

NELHA DEVELOPMENT AND DESIGN GUIDELINES



Natural Energy Laboratory of Hawai'i Authority

2011



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INTENT AND PURPOSE

- A. The Natural Energy Laboratory of Hawai'i (NELH) and Hawai'i Ocean Science and Technology (HOST) Park were created to promote and provide for the research, development and commercial application of activities that utilize ocean water as a resource depending upon proximity to the ocean, or utilize the natural resources of the site. They were consolidated into one entity under the Natural Energy Laboratory of Hawai'i Authority (NELHA).
- B. The purpose of these rules is to establish for NELHA standards, restrictions and guidelines that will ensure a high quality of coordinated development and a minimum of adverse environmental impacts, while providing sufficient design and operating flexibility to encourage sound economic development.

Definitions

As used in this manual, unless the context otherwise specifies or indicates a different meaning:

- "Accessory building"* means a permanent building detached from and subordinate to a principal building on the same lot and used for purposes customarily incidental to those of the main building such as storage of equipment, research, processing, product development and testing.
- "Approval"* means written approval prior to implementation of the proposed action.
- "Average lot width"* means the average length between the narrowest and widest dimensions of the lot. In the case of a flag lot, the maximum depth of the lot excludes the length of the driveway portion of the lot.
- "Board of Directors"* means the appointed Board of the Natural Energy Laboratory of Hawai'i Authority.
- "Industrial/Support Area"* means the real property so designated in the designated master plan.
- "Corporation"* means the Natural Energy Laboratory of Hawai'i Authority (NELHA).
- "County"* means Hawai'i County.
- "Director"* means the executive director of NELHA.

"Federal" means the government of the United States of America.

"Gross floor area" means the total area of all floors, of a building including basement measured along the exterior walls of such building.

"HOST" is synonymous with the term "Hawai'i Ocean Science and Technology Park" and means the site and facilities located at Keāhole, North Kona, Island of Hawai'i.

"Hazardous material" means material defined as hazardous waste by the State of Hawai'i, Department of Health and the U.S. Environmental Protection Agency; and material classified by the National Fire Protection Association (NFPA) as either a flammable liquid, a Class II combustible liquid, or a Class IIIA combustible liquid.

"Improvement" means any building, road, driveway, parking area, loading area, pond, raceway, tank, water-containment structure, ocean water line, potable water line, sewer, electrical and gas distribution facilities, telephone line, retaining wall, fence, screen, berm, pond cover or screen, greenhouse, stairway, deck, pole, hedge, planting, sign, exterior illumination, and all other structures, installation and landscaping of every type and kind, whether above or below the land surface.

"Keāhole Point" means the NELH & NELHA sites combined.

"Lot" means a parcel identified by a lot number shown in the master plan.

"Lot area" means the total area of a lot, including any area to be used for a driveway.

"NELHA" is synonymous with the term "Natural Energy Laboratory of Hawai'i" and means the entire site and facilities located at Keāhole, North Kona, Island of Hawai'i.

"Ocean research zone" means the real property so designated in the master plan, and/or designated as an ocean research use area.

"Principal building" means a permanent building which provides facilities for the main use of a lot.



“Review Committee” means the committee established for the purpose of reviewing any proposed improvement by a tenant or interested person within NELHA

“Sign” means any structure, device or contrivance, electric or non-electric, temporary or permanently affixed, upon which any poster, bill, bulletin, printing, lettering, painting, device or other advertising of any kind whatsoever, is used, fastened or affixed.

“Street” means any street, road, or thoroughfare within NELHA and shown on any recorded subdivision or parcel map, or record of survey, whether designated as a street, boulevard, place, drive, road, court, terrace, way, lane, circle or otherwise.

“State” means the State of Hawai‘i.

“Tenant” means a lessee or licensee who is lawfully occupying a lot or a portion of a lot with the permission of NELHA.

“Utilities” means potable water, ocean water, electricity, data, and telephone systems as supplied by NELHA, county, or private utility companies.

“Visible from adjacent lots” means, with respect to any given object on a lot, that such object is or would be visible to a person six feet tall, standing on any part of an adjacent lot, street or other property at an elevation no greater than the ground elevation at the location of the object or activity being viewed.

Administration

NELHA, or its designated representative, shall administer the provisions of these policies and procedures, except where indicated.

Rules for construction of language

The following rules of construction apply to these rules:

1. The particular shall control the general;
2. In case of any difference of meaning or implication between the text of these rules and any caption, illustration, map, summary table or illustrative table, the text shall control;
3. The word “shall” is always mandatory and not discretionary. The word “may” is permissive;

4. Words used in the present tense shall include the future; and words used in the singular number shall include the plural, and the plural the singular, unless the context clearly indicated the contrary;
5. A “building” or “structure” includes any part thereof;
6. The word “person” includes an individual, a Corporation, a partnership, an incorporated association, or any other similar entity;
7. Unless the context clearly indicates the contrary, where a provision involves two or more items, conditions, provisions, or events connected by the conjunction “and” or “or”, the conjunction shall be interpreted as follows:
 - a. “And” indicated that all the connected items, conditions, provisions, or events shall apply;
 - b. “Or” indicates that the connected items, conditions, provisions or events may apply singly or in any combination.
9. The word “includes” shall not limit a term to the specified examples, but is intended to extend its meaning to all other instances or circumstances of a similar kind or character.

Compliance with general leases

- A. A portion of Keāhole Point is leased to NELHA by the Department of Land and Natural Resources. Tenants that occupy this portion of Keāhole Point shall also be responsible for complying with the provisions of the appropriate general lease.
- B. In the event of a conflict between these policies and procedures and general lease, the provisions of the latter shall prevail.

Severability

If a court of competent jurisdiction finds any provision or provisions of these policies and procedures to be invalid or ineffective in whole or in part, the effect of that decision shall be limited to those provisions which are expressly stated in the decision to be invalid or ineffective and all other provisions of these policies and procedures shall be separately and fully effective.



Permitted uses

- A. Keāhole Point shall be divided into six types of use areas: 1) Applied Renewable Energy Zone, 2) Economic Driver - NELHA related products and services, 3) Ocean Resources, Innovation & Applied Technology Center, 4) Science & Cultural Center, 5) Ocean Resources & Natural Energy Research, and 6) Ocean Research Zone.

These designated zones are meant as a guide. NELHA reserves the right to locate uses outside of the zones for which they are designated.

- B. NELHA encourages research and development, using ocean water, larger scale production uses and other uses that utilize the ocean water or brackish water resources available at Keāhole Point. Permitted uses shall include but not be limited to:
1. Aquacultural applications such as production of abalone, clam, oyster and other mollusks; lobster, shrimp, prawn and other crustaceans; micro- and macro-algae; and finfish;
 2. Agricultural applications which use the ocean water or brackish water resources;
 3. Research, development and commercialization of ocean related technologies;
 4. Oceanography;
 5. Alternate energy;
 6. Desalination and mineral extraction of ocean water or brackish water.
- C. Support areas are designated for ocean related science and technology uses and tenant support service that require smaller acreages of land. These areas are intended to be developed as low density industrial areas with low lying buildings and planned landscaping to convey a park like atmosphere. Permitted support uses shall include but not be limited to:
1. Biotechnological, micro-pharmaceutical businesses;
 2. Design, manufacture and assembly of ocean related equipment of an electrical, electronic, electromechanical

or optic nature, only if such equipment requires the special facilities of NELHA for its manufacture and/or testing;

3. Support businesses, including but not limited to processing and packing services, and production and sale of ice for the packing and shipment of products;
 4. Restaurant preparation of species produced in the ocean research and use area; and
 5. Office buildings.
- D. Education/information areas are intended to be developed for educational, training and public information disseminating uses. Permitted uses shall include but not be limited to:
1. Research and training facilities;
 2. Visitor information center;
 3. Libraries; and
 4. Administrative offices and laboratory facilities of tenants who maintain operations within NELHA.
- E. The following operations that are accessory to the principal permitted activities are permitted within the designated areas:
1. Administrative offices;
 2. Warehousing and distribution;
 3. Research and development operations;
 4. Product testing;
 5. Marketing of products;
 6. Incidental and necessary services for the convenience of persons working at the site are conducted within an integral part of a principal building with entrances from the interior of the building and having no display advertising visible from the street;
 7. Manufacture, assembly, testing and repair of testing equipment and the production of tenant owned equipment;
 8. Equipment and instrument storage; and
 9. Other buildings and uses normally considered accessory to the permitted uses.



Prohibited uses

The following uses and operations, including uses not listed that are similar in character or effect, shall not be permitted on any lot:

1. Airports and heliports;
2. Auctions;
3. Junk yards or recycling facilities provided, however, that the foregoing does not prohibit recycling that is carried out in conjunction with a primary permitted use when necessary to comply with emission control standards, or required as an element or elements of waste control facilities;
4. Commercial excavation of building or construction materials or quarrying of any material except in the course of approved site preparation and construction;
5. Dumping, disposal, incineration or reduction of garbage or other forms of refuse unless this is part of a waste to energy facility;
6. The raising, fattening, fat rendering, stockyard or slaughter of non-aquatic animals such as cattle, swine, fowl and the like;
7. Refining of petroleum or its products;
8. Smelting of iron, tin, zinc, or other metallic ores;
9. Saw or wood planing mills;
10. Manufacturing or production of cement, lime, asphalt, gypsum, firewood, wood pulp; etc.;
11. Cemeteries;
12. Truck or bus maintenance or storage facilities unless accessory to alternative energy vehicles;
13. Automobile, go cart, motorcycle, or other motorized vehicle race tracks;
14. Oil or propane storage facilities except in an enclosed yard of a tenant's lot only when such tanks are limited for use in the servicing of vehicles owned or used by the tenant or part of an alternative energy production facility;

15. Processing of sugar or pineapple;
16. Automobile or truck dealerships, auto wrecking, auto repair or auto painting establishments;
17. Jail or honor farms;
18. Labor or migrant worker farms
19. Storage and handling of radioactive and other hazardous substances unless incidental to a permitted use, and then only in accordance with applicable governmental regulations and the hazardous materials standards established by NELHA;
20. Contractor's construction yards except during construction of a facility within NELHA;
21. Establishments that rent, sell, or service heavy equipment; and
22. Veterinary establishments and commercial kennels.

Uses and operations not listed

A use or operation that is neither specifically prohibited nor specifically authorized by these policies and procedures may be permitted in a specific case if it is consistent with the intent and purpose of NELHA and the county zoning code. An application for such use or operation shall be submitted in writing to NELHA in accordance with the procedures set forth in these policies and procedures. Approval or disapproval of the application shall be based upon the effect of the applicant's operations or uses on other properties and operations at the site or on the tenants, and shall be at the sole discretion of NELHA.

Non-conforming uses

Non-conforming uses shall be permitted and regulated in accordance with the county zoning code.

Minimum lot area

- A. Within the NELHA ma kai area zone, MG1a minimum lot sizes shall be 1 acre.
- B. Within the remaining areas of NELHA, the minimum lot area shall be three acres.



- C. The minimum average lot width shall be two-hundred feet. Lots may have reduced widths subject to the approval of NELHA.
- D. Resubdivision of any lot by any tenant is prohibited unless approved by NELHA.
- E. Whenever two or more adjacent lots are developed by one tenant, they shall be treated and considered as one development lot for the purpose of these rules.

Height limitations

- A. The maximum height of all buildings and structures, excluding ponds and other water containment structures, shall be forty feet as measured from the finished ground level to the roof of the building including mechanical penthouse.
- B. No fence, wall, hedge, shrub, bush, tree or obstruction shall be permitted at street corners or at driveway entrances that will obstruct the sight lines for drivers so as to constitute a safety hazard.
- C. Exceptions may be allowed with the approval of NELHA and conformance with the county zoning code.

Setback

- A. The minimum distance between improvements and the property line shall be as follows:
 - 1. From lot boundaries that abut the main access roads, the minimum setback for principal buildings shall be thirty-five feet. Main access roads are the existing NELHA Access Road, the planned Kaiminani Extension and the Airport Connection Road.
 - 2. The setbacks fronting all other roads shall be twenty feet.
 - 3. Side and rear yard setbacks are established in the NELHA Design Guidelines.
- B. The following improvements may extend into the setback area as follows:
 - 1. Roof overhangs, balconies and decks, subject to the approval of NELHA provided that the overhangs, balconies or decks do not extend more than six feet into the setback area;

- 2. Exterior stairs, ramps, driveways, parking areas and walkways;
 - 3. Fences that are constructed of strand material which allow "see-through" visibility, such as chain-link;
 - 4. Landscaping and irrigation systems;
 - 5. Planters shall not exceed three feet in height and not extend more than six feet into the setback area. Planters of greater height may be constructed within the setback area with the approval of NELHA;
 - 6. Signs identifying the tenant of a lot and directional, parking and security signs, subject to the approval of NELHA;
 - 7. Lighting facilities are allowed, subject to the approval of NELHA; and
 - 8. Underground utility facilities and sewers.
- C. Setbacks related to Māmalahoa: Māmalahoa Trail is protected by a fifteen foot preservation easement on both sides from its center line. No further breaches of this trail are allowed. There shall be a 10 foot setback from the preservation easement edge where no fence, grading or ground altering activity is allowed. Any construction adjacent to this setback line will require a temporary, protective fencing.
 - D. Shoreline Setback Zone: The Shoreline Setbacks are measured from the State Certified Shoreline. Improvements within the 40' State Shoreline Setback zones shall comply with state regulations applicable to this zone. Additionally, NELHA has established a 125 foot setback for structures to reduce risks from tsunami's and storm surge. No buildings are allowed within this setback zone. Accessory structures such as sidewalks, retaining walks, ramps and landscaping are allowed upon review and approved by NELHA.

Buildings coverage

The maximum lot area covered by buildings and other structures shall not exceed 60 percent of the total lot area. This limitation shall not apply to production facilities such as raceways, shade cloth structures, tanks or greenhouses.



Special structures

Special structures related to permitted uses, such as shade cloth structures and portable structures, may be permitted subject to the approval by NELHA.

Temporary structures

- A. No structure of a temporary character shall be erected on any lot except those required during construction of permanent structures. Approval by NELHA for such structures is not required, but removal of such structure shall coincide with the completion of the permanent structures.
- B. No trailer shall be placed or used on any lot except when in use as a construction office during the course of approved construction. Exceptions may be allowed when approved by NELHA.

Driveways

- A. Access to any lot shall be permitted only from designated streets. NELHA must approve the location of each driveway.
- B. Ordinarily each lot shall have only one driveway into a public street. A tenant may be permitted more than one driveway subject to the approval of NELHA.
- C. All lots shall have paved driveways.
- D. Should any roadways within NELHA be dedicated to the county, driveways must be approved by the Hawai'i County Department of Public Works.
- E. Where driveways cross seawater pipes construction shall follow the design concept shown in Section 3.9 of the Design Guidelines.
- F. With the approval of NELHA, existing seawater pipes may be lowered when new driveway entrances are being constructed.

Ocean water supply

- A. Corporation supplied ocean water:
 - 1. A supply of ocean water may be made available by the NELHA for tenant use;

- 2. Tenants shall be responsible for constructing and maintaining a transmission system from the distribution point of the ocean water supply to the tenant's facility;
 - 3. It is preferred that transmission of the ocean water supply be by a completely buried pipe. The NELHA may allow above ground pipes provided that measures for addressing aesthetic and safety considerations are included;
 - B. Tenant supplied ocean water:
 - 1. Under some circumstances, a tenant may have the option of constructing and maintaining its own ocean water supply system. Approval of the NELHA shall be required prior to the construction of such a system; the NELHA is not responsible for the quality or consistency of water from private pipes;
 - 2. The offshore segment of the supply system, including pipe and pump station, shall be subject to the conditions of the conservation district use permit granted to the Natural Energy Laboratory of Hawai'i.
 - 3. The design and construction of the offshore segment of the supply system, including sizes, locations, and methods of deployment and installation of any pipes and pump stations, shall be subject to the approval of NELHA. Design plans and specifications shall be prepared under the supervision of a qualified person with expertise in this field;
 - 4. The design and construction of the on shore segment of the supply system, including sizes, locations, and method of installation of any pipes, tanks and pump stations, shall be subject to the approval of NELHA.
 - C. Reused ocean water supply.
 - 1. Tenants are encouraged to maximize the use of the ocean water resources by reusing or recycling the ocean water as often as practicable before its disposal. Ocean water reuse may be by one tenant or among several tenants;
 - 2. The method of transmission of used ocean water from one tenant to another tenant for reuse shall require



the approval of NELHA. Above ground pipes may be permitted subject to the approval of NELHA;

3. It is preferred that transmission of reused ocean water from the supplying tenant to the receiving tenant be by means of a completely buried pipe. Unburied pipes of a temporary nature may be used for a period not to exceed three months, unless otherwise approved by NELHA. Above ground pipes may be permitted subject to the approval of NELHA;
 4. Ocean water available for reuse is not required to meet the water quality standards for return ocean water. However, reused ocean water shall not contain contaminants which may be deleterious to the intended use of the receiving tenant;
 5. Conveyance of the reused water to the designated point of disposal shall be the responsibility of the last tenant who uses the ocean water and shall meet the water quality standards for return ocean water.
- D. Tenants may be permitted to install transmission pipes within NELHA's utility corridor or other approved area. The locations for such installation shall be approved by NELHA.

Brackish water supply

- A. Under some circumstances, a tenant may be permitted to construct, maintain and use its own brackish water supply system. Approvals from the DLNR, DOH and NELHA are required prior to construction of such a system.
- B. Sale of the brackish water to another tenant for reuse may be permitted subject to the approval of NELHA.
- C. Conveyance of the reused brackish water to the designated point of disposal shall be the responsibility of the last tenant who uses the brackish water.

Ponds and other water-containment structures

- A. Ponds, raceways, tanks, holding basins, ditches and other water containment structures shall be designed adequately for structural stability and for the prevention of unplanned overflows, leakage and infiltration into the subsurface. Ponds

shall be designed as an integrated part of the total tenant facilities.

- B. The maximum height of all water containment structures shall be twenty feet from ground level to the top of structure. NELHA may approve higher water containment structures.
- C. All ponds shall be lined with suitable impervious material.
- D. NELHA may require a cover or screen over ponds to prevent water surface reflection or the attraction of birds, both of which are hazardous to nearby airport operations.

Return ocean water: disposal

- A. If disposal is by a Corporation supplied method, the tenant shall be responsible for constructing and maintaining a transmission system from the tenant's facility to the designated receiving point of the return ocean water disposal system supplied by NELHA.
- B. Transmission of the return ocean water shall be by an impervious system such as a pipe or lined ditch, subject to the approval of NELHA.
- C. A tenant may install his own ocean water disposal system, but only with the review and approval of NELHA and only if such disposal system is in accordance with applicable County, State and Federal permits, regulations and laws.

Return ocean water: water quality

- A. It is the intent of NELHA to minimize adverse environmental effects in the return of the ocean water to the ocean. Therefore, used ocean water discharged into NELHA's disposal system or tenants own disposal system shall meet the basic water quality criteria applicable to all waters as described in the state department of health rules relating to water quality standards as set forth in section 11-54-04 a, Hawai'i Administrative Rules. NELHA shall review and approve the discharge water quality requirements for each tenant on a case by case basis.
- B. Tenants shall be responsible for pretreating their return ocean water discharge, as necessary, to meet these standards.
- C. NELHA may require the tenant to monitor, record and report to NELHA the quality of the tenant's return ocean water discharge.



- D. If deemed necessary, and/or evidence exists of non-compliance with water quality standards, NELHA may enter the tenant's premises with the tenant's approval for the purpose of taking samples of the tenant's return ocean water discharge for independent water quality analysis.
- E. In the event that monitoring by the tenant or Corporation indicates the discharge of substances at levels which exceed the predetermined water quality standards, NELHA shall have the authority to order the tenant to cease operations until the discharge problem has been corrected to the satisfaction of NELHA. In the event that a cessation of operations would result in substantial damage to the particular mariculture species or crop, NELHA and the tenant shall work together to correct the water quality problem as expeditiously as possible, and cessation of operations will only be required if irreversible damage to area ocean resources would result from the problem discharges.
- F. Tenant may be restricted to a maximum allowable discharge rate for the purpose of preventing overflows at the return ocean water disposal site. The maximum allowable discharge rate for each tenant will be individually established by NELHA at the time of final design approval. Such maximum allowable discharge rates notwithstanding, it is recognized that mariculture operations may sometimes require the "dumping" of large quantities of water in the event of unforeseen problems. This "dumping" of ocean water will be allowed. However, the tenant shall be liable for any property damage or environmental damage that may result from such action.
- G. Transmission of the return brackish water shall be by an impervious system such as a pipe or lined ditch, subject to the approval of NELHA.
- H. A tenant may install his own brackish water disposal system, but only with the review and approval of NELHA and only if such disposal system is in accordance with applicable County, State and Federal permits, regulations and laws.

Grading and drainage

- A. All surface drainage shall be designed to conform to the overall drainage systems for the site.
- B. Site grading shall conform with County grading requirements and tenants are responsible for obtaining applicable permits.
- C. Grading and drainage improvements shall be designed and constructed to eliminate adverse dust and runoff impacts on adjacent and downslope lots.

Potable water supply

- A. Due to the limited supply of potable water in the West Hawai'i area, tenants shall use water saving devices on potable water supply lines wherever practicable.
- B. NELHA may issue guidelines to tenants concerning use levels of potable water.
- C. NELHA's mission on innovative uses of natural resources and alternative energy folds into a newer, more comprehensive mission of sustainability. If new sources of potable water are developed, it is encouraged that they be used on site or added to the existing system with proper checks for water quality and backflow prevention. These new sources may include desalination, OTEC or other new technologies that may be developed.

Wastewater treatment and disposal

- A. Sanitary wastewater generated by the tenant shall be treated and disposed of at a private treatment and disposal system located within the boundaries of the tenant's lot, until such time as a connection is made to the adjacent airport treatment facility or proposed County facility to the south of NELHA.
- B. The design, construction, operation, maintenance and disposal system shall be the responsibility of the tenant and shall comply with State Department of Health and County requirements.
- C. The treatment and disposal of industrial wastewater generated by the tenant in the course of product processing or other industrial activities shall be the responsibility of the tenant. Treatment and disposal methods shall comply with State Department of Health and County requirements.



Industrial waste shall not be mixed with return ocean water for disposal.

Refuse

- A. The disposal of refuse generated by each tenant shall be the responsibility of the tenant and shall comply with State Department of Health and County requirements.
- B. On-site disposal of refuse shall be prohibited.
- C. Technologies to support research and applications for waste minimization or recycling are encouraged; these facilities will be allowed upon review and approval by the NELHA.

Restoration

All utility crossings and other construction activities conducted on behalf of tenants within the NELHA rights-of-way shall be restored to the pre-construction condition and to the satisfaction of NELHA.

Hazardous materials use, handling and storage

The use, handling, and storage of hazardous materials shall be permitted within NELHA to the extent stated in the hazardous materials management standards established by NELHA and appended to the tenant lease agreement.

Air pollutants

- A. Requirements for visible emissions, motor vehicle emissions burning, fugitive dust, process industry emissions, waste gases, and other emissions shall be in accordance with the State Department of Health rules entitled, Air Pollution Control.
- B. No fumes, odors, vapors, volatile acids or other invisible emissions shall be permitted to escape or be discharged into the atmosphere that may be hazardous or detrimental to the health, safety or welfare of persons, or that may interfere with the comfort of persons within the area, or that may be harmful to property, animals or vegetation.

Glare and heat

Any operation producing intense glare or heat or such other radiation shall be performed only within an enclosed or screened

area and then only in such manner that the glare, heat or radiation emitted will not be discernible from any point exterior to the lot upon which the operation is conducted.

Noise

At no point outside of the tenant's property line shall the sound pressure level of any machine, device, or any combination of same, from any individual plant or operation exceed the decibel levels permitted under existing laws, ordinances and rules of any public agency or body having jurisdiction.

Vibration

Buildings and other structures shall be constructed and machinery and equipment installed and insulated on each lot so that the ground vibration inherently and recurrently generated is not perceptible without instruments at any point along any of the property lines.

Non-Production animals

Non-production animals, including pets, shall be kept under positive control at all times. Security dogs may be allowed unrestrained movement, but only within securely fenced premises or within a building not accessible to the public.

Archaeological mitigation

- A. Tenants are advised that several sites of archaeological value have been found at Keāhole Point and have been recorded and preserved accordingly through an archaeological mitigation program implemented by NELHA. In the course of excavation activities, whenever the tenant encounters findings that have or that appear to have possible archaeological value, the tenant shall temporarily suspend all operations that would disturb those findings. The tenant shall contact NELHA so that the County Planning Department and the State Historic Preservation Office can be notified to evaluate such findings and determine the course of action. Any item of archaeological value found within the site shall be the property of the state. Tenants shall be responsible for the cost of performing archaeological mitigation activities and for the cost due to delays in construction.



- B. When deemed necessary by the State, the State may have an archaeologist present to monitor grading work to ensure that no damage occurs to archaeological sites within the boundaries of the site.
- C. A portion of the historic Māmalahoa Trail (SIHP site 50-10-27-2) is located within NELHA and is delineated in the master plan. The portion of SIHP Site 50-10-27-2 that traverses the NELHA property is contained within an already established preservation easement that extends 15 feet on either side of the trail center line (the trail itself averages about 2 meters [6.5 feet] wide through the project area). No construction or land modification is permitted within this preservation easement. There will be an additional 10 feet on either side of this easement within which no buildings or fences will be erected or ground-altering activity will be permitted. The exiting utility corridor adjacent to and south of the primary NELHA access road will continue to be used and all utilities placed in this corridor will be buried where they cross the trail site and its buffer. No further breaches of the trail will be allowed. If in the future it is necessary to bring utilities from one side of the trail to the other in an area remote from the existing utility corridor, those utilities will be placed using boring equipment that enters and exits the ground surface on either side of the preservation buffer.

Additionally, temporary protective fencing will be placed along the preservation buffer boundary when any construction activities occur on parcels adjacent to the site. NELHA will inform its tenants of the protective measures required for development of parcels adjacent to the trail and will inspect the potential job sites to verify the proper placement of protective fencing. DLNR-SHPD will be notified in writing of all such activities. Additionally, NELHA encourages its tenants to use environmentally sensitive color schemes for building exteriors. This practice will help preserve the integrity of both mauka and makai view planes for those walking along the trail. To help further preserve the visual context of the trail, NELHA will require those tenants who choose to erect permanent fences along the preservation buffer to make the fences appear solid (e.g. wood; chain link with vinyl or

aluminum slats) using appropriate tones to block potential unsightly views into industrial yards

Protection of conservation corridor

No tenant shall construct any improvements or in any way develop within the area designated as the conservation corridor as shown in the Master Plan. This corridor is a one-hundred foot wide strip of land that runs along the entire eastern boundary.

Maintenance

The tenant shall have the duty and responsibility, at its sole expense, to keep all buildings, grounds, improvements, landscaping and appurtenances, in a secure, well-maintained, safe, clean and attractive condition at all times. Such maintenance shall include but not be limited to the following:

1. Removing all litter, trash, refuse and waste promptly;
2. Lawn mowing on a regular basis;
3. Tree and shrub pruning;
4. Keeping exterior lighting and mechanical facilities in working order;
5. Keeping lawn and garden areas alive, and any adjoining drainage ditches free of weeds and debris;
6. Removing and replacing dead plant material;
7. Keeping vacant sections of the lot well maintained, and free of trash and tall weeds;
8. Maintaining all ocean water transmission systems;
9. Keeping parking areas, driveways, walkways and roads in good repair;
10. Complying with all governmental, health, fire and police requirements and directives;
11. Striping of parking areas;
12. Maintaining signs; and
13. Maintaining the lot boundary pins established for the lot.



Repair of improvements

- A. No building, structure or improvement upon any lot shall be permitted to fall into disrepair, and each such building and structure shall at all times be kept in good condition and repair and adequately painted or otherwise finished.
- B. Nothing within these rules shall prevent a tenant from performing repair work on the tenant's pipes within NELHA's utility corridor. Tenant shall notify NELHA in writing at least thirty days before the start of construction or repair work within the utility corridor, except in case of an emergency involving public health or public safety or involving viability of the commercial operation that requires immediate attention, in which case notice to NELHA shall be submitted within three days after the commencement of the emergency repair work.

Future infrastructure systems

The overall master plan concepts include plans for the development of alternative energy smart grids, sea water air conditioning (SWAC), new potable water system based on alternative energy and reduce/reuse/recycle concepts. If these systems are online at the time of lease negotiations, the general conditions shall encourage hook up to these systems. The goals of these alternative systems are ultimately market competitiveness and stability and security of operation. Consequently, the hope is that rates will be competitive or lower than traditional infrastructure/utility alternatives.

Design review committee

- A. NELHA shall appoint a design review committee which shall be responsible for reviewing and recommending approval of all applications for improvements. The design review committee shall consist of five members, composed of the designated official or representative from the following organizations or interest groups:
 - 1. Natural Energy Laboratory of Hawai'i - two representatives;
 - 2. County of Hawai'i Planning Department - one representative;
 - 3. Keāhole Point tenants - two representatives;

- B. Each member shall be selected by his or her respective organization by an appropriate method determined by that organization. The length of appointed term shall also be determined by each organization. Selection and reappointment of the members is subject to the approval of NELHA.
- C. The design review committee shall establish policies and procedures to carry out its design review responsibilities;
- D. NELHA may retain the services of one or more persons with an engineering, architectural, construction, or other similar background to provide technical support to the design review committee.

Approval of improvements

All improvements to a tenant's site shall comply with all applicable federal, state, and County of Hawai'i laws, ordinances, codes, rules and regulations. All applicable permits shall be obtained and copies submitted to NELHA prior to initiating any construction activities. The NELHA design review process described herein is not a substitute for any other review and approval process by any other governmental entity with jurisdiction over the tenant's site.

- A. No improvements shall be erected, placed, altered, maintained or permitted to remain on any lot by any person until final plans have been submitted to and approved by NELHA.
- B. Any interested person that desires to occupy a parcel of land for the purpose of new development, or any tenant that desires to perform any construction activity on their site shall be required to follow a two step process for review and approval of the proposed improvements as described in these guidelines.

Basis for approval

Approval of plans shall be based, among other things, upon general adequacy of site dimensions, conformity and harmony of the exterior design and of location with neighboring structures, relation of finished grades and elevations to neighboring sites, compliance with applicable governmental requirements, and



conformity to both the specific requirements and general intent of the provisions set forth herein. The NELHA shall have the right to disapprove any plans submitted on any reasonable grounds including any matter which, in the judgment of the NELHA, would render the proposed improvements or use inharmonious with the master plan for improvement of NELHA or with improvements located upon other lots or other properties in the vicinity, or with the purposes or intent of these rules.

Procedures for review and approval

- A. For all proposed improvements, preliminary plans shall be submitted to the design review committee for review and approval. Upon receipt of the preliminary plans approval, the final plans shall be prepared for approval.
- B. The preliminary plans shall include, at a minimum, the following information:
 1. Cover page
 2. Vicinity map
 3. Site plan showing property boundaries, buildings, ponds, tanks and other structures, driveway and parking areas, utility connection points, seawater and wastewater disposal locations
 4. Floor plan
 5. Building elevations and color scheme
 6. Landscaping plan
 7. Utility demands (electrical, potable water, warm and cold seawater, etc.)

Plans prepared for submission to Hawai'i County for permitting purposes are recommended. Submit one 24" x 36" size and eight 11" x 17" reduced size sets of plans to NELHA for review. Five sets of the reduced plans will be forwarded by NELHA to the Department of Transportation (DOT-A), Airports Division, two sets to the Keāhole Point tenant representatives and one set to the Hawai'i County Planning Department representative for review and approval.

If the proposed improvements meet certain criteria contained in the Federal Aviation Administration (FAA), Federal Aviation Regulations (FAR) Part 77 related to structure and

construction equipment heights in proximity to airports, the tenant will be required to obtain approval from the FAA prior to proceeding with the improvements. The FAR Part 77 has been included as an exhibit in the tenant's sublease. The approval process consists of submitting a Form 7460-1, Notice of Proposed Construction or Alteration on the FAA web site, review of the information submitted and a determination if air navigation will be adversely affected by the improvements. The determination is typically made within 30 days. Structures and construction equipment require separate forms. For more information and instructions for filling out the form, visit the FAA web site and search for Form 7460-1. Contact NELHA for assistance with determining if FAA Part 77 applies to your specific proposed improvements.

If submission of a Form 7460-1 is required, the DOA-A will withhold its decision regarding the proposed improvements until the FAA has issued its determination.

- C. The design review committee shall be responsible for approving the preliminary plans. The design review committee shall reach a final decision on the preliminary plans and shall notify the tenant of such decision within thirty days after receipt of the complete set of preliminary plans by NELHA.
- D. Upon approval of the preliminary plans, final plans shall be developed and submitted to the design review committee for review and approval. The final plans shall include the same information as the preliminary plans after incorporating all revisions required by the design review committee. Submit one 24" x 36" size and three 11" x 17" reduced size sets of plans to NELHA for review. Two sets of the reduced plans will be forwarded by NELHA to the Keāhole Point tenant representatives and one set to the Hawai'i County Planning Department representative for review and approval.

Construction without approval

If any improvement is erected, placed or maintained upon any lot, or any new use commenced upon any lot, other than in accordance with approval by NELHA pursuant to these rules, such improvement or use shall be deemed to have been undertaken in violation of these rules, and upon written notice



from NELHA, any such improvement in violation of these rules shall be removed or altered so as to conform to these rules, and such use shall cease or be amended so as to conform to these rules. Should such removal, alteration, cessation or amendment of use not be accomplished within thirty days after receipt of such notice, then the person in breach of these rules shall be subject to the enforcement procedures.

Construction activities

Construction activities shall be conducted in a manner that will minimize adverse or nuisance effects of noise, dust, soil erosion, traffic and other safety considerations. NELHA shall have the authority to place specific conditions on the tenant's construction schedule and methods, if, in the judgment of NELHA, the particular construction work could cause significant adverse impacts on other properties and operations of the NELHA.

Construction schedule

- A. All improvement work approved by NELHA shall be diligently completed and constructed in accordance with approved plans.
- B. Upon receipt of approval from NELHA, the tenant and any person to whom the same is given shall, as soon as practicable, satisfy all conditions thereof and diligently proceed with the commencement and completion of all approved work.
- C. In all cases, work shall commence within one year from the date of such approval. If there is a failure to comply with this paragraph, then the approval given for construction shall be deemed revoked unless NELHA, upon request made prior to the expiration of said one year period, extends the time for commencing work.
- D. All improvement work shall be completed within two years after the commencement thereof except for so long as such completion is rendered impossible or would result in great hardship due to strikes, fires, national emergencies, natural calamities or other supervening forces, including unfavorable weather and unfavorable ocean conditions, beyond the control of the tenant. Failure to comply with this paragraph shall constitute a breach of these rules and shall subject the

defaulting person to all enforcement procedures set forth in these rules and any other remedies provided by law or in equity.

- E. If any tenant fails to commence construction, or once having commenced construction, fails to diligently proceed to complete construction within one year from the execution date of the lease agreement, and provided that such tenant did not obtain, in the contract documents for lease of the lot, approval for phased building plan, then NELHA may revoke the approval for construction.
- F. After a revocation of approval, such person that desires to commence or continue construction shall be required to resubmit to NELHA applications for final plan approvals.
- G. "Commencement of construction" as defined in this paragraph means that the tenant of the lot:
 - 1. Obtained approval of NELHA as set forth in these rules;
 - 2. Obtained building permits from the appropriate governmental authorities authorizing construction of a building improvements as approved by NELHA;
 - 3. Expended at least the sum of ten-thousand dollars pursuant to such construction contract for on-site construction work.

Bonds

NELHA may require from the tenant the posting of a bond in a sufficient amount, to ensure that the improvements as proposed and approved in the final design application will be constructed in their entirety.

Construction completion

- A. Upon the substantial completion of any work for which approved plans are required pursuant to these rules, the tenant shall give written notice to NELHA which shall within thirty days inspect the work to determine whether it was completed in compliance with these rules and the overall approved design.
- B. If NELHA finds that the work was done in substantial compliance with such approved plans, it shall, if requested



in writing by the tenant, provide to the tenant a notice of its concurrence that the work has been satisfactorily completed.

- C. If NELHA finds that the work was not done in substantial compliance with approved plans, it shall notify the tenant of the noncompliance and require the tenant to remedy the noncompliance within thirty days from the days of notification, or such longer time as may reasonably be required and as approved by NELHA.
- D. If the tenant shall not have commenced remedial action within the thirty-day period, and thereafter diligently and continuously prosecute the same to completion, NELHA shall have the rights of enforcement.

Variances

- A. A variance to these rules may be granted by NELHA if it is determined that the variance will be consistent with the general purpose and intent of these rules. The following circumstances will be considered by NELHA as reasons for granting a variance:
 - 1. The variance will not cause significant adverse impact to the area or to adjacent properties;
 - 2. The variance is required as a response to new technological developments;
 - 3. The variance is required because of special economic or financial circumstances; or
 - 4. There are special or unusual circumstance applying to the lot which require a variance to ensure the best use or manner of development of the lot.
- B. Application for a variance shall be made by written request describing the nature of the request and the reason for the request. The variance application shall be submitted to NELHA for approval.
- C. In the event that NELHA rejects a variance request, the applicant may appeal the decision by submitting a letter of appeal and supporting documents to NELHA. The board of directors of NELHA shall then consider and act upon the appeal within thirty days of receiving the letter of appeal.

General enforcement

- A. Except as otherwise expressly provided in these rules, NELHA shall have the right to enforce upon the tenant or upon any property within NELHA any and all of the provisions of these rules.
- B. No entry upon the lot of any tenant or other action to enforce these rules shall be made or taken without first giving at least ten days prior written notice to the tenant concerned to cure or rectify the violation involved, except when NELHA's sole discretion determines that an emergency situation or potential emergency situation exists where the health, safety or welfare of the environment or the tenants of NELHA is threatened.
- C. Any act or omission that rules, or any situation or condition created by a tenant that poses a risk to the health or safety of NELHA or its tenants, may be abated by NELHA or by a tenant as provided for in these rules provided that only NELHA may enforce these rules without the authority of a court.
- D. The failure in any case to enforce any provision of this chapter shall not constitute a waiver of any right to enforce the same provision or any other provisions in another case against the same tenant or any other tenant.

Inspection

During reasonable hours, and subject to reasonable security requirements and reasonable advance notice, NELHA shall have the right to enter upon and inspect any lot and the improvements thereon for the purpose of ascertaining whether the provisions of these rules have been or are being complied with, and shall not be deemed guilty of trespass or other wrongful act by reason of the entry or inspection.

Notice of violation

Notice of any violation of the provisions of these rules shall be given by NELHA by sending the notice by certified mail to the address of the tenant as shown on the lease and by leaving a copy of the notice in a conspicuous place on the tenant's property. If the tenant fails to correct the violation as determined by NELHA



within thirty days after receipt of the said notice, then subject to provisions NELHA shall be free to pursue any available remedies in law or equity.

Enforcement

- A. Violation of any provision of these rules shall give to NELHA the right to enter upon the property upon which the violation exists and to summarily:
 - 1. Abate or remove at the expense of the tenant any structure or condition to remedy the violation; or,
 - 2. Prosecute a proceeding at law or in equity against the tenant who has violated any of these provisions in order to cause the violation to be remedied or to recover damages for the violation.
- B. The right-of-entry shall be without liability for damages for wrongful entry, or trespass, to any person.

Reimbursements to NELHA

- A. The tenant of any lot in NELHA on which remedial work is performed by NELHA shall be liable for the cost of enforcement, and shall promptly reimburse NELHA for such cost.
- B. The cost of enforcement shall be the cost of the remedial work performed by NELHA together with interest at the rate of 12 per cent per year from the date of NELHA's advancement of funds for the work to the date of reimbursement of NELHA by the tenant.
- C. If the tenant fails to make reimbursement to NELHA within thirty days after receipt of a statement for the remedial work from NELHA, then NELHA may order the immediate cessation of operations.

Enforcement by tenants

- A. Each tenant, by maintaining operations on a lot and therefore having an interest in the overall success of Keāhole Point, shall be assured that these rules are enforceable upon all tenants equally. If any tenant finds that another tenant is in violation of any part of these rules, and that the violation is

detrimental to his own operations, and that NELHA has not taken action upon the violating tenant to enforce these rules, then any tenant of NELHA (hereinafter referred to as the "enforcing tenant") shall have the right to address NELHA in writing to request that NELHA initiate enforcement action.

- B. NELHA shall take prompt action to investigate the violation.
- C. If NELHA is of the opinion that no violation has been committed, then NELHA shall inform the enforcing tenant of such finding in writing.
- D. In the event that NELHA does not respond to the request of the enforcing tenant in a timely fashion, the enforcing tenant is not precluded from independently taking action by proper legal proceedings brought in a court of competent jurisdiction.



DESIGN GUIDELINES

Natural Energy Laboratory of Hawai'i Authority

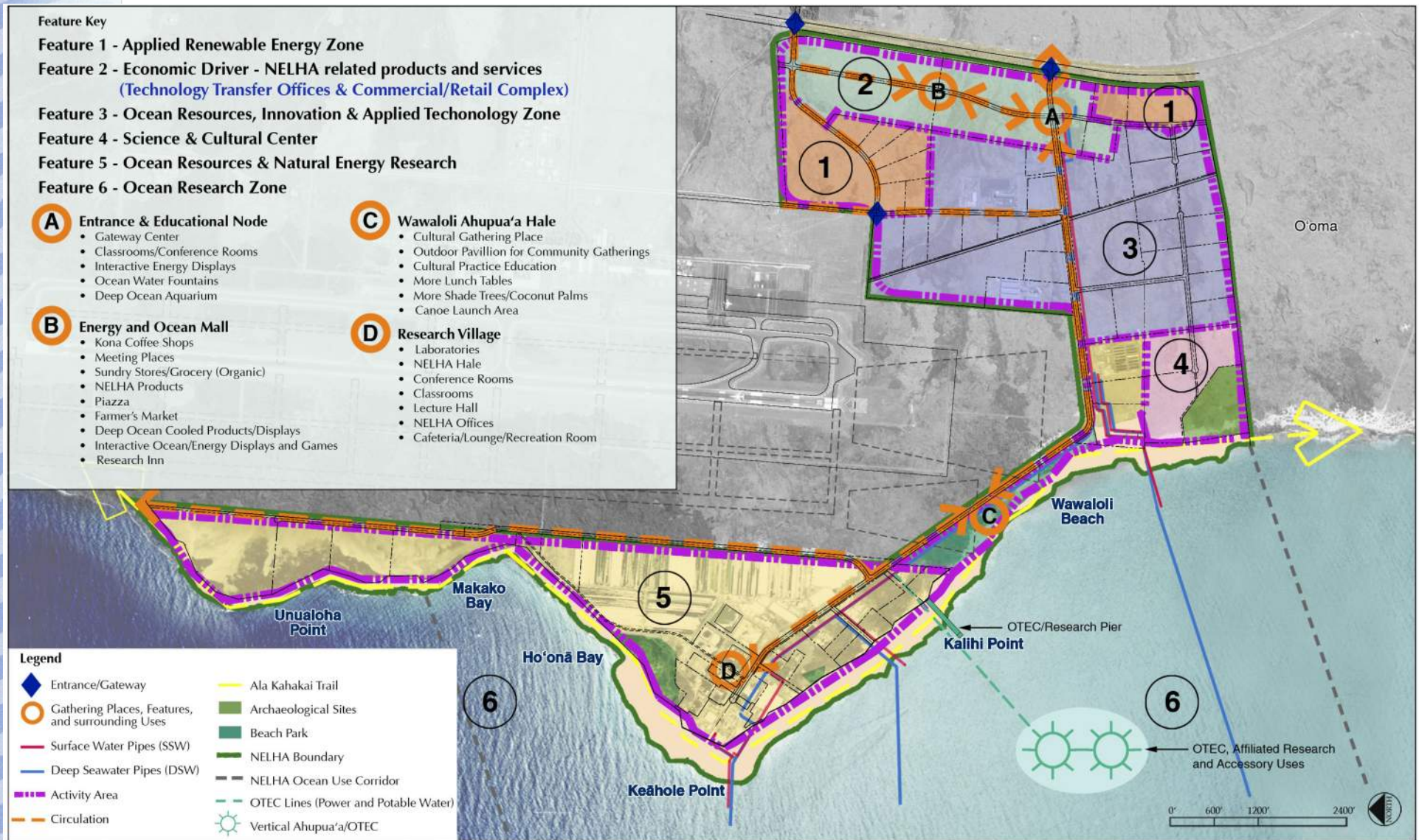
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Conceptual Master Plan



1.0 PURPOSE

The Natural Energy Laboratory of Hawai'i Authority (NELHA) was created to promote and provide for the commercial application of technology based activities that utilize ocean water as a resource or that depend upon proximity to the ocean.

NELHA is divided into five land zones and one ocean.

1. Applied Reserve Energy
2. Economic Driver
3. Ocean resources, innovation and resources and Applied Technology Zone
4. Science and Culture Center
5. Ocean Resources and Natural Energy Research and
6. Ocean Research Zone

These zones are shown in the conceptual Master Plan for NELHA illustrated on the left.

The design guidelines set forth herein are intended to provide uniform guidance to NELHA tenants in the planning, design and construction of structures and other site improvements. The overall objective is to create working environments that are aesthetically pleasing and attractive for both employees and the general public. The Design Guidelines are County-administered documents that, together with the NELHA policies and the lease document, provides tenants with explicit design and use guidelines. These guidelines in their entirety apply to all five land zones in the master plan. Given the wide diversity of tenants and project types that are expected, it is not practical to set forth a comprehensive uniform set of design guidelines for ocean water users and facilities. Additionally, the ocean is outside the jurisdiction of the County. Thus, the design guidelines set forth herein shall apply to any structures and buildings that are proposed to be built. Design standards for site improvements other than buildings and structures - i.e., ponds, raceways, berms, parking areas, landscaping, etc. - shall be established by the County and NELHA on a case-by-case basis.

Barren lava terrain and lack of vegetative cover result in a site that is highly vulnerable to adverse visual impacts from poorly sited and poorly designed facilities, especially since Kona International Airport is the "visitor's gateway to West Hawai'i."

2.0 GENERAL GUIDELINES

The visual and aesthetic impact of NELHA facilities when viewed from Queen Ka'ahumanu Highway is of primary concern. Site improvements should therefore include landscaping that will screen or soften unsightly areas but at the same time not detract from the panoramic ocean views that can be experienced from the highway and main NELHA access road.

The following design elements should be given careful consideration in the planning and design of site improvements:

- a. Landscaping
- b. Walls, fences and gates.
- c. Exterior lighting.
- d. Building materials
- e. Color and texture.
- f. Signs and graphics.
- g. Trash container locations and enclosures.
- h. Roof forms and design



The overall NELHA development should have a relatively low density with emphasis on open spaces, light industrial technology park appearance, ocean-related facilities, island-style architectural culturally-appropriate and appropriate landscaping.

- Maximum lot area covered by buildings and other structures shall not exceed 60% of total area. This restriction does not include production facilities such as raceways, shade cloth structures, tanks and greenhouses.
- No temporary structures are allowed except for those required for approved construction. Mobile structures and portable containers may be allowed on a temporary and case-by-case basis as approved by NELHA
- Driveway location must be specified by NELHA and access shall be permitted only from designated streets. Lots will generally be limited to one driveway. Lots may have 2 driveways, subject to approval from NELHA.
- Maximum height of all buildings and structures, shall be 40' as measured from the finished ground level to the roof of the building. Towers and utility structures may exceed that height with approval from NELHA and the County.
- Building heights will conform to requirements of the Federal Aviation Administration and the State Department of Transportation, Airports Division.
- Facilities that would attract significant numbers of birds are prohibited due to airport concerns
- No fence, wall, hedge, shrub, bush, tree, or other obstructions shall be permitted at street corners or at driveway entrances that will obstruct the sight lines for drivers as to constitute a safety hazard.

Visual clutter typical of industrial parks is not permitted.

NELHA should maintain high standards for architecture and other aesthetic considerations. This should be achieved through these Design Guidelines, NELHA rules and carefully designed lease agreements

Undeveloped land areas should remain undisturbed to preserve the natural appearance of the lava fields. Permanent defacing scars are prohibited.

Design policies that minimize visual impacts include the installation of underground utilities, burying ocean water pipes with crushed lava, architectural design guidelines and appropriate landscaping.

Sustainability is now a prevalent concept in legislation and the global economy. NELHA seeks to be at the forefront of this movement in many areas. Its mission statement developed several decades ago, presciently anticipates this direction. Recent legislation requires all public building and new residential construction to meet green building standards articulated in the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Program. As an early advocate of these goals, NELHA will seek to encourage green buildings and green designs that aim toward sustainable design. Over the long term, the goal will be to achieve net zero carbon, zero energy and zero water cycles with a possibility of exports of these resources to the larger community in the future. As such these guidelines seek to reduce/reuse/recycle as much as is practicable.

While this sensitivity to the environment is referred to today as "sustainability," Native Hawaiians had a similar concept of "mālama 'āina" or "to care for the land." As the Hawaiians used the resources within their ahupua'a, they practiced "aloha" (respect), "laulima" (cooperation), and "mālama" (stewardship) which resulted in "pono" (balance). As the Owners may be considered stewards of the land, low impact, sustainable design is encouraged to protect the land and water resources.



The following are some recommended guidelines.

1. Minimize irrigation water demand:
 - a. Create a water-efficient landscape through plant selection, xeriscape techniques, and the use of mulches.
 - b. Use water-efficient irrigation systems and devices.
2. Maximize permeable surfaces:
 - a. Use reinforced grass paving where practicable.
 - b. Use pervious concrete or paver system.
3. Shade pavement and structures:
 - a. Plant trees to protect west and south-facing building exposures.
 - b. Where practicable use wide roof overhangs and awnings.
4. Create a Hawaiian sense of place:
 - a. Consider the use of native Hawaiian and Polynesian-introduced species.
 - b. Consider the use of native materials such as wood and stone.
 - c. Consider the use of native design motifs that reflect the culture and nature of Kona.
 - d. Preserve views of the mountains and ocean to retain the sense of place.

3.0 SPECIFIC GUIDELINES

3.1 Setbacks

Minimum setback (distance between improvements and property boundaries on leased or subleased land):

Except for frontages along the main access roads, minimum front yard setbacks for principal buildings is 20'. Setbacks from the main access roads shall be 35'.

Side yards and rear yard setback will vary by zones.

Zone	Front	Side	Rear
Retail/Commerce	20'	0	0
Alt Energy	20'	10'	5'
Innovation	20'	10'	5'
Culture	20'	10'	5'
Research	20'	10'	5'

Side and rear yard setback requirements may be exempted if approved by NELHA.

If residential units are developed on the 'O'oma side of the site, there is a possibility that an additional setback may be required along that edge.

Some improvements may extend into setback area:

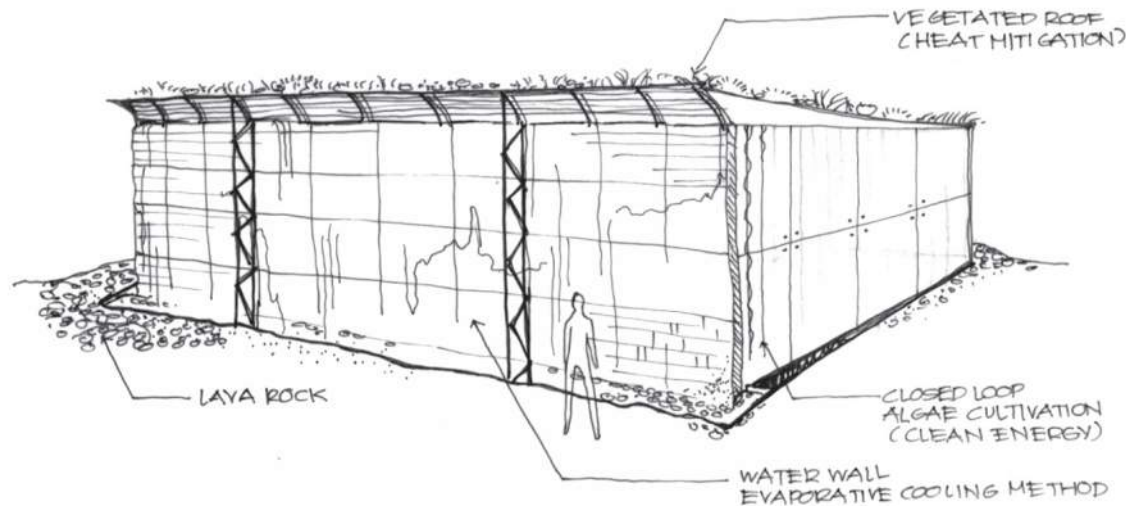
- Temporary kiosks/booths/carts;
- Roof overhangs, balconies, and decks, subject to the approval of the NELHA provided that the overhangs, balconies or decks do not extend more than 6' into the setback area;
- Exterior stairs, ramps, driveways, parking areas, and walkways;
- Fences constructed of strand material which allow "see-through" visibility, such as chain-link;
- Landscaping and irrigation systems;
- Planters, not to exceed three feet in height and except with the approval of the NELHA;
- Signs identifying the tenant of a lot and directional, parking and security signs, subject to the approval of the NELHA;



- Lighting facilities, subject to the approval of the NELHA

3.2 Building Design

- A. The objective of these design standards is to obtain consistency and quality in architectural design. In order to maintain consistency, yet permit interest and variety and the use of new materials as they may develop, all building designs, including those for alterations, additions, or remodeling are subject to the review and approval of the County. Buildings shall be considered as three dimensional objects and attention should be given to the appropriate and compatible treatment
- B. Building design should be in keeping with the natural setting, being compatible or complimentary with the outdoor environment, and finished in wood, brick, stone, textured concrete, stucco, metal, block, or glass. No more than three finish materials are to be used in combination on any single building exterior. Metal buildings are also permitted when compatibility with design guidelines is demonstrated. Color tones of all building finishes shall be earth tones, and contrast shall be moderate, not severe. Roof materials shall be non-reflective earth tones or matted. Non-building improvements should emphasize craftsmanship with a high-quality, soft appearance. The following standards of design shall be



Sustainable Building Applications



required for principal and accessory buildings:

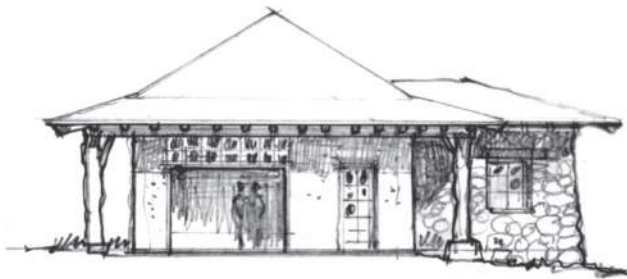
1. The general design character expressed on each lot shall be in keeping with the natural setting of NELHA. Building architecture shall be of a high quality but natural appearance, emphasizing the outdoor environment. Where more than one building is constructed on a lot, all buildings shall reflect compatible design expression, finish materials and colors.
2. Building materials shall be of good quality. Craftsmanship should be emphasized. Exterior walls shall be finished in

wood, brick, stone, textured concrete, stucco, metal, block, or glass. Fabric and other similar exterior materials are highly discouraged. No more than three finish materials are to be used in combination on any single building exterior.

3. The color tones of building finishes shall be earth tones such as light beiges, tans and light sepias. Color contrast for accent and articulation of building appearance features shall be moderate, not severe. Color schemes shall be consistent throughout the exterior of the building. Super

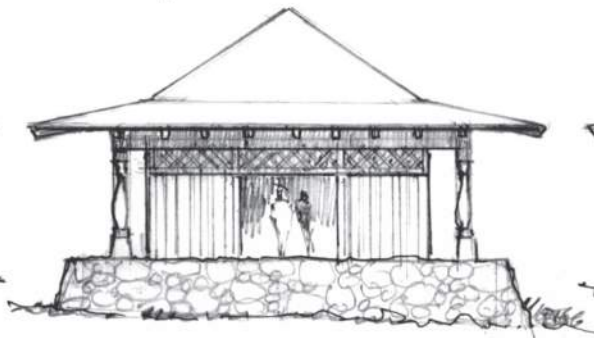
RUSTIC WALLS

Hand applied stucco walls and lava stone walls, combined with traditional windows and corner posts.



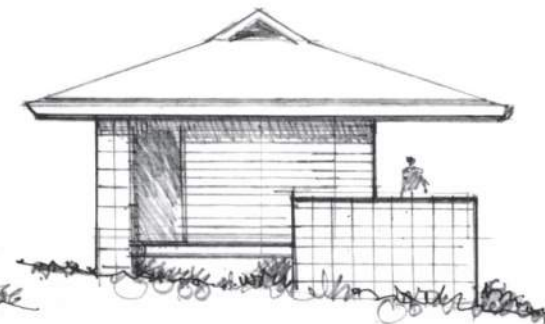
PLANTATION WALLS

Vertical wood siding and lava stone walls, combined with lattice detail and turned wood posts.



CONTEMPORARY WALLS

Cut stone walls and horizontal wood siding.



Examples of Complementing Wall Materials

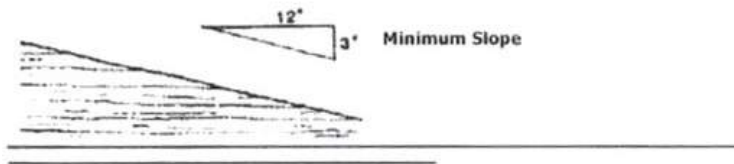




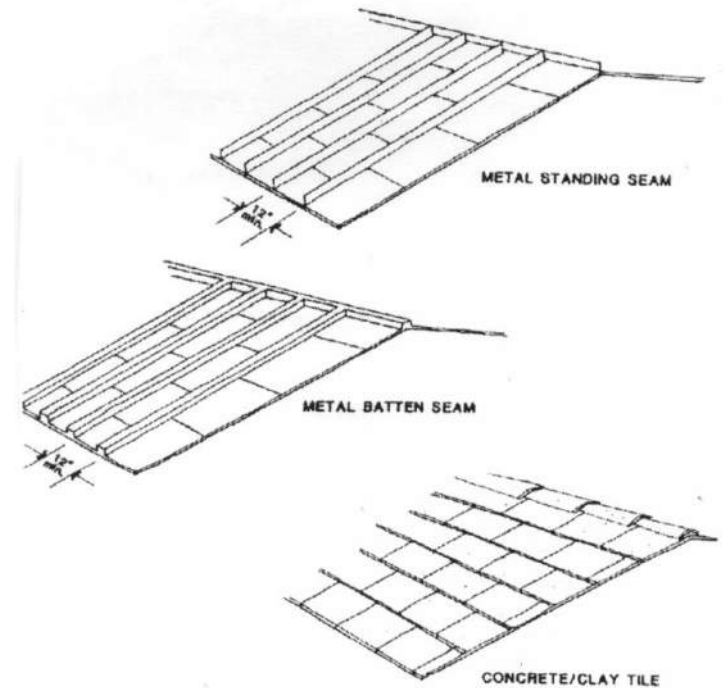
NELHA Photovoltaics

graphics and decorative painting that do not relate to architectural features shall not be permitted.

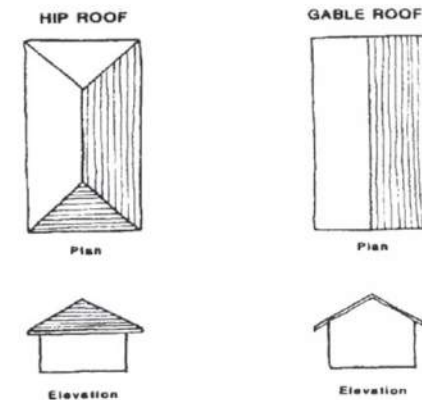
4. The roofing materials shall be generally non-reflective, non-glare materials with light earth-tone colors. To achieve proper performance and appearance, materials must be installed in strict accordance with the directions or specifications of the product's manufacturer and/or appropriate trade association. The following are recommended materials: colored concrete or clay tiles; standing seam or metal batten roof with a minimum seam or batten spacing of twelve inches; built-up gravel of earth-tone color. The following roofing materials are prohibited: corrugated metal; white or bright rock; spray urethane foam; glossy or reflective materials; cap sheet. Other types of roofing material may be considered by the NELHA if requested by the Owner and upon submission of evidence of quality comparable to recommended roofing materials and provided the material is compatible



Roof Slopes

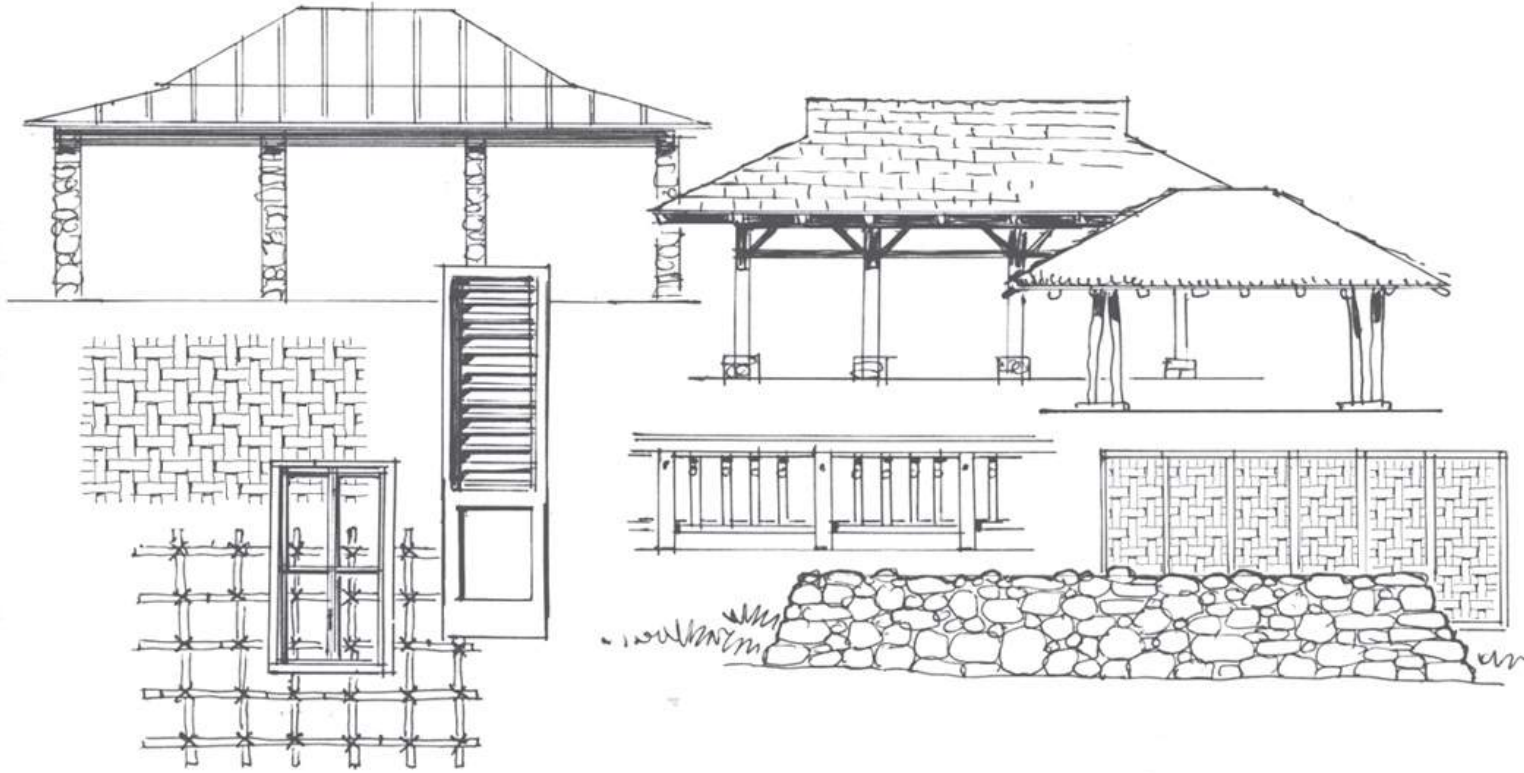


Recommended Roof Materials



Roof Types





Roof types and materials

with the surroundings. Roof slopes shall have a minimum slope of three inches vertical rise over twelve inches of horizontal. Roof overhangs are strongly encouraged.

5. Notwithstanding the above guidelines, where practicable, sustainable designs shall be encouraged for roof designs and uses. Solar heat and water and photovoltaic panels will be allowed and encouraged. Solar equipment and skylights for daylight penetration are encouraged. "Green" roofs - vegetated or mixed with local material is also encouraged. While high reflectance is not desired, where practicable, roof material and color that increases

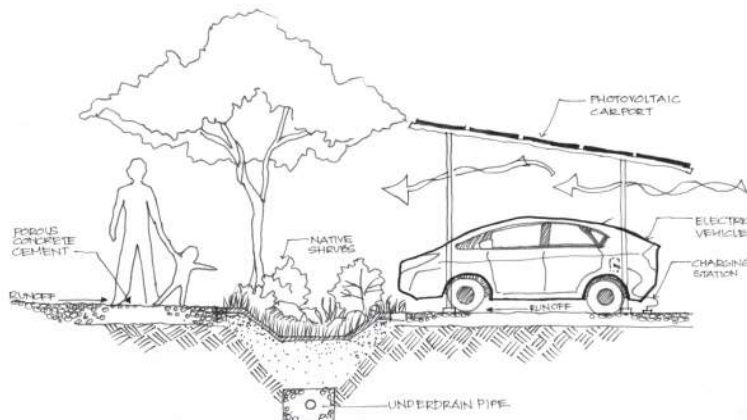


Example of Green Roofs (Haunama Bay Visitor Center)



albedo to reduce heat gain is encouraged to minimize heat island effects and increased air conditioning load. Green roofs are also encouraged to reduce storm water runoff.

6. For non-building improvements, quality, soft materials that complement the building shall be used. Textured concrete or tile, gravel pathways, natural lava stone walls, wood decks and benches; and craftsmanship should be emphasized.
7. It is recommended that consideration be given in the design of buildings to attenuation of future airport noise in addition to existing airport noise since the nearby Keāhole Airport is planned for future expansion.
8. Walls and fences should complement the main facility. Walls of accessory structures such as trash enclosures, storage sheds and restroom facilities should also complement the main structure. Where practical, a high level of aesthetic and local character and material are encouraged.



Vegetated Swale/ Bioswale

3.3 Off-Street Parking

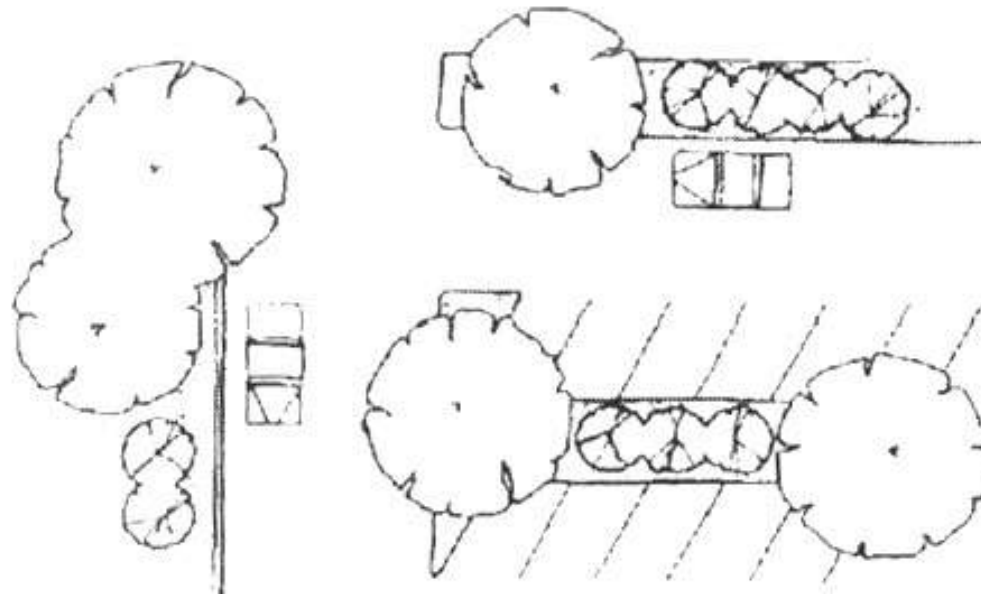
- A. Off-street vehicular parking is generally adequate to accommodate the parking needs of both employees and visitors shall be provided by the tenant of each lot. The intent of this provision is to eliminate the need for any on-street parking, provided however, that nothing in these rules shall prohibit on-street parking of public transportation vehicles in areas that may be specifically designated for that purpose.
- B. The minimum number of parking spaces required for each lot shall be determined in accordance with the County Zoning Code.
- C. If parking requirements increase as a result of a change in the use of a lot or in the number of persons employed by the tenant, additional off-street parking shall be provided so as to satisfy the intent of this section.
- D. Parking for the physically handicapped shall be in accordance with the County Zoning Code.
- E. Parking space design shall be in accordance with the County Zoning Code. Landscaping within and adjacent to parking lots shall be provided.
- F. Landscaping in parking areas should be xeriscape; preferably native species.
- G. As much as is practicable, pervious surfaces are encouraged.
- H. Runoff from pavement areas should be directed to natural swales if practicable.
- I. Where practicable, designs shall allow for future electric car charging outlets.



3.4 Loading Area

Adequate area shall be provided on each lot for all loading and maneuvering of trucks and other vehicles in order that such operations will not be carried out in the streets. Loading areas shall be located and screened as follows:

1. No loading docks or areas shall face the street or be placed on the sides of a building for a distance of sixty feet from the front property line.
2. If loading docks or areas are located on the sides of a building, they shall be screened from public view by the building or by the use of a wall, fence or landscaping between the street and the loading area. The wall, fence or landscape screening shall be of a design and material compatible with and complementary to the building design and material used in the building construction, and shall be located so that no loading areas are visible from any lot lines that abut a street.
3. All loading areas shall be designed in accordance with the County Zoning Code.



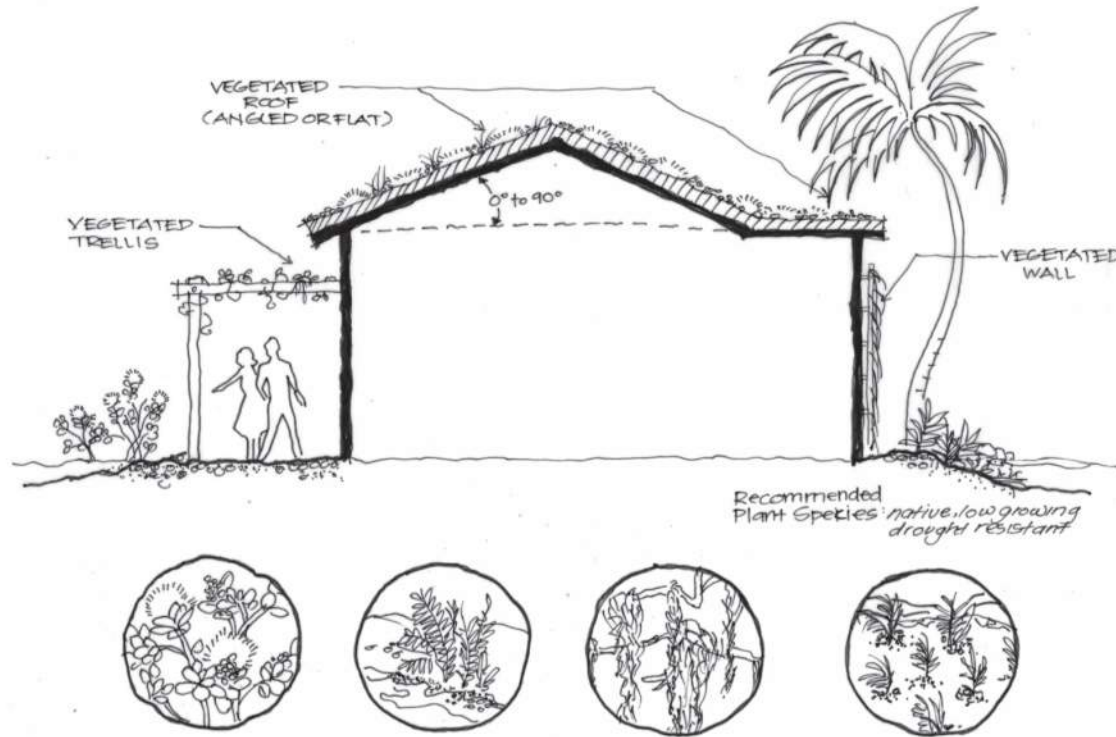
Parking Lot Landscaping



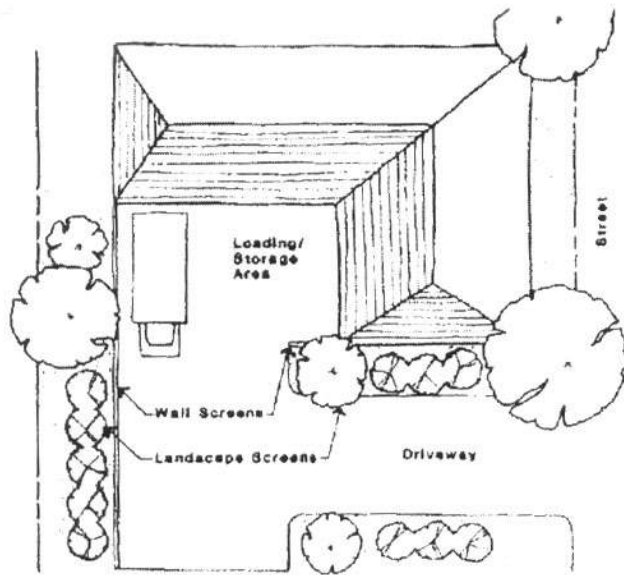
3.5 Landscaping and Screening

In general, landscaping requirements shall be of a high standard for developed areas frequented by or highly visible to the public. Tenants' landscape design shall be compatible with the NELHA landscaping guidelines. Generally, planting with native species and xeriscape qualities is encouraged. Landscaping and screening requirements shall be as follows:

1. "Generous landscaping with appropriate trees, shrubs, and ground covers in the area of the NELHA main entrance; within the 100-foot-wide conservation corridor; and along a portion of the NELHA Access Road from the intersection with Queen Ka'ahumanu Highway to Wawaloli Beach Park.
- a. Entry landscaping of trees, groundcover, and rockwalls with irrigation systems. Xeriscape is recommended to reduce water consumption.
- b. Main Road landscaping of 1100 linear feet of trees, shrubs and groundcovers as well as street trees on both sides of the project totals serving a total of 4,000 linear feet of landscaping.
- c. The conservation strip shall be landscaped with informally-shaped earth mounds of varying sizes each with cluster of drought-tolerant trees and shrubs.
- d. Tenant landscaping shall be of a high standard for developed areas highly visible to public. Landscaping should be in keeping with NELHA Development Guidelines.



Landscaping with native plants



Loading/ Storage

3. Special attention to landscaping details shall be required for all lots that abut the main road. The minimal requirements for these lots shall be the planting of shrubs or trees or both along the property line adjacent to the main road, and attractive landscaping at entrance points from the main road.
4. The use of landscaping for shading shall be encouraged, particularly the use of large drought tolerant canopy trees.
5. Height of fences, gates and walls shall be in accordance with County regulations.
6. A landscape irrigation system shall be provided to maintain landscape plants. Harvested rainwater or recycled and brackish water sources are encouraged.

The new highway entrance to NELHA that are projected in the master plan (Kaiminani Street Extension) will follow similar guidelines and dimension.

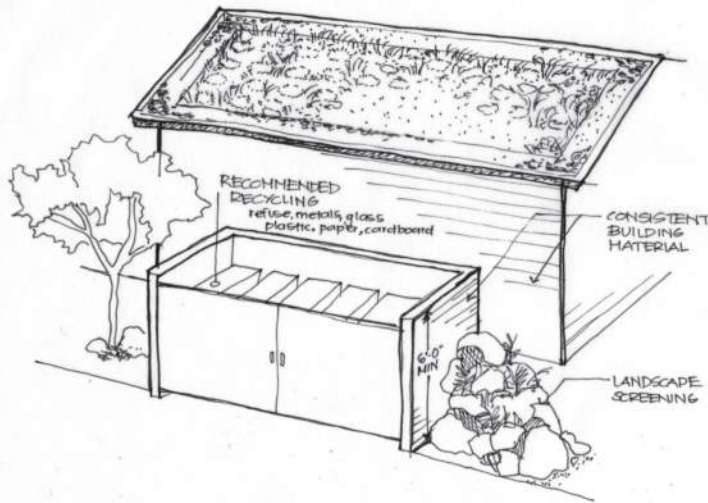
The entrance that will connect NELHA to the airport master plan and 'O'oma will follow similar concepts but with dimensions appropriate to the roadway connection being made. At each point landscaping and signage should complement each other to identify NELHA.

2. Uses that will be frequented by the public such as office buildings, restaurants and information centers shall be landscaped with ground cover, trees, shrubs, and/or rock walls or features.



7. Landscaping in accordance with the plans submitted to and approved by the County must be installed before the County will issue a Certificate of Occupancy.

3.6 Outside Storage and Refuse Collection Area



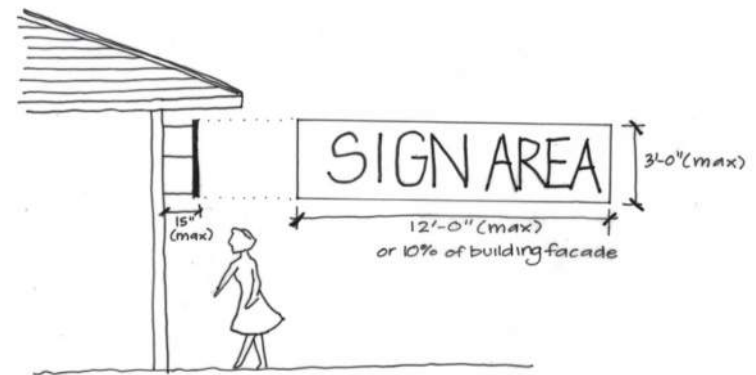
Refuse Enclosure

- A. All materials, supplies or equipment of significant adverse visual impact shall be stored within an enclosed building or within a screened outdoor storage area.
- B. Trucks or other motor vehicles may be stored outside provided that the storage area for such vehicles is located or screened to reduce visibility from adjacent lots or from the property line abutting a street.
- C. Storage areas screened by visual barriers shall generally be located in the rear portions of a lot.
- D. Outdoor refuse collection areas shall be enclosed on three sides by a minimum six-foot high wall or fence constructed of material and detailed consistent with the architecture of the structures on the lot. The refuse collection area shall not be located between a public street and the front of the building. The refuse storage opening shall be screened from adjacent

lots and streets. If it is set apart from the building, the refuse enclosure shall be set in a landscaped area and screened with shrub or vine plantings.

3.7 Signs

- A. All signs require the approval of the County Planning Department at the time of approval of plans and specifications. The approval of the County Department of Public Works, Building Division, is also required. No sign shall be permitted other than directional and parking signs, signs identifying the name, business and products of the tenant of a lot and "No Trespassing" and other security signs.
- B. Generally, only one identification sign shall be permitted for each tenant, except on corner lots where a total of two identification signs may be permitted.
- C. Multi-tenant buildings shall have all tenant identification placed on one sign or one sign structure, except on corner lots where two such signs may be permitted.
- D. One developmental sign and one financing sign may be temporarily erected during the course of construction.
- E. Building-mounted signs shall be installed so as to be parallel to and contiguous with the building wall and shall not project more than fifteen inches from the building wall or project above the roof line of any building. Length of signage shall not exceed twelve feet or ten per cent of the building facade

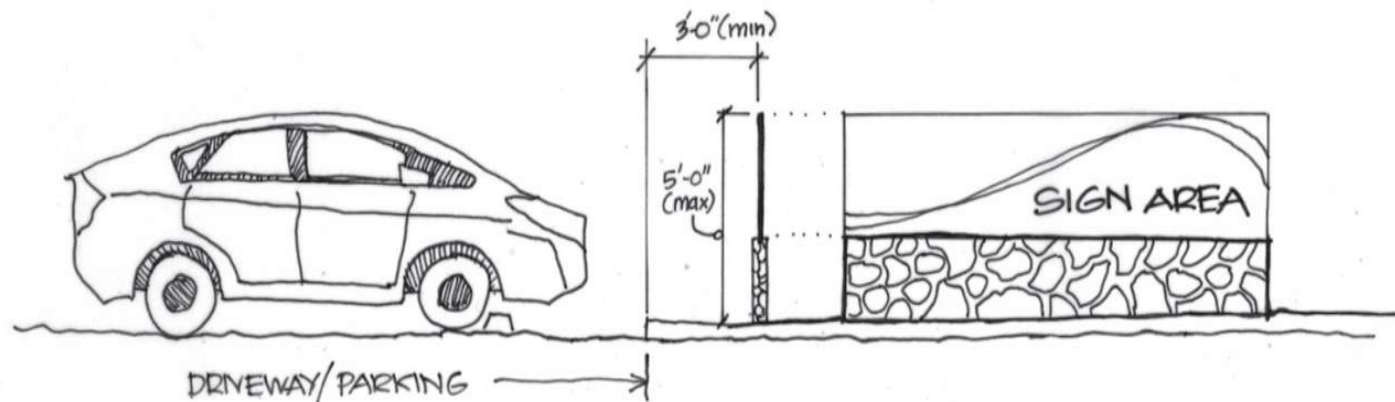


Building Signage



and three feet in height. Signs shall be of a design and material consistent with the buildings and should be incorporated into the building architecture.

- F. Ground-mounted signs shall not be closer than three feet from a driveway or parking area. Ground-mounted signs shall not exceed thirty-two square feet in area, or three feet in height and twelve feet in length. Signs shall not exceed five feet in height from the ground and shall be connected to the ground along the entire base length. Ground-mounted signs shall be of a design and material consistent with the buildings and should be incorporated into the building architecture.



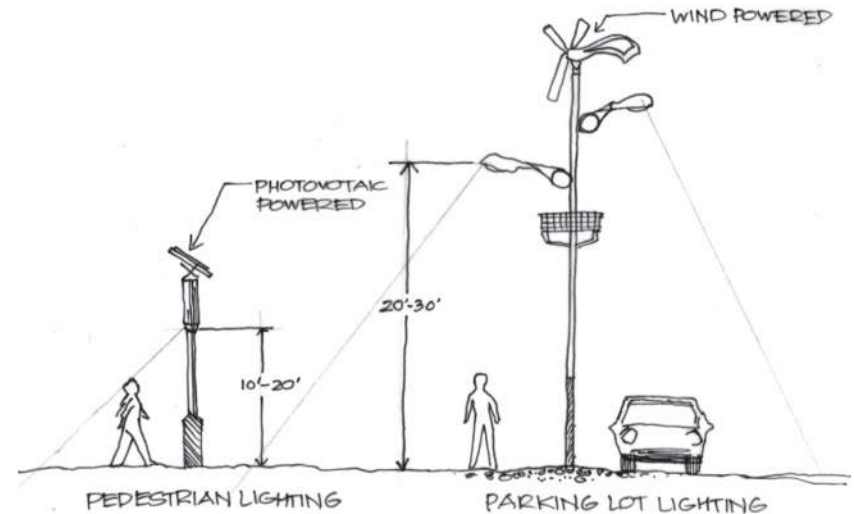
Ground-mounted signs



- G. Illuminated signs shall be lighted from non-apparent light sources or rear-lighted. Flashing neon or moving character signs shall not be permitted.

3.8 Exterior Illumination

- A. Site lighting is intended to be low key. Intensity should be no greater than required for automobile and pedestrian safety. Exterior lights should be used to accent entrances, walkways, steps, and special features. Overall high levels of light are not desired. To minimize the number of light standards, wherever possible, overflow light from inside the building should be used, or alternatively, fixtures should be attached to the building.
- B. Exterior illumination should generally come from non-apparent sources. Lights shall be hooded and cast light internally, and shall be directed away from adjacent lots and streets and aircraft operating areas and approaches to Keāhole Airport. Lighting shall be consistent and harmonious throughout the Tenant's property and shall be in keeping with the specific functions and building types served. Lights should be designed to avoid glare and disorientation to birds that feed at night such as the shearwater and the petrel. Overflow lighting from buildings should be oriented in a generally groundward direction to reduce scatter to neighboring properties.
- C. Security lighting shall be permitted, provided that such lighting is in conformance with the intent of the standards described above.
- D. Lighting for outdoor night work may be allowed after review and approval by the County and NELHA.
- E. Tenants shall not be permitted to install street lights.



Exterior Lighting



