See www.cree.com/lighting/products/warranty for warranty terms.

* For input power for 347–480V, refer to the Lumen Output, Electrical, and Lumen Maintenance data table below.

Rev. Date: 01/23/14

Product Specifications

CONSTRUCTION & MATERIALS

- Slim, low profile, easy mounting from below the deck
- Luminaire housing constructed of rugged cast aluminum with integral heat sink specifically designed for LED
- Luminaire mounts directly to the canopy deck in a 2.0″ (51mm) to 4.0″ (102mm) round hole and is secured in place with self sealing screws that provide water-tight seal
- Suitable for single or double skin canopies with minimum 4.0″ (102mm) wide panels and a minimum 22 gauge, 0.030″ (0.7mm) canopy thickness
- Optional wet listed junction box rated for feed through 8 (4 in, 4 out) #12 AWG conductors
- Fixture housing provided with 3/4″ (19mm) conduit entry for direct wire feed
- Simple single hole drill for mounting to canopy
- Alignment pin included for ease of installation if desired (optional; requires drilling of additional hole)
- Below ceiling serviceable driver for ease of upgrade or replacement
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Standard is white. Bronze, black, silver, and platinum bronze are also available

ELECTRICAL SYSTEM

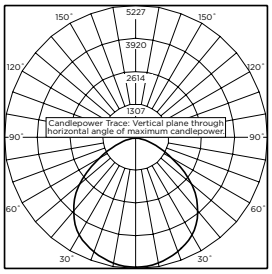
- **Input Voltage:** 120–277V or 347–480V, 50 / 60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 6kV surge suppression protection standard
- To address inrush current, slow blow fuse or type C / D breaker should be used

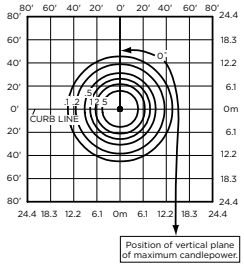
REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529 pending
- Consult factory for CE Certified products
- 6kV surge suppression protection tested in accordance with IEEE /ANSI C62.41.2
- Product qualified on the DesignLights Consortium™ (“DLC”) Products List (“QPL”)
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Meets Buy American requirements within ARRA
- Dark Sky Friendly, IDA Approved when ordered with “F” optic

Photometry

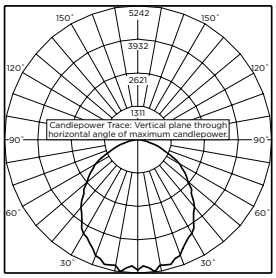
All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP certified laboratory.

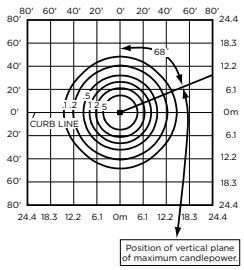




ITL Test Report #: 76865
CPY250-A-**-F-B-UL
Initial Delivered Lumens: 13,636

CPY250-A-**-F-B-UL
Mounting Height: 15′ (4.6m)
Initial Delivered Lumens: 13,000
Initial FC at grade





CESTL Test Report #: 2013-0112
CPY250-A-**-D-B-UL
Initial Delivered Lumens: 13,242

CPY250-A-**-D-B-UL
Mounting Height: 15′ (4.6m)
Initial Delivered Lumens: 13,000
Initial FC at grade

Weight

Weight
12.5 lbs (5.7kg)

Lumen Output, Electrical, and Lumen Maintenance Data

CPY250 Canopy Luminaire													
Optic	5700K		4000K		System Watts 120–277V	System Watts 347–480V	TOTAL CURRENT						50K Hours Projected Lumen Maintenance Factor @ 15˚C (59˚F)***
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11			120V	208V	240V	277V	347V	480V	
D	13,000	B3 U2 G2	12,400	B3 U2 G2	122	137	1.04	0.60	0.52	0.46	0.40	0.29	94%
F	13,000	B3 U0 G1	12,400	B3 U0 G1	122	137	1.04	0.60	0.52	0.46	0.40	0.29	94%

* Actual production yield may vary between -4 and +10% of initial delivered lumens.
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit www.iesna.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf.
*** For recommended lumen maintenance factor data see TD-13. Calculated L_{70} based on 6,000 hours LM-80-08 testing: > 100,000 hours.

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CR14-22L-40K-10V

CR Series

CR14™ 1' x 4' Architectural LED Troffer

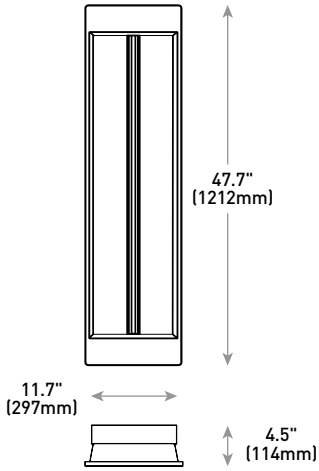
Product Description

The CR14™ Architectural LED troffer delivers up to 130 lumens per watt of exceptional 90 CRI light at 4000 lumens. This breakthrough performance is achieved by combining the high efficacy and high-quality light of Cree TrueWhite® Technology with a unique thermal management design. The CR14 product family is available in warm, neutral, cool, or daylight color temperatures and has step, 0-10V, or Lutron EcoSystem® Enabled dimming options. Its unique indirect illumination design makes the CR14 perfect for use in commercial new construction or renovated spaces.

Performance Summary

- Utilizes Cree TrueWhite® Technology (90 CRI)
- Room-Side Heat Sink
- **Efficacy:** 90-130 LPW
- **Initial Delivered Lumens:** 2,200, 3,100, 4,000, 5,000 lumens
- **Input Power:** 22-50 watts
- **CRI:** 90 CRI (Cree TrueWhite® Technology), 80+ CRI (HD)
- **CCT:** 3000K, 3500K, 4000K, 5000K
- **Input Voltage:** 120-277 VAC or 347 VAC
- **Limited Warranty†:** 10 years
- **Limited Warranty Emergency Back Up (EB) Battery:** 1 Year Battery Back Up. Test regularly in accordance with local codes
- **Lifetime:** Designed to last from 50,000 hours (HD), 75,000 hours (Standard TW), and 100,000 hours (HE TW)
- **Controls:** Step Level to 50%, 0-10V Dimming , Lutron EcoSystem Enabled to 5%*
- **Mounting:** Recessed**

† See www.cree.com/canada for warranty terms
* Reference www.cree.com/lighting for recommended dimming control options
** Acceptable for use with standard 9/16 T-Bar or larger when installed per installation instructions. Consult factory for non-standard grid applications



NOTE: Use of Expanded Junction Box will expand the depth to 6.42" and Emergency Backup will expand the depth to 6.05". Use of 347V will increase luminaire height by 1.4"

Accessories

Field-Installed		
Adjustable Cable AC5- 72 PD8 JB AC5 18/4 72 PD8 JB **Chicago Plenum Field Kit** CPLCR	**Chicago Plenum Field Kit-Emergency** CPLCR EM **Junction Box** EJBCR 5PK - Expanded size junction box for through wiring (5 pack)	**Power Whip** PW 18/4 06 9T/SS CR **347 Volt** CR 347V **Step Dimming to 50%** CR 347V SD **Surface Mount Kit** SMK 14

Ordering Information

Example: CR14-40L-35K-S

CR14					
Product	**Initial Delivered Lumens**	**CCT**	**Voltage**	**Control**	**Options**
CR14	**22L**[1] 22W, 2200 lumens – 100 LPW - Only available in 35K or 40K **31L**[1] 34W 3100 lumens – 90 LPW **40L** 40W 4000 lumens – 100 LPW **40LHE**[1] 30.5W 4000 lumens – 130 LPW (30K) 32W 4000 lumens – 125 LPW (35K) 33W 4000 lumens – 120 LPW (40K) 34.5W 4000 lumens – 115 LPW (50K) **50L**[2] 50W 5000 lumens – 100 LPW	**30K** 3000K **35K** 3500K **40K** 4000K **50K** 5000K	**Blank** 120-277 Volt **34V** 347 Volt - Integrated option available on 40L only. Other types require addition of a 347 accessory kit (see table above)	**S** Step Dimming to 50% **10V** 0-10V Dimming to 5% **LES**[3] Lutron EcoSystem® Enabled to 5%	**HD** **CRI 80+ (44W 4000 lumens – 90 LPW)** - Available only with 40L **EB14**[4,5] **Emergency Backup – 1400 lumens** - Not for use with SMK Kits. Use EB14 SMK **EB14SMK**[4,5] **Emergency Backup with surface mount kit – 1400 lumens** - Includes surface mount kit accessory (SMK-CR14)

1. Not available with HD 2. Not available with HD, EB14, EB14SMK 3. Not available in the following options: 22L: 30K or 50K; 31L: All Colors; 40LHE: All Colors 4. Not available in 50L 5. Not available in LES types except 40L LES type
NOTE: Price adder may apply depending on configuration

Rev. Date: V5B 12/22/2016

US: www.cree.com T (800) 236-6800 F (262) 504-5415
Canada: www.cree.com/canada T (800) 473-1234 F (800) 890-7507

Product Specifications

CREE TRUEWHITE® TECHNOLOGY

A revolutionary way to generate high-quality white light, Cree TrueWhite® Technology is a patented approach that delivers an exclusive combination of 90+ CRI, beautiful light characteristics, and lifelong color consistency, all while maintaining high luminous efficacy – a true no compromise solution

CREE LED TECHNOLOGY

Cree's total systems approach to product development is a comprehensive engineering philosophy that combines the most advanced LED sources, driver technologies, optics and forms. The result is highly-reliable luminaire solutions for both indoor and outdoor applications that reduce energy use, extend lifetimes, and maximize illumination performance and quality.

ROOM-SIDE HEAT SINK

An innovative thermal management system designed to maximize cooling effectiveness by integrating a unique room-side heat sink into the diffusing lens. This breakthrough design creates a pleasing architectural aesthetic while conducting heat away from LEDs in a temperature-controlled environment. This enables the LEDs to consistently run cooler, providing significant boosts to lifetime, efficacy, and color consistency.

CONSTRUCTION & MATERIALS

- Durable 22-gauge steel housing with standard troffer access plate for electrical installation
- One-piece lower reflector finished with a textured high reflectance white polyester powder coating creates a comfortable visual transition from the lens to the ceiling plane
- Includes t-bar clips and holes for mounting support wires enable recessed or suspended installation
- Individual luminaires may be mounted end to end for a continuous row of illumination

OPTICAL SYSTEM

- Unique combination of reflective and refractive optical components achieves a uniform, comfortable appearance while eliminating pixelation and color fringing
- Components work together to optimize distribution, balancing the delivery of high illuminance levels on horizontal surfaces with an ideal amount of light on walls and vertical surfaces. This increases the perception of spaciousness
- Diffusing lens integrated with upward-facing LED strip eliminates direct view of LEDs while lower reflector balances brightness of lens with the ceiling to create a low-glare high angle appearance

ELECTRICAL SYSTEM

- Integral, high-efficiency driver
- **Power Factor:** = 0.9 nominal
- **Input Power:** Stays constant over life
- **Input Voltage:** 120-277V or 347V, 50/60Hz
- **Operating Temperature Range:** 0˚C - + 35˚C (32˚F - + 95˚F)
- **Total Harmonic Distortion:** < 20%

CONTROLS

- Step dimming to 50%*
- Continuous dimming to 5% with 0-10V DC control protocol*
- Lutron EcoSystem® Enabled option allows seamless integration with Lutron EcoSystem controls
- Reference www.creelink.com/exLink.asp?7098214OZ58R34I26620963 for recommended dimming controls and wiring diagrams

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for damp locations
- Designed for indoor use
- UL924 (EB14 option)
- DLC qualified. Please refer to www.designlights.org/QPL for most current information
- RoHS compliant. Consult factory for additional details
- Meets FCC Part 15 standards for conducted and radiated emissions

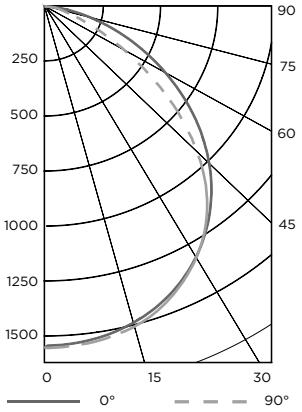
Recommended CR Series Lumen Maintenance Factors (LMF)[1]

Ambient	Initial Delivered Lumens	Initial LMF	25K hr Projected[2] LMF	50K hr Projected[2] LMF	75K hr Calculated[3] LMF	100K hr Calculated[3] LMF
0˚C (41˚F)	22L, 31L, 40L, and 50L	1.05	1.04	1.04	1.04	1.04
	40LHE	1.05	1.01	0.98	0.96	0.94
5˚C (41˚F)	22L, 31L, 40L, and 50L	1.04	1.03	1.03	1.03	1.03
	40LHE	1.04	1.00	0.97	0.95	0.93
10˚C (50˚F)	22L, 31L, 40L, and 50L	1.03	1.02	1.02	1.02	1.02
	40LHE	1.03	0.99	0.96	0.94	0.92
15˚C (59˚F)	22L, 31L, 40L, and 50L	1.02	1.01	1.01	1.01	1.01
	40LHE	1.02	0.98	0.95	0.93	0.91
20˚C (68˚F)	22L, 31L, 40L, and 50L	1.01	1.00	1.00	1.00	1.00
	40LHE	1.01	0.97	0.95	0.92	0.90
25˚C (77˚F)	22L, 31L, 40L, and 50L	1.00	0.99	0.99	0.99	0.99
	40LHE	1.00	0.96	0.94	0.91	0.89
30˚C (86˚F)	22L, 31L, 40L, and 50L	0.99	0.98	0.98	0.98	0.98
	40LHE	0.99	0.95	0.93	0.91	0.89
35˚C (95˚F)	22L, 31L, 40L, and 50L	0.98	0.97	0.97	0.97	0.97
	40LHE	0.98	0.94	0.92	0.90	0.88
40˚C (104˚F)	22L, 31L, 40L, and 50L	0.97	0.96	0.96	0.96	0.96
	40LHE	0.97	0.93	0.91	0.89	0.87

[1] Lumen maintenance values at 25˚C (77˚F) are calculated per TM-21 based on LM-80 data and in-situ luminaire testing
[2] In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing ([DUT] i.e. the packaged LED chip)
[3] In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing ([DUT] i.e. the packaged LED chip)

Photometry

CR14-40L-30K BASED ON LTL REPORT TEST #: 24294
Luminaire photometry has been conducted by a NVLAP accredited testing laboratory in accordance with IESNA LM-79-08. IESNA LM-79-08 specifies the entire luminaire as the source resulting in a luminaire efficiency of 100%.



Coefficients Of Utilization – Zonal Cavity Method				
RC %:	80			
RW %:	70	50	30	10
RCR: 0	119	119	119	119
1	110	106	102	73
2	101	93	87	82
3	92	82	75	69
4	85	74	65	59
5	78	66	57	51
6	72	60	51	45
7	67	54	46	40
8	63	49	41	36
9	58	45	37	32
10	55	42	34	29

Effective Floor Cavity Reflectance: 20%

Reference http://creecanada.com/products/interior/troffers/cr-series/ for detailed photometric data

Average Luminance Table (cd/m²)				
	Horizontal Angle			
Vertical Angle		0°	45°	90°
	45°	5,407	5,407	5,407
	55°	5,015	5,002	4,673
	65°	4,589	4,315	3,572
	75°	3,039	1,690	1,282
	85°	1,727	1,249	1,321

Zonal Lumen Summary			
Zone	Lumens	% Lamp	Luminaire
0-30	1,220	N/A	30.8%
0-40	1,995	N/A	50.4%
0-60	3,385	N/A	85.5%
0-90	3,959	N/A	100%
0-180	3,959	N/A	100%

Application Reference

Based on CR14-40L-30K Luminaire

Open Space						
Spacing	Initial Delivered Lumens	Lumens	Wattage	LPW	w/ft²	Average fc
8 x 8	22L	2200	22	100	0.35	30
	40L	4000	40	100	0.69	54
	40LHE	4000	30.5	125	0.56	54
	50L	5000	50	100	0.78	68
8 x 10	22L	2200	22	100	0.28	25
	40L	4000	40	100	0.55	45
	40LHE	4000	30.5	125	0.45	45
	50L	5000	50	100	0.62	57
10 x 10	22L	2200	22	100	0.22	21
	40L	4000	40	100	0.44	38
	40LHE	4000	30.5	125	0.36	38
	50L	5000	50	100	0.50	48
10 x 12	22L	2200	22	100	0.19	17
	40L	4000	40	100	0.37	30
	40LHE	4000	30.5	125	0.30	30
	50L	5000	50	100	0.42	38

9' ceiling: 80/50/20 reflectances; 2.5' workplane, open room. LLF: 1.0 Initial Open Space: 50' x 40' x 10'

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US: www.cree.com T (800) 236-6800 F (262) 504-5415 **Canada: www.cree.com/canada** T (800) 473-1234 F (800) 890-7507

CR Series

CR22™ 2' x 2' Architectural LED Troffer

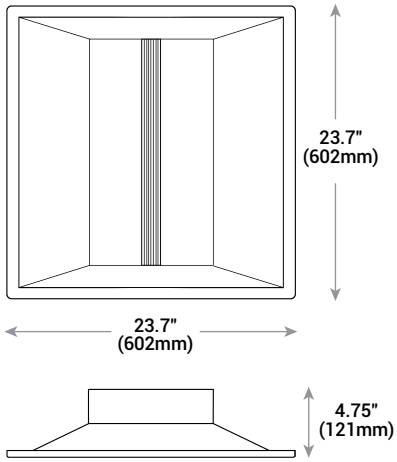
Product Description

The CR22™ Architectural LED troffer delivers up to 100 lumens per watt of exceptional 90 CRI light at both 2000 and 3200 lumen levels. This breakthrough performance is achieved by combining the high efficacy and high-quality light of Cree TrueWhite® Technology with a unique thermal management design. The CR22™ product family is available in warm, neutral, cool, or daylight color temperatures and has step, 0-10V, or Lutron EcoSystem® Enabled dimming options. Its unique indirect illumination design lightweight design makes the CR22™ perfect for use in commercial new construction or renovated spaces.

Performance Summary

- Utilizes Cree TrueWhite® Technology (90 CRI)
- Room-Side Heat Sink
- **Efficacy:** 90-100 LPW
- **Initial Delivered Lumens:** 2,000, 3,200 lumens
- **Input Power:** 22-35 watts
- **CRI:** 90 CRI (Cree TrueWhite® Technology), 80+ CRI (HD)
- **CCT:** 3000K, 3500K, 4000K, 5000K
- **Input Voltage:** 120-277 VAC or 347 VAC
- **Limited Warranty†:** 10 years
- **Lifetime:** Designed to last from 50,000 hours (HD), 75,000 hours (Standard TW), and 100,000 hours (HE TW)
- **Controls:** Step Level to 50%, 0-10V Dimming or Lutron EcoSystem Enabled to 5%*
- **Mounting:** Recessed**

† See www.cree.com/lighting/products/warranty for warranty terms
* Reference www.cree.com/lighting for recommended dimming control options
** Acceptable for use with standard 9/16 T-Bar or larger when installed per installation instructions. Consult factory for non-standard grid applications



NOTE: Use of Expanded Junction Box will expand the depth to 6.67" and Emergency Backup will expand the depth to 6.30". Use of 347V will increase fixture height by 1.4"

Accessories

Field-Installed		
Adjustable Cable AC5 72 PD8 JB AC5 18/4 72 PD8 JB **Chicago Plenum Field Kit** CPLCR **Chicago Plenum Field Kit-Emergency** CPLCR EM	**Junction Box** EJBCR 5PK - Expanded size junction box for through wiring (5 pack) **Power Whip** PW 18/4 06 9T/SS CR	**347 Volt** CR 347V **Step Dimming to 50%** CR 347V SD **Surface Mount Kit** SMK CR22

Ordering Information

Example: CR22-20L-35K-S

CR22					
Product	**Initial Delivered Lumens**	**CCT**	**Voltage**	**Control**	**Options**
CR22	**20L**[1] 22W 2000 lumens – 90 LPW **32L** 32W 3200 lumens – 100 LPW	**30K** 3000K **35K** 3500K **40K** 4000K **50K** 5000K	**Blank** 120-277 Volt **34** 347 Volt - Integrated option available on 32L only. Other types require addition of a 347 accessory kit (see table above)	**S** Step Dimming to 50% **10V** 0-10V Dimming to 5% **LES**[2] Lutron EcoSystem® Enabled to 5%	**HD** **CRI 80+ (44W 4000 lumens - 90 LPW)** - Available only with 40L **EB14**[3] **Emergency Backup - 1400 lumens** - Not for use with SMK Kits . Use EB14 SMK **EB14SMK**[3] **Emergency Backup with surface mount kit - 1400 lumens** - Includes surface mount kit accessory (SMK-CR22)

1. Not available with HD 2. Not available in 20L 3. Not available in LES types
NOTE: Price adder may apply depending on configuration

Rev. Date: V5 10/28/2015

Product Specifications

CREE TRUEWHITE® TECHNOLOGY

A revolutionary way to generate high-quality white light, Cree TrueWhite® Technology is a patented approach that delivers an exclusive combination of 90+ CRI, beautiful light characteristics, and lifelong color consistency, all while maintaining high luminous efficacy – a true no compromise solution.

CREE LED TECHNOLOGY

Cree's total systems approach to product development is a comprehensive engineering philosophy that combines the most advanced LED sources, driver technologies, optics and forms. The result is highly-reliable luminaire solutions for both indoor and outdoor applications that reduce energy use, extend lifetimes, and maximize illumination performance and quality.

ROOM-SIDE HEAT SINK

An innovative thermal management system designed to maximize cooling effectiveness by integrating a unique room-side heat sink into the diffusing lens. This breakthrough design creates a pleasing architectural aesthetic while conducting heat away from LEDs in a temperature-controlled environment. This enables the LEDs to consistently run cooler, providing significant boosts to lifetime, efficacy, and color consistency.

CONSTRUCTION & MATERIALS

- Durable 22-gauge steel housing with standard troffer access plate for electrical installation
- One-piece lower reflector finished with a textured high reflectance white polyester powder coating creates a comfortable visual transition from the lens to the ceiling plane
- Includes t-bar clips and holes for mounting support wires enable recessed or suspended installation
- Individual luminaires may be mounted end to end for a continuous row of illumination

OPTICAL SYSTEM

- Unique combination of reflective and refractive optical components achieves a uniform, comfortable appearance while eliminating pixelation and color fringing
- Components work together to optimize distribution, balancing the delivery of high illuminance levels on horizontal surfaces with an ideal amount of light on walls and vertical surfaces. This increases the perception of spaciousness
- Diffusing lens integrated with upward-facing LED strip eliminates direct view of LEDs while lower reflector balances brightness of lens with the ceiling to create a low-glare high angle appearance

ELECTRICAL SYSTEM

- Integral, high-efficiency driver
- **Power Factor:** = 0.9 nominal
- **Input Power:** Stays constant over life.
- **Input Voltage:** 120-277V or 347V, 50/60Hz
- **Operating Temperature Range:** 0˚C - + 35˚C (32˚F - + 95˚F)
- **Total Harmonic Distortion:** < 20%

CONTROLS

- Step dimming to 50%*
- Optional continuous dimming to 5% with 0-10V DC control protocol*
- Optional Lutron EcoSystem® Enabled option allows seamless integration with Lutron EcoSystem controls*

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for damp locations
- Designed for indoor use
- UL924 (EB14 option)
- DLC qualified. Please refer to www.designlights.org/QPL for most current information
- RoHS compliant. Consult factory for additional details
- Meets FCC Part 15 standards for conducted and radiated emissions

* Reference www.cree.com/lighting for recommended dimming controls and wiring diagrams

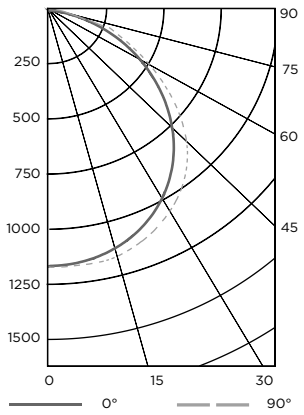
Recommended CR Series Lumen Maintenance Factors (LMF)[1]

Ambient	Initial Delivered Lumens	Initial LMF	25K hr Projected[2] LMF	50K hr Projected[2] LMF	75K hr Calculated[3] LMF	100K hr Calculated[3] LMF
0˚C (41˚F)	20L and 32L	1.05	1.04	1.04	1.04	1.04
5˚C (41˚F)	20L and 32L	1.04	1.03	1.03	1.03	1.03
10˚C (50˚F)	20L and 32L	1.03	1.02	1.02	1.02	1.02
15˚C (59˚F)	20L and 32L	1.02	1.01	1.01	1.01	1.01
20˚C (68˚F)	20L and 32L	1.01	1.00	1.00	1.00	1.00
25˚C (77˚F)	20L and 32L	1.00	0.99	0.99	0.99	0.99
30˚C (86˚F)	20L and 32L	0.99	0.98	0.98	0.98	0.98
35˚C (95˚F)	20L and 32L	0.98	0.97	0.97	0.97	0.97
40˚C (104˚F)	20L and 32L	0.97	0.96	0.96	0.96	0.96

[1] Lumen maintenance values at 25˚C (77˚F) are calculated per TM-21 based on LM-80 data and in-situ luminaire testing
[2] In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip)
[3] In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip)

Photometry

CR22-32L-30K BASED ON LTL REPORT TEST #: 24292
Luminaire photometry has been conducted by a NVLAP accredited testing laboratory in accordance with IESNA LM-79-08. IESNA LM-79-08 specifies the entire luminaire as the source resulting in a luminaire efficiency of 100%..



Coefficients Of Utilization – Zonal Cavity Method				
RC %:	80			
RW %:	70	50	30	10
RCR: 0	119	119	119	119
1	110	105	101	98
2	100	92	85	80
3	91	81	73	67
4	84	72	63	57
5	77	64	55	49
6	71	58	49	43
7	66	52	44	38
8	61	48	39	33
9	57	44	36	30
10	53	40	32	27

Effective Floor Cavity Reflectance: 20%

Reference www.cree.com/Lighting/Products/Indoor/Troffers/CR-Series for detailed photometric data

Average Luminance Table (cd/m²)				
	Horizontal Angle			
Vertical Angle		0°	45°	90°
	45°	3,575	3,864	3,972
	55°	3,164	3,656	3,758
	65°	2,498	3,133	3,347
	75°	1,620	2,348	2,051
	85°	366	252	168

Zonal Lumen Summary			
Zone	Lumens	% Lamp	Luminaire
0-30	923	N/A	28.1%
0-40	1,527	N/A	46.5%
0-60	2,704	N/A	82.5%
0-90	3,280	N/A	100%
0-180	3,959	N/A	100%

Application Reference

Based on CR22-32L-30K Luminaire

Open Space					
Spacing	Lumens	Wattage	LPW	w/ft²	Average fc
8 x 8	2000L	22W	90	0.35	28
	3200L	32W	100	0.55	44
8 x 10	2000L	22W	90	0.28	23
	3200L	32W	100	0.44	37
10 x 10	2000L	22W	190	0.22	20
	3200L	32W	100	0.35	31
10 x 12	2000L	22W	90	0.19	16
	3200L	32W	100	0.29	25

9' ceiling: 80/50/20 reflectances; 2.5' workplane, open room. LLF: 1.0 Initial Open Space: 50' x 40' x 10'

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US: www.cree.com/lighting T (800) 236-6800 F (262) 504-5415 **Canada: www.cree.com/canada** T (800) 473-1234 F (800) 890-7507

DSX0 LED 20C 530 40K T3M MVOLT

D-Series LED, Size 0

Area Luminaire

Minimum Scale. Maximum Results.

Pedestrian in scale only, the D-Series LED Area, Size 0 is an extraordinary luminaire that can be configured to meet any site's lighting needs. The versatility and power of this luminaire prove big things really do come in small packages.

Key Features:

- Energy savings of 70% vs. comparable metal halide luminaires; saves $141 per luminaire, per year over 400W metal halide
- 20+ years expected service life (with lumen maintenance up to L99/100,000 hours, 25°C)
- Proprietary precision optics deliver exceptional uniformity and allow for increased spacing, resulting in fewer poles and lower overall cost
- Control options from Acuity Controls include standalone photocell, switched bi-level, part-night scheduled dimming, multi-level motion sensor, and ROAM® wireless monitoring and control

DSX0			
Model	Input Watts	Lumens	Metal Halide Replacement
DSX0 LED P1 40K T3M	38W	4,577	175W
DSX0 LED P3 40K T3M	71W	8,205	250W
DSX0 LED P5 40K T3M	89W	11,346	400W
DSX0 LED P7 40K T3M	166W	17,832	620W

Quick Facts:

- Up to 400W MH replacement
- Lumen packages from 3,000 - 19,000 lumens up to L92/50,000 hours
- Efficacies up to 139 lumens per watt
- 14 factory-rotatable distributions available
- Available in 3000K, 4000K & 5000K CCT and Amber LED
- Weight: 16 lbs; EPA: 0.95 ft^2

D-Series LED Area Luminaire, Size 0

Ordering Information

EXAMPLE: DSX0 LED P6 40K T3M MVOLT SPA DDBXD

DSX0 LED

Series	LEDs	Color temperature	Distribution	Voltage	Mounting
DSX0 LED	**Forward optics** P1 P4 P7 P2 P5 P3 P6 **Rotated optics** P10 P12 P11 P13	30K 3000 K 40K 4000 K 50K 5000 K AMBPC Amber phosphor converted	T1S Type I short T2S Type II short T2M Type II medium T3S Type III short T3M Type III medium T4M Type IV medium TFTM Forward throw medium T5VS Type V very short T5S Type V short T5M Type V medium T5W Type V wide BLC Backlight control LCCO Left corner cutoff RCCO Right corner cutoff	MVOLT 120 208 240 277 347 480	**Shipped included** SPA Square pole mounting RPA Round pole mounting WBA Wall bracket SPUMBA Square pole universal mounting adaptor RPUMBA Round pole universal mounting adaptor **Shipped separately** KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish)

Control options				Other options	Finish *(required)*
Shipped installed		BL30 Bi-level switched dimming, 30%		**Shipped installed**	DDBXD Dark bronze
PER NEMA twist-lock receptacle only (control ordered separate)		BL50 Bi-level switched dimming, 50%		HS House-side shield	DBLXD Black
PER5 Five-wire receptacle only (control ordered separate)		PNMTDD3 Part night, dim till dawn		SF Single fuse (120, 277, 347V)	DNAXD Natural aluminum
PER7 Seven-wire receptacle only (control ordered separate)		PNMT5D3 Part night, dim 5 hrs		DF Double fuse (208, 240, 480V)	DWHXD White
DMG 0-10V dimming extend out back of honsing for external control (no controls) (leads exit fixture)		PNMT6D3 Part night, dim 6 hrs		L90 Left rotated optics	DDBTXD Textured dark bronze
PIR Bi-level, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 5fc		PNMT7D3 Part night, dim 7 hrs		R90 Right rotated optics	DBLBXD Textured black
PIRH Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 5fc		FAO Field adjustable output		DDL Diffused drop lens	DNATXD Textured natural aluminum
PIR1FC3V Bi-level, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc				BS Bird spikes	DWHGXD Textured white
PIRH1FC3V Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc					

Accessories *Ordered and shipped separately.*

Controls & Shields

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V)
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V)
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V)
DSHORT SBK U	Shorting cap
DSX0HS 20C U	House-side shield for 20 LED unit
DSX0HS 30C U	House-side shield for 30 LED unit
DSX0HS 40C U	House-side shield for 40 LED unit
DSX0DDL U	Diffused drop lens (polycarbonate)
PUMBA DDBXD U	Square and round pole universal mounting bracket adaptor (specify finish)
KMA8 DDBXD U	Mast arm mounting bracket adaptor (specify finish)

Please use the spec sheet at www.acuitybrands.com when ordering to ensure component compatibility for your desired configuration.

DSX2
400W - 1000W MH Replacement

DSX1
250W - 750W MH Replacement

DSX0
175W - 400W MH Replacement

lighting facts LED Product Partner

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

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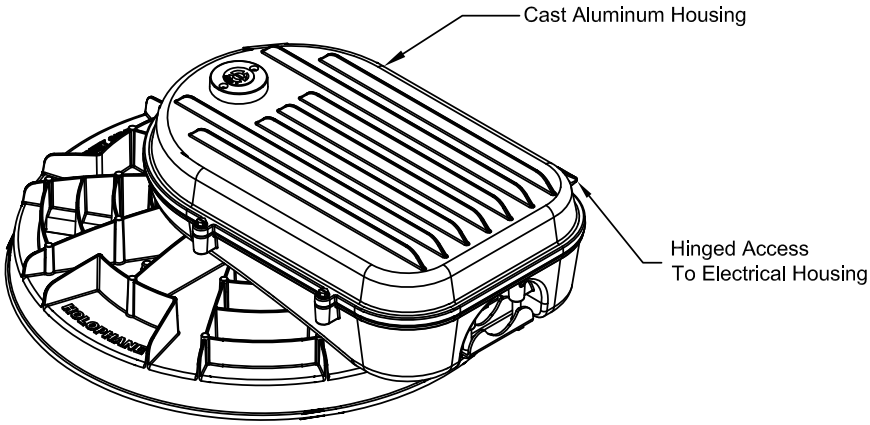
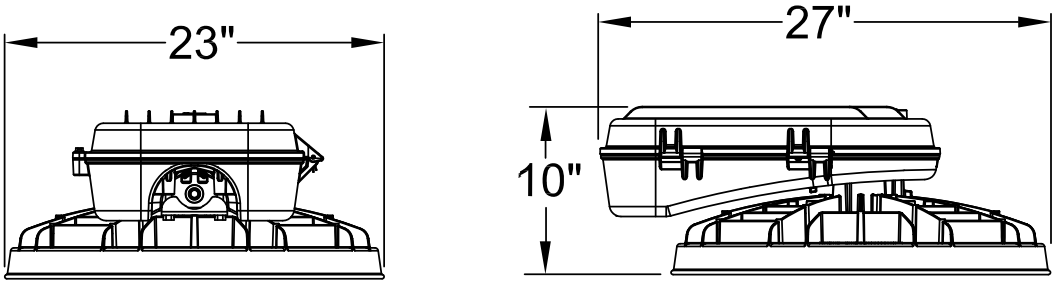
AcuityBrands.

Weight = 52lbs
EPA =1.30 sq. ft
UL1598, 40C, Wet location

HMLED2 06 4K AH G F P7 RFD211068





HMLED2™ LED High Mast Lighting

Infrastructure Specialty

HOLOPHANE® LEADER IN LIGHTING SOLUTIONS
An AcuityBrandsCompany

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ORDERING INFORMATION:

HMLED2	6	4K	AH
Series	Number of LED Modules	Color Temperature	Voltage
HMLED2	06 = 06 Modules 09 = 09 Modules 12 = 12 Modules	4K = 4,000K CCT +/-250K 5K = 5,000K CCT +/-250K	AS = Auto-Sensing Voltage (120 - 277 V) AH = Auto-Sensing Voltage (347 - 480 V)

G	F	P7 RFD211069	
Housing Color	Optical	Options	Accessories
A = As Specified G = Gray H = Graphite K = Black Z = Bronze W =White	M = Medium, Asymmetric N= Narrow, Asymmetric F = Forward Throw, Asymmetric AN = Area Narrow AW = Area Wide	AO = Field Adjustable Output DM = 0-10v Dimming FD1 = Single Fusible Disconnect FD2 = Double Fusible Disconnect P3 = 3 Pin NEMA Receptacle P5 = 5 Pin NEMA Receptacle P7 = 7 Pin NEMA Receptacle PCSS = DTL Solid-State Lighting Photocontol 120-277V PCL1 = DTL DLL Photocontrol for 120-277V PCL3 = DTL Twist-off Photocontrol for 347V PCL4 = DTL Twist-off Photocontrol for 480V PSC= Shorting Cap	F1 = Single Fusing Accessory F2 = Double Fusing Accessory HMLED2D90 = 90 Degree Shield HMLED2D120 = 120 Degree Shield HMLED2D180 = 180 Degree Shield

PRODUCT ENGINEERED TO LIMIT INRUSH TO 100A PER CUSTOMERS SPEC

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ORDER #:
TYPE:
DRAWN: ERM
DATE: 8/1/14
DWG #: LUM_HMLED2

Specifications

General Construction

Rugged die cast, low copper content aluminum 380 alloy electrical and optical housing are polyester powder coated with super durable paint for durability and corrosion resistance. Rigorous pre-treating and painting process yields a finish that achieves a scribe creepage rating of 8 (per ASTM D1654) after over 5,000 hours exposure to salt fog chamber (per ASTM B117). Four bolt horizontal arm mount with +/- 5 degree vertical adjustment provides 3G vibration rating per ANSI C136. Mast arm mount is adjustable for arms from 1-1/4" to 2" (1-5/8" to 2-3/8"). Two captive bolts disengage top electrical cover for easy access to LED drivers, surge protection, and terminal block. IP66 rated LED modules, IP65 electrical assembly per IEC60068-2-3. Luminaire is UL 1598 safety listed to 40C, wet locations. Luminaire electrical and optical housing ship complete in one carton facilitating installation and minimizing carton disposal at jobsite.

Electrical

Quick disconnect connectors for ease of installation and maintenance. Surge protection meets 10KV/5KA per ANSI/IEEEC62.41. Driver meets maximum total harmonic distortion (THD) of 20% and is ROHS compliant. A three stage terminal block is standard for ease of installation.

Optical

Multi die LED chip on board (COB) technology, Color temperature options of 4000K and 5000K with CRI of 70 minimum. Borosilicate prismatic glass optics ensure longevity and minimize dirt depreciation. Zero uplight optics reduce sky glow and meets Dark Sky requirements. Prismatic glass optics provide overlapping pattern on application space eliminating dark spots. Prismatic glass optics minimize direct view of LED, reducing glare. Rotatable optic assembly provides alignment of asymmetric distributions to roadway.

Controls

Controls options include the **P3, P5, and P7** locking style photocontrol receptacles. The P5 and P7 receptacle options are factory pre-wired to dimming leads of drivers.

PCSS - Premium solid state locking style photocontrol (10 year rated life)

PCL1 - Extreme long life solid state locking-style photocontrol (20 year rated life)

Field Adjustable Output (AO) module - An onboard device that adjusts the light output and input wattage to meet site specific requirements, allowing a single fixture configuration to be flexibly applied in many different applications. The AO module is pre-set at the factory to position number 8.

Operating Characteristics (AN Optics)

LED Qty	CCT	Lumens	Input Watts	LPW	Input Amps						L83 @ 25C	Driver Life @ 25C
					120V	208V	240V	277V	347V	480V		
6	4000K	31,419	252	125	2.10	1.20	1.00	0.90	0.70	0.50	100,000 hrs	>100,000 hrs
9	4000K	46,675	376	124	3.10	1.80	1.60	1.40	1.10	0.80		
12	4000K	60,990	500	122	4.10	2.40	2.10	1.80	1.40	1.00		

Testing Compliance

See Holophane HMAO-LED Validation Test Specification - Luminaire conforms to following standards: ANSI/IEEE C62.41:2002 - Surge protection. ANSI C82.77:2002 - Harmonic distortion. ANSIC136.31:2001- Luminaire vibration. ASTM B 117:2003 - Salt spray test. FCC title 47 CFR Part 18 - Federal Communications Commission. IEC 60068 - Environmental testing. IEC 60529:1999 - Degrees of protection provided by enclosure (IP)IEC 61000 - Electromagnetic Compatibility testing (EMC). IEEE 519 - Harmonic control in Electrical Power systems. UL-1598, 40C, Wet Location - Safety listing.

ManufacturIng

Manufactured in Crawfordsville, Indiana. ARRA compliant. Test 100% electrical of all luminaires before shipment. No less than five (5) years experience in manufacturing LED- based products.

Warranty

Five Year Limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note

Actual performance may differ as a result of end-user environment and application.
Actual wattage may differ by +/- 8% when operating between 120-480V +/-10%.
Specifications subject to change without notice.

HMLED2™
LED High Mast Lighting

Infrastructure Specialty

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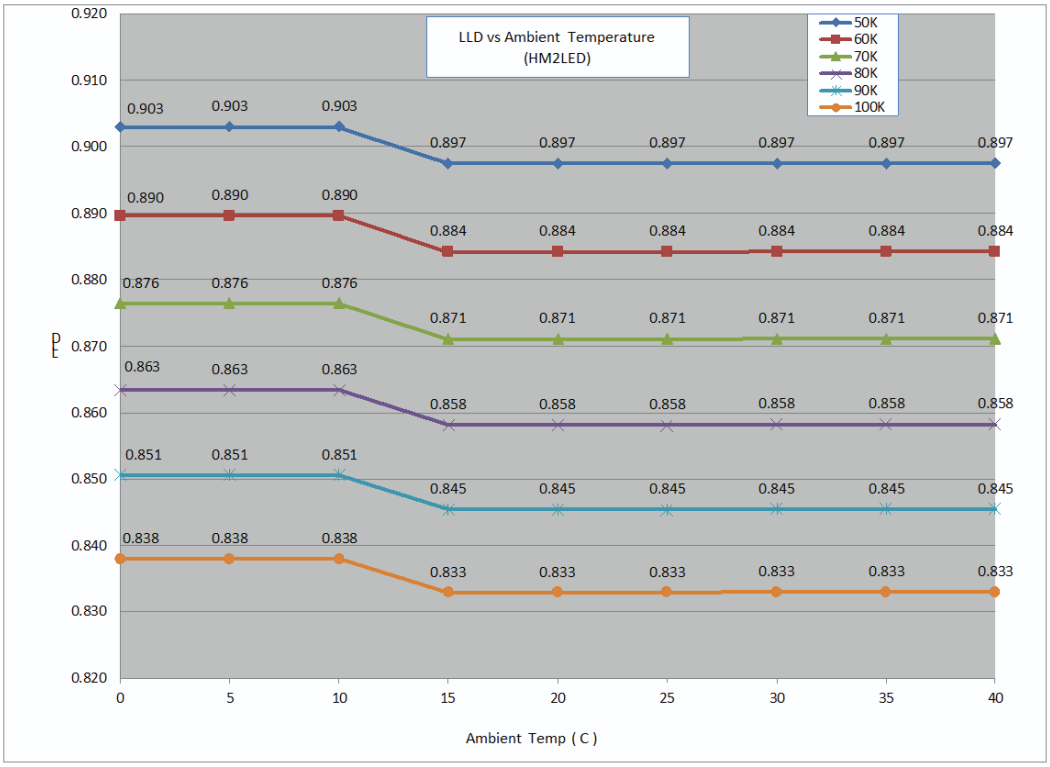
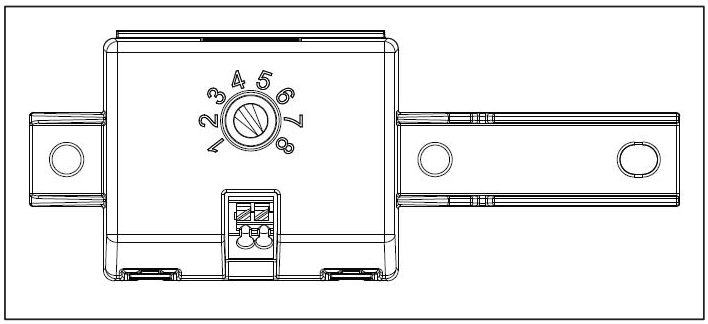
ORDER #:
TYPE:
DRAWN: ERM
DATE: 8/1/14
DWG #: LUM_HMLED2

Lumen Depreciation Chart



The Field Adjustable Output (AO) module



Configuration	AO Position	Lumens %	Wattage %
HMLED2-06,09,12	8	100%	100%
HMLED2-06,09,12	7	100%	100%
HMLED2-06,09,12	6	100%	100%
HMLED2-06,09,12	5	90%	85%
HMLED2-06,09,12	4	80%	73%
HMLED2-06,09,12	3	68%	60%
HMLED2-06,09,12	2	57%	49%
HMLED2-06,09,12	1	41%	34%

HMLED2™
LED High Mast Lighting

Infrastructure Specialty

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ORDER #:
TYPE:
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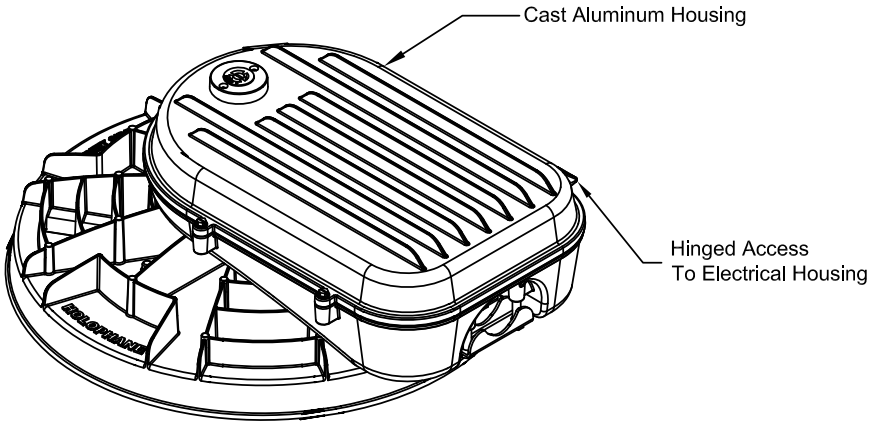
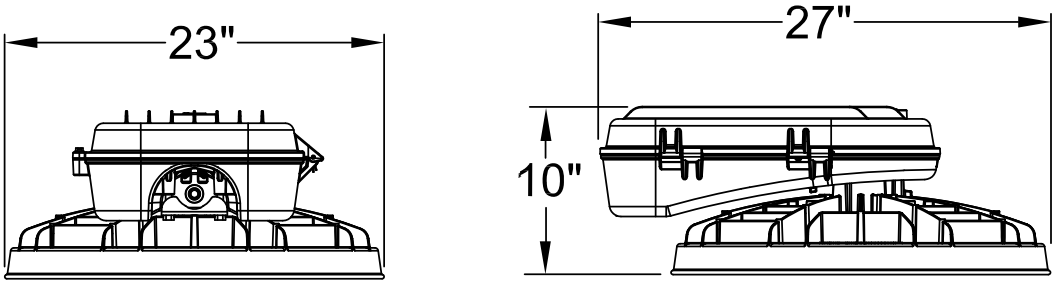
DATE: 8/1/14
DWG #: LUM_HMLED2

HMLED2 12 4K AH G F P7 RFD211069

Weight = 52lbs
EPA =1.30 sq. ft
UL1598, 40C, Wet location





HMLED2™ LED High Mast Lighting

Infrastructure Specialty

HOLOPHANE® LEADER IN LIGHTING SOLUTIONS
An AcuityBrandsCompany

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ORDERING INFORMATION:

HMLED2 — Series
- HMLED2

12 — Number of LED Modules
- 06 = 06 Modules
- 09 = 09 Modules
- 12 = 12 Modules

4K — Color Temperature
- 4K = 4,000K CCT +/-250K
- 5K = 5,000K CCT +/-250K

AH — Voltage
- AS = Auto-Sensing Voltage (120 - 277 V)
- AH = Auto-Sensing Voltage (347 - 480 V)

G — Housing Color
- A = As Specified
- G = Gray
- H = Graphite
- K = Black
- Z = Bronze
- W =White

F — Optical
- M = Medium, Asymmetric
- N= Narrow, Asymmetric
- F = Forward Throw, Asymmetric
- AN = Area Narrow
- AW = Area Wide

P7 RFD211068 — Options
- AO = Field Adjustable Output
- DM = 0-10v Dimming
- FD1 = Single Fusible Disconnect
- FD2 = Double Fusible Disconnect
- P3 = 3 Pin NEMA Receptacle
- P5 = 5 Pin NEMA Receptacle
- P7 = 7 Pin NEMA Receptacle
- PCSS = DTL Solid-State Lighting Photocontol 120-277V
- PCL1 = DTL DLL Photocontrol for 120-277V
- PCL3 = DTL Twist-off Photocontrol for 347V
- PCL4 = DTL Twist-off Photocontrol for 480V
- PSC= Shorting Cap

Accessories
- F1 = Single Fusing Accessory
- F2 = Double Fusing Accessory
- HMLED2D90 = 90 Degree Shield
- HMLED2D120 = 120 Degree Shield
- HMLED2D180 = 180 Degree Shield

PRODUCT ENGINEERED TO LIMIT INRUSH TO 100A PER CUSTOMERS SPEC

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ORDER #:	
TYPE:	
DRAWN:	ERM
DATE:	8/1/14
DWG #:	LUM_HMLED2

Specifications

General Construction

Rugged die cast, low copper content aluminum 380 alloy electrical and optical housing are polyester powder coated with super durable paint for durability and corrosion resistance. Rigorous pre-treating and painting process yields a finish that achieves a scribe creepage rating of 8 (per ASTM D1654) after over 5,000 hours exposure to salt fog chamber (per ASTM B117). Four bolt horizontal arm mount with +/- 5 degree vertical adjustment provides 3G vibration rating per ANSI C136. Mast arm mount is adjustable for arms from 1-1/4" to 2" (1-5/8" to 2-3/8"). Two captive bolts disengage top electrical cover for easy access to LED drivers, surge protection, and terminal block. IP66 rated LED modules, IP65 electrical assembly per IEC60068-2-3. Luminaire is UL 1598 safety listed to 40C, wet locations. Luminaire electrical and optical housing ship complete in one carton facilitating installation and minimizing carton disposal at jobsite.

Electrical

Quick disconnect connectors for ease of installation and maintenance. Surge protection meets 10KV/5KA per ANSI/IEEEC62.41. Driver meets maximum total harmonic distortion (THD) of 20% and is ROHS compliant. A three stage terminal block is standard for ease of installation.

Optical

Multi die LED chip on board (COB) technology, Color temperature options of 4000K and 5000K with CRI of 70 minimum. Borosilicate prismatic glass optics ensure longevity and minimize dirt depreciation. Zero uplight optics reduce sky glow and meets Dark Sky requirements. Prismatic glass optics provide overlapping pattern on application space eliminating dark spots. Prismatic glass optics minimize direct view of LED, reducing glare. Rotatable optic assembly provides alignment of asymmetric distributions to roadway.

Controls

Controls options include the **P3, P5, and P7** locking style photocontrol receptacles. The P5 and P7 receptacle options are factory pre-wired to dimming leads of drivers.

PCSS - Premium solid state locking style photocontrol (10 year rated life)

PCL1 - Extreme long life solid state locking-style photocontrol (20 year rated life)

Field Adjustable Output (AO) module - An onboard device that adjusts the light output and input wattage to meet site specific requirements, allowing a single fixture configuration to be flexibly applied in many different applications. The AO module is pre-set at the factory to position number 8.

Operating Characteristics (AN Optics)

LED Qty	CCT	Lumens	Input Watts	LPW	Input Amps						L83 @ 25C	Driver Life @ 25C
					120V	208V	240V	277V	347V	480V		
6	4000K	31,419	252	125	2.10	1.20	1.00	0.90	0.70	0.50	100,000 hrs	>100,000 hrs
9	4000K	46,675	376	124	3.10	1.80	1.60	1.40	1.10	0.80		
12	4000K	60,990	500	122	4.10	2.40	2.10	1.80	1.40	1.00		

Testing Compliance

See Holophane HMAO-LED Validation Test Specification - Luminaire conforms to following standards: ANSI/IEEE C62.41:2002 - Surge protection. ANSI C82.77:2002 - Harmonic distortion. ANSIC136.31:2001- Luminaire vibration. ASTM B 117:2003 - Salt spray test. FCC title 47 CFR Part 18 - Federal Communications Commission. IEC 60068 - Environmental testing. IEC 60529:1999 - Degrees of protection provided by enclosure (IP)IEC 61000 - Electromagnetic Compatibility testing (EMC). IEEE 519 - Harmonic control in Electrical Power systems. UL-1598, 40C, Wet Location - Safety listing.

ManufacturIng

Manufactured in Crawfordsville, Indiana. ARRA compliant. Test 100% electrical of all luminaires before shipment. No less than five (5) years experience in manufacturing LED- based products.

Warranty

Five Year Limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note

Actual performance may differ as a result of end-user environment and application.
Actual wattage may differ by +/- 8% when operating between 120-480V +/-10%.
Specifications subject to change without notice.

HMLED2™
LED High Mast Lighting

Infrastructure Specialty

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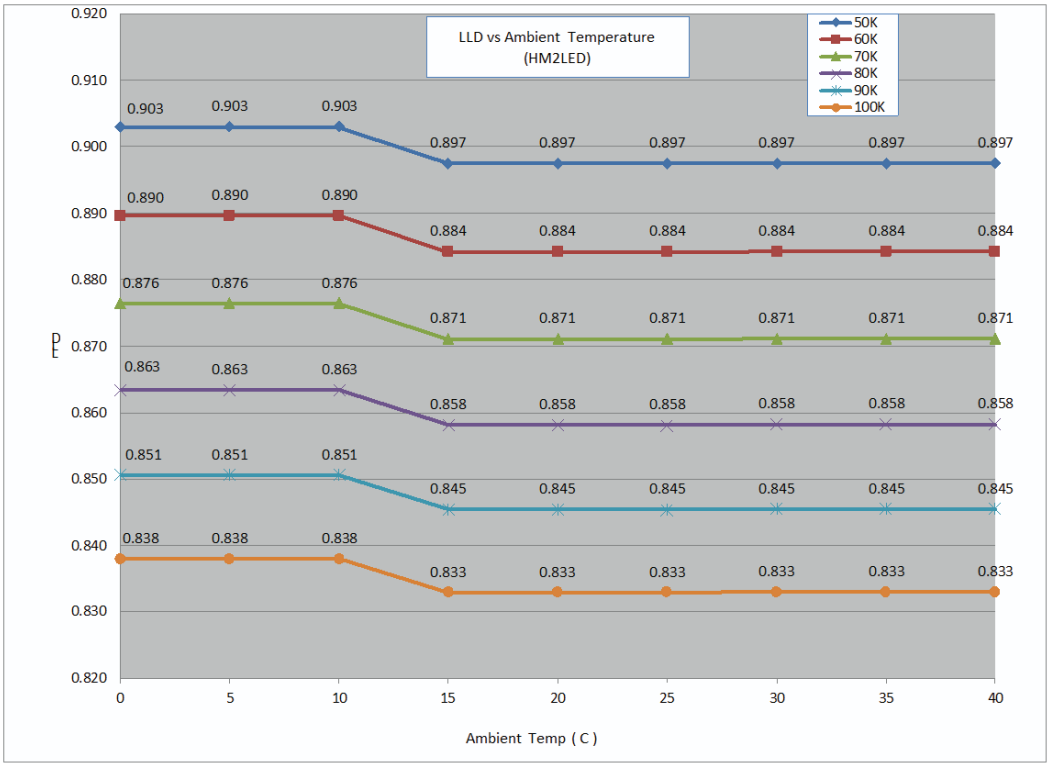
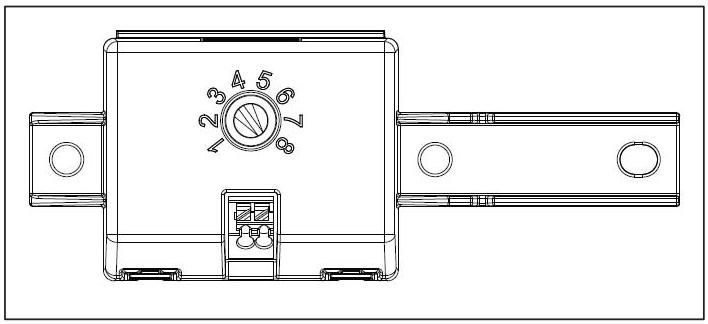
ORDER #:
TYPE:
DRAWN: ERM
DATE: 8/1/14
DWG #: LUM_HMLED2

Lumen Depreciation Chart



The Field Adjustable Output (AO) module



Configuration	AO Position	Lumens %	Wattage %
HMLED2-06,09,12	8	100%	100%
HMLED2-06,09,12	7	100%	100%
HMLED2-06,09,12	6	100%	100%
HMLED2-06,09,12	5	90%	85%
HMLED2-06,09,12	4	80%	73%
HMLED2-06,09,12	3	68%	60%
HMLED2-06,09,12	2	57%	49%
HMLED2-06,09,12	1	41%	34%

HMLED2™
LED High Mast Lighting

Infrastructure Specialty

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ORDER #:
TYPE:
DRAWN: ERM
DATE: 8/1/14
DWG #: LUM_HMLED2

PRECISION P2 PARAGON
EFFICIENCY. ECONOMY. SUSTAINABILITY.

LLW

LED Low Profile Wrap

Product Information

Project Name	Type
Catalog Number	Date

SPECIFICATIONS

Features

- This handy wrap is an excellent choice for hallways, closets, utility rooms, back-of-house locations and low ceiling areas.
- Diffuser features flat bottom, vertical sides and interior overlay providing uniformity without pixilation.
- Surface mount or stem suspended.
- Choice of two lumen packages and dimming option available.
- Long-life, LEDs at L70 (70% lumen maintenance) at 50,000 hours to reduce life cycle maintenance costs.
- Optional emergency battery backup for safety lighting.
- Available in 2' and 4' lengths.
- Up to 100 lumens per watt.
- Color Rendering Index (CRI) > 80.

Construction

- Heavy gauge steel housing, die embossed for maximum rigidity
- Prismatic acrylic diffuser with overlay hinges from either side
- Certain airborne contaminants can diminish integrity of acrylic. Contact factory for chemical compatibility.
- LED boards and driver accessible for future maintenance or upgrades
- Weight: 1x2 - 5 lbs. 1x4 - 10 lbs.

Electrical

- Input Voltage Range: 120-277 VAC Nom.
- Frequency: 50/60 Hz Nom.
- Active Power Factor Correction
- Power Factor: >0.90 @ full load, 120V through 277V
- Harmonic Distortion: THD < 20% @ full load
- Protection: Over-Voltage, Over-Temperature (110º) & Short Circuit
- Compliant to FCC Part 15 requirements for EMI/RFI emissions
- NEC/CEC compliant ballast disconnect is standard.
- Optional emergency battery pack

Certifications

- CSA listed for Canada and U.S. Tested to UL 1598 & UL 8750 standards.
- Luminaires bear appropriate listing labels.
- Emergency-equipped fixtures labeled UL 924.
- Adheres to LM79, LM80 and TM21 industry standards.
- DesignLights Consortium® (DLC) qualified.
- Please refer to the DLC website for specific product qualifications at www.designlights.org.

Application

- Suitable for use with most wired or wireless lighting control systems
- Suitable for dry & damp locations:
  - Government buildings
  - Commercial areas
  - Task lighting
  - Retail
  - Schools
  - Hallways
  - Closets

Warranty

- Five-year warranty. (Terms and Conditions Apply)

CERTIFICATION

C SP US DLC

ORDERING INFORMATION

EXAMPLE **LLW4-35ML-EU**

LLW – – **U** –

MODEL
- **LLW** LED Low Profile Wrap

SIZE
- **2** 1x2 Nominal
- **4** 1x4 Nominal

COLOR TEMP
- **35** 3500K
- **40** 4000K

LUMEN OUTPUT
- **LW** Low
- **ML** Medium

DRIVER OUTPUT
- **E** Fixed
- **ESD** Bi-Level[1]
- **ED** 0-10V Dimming[2]

DRIVER VOLTAGE
- **U** Universal 120/277 VAC

OPTIONS
- **ELL14** Emergency Battery Backup[3]

MOUNTING ACCESSORIES (ORDER SEPARATELY)
- **S18** 18" Stem

FOOTNOTES

[1] Bi-Level driver must be controlled by sensor or A/B switching.
[2] Must be used in conjunction with lighting controls.
[3] Only available in 4 ft.

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PHOTOMETRIC DATA

PHOTOMETRIC DATA: LLW2-40LW-EU

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP certified lab.

Test: ITL79146
Test Date: 09/23/13

LUMINAIRE DATA

Luminaire	**LLW2-40LW-EU** **LED Low Profile Wrap**
Ballast	**D150CQ25UNVA-A**
Ballast Factor	**1.00**
Lamp	**LED**
Fixture Lumens	**2455**
Watts	**25**
Mounting	**Surface**
Shielding Angle	**N.A.**
Spacing Criterion	**0° = 1.19 90° = 1.09**
Luminous Opening in feet	**Length: 1.99** **Width: 0.67** **Height: 0.14**

AVG. LUMINANCE (Candela/Sq. M.)

Average Luminance Angle	0.0	22.5	45.0	67.5	90.0
0	8727	8727	8727	8727	8727
30	7785	7381	6945	6543	6414
40	6827	6305	5641	5062	4932
45	6037	5534	4834	4361	4250
50	5099	4616	4006	3722	3690
55	4170	3685	3239	3202	3198
60	3397	2930	2587	2794	2786
65	2656	2434	2174	2505	2440
70	2077	2161	1989	2325	2234
75	1754	1963	1939	2227	2138
80	1595	1837	1930	2213	2170
85	1284	1639	1877	2188	2242

ZONAL LUMEN SUMMARY

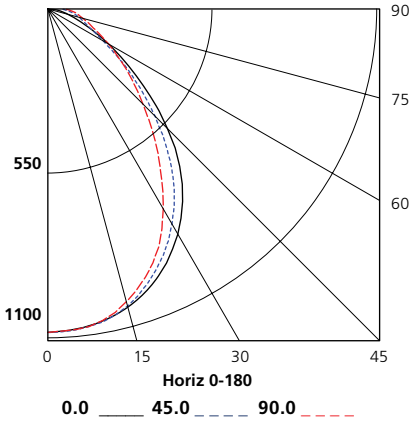
Zone	Lumens	%Lamp	%Fixt
0-30	808	33	33
0-40	1262	51	51
0-60	1931	79	79
0-90	2289	93	93

COEFFICIENTS OF UTILIZATION (%)

RCR	RC	80				70				50			0
	RW	70	50	30	10	70	50	30	10	50	30	10	0
	0	117	117	117	117	114	114	114	114	107	107	107	93
	1	109	103	99	96	104	100	97	94	95	92	89	79
	2	99	92	85	80	96	89	83	79	85	80	76	68
	3	91	82	74	68	88	80	73	67	76	70	65	59
	4	84	73	65	59	81	71	64	58	68	62	57	52
	5	78	66	58	52	75	65	57	51	62	55	50	46
	6	72	60	52	46	70	59	51	45	56	50	44	41
	7	67	55	47	41	65	54	46	41	52	45	40	36
	8	63	50	42	37	61	49	42	37	48	41	36	33
	9	59	46	39	34	57	46	38	33	44	37	33	30
	10	56	43	36	31	54	42	35	30	41	34	30	27

RCR = Room Cavity Ratio **RC** = Effective Ceiling Cavity Reflectance **RW** = Wall Reflectance

INDOOR CANDELA PLOT



PHOTOMETRIC DATA

PHOTOMETRIC DATA: LLW4-35ML-EU

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP certified lab.

Test: ITL79148
Test Date: 09/23/13

LUMINAIRE DATA

Luminaire	**LLW4-35ML-EU** **LED Low Profile Wrap**
Ballast	**D310CQ50UNVA-A**
Ballast Factor	**1.00**
Lamp	**LED**
Fixture Lumens	**4693**
Watts	**52**
Mounting	**Surface**
Shielding Angle	**0° = 90 90° = 90**
Spacing Criterion	**0° = 1.19 90° = 1.10**
Luminous Opening in feet	**Length: 3.99** **Width: 0.67** **Height: 0.14**

AVG. LUMINANCE (Candela/Sq. M.)

Average Luminance Angle	0.0	22.5	45.0	67.5	90.0
0	8335	8335	8335	8335	8335
30	7587	7112	6697	6348	6203
40	6714	6148	5583	5031	4812
45	5897	5411	4827	4295	4098
50	4870	4480	3949	3635	3481
55	3924	3563	3148	3090	3011
60	3181	2858	2486	2669	2625
65	2392	2434	2079	2390	2283
70	1825	2204	1941	2223	2079
75	1678	2071	1921	2144	2002
80	1721	2011	1934	2147	2016
85	1616	1860	1943	2145	2086

ZONAL LUMEN SUMMARY

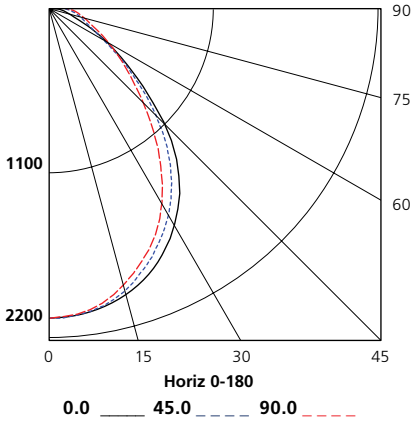
Zone	Lumens	%Lamp	%Fixt
0-30	1538	33	33
0-40	2414	51	51
0-60	3690	79	79
0-90	4359	93	93

COEFFICIENTS OF UTILIZATION (%)

RCR	RC	80				70				50			0
	RW	70	50	30	10	70	50	30	10	50	30	10	0
	0	117	117	117	117	114	114	114	114	107	107	107	93
	1	109	103	99	96	104	100	97	94	95	92	89	79
	2	99	92	85	80	96	89	83	79	85	80	76	68
	3	91	82	74	68	88	80	73	67	76	70	65	59
	4	84	73	65	59	81	71	64	58	68	62	57	52
	5	78	66	58	52	75	65	57	51	62	55	50	46
	6	72	60	52	46	70	59	51	45	56	50	44	41
	7	67	55	47	41	65	54	46	41	52	45	40	36
	8	63	50	42	37	61	49	42	37	48	41	36	33
	9	59	46	39	34	57	46	38	33	44	37	33	30
	10	56	43	36	31	54	42	35	30	41	34	30	27

RCR = Room Cavity Ratio **RC** = Effective Ceiling Cavity Reflectance **RW** = Wall Reflectance

INDOOR CANDELA PLOT



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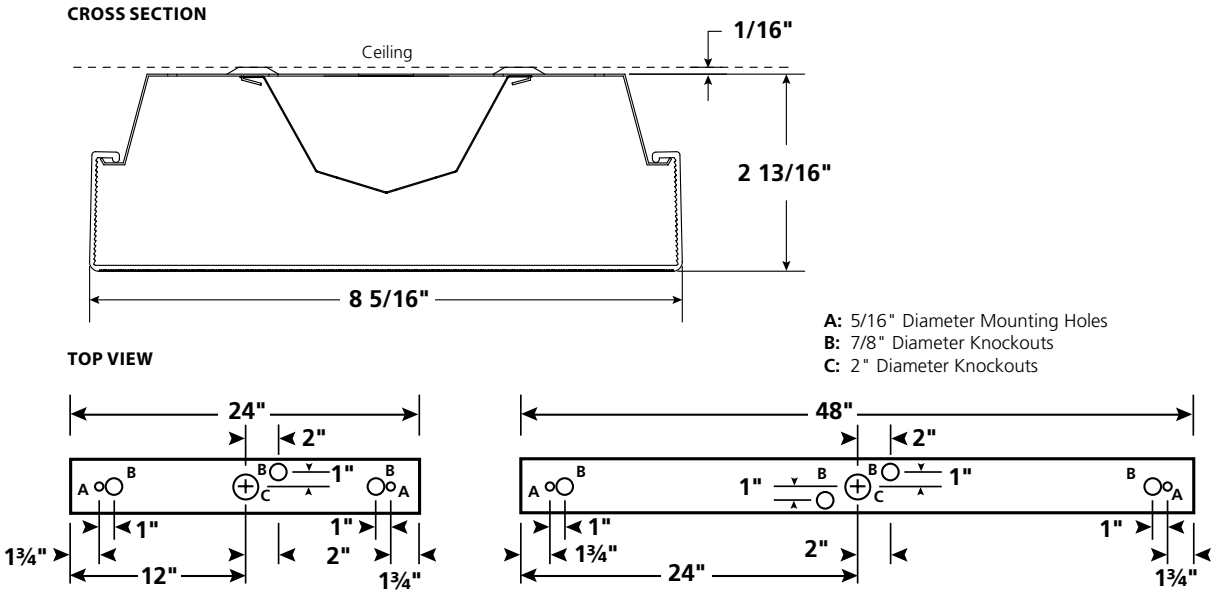
FIXTURE DIMENSIONS



*Drawings N.T.S.

LUMEN PACKAGE OPTIONS

		3500K DETAILS				4000K DETAILS			
Proposed System	CRI	CCT	Lumens Per Fixture	Input Watts	Lumens Per Watt	CCT	Lumens Per Fixture	Input Watts	Lumens Per Watt
LLW2-LW	>80	3500K	2367	25	96	4000K	2453	25	100
LLW2-ML	>80	3500K	4648	51	91	4000K	4739	52	91
LLW4-LW	>80	3500K	2409	25	98	4000K	2459	25	98
LLW4-ML	>80	3500K	4689	52	91	4000K	4873	52	94

*Lumen values shown are initial delivered lumens tested at 25°C per IES LM-79 standards.

OPERATING ENVIRONMENT

Proposed System	Min Temp	Max Temp
LLW-2-LW	-30°C/-22°F	40°C/104°F
LLW-2-ML	-30°C/-22°F	40°C/104°F
LLW-4-LW	-30°C/-22°F	40°C/104°F
LLW-4-ML	-30°C/-22°F	40°C/104°F

Application Notes

1. Application temperatures are provided to ensure the longevity and performance of the driver and LEDs.
2. Results are based off the In-Situ Temperature Measurement Test (ISTMT) along with the drivers' temperature and life curves.
3. Optional emergency battery equipped units have a minimum temperature of 10°C.
4. Precision-Paragon [P2]'s 5 year warranty assumes operation at the maximum ambient temperature range.

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PRECISION P2 PARAGON
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LLW

LED Low Profile Wrap

Product Information

Project Name	Type
Catalog Number	Date

SPECIFICATIONS

Features

- This handy wrap is an excellent choice for hallways, closets, utility rooms, back-of-house locations and low ceiling areas.
- Diffuser features flat bottom, vertical sides and interior overlay providing uniformity without pixilation.
- Surface mount or stem suspended.
- Choice of two lumen packages and dimming option available.
- Long-life, LEDs at L70 (70% lumen maintenance) at 50,000 hours to reduce life cycle maintenance costs.
- Optional emergency battery backup for safety lighting.
- Available in 2' and 4' lengths.
- Up to 100 lumens per watt.
- Color Rendering Index (CRI) > 80.

Construction

- Heavy gauge steel housing, die embossed for maximum rigidity
- Prismatic acrylic diffuser with overlay hinges from either side
- Certain airborne contaminants can diminish integrity of acrylic. Contact factory for chemical compatibility.
- LED boards and driver accessible for future maintenance or upgrades
- Weight: 1x2 - 5 lbs. 1x4 - 10 lbs.

Electrical

- Input Voltage Range: 120-277 VAC Nom.
- Frequency: 50/60 Hz Nom.
- Active Power Factor Correction
- Power Factor: >0.90 @ full load, 120V through 277V
- Harmonic Distortion: THD < 20% @ full load
- Protection: Over-Voltage, Over-Temperature (110º) & Short Circuit
- Compliant to FCC Part 15 requirements for EMI/RFI emissions
- NEC/CEC compliant ballast disconnect is standard.
- Optional emergency battery pack

Certifications

- CSA listed for Canada and U.S. Tested to UL 1598 & UL 8750 standards.
- Luminaires bear appropriate listing labels.
- Emergency-equipped fixtures labeled UL 924.
- Adheres to LM79, LM80 and TM21 industry standards.
- DesignLights Consortium® (DLC) qualified.
- Please refer to the DLC website for specific product qualifications at www.designlights.org.

Application

- Suitable for use with most wired or wireless lighting control systems
- Suitable for dry & damp locations:
  - Government buildings
  - Commercial areas
  - Task lighting
  - Retail
  - Schools
  - Hallways
  - Closets

Warranty

- Five-year warranty. (Terms and Conditions Apply)

CERTIFICATION

C SP US DLC

ORDERING INFORMATION

EXAMPLE **LLW4-35ML-EU**

LLW – – **U** –

MODEL
- **LLW** LED Low Profile Wrap

SIZE
- **2** 1x2 Nominal
- **4** 1x4 Nominal

COLOR TEMP
- **35** 3500K
- **40** 4000K

LUMEN OUTPUT
- **LW** Low
- **ML** Medium

DRIVER OUTPUT
- **E** Fixed
- **ESD** Bi-Level[1]
- **ED** 0-10V Dimming[2]

DRIVER VOLTAGE
- **U** Universal 120/277 VAC

OPTIONS
- **ELL14** Emergency Battery Backup[3]

MOUNTING ACCESSORIES (ORDER SEPARATELY)
- **S18** 18" Stem

FOOTNOTES

[1] Bi-Level driver must be controlled by sensor or A/B switching.
[2] Must be used in conjunction with lighting controls.
[3] Only available in 4 ft.

© 2014 Precision-Paragon [P2], a division of Hubbell Lighting, Inc. Because of continuing product improvement programs, Precision-Paragon [P2] reserves the right to change specifications without notice. Tel [West Coast] **714.386.5550** [Midwest] **715.381.2971** [East Coast] **352.692.5900** / Website **www.P-2.com**

PHOTOMETRIC DATA

PHOTOMETRIC DATA: LLW2-40LW-EU

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP certified lab.

Test: ITL79146
Test Date: 09/23/13

LUMINAIRE DATA

Luminaire	**LLW2-40LW-EU** **LED Low Profile Wrap**
Ballast	**D150CQ25UNVA-A**
Ballast Factor	**1.00**
Lamp	**LED**
Fixture Lumens	**2455**
Watts	**25**
Mounting	**Surface**
Shielding Angle	**N.A.**
Spacing Criterion	**0° = 1.19 90° = 1.09**
Luminous Opening in feet	**Length: 1.99** **Width: 0.67** **Height: 0.14**

AVG. LUMINANCE (Candela/Sq. M.)

Average Luminance Angle	0.0	22.5	45.0	67.5	90.0
0	8727	8727	8727	8727	8727
30	7785	7381	6945	6543	6414
40	6827	6305	5641	5062	4932
45	6037	5534	4834	4361	4250
50	5099	4616	4006	3722	3690
55	4170	3685	3239	3202	3198
60	3397	2930	2587	2794	2786
65	2656	2434	2174	2505	2440
70	2077	2161	1989	2325	2234
75	1754	1963	1939	2227	2138
80	1595	1837	1930	2213	2170
85	1284	1639	1877	2188	2242

ZONAL LUMEN SUMMARY

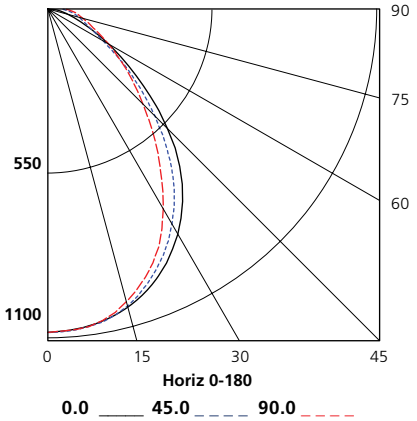
Zone	Lumens	%Lamp	%Fixt
0-30	808	33	33
0-40	1262	51	51
0-60	1931	79	79
0-90	2289	93	93

COEFFICIENTS OF UTILIZATION (%)

RCR	RC	80				70				50			0
	RW	70	50	30	10	70	50	30	10	50	30	10	0
	0	117	117	117	117	114	114	114	114	107	107	107	93
	1	109	103	99	96	104	100	97	94	95	92	89	79
	2	99	92	85	80	96	89	83	79	85	80	76	68
	3	91	82	74	68	88	80	73	67	76	70	65	59
	4	84	73	65	59	81	71	64	58	68	62	57	52
	5	78	66	58	52	75	65	57	51	62	55	50	46
	6	72	60	52	46	70	59	51	45	56	50	44	41
	7	67	55	47	41	65	54	46	41	52	45	40	36
	8	63	50	42	37	61	49	42	37	48	41	36	33
	9	59	46	39	34	57	46	38	33	44	37	33	30
	10	56	43	36	31	54	42	35	30	41	34	30	27

RCR = Room Cavity Ratio **RC** = Effective Ceiling Cavity Reflectance **RW** = Wall Reflectance

INDOOR CANDELA PLOT



PHOTOMETRIC DATA

PHOTOMETRIC DATA: LLW4-35ML-EU

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP certified lab.

Test: ITL79148
Test Date: 09/23/13

LUMINAIRE DATA

Luminaire	**LLW4-35ML-EU** **LED Low Profile Wrap**
Ballast	**D310CQ50UNVA-A**
Ballast Factor	**1.00**
Lamp	**LED**
Fixture Lumens	**4693**
Watts	**52**
Mounting	**Surface**
Shielding Angle	**0° = 90 90° = 90**
Spacing Criterion	**0° = 1.19 90° = 1.10**
Luminous Opening in feet	**Length: 3.99** **Width: 0.67** **Height: 0.14**

AVG. LUMINANCE (Candela/Sq. M.)

Average Luminance Angle	0.0	22.5	45.0	67.5	90.0
0	8335	8335	8335	8335	8335
30	7587	7112	6697	6348	6203
40	6714	6148	5583	5031	4812
45	5897	5411	4827	4295	4098
50	4870	4480	3949	3635	3481
55	3924	3563	3148	3090	3011
60	3181	2858	2486	2669	2625
65	2392	2434	2079	2390	2283
70	1825	2204	1941	2223	2079
75	1678	2071	1921	2144	2002
80	1721	2011	1934	2147	2016
85	1616	1860	1943	2145	2086

ZONAL LUMEN SUMMARY

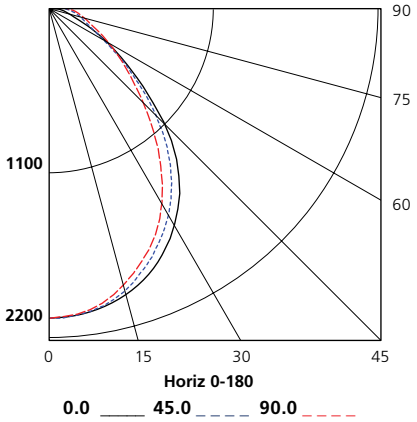
Zone	Lumens	%Lamp	%Fixt
0-30	1538	33	33
0-40	2414	51	51
0-60	3690	79	79
0-90	4359	93	93

COEFFICIENTS OF UTILIZATION (%)

RCR	RC	80				70				50			0
	RW	70	50	30	10	70	50	30	10	50	30	10	0
	0	117	117	117	117	114	114	114	114	107	107	107	93
	1	109	103	99	96	104	100	97	94	95	92	89	79
	2	99	92	85	80	96	89	83	79	85	80	76	68
	3	91	82	74	68	88	80	73	67	76	70	65	59
	4	84	73	65	59	81	71	64	58	68	62	57	52
	5	78	66	58	52	75	65	57	51	62	55	50	46
	6	72	60	52	46	70	59	51	45	56	50	44	41
	7	67	55	47	41	65	54	46	41	52	45	40	36
	8	63	50	42	37	61	49	42	37	48	41	36	33
	9	59	46	39	34	57	46	38	33	44	37	33	30
	10	56	43	36	31	54	42	35	30	41	34	30	27

RCR = Room Cavity Ratio **RC** = Effective Ceiling Cavity Reflectance **RW** = Wall Reflectance

INDOOR CANDELA PLOT



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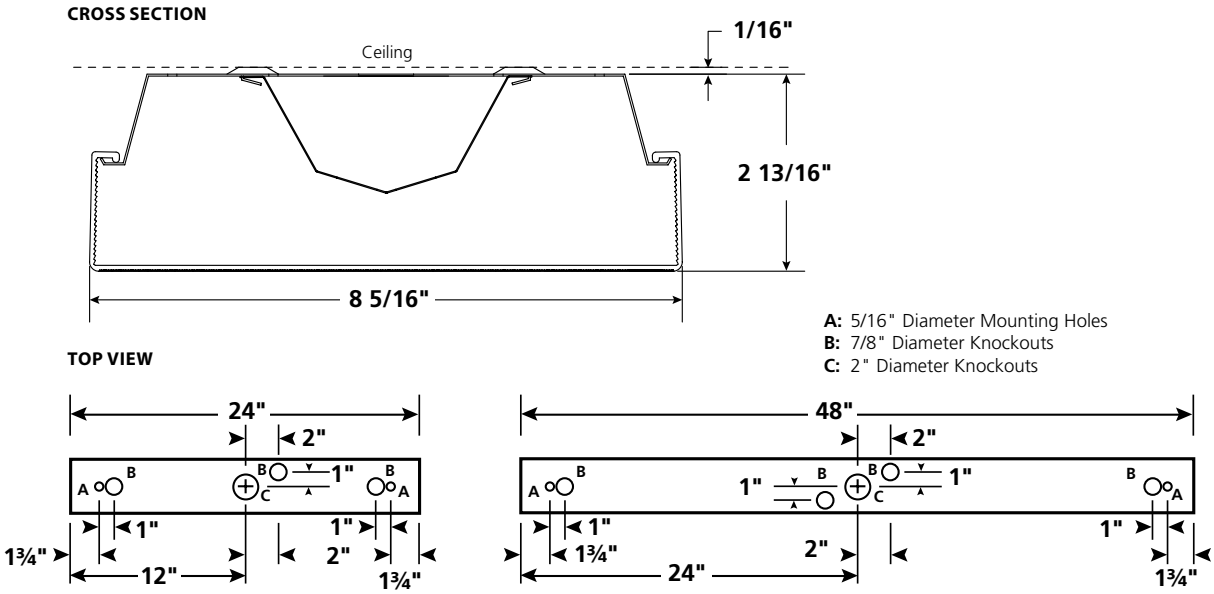
FIXTURE DIMENSIONS



*Drawings N.T.S.

LUMEN PACKAGE OPTIONS

		3500K DETAILS				4000K DETAILS			
Proposed System	CRI	CCT	Lumens Per Fixture	Input Watts	Lumens Per Watt	CCT	Lumens Per Fixture	Input Watts	Lumens Per Watt
LLW2-LW	>80	3500K	2367	25	96	4000K	2453	25	100
LLW2-ML	>80	3500K	4648	51	91	4000K	4739	52	91
LLW4-LW	>80	3500K	2409	25	98	4000K	2459	25	98
LLW4-ML	>80	3500K	4689	52	91	4000K	4873	52	94

*Lumen values shown are initial delivered lumens tested at 25°C per IES LM-79 standards.

OPERATING ENVIRONMENT

Proposed System	Min Temp	Max Temp
LLW-2-LW	-30°C/-22°F	40°C/104°F
LLW-2-ML	-30°C/-22°F	40°C/104°F
LLW-4-LW	-30°C/-22°F	40°C/104°F
LLW-4-ML	-30°C/-22°F	40°C/104°F

Application Notes

1. Application temperatures are provided to ensure the longevity and performance of the driver and LEDs.
2. Results are based off the In-Situ Temperature Measurement Test (ISTMT) along with the drivers' temperature and life curves.
3. Optional emergency battery equipped units have a minimum temperature of 10°C.
4. Precision-Paragon [P2]'s 5 year warranty assumes operation at the maximum ambient temperature range.

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PKG-304-SL-DM

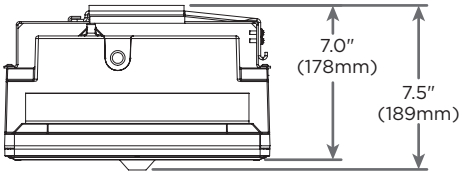
304 Series™ Parking Structure Luminaire – Sparkle Petroleum – Direct Mount

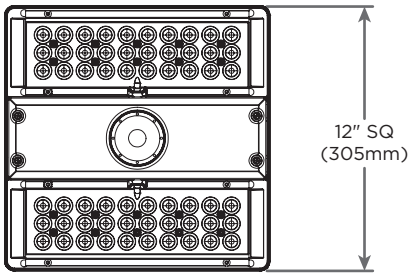
Product Description

Slim, low profile design. Lumianire is constructed from rugged die cast and extruded aluminum components. LED driver is mounted in a sealed weathertight center chamber that allows for access from below the luminaire. High performance aluminum heat sinks specifically designed for LED parking structure application. Mounting brackets designed to mount directly over exisiting single gang and octagonal junction boxes for direct mount.

Performance Summary

- Utilizes BetaLED® Technology
- Patented NanoOptic® Product Technology
- Made in the U.S.A. of U.S. and imported parts
- **CRI:** Minimum 70 CRI
- **CCT:** 5700K (+ / - 500K) Standard, 4000K (+ / - 300K)
- **Limited Warranty†:** 10 years on luminaire / 10 years on Colorfast DeltaGuard® finish





Ordering Information

Example: PKG-304-SL-DM-04-E-UL-SV-350-OPTIONS

PKG-304	SL	DM		E				
Product	**Optic**	**Mounting**	**LED Count (x10)**	**Series**	**Voltage**	**Color Options**	**Drive Current**	**Options**
PKG-304	**SL** Sparkle Petroleum	**DM** Direct Mount	**04** **06**	**E**	**UL** Universal 120–277V **UH** Universal 347–480V	**SV** Silver (Standard) **WH** White **BK** Black **BZ** Bronze **PB** Platinum Bronze	**700** 700mA (Standard) **525** 525mA **350** 350mA	**40K 4000K Color Temperature** - Color temperature per fixture **DIM 0–10V Dimming** - Control by others - Refer to dimming spec sheet for availability and additional information - Can't exceed specified drive current **F Fuse** - When code dictates fusing use time delay fuse - Not available with all multi-level options. Refer to multi-level spec sheet for availability and additional information **ML Multi-Level** - Refer to multi-level spec sheet for availability and additional information **J Alternate Junction Box mounting**

† See www.cree.com/lighting/products/warranty for warranty terms

Product Specifications

CONSTRUCTION & MATERIALS

- Slim, low profile design
- Constructed from rugged die cast and extruded aluminum components
- LED driver is mounted is a sealed weathertight center chamber that allows for access from below the luminaire
- High performance heat sinks specifically designed for LED parking structure application
- Mounting bracket is designed to mount directly over existing single gang and octagonal junction boxes for direct mount
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Standard is silver. Bronze, black, white, and platinum bronze are also available

ELECTRICAL SYSTEM

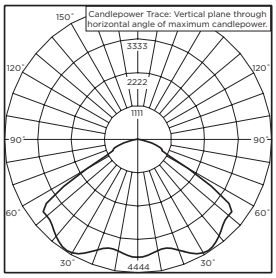
- **Input Voltage:** 120–277V or 347–480V, 50 / 60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV surge suppression protection standard
- To address inrush current, slow blow fuse or type C / D breaker should be used

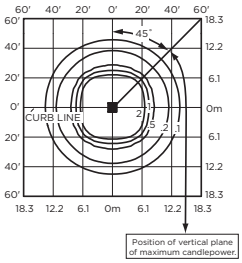
REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529
- Consult factory for CE Certified products
- 10kV surge suppression protection tested in accordance with IEEE / ANSI C62.41.2
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Pending product qualification on the DesignLights Consortium ("DLC") Qualified Products List ("QPL")
- RoHS Compliant
- Meets Buy American requirements within ARRA

Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP certified laboratory.





ITL Test Report #: 77415
CAN-304-SL-**-06-E-UL-700-40K
Initial Delivered Lumens: 12,707

PKG-304-SL-**-06-E-UL-700-40K
Mounting Height: 15′ (4.6m)
Initial Delivered Lumens: 12,760
Initial FC at grade

IES Files
To obtain an IES file specific to your project consult:
http://www.cree.com/lighting/tools-and-support/exterior-ies-configuration-tool

Lumen Output, Electrical, and Lumen Maintenance Data

Sparkle Petroleum Distribution												
LED Count (x10)	5700K		4000K		System Watts 120–480V	TOTAL CURRENT						50K Hours Projected Lumen Maintenance Factor*** @ 15˚C (59˚F)
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11		120V	208V	240V	277V	347V	480V	
350mA @ 25˚C (77˚F)												
04	5,243	B2 U0 G1	5,048	B2 U0 G1	46	0.39	0.24	0.22	0.21	0.15	0.12	94%
06	7,803	B3 U0 G1	7,514	B3 U0 G1	69	0.57	0.34	0.30	0.27	0.21	0.16	
525mA @ 25˚C (77˚F)												
04	7,340	B2 U0 G1	7,068	B2 U0 G1	71	0.59	0.35	0.31	0.28	0.21	0.16	93%
06	10,924	B3 U0 G1	10,519	B3 U0 G1	101	0.84	0.49	0.43	0.38	0.30	0.22	
700mA @ 25˚C (77˚F)												
04	8,912	B3 U0 G1	8,582	B3 U0 G1	94	0.79	0.46	0.40	0.36	0.28	0.21	91%
06	13,264	B3 U0 G1	12,773	B3 U0 G1	135	1.14	0.65	0.57	0.50	0.40	0.29	

* Actual production yield may vary between -4 and +10% of initial delivered lumens.
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit www.iesna.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf.
*** For recommended lumen maintenance factor data see TD-13. Calculated L70 based on 6,000 hours LM-80-08 testing: > 150,000 hours.

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PKG-304-SL-DM

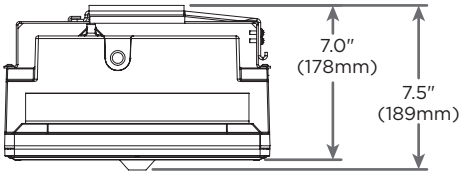
304 Series™ Parking Structure Luminaire – Sparkle Petroleum – Direct Mount

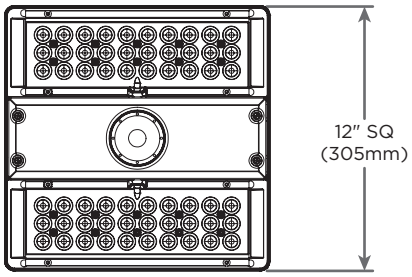
Product Description

Slim, low profile design. Lumianire is constructed from rugged die cast and extruded aluminum components. LED driver is mounted in a sealed weathertight center chamber that allows for access from below the luminaire. High performance aluminum heat sinks specifically designed for LED parking structure application. Mounting brackets designed to mount directly over exisiting single gang and octagonal junction boxes for direct mount.

Performance Summary

- Utilizes BetaLED® Technology
- Patented NanoOptic® Product Technology
- Made in the U.S.A. of U.S. and imported parts
- **CRI:** Minimum 70 CRI
- **CCT:** 5700K (+ / - 500K) Standard, 4000K (+ / - 300K)
- **Limited Warranty†:** 10 years on luminaire / 10 years on Colorfast DeltaGuard® finish





Ordering Information

Example: PKG-304-SL-DM-04-E-UL-SV-350-OPTIONS

PKG-304	SL	DM		E				
Product	**Optic**	**Mounting**	**LED Count (x10)**	**Series**	**Voltage**	**Color Options**	**Drive Current**	**Options**
PKG-304	**SL** Sparkle Petroleum	**DM** Direct Mount	**04** **06**	**E**	**UL** Universal 120–277V **UH** Universal 347–480V	**SV** Silver (Standard) **WH** White **BK** Black **BZ** Bronze **PB** Platinum Bronze	**700** 700mA (Standard) **525** 525mA **350** 350mA	**40K 4000K Color Temperature** - Color temperature per fixture **DIM 0–10V Dimming** - Control by others - Refer to dimming spec sheet for availability and additional information - Can't exceed specified drive current **F Fuse** - When code dictates fusing use time delay fuse - Not available with all multi-level options. Refer to multi-level spec sheet for availability and additional information **ML Multi-Level** - Refer to multi-level spec sheet for availability and additional information **J Alternate Junction Box mounting**

† See www.cree.com/lighting/products/warranty for warranty terms

Product Specifications

CONSTRUCTION & MATERIALS

- Slim, low profile design
- Constructed from rugged die cast and extruded aluminum components
- LED driver is mounted is a sealed weathertight center chamber that allows for access from below the luminaire
- High performance heat sinks specifically designed for LED parking structure application
- Mounting bracket is designed to mount directly over existing single gang and octagonal junction boxes for direct mount
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Standard is silver. Bronze, black, white, and platinum bronze are also available

ELECTRICAL SYSTEM

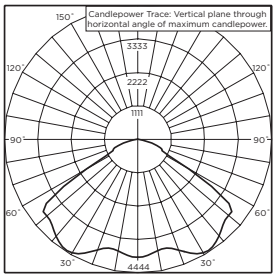
- **Input Voltage:** 120–277V or 347–480V, 50 / 60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV surge suppression protection standard
- To address inrush current, slow blow fuse or type C / D breaker should be used

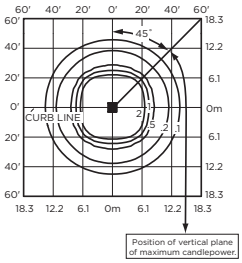
REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529
- Consult factory for CE Certified products
- 10kV surge suppression protection tested in accordance with IEEE / ANSI C62.41.2
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Pending product qualification on the DesignLights Consortium ("DLC") Qualified Products List ("QPL")
- RoHS Compliant
- Meets Buy American requirements within ARRA

Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP certified laboratory.





ITL Test Report #: 77415
CAN-304-SL-**-06-E-UL-700-40K
Initial Delivered Lumens: 12,707

PKG-304-SL-**-06-E-UL-700-40K
Mounting Height: 15′ (4.6m)
Initial Delivered Lumens: 12,760
Initial FC at grade

IES Files
To obtain an IES file specific to your project consult:
http://www.cree.com/lighting/tools-and-support/exterior-ies-configuration-tool

Lumen Output, Electrical, and Lumen Maintenance Data

Sparkle Petroleum Distribution												
LED Count (x10)	5700K		4000K		System Watts 120–480V	TOTAL CURRENT						50K Hours Projected Lumen Maintenance Factor*** @ 15˚C (59˚F)
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11		120V	208V	240V	277V	347V	480V	
350mA @ 25˚C (77˚F)												
04	5,243	B2 U0 G1	5,048	B2 U0 G1	46	0.39	0.24	0.22	0.21	0.15	0.12	94%
06	7,803	B3 U0 G1	7,514	B3 U0 G1	69	0.57	0.34	0.30	0.27	0.21	0.16	
525mA @ 25˚C (77˚F)												
04	7,340	B2 U0 G1	7,068	B2 U0 G1	71	0.59	0.35	0.31	0.28	0.21	0.16	93%
06	10,924	B3 U0 G1	10,519	B3 U0 G1	101	0.84	0.49	0.43	0.38	0.30	0.22	
700mA @ 25˚C (77˚F)												
04	8,912	B3 U0 G1	8,582	B3 U0 G1	94	0.79	0.46	0.40	0.36	0.28	0.21	91%
06	13,264	B3 U0 G1	12,773	B3 U0 G1	135	1.14	0.65	0.57	0.50	0.40	0.29	

* Actual production yield may vary between -4 and +10% of initial delivered lumens.
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit www.iesna.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf.
*** For recommended lumen maintenance factor data see TD-13. Calculated L70 based on 6,000 hours LM-80-08 testing: > 150,000 hours.

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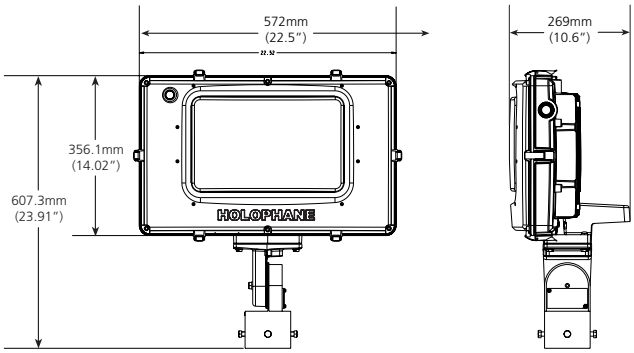
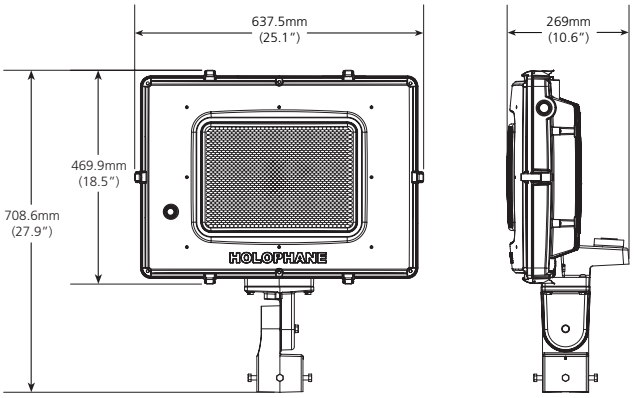
Ordering Information

Dimensional Details



PMLED
Maximum weight: 40lbs (18kg) Knuckle
Maximum weight: 47lbs (21kg) Yoke
Maximum E.P.A.: 3.1 sq. ft.



PLLED
Maximum weight: 54lbs (24kg) Knuckle
Maximum weight: 65lbs (29kg) Yoke
Maximum E.P.A.: 3.8 sq. ft.

Performance Specifications

Optical
Performance of the PMLED is to replace 400-1,000 watt MH luminaires. Performance of the PLLED is to replace 750-1000 watt HID product. The optical system utilizes state-of-the-art COB (chip-on-board) technology with 3000K, 4000K and 5000K color temperature choices and a 70 CRI minimum color temperature. The luminaire uses a highly specular internal reflector designed for superior field to beam ratios, uniformity and spacing. NEMA beam pattern choices of 4X4, 4X5, 5X5, 6X5, and 6X6 are available. Optional shielding is available to control uplight and light trespass. The optical enclosure is a borosilicate prismatic glass lens.

Electrical
Long Life: LED light engines are rated > 100,000 hours at 25C, L70. Electronic driver has a rated life of 100,000 hour at a 25C ambient. Surge protection device provides IEEE/ANSIc62.4 Category C (10kV/5kA) level of protection.

Mechanical
Rugged low copper A360 alloy die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convection cooling. The housings are painted with a super durable polyester paint finish over an epoxy primer pretreat yielding a finish that achieves a scribe creepage of 8 after 5,000 hours exposure to salt spray, providing durability and corrosion resistance.

The luminaire is available in either knuckle mount or yoke mount. The knuckle mount is adjustable and is designed to fit 2.375 inch to 2.875 inch tenons. The yoke mount is available in either galvanized steel or stainless steel. The luminaire comes standard prewired eliminating the need for opening the unit during installation. The knuckle version is pre-wired to the wiring chamber at the fitter.

The yoke mount has provision for a pre-wired cord drop to specified length in the ordering information. The luminaire comes standard with the door frame bolted to the housing. Optional tool-less stainless steel latches are available to allow easy access to LED drivers, surge protection, and terminal block. The optical enclosure is sealed and gasketed to an IP66 rating.

Controls
The NEMA three pin locking-style photocontrol receptacle and an optional five pin receptacle is available. Dimming version uses proprietary Acuity Brands components to enable continuous 0-10V dimming down to 10% output via the ROAM smart controls system (optional). Photocontrol for solid-state lighting meets ANSI C136.10 criteria

Warranty & Standards
Rated for -40C to 35C ambient
UL 1598 A wet location, UL 1598A Marine

Preferred Selections:

Most Frequently Ordered Catalog Numbers

PMLED-04-4K-07A-AS-66-1-L-ZP PMLED FV-Z

PMLED	6	5K	10A	AH	44	1	K	BP
1	6	3	4	5	6	7	8	9
Luminaire	LED Modules	Color Temp	Drive Current	Voltage	Beam Pattern	Mounting	UL Category	Color
PMLED PLLED	4 7 5 8 6 9	3K 4K 5K	10A	AS AH	44 45 55 65 66	1 3 4	K	BP GP HP WP ZP

Catalog Numbers for Entire Product Offering

(Pricing and lead times may be affected)

STEP 1: Luminaire

PMLED Predator LED Medium
PLLED Predator LED Large

STEP 2: LED Modules

4[1] 4 Modules
5[1] 5 Modules
6[1] 6 Modules
7[2] 7 Modules
8[2] 8 Modules
9[2] 9 Modules

STEP 3: Color Temp

3K 3,000K
4K 4,000K
5K 5,000K

STEP 4: Drive Current

10A 1050mA Driver

STEP 5: Voltage

AS Auto-sensing voltage (120-277V)
AH Auto-sensing voltage (347-480V)

STEP 6: Beam Pattern

44 4x4 (Prismatic glass)
45 4x5 (Prismatic glass)
55 5x5 (Prismatic glass)
65 6x5 (Prismatic glass)
66 6x6 (Prismatic glass)

STEP 7: Mounting

1 Tenon slipfitter-knuckle
3 Yoke Stainless Steel
4 Yoke galvanized

STEP 8: UL Category

K Wet locations
L[9] Marine Outside

STEP 9: Color

BP Black Super durable with epoxy primer
GP Gray Super durable with epoxy primer
HP Graphite Super durable with epoxy primer
WP White Super durable with epoxy primer
ZP Bronze Super durable with epoxy primer

*Colors are just a representation.
Custom colors are available upon request

STEP 10: Cord Length Option

04 4′ cord length
05 5′ cord length
06 6′ cord length
08 8′ cord length
10 10′ cord length
12 12′ cord length
15 15′ cord length
20 20′ cord length
25 25′ cord length
30 30′ cord length

STEP 11: Cord Type

63 16 gage, 3 conductor
43 14 gage, 3 conductor
23 12 gage, 3 conductor

STEP 12: Options

DM[4] 0V-10V Dimmable driver
F1[9] Single fusing
F2[9] Double fusing
NL NEMA label
PCL1[3] DLL 120V-277V Photocontrol
PCL3[3] DLL 347V Photocontrol
PCL4[3] DLL 480V Photocontrol
PCSS[3] DSS 120-277V Photocontrol
P3[4] ANSI standard locking style receptacle that accepts 3 pin controls for on/off operation

STEP 12: Options (Continued)

P5[5,9] ANSI standard locking style 5-pin receptacle
P7[5,9] ANSI standard locking style 7-pin receptacle
SH[3] Shorting cap
TL Tool-less entry with latches

STEP 12: Accessories

PMLED FV-XX Full visor super durable paint with epoxy primer
PMLED UBV-XX Upper/bottom visor super durable paint with epoxy primer
PMLED VG Vandal guard
PMLED WG Wire guard
08657-XX[6] Yoke to 2.375″ OD tenon adaptor, super durable paint with epoxy primer
08775-XX[6] Yoke to 2.375″ OD tenon adaptor with photocontrol receptacle, super durable paint with epoxy primer

1. Available with PMLED only
2. Available with PLLED only
3. Must be used with P3 or P5
5. Not available with P5 option
4. Not available with P3 option
5. Available with mounting 3 and 4 only
7. PMLED Not Available with PMLEDF1, PMLEDF2
8. PMLED Not Available with TB option
9. Accepts 3-pin and 5-pin as well. The 5-pin controls fixture dimming.

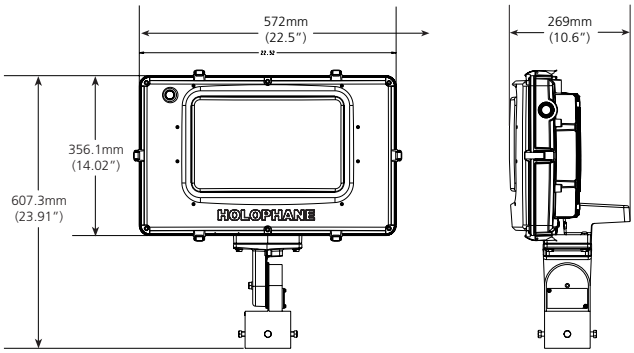
Operating Characteristics

The Predator LED is a direct replacement for installed high intensity discharge (HID) flood lights. The chart below gives general guidance on replacement of the Predator LED to HID luminaires.

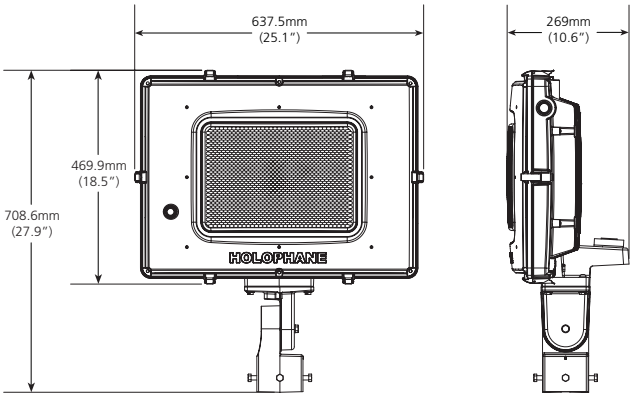
Replacement	HID Wattage CWA Type	Modules	Lumens	LED Wattage	LPW	Savings
PLLED 1000 HPS	1100	9 COB/10A	48,000	391	123	64%
PMLED 1000 MH	1070	6 COB/10A	32,000	261	123	75%
PMLED 750 MH	820	6 COB/10A	32,000	261	123	68%
PMLED 400 HPS	464	4 COB/10A	22,000	177	123	61%

Ordering Information

Dimensional Details



PMLED
Maximum weight: 40lbs (18kg) Knuckle
Maximum weight: 47lbs (21kg) Yoke
Maximum E.P.A.: 3.1 sq. ft.



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3 Yoke Stainless Steel
4 Yoke galvanized

STEP 8: UL Category

K Wet locations
L[9] Marine Outside

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GP Gray Super durable with epoxy primer
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WP White Super durable with epoxy primer
ZP Bronze Super durable with epoxy primer

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25 25′ cord length
30 30′ cord length

STEP 11: Cord Type

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43 14 gage, 3 conductor
23 12 gage, 3 conductor

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F1[9] Single fusing
F2[9] Double fusing
NL NEMA label
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PMLED 750 MH	820	6 COB/10A	32,000	261	123	68%
PMLED 400 HPS	464	4 COB/10A	22,000	177	123	61%

6" LED Open Downlight

RLF6LEDG4

120V–277V

0-10V Dimming

DATE: TYPE:

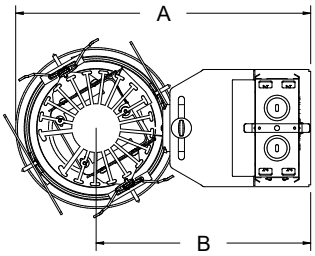
FIRM NAME:

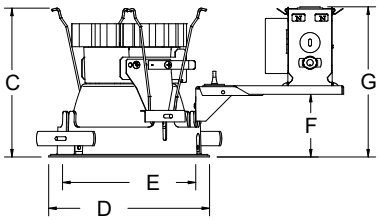
PROJECT:

RETROFICIENT

ENERGY STAR

Ceiling Cutout: see guide
Maximum Ceiling Thickness 1½"
For conversion to millimeters, multiply inches by 25.4
Not to Scale





*Dimensions shown are for range of adjustability.

APPLICATIONS:

LiteFrame Retroficient RLF6LED is a 6" specification grade Retrofit LED retrofit downlight that combines superior brightness control with energy savings and low maintenance costs. The RLF6LED is designed specifically to retrofit into ceilings with existing recessed downlight fixtures without the need to remove the existing fixture. Suitable for a variety of commercial, retail, and institutional applications with ambient temperature up to 40°C (104°F) in open plenum applications.

HOUSING:

All components are made from quality die cast aluminum or galvaneal steel. Pre-wired j-box with snap-on cover for easy access. Snap-in- connection from driver compartment allows easy installation of light engine/trim assembly without tools above or below the ceiling and can be upgraded to accommodate technology improvements. Approve for 8 (4 in/4 out) No. 12 AWG conductors rated for 90°C through wiring.

INSTALLATION:

All installation can be performed from below the ceiling without removing existing fixture.

REFLECTOR:

High purity aluminum, Alzak, iridescence suppressed, semi-diffuse upper reflector. Self-trim standard. Painted white self-trim (WT) available as option. Reflector is made from anodized Alanod Miro 4 aluminum.

LED LIGHT ENGINE:

The RLF6LED uses the Philips Fortimo DLM Gen 4 LED Module with remote phosphor technology. This technology provides controlled color consistency (3 SCDM) from fixture to fixture. The system is designed for optional life and lumen maintenance (>50,000 hours at 70% lumen maintenance). Both reflector and light engine assembly are mechanically retained to housing. The light engine comes standard with 80 CRI in all Kelvin temperatures.

LED DRIVER:

The RLF6LED utilizes the Philips Fortimo LED Driver specifically designed to optimize efficiency of the Fortimo DLM Module. Driver is designed to match the 50,000 hour minimum life expectancy of the system. Meets UL Class 2, inherent short circuit protection, self limited, overload protected. If critical temperatures are reached on driver or LED module, integrated thermal feedback loop will gradually reduce current to protect system life. Driver is universal 120V-277V. Optional Lutron Series A driver is also available.

DIMMING:

Comes standard with 0-10V dimming capability. Flicker-free dimming to 10%. 0-10V control may consume up to 1mA. 0-10V, Lutron 2 wire, 3 wire, and EcoSystem dimming available to 1%.

CERTIFICATIONS:

CSA certified to US and Canadian safety standards. Suitable for wet locations. Approved for through wiring. Non-IC rated. ENERGY STAR qualified with open clear Alzak reflector.

WARRANTY:

5 year warranty. See www.prescolite.com for details.

	"A"*	"B"*	"C"*	"D"*	"E"*	"F"*	"G"*
RLF6LEDG4 6LFLED5G4 RLF6LEDG4 6LFLED6G4 RLF6LEDG4 6LFLED7G4	12-3/4" - 15"	8-7/8" - 10-3/4"	6-3/4"	7"	5-3/4"	2-1/2" - 3-3/4"	6-1/4" - 7-1/2"

EXAMPLE: RLF6LEDG4 - 6LFLED5G430K
EXAMPLE: RLF6LED7G4120HDM-6LFLED7G435KWHWT

CATALOG NUMBER:

Order housing, reflector, and accessories separately

STANDARD 0-10V DIMMING

HOUSING/LED GENERATION

- ❑ **RLF6LEDG4** 6" High Efficacy LED Housing

VOLTAGE

- ❑ **Blank** 120V–277V

OPTIONS

- ❑ **Blank** Standard 0-10V dimming to 10%
- ❑ **SD**[1] Small Diameter

TRIM

- ❑ **6LFLED5G4** 1100 Lumen Module
- ❑ **6LFLED6G4** 1500 Lumen Module
- ❑ **6LFLED7G4** 2000 Lumen Module

LED COLOR TEMP

- ❑ **30K**
- ❑ **35K**
- ❑ **40K**

REF. FINISH

- ❑ **Blank** Semi-Diffuse

LOWER REF. COLOR

- ❑ **Blank** Clear
- ❑ **CG** Champagne Gold
- ❑ **BL** Black
- ❑ **WE** Wheat
- ❑ **LW** Light Wheat
- ❑ **PW** Pewter
- ❑ **WH**[1] White Paint

REF. OPTIONS

- ❑ **WT** White Trim
- ❑ **WF** Wide Flange

ACCESSORIES

- ❑ **LFSC6** 6" reflector screw cover
- ❑ **LiteGear** See page 3 for availability
- ❑ **RWD6** Retrofit wide diameter housing kit

ALTERNATIVE DIMMING TO 1%

Use with HDM/DM1/2DM dimming option: Match Housing to Trim Output

- ❑ **RLF6LED5G4**
- ❑ **RLF6LED6G4**
- ❑ **RLF6LED7G4**

- ❑ **120**
- ❑ **277**

- ❑ **HDM**[3] Lutron 3-wire Eco System to 1%
- ❑ **2DM**[3] Lutron 2-wire Leading Edge to 1% (120V only)
- ❑ **DM1**[3] 0-10V dimming to 1%
- ❑ **SD**[1] Small Diameter

NOTES

1 See housing capability guide on page 3

2 Requires WT option also

3 For HDM, DM1, & 2DM options, housing output must match trim output

prescolite

A Division of Hubbell Lighting, Inc.

In a continuing effort to offer the best product possible we reserve the right to change, without notice, specifications or materials that in our opinion will not alter the function of the product.

Web: **www.prescolite.com** • Tech Support: **(888) 777-4832**

PHOTOMETRIC DATA

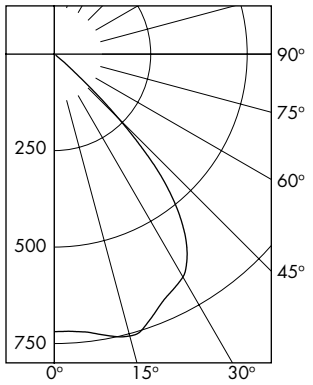
Retroficient - 6" RLF6LEDG4 Downlight

DRIVER DATA	RLF6LED5G4 30K	RLF6LED7G4 30K
Input Voltage	120-277V	120-277V
Input Frequency	50/60 Hz	50/60 Hz
Input Current	0.12A (120v)	0.22A (120v)
	0.052A (277v)	0.10A (277v)
Input Power	14.5W	26.5W
Constant Current Output	200–1000mA	200–1000mA
Power Factor	≥0.90	≥0.90
THD	<20%	<20%
EMI Filtering	FCC 47CFR	FCC 47CFR
	Part 15, Class A	Part 15, Class A
Operating Temperature	-20°C to 40°C	-20°C to 40°C
Dimming	0-10V	0-10V

Over-voltage, over-current, short-circuit protected

*Power consumption and photometric output may vary slightly with HDM or 2DM driver

RLF6LEDG4 6LFLED5G4 30K
LED Light Engine: 3000K, 80 CRI
System Wattage: 14.5W
Fixture Delivered Lumens: 1157
Fixture Efficacy: 80.0
Spacing Criteria: 1.2



CANDELA DISTRIBUTION

DEG	CANDELA	LUMENS
0	719	
5	722	69
15	756	212
25	692	321
35	597	365
45	236	181
55	4	8
65	0	0
75	0	0
85	0	0
90	0	

Test No. 8458
Tested at 25°C Ambient in accordance to IESNA LM-79-2008

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LUMINAIRE
0-30	602	52.0
0-40	967	83.6
0-60	1157	100.0
0-90	1157	100.0
90-180	0	0.0
0-180	1157	100.0

LUMINANCE DATA IN CANDELA/ SQ. METER

Angle in Vertical	Average
45°	18290
55°	382
65°	0
75°	0
85°	0

COEFFICIENTS OF UTILIZATION Zonal Cavity Method

Room Cavity Ratio	% Effective Ceiling Cavity Reflectance																
	80%				70%				50%			30%			10%		
	20% Effective Floor Cavity Reflectance																
	% Wall Reflectance																
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
1	113	110	107	105	110	108	105	103	104	102	100	100	98	97	96	95	94
2	107	101	97	93	104	99	95	92	96	93	90	93	90	88	90	88	86
3	100	93	87	83	98	92	87	82	89	85	81	86	83	80	84	81	79
4	94	86	80	75	92	85	79	74	82	77	73	80	76	73	78	75	72
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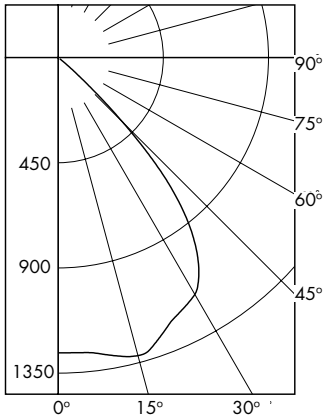
6	83	73	66	61	82	72	66	61	71	65	61	69	64	60	68	63	60
7	78	68	61	56	77	67	61	56	66	60	56	64	59	55	63	59	55
8	74	63	56	51	72	62	56	51	61	55	51	60	55	51	59	54	51
9	69	58	52	47	68	58	52	47	57	51	47	56	51	47	55	50	47
10	65	55	48	44	64	54	48	44	53	47	43	52	47	43	52	47	43

RLF6LEDG4 6LFLED5G4 30K — Test No. 8458

RLF6LEDG4 6LFLED7G4 30K
LED Light Engine: 3000K, 80 CRI
System Wattage: 26.4W
Fixture Delivered Lumens: 2013
Fixture Efficacy: 76.1
Spacing Criteria: 1.2



CANDELA DISTRIBUTION

DEG	CANDELA	LUMENS
0	1263	
5	1267	122
15	1320	370
25	1212	561
35	1041	637
45	391	306
55	9	15
65	2	2
75	0	0
85	0	0
90	0	

Test No. 8459
Tested at 25°C Ambient in accordance to IESNA LM-79-2008

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LUMINAIRE
0-30	1053	52.3
0-40	1690	83.9
0-60	2011	99.9
0-90	2013	100.0
90-180	0	0.0
0-180	2013	100.0

LUMINANCE DATA IN CANDELA/ SQ. METER

Angle in Vertical	Average
45°	30302
55°	860
65°	259
75°	0
85°	0

COEFFICIENTS OF UTILIZATION Zonal Cavity Method

Room Cavity Ratio	% Effective Ceiling Cavity Reflectance																
	80%				70%				50%			30%			10%		
	20% Effective Floor Cavity Reflectance																
	% Wall Reflectance																
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
1	113	110	107	105	110	108	105	103	104	102	100	100	98	97	96	95	94
2	107	101	97	93	104	99	95	92	96	93	90	93	90	88	90	88	86
3	100	93	88	83	98	92	87	82	89	85	81	86	83	80	84	81	79
4	94	86	80	75	92	85	79	74	82	77	73	80	76	73	78	75	72
5	89	79	73	68	87	78	72	67	76	71	67	75	70	66	73	69	66
6	83	73	66	62	82	72	66	61	71	65	61	69	64	60	68	63	60
7	78	68	61	56	77	67	61	56	66	60	56	64	59	55	63	59	55
8	74	63	56	52	72	62	56	51	61	55	51	60	55	51	59	54	51
9	69	59	52	47	68	58	52	47	57	51	47	56	51	47	55	50	47
10	66	55	48	44	64	54	48	44	53	48	44	52	47	43	52	47	43

RLF6LEDG4 6LFLED7G4 30K — Test No. 8459

prescolite

Web: **www.prescolite.com** • Tech Support: **(888) 777-4832**
701 Millennium Boulevard • Greenville, SC 29607 U.S.A. • Phone (864) 678-1000

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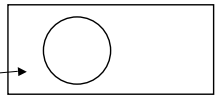
HUBBELL® Lighting, Inc.

PHOTOMETRIC DATA

Retroficient - 6" RLF6LEDG4 Downlight

Housing Compatibility Guide		
Ordering Guidelines	6 inch	
	min	max
Requires SD Housing Option	5-15/16	6-1/8
All Standard Housings	6-1/8	6-1/2
Requires RWD Kit Accessory & WF Reflector Option	6-1/2	6-7/8

Dimensions shown are for the diameter of the frame flange at it's narrowest point



Central Inverters

For fixture full light output in back-up mode, Prescolite and Dual-lite have jointly tested the LiteFrame LED with the 100 (LG1) and 250 (LG2) VA LiteGear inverters. (Note: Not for use with integral EM option). For more information on LiteGear go to www.dual-lite.com/resources/litegear_luminaire_loading_chart/

Dimming Compatibility Table

Dimming Ballast	Manufacturer	Web Link
DM/DM1	Lutron DVTV	http://bit.ly/11jSvZg
DM/DM1	Leviton AWRMG-7xx, AWSMG-7xx, AWSMT-7xx	http://bit.ly/1BJn2R9
HDM	Lutron	http://bit.ly/1vtjHAl
2DM	Lutron	http://bit.ly/1nF4Zp1

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SIL-1X4-XL-F-UL-40K-CW8-JP

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(715) 381-2971 WI
(352) 692-5900 FL

SIL - Standard LED Strip

The SIL, LED strip, brings together an economical price point and High performance

- Strips are everywhere so what sets us apart?
- Multiple configurations to meet your project's needs.
- Integrated Occupancy Sensors
- Adaptable to multiple control strategies: Dimming, Bi-level, High Frequency Sensors and more.

SIL LED Fixtures Deliver...

- Contoured lens and aesthetic look.
- Latest in LED efficiency, 92-98 lumens per watt.
- High color rendering (80+)
- TM-21 reported L70 of over 51,000 hours.

Why P2? It's Simple, Our Experience

- We have seen that due to the poor lumen maintenance and low CRI inherent to F96T12 light sources, you can often do a better re-lighting job with fewer design lumens.
- Contact the factory for photometric support to get the most out of your delivered lumens.

SIL - Solid State Strip

Application

SIL – 1x4 – ML – F – UL – 40K – SH – C8

SIL	1x4	ML	F	UL	40K	SH	C8
Model	Fixt Size	Lumen Output	Driver Output	Voltage	Color Temp.	Occ. Sensor	Cord Plug

Fixture Series
SIL = LED Strip Fixture

Fixture Size
1x4 = 1x4 Nominal
1x8 = 1x8 Nominal

Lumen Output
XL = Extra Low Wattage, 31W
LW = Low Wattage, High Efficiency, 51W
ML = Medium Lumen Output, 74W
HL = High Lumen Output, 96W

Notes
(1) Must be ordered in conjunction with lighting controls. Contact factory for asistance.
(2) Bi-level driver must be controlled by occupancy sensor or A/B switching. Contact factory for ordering assistance.

Driver Output
F = Fixed Output
DM = 0-10V Dimming (1)
BL = Bi-Level (2)v

Voltage
UL = Universal 120-277

Color Temperature
35K = 3500K
40K = 4000K
50K = 5000K

Occupancy Sensor
SH = 360 View Hi-Bay Sensor

Cord & Plug
C8 = 8' Cord, No Plug
C8/L715 = 8' Cord & Plug (L7-15P)
PQC15 = 15' Cord/Quick Connect

Other
LSP = Lighting Surge Protector (270 Joules)

5 YR Warranty | RoHS | 40°C Max | -40°C Min | Damp Location | DLC Pending | Lighting facts Pending

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SIL - Standard LED Strip

Want Fluorescent?

Consider our...

RWS

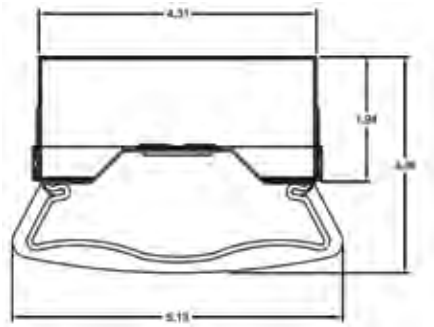
SIH

SIS

with Long Life Lamps and PS Ballasts

Fixture Construction

- Heavy Duty .032 White Aluminum cover with 22GA steel 4.25" channel
- Linear Frosted Acrylic Diffuser.
- Class 2 Driver
- Suitable for end-to-end row lighting
- Made in the USA.



Existing System

Existing Lamp / Ballast System	Lamp Quantity & Type		Mean Lumens Per Lamp	Mean Lumens Per Fixture	Ballast Factor	Approx. Fixture Efficiency	Delivered Lumens Per Fixture	Input Watts	Delivered Lumens Per Watt
2L40-T12 Mag	2	F40/T12/WM	2,280	4,560	0.88	0.75	3,010	72	42
1L96-T12 Mag	1	F96/T12/ES	4,750	4,750	0.88	0.75	3,135	76	41
2L96-T12 Mag	2	F96/T12/ES	4,750	9,500	0.88	0.75	6,270	126	50
1L96-T12HO Mag	1	F96/T12HO/ES	6,950	6,950	0.95	0.75	4,952	125	40
2L96-T12HO Mag	2	F96/T12HO/ES	6,950	13,900	0.93	0.75	9,695	210	46
2L32-T8-MP Elec	2	F32T8/841	2,800	5,600	0.87	0.75	3,654	53	69
2L32T8-HP Elec	2	F32T8/841	2,800	5,600	1.15	0.75	4,830	73	66

Re-Lighting Options

Proposed System	Lamp Source Quantity & Type		CRI	CCT	Ballast Factor	Approx. Fixture Efficiency	Delivered Lumens Per Fixture	Input Watts	Delivered Lumens Per Watt
SIL-1X4-XL	1	1X4 XL Engine	>80	4500K	1.00	1.00	2,900	31	94
SIL-1X4-LW	1	1X4 LW Engine	>80	4500K	1.00	1.00	5,019	51	98
SIL-1X4-ML	1	1X4 ML Engine	>80	4500K	1.00	1.00	6,872	72	95
SIL-1X4-HL	1	1X4 HL Engine	>80	4500K	1.00	1.00	8,781	95	92
SIL-1X8-XL	1	1X8 XL Engine	>80	4500K	1.00	1.00	5,800	62	94
SIL-1X8-LW	1	1X8 LW Engine	>80	4500K	1.00	1.00	10,038	102	98
SIL-1X8-ML	1	1X8 ML Engine	>80	4500K	1.00	1.00	17,562	190	92
SIL-1X8-HL	1	1X8 HL Engine	>80	4500K	1.00	1.00	11,600	124	94

General Notes

- Lamp/ballast system values shown are a general reference intended to supply a quick comparison of several common lamp/ ballast systems, the associated energy consumption, and net lumen output.
- Fixture efficiencies and layout are not comprehended in the table, but will determine the usefulness of the system.
- Values shown are based on normal operating temperatures and at 277 volts.
- There are many operating variables that affect system output, in addition to rating variances from brand to brand.
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- All T5 and T8 lamp values shown are for basic grade lamps. Extended life and higher lumen lamps types are available.
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- Please consult the lamp/ballast manufacturer's catalogs for the detailed information required to model your system.

SIL-1X8-XL-F-UL-40K-CW8-JP

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Color Temperature
35K = 3500K
40K = 4000K
50K = 5000K

Occupancy Sensor
SH = 360 View Hi-Bay Sensor

Cord & Plug
C8 = 8' Cord, No Plug
C8/L715 = 8' Cord & Plug (L7-15P)
PQC15 = 15' Cord/Quick Connect

Other
LSP = Lighting Surge Protector (270 Joules)

5 YR Warranty | RoHS | 40°C Max | -40°C Min | Damp Location | DLC Pending | Lighting facts Pending

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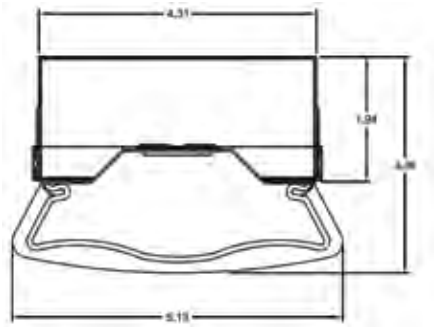

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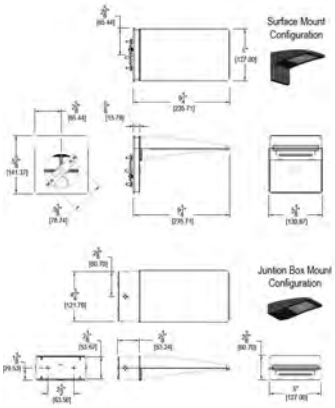
WPLED13N/PC2

LED 10W & 13 Wallpacks. 3 cutoff options. Patent Pending thermal management system. 100,000 hour L70 lifespan. 5 Year Warranty.

Color: Bronze

Weight: 3.3 lbs



LED Info

Watts:	13W
Color Temp:	4000K (Neutral)
Color Accuracy:	86
L70 Lifespan:	100000
LM79 Lumens:	673
Efficacy:	45 LPW

Driver Info

Type:	Constant Current
120V:	N/A
208V:	0.08A
240V:	0.07A
277V:	0.06A
Input Watts:	15W
Efficiency:	87%

Technical Specifications

Photocell:
277V Photocell Included. Photocell is compatible with 208V-277V.

UL LISTING:
Suitable for Wet Locations as a Downlight. Suitable for Damp Locations as an Uplight. Wall Mount only. Suitable for Mounting within 4ft. of ground.

Lumen Maintenance:
The LED will deliver 70% of its initial lumens at 100,000 hours of operation.

Cold Weather Starting:
The minimum starting temperature is -40°F/-40°C.

Ambient Temperature:
Suitable for use in 50°C (122°F) ambient temperatures.

Driver:
Multi-chip 13W high output long life LED Driver Constant Current, Class 2 100V - 277V, 50/60 Hz.

Surge Protection:
4KV

Color Temperature (Nominal CCT):
4000K

Fixture Efficacy:
44.6 Lumens per Watt

Color Accuracy:
86 CRI

Finish:
Our environmentally friendly polyester powder coatings are formulated for high-durability and long-lasting color, and contains no VOC or toxic heavy metals.

Color Consistency:
3-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color.

Color Stability:
LED color temperature is warrantied to shift no more than 200K in CCT over a 5 year period.

Color Uniformity:
RAB's range of CCT (Correlated color temperature) follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2008.

Green Technology:
RAB LEDs are Mercury and UV free.

Dark Sky Approved:
The International Dark Sky Association has approved this product as a full cutoff, fully shielded luminaire.

For use on LEED Buildings:
IDA Dark Sky Approval means that this fixture can be used to achieve LEED Credits for Light Pollution Reduction.

Patents:
The design of the LPACK is protected by U.S. Pat. D604,004 and patents pending in Canada, China and Taiwan.

IESNA LM-79 & IESNA LM-80 Testing:
RAB LED luminaires have been tested by an independent laboratory in accordance with IESNA LM-79 and 80, and have received the Department of Energy "Lighting Facts" label.

Gaskets:
High Temperature Silicone.

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Warranty:
RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish. See our full warranty .

Equivalency:
The WPLED13 is Equivalent in delivered lumens to a 100W Metal Halide Wallpack.

HID Replacement Range:
The WPLED13 can be used to replace 70-150W Metal Halide Wallpacks based on delivered lumens.

Country of Origin:
Designed by RAB in New Jersey and assembled in the USA by RAB's IBEW Local 3 workers.

Buy American Act Compliant:
This product is a COTS item manufactured in the United States, and is compliant with the Buy American Act.

Recovery Act (ARRA) Compliant:
This product complies with the 52.225-21 "Required Use of American Iron, Steel, and Manufactured Goods-- Buy American Act-- Construction Materials (October 2010).

Trade Agreements Act Compliant:
This product is a COTS item manufactured in the United States, and is compliant with the Trade Agreements Act.

GSA Schedule:
Suitable in accordance with FAR Subpart 25.4.

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WPLED3T78N/PCS2

LED 78W Wallpacks. 3 cutoff options. Patent Pending thermal management system. 100,000 hour L70 lifespan. 5 Year Warranty.

Color: Bronze

Weight: 34.8 lbs

Project:	Type:
Prepared By:	Date:

Driver Info

Type:	Constant Current
120V:	N/A
208V:	0.41A
240V:	0.35A
277V:	0.30A
Input Watts:	75W
Efficiency:	N/A

LED Info

Watts:	78W
Color Temp:	4000K
Color Accuracy:	72 CRI
L70 Lifespan:	100000
Lumens:	8941
Efficacy:	118 LPW

Technical Specifications

Electrical

Photocell:

277V Swivel Photocell Included. Photocell is compatible with 208V-277V.

Driver:

Constant Current, Class 2, 2000mA, 100-277V, 50-60Hz, 1.1A, Power Factor 99%

THD:

5.2% at 120V, 13.6% at 277V

Surge Protection:

6kV

Listings

DLC Listed:

This product is on the Design Lights Consortium (DLC) Qualified Products List and is eligible for rebates from DLC Member Utilities.
DLC Product Code: P000017AL

UL Listing:

Suitable for wet locations as a downlight.

IESNA LM-79 & IESNA LM-80 Testing:

RAB LED luminaires have been tested by an independent laboratory in accordance with IESNA LM-79 and 80, and have received the Department of Energy "Lighting Facts" label.

Dark Sky Approved:

The International Dark Sky Association has approved this product as a full cutoff, fully shielded luminaire.

LED Characteristics

Lifespan:

100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations.

LEDs:

Six (6) multi-chip, 13W, high-output, long-life LEDs.

Color Consistency:

3-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color.

Color Stability:

LED color temperature is warrantied to shift no more than 200K in CCT over a 5 year period.

Color Temperature (Nominal CCT):

4100K.

Color Uniformity:

RAB's range of CCT (Correlated Color Temperature) follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2015.

Replacement:

Replaces 400W Metal Halide.

Construction

IP Rating:

Ingress Protection rating of IP66 for dust and water

Ambient Temperature:

SuitableFor use in 40°C (104°F) ambient temperatures.

Cold Weather Starting:

Minimum starting temperature is -40°C (-40°F)

Housing:

Die cast aluminum housing, lens frame and mounting arm.

Reflector:

Specular vacuum-metallized polycarbonate

Gaskets:

High temperature silicone gaskets.

Finish:

Formulated for high-durability and long lasting color.

Green Technology:

Mercury and UV free. RoHS compliant components. Polyester powder coat finish formulated without the use of VOC or toxic heavy metals.

For use on LEED Buildings:

IDA Dark Sky Approval means that this fixture can be used to achieve LEED Credits for Light Pollution Reduction.

Optical

Specification Grade Optics:

The Type III distribution is ideal for roadway, general parking, and other area lighting applications where a larger pool of lighting is required. It is intended to be located near the side of the area, allowing the light to project outward and fill the area.

BUG Rating:

B1 U0 G2

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Technical Specifications (continued)

Other

California Title 24:

WPLED3T78/PCS2 complies with 2013 California Title 24 building and electrical codes as a commercial outdoor pole-mounted fixture > 30 Watts mounted at height greater than 24 feet. For mounting heights < 24 feet see WPLED3T78/BL with bi-level operation; additional component requirements will be listed in the Title 24 section under technical specifications on the product page.

Warranty:

RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish.

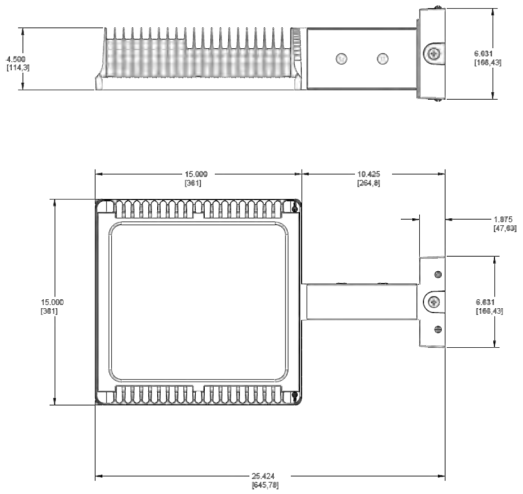
Patents:

The WPLED design is protected by patents pending in the U.S., Canada, China, Taiwan and Mexico.

Buy American Act Compliance:

RAB values USA manufacturing! Upon request, RAB may be able to manufacture this product to be compliant with the Buy American Act (BAA). Please contact customer service to request a quote for the product to be made BAA compliant.

Dimensions



Features

- High performance LED light engine
- Maintains 70% of initial lumens at 100,000 hours
- Weatherproof high temperature silicone gaskets
- Superior heat sinking with die cast aluminum housing and external fins
- Replaces 400W MH
- 100 up to 277 Volts
- 5-year warranty

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WPLED3T78N/PCS2

Ordering Matrix

Family	Distribution	Watts	Color Temp	Mount	Finish	Voltage	Photocell	Dimming	Sensor	Bi-Level
WPLED										
	2T = Type II **3T** = Type III **4T** = Type IV	**78** = 78W	**Blank** = 5000K (Cool) **Y** = 3000K (Warm) **N** = 4000K (Neutral)	**Blank** = Standard **FX** = Flat Wall	**Blank** = Bronze **W** = White	**Blank** = 120-277V **/480** = 480V	**Blank** = No Photocell **/PC** = 120V Button **/PC2** = 277 Button **/PCS** = 120V Swivel **/PCS2** = 277V Swivel **/PCS4** = 480V Swivel	**Blank** = No Dimming **/D10** = Dimmable	**/WS2** = Multi-Level Motion Sensor (Only available for 120-277V with /D10 for 50W)	**Blank** = No Bi-Level **/BL** = Bi-Level

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Johnson Controls

Lighting Material Manuals

Port Allen Harbor

HDOT Harbors, Highways, & Tunnels

JCI Contract: 4PX0-0031

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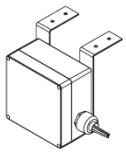
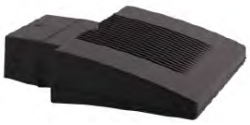
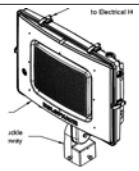
Catalog

Part Name	Image	Additional Description
ELWG0CXXGC		GE - LIGHTGRID GATEWAY
ELWK0A5		GE - LIGHTGRID NODE BOX ASSY 277V
ELWM0CXV		GE - LIGHTGRID CELLULAR MODEM
ELWN0A5		GE - LIGHTGRID NODE 277V
RAB WPLED18NPC2		WPLED18N/PC2
RAB WPLED26NPC2		WPLED26N/PC2
Holo PMLED 06 4K-277V		PMLED-06-4K-07A-AS-66-1-L-ZP PMLED FV-ZP
Precision LLW-4-40-LW-E-U		LLW-4-40-LW-E-U
CREE PKG-304		PKG-304-PD-06-E-UL-SV-700-PML

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Catalog

Part Name	Image	Additional Description
Precision VTL-1X4-XL		VTL-1X4-XL-F-UL-40K
Precision VTL-1X8-XL		VTL-1X8-XL-F-UL-40K-C8

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ELWG-0-C-XX-G-C

GE
Lighting

LightGrid™ Gateway

Outdoor Wireless Control System

Description

LightGrid™ Outdoor Wireless Control System from GE allows remote monitoring and control, utility-grade energy measurement and GPS mapping of streetlights.

Product Features

- GPS module in every gateway
- Automatic gateway registration and display in MAP view
- Real-time update of the status of all the fixtures
- Self-forming & self-restoring mesh network
- Addressable via IPv6
- Nodes, gateway can be spaced up to 500m apart (Clear line of sight)
- Reliable and Secure Encrypted Communications

Applications

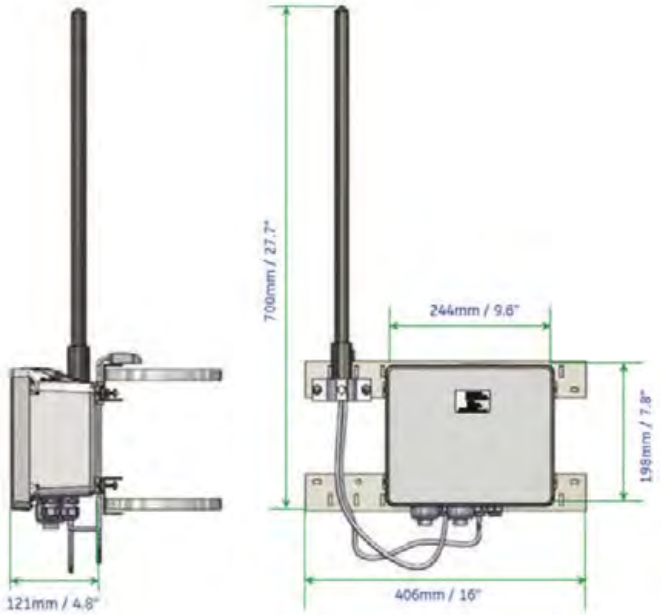
- Street Lighting
- Area Lighting

2014 PROGRESS Report SELECTION

Product Specifications

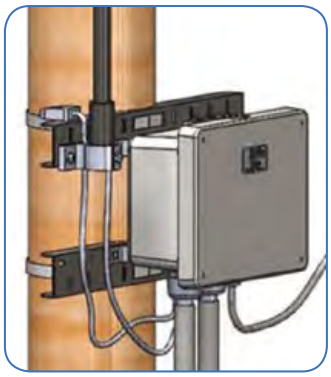
- Input Voltage: 120-277V, 347V—480V
- Operating Temperature: -40 to +50C
- Surge: Meets ANSI C62.41 6KV, 3KA Combination Wave
- Power Consumption: < 3W
- Frequency: 915 MHz ISM Band
- GPS: Accuracy 3m (clear open sky)
- Addressing: IPv6
- Security: AES Encryption, Certificate Based
- Network Communication: IEEE 802.15.4, 6LoWPAN, 50 Channel FHSS
- Backhaul Communication: Ethernet or Cell (with modem)
- Complies with FCC Part 15 Required Sub Sections
- Complies with UL 916
- Weight: 7 lbs.
- Warranty: 3 years

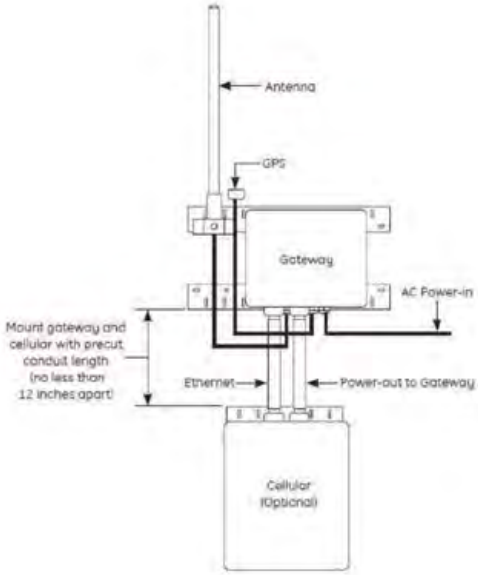
Product Dimensions



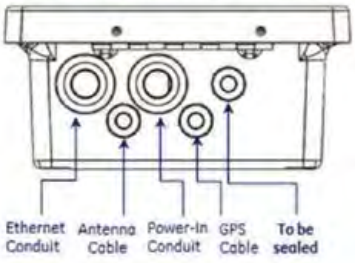
Installation

Gateway will contain two ¾" liquid-tight conduit fittings, and three liquid-tight glands to accommodate customer installation flexibility according to the diagram below, which may require customer to cap or seal unused fittings during installation.

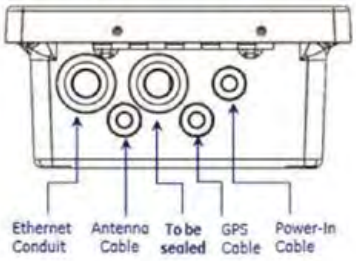




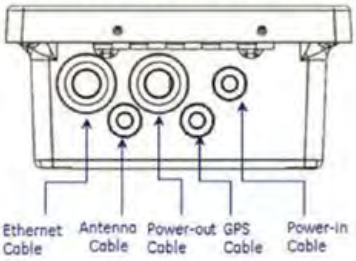
OPTION 1: Power & Ethernet input using conduit (**NO** power-out to external device)



OPTION 2: Power-in via cable. Ethernet in via conduit (**NO** power-out to external device)



OPTION 3: Power-in via cable; Power & Ethernet out to cellular modem via conduit



Packaging

- 1 Gateway Enclosure
- Conduit fittings (2 pcs mounted to enclosure)
- Gland fittings (3 pcs mounted to enclosure)
- GPS module and cable (1 pcs mounted to gland)
- Antenna Cable (1 pc mounted to gland)
- Antenna Pole (1 pc to be installed)
- Pole Mounting Bracket (2 pcs mounted to enclosure)

Ordering Number Logic

E L W G _ C _ G C _

PRODUCT ID	VOLTAGE (UL)	ANTENNA	COUNTRY/POLE	GPS	IP COMMUNICATION	NETWORK CONFIGURATION
E L W G	**0** = 120/277 **H** = 480* * 480V Gateway = 120-277V Gateway + 480V to 277V Step Down Transformer	**C** = Standard 18"	**XX** = Default (US) **AR** = Argentina **BR** = Braziil **EL** = El Salvador	**G** = GPS Capability	**C** = Cat 5 Cable Only	**B** = Network B **None** = Default

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CTRL002 (Rev 06/10/15)

ELWM-0-C-X-V

GE
Lighting

LightGrid™ Cell Modem

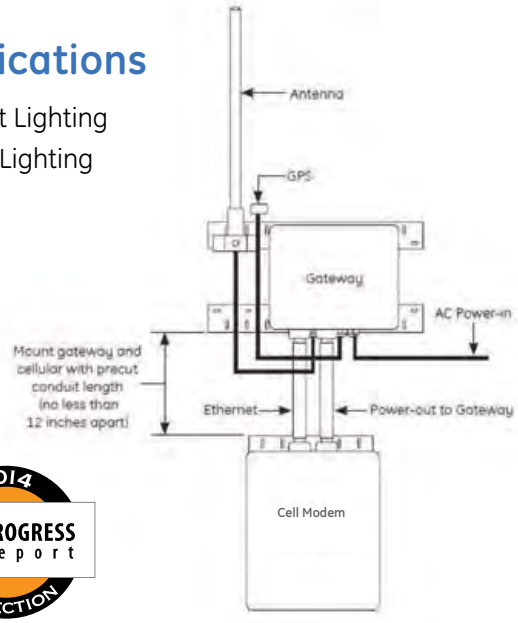
Outdoor Wireless Control System

Description

LightGrid™ Outdoor Wireless Control System from GE allows remote monitoring and control, utility-grade energy measurement and GPS mapping of streetlights.

Applications

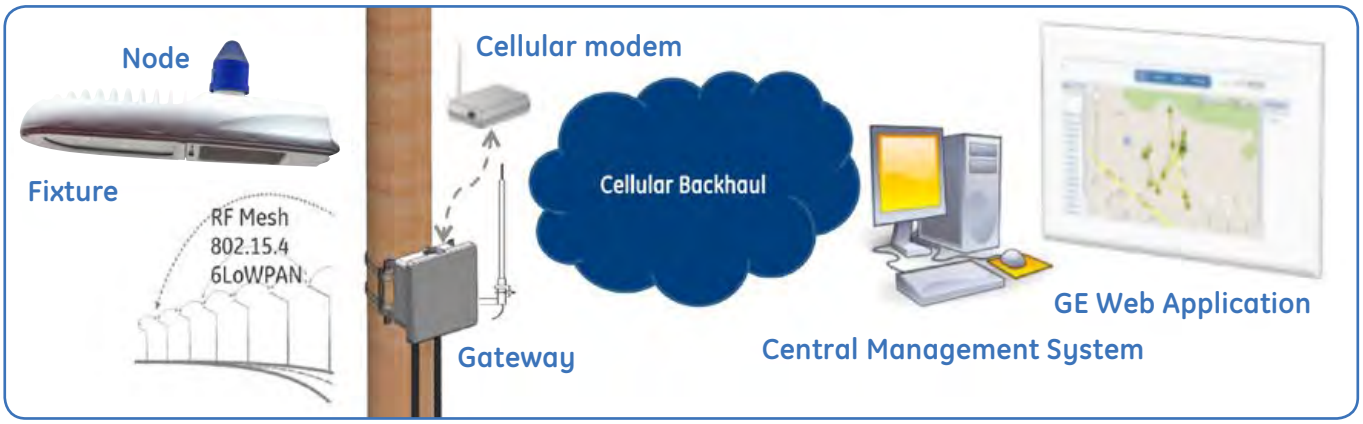
- Street Lighting
- Area Lighting



Specifications

- Input Voltage: 120-277V, 347V—480V
- Weight: 8 lbs
- Dimensions: 15 in. x 13 in. x 7 in
- Mounting Height: 27 ft.–40 ft.
- Warranty: 3 years

Cell Based Network



Packaging

- Cellular enclosure (1pc)
- Conduit fitting (2pcs, mounted to enclosure)
- Flexible conduit (2pc)
- Power cable, stripped ends (1pc)
- Ethernet cable (1pc)
- Pole mounting bracket (2pcs, mounted to enclosure)

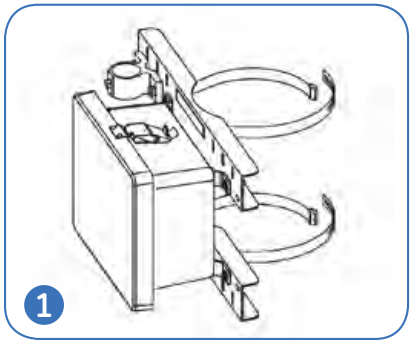
Ordering Number Logic

E L W M — O — C — X — _

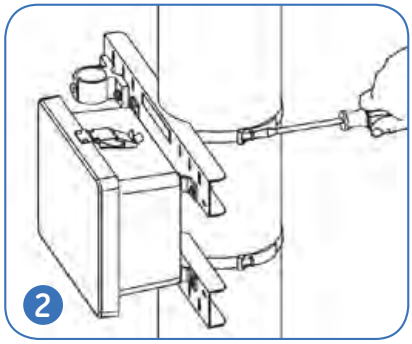
PRODUCT ID	VOLTAGE	IP COMMUNICATION	FUTURE USE	PROVIDER
E L W M	0 = 120-277	C = CAT 5 Cable only	X	V = Verizon R = Rogers X = Future Use

Mounting Gateway and Cellular

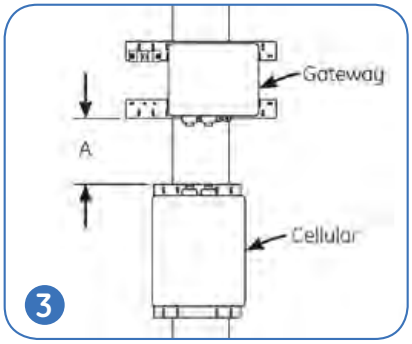
Carefully unpack unit from its packaging. Properly inspect for defects before installing.



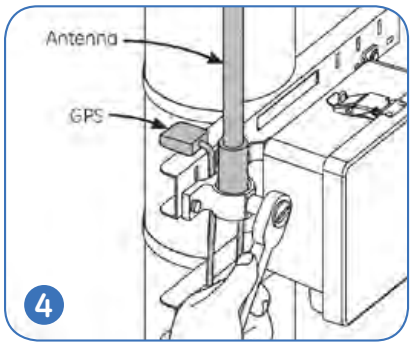
Before attaching gateway enclosure to pole, ensure the mount band clamps are correctly oriented. **NOTE:** Adjustable steel band allows mounting on pole diameters up to 15 inches.



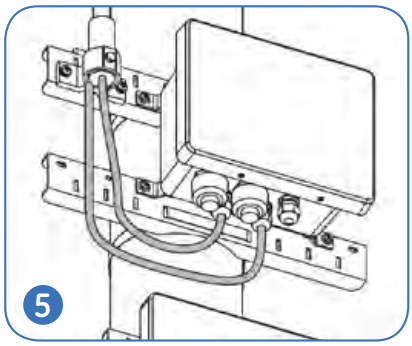
Attach gateway enclosure to pole by tightening steel band clamps. Fold or trim excess metal band if needed.



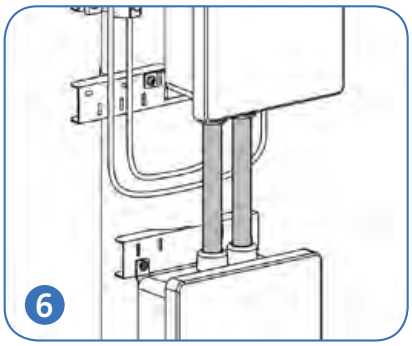
Position cellular enclosure below the gateway enclosure and attach to pole by tightening both steel band clamps. **NOTE:** The distance (A) between the two enclosures should be adjusted to accommodate the length of the Ethernet cable and power-in/out cable.



Install GPS and antenna into bracket and tighten bolt (45 lbs-in. torque).



Insert GPS and antenna wires through two glands in bottom of gateway enclosure.



Install two 0.75-inch diameter nonmetallic Type B liquid-tight conduit between gateway and cellular enclosures.

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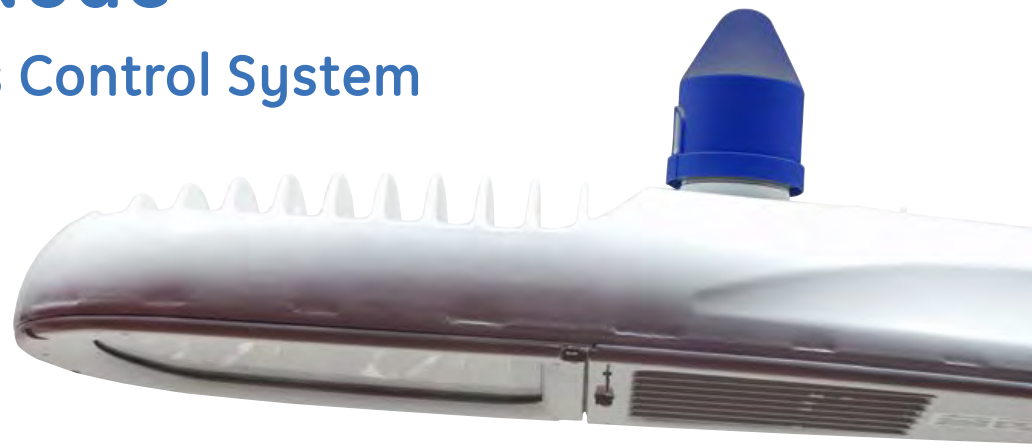
CTRL009 (Rev 06/10/15)

ELWN0A5

GE
Lighting

LightGrid™ Node

Outdoor Wireless Control System



Description

LightGrid™ Outdoor Wireless Control System from GE allows remote monitoring and control, utility-grade energy measurement and GPS mapping of streetlights.

Applications

- Street Lighting
- Area Lighting

2014 PROGRESS Report SELECTION

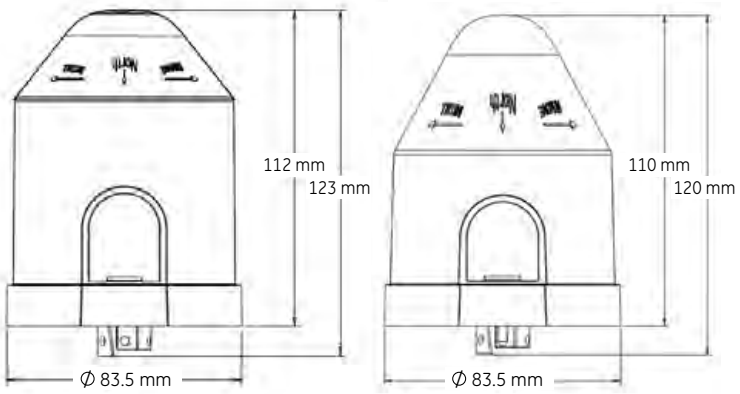
Product Features

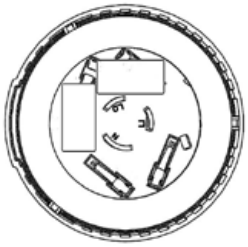
- Utility Grade Measurement up to 0.5% Accuracy
- Self-forming & self-restoring mesh network
- Static IPV6 data addressing and routing
- Reliable and Secure Encrypted Communications
- Nodes, gateway can be spaced up to 500m apart (Clear Line of Sight)
- Utility grade 15 minute time of use Energy consumption reporting
- Full Autonomous Photocell Functionality (No wireless network required)
- Time Based Lighting schedules to maximize energy savings
- Integrated GPS in each node for Real time Asset Reporting
- Dynamic Lumen Output Level Control
- Real time measurement and storage of Voltage, Current, Wattage, Power Factor, and Hours of operation

Product Specifications

- Input Voltage: 120-277V, 347V and 480V
- Radio Frequency: 915 MHz ISM Band
- Network Communication: IEEE 802.15.4, 6LoWPAN, 50 Channel FHSS
- Addressing: IPv6
- Dimming: 0-10V
- Operating Temperature: -40 to +50C
- Surge: Meets ANSI C62.41 6KV, 3KA Combination Wave
- Power consumption i.e. <2W 120-277V, < 3W 347 and 480V
- Photocell: Complies with ANSI C136.10-2006
- GPS: Accuracy 3m (clear open sky)
- Security: AES Encryption and Certificate based authentication
- Utility Grade Energy Measurement: Complies with relevant sections of ANSI C12.20
- Complies with FCC Part 15 required sub sections
- Complies with UL 773, Wet Rated, Type 2 Outdoor
- Complies with ANSI C136.41-2013 (ANSI Dimming)
- Warranty: 5 yrs Standard. 10 yrs Extended Warranty Available

Product Dimensions





ANSI Dimming

GE Dimming

Ordering Number Logic

E L W N _ _ 5 _ G 5 _ _

PRODUCT ID	VOLTAGE	PIN CONFIGURATION	PINS	METERING	GPS	MAX WATTAGE	NETWORK CONFIGURATION	COUNTRY/POLE
E L W N	**0** = 120/277 **5** = 480	**D** = GE Dimming **A** = ANSI Dimming	**5** = 5 Pin	**R** = 2% Revenue Grade **U** = 0.5% Utility Grade	**G** = GPS Capability	**5** = 450 Watts	**S** = Stand Alone **B** = Network B **None** = Default	**None** = Default (US)

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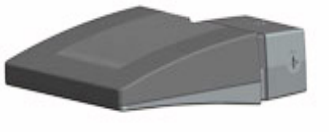
CTRL001 (Rev 06/10/15)

WPLED® 18W INSTALLATION INSTRUCTIONS

Thank you for buying RAB lighting fixtures. Our goal is to design the best quality products to get the job done right. We'd like to hear your comments. Call the Marketing Department at 888-RAB-1000 or email: marketing@rabweb.com



Junction Box

Surface Mount

IMPORTANT

READ CAREFULLY BEFORE INSTALLING FIXTURE. RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE.

Fixtures must be wired in accordance with the National Electrical Code and all applicable local codes. Proper grounding is required for safety. THIS PRODUCT MUST BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE INSTALLATION CODE BY A PERSON FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THE PRODUCT AND THE HAZARDS INVOLVED.

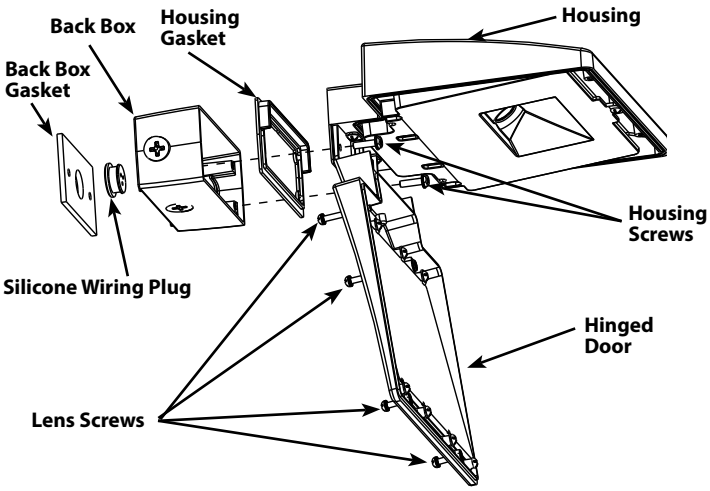
WARNING: Make certain power is OFF before installing or maintaining fixture. No user serviceable parts inside.

CAUTION: For proper weatherproof function all gaskets must be seated properly and all screws inserted and tightened firmly. Apply weatherproof silicone sealant around the edge of the Back Box and/or Junction Box. This is especially important with an uneven wall surface. Silicone all plugs and unused conduit entries.

JUNCTION BOX MOUNT FOR CONDUIT

For use on applications where conduit wiring is needed.

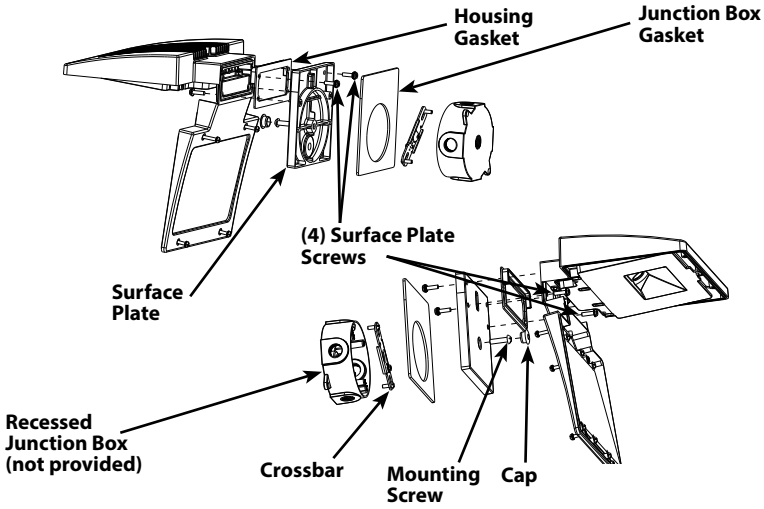
1. Loosen (4) **Lens Screws** and swing open **Hinged Door**. Screws will remain in place with O-Rings.
2. Loosen and remove (2) **Housing Screws**. Remove **Housing** from **Back Box**. Keep **Housing Gasket** intact for re-assembly.
3. Feed wires into **Back Box** through **Silicone Wiring Plug**, if not using conduit/ connectors.
4. Secure **Back Box** to the mounting surface using hardware appropriate for that mounting surface. Silicone around the edge of **Back Box Gasket** (self adhesive) and/ or junction box.
5. Wire the fixture using UL listed wire connectors according to NEC and local codes. Apply sealant to all unused conduit entry points.
6. Place **Gasket** between **Back Box** and **Housing**. Re-mount **Housing** to **Back Box**. Check **Housing Gasket** seal all around the **Back Box**.
7. Re-mount **Door** to **Housing**. Tighten (4) **Lens Screws.** Check door gasket (not shown) seal.
8. Fixture is UL Listed for down and up lighting and may be mounted in either position. Fixture may not melt heavy snow accumulation in an uplight position.



SURFACE MOUNT FOR RECESSED JUNCTION BOX

For use with recessed junction box and wiring.

1. Mount **Surface Plate** to fixture with (4) **Surface Plate Screws**. There are two screws from the front and two screws from the back. Make sure **Housing Gasket** makes complete seal all the way around.
2. Use supplied crossbar. Mount **Crossbar** to recessed junction box with (2) screws.
3. Place **Junction Box Gasket** on back of the fixture. Gasket should create seal against mounting surface.
4. Wire fixture to supply wires in recessed junction box according to wiring section.
5. Use 1/4 x 20 stainless steel **Mounting Screw** to attach fixture to Crossbar. Tighten **Mounting Screw**.
6. Cover screw with **Cap,** provided.
7. Fixture is UL Listed for down and up lighting and may be mounted in either position. Fixture may not melt heavy snow accumulation in an uplight position.

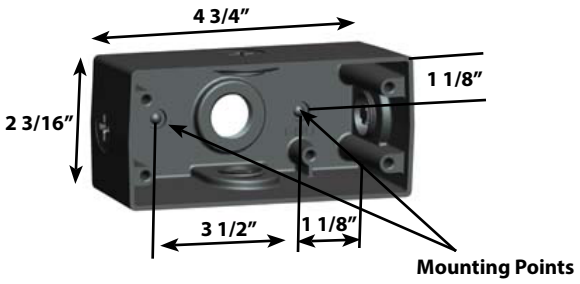


WPLED® 18W INSTALLATION INSTRUCTIONS

Thank you for buying RAB lighting fixtures. Our goal is to design the best quality products to get the job done right. We'd like to hear your comments. Call the Marketing Department at 888-RAB-1000 or email: marketing@rabweb.com

JUNCTION BOX

1. The Junction box has (4) conduit entry points on the center of each side and (1) in the center back.
2. **Mounting Points** are dimensioned below.



ON-OFF WIRING

Universal voltage driver permits operation at 100V to 277VAC, 50 or 60Hz except fixtures factory ordered with a 120V photocell (/PC) and 277V photocell (/PC2).

1. Connect the black fixture lead to the (+) LINE supply lead.
2. Connect the white fixture lead to the (-) COMMON supply lead.
3. Connect the bare copper Ground wire from fixture to supply ground.

Fig. 1

CLEANING & MAINTENANCE

CAUTION: Be sure fixture temperature is cool enough to touch. Do not clean or maintain while fixture is energized.

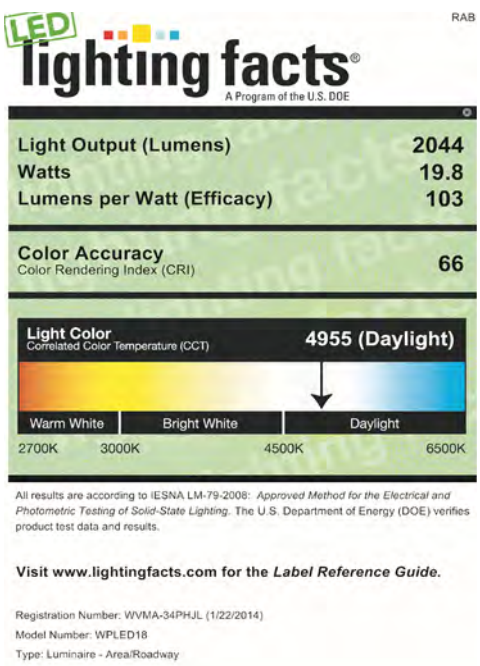
1. Clean glass lens with non-abrasive glass cleaning solution.
2. Do not open fixture to clean the LED. Do not touch the LED.

TROUBLESHOOTING

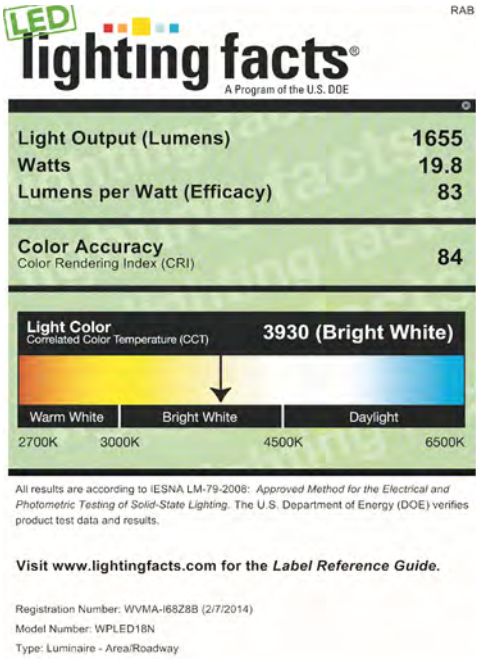
1. Check that the line voltage at fixture is correct. Refer to wiring directions.
2. Is the fixture is grounded properly?
3. Be sure the photocell, if used, is functioning properly.

PATENTS: US: pat. D634,878, **CN:** ZL201030679778.2

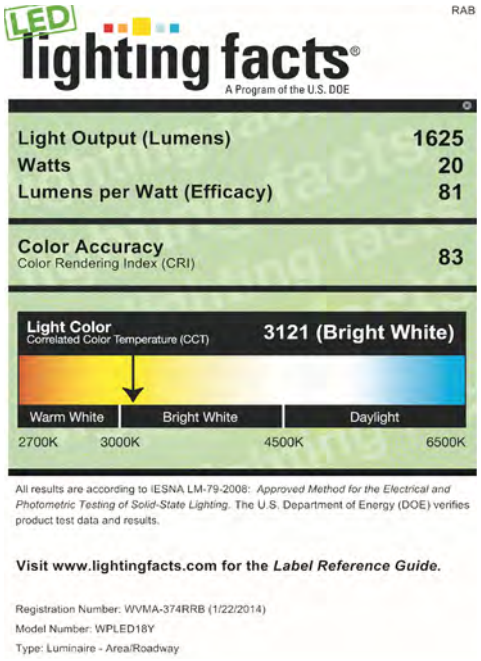
WPLED18 Cool



WPLED18N Neutral



WPLED18Y Warm



Note: These instructions do not cover all details or variations in equipment nor do they provide for every possible situation during installation, operation or maintenance.

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Northvale, New Jersey 07647 USA

Easy Installation & Product Help

Tech Help Line
Call our experts 888 RAB-1000

rabweb.com
Visit our website for product info

email
Answered promptly sales@rabweb.com

WPLED18-IN 0214 Rev. 1

WPLED26N/PC2

LED 26W Wallpacks. Patent Pending thermal management system. 100,000 hour L70 lifespan. 5 Year Warranty.

Color: Bronze

Weight: 7.5 lbs

Project:	Type:
Prepared By:	Date:

Driver Info		LED Info	
Type:	Constant Current	Watts:	26W
120V:	N/A	Color Temp:	4000K (Neutral)
208V:	0.16A	Color Accuracy:	83 CRI
240V:	0.14A	L70 Lifespan:	100,000
277V:	0.12A	Lumens:	2,415
Input Watts:	30W	Efficacy:	81 LPW
Efficiency:	88%		

Technical Specifications

Other

WPLED26 with Photocell:

277V Button Photocell Included. Photocell is compatible with 208V-277V.

California Title 24:

WPLED26/PC2 complies with 2013 California Title 24 building and electrical codes as a commercial outdoor non-pole-mounted fixture < 30 Watts.

Equivalency:

The WPLED26 is Equivalent in delivered lumens to a 175W Metal Halide Wallpack.

HID Replacement Range:

The WPLED26 can be used to replace 150 - 200W Metal Halide Wallpacks based on delivered lumens.

Patents:

The WPLED design is protected by U.S. Pat. D634878, Canada Pat 134878, China Pat. CN301649064S.

Country of Origin:

Designed by RAB in New Jersey and assembled in the USA by RAB's IBEW Local 3 workers.

Buy American Act Compliant:

This product is a COTS item manufactured in the United States, and is compliant with the Buy American Act.

Recovery Act (ARRA) Compliant:

This product complies with the 52.225-21 "Required Use of American Iron, Steel, and Manufactured Goods-- Buy American Act-- Construction Materials (October 2010).

Trade Agreements Act Compliant:

This product is a COTS item manufactured in the United States, and is compliant with the Trade Agreements Act.

GSA Schedule:

Suitable in accordance with FAR Subpart 25.4.

Listings

UL LISTING:

Suitable for wet locations. Suitable for mounting within 1.2m (4ft) of the ground.

DLC Listed:

This product is on the Design Lights Consortium (DLC) Qualified Products List and is eligible for rebates from DLC Member Utilities.

Dark Sky Approved:

The International Dark Sky Association has approved this product as a full cutoff, fully shielded luminaire.

LED Characteristics

Lifespan:

100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations.

Color Consistency:

3-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color.

Color Stability:

LED color temperature is warrantied to shift no more than 200K in CCT over a 5 year period.

Color Uniformity:

RAB's range of CCT (Correlated color temperature) follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2015.

Construction

IP Rating:

Ingress Protection rating of IP66 for dust and water.

Finish:

Our environmentally friendly polyester powder coatings are formulated for high-durability and long-lasting color, and contains no VOC or toxic heavy metals.

Ambient Temperature:

Suitable for use in 40°C ambient temperatures.

Cold Weather Starting:

The minimum starting temperature is -40°F/-40°C.

Thermal Management:

Cast aluminum Thermal Management system for optimal heat sinking. The LPACK is designed for cool operation, most efficient output and maximum LED life by minimizing LED junction temperature.

Green Technology:

RAB LEDs are Mercury, Arsenic and UV free.

For use on LEED Buildings:

IDA Dark Sky Approval means that this fixture can be used to achieve LEED Credits for Light Pollution Reduction.

Electrical

Driver:

Multi-chip 26W high output long life LED Driver Constant Current, 720mA, Class 2, 6kV Surge Protection, 100V-277V, 50-60 Hz, 100-240V.4 Amps.

THD:

8.4% at 120V, 10.7% at 277V

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WPLED26N/PC2

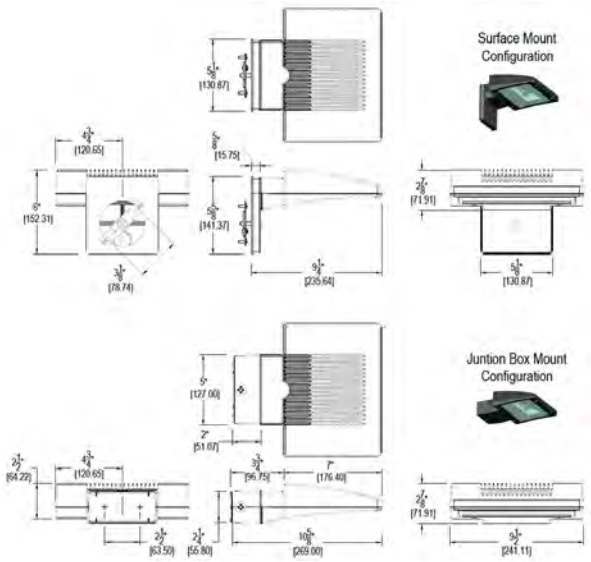
Technical Specifications (continued)

Optical

BUG Rating:

B1 U0 G0

Dimensions



Features

- High performance LED light engine
- Maintains 70% of initial lumens at 100,000 hours
- Weatherproof high temperature silicone gaskets
- Superior heat sinking with die cast aluminum housing and external fins
- 100 up to 277 Volts
- 5-year warranty

Ordering Matrix

Family	Watts	Color Temp	Sensor	Surface Plate	Finish	Photocell	Dimming
WPLED							
	26 = 26W	= Cool **Y** = Warm **N** = Neutral	= No Sensor **MS** = Mini Sensor	= No Surface Plate **S** = Surface Plate	= Bronze **W** = White	= No Photocell **/PC** = 120V Button **/PCS** = 120V Swivel **/PC2** = 277V Button	= No Dimming **/D10** = Dimmable

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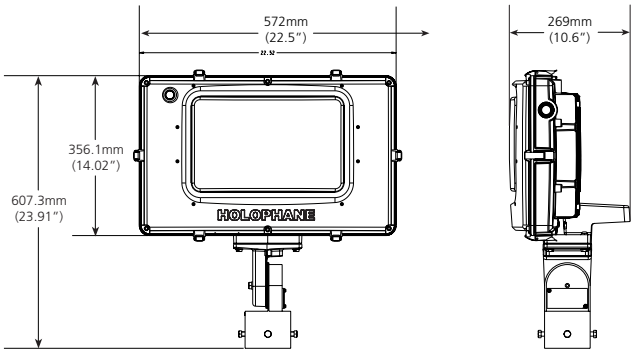
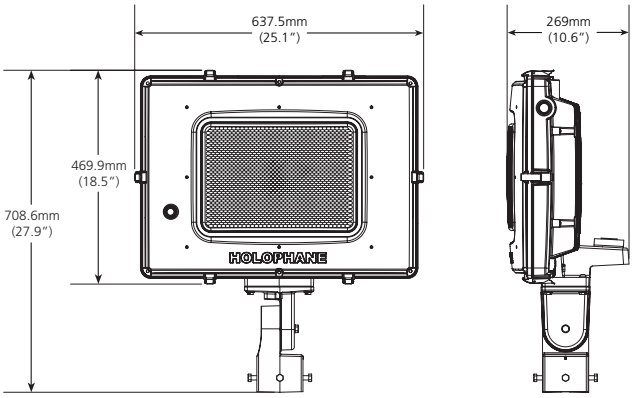
Ordering Information

Dimensional Details



PMLED
Maximum weight: 40lbs (18kg) Knuckle
Maximum weight: 47lbs (21kg) Yoke
Maximum E.P.A.: 3.1 sq. ft.



PLLED
Maximum weight: 54lbs (24kg) Knuckle
Maximum weight: 65lbs (29kg) Yoke
Maximum E.P.A.: 3.8 sq. ft.

Performance Specifications

Optical
Performance of the PMLED is to replace 400-1,000 watt MH luminaires. Performance of the PLLED is to replace 750-1000 watt HID product. The optical system utilizes state-of-the-art COB (chip-on-board) technology with 3000K, 4000K and 5000K color temperature choices and a 70 CRI minimum color temperature. The luminaire uses a highly specular internal reflector designed for superior field to beam ratios, uniformity and spacing. NEMA beam pattern choices of 4X4, 4X5, 5X5, 6X5, and 6X6 are available. Optional shielding is available to control uplight and light trespass. The optical enclosure is a borosilicate prismatic glass lens.

Electrical
Long Life: LED light engines are rated > 100,000 hours at 25C, L70. Electronic driver has a rated life of 100,000 hour at a 25C ambient. Surge protection device provides IEEE/ANSIc62.4 Category C (10kV/5kA) level of protection.

Mechanical
Rugged low copper A360 alloy die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convection cooling. The housings are painted with a super durable polyester paint finish over an epoxy primer pretreat yielding a finish that achieves a scribe creepage of 8 after 5,000 hours exposure to salt spray, providing durability and corrosion resistance.

The luminaire is available in either knuckle mount or yoke mount. The knuckle mount is adjustable and is designed to fit 2.375 inch to 2.875 inch tenons. The yoke mount is available in either galvanized steel or stainless steel. The luminaire comes standard prewired eliminating the need for opening the unit during installation. The knuckle version is pre-wired to the wiring chamber at the fitter.

The yoke mount has provision for a pre-wired cord drop to specified length in the ordering information. The luminaire comes standard with the door frame bolted to the housing. Optional tool-less stainless steel latches are available to allow easy access to LED drivers, surge protection, and terminal block. The optical enclosure is sealed and gasketed to an IP66 rating.

Controls
The NEMA three pin locking-style photocontrol receptacle and an optional five pin receptacle is available. Dimming version uses proprietary Acuity Brands components to enable continuous 0-10V dimming down to 10% output via the ROAM smart controls system (optional). Photocontrol for solid-state lighting meets ANSI C136.10 criteria

Warranty & Standards
Rated for -40C to 35C ambient
UL 1598 A wet location, UL 1598A Marine

Preferred Selections:

Most Frequently Ordered Catalog Numbers

PMLED-04-4K-07A-AS-66-1-L-ZP PMLED FV-Z

PMLED	6	5K	10A	AH	44	1	K	BP
1	6	3	4	5	6	7	8	9
Luminaire	LED Modules	Color Temp	Drive Current	Voltage	Beam Pattern	Mounting	UL Category	Color
PMLED PLLED	4 7 5 8 6 9	3K 4K 5K	10A	AS AH	44 45 55 65 66	1 3 4	K	BP GP HP WP ZP

Catalog Numbers for Entire Product Offering

(Pricing and lead times may be affected)

STEP 1: Luminaire

PMLED Predator LED Medium
PLLED Predator LED Large

STEP 2: LED Modules

4[1] 4 Modules
5[1] 5 Modules
6[1] 6 Modules
7[2] 7 Modules
8[2] 8 Modules
9[2] 9 Modules

STEP 3: Color Temp

3K 3,000K
4K 4,000K
5K 5,000K

STEP 4: Drive Current

10A 1050mA Driver

STEP 5: Voltage

AS Auto-sensing voltage (120-277V)
AH Auto-sensing voltage (347-480V)

STEP 6: Beam Pattern

44 4x4 (Prismatic glass)
45 4x5 (Prismatic glass)
55 5x5 (Prismatic glass)
65 6x5 (Prismatic glass)
66 6x6 (Prismatic glass)

STEP 7: Mounting

1 Tenon slipfitter-knuckle
3 Yoke Stainless Steel
4 Yoke galvanized

STEP 8: UL Category

K Wet locations
L[9] Marine Outside

STEP 9: Color

BP Black Super durable with epoxy primer
GP Gray Super durable with epoxy primer
HP Graphite Super durable with epoxy primer
WP White Super durable with epoxy primer
ZP Bronze Super durable with epoxy primer

*Colors are just a representation.
Custom colors are available upon request

STEP 10: Cord Length Option

04 4′ cord length
05 5′ cord length
06 6′ cord length
08 8′ cord length
10 10′ cord length
12 12′ cord length
15 15′ cord length
20 20′ cord length
25 25′ cord length
30 30′ cord length

STEP 11: Cord Type

63 16 gage, 3 conductor
43 14 gage, 3 conductor
23 12 gage, 3 conductor

STEP 12: Options

DM[4] 0V-10V Dimmable driver
F1[9] Single fusing
F2[9] Double fusing
NL NEMA label
PCL1[3] DLL 120V-277V Photocontrol
PCL3[3] DLL 347V Photocontrol
PCL4[3] DLL 480V Photocontrol
PCSS[3] DSS 120-277V Photocontrol
P3[4] ANSI standard locking style receptacle that accepts 3 pin controls for on/off operation

STEP 12: Options (Continued)

P5[5,9] ANSI standard locking style 5-pin receptacle
P7[5,9] ANSI standard locking style 7-pin receptacle
SH[3] Shorting cap
TL Tool-less entry with latches

STEP 12: Accessories

PMLED FV-XX Full visor super durable paint with epoxy primer
PMLED UBV-XX Upper/bottom visor super durable paint with epoxy primer
PMLED VG Vandal guard
PMLED WG Wire guard
08657-XX[6] Yoke to 2.375″ OD tenon adaptor, super durable paint with epoxy primer
08775-XX[6] Yoke to 2.375″ OD tenon adaptor with photocontrol receptacle, super durable paint with epoxy primer

1. Available with PMLED only
2. Available with PLLED only
3. Must be used with P3 or P5
5. Not available with P5 option
4. Not available with P3 option
5. Available with mounting 3 and 4 only
7. PMLED Not Available with PMLEDF1, PMLEDF2
8. PMLED Not Available with TB option
9. Accepts 3-pin and 5-pin as well. The 5-pin controls fixture dimming.

Operating Characteristics

The Predator LED is a direct replacement for installed high intensity discharge (HID) flood lights. The chart below gives general guidance on replacement of the Predator LED to HID luminaires.

Replacement	HID Wattage CWA Type	Modules	Lumens	LED Wattage	LPW	Savings
PLLED 1000 HPS	1100	9 COB/10A	48,000	391	123	64%
PMLED 1000 MH	1070	6 COB/10A	32,000	261	123	75%
PMLED 750 MH	820	6 COB/10A	32,000	261	123	68%
PMLED 400 HPS	464	4 COB/10A	22,000	177	123	61%

PRECISION PARAGON
EFFICIENCY. ECONOMY. SUSTAINABILITY.

LLW

LED Low Profile Wrap

Product Information

Project Name	Type
Catalog Number	Date

SPECIFICATIONS

Features

- This handy wrap is an excellent choice for hallways, closets, utility rooms, back-of-house locations and low ceiling areas.
- Diffuser features flat bottom, vertical sides and interior overlay providing uniformity without pixilation.
- Surface mount or stem suspended.
- Choice of two lumen packages and dimming option available.
- Long-life, LEDs at L70 (70% lumen maintenance) at 50,000 hours to reduce life cycle maintenance costs.
- Optional emergency battery backup for safety lighting.
- Available in 2' and 4' lengths.
- Up to 100 lumens per watt.
- Color Rendering Index (CRI) > 80.

Construction

- Heavy gauge steel housing, die embossed for maximum rigidity
- Prismatic acrylic diffuser with overlay hinges from either side
- Certain airborne contaminants can diminish integrity of acrylic. Contact factory for chemical compatibility.
- LED boards and driver accessible for future maintenance or upgrades
- Weight: 1x2 - 5 lbs. 1x4 - 10 lbs.

Electrical

- Input Voltage Range: 120-277 VAC Nom.
- Frequency: 50/60 Hz Nom.
- Active Power Factor Correction
- Power Factor: >0.90 @ full load, 120V through 277V
- Harmonic Distortion: THD < 20% @ full load
- Protection: Over-Voltage, Over-Temperature (110º) & Short Circuit
- Compliant to FCC Part 15 requirements for EMI/RFI emissions
- NEC/CEC compliant ballast disconnect is standard.
- Optional emergency battery pack

Certifications

- CSA listed for Canada and U.S. Tested to UL 1598 & UL 8750 standards.
- Luminaires bear appropriate listing labels.
- Emergency-equipped fixtures labeled UL 924.
- Adheres to LM79, LM80 and TM21 industry standards.
- DesignLights Consortium® (DLC) qualified.
- Please refer to the DLC website for specific product qualifications at www.designlights.org.

Application

- Suitable for use with most wired or wireless lighting control systems
- Suitable for dry & damp locations:
  - Government buildings
  - Commercial areas
  - Task lighting
  - Retail
  - Schools
  - Hallways
  - Closets

Warranty

- Five-year warranty. (Terms and Conditions Apply)

CERTIFICATION

C SA US DLC

ORDERING INFORMATION

EXAMPLE **LLW4-35ML-EU**

LLW – – **U** –

MODEL
- **LLW** LED Low Profile Wrap

SIZE
- **2** 1x2 Nominal
- **4** 1x4 Nominal

COLOR TEMP
- **35** 3500K
- **40** 4000K

LUMEN OUTPUT
- **LW** Low
- **ML** Medium

DRIVER OUTPUT
- **E** Fixed
- **ESD** Bi-Level[1]
- **ED** 0-10V Dimming[2]

DRIVER VOLTAGE
- **U** Universal 120/277 VAC

OPTIONS
- **ELL14** Emergency Battery Backup[3]

MOUNTING ACCESSORIES (ORDER SEPARATELY)
- **S18** 18" Stem

FOOTNOTES

[1] Bi-Level driver must be controlled by sensor or A/B switching.
[2] Must be used in conjunction with lighting controls.
[3] Only available in 4 ft.

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PHOTOMETRIC DATA

PHOTOMETRIC DATA: LLW2-40LW-EU

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP certified lab.

Test: ITL79146
Test Date: 09/23/13

LUMINAIRE DATA

Luminaire	**LLW2-40LW-EU** **LED Low Profile Wrap**
Ballast	**D150CQ25UNVA-A**
Ballast Factor	**1.00**
Lamp	**LED**
Fixture Lumens	**2455**
Watts	**25**
Mounting	**Surface**
Shielding Angle	**N.A.**
Spacing Criterion	**0° = 1.19 90° = 1.09**
Luminous Opening in feet	**Length: 1.99** **Width: 0.67** **Height: 0.14**

AVG. LUMINANCE (Candela/Sq. M.)

Average Luminance Angle	0.0	22.5	45.0	67.5	90.0
0	8727	8727	8727	8727	8727
30	7785	7381	6945	6543	6414
40	6827	6305	5641	5062	4932
45	6037	5534	4834	4361	4250
50	5099	4616	4006	3722	3690
55	4170	3685	3239	3202	3198
60	3397	2930	2587	2794	2786
65	2656	2434	2174	2505	2440
70	2077	2161	1989	2325	2234
75	1754	1963	1939	2227	2138
80	1595	1837	1930	2213	2170
85	1284	1639	1877	2188	2242

ZONAL LUMEN SUMMARY

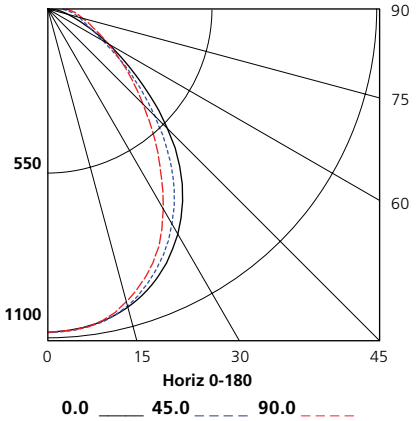
Zone	Lumens	%Lamp	%Fixt
0-30	808	33	33
0-40	1262	51	51
0-60	1931	79	79
0-90	2289	93	93

COEFFICIENTS OF UTILIZATION (%)

RCR	RC	80				70				50			0
	RW	70	50	30	10	70	50	30	10	50	30	10	0
	0	117	117	117	117	114	114	114	114	107	107	107	93
	1	109	103	99	96	104	100	97	94	95	92	89	79
	2	99	92	85	80	96	89	83	79	85	80	76	68
	3	91	82	74	68	88	80	73	67	76	70	65	59
	4	84	73	65	59	81	71	64	58	68	62	57	52
	5	78	66	58	52	75	65	57	51	62	55	50	46
	6	72	60	52	46	70	59	51	45	56	50	44	41
	7	67	55	47	41	65	54	46	41	52	45	40	36
	8	63	50	42	37	61	49	42	37	48	41	36	33
	9	59	46	39	34	57	46	38	33	44	37	33	30
	10	56	43	36	31	54	42	35	30	41	34	30	27

RCR = Room Cavity Ratio **RC** = Effective Ceiling Cavity Reflectance **RW** = Wall Reflectance

INDOOR CANDELA PLOT



PHOTOMETRIC DATA

PHOTOMETRIC DATA: LLW4-35ML-EU

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP certified lab.

Test: ITL79148
Test Date: 09/23/13

LUMINAIRE DATA

Luminaire	**LLW4-35ML-EU** **LED Low Profile Wrap**
Ballast	**D310CQ50UNVA-A**
Ballast Factor	**1.00**
Lamp	**LED**
Fixture Lumens	**4693**
Watts	**52**
Mounting	**Surface**
Shielding Angle	**0° = 90 90° = 90**
Spacing Criterion	**0° = 1.19 90° = 1.10**
Luminous Opening in feet	**Length: 3.99** **Width: 0.67** **Height: 0.14**

AVG. LUMINANCE (Candela/Sq. M.)

Average Luminance Angle	0.0	22.5	45.0	67.5	90.0
0	8335	8335	8335	8335	8335
30	7587	7112	6697	6348	6203
40	6714	6148	5583	5031	4812
45	5897	5411	4827	4295	4098
50	4870	4480	3949	3635	3481
55	3924	3563	3148	3090	3011
60	3181	2858	2486	2669	2625
65	2392	2434	2079	2390	2283
70	1825	2204	1941	2223	2079
75	1678	2071	1921	2144	2002
80	1721	2011	1934	2147	2016
85	1616	1860	1943	2145	2086

ZONAL LUMEN SUMMARY

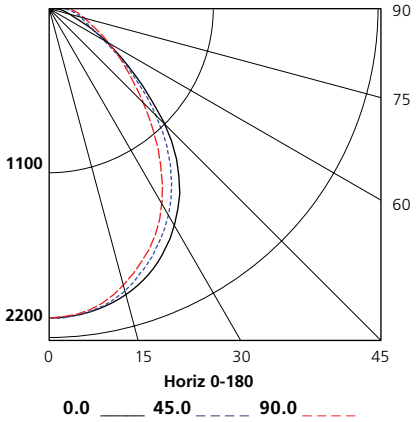
Zone	Lumens	%Lamp	%Fixt
0-30	1538	33	33
0-40	2414	51	51
0-60	3690	79	79
0-90	4359	93	93

COEFFICIENTS OF UTILIZATION (%)

RCR	RC	80				70				50			0
	RW	70	50	30	10	70	50	30	10	50	30	10	0
	0	117	117	117	117	114	114	114	114	107	107	107	93
	1	109	103	99	96	104	100	97	94	95	92	89	79
	2	99	92	85	80	96	89	83	79	85	80	76	68
	3	91	82	74	68	88	80	73	67	76	70	65	59
	4	84	73	65	59	81	71	64	58	68	62	57	52
	5	78	66	58	52	75	65	57	51	62	55	50	46
	6	72	60	52	46	70	59	51	45	56	50	44	41
	7	67	55	47	41	65	54	46	41	52	45	40	36
	8	63	50	42	37	61	49	42	37	48	41	36	33
	9	59	46	39	34	57	46	38	33	44	37	33	30
	10	56	43	36	31	54	42	35	30	41	34	30	27

RCR = Room Cavity Ratio **RC** = Effective Ceiling Cavity Reflectance **RW** = Wall Reflectance

INDOOR CANDELA PLOT



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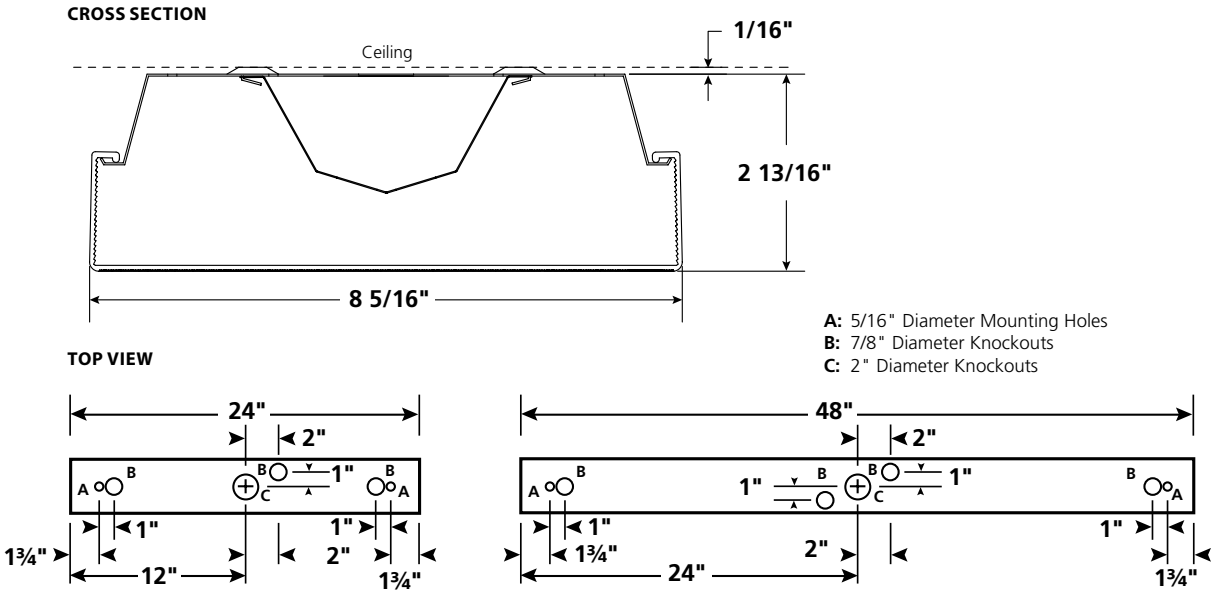
FIXTURE DIMENSIONS



*Drawings N.T.S.

LUMEN PACKAGE OPTIONS

		3500K DETAILS				4000K DETAILS			
Proposed System	CRI	CCT	Lumens Per Fixture	Input Watts	Lumens Per Watt	CCT	Lumens Per Fixture	Input Watts	Lumens Per Watt
LLW2-LW	>80	3500K	2367	25	96	4000K	2453	25	100
LLW2-ML	>80	3500K	4648	51	91	4000K	4739	52	91
LLW4-LW	>80	3500K	2409	25	98	4000K	2459	25	98
LLW4-ML	>80	3500K	4689	52	91	4000K	4873	52	94

*Lumen values shown are initial delivered lumens tested at 25°C per IES LM-79 standards.

OPERATING ENVIRONMENT

Proposed System	Min Temp	Max Temp
LLW-2-LW	-30°C/-22°F	40°C/104°F
LLW-2-ML	-30°C/-22°F	40°C/104°F
LLW-4-LW	-30°C/-22°F	40°C/104°F
LLW-4-ML	-30°C/-22°F	40°C/104°F

Application Notes

1. Application temperatures are provided to ensure the longevity and performance of the driver and LEDs.
2. Results are based off the In-Situ Temperature Measurement Test (ISTMT) along with the drivers' temperature and life curves.
3. Optional emergency battery equipped units have a minimum temperature of 10°C.
4. Precision-Paragon [P2]'s 5 year warranty assumes operation at the maximum ambient temperature range.

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PKG-304-SL-DM

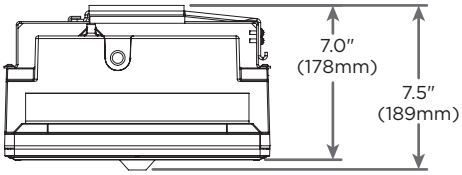
304 Series™ Parking Structure Luminaire – Sparkle Petroleum – Direct Mount

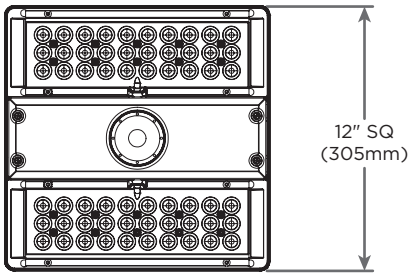
Product Description

Slim, low profile design. Lumianire is constructed from rugged die cast and extruded aluminum components. LED driver is mounted in a sealed weathertight center chamber that allows for access from below the luminaire. High performance aluminum heat sinks specifically designed for LED parking structure application. Mounting brackets designed to mount directly over exisiting single gang and octagonal junction boxes for direct mount.

Performance Summary

- Utilizes BetaLED® Technology
- Patented NanoOptic® Product Technology
- Made in the U.S.A. of U.S. and imported parts
- **CRI:** Minimum 70 CRI
- **CCT:** 5700K (+ / - 500K) Standard, 4000K (+ / - 300K)
- **Limited Warranty†:** 10 years on luminaire / 10 years on Colorfast DeltaGuard® finish





Ordering Information

Example: PKG-304-SL-DM-04-E-UL-SV-350-OPTIONS

PKG-304	SL	DM		E				
Product	**Optic**	**Mounting**	**LED Count (x10)**	**Series**	**Voltage**	**Color Options**	**Drive Current**	**Options**
PKG-304	**SL** Sparkle Petroleum	**DM** Direct Mount	**04** **06**	**E**	**UL** Universal 120–277V **UH** Universal 347–480V	**SV** Silver (Standard) **WH** White **BK** Black **BZ** Bronze **PB** Platinum Bronze	**700** 700mA (Standard) **525** 525mA **350** 350mA	**40K 4000K Color Temperature** - Color temperature per fixture **DIM 0–10V Dimming** - Control by others - Refer to dimming spec sheet for availability and additional information - Can't exceed specified drive current **F Fuse** - When code dictates fusing use time delay fuse - Not available with all multi-level options. Refer to multi-level spec sheet for availability and additional information **ML Multi-Level** - Refer to multi-level spec sheet for availability and additional information **J Alternate Junction Box mounting**

† See www.cree.com/lighting/products/warranty for warranty terms

Product Specifications

CONSTRUCTION & MATERIALS

- Slim, low profile design
- Constructed from rugged die cast and extruded aluminum components
- LED driver is mounted is a sealed weathertight center chamber that allows for access from below the luminaire
- High performance heat sinks specifically designed for LED parking structure application
- Mounting bracket is designed to mount directly over existing single gang and octagonal junction boxes for direct mount
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Standard is silver. Bronze, black, white, and platinum bronze are also available

ELECTRICAL SYSTEM

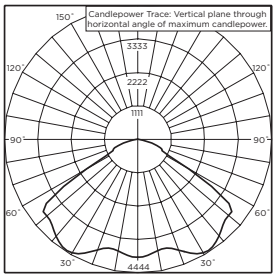
- **Input Voltage:** 120–277V or 347–480V, 50 / 60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV surge suppression protection standard
- To address inrush current, slow blow fuse or type C / D breaker should be used

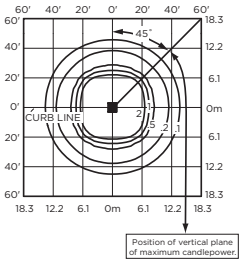
REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529
- Consult factory for CE Certified products
- 10kV surge suppression protection tested in accordance with IEEE / ANSI C62.41.2
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Pending product qualification on the DesignLights Consortium ("DLC") Qualified Products List ("QPL")
- RoHS Compliant
- Meets Buy American requirements within ARRA

Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP certified laboratory.





ITL Test Report #: 77415
CAN-304-SL-**-06-E-UL-700-40K
Initial Delivered Lumens: 12,707

PKG-304-SL-**-06-E-UL-700-40K
Mounting Height: 15′ (4.6m)
Initial Delivered Lumens: 12,760
Initial FC at grade

IES Files
To obtain an IES file specific to your project consult:
http://www.cree.com/lighting/tools-and-support/exterior-ies-configuration-tool

Lumen Output, Electrical, and Lumen Maintenance Data

Sparkle Petroleum Distribution												
LED Count (x10)	5700K		4000K		System Watts 120–480V	TOTAL CURRENT						50K Hours Projected Lumen Maintenance Factor*** @ 15˚C (59˚F)
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11		120V	208V	240V	277V	347V	480V	
350mA @ 25˚C (77˚F)												
04	5,243	B2 U0 G1	5,048	B2 U0 G1	46	0.39	0.24	0.22	0.21	0.15	0.12	94%
06	7,803	B3 U0 G1	7,514	B3 U0 G1	69	0.57	0.34	0.30	0.27	0.21	0.16	
525mA @ 25˚C (77˚F)												
04	7,340	B2 U0 G1	7,068	B2 U0 G1	71	0.59	0.35	0.31	0.28	0.21	0.16	93%
06	10,924	B3 U0 G1	10,519	B3 U0 G1	101	0.84	0.49	0.43	0.38	0.30	0.22	
700mA @ 25˚C (77˚F)												
04	8,912	B3 U0 G1	8,582	B3 U0 G1	94	0.79	0.46	0.40	0.36	0.28	0.21	91%
06	13,264	B3 U0 G1	12,773	B3 U0 G1	135	1.14	0.65	0.57	0.50	0.40	0.29	

* Actual production yield may vary between -4 and +10% of initial delivered lumens.
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit www.iesna.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf.
*** For recommended lumen maintenance factor data see TD-13. Calculated L70 based on 6,000 hours LM-80-08 testing: > 150,000 hours.

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PRECISION P2 PARAGON
EFFICIENCY, ECONOMY, SUSTAINABILITY.

www.P-2.com

(714) 386-5550 CA
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(352) 692-5900 FL

VTL - LED Vaportight

Same Classic Housing, New Technology

- The VTL uses the latest in solid state technology
- Proven IP65 rated housing platform
- Efficacy between 97 and 101 Lumens/Watt depending on model
- Reported L70 over 51,000 Hours Calculated at 65,000 hours via TM-21

Suitable for a variety of applications

- Outdoor Canopies…
- Wet Locations…
- Parking Garages
- Industrial Areas…
- Commercial Areas…

Why P2? With 18 CLMC's our staff has the expertise you need to make your project a success.

- Lean on our industry experts to provide you with application support and help to specify the right product for your project.
- We've assembled our team from all areas of the lighting industry; from installation, project and energy management to manufacturing and distribution. If you have a challenge, chances are we've been there too and can guide you to a solution.

VTL - LED Vapor Tight

Application

VTL – 1x8 – ML – BL – UL – 40K – C8 – WH – LSP

VTL	1x8	ML	BL	UL	40K	C8	WH	LSP
Model	Fixt Size	Lumen Output	Driver Output	Voltage	Color Temp.	Cord Plug	Occ Sensor	Other

Fixture Series
VTL = LED Vaportight

Fixture Size
1x4 = 1x4 Nominal
1x8 = 1x8 Nominal

Lumen Output
XL = Extra Low Wattage, 31W
LW = Low Wattage, High Efficiency, 51W
ML = Medium Lumen Output, 74W
HL = High Lumen Output, 96W

Notes
(1) Must be ordered in conjunction with lighting controls. Contact factory for asistance.
(2) Bi-Level driver must be controlled by sensor or A/B switching
(3) Bracket standard with all fixtures.

Driver Output
F = Fixed Output
DM = 0-10V Dimming (1)
BL = Bi-Level (2)

Voltage
UL = Universal 120-277

Color Temperature
40K = 4000K
50K = 5000K

Cord & Plug
C8 = 8' Cord, No Plug
C8/L715 = 8' Cord & Plug (L7-15P)
PQC15 = 15' Cord/Quick Connect

Occupancy Sensor
WH = Wet Location 360 View Hi-Bay Sensor
WL = Wet Location 360 View Lo-Bay Sensor

Other Options
VSB = VTL Surface/Hanging Bracket (3)
VAB = VTL Angled Bracket
SSL = Stainless Steel Latches
LSP = Lighting Surge Protector (270 Joules)

5 YR Warranty | RoHS | 40°C Max | -40°C Min | Damp Location | DLC Pending | Lighting Facts Pending

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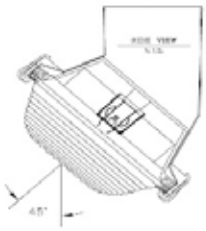
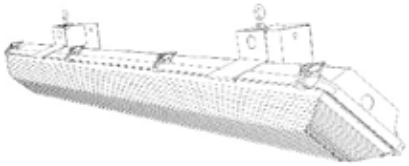
Fixture Construction

- Impact Resistant Fiberglass housing.
- Aluminum Gear Tray
- Frosted Linear Ribbed Diffuser
- Poured in place gasket.
- Class 2 Driver

VTL Mounted to 45° Mounting Brackets

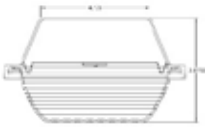




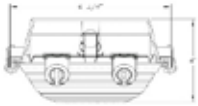
VTL Eye-Bolt Mounting with 45° Bracket
(Order Separately)

Want Fluorescent?

Consider our fluorescent VTG with long life lamps and PS ballast.



VTL VTG



Existing System

Existing Lamp / Ballast System	Lamp Quantity & Type		Mean Lumens Per Lamp	Mean Lumens Per Fixture	Ballast Factor	Approx. Fixture Efficiency	Delivered Lumens Per Fixture	Input Watts	Delivered Lumens Per Watt
2L40-T12 Mag	2	F40/T12/WM	2,280	4,560	0.88	0.75	3,010	72	42
1L96-T12 Mag	1	F96/T12/ES	4,750	4,750	0.88	0.75	3,135	76	41
2L96-T12 Mag	2	F96/T12/ES	4,750	9,500	0.88	0.75	6,270	126	50
1L96-T12HO Mag	1	F96/T12HO/ES	6,950	6,950	0.95	0.75	4,952	125	40
2L96-T12HO Mag	2	F96/T12HO/ES	6,950	13,900	0.93	0.75	9,695	210	46
2L32-T8-MP Elec	2	F32T8/841	2,800	5,600	0.87	0.75	3,654	53	69
2L32T8-HP Elec	2	F32T8/841	2,800	5,600	1.15	0.75	4,830	73	66

Re-Lighting Options

Proposed System	Light Source Quantity & Type		CRI	CCT	Driver Factor	Approx. Fixture Efficiency	Delivered Lumens Per Fixture	Input Watts	Delivered Lumens Per Watt
VTL-1X4-XL	1	1X4 XL Engine	>80	4000K	1.00	1.00	3,100	31	100
VTL-1X4-LW	1	1X4 LW Engine	>80	4000K	1.00	1.00	5,274	51	103
VTL-1X4-ML	1	1X4 ML Engine	>80	4000K	1.00	1.00	7,474	74	101
VTL-1X4-HL	1	1X4 HL Engine	>80	4000K	1.00	1.00	9,351	96	97
VTL-1X8-XL	1	1X8 XL Engine	>80	4000K	1.00	1.00	6,200	62	100
VTL-1X8-LW	1	1X8 LW Engine	>80	4000K	1.00	1.00	10,548	102	103
VTL-1X8-ML	1	1X8 ML Engine	>80	4000K	1.00	1.00	14,948	148	101
VTL-1X8-HL	1	1X8 HL Engine	>80	4000K	1.00	1.00	18,702	192	97

General Notes

- Lamp/ballast system values shown are a general reference intended to supply a quick comparison of several common lamp/ ballast systems, the associated energy consumption, and net lumen output.
- Values shown are based on normal operating temperatures and at 277 volts.
- There are many operating variables that affect system output, in addition to rating variances from brand to brand.
- All T8 electronic ballast values shown are based on Ultra Efficient (aka 3rd Generation) T8 ballasts.
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- In addition to those shown there are a wide variety of systems to choose from, each with distinct features and cost points.
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5 YR Warranty | RoHS | 40°C Max | -40°C Min | Damp Location | DLC Pending | Pending

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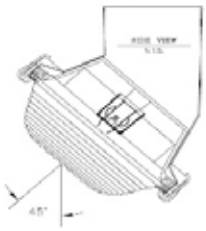

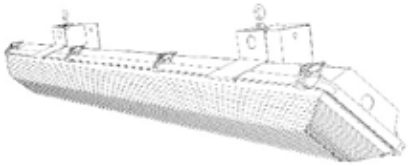

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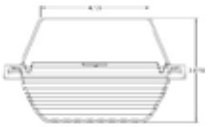
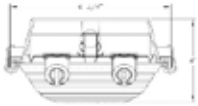


VTL VTG



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HDOT Phase 1

LIH – Lihue Airport
Solar Lighting Upgrades

Materials Cut Sheets

Prepared by

Johnson Controls Lighting Services

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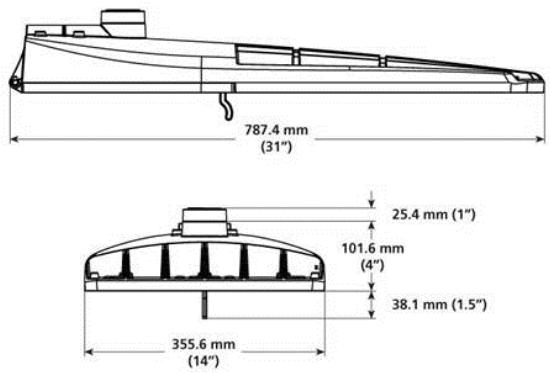
LIHUE AIRPORT - SOLAR	
PART NUMBER	**DESCRIPTION**
ATB2 40BLEDE70 120 R2 GY NR DCDRIVER & EG-340	Holophane Roadway LED luminaire, 120 volts, gray, Type II optics, 40B chips; w/ EG-340 Off Grid Solar LED
ATB2 40BLEDE70 120 R4 GY NR DCDRIVER & EG-340	Holophane Roadway LED luminaire, 120 volts, gray, Type IV optics, 40B chips; w/ EG-340 Off Grid Solar LED
ATB2 40BLEDE70 120 R5 GY NR DCDRIVER & EG-340	Holophane Roadway LED luminaire, 120 volts, gray, Type V optics, 40B chips; w/ EG-340 Off Grid Solar LED

PRODUCT OVERVIEW

Applications:

Roadways
Off ramps
Residental streets
Parking lots

DIMENSIONS



Effective Projected Area (EPA): The EPA for the ATB2 is .78 sq. ft.
Approx. Wt. = 21 lbs.

Features:

OPTICAL

Same Light: Performance is comparable to 200-400W HPS roadway luminaires.

White Light: Correlated color temperature - standard 4000K, 70 CRI minimum or optional 5000K, 65 CRI minimum.

Unique IP66 rated LED light engines provided 0% uplight and restrict backlight to within sidewalk depth, providing optimal application coverage and optimal pole spacing.

Available in Type II, III, IV, & V roadway distributions.

ELECTRICAL

Expected Life: LED light engines are rated >100,000 hours at 25°C, L70. Electronic driver has an expected life of 100,000 hours at a 20°C ambient.

Lower Energy: Saves an average of 40-50% over comparable HPS platforms.

Robust Surge Protection: Acuity's proprietary SPD provides IEEE/ANSI C62.41 Category C (10kV/5kA) level of protection.

MECHANICAL

Easy to Maintain: Includes standard AEL lineman-friendly features such as tool-less entry, tool-less NEMA photocontrol receptacle, terminal block and quick disconnects. Bubble level located inside the electrical compartment for easy leveling at installation.

Rugged die-cast aluminum housing is polyester powder-coated for durability and corrosion resistance. Rigorous five-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 8 (per ASTM D1654) after over 1000 hours exposure to salt fog chamber (operated per ASTM B117) Optional Enhanced Corrosion Resistant finish (CR) increases the salt spray exposure to 5000 hours.

Four-bolt mast arm mount is adjustable for arms from 1-1/4" to 2" (1-5/8" to 2-3/8" O.D.) diameter and provides a 3G vibration rating per ANSI C136.

Wildlife shield is cast into the housing (not a separate piece).

Die-cast trigger latch on doorframe allows for tool-less entry and enables easy and secure opening with one hand.

CONTROLS

NEMA photocontrol receptacle is standard; tool-less "lift and turn" receptacle.

Dimming version (available with DE and VE option) uses proprietary Acuity Brands components to enable continuous 0-10V dimming down to 10% output via the ROAM® smart controls system (sold separately).

Photocontrol for solid-state lighting (available with PCSS option) meets ANSI C136.10 criteria.

WARRANTY & STANDARDS

5 year limited warranty. Full warranty terms located at http://www.acuitybrands.com/Libraries/Terms_and_Conds/ABL_LED_Commerical_Outdoor.sflb.ashx

Rated for -40°C to 40°C ambient.

CSA Certified to U.S. and Canadian standards

Complies with ANSI: C136.2, C136.10, C136.14, C136.31, C136.15, C136.37

Note: Specifications subject to change without notice. Acutal performance may differ as a result of end-user environment and application.

Autobahn Series ATB2

Roadway Lighting

ORDERING INFORMATION

Example: ATB2 40BLEDE70 MVOLT R2

Series

ATB2	Autobahn LED Roadway, Large

Performance Packages

40BLEDE53	40B Chips, 525 mA Driver
40BLEDE70	40B Chips, 700 mA Driver
40BLEDE10	40B Chips, 1000 mA Driver
60BLEDE53	60B Chips, 525 mA Driver
60BLEDE70	60B Chips, 700 mA Driver
60BLEDE10	60B Chips, 1000 mA Driver
80BLEDE53	80B Chips, 525 mA Driver
80BLEDE70	80B Chips, 700 mA Driver
80BLEDE10	80B Chips, 1000 mA Driver

Voltage

120	120V
MVOLT	Multi-volt, 120-277V
347	347V
480	480V

Optics

R2	Roadway Type II
R3	Roadway Type III
R4	Roadway Type IV
R5	Roadway Type V

Options

Color Temperature (CCT)

(blank)	4000K (standard)
5K	5000K

Mounting

(blank)	4-bolt Internal (standard)

Paint

(blank)	Gray (standard)
GI	Graphite
BK	Black
BZ	Bronze
DDB	Dark Bronze
WH	White
UP	Unpainted

Terminal Block

(blank)	Terminal Block (standard)
T2	Wired to L1 and L2 Position

Misc.

HS	House-Side Shield
BL	External Bubble
CR	Enhanced Corrosion Resistant Finish
NL	Nema Label

Controls

(blank)	NEMA Photocontrol Receptacle (standard)
NR	No Photocontrol Receptacle
PCSS	Solid State Lighting Photocontrol (120-277V)
SH	Shorting Cap
DE [1]	ROAM CONCIERGE Dimming Control (Not CSA certified at 347 and 480 volts)
VE [1]	ROAMVIEW Dimming control (Not CSA certified at 347 and 480 volts)
DM	DM 0V - 10V dimmable driver (controls provided by others)

Notes:

1 Specifies a ROAM dimming enabled fixture with a dimming control module factory installed. NEMA photocontrol receptacle required. Addtional hardware and services required ROAM deployment must be purchased seperately

Note: Specifications subject to change without notice. Acutal performance may differ as a result of end-user environment and application.

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American Electric Lighting
Acuity Brands Lighting, Inc.
3825 Columbus Rd, S.w.,Granville, OH 43023
Phone: 800-537-5710 Fax: 740-587-6114
www.americanelectriclighting.com

DESIGN DATA

Performance Package	Drive Current (mA)	Input Watts	Optic	4000K CCT	
				Delivered Lumens	Efficacy (LPW)
40B	525	69	R2	6680	97
	700	91		8772	96
	1000	140		11133	80
	525	69	R3	6803	99
	700	91		8972	98
	1000	140		12287	88
	525	69	R4	7034	102
	700	91		8888	98
	1000	140		11678	83
	525	69	R5	7062	102
	700	91		8918	98
	1000	140		11620	83
60B	525	100	R2	10014	100
	700	135		12790	95
	1000	213		17009	80
	525	100	R3	10260	103
	700	135		12950	96
	1000	213		17360	82
	525	100	R4	10407	104
	700	135		13156	97
	1000	213		17758	83
	525	100	R5	10000	100
	700	135		12825	95
	1000	213		17679	83
80B	525	137	R2	13145	96
	700	183		16504	90
	1000	280		22503	80
	525	137	R3	13302	97
	700	183		16778	92
	1000	280		22842	82
	525	137	R4	13757	100
	700	183		17290	94
	1000	280		23148	83
	525	137	R5	13152	96
	700	183		16470	90
	1000	280		23240	83

Note: Specifications subject to change without notice. Acutal performance may differ as a result of end-user environment and application.

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carmanah®
we put solar to work

EG300 SERIES

OFF-GRID SOLAR LED LIGHTING

Carmanah EG300-Series Off-Grid Solar LED Lighting System

The EG300 is ideal for …

Highways and public roadways, parking lots, perimeter lighting and many other general lighting applications

New facilities where:

- Access to the electrical grid requires extensive trenching
- Grid connection is dif cult or impossible
- Underground checks and/or permits are costly

Existing facilities where:

- Access to the electrical grid requires extensive trenching or environmental disruption
- Disruption of site will result in loss of business
- Underground wiring / conduit is nearing end of life
- Copper theft and vandalism is a concern

The Carmanah Difference:

- Reduced project cost when compared to other solar LED lighting systems: a result of superior uniformity and lumen output
- Adaptive lighting allows user to determine how light is applied
- Pole-top integrated design for easy installation and theft prevention
- Recyclable batteries & components
- Reliable, year-round performance

Capabilities:

- BetaLED™ LEDway™
-
-
- Standard IES distributions (Type II, III, IV, V)
- 6000K and 4300K colour temperature options
- CIE 1

BetaLED™ Fixtures

Carmanah solar lighting systems to illuminate a given area with

savings in overall project cost.

Adaptive Lighting

Adaptive lighting allows for different light levels during the course of the night, based on vehicle and pedestrian activity. A choice

f

completely when facility usage is reduced.

By dimming or turning the system off when light is not needed energy is conserved and light levels during peak hours are maximized. This allows for brighter illumination, smaller system size and lower system cost.

Energy Management System

The Energy Management System (EMS) is a critical part of the EG300 system providing bright, reliable light output and healthy, high-functioning lighting systems for years of autonomous operation.

The EMS provides:

-
-
- Smaller sized systems with greater lumen output

REPRESENTED IN YOUR REGION BY:

Carmanah Technologies Corp. • Web: carmanah.com • Email: info@carmanah.com • Telephone: 1.250.380.0052 • Fax: 1.250.380.0062 •

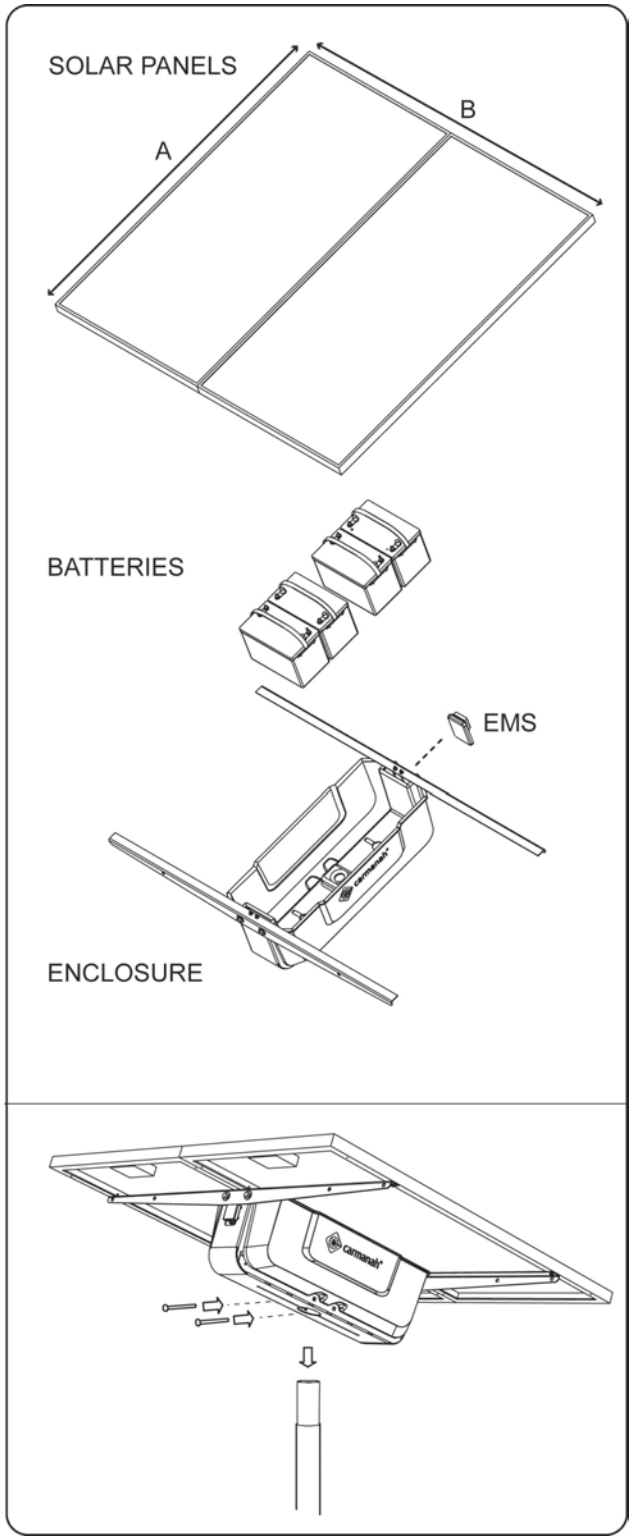
EG300 SERIES

OFF-GRID SOLAR LED LIGHTING

SOLAR ENGINE	EG320	EG340
EPA*	0.69 m² (7.45 ft²)	1.32 m² (14.17 ft²)
APA	0.53 m² (5.73 ft²)	1.01 m² (10.90 ft²)
Weight (without batteries)	39 kg (85 lb)	59 kg (130 lb)
Weight (with batteries)	95 kg (210 lb)	175 kg (385 lb)
Dimension A	157.5 cm (62 in)	157.5 cm (62 in)
Dimension B	82.6 cm (32.5 in)	165.2 cm (65 in)
Watts	>170	>340
BATTERIES		
Type	2 x group 27 absorbent glass mat (AGM)	4 x group 27 absorbent glass mat (AGM)
Rating	4,000 cycles to 20% depth of discharge at 20° C (68° F)	
FIXTURE		
LEDway™	20 – 120 LEDs single x. 20 – 60 LEDs/ x. dual x.	
MOUNTING		
Solar Engine	Top of pole, round tenon 8.9 cm (3.5 in) OD X 15.2 cm (6.0 in) long	
LEDway™	Horizontal tenon 4.25 cm (1.675 in) or 6 cm (2.375 in) OD	
Wind Load Rating	250 kph (155 mph)**	
ENERGY MANAGEMENT SYSTEM (EMS)		
Optional Operating Pro les	Dusk-to-Dawn Fixed Night, 6hr Fixed Night, 8hr	
	Split Night 5hr, 25%, 2hr Split Night 5hr, 25%, 4hr Split Night 7hr, 25%, 2hr Split Night 7hr, 25%, 4hr	
Day/night transitioning	Via solar panels	
Status Indicators	Day/night transition, battery connection, low/high voltage disconnect	
PHOTOMETRICS		
Fixture Ef cacy	Up to 85 lumens/watt	
IES Light Distributions	Type II, Type III, Type IV, Type V, (backlight control available)	
Other	International Dark-Sky Association (IDA) approved, measured for performance using IESNA standards including IES BUG rating system	
Photometry	Certi ed photometry per IESNA LM-79-2008 & LM-80-2008	
Typical Applications	Streets, roadways, parking lots, general site lighting	
Photometric performance depends on the solar environment of location and speci ed operating pro le. Contact a Carmanah representative for exact lumen output and speci cations for your application.		
CLASSIFICATIONS		
CIE	M4 -M6	M2 - M4
Mexico	Secondary residential Type A roadways or lower	Primary and collector ways or higher
Brazil	A3, B, C1 – C3 (L, M)	A3, B, C1 – C3 (L, M, I)
Chile	M4 – M5, P3 – P6, C4 – C5	M2 – M4, P1 – P3, C2 – C4
Colombia	M4 - M5	M2 - M4
Peru	III - V	II - III
Venezuela	E	C-D
CERTIFICATIONS		
CE 2004-108-CE, EN 55015, EN 61547 for emissions and immunity		

* Effective Projected Area (EPA) calculated as the Actual Projected Area (APA) muliplied by a A A.

** 3 second gust as per AASHTO 2001



HDOT Phase 1

LIH – Lihue Airport
Exterior Lighting Upgrades

Materials Cut Sheets

Prepared by

Johnson Controls Lighting Services

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GE Lighting

72866 - F28T8/XLSPX41ECO

GE Ecolux® UltraMax™ Starcoat® T8

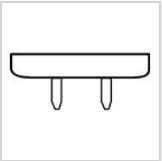
• Passes TCLP, which can lower disposal costs.

High Color Rendering
Energy Savings

Reduced Wattage

Photo
Not Available

Circle E



GENERAL CHARACTERISTICS

Lamp Type	Linear Fluorescent - Straight Linear
Bulb	T8
Base	Medium Bi-Pin (G13)
Rated Life	45000.0 hrs
Rated Life (instant start) @ Time	24000 h @ 3 h 34000 h @ 12 h
Rated Life (rapid start) @ Time	45000.0 @ 3.0/50000.0 @ 12.0 h
Bulb Material	Soda lime
Starting Temperature (MIN)	15.0 °C
LEED-EB MR Credit	26 picograms Hg per mean lumen hour
Additional Info	TCLP compliant
Primary Application	Energy Saving

PHOTOMETRIC CHARACTERISTICS

Initial Lumens	2675.0
Mean Lumens	2515.0
Nominal Initial Lumens per Watt	95
Color Temperature	4100.0 K
Color Rendering Index (CRI)	82.0
S/P Ratio (Scotopic/Photopic Ratio)	1.8

ELECTRICAL CHARACTERISTICS

Wattage	28.0
Voltage	115.0
Open Circuit Voltage (instant start) Min @ Temperature	550 V @ 15 nV
Cathode Resistance Ratio - Rh/Rc (MIN)	4.25
Cathode Resistance Ratio - Rh/Rc (MAX)	6.5
Lamp Current	275.0 mA
Current Crest Factor (MAX)	1.7

DIMENSIONS

Maximum Overall Length (MOL)	48.0000 in(1219.2 mm)
Minimum Overall Length	47.7800 in(1213.6 mm)
Nominal Length	48.000 in(1219.2 mm)
Bulb Diameter (DIA) (MIN)	0.940 in(23.9 mm)
Bulb Diameter (DIA) (MAX)	1.100 in(27.9 mm)
Bulb Diameter (DIA)	1.000 in(25.4 mm)
Max Base Face to Base Face (A)	47.220 in(1199.4 mm)
Face to End of Opposing Pin (B) (MIN)	47.400 in(1204.0 mm)
Face to End of Opposing Pin (B) (MAX)	47.500 in(1206.5 mm)
End of Base Pin to End of Opposite Pin End (C)	47.670 in(1210.8 mm)

PRODUCT INFORMATION

Product Code	72866
Description	F28T8/XLSPX41ECO
Standard Package	Case
Standard Package GTIN	10043168728666
Standard Package Quantity	36
Sales Unit	Unit
No Of Items Per Sales Unit	1
No Of Items Per Standard Package	36
UPC	043168728669

GE
Lighting

brighten

The bright white radiance of GE's LED commercial indoor/outdoor PAR38 lamps isn't just something you see, it's something you feel.

LED commercial indoor/outdoor PAR38 lamps

For indoor and outdoor applications, GE offers a multitude of wattage options with a high light output.

LOW-COST OPERATION
- For example, using only 26 watts of energy, save over $517 in energy costs over the rated life of the lamp versus a standard 120-watt halogen lamp based on $0.11 per kWh
- Energy efficiency and long life mean fewer lamp replacements versus standard incandescent and halogen light sources
- Ideal for both indoor and outdoor applications
- UL wet rated for outdoor applications

EXCELLENT COLOR RENDERING
- Available with a CRI of 82 - 84

COLOR TEMPERATURE
- Halogen-like color
- Available in 2700K, 3000K, 3500K, 4000K and 5000K

LONG LIFE
- Up to 25,000 hours rated life (L70)

DIMMABLE
- Dims from 100% to 10%

BEAM PATTERNS
- Available in 12˚, 15˚, 25˚, 35˚ and 40˚ beam patterns

ENVIRONMENTALLY CONSCIOUS
- These lamps are energy efficient and contain no lead or mercury

GE QUALITY AND RELIABILITY
- 3-year limited warranty

To learn more about saving money and energy, go to: **gelighting.com/ThinkLED**

When you Think LED lighting, Think GE.

ecomagination℠

imagination at work

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LED commercial indoor/outdoor PAR38 lamps

Directional Lamps (PAR)

Bulb Shape	Base Type	Watts	Order Code	Description	Volts	Case Qty**	MOL (In)	Lumens Initial	CBCP	Initial Color Temp	CRI	Wattage Equivalent	*Rated Life L70 (Hrs)	Dimmable	ENERGY STAR® Status	#Location Rating	Additional Information
Commercial PAR38 (Indoor/Outdoor)																	
PAR38	MED	12	66111	LED12DP38S830/12	120	6	5.31	700	10000	3000	82	70W	25,000	Yes	★	Damp	Spot, 12˚ beam, Silver
			66114	LED12DP38S827/12	120	6	5.31	660	10000	2700	82	70W	25,000	Yes	★	Damp	Spot, 12˚ beam, Silver
			90150	LED12DP382W83025	120	6	5.12	950	4400	3000	84	85W	25,000	Yes	★	Wet	Narrow Flood, 25˚ beam, White
			90151	LED12DP382W83035	120	6	5.12	950	2700	3000	84	85W	25,000	Yes	★	Wet	Flood, 35˚ beam, White
			90132	LED12DP382W82725	120	6	5.12	850	4000	2700	84	85W	25,000	Yes	★	Wet	Narrow Flood, 25˚ beam, White
			90133	LED12DP382W82735	120	6	5.12	850	2500	2700	84	85W	25,000	Yes	★	Wet	Flood, 35˚ beam, White
		18	90159	LED18DP38W830/25	120	6	5.12	1300	7600	3000	84	100W	25,000	Yes	★	Wet	Narrow Flood, 25˚ beam, White
			90160	LED18DP38W830/40	120	6	5.12	1300	2400	3000	84	100W	25,000	Yes	★	Wet	Flood, 40˚ beam, White
			90154	LED18DP38W827/25	120	6	5.12	1200	7000	2700	84	100W	25,000	Yes	★	Wet	Narrow Flood, 25˚ beam, White
			94453	LED18DP38W827/40	120	6	5.12	1200	2200	2700	84	100W	25,000	Yes	★	Wet	Flood, 40˚ beam, White
			90162	LED18DP38W840/25	120	6	5.12	1400	8200	4000	84	100W	25,000	Yes	★	Wet	Narrow Flood, 25˚ beam, White
			90163	LED18DP38W840/40	120	6	5.12	1400	2600	4000	84	100W	25,000	Yes	★	Wet	Flood, 40˚ beam, White
			22235	LED18DP38FL5K/TP	120	3	5.12	1500	3200	5000	84	100W	25,000	Yes	★	Wet	Flood, 40˚ beam, White
		20	68197	LED20DP38V827/12	120	6	5.1	1000	14000	2700	82	100W	25,000	Yes	★	Wet	Spot, 12˚ beam, Silver
			68200	LED20DP38V840/12	120	6	5.1	1200	17000	4000	82	100W	25,000	Yes	★	Wet	Spot, 12˚ beam, Silver
	MED	26	68183	LED26DP38S830/12	120	6	5.31	1500	24000	3000	82	130W	25,000	Yes	★	Wet	Spot, 12˚ beam, Silver
			68184	LED26DP38S830/25	120	6	5.31	1500	6800	3000	82	130W	25,000	Yes	★	Wet	Narrow Flood, 25˚ beam, Silver
			68185	LED26DP38S830/40	120	6	5.31	1500	3100	3000	82	120W	25,000	Yes	★	Wet	Flood, 40˚ beam, Silver
			68182	LED26DP38S840/40	120	6	5.31	1650	3200	4000	82	120W	25,000	Yes	★	Wet	Flood, 40˚ beam, Silver
			33647	LED26DP38S835/12	120	6	5.31	1900	31,000	3500	82	160W	25,000	Yes		Wet	Spot, 12˚ beam, Silver
			70591	LED26DP38S835/40	120	6	5.31	1900	4,000	3500	82	160W	25,000	Yes		Wet	Flood, 40˚ beam, Silver
			15139	LED28P38S830/15	120	6	5.31	2400	20,000	3000	82	130W	25,000	-		Dry	Spot, 15˚ beam, Silver

Get more information at

GELighting.com/ThinkLED

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* The life rating is based on the hours of operation the lamp will provide before reaching 70% of its original rating (L70)
★ ENERGY STAR® status: Certified as meeting ENERGY STAR® guidelines.
UL 1993 Environmental Requirements for LED LAMPS
Location, damp – Exterior or interior location that is normally or periodically subject to condensation of moisture in, on, or adjacent to, electrical equipment, and includes partially protected locations.
Location, dry – Location not normally subject to dampness, may include a location subject to temporary dampness, i.e., building under construction, provided ventilation is adequate to prevent an accumulation of moisture.
Location, wet – Location in which water or other liquid can drip, splash, or flow on or against electrical equipment.
^ Incandescent or Halogen wattage equivalencies based on ENERGY STAR® guidelines using lumens or CBCP according to lamp type

LEARN MORE AT energystar.gov

ecomagination℠

Product is compliant with material restriction requirements of RoHS

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www.gelighting.com

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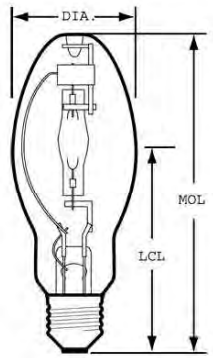
63555 (Rev 9/17/14)

GE Lighting

10361 - MXR50/U/MED

GE Multi-Vapor® PulseArc® Quartz Metal Halide BD17



CAUTIONS & WARNINGS

R- WARNING: This lamp can cause serious skin burn and eye inflammation from shortwave ultraviolet radiation if outer envelope of the lamp is broken or punctured, and the arc tube continues to operate. Do not use where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used. Certain types of lamps that will automatically extinguish when the outer envelope is broken or punctured are commercially available. Visit the FDA website for more information: http://www.fda.gov/cdrh/radhealth/products/urburns.html

Caution

- Lamp may shatter and cause injury if broken
  - Dispose of lamp in a closed container.
  - Do not use excessive force when installing lamp.
  - Do not use lamp if outer glass is scratched or broken.

Warning

- A damaged lamp emits UV radiation which may cause eye/skin injury
  - Turn power off if glass bulb is broken. Remove and dispose of lamp.
- Risk of Burn
  - Allow lamp to cool before handling.
  - Do not turn on lamp until fully installed.
- Risk of Electric Shock
  - Do not use where directly exposed to water or outdoors without an enclosed fixture.
  - Turn power off before inspection, installation or removal.
- Risk of Fire
  - Keep combustible materials away from lamp.
  - Use in fixture rated for this product.
- Unexpected lamp rupture may cause injury, fire, or property damage
  - Do not exceed rated voltage.
  - Do not turn on lamp until fully installed.
  - Do not use beyond rated life.
  - Do not use lamp if outer glass is scratched or broken.
  - Do not use where directly exposed to water or outdoors without an enclosed fixture.
  - Turn lamp off at least once for 15 minutes per week.
  - Use in enclosed fixture rated for this product.
  - Use only properly rated ballast.

GRAPHS & CHARTS

Graphs_Spectral Power Distribution

GENERAL CHARACTERISTICS

Lamp Type	High Intensity Discharge - Quartz Metal Halide
Bulb	BD17
Base	Medium Screw (E26)
Bulb Finish	Clear
Rated Life	10000.0 hrs
Bulb Material	Hard glass
Lamp Enclosure Type (LET)	Enclosed fixtures only
Base Temperature (MAX)	190.0 °C
Bulb Temperature (MAX)	400.0 °C
LEED-EB MR Credit	261 picograms Hg per mean lumen hour

PHOTOMETRIC CHARACTERISTICS

Initial Lumens	3200.0
Mean Lumens	2100.0
Nominal Initial Lumens per Watt	64
Color Temperature	3700.0 K
Color Rendering Index (CRI)	60.0

ELECTRICAL CHARACTERISTICS

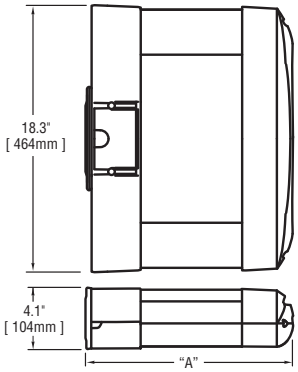
Wattage	50.0
Burn Position	Universal burning position
Warm Up Time to 90% (MIN)	2.0 min
Warm Up Time to 90% (MAX)	5.0 min
Hot Restart Time to 90% (MIN)	10.0 min
Hot Restart Time to 90% (MAX)	15.0 min

DIMENSIONS

Maximum Overall Length (MOL)	5.4300 in(137.9 mm)
Bulb Diameter (DIA)	2.125 in(54.0 mm)
Light Center Length (LCL)	3.430 in(87.1 mm)

PRODUCT INFORMATION

Product Code	10361
Description	MXR50/U/MED
ANSI Code	M110
Standard Package	Case
Standard Package GTIN	10043168103616
Standard Package Quantity	6
Sales Unit	Unit
No Of Items Per Sales Unit	1
No Of Items Per Standard Package	6
UPC	043168103619



# of LEDs	Dim. "A"
20	11.91" [303mm]
40	11.91" [303mm]
60	13.91" [353mm]
80	15.91" [404mm]
100	17.91" [455mm]
120	19.91" [505mm]

Notes:

Product	Family	Optic	Mounting	# of LEDs (x 10)	LED Series	Voltage	Color Options	Drive Current Not Field Adjustable	Factory-Installed Options Please type additional options in manually on the lines provided above.
SEC	EDG	3M[1] 3MB[2]	WM[3]	02 04 06 08 10 12	D	UL Universal 120–277V UH Universal 347–480V 12 120V 24 240V 27 277V 34 347V	SV Silver (Standard) BK Black BZ Bronze PB Platinum Bronze WH White	350 350mA 525[4] 525mA 700[5] 700mA	40K 4000K Color Temperature[6] DIM 0–10V Dimming[7,8,9] F Fuse[10,11,12] P Photocell[11,12] ML Multi-Level (75/525)[13]

Footnotes

1. IESNA Type III Medium distribution
2. IESNA Type III Medium distribution w/ backlight control
3. Wall mount
4. Available on fixtures with 20–80 LEDs
5. Available on fixtures with 20–60 LEDs
6. Color temperature per fixture; 5700K standard; minimum 70 CRI
7. Control by others
8. Refer to dimming spec sheet for availability and additional information
9. Not available when UH voltage is selected
10. When code dictates fusing use time delay fuse
11. Not available with all multi-level options. Refer to multi-level spec sheet for availability and additional information
12. Must specify voltage other than UL or UH
13. Refer to multi-level spec sheet for availability and additional information

LED PERFORMANCE SPECS

# of LEDs	Initial Delivered Lumens – Type III Medium @ 5700K	B	U	G	Initial Delivered Lumens – Type III Medium with Backlight Control @ 5700K	B	U	G	Initial Delivered Lumens – Type III Medium @ 4000K	B	U	G	Initial Delivered Lumens – Type III Medium with Backlight Control @ 4000K	B	U	G	System Watts 120–480V	Total Current @ 120V	Total Current @ 240V	Total Current @ 277V	Total Current @ 347V	Total Current @ 480V	L_{70} Hours* @ 25° C (77° F)	50K Hours Lumen Maintenance Factor* @ 15° C (59° F)
		Rating**				Rating**				Rating**				Rating**										
350mA Fixture Operating at 25° C (77° F)																								
20	1,814 (02)	1	1	1	1,342 (02)	0	1	1	1,672 (02)	1	1	1	1,237 (02)	0	1	1	26	0.20	0.11	0.10	0.09	0.07	>150,000	93%
40	3,628 (04)	1	1	1	2,683 (04)	1	1	1	3,343 (04)	1	1	1	2,473 (04)	0	1	1	47	0.40	0.21	0.19	0.15	0.12	>150,000	
60	5,371 (06)	2	2	2	3,973 (06)	1	2	1	4,950 (06)	2	2	2	3,662 (06)	1	2	1	68	0.58	0.30	0.26	0.20	0.16	>150,000	
80	7,161 (08)	2	2	2	5,298 (08)	1	2	2	6,600 (08)	2	2	2	4,882 (08)	1	2	1	90	0.77	0.38	0.34	0.26	0.20	>150,000	
100	8,929 (10)	3	3	3	6,605 (10)	1	3	2	8,230 (10)	2	2	2	6,088 (10)	1	2	2	111	0.95	0.47	0.42	0.32	0.24	>150,000	
120	10,715 (12)	3	3	3	7,926 (12)	1	3	2	9,876 (12)	3	3	3	7,305 (12)	1	3	2	132	1.15	0.56	0.50	0.38	0.28	>150,000	
525mA Fixture Operating at 25° C (77° F)																								
20	2,539 (02)	1	1	1	1,878 (02)	0	1	1	2,340 (02)	1	1	1	1,731 (02)	0	1	1	37	0.31	0.17	0.16	0.12	0.10	136,000	92%
40	5,079 (04)	2	2	2	3,757 (04)	1	2	1	4,681 (04)	2	2	2	3,462 (04)	1	2	1	70	0.57	0.29	0.26	0.21	0.16	136,000	
60	7,520 (06)	2	2	2	5,562 (06)	1	2	2	6,930 (06)	2	2	2	5,127 (06)	1	2	1	102	0.87	0.44	0.39	0.30	0.22	129,000	
80	10,026 (08)	3	3	3	7,417 (08)	1	3	2	9,240 (08)	3	3	3	6,835 (08)	1	3	2	133	1.14	0.56	0.49	0.39	0.29	129,000	
700mA Fixture Operating at 25° C (77° F)																								
20	3,102 (02)	1	1	1	2,281 (02)	0	1	1	2,858 (02)	1	1	1	2,102 (02)	0	1	1	50	0.42	0.22	0.20	0.15	0.12	111,000	90%
40	6,203 (04)	2	2	2	4,562 (04)	1	2	1	5,717 (04)	2	2	2	4,204 (04)	1	2	1	93	0.79	0.40	0.35	0.27	0.20	111,000	
60	9,185 (06)	3	3	3	6,754 (06)	1	3	2	8,465 (06)	2	3	2	6,225 (06)	1	2	2	137	1.18	0.59	0.51	0.39	0.29	111,000	

* For recommended lumen maintenance factor data see TD-13

** For more information on the IES BUG (Backlight-Uplight-Glare) Ratin visit www.iesna.org/PDF/Erratas/TM-15-07BugRatingsAddendum.pdf

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9201 Washington Ave • Racine, WI 53406-3772 • 800-236-6800 • www.BetaLED.com

Made in the U.S.A. of U.S. and imported parts.
Meets Buy American requirements within the ARRA.

General Description

Slim, low profile design. Fixture sides are rugged cast aluminum with integral, weather-tight LED driver compartments and high performance aluminum heatsinks specifically designed for LED applications. Housing is rugged aluminum. Furnished with low copper, lightweight mounting box designed for installation over standard and mud ring single gang J boxes. Secures to wall with four (4) 3/16" (4.8mm) screws (by others). Conduit entry from top, bottom, sides and rear. Allows mounting for uplight or downlight. Designed and approved for easy through-wiring. Includes leaf/debris guard. Five year limited warranty on fixture.

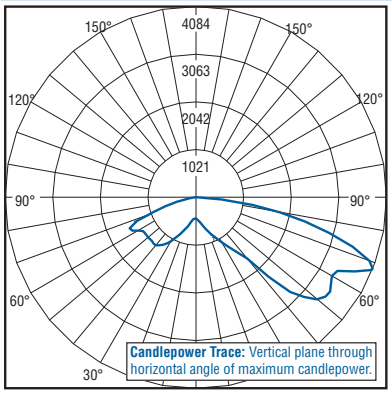
Electrical

Modular design accommodates varied lighting output from high power, white, 5700K (+/- 500K per full fixture), minimum 70 CRI, long life LED sources. Optional 4000K (+/- 300K per full fixture) also available. 120–277V 50/60 Hz, Class 1 LED drivers are standard. 347–480V 50/60 Hz driver is optional. LED drivers have power factor >90% and THD <20% at full load. Integral weather-tight J-box with leads (wire nuts) for easy power hook-up. Units provided with integral 10kV surge suppression protection standard. Surge protection tested in accordance with IEEE/ANSI C62.41.2.

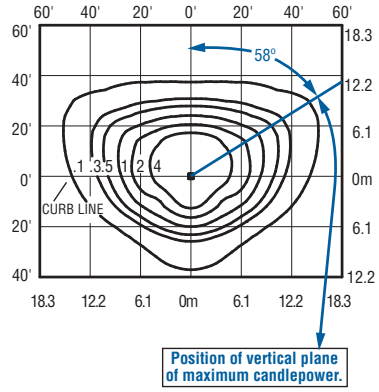
Field-Installed Accessories

Bird Spikes
☐XA-BRDSPK

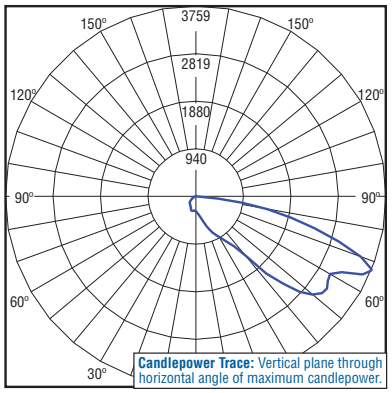
Photometrics



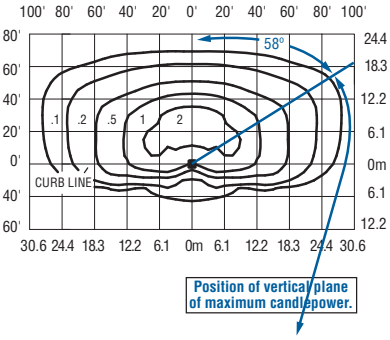
Independent Testing Laboratories certified test. Report No. ITL70203. Candlepower trace of 4000K, 60 LED Type III Medium security EDGE luminaire with 8,812 initial delivered lumens operating at 700mA. **All published luminaire photometric testing performed to IESNA LM-79-08 standards.**



Isofootcandle plot of 4000K, 60 LED Type III Medium security EDGE luminaire at 10' (3m) A.F.G. Luminaire with 8,465 initial delivered lumens operating at 700mA. Initial FC at grade.



Independent Testing Laboratories certified test. Report No. ITL68539. Candlepower trace of 4300K, 40 LED Type III Medium w/ backlight control area luminaire with 5,084 initial delivered lumens operating at 525mA. **All published luminaire photometric testing performed to IESNA LM-79-08 standards.**



Isofootcandle plot of 4000K, 80 LED Type III Medium area luminaire at 25' (7.6m) A.F.G. Luminaire with 6,835 initial delivered lumens operating at 525mA. Initial FC at grade.

Testing & Compliance

UL listed in the U.S. and Canada for wet locations and enclosure rsted IP66 per IEC 60529. Consult factory for CE Certified products. Dark Sky Friendly. IDA Approved. RoHS compliant.

Product qualified on the Design Lights Consortium ("DLC") Qualified Products List ("QPL") when ordered without backlight control shield.

Finish

Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable silver powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Bronze, black, white and platinum bronze powder topcoats are also available. The finish is covered by our 10 year limited warranty.

Fixture and finish are endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117.

Patents

U.S. and international patents granted and pending. BetaLED is a division of Ruud Lighting, Inc. For a listing of Ruud Lighting, Inc. patents, visit www.uspto.gov.

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Made in the U.S.A. of U.S. and imported parts.
Meets Buy American requirements within the ARRA.

304 Series™ PKG-304-5M-PD

Parking Structure Luminaire – Type V Medium – Pendant Mount

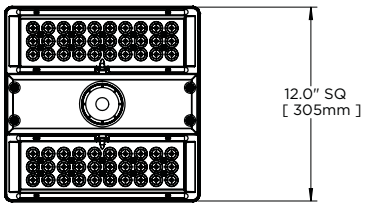
PKG-304-5M-PD-04-D-UL-SV-350-ML-40K

Product Description

Slim, low profile design. Lumianire is constructed from rugged die cast and extruded aluminum components. LED driver is mounted in a sealed weather-tight center chamber that allows for access from below the luminaire. High performance aluminum heat sinks specifically designed for LED parking structure application. Pendant mount includes 36" (914mm) cord out of luminaire and is intended to be mounted by 3/4 IP pendant (by others).

Performance Summary

- Utilizes BetaLED® Technology
- Patented NanoOptic® Product Technology
- Made in the U.S.A. of U.S. and imported parts
- **CRI:** Minimum 70 CRI
- **CCT:** 5700K (+/- 500K) Standard, 4000K (+/- 300K)
- **Warranty:** 10 years on luminaire/10 years on Colorfast DeltaGuard® finish†



Field Installed Accessories
XA-PNDTLVL Leveler - for 0–13˚ sloped ceilings
XA-PS12KIT 12" (305mm) Pendant Kit Pendant height from ceiling surface to bottom of luminaire; mounting accessory surface boxes will add overall height
XA-PS18KIT 18" (457mm) Pendant Kit Pendant height from ceiling surface to bottom luminaire; mounting accessory or surface boxes will add overall height
XA-PS22KIT 22" (559mm) Pendant Kit Pendant height from ceiling surface to bottom luminaire; mounting accessory or surface boxes will add overall height
XA-PSFTG Pendant Fitting
XA-XCPBRDGRD Bird Guard

Ordering Information

Example: PKG-304-5M-PD-04-D-UL-SV-350-OPTIONS

PKG-304	5M	PD	04	D	UL	SV	350	ML-40K
Product	**Optic**	**Mounting**	**LED Count (x10)**	**Series**	**Voltage**	**Color Options**	**Drive Current**	**Options**
PKG-304	**5M** Type V Medium	**PD** Pendant Mount	**04** **06**	**D**	**UL** Universal 120–277V **UH** Universal 347–480V	**SV** Silver (Standard) **WH** White **BK** Black **BZ** Bronze **PB** Platinum Bronze	**700** 700mA (Standard) **525** 525mA **350** 350mA	**40K 4000K Color Temperature** - Color temperature per fixture **DIM 0–10V Dimming** - Control by others - Refer to dimming spec sheet for availability and additional information - Can't exceed specified drive current **F Fuse** - When code dictates fusing use time delay fuse - Not available with all multi-level options. Refer to multi-level spec sheet for availability and additional information **ML Multi-Level** - Refer to multi-level spec sheet for availability and additional information

† See www.cree.com/lighting for warranty terms.

Rev. Date 11/08/2012

www.cree.com/lighting T (800) 236-6800 F (262) 504-5415

Product Specifications

CONSTRUCTION & MATERIALS

- Slim, low profile design
- Constructed from rugged die cast and extruded aluminum components
- LED driver is mounted is a sealed weather-tight center chamber that allows for access from below the luminaire
- High performance heat sinks specifically designed for LED parking structure application
- Pendant mount includes 36″ (419mm) cord out of the luminaire and is intended to be mounted by 3/4 IP pendant (by others)
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultradurable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Standard is silver. Bronze, black, white, and platinum bronze are also available

ELECTRICAL SYSTEM

- **Input Voltage:** 120–277V or 347–480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV surge suppression protection standard
- To address inrush current, slow blow fuse or type C/D breaker should be used

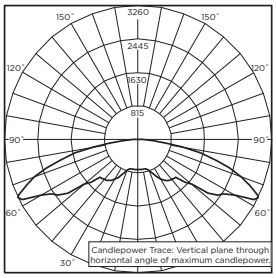
REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529 when ordered without ML options
- Consult factory for CE Certified products
- 10kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- RoHS Compliant
- Dark Sky Friendly. IDA Approved
- Meets Buy American requirements within ARRA

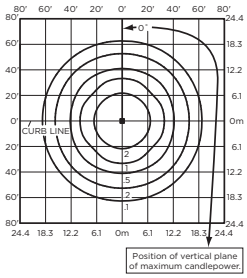
IES Files
To obtain an IES file specific to your project consult:
http://www.cree.com/lighting/tools-and-support/exterior-ies-configuration-tool

Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by Independent Testing Laboratories, a NVLAP certified laboratory.



ITL Test Report #: 66638
CAN-304-5M-**-06-D-UL-700
Initial Delivered Lumens: 10,893



CAN-304-5M-**-06-D-UL-700
Mounting Height: 15′ (4.6m)
Initial Delivered Lumens: 10,384
Initial FC at grade

Lumen Output, Electrical, and Lumen Maintenance Data

Type V Medium Distribution												
LED Count (x10)	5700K		4000K		System Watts 120–480V	TOTAL CURRENT						50K Hours Projected Lumen Maintenance Factor** @ 15˚C (59˚F)
	Initial Delivered Lumens	BUG Ratings* Per TM-15-11	Initial Delivered Lumens	BUG Ratings* Per TM-15-11		120V	208V	240V	277V	347V	480V	
350mA @ 25˚C (77˚F)												
04	4,113	B3 U0 G1	3,791	B2 U0 G1	47	0.39	0.24	0.21	0.19	0.15	0.11	94%
06	6,126	B3 U0 G2	5,646	B3 U0 G2	68	0.59	0.35	0.30	0.27	0.20	0.15	
525mA @ 25˚C (77˚F)												
04	5,758	B3 U0 G2	5,307	B3 U0 G2	68	0.58	0.34	0.30	0.27	0.21	0.16	93%
06	8,576	B3 U0 G2	7,904	B3 U0 G2	105	0.91	0.53	0.46	0.40	0.33	0.22	
700mA @ 25˚C (77˚F)												
04	6,992	B3 U0 G2	6,444	B3 U0 G2	94	0.81	0.47	0.41	0.36	0.28	0.20	91%
06	10,414	B4 U0 G2	9,598	B3 U0 G2	141	1.26	0.72	0.59	0.54	0.39	0.28	

* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit www.iesna.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf
** Projected L_{70} (10K) Hours: >60,000. For recommended lumen maintenance factor data see TD-13

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304 Series™ PKG-304-PS-DM

Parking Structure Luminaire – Petroleum Symmetric – Direct Mount

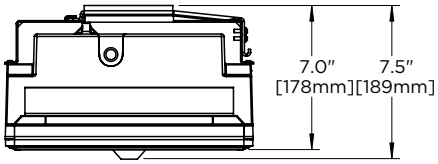
PKG-304-PS-DM-04-D-UL-SV-700-40K-ML

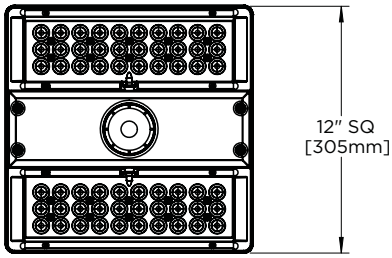
Product Description

Slim, low profile design. Lumianire is constructed from rugged die cast and extruded aluminum components. LED driver is mounted in a sealed weather-tight center chamber that allows for access from below the luminaire. High performance aluminum heat sinks specifically designed for LED parking structure application. Mounting brackets designed to mount directly over exisiting single gang and octagonal junction boxes for direct mount.

Performance Summary

- Utilizes BetaLED® Technology
- Patented NanoOptic® Product Technology
- Made in the U.S.A. of U.S. and imported parts
- **CRI:** Minimum 70 CRI
- **CCT:** 5700K (+/- 500K) Standard, 4000K (+/- 300K)
- **Warranty:** 5 years on luminaire/10 years on Colorfast DeltaGuard® finish†





Ordering Information

Example: PKG-304-PS-DM-04-D-UL-SV-350-OPTIONS

PKG-304	PS	DM	04	D	UL	SV	700	40K-ML
Product	**Optic**	**Mounting**	**LED Count (x10)**	**Series**	**Voltage**	**Color Options**	**Drive Current**	**Options**
PKG-304	**PS** Petroleum Symmetric	**DM** Direct Mount	**04** **06**	**D**	**UL** Universal 120–277V **UH** Universal 347–480V	**SV** Silver (Standard) **WH** White **BK** Black **BZ** Bronze **PB** Platinum Bronze	**700** 700mA (Standard) **525** 525mA **350** 350mA	**40K 4000K Color Temperature** - Color temperature per fixture **DIM 0–10V Dimming** - Control by others - Refer to dimming spec sheet for availability and additional information - Can't exceed specified drive current **F Fuse** - When code dictates fusing use time delay fuse - Not available with all multi-level options. Refer to multi-level spec sheet for availability and additional information **ML Multi-Level** - Refer to multi-level spec sheet for availability and additional information **J Alternate Junction Box mounting**

Rev. Date 11/08/2012

www.cree.com/lighting T (800) 236-6800 F (262) 504-5415

Product Specifications

CONSTRUCTION & MATERIALS

- Slim, low profile design
- Constructed from rugged die cast and extruded aluminum components
- LED driver is mounted is a sealed weather-tight center chamber that allows for access from below the luminaire
- High performance heat sinks specifically designed for LED parking structure application
- Mounting bracket is designed to mount directly over existing single gang and octagonal junction boxes for direct mount
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultradurable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Standard is silver. Bronze, black, white, and platinum bronze are also available

ELECTRICAL SYSTEM

- **Input Voltage:** 120–277V or 347–480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV surge suppression protection standard
- To address inrush current, slow blow fuse or type C/D breaker should be used

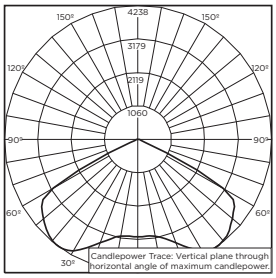
REGULATORY & VOLUNTARY QUALIFICATIONS

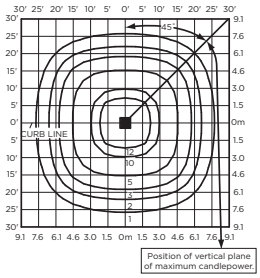
- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529 when ordered without ML options
- Consult factory for CE Certified products
- 10kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- RoHS Compliant
- Dark Sky Friendly. IDA Approved
- Meets Buy American requirements within ARRA

IES Files
To obtain an IES file specific to your project consult:
http://www.cree.com/lighting/tools-and-support/exterior-ies-configuration-tool

Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by Independent Testing Laboratories, a NVLAP certified laboratory.





ITL Test Report #: 66685
CAN-304-PS-**-06-D-UL-700
Initial Delivered Lumens: 12,214

CAN-304-PS-**-06-D-UL-700
Mounting Height: 15′ (4.6m)
Initial Delivered Lumens: 11,794
Initial FC at grade

Lumen Output, Electrical, and Lumen Maintenance Data

Petroleum Symmetric Distribution												
LED Count (x10)	5700K		4000K		System Watts 120–480V	TOTAL CURRENT						50K Hours Projected Lumen Maintenance Factor** @ 15˚C (59˚F)
	Initial Delivered Lumens	BUG Ratings* Per TM-15-11	Initial Delivered Lumens	BUG Ratings* Per TM-15-11		120V	208V	240V	277V	347V	480V	
350mA @ 25˚C (77˚F)												
04	4,671	B2 U0 G0	4,305	B2 U0 G0	47	0.39	0.24	0.21	0.19	0.15	0.11	94%
06	6,958	B2 U0 G0	6,413	B2 U0 G0	68	0.59	0.35	0.30	0.27	0.20	0.15	
525mA @ 25˚C (77˚F)												
04	6,540	B2 U0 G0	6,028	B2 U0 G0	68	0.58	0.34	0.30	0.27	0.21	0.16	93%
06	9,741	B3 U0 G0	8,977	B3 U0 G0	105	0.91	0.53	0.46	0.40	0.33	0.22	
700mA @ 25˚C (77˚F)												
04	7,942	B3 U0 G0	7,319	B3 U0 G0	94	0.81	0.47	0.41	0.36	0.28	0.20	91%
06	11,828	B3 U0 G0	10,902	B3 U0 G0	141	1.26	0.72	0.59	0.54	0.39	0.28	

* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit www.iesna.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf
** Projected L_{70} (10K) Hours: >60,000. For recommended lumen maintenance factor data see TD-13

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304 Series™ PKG-304-5M-DM

Parking Structure Luminaire – Type V Medium – Direct Mount

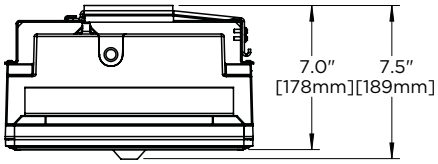
PKG-304-5M-DM-04-D-UL-SV-700-40K-ML

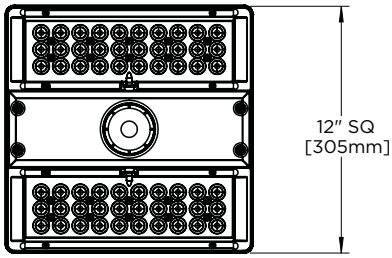
Product Description

Slim, low profile design. Lumianire is constructed from rugged die cast and extruded aluminum components. LED driver is mounted in a sealed weather-tight center chamber that allows for access from below the luminaire. High performance aluminum heat sinks specifically designed for LED parking structure application. Mounting brackets designed to mount directly over exisiting single gang and octagonal junction boxes for direct mount.

Performance Summary

- Utilizes BetaLED® Technology
- Patented NanoOptic® Product Technology
- Made in the U.S.A. of U.S. and imported parts
- **CRI:** Minimum 70 CRI
- **CCT:** 5700K (+/- 500K) Standard, 4000K (+/- 300K)
- **Warranty:** 5 years on luminaire/10 years on Colorfast DeltaGuard® finish†





Ordering Information

Example: PKG-304-5M-DM-04-D-UL-SV-350-OPTIONS

PKG-304	5M	DM	04	D	UL	SV	700	40K-ML
Product	**Optic**	**Mounting**	**LED Count (x10)**	**Series**	**Voltage**	**Color Options**	**Drive Current**	**Options**
PKG-304	**5M** Type V Medium	**DM** Direct Mount	**04** **06**	**D**	**UL** Universal 120–277V **UH** Universal 347–480V	**SV** Silver (Standard) **WH** White **BK** Black **BZ** Bronze **PB** Platinum Bronze	**700** 700mA (Standard) **525** 525mA **350** 350mA	**40K 4000K Color Temperature** - Color temperature per fixture **DIM 0–10V Dimming** - Control by others - Refer to dimming spec sheet for availability and additional information - Can't exceed specified drive current **F Fuse** - When code dictates fusing use time delay fuse - Not available with all multi-level options. Refer to multi-level spec sheet for availability and additional information **ML Multi-Level** - Refer to multi-level spec sheet for availability and additional information **J Alternate Junction Box mounting**

Rev. Date 11/08/2012

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Product Specifications

CONSTRUCTION & MATERIALS

- Slim, low profile design
- Constructed from rugged die cast and extruded aluminum components
- LED driver is mounted is a sealed weather-tight center chamber that allows for access from below the luminaire
- High performance heat sinks specifically designed for LED parking structure application
- Mounting bracket is designed to mount directly over existing single gang and octagonal junction boxes for direct mount
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultradurable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Standard is silver. Bronze, black, white, and platinum bronze are also available

ELECTRICAL SYSTEM

- **Input Voltage:** 120–277V or 347–480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV surge suppression protection standard
- To address inrush current, slow blow fuse or type C/D breaker should be used

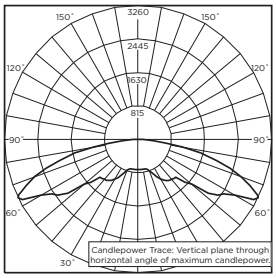
REGULATORY & VOLUNTARY QUALIFICATIONS

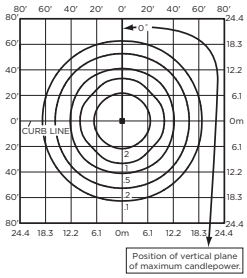
- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529 when ordered without ML options
- Consult factory for CE Certified products
- 10kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- RoHS Compliant
- Dark Sky Friendly. IDA Approved
- Meets Buy American requirements within ARRA

IES Files
To obtain an IES file specific to your project consult:
http://www.cree.com/lighting/tools-and-support/exterior-ies-configuration-tool

Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by Independent Testing Laboratories, a NVLAP certified laboratory.





ITL Test Report #: 66638
CAN-304-5M-**-06-D-UL-700
Initial Delivered Lumens: 10,893

CAN-304-5M-**-06-D-UL-700
Mounting Height: 15′ (4.6m)
Initial Delivered Lumens: 10,384
Initial FC at grade

Lumen Output, Electrical, and Lumen Maintenance Data

Type V Medium Distribution												
LED Count (x10)	5700K		4000K		System Watts 120–480V	TOTAL CURRENT						50K Hours Projected Lumen Maintenance Factor** @ 15˚C (59˚F)
	Initial Delivered Lumens	BUG Ratings* Per TM-15-11	Initial Delivered Lumens	BUG Ratings* Per TM-15-11		120V	208V	240V	277V	347V	480V	
350mA @ 25˚C (77˚F)												
04	4,113	B3 U0 G1	3,791	B2 U0 G1	47	0.39	0.24	0.21	0.19	0.15	0.11	94%
06	6,126	B3 U0 G2	5,646	B3 U0 G2	68	0.59	0.35	0.30	0.27	0.20	0.15	
525mA @ 25˚C (77˚F)												
04	5,758	B3 U0 G2	5,307	B3 U0 G2	68	0.58	0.34	0.30	0.27	0.21	0.16	93%
06	8,576	B3 U0 G2	7,904	B3 U0 G2	105	0.91	0.53	0.46	0.40	0.33	0.22	
700mA @ 25˚C (77˚F)												
04	6,992	B3 U0 G2	6,444	B3 U0 G2	94	0.81	0.47	0.41	0.36	0.28	0.20	91%
06	10,414	B4 U0 G2	9,598	B3 U0 G2	141	1.26	0.72	0.59	0.54	0.39	0.28	

* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit www.iesna.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf
** Projected L_{70} (10K) Hours: >60,000. For recommended lumen maintenance factor data see TD-13

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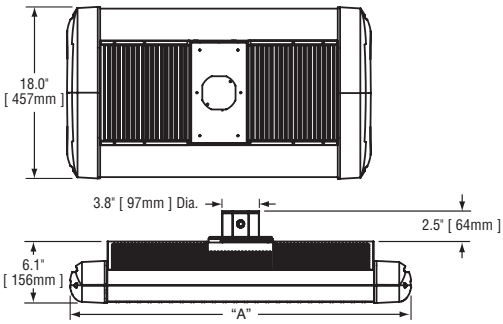
CAN-EDG-5M-DM THE EDGE® LED Canopy Light – Type V Medium

Rev. Date:9/22/11

Notes:



# of LEDs	Dim. "A"
40	16.06"
60	18.06"
80	16.06"
100	18.06"
120	20.06"
140	22.06"
160	24.06"
200	28.06"
240	32.06"

Product	Family	Optic	Mounting	# of LEDs (x 10)	LED Series	Voltage	Color Options	Drive Current Not Field Adjustable	Factory-Installed Options Please type additional options in manually on the lines provided above.
CAN	EDG	5M[1]	DM[2]	☐ 04[3] ☐ 06[4] ☐ 08 ☐ 10 ☐ 12 ☐ 14 ☐ 16 ☐ 20 ☐ 24	D	☐ UL Universal 120–277V ☐ UH Universal 347–480V ☐ 12 120V ☐ 24 240V ☐ 27 277V ☐ 34 347V	☐ SV Silver ☐ BK Black ☐ BZ Bronze ☐ PB Platinum Bronze ☐ WH White	☐ 350 350mA ☐ 525[5] 525mA ☐ 700[6] 700mA	☐ 43K 4300K Color Temperature[7] ☐ DIM 0–10V Dimming[8,9] ☐ F Fuse[10,11,12] ☐ HL Hi/Low (175/350/525, dual circuit input)[13] ☐ P Photocell[12,14,15] ☐ ML Multi-Level (75/525)[13]

Footnotes

1. Type V Medium distribution
2. Direct mount
3. Uses 80 LED size with two blanks in outside positions
4. Uses 100 LED size with two blanks in outside positions
5. Available on fixtures with 40–160 LEDs
6. Available on fixtures with 40–60 LEDs
7. Color temperature per luminaire; 6000K standard; minimum 70 CRI
8. Control by others
9. Refer to dimming spec sheet for availability and additional information
10. When code dictates fusing use time delay fuse
11. Not available when UH voltage is selected
12. Not available with all multi-level options. Refer to multi-level spec sheet for availability and additional information
13. Refer to multi-level spec sheet for availability and additional information
14. Must specify voltage other than UL or UH
15. 120 LED maximum when 34 voltage is selected

LED PERFORMANCE SPECS

# of LEDs	Initial Delivered Lumens – Type V Medium @ 6000K	B	U	G	Rating**	Initial Delivered Lumens – Type V Medium @ 4300K	B	U	G	Rating**	System Watts 120–480V	Total Current @ 120V	Total Current @ 230V	Total Current @ 277V	Total Current @ 347V	Total Current @ 480V	L_{70} Hours* @ 25° C (77° F)	50K Hours Lumen Maintenance Factor* @ 15° C (59° F)
350mA Fixture Operating at 25° C (77° F)																		
40[3]	4,025 (04)	2	1	1		3,710 (04)	2	1	1		47	0.40	0.21	0.19	0.15	0.12	>150,000	
60[4]	5,960 (06)	3	2	1		5,493 (06)	3	2	1		68	0.58	0.30	0.26	0.20	0.16	>150,000	
80	7,946 (08)	3	2	2		7,324 (08)	3	2	2		90	0.77	0.38	0.34	0.26	0.20	>150,000	
100	9,908 (10)	4	3	2		9,131 (10)	3	3	2		111	0.95	0.47	0.42	0.32	0.24	>150,000	
120	11,889 (12)	4	3	2		10,958 (12)	4	3	2		132	1.15	0.56	0.50	0.38	0.28	>150,000	93%
140	13,808 (14)	4	3	2		12,726 (14)	4	3	2		157	1.34	0.67	0.61	0.47	0.35	149,000	
160	15,781 (16)	4	3	2		14,544 (16)	4	3	2		179	1.54	0.76	0.68	0.53	0.39	149,000	
200	19,726 (20)	4	3	2		18,180 (20)	4	3	2		221	1.92	0.95	0.84	0.65	0.48	149,000	
240	23,671 (24)	5	3	3		21,816 (24)	5	3	3		264	2.30	1.12	1.00	0.77	0.56	149,000	
525mA Fixture Operating at 25° C (77° F)																		
40[3]	5,635 (04)	3	2	1		5,194 (04)	3	2	1		70	0.57	0.29	0.26	0.21	0.16	136,000	
60[4]	8,344 (06)	3	2	2		7,690 (06)	3	2	2		102	0.87	0.44	0.39	0.30	0.22	129,000	
80	11,125 (08)	4	3	2		10,253 (08)	4	3	2		133	1.14	0.56	0.49	0.39	0.29	129,000	
100	13,871 (10)	4	3	2		12,784 (10)	4	3	2		172	1.47	0.75	0.67	0.51	0.38	128,000	92%
120	16,645 (12)	4	3	2		15,341 (12)	4	3	2		204	1.76	0.88	0.78	0.60	0.44	128,000	
140	19,331 (14)	4	3	2		17,817 (14)	4	3	2		233	2.01	0.99	0.87	0.69	0.51	123,000	
160	22,092 (16)	5	3	3		20,362 (16)	5	3	3		265	2.29	1.11	0.98	0.78	0.57	123,000	
700mA Fixture Operating at 25° C (77° F)																		
40[3]	6,883 (04)	3	2	1		6,344 (04)	3	2	1		93	0.79	0.40	0.35	0.27	0.20	111,000	90%
60[4]	10,191 (06)	4	3	2		9,393 (06)	3	3	2		137	1.18	0.59	0.51	0.39	0.29	111,000	

* For recommended lumen maintenance factor data see TD-13

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit www.iesna.org/PDF/Erratas/TM-15-07BugRatingsAddendum.pdf

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Made in the U.S.A. of U.S. and imported parts.
Meets Buy American requirements within the ARRA.

CAN-EDG-5M-DM THE EDGE® LED Canopy Light – Type V Medium

Rev. Date: 9/22/11

General Description

Slim, low profile, easy mounting below deck design. Luminaire sides are rugged cast aluminum with integral, weather-tight LED driver compartments and high performance aluminum heatsinks specifically designed for LED lighting application, J-Box sized to fit through existing 4-inch (102mm) diameter mount holes and is designed for through wiring and wet location installations. Luminaire mounts directly to canopy with lag bolts (by others). When mounting to solid surfaces, Adaptor Plate Kit accessory is required. Mating surface is gasketed to prevent water leak through. Includes bug/bird guard. Five year limited warranty on fixture.

Electrical

Modular design accommodates varied lighting output from high power, white, 6000K (+/- 500K per full fixture), minimum 70 CRI, long life LED sources. Optional 4300K (+/- 300K per full fixture) also available. 120–277V 50/60 Hz, Class 1 LED drivers are standard. 347–480V 50/60 Hz driver is optional. LED drivers have power factor >90% and THD <20% at full load. Units provided with integral 10kV surge suppression protection standard. Surge protection tested in accordance with IEEE/ANSI C62.41.2.

Testing & Compliance

UL listed in the U.S. and Canada for wet locations and enclosure rating IP66 per IEC 60529. Consult factory for CE Certified products. Dark Sky Friendly. IDA Approved. RoHS compliant.

Finish

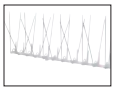
Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable silver powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Bronze, black, white and platinum bronze powder topcoats are also available. The finish is covered by our 10 year limited warranty.

Fixture and finish are endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117.

Patents

U.S. and international patents granted and pending. BetaLED is a division of Ruud Lighting, Inc. For a listing of Ruud Lighting, Inc. patents, visit www.uspto.gov.

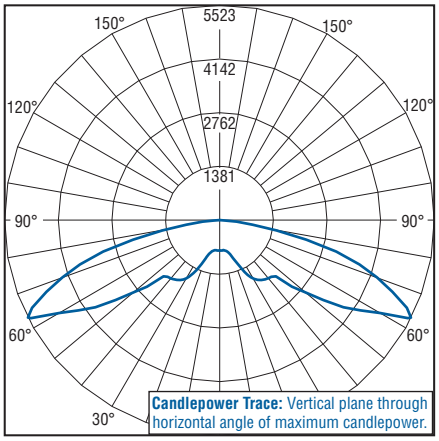
Field-Installed Accessories



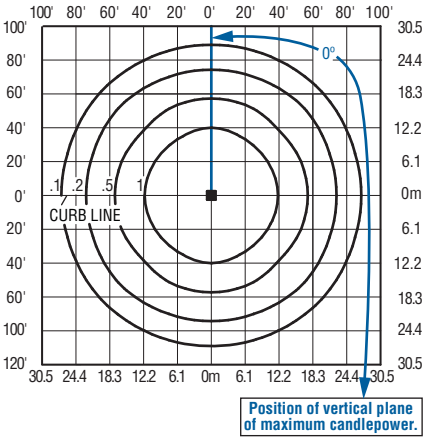
☐ **Bird Spikes**
XA-BRDSPK

☐ **Adaptor Plate Kit**
XA-CLSB16
For use when mounting fixture to solid surfaces.

Photometrics



Independent Testing Laboratories certified test. Report No. ITL68282. Candlepower trace of 4300K, 120 LED Type V Medium area luminaire with 16,029 initial delivered lumens operating at 525mA. **All published luminaire photometric testing performed to IESNA LM-79-08 standards.**



Isofootcandle plot of 4300K, 120 LED Type V Medium canopy luminaire at 25' (7.6m) A.F.G. Luminaire with 15,341 initial delivered lumens operating at 525mA. Initial FC at grade.

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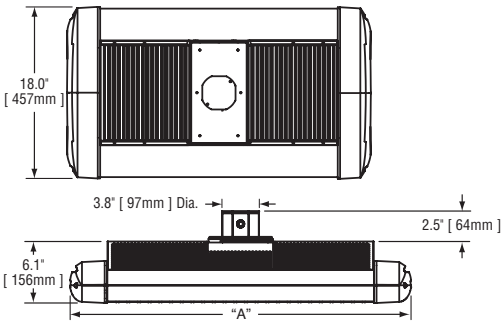
CAN-EDG-5S-DM THE EDGE® LED Canopy Light – Type V Short

Rev. Date:9/22/11

Notes:



# of LEDs	Dim. "A"
40	16.06"
60	18.06"
80	16.06"
100	18.06"
120	20.06"
140	22.06"
160	24.06"
200	28.06"
240	32.06"

Product	Family	Optic	Mounting	# of LEDs (x 10)	LED Series	Voltage	Color Options	Drive Current (Not Field Adjustable)	Factory-Installed Options (Please type additional options in manually on the lines provided above.)
CAN	EDG	5S[1]	DM[2]	☐ 04[3] ☐ 06[4] ☐ 08 ☐ 10 ☐ 12 ☐ 14 ☐ 16 ☐ 20 ☐ 24	D	☐ UL Universal 120–277V ☐ UH Universal 347–480V ☐ 12 120V ☐ 24 240V ☐ 27 277V ☐ 34 347V	☐ SV Silver ☐ BK Black ☐ BZ Bronze ☐ PB Platinum Bronze ☐ WH White	☐ 350 350mA ☐ 525[5] 525mA ☐ 700[6] 700mA	☐ 43K 4300K Color Temperature[7] ☐ DIM 0–10V Dimming[8,9] ☐ F Fuse[10,11,12] ☐ HL Hi/Low (175/350/525, dual circuit input)[13] ☐ P Photocell[12,14,15] ☐ ML Multi-Level (75/525)[13]

Footnotes

1. Type V Short distribution
2. Direct mount
3. Uses 80 LED size with two blanks in outside positions
4. Uses 100 LED size with two blanks in outside positions
5. Available on fixtures with 40–160 LEDs
6. Available on fixtures with 40–60 LEDs
7. Color temperature per luminaire; 6000K standard; minimum 70 CRI
8. Control by others
9. Refer to dimming spec sheet for availability and additional information
10. When code dictates fusing use time delay fuse
11. Not available when UH voltage is selected
12. Not available with all multi-level options. Refer to multi-level spec sheet for availability and additional information
13. Refer to multi-level spec sheet for availability and additional information
14. Must specify voltage other than UL or UH
15. 120 LED maximum when 34 voltage is selected

LED PERFORMANCE SPECS

# of LEDs	Initial Delivered Lumens – Type V Short @ 6000K	B	U	G	Initial Delivered Lumens – Type V Short @ 4300K	B	U	G	System Watts 120–480V	Total Current @ 120V	Total Current @ 240V	Total Current @ 277V	Total Current @ 347V	Total Current @ 480V	L_{70} Hours* @ 25° C (77° F)	50K Hours Lumen Maintenance Factor* @ 15° C (59° F)
		Rating**				Rating**										
350mA Fixture Operating at 25° C (77° F)																
40[3]	4,472 (04)	2	1	1	4,122 (04)	2	1	1	47	0.40	0.21	0.19	0.15	0.12	>150,000	93%
60[4]	6,622 (06)	3	1	1	6,103 (06)	3	1	1	68	0.58	0.30	0.26	0.20	0.16	>150,000	
80	8,829 (08)	3	1	1	8,137 (08)	3	1	1	90	0.77	0.38	0.34	0.26	0.20	>150,000	
100	11,009 (10)	3	1	2	10,146 (10)	3	1	2	111	0.95	0.47	0.42	0.32	0.24	>150,000	
120	13,210 (12)	4	1	2	12,175 (12)	3	1	2	132	1.15	0.56	0.50	0.38	0.28	>150,000	
140	15,342 (14)	4	1	2	14,140 (14)	4	1	2	157	1.34	0.67	0.61	0.47	0.35	149,000	
160	17,534 (16)	4	2	2	16,160 (16)	4	1	2	179	1.54	0.76	0.68	0.53	0.39	149,000	
200	21,918 (20)	4	2	2	20,200 (20)	4	2	2	221	1.92	0.95	0.84	0.65	0.48	149,000	
240	26,301 (24)	5	2	3	24,240 (24)	4	2	2	264	2.30	1.12	1.00	0.77	0.56	149,000	
525mA Fixture Operating at 25° C (77° F)																
40[3]	6,261 (04)	3	1	1	5,771 (04)	3	1	1	70	0.57	0.29	0.26	0.21	0.16	136,000	92%
60[4]	9,271 (06)	3	1	2	8,544 (06)	3	1	1	102	0.87	0.44	0.39	0.30	0.22	129,000	
80	12,361 (08)	4	2	2	11,392 (08)	3	1	2	133	1.14	0.56	0.49	0.39	0.29	129,000	
100	15,412 (10)	4	1	2	14,205 (10)	4	1	2	172	1.47	0.75	0.67	0.51	0.38	128,000	
120	18,495 (12)	4	2	2	17,045 (12)	4	1	2	204	1.76	0.88	0.78	0.60	0.44	128,000	
140	21,479 (14)	4	2	2	19,796 (14)	4	2	2	233	2.01	0.99	0.87	0.69	0.51	123,000	
160	24,548 (16)	4	2	2	22,624 (16)	4	2	2	265	2.29	1.11	0.98	0.78	0.57	123,000	
700mA Fixture Operating at 25° C (77° F)																
40[3]	7,648 (04)	3	1	1	7,048 (04)	3	1	1	93	0.79	0.40	0.35	0.27	0.20	111,000	90%
60[4]	11,323 (06)	3	1	2	10,436 (06)	3	1	2	137	1.18	0.59	0.51	0.39	0.29	111,000	

*For recommended lumen maintenance factor data see TD-13

**For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit www.iesna.org/PDF/Erratas/TM-15-07BugRatingsAddendum.pdf

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Made in the U.S.A. of U.S. and imported parts.
Meets Buy American requirements within the ARRA.

General Description

Slim, low profile, easy mounting below deck design. Luminaire sides are rugged cast aluminum with integral, weather-tight LED driver compartments and high performance aluminum heatsinks specifically designed for LED lighting application, J-Box sized to fit through existing 4-inch (102mm) diameter mount holes and is designed for through wiring and wet location installations. Luminaire mounts directly to canopy with lag bolts (by others). When mounting to solid surfaces, Adaptor Plate Kit accessory is required. Mating surface is gasketed to prevent water leak through. Includes bug/bird guard. Five year limited warranty on fixture.

Electrical

Modular design accommodates varied lighting output from high power, white, 6000K (+/- 500K per full fixture), minimum 70 CRI, long life LED sources. Optional 4300K (+/- 300K per full fixture) also available. 120–277V 50/60 Hz, Class 1 LED drivers are standard. 347–480V 50/60 Hz driver is optional. LED drivers have power factor >90% and THD <20% at full load. Units provided with integral 10kV surge suppression protection standard. Surge protection tested in accordance with IEEE/ANSI C62.41.2.

Testing & Compliance

UL listed in the U.S. and Canada for wet locations and enclosure rating IP66 per IEC 60529. Consult factory for CE Certified products. Dark Sky Friendly. IDA Approved. RoHS compliant.

Finish

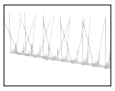
Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable silver powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Bronze, black, white and platinum bronze powder topcoats are also available. The finish is covered by our 10 year limited warranty.

Fixture and finish are endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117.

Patents

U.S. and international patents granted and pending. BetaLED is a division of Ruud Lighting, Inc. For a listing of Ruud Lighting, Inc. patents, visit www.uspto.gov.

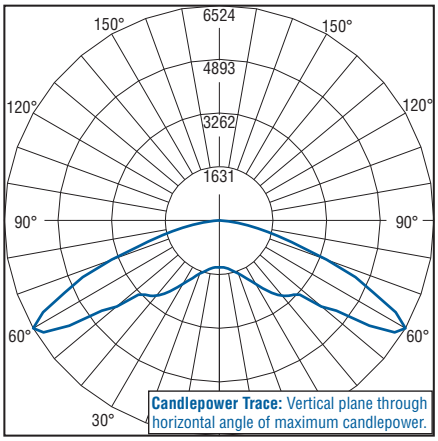
Field-Installed Accessories



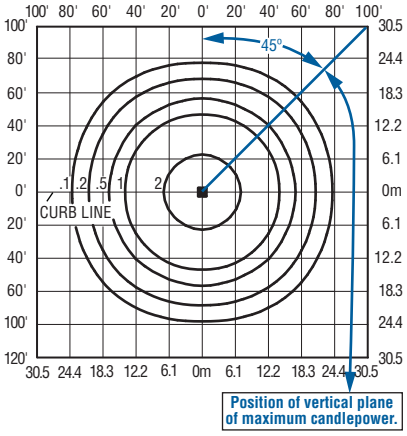
☐ **Bird Spikes**
XA-BRDSPK

☐ **Adaptor Plate Kit**
XA-CLSB16
For use when mounting fixture to solid surfaces.

Photometrics



Independent Testing Laboratories certified test. Report No. ITL68092 Candlepower trace of 4300K, 120 LED Type V Short area luminaire with 17,059 initial delivered lumens operating at 525mA. **All published luminaire photometric testing performed to IESNA LM-79-08 standards.**



Isofootcandle plot of 4300K, 120 LED Type V Short area luminaire at 25' (7.6m) A.F.G. Luminaire with 17,045 initial delivered lumens operating at 525mA. Initial FC at grade.

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9201 Washington Ave • Racine, WI 53406-3772 • 800-236-6800 • www.betaLED.com

Made in the U.S.A. of U.S. and imported parts.
Meets Buy American requirements within the ARRA.

THE EDGE® FLD-EDG-70-AA

Flood Luminaire – 70˚ Flood – Adjustable Arm Mount

Product Description

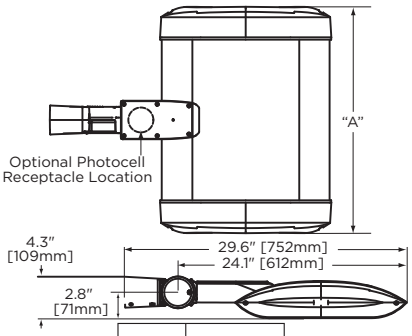
Slim, low profile design minimizes wind load requirements. Luminaire sides are rugged cast aluminum with integral, weather-tight LED driver compartments and high performance aluminum heat sinks. Adjustable arm mount is rugged die cast aluminum and mounts to 2" (51mm) IP (2.375" [60mm] O.D.) tenon. Includes leaf/debris guard.

Performance Summary

- Utilizes BetaLED® Technology
- Patented NanoOptic® Product Technology
- Made in the U.S.A. of U.S. and imported parts
- **CRI:** Minimum 70 CRI
- **CCT:** 5700K (+/- 500K) Standard, 4000K (+/- 300K)
- **Warranty:** 5 years on luminaire/10 years on Colorfast DeltaGuard® finish
- **EPA and Weight:** Reference EPA and Weight spec sheet

Accessories

Field Installed Accessories
XA-BRDSPK Bird Spikes



LED Count (x10)	Dim. "A"
02	12.1" [306mm]
04	12.1" [306mm]
06	14.1" [357mm]
08	16.1" [408mm]
10	18.1" [459mm]
12	20.1" [510mm]
14	22.1" [560mm]
16	24.1" [611mm]
20	28.1" [713mm]
24	32.1" [814mm]

Ordering Information

Example: FLD-EDG-70-AA-02-D-UL-SV-350-OPTIONS

FLD-EDG	70	AA		D				
Product	**Optic**	**Mounting**	**LED Count (x10)**	**Version**	**Voltage**	**Color Options**	**Drive Current**	**Options**
FLD-EDG	**70** 70˚ Flood	**AA** Adjustable Arm	**02** **04** **06** **08** **10** **12** **14** **16** **20** **24**	**D**	**UL** Universal 120–277V **UH** Universal 347–480V **34** 347V	**SV** Silver (Standard) **BK** Black **BZ** Bronze **PB** Platinum Bronze **WH** White	**350** 350mA **525*** 525mA **700**** 700mA	**40K 4000K Color Temperature** - Color temperature per luminaire **DIM 0–10V Dimming** - Control by others - Refer to dimming spec sheet for details - Can't exceed specified drive current **F Fuse** - When code dictates fusing, use time delay fuse - Not available with all ML options. Refer to ML spec sheet for availability with ML options **HL Hi/Low (175/350/525 Dual Circuit Input)** - Refer to ML spec sheet for details - Sensor not included **P Photocell** - Not available with all ML options. Refer to ML spec sheet for availability with ML options - Must specify voltage other than UH **R NEMA Photocell Receptacle** - Not available with all ML options. Refer to ML spec sheet for availability with ML options - Intended for horizontal mounting - Photocell by others **ML Multi-Level** - Refer to ML spec sheet for details

* Available on luminaires with 20–160 LEDs
** Available on luminaires with 20–60 LEDs

Rev. Date: 8/14/2012

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Product Specifications

CONSTRUCTION & MATERIALS

- Slim, low profile, minimizing wind load requirements
- Luminaire sides are rugged die cast aluminum with integral, weather-tight LED driver compartments and high performance heat sinks
- Adjustable mounting arm is rugged die cast aluminum and mounts to 2″ (51mm) IP (2.375″ [60mm] O.D.) tenon
- Includes leaf/debris guard
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultradurable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Standard is silver. Bronze, black, white, and platinum bronze are also available

ELECTRICAL SYSTEM

- **Input Voltage:** 120–277V or 347–480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral weather-tight electrical box with terminal strips (12Ga–20Ga) for easy power hookup
- Integral 10kV surge suppression protection standard
- To address inrush current, slow blow fuse or type C/D breaker should be used

REGULATORY & VOLUNTARY QUALIFICATIONS

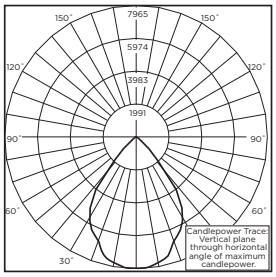
- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529 when ordered without P or R options
- Consult factory for CE Certified products
- Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards
- 10kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Product qualified on the DesignLights Consortium (“DLC”) Qualified Products List (“QPL”) when ordered without the backlight control shield
- RoHS Compliant
- Meets Buy American requirements within ARRA

PATENTS

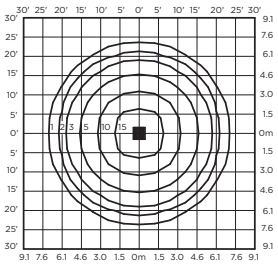
- Visit website for patents that cover these products: Patents http://www.cree.com/patents

Photometry

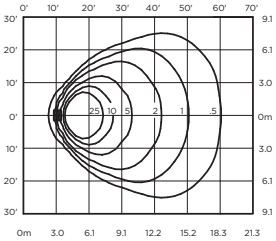
All published luminaire photometric testing performed to IESNA LM-79-08 standards by Independent Testing Laboratories, a NVLAP certified laboratory.



ITL Test Report #: 71844
FLD-EDG-70-**-06-D-UL-700-40K
Initial Delivered Lumens: 10,384



FLD-EDG-70-**-06-D-UL-700
Mounting Height: 20′ (6.1m) A.F.G.
Initial Delivered Lumens: 10,317
0˚ Tilt
Initial FC at grade



FLD-EDG-70-**-06-D-UL-700
Mounting Height: 10′ (3.0) A.F.G.
Initial Delivered Lumens: 10,317
60˚ Tilt
Initial FC at grade

IES Files
To obtain an IES file specific to your project consult:
http://www.cree.com/lighting/tools-and-support/exterior-ies-configuration-tool

Lumen Output, Electrical, and Lumen Maintenance Data

70˚ Flood Distribution										
LED Count (x10)	5700K Initial Delivered Lumens	4000K Initial Delivered Lumens	System Watts 120–480V	TOTAL CURRENT 120V	208V	240V	277V	347V	480V	50K Hours Projected Lumen Maintenance Factor @ 15˚C (59˚F)*
350mA @ 25˚C (77˚F)										
02	2,037	1,878	26	0.20	0.13	0.11	0.10	0.09	0.07	93%
04	4,075	3,755	47	0.40	0.24	0.21	0.19	0.15	0.12	
06	6,033	5,561	68	0.58	0.34	0.30	0.26	0.20	0.16	
08	8,044	7,414	90	0.77	0.44	0.38	0.34	0.26	0.20	
10	10,030	9,244	111	0.95	0.55	0.47	0.42	0.32	0.24	
12	12,036	11,093	132	1.15	0.66	0.56	0.50	0.38	0.28	
14	13,979	12,883	157	1.34	0.78	0.67	0.61	0.47	0.35	
16	15,975	14,724	179	1.54	0.89	0.76	0.68	0.53	0.39	
20	19,969	18,405	221	1.92	1.10	0.95	0.84	0.65	0.48	
24	23,963	22,086	264	2.30	1.31	1.12	1.00	0.77	0.56	
525mA @ 25˚C (77˚F)										
02	2,852	2,629	37	0.31	0.19	0.17	0.16	0.12	0.10	92%
04	5,705	5,258	70	0.57	0.33	0.29	0.26	0.21	0.16	
06	8,447	7,785	102	0.87	0.50	0.44	0.39	0.30	0.22	
08	11,262	10,380	133	1.14	0.65	0.56	0.49	0.39	0.29	
10	14,042	12,942	172	1.47	0.85	0.75	0.67	0.51	0.38	
12	16,851	15,530	204	1.76	1.01	0.88	0.78	0.60	0.44	
14	19,570	18,037	233	2.01	1.14	0.99	0.87	0.69	0.51	
16	22,366	20,613	265	2.29	1.29	1.11	0.98	0.78	0.57	
700mA @ 25˚C (77˚F)										
02	3,484	3,211	50	0.42	0.25	0.22	0.20	0.15	0.12	90%
04	6,968	6,422	93	0.79	0.45	0.40	0.35	0.27	0.20	
06	10,317	9,508	137	1.18	0.67	0.59	0.51	0.39	0.29	

* Projected L_{70} (10K) Hours: > 60,000. For recommended lumen maintenance factor data see TD-13

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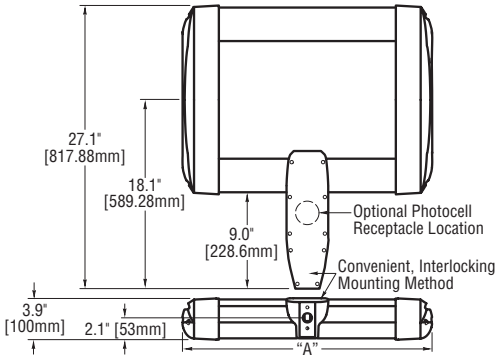
ARE-EDG-3M-DA THE EDGE® LED Area Light – Type III Medium

Rev. Date: 8/23/11

Reset

Notes:



# of LEDs	Dim. "A"
20	12.06" [306mm]
40	12.06" [306mm]
60	14.06" [357mm]
80	16.06" [408mm]
100	18.06" [459mm]
120	20.06" [510mm]
140	22.06" [560mm]
160	24.06" [611mm]
200	28.06" [713mm]
240	32.06" [814mm]

Product	Family	Optic	Mounting	# of LEDs (x 10)	LED Series	Voltage	Color Options	Drive Current (Not Field Adjustable)	Factory-Installed Options (Please type additional options in manually on the lines provided above.)
ARE	EDG	3M[1]	DA[3]	02	D	UL	SV	350	43K 4300K Color Temperature[6]
		3MB[2]		04		Universal	Silver	350mA	DIM 0–10V Dimming[7,8,9]
				06		120–277V	BK	525[4]	F Fuse[10,11,12]
				08		UH	Black	525mA	HL Hi/Low (175/350/525, dual circuit input)[13]
				10		Universal	BZ	700[5]	P Photocell[12,14]
				12		347–480V	Bronze	700mA	R NEMA Photocell Receptacle[12,15,16]
				14		34	PB		ML Multi-Level (75/525)[13]
				16		347V	Platinum		
				20			Bronze		
				24			WH		
							White		

Footnotes

1. IESNA Type III Medium distribution
2. IESNA Type III Medium distribution w/ backlight control
3. Direct mounting arm for use with 3–6" (76–152mm) square or round pole
4. Available on fixtures with 20–160 LEDs
5. Available on fixtures with 20–60 LEDs
6. Color temperature per fixture; 6000K standard; minimum 70 CRI
7. Control by others
8. Refer to dimming spec sheet for availability and additional information
9. Not available when UH voltage is selected
10. When code dictates fusing use time delay fuse
11. Not available with all multi-level options. Refer to the multi-level spec sheet for availability and additional information
12. Refer to multi-level spec sheet for availability and additional information
13. Must specify voltage other than UH
14. Intended for horizontal mounting
15. Photocell by others

LED PERFORMANCE SPECS

# of LEDs	Initial Delivered Lumens – Type III Medium @ 6000K	B	U	G	Rating**	Initial Delivered Lumens – Type III Medium w/ backlight control @ 6000K	B	U	G	Rating**	Initial Delivered Lumens – Type III Medium @ 4300K	B	U	G	Rating**	Initial Delivered Lumens – Type III Medium w/ backlight control @ 4300K	B	U	G	Rating**	System Watts 120–480V	Total Current @ 120V	Total Current @ 240V	Total Current @ 277V	Total Current @ 347	Total Current @ 480V	L_{70} Hours* @ 25° C (77° F)	50K Hours Lumen Maintenance Factor* @ 15° C (59° F)
350mA Fixture Operating at 25° C (77° F)																												
20	1,814 (02)	1	1	1		1,342 (02)	0	1	1		1,672 (02)	1	1	1		1,237 (02)	0	1	1		26	0.20	0.11	0.10	0.09	0.07	>150,000	
40	3,628 (04)	1	1	1		2,683 (04)	1	1	1		3,343 (04)	1	1	1		2,473 (04)	0	1	1		47	0.40	0.21	0.19	0.15	0.12	>150,000	
60	5,371 (06)	2	2	2		3,973 (06)	1	2	1		4,950 (06)	2	2	2		3,662 (06)	1	2	1		68	0.58	0.30	0.26	0.20	0.16	>150,000	
80	7,161 (08)	2	2	2		5,298 (08)	1	2	2		6,600 (08)	2	2	2		4,882 (08)	1	2	1		90	0.77	0.38	0.34	0.26	0.20	>150,000	
100	8,929 (10)	3	3	3		6,605 (10)	1	3	2		8,230 (10)	2	2	2		6,088 (10)	1	2	2		111	0.95	0.47	0.42	0.32	0.24	>150,000	93%
120	10,715 (12)	3	3	3		7,926 (12)	1	3	2		9,876 (12)	3	3	3		7,305 (12)	1	3	2		132	1.15	0.56	0.50	0.38	0.28	>150,000	
140	12,444 (14)	3	3	3		9,205 (14)	1	3	2		11,469 (14)	3	3	3		8,484 (14)	1	3	2		157	1.34	0.67	0.61	0.47	0.35	149,000	
160	14,222 (16)	3	3	3		10,520 (16)	1	3	2		13,108 (16)	3	3	3		9,696 (16)	1	3	2		179	1.54	0.76	0.68	0.53	0.39	149,000	
200	17,778 (20)	3	3	3		13,151 (20)	2	3	3		16,385 (20)	3	3	3		12,120 (20)	1	3	2		221	1.92	0.95	0.84	0.65	0.48	149,000	
240	21,333 (24)	3	3	3		15,781 (22)	2	3	3		19,662 (24)	3	3	3		14,544 (24)	2	3	3		264	2.30	1.12	1.00	0.77	0.56	149,000	
525mA Fixture Operating at 25° C (77° F)																												
20	2,539 (02)	1	1	1		1,878 (02)	0	1	1		2,340 (02)	1	1	1		1,731 (02)	0	1	1		37	0.31	0.17	0.16	0.12	0.10	136,000	
40	5,079 (04)	2	2	2		3,757 (04)	1	2	1		4,681 (04)	2	2	2		3,462 (04)	1	2	1		70	0.57	0.29	0.26	0.21	0.16	136,000	
60	7,520 (06)	2	2	2		5,562 (06)	1	2	2		6,930 (06)	2	2	2		5,127 (06)	1	2	1		102	0.87	0.44	0.39	0.30	0.22	129,000	
80	10,026 (08)	3	3	3		7,417 (08)	1	3	2		9,240 (08)	3	3	3		6,835 (08)	1	3	2		133	1.14	0.56	0.49	0.39	0.29	129,000	
100	12,501 (10)	3	3	3		9,247 (10)	1	3	2		11,521 (10)	3	3	3		8,523 (10)	1	3	2		172	1.47	0.75	0.67	0.51	0.38	128,000	92%
120	15,001 (12)	3	3	3		11,097 (12)	1	3	2		13,826 (12)	3	3	3		10,227 (12)	1	3	2		204	1.76	0.88	0.78	0.60	0.44	128,000	
140	17,422 (14)	3	3	3		12,888 (14)	2	3	2		16,057 (14)	3	3	3		11,878 (14)	1	3	2		233	2.01	0.99	0.87	0.69	0.51	123,000	
160	19,911 (16)	3	3	3		14,729 (16)	2	3	2		18,351 (16)	3	3	3		13,575 (16)	2	3	3		265	2.29	1.11	0.98	0.78	0.57	123,000	
700mA Fixture Operating at 25° C (77° F)																												
20	3,102 (02)	1	1	1		2,281 (02)	0	1	1		2,858 (02)	1	1	1		2,102 (02)	0	1	1		50	0.42	0.22	0.20	0.15	0.12	111,000	
40	6,203 (04)	2	2	2		4,562 (04)	1	2	1		5,717 (04)	2	2	2		4,204 (04)	1	2	1		93	0.79	0.40	0.35	0.27	0.20	111,000	90%
60	9,185 (06)	3	3	3		6,754 (06)	1	3	2		8,465 (06)	2	3	2		6,225 (06)	1	2	2		137	1.18	0.59	0.51	0.39	0.29	111,000	

* For recommended lumen maintenance factor data see TD-13

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit www.iesna.org/PDF/Erratas/TM-15-07BugRatingsAddendum.pdf

NOTE: All data subject to change without notice.

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Made in the U.S.A. of U.S. and imported parts.
Meets Buy American requirements within the ARRA.

ARE-EDG-3M-DA THE EDGE® LED Area Light – Type III Medium

Rev. Date: 8/23/11

General Description

Slim, low profile design minimizes wind load requirements. Fixture sides are rugged cast aluminum with integral, weather-tight LED driver compartments and high performance aluminum heatsinks. Convenient, interlocking mounting method. Mounting housing is rugged die cast aluminum and mounts to 3–6" (76–152mm) square or round pole. Fixture is secured by two (2) 5/16-18 UNC bolts spaced on 2" (51mm) centers. Includes leaf/debris guard. Five year limited warranty on fixture.

Electrical

Modular design accommodates varied lighting output from high power, white, 6000K (+/- 500K per full fixture), minimum 70 CRI, long life LED sources. Optional 4300K (+/- 300K per full fixture) also available. 120–277V 50/60 Hz, Class 1 LED drivers are standard. 347–480V 50/60 Hz driver is optional. LED drivers have power factor >90% and THD <20% at full load. Units provided with integral 10kV surge suppression protection standard. Integral weather-tight electrical box with terminal strips (12Ga - 20Ga) for easy power hook-up. Surge protection tested in accordance with IEEE/ANSI C62.41.2.

Testing & Compliance

UL listed in the U.S. and Canada for wet locations and enclosure rated IP66 per IEC 60529 when ordered without P or R options. Consult factory for CE Certified products. Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards.
Dark Sky Friendly. IDA Approved. RoHS Compliant.

Product qualified on the Design Lights Consortium ("DLC") Qualified Products List ("QPL") when ordered without backlight control shield.

Finish

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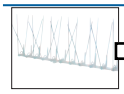
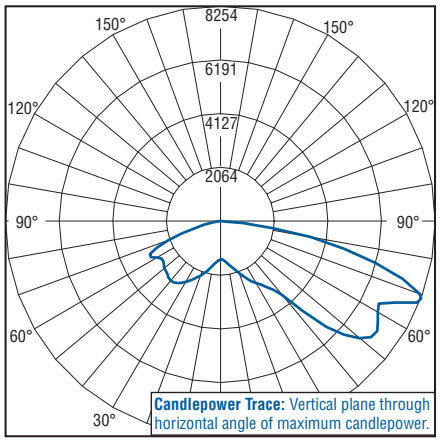
Field-Installed Accessories

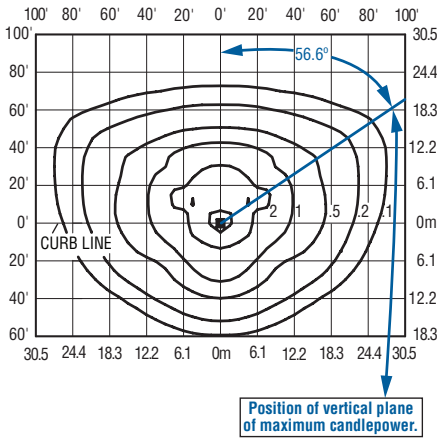


Bird Spikes
☐XA-BRDSPK

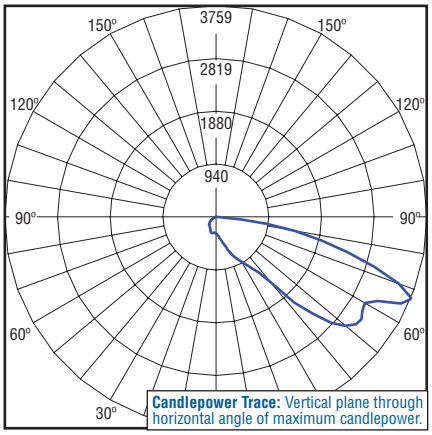
Photometrics



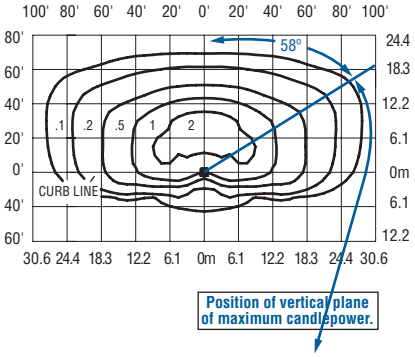
Independent Testing Laboratories certified test. Report No. ITL67871. Candlepower trace of 4300K, 160 LED Type III Medium area luminaire with 18,862 initial delivered lumens operating at 525mA. **All published luminaire photometric testing performed to IESNA LM-79-08 standards.**



Isofootcandle plot of 4300K, 120 LED Type III Medium area luminaire at 25' (7.6m) A.F.G. Luminaire with 13,826 initial delivered lumens operating at 525mA. Initial FC at grade.



Independent Testing Laboratories certified test. Report No. ITL68539. Candlepower trace of 4300K, 40 LED Type III Medium w/ backlight control area luminaire with 5,084 initial delivered lumens operating at 525mA. **All published luminaire photometric testing performed to IESNA LM-79-08 standards.**



Isofootcandle plot of 4300K, 120 LED Type III Medium area luminaire at 25' (7.6m) A.F.G. Luminaire with 10,227 initial delivered lumens operating at 525mA. Initial FC at grade.

THE EDGE® EPA & Weight Calculations

# of LEDs	Approximate Weight 120–480V[1]	Single	2@ 180°	2@ 90°	3@ 90	4@ 90°
Fixed Arm Mount						
20	21.0 lbs. (9.5kg)	0.60	1.20	0.87	1.47	1.75
40	23.7 lbs. (10.8g)	0.60	1.20	0.87	1.47	1.75
60	27.0 lbs. (12.3kg)	0.60	1.20	0.92	1.51	1.83
80	28.1 lbs. (12.8kg)	0.60	1.20	0.96	1.55	1.91
100	32.3 lbs. (14.7kg)	0.60	1.20	1.00	1.60	2.00
120	33.5 lbs. (15.2kg)	0.60	1.20	1.04	1.64	2.08
140	36.9 lbs. (16.7kg)	0.60	1.20	1.08	1.68	2.16
160	41.4 lbs. (18.8kg)	0.60	1.20	1.12	1.72	2.24
200	43.3 lbs. (19.6kg)	0.61	1.21	n/a[2]	n/a[2]	n/a[2]
240	47.8 lbs. (21.7kg)	0.69	1.38	n/a[2]	n/a[2]	n/a[2]

1. Add 5 lbs. (2.3kg) for transformer in 347–480V fixtures when multi-level options are selected.
2. For applications requiring 200 or more LEDs at 90 degrees refer to the DL mount version of our spec sheet.

NOTE: All data subject to change without notice.

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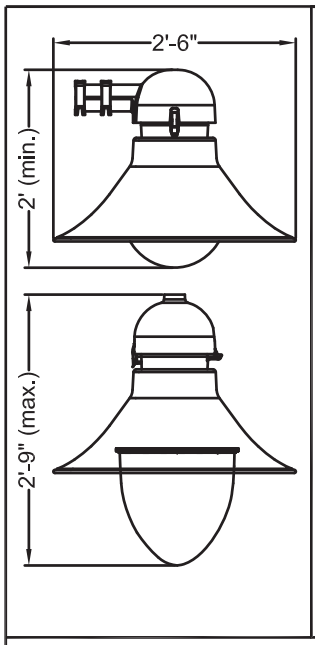
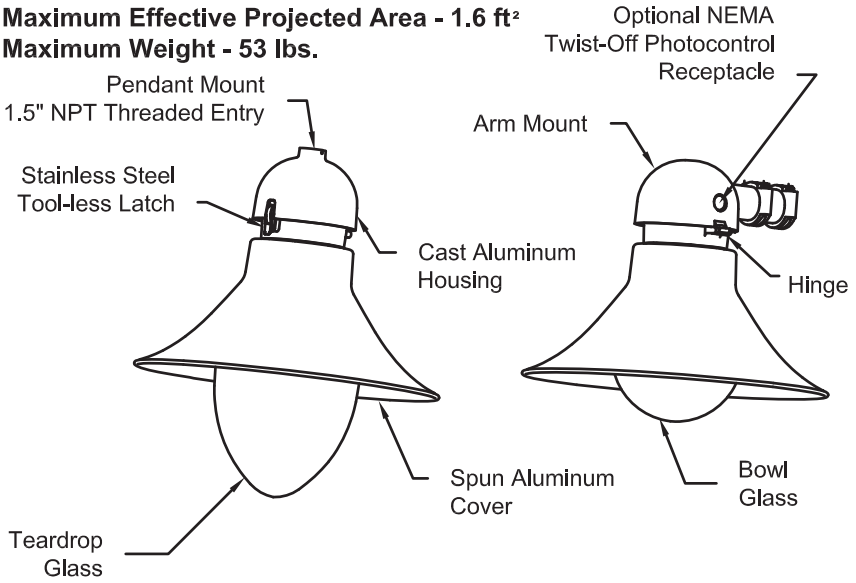
Made in the U.S.A. of U.S. and imported parts.
Meets Buy American requirements within the ARRA.



Maximum Effective Projected Area - 1.6 ft²
Maximum Weight - 53 lbs.



ORDERING INFORMATION:

GPLB 050 4K AS 2 B 3

COVER TYPE
GPLB = Prague

SOURCE & WATTAGE
050 = 50W 350mA DRIVER
070 = 70W 350mA DRIVER
100 = 100W 350mA DRIVER

COLOR TEMP.
4K = 4000K
5K = 5000K
6K = 6000K

VOLTAGE
AS = AUTO-SENSING 120-277V
AH = AUTO-SENSING 347-480V

MOUNTING STYLE
1 = ARM
2 = PENDANT 1.5 NPT
3 = PENDANT 1.25 NPT

COLOR
A = AS SPECIFIED
B = BLACK
N = GREEN
Z = BRONZE
W - WHITE

OPTICS
3 = 4173 ASYMMETRIC BOWL GLASS
4 = 4094 ASYMMETRIC TEARDROP GLASS (NOT AVAILABLE WITH 6K CCT)
5 = 4175 SYMMETRIC BOWL GLASS

OPTIONS:
D = ROAM 0-10V DIMMING CONTROL
B = BI-LEVEL 0-10V DIMMING CONTROL
H = NEMA TWISTLOCK PHOTOCONTROL RECEPTACLE ONLY
DM = 0-10V DIMMING
PCS = DTL TWISTLOCK PHOTOCONTROL 120-277 VOLT
P34 = DTL TWISTLOCK PHOTOCONTROL 347V
P48 = DTL TWISTLOCK PHOTOCONTROL 480 VOLT
PSC = SHORTING CAP
L03 = 3 FEET OF PREWIRED LEADS
L10 = 10 FEET OF PREWIRED LEADS
L20 = 20 FEET OF PREWIRED LEADS
L25 = 25 FEET OF PREWIRED LEADS
L30 = 30 FEET OF PREWIRED LEADS

ACCESSORIES:
SPDPLUGIN = REPLACEMENT SURGE PROTECTOR 120-277V
SPDPLUGIN-48 = REPLACEMENT SURGE PROTECTOR 347-480V

GlasWerks® LED
Prague®

DESIGNER OUTDOOR

HOLOPHANE®
LEADER IN LIGHTING SOLUTIONS
An AcuityBrandsCompany

THIS DRAWING, WHEN APPROVED, SHALL BECOME THE COMPLETE SPECIFICATION FOR THE MATERIAL TO BE FURNISHED BY HOLOPHANE ON THE ORDER NOTED ABOVE, A UNIT OF SIMILAR DESIGN MAY BE SUPPLIED, BUT ONLY AFTER APPROVAL BY THE CUSTOMER IN WRITING. ON POLE ORDERS AN ANCHOR BOLT TEMPLATE PRINT WILL BE SUPPLIED WITH EACH ANCHOR BOLT ORDER TO MATCH THE POLE PROVIDED. THIS PRINT IS THE PROPERTY OF HOLOPHANE AND IS LOANED SUBJECT TO RETURN UPON DEMAND AND UPON EXPRESS CONDITION THAT IT WILL NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO OUR INTERESTS, AND ONLY IN CONNECTION WITH MATERIAL FURNISHED BY HOLOPHANE.

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ORDER #:
TYPE:
DRAWN: KRW
DATE: 10/25/11
DWG #: LUM_GPLB

Specifications

GENERAL DESCRIPTION
The Euro styled luminaire consists of a borosiliate glass optical assembly shielded by a decorative formed reflector and a top mounted cast aluminum electrical assembly with a circumferential 1-1/2 inch reveal.

OPTICAL ASSEMBLY
The optical assembly consists of a thermal resistant prismatic glass lens mechanically held in a formed aluminum door frame. The door frame is attached to the spun cover with screws. Light from the LED module is distributed by precisely molded optical interface to maximize utilization, uniformity and luminaire spacing. Multiple boards are available for symmetrical or asymmetric distribution with various wattages.

ELECTRICAL ASSEMBLY
The cast aluminum electrical housing, has a smooth domed contour. A terminal block is provided with a quick disconnect receptacle. The electrical housing is hinged with a tool-less latch to provide easy access to the gear assembly. The unitized electrical assembly, containing the electronic driver and other electrical components, plugs into the quick disconnect receptacle. The pendant mount version has a 1-1/2 inch circumferential reveal. This housing has an integral 1-1/2 inch NPT threaded entry with stainless steel set screw. The arm mount version is provided with two U-bolts with washers and nuts and two leveling set screws that lock the housing to a 2 inch nominal (2-3/8" O.D.) horizontal arm and allow a +/- 5 degree adjustment from horizontal to the cover.

ELECTRICAL DRIVER
(Refer to the drive specification sheet for operating characteristics)

FINISH
The luminaire is finished with polyester powder paint to insure maximum durability.

LISTING
The luminaire is CSA listed as suitable for wet locations up to 40° C ambient temperature. IP rated.

WARRANTY
Limmited warranty located at
www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

NOTE
Actual performance may differ as a result of end-user environment and application.

Actual wattage may differ by +11% / -6% when operating between 120-480V +/- 10%.

Specification subject to change without notice.

GlasWerks® LED
Prague®

DESIGNER
OUTDOOR

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ORDER #:
TYPE:
DRAWN: KRW
DATE: 10/25/11
DWG #: LUM_GPLB

6" LED Open Downlight

RLF6LEDG4

120V–277V

0-10V Dimming

DATE: TYPE:

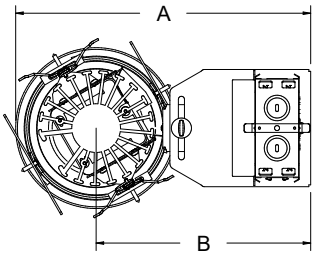
FIRM NAME:

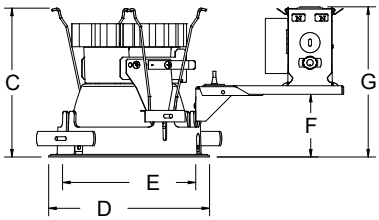
PROJECT:

RETROFICIENT

ENERGY STAR

Ceiling Cutout: see guide
Maximum Ceiling Thickness 1½"
For conversion to millimeters, multiply inches by 25.4
Not to Scale





*Dimensions shown are for range of adjustability.

APPLICATIONS:

LiteFrame Retroficient RLF6LED is a 6" specification grade Retrofit LED retrofit downlight that combines superior brightness control with energy savings and low maintenance costs. The RLF6LED is designed specifically to retrofit into ceilings with existing recessed downlight fixtures without the need to remove the existing fixture. Suitable for a variety of commercial, retail, and institutional applications with ambient temperature up to 40°C (104°F) in open plenum applications.

HOUSING:

All components are made from quality die cast aluminum or galvaneal steel. Pre-wired j-box with snap-on cover for easy access. Snap-in- connection from driver compartment allows easy installation of light engine/trim assembly without tools above or below the ceiling and can be upgraded to accommodate technology improvements. Approve for 8 (4 in/4 out) No. 12 AWG conductors rated for 90°C through wiring.

INSTALLATION:

All installation can be performed from below the ceiling without removing existing fixture.

REFLECTOR:

High purity aluminum, Alzak, iridescence suppressed, semi-diffuse upper reflector. Self-trim standard. Painted white self-trim (WT) available as option. Reflector is made from anodized Alanod Miro 4 aluminum.

LED LIGHT ENGINE:

The RLF6LED uses the Philips Fortimo DLM Gen 4 LED Module with remote phosphor technology. This technology provides controlled color consistency (3 SCDM) from fixture to fixture. The system is designed for optional life and lumen maintenance (>50,000 hours at 70% lumen maintenance). Both reflector and light engine assembly are mechanically retained to housing. The light engine comes standard with 80 CRI in all Kelvin temperatures.

LED DRIVER:

The RLF6LED utilizes the Philips Fortimo LED Driver specifically designed to optimize efficiency of the Fortimo DLM Module. Driver is designed to match the 50,000 hour minimum life expectancy of the system. Meets UL Class 2, inherent short circuit protection, self limited, overload protected. If critical temperatures are reached on driver or LED module, integrated thermal feedback loop will gradually reduce current to protect system life. Driver is universal 120V-277V. Optional Lutron Series A driver is also available.

DIMMING:

Comes standard with 0-10V dimming capability. Flicker-free dimming to 10%. 0-10V control may consume up to 1mA. 0-10V, Lutron 2 wire, 3 wire, and EcoSystem dimming available to 1%.

CERTIFICATIONS:

CSA certified to US and Canadian safety standards. Suitable for wet locations. Approved for through wiring. Non-IC rated. ENERGY STAR qualified with open clear Alzak reflector.

WARRANTY:

5 year warranty. See www.prescolite.com for details.

	"A"*	"B"*	"C"*	"D"*	"E"*	"F"*	"G"*
RLF6LEDG4 6LFLED5G4 RLF6LEDG4 6LFLED6G4 RLF6LEDG4 6LFLED7G4	12-3/4" - 15"	8-7/8" - 10-3/4"	6-3/4"	7"	5-3/4"	2-1/2" - 3-3/4"	6-1/4" - 7-1/2"

EXAMPLE: RLF6LEDG4 - 6LFLED5G430K
EXAMPLE: RLF6LED7G4120HDM-6LFLED7G435KWHWT

CATALOG NUMBER:

Order housing, reflector, and accessories separately

STANDARD 0-10V DIMMING

HOUSING/LED GENERATION	VOLTAGE	OPTIONS	TRIM	LED COLOR TEMP	REF. FINISH	LOWER REF. COLOR	REF. OPTIONS	ACCESSORIES
❑ **RLF6LEDG4** 6" High Efficacy LED Housing	❑ **Blank** 120V–277V	❑ **Blank** Standard 0-10V dimming to 10% ❑ **SD**[1] Small Diameter	❑ **6LFLED5G4** 1100 Lumen Module ❑ **6LFLED6G4** 1500 Lumen Module ❑ **6LFLED7G4** 2000 Lumen Module	❑ **30K** ❑ **35K** ❑ **40K**	❑ **Blank** Semi-Diffuse	❑ **Blank** Clear ❑ **CG** Champagne Gold ❑ **BL** Black ❑ **WE** Wheat ❑ **LW** Light Wheat ❑ **PW** Pewter ❑ **WH**[1] White Paint	❑ **WT** White Trim ❑ **WF** Wide Flange	❑ **LFSC6** 6" reflector screw cover ❑ **LiteGear** See page 3 for availability ❑ **RWD6** Retrofit wide diameter housing kit

ALTERNATIVE DIMMING TO 1%

Use with HDM/DM1/2DM dimming option: Match Housing to Trim Output

❑ **RLF6LED5G4** ❑ **RLF6LED6G4** ❑ **RLF6LED7G4**	❑ **120** ❑ **277**	❑ **HDM**[3] Lutron 3-wire Eco System to 1% ❑ **2DM**[3] Lutron 2-wire Leading Edge to 1% (120V only) ❑ **DM1**[3] 0-10V dimming to 1% ❑ **SD**[1] Small Diameter

NOTES

1 See housing capability guide on page 3

2 Requires WT option also

3 For HDM, DM1, & 2DM options, housing output must match trim output

prescolite

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In a continuing effort to offer the best product possible we reserve the right to change, without notice, specifications or materials that in our opinion will not alter the function of the product.

Web: **www.prescolite.com** Tech Support: **(888) 777-4832**

RTF-014

PHOTOMETRIC DATA

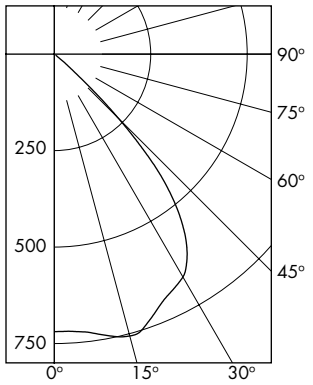
Retroficient - 6" RLF6LEDG4 Downlight

DRIVER DATA	RLF6LED5G4 30K	RLF6LED7G4 30K
Input Voltage	120-277V	120-277V
Input Frequency	50/60 Hz	50/60 Hz
Input Current	0.12A (120v)	0.22A (120v)
	0.052A (277v)	0.10A (277v)
Input Power	14.5W	26.5W
Constant Current Output	200–1000mA	200–1000mA
Power Factor	≥0.90	≥0.90
THD	<20%	<20%
EMI Filtering	FCC 47CFR	FCC 47CFR
	Part 15, Class A	Part 15, Class A
Operating Temperature	-20°C to 40°C	-20°C to 40°C
Dimming	0-10V	0-10V

Over-voltage, over-current, short-circuit protected

*Power consumption and photometric output may vary slightly with HDM or 2DM driver

RLF6LEDG4 6LFLED5G4 30K
LED Light Engine: 3000K, 80 CRI
System Wattage: 14.5W
Fixture Delivered Lumens: 1157
Fixture Efficacy: 80.0
Spacing Criteria: 1.2



CANDELA DISTRIBUTION

DEG	CANDELA	LUMENS
0	719	
5	722	69
15	756	212
25	692	321
35	597	365
45	236	181
55	4	8
65	0	0
75	0	0
85	0	0
90	0	

Test No. 8458
Tested at 25°C Ambient in accordance to IESNA LM-79-2008

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LUMINAIRE
0-30	602	52.0
0-40	967	83.6
0-60	1157	100.0
0-90	1157	100.0
90-180	0	0.0
0-180	1157	100.0

LUMINANCE DATA IN CANDELA/ SQ. METER

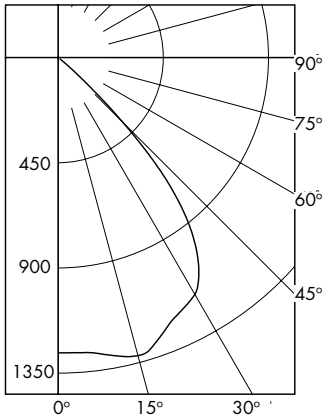
Angle in Vertical	Average
45°	18290
55°	382
65°	0
75°	0
85°	0

COEFFICIENTS OF UTILIZATION Zonal Cavity Method

Room Cavity Ratio	% Effective Ceiling Cavity Reflectance																	
	80%				70%				50%			30%			10%			
	20% Effective Floor Cavity Reflectance																	
	% Wall Reflectance																	
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
1	113	110	107	105	110	108	105	103	104	102	100	100	98	97	96	95	94
2	107	101	97	93	104	99	95	92	96	93	90	93	90	88	90	88	86
3	100	93	87	83	98	92	87	82	89	85	81	86	83	80	84	81	79
4	94	86	80	75	92	85	79	74	82	77	73	80	76	73	78	75	72
5	88	79	73	68	87	78	72	67	76	71	67	74	70	66	73	69	65
6	83	73	66	61	82	72	66	61	71	65	61	69	64	60	68	63	60
7	78	68	61	56	77	67	61	56	66	60	56	64	59	55	63	59	55
8	74	63	56	51	72	62	56	51	61	55	51	60	55	51	59	54	51
9	69	58	52	47	68	58	52	47	57	51	47	56	51	47	55	50	47
10	65	55	48	44	64	54	48	44	53	47	43	52	47	43	52	47	43

RLF6LEDG4 6LFLED5G4 30K — Test No. 8458

RLF6LEDG4 6LFLED7G4 30K
LED Light Engine: 3000K, 80 CRI
System Wattage: 26.4W
Fixture Delivered Lumens: 2013
Fixture Efficacy: 76.1
Spacing Criteria: 1.2



CANDELA DISTRIBUTION

DEG	CANDELA	LUMENS
0	1263	
5	1267	122
15	1320	370
25	1212	561
35	1041	637
45	391	306
55	9	15
65	2	2
75	0	0
85	0	0
90	0	

Test No. 8459
Tested at 25°C Ambient in accordance to IESNA LM-79-2008

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LUMINAIRE
0-30	1053	52.3
0-40	1690	83.9
0-60	2011	99.9
0-90	2013	100.0
90-180	0	0.0
0-180	2013	100.0

LUMINANCE DATA IN CANDELA/ SQ. METER

Angle in Vertical	Average
45°	30302
55°	860
65°	259
75°	0
85°	0

COEFFICIENTS OF UTILIZATION Zonal Cavity Method

Room Cavity Ratio	% Effective Ceiling Cavity Reflectance																	
	80%				70%				50%			30%			10%			
	20% Effective Floor Cavity Reflectance																	
	% Wall Reflectance																	
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
1	113	110	107	105	110	108	105	103	104	102	100	100	98	97	96	95	94
2	107	101	97	93	104	99	95	92	96	93	90	93	90	88	90	88	86
3	100	93	88	83	98	92	87	82	89	85	81	86	83	80	84	81	79
4	94	86	80	75	92	85	79	74	82	77	73	80	76	73	78	75	72
5	89	79	73	68	87	78	72	67	76	71	67	75	70	66	73	69	66
6	83	73	66	62	82	72	66	61	71	65	61	69	64	60	68	63	60
7	78	68	61	56	77	67	61	56	66	60	56	64	59	55	63	59	55
8	74	63	56	52	72	62	56	51	61	55	51	60	55	51	59	54	51
9	69	59	52	47	68	58	52	47	57	51	47	56	51	47	55	50	47
10	66	55	48	44	64	54	48	44	53	48	44	52	47	43	52	47	43

RLF6LEDG4 6LFLED7G4 30K — Test No. 8459

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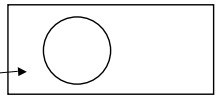
Housing Compatibility Guide		
Ordering Guidelines	6 inch	
	min	max
Requires SD Housing Option	5-15/16	6-1/8
All Standard Housings	6-1/8	6-1/2
Requires RWD Kit Accessory & WF Reflector Option	6-1/2	6-7/8

Dimensions shown are for the diameter of the frame flange at it's narrowest point



Central Inverters

For fixture full light output in back-up mode, Prescolite and Dual-lite have jointly tested the LiteFrame LED with the 100 (LG1) and 250 (LG2) VA LiteGear inverters. (Note: Not for use with integral EM option). For more information on LiteGear go to www.dual-lite.com/resources/litegear_luminaire_loading_chart/

Dimming Compatibility Table

Dimming Ballast	Manufacturer	Web Link
DM/DM1	Lutron DVTV	http://bit.ly/11jSvZg
DM/DM1	Leviton AWRMG-7xx, AWSMG-7xx, AWSMT-7xx	http://bit.ly/1BJn2R9
HDM	Lutron	http://bit.ly/1vtjHAl
2DM	Lutron	http://bit.ly/1nF4Zp1

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HDOT Phase 2

LIH – Lihue Airport

Proposed Exterior Lighting Upgrades

Materials Cut Sheets

Prepared by

Johnson Controls Lighting Services

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LED

InstantFit Lamps

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Philips InstantFit LED T8 and 4-pin long compact lamps are an ideal energy saving choice for existing fluorescent fixtures.

Perfect for a wide range of applications

- Full light output in spaces with temperatures down to -4˚F (-20˚C)
- Perfect for applications with frequent “on/off” switching cycles
- Buildings that desire to be mercury free

Easy to experience

- Compatible with a wide range of ballasts that include instant-start and programmed-start; select models are compatible with dimming ballasts[1]
- Fits into existing linear fixtures
- Eliminates the need for rewiring and allows the fixture to maintain original UL and CSA compliance[2]

Energy savings

- 50% energy savings vs F32T8 electronic instant start systems[3]

Sustainable lighting solution

- No mercury allowing for non-hazardous waste disposal
- Emits virtually no UV rays or IR
- NSF Certified for use in food areas and refrigerated food displays
- 5-year limited warranty[4]

Footnotes on the page 3.

Philips InstantFit LED T8 Lamps

Ordering, Electrical and Technical Data (Subject to change without notice)

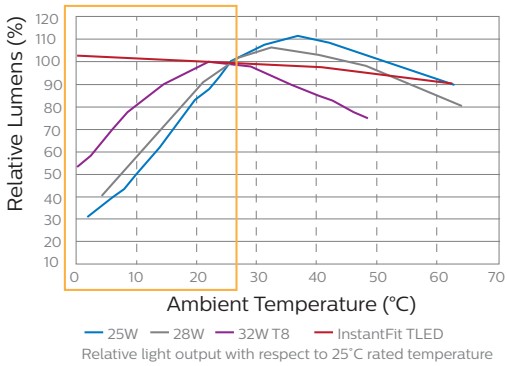
Product No.	Model No.	Ordering Code	Volts (Depending on Ballast)	Base	CRI	Color Temp. (K)	Pkg Qty	Rated Avg. Life[5]	MOL (In.)	Beam Angle
LED InstantFit T8 - 4'										
45358-9	9290011239	12T8/48-3000 IF 10/1	120-277, 347	G13	82	3000	10	50,000	48	160°
45359-7	9290011240	12T8/48-3500 IF 10/1	120-277, 347	G13	82	3500	10	50,000	48	160°
45360-5	9290011241	12T8/48-4000 IF 10/1	120-277, 347	G13	82	4000	10	50,000	48	160°
45361-3	9290011242	12T8/48-5000 IF 10/1	120-277, 347	G13	82	5000	10	50,000	48	160°
LED InstantFit T8 - 4' Dimmable[1] High Output										
45689-7	9290011585	15T8/48-3000 IF DIM 10/1	120-277, 347	G13	82	3000	10	50,000	48	160°
45690-5	9290011586	15T8/48-3500 IF DIM 10/1	120-277, 347	G13	82	3500	10	50,000	48	160°
45691-3	9290011587	15T8/48-4000 IF DIM 10/1	120-277, 347	G13	82	4000	10	50,000	48	160°
45692-1	9290011588	15T8/48-5000 IF DIM 10/1	120-277, 347	G13	82	5000	10	50,000	48	160°
LED InstantFit T8 - 4' Ultra High Output										
46313-3	9290012267	16.5T8 LED/48-3500 IF 10/1 UHO	120-277, 347	G13	82	3500	10	70,000	48	160°
46314-1	9290012268	16.5T8 LED/48-4000 IF 10/1 UHO	120-277, 347	G13	82	4000	10	70,000	48	160°
46315-8	9290012269	16.5T8 LED/48-5000 IF 10/1 UHO	120-277, 347	G13	82	5000	10	70,000	48	160°
LED InstantFit T8 - 4' Glass										
45656-6	9290011511	17T8/48-4000 IFG 10/1	120-277, 347	G13	82	4000	10	36,000	48	240°
45657-4	9290011512	17T8/48-5000 IFG 10/1	120-277, 347	G13	82	5000	10	36,000	48	240°
LED InstantFit T8 - 3'										
45205-2	9290011183	10.5T8/36-3000 IF 10/1	120-277, 347	G13	82	3000	10	50,000	36	160°
45206-0	9290011184	10.5T8/36-3500 IF 10/1	120-277, 347	G13	82	3500	10	50,000	36	160°
45207-8	9290011185	10.5T8/36-4000 IF 10/1	120-277, 347	G13	82	4000	10	50,000	36	160°
45208-6	9290011186	10.5T8/36-5000 IF 10/1	120-277, 347	G13	82	5000	10	50,000	36	160°
LED InstantFit T8 - 2' High Output										
45201-1	9290011179	8.5T8/24-3000 IF 10/1	120-277, 347	G13	82	3000	10	50,000	24	160°
45202-9	9290011180	8.5T8/24-3500 IF 10/1	120-277, 347	G13	82	3500	10	50,000	24	160°
45203-7	9290011181	8.5T8/24-4000 IF 10/1	120-277, 347	G13	82	4000	10	50,000	24	160°
45204-5	9290011182	8.5T8/24-5000 IF 10/1	120-277, 347	G13	82	5000	10	50,000	24	160°
LED InstantFit T8 U-Bent - 6" High Output										
45266-4	9290011196	16.5T8/24-3000 IF-6U 10/1	120-277, 347	G13	82	3000	10	50,000	22.5	160°
45267-2	9290011197	16.5T8/24-3500 IF-6U 10/1	120-277, 347	G13	82	3500	10	50,000	22.5	160°
45268-0	9290011198	16.5T8/24-4000 IF-6U 10/1	120-277, 347	G13	82	4000	10	50,000	22.5	160°
45269-8	9290011199	16.5T8/24-5000 IF-6U 10/1	120-277, 347	G13	82	5000	10	50,000	22.5	160°
LED InstantFit 4-Pin long compact - 2' High Output										
45663-2	9290011513	16.5PL-LED/24-3000 IF 10/1	120-277	2G11	82	3000	10	40,000	22.5	160°
45664-0	9290011514	16.5PL-LED/24-3500 IF 10/1	120-277	2G11	82	3500	10	40,000	22.5	160°
45665-7	9290011515	16.5PL-LED/24-4000 IF 10/1	120-277	2G11	82	4000	10	40,000	22.5	160°

Ballast Compatibility Guide

Please refer to www.philips.com/instantfit for instant start ballasts details and the latest ballast compatibility guide.

Relative Light Output vs. Ambient Temperature

4' T8 Lamps - 0.88 BF Ballast



Suitable for use in fixtures where ambient temperature is between -4°F (-20°C) and 113°F (45°C).

Warning: Philips LED T8 InstantFit lamps will only operate properly on compatible Instant-start and Programmed-start ballasts. Please refer to the Philips LED T8 InstantFit Installation Guide, which can be obtained through your local Philips Sales Representative, or visit www.philips.com/instantfit

FCC Note: This device complies with Part 18 of the FCC Rules.

Philips InstantFit LED T8 Lamps

Ordering, Electrical and Technical Data (Subject to change without notice)

Product No.	Bare Lamp Watts (W)	Average System Watts (W)			Initial Lumens[6]		
		Low Ballast Factor (0.78)	Normal Ballast Factor (0.88)	High Ballast Factor (1.18)	Low Ballast Factor (0.78)	Normal Ballast Factor (0.88)	High Ballast Factor (1.18)
LED InstantFit T8 - 4'							
45358-9	12	12.5	14.5	18.5	1300	1500	1700
45359-7	12	12.5	14.5	18.5	1300	1500	1800
45360-5	12	12.5	14.5	18.5	1400	1600	1850
45361-3	12	12.5	14.5	18.5	1450	1600	2000
LED InstantFit T8 - 4' Dimmable[1] High Output							
45689-7	15	16	18	26.5	1800	2000	2700
45690-5	15	16	18	26.5	1800	2000	2700
45691-3	15	16	18	26.5	1900	2100	2800
45692-1	15	16	18	26.5	1900	2100	2800
LED InstantFit T8 - 4' Ultra High Output							
46313-3	16.5	18	20	27	2200	2400	2950
46314-1	16.5	18	20	27	2250	2500	3050
46315-8	16.5	18	20	27	2250	2500	3050
LED InstantFit T8 - 4' Glass							
45656-6	17	18.0	20.0	26.5	1850	2100	2450
45657-4	17	18.0	20.0	26.5	1850	2100	2450
LED InstantFit T8 - 3'							
45205-2	10.5	12.5	13	17	1000	1100	1330
45206-0	10.5	12.5	13	17	1050	1160	1400
45207-8	10.5	12.5	13	17	1080	1200	1440
45208-6	10.5	12.5	13	17	1150	1270	1550
LED InstantFit T8 - 2' High Output							
45201-1	8.5	10	10.5	14.5	860	950	1110
45202-9	8.5	10	10.5	14.5	900	1040	1170
45203-7	8.5	10	10.5	14.5	930	1050	1200
45204-5	8.5	10	10.5	14.5	1000	1100	1290
LED InstantFit T8 U-Bent - 6" High Output							
45266-4	16.5	17.5	19	25.5	1800	2000	2700
45267-2	16.5	17.5	19	25.5	1800	2000	2700
45268-0	16.5	17.5	19	25.5	1900	2100	2800
45269-8	16.5	17.5	19	25.5	1950	2150	2900
LED InstantFit 4-Pin long compact (PL-L) - 2' High Output							
45663-2	17	N/A	21	N/A	N/A	1900	N/A
45664-0	17	N/A	21	N/A	N/A	2000	N/A
45665-7	17	N/A	21	N/A	N/A	2100	N/A

1. Please refer to the InstantFit ballast compatibility guide @ www.philips.com/instantfit. Compatibility subject to change as additional ballasts are tested. If you do not see your ballast on the compatibility list please contact your local Philips Lighting representative.
2. Must follow guidelines for installation from Philips Quick Installation Guide included with lamp shipment.
3. (2) Lamp F32T8 Electronic Instant Start System with 0.88 Ballast Factor= 58 System Watts; (2) Philips LED T8 InstantFit =29 System Watts; 58 - 29 = 29 System Watts Saved; 29/58 = 50% Energy Saved.
4. See warranty for terms and conditions at www.philips.com/warranties.
5. Tested to B50 L70 requirements with a ballast whose ballast factor is ≤ 0.88.
6. Photometric testing consistent with IES LM-79.

● This lamp is DLC qualified.

System Power Compatibility Guide

This chart shows the measured system wattage of the Philips InstantFit TLED versus a comparable linear fluorescent lamp when used with the reference ballast.

	Reference Ballast	ICN-1P32-N	ICN-2P32-N	ICN-3P32-N	ICN-4P32-N
	Ballast Factor	0.88	0.88	0.88	0.88
	Number of Lamps	1	2	3	4

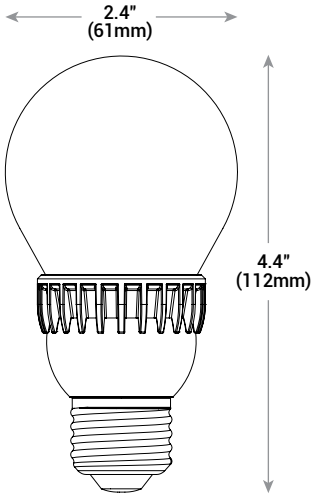
	Lamp Type	System Power (W)*			
Specification	F32T8	31	59	85	112
	InstantFit 12 W	12.5	27.5	40	58
	InstantFit 15 W	24	35.5	46	63

* Variance <10%

A19
LED Bulbs

Product Description

The Cree® LED A19 bulbs deliver up to 1100 lumens of warm 2700K light or cool 5000K light, while consuming at least 84% less energy than the incandescent bulbs they replace. These lamps feature a consistent and balanced omnidirectional light source within a real glass bulb, turn on instantly, and are compatible with most standard incandescent dimmers. Powered by Cree® LED Filament Tower™ Technology, the Cree® LED A19 bulbs are ENERGY STAR® qualified and are designed to last 25,000 hours.



Performance Summary

- Utilizes Cree LED Filament Tower™ Technology
- Made in the U.S.A. of U.S. and imported parts
- **Lamp Delivered Light Output:** 450 lumens (40W eq); 800 lumens (60W eq); 1,100 lumens (75W eq)
- **Input Power :** 6 watts (40W eq)
  9.5 watts (60W 2700K eq)
  9 watts (60W 5000K eq)
  13.5 watts (75W eq)
- **CRI:** 80
- **CCT:** 2700K, 5000K*
- **Limited Warranty†:** 3 years
- **Lifetime:** Designed to last at least 25,000 hours
- **Dimming:** Dimmable to 5% with select dimmers**
- Must order in multiples of master carton (MC) quantities

Click below to select Quick Ship products

QUICKSHIP™ A19-60W-27K-B1

For full list of Cree Quick Ship products visit www.cree.com/lighting/quickship

Ordering Information

Example: A19-60W-27K-T24

A19						
Product	**Watt Equivalent**	**CCT**	**Voltage**	**Base**	**CRI**	**Packaging Options**
A19	**40W** 40 Watt (450 lumens) **60W** 60 Watt (800 lumens) **75W** 75 Watt (1100 lumens)	**27K** 2700 Kelvin **50K*** 5000 Kelvin	**Blank** 120 Volt	**Blank** E26 (screw base)	**Blank** 80 CRI	**B1** (6) Blister Pack bulbs in master carton (MC=6) **T24 - 40W & 60W Equivalent** (24) Tray Pack bulbs in master carton (Bulk Pack) **T12 - 75W Equivalent** (12) Tray Pack bulbs in master carton (Bulk Pack)

† See www.cree.com/lighting/products/warranty for warranty terms
* Not available for A19 40W equivalent
**Reference www.cree.com/lighting for recommended dimming controls

Product Specifications

CONSTRUCTION & MATERIALS

- A-type bulb design weighs less than 4 ounces (113g) and uses a standard E26 screw base
- Silicon coated globe for increased safety
- Bulb meets ANSI standards for A19 dimensions
- Mercury free

OPTICAL SYSTEM

- Proprietary Cree LED Filament Tower™ creates perfect omnidirectional light distribution
- Glass globe offers increased optical spread

ELECTRICAL SYSTEM

- **Power Factor:** > 0.9 nominal
- **Input Voltage:** 120V
- Dimming: Dimmable to 5% with select dimmers
- Suitable for use in operating environments between -25˚C and +45˚C (-13˚F and +113˚F)

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for damp locations; not for use where exposed directly to weather or water
- Suitable for use in enclosed light fixtures
- **ENERGY STAR® qualified:**
  Please refer to http://www.energystar.gov/productfinder/product/certified-light-bulbs/results for most current information
  A19 40W (27K): BA19-04527OMF-12DE26-2U100
  A19 60W (27K): BA19-08027OMF-12DE26-2U100
  A19 60W (50K): BA19-08050OMF-12DE26-2U100
  A19 75W (27K): BA19-11027OMF-12DE26-1U100
  A19 75W (50K): BA19-11050OMF-12DE26-1U100

A19 B1
(6) Blister Pack bulbs in master carton (MC = 6)

A19 T24 - 40W & 60W Equivalents
(24) Tray Pack bulbs in master carton (Bulk Pack)

A19 T12 - 75W Equivalents
(12) Tray Pack bulbs in master carton (Bulk Pack)

Product Number	UPC	Description	Bulb Type	Watts	CCT	Lamps per Master Carton	Pallet Qty	CRI	Lumens	Rated Life (Hrs)
A19-40W-27K-B1*	810048028092	40W Warm White A19 Equivalent	A19	6W	2700K	6	480	80	450	25,000
A19-60W-27K-B1*	810048028108	60W Warm White A19 Equivalent	A19	9.5W	2700K	6	480	80	800	25,000
A19-60W-50K-B1*	810048028115	60W Daylight A19 Equivalent	A19	9W	5000K	6	480	80	800	25,000
A19-75W-27K-B1*	849665001133	75W Warm White A19 Equivalent	A19	13.5W	2700K	6	480	80	1,100	25,000
A19-75W-50K-B1*	849665001140	75W Daylight A19 Equivalent	A19	13.5W	5000K	6	480	80	1,100	25,000
A19-40W-27K-T24	810048028283	40W Warm White A19 Equivalent	A19	6W	2700K	24	1,296	80	450	25,000
A19-60W-27K-T24	810048028290	60W Warm White A19 Equivalent	A19	9.5W	2700K	24	1,296	80	800	25,000
A19-60W-50K-T24	810048028306	60W Daylight A19 Equivalent	A19	9W	5000K	24	1,296	80	800	25,000
A19-75W-27K-T12	849665001171	75W Warm White A19 Equivalent	A19	13.5W	2700K	12	130	80	1,100	25,000
A19-75W-50K-T12	849665001188	75W Daylight A19 Equivalent	A19	13.5W	5000K	12	130	80	1,100	25,000

* Must be ordered in quantities of 6

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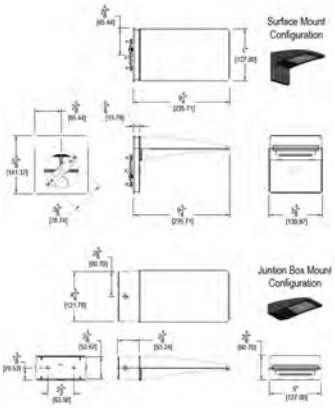
WPLED13N

LED 10W & 13 Wallpacks. Patent Pending thermal management system. 100,000 hour L70 lifespan. 5 Year Warranty.

Color: Bronze

Weight: 3.3 lbs



LED Info

Watts:	13W
Color Temp:	4000K (Neutral)
Color Accuracy:	86
L70 Lifespan:	100000
LM79 Lumens:	673
Efficacy:	45 LPW

Driver Info

Type:	Constant Current
120V:	0.13A
208V:	0.08A
240V:	0.07A
277V:	0.06A
Input Watts:	15W
Efficiency:	87%

Technical Specifications

UL Listing:
Suitable for Wet Locations as a Downlight. Suitable for Damp Locations as an Uplight. Wall Mount only. Suitable for Mounting within 4ft. of ground.

Lumen Maintenance:
The LED will deliver 70% of its initial lumens at 100,000 hours of operation.

Cold Weather Starting:
The minimum starting temperature is -40°F/-40°C.

Ambient Temperature:
Suitable for use in 50°C (122°F) ambient temperatures.

Driver:
Multi-chip 13W high output long life LED Driver Constant Current, Class 2 100V - 277V, 50/60 Hz.

Surge Protection:
4KV

Color Temperature (Nominal CCT):
4000K

Fixture Efficacy:
44.6 Lumens per Watt

Color Accuracy:
86 CRI

Finish:
Our environmentally friendly polyester powder coatings are formulated for high-durability and long-lasting color, and contains no VOC or toxic heavy metals.

Color Consistency:
3-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color.

Color Stability:
LED color temperature is warrantied to shift no more than 200K in CCT over a 5 year period.

Color Uniformity:
RAB's range of CCT (Correlated color temperature) follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2008.

Green Technology:
RAB LEDs are Mercury and UV free.

Dark Sky Approved:
The International Dark Sky Association has approved this product as a full cutoff, fully shielded luminaire.

For use on LEED Buildings:
IDA Dark Sky Approval means that this fixture can be used to achieve LEED Credits for Light Pollution Reduction.

Patents:
The design of the LPACK is protected by U.S. Pat. D604,004 and patents pending in Canada, China and Taiwan.

California Title 24:
See WPLED13/PC for a 2013 California Title 24 compliant model.

IESNA LM-79 & IESNA LM-80 Testing:
RAB LED luminaires have been tested by an independent laboratory in accordance with IESNA LM-79 and 80, and have received the Department of Energy "Lighting Facts" label.

Gaskets:
High Temperature Silicone.

Tech Help Line: 888 RAB-1000 **Email:** sales@rabweb.com **On the web at:** www.rabweb.com

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Note: Specifications are subject to change without notice

Warranty:
RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish.

Equivalency:
The WPLED13 is Equivalent in delivered lumens to a 100W Metal Halide Wallpack.

HID Replacement Range:
The WPLED13 can be used to replace 70-150W Metal Halide Wallpacks based on delivered lumens.

Country of Origin:
Designed by RAB in New Jersey and assembled in the USA by RAB's IBEW Local 3 workers.

Buy American Act Compliant:
This product is a COTS item manufactured in the United States, and is compliant with the Buy American Act.

Recovery Act (ARRA) Compliant:
This product complies with the 52.225-21 "Required Use of American Iron, Steel, and Manufactured Goods-- Buy American Act-- Construction Materials (October 2010).

Trade Agreements Act Compliant:
This product is a COTS item manufactured in the United States, and is compliant with the Trade Agreements Act.

GSA Schedule:
Suitable in accordance with FAR Subpart 25.4.

Tech Help Line: 888 RAB-1000 **Email:** sales@rabweb.com **On the web at:** www.rabweb.com

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Note: Specifications are subject to change without notice

WPLED18N

Ultra-high efficiency LED 18W wallpack. Patent Pending thermal management system. 100,000 hour L70 lifespan. 5 Year Warranty.

Color: Bronze

Weight: 7.5 lbs

Project:	Type:
Prepared By:	Date:

Driver Info		LED Info	
Type:	Constant Current	Watts:	18W
120V:	0.17A	Color Temp:	4000K (Neutral)
208V:	0.11A	Color Accuracy:	84 CRI
240V:	0.09A	L70 Lifespan:	100,000
277V:	0.08A	Lumens:	1,655
Input Watts:	20W	Efficacy:	84 LPW
Efficiency:	91%		

Technical Specifications

Listings

UL Listing:

Suitable for wet locations. Suitable for mounting within 1.2m (4ft) of the ground.

IESNA LM-79 & LM-80 Testing:

RAB LED luminaries have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80, and have received the Department of Energy "Lighting Facts" label.

Dark Sky Approved:

The International Dark Sky Association has approved this product as a full cutoff, fully shielded luminaire.

DLC Listed:

This product is on the Design Lights Consortium (DLC) Qualified Products List and is eligible for rebates from DLC Member Utilities.

LED Characteristics

Lifespan:

100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations.

LED:

Multi-chip, high-output, long-life LED

Color Consistency:

3-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color.

Color Stability:

LED color temperature is warrantied to shift no more than 200K in CCT over a 5 year period.

Color Uniformity:

RAB's range of CCT (Correlated Color Temperature) follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2011.

Electrical

Driver:

Constant Current, Class 2, 100-277V, 50/60 Hz, 4 kV surge protection, 500mA, 100-240VAC: 0.3-0.15A, 277VAC: 0.15A, Power Factor: 99%

THD:

9.8% at 120V

Construction

Ambient Temperature:

Suitable for use in 40°C (104°F) ambient temperatures.

Cold Weather Starting:

The minimum starting temperature is -40°F/-40°C.

Thermal Management:

Superior heat sinking with external Air-Flow fins

Finish:

Our environmentally friendly polyester powder coatings are formulated for high-durability and long-lasting color, and contain no VOC or toxic heavy metals.

Reflector:

Semi-specular, vacuum-metalized polycarbonate

Gaskets:

High-temperature silicone gaskets

Housing:

Die-cast aluminum housing, lens frame and mounting arm

Mounting:

Heavy-duty mounting arm with "O" ring seal & stainless steel screws

Green Technology:

Mercury and UV free, and RoHS compliant. Polyester powder coat finish formulated without the use of VOC or toxic heavy metals.

Optical

Replacement:

The WPLED18 replaces 150W Metal Halide Wallpacks.

BUG Rating:

B1 U0 G0

Other

California Title 24:

WPLED18 with available photocell options comply with 2013 California Title 24 building and electrical codes as a commercial outdoor non-pole-mounted fixture ≤ 30 Watts. Add /PC, /PC2, /PCS or /PCS2 to RAB catalog number to add a photocell.

For Use on LEED Buildings:

IDA Dark Sky Approval means that this fixture can be used to achieve LEED Credits for Light Pollution Reduction.

Patents:

The design of WPLED18 is protected by US patent D608,040, Canada patent 138280, and China patent CN301649064S.

Warranty:

RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish.

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Technical Specifications (continued)

Other

Country of Origin:

Designed by RAB in New Jersey and assembled in the USA by RAB's IBEW Local 3 workers.

Buy American Act Compliant:

This product is a COTS item manufactured in the United States, and is compliant with the Buy American Act.

Recovery Act (ARRA) Compliant:

This product complies with the 52.225-21 "Required Use of American Iron, Steel, and Manufactured Goods-- Buy American Act-- Construction Materials (October 2010).

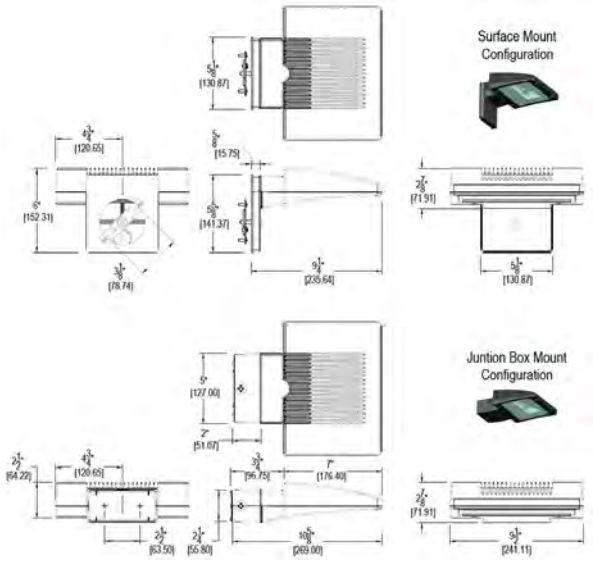
Trade Agreements Act Compliant:

This product is a COTS item manufactured in the United States, and is compliant with the Trade Agreements Act.

GSA Schedule:

Suitable in accordance with FAR Subpart 25.4.

Dimensions



Features

- Ultra-high efficiency LED 18 Watt wallpack
- Replaces 150W Metal Halide Wallpacks
- 100,00-Hour LED Lifespan
- 5-Year Warranty

Ordering Matrix

Family	Watts	Color Temp	Finish	Photocell
WPLED				
	18 = 18W	= Cool **Y** = Warm **N** = Neutral	= Bronze **W** = White	= No Photocell **/PC** = 120V Button **/PC2** = 277V Button

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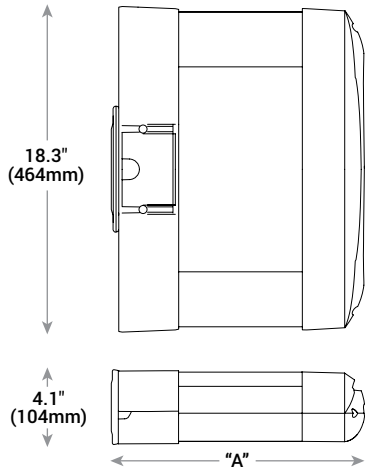
Cree Edge™ Series

LED Security Wall Pack Luminaire

Product Description

The Cree Edge™ wall mount luminaire has a slim, low profile design. The luminaire end caps are made from rugged die cast aluminum with integral, weathertight LED driver compartments and high performance aluminum heat sinks specifically designed for LED applications. Housing is rugged aluminum. Includes a lightweight mounting box for installation over standard and mud ring single gang J-Boxes. Secures to wall with four 3/16" (5mm) screws (by others). Conduit entry from top, bottom, sides and rear. Allows mounting for uplight or downlight. Designed and approved for easy through-wiring. Includes leaf/debris guard.

Applications: General area and security lighting



Performance Summary

- Patented NanoOptic® Product Technology
- Made in the U.S.A. of U.S. and imported parts
- **CRI:** Minimum 70 CRI
- **CCT:** 4000K (+/- 300K), 5700K (+/- 500K) standard
- **Limited Warranty†:** 10 years on luminaire/10 years on Colorfast DeltaGuard® finish

† See www.cree.com/lighting/products/warranty for warranty terms

Accessories

Field-Installed	
Bird Spikes XA-BRDSPK	**Hand-Held Remote** XA-SENSREM - For successful implementation of the programmable multi-level option, a minimum of one hand-held remote is required

LED Count (x10)	Dim. "A"	Weight
02	9.9" (251mm)	20 lbs. (9.1kg)
04	11.9" (303mm)	22 lbs. (10.0kg)
06	13.9" (353mm)	25 lbs. (11.3kg)
08	15.9" (404mm)	27 lbs. (12.2kg)
10	17.9" (455mm)	31 lbs. (14.1kg)
12	19.9" (505mm)	32 lbs. (14.5kg)

Ordering Information

Example: SEC-EDG-2M-WM-06-E-UL-SV-700

SEC-EDG		WM		E				
Product	**Optic**	**Mounting**	**LED Count (x10)**	**Series**	**Voltage**	**Color Options**	**Drive Current**	**Options**
SEC-EDG	**2M** Type II Medium **2MB** Type II Medium w/BLS **2S** Type II Short **2SB** Type II Short w/BLS **3M** Type III Medium **3MB** Type III Medium w/BLS **4M** Type IV Medium **4MB** Type IV Medium w/BLS	**WM** Wall Mount	**02** **04** **06** **08** **10** **12**	**E**	**UL** Universal 120-277V **UH** Universal 347-480V **34** 347V	**BK** Black **BZ** Bronze **SV** Silver **WH** White	**350** 350mA **525** 525mA -Available with 20-80 LEDs **700** 700mA -Available with 20-60 LEDs	**DIM 0-10V Dimming** - Control by others - Refer to Dimming spec sheet for details - Can't exceed specified drive current **F Fuse** - Refer to ML spec sheet for availability with ML options - Available with UL voltage only - When code dictates fusing, use time delay fuse **ML Multi-Level** - Refer to ML spec sheet for details - Intended for downlight applications of 0° tilt **P Photocell** - Refer to ML spec sheet for availability with ML options - Must specify UL or 34 voltage **PML Programmable Multi-Level** - Refer to PML spec sheet for details - Intended for downlight applications of 0° tilt **40K 4000K Color Temperature** - Minimum 70 CRI - Color temperature per luminaire

Product Specifications

CONSTRUCTION & MATERIALS

- Slim, low profile design
- Luminaire sides are rugged die cast aluminum with integral, weathertight LED driver compartment and high performance aluminum heat sinks specifically designed for LED applications
- Housing is rugged aluminum
- Furnished with low copper, light weight mounting box designed for installation over standard and mud ring single gang J-Boxes
- Luminaire can also be direct mounted to a wall and surface wired
- Secures to wall with four 3/16" (5mm) screws (by others)
- Conduit entry from top, bottom, sides, and rear
- Allows mounting for uplight or downlight
- Designed and approved for easy through-wiring
- Includes leaf/debris guard
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultradurable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Black, bronze, silver and white are available
- **Weight:** See Dimensions and Weight Chart on page 1

ELECTRICAL SYSTEM

- **Input Voltage:** 120–277V or 347–480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral weathertight J-Box with leads (wire nuts) for easy power hook up
- Integral 10kV surge suppression protection standard
- To address inrush current, slow blow fuse or type C/D breaker should be used
- **Maximum 10V Source Current:** 20 LED (350mA): 10mA; 20LED (525 & 700 mA) and 40-120 LED: 0.15mA

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for wet locations
- Meets FCC Part 15 standards for conducted and radiated emissions
- Enclosure rated IP66 per IEC 60529 when ordered without P, PML or ML options
- 10kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- DLC qualified. Exceptions apply when ordered with full backlight control. Please refer to www.designlights.org/QPL for most current information
- Dark Sky Friendly, IDA Approved. Please refer to www.darksky.org/ for most current information
- Meets Buy American requirements within ARRA

Electrical Data*

LED Count (x10)	System Watts 120-480V	Total Current					
		120V	208V	240V	277V	347V	480V
350mA							
02	25	0.21	0.13	0.11	0.10	0.08	0.07
04	46	0.36	0.23	0.21	0.20	0.15	0.12
06	66	0.52	0.31	0.28	0.26	0.20	0.15
08	90	0.75	0.44	0.38	0.34	0.26	0.20
10	110	0.92	0.53	0.47	0.41	0.32	0.24
12	130	1.10	0.63	0.55	0.48	0.38	0.28
525mA							
02	37	0.30	0.19	0.17	0.16	0.12	0.10
04	70	0.58	0.34	0.31	0.28	0.21	0.16
06	101	0.84	0.49	0.43	0.38	0.30	0.22
08	133	1.13	0.66	0.58	0.51	0.39	0.28
700mA							
02	50	0.41	0.25	0.22	0.20	0.15	0.12
04	93	0.78	0.46	0.40	0.36	0.27	0.20
06	134	1.14	0.65	0.57	0.50	0.39	0.29

* Electrical data at 25˚C (77˚F)

Recommended Cree Edge™ Series Lumen Maintenance Factors (LMF)[1]

Ambient	Initial LMF	25K hr Projected[2] LMF	50K hr Projected[2] LMF	75K hr Calculated[3] LMF	100K hr Calculated[3] LMF
5˚C (41˚F)	1.04	0.99	0.97	0.95	0.93
10˚C (50˚F)	1.03	0.98	0.96	0.94	0.92
15˚C (59˚F)	1.02	0.97	0.95	0.93	0.91
20˚C (68˚F)	1.01	0.96	0.94	0.92	0.90
25˚C (77˚F)	1.00	0.95	0.93	0.91	0.89

[1] Lumen maintenance values at 25˚C are calculated per TM-21 based on LM-80 data and in-situ luminaire testing
[2] In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip)
[3] In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip)

ARE-EDG-3M-DA

Cree Edge™ Area Luminaire – Type III Medium – Direct Arm Mount

Product Description

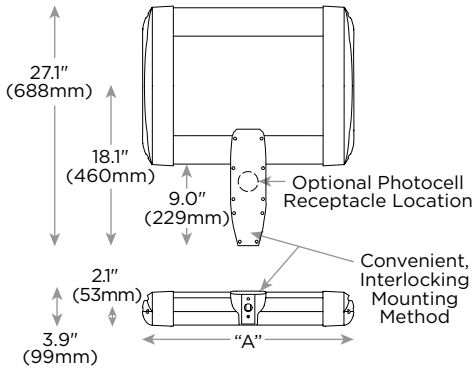
Slim, low profile design minimizes wind load requirements. Luminaire sides are rugged cast aluminum with integral, weathertight LED driver compartments and high performance aluminum heat sinks. Convenient, interlocking mounting method. Mounting housing is rugged die cast aluminum and mounts to 3–6″ (76–152mm) square or round pole. Luminaire is secured by two 5/16-18 UNC bolts spaced on 2″ (51mm) centers.

Performance Summary

- Utilizes BetaLED® Technology
- Patented NanoOptic® Product Technology
- Made in the U.S.A. of U.S. and imported parts
- **CRI:** Minimum 70 CRI
- **CCT:** 5700K (+ / - 500K) Standard, 4000K (+ / - 300K)
- **Limited Warranty†:** 10 years on luminaire / 10 years on Colorfast DeltaGuard® finish
- **EPA and Weight:** Reference EPA and Weight spec sheet

Accessories

Field Installed Accessories
XA-BRDSPK Bird Spikes



LED Count (x10)	Dim. "A"
04	12.1″ (306mm)
06	14.1″ (357mm)
08	16.1″ (408mm)
10	18.1″ (459mm)
12	20.1″ (510mm)
14	22.1″ (560mm)
16	24.1″ (611mm)
20	28.1″ (713mm)
24	32.1″ (814mm)

Ordering Information

Example: ARE-EDG-3M-DA-04-E-UL-SV-350-OPTIONS

ARE-EDG	3M	DA		E				
Product	**Optic**	**Mounting**	**LED Count (x10)**	**Series**	**Voltage**	**Color Options**	**Drive Current**	**Options**
ARE-EDG	3M Type III Medium	DA Direct Arm	04 06 08 10 12 14 16 20 24 2	E	UL Universal 120–277V UH Universal 347–480V 34 347V	SV Silver (Standard) BK Black BZ Bronze PB Platinum Bronze WH White	350* 350mA 525** 525mA 700*** 700mA	40K 4000K Color Temperature - Color temperature per luminaire DIM 0–10V Dimming - Control by others - Refer to dimming spec sheet for details - Can't exceed specified drive current F Fuse - When code dictates fusing, use time delay fuse - Not available with all ML options. Refer to ML spec sheet for availability with ML options HL Hi / Low (175 / 350 / 525 Dual Circuit Input) - Refer to ML spec sheet for details - Sensor not included P Photocell - Not available with all ML options. Refer to ML spec sheet for availability with ML options - Must specify voltage other than UH R NEMA Photocell Receptacle - Not available with all ML options. Refer to ML spec sheet for availability with ML options - Photocell by others ML Multi-Level - Refer to ML spec sheet for details

† See www.cree.com/lighting/products/warranty for warranty terms
* Available on luminaires with 60–240 LEDs.
** Available on luminaires with 40–160 LEDs.
*** Available on luminaires with 40–60 LEDs.

Rev. Date: 09/27/13

www.cree.com/lighting T (800) 236-6800 F (262) 504-5415

Product Specifications

CONSTRUCTION & MATERIALS

- Slim, low profile, minimizing wind load requirements
- Luminaire sides are rugged die cast aluminum with integral, weathertight LED driver compartments and high performance heat sinks
- Convenient interlocking mounting method. Mounting housing is rugged die cast aluminum mounting to 3–6″ (76–152mm) square or round pole, secured by two 5 / 16-18 UNC bolts spaced on 2″ (51mm) centers
- Includes leaf / debris guard
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Standard is silver. Bronze, black, white, and platinum bronze are also available

ELECTRICAL SYSTEM

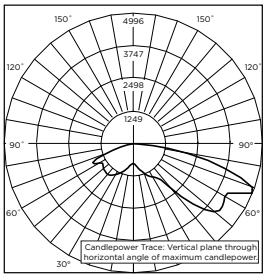
- **Input Voltage:** 120–277V or 347–480V, 50 / 60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral weathertight electrical box with terminal strips (12Ga–20Ga) for easy power hookup
- Integral 10kV surge suppression protection standard
- To address inrush current, slow blow fuse or type C / D breaker should be used

REGULATORY & VOLUNTARY QUALIFICATIONS

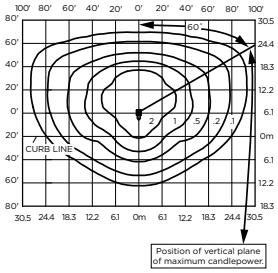
- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529 when ordered without P or R options
- Consult factory for CE Certified products
- Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards
- 10kV surge suppression protection tested in accordance with IEEE / ANSI C62.41.2
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Product qualified on the DesignLights Consortium™ (“DLC”) Qualified Products List (“QPL”) when ordered without full backlight control shield
- Meets Buy American requirements within ARRA

Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP certified laboratory.



CSA Test Report #: 6401
ARE-EDG-3M-**-06-E-UL-700-40K
Initial Delivered Lumens: 10,657



ARE-EDG-3M-**-12-E-UL-525-40K
Mounting Height: 25′ (7.6m) A.F.G.
Initial Delivered Lumens: 16,790
Initial FC at grade

IES Files
To obtain an IES file specific to your project consult:
http://www.cree.com/lighting/tools-and-support/exterior-ies-configuration-tool

Lumen Output, Electrical, and Lumen Maintenance Data

Type III Medium Distribution												
LED Count (x10)	5700K		4000K		System Watts 120–480V	TOTAL CURRENT						50K Hours Projected Lumen Maintenance Factor @ 15˚C (59˚F)***
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11		120V	208V	240V	277V	347V	480V	
350mA @ 25˚C (77˚F)												
06	6,242	B2 U0 G2	6,011	B2 U0 G2	66	0.52	0.31	0.28	0.26	0.20	0.15	93%
08	8,323	B2 U0 G2	8,015	B2 U0 G2	90	0.75	0.44	0.38	0.34	0.26	0.20	
10	10,379	B3 U0 G3	9,994	B3 U0 G3	110	0.92	0.53	0.47	0.41	0.32	0.24	
12	12,454	B3 U0 G3	11,993	B3 U0 G3	130	1.10	0.63	0.55	0.48	0.38	0.28	
14	14,438	B3 U0 G3	13,903	B3 U0 G3	158	1.32	0.77	0.68	0.62	0.47	0.35	
16	16,501	B3 U0 G3	15,889	B3 U0 G3	179	1.49	0.87	0.77	0.68	0.53	0.39	
20	20,626	B3 U0 G3	19,862	B3 U0 G3	220	1.84	1.06	0.93	0.83	0.64	0.47	
24	24,751	B4 U0 G4	23,834	B4 U0 G4	261	2.19	1.26	1.10	0.97	0.76	0.56	
525mA @ 25˚C (77˚F)												
04	5,893	B2 U0 G2	5,675	B2 U0 G2	70	0.58	0.34	0.31	0.28	0.21	0.16	92%
06	8,739	B2 U0 G2	8,415	B2 U0 G2	101	0.84	0.49	0.43	0.38	0.30	0.22	
08	11,652	B3 U0 G3	11,220	B3 U0 G3	133	1.13	0.66	0.58	0.51	0.39	0.28	
10	14,530	B3 U0 G3	13,992	B3 U0 G3	171	1.43	0.83	0.74	0.66	0.50	0.38	
12	17,436	B3 U0 G3	16,790	B3 U0 G3	202	1.69	0.98	0.86	0.77	0.59	0.44	
14	20,213	B3 U0 G3	19,465	B3 U0 G3	232	1.94	1.12	0.98	0.87	0.68	0.50	
16	23,101	B3 U0 G3	22,245	B3 U0 G3	263	2.21	1.27	1.11	0.97	0.77	0.56	
700mA @ 25˚C (77˚F)												
04	7,198	B2 U0 G2	6,932	B2 U0 G2	92	0.78	0.46	0.40	0.36	0.27	0.20	90%
06	10,674	B3 U0 G3	10,279	B3 U0 G3	134	1.14	0.65	0.57	0.50	0.39	0.29	

* Actual production yield may vary between -4 and +10% of initial delivered lumens.
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit www.iesna.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf.
*** For recommended lumen maintenance factor data see TD-13. Calculated L_{70} based on 6,000 hours LM-80-08 testing: > 150,000 hours.

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ARE-EDG-3M-AA

Cree Edge™ Area Luminaire – Type III Medium – Adjustable Arm Mount

Product Description

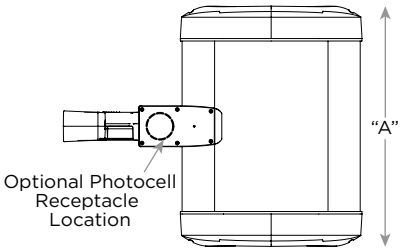
Slim, low profile design minimizes wind load requirements. Luminaire sides are rugged cast aluminum with integral, weathertight LED driver compartments and high performance aluminum heat sinks. Adjustable arm mount is rugged die cast aluminum and mounts to 2" (51mm) IP, 2.375" (60mm) O.D. tenon. Includes leaf / debris guard.

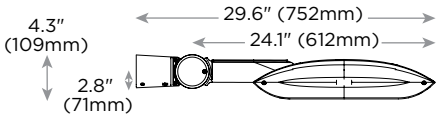
Performance Summary

- Utilizes BetaLED® Technology
- Patented NanoOptic® Product Technology
- Made in the U.S.A. of U.S. and imported parts
- **CRI:** Minimum 70 CRI
- **CCT:** 5700K (+ / - 500K) Standard, 4000K (+ / - 300K)
- **Limited Warranty†:** 10 years on luminaire / 10 years on Colorfast DeltaGuard® finish
- **EPA and Weight:** Reference EPA and Weight spec sheet

Accessories

Field Installed Accessories
XA-BRDSPK Bird Spikes





LED Count (x10)	Dim. "A"
04	12.1" (306mm)
06	14.1" (357mm)
08	16.1" (408mm)
10	18.1" (459mm)
12	20.1" (510mm)
14	22.1" (560mm)
16	24.1" (611mm)
20	28.1" (713mm)
24	32.1" (814mm)

Ordering Information

Example: ARE-EDG-3M-AA-04-E-UL-SV-350-OPTIONS

ARE-EDG	3M	AA		E				
Product	**Optic**	**Mounting**	**LED Count (x10)**	**Series**	**Voltage**	**Color Options**	**Drive Current**	**Options**
ARE-EDG	**3M** Type III Medium	**AA** Adjustable Arm	**04** **06** **08** **10** **12** **14** **16** **20** **24**	**E**	**UL** Universal 120–277V **UH** Universal 347–480V **34** 347V	**SV** Silver (Standard) **BK** Black **BZ** Bronze **PB** Platinum Bronze **WH** White	**350*** 350mA **525**** 525mA **700***** 700mA	**40K 4000K Color Temperature** - Color temperature per luminaire **DIM 0–10V Dimming** - Control by others - Refer to dimming spec sheet for details - Can't exceed specified drive current **F Fuse** - When code dictates fusing, use time delay fuse - Not available with all ML options. Refer to ML spec sheet for availability with ML options **HL Hi / Low (175 / 350 / 525 Dual Circuit Input)** - Refer to ML spec sheet for details - Sensor not included **P Photocell** - Not available with all ML options. Refer to ML spec sheet for availability with ML options - Must specify voltage other than UH **R NEMA Photocell Receptacle** - Not available with all ML options. Refer to ML spec sheet for availability with ML options - Intended for downlight applications at 0° tilt - Photocell by others **ML Multi-Level** - Refer to ML spec sheet for details

† See www.cree.com/lighting/products/warranty for warranty terms
* Available on luminaires with 60–240 LEDs.
** Available on luminaires with 40–160 LEDs.
*** Available on luminaires with 40–60 LEDs.

Rev. Date: 09/27/13

www.cree.com/lighting T (800) 236-6800 F (262) 504-5415

Product Specifications

CONSTRUCTION & MATERIALS

- Slim, low profile, minimizing wind load requirements
- Luminaire sides are rugged die cast aluminum with integral, weathertight LED driver compartments and high performance heat sinks
- Adjustable mounting arm is rugged die cast aluminum and mounts to 2" (51mm) IP, 2.375" (60mm) O.D. tenon
- Includes leaf / debris guard
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Standard is silver. Bronze, black, white, and platinum bronze are also available

ELECTRICAL SYSTEM

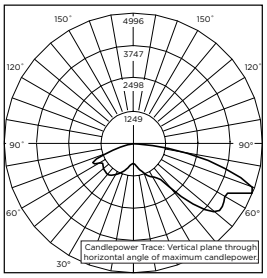
- **Input Voltage:** 120–277V or 347–480V, 50 / 60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral weathertight electrical box with terminal strips (12Ga–20Ga) for easy power hookup
- Integral 10kV surge suppression protection standard
- To address inrush current, slow blow fuse or type C / D breaker should be used

REGULATORY & VOLUNTARY QUALIFICATIONS

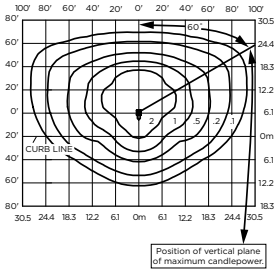
- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529 when ordered without P or R options
- Consult factory for CE Certified products
- Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards
- 10kV surge suppression protection tested in accordance with IEEE / ANSI C62.41.2
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Product qualified on the DesignLights Consortium™ ("DLC") Qualified Products List ("QPL") when ordered without full backlight control shield
- Meets Buy American requirements within ARRA

Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP certified laboratory.



CSA Test Report #: 6401
ARE-EDG-3M-**-06-E-UL-700-40K
Initial Delivered Lumens: 10,657



ARE-EDG-3M-**-12-E-UL-525-40K
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 16,790
Initial FC at grade

IES Files
To obtain an IES file specific to your project consult:
http://www.cree.com/lighting/tools-and-support/exterior-ies-configuration-tool

Lumen Output, Electrical, and Lumen Maintenance Data

Type III Medium Distribution												
LED Count (x10)	5700K		4000K		System Watts 120–480V	TOTAL CURRENT						50K Hours Projected Lumen Maintenance Factor @ 15˚C (59˚F)***
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11		120V	208V	240V	277V	347V	480V	
350mA @ 25˚C (77˚F)												
06	6,242	B2 U0 G2	6,011	B2 U0 G2	66	0.52	0.31	0.28	0.26	0.20	0.15	93%
08	8,323	B2 U0 G2	8,015	B2 U0 G2	90	0.75	0.44	0.38	0.34	0.26	0.20	
10	10,379	B3 U0 G3	9,994	B3 U0 G3	110	0.92	0.53	0.47	0.41	0.32	0.24	
12	12,454	B3 U0 G3	11,993	B3 U0 G3	130	1.10	0.63	0.55	0.48	0.38	0.28	
14	14,438	B3 U0 G3	13,903	B3 U0 G3	158	1.32	0.77	0.68	0.62	0.47	0.35	
16	16,501	B3 U0 G3	15,889	B3 U0 G3	179	1.49	0.87	0.77	0.68	0.53	0.39	
20	20,626	B3 U0 G3	19,862	B3 U0 G3	220	1.84	1.06	0.93	0.83	0.64	0.47	
24	24,751	B4 U0 G4	23,834	B4 U0 G4	261	2.19	1.26	1.10	0.97	0.76	0.56	
525mA @ 25˚C (77˚F)												
04	5,893	B2 U0 G2	5,675	B2 U0 G2	70	0.58	0.34	0.31	0.28	0.21	0.16	92%
06	8,739	B2 U0 G2	8,415	B2 U0 G2	101	0.84	0.49	0.43	0.38	0.30	0.22	
08	11,652	B3 U0 G3	11,220	B3 U0 G3	133	1.13	0.66	0.58	0.51	0.39	0.28	
10	14,530	B3 U0 G3	13,992	B3 U0 G3	171	1.43	0.83	0.74	0.66	0.50	0.38	
12	17,436	B3 U0 G3	16,790	B3 U0 G3	202	1.69	0.98	0.86	0.77	0.59	0.44	
14	20,213	B3 U0 G3	19,465	B3 U0 G3	232	1.94	1.12	0.98	0.87	0.68	0.50	
16	23,101	B3 U0 G3	22,245	B3 U0 G3	263	2.21	1.27	1.11	0.97	0.77	0.56	
700mA @ 25˚C (77˚F)												
04	7,198	B2 U0 G2	6,932	B2 U0 G2	92	0.78	0.46	0.40	0.36	0.27	0.20	90%
06	10,674	B3 U0 G3	10,279	B3 U0 G3	134	1.14	0.65	0.57	0.50	0.39	0.29	

* Actual production yield may vary between -4 and +10% of initial delivered lumens.
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit www.iesna.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf. Vaild with no tilt.
*** For recommended lumen maintenance factor data see TD-13. Calculated L_{70} based on 6,000 hours LM-80-08 testing: > 150,000 hours.

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www.cree.com/lighting T (800) 236-6800 F (262) 504-5415

ARE-EDG-4M-DA

Cree Edge™ Area Luminaire – Type IV Medium – Direct Arm Mount

Product Description

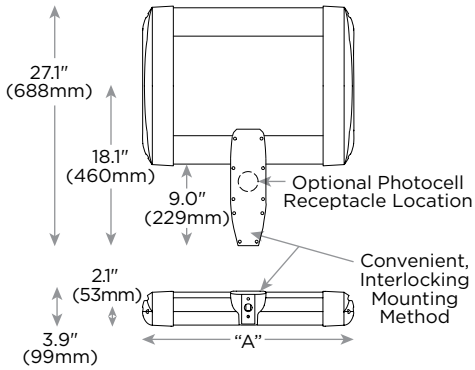
Slim, low profile design minimizes wind load requirements. Luminaire sides are rugged cast aluminum with integral, weathertight LED driver compartments and high performance aluminum heat sinks. Convenient, interlocking mounting method. Mounting housing is rugged die cast aluminum and mounts to 3–6″ (76–152mm) square or round pole. Luminaire is secured by two 5/16-18 UNC bolts spaced on 2″ (51mm) centers.

Performance Summary

- Utilizes BetaLED® Technology
- Patented NanoOptic® Product Technology
- Made in the U.S.A. of U.S. and imported parts
- **CRI:** Minimum 70 CRI
- **CCT:** 5700K (+ / - 500K) Standard, 4000K (+ / - 300K)
- **Limited Warranty†:** 10 years on luminaire / 10 years on Colorfast DeltaGuard® finish
- **EPA and Weight:** Reference EPA and Weight spec sheet

Accessories

Field Installed Accessories
XA-BRDSPK Bird Spikes



LED Count (x10)	Dim. "A"
04	12.1″ (306mm)
06	14.1″ (357mm)
08	16.1″ (408mm)
10	18.1″ (459mm)
12	20.1″ (510mm)
14	22.1″ (560mm)
16	24.1″ (611mm)
20	28.1″ (713mm)
24	32.1″ (814mm)

Ordering Information

Example: ARE-EDG-4M-DA-04-E-UL-SV-350-OPTIONS

ARE-EDG	4M	DA		E				
Product	**Optic**	**Mounting**	**LED Count (x10)**	**Series**	**Voltage**	**Color Options**	**Drive Current**	**Options**
ARE-EDG	**4M** Type IV Medium	**DA** Direct Arm	**04** **06** **08** **10** **12** **14** **16** **20** **24**	**E**	**UL** Universal 120–277V **UH** Universal 347–480V **34** 347V	**SV** Silver (Standard) **BK** Black **BZ** Bronze **PB** Platinum Bronze **WH** White	**350*** 350mA **525**** 525mA **700***** 700mA	**40K 4000K Color Temperature** - Color temperature per luminaire **DIM 0–10V Dimming** - Control by others - Refer to dimming spec sheet for details - Can't exceed specified drive current **F Fuse** - When code dictates fusing, use time delay fuse - Not available with all ML options. Refer to ML spec sheet for availability with ML options **HL Hi / Low (175 / 350 / 525 Dual Circuit Input)** - Refer to ML spec sheet for details - Sensor not included **P Photocell** - Not available with all ML options. Refer to ML spec sheet for availability with ML options - Must specify voltage other than UH **R NEMA Photocell Receptacle** - Not available with all ML options. Refer to ML spec sheet for availability with ML options - Photocell by others **ML Multi-Level** - Refer to ML spec sheet for details

† See www.cree.com/lighting/products/warranty for warranty terms
* Available on luminaires with 60–240 LEDs.
** Available on luminaires with 40–160 LEDs.
*** Available on luminaires with 40–60 LEDs.

Rev. Date: 09/27/13

www.cree.com/lighting T (800) 236-6800 F (262) 504-5415

Product Specifications

CONSTRUCTION & MATERIALS

- Slim, low profile, minimizing wind load requirements
- Luminaire sides are rugged die cast aluminum with integral, weathertight LED driver compartments and high performance heat sinks
- Convenient interlocking mounting method. Mounting housing is rugged die cast aluminum mounting to 3–6″ (76–152mm) square or round pole, secured by two 5 / 16-18 UNC bolts spaced on 2″ (51mm) centers
- Includes leaf / debris guard
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Standard is silver. Bronze, black, white, and platinum bronze are also available

ELECTRICAL SYSTEM

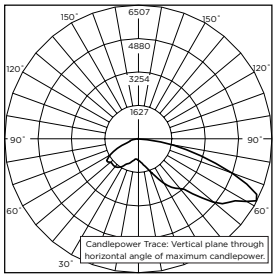
- **Input Voltage:** 120–277V or 347–480V, 50 / 60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral weathertight electrical box with terminal strips (12Ga–20Ga) for easy power hookup
- Integral 10kV surge suppression protection standard
- To address inrush current, slow blow fuse or type C / D breaker should be used

REGULATORY & VOLUNTARY QUALIFICATIONS

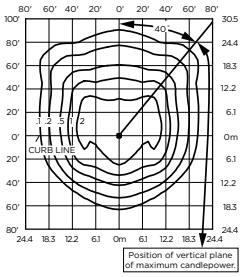
- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529 when ordered without P or R options
- Consult factory for CE Certified products
- Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards
- 10kV surge suppression protection tested in accordance with IEEE / ANSI C62.41.2
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Product qualified on the DesignLights Consortium™ (“DLC”) Qualified Products List (“QPL”) when ordered without full backlight control shield
- Meets Buy American requirements within ARRA

Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP certified laboratory.



CSA Test Report #: 6438
ARE-EDG-4M-**-06-E-UL-700-40K
Initial Delivered Lumens: 11,367



ARE-EDG-4M-**-12-E-UL-525-40K
Mounting Height: 25′ (7.6m) A.F.G.
Initial Delivered Lumens: 17,710
Initial FC at grade

IES Files
To obtain an IES file specific to your project consult:
http://www.cree.com/lighting/tools-and-support/exterior-ies-configuration-tool

Lumen Output, Electrical, and Lumen Maintenance Data

Type IV Medium Distribution												
LED Count (x10)	5700K		4000K		System Watts 120–480V	TOTAL CURRENT						50K Hours Projected Lumen Maintenance Factor @ 15˚C (59˚F)***
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11		120V	208V	240V	277V	347V	480V	
350mA @ 25˚C (77˚F)												
06	6,584	B2 U0 G2	6,340	B2 U0 G2	66	0.52	0.31	0.28	0.26	0.20	0.15	93%
08	8,779	B2 U0 G2	8,454	B2 U0 G2	90	0.75	0.44	0.38	0.34	0.26	0.20	
10	10,947	B2 U0 G2	10,542	B2 U0 G2	110	0.92	0.53	0.47	0.41	0.32	0.24	
12	13,137	B3 U0 G3	12,650	B3 U0 G3	130	1.10	0.63	0.55	0.48	0.38	0.28	
14	15,229	B3 U0 G3	14,665	B3 U0 G3	158	1.32	0.77	0.68	0.62	0.47	0.35	
16	17,405	B3 U0 G3	16,760	B3 U0 G3	179	1.49	0.87	0.77	0.68	0.53	0.39	
20	21,756	B3 U0 G3	20,950	B3 U0 G3	220	1.84	1.06	0.93	0.83	0.64	0.47	
24	26,107	B4 U0 G3	25,140	B4 U0 G3	261	2.19	1.26	1.10	0.97	0.76	0.56	
525mA @ 25˚C (77˚F)												
04	6,216	B2 U0 G2	5,986	B2 U0 G1	70	0.58	0.34	0.31	0.28	0.21	0.16	92%
06	9,218	B2 U0 G2	8,876	B2 U0 G2	101	0.84	0.49	0.43	0.38	0.30	0.22	
08	12,290	B3 U0 G3	11,835	B3 U0 G2	133	1.13	0.66	0.58	0.51	0.39	0.28	
10	15,326	B3 U0 G3	14,759	B3 U0 G3	171	1.43	0.83	0.74	0.66	0.50	0.38	
12	18,391	B3 U0 G3	17,710	B3 U0 G3	202	1.69	0.98	0.86	0.77	0.59	0.44	
14	21,321	B3 U0 G3	20,531	B3 U0 G3	232	1.94	1.12	0.98	0.87	0.68	0.50	
16	24,367	B4 U0 G3	23,464	B3 U0 G3	263	2.21	1.27	1.11	0.97	0.77	0.56	
700mA @ 25˚C (77˚F)												
04	7,593	B2 U0 G2	7,311	B2 U0 G2	92	0.78	0.46	0.40	0.36	0.27	0.20	90%
06	11,259	B2 U0 G2	10,842	B2 U0 G2	134	1.14	0.65	0.57	0.50	0.39	0.29	

* Actual production yield may vary between -4 and +10% of initial delivered lumens.
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit www.iesna.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf.
*** For recommended lumen maintenance factor data see TD-13. Calculated L_{70} based on 6,000 hours LM-80-08 testing: > 150,000 hours.

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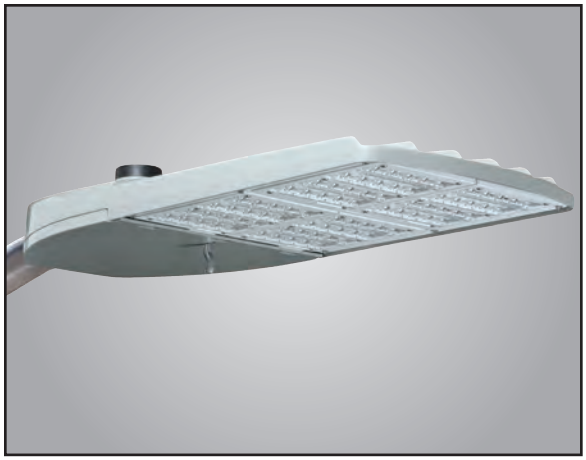
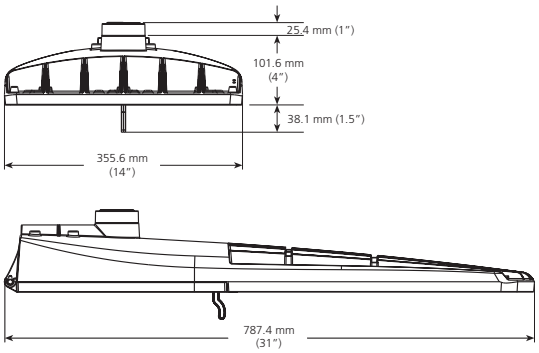
PRODUCT OVERVIEW



Applications:

Roadways
Off ramps
Residential streets
Parking lots

DIMENSIONS



Effective Projected Area (EPA)
The EPA for the ATB2 is 0.78 sq. ft.,
Approx. Wt. = 21 lbs. (9.53 kg)

Features:

OPTICAL

Same Light: Performance is comparable to 250-400W HPS roadway luminaires.

White Light: Correlated color temperature - standard 4000K, 70 CRI minimum or optional 5000K, 70 CRI minimum.

Unique IP66 rated LED light engines provided 0% uplight and restrict backlight to within sidewalk depth, providing optimal application coverage and optimal pole spacing.

Available in Type II, III, IV, & V roadway distributions.

ELECTRICAL

Expected Life: LED light engines are rated >100,000 hours at 25°C, L70. Electronic driver has an expected life of 100,000 hours at a 25°C ambient.

Lower Energy: Saves an average of 40-60% over comparable HPS platforms.

Robust Surge Protection: Three different surge protection options provide a minimum of IEEE/ANSI C62.41 Category C (10kV/5kA) protection. 20kV/10kA protection is also available.

MECHANICAL

Easy to Maintain: Includes standard AEL lineman-friendly features such as tool-less entry, 3 station terminal block and quick disconnects. Bubble level located inside the electrical compartment for easy leveling at installation.

Rugged die-cast aluminum housing is polyester powder-coated for durability and corrosion resistance. Rigorous five-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 8 (per ASTM D1654) after over 1000 hours exposure to salt fog chamber (operated per ASTM B117) Optional Enhanced Corrosion Resistant finish (CR) increases the salt spray exposure to 5000 hours.

Four-bolt mast arm mount is adjustable for arms from 1-1/4" to 2" (1-5/8" to 2-3/8" O.D.) diameter and provides a 3G vibration rating per ANSI C136.

Wildlife shield is cast into the housing (not a separate piece).

CONTROLS

NEMA 3 Pin photocontrol receptacle is standard, with the Acuity designed ANSI 5 Pin and 7 Pin receptacles optionally available.

Premium solid state locking sale photocontrol - PCSS (10 year rated life). Extreme long life sold state locking style photocontrol - PCLL (20 year rated life).

Mulit-level dimming available to provide scheduled dimming as specified by the customer.

Optional onboard Adjustable Output module allows the light output and input wattage to be modified to meet site specific requirements, and can also allow a single fixture to be flexibly applied in many different applications.

STANDARDS

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

Rated for -40°C to 40°C ambient.

CSA Certified to U.S. and Canadian standards

Complies with ANSI: C136.2, C136.10, C136.14, C136.31, C136.15, C136.37

ORDERING INFORMATION

Example: ATB2 40LEDE70 MVOLT R2

Series

ATB2	Autobahn LED Roadway

Performance Packages

40BLEDE70	40B Chips, 700mA Driver
40BLEDE10	40B Chips, 1050mA Driver
40BLEDE13	40B Chips, 1300mA Driver
40BLEDE15[1]	40B Chips, 1500mA Driver
60BLEDE70	60B Chips, 700mA Driver
60BLEDE85	60B Chips, 850mA Driver
60BLEDE10	60B Chips, 1050mA Driver
60BLEDE13	60B Chips, 1300mA Driver
80BLEDE70	80B Chips, 700mA Driver
80BLEDE85	80B Chips, 850mA Driver
80BLEDE10	80B Chips, 1050mA Driver

Voltage

MVOLT	Multi-volt, 120-277V
347	347V
480	480V

Optics

R2	Roadway Type II
R3	Roadway Type III
R4	Roadway Type IV
R5	Roadway Type V

Options

Color Temperature (CCT)

(Blank)	4000K CCT, 70 CRI Min. (Standard)
5K	5000K CCT, 70 CRI Min.

Paint

(Blank)	Gray (Standard)
BK	Black
BZ	Bronze
DDB	Dark Bronze
GI	Graphite
WH	White

Surge Protection

Blank	Standard 10kV/5kA SPD
20	20kV/10KA SPD
MP[1]	MOV Pack
IL[1]	SPD with Indicator Light

Terminal Block

(Blank)	Terminal Block (Standard)
T2	Wired to L1 & L2 Positions

Misc.

BL	External Bubble Level
CR	Enhanced Corrosion Resistant Finish
HS	House-Side Shield
NL	Nema Label
XL	Not CSA Certified
HK	Hingekeepers

Controls

(Blank)	3 Pin NEMA Photocontrol Receptacle (Standard)
P5[2]	5 Pin Photocontrol Receptacle (Dimmable Driver Included)
P7[2]	7 Pin Photocontrol Receptacle (Dimmable Driver Included)
NR	No Photocontrol Receptacle
AO[2]	Field Adjustable Output
DM	0V-10V Dimmable Driver (Controls by others)
ML[3,4]	Multi-Level Dimming
PCSS[1]	Solid State Lighting Photocontrol (120-277V)
PCLL	Solid State Long Life Photocontrol
SH	Shorting Cap

Packaging

(Blank)	Single Unit (Standard)
JP	Job Pack (24/Pallet)

Notes

1. Not available in 347 or 480V.
2. Not available with DM or ML options.
3. Not available with AO, DM, P5 or P7 options.
4. Dimming schedule and light level information required from the customer in order to configure product. Contact Infrastructure Technical Support to proceed.

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Warranty Five-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx
Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Please contact your sales representative for the latest product information.

PERFORMANCE PACKAGE

Performance Package	Drive Current (mA)	Input Watts	Optic	4000K CCT		LLD @ 25°C	
				Delivered Lumens	Efficacy (LPW)	50k Hours	100k Hours
40B	700	91	R2	11266	124	0.98	0.96
	1000	138		15685	114	0.95	0.90
	1300	177		18277	103	0.94	0.88
	1500	204		20590	101	0.91	0.85
	700	91	R3	11160	123	0.98	0.96
	1000	138		15520	112	0.95	0.90
	1300	177		18050	102	0.94	0.88
	1500	204		20036	98	0.91	0.85
	700	91	R4	10775	118	0.98	0.96
	1000	138		15015	109	0.95	0.90
	1300	177		17341	98	0.94	0.88
	1500	204		19458	95	0.91	0.85
	700	91	R5	12097	133	0.98	0.96
	1000	138		16729	121	0.95	0.90
	1300	177		19564	111	0.94	0.88
	1500	204		21678	106	0.91	0.85
60B	700	133	R2	16986	128	0.98	0.96
	850	173		19966	115	0.95	0.90
	1000	208		23710	114	0.95	0.90
	1300	260		27308	105	0.94	0.88
	700	133	R3	17128	129	0.98	0.96
	850	173		20105	116	0.95	0.90
	1000	208		23250	112	0.95	0.90
	1300	260		27477	106	0.94	0.88
	700	133	R4	16516	124	0.98	0.96
	850	173		19429	112	0.95	0.90
	1000	208		22718	109	0.95	0.90
	1300	260		26400	102	0.94	0.88
	700	133	R5	17882	134	0.98	0.96
	850	173		21000	121	0.95	0.90
	1000	208		24673	119	0.95	0.90
	1300	260		28838	111	0.94	0.88
80B	700	180	R2	22528	125	0.98	0.96
	850	224		26394	118	0.95	0.90
	1000	274		30998	113	0.95	0.90
	700	180	R3	22127	123	0.98	0.96
	850	224		25955	116	0.95	0.90
	1000	274		30491	111	0.95	0.90
	700	180	R4	21701	121	0.98	0.96
	850	224		25350	113	0.95	0.90
	1000	274		29567	108	0.95	0.90
	700	180	R5	23799	132	0.98	0.96
	850	224		27851	124	0.95	0.90
	1000	274		32391	118	0.95	0.90

Note: Information shown above is based on nominal system data. Individual fixture performance may vary. Specifications subject to change without notice.

ATB2 LLD Multiplier	15°C	20°C	25°C	30°C	35°C	40°C
	1.02	1.01	1	0.99	0.97	0.96

To calculate the LLD for a temperature other than 25°C, multiply the LLD @ 25°C (shown in the performance package table) by the LLD multiplier for the selected temperature.

American Electric Lighting
AEL Headquarters, 3825 Columbus Road, Granville, OH 43023
www.americanelectriclighting.com
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Warranty Five-year limited warranty. Complete warranty terms located at:
www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx
Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C.
Specifications subject to change without notice.

Please contact your sales representative for the latest product information.

FIRSTLIGHT TECHNOLOGIES

Making Solar Lighting Simple™

PLB Series

Solar Powered LED Bollard

Project: _____

Type: _____ Quantity: _____

The PLB series solar powered LED bollard is an ideal choice for low level architectural and commercial pathway and landscape lighting applications. Visual appeal combined with high quality construction and unequalled solar power performance make the PLB series an excellent fit where quality low level lighting is required.

Utilizing solar power and LED lighting the PLB bollards are fully self contained and offer significant benefits over typical wired bollards:

- Low installed costs and minimal site impacts with no trenching, cabling or wiring
- Minimal ongoing costs with no electricity bills or bulbs to change
- Immune from power outages
- Provide a visibly green statement with no ongoing carbon emissions

The performance of the PLB Series Solar LED Bollard is maximized through the use of proprietary Energy Management System (EMS) technology that allows the luminaire to function in harmony with its environment.

The EMS ensures that regardless of low-solar weather patterns or unusual charging conditions such as shading, the bollard continues to provide useable light that enhances the appeal and safety of the night time environment.

TECHNICAL SPECIFICATIONS

Solar Module:	▪ High impact, UV resistant, polycarbonate encapsulation ▪ High-efficiency mono-crystalline cells ▪ Integrated into bollard housing ▪ Used for day/night detection (no photocell required)
Energy Management System (EMS):	▪ High efficiency Maximum Power Point Tracking (MPPT) charge controller ▪ Micro-controller based technology ▪ Includes high-efficiency LED driver ▪ Integrated into bollard housing ▪ Designed to automatically manage lighting performance based on environmental conditions and lighting requirements ▪ Patent pending
Battery:	▪ Pure lead, spiral wound, absorbed glass mat (AGM) ▪ Superior cyclic performance ▪ High temperature tolerance ▪ 10 year design life ▪ Contained within bollard post ▪ Simple battery changes when required

LEDs and Optics:	▪ Three high-output Cree LEDs ▪ 50,000 hour L70 lifetime ▪ Warm (3000K), neutral (4300K), cool (5500K) color temperatures available ▪ Type III and Type V high efficiency, cut-off optics ▪ Typical lumen output of 130 lumens
Mechanical Construction:	▪ Cast, low copper aluminum housing ▪ Extruded, low copper aluminum post ▪ Stainless fasteners with security fastener option ▪ High strength mounting plate ▪ Architectural grade, super durable, TGIC powder coat with Alodine undercoat ▪ Four standard colors with custom colors available
Factory Set Lighting Profiles:	▪ On at dusk off at dawn ▪ On at dusk, turn off after 6 hours ▪ On at dusk, dim to 30% after 6 hours till dawn ▪ On at dusk, off after 5 hours, on 1 hour before dawn ▪ On at dusk, dim to 30% after 5 hours, on 1 hour before dawn

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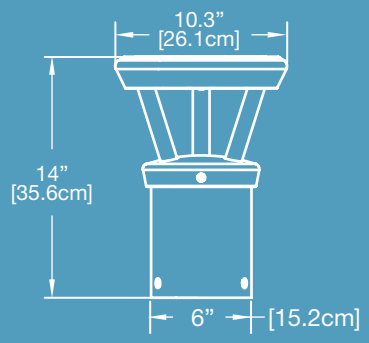
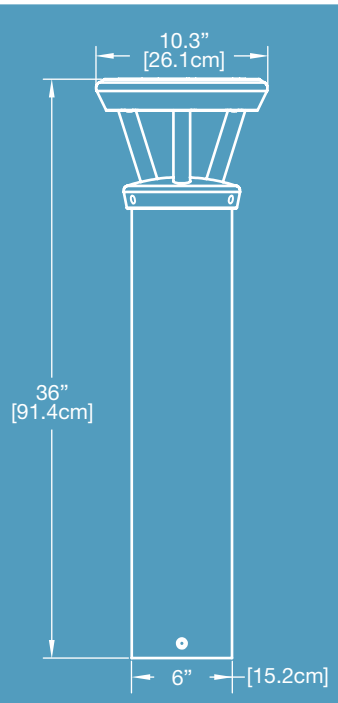
FIRSTLIGHT TECHNOLOGIES
Making Solar Lighting Simple™

PLB Series

Solar Powered LED Bollard

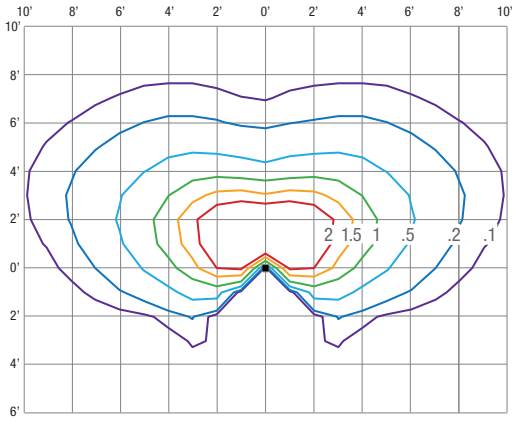


PLB – 101

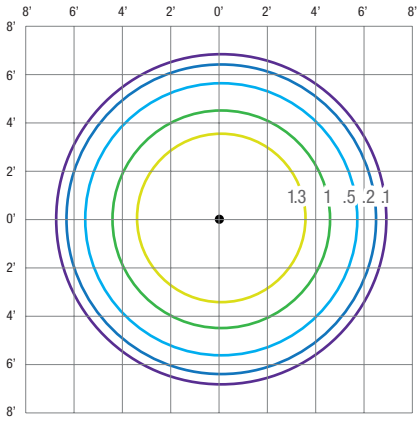


PLB – 102

PHOTOMETRICS



PLB - 102 Type III



PLB - 102 Type V

ORDER MATRIX

Series	Height	Finish	Distribution	LED Color	Lighting Profile	Options
PLB	**101** - 14”	**BK** - Black	**ASM** - Type III	**30K** - 3000K	**00** - Dusk till dawn	**WOB** - Ship Without Battery
	102 - 36”	**BZ** - Bronze	**SYM** - Type V	**43K** - 4300K	**01** - Dark +6 hours then off	**SEC** - Security Fasteners
		SV - Silver		**55K** - 5500K	**02** - Dark +6 hours then 30% (DEFAULT)	
		WH - White		**AMB** - Amber	**03** - Dark +5 hours, off, Dawn -1 hour	
		CC - Custom			**04** - Dark +5 hours, 30%, Dawn -1 hour	

Notes:
- Specifications subject to change without notice
- All light levels in foot candles (fc) with 4300K color temperature and 130 lumen output
- To convert to lux multiply light level by 10.7

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6" LED Open Downlight

RLF6LEDG4

120V–277V

0-10V Dimming

DATE: TYPE:

FIRM NAME:

PROJECT:

RETROFICIENT

ENERGY STAR

Ceiling Cutout: see guide
Maximum Ceiling Thickness 1½"
For conversion to millimeters, multiply inches by 25.4
Not to Scale

APPLICATIONS:

LiteFrame Retroficient RLF6LED is a 6" specification grade Retrofit LED retrofit downlight that combines superior brightness control with energy savings and low maintenance costs. The RLF6LED is designed specifically to retrofit into ceilings with existing recessed downlight fixtures without the need to remove the existing fixture. Suitable for a variety of commercial, retail, and institutional applications with ambient temperature up to 40°C (104°F) in open plenum applications.

HOUSING:

All components are made from quality die cast aluminum or galvaneal steel. Pre-wired j-box with snap-on cover for easy access. Snap-in- connection from driver compartment allows easy installation of light engine/trim assembly without tools above or below the ceiling and can be upgraded to accommodate technology improvements. Approve for 8 (4 in/4 out) No. 12 AWG conductors rated for 90°C through wiring.

INSTALLATION:

All installation can be performed from below the ceiling without removing existing fixture.

REFLECTOR:

High purity aluminum, Alzak, iridescence suppressed, semi-diffuse upper reflector. Self-trim standard. Painted white self-trim (WT) available as option. Reflector is made from anodized Alanod Miro 4 aluminum.

LED LIGHT ENGINE:

The RLF6LED uses the Philips Fortimo DLM Gen 4 LED Module with remote phosphor technology. This technology provides controlled color consistency (3 SCDM) from fixture to fixture. The system is designed for optional life and lumen maintenance (>50,000 hours at 70% lumen maintenance). Both reflector and light engine assembly are mechanically retained to housing. The light engine comes standard with 80 CRI in all Kelvin temperatures.

LED DRIVER:

The RLF6LED utilizes the Philips Fortimo LED Driver specifically designed to optimize efficiency of the Fortimo DLM Module. Driver is designed to match the 50,000 hour minimum life expectancy of the system. Meets UL Class 2, inherent short circuit protection, self limited, overload protected. If critical temperatures are reached on driver or LED module, integrated thermal feedback loop will gradually reduce current to protect system life. Driver is universal 120V-277V. Optional Lutron Series A driver is also available.

DIMMING:

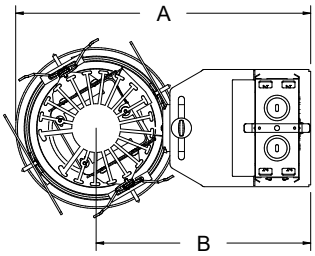
Comes standard with 0-10V dimming capability. Flicker-free dimming to 10%. 0-10V control may consume up to 1mA. 0-10V, Lutron 2 wire, 3 wire, and EcoSystem dimming available to 1%.

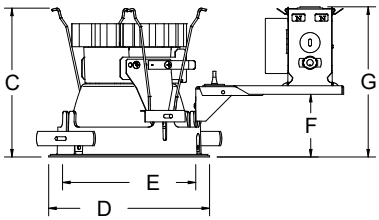
CERTIFICATIONS:

CSA certified to US and Canadian safety standards. Suitable for wet locations. Approved for through wiring. Non-IC rated. ENERGY STAR qualified with open clear Alzak reflector.

WARRANTY:

5 year warranty. See www.prescolite.com for details.





*Dimensions shown are for range of adjustability.

	"A"*	"B"*	"C"*	"D"*	"E"*	"F"*	"G"*
RLF6LEDG4 6LFLED5G4 RLF6LEDG4 6LFLED6G4 RLF6LEDG4 6LFLED7G4	12-3/4" - 15"	8-7/8" - 10-3/4"	6-3/4"	7"	5-3/4"	2-1/2" - 3-3/4"	6-1/4" - 7-1/2"

EXAMPLE: RLF6LEDG4 - 6LFLED5G430K
EXAMPLE: RLF6LED7G4120HDM-6LFLED7G435KWHWT

CATALOG NUMBER:

Order housing, reflector, and accessories separately

STANDARD 0-10V DIMMING

HOUSING/LED GENERATION	VOLTAGE	OPTIONS	TRIM	LED COLOR TEMP	REF. FINISH	LOWER REF. COLOR	REF. OPTIONS	ACCESSORIES
❑ **RLF6LEDG4** 6" High Efficacy LED Housing	❑ **Blank** 120V–277V	❑ **Blank** Standard 0-10V dimming to 10% ❑ **SD**[1] Small Diameter	❑ **6LFLED5G4** 1100 Lumen Module ❑ **6LFLED6G4** 1500 Lumen Module ❑ **6LFLED7G4** 2000 Lumen Module	❑ **30K** ❑ **35K** ❑ **40K**	❑ **Blank** Semi-Diffuse	❑ **Blank** Clear ❑ **CG** Champagne Gold ❑ **BL** Black ❑ **WE** Wheat ❑ **LW** Light Wheat ❑ **PW** Pewter ❑ **WH**[1] White Paint	❑ **WT** White Trim ❑ **WF** Wide Flange	❑ **LFSC6** 6" reflector screw cover ❑ **LiteGear** See page 3 for availability ❑ **RWD6** Retrofit wide diameter housing kit

ALTERNATIVE DIMMING TO 1%

Use with HDM/DM1/2DM dimming option: Match Housing to Trim Output

❑ **RLF6LED5G4** ❑ **RLF6LED6G4** ❑ **RLF6LED7G4**	❑ **120** ❑ **277**	❑ **HDM**[3] Lutron 3-wire Eco System to 1% ❑ **2DM**[3] Lutron 2-wire Leading Edge to 1% (120V only) ❑ **DM1**[3] 0-10V dimming to 1% ❑ **SD**[1] Small Diameter

NOTES

1 See housing capability guide on page 3

2 Requires WT option also

3 For HDM, DM1, & 2DM options, housing output must match trim output

prescolite

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In a continuing effort to offer the best product possible we reserve the right to change, without notice, specifications or materials that in our opinion will not alter the function of the product.

Web: **www.prescolite.com** Tech Support: **(888) 777-4832**

RTF-014

PHOTOMETRIC DATA

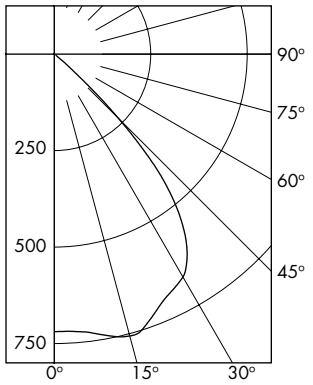
Retroficient - 6" RLF6LEDG4 Downlight

DRIVER DATA	RLF6LED5G4 30K	RLF6LED7G4 30K
Input Voltage	120-277V	120-277V
Input Frequency	50/60 Hz	50/60 Hz
Input Current	0.12A (120v)	0.22A (120v)
	0.052A (277v)	0.10A (277v)
Input Power	14.5W	26.5W
Constant Current Output	200–1000mA	200–1000mA
Power Factor	≥0.90	≥0.90
THD	<20%	<20%
EMI Filtering	FCC 47CFR	FCC 47CFR
	Part 15, Class A	Part 15, Class A
Operating Temperature	-20°C to 40°C	-20°C to 40°C
Dimming	0-10V	0-10V

Over-voltage, over-current, short-circuit protected

*Power consumption and photometric output may vary slightly with HDM or 2DM driver

RLF6LEDG4 6LFLED5G4 30K
LED Light Engine: 3000K, 80 CRI
System Wattage: 14.5W
Fixture Delivered Lumens: 1157
Fixture Efficacy: 80.0
Spacing Criteria: 1.2



CANDELA DISTRIBUTION

DEG	CANDELA	LUMENS
0	719	
5	722	69
15	756	212
25	692	321
35	597	365
45	236	181
55	4	8
65	0	0
75	0	0
85	0	0
90	0	

Test No. 8458
Tested at 25°C Ambient in accordance to IESNA LM-79-2008

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LUMINAIRE
0-30	602	52.0
0-40	967	83.6
0-60	1157	100.0
0-90	1157	100.0
90-180	0	0.0
0-180	1157	100.0

LUMINANCE DATA IN CANDELA/ SQ. METER

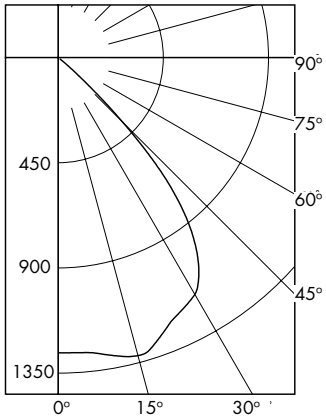
Angle in Vertical	Average
45°	18290
55°	382
65°	0
75°	0
85°	0

COEFFICIENTS OF UTILIZATION Zonal Cavity Method

Room Cavity Ratio	% Effective Ceiling Cavity Reflectance																	
	80%				70%				50%			30%			10%			
	20% Effective Floor Cavity Reflectance																	
	% Wall Reflectance																	
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
1	113	110	107	105	110	108	105	103	104	102	100	100	98	97	96	95	94
2	107	101	97	93	104	99	95	92	96	93	90	93	90	88	90	88	86
3	100	93	87	83	98	92	87	82	89	85	81	86	83	80	84	81	79
4	94	86	80	75	92	85	79	74	82	77	73	80	76	73	78	75	72
5	88	79	73	68	87	78	72	67	76	71	67	74	70	66	73	69	65
6	83	73	66	61	82	72	66	61	71	65	61	69	64	60	68	63	60
7	78	68	61	56	77	67	61	56	66	60	56	64	59	55	63	59	55
8	74	63	56	51	72	62	56	51	61	55	51	60	55	51	59	54	51
9	69	58	52	47	68	58	52	47	57	51	47	56	51	47	55	50	47
10	65	55	48	44	64	54	48	44	53	47	43	52	47	43	52	47	43

RLF6LEDG4 6LFLED5G4 30K — Test No. 8458

RLF6LEDG4 6LFLED7G4 30K
LED Light Engine: 3000K, 80 CRI
System Wattage: 26.4W
Fixture Delivered Lumens: 2013
Fixture Efficacy: 76.1
Spacing Criteria: 1.2



CANDELA DISTRIBUTION

DEG	CANDELA	LUMENS
0	1263	
5	1267	122
15	1320	370
25	1212	561
35	1041	637
45	391	306
55	9	15
65	2	2
75	0	0
85	0	0
90	0	

Test No. 8459
Tested at 25°C Ambient in accordance to IESNA LM-79-2008

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%LUMINAIRE
0-30	1053	52.3
0-40	1690	83.9
0-60	2011	99.9
0-90	2013	100.0
90-180	0	0.0
0-180	2013	100.0

LUMINANCE DATA IN CANDELA/ SQ. METER

Angle in Vertical	Average
45°	30302
55°	860
65°	259
75°	0
85°	0

COEFFICIENTS OF UTILIZATION Zonal Cavity Method

Room Cavity Ratio	% Effective Ceiling Cavity Reflectance																	
	80%				70%				50%			30%			10%			
	20% Effective Floor Cavity Reflectance																	
	% Wall Reflectance																	
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
1	113	110	107	105	110	108	105	103	104	102	100	100	98	97	96	95	94
2	107	101	97	93	104	99	95	92	96	93	90	93	90	88	90	88	86
3	100	93	88	83	98	92	87	82	89	85	81	86	83	80	84	81	79
4	94	86	80	75	92	85	79	74	82	77	73	80	76	73	78	75	72
5	89	79	73	68	87	78	72	67	76	71	67	75	70	66	73	69	66
6	83	73	66	62	82	72	66	61	71	65	61	69	64	60	68	63	60
7	78	68	61	56	77	67	61	56	66	60	56	64	59	55	63	59	55
8	74	63	56	52	72	62	56	51	61	55	51	60	55	51	59	54	51
9	69	59	52	47	68	58	52	47	57	51	47	56	51	47	55	50	47
10	66	55	48	44	64	54	48	44	53	48	44	52	47	43	52	47	43

RLF6LEDG4 6LFLED7G4 30K — Test No. 8459

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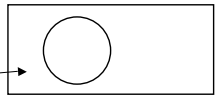
Housing Compatibility Guide		
Ordering Guidelines	6 inch	
	min	max
Requires SD Housing Option	5-15/16	6-1/8
All Standard Housings	6-1/8	6-1/2
Requires RWD Kit Accessory & WF Reflector Option	6-1/2	6-7/8

Dimensions shown are for the diameter of the frame flange at it's narrowest point



Central Inverters

For fixture full light output in back-up mode, Prescolite and Dual-lite have jointly tested the LiteFrame LED with the 100 (LG1) and 250 (LG2) VA LiteGear inverters. (Note: Not for use with integral EM option). For more information on LiteGear go to www.dual-lite.com/resources/litegear_luminaire_loading_chart/

Dimming Compatibility Table

Dimming Ballast	Manufacturer	Web Link
DM/DM1	Lutron DVTV	http://bit.ly/11jSvZg
DM/DM1	Leviton AWRMG-7xx, AWSMG-7xx, AWSMT-7xx	http://bit.ly/1BJn2R9
HDM	Lutron	http://bit.ly/1vtjHAl
2DM	Lutron	http://bit.ly/1nF4Zp1

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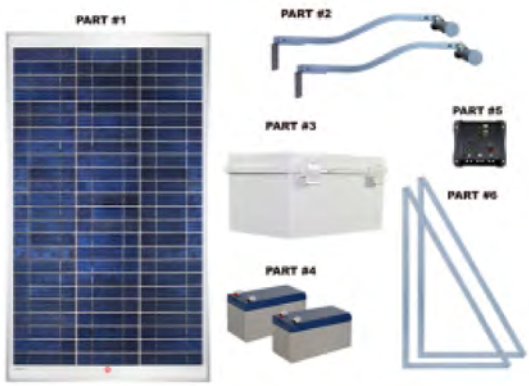


FL57 SOLAR LED SIGN LIGHT SYSTEM (2 OR 3 FIXTURES)

BRAND: SOLAR ILLUMINATIONS

PRODUCT CODE: FL57

AVAILABILITY:

IN STOCK

AVAILABLE OPTIONS

* Light Fixture Options:

- ◯ 2 Lamp System
- ◯ 3 Lamp System .

* Solar Panel Power:

- ◯ 45 Watt
- ◯ 70 Watt
- ◯ 90 Watt
- ◯ 100 Watt
- ◯ 140 Watt

*** Solar Charge Controller:**

- ◯ 12/24V PWM 10A
- ◯ 12/24V MPPT 10A

DESCRIPTION

This sign light system is supplied with two LED sign light fixtures supplied with a built-on 9" extension arm and adjustable lamp. Ideal for various types of signs requiring lighting from above. Illumination can be set for dusk to dawn or timed mode. Supplied as a complete system including all necessary components such as solar panel, battery, and charge controller.

This system consists of two light fixtures which are fitted with an adjustable lamp which provides up to 30 degrees of movement. The lamp has 18 LEDs which emit 150 Lumens of warm white light. This system is designed to typically operate from dusk till dawn each night using two lights, and up to 12 hours using three. For installations in locations that experience harsh winter weather, or low sun levels, a higher powered solar panel and/or an MPPT charge controller may be required. Fully automatic activation at dusk. The installer can set the programmable charge controller to switch the system off after a chosen amount of hours or enable it to run from dusk to dawn. Several programmable timed options are available. An MPPT charge controller can be purchased as an optional upgrade. The MPPT charge controller improves solar charging efficiency, and offers addition light control features including a dual timer setting. Supplied with a 45W solar panel which can be installed on the sign structure or nearby. A weatherproof battery box is included to facilitate the sealed battery which is recharged daily via the solar panel. The light fixture simply plugs into the battery box and comes pre-wired with plenty of cord and fitted with simple connections. Color of the light fixture is silver. Color of other parts of the system are gray. Color of light output is warm white.

POPULAR USES

This light is perfect for illuminating various types of signs from above. Our solar LED sign light systems are perfect for sites where electricity is unavailable or where it would be too difficult or costly to install an electric supply. They are also suitable for retro-fit applications where electrically powered lights are being removed in an effort to save money and no longer use the utility supply.

TECHNICAL SPECIFICATIONS

Performance
Manufactured in an ISO9001:2008 'Quality Assured' facility.
Each lamp can illuminate a sign up to 4' x 4' (1.2m x 1.2m).
This system can typically operate dusk to dawn each night with two light fixtures, and up to 12 hours using three.
Up to 3 days of autonomy (subject to time length of night time illumination and other factors).

Light Fixture
Two or three light fixtures are included in this system.
The light is fitted with 18 SMD/LEDs.
Each light emits 150 Lumens.
LED beam angle is approx. 60 degrees.
Warm white LED color temperature approx. 2700k.
The light is fitted with approximately 10' 10" (3m) of pre-wired cable which is pre-plugged ready for easy connection to the battery box.
Additional extension cable is available (upon request) as an option.
The light fixture is weather rated to I.P 65.
Lamp section dimensions 13.5" long x .5" wide (34cm x 1.5cm).
The extension arm is 9" long and 1.5" wide (23cm x 14cm).

Battery
Two 12 Volt 12 Amp-Hr sealed lead acid batteries are supplied.
Battery type is AGM. Gel battery is available by special order.

Battery Box
A plastic weatherproof battery box is supplied to accommodate the battery.
The battery box has a removable front which is lockable (padlock not included).
The battery box also houses the charge controller.
The battery box is approx. 10.5" x 8" x 5" (27cm x 20cm x 12cm) LxWxD.

Solar Panel
High quality, aluminium framed, powerful 45 Watt solar panel is included.
Higher powered solar panel options may be available. For help determining whether a solar panel upgrade is

necessary, please contact our customer service department.
Solar panel is supplied with approximately 18' (5.5m) of cable/cord. Additional cord is available as an optional extra.
The solar panel cord connects directly to the battery box.
The solar panel support is supplied with a fold-out 'U' shape bracket which can be used to mount it to a suitable surface.
The 45W solar panel dimensions approx. 34.25" x 20.13" x 1.5" (86.8cm x 51cm x 3.5cm) LxWxD.

Control Module
This system includes a programmable control module which regulates and manages the solar panel power, battery power, and illumination time.
The compact control module has LED indicators to display status, and houses connections for solar panel, batteries, and lamp.
User programmable illumination time of up to 1 to 12 hours or dusk-to-dawn setting (where conditions permit).
User or installer can set the control module to run from dusk and then shut off after a certain amount of hours.
Default setting is typically dusk to dawn.
Instructions are supplied should the user or installer need to program or re-program the module*.
An option to upgrade to an MPPT charge controller is available.
The MPPT charge controller improves solar charging efficiency by up to 30%.
The MPPT charge controller also offers the most advanced load control options and intelligent battery life management.

Installation
All connections are simply plug & play.

REMARKS

20 year solar panel warranty, 5 year warranty on all other components (excluding batteries). Batteries are covered by the manufacturer.* Warranty registration is required (after purchase), otherwise a base one year warranty will apply. Go to www.solarilluminations.com/registration to register your warranty.
Lifetime unlimited technical support.

Please Note: This product is a special order and is non-returnable except in the event of a fault (during its warranty period) when the product, once returned will be repaired or replaced.

The solar panel must be installed in a location where it can receive full direct sunshine (when available) and usually set facing South at an appropriate angle (where adjustment options allow). The solar panel must not be installed in a shaded or part shaded location and never indoors. The standard specifications of the system (particularly the solar panel Wattage and battery capacity) may need to be adjusted. These components are determined by your geographic location, power consumption (LED Wattage) and the total amount of hours of illumination time required. Such changes to the standard specifications may increase or decrease the cost shown. Please contact us for more information or assistance. The illumination time is estimated and subject to various factors including (but not limited to) geographic location, seasons, temperature, weather conditions & location of product etc. The illumination time of most solar lights can reduce during winter months when the

weather is poor and the days are shorter. During this time insolation hours decrease accordingly. Shorter illumination time due to one or more of the above factors does not define the product as being ‘defective’ or ‘not as described’. All solar lights must be used in a completely dark location at night time otherwise they may not illuminate. Nearby strong lighting sources or ambient lighting may affect the operation of a solar light. This does not define the product as being 'defective' or 'not as described'. Please note, if you do not install or use this product for several months the battery may discharge naturally on its own. By allowing a battery to deep discharge it may cause irreversible damage as the battery may then lose the ability to recharge or hold a full charge. Although unlikely, we reserve the right to supply this product with any minor alterations or minor changes to the specifications (shown above by text description or by photographs) due to different supplies or product batches received, incorporating such product changes made by the manufacturer, without further notice. Descriptions, specifications and photographs are updated regularly but may not be current when minor changes to a product have only recently been made.
* View our Terms, Conditions and Polices (including our Returns Policy) for further information.

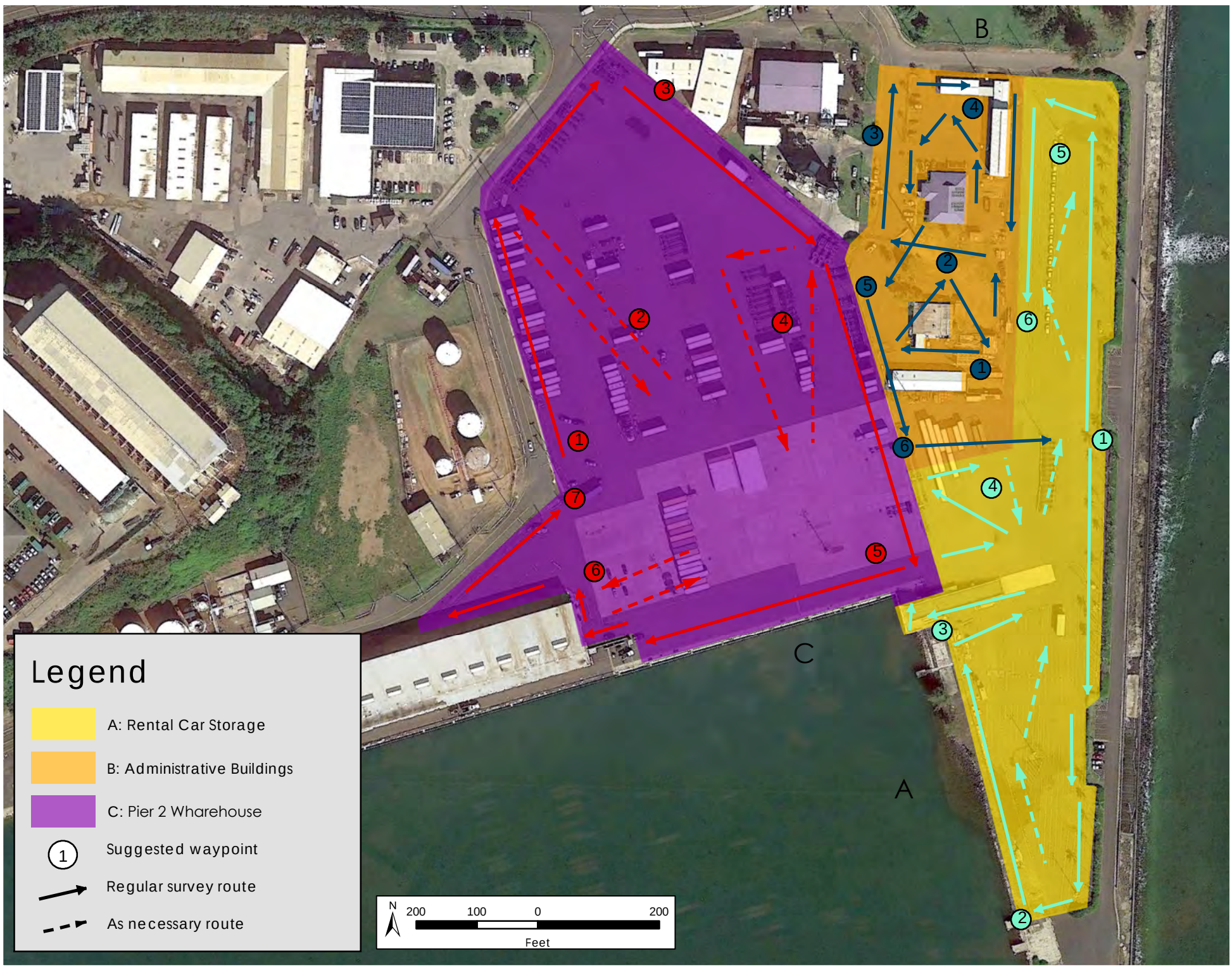
SPECIFICATION

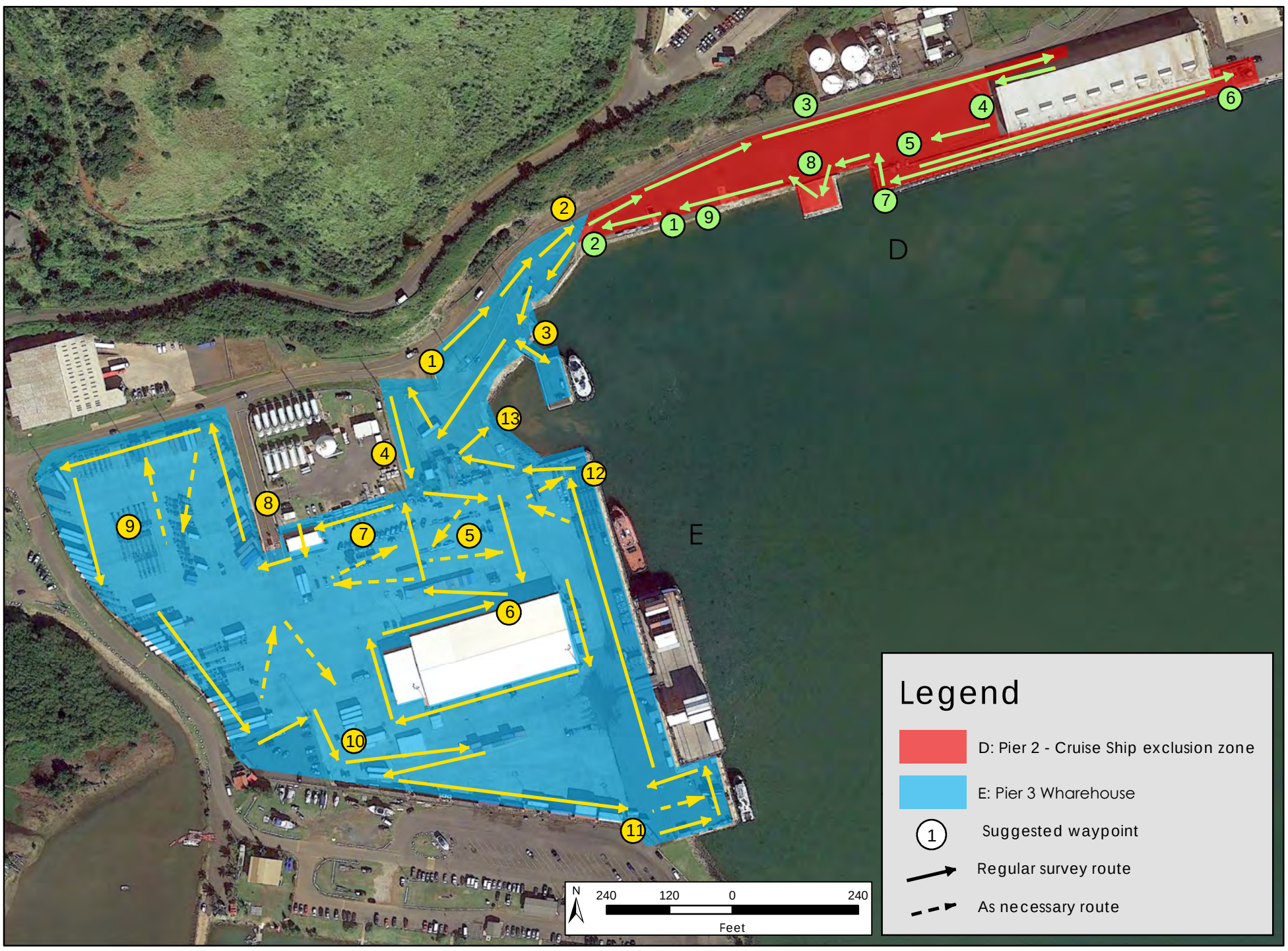
SOLAR LIGHTS DATA	
.	.
Lumen Output	150 Lumens per lamp.
Equivalent Incandescent Wattage	Approx. 25 Watts per lamp.
Approximate Illumination Time	Typically dusk to dawn.
Approximate Sign SIze	Up to 4' x 4' (1.2m x 1.2m).
Solar Panel Wattage	From 45 Watts.
Programable Controller	Yes.

TAGS:

Tags: FL57, Sign Light, Above Sign

Appendix B. Details of Monitoring Protocol, Data Collection Sheets, Instructions, and Maps of Survey Routes for the KSHCP Seabird Monitoring Program at Nawiliwili Harbor, Port Allen Harbor, and Lihue Airport.



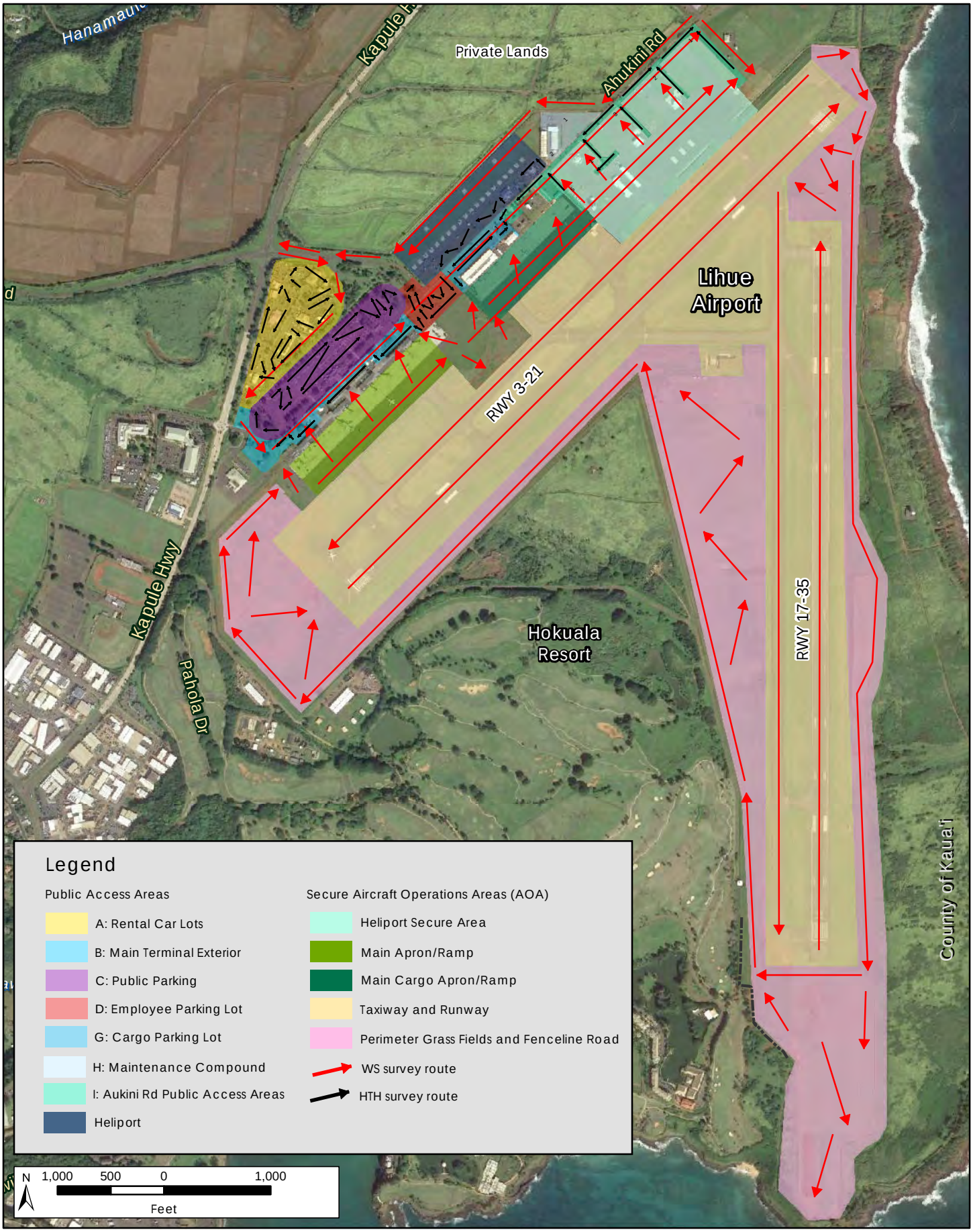


N:\Projects4000\4065-01\Reports\SEEF\Fig 1 v2.mxd

Nawiliwili Harbor Seabird Monitoring Survey Routes 4065-02

December 2018

Port Allen Survey Routes
N
A
B
C
D
A: Main Parking
B: Storage Area
C: Makai Pier
D: Mauka Pier – (DoD Restricted)
Suggested waypoint
Regular survey route
As necessary route



N:\Projects4\0004065-01\Reports\Fig 1 USDA Wildlife Services Lihue 2018.mxd

Seabird Monitoring Routes in Public Access and Secure Areas of Lihue Airport

Lihue Airport (4065-01)

December 2018

Seabird Monitoring – Primary Data Form
Hawaii Department of Transportation

Please complete ALL fields on this data sheet during each monitoring period. Additional comments and descriptive information MUST be entered on the Supplemental Information Form.

Survey Location _____

Date _____ **Start Time** _____ **End Time** _____

Observer Name _____

Weather conditions _____

ID #	Species	GPS Coordinates		Time of discovery	Condition	Distance	Type
		Latitude	Longitude				

ID#: This will be the observer's initials followed by date and number in sequence of specimens discovered (example: **GS100217-01** corresponding with "your initials", October 2, 2017 number 1).

Survey Location: Lihue Airport (LIH), Nawiliwili Harbor (NAW), Port Allen Harbor (PA), Kahului Airport (OGG), Kahului Harbor (KAH), and Lanai Airport (LAN).

Weather conditions MUST include wind speed and direction, percent cloud cover, and precipitation (none, drizzle, continuous or intermittent rain).

Condition: Alive (A), Injured (I), Dead (D); **Distance**: The linear distance (in meters) to the nearest source of artificial light, overhead structure, or significant feature; **Type**: Overhead light including the number of lamps (e.g. **OL-6**), shipping container (**SC**), building (**B**), fence (**Fe**), powerline (**PL**), or other (**OTH**) and include a description on the Supplemental Information Form.

HDOT 2017 Downed Wildlife Incident

Reporting Form

Date	
Type of Discovery (circle one)	Routine Search Incidental
Discovered by	
Affiliation	
Species (common name)	
Time Discovered	
Time Initially Reported to Agencies	
Time Agency Responders Arrive/Advise	
Location Description	
GPS Coordinates	
Distance of bird to base of nearest light (m)	
Bearing from base of nearest light (deg)	
Ground Type (paved, grass, shrub, other)	
Wind Direction and Speed (mph)	
Cloud Cover (%)	
Cloud Deck (estimated magl)	
Precipitation	
Temperature (^{o}F if known)	
Photos taken[1] (circle one)	Yes No

[1] All photos are assigned an ID# and are recorded in the Photo Log.

Descriptive Information

Condition of Bird:
Probable Cause of Grounding and Supporting Evidence:
Sequence of Response Measures:

Additional Comments

Attach 2-3 photos to this report.

Seabird Monitoring – Supplemental Information Form

Hawaii Department of Transportation

Survey Location _____ Date _____

Observer Name _____

ID #	Description of conditions where a grounded bird is discovered, presence of cats or mongoose, number of photos, actions taken, other relevant information.

All photos MUST be entered in the Photo Log.

Seabird Monitoring – Species Names and Acronym Codes
Hawaii Department of Transportation

Please use the following codes for grounded bird species recorded on the Primary Data Form. If a species is encountered which does not occur on this list, please record the common name.

Common Name	Species Code
Hawaiian Petrel	HAPE
Newell‘s Shearwater	NESH
Wedge-tailed Shearwater	WTSH
Band-rumped Storm-Petrel	BRSP
Bulwer‘s Petrel	BUPE
Christmas Shearwater	CHSH
Sooty Tern	SOTE
White-tailed Tropicbird	WTTR
Red-tailed Tropicbird	RTTR
Red-footed Booby	RFBO
Brown Booby	BRBO
Brown Noddy	BRNO
Black Noddy	BLNO
Unknown	UNK

Fraction of the Moon Illuminated, 2017 at Midnight
Hawaii-Aleutian Standard Time (*Source*: U.S. Naval Observatory, Naval Oceanography Portal at usno.navy.mil).

September		**October**		**November**	
Date	Fraction	Date	Fraction	Date	Fraction
1	0.78	1	0.80	1	0.90
2	0.85	2	0.87	2	0.95
3	0.91	3	0.93	3	0.99
4	0.96	4	0.98	4	1.00
5	0.99	5	1.00	5	0.98
6	1.00	6	0.99	6	0.93
7	0.98	7	0.96	7	0.86
8	0.95	8	0.91	8	0.77
9	0.89	9	0.83	9	0.66
10	0.80	10	0.73	10	0.55
11	0.71	11	0.63	11	0.44
12	0.60	12	0.51	12	0.33
13	0.48	13	0.40	13	0.24
14	0.37	14	0.29	14	0.16
15	0.26	15	0.20	15	0.09
16	0.17	16	0.12	16	0.04
17	0.09	17	0.06	17	0.01
18	0.04	18	0.02	18	0.00
19	0.01	19	0.00	19	0.01
20	0.00	20	0.01	20	0.04
21	0.02	21	0.03	21	0.08
22	0.05	22	0.07	22	0.13
23	0.11	23	0.12	23	0.20
24	0.18	24	0.19	24	0.29
25	0.26	25	0.27	25	0.38
26	0.34	26	0.36	26	0.47
27	0.43	27	0.45	27	0.57
28	0.53	28	0.55	28	0.67
29	0.62	29	0.64	29	0.77
30	0.71	30	0.74	30	0.85
		31	0.82		

Appendix C. Results of Searcher Efficiency Trials at Nawiliwili Harbor and Port Allen Harbor, Kauai, 2017

Searcher Efficiency Trials at Nawiliwili Harbor and Port Allen Harbor, Kauai.

Sampling structure and results of detection efficiency trials conducted at Nawiliwili Harbor and Port Allen, Kauai, in December 2017

All carcasses retrieved at the conclusion of trials were delivered to the Kauai Humane Society and Save Our Shearwaters program for stroage and later disposal.

Prepared by H. T. Harvey & Associates. Preliminary results, subject to further analysis and reporting.

Port Allen

Carcass ID	Map Point	Date	Coordinates		Trial #	Finder 1	Finder 2	Found Y/N	Comments
PA-SEEF-2017-01	1	10-Dec	21.90005	-159.587609	2	PUB		Y	Delivered to Hanapepe FS Aid Station
PA-SEEF-2017-02	2	10-Dec	21.900063	-159.588182	2	PUB		Y	Delivered to Hanapepe FS Aid Station
PA-SEEF-2017-03	3	10-Dec	21.900162	-159.588028	2	PUB		Y	Delivered to Hanapepe FS Aid Station
PA-SEEF-2017-04	4	10-Dec	21.8995	-159.589567	2	HTH		Y	HTH found and left in place, not reported by PUB, delivered by HTH to NAW Aid Station
PA-SEEF-2017-05	5	12-Dec	21.90019	-159.587842	4	HTH		Y	HTH found and left in place, not reported by PUB, delivered by HTH to NAW Aid Station
PA-SEEF-2017-06	6	12-Dec	21.899912	-159.588171	4	PUB		Y	Charter operator found and called in; delivered to Hanapepe
PA-SEEF-2017-07	7	15-Dec	21.900258	-159.587909	5	HTH		Y	HTH found and left in place, not reported by PUB, delivered by HTH to NAW Aid Station
PA-SEEF-2017-08	8	15-Dec	21.899537	-159.589451	5	HTH		Y	HTH found and left in place, not reported by PUB, delivered by HTH to NAW Aid Station
PA-SEEF-2017-09	9	21-Dec	21.90015	-159.588237	6			N	Not reported; recovered by HTH, delivered to SOS
PA-SEEF-2017-10	10	21-Dec	21.900176	-159.588192	6			N	Not reported; missing
PA-SEEF-2017-11	11	21-Dec	21.899429	-159.589705	6	PUB		Y	Charter operator found and reported to HTH; HTH delivered to SOS
PA-SEEF-2017-12	12	21-Dec	21.900216	-159.588292	6			N	Not reported; recovered by HTH and deposited SOS
PA-SEEF-2017-13	13	23-Dec	21.899616	-159.589192	7	PUB		Y	Charter operator found and reported to HTH; KESRP facilitates SOS delivery
PA-SEEF-2017-14	14	23-Dec	21.89996	-159.587479	7			N	Not reported; recovered by HTH and delivered to SOS
PA-SEEF-2017-15	15	23-Dec	21.900214	-159.587517	7			N	Not reported; recovered by HTH and delivered to SOS

Summary of Findings	Date	# carcasess	# found	discov	% detection
PUB and HTH	**10-15 Dec**	**8**	**8**	**1.00**	**100%**
PUB OVERALL	**10-23 Dec**	**15**	**6**	**0.40**	**40%**

Nawiliwili Harbor

Carcass ID	Map Point		Coordinates		Trial Number	Finder 1	Finder 2	Found Y/N	Comments
NAW-SEEF-2017-01	1	9-Dec	21.953461	-159.358987	1	DOT		Y	Security found before HTH survey; picked up by SOS
NAW-SEEF-2017-02	2	9-Dec	21.95523	-159.355459	1	DOT		Y	Security found before HTH survey; picked up by SOS
NAW-SEEF-2017-03	3	9-Dec	21.955823	-159.354779	1	DOT		Y	Security found before HTH survey; picked up by SOS
NAW-SEEF-2017-04	4	9-Dec	21.956931	-159.352877	1	DOT		Y	Security found before HTH survey; picked up by SOS
NAW-SEEF-2017-05	5	10-Dec	21.952335	-159.359586	2	DOT		Y	Security found before HTH survey; picked up by SOS
NAW-SEEF-2017-06	6	10-Dec	21.952444	-159.359747	2	DOT		Y	Security found before HTH survey; picked up by SOS
NAW-SEEF-2017-07	7	10-Dec	21.955327	-159.354609	2	DOT		Y	Security found before HTH survey; picked up by SOS
NAW-SEEF-2017-08	8	10-Dec	21.953915	-159.35306	2	DOT		Y	Security found before HTH survey; picked up by SOS
NAW-SEEF-2017-09	9	11-Dec	21.954676	-159.356554	3	DOT		Y	Security found in morning; picked up by SOS; not found by HTH
NAW-SEEF-2017-10	10	11-Dec	21.95277	-159.359522	3	DOT		Y	Security found before HTH survey; picked up by SOS
NAW-SEEF-2017-11	11	11-Dec	21.951353	-159.359032	3			N	Not reported; missing. Young Brothers yard not searchable by HTH due to operations.
NAW-SEEF-2017-12	12	11-Dec	21.956127	-159.354013	3	DOT		Y	Security found before HTH survey; picked up by SOS
NAW-SEEF-2017-13	13	12-Dec	21.95552	-159.355203	4	HTH	DOT	Y	Found by HTH and left in place; found by Security; placed in NAW Aid Station, picked up by SOS
NAW-SEEF-2017-14	14	15-Dec	21.954205	-159.357523	5	DOT		Y	Security found before HTH survey; picked up by SOS
NAW-SEEF-2017-15	15	15-Dec	21.957086	-159.355042	5			N	Not reported; missing.
NAW-SEEF-2017-16	16	15-Dec	21.955275	-159.355279	5	DOT		Y	Security found before HTH survey; picked up by SOS
NAW-SEEF-2017-17	17	15-Dec	21.955775	-159.354851	5	DOT		Y	Security found before HTH survey; picked up by SOS
NAW-SEEF-2017-18	18	21-Dec	21.957185	-159.353456	6	DOT		Y	Security found; picked up by HTH and delivered at SOS; carcasses were previously used, frozen, and reused (NAW-07, PA-05 and PA-06)
NAW-SEEF-2017-19	19	21-Dec	21.951449	-159.358828	6	DOT		Y	Security found; picked up by HTH and delivered at SOS
NAW-SEEF-2017-20	20	21-Dec	21.95668	-159.353553	6	DOT		Y	Security found; picked up by HTH and delivered at SOS

Summary of Findings	Date	# carcasess	# found	Discov	% Detected
DOT and HTH	9-15 Dec	17	15	0.88	88%
DOT OVERALL	9-23 Dec	20	18	0.90	90%

Appendix D. Summary of 2017 Seabird Monitoring Results at Hawaii Department of Transportation Facilities on Kauai

Summary of Seabird Monitoring Results at Hawaii
Department of Transportation Facilities, Kauai, 2017
Period Covered: September 24, 2017 - December 15, 2017
Prepared by H. T. Harvey & Associates

Lihue Airport				
Date	Location	Species	Time	Condition
13-Oct	LIH	NESH	19:45	A
26-Oct	LIH	NESH	6:00	D
26-Oct	LIH	NESH	7:40	A
4-Nov	LIH	NESH *	21:25	D
13-Nov	LIH	WTSH	11:00	A
16-Nov	LIH	WTSH	19:30	A

Nawiliwili Harbor				
Date	Location	Species	Time	Condition
12-Oct	NAW	NESH	21:15	A
12-Nov	NAW	WTSH	20:10	A
13-Nov	NAW	WTSH	20:50	A
15-Nov	NAW	WTSH	18:50	A
16-Nov	NAW	WTSH	21:20	D
16-Nov	NAW	STPE †	16:21	D
19-Nov	NAW	HAPE	21:15	A
20-Nov	NAW	WTSH	20:15	A
1-Dec	NAW	WTSH	20:40	A

Port Allen				
Date	Location	Species	Time	Condition
No downed birds discovered				

* Presumed NESH; only part of wing and a few loose feathers found (post-scavenging).

† Heavy salt encrusting on carcass suggests bird was exposed to spray aboard the Pride of America prior to deposition at Nawiliwili Harbor and not attributed to HDOT; possibly Band-rumped storm petrel.

Appendix E. FallOut Records for Covered Seabirds at Hawaii Department of Transportation Facilities on Kauai, 2013-2017

SOS Fall Out Records for Covered Seabirds at Hawaii Department of Transportation Facilities on Kauai, 2013-2016

ID	LogDate	LogType	Species	Status	PermBand	LocationFound	AidStation	Section	AgeClass	Port Allen HDOT	Nawiliwili HDOT	LIH HDOT
MLP011	10/12/2013	Aid Station	NESH	REL	1054-27392	Taxiway A @ Taxiway L intersection (airport)	Lihue Airport	11	HY			NESH
JMG010	10/15/2013	Aid Station	NESH	REL	1064-00594	Matson, vicinity of gate 14 located in the young brothers shipyard. Bird found sitting on the pavement.	Matson	13	HY		NESH	
JMO018	10/30/2013	Aid Station	NESH	REL	1054-27461	Nawiliwili Harbor	Lihue Fire Station	13	HY		NESH	
MLP026	10/31/2013	Aid Station	NESH	REL	1054-31632	Between commuter terminal and grassy area near storm drain. Airport	Lihue Airport	11	HY			NESH
MK409	10/16/2014	Aid Station	NESH	REL	1064-00757	Port Allen Pier	Hanapepe Fire Station	21	HY	NESH		
CMD032	10/28/2014	Aid Station	NESH	REL	1064-00934	Found outside Terminal Building	Matson	13	HY		NESH	
ELC025	11/16/2014	Secondary Pickup	NESH	DOA		"Young Brothers, Pier 3, #15 pole, 11/15/2014, (Matson)"	OTHER	13	U		NESH	
MJ183	10/7/2015	Aid Station	NESH	REL	1064-01072	Hanapepe Harbor, near pier	Kalaheo Fire Station	21	HY	NESH		
JS002	10/10/2015	Aid Station	NESH	REL	1064-01185	Port Allen Pier roadside, 3:30 pm	Hanapepe Fire Station	21	HY	NESH		
TA423	10/13/2015	Aid Station	NESH	REL	1064-01076	Front of Matson Building, 3rd door @ 20:30	Matson	13	HY		NESH	
NS012	10/14/2015	Aid Station	NESH	REL	1064-01096	"Port Allen on the pier 8:15"	Kalaheo Fire Station	21	HY	NESH		
NS020	10/19/2015	Aid Station	NESH	REL	1064-01172	"Port Allen DOT pier"	Hanapepe Fire Station	21	HY	NESH		
NS024	10/20/2015	Aid Station	NESH	REL	0864-06001	"Port Allen pier"	Kalaheo Fire Station	21	HY	NESH		
TA432	10/22/2015	Aid Station	NESH	REL	0864-06014	Tiger Pier @ 9pm 10/21/15	Matson	13	HY		NESH	
UMP170	10/28/2016	Aid Station	NESH	REL	1064-02129	Holo Holo Charters, Port Allen Commercial Pier 17:20 10/27	Hanapepe Fire Station	21-PA	HY	NESH		

ID	LogDate	LogType	Species	Status	PermBand	LocationFound	AidStation	Section	AgeClass	Port Allen HDOT	Nawiliwili HDOT	LIH HDOT
HDOT Monitoring Program Results for 2017												
HTHarvey	10/12/2017	Monitoring	NESH	Alive	?	Nawiliwili Harbor	?	13	HY		NESH	
HTHarvey	10/13/2017	Monitoring	NESH	Alive	?	Lihue Airport	?	11	HY			NESH
HTHarvey	10/26/2017	Monitoring	NESH	Dead	?	Lihue Airport	?	11	HY			NESH
HTHarvey	10/26/2017	Monitoring	NESH	Alive	?	Lihue Airport	?	11	HY			NESH
HTHarvey	11/4/2017	Monitoring	NESH	Dead	?	Lihue Airport	?	11	U			NESH
HTHarvey	11/19/2017	Monitoring	HAPE	Alive	?	Nawiliwili Harbor	?	13	HY		HAPE	
SOS Monitoring Results (New) for 2017												
SOS New	11/17/2017	11-Lihue-Airport Area	NESH			Lihue Airport		11				NESH
SOS New	11/17/2017	11-Lihue-Airport Area	NESH			Lihue Airport		11				NESH
SOS New	10/14/2017	13-Matson/ Nawiliwili Harbor	NESH			Matson Container near wht tent area @ 2357 10/13		13			NESH	
SOS New	10/26/2017	13-Matson/ Nawiliwili Harbor	NESH			Pier 1 Apron @ 816 on 10/26		13			NESH	
SOS New	10/14/2017	21-Port Allen	NESH			Port Allen Pier		21		NESH		
SOS New	10/22/2017	21-Port Allen	NESH			Port Allen Pier		21		NESH		
SOS New	10/23/2017	21-Port Allen	NESH			Port Allen Pier about 0830. Found struggling in water by Holo Holo trying to get onto pier.		21		NESH		
						Total Period 2013 - 2017 - NESH				10	9	8
						Total Period 2013 - 2017 - HAPE				0	1	0
						Annual Average 2013-2017 - NESH				2	1.8	1.6

15 Year HAPE Fallout Records		
HAPE Fallout Record 2003^	1	
HAPE Fallout Record 2004		1
HAPE Fallout Record 2007		1

HAPE Fallout Record 2008^	1	
HAPE Fallout Record 2012		1
HAPE Fallout Record 2017	1	
15 year total (2003-2017)	3	3
15 year Annual Average (2003-2017)	0.2	0.2

^Note: Assume the HAPE fallout in 2003, 2008 occurred at Nawiliwili, pending further data

15 Year BRSP Fallout Records

BSRP Fallout Record 2007	1
15 year total (2003-2017)	1
15 year average (2003-2017)	0.07

Kaua‘i Seabird Habitat Conservation Program (KSHCP)

Participant Inclusion Plan (PIP) Template

Name of Applicant/Participant

Kauai Coffee Company, LLC

PART 1: Landowner & Property Information; Description of the Facilities; Avoidance & Minimization Measures; Monitoring of Take

Item 1. Provide the name of the landowner, business, agency, or institution and complete contact information. If the applicant/participant is different from the landowner, please attach power of attorney (or other documentation) allowing the party to act on the landowner's behalf.

Participant/Applicant Name: Kauai Coffee Company, LLC

Physical Address/Location of Facility: 870 Halewili Rd, Kalaheo, HI 96741

Mailing Address: P.O. Box 530, Kalaheo, HI 96741

Primary Contact: Ownership Name:
Inc. Address:
Email:
Telephone:

Alternate Contact: Name:
Address:
Telephone:
Email:

Preparer Contact: Name:
Address:
Email:
Telephone:

Item 2. Provide the legal description of the property at which the existing facilities and Covered Activities are located, including Tax Map Key (TMK) number. Provide a survey of the property and site plan drawings showing the locations of the Covered Activities (lights), property boundaries, buildings & structures, and site features. If properties containing the Covered Activities comprise separate parcels please include all Tax Map Key numbers and maps.

- The subject property is comprised of the following TMK #s:

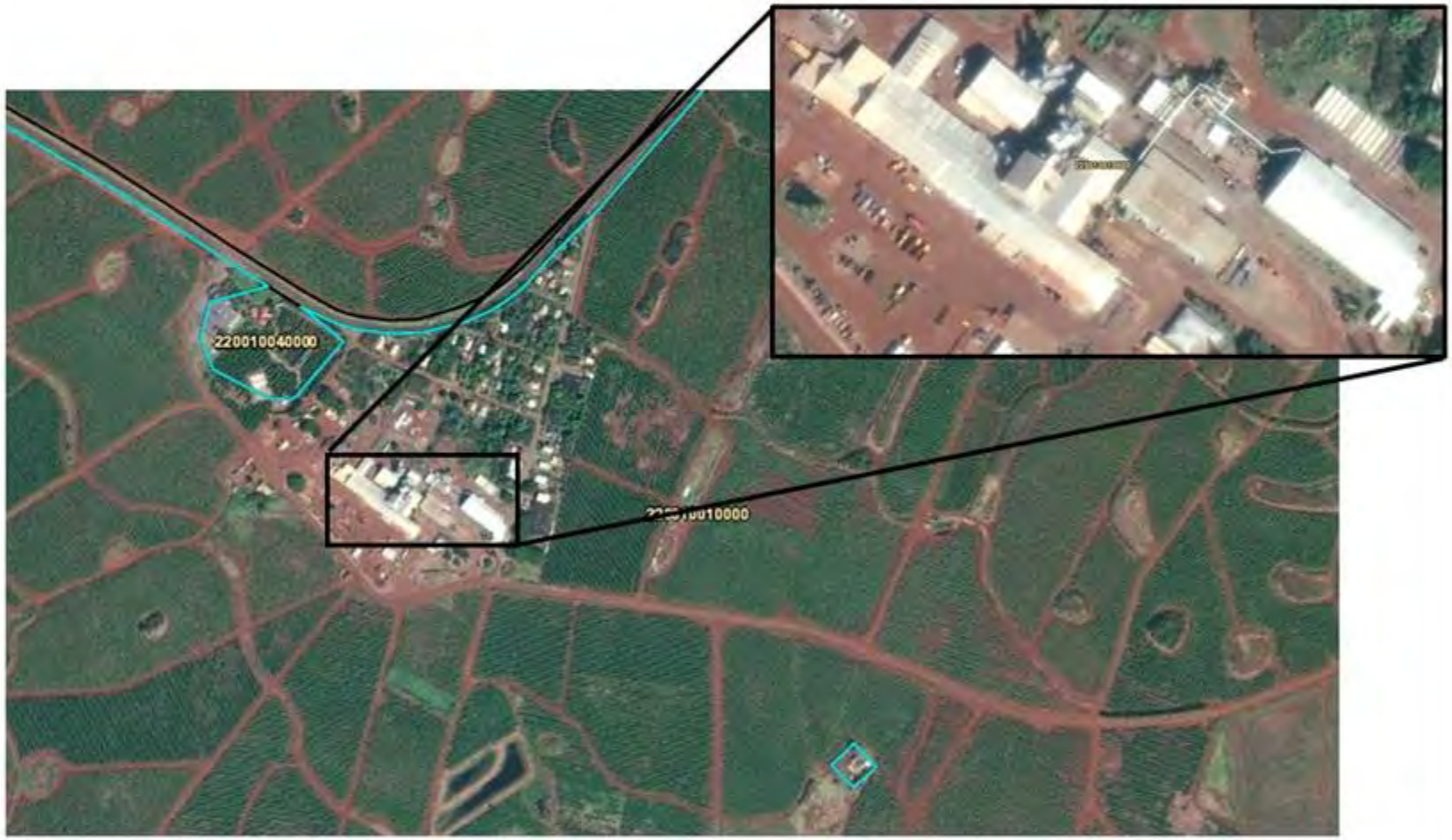
(4) 2-1-001: 001	(4) 2-1-001: 037	(4) 2-3-010: 010
(4) 2-1-001: 003	(4) 2-2-001: 001	(4) 2-3-010: 011
(4) 2-1-001: 027	(4) 2-2-001: 004	(4) 2-3-010: 012
(4) 2-1-001: 035	(4) 2-2-001: 007	(4) 2-6-003: 001
(4) 2-1-001: 036	(4) 2-3-010: 001	

- A site map is included here with TMK listing, as well as a map highlighting the processing operations area.

Kauai Coffee Co., LLC Covered Activity TMK Parcels

1.	(4) 2-1-001: 001	8.	(4) 2-2-001: 004
2.	(4) 2-1-001: 003	9.	(4) 2-2-001: 007
3.	(4) 2-1-001: 027	10.	(4) 2-3-010: 001
4.	(4) 2-1-001: 035	11.	(4) 2-3-010: 010
5.	(4) 2-1-001: 036	12.	(4) 2-3-010: 011
6.	(4) 2-1-001: 037	13.	(4) 2-3-010: 012
7.	(4) 2-2-001: 001	14.	(4) 2-6-003: 001

Kauai Coffee Co., LLC Processing Operations Area
TMK# (4) 2-2-001: 001



Item 3. Describe the existing Covered Activities for which incidental take authorization is sought. Include list of buildings, type and description of lights present, purpose and location of lights and current seabird lighting accommodation in place (e.g. shielding, downward pointing, switched off during fledging season etc.). For "Types of lights" please use the following categories:

- **Parking Lights**
- **Signage Illumination**
- **Wall-pack Building Lights**
- **Landscaping/Grounds/Accent/Bollards**
- **Indoor lights visible from outdoors**
- **Roof Floodlights**
- **Other Lights**

Facility lighting plan may be submitted as lighting inventory. Photos may be attached. The suggested light table, and Green Sea Turtle assessment table below may each be modified as needed to provide the necessary information.

- See attached maps. Coffee orchard harvesting take place in the fields, and coffee cherry processing operations take place in the region designated as the Processing Operation area.

- Honu Table Not Applicable.

List of Buildings	Type/Description of Lights Present	Location	Purpose of the Lights	Describe any measures implemented to avoid or minimize take impacts to Covered Species
	Parking lot pole light mounted on structure/bldg: 150W Mercury vapor (white)	Wet Plant	Safety & Security	Direction of Light angle is down & out
		Pre Dryers	Safety & Security	Direction of Light angle is down & out
		Dryer Bins	Safety & Security	Direction of Light angle is down & out
		Waste Plant	Safety & Security	Direction of Light angle is down & out
		Vert Dryer 1	Safety & Security	Direction of Light angle is down & out
		Berico 14/15	Safety & Security	Direction of Light angle is down
	Parking lot pole light	Field Office	Safety & Security	Direction of Light angle is down
	Parking lot pole light			
Wall-pack building lights:	150W HiPresSodium	ADS Entry	Safety & Security	Direction of Light angle is down & out
	100W Mercury vapor	Field Office	Safety & Security	Direction of Light angle is down & out
	100W Metal Halide	Berico MCC	Safety & Security	Direction of Light angle is down & out
	100W HiPresSodium	Visitor Center	Safety & Security	Direction of Light angle is down & out
	175W HiPresSodium	Admin/Roast	Safety & Security	Direction of Light angle is down & out
	400W Metal Halide	Factory Office	Safety & Security	Direction of Light angle is down & out
	150W HiPresSodium	Electric Shop	Safety & Security	Direction of Light angle is down & out
	400W Metal Halide	Equip Shop	Safety & Security	Direction of Light angle is down & out
	400W Metal Halide	Kanani Mill	Safety & Security	Direction of Light angle is down & out
	400W Metal Halide	Pali Uli Mill	Safety & Security	Direction of Light angle is down & out
Roof flood lights:	60W Par Halogen	Field Office	Safety & Security	Direction of Light angle is down & out
	60W Par Halogen	Visitor Center	Safety & Security	Direction of Light angle is down & out
	100W CFL	Equip Shop	Safety & Security	Direction of Light angle is down; and full cut-off/shielded fixture
	60W Par Halogen	Carpenter Shop	Safety & Security	Direction of Light angle is down & out
	60W Par Halogen	Carpenter Shop	Safety & Security	Direction of Light angle is down & out
	60W Par Halogen	Carpenter Shop	Safety & Security	Direction of Light angle is down & out
	60W Par Halogen	Carpenter Shop	Safety & Security	Direction of Light angle is down & out
Other lights: Warehouse LED-Motion	400W Metal Halide	Wet Plant Field	Safety & Security	Direction of Light angle is down
Wall Lantern LED	20W LED	Office Visitor Center	Safety & Security	Direction of Light angle is down & out
	100W CFL	Visitor Center	Safety & Security	Direction of Light angle is down & out
	20W LED	Visitor Center	Safety & Security	Direction of Light angle is down & out
Street Light on Building Wall	150W Mercury vapor	Visitor Center	Safety & Security	Direction of Light angle is down & out
Mounted Jelly Jar LED Motion	100W CFL	Admin/Roast	Safety & Security	Direction of Light angle is down & out
LED	20W LED	Admin/Roast	Safety & Security	Direction of Light angle is down & out
Security Shack	40W LED	Fuel Station	Safety & Security	Direction of Light angle is down
	150W HiPresSodium	Security	Safety & Security	Direction of Light angle is down & out
Other Lights-Harvest Operations:				

Korvans (14) **Korvan (1)** **Komatsu Loader** **Hyundai Loader Light Plant**	35W Halogen-200L 180W LED-10K-L 18W LED 180W LED-10K-L 18W LED 3,200L Halogen 1250W Metal Halide 150K-L	Harvester Harvester Harvester Loader Loader Loader Light Plant	Safety & Operation Safety & Operation Safety & Operation Safety & Operation Safety & Operation Safety & Operation Safety & Operation	Lights are angled down & out and/or shielded Lights are angled down & out and/or shielded Lights are angled down & out and/or shieldedDirection of Light angle is down & out Lights are angled down & out and/or shielded Lights are angled down & out and/or shielded Lights are angled down & out and/or shielded Lights are angled down & out and/or shielded

Table 1: Lighting at Facilities

Table 2: Green Sea Turtle Assessment for the Site & Facility

Please provide the information requested below to help determine if measures to avoid impacts to the Green Sea Turtle(s) from the effects of light attraction are required to be implemented at any of the facility(s), parcel(s), or site(s) included in this PIP. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the Green Sea Turtle, and provide further guidance.		
Are any of the facilities located adjacent to a beach?	**Yes / No** **N/A**	**If yes, provide length of beach frontage & brief description of facilities & lights adjacent to the beach**
Are any of the Covered Activities (lights) visible from a beach?	**Yes / No** **N/A**	**If yes, describe the specific lights (type, , height, purpose) & specific location; provide map & photos showing distance from beach**
Have green sea turtles been known to nest on any beaches adjacent to the facilities?	**Yes / No** **N/A**	**If yes, provide information about nesting occurrences, if known, including location and date and any other information**

Item 4. If applicable, describe any lighting standards (e.g., foot candles/area) required for facility operations or other requirements that necessitate the use of lighting (e.g., required for security, safety, operations). Describe the relevant standard, or regulation, and the areas and Covered Activities at the site (e.g., type of lighting) to which it applies.

- Minimum lighting required for safe practices during 24-hour operations. For outdoor walking areas and open-air portions of the plant a minimum illumination to comply with OSHA workplace safety guidelines would be 5 candle-feet.

- Twenty-four hour operations only during harvesting season, approximately Sep – Dec for harvesting in the fields and Sep – Apr for processing operations.

Item 5. Describe any plans/proposals for future facilities or expansion of existing facilities. Include any proposed structures and lighting by type, purpose, and location. Plans (architecture and site plans), photos, and drawings can be attached.

None.

Item 6. Pursuant to the Endangered Species Act (ESA), Section 10 (a)(2)(A)(iii), describe alternatives to avoid the taking considered and evaluated. Provide reasons why those alternatives are not being utilized. Alternatives can include operational or facility design changes (attach pages as needed). The tables below may be altered as needed.

- Outdoor lighting has been modified to face downward. Shielding is installed where applicable.

- Night harvest operations will be delayed until 4 hours after sunset for three days either side of the October and November new moon.

Table 3: Light Attraction Alternatives to the Taking

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives are not Being Utilized (provide justification)
▪ Deactivate all outdoor artificial lights from dusk to dawn during the fledgling fall-out season September 15 to December 15	Harvest operations curtailed from sunset + 4 hours during new moon.
▪ Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daylight hours)	See above
▪ Shield all lights from visibility from the beach, or screen all Green Sea Turtle nests, from May 15 to December 15 to avoid impacting the green sea turtle (Green Sea Turtle)	N/A
▪ Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered	

Item 7. Describe all site-specific seabird minimization measures considered for the Covered Activities. This item should follow KSHCP minimization objectives and measures as specified in *Appendix E (Guidelines for Adjusting Lighting at Facilities)* of the KSHCP document. Please consult with staff from the DOFAW and the USFWS as needed. The suggested tables below can be altered as needed.

Minimization measures modify the Covered Activities to reduce the effects of the activity on the Covered Species. KSHCP Participants will be required to implement minimization measures that apply to the facility to the "maximum extent practicable" per applicable state and federal laws which regulate incidental take license/permit issuance by the DLNR and the USFWS.

Minimization also entails searching and recovering grounded seabirds to minimize the chance of mortality. In addition, the presence of on-site predators (i.e. feral cats, dogs) should be controlled and removed because these animals can prey on grounded seabirds.

Provide justification, such as policies, regulations, or other rationale for measures that will not be implemented.

Table 4: Seabird Light Attraction Minimization Measures Considered

Minimization Measures Considered	Feasible? (Y / N)	If not Feasible to Implement Measures, Provide Reason
▪ **Change time of light use (lights off earlier)**	**Yes**	
▪ **Deactivate unnecessary lights**	**Yes**	
▪ **Replace all outdoor lights with full cut-off fixtures**	**Yes**	Where cost effective or otherwise will install shields
▪ **Shield all outdoor lights with full cut-off shields**	**Yes**	Fabrication and installation of full cut off shields where needed in progress
▪ **Angle all lights downward**	**Yes**	
▪ **Lower intensity (lumens) of outdoor lights**	**Yes**	
▪ **Change bulb color to non-white spectrum**	**Yes**	Change out program in progress
▪ **Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers**	**Yes**	
▪ **Provide Worker Seabird Awareness Training to staff**	**Yes**	
▪ **Provide outreach materials to staff & guests**	**Yes**	
▪ **Host Save Our Shearwaters (SOS) Aid Station**	**No**	Not suitable for private property/agricultural operations.

Item 8. <u>Minimization Plans</u>. Provide a plan to minimize the effects to the Covered Seabirds due to the Covered Activities. KSHCP Participants will be required to minimize the effects of the Covered Activities to the "maximum extent practicable" per applicable state and federal laws which regulate take license/permit issuance. The KSHCP document provides minimization objectives and measures to follow.

The Minimization Plans should include the proposed minimization measures, timeline, and estimated cost for each facility. In this item, the Participant can include measures already completed or in place (new lights, shields, operational changes). Timeline should include estimated completion schedule, and annual schedule for minimization that will occur only during fledging season.

Minimization measures not yet determined but anticipated to occur at the facility; this section should include an estimated cost that will be earmarked for future minimization measures.

If applicable, the participant must provide the reasoning why certain measures will not be implemented. The suggested table below may each be altered to best describe the Minimization Plan. Attach additional pages, photos, and drawings as needed.

Table 5: Lighting Minimization Measures

List of Buildings	Minimization Measures	Cost to Implement	Responsible Staff	Timeline
Parking lot lights (2)	Minimization Measures 1. Down-direct all parking lot lights (in place-existing)	$0	General Manager;	8 November 2016
Signage Lights (0)	Not Applicable	NA	General Manager;	NA
Wall-pack lights (40)	Minimization Measures 1. Wall-packs are down-directed full cut-off & shielded fixtures. Shield installation in progress for lights without shields.	$8,000	General Manager;	August 2017
Landscaping & grounds lighting (0)	Not Applicable	NA	General Manager;	NA
Other Lights (25)	Minimization Measures 1.LED Motion Activated – Down Facing 2.Jelly Jar – Out and Down Facing 3. Factory Light at Wet Plant Receiving – Down Facing	$0	General Manager;	8 November 2016
Operations (7, 1, 5) Harvest Operations (84) (5) (5) (4) (4)	Minimization Measures 1. Remove & control on-site presence of loose predatory animals 2. Prohibit outdoor feeding of animals 3. Recover downed birds found on property & turn into SOS 4. Train staff regarding minimization measures 5. Provide seabird outreach to Inform guests and visitors 6. Deactivated: Milling wall packs, Eq.Shp street light, Visitor floods 7. 14.Korvan Harvesters – (6) 35W halogen 200 lumens/lamp 8. Korvan – 180W LED Light Bar, (2) 18W Small LED, (2) 35W halogn 9.Komatsu Loader – 180W LED Light Bar, (4) 18W LED 10.Hynndai Loader – Halogen Lamp 3,200 Lumens (4) 11.Light Plants – (4) 1,250W metal halide 150,000 Lumens	$10,000	General Manager;	Items 1-5 30 November 2016

Table 6: Seabird Mortality Minimization Plan

Minimization Measures	Describe minimization method (e.g. trapping, outreach, enact policy)	Cost to Implement	Responsible Staff
Remove & control loose predatory animals at the facility. (Loose animals can kill grounded seabirds and this measure aims to prevent seabird mortality by animals.)	Trapping of feral cats. Factory area 2 traps checked daily multiple times throughout the day.	$200.00 per month	General Manager; Department Manager, Safety Manager
Prohibit outdoor feeding of predatory animals. (Feeding animals attracts them to the site and this measure aims to reduce the presence of animals that can cause seabird mortality.)	Yes, integrated into training plan. Signs posted at time clocks, email blasts are sent and reminders weekly at before shift safety meetings by department managers.	N/A	General Manager; Department Manager, Safety Manager
Conduct nightly/morning searches to recover downed birds at the property & turn them into SOS following protocols (see monitoring plan below).	Awareness through training of all shift personnel. Bird search integrated into shift change operations in harvesting and processing.	N/A	General Manager; Field and Factory Supervisors and Managers, Safety Manager
Train staff to follow minimization measures.	Yes.	N/A	General Manager; Safety Manager

Item 9. Take Monitoring Plan. Provide a plan to monitor take of the Covered Seabirds at the facilities proposed to be covered by the incidental take permit/license. The take monitoring plan describes how the property will be searched for downed Covered Seabirds. The KSHCP document provides standards and guidelines for take monitoring to ensure that take of the species is accurately measured and recorded.

The regulatory agencies will make the final determination as to the adequacy of the take monitoring plan.

Table 7: Covered Seabird Take Monitoring Protocols

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Percentage of the total property that will be searched & the total area to be searched	A perimeter search will be conducted around the Factory processing buildings and grounds which is approx. 5.0 ac, or 0.17 % of the total property. Harvested fields that will be monitored and searched are approx. 18 ac, or 0.60 % of the total property. This accounts for all portions of the property that conduct overnight, lighted operations.	Search as much area as possible
Frequency of searches (# per day or per week)	Factory perimeter search will be conducted twice daily. Harvest field search will be conducted once daily, but the skies will be continually monitored for seabirds by all personnel throughout the shift.	Twice daily
Time of day of searches	Factory perimeter search will be conducted at 10:00 PM and 5:30 AM. Harvest field search will be conducted at 5:30 AM, and the skies will be continually monitored for seabirds by all personnel throughout the night shift.	2-3 hours after sunset, and within 3 hours after sunrise
Number of searchers per search area	Harvesting = 10 Processing = 2	Depends on site conditions and safety considerations and vegetation, nearby hazards/threats
Proposed training	Annual training per guidelines (already being done). Additional training will be provided to harvest crew for recognition of typical seabird flight behaviors.	Annual training covering seabird identification, seabird handling, response procedures, verified and documented

Item 10. Components of the Green Sea Turtle Minimization and Monitoring Plan (if required). Monitoring and minimization for the Green Sea Turtle is in two parts: A) Monitoring to detect nests and B) Monitoring and minimizing impacts to nests detected.

Part A: Monitoring to detect Green Sea Turtle Nests
Please provide the following information; the table below may be used and altered as needed.

1) Detailed location and description of beaches, including linear distance, at which searching for nests of the green sea turtle will take place. Searches should take place at any beach from which light at the facility can be viewed;

2) Monitoring protocols indicating:
    a) Annual training of searchers;
    b) Frequency of searches;
    c) Conduct active searching (searching the beach width);
    d) Sufficient number of trained searchers to cover the area; and
    e) Record results of search monitoring.

3) All Participants are required to record the results of search efforts. Records should provide:
    a) Evidence (what was seen). Include description and provide photographs
    b) Location on the beach (GPS) and physically mark the location if possible
    c) Date and time of day
    d) Description of surrounding land use (e.g., vacant, or developed), and
    e) Proximity to the facility.

Part B: Monitoring of Identified Green Sea Turtle Nests

Each identified nest of the green sea turtle should be monitored and protected from light attraction. Please provide the following monitoring protocols; the tables below may be used and altered as needed.

1. Light avoidance measure for identified nests (either shield/deactivate lights at the facility or install and maintain a light shield around each identified nest);
2. Frequency of searches;
3. Number of searches monitoring the nests. The number of needed to monitor active nests will depend on number of nests identified and amount of beach needed to be covered;
4. Record the results of nest monitoring. Monitoring should provide:
    a. Evidence of hatchling emergence (description and photos):
    b. Date and time of emergence,
    c. Direction of tracks,
    d. Condition of the nest area (e.g., disturbed or not).

Table 8: Green Sea Turtle Monitoring Protocols – Part A: Monitoring to Detect Nests

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Location & description of the beach, or beaches, surveyed and the linear distance of the beach		Beach area surveyed should coincide with visibility from the facility with the lights
Frequency of searches (# per day or per week)		Weekly during nesting season (typ. May 15 to end of August)
Number of searchers per search area		Depends on site conditions and safety considerations
Proposed training		Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee (See **item 9a)**

Table 9: Green Sea Turtle Monitoring Protocols – Part B: Monitoring of Identified Nests & Minimization

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Frequency of checks (# per day or per week)		Active nests should be monitored every 1-2 days; then daily during expected hatching date
Light avoidance		If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light
Number of searchers per search area		Depends on site conditions and safety considerations

Item 11. Describe the schedule that will be followed to provide training for staff. Training must be provided to those that will conduct and oversee the searches at the facility.

The training should include:

1. Summary of regulations protecting the Covered Species; **As provided by KSHCP**
2. Search procedures, route, frequency and timing specific to the facility's monitoring plan, for seabirds and green sea turtle nests (if applicable); **Harvesting supervisors will be responsible for field/farm self-monitoring. Harvesting night shift supervisor will be actively searching in the vicinity of harvesting operations. Please see attached farm map for example. For instance, if harvesting is taking place in field 218 searches will commence throughout the field and on routes to and from the factory/shop areas. Searches will be done daily on scheduled work days, throughout the night shift (6p-4:30a) and beginning of the day shift (6a-9a).**
3. Response procedures including safe and proper techniques for handling seabirds; **See attached document**
4. Recognizing evidence of green sea turtle nests, proper nest light screening, and hatchling activity (if green sea turtle minimization and monitoring plan is applicable); **N/A**
5. Procedures to document the results of searches; **See attached document**
6. Downed wildlife agency contacts; and
7. Nearest SOS aid station. **Provided/Trained and placed in every recovery kit**

Rescuing Downed Seabirds—Standard Operating Procedures (SOP)

The following steps provide the procedure for recovering downed seabirds found:

1. Take the seabird recovery kit and pet carrier to the downed seabird.
2. Put on gloves.
3. Using towel to gently cover the bird, pick up the seabird with wings folded in a natural position.
4. Place the seabird in the pet carrier, and close the pet carrier.
5. Put the gloves and towel back in the seabird rescue kit.
6. Take the bird and pet carrier to an SOS Aid Station. **Hanapepe or Kalaheo Fire Station**
7. Transfer the bird to the Aid Station's pet carrier.
8. Call SOS at 632-0610 or 635-5117.
9. Return the seabird rescue kit and pet carrier.
10. Complete the Bird Take Field Report.
11. Give the completed "Bird Take Field Report" to the General Manager, or other responsible staff person at the facility.

Contents of Seabird Recovery Kit

1. Latex or nitrile gloves;
2. Three towels;
3. Hand sanitizer;
4. Flashlight or headlamp;
5. Clipboard, pen and blank “Bird Take Field Reports”, or similar; and
6. Pet carrier –medium sized. If a box is used it must be well ventilated and marked conspicuously “LIVE ANIMAL”.

Please see attached photos of recovery kit contents. Kauai Coffee has 3 recovery kits. One for factory, one for field, and one spare for any other department use and/or for finding more than one bird.

Item 12. Describe any outreach conducted (e.g., handing out pamphlets on seabird awareness to facility employees or guests, etc):

PART 2. Take Estimate, Requested Amount of Take Authorization, and Funding

Item 1. Show the calculation of estimated take for each of the Covered Species.

Following the take estimation methods in the KSHCP for estimating a Participant's take (Section 6.2.2), the tables below show the take estimate calculation for the facility(s) for each of the Covered Seabirds.

The KSHCP take estimate method utilizes the average of the most recent 5 years of SOS recovery data for the facility. Applied to the data is an adjustment for downed birds not found, based on a 50% discovery rate and an adjustment based on SOS mortality (birds dead on arrival or those that die in care) – average SOS mortality is 12%.

If the landowner-applicant submits a take estimate with an alternate discovery rate, they must provide the reasons why an alternate rate was used to estimate take, including relevant information supporting their reasoning (% of searchable area, search protocols that will be used, any searcher efficiency trials that have been or will be conducted at facilities and/or demonstration of quick, effective recovery of birds). Please include narrative and/or photos and maps to support this.

Table 10: Annual Take Calculation

	Newell's Shearwater	Hawaiian Petrel	Band-rumped Storm-petrel
1. Annual average number (SOS data – or – monitoring data) of downed NESH (5 most recent years), HAPE or BRSP (15 most recent years)	1	0	0
2. Annual observed lethal take estimate (12% of 1, all downed birds)	.12	0	0
3. Annual unobserved lethal take estimate (e.g. 100% of 1, all downed birds if 50% searcher efficiency assumed)	1	0	0
4. Total estimated annual lethal take from light attraction (2+3)	1.12	0	0
Requested Annual Lethal Take	1.12	0	0
Requested Take Over Permit Term	33.6	0	0

Item 2. Select the requested take authorization and permit/license term coverage for each of the Covered Species.

Table 11: Newell's Shearwater:

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or Sub-Adults	Take Limit for License/Permit Term
Mortality (Lethal)	1.12		33.6
Injury (Non-lethal)	0.88		26.4

Table 12: Hawaiian Petrel:

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or Sub-Adults	Take Limit for License/Permit Term
Mortality (Lethal)	0	0	0
Injury (Non-lethal)	0	0	0

Table 13: Band-Rumped Storm Petrel:

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or Sub-Adults	Take Limit for License/Permit Term
Mortality (Lethal)	0	0	0
Injury (Non-lethal)	0	0	0

Item 3. Funding Assurance. Provide proof of adequate funding (see KSHCP document). All participants must demonstrate requisite funding prior to permit/license approval to ensure that the proposed measures and actions, including monitoring, will be undertaken in accordance with the terms and schedule of the KSHCP.

Fred Cowell

Signature of Participant:

Date: 5/13/2020

FRED COWELL

Printed Name :

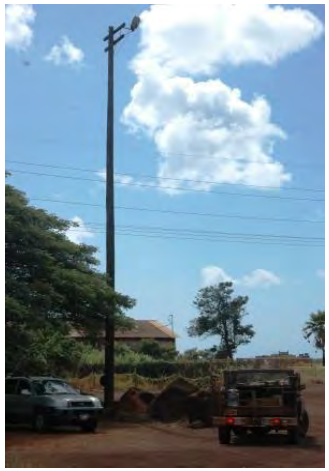
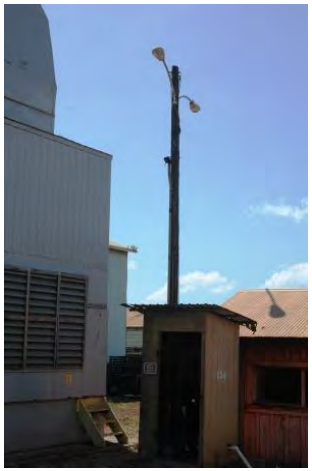
The undersigned affirms that all the information included is true and accurate to the best of the participant's knowledge and that this PIP is voluntarily submitted.

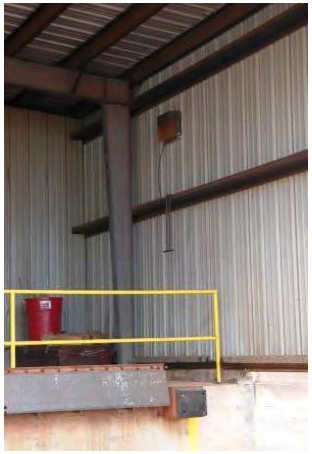
☑ check to waive confidentiality

Appendices

Appendix A – Kauai Coffee Lighting Pictures (PDF file included)

Kauai Seabird Habitat Conservation Program (KSHCP)
Outdoor Lighting at Facility

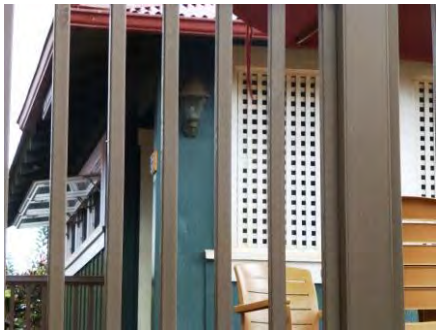





Parking Lot Pole Lights - Top Row L-R: Equipment Shop Banyan Tree - deactivated; Berico #13; Fuel Station (Back parking lot light deactivated –see closeup, and foreground LED light installed & activated)

Wall-Pack Building Lights – Bottom Row L-R: Kanani Mill East Wall@Propane Station; Kanani Mill Loading Dock; Kanani Mill West Wall@Entry; Kanani Mill South Wall

KSHCP Outdoor Lighting



Visitor Center

KSHCP Outdoor Lighting

Field Office Site

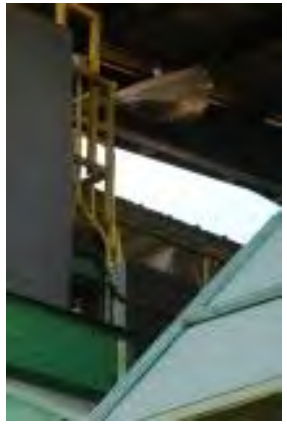
KSHCP Outdoor Lighting - KCOF

Administration, Ecomm, Roast Plant Building

KSHCP Outdoor Lighting

Carpenter Shop & Electric Shop

KSHCP Outdoor Lighting



Processing – Wet Plant, Pre-Dryers & Dryers

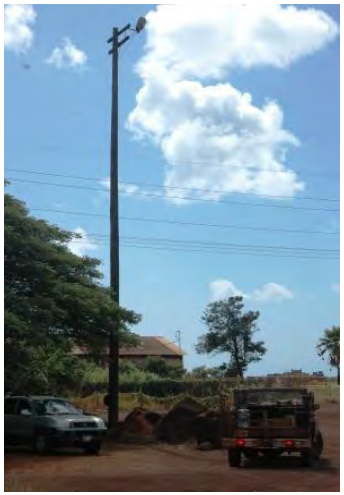
KSHCP Outdoor Lighting

Processing – Dryers & Milling

KSHCP Outdoor Lighting

Factory Office, Lab and Safety

KSHCP Outdoor Lighting



Equipment Shop, Tire Shop

Kaua‘i Seabird Habitat Conservation Program (KSHCP)

Participant Inclusion Plan (PIP)

Essex House Condominium Corporation, an affiliate of Marriott International, Inc. (Kaua‘i Marriott Resort, Lihue)

PART 1: Landowner & Property Information; Description of the Facilities; Avoidance & Minimization Measures; Monitoring of Take

Item 1. Provide the name of the landowner, business, agency, or institution and complete contact information. If the applicant/participant is different from the landowner, please attach power of attorney (or other documentation) allowing the party to act on the landowner's behalf.

Participant/Applicant Name:	Essex House Condominium Corporation, an affiliate of Marriott International, Inc. (herein "Kaua'i Marriott Resort")
Physical Address/Location of Facility:	3610 Rice Street, Lihue, HI 96766
Mailing Address:	Same as above

Primary Contact:

Address:

Telephone:

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Item 2. Provide the legal description of the property at which the existing facilities and Covered Activities are located, including Tax Map Key (TMK) number. Provide a survey of the property and site plan drawings showing the locations of the Covered Activities (lights), property boundaries, buildings & structures, and site features. If properties containing the Covered Activities comprise separate parcels please include all Tax Map Key numbers and maps.

The Kaua'i Marriott Resort is located at a physical street address of 3610 Rice Street, Lihue, HI 96766. The resort encompasses tax map keys numbered sequentially from 3-500-2002-0001 to 3-500-2002-0614 totaling 614 tax map keys. Copies of these TMKs maps are included in Appendix A, and a site plan is included in Appendix B. Lighting location is indicated in Table 1 below.

Item 3. Describe the existing Covered Activities for which incidental take authorization is sought. Include list of buildings, type and description of lights present, purpose and location of lights and current seabird lighting accommodation in place (e.g. shielding, downward pointing, switched off during fledging season etc). For "Types of lights" please use the following categories:

- **Parking Lights**
- **Signage Illumination**
- **Wall-pack Building Lights**
- **Landscaping/Grounds/Accent/Bollards**
- **Indoor lights visible from outdoors**
- **Roof Floodlights**
- **Other Lights**

Facility lighting plan may be submitted as lighting inventory. Photos may be attached. The suggested light table, and Green Sea Turtle assessment table below may each be modified as needed to provide the necessary information.

The Kaua'i Marriott Resort consists of a hotel and typical resort amenities lighting located in Nawiliwili fronting Kalapaki Beach. The property covers 41 acres of which the buildings comprise approximately 6.4 acres. Outdoor lighting includes lighting for the parking lots & delivery areas, grounds, buildings, and walkways. The property is landscaped throughout. Table 1 below provides the outdoor lighting at the Resort. The Avoidance and Minimization Plan (item 7) addresses light attraction.

Table 1: Outdoor Lighting at Kaua'i Marriott Resort

Light Type Make and Model	Wattage /rating	Bulb Color	Quantity	Location	Purpose	Cut-off or Shielded Fixture	Light angle (down, out, up)	Visible from Beach (yes/no)	Notes
Parking Lights									
LED RAB/Flood	110w 12,281 Lumen (lm)	4000k	8	Haupu Parking Lot	Safety	Cutoff	Down	Yes	Tinted lens for 20% block
High Pressure Sodium (HPS) Flood	150w 16,000lm	2000k	3	Haupu Parking Lot	Safety	Cutoff	Down	Yes	Redirected for 100% cut off for Shearwater Fledgling Season (SFS)
HPS Lithonia Flood	250w 27,000lm	2100k	12	Valet Parking Lot	Safety	Cutoff	Down	No	
HPS Lithonia Flood	150w 16,000lm	2000k	22	Guest and Associate Lots	Safety	Cutoff	Down	No	Redirected for 100% cut off for SFS
LED Flood	50w 6,000lm	5000k	2	Associate Lot	Pedestrian Safety	Cutoff	Down	No	Redirected for 100% cut off for SFS
Metal Halide (MH) Lithonia Flood	250w 22,000lm	4200k	2	Dukes Valet Parking	Pedestrian Safety	1 Cutoff 1 Shielded	1 Down 1 Out	Yes	Shielded for SFS

Light Type Make and Model	Wattage /rating	Bulb Color	Quantity	Location	Purpose	Cut-off or Shielded Fixture	Light angle (down, out, up)	Visible from Beach (yes/no)	Notes
Signage Illumination									
Fluorescent PL13 Electro Elf Flood	13w 825lm	2700k	2	Kukui's Restaurant Sign @ Promenade	Accent	Cutoff	Down	Yes	Redirected for SFS
LED Par 38 Kim Lighting Spot	12w 850lm	2700k	4	Dukes and Café Portofino Signs @ Promenade	Accent	Shielded	Up	Yes	
LED Par 38 Kim Lighting Flood	12w 850lm	2700k	4	Dukes Building Under Roof Gable	Accent	Cutoff by Eaves	Down/ Out	Yes	
LED Par 38 Kim Lighting Spot	12w 850lm	2700k	5	Rice Street Main Entrance	Accent	Cutoff by Vegetation	Out	No	
Fluorescent F 32/T8 Flood	32w 2400lm	3000k	1	Porte Cochere Marriott Sign	Accent	Cutoff by Vegetation	Out	No	

Light Type Make and Model	Wattage /rating	Bulb Color	Quantity	Location	Purpose	Cut-off or Shielded Fixture	Light angle (down, out, up)	Visible from Beach (yes/no)	Notes
Wall-Pack Building Lights									
LED Par 38 Kim Lighting Flood	12w 850lm	2700k	1	Café Portofino	Pedestrian Safety	Shielded	Down	Yes	
LED Par 38 Flood	12w 850lm	2700k	1	Haupu Service Road	Pedestrian Safety	Shielded	Down	No	
LED Defiant Flood	26w 2100lm	5000k	1	Haupu Parking to Palikai Walkway	Pedestrian Safety	Cutoff	Down	No	Redirected for SFS
Fluorescent PL13 Wall Sconce	13w 825lm	2700k	5	Pool Hut	Pedestrian Safety	No	Down/ Out	Yes	
Fluorescent PL13 6” Recessed Cans	13w 825lm	2700k	3	Pool Hut	Pedestrian Safety	Cutoff	Down	Yes	
LED Par 38 RAB Floodlight	26w 2100lm	4000k	3	Dukes Parking Lot	Pedestrian Safety	Cutoff	Down	No	Redirected for SFS
HPS Stonco Flood	100w 9500lm	2000k	4	Dukes Parking, Green Storage Shed	Pedestrian Safety	Shielded	Down/ Out	No	
LED Defiant Flood	26w 2100lm	5000k	9	Service Road to Security	Pedestrian Safety	Cutoff	Down	No	Redirected for SFS

Light Type Make and Model	Wattage /rating	Bulb Color	Quantity	Location	Purpose	Cut-off or Shielded Fixture	Light angle (down, out, up)	Visible from Beach (yes/no)	Notes
Wall-Pack Building Lights									
LED Defiant Flood	20w 1770lm	4000k	6	Service Road, Security and Associate Lot Entry	Pedestrian Safety	Cutoff	Down	No	Redirected for SFS
Fluorescent PL13 2 Bulb Electro Elf Flood	13w 825lm	4100k	2	Salon Access and Service Road	Pedestrian Safety	Cutoff	Down	No	Redirected for SFS
Fluorescent PL13 2 Bulb Electro Elf Flood	13w 825lm	2700k	2	Dukes Parking and Associate Smoking	Pedestrian Safety	Cutoff	Down	No	Redirected for SFS
Fluorescent PL13 Electro Elf Flood	13w 825lm	2700k	9	Aupaka's and Poi Pounder Planter	Pedestrian Safety	Cutoff	Down	7 Yes 2 No	
Fluorescent PL13 Electro Elf Flood	13w 825lm	4100k	6	Dukes Parking to Restaurant Walkway	Pedestrian Safety	Cutoff	Down	No	

Light Type Make and Model	Wattage /rating	Bulb Color	Quantity	Location	Purpose	Cut-off or Shielded Fixture	Light angle (down, out, up)	Visible from Beach (yes/no)	Notes
Landscaping/Grounds/Accents/Bollards									
High Pressure Sodium (HPS) Light Pole Flood	100w 9500lm	2000k	3	Walkway to Dukes Bridge	Pedestrian Safety	Cutoff	Down	Yes	
Metal Halide (MH) Antique Post Flood	100w 11000lm	4000k	4	Main Drive Associate Parking Crosswalk	Pedestrian Safety	Cutoff	Down	No	
LED A19 Light Post Flood	11w 800lm	2700k	10	Pali Kai Cottages Side Walks	Pedestrian Safety	Shielded	Out	Yes	
LED Par 38 Flood	12w 850lm	2700k	3	Pali Kai Landing, Promenade	Pedestrian Safety	Shielded	Down	Yes	
Halogen Q500 Lithonia Flood	500w 4000lm	3000k	2	Laundry Service Road Waialeale Promenade	Pedestrian Safety	Cutoff	Down	1 Yes 1 No	
LED Par 38 Kim Lighting Flood	12w 850lm	2700k	1	Lower Pali Kai Landing	Accent	None	Up	Yes	Off for SFS
Halogen 6 Volt Lithonia Narrow Spot	120w 850lm	2100k	2	Pali Kai Landing Statues	Accent	None	Down	Yes	

Light Type Make and Model	Wattage /rating	Bulb Color	Quantity	Location	Purpose	Cut-off or Shielded Fixture	Light angle (down, out, up)	Visible from Beach (yes/no)	Notes
Landscaping/Grounds/Accents/Bollards									
Fluorescent PL13 3 Bulb Elect. Elf Flood	13w 825lm	2700k	3	Promenade, Kukui's Service Entrance, Pali Kai Walkway	Pedestrian Safety	Cutoff	Down	Yes	
LED Defiant Flood	20w 1770lm	4000k	3	Pool Deck Plumeria, Guest BBQ	Pedestrian Safety	Cutoff	Down	2 Yes 1 No	Redirected for SFS
LED Par 30 Kim Lighting Spot	12w 1050lm	3000k	4	Pool Deck Royal Palm Uplights	Accent	None	Up	Yes	Off for SFS
LED Par 30 Kim Lighting Flood	12w 1050lm	3000k	2	Guest BBQ	Pedestrian Safety	Shielded	Down and Out	No	
Mercury Vapor Kim Lighting Flood	175w 7800lm	4000k	13	Promenade	Pedestrian Safety	Shielded	Down and Out	Yes	
Mercury Vapor Kim Lighting Flood	175w 7800lm	4000k	2	Beach Fronting Dukes	Accent	None	Down and Out	Yes	Off for SFS

Light Type Make and Model	Wattage /rating	Bulb Color	Quantity	Location	Purpose	Cut-off or Shielded Fixture	Light angle (down, out, up)	Visible from Beach (yes/no)	Notes
Landscaping/Grounds/Accents/Bollards									
LED Par 38 Kim Lighting Spot	12w 850lm	2700k	6	Kukui's Patio, Pool, Plumeria, Nounou Garden, Promenade	Accent	None	Up	Yes	Off for SFS
LED Par 30 Kim Lighting Spot	12w 1050lm	3000k	6	Kukui's Restaurant, Pool Island	Accent	None	Up	Yes	Off for SFS
Mercury Vapor HR175 Kim Lighting Flood	175w 7000lm	4000k	4	Pool Island	Accent	None	Up	Yes	Off for SFS
LED Par 30 Kim Lighting Spot	12w 1050lm	3000k	9	Pool Island, Pool Bridge, Elephant Statues	8 Accent 1 Pedestrian Safety	Shielded	Down and Out	Yes	
LED String Lights A Type Bulbs	1w 50lm	2200k	120	Kukui's Patio Trees, Kukui's Gazebo	Safety and Accent	No	Out	Yes	

Light Type Make and Model	Wattage /rating	Bulb Color	Quantity	Location	Purpose	Cut-off or Shielded Fixture	Light angle (down, out, up)	Visible from Beach (yes/no)	Notes
Landscaping/Grounds/Accents/Bollards									
LED Downlight Flood	2w 80lm	2700k	8	Haupu Garden Pool Walks, Coconut Trees	Safety	Shielded	Down	Yes	
Halogen Bipin Pagoda Floods	10w 140lm	2800k	15	Pool Deck, Pool Walkways	Safety	No	Out	No	
LED Par 38 Kim Lighting Flood	13w 950lm	2700k	10	Garden Court	Pedestrian Safety	Shielded	Down and Out	No	
Fluorescent PL13 Wall mount Flood	13w 825lm	2700k	11	Pond Bridge and Stairs	Pedestrian Safety	Shielded	Down	No	
Halogen MR16 Underwater Spot	50w 900lm	2950k	2	Pond Waterfall	Accent	Shielded by Vegetation	Up	No	
Metal Halide Stonco Flood	250w 22000lm	4200k	1	Garden Court Banyan Tree	Accent	Shielded by Vegetation	Up	No	Off for SFS

Light Type Make and Model	Wattage /rating	Bulb Color	Quantity	Location	Purpose	Cut-off or Shielded Fixture	Light angle (down, out, up)	Visible from Beach (yes/no)	Notes
Landscaping/Grounds/Accents/Bollards									
Mercury Vapor H175 Kim Flood	175w 7800lm	4000k	1	Garden Court Banyan Tree	Accept	None	Up	No	Off for SFS
		2750k	1	Garden Court Side Waterfall	Accent	Shielded by Vegetation	Out	No	
LED Par 30 Kim Lighting Spot	12w 1050lm	3000k	1	Garden Court Main Waterfall	Accent	Shielded by Vegetation	Out	No	
LED Par 38 Kim Lighting Flood	13w 950lm	2700k	8	Garden Court	Pedestrian Safety	Shielded	Down/Out	No	
LED Par 38 Kim Lighting Bullet	13w 950lm	2700k	127	Main Drive Haupu Drive	Accent	Shielded by Vegetation	Up	No	
LED Par 38 Kim Lighting Bullet	13w 950lm	2700k	5	Porte Cochere, Limo Parking	Pedestrian Safety	Shielded	Down and Out	No	

Light Type Make and Model	Wattage /rating	Bulb Color	Quantity	Location	Purpose	Cut-off or Shielded Fixture	Light angle (down, out, up)	Visible from Beach (yes/no)	Notes
Landscaping/Grounds/Accents/Bollards									
Halogen Pagoda Flood	20w 380lm	3000k	10	Porte Cochere, Exterior Walks	Pedestrian Safety	Shielded	Out	No	
Fluorescent PL13 Electro Elf Pagoda	13w 825lm	4100k	10	Main Drive to 800 Lot	Pedestrian Safety	Shielded by Vegetation	Out	No	
Fluorescent PL13 Flood Pagoda Electro Elf	13w 825lm	2700k	10	Limo Parking	Pedestrian Safety	Shielded by Vegetation	Out	No	
LED A Bulb Bollard Flood	11w 800lm	2700k	4	Associate Crosswalk	Pedestrian Safety	Shielded by Vegetation	Out	No	

Light Type Make and Model	Wattage /rating	Bulb Color	Quantity	Location	Purpose	Cut-off or Shielded Fixture	Light angle (down, out, up)	Visible from Beach (yes/no)	Notes
Other Lights									
LED Par 38 Pentair Enclosed Flood	13.5w 950lm	3000k	30	Pool Lights (Inside)	Safety	No	Out	Yes	
Fluorescent Linear F17T8 Leviton Flood	17w 1200lm	4100k	48	Aupaka's Stairs Handrail	Safety	Cutoff	Down and Out	Yes	

Light Type Make and Model	Wattage /rating	Bulb Color	Quantity	Location	Purpose	Cut-off or Shielded Fixture	Light angle (down, out, up)	Visible from Beach (yes/no)	Notes
Roof Floodlights									
				None					

Light Type Make and Model	Wattage /rating	Bulb Color	Quantity	Location	Purpose	Cut-off or Shielded Fixture	Light angle (down, out, up)	Visible from Beach (yes/no)	Notes
Indoor Lights Visible from Outdoors									
Fluorescent PL13 Quad Tube Downlight	13w 810lm	2700k	9	Haupu-Makai Stairwell	Pedestrian Safety	Cutoff	Down	Yes	Retrofitted with Shorter Bulb
Fluorescent PL13 Quad Tube Downlight	13w 810lm	2700k	19	Kilohana Stairwell-West	Pedestrian Safety	Cutoff	Down	Yes	Retrofitted with Shorter Bulb

Light Type Make and Model	Wattage /rating	Bulb Color	Quantity	Location	Purpose	Cut-off or Shielded Fixture	Light angle (down, out, up)	Visible from Beach (yes/no)	Notes
Indoor Lights Visible from Outdoors									
LED Par 38 Light oilier Recessed Downlight Spot	13.5w 950lm	3000k	30	Aupaka Gazebo Column	Accent	Cutoff	Down	Yes	
LED Sylvania Recessed Downlight Flood	10w 700lm	3000k	84	Aupaka's Walkway	Safety	Cutoff	Down	Yes	
LED BR30 Light oilier Recessed Downlight	9w 700lm	2700k	8	Pali Kai Bathroom Exterior	Safety	Cutoff	Down	Yes	
LED Par 38 Kim Lighting Bullet Spot	12w 850lm	2700k	8	Pali Kai Exterior Walkway	Safety	Shielded by Columns	Up	4 Yes 4 No	4 Off for SFS
LED A Bulb Wall sconce	4w 300lm	2700k	16	Kukui's Restaurant Dining	Accent	No	Out	Yes	
LED Par 38 Light oilier Recessed Downlight	12w 850lm	2700k	23	Kukui's Restaurant Dining Room	Safety	Cutoff	Down	Yes	
Fluorescent PL13 2 Tube Wall Sconce Flood	13w 825lm	2700k	2	Waialeale Exterior Stairs	Safety	No	Out	Yes	
LED BR30 Light oilier Recessed Downlight	9w 700lm	2700k	11	Waialeale Lobbies 3 Floors	Safety	Cutoff	Down	Yes	

Light Type Make and Model	Wattage /rating	Bulb Color	Quantity	Location	Purpose	Cut-off or Shielded Fixture	Light angle (down, out, up)	Visible from Beach (yes/no)	Notes
Indoor Lights Visible from Outdoors									
LED BR30 Uplight	9w 700lm	2700k	32	Column Uplights Puna, Kauai, Niihau	Accent	Shielded by Building	Up	No	
Fluorescent Linear T5 Flood Wallscounce	39w 3500lm	3000k	4	Aupaka's	Accent	No	Out	Yes	
Fluorescent PL13 8 Bulb Chandelier	13w 825lm	4100k	5	Aupaka Gazebo	Accent	No	Out	Yes	
LED BR30 Hubbel Flood	10w 700lm	2700k	2	DaLife Shop Entry	Pedestrian Safety	Cutoff	Down/Out	Yes	
LED A Bulb Wall Lantern Flood	10w 800lm	2700k	3	Kalapaki Beach Boys	Pedestrian Safety	No	Out	Yes	Off for SFS
LED Flood	20w 800lm	5600k	2	Café Portofino Stairs	Pedestrian Safety	Cutoff	Down/Out	Yes	Redirected for SFS
Incandescent R20 Flood	45w 380lm	2700k	20	Portofino Dining	Accent	Cutoff	Down/Out	Yes	
Halogen MR16 Flood	50w 890lm	2900k	10	Portofino Dining	Accent	Cutoff	Down	Yes	
LED BR30 Recessed Down Lights	10w 800lm	2700k	25	Portofino/ Dukes	Pedestrian Safety	Cutoff	Down	Yes	

Light Type Make and Model	Wattage /rating	Bulb Color	Quantity	Location	Purpose	Cut-off or Shielded Fixture	Light angle (down, out, up)	Visible from Beach (yes/no)	Notes
Indoor Lights Visible from Outdoors									
LED Rope Light	10w 800lm	5000k	16”	Portofino Nenu	Accent	Cutoff	Down	Yes	
LED Par 38 Recessed Downlight Flood	12w 850lm	2700k	8	Portofino/ Dukes Stairs, Promenade T-Shirt Shack	Pedestrian Safety	Cutoff	Down	Yes	
LED Pencil Light	7.5w 700lm	3000k	7	Dukes Dining	Accent	Cutoff	Down	Yes	
LED MR16 Recessed Downlight	7.5w 700lm	2700k	23	Dukes Dining	Accent	Cutoff	Down	Yes	
LED Par 30 Recessed Dowlight	7.9w 1050lm	4000k	10	Dukes Dining and Bar	Pedestrian Safety	Cutoff	Down	Yes	
LED Rope Light Linear		2100k	75’	Dukes Dining Room Soffit	Accent	Shielded	Up	Yes	
LED MR16 Recessed Downlights	6.8w 520lm	3000k	26	Dukes Bar and T-Shirt Shack	Accent	Cutoff	Down	Yes	
LED A Bulb Basket Fixture	11.5w 1100lm	5000k	16	Dukes Bar	Pedestrian Safety	Partial Cutoff	Out	No	

The above description of outdoor lighting is current as of March 2020. The Resort has minimized lighting to the maximum extent practicable.

Table 2: Green Sea Turtle Assessment for the Site & Facility

Please provide the information requested below to help determine if measures to avoid impacts to the Green Sea Turtle(s) from the effects of light attraction are required to be implemented at any of the facility(s), parcel(s), or site(s) included in this PIP. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the Green Sea Turtle, and provide further guidance.		
Are any of the facilities located adjacent to a beach?	**YES / No**	**If yes, provide length of beach frontage & brief description of facilities & lights adjacent to the beach** Kalapaki Beach is approximately ¼ mile long and is located fronting the swimming pool, but separated from the Resort proper by a paved walkway. Facilities adjacent to the beach include the pool, pool restaurant, pool activity desk and pool walkway, restaurants and hotel structures.
Are any of the Covered Activities (lights) visible from a beach?	**YES / No**	**If yes, describe the specific lights (type, , height, purpose) & specific location; provide map & photos showing distance from beach** See Table 1 above
Have green sea turtles been known to nest on any beaches adjacent to the facilities?	**YES / No**	**If yes, provide information about nesting occurrences, if known, including location and date and any other information** In the summer of 2019, a turtle nest was identified on Kalapaki Beach. The beach is owned by DLNR, and not Kauai Marriott. Kauai Marriott assisted by notifying DLNR of the nest location and by keeping hotel guests away from the nest location.

Item 4. If applicable, describe any lighting standards (e.g., foot candles/area) required for facility operations or other requirements that necessitate the use of lighting (e.g., required for security, safety, operations). Describe the relevant standard, or regulation, and the areas and Covered Activities at the site (e.g., type of lighting) to which it applies.

Marriott standards for light fixtures are 1 foot candle (10) lux for parking lots, and 2 foot candle (20) lux for hallways. Aside from these requirements, there are no specific lighting standards, rules, restrictions or requirements that the Resort must comply with, beyond assuring that lighting is adequate to ensure guest and employee safety and security. Pre-seabird season lighting audits are conducted by a seabird biologist and necessary tweaks to the lighting are completed prior to the start of the seabird season each year.

Item 5. Describe any plans/proposals for future facilities or expansion of existing facilities. Include any proposed structures and lighting by type, purpose, and location. Plans (architecture and site plans), photos, and drawings can be attached.

Kaua'i Marriott has no plans for the future on the books that would cause us to install extra interior or exterior lights.

Item 6. Pursuant to the Endangered Species Act (ESA), Section 10 (a)(2)(A)(iii), describe alternatives to <u>avoid</u> the taking considered and evaluated. Provide reasons why those alternatives are not being utilized. Alternatives can include operational or facility design changes (attach pages as needed). The tables below may be altered as needed.

Activities that the Kaua'i Marriott Resort has direct control over that may result in covered species landing on the property are restricted to those associated with lighting. Other programs that the Resort implements that result in benefits to seabirds include increased staff training, guest outreach (brochures go into guest rooms during seabird fledging seasons, and monitoring and rapid recovery of downed seabirds (Appendix C). The Resort has addressed all of these issues to the maximum extent practicable. Measures and protocols implemented are detailed in the following sections of the application.

In the following table light attraction avoidance and minimization alternatives that were analyzed are presented.

Table 3: Light Attraction Alternatives to the Taking

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives are not Being Utilized (provide justification)
▪ **Deactivate all outdoor artificial lights from dusk to dawn during the fledgling fall-out season September 15 to December 15**	Lighting is required for direction, safety, and security of the hotel grounds for guests, visitors, and employees.
▪ **Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daylight hours)**	Guest and staff safety and security, precludes this option. To do this the hotel would need to be closed at night, which is not a viable business option.
▪ **Shield all lights from visibility from the beach, or screen all Green Sea Turtle nests, from May 15 to December 15 to avoid impacting the green sea turtle (Green Sea Turtle)**	Lights are shielded and the beach is dark. Some beach lighting is required for is required for direction, safety, and security of the beach for guests, visitors, and employees.
▪ **Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered**	The resort has replaced a very large number of lights on and in the resort to reduce the amount of stray light being produced. Window blinds or curtains have been placed in rooms in the resort reducing the visible lighting from outside the hotel. Windows have been tinted. Bulbs have been reduced in lumens over the past 10 years. All upward pointing lights have been removed or are turned off during seabird fledging season.

Item 7. Describe all site-specific seabird minimization measures considered for the Covered Activities. This item should follow KSHCP minimization objectives and measures as specified in *Appendix E (Guidelines for Adjusting Lighting at Facilities)* of the KSHCP document. Please consult with staff from the DOFAW and the USFWS as needed. The suggested tables below can be altered as needed.

Minimization measures modify the Covered Activities to reduce the effects of the activity on the Covered Species. KSHCP Participants will be required to implement minimization measures that apply to the facility to the "maximum extent practicable" per applicable state and federal laws which regulate incidental take license/permit issuance by the DLNR and the USFWS.

Minimization also entails searching and recovering grounded seabirds to minimize the chance of mortality. In addition, the presence of on-site predators (i.e. feral cats, dogs) should be controlled and removed because these animals can prey on grounded seabirds.

Provide justification, such as policies, regulations, or other rationale for measures that will not be implemented.

Table 4: Seabird Light Attraction Minimization Measures Considered

Minimization Measures Considered	Feasible? (Y / N)	If not Feasible to Implement Measures, Provide Reason
▪ **Change time of light use (lights off earlier)**	**Yes / NO**	Facility operates at all hours and grounds safety is required.
▪ **Deactivate unnecessary lights**	**YES / No**	
▪ **Replace all outdoor lights with full cut-off fixtures**	**YES / No**	Except very low to ground and shielded by vegetation.
▪ **Shield all outdoor lights with full cut-off shields**	**YES / No**	Except very low to ground and shielded by vegetation.
▪ **Angle all lights downward**	**YES / No**	Except very low to ground and shielded by vegetation.
▪ **Lower intensity (lumens) of outdoor lights**	**YES / No**	
▪ **Change bulb color to non-white spectrum**	**YES / No**	
▪ **Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers**	**YES / No**	
▪ **Provide Worker Seabird Awareness Training to staff**	**YES / No**	See Item 6, above, and Appendix C (Standard Operating Procedure).
▪ **Provide outreach materials to staff & guests**	**YES / No**	See item 6, above, and Appendix D (guest brochure).
▪ **Host Save Our Shearwaters (SOS) Aid Station**	**YES / No**	

Item 8. <u>Minimization Plans</u>. Provide a plan to minimize the effects to the Covered Seabirds due to the Covered Activities. KSHCP Participants will be required to minimize the effects of the Covered Activities to the "maximum extent practicable" per applicable state and federal laws which regulate take license/permit issuance. The KSHCP document provides minimization objectives and measures to follow.

The Minimization Plans should include the proposed minimization measures, timeline, and estimated cost for each facility. In this item, the Participant can include measures already completed or in place (new lights, shields, operational changes). Timeline should include estimated completion schedule, and annual schedule for minimization that will occur only during fledging season.

Minimization measures not yet determined but anticipated to occur at the facility; this section should include an estimated cost that will be earmarked for future minimization measures.

If applicable, the participant must provide the reasoning why certain measures will not be implemented. The suggested table below may each be altered to best describe the Minimization Plan. Attach additional pages, photos, and drawings as needed.

Starting in 2003, as the KSHCP staff was beginning outreach on seabird light attraction issues, lights were modified through shielding, down pointing, tinting guest room windows and other means, to help reduce impacts to seabirds. Thus, most of the specifics outlined in the Avoidance and Minimization Plan below have already been in place for 10+ years, and the Kauai Marriott is committed to continue managing their lights to reduce light attraction issues.

The foregoing avoidance and minimization measures were implemented, and costs associated with implementing these measures have already been incurred.

A biologist will accompany the head of loss prevention and the engineering department to conduct a lighting audit of the entire property prior to the onset of the seabird fallout season annually. The biologist will follows up with the Resort to ensure that any lighting minimization modifications that the biologist identified have been implemented. The biologist will also check the hotel several times during the season without notifying the Resort to ensure that all measures are in place. The biologist monitors will monitor the fallout season in real time and returns to the Resort if anything shows up in the fallout data that suggests that there may be a problem with the lighting minimization measures.

Table 5: Lighting Minimization Measures

List of Buildings	Minimization Measures	Cost to Implement	Responsible Staff	Timeline
Parking lot lights (66)	Lights are full cut-off fixtures; lights are down directed; poles are minimum height (25 feet)	N/A	Engineering	Completed
Signage lights (36)	Lights are downward angled; lights are low to ground (1-2 ft.); lights are low wattage	N/A	Engineering	Completed
Wall-pack lights (36)	Lights are angled down; lights are shielded (either by eaves overhang or retrofit shields)	N/A	Engineering	Completed
Landscaping & grounds lighting (321)	Most grounds and accents lights directed downward; others shielded by vegetation; grounds lights low to ground.	N/A	Engineering	Completed
Individual guest room interior lights	Avoidance Measures 1. Encourage guests to switch off unnecessary room lighting. See Appendix D (guest brochure). The hotel also places an awareness poster in the lobby during seabird seasons. 2. Encourage guests to cover room windows at night during fallout season Minimization Measures. 1. All guest room windows were tinted to reduce amount of light visible from the exterior.	N/A	Security	Completed

Table 6: Seabird Mortality Minimization Plan

Minimization Measures	Describe minimization method (e.g. trapping, outreach, enact policy)	Cost to Implement	Responsible Staff
Remove & control loose predatory animals at the facility. (Loose animals can kill grounded seabirds and this measure aims to prevent seabird mortality by animals.)	The resort actively implements this measure, deploying cat traps as needed. The resort will meet the biological goals and objectives in KSHCP Table 5-1 to "Minimize mortality of Covered Seabirds downed due to light attraction by implementing actions to reduce presence of free-roaming seabird predators such as cats and dogs at Participant facilities." It will also satisfy the requirement in Section 5.3.2 of the KSHCP that "All measures to reduce presence of predators must be implemented within Year 1 of an ITP/ITL."	N/A	Grounds department
Prohibit outdoor feeding of predatory animals. (Feeding animals attracts them to the site and this measure aims to reduce the presence of animals that can cause seabird mortality.)	The resort implements this measure, except as noted in Table 4, above. Staff is trained that this is not allowed, and security monitors compliance	N/A	Management staff.
Conduct searches to recover downed birds at the property & turn them into SOS following protocols (see monitoring plan below).	See Item 9 below.	N/A	Engineering, grounds and security staff.
Train staff to follow minimization measures.	See Item 9 below, and Appendix C.	N/A	Management staff.

Item 9. Take Monitoring Plan. Provide a plan to monitor take of the Covered Seabirds at the facilities proposed to be covered by the incidental take permit/license. The take monitoring plan describes how the property will be searched for downed Covered Seabirds. The KSHCP document provides standards and guidelines for take monitoring to ensure that take of the species is accurately measured and recorded.

The regulatory agencies will make the final determination as to the adequacy of the take monitoring plan.

In 2008, the Marriott developed Standard Operating Procedures (SOP) for patrolling, monitoring, documenting and reporting downed seabirds during the fledgling flight season (see Appendix D, SOP attachment). This document was updated in 2011, 2014. and 2019. The General Manager, or designee, will continue to update the SOP as needed during the KSHCP permit term, based on advice from its seabird biologist for best practices for finding, recovering and documenting any downed seabirds.

Table 7: Covered Seabird Take Monitoring Protocols

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Percentage of the total property that will be searched & the total area to be searched	The entire built upon portion of the property is inspected each day year round. Rooftops are checked by engineering, housekeepers check balconies, and grounds are checked by security and groundskeepers. Groundskeepers also check shrubbery and bushes (laua'e fern and naupaka). All open areas are visually checked by all associates and guests.	Search as much area as possible
Frequency of searches (# per day or per week)	At least once a day for all built-upon areas, more frequently for other areas.	Twice daily
Time of day of searches	Inspections are conducted throughout the day.	2-3 hours after sunset, and within 3 hours after sunrise
Number of searchers per search area	The entire staff, amounting to some 400 or more employees.	Depends on site conditions and safety considerations and vegetation, nearby hazards/threats
Proposed training	See Items 7 and 9 above, and Appendix C.	Annual training covering seabird identification, seabird handling, response procedures, verified and documented

Item 10. Components of the Green Sea Turtle Minimization and Monitoring Plan (if required). Monitoring and minimization for the Green Sea Turtle is in two parts: A) Monitoring to detect nests and B) Monitoring and minimizing impacts to nests detected.

Part A: Monitoring to detect Green Sea Turtle Nests
Please provide the following information; the table below may be used and altered as needed.

1) **Detailed location and description of beaches, including linear distance, at which searching for nests of the green sea turtle will take place. Searches should take place at any beach from which light at the facility can be viewed;**

2) **Monitoring protocols indicating:**
   a) **Annual training of searchers;**
   b) **Frequency of searches;**
   c) **Conduct active searching (searching the beach width);**
   d) **Sufficient number of trained searchers to cover the area; and**
   e) **Record results of search monitoring.**

3) **All Participants are required to record the results of search efforts. Records should provide:**
   a) **Evidence (what was seen). Include description and provide photographs**
   b) **Location on the beach (GPS) and physically mark the location if possible**
   c) **Date and time of day**
   d) **Description of surrounding land use (e.g., vacant, or developed), and**
   e) **Proximity to the facility.**

Part B: Monitoring of Identified Green Sea Turtle Nests

Each identified nest of the green sea turtle should be monitored and protected from light attraction. Please provide the following monitoring protocols; the tables below may be used and altered as needed.

1. **Light avoidance measure for identified nests (either shield/deactivate lights at the facility or install and maintain a light shield around each identified nest);**
2. **Frequency of searches;**
3. **Number of searches monitoring the nests. The number of needed to monitor active nests will depend on number of nests identified and amount of beach needed to be covered;**
4. **Record the results of nest monitoring. Monitoring should provide:**
   a. **Evidence of hatchling emergence (description and photos):**
   b. **Date and time of emergence,**
   c. **Direction of tracks**
   d. **Condition of the nest area (e.g., disturbed or not).**

Table 8: Green Sea Turtle Monitoring Protocols – Part A: Monitoring to Detect Nests

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Location & description of the beach, or beaches, surveyed and the linear distance of the beach.	Kalapaki Beach is approximately a quarter mile long and is located directly in front of the pool.	Beach area surveyed should coincide with visibility from the facility with the lights.
Frequency of searches (# per day or per week)	Groundskeepers rake the beach twice a week.	Weekly during nesting season (typ. May 15 to end of August)
Number of searchers per search area	One groundskeeper rakes the beach	Depends on site conditions and safety considerations
Proposed training	The groundskeeper(s) who rake the beach will receive annual training conducted by a biologist.	Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee.

Table 9: Green Sea Turtle Monitoring Protocols – Part B: Monitoring of Identified Nests & Minimization

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Frequency of checks (# per day or per week)	Should a nest be discovered the Resort would immediately contact USFWS and follow their standard Hawaii protocols for protecting the nest.	Active nests should be monitored every 1-2 days; then daily during expected hatching date
Light avoidance	Lights are shielded and the beach is dark. Some beach lighting is required for is required for direction, safety, and security of the beach for guests, visitors, and employees.	If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light.
Number of searchers per search area	One	Depends on site conditions and safety considerations

Item 11. Describe the schedule that will be followed to provide training for staff. Training must be provided to those that will conduct and oversee the searches at the facility.

The training should include:

1. **Summary of regulations protecting the Covered Species;**
2. **Search procedures, route, frequency and timing specific to the facility's monitoring plan, for seabirds and green sea turtle nests (if applicable);**
3. **Response procedures including safe and proper techniques for handling seabirds;**
4. **Recognizing evidence of green sea turtle nests, proper nest light screening, and hatchling activity (if green sea turtle minimization and monitoring plan is applicable);**
5. **Procedures to document the results of searches;**
6. **Downed wildlife agency contacts; and**
7. **Nearest SOS aid station.**

The Division of Forestry and Wildlife provided annual Worker Seabird Awareness and Response Training (WSART) to the appropriate facility staff prior to the start of each seabird fallout season from 2003 to 2017. Worker training will continue under the KSHCP for the duration of the permit term. Seabird Awareness Training will be conducted by a trained biologist in 2019, and in subsequent years, the training will be conducted by the Director of Global Safety & Security. The fallout season occurs each year from September 15 to December 15. The training includes: regulatory setting, consequences for noncompliance, standard monitoring, response, and reporting procedures, techniques for proper handling of downed seabirds, personal protection, agency contacts and facility locations.

Seabird Awareness and Response Training will be provided to the following staff:

- Engineering
- Director of Global Safety & Security;
- Security Personnel;
- Grounds Crew;
- Any staff tasked with outdoor work around the properties

A copy of the PowerPoint training module is attached as Appendix C. See also Standard Operating Procedures (SOP) **(**Appendix D).

Item 12. Describe any outreach conducted (e.g., handing out pamphlets on seabird awareness to facility employees or guests, etc.):

The Kaua'i Marriott Resort has been doing outreach to staff and guests since 2003, and will continue to do so during the KSHCP permit term. During the seabird fledging season Kauai Marriott Resort will:

1. Display SOS informational posters in break rooms and common staff areas.
2. Put it in our "Discovery Page" which is our daily hotel newsletter for all Employees.
3. Staff will attend the annual Worker Seabird Awareness Training.
4. Remind staff about seabirds during department stand up meeting (pre-shift meetings) to bring additional awareness.
5. Talk about it in our Monday, Wednesday, and Friday Managers weekly stand up meetings.
6. Invite a qualified biologist to speak at our staff meeting.
7. Display SOS informational posters in the lobby to promote guest awareness.
8. Have an informational flyer put into each room as awareness to for our guest, asking them to keep curtains closed during the season. See Appendix E.

PART 2. Take Estimate, Requested Amount of Take Authorization, and Funding

Item 1. Show the calculation of estimated take for each of the Covered Species.

Following the take estimation methods in the KSHCP for estimating a Participant's take (Section 6.2.2), the tables below show the take estimate calculation for the facility(s) for each of the Covered Seabirds.

The KSHCP take estimate method utilizes the average of the most recent 5 years of SOS recovery data for the facility. Applied to the data is an adjustment for downed birds not found, based on a 50% discovery rate and an adjustment based on SOS mortality (birds dead on arrival or those that die in care) – average SOS mortality is 12%.

If the landowner-applicant submits a take estimate with an alternate discovery rate, they must provide the reasons why an alternate rate was used to estimate take, including relevant information supporting their reasoning (% of searchable area, search protocols that will be used, any searcher efficiency trials that have been or will be conducted at facilities and/or demonstration of quick, effective recovery of birds). Please include narrative and/or photos and maps to support this.

Table 10: Annual Lethal Take Calculation[i]

	Newell's Shearwater	Hawaiian Petrel	Band-rumped Storm-Petrel
1. Annual average number (SOS data – or – monitoring data) of downed NESH (5 most recent years), HAPE or BRSP (15 most recent years)	0.80	-	-
2. Annual observed lethal take estimate (12% of 1, all downed birds)	0.10	0	0
3. Annual unobserved lethal take estimate (e.g. 100% of 1, all downed birds if 50% searcher efficiency assumed)	1.00	0	0
4. Total estimated annual lethal take from light attraction (2+3)	1.10	0	0
Requested Annual Lethal Take	1.10	0	0
Requested Take Over Permit Term	33.00	0.033 (1 for 30 year permit) 1	0.033 (1 for 30 year permit) 1

[i] Title of Table revised per email from Kate Cullison 4/10/20.

Item 2. Select the requested take authorization and permit/license term coverage for each of the Covered Species.

Table 11: Newell's Shearwater:

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or Sub-Adults	Take Limit for License/Permit Term
Mortality (Lethal)	1.1[i]	0	33[ii]
Injury (Non-lethal)	0.704[iii]	0	21.12[iv]

[i] This number is repeated from Line 4 of Table 10, above, and should not be added to the number in Table 10.

[ii] This number is repeated from the last line of Table 10, above, and should not be added to the number in Table 10.

[iii] This number of nonlethal adult take is derived by using the formula in KSHCP Section 6.2.2.1. As set forth in Section 6.2.2.1, "Lethal Take =100% undiscovered birds + 12% of birds that are discovered and turned into SOS." It follows, then, that nonlethal take is 88% of birds that are discovered and turned into SOS, or 88% of Line 1 of Table 10.

[iv] This number is derived by multiplying 0.704 by 30 years.

Table 12: Hawaiian Petrel:

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or Sub-Adults	Take Limit for License/Permit Term
Mortality (Lethal)	0[i]	0	1 for 30 year permit[i]
Injury (Non-lethal)	0[ii]	0	1 for 30 year permit[ii]

[i] As set forth in Table 10, above, Kauai Marriott has not had lethal take of Hawaiian Petrels in the last 15 years, but is nonetheless requesting coverage for lethal take of 0.033 Hawaiian Petrel each year, or 1 bird over the 30 year permit term.

[ii] Kauai Marriott has not had nonlethal take of Hawaiian Petrels in the last 15 years, but is nonetheless requesting coverage for nonlethal take of 1 Hawaiian Petrel each year or 1 Hawaiian Petrel of the 30 year permit term.

Table 13: Band-Rumped Storm-Petrel:

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or Sub-Adults	Take Limit for License/Permit Term
Mortality (Lethal)	0[i]	0	1 for 30 year permit[i]
Injury (Non-lethal)	0[ii]	0	1 for 30 year permit[ii]

[i] As set forth in Table 10, above, Kauai Marriott has not had lethal take of Band-Rumped Storm-Petrels in the last 15 years, but is nonetheless requesting coverage for lethal take of 0.033 Band-Rumped Storm-Petrel each year, or 1 bird over the 30 year permit term.

[ii] As set forth in Table 10, above, Kauai Marriott has not had lethal take of Band-Rumped Storm-Petrels in the last 15 years, but is nonetheless requesting coverage for lethal take of 0.033 Band-Rumped Storm-Petrel each year, or 1 bird over the 30 year permit term.

Item 3. Funding Assurance. Provide proof of adequate funding (see KSHCP document). All participants must demonstrate requisite funding prior to permit/license approval to ensure that the proposed measures and actions, including monitoring, will be undertaken in accordance with the terms and schedule of the KSHCP.

The Kaua'i Marriott Resort currently undertakes all minimization and conducts all monitoring using its existing staff as part of annual operating budget, and will continue to do so through the term of the KSHCP. The Kaua'i Marriott Resort will provide financial assurances as required by the KSHCP.

Signature of Participant:

Date: 5-14-2020

Printed Name : Paul Toner, General Manager

The undersigned affirms that all the information included is true and accurate to the best of the participant's knowledge and that this PIP is voluntarily submitted.

☐ check to waive confidentiality

Appendices

Appendix A – Tax Map Keys (TMKs) of the Kaua‘i Marriott Resort

Appendix B – Schematic layout of the resort

Appendix C – Kaua‘i Marriott Resort Seabird and Sea Turtle Awareness and Response Training module

Appendix D – Standard Operating Procedures (Seabird Conservation Awareness Program)

Appendix E – Guest Seabird Conservation Program brochure

APPENDIX A

Source: Tax Maps Bureau
By: D.S.C.-P.K.e. H.N. Jan 1927
POR. OF KALAPAKI, LIHUE KAUAI.
PLAT 01
NAWILIWILI
BAY
PLAT 01
RICE
STREET
KALAPAKI ROAD
-INSET-
SUBJECT TO CHANGE
TAXATION MAPS BUREAU
STATE OF HAWAII
TAX MAP
FOURTH DIVISION
ZONE SEC. PLAT
3 5 02
CONTAINING PARCELS
SCALE: 1 inch AS NOTED

APPENDIX B

Kalapaki Beach
Lu'au Gardens
Cabana 1 2
Cabana 3
Massage Cabanas
Elevator to Hokuala
Guest Parking
POOL
Tiki Tiki
kukui's
ALIPAKA TERRACE
HA'UPU TOWER
MAIN LOBBY
NOUNOU TOWER
Barbeque Grills
KAHILI TOWER
KILOHANA TOWER
WAI'ALE'ALE TOWER
KILOHANA TOWER
Niihau Court
Kaua'i Court
KAUA'I BALLROOM
Ka Mala O Kalapaki Garden
Puna Court
PUNA BALLROOM
Hotel Sales & Events
You Are Here
MAIN ENTRANCE
CAFE PORTOFINO
DUKE'S KAUAI
Kaua'i Ballroom
K1 Kona Room (Salon 1)
K2 Halele'a Room (Salon 2)
K3 Ko'olau Room (Salon 3)
Puna Ballroom
P1 Kalapaki Room
P2 Nawiliwili Room (A)
P3 Niumalu Room (B)
P4 Haiku Room (C)
P5 Kipu Room (D)
ResortAmenities
A Bell Desk/Valet
B Front Desk
C MVCI Lobby Welcome Desk
D Concierge Desk
E Pool Hut & Towels
F Kid's Pool
G Lu'au Gardens
H Men's/Women's Changing Rooms 3rd Floor
I Owner's Lounge 3rd Floor
J MVCI Welcome Desk/Sales Gallery
K Fitness Center
L Business Center
M Barbeque Grills
N Owner Relations
O Pele's Wedding & Events
Resort Conveniences
Elevators
Wheelchair Access
Restrooms
ATM
Washer/Dryer
Designated Smoking Area
Shops & Services
1 Enterprise Rent A Car and Jack Harter Helicopter
2 Lamont's Gift & Sundry
3 Shops Alexander Day Spa & Salon
4 Grande's Gems
5 Tropical Tantrum
6 Kauai Beach Boys
7 Tabora Gallery
8 Seductions of Kauai Gallery
9 Kauai Down Under, Kauai Z Tourz & Hawaiian Style Surfing
Additional Guest Parking, Hokuala Golf Kalanipu'u, Beach Access
Exit to Rice Street Guest Parking
MARRIOTT RESORT KAUA'I

APPENDIX C

Kaua‘i Marriott Resort Seabird Awareness and Response Training - 2019

Purpose of Training

- Native seabird species including endangered species may "fallout" on the Resort property on a seasonal basis
- Kaua'i Marriott Resort is committed to the protection of these species
- Kaua'i Marriott Resort has specific endangered bird protocols in place that all construction personnel must follow
- There are potentially significant legal implications if any of these protocols are not followed

Regulatory Setting - Protected Species

Federal -

The Endangered Species Act of 1973, as amended (ESA)

Migratory Bird Treaty Act (MBTA)

State of Hawai'i -

Hawaii Revised Statutes (Chapter 195-D)

IT IS ILLEGAL TO:

"harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" any species listed under any of these statutes

Agency and Endangered Species Program Contacts

Who to Call

- State Department Land & Natural Resources DOFAW
- Thomas Kaiakapu: Wildlife Manager: (808) 274-3440
- Kaua'I Marriott Resort Program Coordinator
- Kaupena Kinimaka: (808) 246-5193, mobile: (808) 639-2319
- Seabird Hotline 5796 – any house phone
- Reggie David: Cell: (808) 937-0124, email: davidr003@hawaii.rr.com

Endangered and Threatened Seabird Species

Seabird Fallout Season Issues

- Night flying seabirds are often attracted to lights
- Fledgling (*keiki*) birds on their way to sea for the first time are often attracted to lights and can be confused by them
- Confused birds may collide with structures, or simply land on the ground too tired to continue flying

Seabird Issues cont.

- Once on the ground they cannot take off again and will die from starvation or be killed by predators if not rescued
- If the seabirds are recovered and turned into the Save Our Shearwaters Program (SOS), almost 90% of them can be returned to the wild

Downed Seabird Response Protocols

- If a downed seabird is found, immediately call your supervisor and the Global Safety and Security in-house number **5796**
- Stay with the bird until a Safety and Security officer arrives on the scene, follow their instructions.

Take Home Message

- The harming of listed seabirds may be construed as "take" under the ESA, and/or HRS 195D.
- The minimization and avoidance of "take" to the maximum extent practicable is required under both federal and State of Hawaii endangered species statutes
- Failure to do so may result in enforcement action, which may result in significant civil and criminal penalties
- Penalties include civil fines of up to $25,000 per incident, and criminal fines of up to $50,000, and up to one year federal imprisonment per incident
- **Non compliance with any of the endangered species rules and protocols will result in immediate disciplinary action**

Mahalo

Kaua'i Marriott Resort *thanks you for your attention to and your assistance with this program*

Kaua'i Marriott Resort *takes pride in our continued efforts to protect the natural resources on the Island of Kaua'i*

Protection of these native birds is everyone's responsibility, and is in the common interest of the Island community and future generations

If You Would Like More Information

- *Other questions? Please see me after the presentation*

Endangered and Threatened Sea Turtle Species

Sea Turtle Awareness

- Two protected species of sea turtles, haul out on beaches on Kauai
  - Pacific green sea turtle – threatened
  - Pacific hawksbill sea turtle - endangered
- Both species have nested on the Island
- We have had one Green sea turtle on Kalapaki Beach

Finding and Reporting Turtles on the Beach

- All associates that work in areas close to the beach shall:
  - Report any turtle on the beach immediately to:
- Kaupena Kinimaka: (808) 246-5193, mobile: (808) 639-2319
- Seabird Hotline 5796 – any house phone
- Loss prevention staff will immediately contact:
  - Thomas Kaiakapu: Wildlife Manager: (808) 274-3440
- They will follow instructions given them by DOFAW
- If a nest is discovered all lights on palm trees along the walkway will be turned off until the turtles hatch

APPENDIX D

KAUAI MARRIOTT RESORT & BEACH CLUB **LOCAL STANDARD OPERATING PROCEDURES**	
LSOP: Seabird Conservation Awareness Plan	LP# 74
PURPOSE: To establish a procedure/awareness training ensuring that that the Kauai Marriott Resort and Beach Club associates and staff are a working partner with federal and State of Hawaiʻi wildlife conservation and regulatory agencies to conserve our native Seabirds.	
ISSUE DATE: 8/08	REVISED: 07/19

PROCEDURE/SCOPE:

Between the months of September 15th to December 15th the Kauai Marriott and its associates will participate in the search, recovery and collection of downed Seabirds (Newell's Shearwater, Hawaiian Petrel, Band-rumped Storm Petrel and other non-listed seabird species) on property.

Training and Awareness

Hotel Management will participate in an annual Seabird Awareness and Response training.

Hotel Management will educate our guests by having literature (flyer) in the individual guest rooms and a poster in the lobby area explaining our conservation efforts, the SOS Program, the Kauai Marriott's role in protecting birds through the SOS program, as well as the part the guests play in protecting Seabirds.

The Hotel will educate its employees by putting information in the daily Discovery Page. All pre-shift meetings will have Seabird Awareness and Response discussions. Management will also have Seabird Awareness and Response discussions in their "Managers Stand-up" meetings on Monday, Tuesday and Wednesday.

Prior to the start of the seabird fallout season, Hotel management will conduct a lighting audit of the Resort with a qualified seabird biologist. The objective of that survey is to ldentify any lights on Resort grounds that might attract Seabirds to our property. Engineering or the grounds department will make the appropriate adjustments to light fixtures as needed.

DLNR and the SOS Program will place a SOS Aid Station on property on or around September 15th each year in a suitable location (currently the Loading Dock Area).

Global Safety & Security officers will keep a log of birds recovered on the property, with all pertinent data. They will also complete filling the "White Board" at the SOS Aid Station with the following information.

Date:	
Time:	
Location found:	
Condition of bird:	(Good) (Injured) (Dead)
Type:	Newell's Shearwater; Hawaiian Petrel; Band-rumped Storm Petrel; or other (if known).

Monitoring

Safety & Security officers (2) plus one Supervisor (1) and one duty engineer (1) will make it part of their duties during the Seabird season to be vigilant about looking for downed Seabirds during their respective shifts.

Patrol duties include making two rounds of the property in an 8 hours period (shift). During their patrol during the Seabird Season, the officer will make more comprehensive search of the property, and bushy areas such as by Dukes, Gardens, and fronting the Kahili tower.

A daily log will be submitted to the Director of Global Safety & Security of Birds found or not, at the end of the shift.

Patrol officers & Engineer person will follow the "Recover Procedure" below when necessary.

Recover Procedure:

Deploy the Seabird Recovery Kit which should contain the following items:

- Latex or nitrite gloves
- Three towels
- Hand Sanitizer
- Flashlight
- Clip Board, pen, "Bird Take Log"
- Bird Carrier (Cardboard Box) with note as a "Live Animal"

Live Bird Handling and Procedures:

1. Take the seabird recovery kit and pet carrier to the downed seabird
2. Put on gloves
3. Using towel to gently cover the bird, pick up the seabird
4. Place the seabird in the pet carrier, and close the pet carrier
5. Put the gloves and towel back in the seabird rescue kit
6. Take the bird and pet carrier to an SOS Aid Station – located on the loading dock
7. Transfer the bird to the Aid Station
8. Call SOS at 635-5117 or 632-0610
9. Return the seabird rescue kit and pet carrier to the dairy, replace towel and clean cage with bleach, if dirty
10. Complete the Downed Wildlife Form
11. Turn in the completed form to the Director of Global Safety & Security
12. Note in the nightly log where the bird was found, or if found off property

Dead Bird Handling and Procedures:

1. Place dead seabirds in a two gallon Zip-Loc plastic bag – double bag the bird
2. Write the Date and Property on the outer bag with a permanent Marker
3. Place in a refrigerator
4. Complete the Downed Wildlife Form
5. Turn in the completed form to the Director of Global Safety & Security
6. Note in the nightly log where the bird was found, or if found off property

Reporting to Agencies:

A call shall be made to the USFWS and DOFAW within 24 hours of a downed bird being recovered on the property.

If a dead bird is recovered follow the instructions received from DOFAW-Kauai Branch, they will most likely pick up the carcass, but in some circumstances instruct the Resort to dispose of the carcass.

A copy of the Downed Wildlife form in .pdf format will be submitted via email to both the USFWS and DFOAW within 72 hours.

This policy is subject to periodic review

Contacts:

USFWS

DLNR-DOFAW

These contacts will be updated once the agencies determine the point people for these agencies.

APPENDIX E

KAUAI SEABIRD

Kaua'i is still home to many species of seabirds that nest and raise their young in our mountain forests and coastal beaches.

When they leave their nests, seabird fledglings are guided by the light of the moon out to sea. Unfortunately, urbanization on Kaua'i has resulted in the ongoing fallout of the fledgling seabirds on their first nocturnal flight from their nesting burrow to sea.

Protecting the seabird's nesting habitat and reducing the mortalities due to light attraction are critical to the survival of this species.

HOW YOU CAN HELP

- *When not in room, please turn off all lights*
- *When in room in the evening, please close your drapes*

On behalf of the staff and management of the
KAUA'I MARRIOTT RESORT & BEACH CLUB,

Mahalo FOR YOUR SUPPORT.

Kaua‘i Seabird Habitat Conservation Program (KSHCP)

Participant Inclusion Plan (PIP)

Name of Applicant/Participant

NCL (Bahamas) Ltd.

PART 1: Landowner & Property Information; Description of the Facilities; Avoidance & Minimization Measures; Monitoring of Take

Item 1. Provide the name of the landowner, business, agency, or institution and complete contact information. If the applicant/participant is different from the landowner, please attach power of attorney (or other documentation) allowing the party to act on the landowner's behalf.

Participant/Applicant Name:		NCL (Bahamas) Ltd.
Physical Address/Location of Facility:		NCL (Bahamas) Ltd. 7665 Corporate Center Drive Miami, Florida 33126
Mailing Address:		Same as above
Primary Contact:	Ownership Name:	
	Address:	
	Email: Telephone:	

Item 2. Provide the legal description of the property at which the existing facilities and Covered Activities are located, including Tax Map Key (TMK) number. Provide a survey of the property and site plan drawings showing the locations of the Covered Activities (lights), property boundaries, buildings & structures, and site features. If properties containing the Covered Activities comprise separate parcels please include all Tax Map Key numbers and maps.

NCL (Bahamas) Ltd. ("NCL") is seeking coverage for operation of artificial lighting in connection with all activities associated with its cruise ship operations in Hawaii. Currently, NCL operates one vessel in Hawaiian waters, this vessel is named the "Pride of America." The vessel is legally identified as the NCL Pride of America. Its International Maritime Organization # is 9209221. In the future an additional vessel may be added to Hawaii operations.

Item 3. Describe the existing Covered Activities for which incidental take authorization is sought. Include list of buildings, type and description of lights present, purpose and location of lights and current seabird lighting accommodation in place (e.g. shielding, downward pointing, switched off during fledging season etc.). For "Types of lights" please use the following categories:

- **Parking Lights**
- **Signage Illumination**
- **Wall-pack Building Lights**
- **Landscaping/Grounds/Accent/Bollards**

- **Indoor lights visible from outdoors**
- **Roof Floodlights**
- **Other Lights**

Facility lighting plan may be submitted as lighting inventory. Photos may be attached. The suggested light table, and Green Sea Turtle assessment table below may each be modified as needed to provide the necessary information.

NCL is seeking coverage for all activities associated with operating its vessels, including but not limited to the Pride of America, in Hawaiian waters. These activities include, but are not limited to the following: general operation of the ship, port layovers, as well as all physical vessel maintenance activities. The Pride of America has a full complement of lights that one would expect on a cruise ship of this size, operating in US waters. Other vessels would have similar lighting.

The Pride of America is a U.S. flagged cruise vessel. The ship displaces approximately 81,000 tons, and is 920.6 feet long, 105.6 feet wide at the beam. The 15-deck, cruise vessel can carry 2,146 passengers and a crew of approximately 1,100. The vessel entered Hawaii service in July 2005. The vessel is home ported in Honolulu, and visits all of the main Hawaiian Islands on a weekly basis. Figure 1 illustrates a typical cruise track. Table 1 depicts a typical 2017-2018-cruise itinerary.

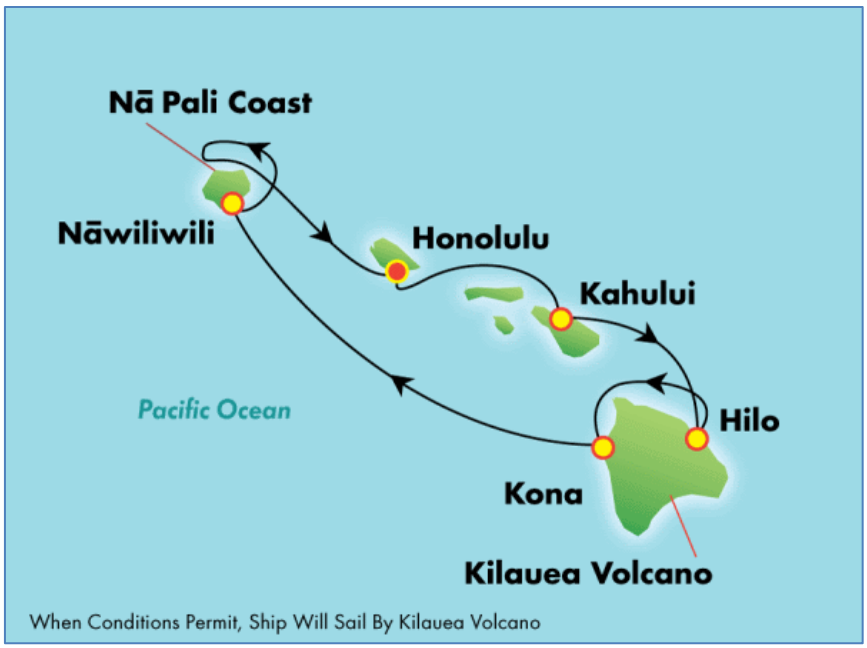


Figure 1- Typical weekly cruise track

DAY	PORT	ARRIVE	DEPART
Sat	Honolulu	-	7:00 PM
Sun Mon	Maui (Kahului)	8:00 AM -	Overnight 6:00 PM
Tue	Hilo	8:00 AM	6:00 PM
Wed	Kona	7:00 AM	5:30 PM
Thu Fri	Kauai	10:00 AM -	Overnight 2:00 PM
Sat	Honolulu	7:00 AM	-

Figure 2 – Typical cruise schedule 2018

On board ship lighting that may potentially attract seabirds include lights that are on exterior locations on decks, as well as in-cabin lighting that may be visible when curtains are not closed. In the following table exterior lighting and any other lights that may pose a risk to seabirds are identified by deck and type (Table 1). Exterior globe lights and half-moon lights were changed to emit a low blue light. Seabird season lighting protocols that include the turning off and in some instances the dimming of certain lights avoid and minimize potential lighting impacts to the maximum extent currently practicable during the fledgling fallout season are discussed under Item 7.

Table 1. Exterior Ship Lighting Inventory

Exterior Ship Lighting Inventory					
Location	Description	#	# Bulbs	Wattage	Part # or description
6	Mooring Deck - Fwd.	25	2	40	4009
6	Open Deck Promenade Evacuation Deck	146	2	32	4043
7	Lifeboats Prep. Area PS + SB	52	2	32	4024
7	Crew Sun Deck	12	1	17	4020
6	Lifeboats Floodlight Overboard	15	1	500	4062
6	Lifeboats Floodlight Overboard	15	1	500	4062
11	Spotlight Showers	2	1	50	4272
12	Pool Aft. - Sun & Passenger Deck	85	1	13	4259
13	Ships Name	2	20	32	
13	Bar & Sports Area Deck Aft.	52	1	13	4259
		24	2	32	4043
		6	2	60	4267
13	Open & Viewing Deck Fwd.	54	1	13	4259
		14	1	50	4265
14	Open Deck Area Aft.	34	2	32	4043
		9	2	17	4044
		13	1	13	4259
14	Open Deck Area Fwd.	52	1	13	4259
15	Funnel Light NCLA Logo	2	20	32	
15	Helicopter Pick Up Area	8	1	500	4062
		26	1	13	4259
12-15+	Festival Light Aft. (String Lights)	1	67	25	60m. Length
15+	Festival Light Midship. (String Lights)	1	106	25	40.5m. Length
12-15+	Festival Light Fwd. (String Lights)	1	44	25	31.5m. Length

Table 2: Green Sea Turtle Assessment for the Site & Facility

Please provide the information requested below to help determine if measures to avoid impacts to the Green Sea Turtle(s) from the effects of light attraction are required to be implemented at any of the facility(s), parcel(s), or site(s) included in this PIP. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the Green Sea Turtle, and provide further guidance.		
Are any of the facilities located adjacent to a beach?	**Yes /NO**	**If yes, provide length of beach frontage & brief description of facilities & lights adjacent to the beach**
Are any of the Covered Activities (lights) visible from a beach?	**Yes / NO**	**If yes, describe the specific lights (type, , height, purpose) & specific location; provide map & photos showing distance from beach**
Have green sea turtles been known to nest on any beaches adjacent to the facilities?	**Yes / NO**	**If yes, provide information about nesting occurrences, if known, including location and date and any other information**

Item 4. If applicable, describe any lighting standards (e.g., foot candles/area) required for facility operations or other requirements that necessitate the use of lighting (e.g., required for security, safety, operations). Describe the relevant standard, or regulation, and the areas and Covered Activities at the site (e.g., type of lighting) to which it applies.

During the fledgling season NCL will avoid and minimize potential lighting related impacts to seabirds to the maximum extent practicable by implementing seabird friendly lighting protocols as allowed under the required industry and regulatory standards and protocols under which they operate a US flagged ship in U. S. waters.

Lighting standards and protocols for passenger vessels operating in U. S. waters fall under the jurisdiction of the United States Coast Guard, US Department of Homeland Security. Specific regulations covering lighting and security are contained in 33 CFR §104.100 et seq. 33 CFR §104.285 governs security measures and states in pertinent part:

> "(a) General. (1) The vessel owner or operator must ensure the implementation of security measures and have the capability to continuously monitor, through a combination of lighting, watchkeepers, security guards, deck watches, waterborne patrols, automatic intrusion-detection devices, or surveillance equipment, as specified in their approved Vessel Security Plan (VSP)…" (Emphasis added.)

The federal regulations also address different Maritime Security (MARSEC) threat levels, and the required lighting measures that may be required by the United States Coast Guard at each escalating security threat level.

> "(b) MARSEC Level 1. The vessel owner or operator must ensure the implementation of security measures, which may be done in coordination with a facility, to: …..
>
> (5) Light deck and vessel access points during the period between sunset and sunrise and periods of limited visibility sufficiently to allow visual identification of persons seeking access to the vessel; and
>
> (6) Use maximum available lighting while underway, during the period between sunset and sunrise, consistent with safety and international regulations……"

Under MARSEC level 2, the regulations state:

> "(c) MARSEC Level 2. In addition to the security measures required for MARSEC Level 1 in this section, at MARSEC Level 2, the vessel owner or operator must also ensure the implementation of additional security measures, as specified for MARSEC Level 2 in the approved VSP. These additional security measures may include:
>
> (2) Increasing the coverage and intensity of lighting, alone or in coordination with the facility;
>
> (3) Using or increasing the use of security and surveillance equipment……."

Under MARSEC Level 3, the regulations state:

> "(d) MARSEC Level 3. In addition to the security measures for MARSEC Level 1 and MARSEC Level 2, at MARSEC Level 3, the vessel owner or operator must ensure the implementation of additional security measures, as specified for MARSEC Level 3 in the approved VSP. These additional security measures may include:
>
> (2) Switching on all lights;
>
> (3) Illuminating the vicinity of the vessel…."

(USCG–2003–14749, 68 FR 39302, July 1, 2003, as amended, 68 FR 60514, Oct. 22, 2003). 33 CFR §104.285 is attached as Appendix A.

Additionally, the International Convention for Safety of Life at Sea (SOLAS) requires that emergency escape and assembling areas to be "well lit," although no specific lux levels are given. SOLAS further requires that all emergency lighting, escape routes, deck lifeboat areas and assembling areas, will be inspected and approved by the United States Coast Guard.

Item 5. Describe any plans/proposals for future facilities or expansion of existing facilities. Include any proposed structures and lighting by type, purpose, and location. Plans (architecture and site plans), photos, and drawings can be attached.

Not applicable at this time

Item 6. Pursuant to the Endangered Species Act (ESA), Section 10 (a)(2)(A)(iii), describe alternatives to <u>avoid</u> the taking considered and evaluated. Provide reasons why those alternatives are not being utilized. Alternatives can include operational or facility design changes (attach pages as needed). The tables below may be altered as needed.

Activities that NCL has direct control over that may result in covered species landing on the vessel are restricted to those associated with lighting. Other programs that the NCL implements that result in benefits to seabirds include, but are not limited to, increased staff training, guest outreach, and monitoring and rapid recovery of downed seabirds. NCL has addressed all of these issues to the maximum extent practicable. Light avoidance and minimization measures considered are presented in Table 3. Those measures and protocols implemented are detailed in the following sections of the application.

Table 3: Light Attraction Alternatives to the Taking

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives are not Being Utilized (provide justification)
▪ Deactivate all outdoor artificial lights from dusk to dawn during the fledgling fall-out season September 15 to December 15	U.S. Coast Guard regulations do not permit ships to be dark at night
▪ Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daylight hours)	U.S. Coast Guard regulations do not permit, SOLAS does not allow, crew and passenger safety and safety does not allow
▪ Shield all lights from visibility from the beach, or screen all Green Sea Turtle nests, from May 15 to December 15 to avoid impacting the green sea turtle (Green Sea Turtle)	Not Applicable
▪ Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered	Not Applicable

Item 7. Describe all site-specific seabird minimization measures considered for the Covered Activities. This item should follow KSHCP minimization objectives and measures as specified in *Appendix E (Guidelines for Adjusting Lighting at Facilities)* of the KSHCP document. Please consult with staff from the DOFAW and the USFWS as needed. The suggested tables below can be altered as needed.

> Minimization measures modify the Covered Activities to reduce the effects of the activity on the Covered Species. KSHCP Participants will be required to implement minimization measures that apply to the facility to the "maximum extent practicable" per applicable state and federal laws which regulate incidental take license/permit issuance by the DLNR and the USFWS.
>
> Minimization also entails searching and recovering grounded seabirds to minimize the chance of mortality. In addition, the presence of on-site predators (i.e. feral cats, dogs) should be controlled and removed because these animals can prey on grounded seabirds.
>
> Provide justification, such as policies, regulations, or other rationale for measures that will not be implemented.

In 2007 a lighting review was conducted of the Pride of America by NCL's seabird consultant and NCL's Manager of Environmental & Regulatory Compliance. The purpose of the review was to determine which lights needed to be redirected, repositioned or turned off during the seabird season to reduce the potential that they would attract seabirds to the vessel, consistent with applicable federal regulations as noted above. These specific lighting protocols are presented in Table 4.

Table 4 details all of the lights that may pose an attractive risk to nocturnally flying seabirds including the number of fixtures, number of bulbs, wattage of each bulb, and the circuit breaker that controls each lighting circuit. Additionally, Table 1 provides the part number for each of the identified lighting fixtures. The manufacturer's product descriptions for each part are included in Appendix B. A PowerPoint presentation that illustrates the vessels deck plan, and presents photographs of all of the lighting fixtures turned off during the annual seabird fallout season is included in Appendix C.

The ship's environmental officer is responsible for ensuring that all of the lights detailed in Table 4 that need to be turned off during the seabird fallout season are in fact turned off. The particular circuit breakers than need to be turned off are identified in Table 4.

To calculate the reduction in illumination that the seabird fallout season light attraction and minimization plan provides, we multiplied the number of bulbs by the wattage of each bulb to arrive at a gross lighting wattage. The ships regular exterior lighting uses 53,369 watts of electricity. Deducting the wattage reduced by turning off the lights detailed in Table 4 during the seabird fallout season, which is calculated as 36,182 watts, represents a 68 percent reduction of light achieved by the avoidance and minimization plan. Since that retrofit additional lighting

minimization measures have been implemented including replacing all of the top side pool and stanchion lights with blue bulbs or blue coated bulb globes further reducing the amount of light output on the vessel.

The foregoing A&M measures have already been implemented, and costs associated with implementing these measures have already been incurred.

During the fledging season the following ship lighting is turned off, or left on.

Table 4. Light Attraction Avoidance & Minimization Plan

Exterior Lights Not Illuminated During the Shearwater Fledging Season					
Location	Description	#	# Bulbs	Wattage	Switch
6	Mooring Deck – Fwd.	25	2	40	S2
7	Lifeboats Prep. Area PS + SB	52	2	32	S4
7	Crew Sun Deck	12	1	17	S4F
6	Lifeboats Floodlight Overboard	15	1	500	S5-PS
6	Lifeboats Floodlight Overboard	15	1	500	S6-SB
13	Ships Name	2	20	32	S10
14	Open Deck Area Aft.	34	2	32	S12
		9	2	17	
		13	1	13	
14	Open Deck Area Fwd.	52	1	13	S13
15	Funnel Light NCLA Logo	2	20	32	S14
15	Helicopter Pick Up Area	8	1	500	S15
		26	1	13	
12-15+	Festival Light Aft. (String Lights)	1	67	25	S16
15+	Festival Light Midship. (String Lights)	1	106	25	S17
12-15+	Festival Light Fwd. (String Lights)	1	44	25	S18
Exterior Lights Illuminated During the Shearwater Fledging Season					
6	Open Deck Promenade Evacuation Deck	146	2	32	S3
11	Spotlight Showers	2	1	50	S7
12	Pool Aft. - Sun & Passenger Deck	85	1	13	S8
13	Bar & Sports Area Deck Aft.	52	1	13	S9
		24	1	32	
		6	2	60	
13	Open & Viewing Deck Fwd.	54	1	13	S11
14		14	1	50	

Table 5: Seabird Light Attraction Minimization Measures Considered

Minimization Measures Considered	Feasible? (Y / N)	If not Feasible to Implement Measures, Provide Reason
▪ **Change time of light use (lights off earlier)**	**Yes /NO**	Not practicable aboard a moving vessel due to safety and security concerns
▪ **Deactivate unnecessary lights**	**YES / No**	This has been done to the extent that the US Coast Guard and SOLAS regulations allow
▪ **Replace all outdoor lights with full cut-off fixtures**	**YES / No**	This has been done to the extent that the US Coast Guard and SOLAS regulations allow
▪ **Shield all outdoor lights with full cut-off shields**	**YES / No**	This has been done to the extent that the US Coast Guard and SOLAS regulations allow
▪ **Angle all lights downward**	**YES / No**	This has been done to the extent that the US Coast Guard and SOLAS regulations allow
▪ **Lower intensity (lumens) of outdoor lights**	**YES / No**	This has been done extensively in all outdoor areas on board the vessel
▪ **Change bulb color to non-white spectrum**	**YES / No**	This has been done extensively in all outdoor areas on board the vessel. Most of the exterior lights on the upper decks and around the pool have been changed to blue bulbs or blue coated lamp covers
▪ **Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers**	**YES / No**	Not applicable on an ocean-going ship
▪ **Provide Worker Seabird Awareness Training to staff**	**YES / No**	All crewmembers are required to complete Seabird Awareness Training prior to their assumption of duties on each tour of duty
▪ **Provide outreach materials to staff & guests**	**YES / No**	During the seabird season printed outreach material is placed in every cabin and is posted in all crewmember areas of the vessel
▪ **Host Save Our Shearwaters (SOS) Aid Station**	**Yes / NO**	Not applicable on an ocean-going ship – there is a SOS Aid Station at the harbor where any downed birds are placed

Item 8. <u>Minimization Plans</u>. Provide a plan to minimize the effects to the Covered Seabirds due to the Covered Activities. KSHCP Participants will be required to minimize the effects of the Covered Activities to the "maximum extent practicable" per applicable state and federal laws which regulate take license/permit issuance. The KSHCP document provides minimization objectives and measures to follow.

The Minimization Plans should include the proposed minimization measures, timeline, and estimated cost for each facility. In this item, the Participant can include measures already completed or in place (new lights, shields, operational changes). Timeline should include estimated completion schedule, and annual schedule for minimization that will occur only during fledging season.

Minimization measures not yet determined but anticipated to occur at the facility; this section should include an estimated cost that will be earmarked for future minimization measures.

If applicable, the participant must provide the reasoning why certain measures will not be implemented. The suggested table below may each be altered to best describe the Minimization Plan. Attach additional pages, photos, and drawings as needed.

The lights that were modified on the ship were identified by conducting annual surveys of the ship with the NCL biologist, accompanied by the Director of Environmental Compliance from the Florida home office, along with the on-board environmental officer. These surveys are repeated every year prior to the onset of the seabird season typical on Kauai, and typically during August. Any needed modifications to the lighting regime are identified by the biologist prior to the season, and implemented prior to September 1 each year. The NCL biologist routinely conducts site visits of the ship when it is moored in Kauai during the seabird season to ensure that all of the in-season lighting minimization measures are being complied with. Please also see items 6 and 7 above and 9 below.

Table 6: Lighting Minimization Measures

List of Buildings	Minimization Measures	Cost to Implement	Responsible Staff	Timeline

Table 7: Seabird Mortality Minimization Plan

Minimization Measures	Describe minimization method (e.g. trapping, outreach, enact policy)	Cost to Implement	Responsible Staff
Remove & control loose predatory animals at the facility. (Loose animals can kill grounded seabirds and this measure aims to prevent seabird mortality by animals.)	Not applicable on a seagoing vessel	N/A	N/A
Prohibit outdoor feeding of predatory animals. (feeding animals attracts them to the site and this measure aims to reduce the presence of animals that can cause seabird mortality.)	Not applicable on a seagoing vessel	N/A	N/A
Conduct nightly/morning searches to recover downed birds at the property & turn them into SOS following protocols (see monitoring plan below).	See Table 8 and Item 9 below	N/A	Environmental officer and all crewmembers
Train staff to follow minimization measures.	See item 11 below	N/A	Environmental officer

Item 9. Take Monitoring Plan. Provide a plan to monitor take of the Covered Seabirds at the facilities proposed to be covered by the incidental take permit/license. The take monitoring plan describes how the property will be searched for downed Covered Seabirds. The KSHCP document provides standards and guidelines for take monitoring to ensure that take of the species is accurately measured and recorded.

The regulatory agencies will make the final determination as to the adequacy of the take monitoring plan.

The onboard Environmental Officer is responsible for overseeing the seabird protocols, bird searches and recovery, record keeping, and interaction with the Save our Shearwater Program (SOS) on Kaua‘i and with biologists from the State Department of Land and Natural Resources, Division of Forestry and Wildlife on O‘ahu, Maui and Hawai‘i. All crewmembers are responsible for searching their respective duty stations for downed seabirds on a daily basis. Seabird monitoring covers 100 percent of the ship that is accessible to crew members and passengers. A copy of the current seabird protocols is attached as Appendix E.

The Environmental Officer maintains a log of all seabirds recovered on the vessel. A typical log is attached as Appendix F. The Environmental Officer is also responsible for ensuring that photographs are taken of every bird recovered on the ship, and is also required to transmit copies of the photographs and updated log sheet to both the NCL America Manager of Environmental & Regulatory Compliance, and NCL’s seabird consultant on a weekly basis for review. Current seabird photography guidelines are attached as Appendix G.

As in previous years, a lighting review will be conducted by NCL’s seabird consultant and the onboard Environmental Officer prior to the start of the seabird season to determine if additional changes need to be made to the seabird lighting protocols. Any revised lighting protocols will be added to this document when and if they are deemed necessary. Additionally, NCL’s ISM audit team shall review the light plan and will also audit the seabird policy prior to the start of the seabird fallout season to ensure that all onboard preparations are ready and that the ship is in compliance with NCL’s seabird policy.

Table 8: Covered Seabird Take Monitoring Protocols

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Percentage of the total property that will be searched & the total area to be searched	See above ("Seabird monitoring covers 100 percent of the ship that is accessible to crew members and passengers") and Appendix E.	Search as much area as possible
Frequency of searches (# per day or per week)	Continuous searches through each day (see above)	Twice daily
Time of day of searches	Crewmembers monitor their respective duty stations throughout their shift providing 24/7 coverage every day of the year	2-3 hours after sunset, and within 3 hours after sunrise
Number of searchers per search area	Crewmembers are responsible for searching their respective duty stations. There are approximately 900 crew members	Depends on site conditions and safety considerations and vegetation, nearby hazards/threats
Proposed training	A copy of the current seabird protocols is attached as Appendix E.	Annual training covering seabird identification, seabird handling, response procedures, verified and documented

Item 10. Components of the Green Sea Turtle Minimization and Monitoring Plan (if required). Monitoring and minimization for the Green Sea Turtle is in two parts: A) Monitoring to detect nests and B) Monitoring and minimizing impacts to nests detected.

Part A: Monitoring to detect Green Sea Turtle Nests
Please provide the following information; the table below may be used and altered as needed.

1) Detailed location and description of beaches, including linear distance, at which searching for nests of the green sea turtle will take place. Searches should take place at any beach from which light at the facility can be viewed;

2) Monitoring protocols indicating:
    a) Annual training of searchers;
    b) Frequency of searches;
    c) Conduct active searching (searching the beach width);
    d) Sufficient number of trained searchers to cover the area; and
    e) Record results of search monitoring.

3) All Participants are required to record the results of search efforts. Records should provide:
    a) Evidence (what was seen). Include description and provide photographs
    b) Location on the beach (GPS) and physically mark the location if possible
    c) Date and time of day
    d) Description of surrounding land use (e.g., vacant, or developed), and
    e) Proximity to the facility.

Part B: Monitoring of Identified Green Sea Turtle Nests

Each identified nest of the green sea turtle should be monitored and protected from light attraction. Please provide the following monitoring protocols; the tables below may be used and altered as needed.

1. Light avoidance measure for identified nests (either shield/deactivate lights at the facility or install and maintain a light shield around each identified nest);
2. Frequency of searches;
3. Number of searches monitoring the nests. The number of needed to monitor active nests will depend on number of nests identified and amount of beach needed to be covered;
4. Record the results of nest monitoring. Monitoring should provide:
    a. Evidence of hatchling emergence (description and photos):
    b. Date and time of emergence,
    c. Direction of tracks
    d. Condition of the nest area (e.g., disturbed or not).

Table 9: Green Sea Turtle Monitoring Protocols – Part A: Monitoring to Detect Nests

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Location & description of the beach, or beaches, surveyed and the linear distance of the beach.	N/A	Beach area surveyed should coincide with visibility from the facility with the lights.
Frequency of searches (# per day or per week)	N/A	Weekly during nesting season (typ. May 15 to end of August)
Number of searchers per search area	N/A	Depends on site conditions and safety considerations
Proposed training	N/A	Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee. See **item 9a**.

Table 10: Green Sea Turtle Monitoring Protocols – Part B: Monitoring of Identified Nests & Minimization

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Frequency of checks (# per day or per week)	N/A	Active nests should be monitored every 1-2 days; then daily during expected hatching date
Light avoidance	N/A	If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light.
Number of searchers per search area	N/A	Depends on site conditions and safety considerations

Item 11. Describe the schedule that will be followed to provide training for staff. Training must be provided to those that will conduct and oversee the searches at the facility.

The training should include:

1. Summary of regulations protecting the Covered Species;
2. Search procedures, route, frequency and timing specific to the facility's monitoring plan, for seabirds and green sea turtle nests (if applicable);
3. Response procedures including safe and proper techniques for handling seabirds;
4. Recognizing evidence of green sea turtle nests, proper nest light screening, and hatchling activity (if green sea turtle minimization and monitoring plan is applicable);
5. Procedures to document the results of searches;
6. Downed wildlife agency contacts; and
7. Nearest SOS aid station.

Rescuing Downed Seabirds—Standard Operating Procedures (SOP)

The following steps provide the procedure for recovering downed seabirds found:

1. Take the seabird recovery kit and pet carrier to the downed seabird.
2. Put on gloves.
3. Using towel to gently cover the bird, pick up the seabird.
4. Place the seabird in the pet carrier, and close the pet carrier.
5. Put the gloves and towel back in the seabird rescue kit.
6. Take the bird and pet carrier to an SOS Aid Station.
7. Transfer the bird to the Aid Station's pet carrier.
8. Call SOS at 632-0610 or 635-5117.
9. Return the seabird rescue kit and pet carrier.
10. Complete the Bird Take Field Report.
11. Give the completed "Bird Take Field Report" to the General Manager, or other responsible staff person at the facility.

Contents of Seabird Recovery Kit

1. Latex or nitrile gloves;
2. Three towels;
3. Hand sanitizer;
4. Flashlight or headlamp;
5. Clipboard, pen and blank "Bird Take Field Reports", or similar; and
6. Pet carrier –medium sized. If a box is used it must be well ventilated and marked conspicuously "LIVE ANIMAL".

Seabird Awareness Training

A seabird awareness training program is conducted for all crewmembers from the Captain down to the cabin stewards once a year just prior to the start of the seabird seasons. If crew members join the ship for their tour of duty during the seabird season, they are given the seabird awareness training prior to them being allowed to take up their duty station. It is an employment requirement that all employees undergo the training program once a year, or at the start of their tour of duty. The Seabird Awareness Training Program is an integrated part of the NCL Safety and Environmental Management System, which in practice means that Seabird Awareness Training is as considered as important as firefighting, oil spill response or lifeboat training.

Synopsis of the NCLA/NCL Onboard Seabird Awareness Training Program:

The PowerPoint presentation attached as Appendix D includes slides detailing and defining seabird light attraction issues. It also contains slides identifying:

- Agency and Seabird Program Contacts
- Slides illustrating both threatened and endangered seabird species as well as the more commonly occurring species protected under the federal MBTA.
- Regulatory framework, both federal and state
- Definitions of "take"
- Penalties for non-compliance
- Seabird season lighting rules and protocols
- Seabird handling procedures and protocols

The training module is revised each year prior to the start of the seabird season incorporating any needed changes to the program identified during the previous season's activities. Copies of the current version of the PowerPoint slides used in this training program are provided in Appendix D, additionally, NCL's seabird consultant re-trains the onboard Environmental Officer just prior to the start of the seabird season each year.

Item 12. Describe any outreach conducted (e.g., handing out pamphlets on seabird awareness to facility employees or guests,):

Guest Outreach

During the seabird season, The Pride of America provides information on seabirds, and seabird protocols to its passengers in the "Free Style Daily," the ship's onboard daily newspaper. Typical seabird information provided to guests in the Free Style Daily is attached as Appendix H. The ship's hotel staff closes cabin draperies each afternoon as part of the turn-down service (NCL Housekeeping Policy (HK), 03.28 and HD .03.80 11/30/2006 and 11/2009 respectively). Additionally, when cabins are cleaned, draperies are also closed. Passengers are requested to keep their draperies closed as part of the ship's green initiative and to conserve natural resources.

PART 2. Take Estimate, Requested Amount of Take Authorization, and Funding

Item 1. Show the calculation of estimated take for each of the Covered Species.

> **Following the take estimation methods in the KSHCP for estimating a Participant's take, the tables and charts below show the take estimate calculation for the facility for each of the Covered Seabirds.**
>
> **The KSHCP take estimate method utilizes the average of the most recent 5 years of SOS recovery data for the facility. Applied to the data is an adjustment for downed birds not found, assumed at 50 percent.**
>
> **If the landowner-applicant submits a take estimate with an alternate discovery rate, they must provide the reasons why an alternate rate was used to estimate take, including relevant information supporting their reasoning.**

We have used the numbers generating by the SOS program, and verified through our own database to determine take. Technical consultation with USFWS from 2016 through 2018, including a site visit to the vessel, resulted in a determination by USFWS that a 100% searcher efficiency rate is appropriate for this PIP. Since every deck of the ship is walked constantly 24/7 365 days a year, and even a cigarette butt is found rapidly. Not to mention that we have a crew of approximately 960 on board at any given time, and usually over 1000 passengers in what ultimately is a confined and limiting space. All crewmembers are required to search their duty stations while they are on shift. In further support of the 100% searcher efficiency rate, there virtually is no location on the ship that multiple people do not visit multiple times a day – there really are almost no places for a fallout bird to hide that would escape detection in short order.

It is unlikely that birds fly into the side of the vessel underway as the vessel is travelling at anywhere between 5 and 12 knots an hour, even at these speeds the vessel creates both an in water pressure wave that marine mammals such as porpoises and dolphins love to ride – as well as an air pressure wave as the vessel cuts through the air. Seabirds often play with this pressure waves, and one of the best places to see seabirds is by riding on a vessel at sea – these seabirds fly at anywhere between 10 and 45 knots an hour and are designed to use the air pressure differential caused by wave action and anything else moving through the environment.

Table 11: Annual Lethal Take Estimate Calculation[i]

		Newell's Shearwater	Hawaiian Petrel	Band-rumped Storm-Petrel
1.	Avg. from SOS data–or—monitoring data (5 most recent yrs. = 2012-2016)	0	_	_
2.	Avg. from SOS data–or—monitoring data (15 most recent yrs. =2002-2016)	_	0.07	0.13
3.	Avg. lethal take estimate – SOS DATA	0	0.01	0.02
4.	Adjustment for unobserved take (0% not searchable vs 50% typical)	0	0.00	0.00
5.	Total annual lethal take from light attraction	0	0.01	0.02
6.	Requested Annual Take	(1 every year)	0.2 (1 every five years)	0.2 (1 every five years)
7.	Requested Take Over Permit Term	30	6	6[i]

[i] Title of table revised per email from K. Cullison on 4/10/20.

Item 2. Select the requested take authorization and permit/license term coverage for each of the Covered Species.

Table 12: Newell's Shearwater:

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or sub-adults	Take Limit for License/Permit Term
Mortality (Lethal)	0[i]	0	30 (1 every year)[ii]
Injury (Non-lethal)	0.06[iii]	0	30 (1 every year)

[i] This number is repeated from Line 1 of Table 11, above, and should not be added to the number in Table 11.
[ii] This number is NCL's requested take limit, repeated from the last line of Table 11, above, and should not be added to the number in Table 11.
[iii] This number of nonlethal take is derived by using the formula in KSHCP Section 6.2.2.1. As set forth in Section 6.2.2.1, "Lethal Take =100% undiscovered birds + 12% of birds that are discovered and turned into SOS." It follows, then, that nonlethal take is 88% of birds that are discovered and turned into SOS, or 88% of Line 1 of Table 10.

Table 13: Hawaiian Petrel:

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or sub-adults	Take Limit for License/Permit Term
Mortality (Lethal)	0[i]	0	6[ii]
Injury (Non-lethal)	0.11[iii]	0	6

[i] This number is repeated from Line 5 of Table 11, above, and should not be added to the number in Table 11. It is different than NCL's requested annual take for Hawaiian Petrels in Table 11, above, which is 0.2 (1 every five years).
[ii] This number is NCL's requested take limit, repeated from the last line of Table 11, above, and should not be added to the number in Table 11.
[iii] This number of nonlethal take is derived by using the formula in KSHCP Section 6.2.2.1. As set forth in Section 6.2.2.1, "Lethal Take =100% undiscovered birds + 12% of birds that are discovered and turned into SOS." It follows, then, that nonlethal take is 88% of birds that are discovered and turned into SOS, or 88% of Line 1 of Table 10.

Table 14: Band-rumped Storm Petrel:

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or sub-adults	Take Limit for License/Permit Term
Mortality (Lethal)	0[i]	0	6[ii]
Injury (Non-lethal)	0[iii]	0	6

[i] This number is repeated from Line 5 of Table 11, above, and should not be added to the number in Table 11. It is different than NCL's requested annual take for Hawaiian Petrels in Table 11, above, which is 0.2 (1 every five years).
[ii] This number is NCL's requested take limit, repeated from the last line of Table 11, above, and should not be added to the number in Table 11.
[iii] This number of nonlethal take is derived by using the formula in KSHCP Section 6.2.2.1. As set forth in Section 6.2.2.1, "Lethal Take =100% undiscovered birds + 12% of birds that are discovered and turned into SOS." It follows, then, that nonlethal take is 88% of birds that are discovered and turned into SOS, or 88% of Line 1 of Table 10.

Item 3. Funding Assurance. Provide proof of adequate funding (see KSHCP document). All participants must demonstrate requisite funding prior to permit/license approval to ensure that the proposed measures and actions, including monitoring, will be undertaken in accordance with the terms and schedule of the KSHCP.

NCL America currently undertakes all minimization and conducts all monitoring using its existing staff as part of annual operating budget, and will continue to do so through the term of the KSHCP. NCL America will provide financial assurances as required by the KSHCP.

Signature of Participant: _____

Printed Name : Daniel S. Fackas

Date: 5/14/2020

The undersigned affirms that all the information included is true and accurate to the best of the participant's knowledge and that this PIP is voluntarily submitted.

☐ check to waive confidentiality

Contact Us
Call the KSHCP Office at (808) 245-9160 or visit our office at 4272-B Rice Street, Līhu'e HI, 96766. Visit the project website: www.Kauai-seabirdhcp.info We look forward to working with you toward helping Hawai'i 's unique species!

Appendices

Appendix A – 33 CFR §104.285 Navigation and Navigable Waters PART 104—MARITIME SECURITY: VESSELS Subpart B—Vessel Security Requirements § 104.285 Security measures for monitoring.

Appendix B – Manufacturers specification sheets for exterior lighting fixtures

Appendix C – Pride of America seabird lighting protocols showing lighting changes implemented during the seabird season

Appendix D – Crew Seabird Awareness Training Program

Appendix E – Seabird Protocols

Appendix F – Typical Seabird data recovery form

Appendix G – Seabird photography guidelines

Appendix H – Typical seabird information published in the “Free Style Daily” for passengers

Appendix A – 33 CFR §104.285 Navigation and Navigable Waters PART 104—MARITIME SECURITY: VESSELS Subpart B—Vessel Security Requirements § 104.285 Security measures for monitoring.

Title 33: Navigation and Navigable Waters PART 104—MARITIME SECURITY: VESSELS
Subpart B—Vessel Security Requirements

§ 104.285 Security measures for monitoring.

(a) *General.* (1) The vessel owner or operator must ensure the implementation of security measures and have the capability to continuously monitor, through a combination of lighting, watchkeepers, security guards, deck watches, waterborne patrols, automatic intrusion-detection devices, or surveillance equipment, as specified in their approved Vessel Security Plan (VSP), the—

(i) Vessel;

(ii) Restricted areas on board the vessel; and

(iii) Area surrounding the vessel.

(2) The following must be considered when establishing the appropriate level and location of lighting:

(i) Vessel personnel should be able to detect activities on and around the vessel, on both the shore side and the waterside;

(ii) Coverage should facilitate personnel identification at access points;

(iii) Coverage may be provided through coordination with the port or facility; and

(iv) Lighting effects, such as glare, and its impact on safety, navigation, and other security activities.

(b) *Maritime Security (MARSEC) Level 1.* At MARSEC Level 1, the vessel owner or operator must ensure the implementation of security measures, which may be done in coordination with a facility, to:

(1) Monitor the vessel, particularly vessel access points and restricted areas;

(2) Be able to conduct emergency searches of the vessel;

(3) Ensure that equipment or system failures or malfunctions are identified and corrected;

(4) Ensure that any automatic intrusion detection device sets off an audible or visual

alarm, or both, at a location that is continuously attended or monitored;

(5) Light deck and vessel access points during the period between sunset and sunrise and periods of limited visibility sufficiently to allow visual identification of persons seeking access to the vessel; and

(6) Use maximum available lighting while underway, during the period between sunset and sunrise, consistent with safety and international regulations.

(c) *MARSEC Level 2.* In addition to the security measures required for MARSEC Level 1 in this section, at MARSEC Level 2, the vessel owner or operator must also ensure the implementation of additional security measures, as specified for MARSEC Level 2 in the approved VSP. These additional security measures may include:

(1) Increasing the frequency and detail of security patrols;

(2) Increasing the coverage and intensity of lighting, alone or in coordination with the facility;

(3) Using or increasing the use of security and surveillance equipment;

(4) Assigning additional personnel as security lookouts;

(5) Coordinating with boat patrols, when provided; and

(6) Coordinating with shoreside foot or vehicle patrols, when provided.

(d) *MARSEC Level 3.* In addition to the security measures for MARSEC Level 1 and MARSEC Level 2, at MARSEC Level 3, the vessel owner or operator must ensure the implementation of additional security measures, as specified for MARSEC Level 3 in the approved VSP. These additional security measures may include:

(1) Cooperating with responders and facilities;

(2) Switching on all lights;

(3) Illuminating the vicinity of the vessel;

(4) Switching on all surveillance equipment capable of recording activities on, or in the vicinity of, the vessel;

(5) Maximizing the length of time such surveillance equipment can continue to record;

(6) Preparing for underwater inspection of the hull; and

(7) Initiating measures, including the slow revolution of the vessel's propellers, if practicable, to deter underwater access to the hull of the vessel.

[USCG–2003–14749, 68 FR 39302, July 1, 2003, as amended at 68 FR 60514, Oct. 22, 2003]

e-CFR Data is current as of April 30, 2010

Appendix B – Manufacturers specification sheets for exterior lighting fixtures

Part catalogue	Lighting Fixture

SAM Electronics

symbol no.	4009	designation:	Fluor. luminaire 2x32W, WT, SM -brackets
part no.:	271.192 111. TD	stock no.:	
class:			

electrical / light specific data

power supply (V):	2AC 115V - 60 Hz	terminal plug:		part no.:	
connecting cable:	3 x 2,5	cable gland:			

lamp type

	short name:	amount	part no.:	included:	watt:	socket:	beam angle:	light colour
1:	T8	2		☑	32 W	G13		830

☐ incandescent ☐ halogen ☑ fluorescent ☐ compact fluorescent ☐ Neon ☐ LED

required ballast unit

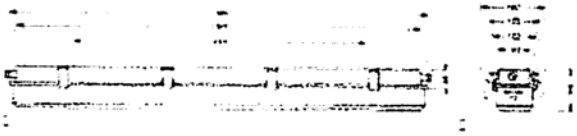
transformer data:		part no.:		inklusiv:	☑
ballast:	electronic	radio interf. Level:	N	dimmable:	☐
lamp cos(ph):	>0,9 to 1	connected load:	72 W		

mechanical design

housing:	steel with outside brackets	finish:	white powder coated
dimensions (mm):	D: 0 H: 128 L: 1334 W: 155	weight (kg):	8,1
protection degree:	IP 66		
install. cut out (mm):	D: 0 L: 0 W: 0	mounting recess (mm):	h: 0
reflector:		dekoring:	
horizontal radiation angle:	0°		
diffuser:	opal polycarbonate	shades:	
vertical radiation angle:	0°		
remark / options:	partly used: Glamox GLI 1018, SAM Store No. 999.100006, Powerlighting Rapid Start Ballast Typ 8G3905W		

accessories / spare parts

1:	Electronic ballast	part no.:		included:	☑
2:	Bulb: T8 -32 G13 / 830	part no.:		included:	☐



Part catalogue	Lighting Fixture

SAM Electronics

symbol no:	4020	designation:	Fluor. cylindr. luminaire 1x17W, SM, PWT
part no:	271.192 120. TD	stock no:	
class:			

electrical / light specific data

power supply (V):	2AC 115V - 60Hz	terminal plug:		part no:	
connecting cable:	3 x 2,5	cable gland:			

lamp type

	short name:	amount	part no.:	included:	watt:	socket:	beam angle:	light colour
1:	T8	1		☑	17 W	G13		830

☐ incandescent ☐ halogen ☑ fluorescent ☐ compact fluorescent ☐ Neon ☐ LED

required ballast unit

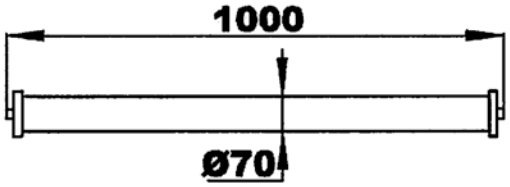
transformer data:		part no.:		inductive:	☐
ballast:	electronic	radio interf. level:	-	dimmable:	☐
lamp cos(phi):	>0,9 to 1	connected load:			

mechanical design

housing:	clear polycarbonate tube	finish:			
dimensions (mm):	D: 70 H: 0 L: 1000 W: 0	weight (kg):		protection degree:	IP 68
install. cutout (mm):	D: 0 L: 0 W: 0	mounting recess (mm):	h: 0		
reflector:		dekoring:		horizontal radiation angle:	0°
diffuser:	clear polycarbonate	shade:		vertical radiation angle:	0°
remark / options:					

accessories / spare parts

1:	Electronic ballast	part no.:		included: ☐
2:	Bulb: T8 -17W G13 / 830	part no.:		included: ☐



Part catalogue	Lighting Fixture

SAM Electronics

symbol no:	4024	designation:	Fluor. luminaire 2x32W, S/S, WT, SM - brac
part no.:	271.192 126. TD	stock no.:	
class:			

electrical / light specific data

power supply (V):	2AC 115V - 60 Hz	terminal plug:		part no.:	
connecting cable:	3 x 2,5	cable gland:			

lamp type

	short name:	amount	part no.:	included:	watt:	socket:	beam angle:	light colour
1:	T8	2		☑	32 W	G13		830

☐ incandescent ☐ halogen ☑ fluorescent ☐ compact fluorescent ☐ Neon ☐ LED

required ballast unit

transformer data:		part no.:		inklusiv:	☑
ballast:	electronic	radio interf. Level:	N	dimmable:	☐
lamp cos (phi):	>0,9 to 1	connected load:			

mechanical design:

housing:	S/S, seemless deep drawn	finish:	white powder coated

dimensions (mm):	D:	0	H:	128	L:	1340	W:	155	weight (kg):	8,1	protection degree: IP 67
install. cut-out (mm):	D:	0	L:	0	W:	0	mounting recess (mm):	h: 0			

reflector:		dekoring:		horizontal radiation angle:	0°
diffuser:	polycarbonate, clear	shade:		vertical radiation angle:	0°

remark / options: Outside junction box

accessories / spare parts

1:	Electronic ballast	part no.:		included:	☐
2:	Bulb: T8 -32W G13 / 830	part no.:		included:	☐

Part catalogue	Lighting Fixture

SAM Electronics

symbol no:	4043	designation:	Fluor. luminaire 2x32W, S/S, WT, SM - bolts
part no:	271.192 533. TD	stock no:	
class:			

electrical / light specific data

power supply (V):	2AC 115V - 60 Hz	terminal plug:		pin no:	
connecting cable:	3 x 2,5	cable gland:			

lamp type

	short name:	amount	part no.:	included:	watt:	socket:	beam angle:	light colour
1:	T8	2		☑	32 W	G13		830

☐ Incandescent ☐ halogen ☑ fluorescent ☐ compact fluorescent ☐ Neon ☐ LED

required ballast unit

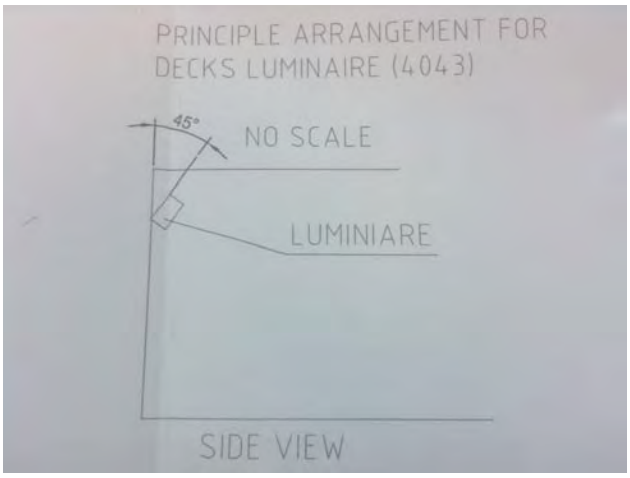
transformer data:		part no.:		inclusiv:	☑
ballast:	electronic	radio interf. Level:	N	dimmable:	☐
lamp cos(phi):	>0,9 to 1	connected load:			

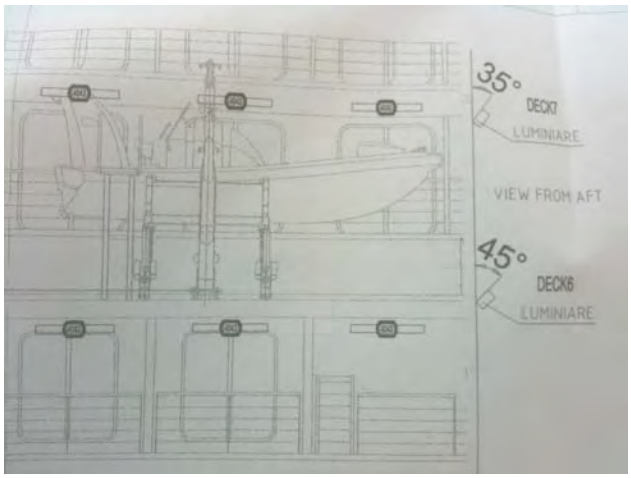
mechanical design:

housing:	S/S, seemless deep drawn	finish:	white powder coated
dimensions (mm):	D: 0 H: 109 L: 1340 W: 155	weight (kg):	8,1
protection degree:	IP 67		
Install. cut out (mm):	D: 0 L: 0 W: 0	mounting recess (mm):	h: 0
reflector:		dekoring:	
horizontal radiation angle:	0°		
diffuser:	polycarbonate, clear	shade:	
vertical radiation angle:	0°		
remark / options:	Outside junction box optional		

accessories / spare parts

1:	Electronic ballast	part no.:		included:	☐
2:	Bulb: T8 -32W G13 / 830	part no.:		included:	☐





Part catalogue	Lighting Fixture

SAM Electronics

symbol no.:	4044	designation:	Fluor. luminaire 2x17W, S/S, WT, SM -bolts
part no.:	271.192 534. TD	stock no.:	
class:			

electrical / light specific data

power supply (V):	2AC 115V - 60 Hz	terminal plug:		part no.:	
connecting cable:	3 x 2,5	cable gland:			

lamp type

	short name:	amount	part no.:	included:	watt:	socket:	beam angle:	light colour
1:	T8	2		☑	17 W	G13		830

☐ incandescent ☐ halogen ☑ fluorescent ☐ compact fluorescent ☐ Neon ☐ LED

required ballast unit

transformer data:		part no.:		inclusiv:	☑
ballast:	electronic	radio interf. Level:	N	dimmable:	☐
lamp cos(phi):	>0,9 to 1	connected load:			

mechanical design

housing:	S/S, seemless deep drawn	finish:	white powder coated

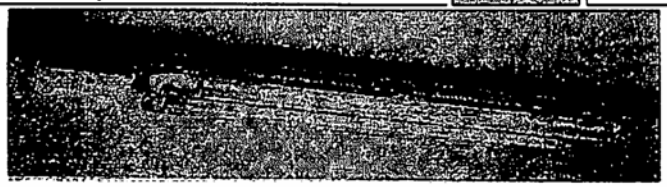
dimensions (mm):	D:	0	H:	128	L:	724	W:	155	weight (kg):	4,1	protection degree: IP 67
Install. Cut out (mm):	D:	0	L:	0	W:	0	mounting recess (mm):		h: 0		

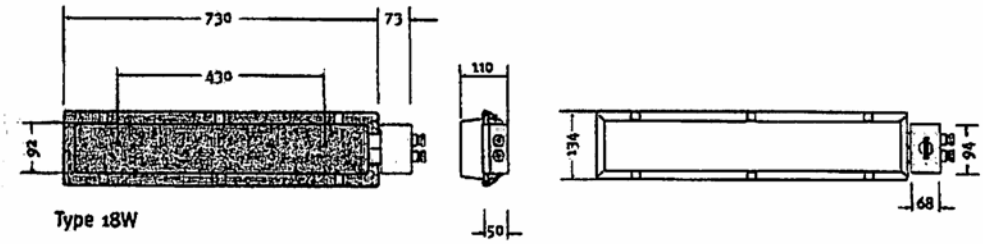
reflector:		dekoring:		horizontal radiation angle:	0°
diffuser:	polycarbonate, clear	shade:		vertical radiation angle:	0°

remark / options: Outside junction box optional

accessories / spare parts

1:	Electronic ballast	part no.:		included:	☐
2:	Bulb: T8 -17W G13 / 830	part no.:		included:	☐





Type 18W

Part catalogue	Lighting Fixture

SAM Electronics

symbol no.:	4062	designation:	Halog. floodlight 1x500 W, SM, WT
part no.:	279.641 231. TD	stock no.:	
class:			

electrical / light specific data

power supply (V):	2AC 115V - 60 Hz	terminal plug:		part no.:	
connecting cable:	3 x 2,5	cable gland:			

lamp type

	short name:	amount	part no.:	included:	watt:	socket:	beam angle:	light colour
1:	QT-DE 11/12	1		☑	500 W	R7s L:114,2		

☐ incandescent ☑ halogen ☐ fluorescent ☐ compact fluorescent ☐ Neon ☐ LED

required ballast unit

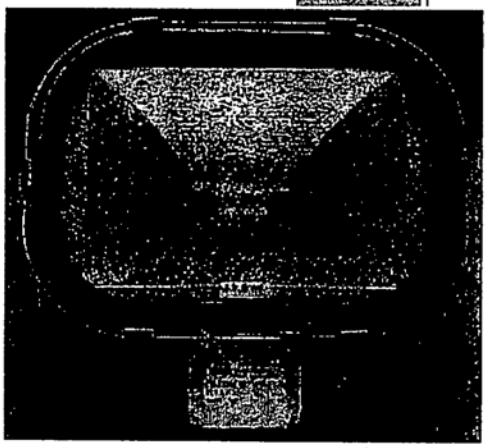
transformer data:		part no.:		inclusiv:	☑
ballast:	n/a	radio interf. level:	-	dimmable:	☐
lamp cos(phi):	>0,9 to 1	connected load:	500 W		

mechanical design

housing:	stainless steel	finish:	white powder caoted
dimensions (mm):	D: 0 H: 305 L: 0 W: 0	weight (kg):	5,5
protection degree:	IP 67		
install. cut-out (mm):	D: 0 L: 0 W: 0	mounting recess (mm):	h: 0
reflector:	wide beam anodized aluinium	dekoring:	
horizontal radiation angle:	0°		
diffuser:	safety glass	shade:	
vertical radiation angle:	0°		
remark/ options:			

accessories / spare parts

1:	Bulb: QT-DE 11/12 -500W -R7s	part no.:	included: ☑



Part catalogue	Lighting Fixture

SAM Electronics

symbol no.	4259	designation:	Fluor. wall lamp 1x13W, S/S, SM
part no.:	271.192 743. TD	stock no.:	
class:			

electrical / light specific data

power supply (V):	2AC 115V - 60 Hz	terminal plug:		part no.:	
connecting cable:	3 x 2,5	cable gland:			

lamp type

	short name:	amount	part no.:	ncluded:	watt:	socket:	beam angle:	light colour
1:	TC-DEL	1		☑	13 W	G24q-1		830

☐ incandescent ☐ halogen ☐ fluorescent ☑ compact fluorescent ☐ Neon ☐ LED

required ballast unit

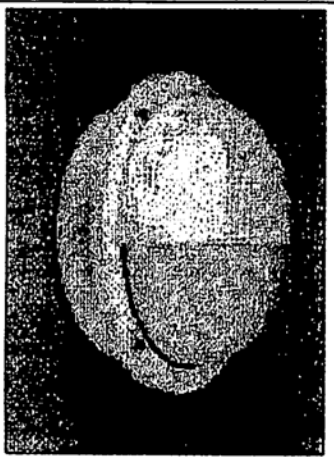
transformer data:		part no.:		mk/usv:	☐
ballast:	electronic	radio interf. Level:	-	dimmable:	☐
lamp cos(phi):	>0,9 to 1	connected load:			

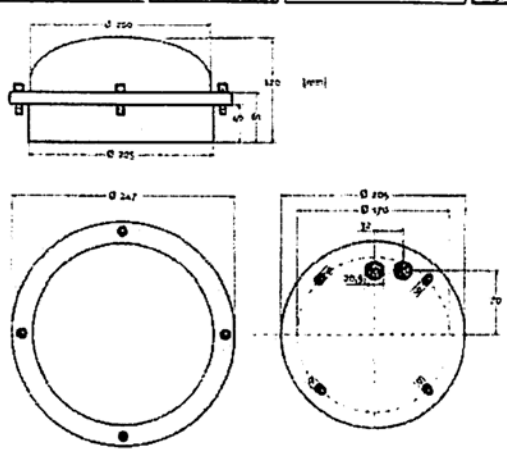
mechanical design:

housing:	stainless steel	finish:	white powder coated
dimensions (mm):	D: 247 H: 105 L: 0 W: 0	weight (kg):	1,8
rotection degree:	IP 67		
Install. Cut out (mm):	D: 0 L: 0 W: 0	mounting recess (mm):	h: 0
reflector:		dekoring:	halve moon white
horizontal radiation angle:	0°		
diffuser:	polycarbonate opal	shade:	
vertical radiation angle:	0°		
remark / options:	provided for public outdoor areas as rail light		

accessories / spare parts

1:	Bulb: TC-DEL -13W G24q-1	part no.:		included:	☐
2:	Deco ring: halve moon white / polyc. Opa	part no.:		included:	☐





Part catalogue	Lighting Fixture

SAM Electronics

symbol no:	4265	designation:	Halog. flood light adj.1x50W/60°, SM
part no.:	271.192 766. TD	stock no.:	
class:			

electrical / light specific data

power supply (V):	2AC 115V - 60 Hz	terminal plug:		part no.:	
connecting cable:	3 x 2,5	cable gland:			

lamp type:

	short name:	amount	part no.:	included:	watt:	socket:	beam angle:	light colour
1:	QT-ax12/c	1		☑	50 W	GY 6,35		

☐ incandescent ☑ halogen ☐ fluorescent ☐ compact fluorescent ☐ Neon ☐ LED

required ballast unit

transformer data:		part no.:		inclusive:	☑
ballast:	electronic	radio insert. level:	-	dimmable:	☑
lamp cos(phi):	>0,9 to 1	connected load:			

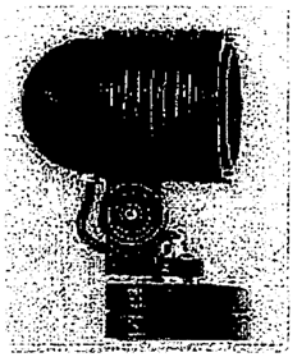
mechanical design

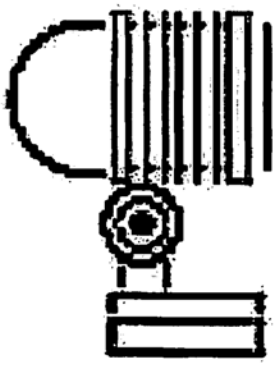
housing:	Aluminium	finish:	white powder coated		
dimensions (mm):	D: 0 H: 0 L: 0 W: 0	weight (kg):	0	protection degree:	IP 67
install. cut-out (mm):	D: 0 L: 0 W: 0	mounting recess (mm):	h: 0		
reflector:	aluminium polished	dekoring:		horizontal radiation angle:	0°
diffuser:	clear glass	shade:		vertical radiation angle:	0°

remark / options: provided for public exterior areas Deck 11 as wall washer

accessories / spare parts

1: Bulb: QTLP-ax12/ c 50W IRC | part no.: | included: ☐





Part catalogue	Lighting Fixture

SAM Electronics

symbol no.:	4267	designation:	Incand. decor. post lamp 2x40W, S/S 300m
part no.:	271.192 739. TD	stock no.:	
class:			

electrical / light specific data

power supply (V):	2AC 115V - 60 Hz	terminal plug:		part no.:	
connecting cable:	3 x 2,5	cable gland:			

lamp type

	short name:	amount	part no.:	included:	watt:	socket:	beam angle:	light colour
1:	A 60 clear	2		☑	40 W	E26		

☑ Incandescent ☐ halogen ☐ fluorescent ☐ compact fluorescent ☐ Neon ☐ LED

required ballast unit

transformer data:		part no.:		HKVSV:	☐
ballast:	n/a	radio interf. level:	-	dimmable:	☑
lamp cos(phi):	>0,9 to 1	connected load:			

mechanical design:

housing:	stainless steel	finish:	white powder coated
dimensions (mm):	D: 0 H: 0 L: 0 W: 0	weight (kg):	0
protection degree:	IP 55		
install. cut-out (mm):	D: 0 L: 0 W: 0	mounting recess (mm):	h: 0
reflector:		dekoring:	
Horizontal radiation angle:	0°		
diffuser:	polycarbonate opal	shade:	
vertical radiation angle:	0°		

remark/options: provided for public exterior area Deck 13 MFZ1, 9 pcs. 2 long arms, Globe dia. 300 mm

accessories / spare parts

1:	Bulb: A60 clear -40W E26	part no.:	included: ☐

Part catalogue	Lighting Fixture

SAM Electronics

symbol no.:	4272	designation:	Halog. flood light adj.1x50W/21°, SM
part no.:	271.192 246. TD	stock no.:	
class:			

electrical / light specific data

power supply (V):	2AC 115V - 60 Hz	terminal plug:		part no.:	
connecting cable:	3 x 2,5	cable gland:			

lamp type

	short name:	amount	part no.:	ncluded:	watt:	socket:	beam angle:	light colour
1	QT-ax12/c	1		☑	50 W	GY 6,35		

☐ incandescent ☑ halogen ☐ fluorescent ☐ compact fluorescent ☐ Neon ☐ LED

required ballast unit

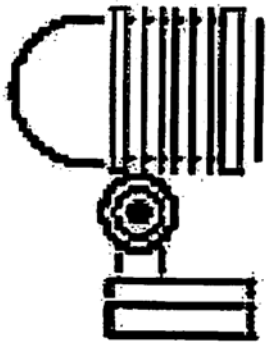
transformer data:		part no.:		inklusiv:	☑
ballast:	electronic	radio interf. level:	-	dimmable:	☑
lamp cos(phi):	>0,9 to 1	connected load:			

mechanical design:

housing:	Aluminium	finish:	white powder coated		
dimensions (mm):	D: 0 H: 0 L: 0 W: 0	weight (kg):	0	rotection degree:	IP 67
Install. Cut out (mm):	D: 0 L: 0 W: 0	mounting recess (mm):	h: 0		
reflector:	aluminium polished	dekoring:		horizontal radiation angle:	0°
diffuser:	clear glass	shade:		vertical radiation angle:	0°
remark / options:	provided for public exterior areas Deck 11 as wall washer				

accessories / spare parts

1	Bulb: QTLP-ax12/ c 50W IRC	part no.:	included: ☐



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Appendix C – Pride of America seabird lighting protocols showing lighting changes implemented during the seabird season

Pride of America

NCL

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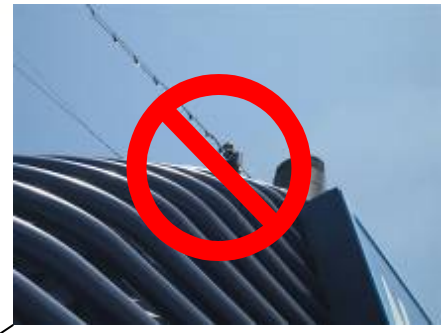
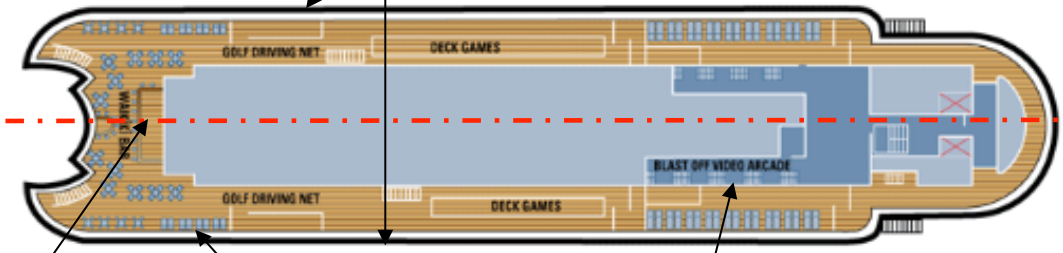
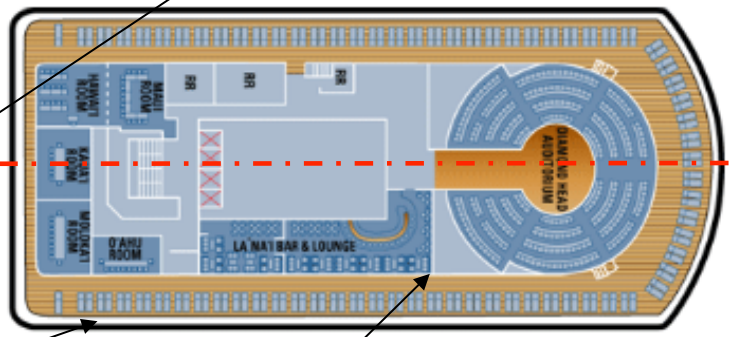
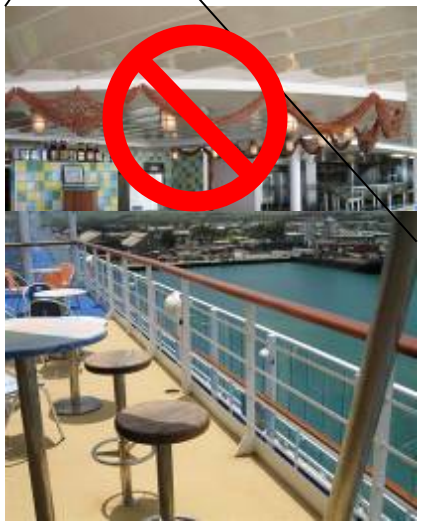
Deck 13









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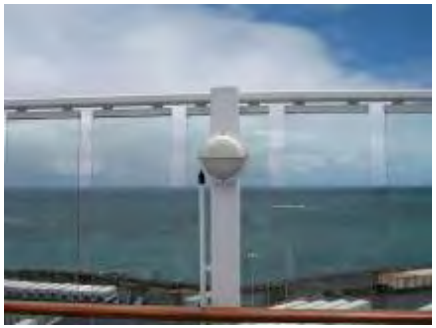
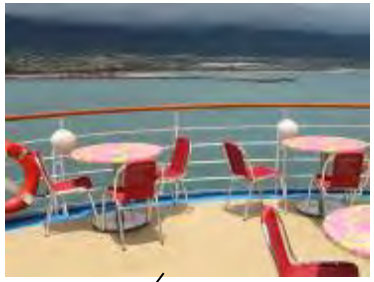
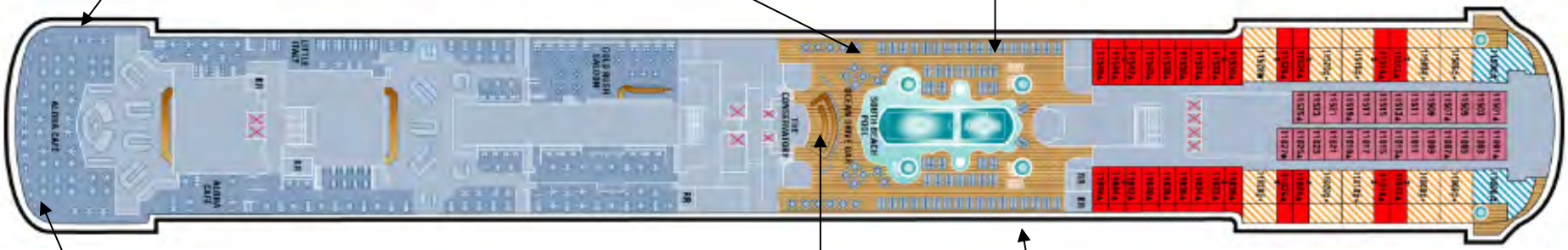
Deck 12

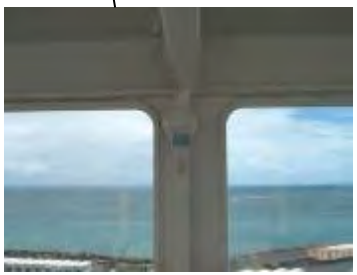


NORWEGIAN CRUISE LINE
FREESTYLE CRUISING



Deck 11





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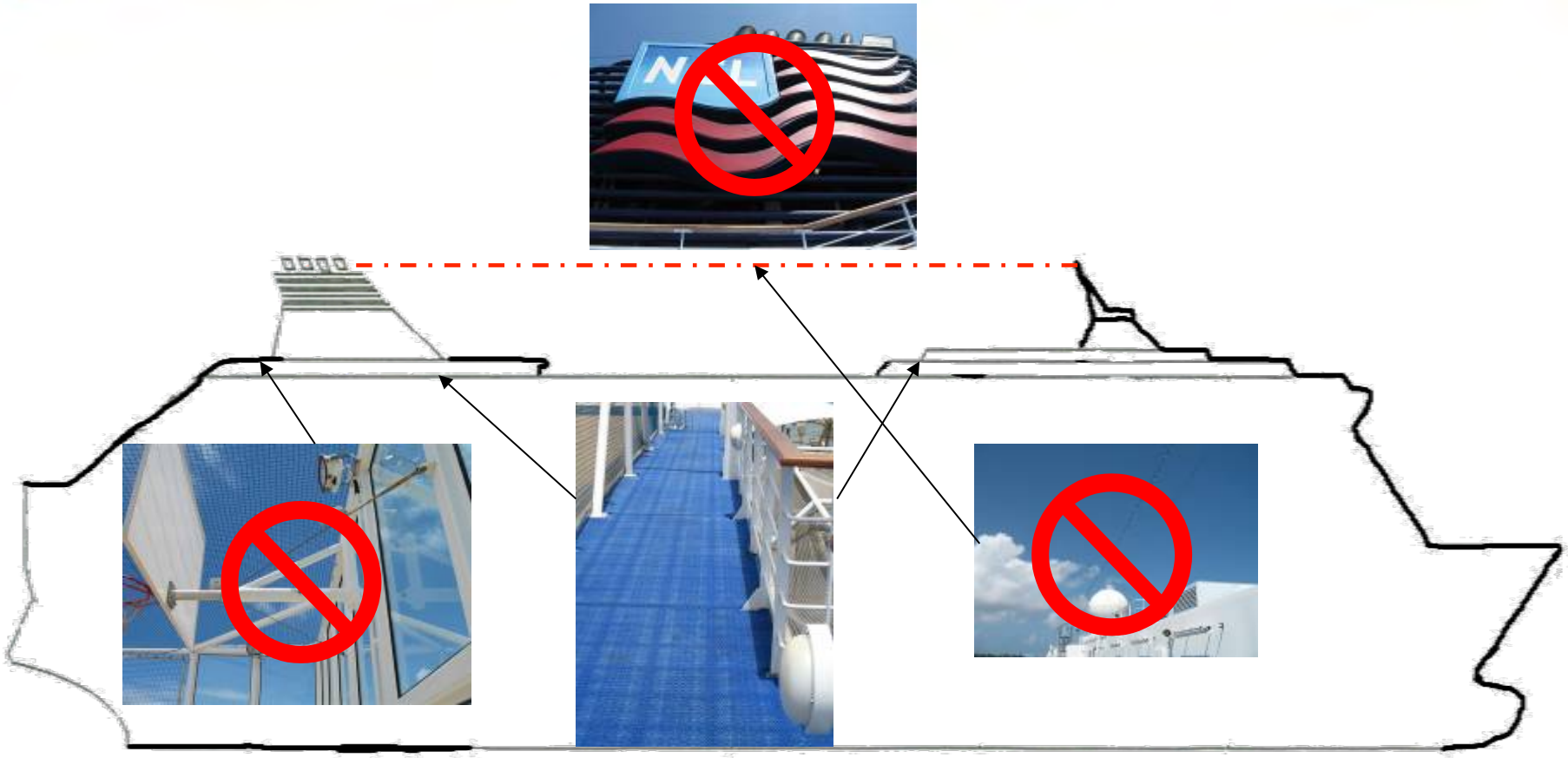
Deck 6

NORWEGIAN CRUISE LINE
FREESTYLE CRUISING



Basket Ball court Deck 14,

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Informing Our Guests

Free Style Daily

From September – December, Hawaii's protected seabirds; fledglings will be taking flight into Open Ocean. As a precautionary measure, the Pride of America will be reducing its lighting on its open decks, to prevent the birds from flying into the vessel and sustaining any injuries. NCL is committed to making every effort to ensure that Hawaii's wildlife and environment are protected and cared for." Should you find an injured bird please call our Reception desk telephone # 0."

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Freestyle Daily

NCL America

Pride of Aloha

Saturday September 1, 2007
Kahului, Maui

Today's forecast	Sunrise	Sunset	Arrival	Departure
20% Showers, 85F	6:09pm	6:48pm	(in port)	9:30pm

Tip of the day

When was the last time you were pampered head-to-toe? Come to the spa and indulge in a "me" time with a relaxing massage that'll melt your cares away. You deserve to feel this good.

Tonight's entertainment

Tonight in the Stardust: Stardust Variety Show

You've laughed at the hilarious comedy of our comedian and you've been impressed by the wonder of our magician now do it all over again when you watch the Stardust Variety Show. Don't miss a minute! **Audio and video recording are prohibited. Please no children in the 1st three rows.**
Time: 7:15pm & 9:00pm, Stardust Theatre, Decks 6 & 7, Aft

Tonight in the Blue Hawai'i: Country Night

Kick up your heels for a boot-scootin' good time. We'll teach you the moves you need. Line dancing instruction begins at 9:30pm, and couples dancing will continue after the activities.
Time: 10:00pm, Blue Hawai'i Bar & Nightclub, Deck 6, Mid

What's on top today

Australian Airbrushed Tattoos Thinking of getting a Tattoo or just want to freak your parents out? Then join us for Airbrushed Tattoos, they look real and last 3-7 Days! We are sure to have a design that will suit you.
Time: 1:00pm-6:00pm, Poolside, Deck 11, Fwd

Poolside Activities Join your Cruise Director's Staff for fun activities such as Poolside Olympics, Water Aerobics and our Mr. Sexy Legs competition. Time Activities Start at 2:30pm, Pool Deck, Deck 11, Mid

TV Theme Song Trivia Test you knowledge of the greatest TV tunes in history! Do you remember the theme to "The A Team" or how about "I Dream of Jeannie?" Well come and prove how much of a couch potato we know you are!
Time: 3:00pm, Pool deck, Deck 11, Fwd

Mr. Sexy Legs Competition Men think you have the best legs on the ship? Come up to the pool deck and put your best foot forward. Ladies are our most judges.
Time: 4:00pm, Pool Side, Deck 11, Fwd

Comment Cards Don't forget to turn your Comment Cards in. Raffle prizes will be given out at 7:00pm tonight. Marking "good" means that we're only doing an average job.
Time: 7:00pm, Reception Desk, Deck 5, Fwd

Krazy Karaoke Do you have a favorite song that you just can't stop singing? Do you find that the best songs are sung at the top of your lungs in front of a crowd? Even if you don't want to sing you can have fun watching others!
Time: 8:00pm-9:15pm
Blue Hawai'i, Deck 6, Mid

HONOLULU, HAWAI'I

You will certainly wish to enjoy all that the island of O'ahu has to offer. It is known for attractions such as Sunset Beach and the North Shore, as well as Waikiki, Pearl Harbor and the capital city of Honolulu.

O'ahu creates a rich blend of cultures including Japanese, Chinese, Vietnamese, Samoan, Tongan, Tahitian, Hawaiian and those from other Pacific Islands. It is a melting pot due mostly to the great influx to the island of workers during the colonial plantation era.

Shoppers will find paradise in downtown Waikiki where designer labels abound in specialty shops bearing the names of Gucci, Prada, Tiffany's, Coach and many more. The Aloha Tower Marketplace, adjacent to [illegible] 10, is another wonderful [illegible] to enjoy an afternoon.

Moored next to the H[illegible] Maritime Center is t[illegible] Falls of Clyde, an [illegible] once operated by [illegible] Navigation Com[illegible] synonymous w[illegible] passenger tra[illegible] Hawaiian Islands for dec[illegible]

Don't miss this!

Specialty Restaurants Join us in one of the three onboard specialty restaurants for our for a dining option with an International flair — 50% off the cover charge after 9:00pm
Kahlua Italian Restaurant – Deck 5, Mid. **Royal Palm Bistro** – Deck 12, Aft.
Pacific Heights – Deck 11, Aft.

Bar Services

Coffee Bar Deck 7, Aft	6:00am-11:00am
Hukilau Lanai Deck 11, Aft	5:30pm-Close
Atrium Bar Deck 7, Fwd	7:00am-Close
Breakers Bar Deck 11, Mid	7:00am-Close
Longboard Sports Bar Deck 11, Aft	9:00am-Close
Hoku Bar Deck 10, Fwd	12:00pm-Close
Plantation Club Deck 12, Aft	12:00pm-9:00pm
Captain Cook's Bar Deck 6, Mid	5:30pm-Close
Blue Hawai'i Bar & Nightclub Deck 6, Mid	5:30pm-Close
Dunkiger Lounge Deck 11, Fwd	7:00pm-Close
Stardust Theatre Decks 6 & 7, Aft	Closed
	7:00pm & 9:30pm

Guest Services

Reception Desk Deck 5, Fwd (aft)	24 Hours
Internet Cafe Deck 7, Aft	24 Hours
Fitness & Aerobics Center Deck 11, Fwd	24 Hours
Shore Excursion Desk Deck 5, Fwd	7:00am-9:00am 6:00pm-8:00pm
Golf Hawai'i Pro Shop Deck 7, Mid	7:00am-12:00pm 2:00pm-9:00pm
Galleria Gift Shop Deck 7, Aft	7:00am-10:30pm
Onboard Credit Desk Deck 5, Fwd	8:00am-11:00am 4:00pm-5:00pm
Mandara Spa & Salon Deck 11, Fwd	8:00am-8:00pm
Medical Center Deck 4, Fwd	8:30am-10:30am 4:00pm-5:00pm
Kids Korner Deck 7, Fwd	9:00am-12:00pm 7:00pm-10:00pm
Photo Gallery Deck 5, Aft	4:00pm-11:00pm
International Hospass Desk Deck 5, Mid (by Captain Cook's Bar)	6:00pm-8:00pm

All about alcohol: If you bought liquor on shore, we'll hold them, as long as they are sealed, for you until the last day of your cruise. If bottles are unsealed when bought and prior to the Bar Start to sail, it will be poured out, due to health code regulations. Pick-up is anytime from 7am to 8am in the Blue Hawaii Nightclub, Deck 6, Mid.
Who can drink: Alcohol consumption is prohibited for guests under the age of 21.
Open flames: Open flames (like burning candles and incense) are not allowed.
Jacuzzis & Pools: Glass & bottles cannot be brought into any of the pools or hot tubs, neither can children in diapers or pull-ups, including "swimmers".
Sharps Containers: If you have any type of needles to drop off, please ask for a special container from the Reception Desk or the Medical Center.
Environmental Hotline
Call 877-501-0876 or E-mail Environmental@ncl.com
All reports are confidential.
The environmental hotline shall be used only to report actual or potential environmental incidents, spills and concerns.

Freestyle Dining

Room Service Dial 6-10, Dial #20	24 hours
Hukilau Lanai, Deck 11, Aft Continental Breakfast	5:30am-6:00am & 10:30am-11:30am
Hukilau Lanai, Deck 11, Aft Breakfast Buffet	6:00am-10:30am
Hukilau Cafe, Deck 11, Aft Breakfast Buffet	6:30am-10:00am
Crossings Main Dining Room, Deck 5, Aft Menu Selections	7:00am-9:30am
Hukilau Cafe, Deck 11, Aft Lunch Buffet	11:30am-2:30pm
Hukilau Lanai, Deck 11, Aft Lunch Buffet	1:30pm-5:30pm
Crossings Main Dining Room, Deck 5, Aft Menu Selections	5:30pm-10:00pm
Palace Main Dining Room, Deck 5, Fwd Menu Selections	5:30pm-8:30pm
Hukilau Cafe, Deck 11, Aft Dinner Buffet	5:30pm-9:00pm
Royal Palm Bistro*, Deck 12, Aft French Cuisine	5:30pm-Close
Kahlua Restaurant*, Deck 5, Mid Italian Cuisine	5:30pm-Close
Pacific Heights*, Deck 11, Aft Asian Fusion	5:30pm-Close
Longboard Sports Bar, Deck 11, Aft Imported Snacks	9:00pm-3:00am

*This star means that these restaurants charge a cover, and for what you get, you'll find it well worth it. For reservations, call 31214 or stop by on Deck 7, Aft.
To maintain the proper ambiance for all guests—the following guidelines have been established—With the exception of the Hukilau Buffet and any other outdoor dining venue, shorts, T-shirts, tank tops, flip flops, bare feet, work-out attire, tank suits, and swim wear are viewed as inappropriate after 6:00pm.
Presentable jeans are allowed in all major dining venues except The Palace Restaurant for all meals periods. Bermuda shorts are appropriate in all outlets after 5:00pm if accompanied by a jacket and knee socks.
Children under 12 years are allowed to wear reasonable shorts and jeans in all dining venues for all meals.
Restaurant Reservations: To ensure each of our guests receives our best service, we can only hold your dinner reservation for 15 minutes. If you need to cancel, please do so by 5 pm on the day of your reservation to avoid having the cover charge for up to two guests applied to your account.

Customer Relations: Got a service problem? We'll do our best to solve it. Call 25.
Walking & Jogging: The Promenade Deck, Deck 6 is a walking/jogging track. The deck is open 24 hours, as a courtesy to your fellow Guests we kindly ask that you do not jog between 9:00pm and 6:00am. Remember, all sports play is at your own risk.
Safety Equipment: Please do not remove or meddle with any safety equipment onboard (such as smoke detectors, sprinkler heads or fire extinguishers). And, please follow safety instructions from the crewmembers.
Vacuum Toilets: Our system is in place to best conserve water and protect our environment. Please do not flush cloth, inside sanitary napkins or plastic, as this will cause blockage to not only your own toilet but up to 50 other toilets and cause vacuum line blockages. Please refrain from place & objects in staterooms & bathrooms.
Smoking Policy: Smoking is permitted on the balcony areas only, designated areas outside on deck 12, staterooms and staterooms designated areas outside on deck 12, staterooms and staterooms.

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Appendix D – Crew Seabird Awareness Training Program

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SEABIRD AWARENESS TRAINING PROGRAM

PURPOSE OF TRAINING

- Several protected species of seabirds have come aboard our ships
- Norwegian is committed to the protection of these species
- Norwegian has specific seabird protocols in place that will be followed
- All crew members need to be familiar with the issues and protocols
- There are significant legal implications if these birds are harmed, or protocols are not followed

OUTLINE

- Agency and Seabird Program Contacts
- Threatened and endangered seabird species
- Regulatory framework: State and Federal
- Definition of “Take”
- Penalties for non-compliance
- Seabird season lighting rules
- Seabird handling procedures & protocols

SEABIRDS

Threatened & Endangered

Hawaiian Petrel

Newell's Shearwater

Band-Rumped Storm Petrel

OTHER SEABIRDS

Wedge-Tailed Shearwater

White-Tailed Tropicbird

Sooty Tern

HAWAIIAN PETREL

‘U’AU

- Listed as Endangered by both U.S. & State of Hawaii
- Breeding populations on Kaua’i, Maui, Lana’i and Hawai‘i
- The Hawaiian Petrel, has a dark gray head, wings, and tail, and a white forehead and belly. It has a stout grayish-black bill that is hooked at the tip,legs are pinkish, with black and pink feet. This bird measures 16-17 inches in length and has a wing span of 35-37inches.

NEWELL'S SHEARWATER

'A'O

- Listed as a threatened species by both the U.S. and State of Hawai'i
- 80% world's population nests on Kaua'i
- Also breeds on Maui, Hawai'i and possibly Moloka'i
- The Newell's Shearwater has an almost black head, upper wings and tail, and is white below. It has a thin narrow bill. Legs and feet are grey/black. Newell's are 12-14-inches long, and has a wingspan of 30-inches

BAND-RUMPED STORM-PETREL

‘AKE’AKE

- Listed as an endangered species State of Hawai‘i
- Breeds on Kaua‘i, Maui, and Hawai‘i
- The Band-rumped Storm-Petrel is a very small, sparrow sized seabird. It is sooty/grey brown, with a white band circling the upper tail. It has a very small stubby beak with prominent tube on the top. Legs, feet and bill are black. They are 7-8 inches long, with a wingspan of 12-16-inches.

LIGHTS, VESSELS & SEABIRDS

- Nocturnally flying seabirds are often attracted to lights
- Fledgling birds on their way to sea for the first time are often attracted to lights, and can be confused by them
- Confused birds may collide with structures, including vessels, or simply land on the ground, or ship to tired to continue flying
- Once on the ground they cannot take off again, and will die from starvation, or be killed by predators if not rescued
- Some seabirds land on vessels naturally and do not need assistance

REGULATORY SETTING

Protected Species

Federal -

The Endangered Species Act of 1973, as amended (ESA)

Migratory Bird Treaty Act (MBTA)

State of Hawai‘i -

Hawaii Revised Statutes (Section 195-D)

IT IS ILLEGAL TO:

“harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” any species listed under any of these statutes

TAKE HOME MESSAGE

- The downing of listed seabirds as a result of interactions with lights and man-made structures may be construed as “take” under the ESA, and/or HRS 195D.
- The minimization and avoidance of “take” to the maximum extent practicable is required under both federal and State of Hawaii endangered species statutes
- Failure to do so may result in enforcement action, which may result in significant civil and criminal penalties
- Penalties include civil fines of up to $25,000 per incident, and criminal fines of up to $50,000, and up to one year federal imprisonment per incident.

SEABIRD SEASON

Lighting Protocols

- Between September 1 and December 15, The Pride of America will implement a light reduction plan (Seabird Seasonal Lighting Plan)
- Vessels will turn off lights identified in that plan while in port
- The reason for the reduced lighting while in port is to minimize the chance that seabirds will be attracted to the lights, become disoriented by them, and then collide with the ship or associated dock facilities

DOWNED SEABIRD

Search Protocols

- We will inspect all open and semi open decks after sunrise and after sunset each day looking for seabirds that have landed
- Downed seabirds often try to hide, make sure to check under any object that a bird might be able to hide under
- All crew members should also be aware of downed seabirds on the vessel, and report any such birds to the Environmental Officer immediately
- (DO NOT touch or approach the bird)
- Passengers should report any downed birds to reception. Reception will forward information of downed seabird immediately to the Environmental Officer.

DOWNED SEABIRD

Handling Protocols

- All downed birds will be collected by the Environmental Officer
- All birds will be handled in accordance with SMS/EOC/P024 – Seabird Protection Policy
- Data and photographs of all downed seabirds will be collected as detailed on SMS/EOC/P024 – Seabird Protection Policy
- All downed birds that do not fly off the ship unaided will be turned over to the appropriate wildlife agency personnel

PARTING MESSAGE

- Norwegian thanks you for your attention to, and assistance with this program
- Norwegian takes pride in our continued efforts to protect our oceans and the islands which we visit
- For further information please contact the Environmental Officer at 8815

SEABIRD PROGRAM CONTACTS

State Dept. Land & Natural Resources
Thomas Kaiakapu - Wildlife Manager
(808) 274-3440

Norwegian – Director, Environmental Operations
Sarah Ferguson-Brown
(305) 436.4349 Sbrown@nclcorp.com

Save Our Shearwaters (SOS)Coordinator
Heather Young (808)-639-3343

Norwegian - Seabird Program Biologist
Reginald David
(808) 329-9141 Cell (808) 937-0124
rdavid@kona.net

NCL NORWEGIAN CRUISE LINE®

Appendix E – Seabird Protocols

Protected Seabirds (Hawaii Specific)

SCOPE – The protection of Seabirds that come aboard our vessels and to ensure the safe return of these Seabirds to their Natural Habitat

Overview:

The Hawaiian Islands have many Seabirds that are protected under federal and State of Hawaii endangered species statutes. NCL has developed the Following procedures as part of our Commitment to the Protection of these Endangered species.

Some of these Seabirds include but are not limited to:
Hawaiian Petrel
Newell's Shearwater
Band-rumped Storm-Petrel

- Nocturnally flying seabirds are often attracted to lights
- Fledgling birds on their way to sea for the first time are often attracted to lights, and can be confused by them
- Confused birds may collide with structures, i.e. vessels, or simply land on the ground, or a ship to tired to continue flying
- Once on the ground they cannot take off again, and will die from starvation, or be killed by predators if not rescued

The Federal - The endangered species act of 1973, as amended (ESA)
Migratory Bird Treaty Act (MBTA)
State of Hawaiʻi -
Hawaii Revised Statutes (Section 195-D)

The downing of listed seabirds as a result of interactions with lights and man-made structures may be construed as "**take**" under the **ESA**, and/or **HRS 195D.**
The minimization and avoidance of "**take**" to the maximum extent practicable is required under both federal and State of Hawaii endangered species statutes.

Procedures:

NCL/NCLA Vessels operating in and around the Islands of Hawaii will during the Shearwater fledging season will reduce its lighting to a maximum extent without endangering the safety or welfare of the Vessel or its passengers and crew.

Crews working on open decks are to inspect their areas of work for "Downed seabirds" paying particular attention to the early morning hours and just prior to sunrise and the late evening hours just after sunset. These birds will try to find hiding places one MUST look under and behind furniture and other objects that may provide good hiding places for injured/scared birds.

Protected Seabirds (Hawaii Specific)

All birds that are located are **NOT** to be handled or threatened in any way; **IMMEDIATE** notification must be made to the Environmental Officer. He/she will, collect the Downed seabird and place into a clean and sanitary "Pet carrier" for safe keeping (In a dark quite location) until arrangements have been completed for handing over of the Seabird to a State of Hawaii Division of Forestry and Wildlife agent, or in the case of Kauai to the Save Our Shearwaters program. When a Seabird is handed over to an appropriate entity, the Environmental Officer must document who collected, and which agency or program collected the bird, or if the bird was left in the ports seabird rescue holding units, as well as who was notified that a bird has been left for collection and the time that said notification was made.

Any Hawaiian Petrel, Newell's Shearwaters or Band-rumped Storm-Petrels that are recovered dead, or die while in the care of the Environmental Officer shall be double bagged in Ziploc style freezer bags with the details of where the bird was found and any log reference numbers, and frozen until the ship docks in Nawiliwili on Kauai. At that time the Environmental Officer shall contact the Save Our Shearwater Program Coordinator, Angie Merritt at (808) 635-5117 for pickup. When in doubt as to the correct identification of the dead seabird handle as if it were one of the three listed species identified above.

Guests are to be informed of the reduction in lighting by means of the Free Style Daily: Example for Freestyle Daily.

"From September – December, Hawaii's protected seabirds; fledglings will be taking flight into the Open Ocean. As a precautionary measure, The Pride of America will be reducing its lighting on its open decks, to prevent the birds from flying into the vessel and sustaining any injuries. NCL is committed to making every effort to ensure that Hawaii's wildlife and environment are protected and cared for." Should you find an injured bird please call our Reception desk telephone # 0.

Reception will upon being notified of a downed Seabird by a guest shall **IMMEDIATELY** notify the Environmental Officer for collection and documentation.

Training:

Per the F541 Training Matrix the E-SHEAR shearwater training shall be conducted for every crew member onboard the vessel and documented in MAPS.
Training shall commence two weeks prior to the Season opening date, and will continue for all crew and Officers joining during the season. The training must be given yearly.

Documentation:

Documenting each and every downed seabird is extremely important, and MUST be clear with precise location descriptions of where the Downed seabird was collected from.

Example: Fig 1

Protected Seabirds (Hawaii Specific)

Date	Reference/Photo Name	Time	Location or Cabin #
091608	091608A	2130hrs	Deck 6 Port Side Fwd Adjacent to Raft Launching station #2
091608	091608B	2145hrs	Deck 11 Aft Lido Portside adjacent to wait station

Documenting the Downed Seabird must include a set of clear Photographs to aid in the identification of it to species. Photographs are to be sent directly to Mgr Environmental and Regulatory Compliance Rwilkinson@ncl.com and NCL's Seabird Program Biologist rdavid@ilhawaii.net

Photographs of the seabirds must to the best extent possible follow the examples provided to the Environmental Officer. Photograph files, must be named in conjunction with the reference on the Log sheet. As per example Fig 1

The Seabird Season Log is to be filled in on a daily basis and submitted weekly to the Manger Environmental and Regulatory Compliance for review.

Reference:
Pride of America Light Reduction Plan.
Seabird Log
Seabird Photography Guidelines
Seabird Rescue Contact List
F541 E-SHEAR Training.

For further information and questions please contact Rwilkinson@ncl.com Manager Environmental and Regulatory Compliance

Appendix F – Typical Seabird data recovery form

EOC/P024/F1

Rev. 00 - 10/21/2015

SEABIRD DATA LOG

Date	Reference	Time	Location or Cabin #	Species	Ship Location Latitude	Ship Location Longitude	Agency or SOS contacted.	Time Contact Made / pickup	Pier-side SOS Aid Station.	Remarks

Appendix G– Seabird photography guidelines

Protected Seabirds (Hawaii Specific)

SCOPE – The protection of Seabirds that come aboard our vessels and to ensure the safe return of these Seabirds to their Natural Habitat

Overview:

The Hawaiian Islands have many Seabirds that are protected under federal and State of Hawaii endangered species statutes. NCL has developed the Following procedures as part of our Commitment to the Protection of these Endangered species.

Some of these Seabirds include but are not limited to:
Hawaiian Petrel
Newell's Shearwater
Band-rumped Storm-Petrel

- Nocturnally flying seabirds are often attracted to lights
- Fledgling birds on their way to sea for the first time are often attracted to lights, and can be confused by them
- Confused birds may collide with structures, i.e. vessels, or simply land on the ground, or a ship to tired to continue flying
- Once on the ground they cannot take off again, and will die from starvation, or be killed by predators if not rescued

The Federal - The endangered species act of 1973, as amended (ESA)
Migratory Bird Treaty Act (MBTA)
State of Hawaiʻi -
Hawaii Revised Statutes (Section 195-D)

The downing of listed seabirds as a result of interactions with lights and man-made structures may be construed as "**take**" under the **ESA**, and/or **HRS 195D.**
The minimization and avoidance of "**take**" to the maximum extent practicable is required under both federal and State of Hawaii endangered species statutes.

Procedures:

NCL/NCLA Vessels operating in and around the Islands of Hawaii will during the Shearwater fledging season will reduce its lighting to a maximum extent without endangering the safety or welfare of the Vessel or its passengers and crew.

Crews working on open decks are to inspect their areas of work for "Downed seabirds" paying particular attention to the early morning hours and just prior to sunrise and the late evening hours just after sunset. These birds will try to find hiding places one MUST look under and behind furniture and other objects that may provide good hiding places for injured/scared birds.

Protected Seabirds (Hawaii Specific)

All birds that are located are **NOT** to be handled or threatened in any way; **IMMEDIATE** notification must be made to the Environmental Officer. He/she will, collect the Downed seabird and place into a clean and sanitary "Pet carrier" for safe keeping (In a dark quite location) until arrangements have been completed for handing over of the Seabird to a State of Hawaii Division of Forestry and Wildlife agent, or in the case of Kauai to the Save Our Shearwaters program. When a Seabird is handed over to an appropriate entity, the Environmental Officer must document who collected, and which agency or program collected the bird, or if the bird was left in the ports seabird rescue holding units, as well as who was notified that a bird has been left for collection and the time that said notification was made.

Any Hawaiian Petrel, Newell's Shearwaters or Band-rumped Storm-Petrels that are recovered dead, or die while in the care of the Environmental Officer shall be double bagged in Ziploc style freezer bags with the details of where the bird was found and any log reference numbers, and frozen until the ship docks in Nawiliwili on Kauai. At that time the Environmental Officer shall contact the Save Our Shearwater Program Coordinator, at (808) 635-5117 for pickup. When in doubt as to the correct identification of the dead seabird handle as if it were one of the three listed species identified above.

Guests are to be informed of the reduction in lighting by means of the Free Style Daily: Example for Freestyle Daily.

"From September – December, Hawaii's protected seabirds; fledglings will be taking flight into the Open Ocean. As a precautionary measure, The Pride of America will be reducing its lighting on its open decks, to prevent the birds from flying into the vessel and sustaining any injuries. NCL is committed to making every effort to ensure that Hawaii's wildlife and environment are protected and cared for." Should you find an injured bird please call our Reception desk telephone # 0.

Reception will upon being notified of a downed Seabird by a guest shall **IMMEDIATELY** notify the Environmental Officer for collection and documentation.

Training:

Per the F541 Training Matrix the E-SHEAR shearwater training shall be conducted for every crew member onboard the vessel and documented in MAPS. Training shall commence two weeks prior to the Season opening date, and will continue for all crew and Officers joining during the season. The training must be given yearly.

Documentation:

Documenting each and every downed seabird is extremely important, and MUST be clear with precise location descriptions of where the Downed seabird was collected from.

Example: Fig 1

Date	Reference	Time	Location or Cabin #
01Feb11	010211	0700	Deck 6 Port side outside Cadillac Diner
02Feb11	010212	0630	Deck 11 Aft Lido portside adjacent wait station

Documenting the Downed Seabird must include a set of clear Photographs to aid in the identification of it to species. Photographs are to be sent directly to Mgr Environmental and Regulatory Compliance sbrown@nclcorp.com and NCL's Seabird Program Biologist davidr003@hawaii.rr.com

Photographs of the seabirds must to the best extent possible follow the examples provided to the Environmental Officer. Photograph files, must be named in conjunction with the reference on the Log sheet. As per example Fig 1

The Seabird Season Log is to be filled in on a daily basis and submitted weekly to the Manger Environmental and Regulatory Compliance for review.

Reference:

Pride of America Light Reduction Plan.

Seabird Log

Seabird Photography Guidelines

Seabird Rescue Contact List

F541 E-SHEAR Training.

For further information and questions please contact sbrown@nclcorp.com Manager Environmental and Regulatory Compliance

Appendix H – Typical seabird information published in the “Free Style Daily for passengers

Informing Our Guests

Free Style Daily

From September – December, Hawaii's protected seabirds; fledglings will be taking flight into Open Ocean. As a precautionary measure, the Pride of America will be reducing its lighting on its open decks, to prevent the birds from flying into the vessel and sustaining any injuries. NCL is committed to making every effort to ensure that Hawaii's wildlife and environment are protected and cared for." Should you find an injured bird please call our Reception desk telephone # 0."

NCL
NORWEGIAN CRUISE LINE
FREESTYLE CRUISING

Freestyle Daily

NCL America

Pride of Aloha

Saturday September 1, 2007
Kahului, Maui

Today's forecast	Sunrise	Sunset	Arrival	Departure
20% Showers, 85F	6:09pm	6:48pm	(in port)	9:30pm

Tip of the day

When was the last time you were pampered head-to-toe? Come to the spa and indulge in a "me" time with a relaxing massage that'll melt your cares away. You deserve to feel this good.

Tonight's entertainment

Tonight in the Stardust: Stardust Variety Show

You've laughed at the hilarious comedy of our comedian and you've been impressed by the wonder of our magician now do it all over again when you watch the Stardust Variety Show. Don't miss a minute! **Audio and video recording are prohibited. Please no children in the 1st three rows.**
Time: 7:15pm & 9:00pm, Stardust Theatre, Decks 6 & 7, Aft

Tonight in the Blue Hawai'i: Country Night

Kick up your heels for a boot-scootin' good time. We'll teach you the moves you need. Line dancing instruction begins at 9:30pm, and couples dancing will continue after the activities.
Time: 10:00pm, Blue Hawai'i Bar & Nightclub, Deck 6, Mid

What's on top today

Australian Airbrushed Tattoos Thinking of getting a Tattoo or just want to freak your parents out? Then join us for Airbrushed Tattoos, they look real and last 3-7 Days! We are sure to have a design that will suit you.
Time: 1:00pm-6:00pm, Poolside, Deck 11, Fwd

Poolside Activities Join your Cruise Director's Staff for fun activities such as Poolside Olympics, Water Aerobics and our Mr. Sexy Legs competition. Time Activities Start at 2:30pm, Pool Deck, Deck 11, Mid

TV Theme Song Trivia Test you knowledge of the greatest TV tunes in history! Do you remember the theme to "The A Team" or how about "I Dream of Jeannie?" Well come and prove how much of a couch potato we know you are!
Time: 3:00pm, Pool deck, Deck 11, Fwd

Mr. Sexy Legs Competition Men think you have the best legs on the ship? Come up to the pool deck and put your best foot forward. Ladies are our most judges.
Time: 4:00pm, Pool Side, Deck 11, Fwd

Comment Cards Don't forget to turn your Comment Cards in. Raffle prizes will be given out at 7:00pm tonight. Marking "good" means that we're only doing an average job.
Time: 7:00pm, Reception Desk, Deck 5, Fwd

Krazy Karaoke Do you have a favorite song that you just can't stop singing? Do you find that the best songs are sung at the top of your lungs in front of a crowd? Even if you don't want to sing you can have fun watching others!
Time: 8:00pm-9:15pm
Blue Hawai'i, Deck 6, Mid

HONOLULU, HAWAI'I

You will certainly wish to enjoy all that the island of O'ahu has to offer. It is known for attractions such as Sunset Beach and the North Shore, as well as Waikiki, Pearl Harbor and the capital city of Honolulu.

O'ahu creates a rich blend of cultures including Japanese, Chinese, Vietnamese, Samoan, Tongan, Tahitian, Hawaiian and those from other Pacific Islands. It is a melting pot due mostly to the great influx to the island of workers during the colonial plantation era.

Shoppers will find paradise in downtown Waikiki where designer labels abound in specialty shops bearing the names of Gucci, Prada, Tiffany's, Coach and many more. The Aloha Tower Marketplace, adjacent to [illegible] 10, is another wonderful [illegible] to enjoy an afternoon.

Moored next to the H[illegible] Maritime Center is t[illegible] Falls of Clyde, an [illegible] once operated by [illegible] Navigation Com[illegible] synonymous w[illegible] passenger tra[illegible] Hawaiian Islands for dec[illegible]

Don't miss this!

Specialty Restaurants Join us in one of the three onboard specialty restaurants for our for a dining option with an International flair — 50% off the cover charge after 9:00pm
Kahlua Italian Restaurant – Deck 5, Mid. **Royal Palm Bistro** – Deck 12, Aft.
Pacific Heights – Deck 11, Aft.

Bar Services

Coffee Bar Deck 7, Aft	6:00am-11:00am
Hukilau Lanai Deck 11, Aft	5:30pm-Close
Atrium Bar Deck 7, Fwd	7:00am-Close
Breakers Bar Deck 11, Mid	7:00am-Close
Longboard Sports Bar Deck 11, Aft	9:00am-Close
Hoku Bar Deck 10, Fwd	12:00pm-Close
Plantation Club Deck 12, Aft	12:00pm-9:00pm
Captain Cook's Bar Deck 6, Mid	5:30pm-Close
Blue Hawai'i Bar & Nightclub Deck 6, Mid	5:30pm-Close
Dunkiger Lounge Deck 11, Fwd	7:00pm-Close
Stardust Theatre Decks 6 & 7, Aft	Closed
	7:00pm & 9:30pm

Guest Services

Reception Desk Deck 5, Fwd (aft)	24 Hours
Internet Cafe Deck 7, Aft	24 Hours
Fitness & Aerobics Center Deck 11, Fwd	24 Hours
Shore Excursion Desk Deck 5, Fwd	7:00am-9:00am 6:00pm-8:00pm
Golf Hawai'i Pro Shop Deck 7, Mid	7:00am-12:00pm 2:00pm-9:00pm
Galleria Gift Shop Deck 7, Aft	7:00am-10:30pm
Onboard Credit Desk Deck 5, Fwd	8:00am-11:00am 4:00pm-5:00pm
Mandara Spa & Salon Deck 11, Fwd	8:00am-8:00pm
Medical Center Deck 4, Fwd	8:30am-10:30am 4:00pm-5:00pm
Kids Korner Deck 7, Fwd	9:00am-12:00pm 7:00pm-10:00pm
Photo Gallery Deck 5, Aft	4:00pm-11:00pm
International Hospass Desk Deck 5, Mid (by Captain Cook's Bar)	6:00pm-8:00pm

All about alcohol: If you bought liquor on shore, we'll hold them, as long as they are sealed, for you until the last day of your cruise. If bottles are unsealed when bought and prior to the Bar Start to sail, it will be poured out, due to health code regulations. Pick-up is anytime from 7am to 8am in the Blue Hawaii Nightclub, Deck 6, Mid.
Who can drink: Alcohol consumption is prohibited for guests under the age of 21.
Open flames: Open flames (like burning candles and incense) are not allowed.
Jacuzzis & Pools: Glass & bottles cannot be brought into any of the pools or hot tubs, neither can children in diapers or pull-ups, including "swimmers".
Sharps Containers: If you have any type of needles to drop off, please ask for a special container from the Reception Desk or the Medical Center.
Environmental Hotline
Call 877-501-0876 or E-mail Environmental@ncl.com
All reports are confidential.
The environmental hotline shall be used only to report actual or potential environmental incidents, spills and concerns.

Freestyle Dining

Room Service Dial 6-10, Dial #20	24 hours
Hukilau Lanai, Deck 11, Aft Continental Breakfast	5:30am-6:00am & 10:30am-11:30am
Hukilau Lanai, Deck 11, Aft Breakfast Buffet	6:00am-10:30am
Hukilau Cafe, Deck 11, Aft Breakfast Buffet	6:30am-10:00am
Crossings Main Dining Room, Deck 5, Aft Menu Selections	7:00am-9:30am
Hukilau Cafe, Deck 11, Aft Lunch Buffet	11:30am-2:30pm
Hukilau Lanai, Deck 11, Aft Lunch Buffet	1:30pm-5:30pm
Crossings Main Dining Room, Deck 5, Aft Menu Selections	5:30pm-10:00pm
Palace Main Dining Room, Deck 5, Fwd Menu Selections	5:30pm-8:30pm
Hukilau Cafe, Deck 11, Aft Dinner Buffet	5:30pm-9:00pm
Royal Palm Bistro*, Deck 12, Aft French Cuisine	5:30pm-Close
Kahlua Restaurant*, Deck 5, Mid Italian Cuisine	5:30pm-Close
Pacific Heights*, Deck 11, Aft Asian Fusion	5:30pm-Close
Longboard Sports Bar, Deck 11, Aft Imported Snacks	9:00pm-3:00am

*This star means that these restaurants charge a cover, and for what you get, you'll find it well worth it. For reservations, call 31214 or stop by on Deck 7, Aft.
To maintain the proper ambiance for all guests—the following guidelines have been established—With the exception of the Hukilau Buffet and any other outdoor dining venue, shorts, T-shirts, tank tops, flip flops, bare feet, work-out attire, tank suits, and swim wear are viewed as inappropriate after 6:00pm.
Presentable jeans are allowed in all major dining venues except The Palace Restaurant for all meals periods. Bermuda shorts are appropriate in all outlets after 5:00pm if accompanied by a jacket and knee socks.
Children under 12 years are allowed to wear reasonable shorts and jeans in all dining venues for all meals.
Restaurant Reservations: To ensure each of our guests receives our best service, we can only hold your dinner reservation for 15 minutes. If you need to cancel, please do so by 5 pm on the day of your reservation to avoid having the cover charge for up to two guests applied to your account.

Customer Relations: Got a service problem? We'll do our best to solve it. Call 25.
Walking & Jogging: The Promenade Deck, Deck 6 is a walking/jogging track. The deck is open 24 hours, as a courtesy to your fellow Guests we kindly ask that you do not jog between 9:00pm and 6:00am. Remember, all sports play is at your own risk.
Safety Equipment: Please do not remove or meddle with any safety equipment onboard (such as smoke detectors, sprinkler heads or fire extinguishers). And, please follow safety instructions from the crewmembers.
Vacuum Toilets: Our system is in place to best conserve water and protect our environment. Please do not flush cloth, inside sanitary napkins or plastic, as this will cause blockage to not only your own toilet but up to 50 other toilets and cause vacuum line blockages. Please refrain from place & objects in staterooms & bathrooms.
Smoking Policy: Smoking is permitted on the balcony areas only, designated areas outside on deck 12, staterooms and staterooms designated areas outside on deck 12, staterooms and staterooms.

NCL
NORWEGIAN CRUISE LINE
FREESTYLE CRUISING

Kaua‘i Seabird Habitat Conservation Program (KSHCP)

Participant Inclusion Plan (PIP)

Name of Applicant/Participant:

SOF – XI Kauai PV Hotel, LP
(Princeville Resort Kauai)

PART 1: Landowner & Property Information; Description of the Facilities; Avoidance & Minimization Measures; Monitoring of Take

Item 1. Provide the name of the landowner, business, agency, or institution and complete contact information. If the applicant/participant is different from the landowner, please attach power of attorney (or other documentation) allowing the party to act on the landowner's behalf.

Participant/Applicant Name:	The Princeville Resort Kauai
Physical Address/Location of Facility:	The Princeville Resort Kauai 5520 Ka Haku Road Princeville, Hawaii 96722
Mailing Address:	Same as above
Primary Contact: Ownership Name:	SOF – XI Kauai PV Hotel, LP
Address:	
Telephone: Email:	
Alternate Contact:	
Address:	
Telephone: Email:	

Item 2. Provide the legal description of the property at which the existing facilities and Covered Activities are located, including Tax Map Key (TMK) number. Provide a survey of the property and site plan drawings showing the locations of the Covered Activities (lights), property boundaries, buildings & structures, and site features. If properties containing the Covered Activities comprise separate parcels please include all Tax Map Key numbers and maps.

The Princeville Resort Kauai is located at a physical street address of 5520 Ka Haku Road, Princeville, Hawai'i. 96722. The resort encompasses approximately 23.23 acres of land identified as TMK(s): (4) 5-4-004-029, (4) 5-4-004-035 and (4) 5-4-011-004. Copies of these TMKs maps are included in Appendix A.

Item 3. Describe the existing Covered Activities for which incidental take authorization is sought. Include list of buildings, type and description of lights present, purpose and location of lights and current seabird lighting accommodation in place (e.g. shielding, downward pointing, switched off during fledging season etc). . For "Types of lights" please use the following categories:

- **Parking Lights**
- **Signage Illumination**
- **Wall-pack Building Lights**
- **Landscaping/Grounds/Accent/Bollards**
- **Indoor lights visible from outdoors**
- **Roof Floodlights**
- **Other Lights**

Facility lighting plan may be submitted as lighting inventory. Photos may be attached. The suggested light table, and Green Sea Turtle assessment table below may each be modified as needed to provide the necessary information.

The owner of the Princeville Resort Kauai is seeking coverage for operation of artificial lighting in connection with all activities associated with running a resort in Princeville. These activities include, but are not limited to the following: general operation of the hotel, parking lot, grounds, swimming pool and outdoor restaurants, bars and outdoor banquet activities, as well as all physical plant maintenance and landscape maintenance activities. The resort has a full complement of lights that one would expect at a resort of this size and location on the island of Kaua'i. The Hotel covers approximately 115,000 square feet of the site, and paved areas such as the parking lot, walkways, driveway and the pool deck cover an additional 151,400 square feet of the property.

Table 1: Outdoor Lighting

Outdoor Lighting at the Princeville Resort Kauai						
Location	**Light Type**	**Wattage**	**Bulb Color**	**Quantity**	**Purpose**	**Full cut-off/shielded**
Parking lot	Parking Pole Light/Mercury lamp	150 w	Warm White	26	Illuminate parking lot and pedestrian walkway	Full cutoff / shielded
Guard Shack - Entrance and Exit to the Resort	Shielded Flood Light/Florescent	11 w	Warm White	2	Entrance safety	Shielded
Guest walkway between Porte Cohere and Parking lot	Mushroom walkway Lights/Incandescent	20 w	Warm White	23	Illuminate pedestrian walkway	Full cutoff / shielded
Entry Drive and Walkway	Landscaping & grounds lights/Halogen	50 w	Cool white	36	Landscape illumination; accent lighting	Full cutoff / shielded
Coconut Trees around Porte Cohere water feature	Landscaping & grounds accent up lights/Halogen	20 w	Cool white	16	Landscape illumination; accent lighting	Shielded
Water Feature	Water Feature lights/Incandescent	100 w	Warm White	26	Accent lighting in water feature	No
Cooling Tower and Flower Shop	Shielded Flood Light/Florescent	11 w	Warm White	2	Staff safety	Shielded
Various locations around the Pool	Tiki Torches	N/A	Open Flame	18	Accent lighting and illumination for pedestrian walkway	N/A
Various locations around the Pool	Surface Mounted/Florescent	45 w	Cool white	2	Staff safety	No
Pool Restaurant and Pool Activity Desk	Chandelier/CFL	40 w	Cool white	22	Accent lighting and guest safety	Full cutoff / shielded
Pool Restaurant and Pool Activity Desk	Architectural Accent Lighting/Halogen	50 w	Cool white	82	Accent lighting and guest safety	Full cutoff / shielded
Pool walkway	Landscaping & grounds lighting/Halogen	50 w	Cool white	15	Landscape illumination; accent lighting and walkway illumination	Full cutoff / shielded
Pool Walkway	Incandescent	40 w	Warm White	9	Pedestrian walkway illumination	Shielded

The above description of outdoor lighting was current as of 2016. Modifications to lighting have been made since that time on an annual basis. The Resort has minimized lighting to the maximum extent practicable.

Table 2: Green Sea Turtle Assessment for the Site & Facility

Please provide the information requested below to help determine if measures to avoid impacts to the Green Sea Turtle(s) from the effects of light attraction are required to be implemented at any of the facility(s), parcel(s), or site(s) included in this PIP. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the Green Sea Turtle, and provide further guidance.		
Are any of the facilities located adjacent to a beach?	**YES/ No**	**If yes, provide length of beach frontage & brief description of facilities & lights adjacent to the beach** Pu‘u Pōā Beach is approximately 200 feet long and is located fronting the swimming pool. Facilities adjacent to the beach include the pool, pool restaurant, pool activity desk and pool walkway.
Are any of the Covered Activities (lights) visible from a beach?	**YES / No**	**If yes, describe the specific lights (type, , height, purpose) & specific location; provide map & photos showing distance from beach** See Table 1 above
Have green sea turtles been known to nest on any beaches adjacent to the facilities?	**Yes / NO**	**If yes, provide information about nesting occurrences, if known, including location and date and any other information**

Item 4. If applicable, describe any lighting standards (e.g., foot candles/area) required for facility operations or other requirements that necessitate the use of lighting (e.g., required for security, safety, operations). Describe the relevant standard, or regulation, and the areas and Covered Activities at the site (e.g., type of lighting) to which it applies.

There are no specific lighting standards, rules, restrictions or requirements that the Resort must comply with, beyond assuring that lighting is adequate to ensure guest and employee safety and security, and standards in the building code (IECC). Pre-seabird season lighting audits are conducted by a seabird biologist and necessary tweaks to the lighting are completed prior to the start of the seabird season each year – the program is now in its 10th year.

Item 5. Describe any plans/proposals for future facilities or expansion of existing facilities. Include any proposed structures and lighting by type, purpose, and location. Plans (architecture and site plans), photos, and drawings can be attached.

The owner of the Princeville Resort Kauai currently plans a renovation to refresh the property, with a reopening to follow in the first quarter of 2022. This reopening date is subject to change. A project description, approved by the Kauai County Planning Commission on October 30, 2019, is included as Appendix K. Princeville Resort Kauai continues to work with its seabird biologist on appropriate lighting minimization measures for the renovations to ensure that they are dark sky compliant, utilize full cut-off fixtures, shielded fixtures, lights angled downwards, and/or lighting shifts during seabird season as required by Appendix E of the KSHCP. Once complete, the lighting for the renovation will be described in reporting to the agencies as required by 6.6.1.3. of the KSHCP ("Other Relevant Reporting") under the category "new facilities and facility light changes." For the period of construction, Princeville Resort Kauai is also working with its seabird biologist who will train construction workers to minimize lighting and search for downed birds.

Item 6. Pursuant to the Endangered Species Act (ESA), Section 10 (a)(2)(A)(iii), describe alternatives to <u>avoid</u> the taking considered and evaluated. Provide reasons why those alternatives are not being utilized. Alternatives can include operational or facility design changes (attach pages as needed). The tables below may be altered as needed.

Activities that the Princeville Resort Kauai has direct control over that may result in covered species landing on the property are restricted to those associated with lighting. Other programs that the Resort implements that result in benefits to seabirds include, increased staff training, guest outreach, and monitoring and rapid recovery of downed seabirds. The resort has addressed all of these issues to the maximum extent practicable. Measures and protocols implemented are detailed in the following sections of the application.

In the following table light attraction avoidance and minimization alternatives that were analyzed are presented.

Table 3: Light Attraction Alternatives to the Taking

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives are not Being Utilized (provide justification)
▪ **Deactivate all outdoor artificial lights from dusk to dawn during the fledgling fall-out season September 15 to December 15**	Guest and staff safety and security precludes this option.
▪ **Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daylight hours)**	Guest and staff safety and security precludes this option. To do this the hotel would need to be closed at night, not a viable business option.
▪ **Shield all lights from visibility from the beach, or screen all Green Sea Turtle nests, from May 15 to December 15 to avoid impacting the green sea turtle (Green Sea Turtle)**	Guest and staff safety and security precludes this option at it would entail closing the hotel during those months which is not a viable business option.
▪ **Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered**	The resort has replaced a very large number of lights on and in the resort to reduce the amount of stray light being produced. Window blinds have been placed in all hallways and rooms in the resort reducing the visible interior lighting. Bulbs have been reduced in lumens over the past 10 years. All upward pointing lights have been removed or are turned off during seabird fledging season. See Seabird Lighting Minimization Procedures on Page 1-14.

Item 7. Describe all site-specific seabird minimization measures considered for the Covered Activities. This item should follow KSHCP minimization objectives and measures as specified in *Appendix E (Guidelines for Adjusting Lighting at Facilities)* of the KSHCP document. Please consult with staff from the DOFAW and the USFWS as needed. The suggested tables below can be altered as needed.

Minimization measures modify the Covered Activities to reduce the effects of the activity on the Covered Species. KSHCP Participants will be required to implement minimization measures that apply to the facility to the "maximum extent practicable" per applicable state and federal laws which regulate incidental take license/permit issuance by the DLNR and the USFWS.

Minimization also entails searching and recovering grounded seabirds to minimize the chance of mortality. In addition, the presence of on-site predators (i.e. feral cats, dogs) should be controlled and removed because these animals can prey on grounded seabirds.

Provide justification, such as policies, regulations, or other rationale for measures that will not be implemented.

Table 4: Seabird Light Attraction Minimization Measures Considered

Minimization Measures Considered	Feasible? (Y / N)	If not Feasible to Implement Measures, Provide Reason
▪ **Change time of light use (lights off earlier)**	**YES / No**	
▪ **Deactivate unnecessary lights**	**YES / No**	
▪ **Replace all outdoor lights with full cut-off fixtures**	**YES / No**	
▪ **Shield all outdoor lights with full cut-off shields**	**YES / No**	
▪ **Angle all lights downward**	**YES / No**	
▪ **Lower intensity (lumens) of outdoor lights**	**YES / No**	
▪ **Change bulb color to non-white spectrum**	**YES / No**	
▪ **Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers**	**YES / No**	
▪ **Provide Worker Seabird Awareness Training to staff**	**YES / No**	See previous section and Appendix C
▪ **Provide outreach materials to staff & guests**	**YES / No**	See previous section and Appendices F, G H, I, and J.
▪ **Host Save Our Shearwaters (SOS) Aid Station**	**YES / No**	

Item 8. <u>Minimization Plans</u>. Provide a plan to minimize the effects to the Covered Seabirds due to the Covered Activities. KSHCP Participants will be required to minimize the effects of the Covered Activities to the "maximum extent practicable" per applicable state and federal laws which regulate take license/permit issuance. The KSHCP document provides minimization objectives and measures to follow.

The Minimization Plans should include the proposed minimization measures, timeline, and estimated cost for each facility. In this item, the Participant can include measures already completed or in place (new lights, shields, operational changes). Timeline should include estimated completion schedule, and annual schedule for minimization that will occur only during fledging season.

Minimization measures not yet determined but anticipated to occur at the facility; this section should include an estimated cost that will be earmarked for future minimization measures.

If applicable, the participant must provide the reasoning why certain measures will not be implemented. The suggested table below may each be altered to best describe the Minimization Plan. Attach additional pages, photos, and drawings as needed.

Pre-Renovation 8A

The Princeville Resort Kauai is providing two Item 8 write ups due to the rather unusual situation that it applicant found itself in when it was decided in 2008 that the owners of the property were going to remodel the Resort. The following section details the Avoidance and Minimization Plan implemented by the Resort in 2007. The following Section 8B details the Avoidance and Minimization Plan that the Resort implemented in 2008-2009 and has followed for the past ten years.

In 2007 the Resort undertook the following minimization measures to reduce the potential that its lights would result in attracting the covered species onto the property. The lighting modifications presented below are grouped into seven separate locations; these locations are illustrated in the Resort schematic provided in Appendix B.

The 40-watt bulbs in the main lobby chandelier were replaced with 15-watt bulbs. The Living Room and Café Hanalei chandeliers were dimmed to approximately 50% of the intensity that they are traditionally set at. In the Living Room Lanai, two floodlights were fitted with red filters and directed downwards to reflect into the stairwell, rather than the garden.

The three spotlights illuminating the flagpole at the front of the hotel were turned off, for the duration of the seabird season. All of the palm tree accent floodlights along Royal Palm Drive were redirected so as to shine on the ground rather than up at the palm fronds. During the seabird season, half of the parking lot lights were disabled guests are not allowed to park their own cars, all cars are parked by the resorts valet staff.

The large chandelier and the fluorescent trough lighting located in the third floor elevator shaft and hallway were disabled during the seabird season.

The floodlights located on the 3rd floor roof were disabled and new solar powered low wattage landscape lighting was installed to illuminate the walkways formerly illuminated by the 3rd floor roof floodlights.

The landscape accent lighting that illuminates the palm trees in the front of the hotel were redirected at the ground. Light shields were installed on the guardhouse, and the lights were redirected downwards to illuminate the road and entrance rather than the structure. Light shields were installed on the lights that illuminate the entrance sign to the property.

The foregoing avoidance and minimization measures were implemented, and costs associated with implementing these measures have already been incurred.

Light Attraction Avoidance and Minimization Plan

Facility Lights / Description of Action

- Guard shack lights were shielded with in house constructed shields and fixtures redirected downward
- Light shields were installed on the lights illuminating the entrance sign to the property
- Up---pointing landscape accent lighting on the palm trees in front of the fountain were redirected downward
- The three floodlights illuminating the flagpole in front of the Porte cochere were turned off for the duration of the seabird season
- All of the up---pointing accent lighting on the palms along Royal Palm Drive were redirected to shine downward. During the seabird season, the parking lot lights were disabled and guests were escorted to the hotel by valets using flashlights
- The 40---watt bulbs in the main lobby chandelier were replaced with 15---watt bulbs
- The lights within the Café Hanalei and the Living Room were dimmed to approximately 50% of their intensity
- The 2 spotlights on the Living Room Lanai were fitted with Red filters and redirected downwards
- The large chandelier and fluorescent soffit lighting located on the third floor elevator shaft and corridor were disabled during Seabird season
- The three floodlights located on the 3rd floor roof were removed and new solar powered low---wattage landscape lighting was installed to illuminate the walkways formerly lit by the 3 floodlights

Post -Renovation 8b

In 2008 and early 2009 the Princeville Resort Kauai underwent a major resort-wide renovation. This planned upgrade of the property allowed the then-St. Regis to make permanent modifications to its lighting fixtures. Planners and electrical engineers met with the St. Regis' consulting biologist to explore measures that could be taken to reduce extraneous light to the maximum extent practicable as part of the resort renovation. The following changes were made to the lighting at the Resort as part of the Resort renovation.

Where practical, electrical lighting circuits were put on separate circuits so as to make it easier to turn off selected lights during the seabird's season if needed – formerly light bulbs had to be physically removed from some fixtures to turn them off.

The main lobby chandelier was replaced with a much lower intensity fixture, and the glass skylight above the chandelier was covered, preventing light from shining up through the roof. The two exterior floodlights were removed. The chandeliers in the Makana Terrace (formerly the Café Hanalei) were removed and replaced with a trellis, and lit with ribbon accent lighting, which does not put off much light. This new fixture was also lowered preventing it from being seen from outside the hotel. Polarized window shades in the Bar of the Princeville Resort Kauai (formerly the Living Room) are lowered during evening hours during the seabird season to darken the windows that face Hanalei Bay. Lighting within the Makana Terrace consists of low wattage can lighting that is directed at the floor and is under roof.

All of the palm tree and landscape accent floodlights along Royal Palm Drive were removed and replaced with downward facing heavily shielded low wattage LED lights, which cast a small circle of light on the ground and vegetation but are completely shielded. The lights in the parking lot are shielded and downward facing, and if necessary will be turned off during the seabird season.

The large chandelier located in the third floor elevator shaft and hallway is no longer operational.

The landscape accent lighting that illuminates the palm trees in the front of the hotel were changed out to small canister low wattage LED lights that are totally shielded and are aimed at the ground.

Additional Locations – The lighting in the new pool has been placed on a separate circuit and can now be selectively turned off during the seabird season. Bollard lighting with deflection shields (Turtle lights) have replaced floodlights and accent lighting along the walkways on the ocean side of the hotel. A new restaurant / bar, the Nalu Kai has been constructed adjacent to the pool, lighting within the new bar is contained with under-

roof soffits or downwards facing light fixtures, all lights at this location are under roof. The bollard lighting that ran up slope from the Porte Cochere to the Fort Alexander interpretive kiosk has been removed. Additionally, several outside floodlights and work lights that were located in and around the cooling tower and loading dock have been disabled or removed.

The foregoing A&M measures have already been implemented, and costs associated with implementing these measures have already been incurred.

During the seabird fledging season, the Resort implements additional light minimization measures detailed in: Shearwater Lighting Minimization Measures, attached as Appendix F. The 29 measures detailed in that set of procedures requires that the engineering and other responsible parties identified sign off that the procedures have been implemented.

The Princeville Resort Kauai biologist accompanies the head of loss prevention and the engineering departments to conduct a lighting audit of the entire property prior to the onset of the seabird fallout season annually. The resort biologist follows up with the resort to ensure that any lighting minimization modifications that the biologist identified have been implemented. The resort biologist also checks the hotel several times during the season without notifying the Resort to ensure that all measures are in place. At this juncture after more than 10 years of implementing the seabird season specific lighting minimization measures we have found that it takes less than half a day each year to correct any lighting minimization measures that may need to be modified. The biologist monitors the fallout season in real time and returns to the Resort if anything shows up in the data that suggests that there may be a problem with the lighting minimization measures.

During the season the head of loss prevention, and the engineering department manager do regular checks of the lighting minimization measures to ensure that they are still in operation. All of the lighting is now computerized, so maintaining and reduced lighting that may be implemented is very simple and is controlled from one location.

Table 5: Lighting Minimization Measures

List of Buildings	Minimization Measures	Cost to Implement	Responsible Staff	Timeline

See narrative above.

Table 6: Seabird Mortality Minimization Plan

Minimization Measures	Describe minimization method (e.g. trapping, outreach, enact policy)	Cost to Implement	Responsible Staff
Remove & control loose predatory animals at the facility. (Loose animals can kill grounded seabirds and this measure aims to prevent seabird mortality by animals.)	The resort employs commercial pest control services, additionally they deploy cat traps as soon as a cat is spotted on property (very rarely). The resort will meet the biological goals and objectives in KSHCP Table 5-1 to "Minimize mortality of Covered Seabirds downed due to light attraction by implementing actions to reduce presence of free-roaming seabird predators such as cats and dogs at Participant facilities." It will also satisfy the requirement in Section 5.3.2 of the KSHCP that "All measures to reduce presence of predators must be implemented within Year 1 of an ITP/ITL."	N/A	
Prohibit outdoor feeding of predatory animals. (feeding animals attracts them to the site and this measure aims to reduce the presence of animals that can cause seabird mortality.)	Staff is trained that this is not allowed, and security monitors compliance	N/A	

Conduct nightly/morning searches to recover downed birds at the property & turn them into SOS following protocols (see monitoring plan below).	See Item 9 below.	N/A	
Train staff to follow minimization measures.	See Item 9 below, and Appendix C.	N/A	

Item 9. Take Monitoring Plan. Provide a plan to monitor take of the Covered Seabirds at the facilities proposed to be covered by the incidental take permit/license. The take monitoring plan describes how the property will be searched for downed Covered Seabirds. The KSHCP document provides standards and guidelines for take monitoring to ensure that take of the species is accurately measured and recorded.

The regulatory agencies will make the final determination as to the adequacy of the take monitoring plan.

Loss prevention personnel search the entire Resort multiple times a day, 365 days of the year. The entire staff is retrained prior to the seabird season every year. As part of their job responsibilities, they are required to search their duty stations every day that they are on the property. Since there are approximately 400 employees, the coverage of the property is complete. If a bird is found, employees are required to call loss prevention and stay with the bird until they arrive to record, handle and deliver the bird to the SOS station and prepare all of the needed reporting.

Table 7: Covered Seabird Take Monitoring Protocols

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Percentage of the total property that will be searched & the total area to be searched	The entire built upon portion of the property is searched multiple times a day, as all associates are required to search their duty stations and Security staff search the rest of the property.	Search as much area as possible
Frequency of searches (# per day or per week)	During the Seabird season, security staff inspects the grounds of the hotel at least twice a day and staff members are required to actively look for birds that have landed on the property in the areas that they work during their entire eight hour shifts	Twice daily
Time of day of searches	See above	2-3 hours after sunset, and within 3 hours after sunrise
Number of searchers per search area	The entire staff, amounting to some 400 employees	Depends on site conditions and safety considerations and vegetation, nearby hazards/threats
Proposed training	See Item 7 above, Item 9 below, and Appendix C.	Annual training covering seabird identification, seabird handling, response procedures, verified and documented

Item 10. Components of the Green Sea Turtle Minimization and Monitoring Plan (if required). Monitoring and minimization for the Green Sea Turtle is in two parts: A) Monitoring to detect nests and B) Monitoring and minimizing impacts to nests detected.

Part A: Monitoring to detect Green Sea Turtle Nests
Please provide the following information; the table below may be used and altered as needed.

1) Detailed location and description of beaches, including linear distance, at which searching for nests of the green sea turtle will take place. Searches should take place at any beach from which light at the facility can be viewed;

2) Monitoring protocols indicating:
    a) Annual training of searchers;
    b) Frequency of searches;
    c) Conduct active searching (searching the beach width);
    d) Sufficient number of trained searchers to cover the area; and
    e) Record results of search monitoring.

3) All Participants are required to record the results of search efforts. Records should provide:
    a) Evidence (what was seen). Include description and provide photographs
    b) Location on the beach (GPS) and physically mark the location if possible
    c) Date and time of day
    d) Description of surrounding land use (e.g., vacant, or developed), and
    e) Proximity to the facility.

Part B: Monitoring of Identified Green Sea Turtle Nests

Each identified nest of the green sea turtle should be monitored and protected from light attraction. Please provide the following monitoring protocols; the tables below may be used and altered as needed.

1. Light avoidance measure for identified nests (either shield/deactivate lights at the facility or install and maintain a light shield around each identified nest);
2. Frequency of searches;
3. Number of searches monitoring the nests. The number of needed to monitor active nests will depend on number of nests identified and amount of beach needed to be covered;
4. Record the results of nest monitoring. Monitoring should provide:
    a. Evidence of hatchling emergence (description and photos):
    b. Date and time of emergence,
    c. Direction of tracks
    d. Condition of the nest area (e.g., disturbed or not).

Table 8: Green Sea Turtle Monitoring Protocols – Part A: Monitoring to Detect Nests

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Location & description of the beach, or beaches, surveyed and the linear distance of the beach.	Pu‘u Pōā Beach is approximately 200 feet long and is located directly in front of the pool. Groundskeepers rake the beach every morning shortly after daylight.	Beach area surveyed should coincide with visibility from the facility with the lights.
Frequency of searches (# per day or per week)	Groundskeepers rake the beach every morning shortly after daylight 365 days of the year. Life guards and pool attendants are in the area 365 days of the year as well and are trained to see sea turtles	Weekly during nesting season (typ. May 15 to end of August)
Number of searchers per search area	Groundskeepers rake the beach every morning shortly after daylight 365 days of the year. Life guards and pool attendants are in the area 365 days of the year as well and are trained to see sea turtles	Depends on site conditions and safety considerations
Proposed training	N/A	Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee. See item 9a.

Table 9: Green Sea Turtle Monitoring Protocols – Part B: Monitoring of Identified Nests & Minimization

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Frequency of checks (# per day or per week)	N/A there has never been a nest recorded on Puʻu Pōā beach since the hotel has been in operation. Should a nest be discovered the Resort would immediately contact USFWS and follow their standard Hawaii protocols for protecting the nest.	Active nests should be monitored every 1-2 days; then daily during expected hatching date
Light avoidance	N/A	If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light.
Number of searchers per search area	N/A	Depends on site conditions and safety considerations

Item 11. Describe the schedule that will be followed to provide training for staff. Training must be provided to those that will conduct and oversee the searches at the facility.

The training should include:

1. **Summary of regulations protecting the Covered Species;**
2. **Search procedures, route, frequency and timing specific to the facility's monitoring plan, for seabirds and green sea turtle nests (if applicable);**
3. **Response procedures including safe and proper techniques for handling seabirds;**
4. **Recognizing evidence of green sea turtle nests, proper nest light screening, and hatchling activity (if green sea turtle minimization and monitoring plan is applicable);**
5. **Procedures to document the results of searches;**
6. **Downed wildlife agency contacts; and**
7. **Nearest SOS aid station.**

Rescuing Downed Seabirds—Standard Operating Procedures (SOP)

The following steps provide the procedure for recovering downed seabirds found:

1. **Take the seabird recovery kit and pet carrier to the downed seabird.**
2. **Put on gloves.**
3. **Using towel to gently cover the bird, pick up the seabird.**
4. **Place the seabird in the pet carrier, and close the pet carrier.**
5. **Put the gloves and towel back in the seabird rescue kit.**
6. **Take the bird and pet carrier to an SOS Aid Station.**
7. **Transfer the bird to the Aid Station's pet carrier.**
8. **Call SOS at 632-0610 or 635-5117.**
9. **Return the seabird rescue kit and pet carrier.**
10. **Complete the Bird Take Field Report.**
11. **Give the completed "Bird Take Field Report" to the General Manager, or other responsible staff person at the facility.**

Contents of Seabird Recovery Kit

1. **Latex or nitrile gloves;**
2. **Three towels;**
3. **Hand sanitizer;**
4. **Flashlight or headlamp;**
5. **Clipboard, pen and blank "Bird Take Field Reports", or similar; and**
6. **Pet carrier –medium sized. If a box is used it must be well ventilated and marked conspicuously "LIVE ANIMAL".**

The entire staff of the resort is retrained every year, and training is usually conducted in early August. The specific dates for the training are based on the hotel occupancy and other personnel issues, but training always happens prior to the seabird season starting in September.

See Table 7 and Section 9 above and Appendix C.

Item 12. Describe any outreach conducted (e.g., handing out pamphlets on seabird awareness to facility employees or guests,):

During the seabird season an article is printed in the weekly guest newsletter about the shearwater season, this newsletter is placed in every guest room. A copy of a typical seabird season guest newsletter is attached as Appendix G. Additionally, a printed brochure entitled "The Princeville Resort Kauai Seabird Conservation Program" is handed out to each hotel guest during the seabird season at check-in that encourages them to close their louvered window panels at night to shield light sources that may attract fledgling shearwaters and that also provides information on the birds, the SOS program and the Princeville Resort Kauai's commitment to the conservation of native island resources. A copy of the current brochure is attached as Appendix G. Additionally, in guest rooms, staff close the wooden window louvers each evening during turndown service, and shearwater awareness signage has been placed in all guest rooms that requests that guests keep their window louvers closed during nighttime hours during the seabird season. A copy of this display in attached as Appendix H. Printed cards are placed in the Prince Junior Suites requesting that guests turn of the bathroom lights when not in use during the seabird season. A copy of these signs is attached as Appendix I.

The Princeville Resort Kauai commissioned artist Patrick Ching to produce a children's coloring book that tells the story of a Newell's Shearwater that has been downed, told through the eyes of other native species including a Hawaiian Monk Seal, Laysan Albatross, crabs etc. The coloring book is used as part of the resort's "Young Voyagers Club," its in-house children's program that is directed at children between the ages of 5 and 12. A copy of the cover and two typical inside pages of the coloring book is attached as Appendix J.

A seabird awareness-training program is conducted for all employees once a year. It is an employment requirement that all employees undergo the training program. There are two modules to the training program, one is given to every employee and the second "Downed Seabird Advanced Training" is given to the security staff and to the managers. The training module is revised each year prior to the start of the seabird season incorporating any needed changes to the program identified during the previous season's activities. A seabird specialist initially conducted all of the seabird awareness training, for the first four years. During that period the biologist trained the HR and Security

department to conduct the training on an annual basis. Copies of the 2017 version of the PowerPoint slides used in this training program are provided in Appendix C.

Synopsis of the Princeville Resort Kauai Seabird Awareness Training:

- Agency and Seabird Program Contacts
- Slides illustrating both threatened and endangered seabird species as well as the more commonly occurring species protected under the federal MBTA.
- Regulatory framework, both federal and state
- Definitions of “take”
- Penalties for non-compliance
- Seabird season lighting rules and protocols
- Seabird handling procedures and protocols

Synopsis of the Advanced Seabird Awareness Training:

- Downed seabird response protocols
- Downed seabird security report
- Seabird reporting loop
- Seabird identification
- This module also has a workshop in which the following topics are discussed
- Cameras, camera settings, image numbering
- How to take photos of the birds
- Data recording and reporting

PART 2. Take Estimate, Requested Amount of Take Authorization, and Funding

Item 1. Show the calculation of estimated take for each of the Covered Species.

> **Following the take estimation methods in the KSHCP for estimating a Participant's take, the tables and charts below show the take estimate calculation for the facility for each of the Covered Seabirds.**
>
> **The KSHCP take estimate method utilizes the average of the most recent 5 years of SOS recovery data for the facility. Applied to the data is an adjustment for downed birds not found, assumed at 50 percent.**
>
> **If the landowner-applicant submits a take estimate with an alternate discovery rate, they must provide the reasons why an alternate rate was used to estimate take, including relevant information supporting their reasoning.**

We have used the numbers generated by the SOS program, and verified through our own database to determine take. We have generated a lot of empirical data over the more than 10 years that the seabird program has been operating. We have detailed information on the locations of every bird that has been recovered on the property over the past 10 plus years and feel confident that we understand the areas that birds are most likely to fallout on the property. We commissioned a large-scale map of the property and then calculated the amount of the property that is impossible to search due to cliff faces and/or very dense hau bushes, these areas are located predominantly along the northeast facing cliffs. From those calculations we determined that we could not effectively search slightly less than 10% of the property. With that said any bird that came down close to the edge of the cliff or on the cliff face would have no problem getting airborne again.

The entire property with the exception of the cliff faces are searched multiple times a day. We have been training our staff of over 600 employees every year for more than 10 years prior to the start of the fallout season. That training includes general awareness of the fallout issue, search procedures, response, recovery and reporting procedures. In addition, the staff has been searching the grounds each day for more than 20 years for dead chickens, and other wildlife which are promptly removed. Additionally, we provide guest information both at check-in and in their rooms on seabird awareness and reporting protocols if they encounter a downed seabird every fallout season. There is virtually no circumstance under which a fallout bird would escape detection by staff or guests in short order.

The combination of staff training, a mature seabird season set of protocols, active predator control and the nature of this high-end property results in very high searcher efficiency. Technical consultation with USFWS from 2016 through 2018, including a site visit to the

property, resulted in a determination by USFWS that a 90% searcher efficacy rate is appropriate for this PIP.

Table 10: Annual Lethal Take Estimate Calculation[i]

		Newell's Shearwater	Hawaiian Petrel	Band-rumped Storm-Petrel
1.	Avg. from SOS data–or—monitoring data (5 most recent yrs. = 2012-2016)	18	_	_
2.	Avg. from SOS data–or—monitoring data (15 most recent yrs. =2002-2016)	_	0.33	0
3.	Avg. lethal take estimate = 12% of SOS birds not released	2.16	0.04	0
4.	Adjustment for unobserved take (10% not searchable vs 50% typical)	2	0.04	0
5.	Total annual lethal take from light attraction	4	0.08	0
6.	Requested Annual Take	4	0.2 (1 every five years)	0.033 (1 for 30 year permit)
7.	Requested Take Over Permit Term	125	6	1

[i] Title of table revised per email from Kate Cullison on 4/10/20.

Item 2. Select the requested take authorization and permit/license term coverage for each of the Covered Species.

Table 11: Newell's Shearwater:

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or sub-adults	Take Limit for License/Permit Term
Mortality (Lethal)	4[i]	0	125[ii]
Injury (Non-lethal)	15.84[iii]	0	475.2[iv]

[i] This number is repeated from Line 5 of Table 10, above, and should not be added to the number in Table 10.
[ii] This number is NCL's requested take limit, repeated from Line 7 of Table 10, above, and should not be added to the number in Table 10.
[iii] This number of nonlethal take is derived by using the formula in KSHCP Section 6.2.2.1. As set forth in Section 6.2.2.1, "Lethal Take =100% undiscovered birds + 12% of birds that are discovered and turned into SOS." It follows, then, that nonlethal take is 88% of birds that are discovered and turned into SOS, or 88% of Line 1 of Table 10.
[iv] This number is derived by multiplying 15.84 by 30 years.

Table 12: Hawaiian Petrel:

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or sub-adults	Take Limit for License/Permit Term
Mortality (Lethal)	0.07[i]		6[ii]
Injury (Non-lethal)	0.3 (1 every five years) [iii]	0	6[iv]

[i] This number is repeated from Line 5 of Table 10, above, and should not be added to the number in Table 10. It is different than Princeville Resort Kauai's requested annual take for Hawaiian Petrels in Table 10, above, which is 0.2 (1 every five years).
[ii] This number is Princeville Resort Kauai's requested take limit, repeated from the last line of Table 10, above, and should not be added to the number in Table 10.
[iii] This number of nonlethal take is derived by using the formula in KSHCP Section 6.2.2.1. As set forth in Section 6.2.2.1, "Lethal Take =100% undiscovered birds + 12% of birds that are discovered and turned into SOS." It follows, then, that nonlethal take is 88% of birds that are discovered and turned into SOS, or 88% of Line 1 of Table 10.
[iv] This is Princeville Resort Kauai's requested coverage for nonlethal take.

Table 13: Band-rumped Storm-Petrel:

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or sub-adults	Take Limit for License/Permit Term
Mortality (Lethal)	0[i]		1[ii]
Injury (Non-lethal)	0[iii]		1[iii]

[i] This number is repeated from Line 5 of Table 10, above, and should not be added to the number in Table 10. It is different than Princeville Resort Kauai's requested annual take for Band-rumped Storm Petrels in Table 10, above, which is 0.033 (1 for 30 year permit).
[ii] This number is Princeville Resort Kauai's requested take limit, repeated from the last line of Table 10, above, and should not be added to the number in Table 10.
[iii] This is Princeville Resort Kauai's requested coverage for nonlethal take.

Item 3. Funding Assurance. Provide proof of adequate funding (see KSHCP document). All participants must demonstrate requisite funding prior to permit/license approval to ensure that the proposed measures and actions, including monitoring, will be undertaken in accordance with the terms and schedule of the KSHCP.

The Princeville Resort Kauai currently undertakes all minimization and conducts all monitoring using its existing staff as part of annual operating budget, and will continue to do so through the term of the KSHCP. The Princeville Resort Kauai will provide financial assurances as required by the KSHCP.

Signature of Participant:

Date: 5/13/2020

Printed Name :

Robert Geimer

The undersigned affirms that all the information included is true and accurate to the best of the participant's knowledge and that this PIP is voluntarily submitted.

☐ check to waive confidentiality

Appendices

Appendix A – Tax Map Keys (TMKs) of the Princeville Resort Kauai

Appendix B – Schematic layout of the resort

Appendix C – Staff seabird awareness training program

Appendix D – Typical seabird data recovery form

Appendix E – Seabird season lighting protocols

Appendix F – Typical guest newsletter

Appendix G – Guest Seabird Conservation Program brochure

Appendix H – In room window louver seabird awareness rack card

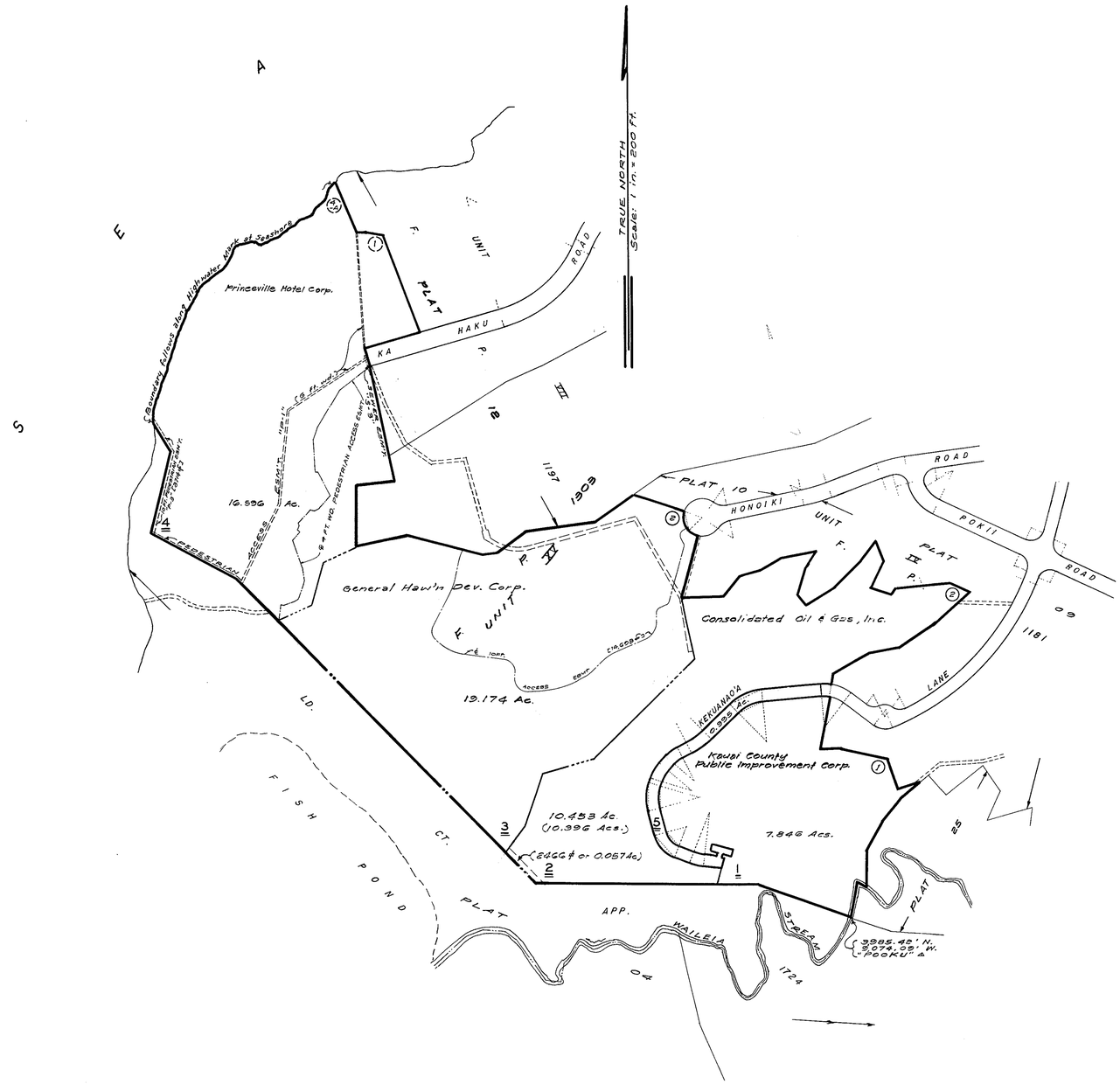
Appendix I – Prince Junior Suite bathroom lighting seabird awareness rack card

Appendix J – Young Voyagers Club coloring book – Cover and two typical inside pages

Appendix K – Excerpted Project Description approved by the Kauai County Planning Commission on October 30, 2019

Appendix A – Tax Map Keys (TMKs)

3 Maps



Note: All lots owned by Eagle County Development Corp. unless otherwise noted.

"PRINCEVILLE AT HANALEI," PARCEL I-A, UNIT IX, F. P. 1187, GR. 4845, HANALEI, KAUAI (Formerly por. 5-4-05).

FOR PROPERTY ASSESSMENT PURPOSES SUBJECT TO CHANGE

DEPARTMENT OF TAXATION
PROPERTY TECHNICAL OFFICE
TAX MAPS BRANCH
STATE OF HAWAII

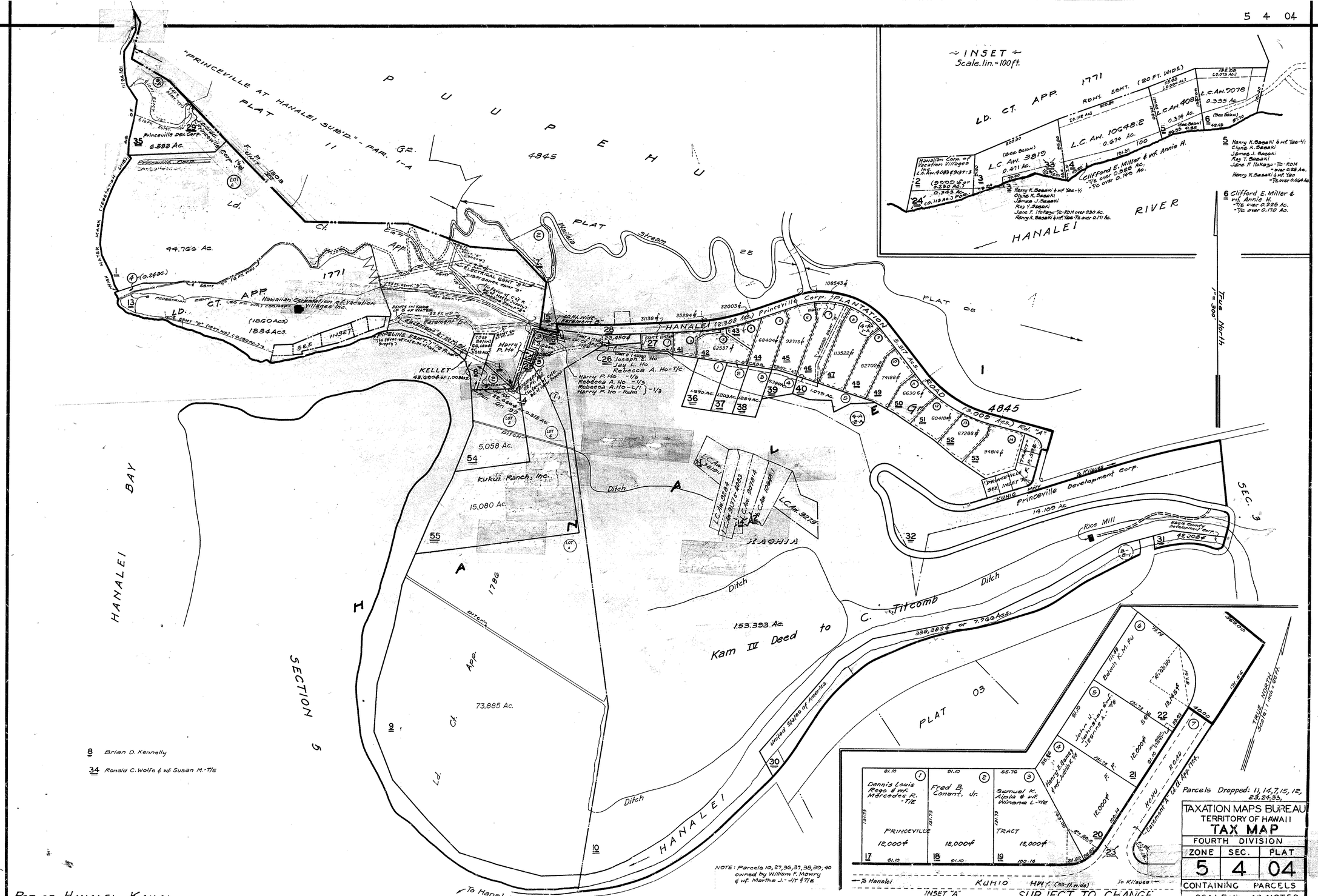
TAX MAP

FOURTH TAXATION DISTRICT

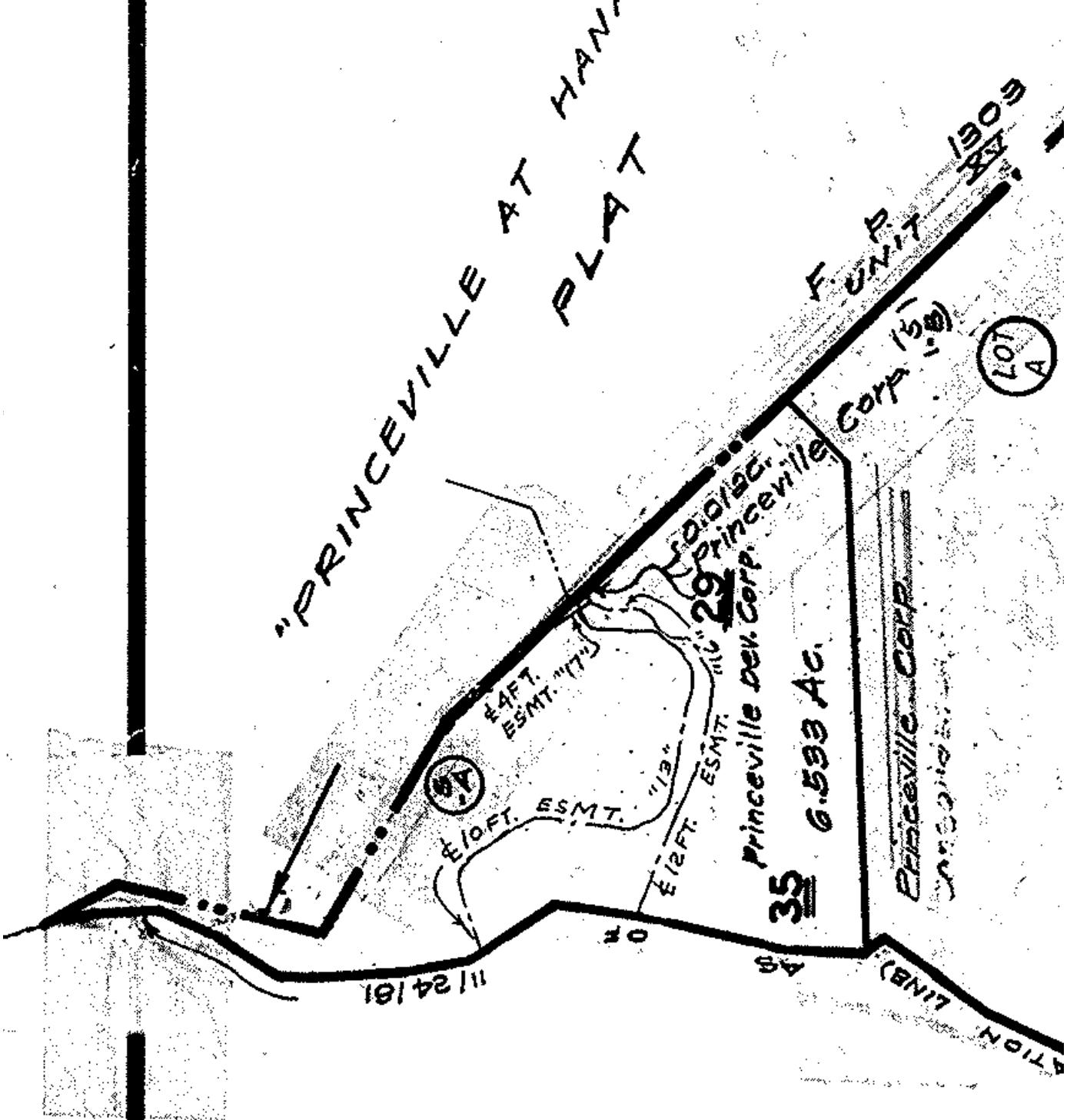
ZONE	SEC.	PLAT
5	4	11

SCALE: 1 IN. = 200 FT.

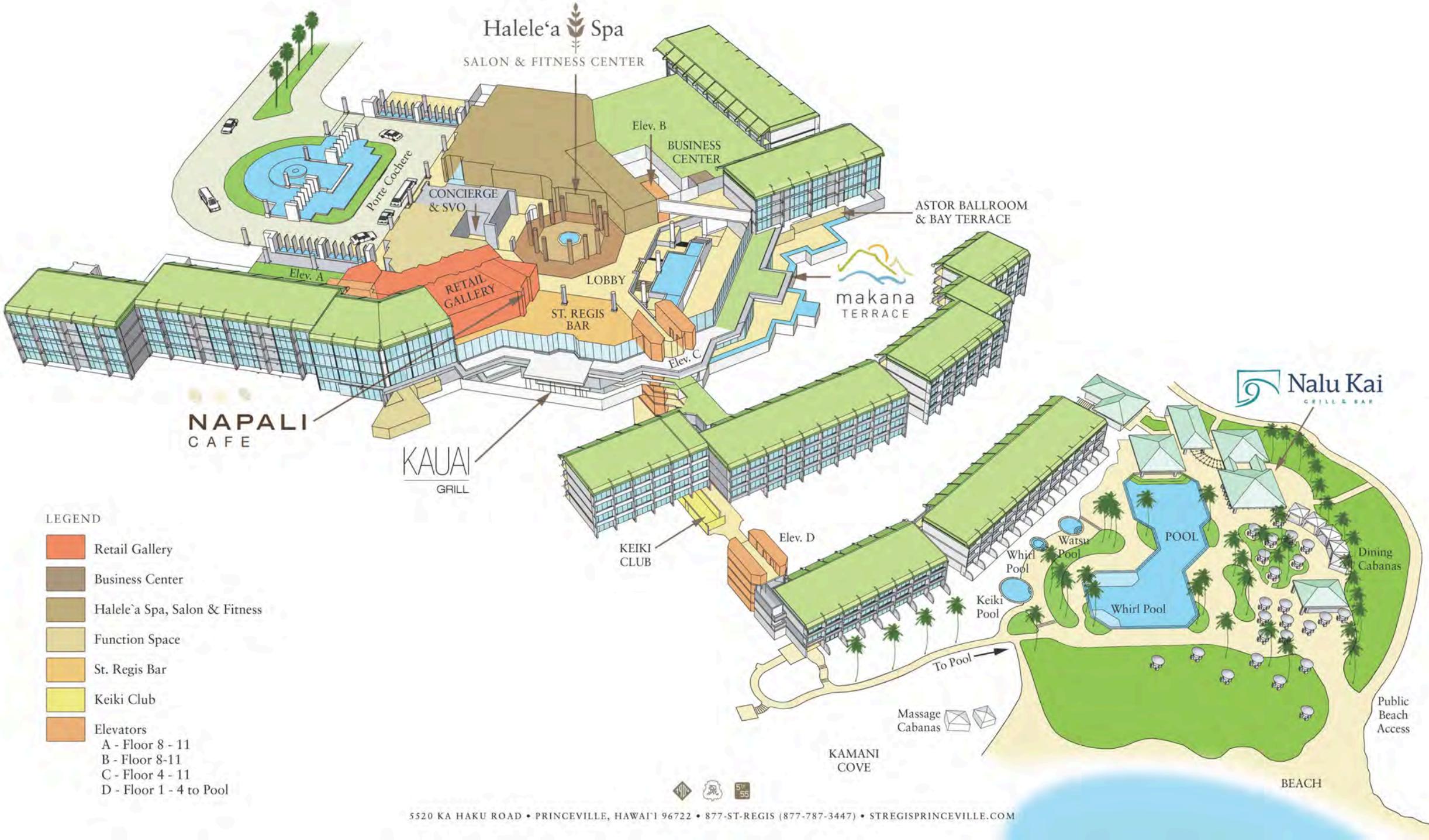
DWG. NO.: 6082 DATE: April 30, 1971 BY: H. N. / J. L. S. SOURCE: F. P. 1187



CORRECTED
JAN 17 1940
NOV 23 1940
NOV 28 1940
JAN 23 1941
FEB 2 1945
OCT 1 1946
NOV 9 1946
JUL 19 1947
JUL 23 1947
AUG 13 1947
MAY 20 1968
DEC 10 1968
APR 29 1969
JAN 12 1970
JAN 26 1970
MAR 24 1970
OCT 8 1970
NOV 6 1970
JAN 4 1971
NOV 19 1971
DEC 17 1971
JAN 4 1972
FEB 16 1972
JUL 28 1972
FEB 8 1973
JUL 28 1973
JUL 9 1974
JUL 12 1974
JUL 7 1974
JUL 10 1974
JUL 16 1975
JUL 19 1975
JUL 9 1976
JUL 13 1976
MAR 19 1979
FEB 7 1980
JUL 20 1981
DEC 1 1981
JUL 29 1982
JAN 24 1983
JUL 18 1983
JAN 31 1984
DEC 19 1984
JAN 28 1985
JUL 8 1985
Dwg. No. 3112
Source: Tax Maps Bureau
By: F.W.B. & H.N. Nov. 1936
"PRINCEVILLE AT HANALEI SUB'D." - PAR. 1-A
PLAT 11
PUUPEHU
4845
Princeville Dev. Corp.
6.533 Ac.
44.766 Ac.
LD. CT. APP. 1771
Hawaiian Corporation of Vacation Villages Inc.
(18.60 Acs.)
18.84 Acs.
SEE INSET
KELLET
Harry P. Ho
Joseph L. Ho
Jay L. Ho
Rebecca A. Ho-T/C
Harry P. Ho - 1/3
Rebecca A. Ho - 1/3
Rebecca A. Ho-L/1 } -1/3
Harry P. Ho - Rdm
HANALEI (2.308 Acs.) Princeville Corp. PLANTATION ROAD (3.009 Acs.) Rd. "A"
PLAT 05
PLAT 25
Stream
Wailela
5.058 Ac.
Kukui Ranch, Inc.
15.080 Ac.
Ditch
KAOHIA
L.C. Aw. 9284
L.C. Aw. 9137 & 4083
L.C. Aw. 9078 & 4
L.C. Aw. 10648
L.C. Aw. 9279
Princeville Development Corp.
14.109 Ac.
Rice Mill
Eagle County Development Corp.
42.208 ft
SEC. 3
HANALEI BAY
SECTION 5
HANALEI
1786
Ld. Ct. App.
73.885 Ac.
153.393 Ac.
Kam IV Deed to C. Titcomb
338,282 ft or 7.766 Acs.
United States of America
PLAT 03
HANALEI
To Hanalei
8 Brian D. Kennelly
34 Ronald C. Wolfe & wf. Susan M.-T/E
NOTE: Parcels 10, 27, 36, 37, 38, 39, 40 owned by William F. Mowry & wf. Martha J.-J/T & T/E
INSET
Scale. lin. = 100 ft.
LD. CT. APP. 1771
RDWY. ESMT. (20 FT. WIDE)
L.C. Aw. 9078
0.395 Ac.
L.C. Aw. 10648:2
0.674 Ac.
L.C. Aw. 3819
0.471 Ac.
L.C. Aw. 4081
0.314 Ac.
Clifford E. Miller & wf. Annie H.
Hawaiian Corp. of Vacation Villages Inc.
L.C. Aw. 4083 & 9137:3
Henry K. Sasaki & wf. Yae-1/1
Clyne K. Sasaki
James J. Sasaki
Roy Y. Sasaki
Jane F. Hakazu-T/C-RDM over 0.30 Ac.
Henry K. Sasaki & wf. Yae-T/C over 0.171 Ac.
Henry K. Sasaki & wf. Yae-1/1
Clyne K. Sasaki
James J. Sasaki
Roy Y. Sasaki
Jane F. Hakazu-T/C-RDM over 0.25 Ac.
Henry K. Sasaki & wf. Yae-T/C over 0.064 Ac.
6 Clifford E. Miller & wf. Annie H.
-T/C over 0.225 Ac.
-T/C over 0.170 Ac.
HANALEI RIVER
True North
1" = 300'
Dennis Louis Rego & wf. Mercedes R. -T/E
Fred B. Conant, Jr.
Samuel K. Aipia & wf. Winona L.-T/E
PRINCEVILLE
TRACT
12,000 ft
Henry E. Gomes & wf. Judith K. T/E
John H. Johnston & wf. Jeanne A.-T/E
Edwin K. M. Fu
F. P.
HONU ROAD
Easement "A" Ld. Ct. App. 1724
To Hanalei
KUHIO HWY. (50-ft wide)
To Kilauea
INSET "A"
SUBJECT TO CHANGE
Parcels Dropped: 11, 14, 7, 15, 12, 23, 24, 33,
TAXATION MAPS BUREAU
TERRITORY OF HAWAII
TAX MAP
FOURTH DIVISION
ZONE 5
SEC. 4
PLAT 04
CONTAINING PARCELS
SCALE: lin. = AS NOTED
PRINTED
POR. OF HANALEI, KAUAI.


"PRINCEVILLE AT HANA
PLAT
F. P. UNIT
1303
LOT A
Princeville Corp.
0.012 Ac.
Princeville Dev. Corp.
29
35
6.533 Ac.
Princeville Corp.
℄ 4 FT. ESMT. "17"
℄ 10 FT. ESMT. "13"
℄ 12 FT. ESMT. "16"
11/24/81
OF
AS
ATION LINE)

Appendix B - Schematic layout of the resort


Halele'a Spa
SALON & FITNESS CENTER
Elev. B
BUSINESS CENTER
Porte Cochere
CONCIERGE & SVO
ASTOR BALLROOM & BAY TERRACE
Elev. A
RETAIL GALLERY
LOBBY
ST. REGIS BAR
makana TERRACE
Elev. C
NAPALI CAFE
KAUAI GRILL
Nalu Kai GRILL & BAR
KEIKI CLUB
Elev. D
Watsu Pool
POOL
Whirl Pool
Dining Cabanas
Keiki Pool
Whirl Pool
To Pool
Massage Cabanas
Public Beach Access
KAMANI COVE
BEACH
LEGEND
Retail Gallery
Business Center
Halele`a Spa, Salon & Fitness
Function Space
St. Regis Bar
Keiki Club
Elevators
A - Floor 8 - 11
B - Floor 8-11
C - Floor 4 - 11
D - Floor 1 - 4 to Pool
5520 KA HAKU ROAD • PRINCEVILLE, HAWAI'I 96722 • 877-ST-REGIS (877-787-3447) • STREGISPRINCEVILLE.COM

Appendix C - Staff seabird awareness training program

Princeville Resort Kauai
Seabird Awareness Training Program

Prepared by: Reginald E. David

Purpose of Training

- Three protected seabird species are recovered on the resort property every fall
- The Princeville Resort is committed to the protection of these species
- The Princeville Resort has specific protected seabird protocols in place that will be followed by all associates
- There are significant legal implications if any of these birds are harmed, or the protected seabird protocols are not followed

Legal Setting - Protected Species

- Federal Law; the Endangered Species Act of 1973, as amended (ESA) and the Migratory Bird Treaty Act (MBTA)

- State Law; Hawaii Revised Statutes (Chapter 195-D)

IT IS ILLEGAL TO: "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct"

Any species listed under any of these statutes.

- Violations of the federal ESA may include civil fines of up to $25,000 per incident, and criminal fines of up to $50,000, and up to one year imprisonment per incident.

Why Do Protected Seabirds Land on Resort Property?

- Fledgling birds on their way to sea for the first time are often attracted to lights and can be confused by them
- Confused birds may collide with structures, or simply land on the ground too tired to continue flying
- Once on the ground they cannot take off again and will die from starvation, dehydration or be killed by predators if not rescued
- Approximately 97% of the downed seabirds are fledglings

Seabird Fallout Season

The vast majority of Seabird fallout on Kaua‘i occurs between September 15 and December 15 each year

Protected Seabird Species

Newell's Shearwater – *'a'o*

- Listed as a threatened species by both the U.S. and State of Hawai'i
- 80% of population nests onKaua'i
- Also breeds on Maui, Hawai'i and possibly Molokai

Wedge-tailed Shearwater – *‘u‘aukani*

- Protected under the federal MBTA
- Breeds on all of the Hawaiian Islands

Hawaiian Petrel – *‘u‘au*

- Listed as Endangered by both U.S. & State of Hawai‘i
- Breeding populations exist on Kaua‘i, Maui, Lana‘i and Hawai‘i

The Princeville Resort Kauai
Malama the Shearwater Program

Bird friendly lighting program

- The Princeville Resort Kauai has changed out numerous traditional lighting fixtures with low wattage LED down-pointed shielded lights
- Seabird fallout season lighting protocols turn off or dim many additional lights on the property
- Window shades are being installed on several windows that lights shine out to the sea from – they will be lowered during the seabird fallout season

Downed Seabird Recovery Program

- The Princeville Resort Kauai has an extensive and very comprehensive downed seabird recovery program which works in close collaboration with the Island wide Save our Shearwater Program (SOS)
- The Princeville Resort Kauai hosts an SOS Shearwater Aid Station that birds from the Resort and surrounding entities are placed in and are then admitted into the SOS Program which cares for, rehabilitates, documents and releases the birds back into the wild
- Approximately 92% of the recovered seabirds are released back into the wild

Guest Education and Outreach

- The Princeville Resort Kauai has developed a seabird awareness and educational tri-fold brochure that will be placed in every guest room
- Informational signs are being placed on the window louvers in guest rooms asking guests to keep their louvers closed after dark during the seabird fallout season
- Princeville Resort Kauai has commissioned the creation of a children's coloring book starring an 'a'o, monk seal and an albatross which tells the story of the seabird program
- The Princeville Resort Kauai is currently creating a video about the seabird program at the Resort

Associates Responsibilities

- While on the property be alert for downed seabirds, especially during the September 15 – December 15 peak fallout season
- If you find a downed bird report it to security immediately
- Do not touch the bird
- Standby until a security officer arrives

Mahalo

- The Princeville Resort Kauai takes pride in our continued efforts to protect the natural resources on the Island
- Thank you for your attention to this presentation and your continued kōkua with this program.

If You Would Like More Information

- Please don't hesitate to ask me about any questions you may have about the birds or the program
- My contact information is as follows:

Reggie David
(808) 329-9141 Office
(808) 937-0124 Cell
rdavid@ilhawaii.netemail

The End

Advanced Downed Seabird Training

Modified Seabird Protocols

- Changes have been made to bird retrieval, photography, incident reporting and data management for the 2010 season – these changes primarily reflect the need to correctly identify the birds recovered to species level
- These changes are due to new seabird behavior, changed circumstances and ongoing and changing wildlife regulatory processes and third party legal actions
- These changes are in no way a reflection on the way that the security department responded to downed Seabird incidents over the past two years – you all followed the protocols of the day, and did a good job
- I would like to thank you all very much for the way that you followed protocols, it made my job easier, and has provided some of the information which in part is driving the changes to seabird protocols for the 2010 season

Downed Seabird Response Protocols

- Security will immediately respond to the scene with protective gloves, a clean towel, pet carrier and a digital camera
- Before touching the downed seabird take at least one photo of the scene showing the bird in situ
- Put on protective gloves
- Carefully wrap the bird in a clean towel, place in pet carrier
- Transport the bird to the Security office
- Summon assistance, and once there are two officers on hand remove the bird from the pet carrier and take at least two identification photographs of the animal (more on this a bit later)
- Place the bird in the Shearwater Aid Station
- Fill in the "Shearwater Aid Station" log and fill in and submit a security report

Downed Seabird Security Report

- Date and time that the downed seabird was first seen
- Exact location that the bird was found
- Who first noticed the bird
- Who responded
- Photograph identification numbers of the incident
- When was the bird recovered
- Confirmation that the Shearwater Aid Station log was filled out – note in your security report if you were unable to fill in the SAS log (rain, no pen etc.)

Seabird Reporting Loop

- Give a copy of the Downed Seabird Security Report to the Chief Engineer
- Data from the Security report will be entered into a database ASAP
- An updated “Downed Seabird” database along with documenting photographs will be transmitted electronically to the Program Biologist as rapidly as is feasible for confirmation of identification and monitoring of the data

Seabird Species Identification

Hawaiian Petrel

Newell's Shearwater – *'a'o*

- Listed as a threatened species by both the U.S. and State of Hawai'i
- 80% of population nests onKaua'i
- Also breeds on Maui, Hawai'i and possibly Molokai

Hawaiian Petrel – *‘u‘au*

- Listed as Endangered by both U.S. & State of Hawai‘i
- Breeding populations exist on Kaua‘i, Maui, Lana‘i and Hawai‘i

Wedge-tailed Shearwater – *‘u‘aukani*

- Protected under the federal MBTA
- Breeds on all of the Hawaiian Islands

Why is Correct Species Identification Important?

- In the past more than 95%of the seabirds downed on the resort property have been Newell's Shearwaters which as you all know are listed as an endangered species
- In the past we have also recovered one or two Hawaiian Petrels on property each year – this species is also listed as an endangered species
- What is new is that over the past season approximately 20% of the birds we have recovered have been Wedge-tailed Shearwaters, which are not listed under either federal or state of Hawaii endangered species statutes
- Why is this change in bird behavior and recovery important to the Resort?

The simple answer is potential liability under the ESA and HRS 195D

Current Regulatory Situation

- The Princeville Resort Kauai is one of 40 entities on Kaua‘i that have been contacted by both federal and state wildlife regulators over seabird issues
- We along with many of those entities are actively participating in the Kaua‘i Seabird Habitat Conservation Plan – a program which, when complete will issue both federal and state permits to authorize “take” of listed seabird species
- This plan requires that entities minimize their potential threat to these species to the maximum extent practicable – for any unavoidable take that occurs following the implementation of those measures, entities will need to pay a per bird fee
- Currently the per bird fee for the two listed species being discussed is $10,000 per bird a year for the term of the permit, which is currently expected to be between 20 and 30 years

Changes in Protocols to Meet These Needs

- Responders will take photographs of EVERY bird handled
- Responders will take close-up identification photographs of EVERY bird handled
- Responders will fill in the Shearwater Aid Station log for EVERY bird placed in the "Shearwater Aid Station"
- Data and photographs will be transmitted electronically to the project biologist promptly

Workshop Topics

- Cameras
  - Types
  - Resolution
  - Settings
  - Camera image numbering
- Moving birds & picture taking
  - How do you do it now
  - Pet carriers
- Data recording and reporting
  - Camera image numbering
  - Timelines on security reports
  - Timelines on data entry and transmission to program biologist
- Other Issues

Mahalo

- *The Princeville Resort Kauai deeply appreciates the security departments lead on responding to downed seabirds and the continued professionalism of the department members*

- *We also deeply appreciate your ongoing input into improving a program that is as fundamental and important to the Resort as this one.*

Appendix D - Typical seabird data recovery form

Malama the Shearwater Log Sheet 2009

No.	Report #	Species	Date	Time	Location	Photo	AID S #	Condition	Comments
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									

- **Photograph the Shearwater and surrounding area and attach to log sheet**
- **Log sheet is submitted to Director of Engineering the following morning. In the absence of the Director of Engineering submit to the AM MOD.**

Appendix E – Seabird Season Lighting Protocols

Shearwater Light Procedures

September – December

1. Engineering – (Sep. 1st for season) Turn off 25% of parking lights or 5 approved light poles
2. Engineering – (Sep. 1st for season) Adjust Guard shack shielded lighting to point downward
3. Engineering – (Sep. 1st for season) Turn off up lights at Royal Palms
4. Engineering – (Sep. 1st for season) Turn off lights in Porte-cochere water feature
5. Engineering – (Sep. 1st for season) Turn off flood lights at Cooling Tower
6. Engineering – (Sep. 1st for season) Turn off flood lights at Flower shop
7. Engineering – (Sep. 1st Removed flood lights) St Regis Bar Lanai – turn off flood lights
8. Engineering – (Lower Daily after Sunset, Raise before Sunrise) Pull shades at 4th floor elevator lobby
9. Engineering – (Lower Daily after Sunset, Raise before Sunrise) Pull shades at Keiki club
10. Engineering – (Lower Daily after Sunset, Raise before Sunrise) Pull shades at 9th and 10th floor B1 wing
11. Engineering – (Sep. 1st for season) Turn off flood lights (3) at 3rd floor rooftop
12. Engineering – (Sep. 1st for season) Turn off soffit lights at 3rd floor elevator landing
13. Engineering – (Sep. 1st for season) Place shroud on all Turtle lights on first floor
14. Engineering – (Daily at 11:00pm) Turn off all Tiki torch lighting
15. Engineering – (All Season) Leave Tiki torch off at Watsu Pool.
16. Engineering/All – (Sep. 1st for season) Turn off florescent lights at Pool manager office and Kitchen area
17. Engineering/All - (Sep. 1st for season) Dim lights at lobby Piko (Ensure cleaners can not turn all lights on to 100% when cleaning in the evening.)
18. Engineering/All - (Sep. 1st for season) Dim lights at Kauai Grill (Ensure cleaners can not turn all lights on to 100% when cleaning in the evening.)
19. Engineering/All - (Sep. 1st for season) Dim lights at Makana Terrace (Ensure cleaners can not turn all lights on to 100% when cleaning in the evening.)
20. Engineering/All - (Sep. 1st for season) Dim lights at Nalu Kai and Pool activities desk (Ensure cleaners can not turn all lights on to 100% when cleaning in the evening.)
21. Engineering/All - (Sep. 1st for season) Dim lights at St Regis Bar (Ensure cleaners can not turn all lights on to 100% when cleaning in the evening.)
22. Engineering - (Sep. 1st for season) St Regis Bar – Replace cfl's in floor lamps with 60 watt incandescent bulbs
23. Manager - St Regis Bar – (Sep. 1st for season) Turn off floor and table lamps after working hours
24. Rooms Division - (Sep. 1st for season) Distribute Shearwater letters at reception desk when Guests check-in.
25. Rooms Division - (Sep. 1st for season) Place Shearwater awareness signage in all Guestroom to keep lovers closed at night.
26. Rooms Division - (Sep. 1st for season) Place cards in Prince Junior Suites to turn off lights in bathrooms when not in use.
27. Human Resources – (Sep. 15th) Ensure all employees are trained on Shearwater awareness.
28. Security/Engineering – (Sep. 15th) Ensure all Security and Engineering staff understands the "Light Procedures" as outlined.
29. Security - (Sep. 1st for season) Security to check and document above procedures (during season) nightly to ensure all measures are in place.

_____

Name

_____

Signature

Appendix F – Typical guest newsletter

September 19—25, 2010

Welina Mai, Welcome to The St. Regis Princeville Resort!

ST REGIS PRINCEVILLE

ST. REGIS EVENING RITUAL

Fridays in the St. Regis Bar
6:15 pm

The evening's host will share the story of the *'Oahi* , the ancient fire throwing ceremony of Makana, the northwestern mountain peak that can be viewed from the resort and depicted in the St. Regis Bar Mural. The *'Oahi* was performed for the most esteemed celebrations. On the day of the ceremony skilled fire throwers climbed the steep cliffs to the top of Makana with dry logs of *papala* or *hau*. The logs were lit and hurled out over the ocean. The updrafts created by the trade winds kept the firebrands aloft, soaring as far as a mile out to sea.

The evening ritual concludes with a dramatic champagne sabering. Enjoy live Hawaiian entertainment with Maluhia

KOKUA

Help protect Kauai's native Shearwater birds

Kaua'i is home to many species of seabirds that nest and raise their young in the mountain forests and in the coastal beach vegetation.

These seabirds include the Newell's Shearwater, Hawaiian Petrel and Wedge-Tailed Shearwater. From September through December, when they leave their nests, seabird fledglings are guided by the light of the moon out to sea. Young seabirds, when traveling at night, can become disorientated by unshielded lights. The urbanization on Kauai has resulted in the ongoing fallout of fledgling on their first nocturnal flight from their nesting burrow to the ocean.

We at St. Regis Princeville Resort are doing what we can to help the young seabirds find their way to the ocean safely. As part of our commitment to help these seabirds find their way to the ocean safely, we ask that you close the guest room louvered window panels after dark to shield the indoor room lights. With your cooperation we can host a safe environment for our native birds. In addition if you should encounter a bird somewhere on our resort grounds, we ask that you do not handle the bird, but instead contact a member of our trained staff.

ARTISAN'S MARKETPLACE

Amy Christmas
Wednesdays 9:00 am - 5:00 pm
Coconut Fiber Baskets

Hawaiian Palm Baskets are handmade by Amy Christmas, here on Kauai. She has been creating and perfecting them for 12 years.

The baskets are assembled from a wealth of recycled local plant materials, the primary elements coming from an array of local palms. They are adorned with unique combinations of other indigenous plant parts including leaves, pods, fruits, and flowers.

The natural earth-tones accentuate any decor while the various sizes offer endless possibilities for display. They are gifts of aloha that reflect the beauty of the 'Garden Isle' and will truly be treasured by all who receive them.

Please join us in welcoming our honored guest Kupuna Dora Swain
Mondays 9:00 am - 12:00 pm

A *kupuna* is an honored elder who has acquired enough life experiences to become a family and community leader. The term has been recognized to be the embodiment of natural respect... a practitioner of aloha (love), pono (righteousness), malama (caring), and spirituality. Kupuna joins us on Mondays in the St. Regis Bar to share the many aspects of Hawaiian Culture.

*Since preparation of the brochure, the resort is no longer the St. Regis and is now the Princeville Resort Kauai.

Appendix G – Guest Seabird Conservation Program Brochure

I malama a I ho'opakele
I na manu 'aukai o Kaua'i

"To care and project Kaua'i seabirds."

Seabird Conservation Program

Kaua'i is home to many species of seabirds that nest and raise their young in the mountain forests and in the coastal beach vegetation.

These seabirds include the Newell's Shearwater, Hawaiian Petrel and Wedged-Tailed Shearwater. From September through December, when they leave their nests, seabird fledglings are guided by the light of the moon out to sea. Young seabirds, when traveling at night, can become disoriented by unshielded lights.

The urbanization on Kaua'i has resulted in the ongoing fallout of fledgling seabirds on their first nocturnal flight from their nesting burrow to the ocean.

In 1980, the Department of Fish and Wildlife on Kaua'i, established the "Save Our Shearwaters" program to aid these precious birds. The SOS program sets up collection aid stations during the fledgling season.

We at The St.Regis Princeville Resort are doing what we can to help the young seabirds find their way to the ocean safely. We volunteer each season as a host aid station site and proactively limit our exterior lighting throughout the resort and grounds. As part of our commitment to help these seabirds find their way to the ocean safely, we will close your louvered window panels during Turndown Service. We ask for your participation by keeping the louvers closed at night until you have turned off your lights for the evening.

If you should encounter a bird somewhere on resort grounds, we ask that you do not handle the bird, but instead contact a member of our trained staff.

Mahalo nui loa.

Newell's Shearwater

Wedge-tailed Shearwater

Hawaiian Petrel

Appendix H – In room window louver seabird awareness rack card

Young Newell's Shearwater birds travel at night to the ocean from September to December and can become disoriented by unshielded light. As part of our commitment to help these seabirds find their way to the ocean safely, we will close your louvered window panels during Turndown Service. We ask for your participation by keeping the louvers closed at night until you have turned off your lights for the evening.

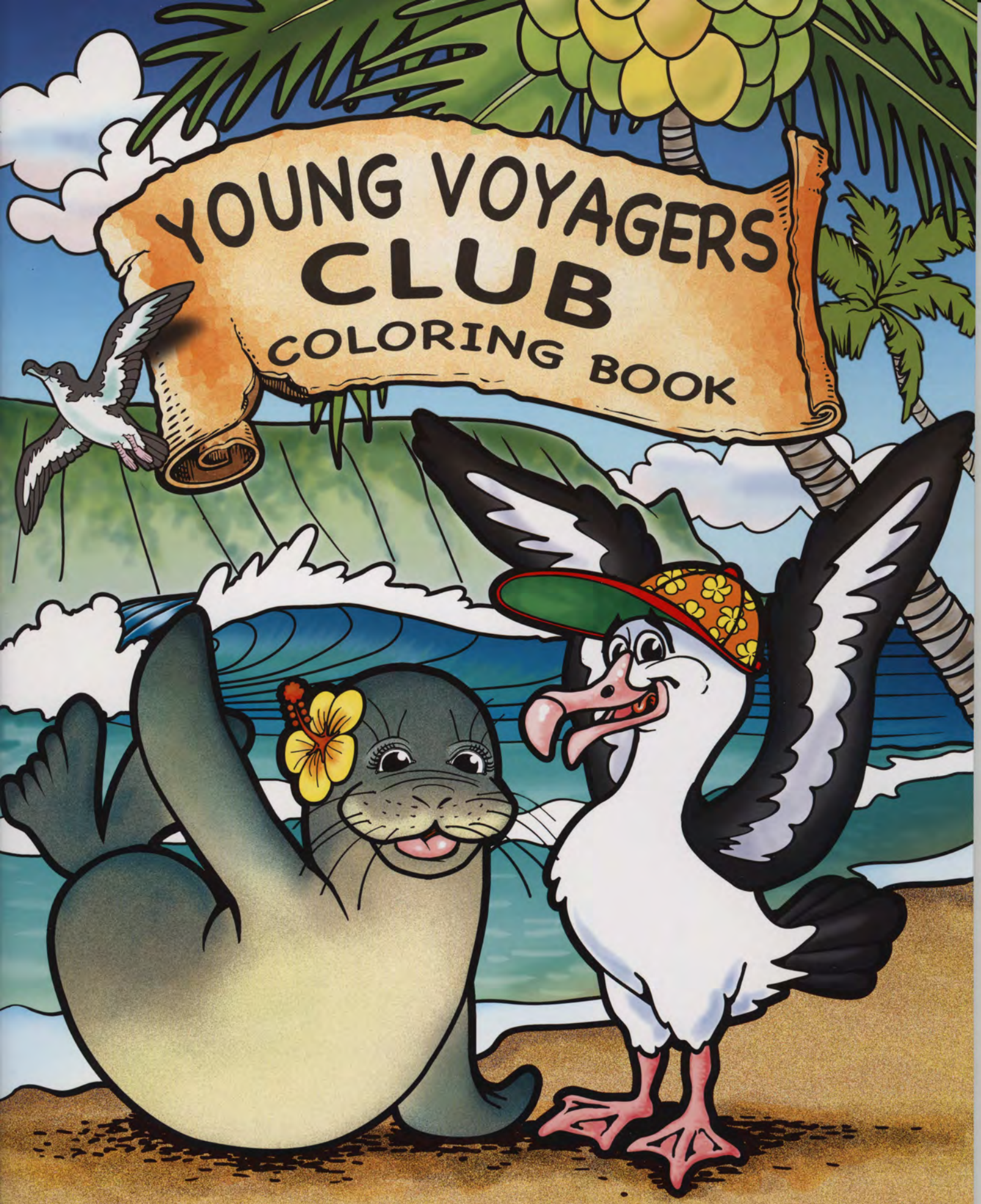
With your cooperation we can host a safe environment for our native birds. Mahalo!

Appendix I – Prince Junior Suite bathroom lighting seabird awareness rack card

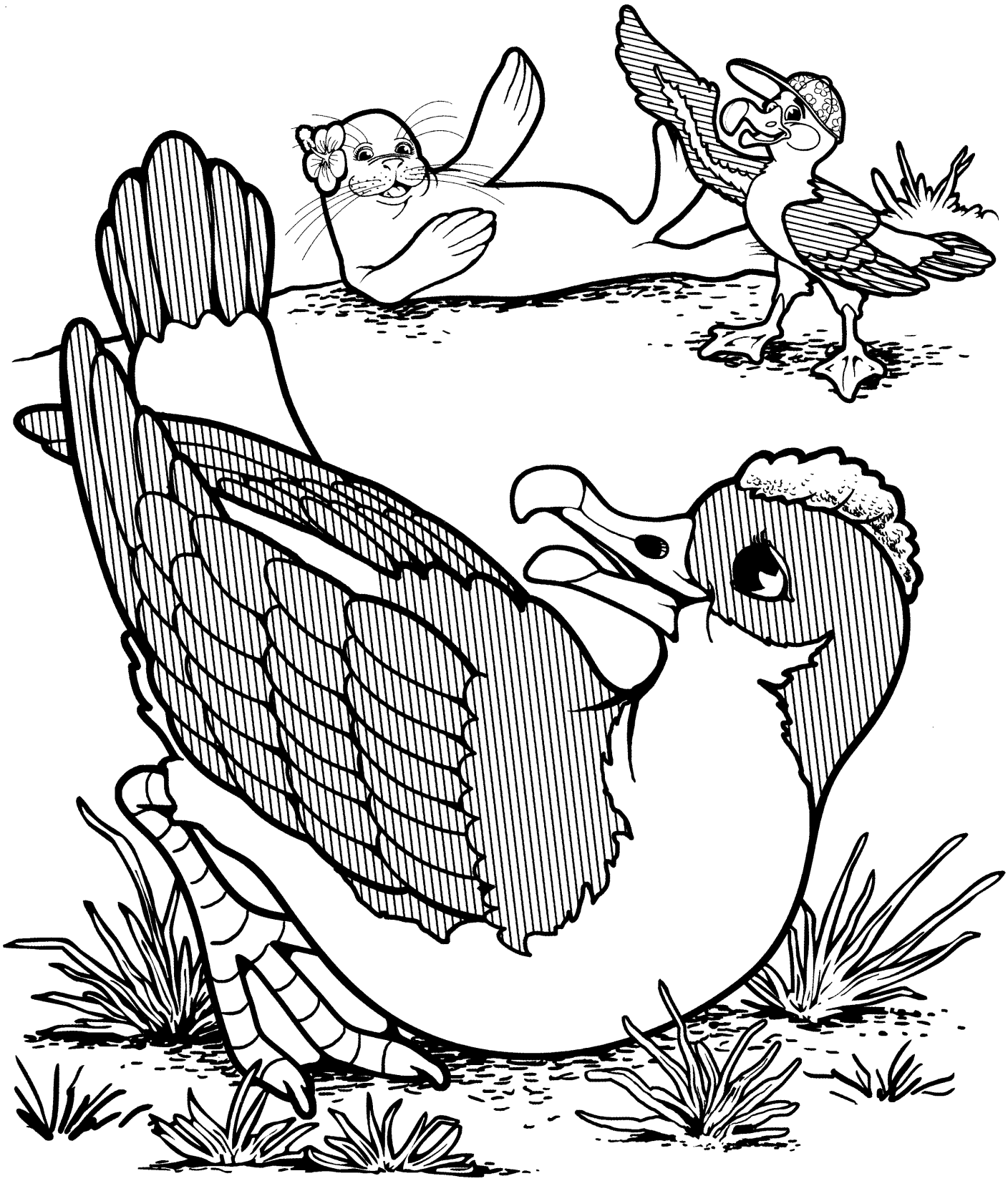
Young native Newell's Shearwater birds travel at night to the ocean from September to December and can become disoriented by unshielded light.

We are committed to helping these endangered seabirds find their way to the ocean safely. We would appreciate you turning off the bathroom lights when not in use. We thank you for your cooperation and support of our Seabird Protection Program.

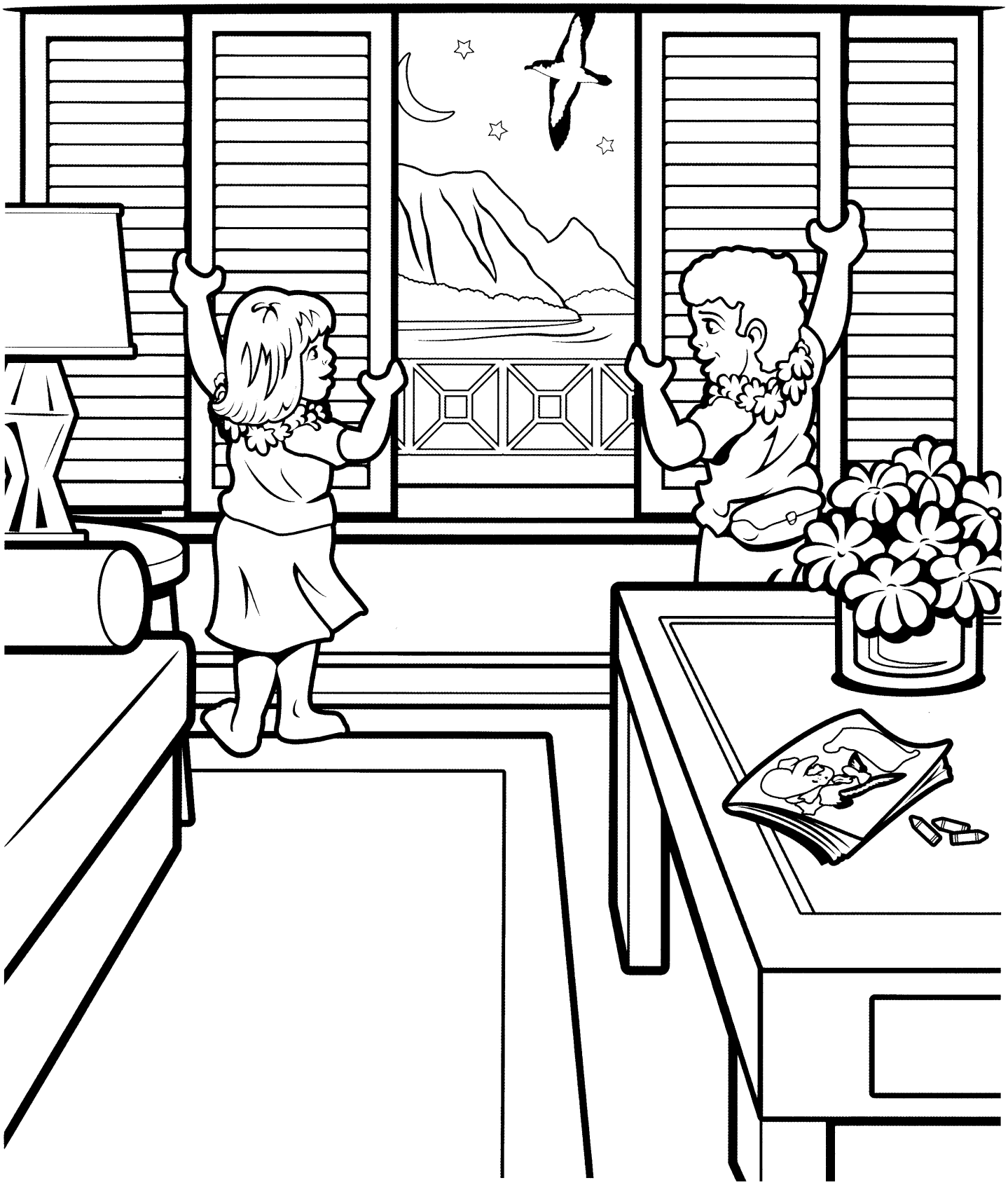
Appendix J – Young Voyagers Club coloring book - Cover and two typical pages



By Patrick Ching



Who's that over there?
Aloha, My name is 'A'o (ah-oh). I'm a young Newell's shearwater.
When I learn to fly I do it at night. Sometimes I get distracted by a full moon or bright lights. I may get dizzy and fall to the ground. That's how I landed here.



September through December is the shearwater fledging season. That's when shearwaters learn to fly. At those times the hotel guests are asked to close their louvered window panels to shield their room lights.

Appendix K – Excerpted Project Description approved by the Kauai County Planning Commission on October 30, 2019

Excerpt contains only Section 2.3
(Project Description)

1 HOTEL

Puʻu Pōā, Princeville, Hanalei, Haleleʻa, Kauaʻi, Hawaiʻi

TMK (4) 5-4-001:004; 5-4-004:029; 5-4-004:035

Site Plan Modification

HOTELS

Applicant:

SOF XI Kauai PV Hotel, L.P.
591 West Putnam Avenue
Greenwich, Ct 06830

Submitted To:

County of Kauaʻi
Planning Department
4444 Rice Street, Ste A473
Līhuʻe, Hawaiʻi 96766

Prepared By:

G70
111 S. King Street, Suite 170
Honolulu, Hawaiʻi 96813

June 17, 2019

G70

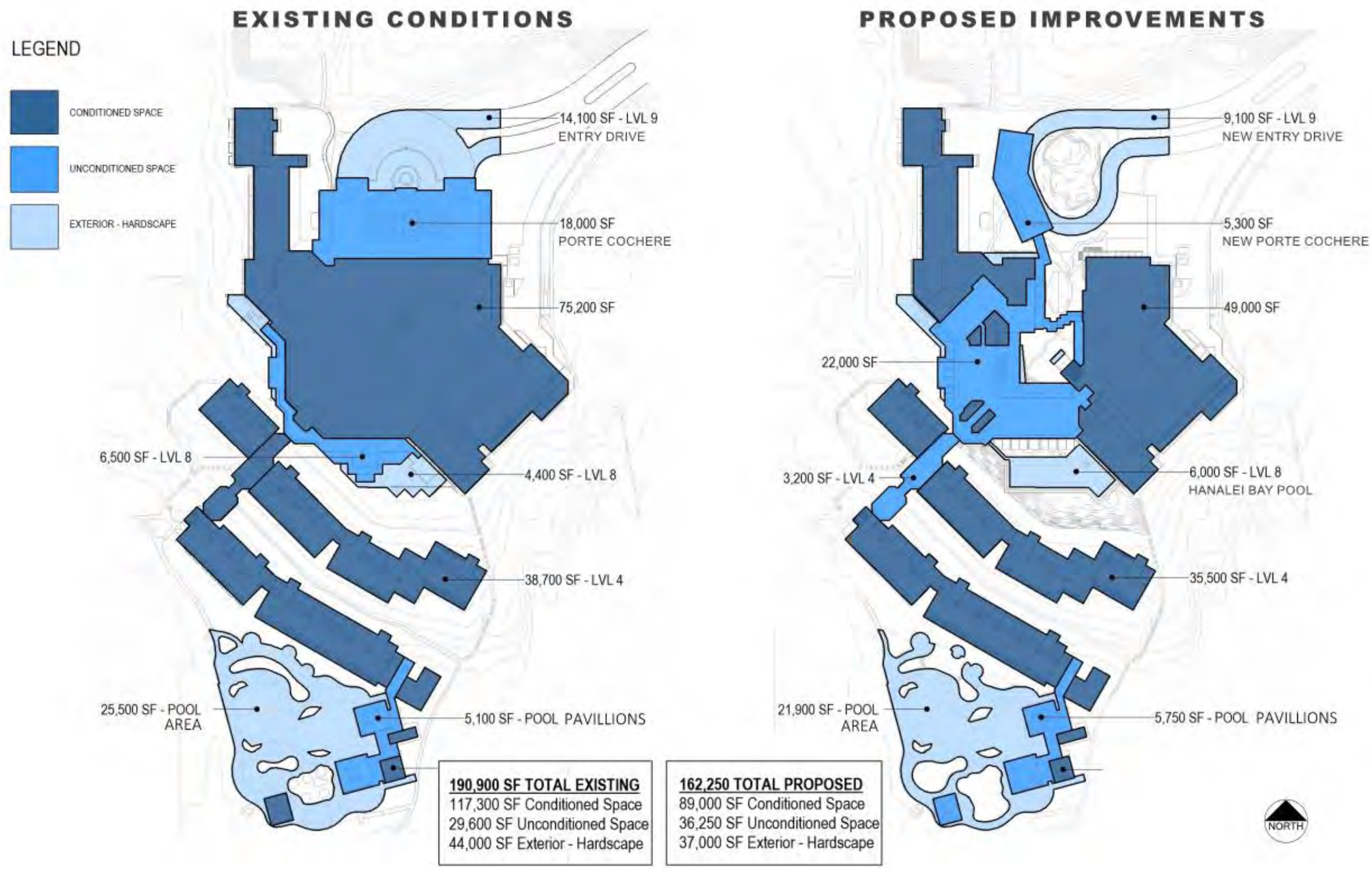


Figure 2-15 **Modification of Development Footprint**

2.3 Planned Improvements

The project supports the rebranding of the resort, providing guests with the 1 Hotel vision and experience. The project will provide key repair and maintenance improvements to the hotel exterior, arrival area, lounge, dining area, walkways, pool areas, and landscaping (*Figure 2-13*). Renovations are designed to enhance the guest experience by creating more open spaces and exposing interior spaces to outer elements that provide a more natural aesthetic. These upgrades to existing features will allow visitors at the resort to experience a luxury resort that is immersed with the natural beauty of Kaua‘i.

The 1 Hotel project will also improve the existing guest rooms. The interior improvements will provide guests with a private lodging space that displays the luxuries of the 1 Hotel brand and its amenities. Although the interior renovations will occur concurrently with the planned project improvements, the specifics of these plans will be discussed in a separate permit application.

The 1 Hotel project will not result in changes to the existing setbacks or height of the hotel. The overall footprint on the site will be reduced from 190,900 square feet (SF) to 162,250 SF to provide additional open space and landscaping on the resort property (*Figure 2-15*). The proposed improvements to the Princeville Resort Kaua‘i will fit with the existing site and are not expected to result in significant adverse impacts to the surrounding area. The resort will continue to be an economic engine for the County and provide employment opportunities for the local community. 1 Hotel will be a flagship resort property that provides a world-class visitor experience while preserving the authentic natural character of Kaua‘i’s North Shore. The project has been designed to optimize the existing space with improvements that update the hotel’s overall appearance while providing a new lodging option for visitors to explore. The proposed project improvements are described in further detail below.

<u>Overall Exterior</u>

The building’s existing exterior façade can be viewed from Hanalei Bay (*Figure 2-11)*. Improvements to the building exterior are designed to elevate the aesthetic appeal of the resort by blending existing structures into the surrounding environment. The structure’s existing white colored exterior will be softened using natural earthy colors and textures (*Figure 2-16)*. Inspired by the ‘āina of Kaua‘i, the improved façade’s color pallet contains shades and hues observable in the island’s sandy shorelines, eroded lavas, and rocky precipices. Landscaping will also be integrated into the façade to create a living wall that blends the hotel into the natural landscape of Pu‘u Pōā. The aging roofs on the resort’s three main buildings will be refinished and partially replaced with new green roofs. The integration of green walls and green roofs will beautify the resort’s structures while also reducing energy costs.

Figure 2-16 **Proposed Overall Exterior, North Facing View**

Entry Drive

Visitors arrive to the property via Ka Haku Road to the hotel driveway. As part of the improvements, trees will be planted along the perimeter of the driveway to create a shaded canopy (*Figure 2-14 and Figure 2-17*). The entry drive layout and landscaping are designed to provide a more intimate and leisurely feeling upon arrival. The project will also redevelop the existing roundabout to include a new central conical mound. The mound will block the view of the roadway and muffle vehicular noise, while also improving stormwater retention. The mound's construction will utilize the adaptive reuse of demolition materials to build up its elevation. Both the entry drive and mound will be lushly landscaped with native and tropical plants (*Figure 2-23 and Figure 2-24*).

Porte-Cochere

The existing white concrete porte-cochere will be replaced with a smaller scale structure that will incorporate natural building materials. The improved porte-cochere design will create an airy rustic setting that enhances natural light and air flow (*Figure 2-17*). The porte-cochere arrival area has been designed to provide guests with a memorable first impression to the 1 Hotel's nature-inspired resort setting.

Courtyard Lobby

The main entry to the three-tiered resort is located on the 9th floor. The lobby houses the reception area where visitors are greeted upon arrival. From there, guests may descend to the guestrooms, pool, and other public areas located on the floors below. The entryway and hotel lobby are key areas that help set the tone for the resort escape experience.

The existing lobby of the hotel is a confined space that is closed off from outdoor elements and scenic views. The project will improve the new lobby by providing an open-air courtyard landscaped with lush plants, lava rock, and a new water feature (*Figure 2-14*). The improvements are also designed to reorient the view from the hotel entrance towards Hanalei Bay and the Nā Pali Coast, that will add an element of drama to the arrival experience. Natural air and light will fill the space that helps to blur the boundary between the natural and built environment. A new wooden boardwalk with overhead vegetated trellises will also be constructed to provide wayfinding for guests to the reception area for check-in services (*Figure 2-18*).

The project design will open the arrival area as natural lobby garden setting that includes landscape and water feature elements. Some of these elements will be built above the 8th floor as a rooftop garden. The newly created lobby garden will provide enhanced natural light and ventilation to the existing lounge, spa and dining area. The addition of various natural materials and reconfiguration of circulation flow will create a seamless transition with the interior areas and new lobby garden.

Figure 2-17 **Entry Drive and Porte-Cochere**

Figure 2-18 **Arrival Area at Courtyard Lobby**

Makana Lounge

The Makana Lounge located beyond the reception desk, is an area where guests can gather and relax while enjoying the panoramic views of Hanalei from the Makana Lounge (*Figure 2-14*). This area also provides seating and bar service.

The proposed construction within this area will include the demolition of existing finishes and exterior glass walls to create an open-air lounge. The existing bar floor will be raised by one-foot with a new slab to align with the existing outdoor elevation. Waterproofing materials will be installed at the floor and ceiling to protect the newly exposed areas

Māmalahoa Dining Lānai

The Māmalahoa Dining Lānai is located on the 8th floor of the hotel and can be accessed by the steps of the grand stairway from the reception area, or by the elevators in an upgraded elevator lobby (*Figure 2-14*). The dining lānai is a space for guests to indulge in the hotel's fine cuisines while enjoying the picturesque views of the Nā Pali Coast and Hanalei Bay Pool below (*Figure 2-19*).

As part of the project improvements, the existing finishes and exterior glass walls will be removed to open up the Māmalahoa Dining Lānai for a more indoor-outdoor experience that enhances natural light and ventilation. Window and door modifications with trellises will also be incorporated. Various natural materials and reconfiguration of the circulation flow will be done to the interior to flow with new lobby garden experience.

Hanalei Bay Pool

The existing reflecting pool beyond the Māmalahoa Dining Lānai will be converted into a new lap pool as part of the project improvements. The lap pool will provide guests with a place to swim laps for recreation or training purposes. The makai edge of the pool will be bordered by two tiers of planters each stepping down to a guardrail below. Tropical planters will be incorporated to further beautify and blend the pool into the landscape of Puʻu Pōā.

Construction of the lap pool will include demolition of the existing 4,400 SF reflection pool, that will be replaced with a 6,000 SF cast-in-place lap pool and deck (*Figure 2-14* and *Figure 2-19*).

Hotel Circulation Corridor

Modifications to the main circulation corridor will provide access and wayfinding improvements within the resort and will heighten guests experience of navigating down the cascading buildings to the beach below. Improvements to pedestrian circulation will include upgrades to the elevator cores and lobbies, 4th floor circulation space, viewing platform, stairway, and a new trail network (*Figure 2-20*).

The elevator exterior finishes will be painted with neutral colors and interwoven with landscaping. The existing walls in the elevator lobby will be removed to create an open-air lobby. The walkway on the 4th floor circulation corridor will be furnished with wood railings and planks that transform the path into a rustic boardwalk that will extend beyond the elevator lobby to a new 4th floor viewing platform.

As part of the project improvements, the existing stair tower will be upgraded and extended to connect levels 1 through 4. Outside the 1st floor, a new network of public trails will also be created. These trails will guide visitors to the main pool area, Puʻu Pōā Beach, and to viewpoints along the slope of the ridge. The slope will be densely planted with a variety of native and tropical plants to restore native habitats and contribute to the overall sense of place

Figure 2-19 **Māmalahoa Dining Lānai overlooking the Hanalei Bay Pool**

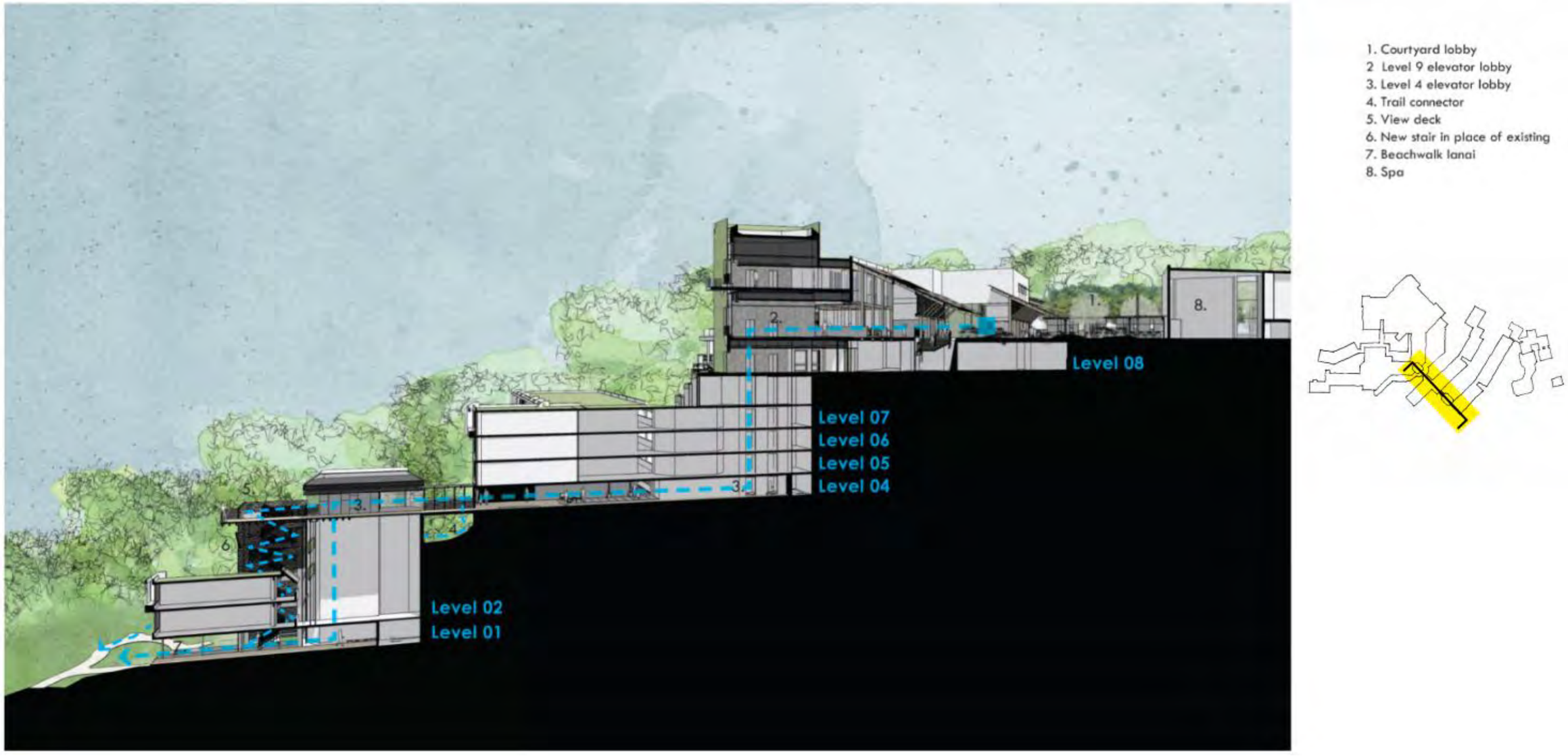


Figure 2-20 **Circulation Corridor**

Pool Recreation Area

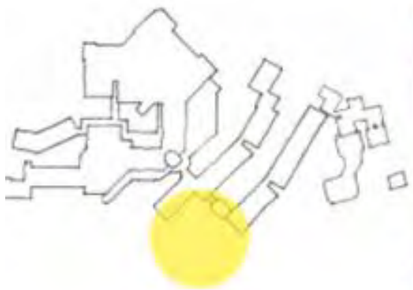
As the focal point of the resort's recreation area, light finishes to the Pu'u Pōā Beach Pool and pool deck will be completed to further invigorate the space and enrich the guest experience. Surrounding the main pool are three covered pavilions for activity, dining, and bar uses. The existing pool pavilions will be retrofitted with new roof tops and wood exteriors on the existing supporting columns (*Figure 2-21*). These pavilions will continue to provide shaded areas for guests to come together and relax near the poolside.

The existing planting areas will be renovated and landscaped with native shrubs and groundcovers (*Figure 2-23* and *Figure 2-24*). Native plants will beautify the pool recreation area and contribute to the Hawaiian sense of place. Many of the proposed coastal native plants are also commonly used for erosion control. These plants may be used to stabilize the landscape and mitigate future coastal erosion.

Honoiki Hillside Garden

The 1 Hotel project improvements will include a hillside garden located on the lower slope of Pu'u Pōā (*Figure 2-22*). The approximately 37,100 SF garden space will replace the existing lawn with native groundcovers, shrubs and trees (*Figure 2-23* and *Figure 2-24*). Biodegradable geo-jute will be installed for slope stabilization until groundcovers and shrubs grow in. Guests will be able to explore the gardens and use this space for gatherings such as family picnics or an impromptu kanikapila session. The Honoiki Hillside Garden will also be an ideal location for guests to relax and admire the beauty of a setting sun along the Nā Pali Coast or view the colorful schools of fish swimming among the Honoiki Reef in the coastal waters below. Beyond the terrace, a new public trail network will lead visitors to secluded garden alcoves and scenic viewing areas. The trails will follow the existing grade so that there is a balance of cut and fill for the area.

Figure 2-21 **Pool Pavilions**



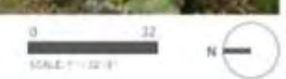


Figure 2-22 **Honoiki Hillside Garden**

TREES / PALMS

HALA
INDIGENOUS PLANT USED EXTENSIVELY BY EARLY NATIVE HAWAIIANS FROM FAMINE FOOD, FIBERS USED FOR CORDAGE, LAU HALA WEAVED FOR BASKETS, MATS, & FANS

HAU
POLYNESIAN-INTRODUCED TREE USED EXTENSIVELY BY EARLY NATIVE HAWAIIANS FOR CANOE OUTRIGGERS, FLOATS FOR FISHNETS, & FOR CORDAGE

KUKUI
POLYNESIAN-INTRODUCED TREE - NUT OIL USED FOR LAMPS, INNER BARK USED AS DYE FOR KAPA, TRUNK USED FOR CANOES

KOU
POLYNESIAN-INTRODUCED TREE - PLANTED THROUGHOUT COASTAL AREAS FOR SHADE, FLOWERS USED IN LEIS, WOOD USED FOR BOWLS & UTENSILS, TRUNKS USED FOR CANOES

MANELE
INDIGENOUS TREE - NATIVE HAWAIIANS USED BLACK SEEDS IN LEIS, CANOPY IS SEASONALLY PARTIALLY-DECIDUOUS

OHIA
ENDEMIC TREE ASSOCIATED W/ HAWAIIAN GODDESS PELE, ONE OF THE FIRST PLANTS TO GROW FROM LAVA, CRITICAL FOR NATIVE BIRDS, BELOVED BY LEI-MAKERS, HARDWOOD PRIZED FOR HOUSE CONSTRUCTION, POI BOARDS, MUSICAL INSTRUMENTS, WEAPONS, CANOE FRAMEWORK

ULU
POLYNESIAN-INTRODUCED TREE - EDIBLE STARCHY FRUIT CRITICAL FOOD SOURCE FOR NATIVE HAWAIIANS, NOW COMMON IN LOCAL HAWAIIAN CUISINE

COCONUT PALM
INDIGENOUD PALM EXTENSIVELY USED BY NATIVE HAWAIIANS FOR THATCHING & WEAVING, MUSICAL INSTRUMENTS, CONTAINERS, ETC., COCONUT JUICE & MEAT WERE IMPORTANT FOR SUSTENANCE

LOULU PALM
ENDEMIC PALM - NATIVE HAWAIIANS USE FRONDS FOR THATCHING AND PLAITING

HAPUU TREE FERN
ENDEMIC UNDERSTORY PLANT PRIZED FOR SOFT WOOL (PULU) AT BASE OF FRONDS USED IN PILLOWS & WOUND DRESSING, NATIVE BIRDS USED PULU FOR NESTING, OVER COMMERCIAL HARVESTING IN MID-1860S ALLOWED INVASIVE SPECIES TO TAKEOVER FORESTS

SHRUBS AROUND MAIN BUILDING

AWA
POLYNESIAN-INTRODUCED PLANT, VALUED AS MEDICINE FOR CHILLS, COLDS, HEADACHES, & RITUAL DRINK, A SEDATIVE THAT INDUCES RELAXATION & SLEEP

EKAHA
INDIGENOUS PLANT - RIBS WOVEN INTO MATS, OILMENT USED FOR SORES, CEREMONIALLY PLANTED ON TREE STUMPS AFTER TREE WAS FELLED FOR CANOES

KOKIO KEOKED
ENDEMIC TO KAUAI, NATIVE HAWAIIANS CULTIVATED THEM NEAR HOUSES BY FOR BEAUTIFUL FLOWERS

MAMAKI
ENDEMIC PLANT - LEAVES USED FOR CLOTHING WHEN SOFTER PAPER MULBERRY (WAUKE) WAS UNAVAILABLE, LEAVES DRIED AND USED AS HEALTHY TEA

NAU
ENDEMIC GARDENIA, WILD POPULATIONS EXTREMELY RARE

OLENA
AKA TUMERIC, POLYNESIAN-INTRODUCED PLANT, ROOTS USED AS SPICE & DYE, MIXED WITH SEA WATER FOR SPIRITUAL CLEANSING

Figure 2-23 **Plant Pallet (Trees/Palms and Shrubs Around Main Building)**

GROUNDCOVERS AROUND MAIN BUILDING

ALA ALA WAI NUI
INDIGENOUS PLANT THAT PROVIDES DEEP GREEN DYE USED FOR KAPA, JUICED FOR TONIC TO TREAT EAR-INFECTIONS

AWAPUHI
POLYNESIAN-INTRODUCED PLANT, ROOTS USED FOR STOMACHE & INDIGESTION, MATURE FLOWER HEAD USED AS SHAMPOO

HOIO
AKA POHOLE, NATIVE SPECIES RARE, POLYNESIAN-INTRODUCED, FIDDLEHEAD COMMONLY FORAGED IN FORESTS, COMMERCIALLY GROWN FOR LOCAL CUISINE

KUPUKUPU
ADAPTIVE INDIGENOUS FERN, COMMONLY USED IN LEIS

LAUAE / DWARF LAUAE
POLYNESIAN-INTRODUCED FERN USED IN LEIS, USED TO SCENT KAPA

PALAPALAI
INDIGENOUS SOFT FERN BELOVED BY LEI-MAKERS

UKI UKI
ENDEMIC PLANT - LEAVES USED FOR CORDAGE, BERRIES USED AS DYE FOR KAPA

AWIKIWIKI
ENDEMIC PLANT - FLOWERS USED IN LEIS

GOLDEN POTHOS
TROPICAL NON-NATIVE PLANT FOR FULLY SHADED AREAS

MAILE
INDIGENOUS VINE, SPECIAL LEI MATERIAL

SANDPAPER VINE
TROPICAL NON-NATIVE PLANT FOR TRELLISES, SALT-SPRAY TOLERANT

UALA
POLYNESIAN-INTRODUCED PLANT - STARCHY TUBER A MAJOR FOOD SOURCE FOR NATIVE HAWAIIANS, CONTINUES TO BE POPULAR COMMERCIALLY

ULEI
INDIGENOUS PLANT - EDIBLE FRUIT, FLOWERS & LEAVES USED IN LEIS

COASTAL SHRUBS & GROUNDCOVERS

AKIA
ENDEMIC PLANT - NATIVE HAWAIIANS USED BARK, LEAVES, ROOTS IN BAIT MIXTURE TO CATCH FISH

NAUPAKA KAHAKAI
INDIGENOUS COASTAL PLANT USED BY NATIVE HAWAIIANS FOR FAMINE FOOD, LEIS, COMMONLY USED FOR BEACH EROSION CONTROL & STABILIZATION

NAIO PAPA
ENDEMIC PLANT IN SHRUB-FORM, FLOWERS FAINTLY SIMILAR TO SANDALWOOD

PILI GRASS
INDIGENOUS GRASS THAT NATIVE HAWAIIANS HARVESTED TO USE AS THATCHING, CAN DONATE TO LOCAL KAUAI CULTURAL GROUPS

POHINAHINA
INDIGENOUS PLANT - FLOWERS & LEAVES CAN BE USED IN LEIS, SPRAWLING GROUNDCOVER USED FOR BEACH EROSION CONTROL & STABILIZATION

POHUEHUE
INDIGENOUS BEACH VINE WITH SALT TOLERANCE, USED FOR BEACH EROSION CONTROL & STABILIZATION

NANEA
INDIGENOUS BEACH VINE WITH SALT TOLERANCE, NITROGEN-FIXING PROVIDES FREE NATURAL FERTILIZER FOR NEIGHBOR PLANTS

Figure 2-24 **Plant Pallet (Groundcovers Around Main Building and Coastal Shrubs/Groundcovers)**

Kaua‘i Seabird Habitat Conservation Program (KSHCP)

Participant Inclusion Plan (PIP)

Sheraton Kauai

PART 1: Landowner & Property Information; Description of the Facilities; Avoidance & Minimization Measures; Monitoring of Take

Item 1. **Provide the name of the landowner, business, agency, or institution and complete contact information. If the applicant/participant is different from the landowner, please attach power of attorney (or other documentation) allowing the party to act on the landowner's behalf.**

Applicant: Kauai Blue, Inc.

Physical Address: 2440 Hoonani Road, Koloa, Hi 96756

Mailing Address: 2440 Hoonani Road, Koloa, Hi 96756

Contact: Security Manager
Address:
Telephone:
Email:

Alt. Contact: Position:
Address:
Telephone:
Email:

Item 2. Provide the legal description of the property at which the existing facilities and Covered Activities are located, including Tax Map Key (TMK) number. Provide a survey of the property and site plan drawings showing the locations of the Covered Activities (lights), property boundaries, buildings & structures, and site features. If properties containing the Covered Activities comprise separate parcels please include all Tax Map Key numbers and maps.

The Sheraton Kauai is located at a physical street address of 2440 Hoonani Road, Koloa, Hi 96756.

The resort encompasses three tax map keys:
Oceanside property 2-8-016: 003 = 8.4 acres/365,904 sf
Garden side property 2-8-016: 004, 2-8-015: 43 and 44 = 11.7 acres/509,652 sf

Copies of these TMKs maps are included in Appendix A, and a site plan is included in Appendix B. Lighting location is indicated in Table 1 below.

Item 3. Describe the existing Covered Activities for which incidental take authorization is sought. Include list of buildings, type and description of lights present, purpose and location of lights and current seabird lighting accommodation in place (e.g. shielding, downward pointing, switched off during fledging season etc). For "Types of lights" please use the following categories:

- **Parking Lights**
- **Signage Illumination**
- **Wall-pack Building Lights**
- **Landscaping/Grounds/Accent/Bollards**
- **Indoor lights visible from outdoors**
- **Roof Floodlights**
- **Other Lights**

Facility lighting plan may be submitted as lighting inventory. Photos may be attached. The suggested light table, and Green Sea Turtle assessment table below may each be modified as needed to provide the necessary information.

.

The Sheraton Kauai is seeking coverage for operation of artificial lighting in connection with all activities associated with running the Resort. These activities include, lighting for the parking lot & delivery areas, grounds, buildings, and walkways. The property is landscaped throughout the property typical of a resort. The property covers 20.1 acres.

The table below provides the current outdoor lighting at the Sheraton Kauai. Table 1 below provides the outdoor lighting at the Resort. The Avoidance and Minimization Plan (item 7) addresses light attraction

Table 1: Outdoor Lighting at Sheraton Kauai Resort

Light Type Make & Model	Light output (e.g. lumens) & bulb type	Bulb Color	Quantity (No. Fixtures)	Location	Purpose of the Lights	Direction of Light angle (e.g. up, down, out)	Full cut-off/shielded fixture (y / n)	Time on/Time off
Parking lot pole light	bulb type & wattage LED / 20 watts	Color Warm White	39	Parking lot; front, rear & sides	Parking lot illumination – Safety & Security	Down	Yes	12 hr. period Dusk - Dawn
Signage illumination flood lights/fluorescent tubes/lit internally	bulb type & wattage Ground lights/ 65 watts	Color white	6		Signage – directional purposes	Pointing to signs	Yes	12 hr. period Dusk - Dawn
Wall-pack building lights	bulb type & wattage 20watts	Color White	332	Wall mounted	Building lights – Safety & Security	Up to ceiling & down to floor	Yes	12 hr. period Dusk - Dawn
Landscaping & grounds accent floodlights	bulb type & wattage Par 38 type / 65 watts	Color Warm White	18	Entry; Courtyard; Pool; Beach Access; Flag Poles; other locations	Landscape illumination; accent lighting Function Events – Safety & Security	Down	No, but pointed down	12 hr. period Dusk - Dawn
Short walkway Bollards	bulb type & wattage 20 watts	Color White	40	Walkways	Pedestrian guidance – Safety & Security	Diagonal	Yes	12 hr. period Dusk - Dawn

Table 2 - Green Sea Turtle Assessment for the Site & Facility

Please provide the information requested below to help determine if measures to avoid impacts to the Green Sea Turtle(s) from the effects of light attraction are required to be implemented at any of the facility(s), parcel(s), or site(s) included in this PIP. Please consult with staff from the DLNR and the USFWS to arrange a site visit, if needed, discuss measures to avoid impacts to the Green Sea Turtle, and provide further guidance.		
Are any of the facilities located adjacent to a beach?	**Yes / No**	**If yes, provide length of beach frontage & brief description of facilities & lights adjacent to the beach** 2008.2 linear feet fronting the luau garden Guest Units and Common Areas w/shielded lighting
Are any of the Covered Activities (lights) visible from a beach?	**Yes / No**	**If yes, describe the specific lights (type, quantity, height, purpose) & specific location; provide map & photos showing distance from beach** Ocean Fitness center building 1, 36’ from shoreline. Lavas Bar, 43’ from shoreline. Rum Fire, 33’ from shoreline. Luana Kai, 30’ from shoreline.
Have green sea turtles been known to nest on any beaches adjacent to the facilities?	**Yes / No**	**If yes, provide information about nesting occurrences, if known, including location and date and any other information** **N/A**

Item 4. If applicable, describe any lighting standards (e.g., foot candles/area) required for facility operations or other requirements that necessitate the use of lighting (e.g., required for security, safety, operations). Describe the relevant standard, or regulation, and the areas and Covered Activities at the site (e.g., type of lighting) to which it applies.

There are no specific lighting standards, rules, restrictions or requirements that the Resort must comply with, beyond assuring that lighting is adequate to ensure guest and employee safety and security, in accordance with brand/company safety standards. Pre-seabird season lighting audits will be conducted by a seabird biologist and necessary tweaks to the lighting are completed prior to the start of the seabird season each year.

Item 5. Describe any plans/proposals for future facilities or expansion of existing facilities. Include any proposed structures and lighting by type, purpose, location, and quantity. Plans (architecture and site plans), photos, and drawings can be attached.

The Sheraton Kauai has no plans for the future on the books that would cause us to install extra interior or exterior lights.

Item 6. Pursuant to the Endangered Species Act (ESA), Section 10 (a)(2)(A)(iii), describe alternatives to <u>avoid</u> the taking considered and evaluated. Provide reasons why those alternatives are not being utilized. Alternatives can include operational or facility design changes (attach pages as needed). The tables below may be altered as needed.

Activities that the Sheraton Kauai has direct control over that may result in covered species landing on the property are restricted to those associated with lighting. Other programs that the Resort implements that result in benefits to seabirds include increased staff training, guest outreach (brochures go into guest rooms during the seabird fledging season), and monitoring and rapid recovery of downed seabirds (Appendices C and D). The Resort has addressed all of these issues to the maximum extent practicable. Measures and protocols implemented are detailed in the following sections of the application.

In the following table light attraction avoidance and minimization alternatives that were analyzed are presented.

Table 3 - Light Attraction Alternatives to the Taking

Artificial Light Attraction Alternatives to the Taking Considered	Reasons Alternatives are not Being Utilized (provide justification)
▪ **Deactivate all outdoor artificial lights from dusk to dawn during the fledgling fall-out season September 15 to December 15**	Lighting is required for direction, safety, and security of the hotel grounds for guests, visitors, and employees.
▪ **Change operations to eliminate the need for outdoor artificial lighting (e.g., from nighttime to daylight hours)**	Guest and staff safety and security precludes this option. To do this the hotel would need to be closed at night, which is not a viable business option.
▪ **Shield all lights from visibility from the beach, or screen all Green Sea Turtle nests, from May 15 to December 15 to avoid impacting the green sea turtle (Green Sea Turtle)**	Lights are shielded and the beach is dark. Some beach lighting is required for direction, safety, and security of the beach for guests, visitors, and employees.
▪ **Other alternatives to the taking considered, if any. If facility is proposed, include alternative designs considered**	The resort has replaced a very large number of lights on and in the resort to reduce the amount of stray light being produced. Black-out drapes have been placed in all hallways and rooms in the resort reducing the visible interior lighting. Bulbs have been reduced in lumens over the past 10 years. All upward pointing lights have been removed or are turned off during seabird fledging season. See Seabird Lighting Minimization Procedures on Page 1-9.

Item 7. Describe all site-specific seabird minimization measures considered for the Covered Activities. This item should follow KSHCP minimization objectives and measures as specified in the KSHCP document. Please consult with staff from the DOFAW and the USFWS as needed. The suggested tables below can be altered as needed.

Minimization measures modify the Covered Activities to reduce the effects of the activity on the Covered Species. KSHCP Participants will be required to implement minimization measures that apply to the facility to the "maximum extent practicable" per applicable state and federal laws which regulate incidental take license/permit issuance by the DLNR and the USFWS.

Minimization also entails searching and recovering grounded seabirds to minimize the chance of mortality. In addition, the presence of on-site predators (i.e. feral cats, dogs) should be controlled and removed because these animals can prey on grounded seabirds.

Provide justification, such as policies, regulations, or other rationale for measures that will not be implemented.

Table 4: Seabird Light Attraction Minimization Measures Considered

Minimization Measures Considered	Feasible? (Y / N)	If not Feasible to Implement Measures, Provide Reason
▪ **Change time of light use (lights off earlier)**	**YES / No**	Facility operates at all hours and grounds safety is required.
▪ **Deactivate unnecessary lights**	**YES / No**	
▪ **Replace all outdoor lights with full cut-off fixtures**	**YES / No**	Except lights that are very low to ground and shielded by vegetation.
▪ **Shield all outdoor lights with full cut-off shields**	**YES / No**	Except lights that are very low to ground and shielded by vegetation.
▪ **Angle all lights downward**	**YES / No**	Except lights that are very low to ground and shielded by vegetation.
▪ **Lower intensity (lumens) of outdoor lights**	**YES / No**	
▪ **Change bulb color to non-white spectrum**	**YES / No**	Warm tone lights are in use
▪ **Prohibit/control unleashed predatory animals; prohibit outdoor feeding of animals; require sealed rubbish containers**	**YES / No**	There are no unleashed animals on property, and trash bins have restricted coverings.
▪ **Provide Worker Seabird Awareness Training to staff**	**YES / No**	See Item 6, above, and Appendix C (Standard Operating Procedure).
▪ **Provide outreach materials to staff & guests**	**YES / No**	See item 6, above, and Appendix D (guest brochure).
▪ **Host Save Our Shearwaters (SOS) Aid Station**	**YES / No**	There is an aid station at the Poipu fire station.

Item 8. <u>Minimization Plans</u>. Provide a plan to minimize the effects to the Covered Seabirds due to the Covered Activities. KSHCP Participants will be required to minimize the effects of the Covered Activities to the "maximum extent practicable" per applicable state and federal laws which regulate take license/permit issuance. The KSHCP document provides minimization objectives and measures to follow.

The Minimization Plans should include the proposed minimization measures, an estimated completion schedule, and estimated cost for each facility. In this item, the Participant can include measures already completed or in place (new lights, shields, operational changes).

Minimization measures not yet determined but anticipated to occur at the facility; this section should include an estimated cost that will be earmarked for future minimization measures and a process to determine how and when those measures will be evaluated, selected, and decided (such as a cost-benefit analysis)

If applicable, the participant must provide the reasoning why certain measures will not be implemented. The suggested table below may each be altered to best describe the Minimization Plan. Attach additional pages, photos, and drawings as needed.

The avoidance and minimization (Tables 4 & 5) measures were implemented, and costs associated with implementing these measures have already been incurred.

A biologist will accompany the Security Manager and the engineering department to conduct a lighting audit of the entire property prior to the onset of the seabird fallout season annually. The biologist will follows up with the Resort to ensure that any lighting minimization modifications that the biologist identified have been implemented. The biologist will also check the hotel several times during the season without notifying the Resort to ensure that all measures are in place. The biologist monitors will monitor the fallout season in real time and returns to the Resort if anything shows up in the fallout data that suggests that there may be a problem with the lighting minimization measures.

Table 5: Lighting Minimization Measures

List of Buildings	Minimization Measures	Cost to Implement	Responsible Staff	Timeline
Parking lot lights (39)	Lights are full cut-off fixtures; lights are down directed; poles are minimum height (25 feet)	N/A	Engineering	Completed
Signage lights (6)	Lights are downward angled; lights are low to ground (1-2 ft.); lights are low wattage	N/A	Engineering	Completed
Wall-pack lights (332)	Lights are angled down; lights are shielded (either by eaves overhang or retrofit shields)	N/A	Engineering	Completed
Landscaping & grounds lighting (18 pagodas and 40 bollard lights)	Most grounds and accents lights directed downward; others shielded by vegetation; grounds lights low to ground.	N/A	Engineering	Completed
Individual guest room interior lights	Avoidance Measures 1. Encourage guests to switch off unnecessary room lighting. See Appendix D (guest brochure). The hotel also places an awareness poster in the lobby during seabird seasons. 2. Encourage guests to cover room windows at night during fallout season Minimization Measures. 1. All guest room windows were tinted to reduce amount of light visible from the exterior.	N/A	Security	Completed

Table 6: Seabird Mortality Minimization Plan

Minimization Measures	Describe minimization method (e.g. trapping, outreach, enact policy)	Cost to Implement	Responsible Staff
Remove & control loose predatory animals at the facility. (Loose animals can kill grounded seabirds and this measure aims to prevent seabird mortality by animals.)	The Resort implements this measure. The resort deploys cat traps as needed.	N/A	Grounds department
Prohibit outdoor feeding of predatory animals. (Feeding animals attracts them to the site and this measure aims to reduce the presence of animals that can cause seabird mortality.)	The Resort implements this measure. Staff is trained that this is not allowed, and security monitors compliance	N/A	Management staff.
Conduct searches to recover downed birds at the property & turn them into SOS following protocols (see monitoring plan below).	See Item 9 below.	N/A	Engineering, grounds and security staff.
Train staff to follow minimization measures.	See Item 9 below, and Appendix C.	N/A	Management staff.

Item 9. Take Monitoring Plan. Provide a plan to monitor take of the Covered Seabirds at the facilities proposed to be covered by the incidental take permit/license. The take monitoring plan describes how the property will be searched for downed Covered Seabirds. The KSHCP document provides standards and guidelines for take monitoring to ensure that take of the species is accurately measured and recorded.

The regulatory agencies will make the final determination as to the adequacy of the take monitoring plan.

In 2012 the Sheraton Kauai Resort developed a Standard Operating Procedures (SOP) for patrolling, monitoring, documenting and reporting downed seabirds during the fledgling flight season. This document was updated in 2019 (see Appendix E, SOP attachment). The General Manager, or designee, will continue to update the SOP as needed during the KSHCP permit term, to reflect best practices for finding, recovering and documenting any downed seabirds.

Table 7 - Covered Seabird Take Monitoring Protocols

Please provide the following information for the protocol items below		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Percentage of the total property that will be searched & the total area to be searched	The entire built upon portion of the property is inspected each day, year round. Rooftops are checked by engineering, housekeepers check balconies, and grounds are checked by security and groundskeepers. Groundskeepers also check shrubbery and bushes (*laua'e* fern and *naupaka*) located around the buildings. All open areas are visually checked by all associates while conducting their respective duties while on the site.	Search as much area as possible
Frequency of searches (# per day or per week)	The Resort is formally searched eight times a day by security, additional Seabird Awareness based searches are made 24/7 by associates.	Twice daily
Time of day of searches	Inspections are conducted throughout the day.	2-3 hours after sunset, and within 3 hours after sunrise
Number of searchers per search area	Two to three individual first responders as well as the entire staff of 200 or more employees	Depends on site conditions and safety considerations
Proposed training	See Items 7 and 9 above, and Appendix C.	Annual training covering seabird identification, seabird handling, response procedures, verified and documented

Item 10. Components of the Green Sea Turtle Minimization and Monitoring Plan (if required). Monitoring and minimization for the Green Sea Turtle is in two parts: A) Monitoring to detect nests and B) Monitoring and minimizing impacts to nests detected.

Part A: Monitoring to detect Green Sea Turtle Nests
Please provide the following information; the table below may be used and altered as needed.

1) Detailed location and description of beaches, including linear distance, at which searching for nests of the green sea turtle will take place. Searches should take place at any beach from which light at the facility can be viewed;

2) Monitoring protocols indicating:
    a) Annual training of searchers;
    b) Frequency of searches;
    c) Conduct active searching (searching the beach width);
    d) Sufficient number of trained searchers to cover the area; and
    e) Record results of search monitoring.

3) All Participants are required to record the results of search efforts. Records should provide:
    a) Evidence (what was seen). Include description and provide photographs
    b) Location on the beach (GPS) and physically mark the location if possible
    c) Date and time of day
    d) Description of surrounding land use (e.g., vacant, or developed), and
    e) Proximity to the facility.

Part B: Monitoring of Identified Green Sea Turtle Nests

Each identified nest of the green sea turtle should be monitored and protected from light attraction. Please provide the following monitoring protocols; the tables below may be used and altered as needed.

1. Light avoidance measure for identified nests (either shield/deactivate lights at the facility or install and maintain a light shield around each identified nest);
2. Frequency of searches;
3. Number of searches monitoring the nests. The number of needed to monitor active nests will depend on number of nests identified and amount of beach needed to be covered;
4. Record the results of nest monitoring. Monitoring should provide:
    a. Evidence of hatchling emergence (description and photos):
    b. Date and time of emergence,
    c. Direction of tracks
    d. Condition of the nest area (e.g., disturbed or not).

Table 8: Green Sea Turtle Monitoring Protocols – Part A: Monitoring to Detect Nests

Please provide search protocols for detecting nests of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Location & description of the beach, or beaches, surveyed and the linear distance of the beach.	The beach fronting the Resort is approximately 2008 linear feet long, and is located fronting the luau garden and pool	Beach area surveyed should coincide with visibility from the facility with the lights.
Frequency of searches (# per day or per week)	The beach is searched a minimum of eight times a day by security officers.	Weekly during nesting season (typ. May 15 to end of August)
Number of searchers per search area	Various	Depends on site conditions and safety considerations
Proposed training	Associates and security officers receive T&E Awareness training every year, a section has been added to that module covering the appropriate response to the presence of a sea turtles on the adjacent beach	Searchers should receive annual training conducted by the DLNR or the USFWS, or their designee.

Table 9: Green Sea Turtle Monitoring Protocols – Part B: Monitoring of Identified Nests & Minimization

Please provide search protocols to monitor identified nests (from Part A) of the green sea turtle (Attach pages as needed)		
Item	**Protocol** (fill in protocol & provide reasons)	**KSHCP Guideline**
Frequency of searches (# per day or per week)	The beach is searched eight times a day. It should be noted that, there has never been a nest recorded on the beach since the hotel has been in operation. Should a nest be discovered the Resort would immediately contact USFWS and follow their standard Hawaii protocols for protecting the nest.	Active nests should be monitored every 1-2 days; then daily during expected hatching date
Light avoidance	N/A	If lights cannot be deactivated or shielded from the nest, each nest should be screened from visible light.
Number of searchers per search area	Various	Depends on site conditions and safety considerations

Item 11. Describe the schedule that will be followed to provide training for staff. Training must be provided to those that will conduct and oversee the searches at the facility.

The training should include:

1. Summary of regulations protecting the Covered Species;
2. Search procedures, route, frequency and timing specific to the facility's monitoring plan, for seabirds and green sea turtle nests (if applicable);
3. Response procedures including safe and proper techniques for handling seabirds;
4. Recognizing evidence of green sea turtle nests, proper nest light screening, and hatchling activity (if green sea turtle minimization and monitoring plan is applicable);
5. Procedures to document the results of searches;
6. Downed wildlife agency contacts; and
7. Nearest SOS aid station.

The Division of Forestry and Wildlife provided annual Worker Seabird Awareness and Response Training to the appropriate facility staff prior to the start of each seabird fallout season from 2003 to 2017. Worker training will continue under the KSHCP for the duration of the permit term. Seabird Awareness Training will be conducted by a trained biologist in 2019, and in subsequent years, the training will be conducted by the Manager of Security. The fallout season occurs each year from September 15 to December 15. The training includes: regulatory setting, consequences for noncompliance, standard monitoring, response, and reporting procedures, techniques for proper handling of downed seabirds, personal protection, agency contacts and facility locations.

A copy of the PowerPoint training module is attached as Appendix C. See also Standard Operating Procedures (SOP) (Appendix E).

Item 12. Describe any outreach conducted (e.g., handing out pamphlets on seabird awareness to facility employees or guests,):

The Sheraton Kauai has been doing outreach to staff and guests since 2003, and will continue to do so during the KSHCP permit term. During the seabird fledging season, the Sheraton Kauai will:

1. Display SOS informational posters in break rooms and common staff areas.
2. Put it in our Daily Events Calendar which is our daily hotel newsletter for all Employees.
3. Staff will attend the annual Worker Seabird Awareness Training.
4. Remind staff about seabirds during department Daily Focus meeting (pre-shift meetings) to bring additional awareness.

5. Talk about it in our Monday, Wednesday, and Friday Managers weekly stand up meetings.

6. Invite a qualified biologist to speak at our staff meeting.

7. Display SOS informational posters in the lobby to promote guest awareness.

8. Have an informational flyer put into each room as awareness to for our guest, asking them to keep curtains closed during the season, Appendix D.

9. Show information regarding the seabird fallout season and appropriate protocols that guests should follow on the in-house TV station during the seabird season. The information will show up on the “Splash Page”, this is the pane that shows when the TV is first turned on.

PART 2. Take Estimate, Requested Amount of Take Authorization, and Funding

Item 1. Show the calculation of estimated take for each of the Covered Species.

Following the take estimation methods in the KSHCP for estimating a Participant's take (Section 6.2.2), the tables below show the take estimate calculation for the facility(s) for each of the Covered Seabirds.

The KSHCP take estimate method utilizes the average of the most recent 5 years of SOS recovery data for the facility. Applied to the data is an adjustment for downed birds not found, based on a 50% discovery rate and an adjustment based on SOS mortality (birds dead on arrival or those that die in care) – average SOS mortality is 12%.

If the landowner-applicant submits a take estimate with an alternate discovery rate, they must provide the reasons why an alternate rate was used to estimate take, including relevant information supporting their reasoning (% of searchable area, search protocols that will be used, any searcher efficiency trials that have been or will be conducted at facilities and/or demonstration of quick, effective recovery of birds). Please include narrative and/or photos and maps to support this.

We have used the numbers generated by the SOS program, and verified through our own database to determine take.

Table 10: Annual Lethal Take Calculations[1]

	Newell's Shearwater	Hawaiian Petrel	Band-rumped Storm-Petrel
1. Annual average number (SOS data – or – monitoring data) of downed NESH (5 most recent years), HAPE or BRSP (15 most recent years)	2.40	-	.07
2. Annual observed lethal take estimate (12% of 1, all downed birds)	0.29	0	0.01
3. Adjustment for unobserved take estimate (e.g. 100% of 1, all downed birds if 50% searcher efficiency assumed)	2.40	0	.07
4. Total estimated annual lethal take from light attraction (2+3)	2.69	0	0.08
Requested Annual Lethal Take	2.69	0	0.08
Requested Take Over Permit Term	81	1	3.00

[1] Title of Table 10 revised per phone call and email from Kate Cullison 4/10/20

Item 2. Select the requested take authorization and permit/license term coverage for each of the Covered Species.

Table 11: Newell's Shearwater:

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or sub-adults	Take Limit for License/Permit Term
Mortality (Lethal)	2.69[2]	0	81
Injury (Non-lethal)	2.11[3]	0	64[4]

Table 12: Hawaiian Petrel:

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or sub-adults	Take Limit for License/Permit Term
Mortality (Lethal)	0	0	0/1[5]
Injury (Non-lethal)	0	0	0/1

[2] This number is the calculated take presented in Line 4 of table 10

[3] This number is calculated using the formula in the KSHCP Section 6.2.2.1 which states "Lethal Take =100% undiscovered birds + 21% of birds that are discovered and turned into SOS" Ergo, non-lethal take is 88% of birds that are discovered and turned Into SOS – see Line 1 of Table 10

[4] This number is a result of multiplying 2.11 by 30 years – the term of the permit (rounded up)

[5] As no birds have been recorded on the property, there are no calculations to make – second number represents requested take

Table 13: Band-rumped Storm-Petrel:

Age Class	Annual Take Estimate: Fledglings	Annual Take Estimate: Adults or sub-adults	Take Limit for License/Permit Term
Mortality (Lethal)	0.07[6]	0	1.2[7]/3
Injury (Non-lethal)	0.06[8]	0	1.85[9]/3[10]

[6] This number is the calculated take presented in Line 4 of table 10
[7] The first number is the calculated 30 year total of lethal take, the second number is the requested take coverage
[8] This number is This number is calculated using the formula in the KSHCP Section 6.2.2.1 which states "Lethal Take =100% undiscovered birds + 21% of birds that are discovered and turned into SOS" Ergo, non-lethal take is 88% of birds that are discovered and turned Into SOS – see Line 1 of Table 10
[9] This number is calculated by multiplying .06 by 30, the permit term
[10] The second umber represents the requested take over the term of the permit

Item 3. Funding Assurance. **Provide proof of adequate funding (see KSHCP document). All participants must demonstrate requisite funding prior to permit/license approval to ensure that the proposed measures and actions, including monitoring, will be undertaken in accordance with the terms and schedule of the KSHCP.**

Sheraton Kauai Resort currently undertakes all minimization and conducts all monitoring using its existing staff as part of annual operating budget, and will continue to do so through the term of the KSHCP. The Sheraton Kauai Resort will provide financial assurances as required by the KSHCP.

Kauai Blue, Inc.

Signature of Participant: _____

Printed Name : DENIS EBRILL - Vice President

Date: 5/18/20

The undersigned affirms that all the information included is true and accurate to the best of the participant's knowledge and that this PIP is voluntarily submitted.

☐ check to waive confidentiality

Contact Us

Call the KSHSCP Office at (808) 245-9160 or visit our office at 4272-B Rice Street, Līhu'e HI, 96766. Visit the project website: www.KauaiKaua'i -seabirdhcp.info. We look forward to working with you toward helping Hawai'i 's unique species!

1. Appendices

Appendix A – Tax Map Keys (TMKs) of the Sheraton Kauai Resort

Appendix B – Schematic layout of the Resort

Appendix C – Sheraton Kauai Resort Seabird Awareness and Response Training module

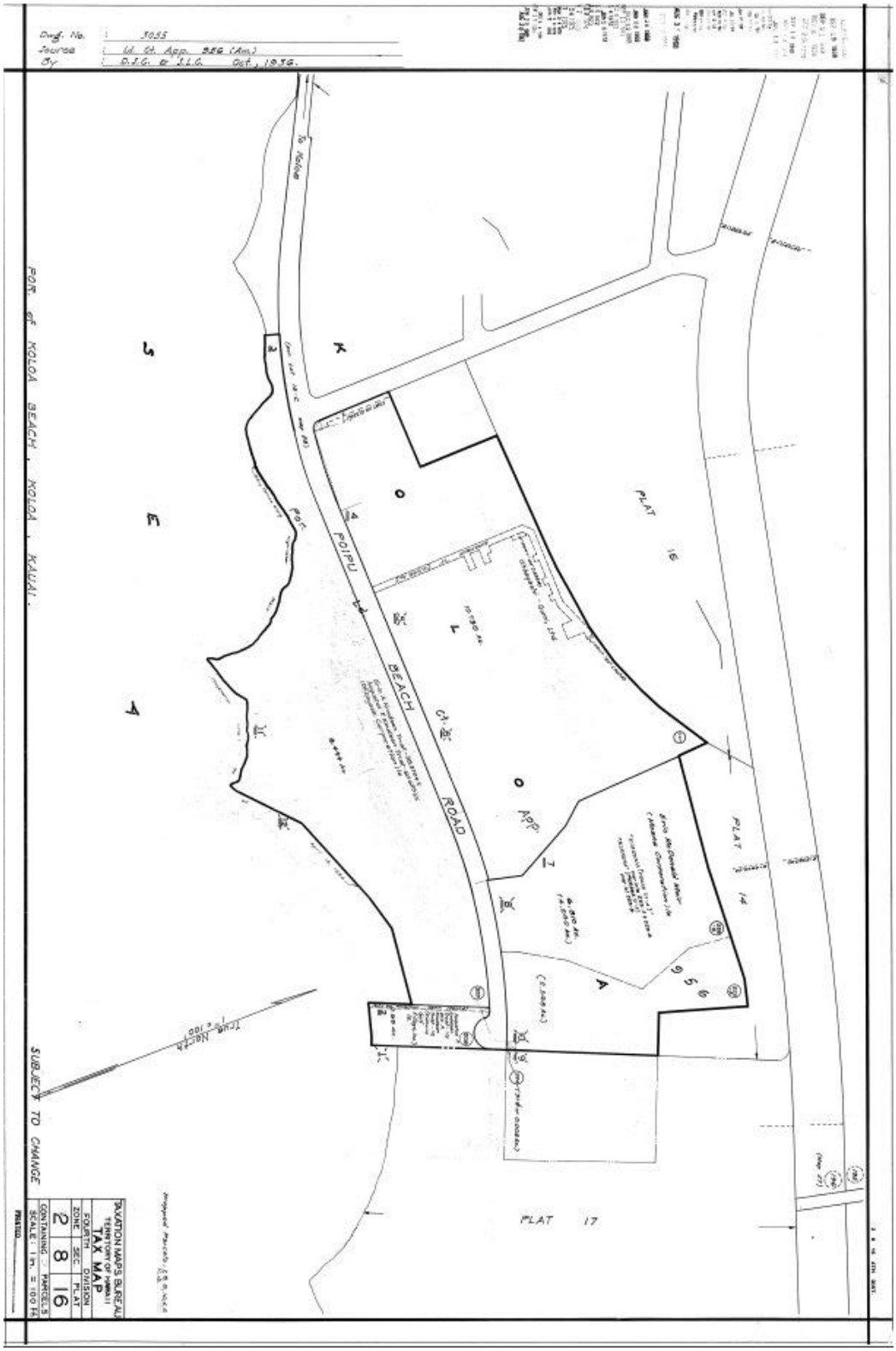
Appendix D – Guest Seabird Conservation Program brochure

Appendix E– Sheraton Kauai Resort – Seabird Standard Operating Procedures and Recovery Protocols

Appendix F – Downed Wildlife Form

Appendix A

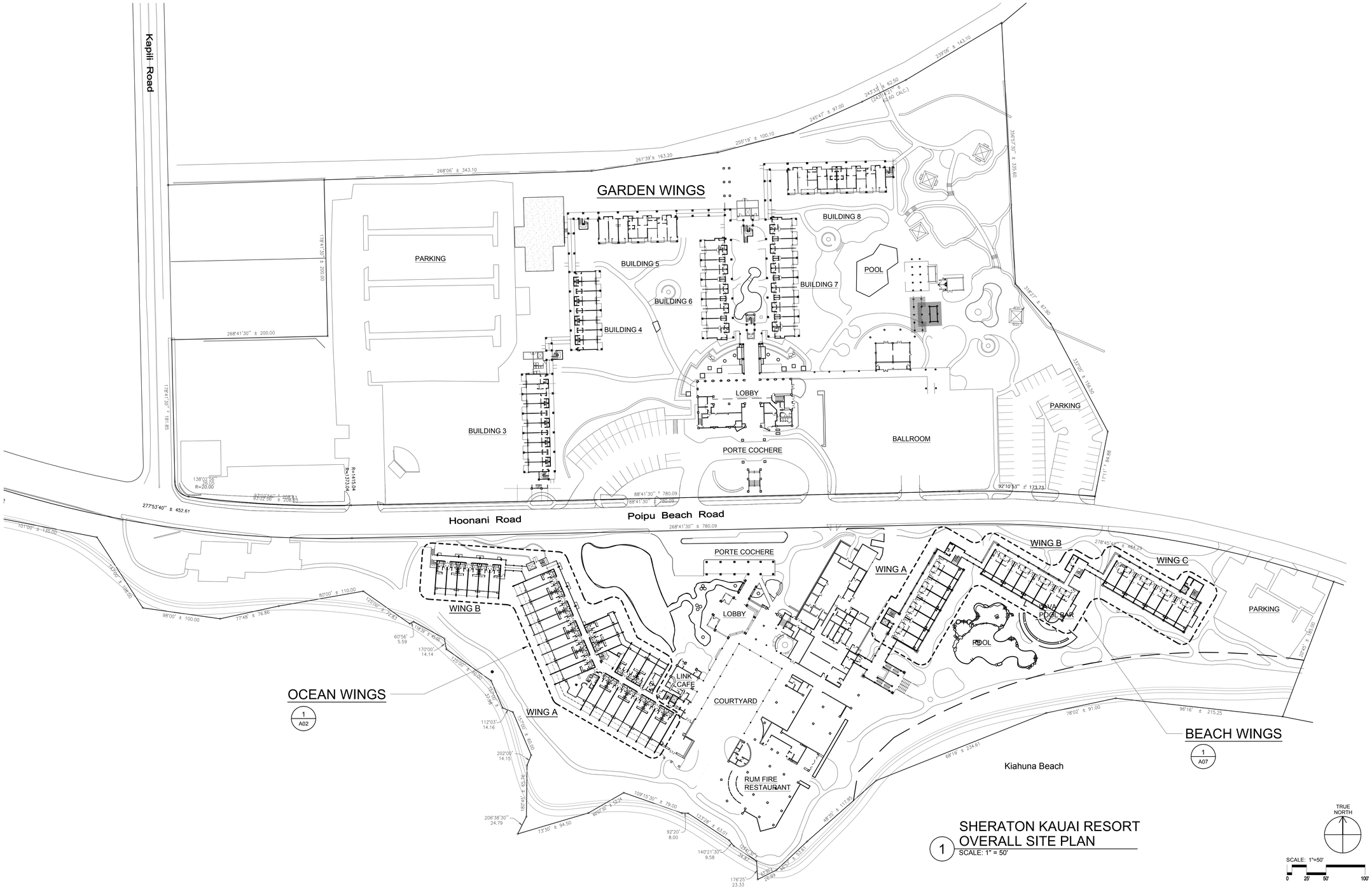
Sheraton Kauai Resort – Tax Maps


Dwg. No. : 3055
Source : Id. Ct. App. 956 (Am.)
By : D.J.G. & J.L.G. Oct., 1936.
POR. of KOLOA BEACH, KOLOA, KAUAI.
SUBJECT TO CHANGE
TAXATION MAPS BUREAU
TERRITORY OF HAWAII
TAX MAP
FOURTH DIVISION
ZONE SEC. PLAT
2 8 16
CONTAINING PARCELS
SCALE: 1 in. = 100 ft.
PRINTED
POIPU BEACH ROAD
PLAT 16
PLAT 14
PLAT 17
True North
To Koloa

Appendix B

Sheraton Kauai Resort – Schematic Layout of the Resort

USE GRAPHIC SCALE FOR PERMIT SET ON 24" x 36"
FULL SIZE SHEET IS 30" x 42"



1 SHERATON KAUAI RESORT OVERALL SITE PLAN
SCALE: 1" = 50'

Architect:

WCITARCHITECTURE

725 Kapiolani Boulevard, Suite C400
Honolulu, Hawaii 96813
Ph 808.592.2345
Fax 808.592.2350

Consultant:

Project:

vistana

Sheraton Kauai Resort
Ocean & Beach Wing
Units REFRESH

2440 Hoonani Road
Poipu Beach, Koloa, Kauai, Hawaii 96756

Drawing:

OVERALL SITE PLAN

Revisions

△	△
△	△
△	△
△	△

Phase: BID SET

Proj Number: 16117

Date: NOVEMBER 28, 2016

Sheet:

A-0.01

OF SHEETS

Appendix C

Sheraton Kauai Resort – Seabird Awareness and Response Training Module

SHERATON

Sheraton Kauai Seabird Awareness and Response Training - 2019

Purpose of Training

- Native seabird species including endangered species may “fallout” on the Resort property on a seasonal basis
- Sheraton Kauai is committed to the protection of these species
- Sheraton Kauai has specific endangered bird protocols in place that all construction personnel must follow
- There are potentially significant legal implications if any of these protocols are not followed

Regulatory Setting - Protected Species

Federal -

The Endangered Species Act of 1973, as amended (ESA)

Migratory Bird Treaty Act (MBTA)

State of Hawai‘i -

Hawaii Revised Statutes (Chapter 195-D)

IT IS ILLEGAL TO:

“harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct” any species listed under any of these statutes

Agency and Endangered Species Program Contacts

Who to Call

State Department Land & Natural Resources DOFAW

Thomas Kaiakapu: Wildlife Manager: (808) 274-3440

Sheraton Kauai Resort Program Coordinator

In house contact

Joseph Kaneakua: Security Manager Cell (808)346-8795

Consulting Biologist

Reggie David: Cell: (808) 937-0124, email: davidr003@hawaii.rr.com

Endangered and Threatened Seabird Species

Seabird Fallout Season Issues

- Night flying seabirds are often attracted to lights
- Fledgling (*keiki*) birds on their way to sea for the first time are often attracted to lights and can be confused by them
- Confused birds may collide with structures, or simply land on the ground too tired to continue flying

Seabird Issues cont.

- Once on the ground they cannot take off again and will die from starvation or be killed by predators if not rescued
- If the seabirds are recovered and turned into the Save Our Shearwaters Program (SOS), almost 90% of them can be returned to the wild

Downed Seabird Response Protocols

- If a downed seabird is found, immediately call your supervisor and the Global Safety and Security in-house number **4067**. Or call Rapid Response by dialing 0 and ask for an Officer on duty.

- Stay with the bird until a Safety and Security officer arrives on the scene, follow their instructions.

Endangered and Threatened Sea Turtle Species

Sea Turtle Awareness

- Two protected species of sea turtles, haul out on beaches on Kauai
  - Pacific green sea turtle – threatened
  - Pacific hawksbill sea turtle - endangered
- Both species have nested on the Island

Finding and Reporting Turtles on the Beach

- All associates that work in areas close to the beach shall:
  - Report any turtle on the beach immediately to:

Sheraton Kauai Resort Program Coordinator

In house contact

Joseph Kaneakua: Security Manager Cell (808)346-8795

- Security staff will immediately contact:
  - Thomas Kaiakapu: Wildlife Manager: (808) 274-3440
- They will follow instructions given them by DOFAW
- If a nest is discovered all lights on palm trees along the walkway will be turned off until the turtles hatch

Take Home Message

- The harming of listed seabirds may be construed as “take” under the ESA, and/or HRS 195D.
- The minimization and avoidance of “take” to the maximum extent practicable is required under both federal and State of Hawaii endangered species statutes
- Failure to do so may result in enforcement action, which may result in a suspension or even termination.
- Penalties include civil fines of up to $25,000 per incident, and criminal fines of up to $50,000, and up to one year federal imprisonment per incident.
- **Non compliance with any of the endangered species rules and protocols may result in immediate disciplinary action**

Mahalo

Sheraton Kauai *thanks you for your attention to and your assistance with this program*

Sheraton Kauai *takes pride in our continued efforts to protect the natural resources on the Island of Kaua‘i*

Protection of these native birds is everyone’s responsibility, and is in the common interest of the Island community and future generations

If You Would Like More Information

- *Other questions? Please see me after the presentation*

Appendix D

Guest Seabird Conservation Brochure

Currently under development

Appendix E
Sheraton Kauai Resort – Seabird Standard Operating Procedures and Recovery Protocols

Between September 1st and December 15th the Sheraton Kauai and its associates will participate in the search, recovery of the downed Seabirds (Newell's Shearwater, Hawaiian Petrel, Band-rumped Strom-Petrel and other non-listed seabird species).

Training and Awareness

Hotel Management will participate in an annual Seabird Awareness and Response training.

Hotel Management will educate our guest by having literature (flyer) in the individual guest rooms and a poster in the lobby area explaining our conservation efforts and the SOS Program and the part that we play in that program to help conserve native seabirds.

The Hotel will educate their employees by putting information in the Daily Focus page. All daily pre-shift meetings will have Seabird Awareness and Response discussions during the seabird fallout season.

Prior to the start of the seabird fallout season, Hotel Management, will conduct a lighting audit of the Resort with a qualified seabird biologist. The objective of that survey will be is to identify any lights on Resort grounds that might attract seabirds to our property. Engineering or the grounds department will make the appropriate adjustments to light fixtures as needed, prior to the start of the annual seabird fallout season. Additionally it may be necessary to turn of certain specific lights during the seabird season – a SOP for which lights will be turned off will be developed if needed.

Security officers will keep a log of birds recovered on the property, with all pertinent data. They will also complete filling in the "White Board" on the SOS Aid Station that is attached to the Station with the following information:
Date:
Time:
Location found:
Condition of bird: (Good) (Injured) (Dead)
Type: Newell's Shearwater – Hawaiian Petrel – Storm Petrel, other – (if known)

Monitoring

Safety & Security officers (2) plus one Supervisor (1) and one duty engineer (1) will make it part of their duties during the Seabird season to be vigilant about searching for down Seabirds during their respective shifts.

Security patrol duties include making two rounds of the property in an 8 hours period (shift). During their patrol during the Seabird Season, officers will make more comprehensive search of the property, and vegetated areas in landscaped areas.

A daily log will be submitted to the Security Manager of any downed birds found, at the end of each shift.

Security officers & engineering personnel will follow the "Bird Recover Procedure" detailed below when necessary.

Bird Recover Procedure:

Deploy the Seabird Recovery Kit that should contain the following items:

- Latex or nitrite gloves
- Three towels
- Hand Sanitizer
- Flashlight
- Clip Board, pen, "Bird Take Log
- Bird Carrier (Card Board Box) with note as a "Live Animal"

Live Bird Handling and Procedures:

1. Take the seabird recovery kit and pet carrier to the downed seabird
2. Put on gloves
3. Using towel to gently cover the bird, pick up the seabird
4. Place the seabird in the pet carrier, and close the pet carrier
5. Put the gloves and towel back in the seabird rescue kit
6. Take the bird and pet carrier to a SOS Aid Station
7. Transfer the bird to the Aid Station
8. Call SOS at 635-5117 or 632-0610
9. Return the seabird rescue kit and pet carrier to security, replace towel and clean cage with bleach, if dirty
10. Complete the Downed Wildlife Form
11. Turn in the completed form to the Security Manager
12. Note in the nightly log where the bird was found, or if found off property

Dead Bird Handling and Procedures:

1. Place dead seabirds in a two gallon Zip-Loc plastic bag – double bag the bird
2. Write the Date and Property on the outer bag with a permanent Marker
3. Place in a refrigerator
4. Complete the Downed Wildlife Form

Appendix F
DLNR Downed Wildlife Form

DOFAW will provide the form that they will required prior to permit issuance