

TECHNICAL SPECIFICATIONS
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PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. The General Conditions of the Contract and any Supplementary Conditions as agreed upon between the HHFDC and the Contractor are a part of this Contract and shall govern the Work.

1.02 DESCRIPTION

- A. The Contractor shall furnish all supervision, licenses, transportation, labor, equipment and materials as necessary to perform all specified tasks:
1. All equipment shall be of such type as to accurately and effectively perform the task intended and to cause no hazards or dangers to the properties, residents, and pedestrians of Kapolei while doing so. Equipment shall be maintained in good condition so as not to produce excessive noise or noxious fumes beyond normal function.
 2. All materials used shall be of such type and quality as to accurately and effectively perform as intended and shall do so without damage to the properties or danger to the tenants and pedestrians.
 3. All personnel employed by the Contractor shall be thoroughly and correctly trained by the Contractor. All personnel employed by the Contractor shall wear company uniforms at all times as supplied by the Contractor. The Contractor shall be responsible for all safety training of its employees and its subcontractors.
 4. The Contractor shall provide qualified supervision to direct all contracted personnel and maintenance operations at all times.
 5. All work shall be performed by trained, properly supervised personnel in accordance with the highest level of accepted standards and horticultural practices. All chemicals will be applied by licensed personnel only. (See also Part 1.03, paragraph B.)
 6. Materials shall always be applied in strict accordance with manufacturer's directions. Where alternate products are available, the Contractor must present optional products to the HHFDC to compare environmental impacts of each product.
 7. **Adequate personnel and equipment meeting or exceeding the standard of care common in the industry shall be provided to**

permit the timely completion of all operations. Contractor must provide sufficient personnel and equipment to perform all requirements of the Contract in a timely manner. Failure to perform in a timely manner shall not be excused when due to Contractor's unwillingness, inability, or failure to provide sufficient personnel and equipment.

8. Rubbish and debris such as clippings and trimmings shall be removed from the site at the end of each day at the Contractor's expense.
9. The Contractor shall submit a detailed inspection or completion report for presentation to the HHFDC **upon the completion of any work**. This report is to document precisely all work performed, by specific location, for the HHFDC's records, including date, chemicals applied if any, and all observations of the general condition of the plants in the areas covered.
10. The Contractor shall be responsible for the repair of any and all damages resulting from his or her activities while working on site at no additional cost. If the Contractor is not able to make all required repairs, the HHFDC shall contract for the repairs necessary and deduct the costs from the Contractor's next month invoices.
11. The Contractor shall provide and use all applicable safety and warning equipment including, but not limited to, temporary signage, lights, flagmen, etc., at all times while working on this contract. Any safety feature shall not be removed from the equipment. All vehicles must not exceed the posted speed limit and must obey all traffic laws and regulations.
12. The Contractor shall provide a list of phone numbers of personnel who can be contacted in case of an emergency at the project site. The Contractor shall also provide personnel, equipment, and materials to repair or replace any damaged items of work. Work to be done in the event of an emergency shall conform to Paragraph 7.17.8 of the HHFDC General Conditions. The Contractor shall provide initial response to call-out within one hour of call-out, and have personnel on-site within three hours of initial notification.
13. The pruning and removal of trees shall be performed under the direct supervision of an International Society of Arboriculture (ISA) Certified Arborist possessing the following minimum qualifications:

- a. Five (5) years of work experience as an ISA-Certified Arborist (CA).
 - 1) As evidence of this experience, the Contractor shall submit one (1) electronic copy of the CA's current certification as an attachment to their Form of Bid. The ISA certificates shall include the arborist's certification number and expiration date. The CA's certification must be current for the duration of the contract period.
 - 2) Failure to submit the certificates as an attachment to the Form of Bid may result in rejection of the bid.
- b. Knowledge and experience in the pruning and felling practices of the tree species included in this contract.
- c. Has demonstrated the ability and experience to supervise the Contractor and its employees to ensure the satisfactory completion of operations, including but not limited to, ensuring proper pruning and felling practices, productivity, clean-up, and safety as documented within the three reference projects.
- d. Has the demonstrated ability and experience in the recognition, diagnosis, and examination of trees for indications of hazardous conditions such as the presence of disease, decayed trunk or cracks, presence of termites, dead or dying trees, poor structure, and other structural stability and safety conditions, necessary prior to allowing personnel to climb and/or enter trees as documented within the three reference projects.

In addition, the Certified Arborist shall:

- a. Represent the Contractor and shall have the authority to act on behalf of the Contractor.
- b. Be on-site at all times when tree felling is being performed, and shall remain within visual and voice communication range, and attentive of the cutting practices and progress of the employees performing the work at all times.
- c. Determine the order of trees to be pruned and removed.
- d. Practice best management practices in conformance with applicable arboricultural industry standards and practices.

- e. Maintain certification by the International Society of Arboriculture (ISA) throughout the duration of the contract period.

In the event the Certified Arborist is not present at the work site or adequately attentive during tree pruning operations, the HHFDC Project Manager or his/her designee shall have the right to suspend the work. In addition, the Project Manager or his/her designee shall have the right to terminate the Contract during any phase of the work, for the Contractor's non-compliance with the requirements of the Contract. The work may resume upon approval of the Project Manager or his/her designee following the satisfactory resolution of the Contractor's non-compliant performance issues. Any losses resulting from work delays due to the Contractor's non-compliant performance shall be the sole responsibility of the Contractor.

- B. The Contractor shall adhere to the State Department of Health, State Department of Agriculture, and U.S. Department of Agriculture Regulations for Commercial Application of Pesticides.
 - 1. All pesticide applicators shall be licensed or directly supervised by a licensed applicator. All licenses shall be for commercial application and shall be updated with the current category. Licensed applicator shall have training and experience in ornamental and turf pest control.
 - 2. The Contractor shall inform the HHFDC of the pesticides, herbicides, fungicides and other chemical applications to be used prior to application. The Contractor shall submit copies of product data sheets, labels, and material safety data sheets of all chemical applications to be used to the Contracting Officer. The Contractor shall provide a minimum two weeks written notice prior to any chemical application.
 - 3. Upon completion of each chemical application, the applicator shall record all information on a data sheet and submit on a monthly basis to the Contracting Officer.
- C. The Contractor shall be responsible for labor and materials used for maintenance:
 - 1. All contracted personnel shall comply with the instructions pertaining to conduct and building regulations issued by duly

appointed officials, such as building directors, inspectors, managers, guards, etc.

2. All existing and new plant material shall be replaced at the Contractor's expense if the death or damage of the plant was caused by negligence or a direct act by the Contractor. Plant material shall be replaced by the HHFDC if the death or damage occurred outside of the Contractor's control. All replacement plant material shall be in excellent health and acclimated. It shall be of type and habit indicative of the species and shall be of the same size, type, and habit as the plant being replaced, unless otherwise determined by the HHFDC. The HHFDC reserves the right to select, examine, and inspect any and all replacement plant materials and to reject any material determined to be unacceptable.

D. The maintenance personnel for the Contractor shall limit their activities to maintenance tasks only and shall not perform any installations at any time unless the Contractor has received approval from the HHFDC.

E. The Contractor shall not perform work not called for in this Contract without the request and approval by the Director of HHFDC. Extras shall be submitted as a written proposal showing the itemized cost of labor, equipment, and materials.

1.03 WORK BY OTHERS

A. Work by others may be accomplished during the maintenance period. The Contractor shall permit access by other contractors and the HHFDC to the Project as may be required to complete their work. The Contractor shall coordinate with the other contractors (directly or through the Contracting Officer) to determine when their work may be scheduled.

PART 2 - PRODUCTS

2.01 HERBICIDES AND WEED CONTROL

Use currently recommended and approved herbicides for weed control.

2.02 INSECTICIDES

As noted in Part 3.04, insecticides shall be used in specific applications only. Use currently recommended and approved pesticides for pest control. Provide product label of insecticide, name of insect or pest, and plant material infested to Contracting Officer for review before applying insecticide.

2.03 SCREENED TOPSOIL

Natural, fertile, friable soil free from stones, noxious seeds, weeds (especially nut grass), roots, and subsoil in any quantity. Red Humic Latasol soils, or types known as "Palolo Clay" or "Lualualei Clay" will not be accepted.

2.04 SOIL AMENDMENTS

- A. Organic Compost: ½" minus 'Menehune Mulch' distributed by Hawaiian Earth Products, Ltd.; or approved equal
- B. Redwood Shavings: Nitrogen stabilized and passing through a 1/4" screen.

PART 3 - EXECUTION

3.01 INSPECTION

The Contractor will inspect the existing site conditions under which the Work will be performed. The Contractor shall not proceed until all unsatisfactory conditions have been corrected. The Contractor shall immediately notify the Contracting Officer of any discrepancies.

- A. Periodic inspections may be held at the Project site. The Contractor or its designated representative shall be present at each inspection.
- B. After each inspection, if the HHFDC determines that all work has been performed in accordance with the specifications, the HHFDC shall confirm its acceptance of the work and shall process the payment. If all or portions of the work are not acceptable under the terms and intent of the Specifications, the payment may be withheld for that portion of the work until that work is completed or corrected to the satisfaction of HHFDC.

3.02 PROTECTION OF EXISTING PLANTS, IRRIGATION AND OTHERS

The Contractor shall be held responsible for all existing plants, irrigation systems and other landscape conditions and all work must be protected to the satisfaction of the HHFDC.

3.03 GENERAL MAINTENANCE

General maintenance shall include but is not limited to trimming and pruning in all areas as described in the Description of Areas. The Contractor shall maintain the areas in a neat and orderly manner. All clippings,

branches, debris, and rubbish which are accumulated during the day by the Contractor shall be bagged and hauled immediately or at the end of the work day. Contractor shall also inspect the general condition of the trees and palms and shall report its findings to HHFDC with its activity reports.

3.04 INSECT AND DISEASE MANAGEMENT

- A. The Contractor shall be responsible for the detection, monitoring and controlling of all insects, diseases and plant problems. The Contractor shall be aware of the potential insect pests and diseases and shall make regular and thorough inspections of all plant material. At a minimum, Contractor shall perform such inspections at the time that those trees are trimmed/pruned. Contractor shall submit proposals for work required to treat identified conditions as a written proposal showing the itemized cost of labor, equipment, and materials, and shall perform such work only upon receiving written authorization from HHFDC. Contractor shall treat as necessary using products and methods that target the disease or insect pest with minimal residue effects.

3.05 TREE MAINTENANCE

- A. Pruning:

In all pruning operations, be sure that cuts are flush with the branch or trunk from which they are removed. When pruning, always make the major cuts first, and then even-up the remaining plant. Use a thinning technique when removing the older growth from the base of the plant and be careful not to make all the cuts on one side of the plant. Remove the older branches at evenly spaced intervals, so that when pruning is finished, the plant will still retain its natural graceful shape. When the base pruning is finished, the plant will still retain its natural graceful shape. When the base pruning has been completed, it may be necessary to remove a few small branches at the top, and occasional larger branches to keep the plant in good form.

1. Trees: Trees shall be pruned using techniques consistent with recommendations published by the University of Hawaii at Manoa, College of Tropical Agriculture and Human Resources (“CTAHR”) and meeting all safety requirements of ANSI A300 and ANSI Z133.1-2006 standards. Structural pruning of all trees shall only be performed after notifying the HHFDC to discuss the type of pruning, percent of canopy reduction (not exceeding 50% unless recommended by the arborist and approved by HHFDC due to tree health concerns), and maximum cut size. The ISA-Certified Arborist

shall explain how their proposed pruning plan aligns with both ANSI standards and CTAHR guidelines during the discussion. The CTAHR publication can be accessed at: <http://www.ctahr.hawaii.edu/oc/freepubs/pdf/L-8.pdf>, and is also available at HHFDC.

2. Any trees that are pruned contrary to these specifications to the point that aesthetic damage is suffered and/or the health of the plants is jeopardized, shall be replaced entirely at the Contractor's expense with plants of equal size and character.
3. All coconut palm fruits to be removed at least once every six (6) months. Coconuts larger than 2" and hanging fronds from palm trees shall be immediately removed.
4. All dead wood shall be removed from trees.
5. The Contractor shall trim and prune street trees which are overgrown or are in direct conflict with pedestrian and vehicular traffic upon notification by HHFDC. The Contractor shall be required to obtain knowledge of the species of street trees to be pruned, taking into account the characteristics of the trees, and shall prune the trees accordingly. Most street tree species planted within the villages are as follows (this list may not be inclusive, Contractor is responsible for verifying in the field and reporting any identified inaccuracies to HHFDC):
 - a. **Autograph Tree** (*Clusia Rosea*)
 - b. **Allspice** (*Pimenta Officinalis*)
 - c. **Coconut Palm**
 - d. **Fern Tree** (*Filicium Decipiens*)
 - e. **Fiddlewood** (*Citharexylum Spinosum*)
 - f. **Fiji Fan Palm** (*Pritchardia Pacifica*)
 - g. **Formosan Koa**
 - h. **Hong Kong Orchid** (*Bauhinia Blakeana*)
 - i. **Jack-in-the-Box** (*Hernandia Sonora*)
 - j. **Kou, True** (*Cordia Subcordata*)
 - k. **Kou, Haole** (*Cordia Sebestena*)
 - l. **Loulu Fan Palm**
 - m. **Madagascar Olive** (*Noronhia Emarginata*)
 - n. **Milo** (*Thespesia Populnea*)
 - o. **Monkeypod** (*Samanea Saman*; *Albizia Saman* appears to be the current standard name)

- p. **Pink Tecoma** (*Tabebuia Pentaphylla*; *Tabebuia Rosea* appears to be the current standard name)
- q. **Queen Palm**
- r. **Rainbow Shower** (*Cassia x Nealiae*)
- s. **Rainbow Shower – “Wilhelmina Tenney” variety** (*Cassia Javanica x Fistula*)
- t. **Silver Buttonwood** (*Conocarpus Erectus var. Argenteus*)
- u. **Silver Trumpet** (*Tabebuia Argentea*)
- v. **Tulipwood** (*Harpullia Pendula*)
- w. **Upright Bottlebrush** (*Callistemon Lanceolatus*)

3.06 FREQUENCY OF MAINTENANCE

The Contractor shall perform the work required to maintain the areas complete and in a neat manner in accordance to the minimum frequency noted in the table below. In the event that the areas have not been maintained properly in accordance with the Contract Documents, the minimum frequency shall be used as the basis for contract sum deductions for the non-conforming areas.

AREA DESCRIPTION	Period	Minimum Frequency per Period
Major Roads, Vacant Parcel, and Bisecting Park (Refer to Description of Areas)	Every 6 Months	Once
Minor Roads in Village 1	Every 12 Months	Once
Minor Roads in Village 2	Every 12 Months	Once
Minor Roads in Village 3	Every 12 Months	Once
Minor Roads in Village 4	Every 12 Months	Once
Minor Roads in Village 5	Every 12 Months	Once
Minor Roads in Village 7	Every 12 Months	Once

3.07 TRIMMING OF STREET TREES UNDER SCHEDULE

The quantities shown in the table below indicate **ESTIMATES** of the number of street trees in the major backbone roads and medians which shall be the basis for the bid. All trees within the description of areas shall be serviced. All trees within the limits of each area described in the Description of Areas shall be treated as a group. **Contractor shall visit the site in person to confirm the quantity, type, and location of street trees to be serviced.**

(Table may appear on the following page.)

AREA DESCRIPTION	NUMBER AND TYPE OF TREES (See Note 1)
Kealanani Entry parcels	10 palms (coconut)
Kealanani Avenue	19 trees (Monkeypod); 93 trees (Rainbow Shower – “Wilhelmina Tenney” variety)
Kamaaha Avenue	31 trees (Monkeypod); ~157 trees (Rainbow Shower – “Wilhelmina Tenney” variety); 17 trees (unknown types)
Kamaaha Loop	10 trees (Rainbow Shower – “Wilhelmina Tenney” variety)
Kapolei Parkway	7 trees (Monkeypod)
Bisecting Park	24 palms (Loulou Fan Palm); 13 trees (Monkeypod); ~13 other trees (possibly Plumerias)
Kumuiki Entry parcels	10 palms (coconut); ~10 other palms and trees (unknown types)
Kumuiki Street	10 trees (Jack-in-the-box)
Kuloa Avenue	6 palms (unknown types); 81 other trees (unknown types)
Namahoe Street	30 trees (unknown types)
Kowelo Entry Parcels	5 palms (coconut); 3 other trees (unknown types)
Kowelo Avenue	6 trees (Monkeypod); 19 trees (Pink Tecoma)
Oaniani Street	65 trees (Tabebuia Argentea)
Kekuilani Loop	3 trees (Monkeypod)
<i>SUBTOTAL: MAJOR ROADS AND BISECTING PARK:</i>	<i>~ 650 (rounded)</i>
Village 1 (Kumu Iki) Minor Roads	31 trees (Various types: Madagascar Olive, Silver Buttonwood, True Kou, Haole Kou, Tulipwood, Upright Bottlebrush)
Village 2 (Aeloa) Minor Roads	96 trees (Various unknown types)
Village 3 (Malanai) Minor Roads	82 trees (Various types: Haole Kou, Pink Tecoma, Silver Trumpet, Silver Buttonwood)
Village 4 (Kekuilani) Minor Roads	80 trees (Various types: Pink Tecoma, Fiddlewood, Allspice)
Village 5 (Iwalani) Minor Roads	170 trees (Various types: True Kou, Rainbow Shower, Hong Kong Orchid, Fern Tree, Autograph)
Village 7 (Kapolei Kai) Minor Roads; Kama’aha Avenue	89 trees (Various unknown types)
<i>SUBTOTAL: MINOR ROADS:</i>	<i>~550 (rounded)</i>

TOTAL (ESTIMATE ONLY):	~1,200 (rounded)
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NOTE 1: Tree types are listed to the best of HHFDC's knowledge as of the writing of this IFB. If type of tree is not noted, then that information was not available during the writing of this IFB. Contractor must visit site to verify tree numbers and types.

3.08 TRIMMING OF STREET TREES UNDER CONTINGENCY

Street tree trimming under Contingency shall be performed on an individual tree basis based upon the growth and spread of the tree. HHFDC shall identify these trees for the Contractor at which time the Contractor shall trim and prune trees. The price for each tree shall be charged on an individual basis at the unit price indicated in the Bid Schedule.