Requirements and Specifications to Construct

Repair and Resurface Access Road and Parking Lot, Birkhimer EOC

Project No.: CA-1325-C

Tax Map Key: 3-1-042:006

For

The State of Hawaii, Department of Defense

Hawaii Emergency Management Agency

Manthos Engineering, LLC

December, 2017

REPAIR RESURFACE ACCESS RD PARKING LOT
BIRKHIMER EOC

TABLE OF CONTENTS

SECTION 01100 - PROJECT REQUIREMENTS

PART 1 - GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Location: Diamond Head State Monument, Hawaii Emergency Management Agency (HI-EMA), Birkhimer Emergency Operations Center (located within Diamond Head Crater)

B. Project Identification: Replace Asphalt Pavement of Access Road and Parking Lot, Diamond Head, Honolulu, Hawaii.

C. The Work includes
   a. Earthwork
   b. Bases
   c. Pavements
   d. Miscellaneous Construction
   e. Materials

D. Perform operations and furnish equipment, fixtures, appliances, tools, materials, related items and labor necessary to execute, complete and deliver the Work as required by the Contract Documents.

E. The Division and Sections into which these Specifications are divided shall not be considered an accurate or complete segregation of work by trades. This also applies to work specified within each section.

F. Contractor shall not alter the Drawings and Specifications. If an error or discrepancy is found, notify the Engineer.

G. Specifying of interface and coordination in the various Specification sections is provided for information and convenience only. These requirements in the various sections shall complement the requirements of this Section.

1.02 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

   1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated and include incomplete sentences. Omission of words or phrases such as “the Contractor shall," “as shown on the Drawings," “a," “an," and “the” are intentional. Omitted words and phrases shall be provided by inference to form complete sentences. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred, as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates. Where devices, or items, or parts thereof are

referred to in the singular, it is intended that such reference shall apply to as many such devices, items or parts as are required to properly complete the Work.

2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
    i. The words “shall," “shall be," or “shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

3. Abbreviations and Acronyms for Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale Research’s “Encyclopedia of Associations” or in Columbia Books’ “National Trade & Professional Associations of the U.S.."

B. Terms

1. Directed: Terms such as “directed," “requested," “authorized," “selected," “approved," “required," and “permitted” mean directed by Engineer, requested by Engineer, and similar phrases.

2. Indicated: The term “indicated” refers to graphic representation, notes, or schedules on Drawings or to other paragraphs or schedules in Specifications and similar requirements in the Contract Documents. Terms such as “shown," “noted," “scheduled," and “specified” are used to help the user locate the reference.

3. Furnish: The term “furnish” means to supply and deliver to project site, ready for unloading, unpacking, assembly, and similar operations.

4. Install: The term “install” describes operations at project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

5. Provide: The terms “provide” or “provides” means to furnish and install, complete and ready for the intended use.

6. Installer: An installer is the Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-Subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

7. Submit: Terms such as “submit," “furnish," “provide," and “prepare” and similar phrases in the context of a submittal, means to submit to the Engineer.

8. Engineer: The Engineer is the State of Hawaii, Department of Defense's Project Manager for this project.

9. Department: The Department is the State of Hawaii, Department of Defense.

C. Industry Standards

1. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

2. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.

3. Conflicting Requirements: If compliance with 2 or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Engineer for a decision before proceeding.

D. All make, model, manufacturer, and products called for are assumed to be followed by "or approved equal or better," unless otherwise stated.

1.03 WORK SEQUENCE

A. To minimize the impact of the Work and ensure the continued daily operations of the Hawaii Emergency Management Agency, the Work shall be conducted in two (2) phases as shown on the contract Drawings and generally described as follows.

1. Phase 1: Work beginning at the intersection of the main entry access road and the Kahala Tunnel roadway, extending up along the main access road, and ending near the main entrance of the Birkhimer EOC.

2. Phase 2: Work beginning near the main entrance of the Birkhimer EOC, extending along the back access road, and ending at the intersection with the roadway leading down into the crater.

Once the Work, including that of individual phases, has started, it shall proceed without interruption, until Work and/or the Work of the individual phase has been completed.

1.04 USE OF PREMISES AND WORK RESTRICTIONS

A. General:

1. The Contractor is notified of the following:

a. The Birkhimer EOC is a secure facility and operational 24/7. As such, the facility shall remain accessible to the facility's staff and patrons for the duration of the construction period. No additional compensation or time will be granted to the Contractor for failure to acknowledge and account for the requirements of this section in his bid.

b. The Contractor shall allow for one (1) work stoppage of up to fourteen (14) consecutive calendar days for an emergency event that might require the full, uninterrupted use of the Birkhimer Tunnel facilities (e.g. approaching tsunami, hurricane, or intercontinental ballistic missile threat, etc.), including use of the access roads and parking lot, by the Hawaii Emergency Management Agency (HI-EMA) at no additional cost to the State.

1) Should such an emergency event occur the Contractor shall evacuate the site within one (1) hour after being notified by the Project Manager or the Hawaii Emergency Management Agency.

2) The Contractor shall remove all vehicles and equipment from the access road and parking area. The vehicles and equipment may be parked in the staging area.

3) All costs (demobilization, remobilization, security, extended overhead, etc.) associated with the work stoppage shall be included in the Contractor's bid price. A contract time extension will be allowed for the number of days of the work stoppage plus three (3) additional days should such an event occur.

B. Contractor's use of premises is restricted as follows:

1. Sanitation:

a. Contractor shall provide sanitary facilities including temporary toilets and wash facilities for all construction personnel.

2. Noise and Dust Control:

a. In adjacent locations surrounding the project site, noise, dust and other disrupting activities, resulting from construction operations, are detrimental to the conduct of the Facility activities. Therefore, Contractor shall monitor its construction activities and exercise precaution when using equipment and machinery to keep the noise and dust levels to a minimum.

b. To reduce loud disruptive noise levels, ensure mufflers and other devices are provided on equipment, internal combustion engines and compressors.

3. Other Conditions:

a. Contractor shall supply a trash bin or bins as required for construction debris. Contractor shall ensure bin(s) are emptied no less than once per week.

b. Operate machinery and equipment with discretion and with minimum interference to parking lot and walkways. Do not leave machinery and equipment unattended on roads or in the parking lot.

c. A storage area for materials, supplies and equipment is designated on the plans. The Department will not be held responsible for damaged or missing items held on site.

d. Keep access roads to the project site free of dirt and debris. Provide, erect and maintain lights, barriers, signs, etc. when working on facility roads, driveways and walkways to protect pedestrians and moped/bicycle riders. Obey facility traffic and safety regulations.

e. Implement the approved Traffic Control Plan to ensure the safety of vehicles and pedestrians traversing the Kahala Tunnel during hauling operations.

1.05 WORK UNDER OTHER CONTRACTS

A. Separate Contracts: The State may have other ongoing projects on site.

B. Cooperate fully with separate Contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract.

1.06 FUTURE WORK

A. Separate Contract:

1. The State, through the Department of Accounting and General Services (DAGS) has executed a contract for the following project at the Birkhimer Tunnel. The bid documents for this project are available for review at the DAGS website.

Birkhimer Tunnel

Infrastructure Improvements, Phase 3

D.A.G.S. Job No. 12-14-7437

2. The State may execute other separate contracts for certain construction at the project site that was not known at the time Offers were submitted.

B. Cooperate fully with separate Contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract.

1.07 SOLID WASTE REPORTS

A. Submit solid waste reports for the duration of the project. The reports shall address:

   1. Diverted Waste (i.e. waste that does not go into the landfill)

   2. Landfill Waste

B. Submit legible copies of dump ticket receipts from vendor, showing the tonnage of waste. If waste products are combined together with waste from other projects, the Contractor shall provide a breakdown per project.

1.08 MISCELLANEOUS PROVISIONS

A. Historic Building: The Birkhimer EOC, built in 1916, is a contributing element to the 1983 National Register of Historic Places, Fort Ruger Historic District.

B. Historical Archaeological Artifacts: All items having any apparent historical or archaeological interest discovered in the course of construction activities shall be carefully preserved. Should historic remains such as artifacts, burials, concentrations of shell or charcoal be encountered during the construction activities, work shall cease immediately in the adjacent vicinity of the find and the applicable site shall be protected from further damage. The Contractor shall immediately contact the Project Manager and the State Historic Preservation Division (SHPD) DLNR at (808) 692-8015. SHPD will assess the significance of the find and recommend an appropriate mitigation measure if necessary.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01230 - ALTERNATES

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes administrative and procedural requirements for alternates.

B. The description of alternates is not intended to give a detailed description of all additional or deductive work required by the alternate item(s), as only the principal features of such additional or deductive work are listed.

C. Should any one or all of the alternates become a part of the contract, the cost of all additional or deductive work required by the alternate item(s), even though not specifically mentioned herein, are included in the lump sum bid price.

1.02 DEFINITIONS

A. Alternate: An amount proposed by Bidders (Offerors) and stated on the Bid Form for certain work defined herein that may be added to or deducted from the Total Lump Sum Bid Price amount if the State decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Total Lump Sum Bid Price.

1.03 PROCEDURES

A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into the Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration.

C. Execute accepted alternates under the same conditions as other work of the Contract.

1.04 DESCRIPTION OF ALTERNATES

A. Electrical Poles, Lighting Fixtures and Required Wiring including wiring to the EOC Building: Items described are shown clouded on Drawing Sheet Nos. E-1, E-2, E-3 and are also described in Special Provisions: Specification No. 161020. An amount is to be proposed as stated above in 1.02 Definitions, A.

B. Guardrails: Item is shown clouded on Drawing Sheet Nos. C-7 and C-19 and are also described in Special Provisions: Specification No. 02770. An amount is to be proposed as stated above in 1.02 Definitions, A.

C. Twenty-four (24) Demobilization and Mobilization in accordance with Section 02990 shall be addressed as part of the Alternates. An amount is to be proposed as stated above in 1.02 Definitions, A.

END OF SECTION

SECTION 01310 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General project coordination procedures.

2. Project meetings.

1.02 PERFORMANCE AND COORDINATION

A. Contractor is in charge of the Work within the Project Contract Limits, and shall direct and schedule the Work. The Contractor holds final responsibility for performance, interface, and completion of the Work.

B. The Contractor is responsible for jobsite Administration. Provide a competent superintendent on the job and provide an adequate staff to execute the Work. In addition, all workers shall dress appropriately and conduct themselves properly at all times. Loud abusive behavior, sexual harassment and misconduct will not be tolerated. Workers found in violation of the above shall be removed from the job site as directed by the Engineer.

C. The State will hold the Contractor liable for all the acts of Subcontractors and shall deal only with the Prime Contractor in matters pertaining to other trades employed on the job.

D. Coordination: Provide project interface and coordination to properly and accurately bring together the several parts, components, systems, and assemblies as required to complete the Work pursuant to the GENERAL CONDITIONS and SPECIAL CONDITIONS.

1. Provide interface and coordination of all trades, crafts and subcontracts. Ensure and make correct and accurate connections of abutting, adjoining, overlapping, and related work. Provide anchors, fasteners, accessories, appurtenances, and incidental items needed to complete the Work, fully, and correctly in accordance with the Contract Documents.

2. Provide additional structural components, bracing, blocking, miscellaneous metal, backing, anchors, fasteners, and installation accessories required to properly anchor, fasten, or attach material, equipment, hardware, systems and assemblies to the structure.

3. Provide excavation, backfilling, trenching and drilling for trades to install their work.

4. Materials, equipment, component parts, accessories, incidental items, connections, and services required to complete the Work which are not provided by Subcontractors shall be provided by the Contractor.

5. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, which depend on each other for proper installation, connection, and operation.

1.03 COOPERATION WITH OTHER CONTRACTORS

A. The State reserves the right at any time to contract for or otherwise perform other or additional work within the Project Contract Limits. The Contractor of this project shall to the extent ordered by the Engineer, conduct its work so as not to interfere with or hinder the progress or completion of the work performed by the State or other Contractors.

1.04 COORDINATION WITH OTHER PRIME CONTRACTORS

A. Multiple Prime Contractors performing work under separate agreements with the State may be present near the project location, adjacent to and abutting the Project Contract Limits. This Contractor shall coordinate activities, sequence of work, protective barriers and any and all areas of work interfacing with other Prime Contractor's work. Contractor shall provide a continuity of finishes, walks, landscape, etc. at abutting Contract Limits so no additional work will be required. Any damage to other Prime Contractor's Work committed by this Contractor (or its Subcontractor) shall be repaired promptly at no additional cost to the State.

B. Coordinate Subcontractors and keep them informed of any work from the other Projects that may affect the site or the Subcontractor's work. If the Contractor has any questions regarding its coordination responsibilities or needs clarification as to the impact in scheduling of its work and the work of other projects, this Contractor shall notify the Engineer in writing.

C. Subject to approval by the Engineer, this Contractor shall amend and schedule its work and operations to minimize disruptions to the work and operations of other projects.

    1. Relocate or remove and replace temporary barriers, fencing supports or bracing to allow work by others to proceed unimpeded. Do not remove required barriers supporting work until specified time or as approved by the Engineer. This does not relieve the Contractor of the responsibility of proper coordination of the work. If directed by the Engineer, leave in place any temporary barriers.

    2. Coordinate work that abuts or overlaps work of the other projects with the Engineer and other Prime Contractors to mutual agreement so that work is 100 percent complete with continuity of all materials, systems and finishes.

    3. When directed by the Engineer, provide access into the construction zone to allow the other project's Contractor(s) to perform their Work and work that must be interfaced.

4. Contractor shall adjust and coordinate its Work and operations as required by the other projects as part of the Work of this contract without additional cost or delay to the State.

5. When directed by the Engineer provide a combined Contractor's construction schedule.

D. Other Contracts: If known, they are listed in SECTION 01100 - PROJECT REQUIREMENTS.

1.05 CONTROL OF WORK

A. General: All authority over the following items of work shall be in accordance with the Hawaii Standard Specifications for Road and Bridge Construction (HSSRB) 2005 Section 105:

1. Authority …….. Section 105.01
2. Submittals ……Section 105.02
3. Shop Drawings ……Section 105.03
4. Review and Acceptance Process ……Section 105.04
5. Interpretations of the Contract Documents ……Section 105.05
6. Priority within Drawings ……Section 105.06
7. Examination of Contract Documents……Section 105.07
8. Coordination between Contractor and State ……..Section 105.08
9. Coordination between Contractors ……..Section 105.09
10. Construction Stakes, Lines and Grade ……Section 105.10(A)
11. Inspection of the Work and Materials ……..Section 105.11
12. Removal of Non-Conforming and Unauthorized Work ……..Section 105.12
13. Subcontracts ……Section 105.16
14. Dimensions and Performance Standards ……Section 105.17

B. Where the reference provisions of the "HSSRBC" differ from any applicable requirements contained elsewhere within the Specifications, the most stringent criteria shall be considered to govern, unless otherwise approved by the Engineer.

C. All other portions of Section 105 not mentioned above are not to be considered part of the project's Specifications.

1.06 COORDINATION WITH USER

A. Contractor shall coordinate all construction work with the Engineer.

1.07 SUBMITTALS

A. Photo Documentation: Prior to the start of jobsite work, the Contractor shall photo document the existing conditions at the site and file with the Engineer one complete set of documents.

1.08 PROJECT MEETINGS AND TRAINING

A. General: Schedule and conduct meetings and conferences as directed by the Engineer at the HIENG Office, unless otherwise indicated. The Contractor is not required to set up a field office.

1. Attendees: Inform participants and others involved, Engineer, Construction Manager and individuals whose presence is required, of date and time of each general meeting. Notify Engineer of scheduled meeting dates and times.

2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.

3. Minutes: Contractor record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Engineer, within 7 days of the meeting.

B. Preconstruction Conference: Engineer shall schedule a preconstruction conference before the start of construction, at a time convenient to the Engineer, a Project Notice to Proceed date will be established at the conference. Conference will be held at HIENG. The Engineer shall conduct the meeting to review responsibilities and personnel assignments.

1. Attendees: Engineer, Construction Manager, and design consultants; Facility Users; Contractor and its superintendent; major Subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.

2. Agenda: Discuss items of significance that could affect progress, including but not limiting to the following:
    a. Tentative construction schedule.
    b. Phasing.
    c. Critical work sequencing and coordination.
    d. Designation of responsible personnel.
    e. Use of the premises.
    f. Responsibility for temporary facilities and controls.
    g. Parking availability.
    h. Office, work, and storage areas.
    i. Equipment deliveries and priorities.
    j. First aid.
    k. Security.
    l. Progress cleaning.
    m. Working hours.
    n. Kahala Tunnel traffic control plan.

C. Progress Meetings: Conduct progress meetings at monthly or other intervals as determined by the Engineer.

1. Attendees: In addition to Engineer, each Contractor, Subcontractor, Construction Manager, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with the Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

    b. Review present and future needs of each entity present, including the following:

        1) Outstanding Requests for information (clarification).
        2) Interface requirements.
        3) Sequence of operations.
        4) Status of outstanding submittals.
        5) Deliveries.
        6) Off-site fabrication.
        7) Access.
        8) Site utilization.
        9) Temporary facilities and controls.
        10) Work hours.
        11) Hazards and risks.
        12) Progress cleaning.
        13) Quality and work standards.
        14) Force Account work.
        15) Change Orders and Change Proposals.
        16) Documentation of information for payment requests.
        17) Traffic Control

    c. Corrective Action Plan: Contractor shall provide a plan of corrective action for any item which is delayed or expected to be delayed. Then the plan should indicate how the item impacts the contractual dates.

3. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.

    a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01320 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 – GENERAL

1.01 SUMMARY

A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Contractor's Construction Schedule.

2. Submittals Schedule.

3. Schedule of Prices.

4. Payment request.

B. Related Sections include the following:

1. SECTION 01310 - PROJECT MANAGEMENT AND COORDINATION for preparing a combined Contractor's Construction Schedule.

2. SECTION 01330 - SUBMITTAL PROCEDURES for submitting schedules and reports.

1.02 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical activities are activities on the critical path and control the total length of the project. They must start and finish on the planned early start and finish times.

2. Predecessor activity is an activity that must be completed before a given activity can be started.

B. CPM: Critical Path Method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of project.

C. Critical Path: The longest continuous chain of activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Event: The starting or ending point of an activity.

E. Float: The measure of leeway in starting and completing an activity.

1. Float time is not for the exclusive use or benefit of either the Department or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.

2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the following activity.

3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

F. Schedule of Prices: A statement furnished by Contractor allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Payment requests.

1.02 SUBMITTALS

A. Required Submittals: Submit 6 sets of the list of the required submittals, by Specification Section, within 15 days after award of the contract or upon earlier written instructions from the Engineer. A general listing is provided under SECTION 01330 - SUBMITTAL PROCEDURES.

1. The listing shall indicate and include the following:
    a. The number of copies required for submittal.
    b. Planned submittal date.
    c. Approval date required by the Contractor.
    d. A space where the "date of submittal" can be inserted.
    e. A space where the "date of approval" can be inserted.
    f. A space where an "action code" can be inserted.

B. Construction Schedule: Submit 3 sets of the Construction Schedule for review within 15 days after the award of the contract or upon earlier written instructions from the Engineer.

C. Schedule of Prices: Submit 3 sets of the Schedule of Prices integrated with the Construction Schedule for review within 15 days after the award of the contract or upon earlier written instructions from the Engineer.

1. Contractor shall submit Payment requests to Engineer for approval. Request to include Job No., Contract No., and line item breakdown, reflecting the Schedule of Prices.

D. Payment request: Submit the payment request at earliest possible date and no sooner than the last day of the month after all payroll affidavits, updated submittal registers, and schedules have been submitted.

1.03 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate Contractors.

B. Construction Schedule: Coordinate Contractor's Construction Schedule with the Schedule of Prices, Submittals Schedule, loaded monthly event activity, and other required schedules and reports.

    1. Secure time commitments for performing critical elements of the Work from parties involved.

    2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

C. Schedule of Prices: Coordinate preparation of the schedule with preparation of Contractor's Construction Schedule.

    1. Correlate line items in the Schedule of Prices with other required administrative forms and schedules, including the following:

        a. The payment request and the Construction Progress Report continuation sheet for the event cost estimate per time period.

        b. Submittals Schedule.

PART 2 - PRODUCTS

2.01 SUBMITTALS SCHEDULE

A. Comply with the GENERAL CONDITIONS. Furnish required submittals specified in this Section and in the Technical Sections. Submittals include one or more of the following: shop drawings, material samples, technical data, material safety data information, schedules of materials, guarantees, certifications, and field posted as-built drawings.

B. Preparation: Furnish a schedule of submittals per Engineer.

    1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Prices, and Contractor's Construction Schedule.

    2. The schedule shall accommodate a minimum of 21 calendar days for the State's review, as applicable for the Island the project is located.

    3. Prepare and submit an updated list to the Engineer at monthly intervals or as directed by the Engineer. The listing shall reflect all approvals received since the last update.

2.02 CONTRACTOR'S CONSTRUCTION SCHEDULE – GANTT CHART METHOD

A. The construction schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. The progress chart shall indicate the order in which the Contractor contemplates starting and completing the several salient features of the work (including acquiring materials, plant, and equipment).

B. Upon completion of the Engineer's review, the Contractor shall amend the schedule as necessary to reflect the comments. If necessary, the Contractor shall participate in a meeting with the Engineer to discuss the proposed schedule and changes required. Submit the revised schedule for review within 7 calendar days after receipt of the comments.

C. Use the reviewed schedule for planning, organizing and directing the work, for reporting progress, and for requesting payment for the work completed. Unless providing an update, do not make changes to the reviewed schedule without the Engineer's approval.

D. If, in the opinion of the Engineer, the Contractor falls behind the approved schedule, the Contractor shall take steps necessary to improve progress, including those that may be required by the Engineer, without additional cost to the State. The Engineer may require the Contractor to increase the number of shifts, overtime operations, days of work, or amount of construction plant, and to submit for approval any supplemental schedule or schedules in chart form as the Engineer deems necessary to demonstrate how the approved rate of progress will be regained.

E. Update the construction schedule at monthly intervals or when directed by the Engineer to revise the schedule. Reflect any changes occurring since the last update with each invoice for progress payment. Submit copies of the purchase orders and confirmation of the delivery dates as directed. The Engineer's review of the updated schedule is to check that the updated schedule does not alter the construction performance period unless the period was revised through a change order or contract modification.

2.03 SCHEDULE OF PRICES

A. Furnish a schedule of prices to the Engineer.

B. Provide a breakdown of the Contract Sum in enough detail to facilitate the development and the continued evaluation of Payment requests. Provide several line items for principal subcontract amounts, or for materials or equipment purchased or fabricated and stored, but not yet installed, where appropriate. Round amounts to nearest whole dollar; total shall equal the Contract Price.

C. Each item in the Schedule of Prices and Payment request shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

2.04 PAYMENT REQUEST

A. Payment Request Forms: Use and submit copies of the Payment Request and Construction Progress forms provided by the Engineer. Furnish two (2) copies, one with an original signature.

B. Forms Preparation: Complete every entry on form. Execute by a person authorized to sign legal documents on behalf of the Contractor.

1. Include amounts of Change Orders and Contract Modifications before last day of construction period covered by Request Form.

C. Use the Schedule of Prices as the Monthly Construction Progress Report. Each Payment Request shall be consistent with previous requests and payments. The Engineer shall determine the appropriateness of each payment request item.

D. Payment Request Times: The date for each progress request is the last day of each month. The period covered by each Payment Request starts on the first day of the month or following the end of the preceding period and ends on the last day of the month.

E. Updating: Update the schedule of prices listed in the Payment request when Change Orders or Contract Modifications result in a change in the Contract Price.

F. Provide a separate line item for each part of the Work where Payment request may include materials or equipment purchased or fabricated and stored, but not yet installed.

G. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.

H. Provide separate line items for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.

I. No payment will be made until the following are submitted to the Construction Manager each month:

    1. Monthly Estimate (3 copies)

    2. Monthly Progress Report (3 copies)

    3. Statement of Contract Time (3 copies)

    4. Updated Submittal Register (3 copies)

    5. Updated Progress Schedule (3 copies)

    6. All Daily Reports (3 copies)

    7. Payroll Affidavits (Certified Payrolls) are submitted weekly (3 copies)

    8. Monthly Report of Contractor's Participation in Approved Apprenticeship Program Under Act 17 (Form 2) is submitted monthly (3 copies)

J. Retainage: The Department will withhold retainage in compliance with the GENERAL CONDITIONS.

K. Transmittal: Submit the signed original and 3 copies of each Payment Request for processing.

2.05 CONTRACTOR DAILY PROGRESS REPORTS

A. The General Contractor is responsible for submitting the General Contractor and Subcontractor Daily Progress Reports (Daily Reports) for the General Contractor all subcontractors and any lower-tier subcontractors.

B. The form of the Daily Progress Report shall be as directed by the Engineer. A separate report shall be made and submitted for the General Contractor (each calendar day) and each subcontractor (each day worked). The report shall include the following information for each employer: Name of General Contractor or Subcontractor, Report Number, Contract Day (consecutive calendar day from Notice to Proceed (NTP) Date), date worked, work location and description, number of workers, trade/labor classification, and work hours. For General Contractor, only the Contract Day is required because the Report Number will be the same number.

C. The Daily Reports shall be prepared from the project NTP date. Daily Reports shall continue to be prepared and submitted up to the Project Acceptance Date. After the Project Acceptance Date, Daily Reports will be submitted for days worked only, and continue until the Contract Completion Notice date. Running Contract Day will stop at Project Acceptance Date.

D. Submit copies of the previous week's reports on Monday morning at 10:00 a.m.

E. Daily Reports can be handwritten in the field.

F. A sample Daily Progress Report Form will be supplied prior to the start of the work.

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01330 – SUBMITTALS

PART 1 – GENERAL

1.01 SUMMARY

A. Comply with the GENERAL CONDITIONS.

B. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.

1.02 SUBMITTAL PROCEDURES

A. Coordinate Work and Submittals: Contractor shall certify the submittals were reviewed and coordinated.

B. Submittal Certification: Provide in MS Word when submitting electronically. Provide a reproduction (or stamp) of the "Submittal Certification" and furnish the required information with all submittals. Include the certification on:

1. The title sheet of each shop drawing, or
2. The cover sheet of submittals in 8-1/2 inch x 11-inch format, or
3. One face of a cardstock tag (minimum size 3-inch x 6-inch) tied to each sample. On the sample tag, identify the sample to ensure sample can be matched to the tag if accidentally separated. The opposite face of the tag will be used by the Engineer to receive, review, log stamp and include comments.

C. Variances: The Contractor shall request approval for a variance. Clearly note any proposed deviations or variances from the Specifications, Drawings, and other Contract Documents on the submittal and also in a separately written letter accompanying the submittal

D. Submittal Certification Form (stamp or digital)

CONTRACTOR NAME: _____

PROJECT: _____

_____

JOB NO: _____

As the General Contractor, we checked this submittal and we certify it is correct, complete, and in compliance with Contract Drawings and Specifications. All affected Contractors and suppliers are aware of, and will integrate this submittal into their own work.

SUBMITTAL NUMBER		DATE RECEIVED	
REVISION NUMBER		DATE RECEIVED	
SPECIFICATION SECTION NUMBER /PARAGRAPH NUMBER			
DRAWING NUMBER			
SUBCONTRACTOR'S NAME			
SUPPLIER'S NAME			
MANUFACTURER'S NAME			

NOTE: DEVIATIONS FROM THE CONTRACT DOCUMENTS ARE PROPOSED AS FOLLOWS (Indicate "NONE" if there are no deviations)

CERTIFIED BY	

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 SUBMITTAL REGISTER AND TRANSMITTAL FORM

A. Contractor shall use submittal register and transmittal forms as directed by the Engineer.

B. The listing of required submittals within this Section is provided for the Contractor's convenience. Review the technical sections and prepare a comprehensive listing of required submittals. Furnish submittals to the Engineer for review.

C. Contractor shall separate each submittal item by listing all submittals in the following groups with the items in each group sequentially listed by the Specification section they come from:

1. Administrative
2. Data

3. Tests
4. Closing

D. Contractor shall separate all different types of data as separate line items all with the column requirements.

E. Contractor shall send monthly updates and reconciled copies electronically to the Engineer and the Design Consultant in MS Word or MS Excel or other format as accepted by the Engineer.

	Shop Drawings & Diagrams	Samples	Certificates (Material, Treatment,	Product Data, Manufacturer's Technical Literature	MSDS Sheets	Calculations	Reports (Testing, Maintenance,	Test Plan	Equipment or Fixture Listing	Schedules (Project Installation)	Maintenance Service Contract	Field Posted As-Built Drawings	Others	Guaranty or Warranty	Manufacturer's Guaranty or Warranty (Greater than one year)
01230 – Alternates															
01310 – Project Management and Coordination										X			X		
01320 – Construction Progress Documentation							X			X					
01330 – Submittal Procedures															
01500 – Temporary Facilities and Controls			X	X	X		X								
01700 – Execution Requirements	X			X		X							X		

	Shop Drawings & Diagrams	Samples	Certificates (Material, Treatment,	Product Data, Manufacturer's Technical Literature	MSDS Sheets	Calculations	Reports (Testing, Maintenance,	Test Plan	Equipment or Fixture Listing	Schedules (Project Installation)	Maintenance Service Contract	Field Posted As-Built Drawings	Others	Guaranty or Warranty	Manufacturer's Guaranty or Warranty (Greater than one year)
01770 – Closeout Procedures	**X**	X	**X**	**X**	**X**	**X**	**X**					**X**		**X**	
02110 – Clearing and Grubbing															
02210 – Excavation and Embankment			**X**				**X**								
02211 – Excavation and Backfill				X			X						X		
02212 - Dressing of Shoulders															
02213 – Hydro Mulch Seeding			**X**				**X**								
02310 – Temporary Water Pollution Controls	**X**		**X**	**X**	**X**		**X**	**X**							
02410 – Hand Laid Rip Rap			**X**	**X**											
02730 – Hot Mix Asphalt Base Course			**X**	**X**			**X**								
02740 - Hot Mix Asphalt Pavement			**X**	**X**			**X**								

	Shop Drawings & Diagrams	Samples	Certificates (Material, Treatment,	Product Data, Manufacturer's Technical Literature	MSDS Sheets	Calculations	Reports (Testing, Maintenance,	Test Plan	Equipment or Fixture Listing	Schedules (Project Installation)	Maintenance Service Contract	Field Posted As-Built Drawings	Others	Guaranty or Warranty	Manufacturer's Guaranty or Warranty (Greater than one year)
02741 – Tack Coat			X	X	X		X								
02750 – Traffic Signs			X	X			X							X	
02751 - Pavement Markings			X	X	X		X							X	
02760 – Work Zone Traffic Control			X				X								
02770 – Guardrails	X		X	X			X								X
16000 – General Electrical	X			X										X	X
16010 – Electrical Work	X			X				X	X					X	X

	Shop Drawings & Diagrams	Samples	Certificates (Material, Treatment,	Product Data, Manufacturer's Technical Literature	MSDS Sheets	Calculations	Reports (Testing, Maintenance,	Test Plan	Equipment or Fixture Listing	Schedules (Project Installation)	Maintenance Service Contract	Field Posted As-Built Drawings	Others	Guaranty or Warranty	Manufacturer's Guaranty or Warranty (Greater than one year)

END OF SECTION

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 SUMMARY

A. Requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.

B. Temporary utilities include but are not limited to, the following:

1. Water service and distribution.

2. Sanitary facilities, including toilets, wash facilities, and drinking water facilities.

3. Electric power service.

4. Lighting

C. Support facilities include, but are not limited to, the following:

1. Storage sheds.

2. Trash, refuse disposal.

3. Construction aids and miscellaneous services and facilities.

D. Security and protection facilities and measures include, but are not limited to, the following:

1. Environmental protection, such as dust fences, biosocks, etc.

2. Barricades, etc.

3. Temporary enclosures.

1.02 USE CHARGES

A. General: Cost or use charges for temporary facilities are not chargeable to the State and shall be included in the Contract Price. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:

1. Other Contractors with agreements with the State working within the contract limits.

2. Occupants of Project.

3. Testing agencies.

4. Engineer and personnel of authorities having jurisdiction.

1.03 (NOT USED)

1.04 QUALITY ASSURANCE

A. Standards: Comply with UBC Chapter 33, “Site Work, Demolition and Construction," ANSI A10.6, NECA’s “Temporary Electrical Facilities," and NFPA 241, "Construction, Alteration, and Demolition Operations."

1. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with trade regulations and union jurisdictions.

2. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70, “National Electrical Code."

1.05 PROJECT CONDITIONS

A. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:

1. Keep temporary services and facilities clean and neat.

2. Relocate temporary services and facilities as required by progress of the Work.

1.06 PREPARATION AND PROTECTION

A. Protection of Property: Continually maintain adequate protection of the Work from damage and protect all property, including but not limited to buildings, equipment, furniture, grounds, vegetation, material, utility systems located at and adjoining the job site. Repair, replace or pay the expense to repair damages resulting from Contractor’s fault or negligence.

B. Before starting work to be applied to previously erected constructions, make a thorough and complete investigation of the recipient surfaces and determine their suitability to receive required additional construction and finishes. Make any repair that is required to properly prepare surfaces, and coordinate the Work to provide a suitable surface to receive following Work.

C. Commencing work by any trade implies acceptance of existing conditions and surfaces as satisfactory for the application of subsequent work, and full responsibility for finished results and assumption of warranty obligations under the Contract.

D. Protect existing (including interiors) work to prevent damage by vandals or the elements. Provide temporary protection. Use curtains, barricades, or other appropriate methods. Take positive measures to prevent breakage of glass and damage to plastic, aluminum and other finishes.

E. Repairs and Replacements: Promptly replace and repair damages to the approval of the Engineer. Additional time required to secure replacements and to make repairs does not justify a time extension.

PART 2 - PRODUCTS

2.01 EQUIPMENT

A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Engineer. Provide materials suitable for use intended

B. Chain Link Fencing: Minimum 2 inch, 9-gage, galvanized steel, chain link fabric fencing; minimum 6 feet high with galvanized steel posts; minimum 2 3/8 inch OD line posts and 2 7/8 inch OD corner pull posts.

C. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA recommended classes of exposures. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

D. Self-Contained Combination Toilet and Urinal Units: Single occupant units of chemical, aerated recirculation, or combustion type: fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material. One quarter of, or at least one unit(s) shall contain a hand wash sink with potable water storage.

E. Electrical Outlets: Properly configured, NEMA polarized outlets to prevent insertion of 110 to 120 V plugs into higher voltage outlets; equipped with ground fault circuit interrupters, reset buttons and pilot light.

F. Power Distribution System Circuits: Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125 V AC, 20A rating, and lighting circuits may be nonmetallic sheathed cable.

PART 3 - EXECUTION

3.01 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.02 TEMPORARY UTILITY INSTALLATION

A. General: Engage appropriate local utility company to install temporary service or connect to existing service where directed by the Engineer. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.

1. Arrange with utility company, the Department, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked in services.

B. Water Service: Make arrangements with the utility company for temporary use of water, and pay for all expenses. At the option of the Contractor, a temporary tap into the facility's existing water system is allowed, subject to the following conditions:

1. Comply with the Department of Health's and County water provider's requirements when tapping into the existing water system.

2. Reasonable amounts of water will be available without charge.

3. Meter the tapped line and prior to water use, notify the Engineer to observe an initial meter reading.

4. Contractor to take monthly readings and report usage amount to Engineer. If the Engineer determines that the water usage is beyond a "reasonable" amount, the State will bill the Contractor for excess usage at the current NAVFAC water and associated sewer rates.

5. Upon completion of the project and just prior to removal of the water meter, notify the Engineer to observe a final meter reading.

6. Should the Contractor at any time fail to comply with any or all of the above conditions, the Department may terminate the use of water. The Contractor shall remove the hookup within 48 hours of notification of such termination.

C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.

D. Electric Power Service: Use of State facilities electrical power services will be permitted as long as equipment is maintained in a condition acceptable to the Engineer.

E. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel who handle materials that require wash up. Dispose of drainage properly. Supply cleaning compounds appropriate for each type of material handled.

F. Locate toilets and drinking water fixtures so personnel need not walk more than 2 stories vertically or 200-feet horizontally to facilities.

G. Telephone service: Provide a portable wireless telephone with voice-mail or messaging service for superintendent's use in making and receiving telephone calls when at the construction site.

3.03 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Locate storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access or where shown on Contract Drawings or as directed by the Engineer.

2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion.

B. Project Sign and Temporary Sign(s):

1. Provide and install signs, including warning signs as shown on the plans.

2. Install signs where directed by the Engineer or where indicated to inform public and persons seeking entrance to the Project. Do not permit installation of unauthorized signs.

3. Provide temporary signs to provide directional information to construction personnel and visitors.

4. Construct signs with durable materials, properly supported or mounted, and visible.

C. Trash, Refuse Disposal:

1. Department of Health – Illegal Dumping Notice. See attachment to Part 3 of this section.

    a. This Notice to be printed out on 8.5" x 11" paper.

    b. This Notice to be posted at the job site field office and/or in locations visible to all contractors, subcontractors, suppliers, vendors, etc. throughout the duration of the project.

2. Illegal Dumping of solid waste could subject the Contractor to fines and could lead to felony prosecution in accordance with Chapter 342H, HRS. For more information, see the following web site: http://www.hawaii.gov/health/environmental/waste/sw/pdf/Illdump.pdf

3. Provide waste collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste.

4. Haul unusable debris and waste material to an appropriate off site dump area.

    a. Water down debris and waste materials during loading operations or provide other measures to prevent dust or other airborne contaminants.

5. Burning of debris and waste materials shall not be permitted on the project site. The project shall be cleaned of all trash, construction debris and waste materials, and other objectionable materials, and removed daily.

3.04 ENVIRONMENTAL CONTROLS

A. General: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

B. Dust Control:

1. Prevent dust from becoming airborne at all times including non-working hours, weekends and holidays in conformance with the State Department of Health, Administrative Rules, Title 11, Chapter 60.1 Air Pollution Control.

2. Contractor is responsible for and shall determine the method of dust control. Subject to the Contractor's choice, the use of water or environmentally friendly chemicals may be used over surfaces that create airborne dust.

3. Contractor is responsible for all damage claims due to their negligence to control dust.

C. Noise Control

1. Keep noise within acceptable levels at all times in conformance with the State Department of Health, Administrative Rules, Title 11, Chapter 46 Community Noise Control. Obtain and pay for the Community Noise Permit when construction equipment or other devices emit noise at levels exceeding the allowable limits.

2. Ensure mufflers and other devices are provided on equipment, internal combustion engines and compressors to reduce loud disruptive noise levels and maintain equipment to reduce noise to acceptable levels.

3. Unless specified elsewhere, do not start construction equipment that meet allowable noise limits prior to 6:45 A.M. or equipment exceeding allowable noise levels prior to 7:00 A.M.

3.05 VIOLATION OF ENVIRONMENTAL PROVISIONS

A. Violations of any of the above environmental control requirements or any other pollution control requirements; which may also be specified in the other Specifications sections, shall be resolved under the GENERAL CONDITIONS.

3.06 (NOT USED)

.

3.07 TEMPORARY FIRE PROTECTION

A. Install and maintain temporary fire protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.

1. Locate fire extinguishers where convenient and effective for their intended purpose.

2. Store combustible materials in containers in fire safe locations.

3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities and other access routes for firefighting. Prohibit smoking in hazardous fire exposure areas.

4. Supervise welding operations, combustion type temporary heating units, and similar sources of fire ignition.

3.08 OPERATION, TERMINATION, AND REMOVAL

A. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by heat temperatures and similar elements.

B. Termination and Removal: Remove each temporary facility when needed, or for its service has ended, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are the property of Contractor. The Department reserves the right to take possession of Project identification signs.

3.09 ATTACHMENTS

A. Department of Health – Illegal Dumping Notice

END OF SECTION

DEPARTMENT OF HEALTH
ILLEGAL DUMPING NOTICE

The law requires you to dispose solid waste only at recycling or disposal facilities permitted by the Department of Health.

“Solid waste” includes municipal refuse, construction and demolition waste, household waste, tires, car batteries, derelict vehicles, green wastes, furniture, and appliance.

Illegal dumping of solid waste or allowing illegal disposal of solid waste on your property even if contractual or other arrangements are made could subject you to fines from $10,000 to $25,000 per occurrence and could lead to felony persecution in accordance with Chapter 342H, HRS.

Contact the Department of Health, Solid Waste Section at 586-4226 to report illegal dumping activities or if you have further questions.

SECTION 01700 - EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work including the following:

1. Construction layout. Field engineering and surveying.
2. General installation of products.
3. Progress cleaning.
4. Starting and adjusting.
5. Protection of installed construction.
6. Correction of the Work.

B. Related Sections

1. SECTION 01770 - CLOSEOUT PROCEDURES.

1.02 SUBMITTALS

A. Landfill Receipts: Submit copy of receipts issued by a landfill facility.

1.03 NOTIFICATION

A. Contact the Engineer at least 3 working days prior to starting any onsite work.

1.04 PROJECT AND SITE CONDITIONS

A. Project Contract Limits are indicated on the plans. Perform necessary and incidental work, which may fall outside of these demarcation lines. Confine construction activities within the Project Contract Limits and do not spread equipment and materials indiscriminately about the area. Project Contract Limits are Shown on the Drawings

B. Disruption of Utility Services: If necessary, prearrange work related to the temporary disconnection of electrical, communication and other utility systems with the Engineer. Unless a longer notification period is required elsewhere in the Contract Documents, notify the Engineer at least 15 days in advance of any interruption of existing utility service. Time and duration of interruptions are subject to the Engineer's approval. Keep the utility interruptions and duration to a minimum so as not to cause inconvenience or hardship to the facility. If temporary electrical or other utility systems hook-up is required, provide the necessary services. Pay for temporary services as part of the contract, unless specifically noted otherwise.

C. Contractor's Operations - Provide means and methods to execute the Work and minimize interruption or interference to the facility's operations. Rearrange the construction schedule when construction activities result in interruptions that hamper the operations of the facilities.

D. Maintain safe passageway to and from the facility's occupied buildings for the using agency personnel and the public at all times.

E. Contractor, Subcontractor(s) and their employees will not be allowed to park in zones assigned to Users or facility personnel during any work on the roadways. Subject to availability, the Engineer may designate areas outside of the Contract Limits to be used by the Contractor. Restore any lawn area damaged by construction activities.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 EXAMINING THE SITE

A. Contractor and Subcontractors are expected to visit the site and make due allowances for difficulties and contingencies to be encountered. Compare contract documents with work in place. Become familiar, with existing conditions, the conditions to be encountered in performing the Work, and the requirements of the Drawings and Specifications.

B. Verify construction lines, grades, dimensions and elevations indicated on the Drawings before any clearing, excavation or construction begins. Bring any discrepancy to the attention of the Engineer, and make any change in accordance with the Engineer instruction.

C. Obtain all field measurements required for the accurate installation of the Work included in this Contract. Verify governing dimensions and examine adjoining work on which the Contractor or Subcontractor's work is in any way dependent. Submit differences discovered during the verification work to the Engineer for interpretations before proceeding with the associated work. Exact measurements are the Contractor's responsibility.

D. Furnish or obtain templates, patterns, and setting instructions as required for the installation of all Work. Verify dimensions in the field.

E. Contractor shall accept the site and the existing building(s) in the condition that exists at the time access is granted to begin the Work. Verify existing conditions and dimensions shown and other dimensions not indicated but necessary to accomplish the Work.

F. Locate all general reference points and take action to prevent their destruction. Lay out work and be responsible for lines, elevations and measurements and the work executed. Exercise precautions to verify figures and conditions shown on Drawings before layout of work.

3.02 SITE UTILITIES AND TONING

A. Cooperate, coordinate and schedule work to maintain construction progress, and accommodate the operations and work of the owners of underground or overhead utility lines or other property in removing or altering the lines or providing new services.

B. Contact all the various utility companies before the start of the work to ascertain any existing utilities and to develop a full understanding of the utility requirements with respect to this Project. Furnish the Engineer with evidence that the utility companies were contacted.

C. Should the Contractor discover the existence and location of utilities in the contract Drawings are not correct, do not disturb the utilities and immediately notify the Engineer.

D. Do not disturb or modify any utilities encountered, whether shown or not on the Contract Drawings, unless otherwise instructed in the Drawings and Specifications or as directed by the Engineer. Repair and restore to pre-damaged condition any utilities or any other property damaged by construction activities.

3.03 FIELD MEASUREMENTS

A. Take field measurements to fit and install the Work properly.

B. Review of Contract Documents and Field Conditions: Submit a Request for Information (RFI) immediately upon discovery of the need for clarification of the Contract Documents. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.04 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to existing conditions. If discrepancies are discovered, notify the Engineer promptly.

3.05 FIELD ENGINEERING

A. Reference Points: Locate existing permanent or temporary benchmarks, control points and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

    1. Do not change or relocate existing benchmarks or control points without the Engineer’s approval. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to the Engineer before proceeding.

    2. Replace lost or destroyed permanent benchmarks and control points promptly. Base all replacements on the original survey control points.

B. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

3.06 CLEANING

A. General: Clean the project site and work areas daily. Dispose of waste materials and debris so that Site is cleanly maintained. Hauling of waste material and debris shall be done in the afternoons.

B. Health and Safety Plan: Contractor shall submit a health and safety plan for the project to the Construction Manager for review.

C. Traffic Control Plan: Contractor shall submit a traffic control plan for the work on the main road as well as when hauling waste materials on the same road.

END OF SECTION

SECTION 01770 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including the following:

1. Project Record Documents.

2. Warranties.

3. Instruction for the State's personnel.

B. Related documents include the following:

1. SECTION 01700 - EXECUTION REQUIREMENTS.

1.02 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting a Final Inspection to determine Substantial Completion, complete the following items in addition to requirements of Article 7.31 Substantial Completion and Final Inspection of the GENERAL CONDITIONS.

1. Advise the Engineer of pending insurance changeover requirements.

2. Submit specific warranties, final certifications, and similar documents.

3. Terminate and remove temporary facilities from Project site, along with construction tools, and similar elements.

4. Complete final cleaning requirements, including touch-up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

1.03 FINAL COMPLETION

A. Preliminary Procedures: Within 10 days from the Project Acceptance Date, complete the following items in addition the requirements of General Conditions Article 7 Prosecution and Progress:

1. Instruct the State's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

1.04 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit 2 copies of any updated action taken list. In addition to requirements of GENERAL CONDITIONS Article 7.31 Substantial Completion and Final Inspection, include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Include the following information at the top of each page:

    a. Project Name and Title.
    b. DOD Job No.
    c. Date and page number.
    d. Name of Contractor.

1.05 PROJECT RECORD DOCUMENTS AND REQUIREMENTS

A. General:

1. Definition: “Project Record Documents," including Record Drawings, shall fulfill the requirements of “Field-Posted As-Built Drawings” listed in the GENERAL CONDITIONS.

2. Do not use Project Record Documents for daily construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Engineer’s reference during normal working hours. Maintain these documents as specified in paragraph entitled “Record Drawings” hereinafter.

3. Where the recorded changes depicted on the Contractor’s Field Posted Record (“As-builts”) are in the form of shop drawings, the Contractor shall provide those shop drawings electronically on the same sheet size as the drawings transmitted to the Contractor. The new drawing sheets shall be titled and numbered to conform to the construction drawings and clearly indicate what information they supersede in the actual construction drawings. For example, a new drawing that replaces drawing M-3, could be numbered M3a.

4. The Designer, under contract with the State, will update the drawings to show all addendum, PCD, and sketch changes. The Engineer will transmit these drawings to the Contractor who will make all “red-line” corrections to these drawings to record the changes depicted on the Contractor’s Field Posted Record (“As-Builts”) by accepted drafting practices as approved by the Engineer.

5. The Contractor shall bring to the attention of the Engineer any discrepancy between the changes made by the Designer and those depicted on addendum, PCD, and sketch changes. The Engineer will resolve any conflicts.

6. Submit final Record Documents (Field Posted Record Drawings) within 10 days after the Final Inspection Date but no later than the Contract Completion Date, unless the GENERAL CONDITIONS require an earlier submittal date.

7. The Contractor shall guarantee the accuracy of its final Record Documents. The State will hold the Contractor liable for costs the State incurs as a result of inaccuracies in the Contractor’s Record Documents.

8. Prepare and submit construction photographs and electronic files, damage or settlement surveys, property surveys, and similar final record information as required by the Engineer.

B. Record Drawings:

1. Maintain a duplicate full-size set of Field Posted Record ("As-Builts") Drawings at the job site. Clearly and accurately record all deviations from alignments, elevations and dimensions, which are stipulated on the drawings and for changes directed by the Engineer that deviate from the drawings.

2. Record changes immediately after they are constructed in place and where applicable, refer to the authorizing document (Field Order, Change Order, or Contract Supplement). Use red pencil to record changes. Make Field Posted Record Drawings available to the Engineer at any time so that its clarity and accuracy can be monitored.

    a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
    b. Accurately record information in an understandable drawing technique.
    c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
    d. Mark the contract drawings or the shop drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked, show cross-reference on contract drawings.
    e. Mark important additional information that was either shown schematically or omitted from original Drawings.
    f. Locate concealed building utilities by dimension from bench marks or permanent structures. Locate site utilities by dimensions, azimuth and lengths from bench marks or permanent structures.
    g. Note field order numbers, Change Order numbers, Contract Modification numbers, Alternate numbers, post-construction drawing numbers (PCD) and similar identification (RFI numbers) where applicable.
    h. The Contractor shall initial each deviation and each revision marking.

3. Use the final updated Contract Drawing set plus applicable shop drawings for making the final Field Posted Record Drawings submittal.

4. Certify drawing accuracy and completeness. Label and sign the record drawings.

5. Label the title sheet and on all sheets in the margin space to the right of the sheet number, written from the bottom upward, with the title "FIELD POSTED RECORD DRAWINGS" and certification information as shown below. Provide a signature line and company name line for each subcontractor that will also certify the respective drawing. Adjust size to fit margin space.

    FIELD POSTED Certified By: _____ Date: _____

    RECORD DRAWINGS [Contractor's Company Name]

6. Revise the Drawing Index and label the set "FIELD POSTED RECORD DRAWINGS." Include the label "A COMPLETE SET CONTAINS [_____]

SHEETS" in the margin at the bottom right corner of each sheet. Quantify the total number of sheets comprising the set.

7. If the Engineer determines a drawing does not accurately record a deviation or omits relevant information, the State will correct any FIELD POSTED RECORD DRAWINGS sheet. Contractor will be charged for the State's cost to correct the error or omission.

8. Use the final Field Posted Record Drawings sheets to create one electronic version of the set. The set shall be recorded in Adobe Acrobat PDF (Portable Document Format). Create a single indexed, bookmarked PDF file of the entire set of drawings and record on the CD. Submit one set of the final Field Posted Record Drawings sheets and the complete electronic CD set(s).

1.06 WARRANTIES

A. Submittal Time: Submit written manufacturer's warranties at request of the Engineer for designated portions of the Work where commencement of warranties other than Project Acceptance date is indicated.

B. Partial Occupancy: Submit properly executed manufacturer's warranties within 45 days of completion of designated portions of the Work that are completed and occupied or used by the State during construction period by separate agreement with Contractor.

C. Organize manufacturer's warranty documents into an orderly sequence based on the table of contents of the Specifications.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2 inch x 11-inch paper.

2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer and prime contractor.

3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project Name and Title, DOD Job Number, and name of Contractor.

4. Use the final submittal of the warranties to create an electronic Adobe Acrobat PDF (Portable Document Format) version of the bound warranty documents files. Each sheet shall be separately scanned, at 600 DPI or better into a PDF file, indexed and recorded on a recordable compact disc (CD).

D. Provide 2 sets of manufacturer's warranties that exceed one year and one CD as part of the closing document submittals.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.01 FINAL AND PROGRESSIVE CLEANING

A. General: Provide final and progressive cleaning for each phase of work prior to starting the next phase. In addition to requirements of Article 7 of the GENERAL CONDITIONS conduct cleaning and waste-removal operations to comply with local laws and ordinances and federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions unless noted otherwise. Complete the following cleaning operations before requesting final inspection for entire Project or for a portion of Project:

1. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.

2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits resulting from construction activities.

3. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

4. Remove tools, construction equipment, machinery, and surplus material from Project site.

5. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

6. Remove debris and surface dust from limited access spaces, including: roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.

7. Sweep concrete floors broom clean in unoccupied spaces.

8. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass surfaces, taking care not to scratch surfaces.

9. Remove labels that are not permanent.

10. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
    a. Do not paint over “UL” and similar labels, including mechanical and electrical nameplates.

11. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

12. Replace parts subject to unusual operating conditions.

13. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

14. Leave Project clean and ready for occupancy.

C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the State’s property. Do not discharge volatile, harmful, or dangerous materials into drainage and sewer systems or onto State property. Remove waste materials from Project site in accordance with applicable federal, State and local regulations.

END OF SECTION

SECTION 02110 – CLEARING AND GRUBBING

PART 1 – GENERAL

1.01 SUMMARY

A. This section includes clearing, grubbing, and disposing of surplus materials in accordance with the Hawaii Standard Specification for Road and Bridge Construction, 2005 (HSSRBC), Section 201.

B. Work shall include the items described below, but shall not be limited to the following:
   1. Description …… Section 201.01

C. Where the reference provisions of the "HSSRBC" differ from any applicable requirements contained elsewhere within the specifications, the most stringent criteria shall be considered to govern, unless otherwise approved by the Engineer. All references to measurements and payment shall be deleted.

D. All other portions of Section 201 not mentioned below are not to be considered part of the Specifications.

PART 2 – PRODUCTS

2.01 MATERIALS (None)

PART 3 – EXECUTION

3.01 CONSTRUCTION

A. Furnish all labor, materials, tools and equipment necessary to perform clearing, grubbing, protecting trees, vegetation, and objects designated to remain, removing and disposing of vegetation, debris, and unwanted material from right-of-way, and borrow pits, and other areas designated in the contact documents or by the Engineer.

B. Work shall include but shall not be limited to the following sections:
   1. Vector Control …… Section 201.03 (A)
   2. Best Management Practices (BMP) …… Section 201.03 (B)
   3. Limits …… Section 201.03 (C)
   4. Clearing …… Section 201.03 (D)
   5. Grubbing …….. Section 201.03 (E)
   6. Removal and Disposal of Material …….. Section 201.03 (F)
      a. Remove material and debris and dispose of at an authorized site.
      b. All portions of this specification (i.e. Section 201.03 (F) shall remain the same.
   2. Subgrade Preparation …… Section 203.03 (D)

END OF SECTION

SECTION 02110 – CLEARING AND GRUBBING

PART 1 – GENERAL

1.01 SUMMARY

A. This section includes clearing, grubbing, and disposing of surplus materials in accordance with the Hawaii Standard Specification for Road and Bridge Construction, 2005 (HSSRBC), Section 201.

B. Work shall include the items described below, but shall not be limited to the following:
   1. Description …… Section 201.01

C. Where the reference provisions of the "HSSRBC" differ from any applicable requirements contained elsewhere within the specifications, the most stringent criteria shall be considered to govern, unless otherwise approved by the Engineer. All references to measurements and payment shall be deleted.

D. All other portions of Section 201 not mentioned below are not to be considered part of the Specifications.

PART 2 – PRODUCTS

2.01 MATERIALS (None)

PART 3 – EXECUTION

3.01 CONSTRUCTION

A. Furnish all labor, materials, tools and equipment necessary to perform clearing, grubbing, protecting trees, vegetation, and objects designated to remain, removing and disposing of vegetation, debris, and unwanted material from right-of-way, and borrow pits, and other areas designated in the contact documents or by the Engineer.

B. Work shall include but shall not be limited to the following sections:
   1. Vector Control …… Section 201.03 (A)
   2. Best Management Practices (BMP) …… Section 201.03 (B)
   3. Limits …… Section 201.03 (C)
   4. Clearing …… Section 201.03 (D)
   5. Grubbing …….. Section 201.03 (E)
   6. Removal and Disposal of Material ……... Section 201.03 (F)
      a. Remove material and debris and dispose of at an authorized site.
      b. All portions of this specification (i.e. Section 201.03 (F) shall remain the same.
   2. Subgrade Preparation …… Section 203.03 (D)

END OF SECTION

SECTION 02210 – EXCAVATION AND EMBANKMENT

PART 1 – GENERAL

1.01 SUMMARY

A. This section includes excavating, hauling, and disposing of surplus excavated material; and placing and compacting specified materials necessary to construct the project in accordance with the Hawaii Standard Specification for Road and Bridge Construction, 2005 (HSSRBC), Section 203 and Section 106.

B. Work shall include the items listed below, but shall not be limited to the following:
   1. Roadway excavation includes excavating and compacting, or disposing of, all materials whatever character encountered in the work.
   2. For terminology used in this section, refer to Section 101 – Terms, Abbreviations and Definitions and ASTM D 653.

C. Where the reference provisions of the "HSSRBC" differ from any applicable requirements contained elsewhere within the specifications, the most stringent criteria shall be considered to govern, unless otherwise approved by the Engineer. All references to measurements and payment shall be deleted.

D. All other portions of Section 203 and Section 106 not mentioned below are not to be considered part of the Specifications.

PART 2 – PRODUCTS

2.01 MATERIALS

A. The Materials portion of this specification shall include, but not be limited to the following:
   1. Cullet and Cullet-Made Materials…… Section 717
   1. Excavated Material ……..…….. Section 203.02 (A)
   2. Selected Material ……. Section 203.02 (B)
   3. Borrow Excavated Material ……. Section 203.02 (C)

B. Material Restrictions and Requirements shall conform to, but not be limited to HSSRBC Section 106. The following sections shall apply herein:

   1. Source of Supply and Quality Requirements …….. Section 106.01
   2. Material Sources …….. Section 106.02
   3. Unauthorized Excavation ……. Section 106.03
   4. Notice of Change …… Section 106.06
   5. Certificate of Compliance ……... Section 106.07
      a. The Contractor shall submit a Certificate of Compliance from the manufacturer, supplier or both for all materials in lieu of samples in accordance with this specification.
   6. Non-Conforming Material ……... Section 106.08

PART 3 – EXECUTION

3.01 CONSTRUCTION

A. Furnish all labor, materials, tools and equipment necessary to excavate and construct embankment for roads, road intersections, and road entrances to a smooth and uniform surface in accordance with the HSSRBC, Section 203.03 unless otherwise specified. Excavate so as not to disturb material outside limits of slopes or limits of grading. Excavation shall include the scraping of the old AC pavement from the gun turrets' concrete pad surface located in the parking lot by whatever means possible to complete the work. The gun turrets' concrete pad area is shown approximately on the plans. The Contractor shall take whatever means necessary to determine the extent of the scraping/excavation to complete the construction of the new pavement section over the concrete pad area.

B. Work shall include but shall not be limited to the following sections:

1. Excavation …… Section 203.03 (A)
2. Excavated Material …….. Section 203.03 (B)
3. Embankment Construction…… Section 203.03 (C)
    a. General…… Section 203.03 (C)(1)
    b. Soils Testing. Testing of the fill material for conformance to the Specifications and monitoring of all backfill, including compaction, shall be the responsibility of the Contractor. The testing shall be overseen by an independent licensed professional Civil Engineer with a geotechnical background or a testing laboratory accredited by the State Department of Transportation. All test results shall be submitted to the Engineer for record purposes. All costs for soils inspection and testing during construction shall be borne by the Contractor.
    c. Test Locations. The Engineer is entitled to dictate which areas of fill are to be tested during the time when the soils tests are to occur.

4. Subgrade Preparation …… Section 203.03 (D)

END OF SECTION

SECTION 02211 – EXCAVATION AND BACKFILL FOR DRAINAGE STRUCTURES

PART 1 – GENERAL

1.01 SUMMARY

A. This section includes: (1) excavating and backfilling to depths and lines established for drainage structure foundations and (2) excavating and backfilling trenches for culverts, culvert headwalls and hand-laid and dumped rip-rap and drainage structures in accordance with the Hawaii Standard Specification for Road and Bridge Construction, 2005 (HSSRBC), Section 206 – Excavation and Backfilling for Drainage Structures.

B. Where the reference provisions of the "HSSRBC" differ from any applicable requirements contained elsewhere within the Specifications, the most stringent criteria shall be considered to govern, unless otherwise approved by the Engineer. All references to measurements and payment shall be deleted.

C. Reference Specification: Section 603 – Culverts and Storm Drains particularly:

1. Section 603.03 Construction
    a. (A) Excavation
    b. (B) Laying Bed Course Material
    c. (I) Backfilling

D. All other portions of Section 206 not mentioned below are not to be considered part of the Specifications.

PART 2 – PRODUCTS

2.01 MATERIALS

A. The Materials portion of this Specification shall include, but not be limited to the following:
    1. Structure Backfill Material …… Section 703.20
    2. Trench backfill Material …….. Section 703.21
    3. Cullet and Cullet-Made Material …… Section 717

    Structure and trench backfill material shall include a mixture of aggregate and cullet. When cullet is not produced on the project island, or material unit price of cullet is greater than material unit price of structure backfill or greater than material unit price of trench backfill, cullet may be excluded for that backfill application. Before excluding cullet, submit availability and pricing documentation.

PART 3 – EXECUTION

3.01 CONSTRUCTION

A. Furnish all labor, materials, tools and equipment necessary to excavate and backfill drainage structures and trenches for drainage structures including hand-laid and dumped rip-rap in accordance with the HSSRBC, Section 206.03 unless otherwise specified. Excavate so as not to disturb material outside limits of slopes or limits of grading. Notify the Engineer 10 working days before excavating for drainage structures.

B. Work shall include but shall not be limited to the following:

1. Cleaning Culverts. Clean, remove and dispose of silt, trash, vegetation growth from existing culverts and adjoining drainage structures within project limits. Clean by manual or mechanical means. Discharge of debris or wash water during culvert cleaning into stream, ocean, or State of Hawaii waters will not be allowed.

2. Structure and Trench Excavation……. Section 206.03 (A)(1&2)

3. Structure and Trench Backfill …….. Section 206.03 (B)

    a. Soils Testing. Testing of the fill material for conformance to the project specification and monitoring of all backfill, including compaction, shall be the responsibility of the Contractor. The testing shall be overseen by an independent licensed professional Civil Engineer with a geotechnical background or a testing laboratory accredited by the State Department of Transportation. All test results shall be submitted to the Construction Manager for record purposes. All costs for soils inspection and testing during construction shall be borne by the Contractor.
    b. Test Locations. The Engineer is entitled to dictate which areas of fill are to be tested during the time when the soils tests are to occur.

END OF SECTION

SECTION 02212 – DRESSING OF SHOULDERS

PART 1 – GENERAL

1.01 SUMMARY

A. This section describes shaping, grading, filling, and compacting unpaved shoulders in accordance with the Hawaii Standard Specification for Road and Bridge Construction, 2005 (HSSRBC), Section 203.

B. Where the reference provisions of the "HSSRBC" differ from any applicable requirements contained elsewhere within the Specifications, the most stringent criteria shall be considered to govern, unless otherwise approved by the Engineer. All references to measurements and payment shall be deleted.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Use suitable material from roadway excavation, including topsoil and base materials salvaged from this project. HMA pavement removed by cold planning, from reconstruction, and from roadway excavation shall be considered extra surplus excavation material and shall be disposed of as specified in Section 203 – Excavation and Embankment, unless otherwise indicated in the contract documents. Use additional materials from borrow excavation or as ordered by the Engineer.

PART 3 – EXECUTION

3.01 CONSTRUCTION

A. Furnish all labor, materials, tools and equipment necessary to shape, grade, fill, and compact shoulders after completion of or in conjunction with the pavement resurfacing.

Place shoulder material uniformly in loose layers not to exceed 8 inches in thickness. Compact each layer until relative compaction of 95 percent or more is achieved. Finish shoulders and slopes, including ditches where necessary, to a smooth and uniform surface that will merge with adjacent slopes. Correct variations to within one-tenth of a foot in elevation or alignment to conform to typical sections indicated in the contract documents.

Correct irregularities in the surface, if any, resulting from grading, filling, and compaction to prevent formation of depressions or water pockets. Repair damage to the shoulder surface or pavement due to the construction operations.

END OF SECTION

SECTION 02213 – HYDRO-MULCH SEEDING

PART 1 – GENERAL

1.01 SUMMARY

A. This section includes the application of mulch, seed adapted to site, fertilizer, and water using hydraulic equipment in designated areas in accordance with the Standard Specification for Road and Bridge Construction, 2005 (HSSRBC), Section 641.

B. Work shall include the items described below, but shall not be limited to the following:
   1. Description …… Section 641.01

C. Where the reference provisions of the HSSRBC differ from any applicable requirements contained elsewhere within the Specifications, the most stringent criteria shall be considered to govern, unless otherwise approved by the Engineer. All references to measurements and payment shall be deleted.

D. All other portions of Section 641 not mentioned below are not to be considered part of the Specifications.

PART 2 – PRODUCTS

2.01 MATERIALS.

A. Materials shall conform to the following sections of the HSSRBC:
   1. Seed …… Section 641.02 (A)
   2. Fertilizer …….. Section 641.02 (B)
   3. Mulch …….. Section 641.02 (C)
   4. Soil and Mulch Tackifer …… Section 641.02 (D)

PART 3 – EXECUTION

3.01 CONSTRUCTION

A. Furnish all labor, materials, tools and equipment necessary to perform hydro-mulch seeding in areas where shoulder work has occurred or as designated in the contract documents or other areas designated in the contact documents or by the Engineer.

B. Work shall include but shall not be limited to the following sections:
   1. Seeding …… Section 641.03 (A)
   2. Planting Period …… Section 641.03 (B)
   3. Plant Establishment …… Section 641.03 (C)
   4. Acceptance …….. Section 641.03 (D)
      a. Remove material and debris and dispose of at an authorized site.
      b. All portions of this specification (i.e. Section 641.03 (C)) shall remain the same.

END OF SECTION

SECTION 02310 – TEMPORARY WATER POLLUTION, DUST, AND EROSION CONTROL

PART 1 – GENERAL

1.01 SUMMARY

A. Furnish, install, maintain and subsequently remove temporary water pollution, dust and erosion control devices in accordance with the Standard Specification for Road and Bridge Construction, 2005 (HSSRBC), Section 209.01.

B. Work shall include the items listed below listed below, but shall not be limited to the following:
   1. Written site-specific best management plans (BMP).
   2. Control measures to be applied to any haul roads, work areas.
   3. Removal and disposal of hazardous wastes.
   4. Locations such as borrow pit operations and Contractor storage sites outside of the Diamond Head Crater.

C. Where the reference provisions of the "HSSRBC" differ from any applicable requirements contained elsewhere within the specifications, the most stringent criteria shall be considered to govern, unless otherwise approved by the Engineer. All references to measurements and payment shall be deleted.

D. All other portions of Section 209 not mentioned below are not to be considered part of the Specifications.

PART 2 – PRODUCTS

2.01 MATERIAL

A. Furnish all materials necessary to construct work zone traffic control in accordance with the HSSRBC, with the following sections unless otherwise specified.

- Mulches ……..…… Section 209.02 (B)
- Grass ……..... Section 209.02 (C)
- Fertilizer and Soil Conditioners ……Section 209.02 (D)
- Hydro-mulching …….. Section 209.02 (E)
- Silt Fences ……..... Section 209.02 (F)
- Berms ……...Section 209.02 (G)
- Geotextiles …….. Section 716
- Bed Course Material for Crushed Rock Cradle …… Section 703.16

B. Items not listed above such as Filter Socks, Wash Racks (corrugated steel panels), etc. that are to be used as pollution control methods will require submittals of catalog cuts, product data, manufacturer's technical literature and reports for testing and/or maintenance.

B. Alternative materials or methods to control, prevent, remove and dispose of pollution are allowable, if acceptable to Engineer.

PART 3 – EXECUTION

3.01 CONSTRUCTION

A. Furnish all labor, materials, tools and equipment necessary to construct Water Pollution, Dust and Erosion Control measures in accordance with the HSSRBC, Section 209.03 unless otherwise specified.

B. Work shall include but shall not be limited to the following sections:

1. Preconstruction Requirements …….. Section 209.03 (A)
2. Construction Requirements …… Section 209.03 (B)

END OF SECTION

SECTION 02410 – HAND-LAID RIPRAP

PART 1 – GENERAL

1.01 SUMMARY

A. This section describes constructing hand-laid riprap in accordance with the in Hawaii Standard Specifications for Roadway and Bridge Construction 2005 (HSSRBC), Section 611 – Hand-Laid Riprap.

B. Where the reference provisions of the "HSSRBC" differ from any applicable requirements contained elsewhere within the Specifications, the most stringent criteria shall be considered to govern, unless otherwise approved by the Engineer. All references to measurements and payment shall be deleted.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Geotextile…… Section 716.02

Stones for riprap shall be clean, sound, durable, one-man stone. Stones shall be at least 3 inches thick in least dimension containing more than half cubic foot in volume.

PART 3 – EXECUTION

3.01 CONSTRUCTION

A. Furnish all labor, materials, tools and equipment necessary to construct hand-laid rip-rap for the project's drainage structures.

B. Excavate in accordance with Section 02211 of these specifications and with HSSRBC Section 206. as specified in Hawaii Standard Specifications for Roadway and Bridge Construction 2005 (HSSRBC), Section 203 – Excavation and Embankment, unless otherwise indicated in the contract documents.

C. Make sufficient excavation to expose foundation bed. Free foundation bed of brush, trees, stumps, roots, debris, and other objectionable materials, and dress to smooth surface. Prior to placing geotextile fabric, provide 3 days notice to Engineer for inspection of foundation.

D. After foundation is acceptable to Engineer, place geotextile fabric in accordance with manufacturer's recommendations or as indicated in contract document. Remove and replace geotextile fabric that is displaced or damaged during rip-rap placement at no increase in contract cost or contract time. Distribute stones to prevent large accumulations of either large or small sized stones.

END OF SECTION

SECTION 02710 STRUCTURAL CONCRETE

PART 1 – GENERAL

1.01 SUMMARY

A. Construct structural concrete in accordance with the requirements of the "Hawaii Standard Specifications for Road and Bridge Construction, 2005 (HSSRBC)," Section 601.

B. Where the reference provisions of the HSSRBC differ from any applicable requirements contained elsewhere within the Specifications, the most stringent criteria shall be considered to govern, unless otherwise approved by the Engineer. All references to measurements and payment shall be deleted.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Furnish all materials necessary to construct structural concrete in accordance with the following sections of the current HSSRBC, unless otherwise specified:

1. Portland Cement ……. Section 701.01
2. Fine Aggregate for Concrete……..... Section 703.01
3. Water ……. Section 712.01

PART 3 – EXECUTION

3.01 WORKMANSHIP

A. Furnish all labor, materials, tools and equipment necessary to construct structural concrete in accordance with the following sections of the current HSSRBC.

B. Work shall include the following section:
   1. Construction…….. Section 601.03
      a. Class A concrete shall be used and shall follow Design of Concrete as shown on Table 601.03-1
      b. The following sections of HSSRBC shall be a part of this specification:
         i. Batching, Portland Cement……Section 601.03 (C) (1)
         ii. Batching, Water ……...Section 601.03 (C) (2)
         iii. Batching, Aggregates ……Section 601.03 (C) (3)
         iv. Mixing ……Section 601.03 (D)
         v. Transporting Mixed Concrete ……Section 601.03 (E)
      c. Concrete for drilled shaft shall have minimum compressive strength f'c = 4,500 psi with a maximum W/C ratio of 0.45 in conformance with Section 511, HSSRBC.

C. All other portions of Section 601 not mentioned above are not to be considered part of the Specifications.

END OF SECTION

SECTION 02730 – HOT MIX ASPHALT BASE COURSE

PART 1 – GENERAL

1.01 SUMMARY

A. Construct hot mix asphalt base course in accordance with the requirements of the "Hawaii Standard Specifications for Road and Bridge Construction, 2005" (HSSRBC), Section 301.

B. Where the reference provisions of the HSSRBC differ from any applicable requirements contained elsewhere within the specifications, the most stringent criteria shall be considered to govern, unless otherwise approved by the Engineer. All references to measurements and payment shall be deleted.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Furnish all materials necessary to construct hot mix asphalt base course in accordance with the following sections of the current HSSRBC, unless otherwise specified:
   1. Asphalt Cement ……. Section 702.01
   2. Aggregate for Hot Mix Asphalt Base Course……..... Section 703.03

PART 3 – EXECUTION

3.01 WORKMANSHIP

A. Furnish all labor, materials, tools and equipment necessary to construct hot mix asphalt base course in accordance with the following sections of the current HSSRBC.

B. Work shall include the following sections:
   1. Description…… Section 301.01
   2. Materials…… Section 301.02
   3. Construction…….. Section 301.03
      a. Compaction Testing. Testing of the base material for conformance to the Specifications and monitoring of compaction, shall be the responsibility of the Contractor. The testing shall be overseen by an independent licensed professional Civil Engineer with a geotechnical background or a testing laboratory accredited by the State Department of Transportation. All test results shall be submitted to the Construction Manager for record purposes. All costs for soils inspection and testing during construction shall be borne by the Contractor.
      b. Test Locations. The Engineer is entitled to dictate which areas of base course are to be tested during the time when the compaction tests occur.

C. All other portions of Section 301 not mentioned above are not to be considered part of the Specifications.

END OF SECTION

SECTION 02740 – HOT MIX ASPHALT PAVEMENT

PART 1 – GENERAL

1.01 SUMMARY

A. Construct asphalt pavement in accordance with the requirements of the "Hawaii Standard Specifications for Road and Bridge Construction, 2005" (HSSRBC), Section 401.

B. Where the reference provisions of the HSSRBC differ from any applicable requirements contained elsewhere within the specifications, the most stringent criteria shall be considered to govern, unless otherwise approved by the Engineer. All references to measurements and payment shall be deleted.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Furnish all materials necessary to construct asphalt pavement in accordance with the HSSRBC Section 401.02, unless otherwise specified and include the following specifications:

1. Asphalt Cement ……. Section 702.01
2. Emulsified Asphalt…….. Section 702.04
3. Aggregate for Hot Mix Asphalt Pavement……..... Section 703.09

PART 3 – EXECUTION

3.01 CONSTRUCTION

A. Furnish all labor, materials, tools and equipment necessary to construct asphalt pavement in accordance with HSSRBC, Section 401.03

B. Work shall include but shall not be limited to the following sections:

1. Weather Limitations …… Section 401.03 (A)
2. Equipment …… Section 401.03 (B)
3. Preparation of Surface ……... Section 401.03 (C)
4. Plant Operation …… Section 401.03 (D)
5. Spreading and Finishing …… Section 401.03 (E)
6. Compaction …… Section 401.03 (F)
    a. Compaction Testing. Testing of compaction for conformance to the project specification shall be the responsibility of the Contractor. The testing shall be overseen by an independent licensed professional Civil Engineer with a geotechnical background or a testing laboratory accredited by the State Department of Transportation. All test results shall be submitted to the

Construction Manager for record purposes. All costs for soils inspection and testing during construction shall be borne by the Contractor.

b. Test Locations. The Engineer is entitled to dictate which areas of pavement are to be tested during the time when the tests are to occur.

7. Joints, Trimming Edges, and Utility Marking ……. Section 401.03 (G)
8. HMA Pavement Samples (Not Used)
9. HMA Pavement Surface and Thickness Tolerances …….. Section 401.03 (I)
10. Protection of HMA Pavement …….. Section 401.03 (J)

C. All other portions of Section 401 not mentioned above are not to be considered part of the Specifications.

END OF SECTION

SECTION 02741 – TACK COAT

PART 1 – GENERAL

1.01 SUMMARY

A. Apply tack coat in accordance with the requirements of the "Hawaii Standard Specifications for Road and Bridge Construction, 2005" (HSSRBC) Section 407.

B. Where the reference provisions of the HSSRBC differ from any applicable requirements contained elsewhere within the Specifications, the most stringent criteria shall be considered to govern, unless otherwise approved by the Engineer. All references to measurements and payment shall be deleted.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Furnish all materials necessary to construct tack coat in accordance with the following sections of the current HSSRBC, unless otherwise specified:

1. Emulsified Asphalt
   (Type SS-1, SS-1h, CSS-1 or CSS-1h)…….. Section 702.04
2. Water……. Section 712.01

PART 3 – EXECUTION

3.01 WORKMANSHIP

A. Furnish all labor, materials, tools, and equipment necessary to apply tack coat in accordance with the following section of the current HSSRBC, except 407.04 and 407.05.

1. Tack Coat ……Section 407

END OF SECTION

SECTION 02750 – TRAFFIC CONTROL, REGULATORY, WARNING AND MISCELLANEOUS SIGNS

PART 1 – GENERAL

1.01.1 SUMMARY

A. Install traffic signs in accordance with the requirements of the "Hawaii Standard Specifications for Road and Bridge Construction, 2005".

B. Where the referenced provisions of the HSSRBC differ from any applicable requirements contained elsewhere within the Specifications, the most stringent criteria shall be considered to govern, unless otherwise approved by the Engineer. All references to measurements and payment shall be deleted.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Furnish all materials necessary to install traffic signs in accordance with following section of the current HSSRBC, unless otherwise specified;

1. Signs…… Section 750.01

2. Sign Posts…….. Section 750.02

3. Fasteners for Signs and Route Markers…… Section 750.03

Retroreflective sheeting shall conform to AASHTO M 268 or as amended in accordance with Subsection 750.01 – Signs.

B. Signs shall conform to the latest edition of the "Manual on Uniform Traffic Control Devices," when applicable.

PART 3 – EXECUTION

3.01 WORKMANSHIP

A. Furnish all labor, materials, tools, and equipment necessary to install traffic signs in accordance with the following sections of the current HSSRBC:

B. Work shall include the following sections:
   1. Descriptions……..Section 631.01
   2. Materials……Section 631.02
   3. Construction
      a. Sign Supports
         i. Sign Posts…….. Section 631.03(A)(1)(a)
      b. Splicing of Reflective Sheeting Material…….. Section 631.03(B)

C. All other portions of Section 631 not mentioned above are not to be considered part of the Specifications.

END OF SECTION

SECTION 02751 – PAVEMENT MARKINGS

PART 1 – GENERAL

1.01 SUMMARY

A. Construct pavement marking work as indicated on or required by the drawings to facilitate construction of the proposed work in accordance with the requirements of the "Hawaii Standard Specifications for Road and Bridge Construction 2005 (HSSRBC).

B. Work shall include but shall not be limited to the following:
   1. Temporary Pavement Markings
   2. Permanent Pavement Markings

C. Where the reference provisions of the "HSSRBC" differ from any applicable requirements contained elsewhere within the Specifications, the most stringent criteria shall be considered to govern, unless otherwise approved by the Engineer. All references to measurements and payment shall be deleted.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Furnish all materials necessary to construct pavement markings in accordance with the "HSSRBC," unless otherwise specified.

   1. Preformed Pavement Marking Tape (Temporary only)……..Section 755.04

   2. Retroreflective Thermoplastic Compound Pavement Markings - (White and Yellow)……...Section 755.05

PART 3 – EXECUTION

3.01 CONSTRUCTION

A. Furnish all labor, materials, tools and equipment necessary to construct pavement markings in accordance with the "HSSRBC," unless otherwise specified.

B. Work shall include but shall not be limited to the following sections:
   1. General…….Section 629.03 (A)
   2. Temporary Pavement Markings……Section 629.03 (B)
   3. Permanent Pavement markings……Section 629.03 (C)

C. All other portions of Section 629 not mentioned above are not to be considered part of the Specifications.

END OF SECTION

SECTION 02760 – WORK ZONE TRAFFIC CONTROL

PART 1 – GENERAL

1.01 SUMMARY

A. Furnish, install, maintain and subsequently remove work zone traffic devices and personnel. Work zone traffic control shall include providing flaggers and/or police officers in accordance with the Standard Specification for Road and Bridge Construction, 2005 (HSSRBC).

B. Work shall include closures at locations listed below and as shown on the plans but shall not be limited to the following:

1. Intersection of Access Road and Main Entrance to the Crater.
2. Along the Access Road and in the Parking lot as deemed necessary by the Engineer.

C. Where the reference provisions of the "HSSRBC" differ from any applicable requirements contained elsewhere within the Specifications, the most stringent criteria shall be considered to govern, unless otherwise approved by the Engineer. All references to measurements and payment shall be deleted.

D. All other portions of Section 645 not mentioned below are not to be considered part of the Specifications.

PART 2 – PRODUCTS

2.01 MATERIALS

A. The Materials portion of HSSRBC Section 645.02 shall be changed to read as follows below:

Furnish all materials necessary to construct work zone traffic control in accordance with the HSSRBC, unless otherwise specified.

1. Signs ……..…….. Section 750.01
2. Sign Posts …….……..... Section 750.02
3. Fasteners for Signs …… Section 750.03
4. Reflector Marker…….. Section 750.07
5. Flexible Delineator Posts and Reflectors ……... Section 750.08
6. Traffic Delineators …….. Section 750.09

B. Submit a set of FHWA approval letters certifying compliance with the NCHRP Report 350 for signs, sign supports, barricades, delineators, cones, vertical panels, and other traffic control devices.

C. Traffic Control devices, including signs, barricades, warning lights, arrow boards, changeable message signs, cones, delineators, and marker, shall conform to the

American Traffic Safety Services Association (ATSSA), *Quality Standards for Work Zone Traffic Control Devices* and *MUTCD*.

PART 3 – EXECUTION

3.01 CONSTRUCTION

A. Furnish all labor, materials, tools and equipment necessary to construct work zone traffic control in accordance with the HSSRBC, Section 645.03 unless otherwise specified.

B. Work shall include but shall not be limited to the following sections:
   1. Signs ……. Section 645.03 (A)
   2. Construction Signs ……. Section 645.03 (B)
   3. Barricades …… Section 645.03 (C)
   4. Traffic Delineators ……... Section 645.03 (D)
   5. Cones …… Section 645.03 (E)
   6. Lane Closures …….. Section 645.03 (F)

END OF SECTION

SECTION 02770 - GUARDRAILS

PART 1 – GENERAL

1.01 SUMMARY

A. Construct guardrails as indicated on or required by the drawings to facilitate construction of the proposed work in accordance with the requirements of the "Hawaii Standard Specifications for Road and Bridge Construction 2005" (HSSRBC) Section 606, Guardrails.

B. Work shall include but shall not be limited to the following:
   1. Removing existing guardrails.
   2. Installing new W-Beam strong post guardrail with end sections.

C. Where the reference provisions of the "HSSRBC" differ from any applicable requirements contained elsewhere within the Specifications, the most stringent criteria shall be considered to govern, unless otherwise approved by the Engineer. All references to measurements and payment shall be deleted.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Furnish all materials necessary to construct Type 3 Beam guardrails in accordance with the "HSSRBC," unless otherwise specified.

   1. Metal Beam Rails …….Section 710.04
   2. Guardrail Posts …….Section 710.07
   3. Guardrail Hardware……..……...Section 710.08

PART 3 – EXECUTION

3.01 CONSTRUCTION

A. Furnish all labor, materials, tools and equipment necessary to assemble and erect Beam Type guardrails in accordance with the contract documents. At the end of each day protect openings, terminals, and other portions of uncompleted sections in guardrail system with barriers that comply with requirements for temporary traffic control prescribed by MUTCD and accepted by Engineer prior to installation.

B. Work shall include but shall not be limited to the following sections:

   1. Posts ……Section 606.03 (A)(1)
   2. Rail Elements……..……Section 606.03 (B)(2)

C. Remove Guardrail. Remove existing guardrails. After removing existing guardrails, backfill post holes with selected material free of rock and accepted by Engineer. Place backfill in layers and compact each layer as accepted by the Construction Manager. Grade and compact area before installing any new posts.

D. All other portions of Section 606 not mentioned above are not to be considered part of the project's specifications.

END OF SECTION

SECTION 02990 – MOBILIZATION

PART 1 – GENERAL

1.01 SUMMARY

A. Mobilization for this project shall be performed in accordance with the requirements of the "Hawaii Standard Specifications for Road and Bridge Construction, 2005 (HSSRBC)," Section 699.

B. Where the referenced provisions of the HSSRBC differ from any applicable requirements contained elsewhere within the Specifications, the most stringent criteria shall be considered to govern, unless otherwise approved by the Engineer. All references to measurements and payment shall be deleted.

C. Contractor shall submit a Schedule of Prices wherein the amount to be paid for this item does not exceed 10 percent of the sum of all items excluding the price of this item and the cost of any alternates.

1.02 ALTERNATES

A. Twenty-four (24) Hour Demobilization and Mobilization (De-mob/Mob). Under this Alternate an emergency may require the Contractor to ensure all of his equipment has been secured in the project's staging areas. The Engineer will notify the Contractor that he will be given a two (2) hour time period to perform this demobilization. After a twenty-four hour wait period starting from the time of the Engineer's notification to the Contractor, the Contractor will be allowed to mobilize and continue the progress of the project from the time prior to the Engineer's notification. No penalties to the State shall result from this De-mob/Mob.

B. This 24 Hour Demobilization and Mobilization alternate shall be performed in accordance with Section 01230 ALTERNATE.

PART 2 – PRODUCTS

2.01 MATERIALS (NOT USED)

PART 3 – EXECUTION

3.01 WORKMANSHIP (NOT USED)

END OF SECTION

SECTION 16000 – GENERAL ELECTRICAL

PART 1 – GENERAL

1.01 SUMMARY

A. This Section is intended to better describe, identify and specify certain items listed in Section 16010 Electrical Work.

B. The Hawaii Standard Specification for Road and Bridge Construction 2005 (HSSRBC) shall be the reference document for all items in Section 16010.

C. Where the reference provisions of the HSSRBC differ from any applicable requirements contained elsewhere within the Specifications, the most stringent criteria shall be govern, unless otherwise approved by the Engineer. All references to measurements and payment shall be deleted.

1.02 SCOPE OF WORK

A. The items included as part of the contract will be the installation of the Underground Ducts including any manholes or hand-holes that will be required including any required appurtenances. The foundation for the light poles will be a part of the Civil work.

B. The alternates for this project will be the installation of the wiring, the light poles and the light fixtures. Any items listed in Section 16010 that address any of the aforementioned items are to be considered as part of the Alternate, including any ancillary items that are a part of the complete installation, such as testing for complete installation, ground rods, etc. The alternates shall be bid in accordance with Section 01230.

1.03 CONSTRUCTION PLANS

A. Drawing E-1 – Electrical Symbols, Luminaire Schedule, Parking Lot Light Details
The items clouded on this sheet are identified as those items that are a part of the Alternate and should be bid accordingly per Section 01230.

B. Drawing E-2 – Electrical Site Plan, Duct Sections
This sheet is a part of the construction set.

C. Drawing E-3 – Electrical Plan – Building
This sheet is a part of the Alternate and should be bid accordingly per Section 1230.

1.04 SUBMITTALS

A. The Submittals listed in Section 16010, 1.04 Submittals are part of the Alternate and should be bid accordingly per Section 01330.

B. Any catalog cuts for the Underground ducts, manholes or hand-holes shall be submitted in accordance with Section 01330.

PART 2 – PRODUCTS

2.01 MATERIALS (Not Used)

PART 3 – EXECUTION

3.01 WORKMANSHIP (Not Used)

DIVISION 16 – ELECTRICAL

SECTION 16010 – ELECTRICAL WORK

PART 1 - GENERAL

1.01 SUMMARY

Provide complete electric power and lighting system for this project. Work shall include:

A. Install new circuit breaker in existing panelboard.

B. Install new parking lot and driveway lighting.

C. Obtain and pay for electrical permits.

D. Maintain at project site a copy of Drawings to record daily any additions or changes. After final inspection two (2) copies of "as-built" drawings shall be prepared from the site copy and turned over to the State. This is mandatory.

E. Test complete installation.

1.02 RULES AND REGULATONS

A. Comply with local ordinances; National Electrical Code; National Electrical Safety Code; applicable regulations of the National Board of Fire Underwriters; specifications of ANSI, NEMA, EEI, and IPCEA; and regulations of the Building Department, City and County of Honolulu.

B. Contractor to obtain and pay for the electrical permit as required by local rules and regulations. He shall arrange for periodic inspection by the local authorities as work progresses so that certificates of completion and inspection may be turned over to the State.

1.03 DRAWINGS

A. Specifications are accompanied by architectural plans of building, site plans and diagrammatic electrical plans showing locations of service runs, feeder runs, devices, and other electrical equipment. Locations are approximate and before installing, Contractor shall study adjacent construction details and make installation in most logical manner. Any device may be relocated with 10'-0" before installation at direction of State without additional charge to State.

B. Before installing, verify all dimensions and sizes of equipment at job site. Circuit and conduit routing is typical and may be altered in any logical manner; however, all changes shall be approved by State and shown on "as-built" drawings.

C. Shop drawings and catalog cuts for substitute materials shall clearly specify compliance with and/or deviation from specified material. Approval of shop

drawings and catalog cuts shall not release Contractor from complying with intent of specifications and drawings. Any deviations from approved shop drawings shall have prior approval by the State.

1.04 SUBMITTALS

A. Submit in accordance with Section 01300 - SUBMITTALS.

B. Submit for approval shop drawings or catalog cuts of following equipment and resubmit until approval is received before placing order:

1. Light fixtures, lighting pole.

2. Circuit breakers.

3. Any built-to-order equipment.

PART 2 - PRODUCTS

2.01 MATERIALS

Materials and equipment shall be new and those listed by Underwriters' Laboratories shall bear "UL" label of approval. Brand names, manufacturer's names and catalog numbers indicate standards of design and quality required. Substitute materials may be used if qualified by written permission from State. List of substitute materials together with qualifying data shall be submitted for approval as provided in the SPECIAL PROVISIONS. Failure to obtain approval of substitute materials prior to bidding shall mean that materials as specified shall be provided.

Qualifying data shall include cuts, shop drawings, samples if requested by the State and specifications to show equality with material specified herein and in drawings.

A. Wiring:

1. Rigid steel, zinc-coated, 3/4 inch minimum diameter, except as noted. Other sizes shall conform to NEC requirements, based on RHW Wires.

2. Electrical metallic tubing, 3/4 inch minimum, galvanized.

3. Intermediate Metal Conduit: Steel conduit, zinc coated inside and outside with additional silicone epoxy-ester lubricating coating inside; 3/4 inch minimum diameter.

4. Plastic conduit – polyvinyl chloride schedule 40, 3/4 inch minimum. Use only below grade or ground floor slab.

5. Concrete encased Ducts – polyvinyl chloride schedule 40 round bore conduits.

6. PVC coated Galvanized Rigid Conduit, 40 mil gray PVC exterior coating, 2 mil red urethane interior coating, UL listed. ¾ inch minimum diameter, except as noted. Other sizes shall conform to NEC requirements, based on RHW Wires.

7. Flexible Conduit – galvanized with high density plastic jacket.

B. Conduit Sealing Fitting: Suitable for Class 1 Division 1 location. PVC coated Galvanized Rigid steel. 40 mil gray PVC exterior coating, 2 mil red urethane interior coating,

C. Gutters, pullboxes, enclosures and cabinets for panelboards, breakers, and switches unless otherwise specified shall be NEMA 1 for interior locations and NEMA 4X stainless steel for exterior locations exposed to rain. Fabricate from code gauge galvanized steel, prime painted, and enamel finished according to NEMA specifications.

D. Outlet Boxes:

1. Concealed boxes shall be pressed from NEC gauge steel, galvanized 4" square x 1-1/2" deep minimum.

2. Exposed boxes and weather exposed boxes recessed boxes, including lighting outlets on exteriors shall be galvanized cast iron or alloyed aluminum with threaded hubs for conduit connections. Aluminum boxes shall be prime painted and enamel finished.

3. Extension or raised rings for pressed boxes pressed from NEC gauge steel and galvanized.

E. Wires:

1. Conductors shall be copper, 600 volts, No. 12 AWG minimum. Conductors No. 10 and smaller, solid and round. Conductors No. 8 and larger, 7 or 19 strands, concentric. All conductors No. 6 and smaller shall be NEC Type TW and THW. All conductors No. 4 and larger shall be NEC Type RHW or THW. Wiring fixtures and fixture wiring channels shall be NEC type RHH or THHN. Exterior underground conductors shall be Type RHW-USE or cross-linked polyethylene, Style USE.

2. Color Code: Black—Phase "A", red—Phase "B", blue—Phase "C", white—neutral, green—ground.

F. Circuit Breakers: Circuit breakers shall be molded plastic case circuit breaker with toggle operated mechanism thermal-magnetic overload trips. Interchangeable trip shall be provided when available. Toggle positions "ON", "TRIPPED" and "OFF", engraved on body of toggle. General Electric, Westinghouse, ITE, Cutler Hammer or Square D.

G. Lighting:

1. Provide light fixtures complete with necessary lamps, ballasts, starters and accessories according to “Luminaire Schedule”.

H. Ground rods shall be copper clad, 3/4” Diameter x 10’-0” long.

I. Hardware, Support, Backing, Etc.: Provide all hardware, supports, backing and other accessories necessary to install electrical equipment. Wood materials shall be treated, iron or steel materials shall be galvanized for corrosion protection, and non-ferrous materials shall be galvanized steel.

PART 3 – EXECUTION

3.01 CONSTRUCTION METHODS

A. Workmanship shall be subject to the approval of the State, who shall be afforded every facility to determine the skill and competency of labor.

B. Outlet locations are shown approximate only. The Contractor shall check architectural drawings and details and center or space the outlets to obtain neat symmetrical appearance. Provided change is ordered before outlets are installed, there shall be no additional cost to the State for reasonable change of outlet locations.

C. Building wiring shall be in concealed raceways, except as shown. Interior conduit for future extension shall be terminated in couplings set flush with finish surface and closed by means of recessed pipe plugs. Provide expansion fittings in conduit runs at all building expansion joints. Electrical metallic tubing may be used only in dry ceilings and walls. Electrical metallic tubing may not be used in exposed locations or embedded in concrete slabs.

D. Provide all necessary foundations, supports and backing for enclosures, conduit, and equipment. Fixture support shall be capable of 300-pound loading, and shall be made to building structure.

E. Perform all cutting, drilling and patching necessary for installation of conduit and equipment. Repair any surface damaged or marred during the installation. Cutting, repairs and finish shall be subject to the approval of the State.

F. Minimum wire size for branch circuit shall be #12 AWG. Larger sizes may be used as necessary.

G. Homeruns shall mean that portion of a branch circuit from outlet nearest panel, to the panel.

H. Crimp or pressure-connect all splices #10 AWG or smaller. Leave no sharp points that can pierce taping. Use no-solder pressure connectors for #8 AWG and larger. Use highest grade insulating and friction tape, applied in accordance with best practice of trade. Connections of light fixture wires to building wires may be made with approved wire-nuts.

I. Form wires neatly in all enclosures. Cable together and lace with waxed strings branch circuit conductors at panelboards.

J. Lubricants used for wire-pulling in all areas except as noted, shall be such that lubricant will not damage conductor insulation or sheathing. For neoprene jacketed and plastic-sheathed conductors, use powdered soapstone.

K. Where ducts pass through structural wall, provide openings with minimum of 1" mastic fill between duct envelope and structure to eliminate transfer of stresses from one to another. Through each duct, pull a test mandrel 10" long and 1/4" less than nominal size of duct. Clean duct with compressed air on "mouse". Provide duct "combs", or supports for all multiple duct runs.

L. All exposed riser shall be rigid steel conduit. Plug risers during construction with approved wood plugs or sealing bushings. Swab all conduits dry before pulling wires. Provide PVC coated rigid galvanized steel conduit and PVC coated conduit seal near the chemical storage building per NEC article 500 to 506.

M. Conduit runs under floor slab to be heavily coated with 2 coats of asphaltum paint and shall be encased in 3 inches of concrete.

N. Attached conduit to concrete and masonry with expansion anchors. Attach to wood by means of wood or lag screws.

O. Set all enclosures plumb and exactly flush with finish surface.

P. All cable shall be made in accordance with manufacturer's instructions. In underground locations, all splices shall be cast type using thermo-setting epoxy resin insulation.

Q. Install all lamps. Provide lamp extensions where necessary to position filament.

R. Except as indicated in this section, the subcontractor shall be responsible for the proper wiring of the electrical equipment pertaining to this project whether furnished by him or by others and shall install and connect whatever control equipment which may be furnished to him by the equipment contractor or the State. He shall also furnish whatever raceways, disconnect switches, motor starters, boxes, fittings, wires and devices that he may need for proper and adequate installation of such electrical equipment.

S. Grounding:

1. Provide grounding for entire electric installation as indicated and specified herein. Following are included as requiring grounding:
   Electric service, its equipment and enclosures.

   Conduits, other conductor enclosures and panelboards.

Neutral or identified conductor of interior wiring system.

Non-current carrying metal parts of fixed equipment, such as, motors, starter and controller cabinets, lighting fixtures, etc.

2. Grounding Electrodes: Where underground water piping is available, and ground connection can be made to it at a point which will be accessible for future inspection, it shall serve as grounding electrode. Make connection to such water piping inside buildings, on street side of main shut-off valve. Where such water piping is not available, use copper clad ground rods. Resistance to ground shall be 10 ohms maximum. Ground rods shall be 3/4" Diameter x 10'-0" long minimum. Bond ground rods with #1/0 bare copper wires

3. Manner of Grounding: Sizes and types of ground conductors, ground clamps, bonding jumpers, conduit, fittings, also methods of securing same to obtain electric continuity and effective grounding, when not indicated: as per NEC Article 250.

4. Install ground wire in all non-metallic conduits. Size in accordance with NEC.

T. Finishing:

1. Patch, repair and restore all structural and architectural elements cut or drilled for installation of electrical system. Drilling, cutting, patching, repairing and restoring shall be subject to approval of State.

2. Attach electrical equipment to wood by wood screws, and attach to concrete by embedded or expansion inserts and bolts. Use powdered-driven charge with acceptable to State only. Close unused knock-outs on boxes or enclosures with metal cap. Powder actuated fasteners shall not be used on precast concrete. Do not use powdered activated fasteners to attach enclosures and boxes to the building.

3. Wipe clean all exposed raceways and enclosures with rag and solvent. Prime painting and finishing of unfinished raceways and enclosures to match existing area color. Factory finished enclosures shall not be painted.

U. Ductlines: Ductlines shall be polyvinyl chloride (PVC) ducts in concrete jackets and shall be installed by qualified electrician.

1. Exterior Trenching and Backfilling for Ductlines shall be according to SITEWORK Section. Depths of trenches on slope shall be measured from finished grade of lower edge.

2. Lay ducts and/or conduits in trenches on plastic saddles treated against termite or on concrete spacers. Spacing between ducts shall be as indicated. After laying, bind cuts with #12 steel tie wire and anchor to prevent movement during concrete pouring. Coat tapered ends of ducts or conduits with sealing compound before coupling is applied to insure

weather-tight joint. Reinforcing steel, shoring and forming where required, shall be installed according to CONCRETE WORK Section. Concrete shall be poured without use of mechanical vibrators. Tamp concrete manually with wooden rods. Thickness of concrete encasement is minimum and may be increased to fit actual shape of trench. Changes in direction of runs exceeding 5 degrees shall be accomplished by using special couplings or bends manufactured for this purpose. Where conduits enter boxes, terminate in end bell. When it is necessary to cut tapered end on piece of conduit at site, cut shall be made with saw and tapered with lathe designed to match original taper. After ductline is installed pull a mandrel not less than 12" long having diameter 1/4" less than inside diameter of conduit through each conduit. After this, pull brush with stiff bristles through to make certain that no particles of earth, sand or gravel have been left in line.

3. After cables have been installed, seal all ducts with mastic compound to prevent entry of water from ductline to termination of ducts in areas below grade.

3.02 TESTING AND COMPLETION

A. Final inspection of electrical work will be made by the State.

B. Test all wiring and systems for proper operation. Measure insulation resistance of all wires #4 and larger, using Biddle Co. 500 volt megger. Record readings and submit four (4) copies to State. Measure ground resistance at service and furnish four (4) copies of readings to State. All tests shall be made in the presence of the State.

END OF SECTION