

DIVISION OF STATE PARKS

State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION
Honolulu, Hawaii

BOARD OF LAND AND NATURAL RESOURCES

Suzanne D. Case
Chairperson

CONTRACT SPECIFICATIONS AND PLANS

JOB NO. F75C646E
HAPUNA BEACH STATE RECREATION AREA
PARK IMPROVEMENTS AND REPAIRS, PHASE 3
SOUTH KOHALA, ISLAND OF HAWAII, HAWAII

CIVIL ENGINEER:	GRAY, HONG, NOJIMA & ASSOCIATES, INC.
ARCHITECT:	AWA & ASSOCIATES LLC
MECHANICAL/ELECTRICAL ENGINEER:	INSYNERGY ENGINEERING, INC.
STRUCTURAL ENGINEER:	SHIGEMURA, LAU, SAKANASHI, HIGUCHI AND ASSOCIATES, INC.
SURVEYOR:	CONTROLPOINT SURVEYING, INC.

April 2016

State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION
Honolulu, Hawaii

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PARK IMPROVEMENTS AND REPAIRS, PHASE 3
SOUTH KOHALA, ISLAND OF HAWAII, HAWAII

Approved: _____



CURT A. COTTRELL
Administrator
Division of State Parks

Approved: _____



CARTY S. CHANG, P.E.
Chief Engineer
Engineering Division

April 2016

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PLANS (Bound Separately)

DEPARTMENT OF LAND AND NATURAL RESOURCES INTERIM GENERAL
CONDITIONS, DATED OCTOBER 1994 (Bound Separately)

NOTICE TO BIDDERS
(Chapter 103D, HRS)

COMPETITIVE BIDS for Job No. F75C646E, Hapuna Beach State Recreation Area Park Improvements and Repairs, Phase 3, South Kohala, Island of Hawaii, Hawaii, shall be submitted to the Department of Land and Natural Resources, Engineering Division on the specified date and time through the Hawaii State e-Procurement (HIePRO). HIePRO is accessible through the State Procurement Office website at www.spo.hawaii.gov.

The Department of Land and Natural Resources Interim General Condition, dated October 1994, as amended, and the General Conditions –AG008, latest revision shall be made part of the specifications.

The project is located at Hapuna Beach State Recreation Area, South Kohala, Island of Hawaii, Hawaii.

For the makai park area, the project consists of repaving and restriping the existing upper parking lot, reconstructing existing walkways, upgrading plumbing, fixtures and metal brackets and providing security gates at existing comfort stations, repairing the pavilions, replacing BBQs and drinking fountains, providing new rinsing showers, constructing foot shower stations and other related miscellaneous work.

For the mauka park area, the project consists of repaving and restriping the existing driveway to the camp dining hall including the parking areas adjacent to the driveway and providing gravel parking for three stalls near the cabins.

At the Waialea Bay Beach section, improvements include demolishing and reconstructing/relocating the concrete slab at the existing picnic table area, renovating the existing comfort station, reconstructing a rinsing shower and slab, and constructing a walkway connection with steps.

Due to the nature of work contemplated, bidders must possess a valid State Contractor's license, classification "A" or "B".

A voluntary pre-bid conference will be held on **Oahu** at the Kalanimoku Building Video Conferencing Center, Basement Level, 1151 Punchbowl Street, Honolulu, and on **Hawaii Island** at the Hilo State Office Building Video Conferencing Center, Basement Level, 75Aupuni Street, Hilo, Hawaii, May 20, 2016 at 9:00 a.m.

The estimated cost of construction is \$3.1 million.

The award of the contract, if it be awarded, will be subject to the availability of funds.

This project is subject to preference to Hawaii Products established by Section 103D, Hawaii Revised Statutes. The Hawaii Product List may be examined at the State Procurement Office website.

Since the estimated cost of construction is \$250,000 or more, the apprenticeship agreement preference pursuant to Hawaii Revised Statutes §103-55.6 (ACT 17, SLH 2009) shall apply.

Should there be any questions, please refer to the HIePRO solicitation.

INFORMATION AND INSTRUCTIONS TO BIDDERS

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INFORMATION AND INSTRUCTIONS TO BIDDERS

- A. PROJECT LOCATION AND SCOPE OF WORK: The project location and scope of work shall be as generally described in the Notice to Bidders.
- B. PROPOSALS: Bidders shall submit their bid, including the completed proposal form, bid bond, and any other documents required by the solicitation as part of their bid through the State of Hawaii e-Procurement System (HIePRO). See Item D, PROPOSAL FORM.
- C. GENERAL CONDITIONS: The Department of Land and Natural Resources Interim General Conditions dated October 1994, as amended, shall be made a part of these contract specifications and are referred to hereafter as the General Conditions.
- D. PROPOSAL FORM: **The Bidders shall fill out and upload the electronic copy of the proposal form to the HIePRO website when submitting the bid. Bid Proposals shall not be mailed, faxed or delivered to the State, unless requested to do so after the designated closing date. The successful Bidder shall fill out and print a hard copy of the proposal form, sign and submit the form with the contract award package.**
- E. OMISSIONS OR ERASURES: Any proposal which contains any omission or erasure or alteration not properly initialed, or conditional bid, or other irregularity may be rejected by the Board of Land and Natural Resources (Board).
- F. NOTICE OF INTENT TO BID AND QUESTIONNAIRE:
A Notice of Intent to Bid is not required for this project. In compliance with HRS Section 103D-310, the lowest responsive and responsible bidder may be required to complete a questionnaire. When requested by the State, the completed questionnaire shall be submitted to the Chief Engineer for evaluation. Failure to furnish the requested information within the time allowed may be grounds for a determination of non-responsibility, in accordance with HRS Section 103D-310 and HAR Section 3-122-108.
- G. BID SECURITY: A bid security will be furnished by each bidder as provided in sub-section 2.7 of the General Conditions. The successful bidder's bid security will be retained until Contract execution and furnished a performance and payment bond in an amount equal to one hundred percent (100%) of the total Contract price, including an amount estimated to be required for extra work, is furnished.
- The Board reserves the right to hold the bid securities of the four lowest bidders until the successful bidder has entered into a contract and has furnished the required performance bond. All bid securities will be returned in accordance with sub-section 3.5 of the General Conditions.
- Should the successful bidder fail to enter into a contract and furnish a satisfactory performance bond within the time stated in the proposal, the bid security shall be forfeited as required by law.
- H. CONTRACTOR'S LICENSE REQUIRED: The Board will reject all bids received from contractors who have not been licensed by the State Contractors License Board in accordance

with Chapter 444, HRS; Title 16, Chapter 77, Hawaii Administrative Rules; and statutes amendatory thereto.

- I. IRREGULAR BIDS: No irregular bids or propositions for doing the work will be considered by the Board.
- J. WITHDRAWAL OF BIDS: No bidder may withdraw his bid between the time of the opening thereof and the award of contract.
- K. SUCCESSFUL BIDDER TO FILE PERFORMANCE AND PAYMENT BONDS: The successful bidder will be required to file performance and payment bonds each; in the amount equal to the total contract price, including amounts estimated to be required for extra work, as provided in sub-section 3.6 of the General Conditions.
- L. NUMBER OF EXECUTED ORIGINAL COUNTERPARTS OF CONTRACT DOCUMENTS: If requested by the Board, six copies of the Contract, performance and payment bonds shall be executed.
- M. CHANGE ORDERS: No work of any kind in connection with the work covered by the plans and specifications shall be considered as change order work, or entitle the Contractor to extra compensation, except when the work has been ordered in writing by the Chief Engineer (Engineer) and in accordance with sub-section 4.2 of the General Conditions.

The Contractor shall clearly identify and inform the Engineer in writing of any deviations from the contract documents at the time of submission and shall obtain the Engineer's written approval to the specified deviation prior to proceeding with any work.

- N. WAGES AND HOURS: In accordance with sub-sections 7.3 to 7.9 of the General Conditions relative to hours of labor, minimum wages and overtime pay, the current minimum wage rates promulgated by the Department of Labor and Industrial Relations (DLIR) shall be paid to the various classes of laborers and mechanics engaged in the performance of this contract on the job site. The minimum wages shall be increased during the performance of the contract in an amount equal to the increase in the prevailing wages for those kinds of work as periodically determined by the DLIR.

The Department of Land and Natural Resources will not recognize any claim for additional compensation because of the payment by the Contractor of any wage rate in excess of the said minimum wage rates. The possibility of wage increase is one of the elements to be considered by the Contractor in determining his bid, and will not, under any circumstances, be considered as the basis of a claim against the Department under this Contract.

No work shall be done on Saturdays, Sundays, legal State holidays, and/or in excess of eight (8) hours each day without the written consent of the Engineer. Should permission be granted to work at such times, the Contractor shall pay for all inspection administrative costs thereof. No work shall be done at night unless authorized by the Engineer.

- O. PERMITS: The State will process permit applications whenever possible, and the Contractor shall procure the pre-processed permits and pay the required fees. If permit applications are not processed by the State, the Contractor shall process the permit applications, permits and

licenses, and pay all charges and fees. In all cases, the Contractor shall give all notices necessary and incident to the due and lawful prosecution of the work.

- P. PROPERTY DAMAGE: It shall be the responsibility of the contractor to respect State property and to prevent damage to existing improvements. The Contractor will be responsible for damages resulting from construction operations. Immediately upon discovery, the Contractor shall repair such damage to the satisfaction of the Engineer.

All trees and shrubbery outside the excavation, embankment or construction limits shall be fully protected from injury.

- Q. TIME: The time of completion is specified in the Proposal. It is the Board's intention to insist the Contractor diligently prosecute the work to completion within the specified time.

Prospective bidders are reminded that the State has the option to proceed with or abandon a project depending on whether the project can be completed for occupancy in the specified time.

It is the bidder's responsibility to check the availability of all materials before bidding. The bidder shall select sub-contractors and suppliers who can warrant availability and delivery of all specified or qualified materials to assure project completion within the specified time.

The successful bidder must assume all risks for completing the project by the specified date. There shall be no extension of time for any reason except for delays caused by acts of God, labor disputes involving unions, or actions of the State. If for any reason the project falls behind schedule, the Contractor shall at its own cost, take necessary remedial measures to get the project back on schedule, i.e., working overtime, air freighting all materials, etc. In addition, if the Contractor fails to fully complete the project by the completion date, Contractor will be required to make the facility usable at its own cost.

- R. BIDDER'S RESPONSIBILITY TO PROVIDE PROPER SUPERINTENDENCE: The successful low bidder shall designate in writing to the Engineer the name of its authorized superintendent (Superintendent), who will be present at the job site whenever any work is in progress. The Superintendent shall be responsible for all work, receiving and implementing instructions from the Engineer in a timely manner. The cost for superintendence shall be considered incidental to the project.

If the Superintendent is not present at the site of work, the Engineer shall have the right to suspend the work as described under sub-section 5.5 c. and 7.20 - Suspension of Work of the General Conditions.

- S. LIQUIDATED DAMAGES: Liquidated damages in the amount specified in the Proposal will be assessed for each and every calendar day from and after the expiration of the time period stated in the Contract for the completion of the project.

- T. HIRING OF HAWAII RESIDENTS: The Contractor shall comply with Act 68, SLH 2010, in the performance and for the duration of this contract. The Contractor shall ensure that Hawaii residents compose not less than eighty percent of the workforce employed to perform the contract work on the project. The eighty percent requirement shall be determined by

dividing the total number of hours worked on the contract by Hawaii residents, by the total number of hours worked on the contract by all employees of the Contractor in the performance of the contract. The hours worked by any Subcontractor of the Contractor shall count towards the calculation for this section. The hours worked by employees with shortage trades, as determined by the Department of Labor and Industrial Relations (DLIR), shall not be included in the calculation for this section.

The requirements shall apply to any subcontract of \$50,000 or more in connection with the Contractor, that is, such Subcontractors must also ensure that Hawaii residents compose not less than eighty percent of the Subcontractor's workforce used to perform the subcontract.

- U. WATER AND ELECTRICITY: The Contractor shall make all necessary arrangements and pay all expenses for water and electricity used in the construction of this project.
- V. PUBLIC CONVENIENCE AND SAFETY: The Contractor shall conduct construction operations with due regard to the convenience and safety of the public at all times. No materials or equipment shall be stored where it will interfere with the safe passage of public traffic. The Contractor shall provide, install, and maintain in satisfactory condition, all necessary signs, flares and other protective facilities and shall take all necessary precautions for the protection of the work and the convenience and safety of the public. The Engineer shall have the right to suspend the performance of the work in accordance with sub-section 7.20 - Suspension of Work of the General Conditions.
- W. WORK TO BE DONE WITHOUT DIRECT PAYMENT: Whenever the contract that the Contractor is to perform work or furnish materials of any kind for which no price is fixed in the contract, it shall be understood that the Contractor shall perform such work or furnish said materials without extra charge or allowance or direct payment of any sort. The cost of performing such work or furnishing said material is to be included by the Contractor in a unit price for the appropriate item unless it is expressly specified that such work or material is to be paid for as extra work.
- X. AS-BUILT DRAWINGS: As-built drawings, the intent of which is to record the actual in-place construction so that any future renovations or tie-ins can be anticipated accurately, shall be required. All authorizations given by the Engineer to deviate from the plans shall be drawn on the job site plans. All deviations from alignments, elevations and dimensions which are stipulated on the plans shall be recorded on the as-built drawings. Final as-built drawings shall be submitted to the Engineer for review and approval. After the Engineer approves the as-built drawings, the contractor shall submit an electronic copy in Adobe PDF format on CD ROM.
- Y. ASBESTOS CONTAINING MATERIALS: The use of asbestos containing materials or equipment is prohibited. The Contractor shall insure that all materials and equipment incorporated in the project are asbestos-free
- Z. WORKER SAFETY: The Contractor shall provide, install and maintain in satisfactory condition all necessary protective facilities and shall take all necessary precautions for the protection and safety of its workers in accordance with the Occupational Safety and Health Standards for the State of Hawaii. The Engineer shall have the right to suspend the performance of the work in accordance with sub-section 7.20 - Suspension of Work of the

General Conditions.

- AA. TOILET FACILITIES: All toilet facilities constructed at the project site shall be in accordance with the Public Health Regulations of the State Department of Health (DOH). All necessary precautions shall be observed at the project site. The use of sanitary facilities shall be strictly enforced and workers violating these provisions shall be promptly discharged.
- BB. SIGNS: Whenever the project involves closing or obstructing any public thoroughfare, the Contractor shall provide traffic signs conforming to the applicable provisions of the current edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways", published by the Federal Highway Administration as directed by the Engineer for the purpose of diverting or warning traffic prior to the construction area. All traffic signs shall bear proper wording stating thereon the necessary information as to diverting or warning traffic.

When indicated in the Proposal, the Contractor shall provide a project sign, size 4'-0" x 7'-0" to be placed as directed by the Engineer. The sign shall be constructed in accordance with Section 01581 - Project Sign of these specifications and approved by the Engineer. All wording, type and size of lettering and color selection shall be as specified in these specifications or as approved by the Engineer.

All signs shall be kept neat and clean, and properly erected at all times.

- CC. FIELD OFFICE AREA FOR DEPARTMENT: When indicated in the Proposal, the Contractor shall provide a housed working area of at least 100 square feet adjacent to the Contractor's office for the Department's use. This area will be used by the Engineer to perform tests and to store equipment. As a minimum, the field office shall include the following: standard sized office desk and chair, lighting, ventilation, window-type air conditioning rated at 5,000 BTU, door and window with locking hardware, electrical outlets, and working communications facilities (a cellular telephone is acceptable). The Department will pay for all long distance toll charges made by the Engineer.
- DD. QUANTITIES: All bids will be compared on the basis of quantities of work to be done as shown in the Proposal; the quantities shown in the Unit Price items are estimated, being given as a basis for comparison of bids. The Board reserves the right to increase or decrease the quantities given under the items or delete items entirely as may be required during the progress of the work.
- EE. OTHER HEALTH MEASURES: Forms of work site exposure or conditions which may be detrimental to the health or welfare of workers or of the general public shall be eliminated or reduced to safe levels as required by the DOH codes, standards, and regulations. Suitable first aid kits and a person qualified to render first aid, as specified in the DOH regulations, shall be provided at all times when work is scheduled.
- FF. HAWAII BUSINESS OR COMPLIANT NON-HAWAII BUSINESS REQUIREMENT: Bidders (Contractors) shall be incorporated or organized under the laws of the State or be registered to do business in the State as a separate branch or division that is capable of fully performing under the contract, as stipulated in §3-122-112 HAR.

GG. COMPLIANCE WITH §3-122-112 HAR:

As a condition for award of the contract and as proof of compliance with the requirements of 103D-310(c) HRS, the apparent low bidder shall furnish the required documents to the Department. If the valid required certificates are not submitted on a timely basis for award of a contract, a bidder otherwise responsive and responsible may not receive the award. Bidder is responsible to apply for and submit the following documents to the Department.

- A. **TAX CLEARANCE REQUIREMENTS (HRS Chapter 237):** Bidder shall obtain a tax clearance certificate from the Hawaii State Department of Taxation (DOTAX) and the Internal Revenue Service (IRS). The certificate is valid for six months from the most recently approved stamp date on the certificate; the certificate must be valid on the date received by the Department.
- B. Department of Labor (DLIR) **“Certificate of Compliance”**. (HRS Chapter 383 - Unemployment Insurance, Chapter 386 - Workers’ Compensation, Chapter 392 - Temporary Disability Insurance, and 393 – Prepaid Health Care): Bidder shall obtain a certificate of compliance from the Hawaii State Department of Labor and Industrial relations (DLIR). The certificate is valid for six months from the date of issue; certificates must be valid on the date received by the Department.
- C. Department of Commerce and Consumer Affairs (DCCA), Business Registration Division (BREG) **“Certificate of Good Standing”**. Bidder shall obtain a certificate of good standing issued by the Department of Commerce and Consumer Affairs (DCCA), Business Registration Division (BREG). The certificate of good standing is valid for six months from the date of issue; certificates must be valid on the date received by the Department.

Alternately, instead of separately applying for these certificates at the various state agencies, bidder may choose to use the Hawaii Compliance Express (HCE), which allows businesses to register online through a simple wizard interface at <http://vendors.ehawaii.gov> to acquire a “Certificate of Vendor Compliance” indicating the bidder’s status is compliant with the requirements of §103D-310(c), HRS, and shall be accepted for contracting and final payment purposes. Bidders that elect to use the new HCE services will be required to pay an annual fee of \$12.00 to the Hawaii Information Consortium, LLC (HIC). Bidders choosing not to participate in the HCE program will be required to provide the paper certificates as instructed in the previous paragraphs.

PROPOSAL

FOR

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION
State of Hawaii

JOB NO. F75C646E
HAPUNA BEACH STATE RECREATION AREA
PARK IMPROVEMENTS AND REPAIRS, PHASE 3
SOUTH KOHALA, ISLAND OF HAWAII, HAWAII

Chief Engineer
Engineering Division
Department of Land and Natural Resources
State of Hawaii
Honolulu, Hawaii

_____, 20____

Dear Sir:

The undersigned, having carefully examined the local conditions and all available records and information covering conditions which may affect the cost of the work to be performed, and having carefully examined the Plans and Specifications, and other contract documents, hereby proposes to furnish and pay for all materials, tools, equipment, labor and other incidental work necessary to repave and restripe an existing parking lot and driveway, provide gravel parking, reconstruct existing walkways, provide new walkway connections, relocate a picnic table and slab, renovate existing comfort stations and pavilions, replace BBQs and drinking fountains, replace/provide new rinsing showers, construct foot shower stations and other related miscellaneous work as required or called for in this Proposal, all according to the true intent and meaning of the Notice to Bidders, Information and Instructions to Bidders, Proposal, Detailed Specifications, Interim General Conditions, Plans, and any and all addenda for:

JOB NO. F75C646E
HAPUNA BEACH STATE RECREATION AREA
PARK IMPROVEMENTS AND REPAIRS, PHASE 3
SOUTH KOHALA, ISLAND OF HAWAII, HAWAII

on file in the office of the Engineering Division for the TOTAL BASE BID (Items 1 to 64) of:

_____ Dollars (\$_____)

and will fully complete all work under this contract within 360 consecutive calendar days from the date of written notice to proceed, including date of said order, said total sum being itemized on the following pages.

PROPOSAL

Item No.	Quantity	Unit	Description	Unit Price	Total
			WAIALEA:		
1.		LS	Site Demolition Work, to include demolition, hauling & disposal of a walkway, rinsing shower and slab, piping, picnic table slab, header, posts, and any additional items and all incidentals.	LS	\$
2.		LS	Installation, maintenance, and removal of Best Management Practices, including all sediment, erosion, noise and dust control measures, applicable permitting requirements, and all incidentals, in place complete.	LS	\$
3.	150	SF	Concrete walkway, 5" thick, including excavation and embankment, base course, compaction, and all incidentals, in place complete. (not incl stairs)	\$	\$
4.	80	SF	Concrete stairs at walkways, including excavation and embankment, base course, compaction, handrails, and all incidentals, in place complete.	\$	\$
5.		LS	Picnic table relocation, including excavation and embankment, concrete slab, base course, compaction, root barrier, and all incidentals, in place complete.	LS	\$
6.	1	EA	Rinsing shower slab, including excavation and embankment, base course, compaction, and all incidentals, in place complete.	\$	\$
7.	1	EA	Bike Rack	\$	\$
8.	1	EA	Rinsing Shower Station to include installation of plumbing fixtures, supports, valves, and water piping above and below slab.	\$	\$
9.		LS	Waialea Comfort Station Improvements	LS	\$
10.	2	EA	Provide accessible portable toilet that meets current ADA standards for the duration of the restroom closure for renovations, including servicing and maintenance four times a week in accordance with the Public Health Regulations of the Department of Health.	\$	\$

Item No.	Quantity	Unit	Description	Unit Price	Total
11.	3	EA	Provide standard portable toilet for the duration of the restroom closure for renovations, including servicing and maintenance four times a week in accordance with the Public Health Regulations of the Department of Health.	\$	\$
			HAPUNA MAUKA:		
12.		LS	Installation, maintenance, and removal of Best Management Practices, including all sediment, erosion, noise and dust control measures, applicable permitting requirements, and all incidentals, in place complete.	LS	\$
13.		LS	Demolition, removal, and disposal of asphalt concrete pavement, including all incidentals.	LS	\$
14.	4,013	SY	Asphalt concrete pavement, 2" thick, including surface preparation, soil treatment for vegetation control, transition and repair sections, base course for transition sections, recompaction of base course, and all incidentals, in place complete.	\$	\$
15.	74	CY	Base course for repair and new asphalt concrete pavement areas, 6" thick, including excavation and embankment, removal and disposal of old base course, and all incidentals, in place complete.	\$	\$
16.	17	CY	Gravel parking area, 8" thick base course, including excavation, compaction, and all incidentals, in place complete.	\$	\$
17.	2	EA	Sign Post, including signs and all incidentals, in place complete.	\$	\$
18.	3	EA	Concrete wheel stop, including all incidentals, in place complete.	\$	\$
19.		LS	Pavement Striping, Markings, and Symbols, including temporary striping, and all incidentals, in place complete.	LS	\$
20.		LS	Miscellaneous roadway and utility adjustments, including relocation of water meters and meter boxes, concrete collar for exist cleanout, and all incidentals, in place complete.	LS	\$

Item No.	Quantity	Unit	Description	Unit Price	Total
			HAPUNA MAKAI:		
21.		LS	Site Demolition Work, to include demolition, hauling & disposal of walkways, asphalt concrete pavement for the Makai parking lot, rinsing showers and slab, drinking fountains and slab, piping, walls, barbecue grills, portion of drain inlet, and any additional items and all incidentals.	LS	\$
22.		LS	Installation, maintenance, and removal of Best Management Practices, including all sediment, erosion, noise and dust control measures, applicable permitting requirements, and all incidentals, in place complete.	LS	\$
23.		LS	Clearing and grubbing, and all incidentals.	LS	\$
24.		LS	Restoration of landscaped areas disturbed by construction activities, including maintenance and all incidentals, in place complete.	LS	\$
25.	4,000	SY	Asphalt concrete pavement, 2" thick, including surface preparation, soil treatment for vegetation control, transition and repair sections, base course for transition sections, recompaction of base course, and all incidentals, in place complete.	\$	\$
26.	197	CY	Base course for repair and new asphalt concrete pavement areas, 6" thick, including excavation and embankment, removal and disposal of old base course, and all incidentals, in place complete.	\$	\$
27.	1,200	SY	Slurry Seal, 0.25" thick, including surface preparation, soil treatment for vegetation control, and all incidentals, in place complete.	\$	\$
28.	8,420	SF	Concrete walkway, 5" thick, including excavation and embankment, base course, compaction, and all incidentals, in place complete. (not incl stairs)	\$	\$
29.	11,000	SF	Concrete walkway, 6" thick, including excavation and embankment, base course, compaction, and all incidentals, in place complete. (not incl stairs)	\$	\$

Item No.	Quantity	Unit	Description	Unit Price	Total
30.	655	SF	Concrete stairs at walkways, including excavation and embankment, base course, compaction, handrails, and all incidentals, in place complete.	\$	\$
31.		LS	4" PVC Schedule 40 sleeve for exist condensation line, including excavation, backfill, compaction, adjustments to exist condensation line, and all incidentals, in place complete.	LS	\$
32.	2	EA	Rinsing shower slab, including excavation and embankment, base course, compaction, and all incidentals, in place complete.	\$	\$
33.		LS	Reconstruct drinking fountain slab at South Pavilion, including excavation and embankment, base course, compaction, and all incidentals, in place complete.	LS	\$
34.		LS	Drinking fountain concrete slab repair near Parking Comfort Station, inclusive of excavation and embankment, base course, compaction, and all incidentals, in place complete.	LS	\$
35.		LS	Trench drain to divert flow across main walkway at rinsing shower at center of park, including excavation and embankment, base course, compaction, concrete and all incidentals, in place complete.	LS	\$
36.	2	EA	Foot shower slab, including excavation and embankment, base course, compaction, and all incidentals, in place complete.	\$	\$
37.		LS	Foot shower concrete slab repair at South Comfort Station, inclusive of excavation and embankment, base course, compaction, and all incidentals, in place complete.	LS	\$
38.		LS	Additional steps at washout condition, including excavation, compaction, and all incidentals, in place complete.	LS	\$
39.	2	EA	Repair of spalled nosing of existing stairs, including all incidentals, in place complete.	\$	\$
40.	1	EA	Reconstruct drain inlet grating and frame, including all incidentals, in place complete.	\$	\$
41.	40	EA	Concrete wheel stop, including all incidentals, in place complete.	\$	\$

Item No.	Quantity	Unit	Description	Unit Price	Total
42.	1	EA	Removable pipe barrier, including all incidentals, in place complete.	\$	\$
43.		LS	Pavement Striping, Markings, and Symbols, including temporary striping, and all incidentals, in place complete.	LS	\$
44.		LS	Miscellaneous roadway and utility adjustments, including relocation of water meters and meter boxes, and all incidentals, in place complete.	LS	\$
45.	1	EA	Bike Rack including Concrete Pad	\$	\$
46.	2	EA	Barbecue Grill and Concrete Pad	\$	\$
47.	2	EA	Installation of drinking fountain, outdoor; to include installation of plumbing fixtures, supports, valves, drainage and water piping above and below slab.	\$	\$
48.	2	EA	Rinsing Shower Station to include installation of plumbing fixtures, supports, valves, and water piping above and below slab.	\$	\$
49.	3	EA	Foot Shower Station to include installation of plumbing fixtures, supports, valves, and water piping above and below slab.	\$	\$
50.		LS	Electrical Site Demolition	LS	\$
51.		LS	Hapuna Beach South Comfort Station Improvements	LS	\$
52.	2	EA	Provide accessible portable toilet that meets current ADA standards for the duration of the restroom closure for renovations, including servicing and maintenance four times a week in accordance with the Public Health Regulations of the Department of Health.	\$	\$
53.	3	EA	Provide standard portable toilet for the duration of the restroom closure for renovations, including servicing and maintenance four times a week in accordance with the Public Health Regulations of the Department of Health.	\$	\$

Item No.	Quantity	Unit	Description	Unit Price	Total
54.		LS	Hapuna Beach North Comfort Station Improvements	LS	\$
55.	2	EA	Provide accessible portable toilet that meets current ADA standards for the duration of the restroom closure for renovations, including servicing and maintenance four times a week in accordance with the Public Health Regulations of the Department of Health.	\$	\$
56.	3	EA	Provide standard portable toilet for the duration of the restroom closure for renovations, including servicing and maintenance four times a week in accordance with the Public Health Regulations of the Department of Health.	\$	\$
57.		LS	Hapuna Beach Parking Comfort Station Improvements	LS	\$
58.	2	EA	Provide accessible portable toilet that meets current ADA standards for the duration of the restroom closure for renovations, including servicing and maintenance four times a week in accordance with the Public Health Regulations of the Department of Health.	\$	\$
59.	3	EA	Provide standard portable toilet for the duration of the restroom closure for renovations, including servicing and maintenance four times a week in accordance with the Public Health Regulations of the Department of Health.	\$	\$
60.		LS	Hapuna Beach North Pavilion Improvements	LS	\$
61.		LS	Hapuna Beach South Pavilion Improvements	LS	\$
62.		LS	Project Sign	LS	\$
63.	Allowance		Field Office		\$ 20,000
Subtotal Base Bid (Items 1-63)					\$
64.		LS	Mobilization and Demobilization (not to exceed 10% of the Subtotal Base Bid)	LS	\$
Total Base Bid (Items 1-64)					\$

HAWAII PRODUCTS PREFERENCE AND/OR USE OF HAWAII PRODUCTS

In accordance with Act 175, SLH 2009, the Hawaii products preference is applicable to this solicitation. Bidders offering a Hawaii product (“HP”) shall identify the HP in the table below.

Persons desiring to qualify their product(s) not currently on the Hawaii Product List, shall complete Form SPO-38, *Certification for Hawaii Product Preference*, and submit the completed form no later than the deadline specified in the procurement notice and solicitation. The responsibility for certification and qualification shall rest upon the person requesting the preference. One form shall be completed and submitted for each product. Form SPO-38 is available at <http://hawaii.gov/spo/goods-services-construction/preferences-103d-pt-x/hi-products/hawaii-product-preferences>

For the purpose of selecting the low bid when a solicitation contains both HP and non-HP, the price offered for a HP item shall be decreased by subtracting 10% for the class I or 15% for the class II HP item(s) offered. The lowest total offer, taking the preference into consideration, shall be awarded the contract, unless the offer provides for additional award criteria. The contract amount of any contract awarded, however, shall be the amount of the price offered, exclusive of the preferences.

In the event of any change that materially alters the bidder’s ability to supply the Hawaii product(s), the bidder shall immediately notify the procurement officer in writing and the parties shall enter into discussions for the purpose of revising the contract or terminating the contract for convenience.

Item No.	Pre-Approved Hawaii Product Description & Manufacturer	Class (I or II)	Quantity	Unit Measure	Unit Price	Total Price
1.	<i>[Product Description, Manufacturer Name]</i>	(I)				
2.						
3.						
4.						

APPRENTICESHIP AGREEMENT PREFERENCE

1. If applicable to this project, any bidder seeking the preference must be a party to an apprenticeship agreement registered with the State Department of Labor and Industrial Relations (DLIR) at the time the bid is submitted for each apprenticeable trade the bidder will employ to construct the project. "Employ" means the employment of a person in an employer-employee relationship.
 - a. The apprenticeship agreement shall be registered with the DLIR and conform to the requirements of Hawaii Revised Statutes Chapter 372.
 - b. Subcontractors do not have to be a party to an apprenticeship agreement for the bidder to obtain preference.
 - c. The bidder is not required to have apprentices in its employ at the time the bid is submitted to qualify for the preference.
2. A bidder seeking the preference must state the apprenticeable trade the bidder will employ for each trade to be employed to perform the work by submitting a completed signed original Certification Form 1 verifying participation in an apprenticeship program registered with DLIR. "Apprenticeable trade" shall have the same meaning as "apprenticeable occupation" pursuant to Hawaii Administrative Rules (HAR) §12-30-5.
 - a. The *Certification Form 1* shall be authorized by an apprenticeship sponsor listed on the DLIR list of registered apprenticeship programs. "Sponsor" means an operator of an apprenticeship program and in whose name the program is approved and registered with the DLIR pursuant to HAR §12-30-1.
 - b. The authorization shall be an original signature by an authorized official of the apprenticeship sponsor.
 - c. The completed signed original Certification Form 1 for each trade must be submitted with the bid. Previous certifications shall not apply.
 - d. When filling out the *Certification Form 1*, the name of Apprenticeable Trade and Apprenticeship Sponsor must be the same as recorded in the List of Construction Trades in Registered Apprenticeship Programs that is posted on the DLIR website. "Registered apprenticeship program" means a construction trade program approved by the DLIR pursuant to HAR §12-301 and §12-30-4.
 - e. The *Certificate Form 1* and the List of Construction Trades in Registered Apprenticeship Programs is available on the DLIR website at: <http://hawaii.gov/labor/wdd>.
3. Upon receiving the *Certification Form 1*, the Procurement Officer will verify that the apprenticeship program is on the List of Construction Trades in Registered Apprenticeship Programs and that the form is signed by an authorized official of the Apprenticeship Program Sponsor. If the programs and signature are not confirmed by the DLIR, the bidder will not qualify for the preference.
4. If the bidder is certified to participate in an apprenticeship program for each trade which will be

employed by the bidder for the project, a preference will be applied to decrease the bidder's bid amount by five percent (5%) for evaluation purposes.

5. Should the bidder qualify for other preferences (e.g. Hawaii Products), all applicable preferences shall be applied to the bid price.

CONTRIBUTIONS BY STATE AND COUNTY CONTRACTORS PROHIBITED

Contractors are hereby notified of the applicability of Section 11-355, HRS, which states that campaign contributions are prohibited from specified State or county government contractors during the term of the contract if the contractors are paid with funds appropriated by a legislative body.

CONDITION OF AWARD

It is understood that the award of the contract will be made on the basis of the lowest responsible Total Base Bid (Items 1 to 64) selected by the Board of Land and Natural Resources. Write the total of bid items 1 to 64 on page P-1.

It is understood and agreed that the Board of Land and Natural Resources reserves the right to reject any and/or all bids and waive any defects when, in the Board's opinion, such rejection or waiver will be for the best interest of the State of Hawaii.

In the event all bids exceed available funds certified by the appropriate fiscal officer, the head of the purchasing agency responsible for the procurement in question is authorized in situations where time or economic considerations preclude resolicitation of work of a reduced scope to negotiate an adjustment of the bid price, including changes in the bid requirements, with the low responsible and responsive bidder, in order to bring the bid within the amount of available funds. It is understood and agreed upon that the head of the purchasing agency may delete a portion or all of any item(s) in the proposal at the stated unit or lump sum price as necessary to stay within the available funding. The bidder is responsible to make an earnest effort to represent the actual cost of each item, including all materials, labor, equipment, overhead and profit in their bid proposal to preclude claims of anticipated profit or loss of profit because of an unbalanced bid proposal.

It is also understood that if a mutually agreeable cost for the reduced scope of work necessitated by a lack of available funds cannot be agreed upon between the bidder and the head of the purchasing agency within 14 calendar days after the bid opening, then the bid may be rejected in the best interest of the purchasing agency, and the head of the purchasing agency may negotiate in progressive order (lowest to highest) with the next lowest responsible and responsive bidder.

It is also understood and agreed that the award of the contract shall be conditioned upon funds being made available for this project and further upon the right of the Board of Land and Natural Resources to hold all bids received for a period of sixty (60) days from the date of the opening thereof, unless otherwise required by law, during which time no bid may be withdrawn.

It is also understood that Notice to Proceed may be delayed up to one (1) year after the bid opening date, and that no additional compensation will be provided for any claim for escalation or delay for issuance of Notice to Proceed on or before that date.

It is also understood and agreed that the quantities given herewith are approximate only and are subject to increase or decrease, and that the undersigned will perform all quantities of work as either increased or decreased, in accordance with the provisions of the Contract Specifications.

It is also understood and agreed that the estimated quantities shown for the items for which a UNIT PRICE is asked in this Proposal are only for the purpose of comparing on a uniform basis, bids offered for the work under this contract, and the undersigned agrees that he is satisfied with and will at no time, dispute said estimated quantities as a means of claims for anticipated profit or loss of profit, because of a difference between the quantities of the various classes of work done or the materials and equipment installed, and the said estimated quantities. On UNIT PRICE bids, payment will be made only for the actual number of units incorporated into the finished project at the contract UNIT PRICE.

After the proposals are opened and read, the figures will be extended and/or totaled in accordance with the bid prices of the acceptable proposals and the totals will be compared. In the comparison of bids, words written in the proposal shall govern over figures and unit prices will govern over totals. Until the

award of the contract, however, the right will be reserved to reject any and all proposals and to waive any defects or technicalities as may be deemed best for the interest of the State.

It is also understood and agreed that liquidated damages in the amount of Five Hundred and No/100 Dollars (\$500.00) for each and every calendar day in excess thereof prior to completion of the contract shall be withheld from payments due to the Contractor.

It is also understood and agreed that if this bid is accepted, the successful bidder must enter into and execute a contract with the Board of Land and Natural Resources and furnish a Performance and Payment Bond, as required by law. These bonds shall conform to provisions of Section 103D-324 and 325, Hawaii Revised Statutes and any law applicable hereto.

It is also understood and agreed that the successful bidder will provide all necessary labor, materials, tools, equipment, and other incidentals necessary to do all the work and furnish all the materials specified in the contract in the manner and time herein prescribed, and according to the requirements of the Engineer as therein set forth.

It is understood that by submitting this proposal, the undersigned is declaring that his firm has not been assisted or represented on this matter by an individual who has, in a State capacity, been involved in the subject matter of this contract in the past two years.

It is understood that by submitting this proposal in accordance with HAR 3-122-192, the undersigned is declaring that the price submitted is independently arrived without collusion.

It is also understood that by submitting this proposal, a Certification for Safety and Health Programs for bids in excess of \$100,000 (in accordance with HRS 396-18), the undersigned certifies that his organization will have a written safety and health plan for this project that will be available and implemented by the Notice to Proceed date of this project. Details of the requirements of this plan may be obtained from the Department of Labor and Industrial Relations, Occupational, Safety and Health Division (HIOSH).

It is further understood and agreed that the successful bidder shall comply with paragraph 3.1.a "SUBCONTRACTING" of the General Provisions which requires that the contractor shall perform with his own organization and with the assistance of workmen under his immediate superintendence, work of a value not less than twenty percent (20%) of the value of all work embraced in the Contract, except that certain contract items of work, if specifically referred to in the special provisions, will be exempted from said twenty percent requirement.

Compliance with §103-310 HRS. As a condition of award all bidders shall comply with all laws governing entities doing business in the State, including Chapter 237 HRS (general excise tax); Chapter 383 HRS (employment security – unemployment insurance); Chapter 386 HRS (workers compensation); Chapter 392 HRS (temporary disability insurance); and Chapter 393 HRS (pre-paid health care), and shall produce all documents to the State (DLNR, Engineering Division) required to demonstrate compliance with these subsections. Any bidder making a false affirmation or certification under this subsection shall be suspended and may be debarred from further offerings or awards pursuant to §103D-702 HRS.

RECEIPT OF ADDENDA

The bidder also acknowledges receipt of any and all addenda issued by the Engineering Division, by recording the date of receipt of the respective addenda in the space provided below:

<u>Addendum</u>	<u>Date Received</u>	<u>Addendum</u>	<u>Date Received</u>
No. 1	_____	No. 5	_____
No. 2	_____	No. 6	_____
No. 3	_____	No. 7	_____
No. 4	_____	No. 8	_____

It is understood that failure to receive any such addendum shall not relieve the Contractor from any obligation under this Proposal as submitted.

It is also understood and agreed that if this Proposal is accepted and the undersigned should fail or neglect to contract as aforesaid, the Board may determine that the bidder has abandoned the Contract, and thereupon, forfeiture of the security accompanying his proposal shall operate and the same shall become the property of the Board.

JOINT CONTRACTORS OR SUBCONTRACTORS
TO BE ENGAGED ON THIS PROJECT

The Bidder agrees that the following is a complete listing of all joint contractors or subcontractors covered under Chapter 444, Hawaii Revised Statutes (HRS), who will be engaged by the Bidder on this project to perform the required work indicated pursuant to Section 103D-302, HRS. It is the sole responsibility of the contractor to review the requirements of this Project and determine the appropriate licenses that are required to complete the Project. The Bidder certifies that the completed listing of joint contractors or subcontractors fulfills the requirements for the project and the Bidder, together with the listed subcontractors or joint contractors have all the specialty contractor's licenses to complete the work, except as provided for in HRS §103D-302(b). Failure of the Bidder to comply with this requirement may be just cause for rejection of the bid.

"A" General Engineering Contractors and "B" General Building Contractors are reminded that due to the Hawaii Supreme Court's January 28, 2002 decision in Okada Trucking Co., Ltd. v. Board of Water Supply, et al., 97 Haw. 450 (2002), they are prohibited from undertaking any work, solely or as part of a larger project, which would require the general contractor to act as a specialty contractor in any area in which the general contractor has no license. Although the "A" and "B" contractor may still bid on and act as the "prime" contractor on an "A" or "B" project (*See, HRS §444-7 for the definitions of an "A" and "B" project.*), respectively, the "A" and "B" contractor may only perform work in the areas in which they have the appropriate contractor's license (*An "A" or "B" contractor obtains "C" specialty contractor's licenses either on its own, or automatically under HAR § 16-77-32*). The remaining work must be performed by appropriately licensed entities.

General Engineering "A" Contractors automatically have these "C" specialty contractor's licenses: C-3, C-9, C-10, C-17, C-24, C-31a, C-32, C-35, C-37a, C-37b, C-38, C-43, C-49, C-56, C-57a, C-57b and C-61.

General Building "B" Contractors automatically have these "C" specialty contractor's licenses: C-5, C-6, C-10, C-12, C-24, C-25, C-31a, C-32a, C-42a and C-42b.

In completing the Joint Contractors or Subcontractors List, describe the specialty contractor's nature and scope of work to be performed for this project and provide the complete firm name of the joint contractor or subcontractor in the respective columns. If the Bidder is a general contractor providing the work of a required specialty contractor, whose license is not automatically held pursuant to HAR 16-77-32, fill in the Bidder's (general contractor's) name and nature and scope of work to be performed on this project.

List only one joint contractor or subcontractor per required specialty contractor's classification, unless within the same specialty, the work of each joint contractor or subcontractor can be described so that there is no overlap in work descriptions.

If a contractor's license is required by law for the performance of the work which is called for in this bid, the bidder and all subcontractors must have the required license before the submission of the bidder's proposal in the case of a non-federal aid project, and for federal-aid projects, the bidder must have the required license prior to the award of the project and all subcontractors prior to the start of the subcontracted work.

Enclosed herewith is a:

- 1. Surety Bond (*1))
- 2. Legal Tender (*2))
- 3. Cashier's Check (*3))
- 4. Certificate of Deposit (*3)) in the
- 5. Certified Check (*3)) amount
- 6. Official Check (*3)) of
- 7. Share Certificate (*3))
- 8. Teller's Check (*3))
- 9. Treasurer's Check (*3))

(Cross Out Those Not Applicable)

_____ Dollars (\$_____)

as required by law.

Respectfully submitted,

Name of Company, Joint Venture
or Partnership

Contractor's License No.

By _____
Signature (*4)

Title _____

Print Name _____

Date _____

Address _____

Telephone No. _____

E-Mail Address _____

NOTES:

1. Surety bond underwritten by a company licensed to issue bonds in this State;
2. Legal tender; or
3. A certificate of deposit; share certificate; or cashier's, treasurer's, teller's, or official check drawn by, or a certified check accepted by, and payable on demand to the State by a bank, a savings institution, or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration.
 - A. These instruments may be utilized only to a maximum of \$100,000.
 - B. If the required security or bond amount totals over \$100,000, more than one instrument not exceeding \$100,000 each and issued by different financial institutions shall be accepted.
4. Please attach to this page evidence of the authority of this officer to submit bids on behalf of the Company and also the names and residence addresses of all officers of the Company.
5. Fill in all blank spaces with information asked for or bid may be invalidated. PROPOSAL MUST BE INTACT, MISSING PAGES MAY INVALIDATE YOUR BID.

End of Proposal

SPECIAL PROVISIONS

Amend INTERIM GENERAL CONDITIONS, dated October 1994, as follows:

Section 2 – Proposal Requirements and Conditions

I. **AMEND** Section 2.1 Qualification of Bidder with the following:

Written Notice of Intent to Bid or Offer: A written Notice of Intent to Bid is not required for the Solicitation.

Standard Qualification Questionnaire: Bidders may be required to complete a standard qualifications questionnaire. When requested, the information shall be furnished within two working days or longer at the discretion of the Engineer. Failure to furnish the requested information within the time allowed may be grounds for a determination of non-responsibility, in accordance with HRS Section 103D-310 and HAR Section 3-122-108.

Hawaii Business or Compliant Non-Hawaii Business Requirement: Bidders shall be incorporated or organized under the laws of the State or be registered to do business in the State as a separate branch or division that is capable of fully performing under the contract, as stipulated in §3-122-112 HAR. A certified letter is not required prior to bid opening.

Compliance with §3-122-112 HAR: As a condition for award of the contract and as proof of compliance with the requirements of 103D-310(c) HRS, the apparent low bidder shall furnish the required documents to the Department. If the valid required certificates are not submitted on a timely basis for award of a contract, a bidder otherwise responsive and responsible may not receive the award. Bidder is responsible to apply for and submit the following documents to the Department.

- A. Tax Clearance (HRS Chapter 237): Bidder shall obtain a tax clearance certificate from the Hawaii State Department of Taxation (DOTAX) and the Internal Revenue Service (IRS). The certificate is valid for six months from the most recently approved stamp date on the certificate; the certificate must be valid on the date received by the Department.
- B. Department of Labor (DLIR) “Certificate of Compliance”. (HRS Chapter 383 - Unemployment Insurance, Chapter 386 - Workers’ Compensation, Chapter 392 - Temporary Disability Insurance, and 393 – Prepaid Health Care): Bidder shall obtain a certificate of compliance from the Hawaii State Department of Labor and Industrial relations (DLIR). The certificate is valid for six months from the date of issue; certificates must be valid on the date received by the Department.
- C. Department of Commerce and Consumer Affairs (DCCA), Business Registration Division (BREG) “Certificate of Good Standing”. Bidder shall obtain a certificate of good standing issued by the Department of Commerce and Consumer Affairs (DCCA), Business Registration Division (BREG). The certificate of good standing is valid for six months from the date of issue; certificates must be valid on the date received by the Department.

Hawaii Compliance Express. Alternately, instead of separately applying for these certificates at the various state agencies, bidder may choose to use the Hawaii Compliance Express (HCE), which allows businesses to register online through a simple wizard interface at <http://vendors.ehawaii.gov> to acquire a “Certificate of Vendor compliance” indicating that bidder’s status is compliant with requirements of §103D-310(c), HRS, shall be accepted for contracting and final payment purposes.

Bidders that elect to use the new HCE services will be required to pay an annual fee of \$15.00 to the

Hawaii Information Consortium, LLC (HIC). Bidders choosing not to participate in the HCE program will be required to provide the paper certificates as instructed in the previous paragraphs.

2. **ADD** Section 2.4a, Pre-Bid Conferences

Required Pre-bid Conferences: For construction and design-build projects with an estimated value of \$500,000 or more and solicited under the competitive sealed bid method (103D-302 HRS); and for construction and design-build projects with an estimated value of \$100,000 or more and solicited under the competitive sealed proposal method (103D-303 HRS); a pre-bid conference is required.

Other Pre-Bid Conferences: The Department may require a pre-bid conference for construction or design-build projects that are below the dollar threshold listed in above or when projects have special or unusual requirements.

Other Conditions: The Department may require the prospective Bidders to make a physical inspection of the project site and make attendance at the pre-bid conference a condition for submitting an offer.

Nothing stated at the pre-bid conference shall change the solicitation unless a change is made by written addendum.

3. **DELETE** Section 2.5, Addenda and Interpretations, in its entirety and replace with the following:

“Discrepancies, omissions, or doubts as to the meaning of drawings and specifications should be communicated using the question and answer section on the HIEPRO solicitation for interpretation and must be received in the time frame set in the HIEPRO solicitation. Any interpretation, if made and any supplemental instructions will be in the form of written addenda to the plans and specifications and made available prior to the offer due date. It shall be the prospective bidder’s sole responsibility to verify and obtain any said addenda. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the contract documents.”

Section 3 – Award and Execution of Contract

1. **AMEND** Section 3.3, Award of Contract, by deleting “sixty (60)” and replacing with “ninety (90)” in the first paragraph.

2. **AMEND** Section 3.3, Award of Contract, by adding the following after the first paragraph:

“If the contract is not awarded within the ninety (90) days, the Department may request the successful Bidder to extend the time for the acceptance of its bid. The Bidder may reject such a request without penalty; and in such case, the Department may at its sole discretion make a similar offer to the next lowest responsive and responsible bidder and so on until a bid is duly accepted or until the Department elects to stop making such requests.”

3. **AMEND** Section 3.9, Notice to Proceed, by deleting “180 days” and replacing with “one (1) year” in the last paragraph.

4. **ADD** Section 3.10, Protests:

“3.10 PROTESTS—Pursuant to Section 103D-701, Hawaii Revised Statutes, an actual or prospective offeror who is aggrieved in connection with the solicitation or award may submit a protest. Any protest

shall be submitting in writing to the Chairperson, Department of Land and Natural Resources, 1151 Punchbowl Street, Honolulu, Hawaii 96813, or designee as specified in the solicitation.

A protest shall be submitted in writing within five (5) working days after the aggrieved person knows or should have known the facts giving rise thereto; provided that a protest based upon the content of the solicitation shall be submitted in writing prior to the date set for receipt of offers. Further provided that a protest of an award or proposed award shall be submitted within five (5) working days after the posting of the award of the contract.

The notice of award, if any, resulting from this solicitation shall be posted on the Procurement System on the SPO website: <http://hawaii.gov/spo2/>.

Section 5 – Control of Work

AMEND Section 5.8 Value Engineering Incentive by deleting “\$100,000” and replacing with “\$250,000” in the first paragraph.

Section 6 – Substitution of Materials and Equipment

ADD the following to Section 6.3 Sub-paragraph b:

4. If the substitution meets all the requirements of the specifications and plans.

Section 7 – Prosecution and Progress

1. **DELETE** Section 7.2d in its entirety and replace with the following:

“d. Insurance Requirements

1. Obligation of Contractor

The Contractor shall not commence any work until it obtains, at its own expense, all required insurance. Such insurance must have the approval of the Department as to limit, form and amount and must be maintained with a company authorized by law to issue such insurance in the State of Hawaii.

All insurance described herein will be maintained by the Contractor for the full period of the contract and in no event will be terminated or otherwise allowed to lapse prior to written certification of final acceptance of the work by the Department.

Certificate(s) of Insurance acceptable to the Department shall be filed with the Engineer prior to commencement of the work. These certificates shall contain a provision that coverages afforded under the policies will not be canceled or changed until at least thirty days written notice has been given to the Engineer by registered mail. The insurance policies shall name the State of Hawaii, its officers and employees as an additional insured and such coverage shall be noted on the Certificate. Should any policy be canceled before final acceptance of the work by the Department, and the Contractor fails to immediately procure replacement insurance as specified, the Department, in addition to all other remedies it may have for such breach, reserves the right to procure such insurance and deduct the cost thereof from any money due to the Contractor.

Nothing contained in these insurance requirements is to be construed as limiting the extent of Contractor's responsibility for payment of damages resulting from its operations under this contract, including the Contractor's obligation to pay liquidated damages, nor shall it affect the Contractor's separate and independent duty to defend, indemnify and hold the Department harmless pursuant to other provisions of this contract. In no instance will the Department's exercise of an option to occupy and use completed portions of the work relieve the Contractor of its obligation to maintain the required insurance until the date of final acceptance of the work.

All insurance described herein shall cover the insured for all work to be performed under the contract, all work performed incidental thereto or directly or indirectly connected therewith, including traffic detour work or other work performed outside the work area, and all change order work.

The Contractor shall, from time to time, furnish the Engineer, when requested, satisfactory proof of coverage of each type of insurance required or a copy of the actual policies covering the work. Failure to comply with the Engineer's request may result in suspension of the work, and shall be sufficient grounds to withhold future payments due the Contractor and to terminate the contract for Contractor's default.

2. Types of Insurance

The Contractor shall purchase and maintain insurance described below which shall provide coverage against claims arising out of the Contractor's operations under the contract, whether such operations be by the Contractor itself or by the subcontractor or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable.

- (a) Worker's Compensation. The Contractor and all subcontractors shall obtain full worker's compensation insurance coverage for all persons whom they employ or may employ in carrying out the work under this contract. This insurance shall be in strict conformity with the requirements of the most current and applicable State of Hawaii Worker's Compensation Insurance laws in effect on the date of the execution of this contract and as modified during the duration of the contract.
- (b) Commercial General Liability Insurance and Automobile Insurance. Contractor's commercial general liability insurance and automobile liability insurance shall both be obtained in a combined, single limit of not less than \$1,000,000 per occurrence that shall include coverage for bodily injury, sickness, disease or death of any person, arising directly or indirectly out of, or in connection with, the performance of work under this contract.

The Contractor's property damage liability insurance shall provide for a single combined limit of not less than \$1,000,000 for all damages arising out of injury to or destruction of property of others including the Department's, arising directly or indirectly out of or in connection with the performance of the work under this contract including explosion or collapse.

The Contractor shall either:

- i. Require each of its subcontractors to procure and to maintain during the life of its subcontract, subcontractors' comprehensive general liability, automobile liability

and property damage liability insurance of the type and in the same amounts specified herein; or

- ii. Insure the activities of its subcontractors in its own policy.

The Contractor will be permitted, in cooperation with insurers, to maintain a self insured retention for up to 25% of the per occurrence combined single limits of the commercial general liability and the automobile liability policies. The existence of the self insured retention must be noted on the certificate of insurance coverage submitted to the Department or else it will be understood that the insurer is providing first dollar coverage for all claims. For all claims within the self-insured retention amount, the rights, duties and obligations between the Contractor and the Department shall be identical to that between a liability insurer and the Department, as an additional insured, as if there was no self-insured retention.

- (c) **Builder's Risk Insurance.** Unless included in the Specifications of this project, the Contractor shall not be required to provide builder's risk insurance. If required as noted in the Specifications, builder's risk insurance shall be provided during the progress of work and until final acceptance by the Department upon completion of the contract. It shall be "All Risk" (including but not limited to earthquake, windstorm and flood damage) completed value insurance coverage on all completed work and work in progress to the full replacement value thereof. Such insurance shall include the Department as additional name insured. The Contractor shall submit to the Engineer for its approval all items deemed to be uninsurable. The policy may provide for a deductible in an amount of up to 25% of the amount insured by the policy. With respect to all losses up to any deductible amount, the relationship between the Contractor and the Department shall be that of insurer and additional insured as if no deductible existed".

2. **DELETE** Section 7.16 in its entirety and replace with the following:

"RESPONSIBILITY FOR DAMAGE CLAIMS; INDEMNITY – The Contractor shall indemnify the State and the Department against all loss of or damage to the State's or the Department's existing property and facilities arising out of any act or omission committed in the performance of the work by the Contractor, any subcontractor or their employees and agents. Contractor shall defend, hold harmless and indemnify the Department and the State, their employees, officers and agents against all losses, claims, suits, liability and expense, including but not limited to attorneys' fees, arising out of injury to or death of persons (including employees of the State and the Department, the Contractor or any subcontractor) or damage to property resulting from or in connection with performance of the work and not caused solely by the negligence of the State or the Department, their agents, officers and employees. The State or the Department may participate in the defense of any claim or suit without relieving the Contractor of any obligation hereunder. The purchase of liability insurance shall not relieve the Contractor of the obligations described herein.

The Contractor agrees that it will not attempt to hold the State and its Departments and Agencies and their officers, representatives, employees or agents, liable or responsible for any losses or damages to third parties from the action of the elements, the nature of the work to be done under these specifications or from any unforeseen obstructions, acts of God, vandalism, fires or encumbrances which may be encountered in the prosecution of the work.

The Contractor shall pay all just claims for materials, supplies, tools, labor and other just claims against the Contractor or any subcontractor in connection with this contract and the surety bond will not be

released by final acceptance and payment by the Department unless all such claims are paid or released. The Department may, but is not obligated to, withhold or retain as much of the monies due or to become due the Contractor under this contract considered necessary by the Engineer to cover such just claims until satisfactory proof of payment or the establishment of a payment plan is presented.

The Contractor shall defend, indemnify and hold harmless the State and its Departments and Agencies and their officers, representatives, employees or agents from all suits, actions or claims of any character brought on account of any claims or amounts arising or recovered under the Worker's Compensation Laws or any other law, by-law, ordinance, order or decree.

Section 8 – Measurement and Payment

1. **DELETE** Section 8.7a in its entirety and replace with the following:

- a. Tax Clearances from the State of Hawaii Department of Taxation and Internal Revenue Service, subject to section 103D-328, HRS, current within two months of issuance date indicating that all delinquent taxes levied or accrued under State Statutes against the contractor have been paid.

2. **ADD** Section 8.7d, Certificate of Compliance:

- d. A Certification from the Contractor affirming that the Contractor has, as applicable, remained in compliance with all laws as required by Section 103D-310, HRS, and Section 3-122-112, HAR. A contractor making a false affirmation shall be suspended and may be debarred pursuant to section 103D-702, HRS.

- 1. Certification of Compliance for Final Payment, State Procurement Office Form-22. Must be Signed Original.

3. **ADD** Section 8.7e, Hawaii Compliance Express:

- e. In lieu of submitting the tax clearances from Taxation and IRS, and SPO Form -22, the Contractor may choose to use the Hawaii Compliance Express as described on page SP-1 of this Special Provisions.

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DIVISION 1 – GENERAL REQUIREMENTS

SECTION 01019

GENERAL SPECIFICATIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Work shall consist of furnishing all labor, tools, materials and equipment necessary and required to construct in place complete all work as indicated on the drawings and as specified herein.

1.2 WORK SEQUENCE

- A. Refer to construction plans for a phase plan and phasing description required for accomplishing the work.

1.3 GENERAL

- A. Examination of Premises: The Contractor shall contact the Engineer and obtain permission before visiting the site.
- B. All lines and grades shall be established by a licensed surveyor, or licensed Civil Engineer, registered in the State of Hawaii. The Contractor shall submit evidence of current and valid registration.
- C. Notices: The Contractor shall notify the Engineer and give at least three (3) working days notice before starting any work unless indicated otherwise in the construction plans or specifications.
- D. Disruption of Utility Services:
 - 1. All work related to the temporary disconnection of electrical system shall be pre-arranged with the Engineer so that any disruption of such services will be kept to a minimum. In the event temporary power hook-up is required, the Contractor shall provide the necessary services.
 - 2. Existing Utility Lines: The existence of active underground utility lines within the construction area is not definitely known other than those indicated in their approximate locations on the Drawings. Should any unknown line be encountered during excavation, the Contractor shall immediately notify the Engineer of such discovery.
 - 3. Construction around overhead lines shall follow all applicable utility company, State and Federal Occupational Safety and Health Laws. If the construction should encroach within the radial clearance to the overhead lines, the appropriate

utility companies shall be notified. Should trenching operations encroach within 10 feet of existing poles, adequate support (approved by utility companies) shall be provided to the poles at no cost to the State.

E. Contractor's Operations

1. The Contractor must employ, insofar as possible, such methods and means of carrying out the work so as not to cause any interruption or interference to the facility's operations. Where the Contractor's operations would result in interruptions which would hamper the operations of the facilities, the Contractor shall rearrange the schedule of work accordingly.
2. The Contractor shall maintain safe passageway to and from the facility for the user agency personnel and the public at all times.

F. Lead Paint: When the project includes paint to be disturbed that was applied prior to 1980, it shall be assumed to contain lead. The Contractor shall inform its employees, subcontractors, and all other persons engaged in the project that lead containing paints are present in the existing buildings at the job site and to follow the requirements of the Department of Labor and Industrial Relations, Division of Occupational Safety and Health, Title 12, Subtitle 8, Chapter 148, Lead Exposure in Construction, Hawaii Administrative Rules (Chapter 12-148, HAR).

G. Parking Policy for Contractor

1. The Contractor and its employees will not be allowed to park in zones assigned to facility personnel.
2. Areas to be used by the Contractor shall be as designated by the Engineer. Any lawn damaged by the Contractor shall be restored as instructed by the Engineer at no cost to the State.

H. Toilet Accommodations:

1. If so designated by the Engineer, the Contractor may use the existing toilet facilities if so designated by the Engineer; however, it is the Contractor's responsibility to keep same clean and in a sanitary condition at all times.
2. If the Engineer restricts the Contractor's use of existing toilet facilities, the Contractor shall furnish, install, and remove at completion of the job, portable toilet facilities in accordance with the GENERAL CONDITIONS, INFORMATION AND INSTRUCTIONS TO BIDDERS and this Section.
3. When public access to the existing comfort stations is restricted during construction activities, the Contractor shall furnish, install, and remove at completion, three standard and two ADA accessible portable toilet facilities at each comfort station for public use in accordance with the GENERAL CONDITIONS, INFORMATION AND INSTRUCTIONS TO BIDDERS and this

Section. The location of the facilities shall be subject to acceptance by the Engineer.

4. The portable toilet facilities shall be self-contained combination toilet and urinal units: Single occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material.
 5. The Contractor shall maintain sanitary facilities in a proper, safe, operating, and sanitary condition for the duration of the work.
- I. Protection of Property: The Contractor shall continually maintain adequate protection of all its work from damage and shall protect all property, including but not limited to buildings, equipment, furniture, grounds, vegetation, material, utility systems located at and adjoining the job site in accordance with the GENERAL CONDITIONS and this section. The Contractor shall repair, replace or pay the expense of repair of damages resulting from its operations.
 - J. Use of Power Driven Equipment: The Contractor is cautioned to take all necessary safety precautions to protect the facility personnel, and the public whenever power driven equipment is used.
 - K. Safety: The Contractor shall carefully read and strictly comply with the requirements of the Hawaii Occupational Safety and Health Law, Chapter 396, Hawaii Revised Statutes, as amended, is applicable and made a part of the Contract.
 - L. Clean Up Premises: The Contractor shall clean up and remove from premises all debris accumulated from operations as necessary or as directed. See also Section 7.25 of the GENERAL CONDITIONS and Section 01567 – Pollution Control.
 - M. Responsibility
 1. 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. The Contractor shall be responsible for coordinating the work of all trades on the job.
 2. Should the Contractor discover any discrepancy in the plans or specifications, the Contractor shall immediately notify the Engineer before proceeding any further with the work, otherwise, the Contractor will be held responsible for any cost involved in correction of work placed due to such discrepancy.
 - N. Cooperation With Other Contractors: The State reserves the right at any time to contract for or otherwise perform other or additional work within the contract zone limits of this Contract. The Contractor of this project shall, to the extent ordered by the State, conduct its work so as not to interfere with or hinder the progress or completion of the work performed by other contractors.

- O. Division of the Work: The Divisions 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 all work specified within each Section.
- P. Drawings and Specifications
1. The Contractor shall not make alterations in the drawings and specifications. In the event the contractor discovers any errors or discrepancies, the Contractor shall immediately notify the Engineer in accordance with the GENERAL CONDITIONS.
 2. 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.
 3. Specifications and drawings are prepared in abbreviated form 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.
- Q. Required Submittals
1. Required submittals as specified in the Technical Sections of these specifications shall be in accordance with Section 01300 – Submittals and this Section.
 2. As-Built Drawings: As-built drawings shall be in accordance with the INFORMATION AND INSTRUCTIONS TO BIDDERS and the following:
 - a. As-built drawings, the intent of which is to record the actual in-place construction so that any future renovations or tie-ins can be anticipated accurately, shall be required.
 - b. All deviations from alignments, elevations and dimensions which are stipulated on the plans shall be recorded in red on the as-built drawings.
 - c. The following procedure shall be followed:
 - 1) Immediately after these changes are constructed in place, the Contractor shall record them on the field office plans.
 - 2) Within two weeks after final inspection of the project, the Contractor shall transfer the changes marked on the field office plans onto a clean copy of plans using a red pencil. Any deletions shall be so noted and redrawn as necessary. The Contractor shall stamp or mark the tracings "AS-BUILT", and also sign and date each drawing so marked.

- 3) The Contractor shall submit the as-built drawings to the Engineer for review and approval. After the Engineer approves the as-built drawings, the Contractor shall submit an electronic copy in Adobe PDF format on CD ROM.
 - 4) Any as-built drawing which the Engineer determines does not accurately record the deviation shall be corrected by the State, and the Contractor shall be charged for the services.
- R. Historical Archaeological Artifacts: Protection and preservation of historical and cultural artifacts shall be in accordance with Section 01100 – Archaeological Protection and as described herein.
- S. Operate machinery and equipment with discretion and with minimum interference to driveways and walkways. Do not leave machinery and equipment unattended on roads and driveways.
- T. Storage of materials shall be in accordance with the GENERAL CONDITIONS “Storage of Materials” section and stored in the areas as designated by the Engineer. Locate construction equipment, machinery, equipment and supplies within the Project Contract Limits.
- U. Keep roads to the project site free of dirt and debris. Provide, erect and maintain lights, barriers, signs, etc. when working on roads, driveways and walkways to protect pedestrians and moped/bicycle riders. Obey traffic and safety regulations.

PART 2 - PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01090

STANDARD REFERENCES

PART 1 - GENERAL

Wherever used in the project, the following abbreviations will have the meanings listed:

<u>Abbreviation</u>	<u>Company</u>
AA	Aluminum Association Incorporated 818 Connecticut Avenue, N.W. Washington, D.C. 20006
AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, N.W., Suite 225 Washington, D.C. 20001
ACI	American Concrete Institute P.O. Box 19150 Detroit, MI
AEIC	Association of Edison Illuminating Companies 51 East 42nd Street New York, NY 10017
AFBMA	Anti-Friction Bearing Manufacturer's Association 60 East 42nd Street New York, NY 10017
AGA	American Gas Association 8501 East Pleasant Valley Road Cleveland, OH 44131
AGMA	American Gear Manufacturer's Association 1330 Massachusetts Avenue, N.W. Washington, D.C.
AISC	American Institute of Steel Construction 101 Park Avenue New York, NY 10017
AISI	American Iron and Steel Institute 1000 16th Street, N.W. Washington, D.C. 20036

<u>Abbreviation</u>	<u>Company</u>
AITC	American Institute of Timber Construction 333 West Hampden Avenue Englewood, CO 80110
AMCA	Air Moving and Conditioning Association, Inc. 30 West University Drive Arlington Heights, IL 60004
ANSI	American National Standards Institute, Inc. 1430 Broadway New York, NY 10018
APA	American Plywood Association 1119 A Street Tacoma, WA 98401
API	American Petroleum Institute 1801 K Street N.W. Washington, DC 20006
ARI	Air-Conditioning and Refrigeration Institute 1814 North Fort Myer Drive Arlington, VA 22209
ASCE	American Society of Civil Engineers 345 East 47th Street New York, NY 10017
ASCII	American Standard Code for Information Interchange United States of America Standards Institute 1430 Broadway New York, NY 10018
ASE Code	American Standard Safety Code for Elevators, Dumbwaiter and Escalators American National Standards Institute 1430 Broadway New York, NY 10018
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers United Engineering Center 345 East 47th Street New York, NY 10017

<u>Abbreviation</u>	<u>Company</u>
ASME	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017
ASTM	American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103
AWPA	American Wood Preservers Association 1625 Eye Street Washington, DC 20006
AWS	American Welding Society 2501 N.W. 7th Street Miami, FL 33125
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235
CBM	Certified Ballast Manufacturers 2120 Keith Building Cleveland, OH 44115
CMAA	Crane Manufacturers Association of America, Inc. (Formerly called: Overhead Electrical Crane Institute - OECI) 1326 Freeport Road Pittsburgh, PA 15238
CRSI	Concrete Reinforcing Steel Institute 180 North La Salle Street Chicago, IL 60601
CSA	Canadian Standards Association 178 Rexdale Boulevard Rexdale, Ontario, M9W 1R3, Canada
DEMA	Diesel Engine Manufacturer's Association 122 East 42nd Street New York, NY 10017
DIS	Division of Industrial Safety California Department of Industrial Relations 2422 Arden Way Sacramento, CA 95825

<u>Abbreviation</u>	<u>Company</u>
EEI	Edison Electric Institute 90 Park Avenue New York, NY 10016
EIA	Electronic Industries Association 2001 Eye Street N.W. Washington, DC 20006
EJMA	Expansion Joint Manufacturer's Association 331 Madison Avenue New York, NY 10017
ESO	Electrical Safety Orders, California Administrative Code, Title 8, Chap. 4, Subarticle 5 Office of Procurement, Publications Section P.O. Box 20191 8141 Elder Creek Road Sacramento, CA 95820
FEDSPEC	Federal Specifications General Services Administration Specification and Consumer Information Distribution Branch Washington Navy Yard, Bldg. 197 Washington, DC 20407
FEDSTDS	Federal Standards (see FEDSPECS)
FM	Factory Mutual Research 1151 Boston-Providence Turnpike Norwood, MA 02062
HEI	Heat Exchange Institute 122 East 42nd Street New York, NY 10017
HI	Hydraulic Institute 1230 Keith Building Cleveland, OH 44115
IAPMO	International Association of Plumbing and Mechanical Officials 5032 Alhambra Avenue Los Angeles, CA 90032

<u>Abbreviation</u>	<u>Company</u>
ICBO	International Conference of Building Officials 5360 South Workman Mill Road Whittier, CA 90601
ICEA	Insulated Cable Engineers Association P.O. Box P South Yarmouth, MA 02664
IEEE	Institute of Electrical and Electronics Engineers, Inc. 345 East 47th Street New York, NY 10017
IES	Illuminating Engineering Society C/O United Engineering Center 345 East 47th Street New York, NY 10017
ISA	Instrument Society of America 400 Stanwix Street Pittsburgh, PA 15222
JIC	Joint Industrial Council 7901 Westpark Drive McLean, VA 22101
MILSPEC	Military Specifications Naval Publications and Forms Center 5801 Tabor Avenue Philadelphia, PA 19120
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. 127 Park Street, N.E. Vienna, VA 22180
NAAMM	National Association of Architectural Metal Manufacturers 100 South Marion Street Oak Park, IL 60302
NACE	National Association of Corrosion Engineers P.O. Box 986 Katy, TX 77450

<u>Abbreviation</u>	<u>Company</u>
NEC	National Electric Code National Fire Protection Association 470 Atlantic Avenue Boston, MA 02210
NEMA	National Electrical Manufacturer's Association 155 East 44th Street New York, NY 10017
NESC	National Electric Safety Code American National Standards Institute 1430 Broadway New York, NY 10018
NFPA	National Forest Products Association (Formerly called: National Lumber Manufacturer's Association) 1619 Massachusetts Avenue, N.W. Washington, DC 20036
OSHA	Occupational Safety and Health Act U.S. Department of Labor San Francisco Regional Office 450 Golden Gate Avenue, Box 36017 San Francisco, CA 94102
PPIC	The Plumbing & Piping Industry Council, Inc. Suite 402 510 Shatto Place Los Angeles, CA 90020
SAE	Society of Automotive Engineers 2 Pennsylvania Street New York, NY 10001
SAMA	Scientific Apparatus Makers Association One Thomas Circle Washington, DC 20005
SBCC	Southern Building Code Congress 1116 Brown-Marx Building Birmingham, AL 35203

<u>Abbreviation</u>	<u>Company</u>
SMACNA	Sheet Metal and Air Conditioning Contractors National Association, Inc. 8224 Old Courthouse Road Tysons Corner Vienna, VA 22180
SSPWC	Standard Specifications for Public Works Construction Building News, Inc. 3055 Overland Avenue Los Angeles, CA 90034
TEMA	Tubular Exchanger Manufacturer's Association 331 Madison Avenue New York, NY 10017
UBC	Uniform Building Code Published by ICBO
UL	Underwriters Laboratories Inc. 207 East Ohio Street Chicago, IL 60611
UMC	Uniform Mechanical Code Published by ICBO
UPC	Uniform Plumbing Code Published by IAPMO
USBR	Bureau of Reclamation U.S. Department of Interior Engineering and Research Center Denver Federal Center, Building 67 Denver, CO 80225
WWPA	Western Wood Products Association (Formerly called: West Coast Lumberman's Association - WCLA) Yeon Building Portland, CA 97204

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

Standard References
01090-7

SECTION 01100

ARCHAEOLOGICAL PROTECTION

PART 1 - GENERAL

- 1.1 This section covers the requirements for the protection and preservation of historical sites and values.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

- 3.1 **CONSTRUCTION METHOD:** Representatives of the State will from time to time examine the area as work proceeds. If historical values are noted, the State may order a halt to the work in the vicinity of the historical values until the State can examine further. The Contractor shall notify the State if he finds anything he suspects to be of historic significance and shall discontinue further work in the vicinity of the find until the State can examine the area. In either case, further work in the vicinity of such historical or suspected historical values may proceed only upon approval by the State. Such approval can be normally expected within one week and shall in no case require more than one month.

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes the administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples and other miscellaneous submittals.
- B. Comply with the GENERAL CONDITIONS "Shop Drawings and Other Submittals" section, "Material Samples" section, and "Test Samples" section.
- C. The Contractor shall review the specifications and prepare a comprehensive listing of required submittals by Specification Section. Furnish listing of required submittals to the Engineer within 15 days after the notice to proceed.

1.2 BIDDER'S SPECIAL RESPONSIBILITY FOR COORDINATING CONTRACTUAL WORK AND SUBMITTALS:

- A. The Contractor is responsible for the coordination of all contractual work and submittals.
- B. The Contractor shall have a rubber stamp made up in the following format:

CONTRACTOR NAME

PROJECT: _____

JOB NO: _____

THIS SUBMITTAL HAS BEEN CHECKED BY THIS GENERAL CONTRACTOR. IT IS CERTIFIED 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.

DATE RECEIVED _____

SPECIFICATION SECTION _____

SPECIFICATION PARAGRAPH _____

DRAWING NUMBER _____

SUBCONTRACTOR NAME _____

SUPPLIER NAME _____

MANUFACTURER NAME _____

CERTIFIED BY: _____

- C. This stamp, "filled in", should appear on the title sheet of each shop drawing, on a cover sheet of submittals in an 8-1/2" x 11" format, or on one face of a cardstock tag (min. 3" x 6") tied to each sample. The tag on the samples should state what the sample is so that, if the tag is accidentally separated from the sample, it can be matched up again. The back of this tag will be used by the Engineer for his receipt, review, and log stamp and for any comments that relate to the sample.
- D. All submittals for material, equipment, and shop drawings listed in the contract documents, including dimensioned plumbing shop drawings, shall be required and shall be reviewed by the Engineer, prior to any ordering of materials and equipment.
- E. Unless otherwise noted, the Contractor shall submit to the Engineer for his review eight copies of all shop drawings, piping layout, and/or catalog cuts for fabricated items and manufactured items (including mechanical and electrical equipment) required for the construction. Drawings shall be submitted in sufficient time to allow the Engineer not less than twenty regular working days for examining the drawings.
- F. The drawing shall be accurate, distinct, and complete and shall contain all required information, including satisfactory identification of items, units and assemblies in relation to the contract drawings and specifications.
- G. Unless otherwise approved by the Engineer, shop drawings shall be submitted only by the Contractor, who shall indicate by a signed stamp on the drawings or other approved means that the Contractor has checked the shop drawings and that the work or equipment shown is in accordance with contract requirements and has been checked for dimensions and relationship with work of all other trades involved. All deviations from the plans and specifications shall be listed. The practice of submitting incomplete or unchecked shop drawings for the Engineer to correct or finish will not be acceptable, and shop drawings which, in the opinion of the Engineer, clearly indicate that they have not been checked by the Contractor will be considered as not complying with the intent of the contract documents and will be returned to the Contractor for resubmission in the proper form.
- H. When the shop drawings have been reviewed by the Engineer, two sets of submittals will be returned to the Contractor appropriately stamped. If major changes or corrections are necessary, the drawing may be rejected and one set will be returned to the Contractor with such changes or corrections indicated, and the Contractor shall correct and resubmit eight copies of the drawings, unless otherwise directed by the Engineer. No changes shall be made by the Contractor to the resubmitted shop drawings other than those changes indicated by the Engineer. The resubmittal shall be so indicated on the shop drawing.
- I. The review of such drawings and catalog cuts by the Engineer shall not relieve the Contractor from responsibility for correctness of the dimensions, fabrication details, and space requirements or for deviations from the contract drawings and specifications, unless the Contractor has called attention to such deviations, in writing, by a letter accompanying the drawings and the Engineer approved the change or deviations, in writing, at the time of submission; nor shall review by the Engineer relieve the Contractor from the responsibility for errors in the shop drawings. When the Contractor does call such deviations to the

attention of the Engineer, he shall state in his letter whether or not such deviations involve any deduction or extra cost adjustment.

- J. The approval of the above drawings, lists, prints, specifications, or other data shall in no way release the Contractor from his responsibility for the proper fulfillment of the requirements of this contract nor for fulfilling the purpose of the installation nor from his liability to replace the same should it prove defective or fail to meet the specified requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. This section covers the requirements for temporary facilities and controls, including temporary utilities, support facilities, security and protection facilities.

1.2 QUALITY ASSURANCE

- A. Temporary utilities and services shall conform to all applicable requirements of authorities having jurisdiction and serving utility companies and agencies.
- B. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01300 - Submittals.
- B. Submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.

PART 2 - PRODUCTS

- A. Materials: Contractor shall provide new materials. If acceptable to the Engineer, undamaged previously used materials in serviceable condition may be used. Provide materials that are suitable for the use intended. Their use and methods of installation shall not create unsafe conditions or violate requirements of applicable codes and standards.
- B. Equipment: Contractor shall provide new equipment; or, if acceptable to the Engineer, Contractor may provide undamaged, previously used equipment in serviceable condition. Provide equipment that is suitable for use intended.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. All utilities and other services necessary for proper performance of the Work shall be provided by Contractor, unless specifically noted otherwise.
- B. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

- C. 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.

3.2 TEMPORARY UTILITY USE AND INSTALLATION

- A. General: Engage appropriate local utility company to install temporary water and/or electricity 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 Engineer, 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.
 - 3. Use Charges: Cost or use charges for temporary utility service and facilities are the Contractor's responsibility.

3.3 TEMPORARY SIGNAGE

- A. Install temporary signage 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.
- B. Provide temporary signs to provide directional information to constructional personnel and visitors.
- C. Construct signs with durable materials, properly supported or mounted, and visible.

3.4 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 need for its service has ended, or when it has been replaced by authorized use of a permanent facility, 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.
- C. Materials and facilities that constitute temporary facilities are the property of the Contractor.

- D. Clean up shall be in accordance with Section 01019 – General Specifications, Section 01567 – Pollution Control and as described herein.

END OF SECTION

SECTION 01505

MOBILIZATION AND DEMOBILIZATION

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

A. Description: This section covers the requirements for mobilization and demobilization.

1.2 MOBILIZATION: Mobilization shall consist of the transporting, assembling, constructing, installing, and making ready for use at the job site, all the equipment, machinery, structures, utilities, materials, labor, and incidentals necessary to do the work covered by this contract.

1.3 DEMOBILIZATION: Demobilization shall consist of the dismantling and removal of the above-mentioned equipment, machinery, structures, utilities, materials, and incidentals, and the cleaning up of the site.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GUIDELINES: If the Contractor utilizes private lands other than the sites provided by the Department for mobilization purposes, the provisions of this section shall apply, and the mobilization and demobilization work on said private lands shall be in accordance with the agreement between the Contractor and the land owner.

Any and all additional mobilization or demobilization costs in excess of the maximum amounts specified in the Proposal shall be included in the appropriate unit prices bid in the Proposal. The Contractor shall not receive any compensation for mobilization and demobilization in addition to those specified in the Proposal.

All equipment, machinery, buildings, utilities and incidentals mobilized and demobilized under this section shall remain the property of the Contractor.

END OF SECTION

SECTION 01530

BARRICADES

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Description. This work shall consist of furnishing, installing and maintaining barricades in accordance with the requirements of the contract.

Barricade application shall be provided for in the latest edition of the FHWA publication, Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD), and as amended.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Lumber: Lumber for rails, frames and braces shall be dry, sound, undamaged, well seasoned, and free from any defect which may impair their strength and durability.
- B. Hardware: Nails shall be galvanized wire nails. As many and as large a size as is practicable shall be used.
- C. Paints: Paints shall be exterior enamel paint of the best grade or first line as made by approved manufacturers.
- D. Sheet Reflecting Material: Sheet reflecting material shall conform to the applicable requirements of Subsection 712.20(C) of the State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended.
- E. Alternate Designs: Alternate barricade designs such as plastic molded barricades may be used subject to the Engineer's approval. The Contractor shall submit shop drawings or catalog cuts for approval.

PART 3 - EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

- A. General: Barricades shall be constructed in a first class, workmanlike manner as specified herein.

Barricades shall be in good condition and approved by the Engineer for use within the project limits. Barricade application and installation shall be as directed by the Engineer in accordance with the guidelines provided in the latest edition of the FHWA publication,

Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD), and any amendments or revisions thereof as may be made from time to time.

Sand bags or other approved weights shall be provided where required or as directed by the Engineer. Sand bags or other approved weights shall not be placed on any striped barricade rail.

Steady burn and/or flashing lamps shall be required on selected barricades used during hours of darkness. Locations shall be as directed by the Engineer. Lamps shall be attached on the barricade ends closest to the traveled way and shall be visible to the motorist.

Barricades furnished and paid for as provided herein may be used for temporary detours, construction phasing, or other temporary traffic control work.

Upon completion of the construction work, barricades shall be left in place, relocated, or removed and disposed of as directed by the Engineer. Barricades left in place, or relocated to new permanent locations shall become the property of the State. Barricades directed to be removed and disposed of shall become the property of the Contractor.

- B. Painting: Wooden rails, frames and braces shall be given a prime coat and 2 finish coats of new white exterior enamel paint. Rail faces to be reflectorized may be left unpainted unless otherwise specified or directed.
- C. Reflectorization: Reflectorization of barricade rails shall be done in a first class, workmanlike manner and the attachment of reflective sheeting shall be as specified herein, or as directed and approved by the Engineer.

Both vertical faces of each barricade rail shall be reflectorized.

Wooden rails shall be reflectorized with one of the following:

- 1. Reflective sheeting specified in Subsection 712.20(C)(4) of the State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended and backed with a 26 gage galvanized steel sheet, or
 - 2. A hardened aluminum backed reflective sheeting as specified in Subsection 712.20(C)(5) of the State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended.
- D. Color: Rails, frames and braces shall be white.

The front and back faces of barricade rails shall have 6-inch wide alternative colored and white striped sloping downward toward the traveled way at an angle of 45 degrees with the vertical. The colored stripes shall be either orange or red in accordance with the following requirements:

1. Orange and white stripes shall be used in the following conditions:
 - a. Construction work.
 - b. Detours.
 - c. Maintenance work.
 2. Red and white stripes shall be used in the following conditions:
 - a. On roadways with no outlet (ie. dead-ends, cul-de-sacs).
 - b. Ramps or lanes closed for operational purposes.
 - c. Permanent or semipermanent closure or termination of a roadway.
- E. Maintenance: Barricades shall be kept in good condition throughout their usage during construction until the end of the contract.
- F. The Contractor shall repair, repaint, clean or replace the barricades as required and as directed by the Engineer to maintain their effectiveness and appearance.

The Constructor shall immediately replace all lost, stolen or damaged barricades, lamps, sand bags and other approved weights.

No extra payment will be made for any repair work, repainting, or cleaning of barricades. The Engineer shall determine the suitable condition of each barricade and shall determine when each barricade shall be repaired, repainted or cleaned.

END OF SECTION

SECTION 01567

POLLUTION CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. 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.

1.2 GENERAL REQUIREMENTS

A. Cleaning

1. The Contractor shall clean up and remove from premises all debris accumulated from construction operations as necessary or as directed.
2. No burning of debris and/or waste materials shall be permitted on the project site.
3. No burying of debris and/or waste material except for materials which are specifically indicated elsewhere in these specifications as suitable for backfill shall be permitted on the project site.
4. All unusable debris and waste material shall be hauled away to an appropriate off-site dump area. During loading operations, debris and waste materials shall be watered down to allay dust.
5. The Contractor shall be responsible for submitting, obtaining approval and paying the necessary fees for a Solid Waste Demolition Plan/Report (SWDP) and a Notice of Authorization (NOA) from the County of Hawaii, Department of Environmental Management, Solid Waste Division. The Contractor shall also be responsible for obtaining and paying for any additional permits required by appropriate government agencies.
6. No dry sweeping shall be permitted in cleaning rubbish and fines which can become airborne from floors or other paved areas. Vacuuming, wet mopping or wet or damp sweeping is permissible.
7. Enclosed chutes and/or containers shall be used for conveying debris from above to ground floor level.
8. Clean-up shall include the collection of all waste paper and wrapping materials, cans, bottles, construction waste materials and other objectionable materials, and removal as required. Frequency of clean-up shall coincide with rubbish producing events.

9. Upon completion of the construction work and before final acceptance of the contract work, remove all surplus materials, equipment, scaffoldings, etc., and leave entire job site raked clean and neat to the satisfaction of the Engineer.

B. Dust

1. The Contractor shall 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 - Air Pollution Control.
2. The method of dust control and costs shall be the responsibility of the Contractor. Methods of dust control shall include the use of water, chemicals or asphalt over surfaces which may create airborne dust.
3. The Contractor shall be responsible for all damage claims in accordance with Section 7.16 - "Responsibility for Damage Claims" of the GENERAL CONDITIONS.

C. Noise

1. Noise shall be kept within acceptable levels at all times in conformance with the State Department of Health, Administrative Rules, Title 11, Chapter 46 - Community Noise Control. The Contractor shall obtain and pay for the Community Noise Permit from the State Department of Health when the construction equipment or other devices emit noise at levels exceeding the allowable limits.
2. All internal combustion engine-powered equipment shall have mufflers to minimize noise and shall be properly maintained to reduce noise to acceptable levels.
3. Pile driving operations shall be confined to the period between 9:00 a.m. and 5:30 p.m., Monday through Friday. Pile driving will not be permitted on weekends and legal State and Federal holidays.
4. Starting-up of construction equipment meeting allowable noise limits shall not be done prior to 6:45 a.m. without prior approval of the Engineer. Equipment exceeding allowable noise levels shall not be started-up prior to 7:00 a.m.

D. Erosion

1. During interim grading operations, the grade shall be maintained so as to preclude any damage to adjoining property from water and eroding soil.
2. Temporary berms, cut-off ditches and other provisions which may be required because of the Contractor's method of operations shall be installed at no cost to the State.

3. Drainage outlets and silting basins shall be constructed and maintained to minimize erosion and pollution of waterways during construction.

E. Others

1. Wherever trucks and/or vehicles leave the site and enter surrounding paved streets, the Contractor shall prevent any material from being carried onto the pavement. Waste water shall not be discharged into existing streams, waterways, or drainage systems such as gutters and catch basins unless treated to comply with the State Department of Health water pollution regulations.
2. Trucks hauling debris shall be covered as required by PUC Regulation. Trucks hauling fine materials shall be covered.
3. No dumping of waste concrete will be permitted at the job-site.
4. Except for rinsing of the hopper and delivery chute, and for wheel washing where required, concrete trucks shall not be cleaned on the job-site.
5. Except in an emergency, such as a mechanical breakdown, all vehicle fueling and maintenance shall be done in a designated area. A temporary berm shall be constructed around the area when runoff can cause a problem.
6. When spray painting is allowed such spray painting shall be done by the "airless spray" process. Other types of spray painting will not be allowed.

F. Suspension of Work

1. Violations of any of the above requirements or any other pollution control requirements which may be specified in the Technical Specifications herein shall be cause for suspension of the work creating such violation. No additional compensation shall be due the Contractor for remedial measures to correct the offense. Also, no extension of time will be granted for delays caused by such suspensions.
2. If no corrective action is taken by the Contractor within 72 hours after a suspension is ordered by the Engineer, the State reserves the right to take whatever action is necessary to correct the situation and to deduct all costs incurred by the State in taking such action from monies due the Contractor.
3. The Engineer may also suspend any operations which he feels are creating pollution problems although they may not be in violation of the above-mentioned requirements. In this instance, the work shall be done by force account as described in Subsection 4.2b - "Additional Work" of the GENERAL CONDITIONS and paid for in accordance with Subsection 8.4b - "Force - Account Work" therein. The count of elapsed working days to be charged against the contract in this situation shall be computed in accordance with Subsection 7.18

- "Contract Time" of the GENERAL CONDITIONS.

PART 2 - PRODUCTS (NOT USED)

END OF SECTION

SECTION 01581

PROJECT SIGN

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

Furnish all labor, materials and equipment necessary to construct and install all project sign as specified hereinafter.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01300 - Submittals.
- B. The contractor shall provide the Engineer with six (6) shop drawings of the project sign for review and approval by the Engineer prior to ordering the sign.

1.3 LETTER STYLE

Copy is centered and set in Adobe Type Futura Heavy. If this specific type is not available, Futura Demi Bold may be substituted. Copy should be set and spaced by a professional typesetter and enlarged photographically for photo stencil screen process.

1.4 ART WORK

Constant elements of the sign layout - frame, outline, stripe, and official state information - may be duplicated following drawing measurements, or be reproduced and enlarged photographically using a layout template if provided. The "STATE OF HAWAII" masthead should be reproduced and enlarged as specified, using the artwork provided.

1.5 TITLES

The specific major work of the project under construction is emphasized by using 3-3/4" type, all capitals. Secondary information such as location or buildings uses 2-1/4" type, all capitals. Other related information of lesser importance uses letter heights as indicated on 01581-3, upper / lower case letters.

Design should follow the example on page 01581-3.

PART 2 - PRODUCTS

2.1 MATERIALS

A. LUMBER

- 1. Panel is 3/4" exterior grade high density overlaid plywood, with resin-bonded surfaces on both sides.

2. 4"x4" sign posts shall be Douglas Fir No. 1 or better.

B. PAINTS & INKS

Screen print inks are matte finish. Paints are satin finish, exterior grade. References to Ameritone Color Key Paint are for color match only.

COLOR:	1.	1BL10A	Bohemian Blue
	2.	2H16P	Softly (White)
	3.	2VR2A	Hot Tango (Red)
	4.	1M52E	Tokay (Gray)

C. CONCRETE

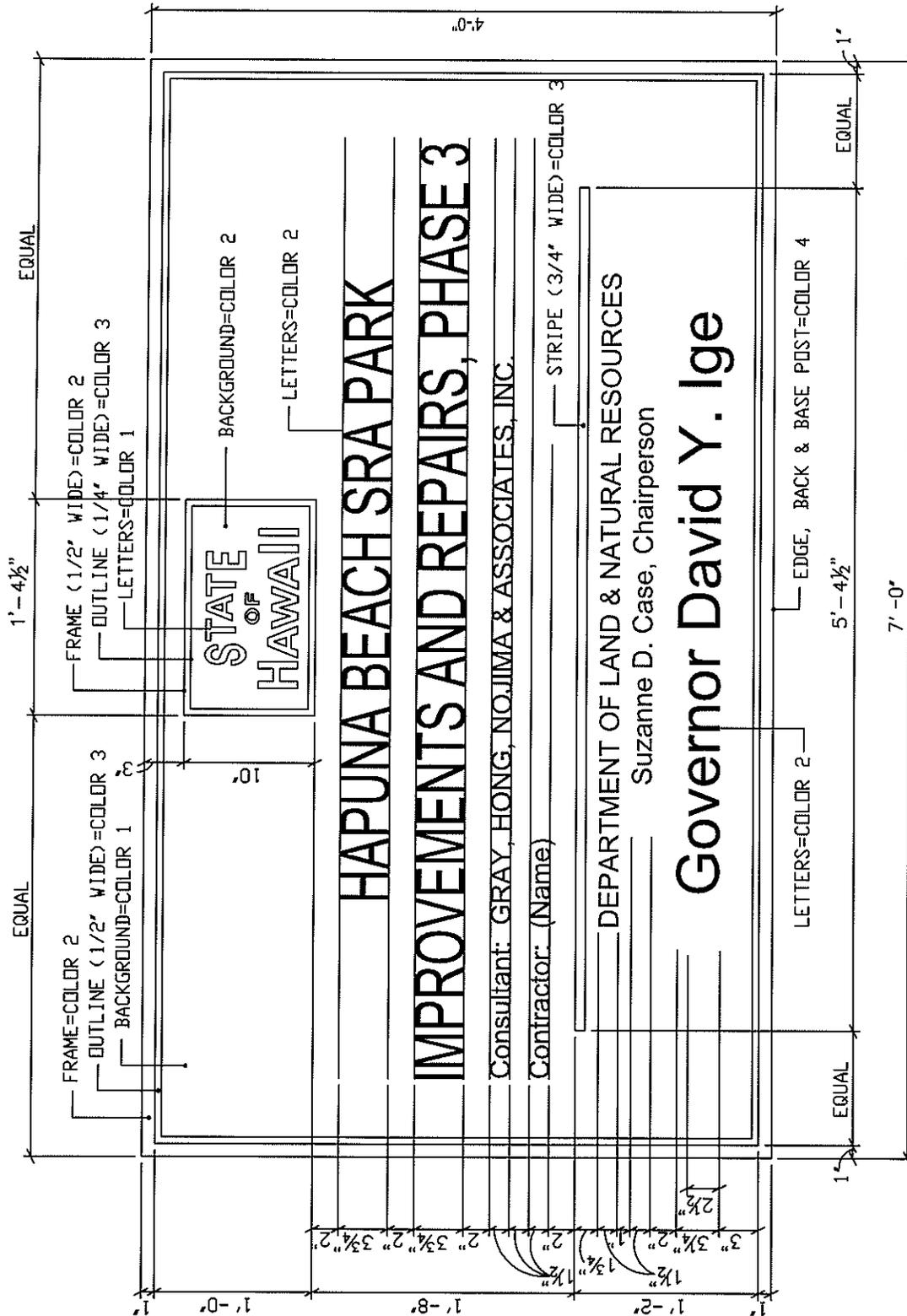
Concrete shall be class B with a 2,500 psi 28-day compressive strength in accordance with Section 601 – Structural Concrete of the State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended.

PART 3 - EXECUTION

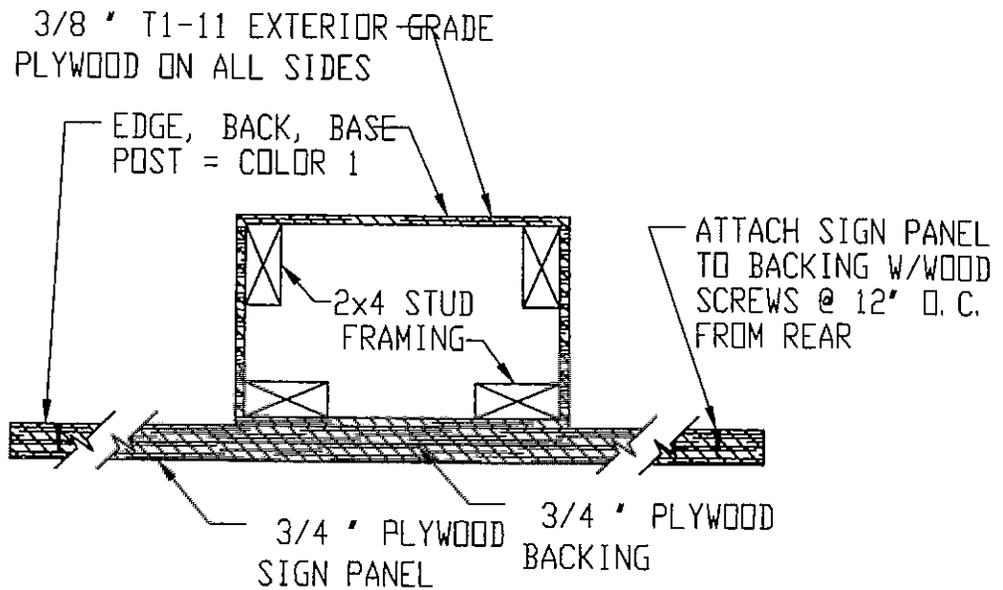
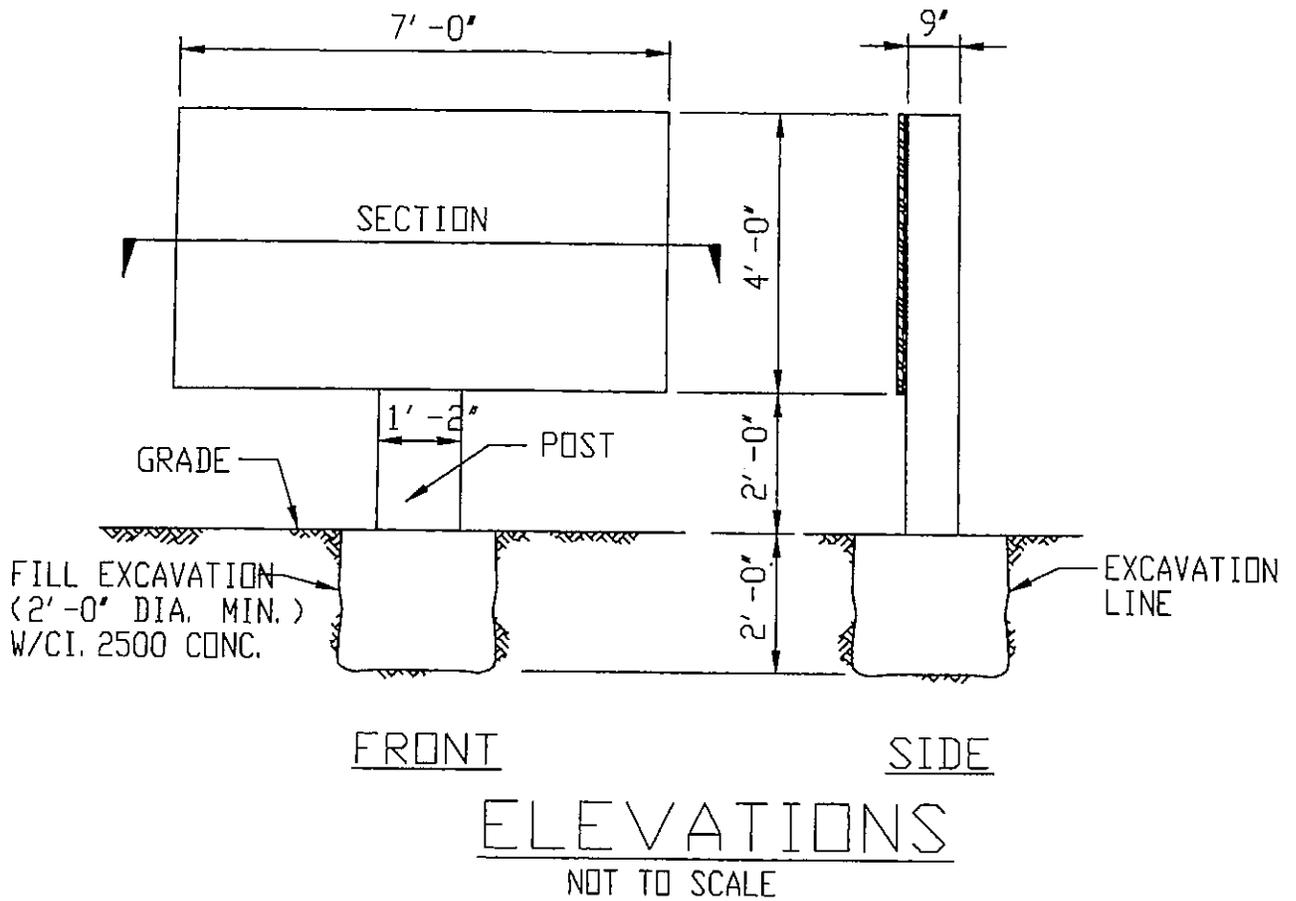
3.1 GENERAL

- A. The Project Sign shall be constructed with new materials as specified above.
- B. The Project sign shall be installed at the location indicated on the drawings or as designated by the Engineer. The project sign shall be erected upon commencement of work.

END OF SECTION



NOTE: Number of signs required 1



SECTION

NOT TO SCALE

Project Sign
01581-4

DIVISION 2 – SITEWORK

SECTION 02100

SITE PREPARATION

PART 1 - GENERAL

1.1 SUMMARY

- A. This section covers the requirements for clearing and grubbing and site demolition which will be necessary for the proper construction, execution and completion of the other work included in this contract.

1.2 REFERENCES

- A. State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended. (Paragraphs concerning Measurements and Payments in the sections are not applicable to this project.)
- B. County of Hawaii Standard Details for Public Works Construction dated 1984 as amended.
- C. County of Hawaii Standard Specifications for Public Works Construction dated 1986 as amended.

1.3 ORDINANCES AND REGULATIONS

- A. All work shall be done in accordance with applicable sections of the Hawaii County Code; applicable provisions contained in Hawaii Administrative Rules Title 11, Chapter 46 "Community Noise Control for Oahu"; Title 11, Chapter 54 "Water Quality Standards"; Title 11, Chapter 55 "Water Pollution Control"; and Title 11, Chapter 60.1 "Air Pollution Control"; the NPDES Permit Coverage for the project and this section.

1.4 RELATED WORK DESCRIBED ELSEWHERE

- A. Disconnection and removal of mechanical and electrical utilities shall be performed under the applicable sections of these Specifications.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Satisfactory on-site fill and backfill shall consist of low-expansive, well-graded material, with particles no larger than 3 inches in largest dimension. The fill material shall be free of organic matter and other deleterious material.

- B. Imported and structural fill material shall consist of non-expansive, well-graded granular material, with particles no larger than 3 inches in largest dimension. The amount of material passing the No. 200 sieve shall be less than 15 percent. The fill material shall be free of organic matter and other deleterious material. The material shall have a laboratory CBR value of 20 or more and shall have a maximum swell of less than 1 percent when tested in accordance with ASTM D 1883.

PART 3 - EXECUTION

3.1 GENERAL

- A. Clearing, grubbing, earthwork, and demolition shall be in accordance with the below-listed sections of the State of Hawaii Department of Transportation’s Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended and this section.

- 1. Clearing and GrubbingSection 201
- 2. Removal of Structures and Obstructions.....Section 202
- 3. Excavation and Embankment.....Section 203
- 4. Temporary Water Pollution, Dust, and Erosion Control.....Section 209

3.2 CLEARING AND GRUBBING

- A. Clearing and Grubbing shall be at the areas indicated on the plans and be in accordance with Section 201 – Clearing and Grubbing of the State of Hawaii Department of Transportation’s Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended and this section.
- B. The Contractor shall clear the premises of all obstacles and obstructions, the removal of which will be necessary for the proper reception, construction, execution and completion of other work included in this contract.
- C. After clearing has been completed, the entire site shall be stripped of the organically contaminated near-surface soils to a minimum depth of 6 inches. Remove trees and roots to a minimum of 3 feet below existing ground level. Remove all large roots in excess of 2 inches in diameter, and backfill and compact the resulting depression. All debris accumulated from this operation shall be completely removed from the premises by the Contractor.

3.3 SITE DEMOLITION

- A. Site demolition of walkways, slabs, walls, headers, posts, and drain inlet shall be as shown on the construction plans.
- B. Below grade utilities shall be secured (capped) and remain in place. Seal and cap utility lines where necessary as required by regulations of the authority having jurisdiction.

- C. Refer to Section 02960 - Existing Pavement Removal for demolition of asphalt concrete pavement.
- D. The existence of active utilities lines transversing the construction area other than those indicated is not definitely known. Should any be encountered, the Contractor shall not disconnect same without authorization of the Engineer, but shall inform the latter immediately of each discovery, and shall follow his instructions.

3.4 EARTHWORK

- A. This section covers the earthwork required to construct new concrete walkways, concrete slabs for shower and drinking fountain facilities, and picnic tables. Excavation and embankment for asphalt concrete pavement areas are referenced in the plan and Section 02745 – Surface Preparation for Asphaltic Concrete Pavement.
- B. Soft and yielding areas encountered during clearing, grubbing and demolition operations shall be over-excavated to expose firm natural materials, and the resulting excavation shall be backfilled and compacted with suitable fill material. The excavated soft soils shall not be re-used as fill material and should be disposed of properly off-site.
- C. After existing structures and infrastructure are demolished and the site is cleared, areas designated to receive fill, shall be scarified to a depth of 8 inches, moisture-conditioned to optimum moisture content and recompacted to at least 90 percent relative compaction. Areas designated to be excavated shall be excavated to the required depth and compacted to a firm even surface of at least 90 percent relative compaction.
- D. Fill and backfill shall be moisture-conditioned to at least 2 percent above the optimum moisture, placed in level lifts not exceeding 8 inches in loose thickness, and compacted to at least 95 percent relative compaction.
- E. The Contractor shall at all times control the earthwork around buildings, walkway and pavement areas so the ground is adequately sloped to preclude the ponding of water.

3.5 PUBLIC SAFETY

- A. Public Safety: Where pedestrian and driver safety is endangered in the work or storage areas, use traffic barricades with flashing lights. Notify the Engineer prior to beginning any such work. The Contractor shall conduct operations with minimum interference to streets, driveways, sidewalks, and passageways, etc.
- B. Maintenance of Traffic: The Contractor shall conduct operations with minimum interference to streets, driveways, sidewalks, passageways, etc.
- C. When necessary, the Contractor shall provide and erect barriers, etc., with special attention to protection of personnel.

3.6 PROTECTION OF PROPERTY

- A. Protection of property shall be in accordance with Section 01019 – General Specifications and as described herein.
- B. The Contractor shall protect from injury and damage all surrounding trees, plants, structures that are not slated for removal, and shall leave all in as good as condition as at present. Any damage to existing improvement shall be repaired or replaced by the Contractor to the satisfaction of the Engineer.
- C. Throughout the progress of the work protection shall be provided for all property and equipment, and temporary barricades shall be provided as necessary. Work shall be done in accordance with the safety provisions of the Manual of Accident Prevention in Construction, published by the Associated General Contractors of America, and the State of Hawaii’s Occupational Safety and Health Standards, Rules and Regulations.
- D. Bench marks, etc., shall be carefully maintained, but if disturbed or destroyed, shall be replaced as directed, at the Contractor’s expense.
- E. Protect existing improvements that are to remain in place, that are to be reused, or that is to remain the property of the Engineer by temporary covers, shoring, bracing, and supports. Repair items damaged during performance of the work or replace with new to the satisfaction of the Engineer. Do not overload structural elements. Provide new supports or reinforcement for existing construction weakened by demolition, removal, and relocation work. Construction equipment and vehicles shall neither be permitted on, nor shall be stored on the existing work that is to remain in place.

3.7 ENVIRONMENTAL CONTROLS

- A. Noise, dust and sediment control shall be in accordance with Section 01567 – Pollution Control.

3.8 CLEANING

- A. Clean up shall be in accordance with Section 01019 – General Specifications and as described herein.
- B. All materials resultant from operations under this Section shall become the property of the Contractor and shall be removed from the site daily, unless otherwise directed. Store materials, which cannot be removed daily in areas specified by the Engineer. Remove and transport debris and rubbish in a manner that will prevent spillage into adjacent areas.
- C. 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 and dispose of lawfully.

- D. The Contractor shall comply with Federal, State, and local hauling and disposal regulations and pay for all necessary permits and certificates that may be required in connection with this work.

END OF SECTION

SECTION 02280

ADJUSTMENT OF EXISTING UTILITY STRUCTURES TO FINISHED GRADE

PART 1 - GENERAL

1.1 SUMMARY

- A. This work shall consist of the adjustment and/or reconstruction of existing utility manhole covers, inlets and valve boxes to finished grade.

1.2 REFERENCES

- A. State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended. (Paragraphs concerning Measurements and Payments in the sections are not applicable to this project.)

1.3 SUBMITTALS

- A. Submit in accordance with Section 01300 - Submittals.
- B. Map referencing the locations of existing utility structures to be adjusted to finished grade.

PART 2 – PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 PRE-CONSTRUCTION

- A. The Contractor shall coordinate and arrange for a field inspection with the Engineer to document the existing condition of the manholes, inlets and valve boxes within three (3) weeks of the Notice to Proceed date. Any missing or defective frames, covers, valve boxes or related hardware shall be reported to the Engineer in writing during the field inspection process to allow for timely replacement.
- B. The Contractor shall be responsible for maintaining an accurate description and location of all items to be adjusted. The locations shall be referenced with map documentation by the use ties or GPS locations. This information shall be submitted to the Engineer and utility owner(s) prior to paving.
- C. If any debris is present, the Contractor shall notify the Engineer or affected utility company or agency in writing to have the debris cleaned out and removed prior to the Contractor's work. The Contractor shall follow up with the utility company and agency and in the event they are unable to clean out their manholes prior to the Contractor's work, the Contractor shall document this condition.

3.2 CONSTRUCTION REQUIREMENTS

- A. Prior to commencing pavement removal and roadway reconstruction operations, the

Contractor shall locate any buried frames and covers and exercise due diligence in locating and protecting any buried manhole and/or valve box frames and covers. The existing buried frames and covers shall be adjusted to finish grades. Responsibility for the repair of any damages or disruptions to existing buried utilities shall be in accordance to the GENERAL CONDITIONS "Bidders Responsibility for Examinations of Plans, Specifications, Site of Work, etc."

- B. The Contractor shall expedite work to minimize downtime in accessing the existing utilities. Reconstruction of any manhole shall be performed prior to final paving.
- C. Adjustment of existing drain inlets to finished grade shall be as shown on the plans and specified in this Section.
- D. Adjustment of existing valve boxes to finished grade shall be in accordance with Section 626 – Manholes and Valve Boxes for Water and Sewer Systems of the State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended and this Section.
- E. Adjustment of any utility manhole or boxes to finished grade shall be performed in accordance with the requirements and standards of the respective utility company and agency. The Contractor shall notify, provide updated work schedules, and coordinate his work with the affected utility company and agency, prior to the commencement of work on the existing utilities and final adjustment of utility to finish grades and any inspections.

3.3 POST-CONSTRUCTION

- A. Upon completion of the contractor's work, including the final adjustments/reconstruction of the utility structures, the Contractor shall coordinate and arrange for a post construction field inspection with the various utility company or agency to document and verify that no additional debris from the Contractor's work are in the manholes, valve boxes, or inlets.
- B. Any debris in the manholes, valve boxes, or inlets as a result of the construction operations shall be removed immediately by the Contractor. The removed debris shall be disposed of at an approved disposal site.
- C. Clean up shall be in accordance with Section 01019 – General Specifications, Section 01567 – Pollution Control and as described herein.

END OF SECTION

SECTION 02362

SOIL TREATMENT FOR VEGETATION CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. This work shall consist of spraying weed killer on existing growth prior to application of asphalt.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01300 - Submittals.
- B. Manufacturer's Product Data and Material Safety Data Sheets for the material proposed for use.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Weed Killer shall be "Casoron 4G," "Norosac 4G," or an approved equal for under asphalt application on new or rebuilt pavement, and shall be "Hyvar X," "Roundup" or approved equal for application to existing weeds for resurfacing jobs.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. The under asphalt weed killer shall be mixed and uniformly spread using calibrated application equipment at the maximum rates permitted for "under asphalt" use and in strict accordance with the manufacturer's label. Base course material shall be installed as soon as possible after applying the weed killer to preclude loss of germination inhibiting action.
- B. In treatment of existing growth on resurfacing jobs, the weed killer shall be mixed and uniformly sprayed in strict accordance with the manufacturer's label.
- C. Nut grass shall be retreated two (2) days after initial application and again if growth still exists.
- D. The Contractor shall notify the Engineer 24 hours before application of weed killer.

END OF SECTION

SECTION 02410 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Extent of selective demolition work is indicated on the drawings. Selective demolition work includes, but is not limited to, selective demolition, removal, and subsequent disposal of all materials indicated or required to be removed.
- B. It shall be the responsibility of the Contractor to examine the project site and determine for himself the existing conditions.
- C. Execute all work in an orderly and careful manner with due consideration for all items of work to remain.
- D. Obvious conditions which exist on the site shall be accepted as part of the work, even though they may not be clearly indicated on the Drawings and/or described herein, or may vary therefrom.
- E. All debris of any kind accumulated from the work of this Section shall be disposed off the site.
- F. Protect all existing conditions surrounding the work area, including, but not limited to, walkways, parking, landscaping, etc. at all times from damage.
- G. Any damage as a result of demolition work and any neglect to provide protection shall be fixed new at Contractor's own expense.
- H. Demolish and remove materials as indicated on the drawings and as required to perform work under this project.
- I. Remove/relocate existing furniture, equipment, pictures, signage, blinds, etc. as required to perform demolition work. Return all items to its original location, unless otherwise indicated or directed by the Engineer, after completion of work.
- J. Permits, Notice, Etc.:
 - 1. The Contractor shall procure and pay for all necessary permits or certificates that may be required in connection with this work.
 - 2. The Contractor shall serve proper notice and consult with the Engineer regarding any temporary disconnections of electrical or other utility lines in the area which may interfere with the removal work, and all such lines where necessary shall be properly disconnected or relocated before commencing with the work.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01300 - SUBMITTALS.
- B. Schedule: Submit schedule indicating proposed methods and sequence of operations for selective demolition work for review prior to commencement of work. Include coordination for temporary shut-off and continuation of utility services as required, together with details for dust and noise control protection.

1.3 JOB CONDITIONS

- A. Condition of Structure: The State assumes no responsibility for actual condition of items or portions of structure to be demolished.
- B. Existing Conditions: Conditions existing at time of commencement of contract will be maintained by the State insofar as practicable.
- C. Occupied Spaces: Do not interfere with use of adjacent occupied spaces. Maintain free and safe passage to and from occupied spaces.
- D. Partial Demolition and Removal: Items indicated to be removed but of salvageable value to Contractor, may be removed from structure as work progresses. Transport salvaged items from site as they are removed. Storage or sale of removed items on site will not be permitted.
- E. Explosives: Use of explosives will not be permitted.
- F. Utility Services: The existence of exposed and concealed utility lines other than those shown on the drawings is not definitely known. Should any other utility lines be encountered, the Contractor shall immediately notify the Engineer and follow his direction as to procedure. Maintain existing utilities indicated to remain, keep in service, and protect against damage during demolition operations. Do not interrupt existing utilities serving occupied building or facilities, except when authorized in writing by the Engineer. Outages and interruptions must be accepted in advance by the Engineer. Submit written notice of outages and interruptions not less than fourteen days in advance of intended outage. Report damage, however slight, immediately. Do not repair or reconstruct any pipe, conduit, or installation without authorization, except perform emergency repairs immediately.
- G. Dust Control:
 - 1. Keep dust within acceptable levels at all times, including non-working hours, weekends and holidays, in conformance with Hawaii Administrative Rules, Title 11, Department of Health, Chapter 60.1, Air Pollution Control, latest edition as amended.
 - 2. Mechanical dry sweeping not permitted. Vacuuming, wet mopping, approved limited dry hand, wet or damp sweeping is acceptable.

3. During loading operations, water down debris and waste materials to allay dust.
4. The method of dust control and all costs incurred thereof shall be the responsibility of the Contractor.

H. Noise Control:

1. Noise shall be kept within acceptable levels at all times in conformance with Hawaii Administrative Rules, Title 11, Department of Health, Chapter 46 - Community Noise Control, latest edition as amended. The Contractor shall obtain and pay for community noise permit from the State Department of Health when the construction equipment or other devices emit noise at level exceeding the allowable limits.
2. All internal combustion engine powered equipment shall have mufflers to minimize noise and shall be properly maintained to reduce noise to acceptable levels.
3. Conform to noise control related to events at the project site or adjoining facilities as directed by the Engineer.

I. Other Controls:

1. Wherever trucks and/or vehicles leave the site and enter surrounding paved streets, the Contractor shall prevent any material from being carried onto the pavement. Waste water shall not be discharged into existing streams, waterways, or drainage systems such as gutter and catch basins unless treated to comply with Department of Health pollution regulations.
2. Trucks hauling materials shall be covered as required by PUC regulation. Trucks hauling fine materials shall be covered.

- J. Existing Conditions: The Contractor shall be responsible for protection of existing conditions for the entire duration of the project. Damage to the existing conditions as a result of the work of this Section shall be corrected at Contractor's own expense.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

3.1 INSPECTION

Prior to commencement of selective demolition work, inspect areas in which work will be performed. Inventory existing conditions of structure surfaces, equipment or surrounding properties which could be misconstrued as damage resulting from selective demolition work; photograph, video or otherwise document and file with the Engineer prior to starting work.

3.2 SELECTIVE DEMOLITION

- A. Perform selective demolition work, including all improvements indicated on the drawings, in a systematic manner. Use such methods as required to complete work indicated on drawings in accordance with demolition schedule and governing regulations.
- B. If unanticipated mechanical, electrical or structural elements which conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to the Engineer in written, accurate detail. Pending receipt of directive from the Engineer rearrange selective demolition schedule as necessary to continue overall job progress without delay.

3.3 PROTECTIONS

Provide temporary barricades and other forms of protection as required to protect the general public from injury due to selective demolition work.

1. Erect temporary barricades as required, to prevent people from entering into project area to the extent as accepted by the Engineer. The extent of barricade may be adjusted as necessary with the acceptance of the Engineer. This work shall be accomplished at Contractor's own expense.
2. When necessary, the Contractor shall provide, erect and maintain lights, barriers, etc., as required by traffic and safety regulations with special attention to protection of life.
3. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or elements to be removed, and adjacent facilities or work to remain.
4. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.
5. Life safety procedures and provisions shall be in conformance with all applicable Federal, State, and County regulations, including OSHA.
6. Remove protections at completion of work.

3.4 DAMAGES

Promptly repair damages caused to adjacent facilities by demolition work at Contractor's own expense.

3.5 TRAFFIC

- A. Conduct selective demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close, block or otherwise obstruct streets, walks or other occupied or used facilities without written permission from the Engineer. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations, as directed by the Engineer.
- B. Buildings and facilities which are essential for public use for the construction period shall be provided with safe pedestrian passageways around the construction site as per ADAAG 201.3, 206, and ADAAG Chapter 4.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

Remove debris, rubbish, and other materials resulting from demolition operations from building site daily. Transport and legally dispose of materials off site. Burning of removed materials is not permitted on project site.

3.7 HAZARDOUS MATERIALS

If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.

3.8 CLEAN-UP AND REPAIR

- A. Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave interior areas broom clean.
- B. Repair demolition performed in excess of that required. Return structures and surfaces to remain to condition existing prior to commencement of selective demolition work. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.
- C. Where exposed existing surfaces and/or materials are damaged or left unfinished by the removal work, the resultant exposed unfinished surfaces shall be repaired, patched, filled or finished to match the adjoining existing surfaces. Where the method of repair work is not indicated or specified, the Contractor shall perform the repair work in accordance with the best recognized workmanlike procedure.
- D. All existing grass areas disturbed or damaged due to construction or ingress or egress to the site shall be repaired to its original conditions. Grass areas shall be recultivated, topsoiled, and then grassed with the same kind and type of material as existing.

END OF SECTION

SECTION 02740

ASPHALTIC CONCRETE PAVEMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. This section describes the furnishing and installation of asphalt concrete on a prepared surface as indicated by the plans and as specified herein.

1.2 REFERENCES

- A. State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended. (Paragraphs concerning Measurements and Payments in the sections are not applicable to this project.)

1.3 SUBMITTALS

- A. Submit in accordance with Section 01300 - Submittals.
- B. Hot mix asphalt pavement job-mix formula per Section 401 of the State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended.
- C. Certificate of compliance for emulsified asphalt, accompanied by certified test data per Section 407 & 420 of the State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Materials for asphalt concrete paving shall be in accordance with the below-listed sections of the State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended.

- 1. Hot Mix Asphalt Pavement Mix shall be No. VSection 401
- 2. Tack Coat.....Section 407
- 3. Primer for Untreated Permeable Base Course.....Section 420
- 4. Bituminous Materials.....Section 702
- 5. Aggregate.....Section 703
- 6. Miscellaneous.....Section 712

PART 3 - EXECUTION

3.1 INSTALLATION

- A. The Contractor shall prepare the surface for paving as specified in Section 02745 - Surface Preparation for Asphaltic Concrete Pavement.
- B. The Contractor shall stake out the areas to be paved, using grade stakes on which the final finish elevations, base course and subgrade elevations are clearly marked. All such stakes and elevations shall be approved by the Engineer before any work is done.
- C. Application of asphalt concrete paving shall be in accordance with the below-listed sections of the State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended and this section.
 - 1. Hot Mix Asphalt Pavement.....Section 401
 - 2. Tack Coat.....Section 407
 - 3. Primer for Untreated Permeable Base Course.....Section 420
- D. Where a prime coat is provided, the contractor shall control runoff and protect adjacent work, property, utilities, waterways, etc. against damage. Damaged work, etc. shall be repaired and restored to their original condition at no additional cost to the State.
- E. If, in the opinion of the Engineer, pavement appears too dry after applying tack coat, another application of tack coat shall be applied by the Contractor.
- F. Where Asphalt Concrete is to be placed adjacent to existing walkways and driveways, the edges shall be raked to taper asphalt thickness to match the existing surface. Joints between existing and new asphalt shall be smooth riding.
- G. Existing utility facilities shall be protected from damage at all times. Contractor shall not place asphalt directly on the utility facilities. Contractor shall raise all existing utility frames and covers to the new pavement elevation per plan and Section 02280 – Adjustment of Existing Utility Structures to Finished Grade.

3.2 REPAIR AND CLEANING

- A. Clean up shall be in accordance with Section 01019 – General Specifications, Section 01567 – Pollution Control and as described herein.
- B. The contractor shall remove all asphalt material and aggregate from all walkways, utility, walls and other structures encountered within the limits of this project, resulting from paving operations.

- C. Any existing infrastructure such as utilities, pavements, curbs and walkways that are damaged by construction activities shall be repaired to the original condition and to the satisfaction of the Engineer. Damage by heavy equipment, on roads and yards not stable for such equipment, shall be repaired to the original condition and to the satisfaction of the Engineer.

END OF SECTION

SECTION 02745

SURFACE PREPARATION FOR ASPHALTIC CONCRETE PAVEMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes the preparation of an existing surface to receive asphalt concrete pavement as indicated on the plans and as specified herein.

1.2 REFERENCES

- A. State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended. (Paragraphs concerning Measurements and Payments in the sections are not applicable to this project.)

1.3 SUBMITTALS

- A. Submit in accordance with Section 01300 - Submittals.
- B. Submit certificates to the Engineer that all materials proposed to be furnished and installed under this Section conform to the requirements of these specifications.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Weed killer as specified in Section 02362 - Soil Treatment for Vegetation Control.
- B. Materials for asphalt concrete paving shall be in accordance with the below-listed sections of the State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended.
 - 1. Excavation and Embankment.....Section 203
 - 2. Aggregate.....Section 703
 - 3. Miscellaneous.....Section 712

PART 3 - EXECUTION

3.1 SURFACE PREPARATION

- A. Existing asphalt concrete pavement to be reconstructed shall be removed at the locations and depths shown per plan and be in accordance with Section 02960 – Existing Pavement Removal. Existing base course shall be compacted to attain a relative density of not less than 95% when tested in accordance with Subsection 203.03(C)(2) – Relative Compaction Test of the State of Hawaii Department of

Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended.

- B. Existing areas where new asphalt concrete pavement will be constructed shall be demolished, cleared and grubbed in accordance with Section 02100 – Site Preparation and excavated per plan. The preparation, application and compaction of aggregate base course and subgrade shall be in accordance with the below-listed sections of the State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended and this section.
 - 1. Excavation and Embankment.....Section 203
 - 2. Aggregate Base Course.....Section 304
- C. Existing weed growth shall be treated with weed killer prior to paving. Weed killer shall be applied per the manufacturer's directions.
- D. The Contractor shall notify the Engineer 24 hours in advance before application of weed killer.
- E. Pothole Repair: Repair potholes, and damaged pavement as shown on the plans prior to resurfacing.

3.2 CLEANING

- A. Keep the premises free from accumulations of waste materials, rubbish, and other debris resulting from the Work in accordance with Section 01019 – General Specifications and Section 01567 – Pollution Control.

END OF SECTION

SECTION 02760

PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide thermoplastic pavement markings as indicated on the plans and as specified herein.

1.2 REFERENCES

- A. State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended (Paragraphs concerning Measurements and Payments in the sections are not applicable to this project.)
 - 1. Pavement Markings.....Section 629
 - 2. Pavement Marking Materials.....Section 755

1.3 SUBMITTALS

- A. Submit in accordance with Section 01300 - Submittals.
- B. Certifications: Submit manufacturer's certificates attesting to the Engineer that materials and equipment meet the requirements specified.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Thermoplastic Tape shall conform to the State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005, as amended, Section 755.05. Retroreflective Thermoplastic Compound Pavement Markings.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Traffic marking application shall be in conformance with Section 629 – Pavement Markings and Section 755 – Pavement Marking Materials of the State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended and this section.
- B. Compound shall be machine-applied to pavement surface in molten state at a temperature recommended by the manufacturer. Material shall not scorch or discolor if kept at molten state temperatures for up to 4 hours.

- C. After cooling to ambient temperature and without polymerization or other chemical change, compound shall form traffic marking of quality and appearance as specified herein.
- D. Material shall show no appreciable deformation or discoloration under local traffic conditions and in ambient or pavement temperatures ranging from 0 degrees F to 120 degrees F.
- E. Drying time is defined as minimum elapsed time from marking application to time after which normal local traffic leaves no impression or imprint on applied marking, and after which marking attains and retains required characteristics, including thickness.

Drying time shall be in accordance with the manufacturer's recommendations.

- F. Material shall allow marking to maintain original dimensions and placement. Exposed surface shall be free from tack. Applied marking shall not chip or debond under normal movement of pavement surface.
- G. Pigment shall be dispersed evenly throughout material. Materials shall be of uniform density and character, throughout its thickness.
- H. Material shall not smear or spread at pavement temperatures of 140 degrees F or less.
- I. Parking lots and driveways shall be operational and accessible while the pavement is curing. The Contractor shall install temporary pavement striping prior to allowing public use of the parking lots and driveways. The temporary pavement striping shall be maintained until permanent pavement markings are ready to be installed.
- J. Workmanship: All work performed by the Contractor in the marking of roadway and parking stripes shall be done in a workmanlike manner by mechanics who are qualified by trade, skill, experience and classification. All work shall comply in all respects with the requirements of this section. Wherein this section may fail to specify a given construction method, common practice and/or a method recommended by the Contractor, if approved by the Engineer, shall be utilized.
- K. Marking: Markings shall be applied at four-inch (4") widths unless otherwise specified, at the locations and spacing indicated on the plans. Pavement markings shall not be applied until the layouts, indicated alignment and the condition of the existing surface have been approved by the Engineer.

3.2 PROTECTION OF WORK

- A. Protect newly installed pavement markings from damage by pedestrians and passing vehicles. Barricade marked areas during installation and during the time required for markings to harden sufficiently to withstand traffic. Efface and replace damaged portions of markings at no additional cost to the State.

END OF SECTION

SECTION 02785

SLURRY SEAL

PART 1 - GENERAL

1.1 SUMMARY

- A. This section covers the furnishing of all labor, equipment and material required for the installation of slurry seal on an existing asphalt surface as indicated by the plans and as specified herein.

1.2 REFERENCES

- A. American Society of Testing and Materials (ASTM)
 - D1190 Specification for Concrete Joint Sealer, Hot-Poured Elastic Type.
 - D3405 Specification for Joint Sealants, Hot-Poured, for Concrete and Asphalt Pavements
- B. State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended. (Paragraphs concerning Measurements and Payments in the sections are not applicable to this project.)

1.3 SUBMITTALS

- A. Submit in accordance with Section 01300 - Submittals.
- B. Manufacturer's Product Data Sheets for cracking sealant.
- C. Manufacturer's Material Safety Data Sheets for cracking sealant and other hazardous materials.
- D. Slurry seal mix formula per Section 404 of the State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Weed killer as specified in Section 02362 - Soil Treatment for Vegetation Control.
- B. Materials for asphalt concrete paving shall be in accordance with the below-listed sections of the State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended.

1. Slurry SealSection 404
2. Bituminous MaterialsSection 702
3. Slurry Seal Aggregate shall be Type IISection 703
4. Miscellaneous.....Section 712

PART 3 - EXECUTION

3.1 SURFACE PREPARATION

- A. General: Prior to slurry seal, existing pavement shall be thoroughly cleaned of all loose material, oil spots, vegetation and other objectionable material. Cleaning shall be accomplished by use of power brooms. If, in the opinion of the Engineer, pavement still appears dirty after initial cleaning, pavement shall be re-cleaned.
- B. Remove existing concrete wheel stops, pavement markers and striping in the contract area.
- C. Crack Sealing: Application methods shall control sealant material within crack to depth of 1/4 inch below existing pavement surface for cracks with an average clear opening up to 1 inch.
 1. Cracks with average clear opening of less than 3/8 inch to 1/2 inch: Route to provide minimum sealant reservoir of 1/2 inch wide by 3/4 inch to 1 inch in depth.
 2. Cracks with average clear opening of 1/2 inch to 1 inch: Clean with high velocity compressed air to depth of 3/4 inch to 1 inch.
 3. Clean overflow of sealant material from pavement surface.
- D. Minor Depression Repair: Minor depressions (up to 1 inch deep) shall be repaired by filling and compacting the depressed area with layers of asphalt as specified in Section 02740 - Asphaltic Concrete Pavement. Apply tack coat to surface of the repair area unless otherwise directed.

3.2 SLURRY SEAL APPLICATION

- A. Slurry seal application shall be in conformance with Section 404 - Slurry Seal of the State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended and this section. (Paragraphs concerning Test Section and Preparation of Surface are not applicable to this project.)
- B. Existing weed growth shall be treated with weed killer prior to slurry seal. Weed killer shall be applied per the manufacturer's directions and Section 02362 - Soil Treatment for Vegetation Control.

- C. The Contractor shall notify the Engineer 24 hours in advance before application of weed killer.
- D. Where slurry seal is to be placed adjacent to existing concrete gutter, driveways and walkways, the edges shall be raked to taper asphalt thickness to match existing pavement surface. Joints between existing asphalt and slurry seal shall be smooth riding.
- E. Existing utility facilities (manholes, drain inlets, cleanouts, valve boxes, etc) shall be protected from damage at all times. Do not place slurry seal directly on the utility facilities. Taper and slope slurry seal around the utility facilities to prevent ponding.

3.3 CLEANING

- A. Keep the premises free from accumulations of waste materials, rubbish, and other debris resulting from the Work in accordance with Section 01019 – General Specifications, Section 01567 – Pollution Control.

END OF SECTION

SECTION 02845

PRECAST CONCRETE WHEEL STOPS

PART 1 - GENERAL

1.1 SUMMARY

- A. This section describes the furnishing and installation of new precast concrete wheel stops as indicated by the plans and as specified herein.

1.2 REFERENCES

- A. State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended. (Paragraphs concerning Measurements and Payments in the sections are not applicable to this project.)

1.3 SUBMITTALS

- A. Submit in accordance with Section 01300 - Submittals.
- B. Shop Drawings: Submit shop drawings of stops, including installation details.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Materials for precast concrete wheel stops shall be in accordance with the below-listed sections of the State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended.
 - 1. Concrete Mix Design shall be Class A Section 601
 - 2. Hydraulic Cement Section 701
 - 3. Aggregates Section 703
 - 4. Joint Material for Concrete Structures Section 705
 - 5. Reinforcing Steel, Wire Rope, and Prestressing Steel Section 709
 - 6. Concrete Curing Materials and Admixtures Section 711
 - 7. Miscellaneous..... Section 712

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Precast wheel stops shall be manufactured for the intended purpose by a company or firm specializing in the manufacture of precast concrete parking appurtenances.
- B. The Contractor shall install new precast concrete wheel stops at locations shown in the plans. Unless otherwise specified in the plans, each new wheel stop shall be 6-ft long.
- C. The precast wheel stop shall be set in place on top of the pavement with both ends bearing evenly.
- D. Securely attach wheel stops into pavement with not less than two galvanized steel doweled embedded in holes cast into wheel stops. Firmly bond each dowel to wheel stop and to pavement.

END OF SECTION

SECTION 02871 - BIKE RACKS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

Provide all bike racks as indicated on the drawings and specified herein.

1.2 QUALITY ASSURANCE

- A. **Installer Qualifications:** An experienced installer who has completed installation of bicycle racks similar in material, design, and extent to that indicated for this project and whose work has resulted in construction with a record of successful in-service performance.
- B. **Manufacturer Qualifications:** A firm experienced in manufacturing bicycle racks similar to those required for this project and with a record of successful in-service performance.
- C. **Source Limitations:** Obtain each color, finish, shape and type of bicycle rack from a single source with resources to provide components of consistent quality in appearance and physical properties.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01300 - SUBMITTALS.
- B. **Product Data:** Include physical characteristics such as shape, dimensions, bicycle parking capacity and finish for each bicycle rack.
- C. **Shop Drawings:** Show installation details for each bicycle rack.
- D. **Samples for Verification:** Submit finish samples for review and verification.
- E. **Maintenance Data:** For each bicycle rack, include recommended methods for repairing damage to the finish.

1.4 STORAGE AND HANDLING

- A. Store bicycle racks in original undamaged packages and containers until ready for installation.
- B. Handle bicycle racks with sufficient care to prevent any scratches or damage to the finish.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. American Bicycle Security Company.
 - 2. Bike Rack Company.
 - 3. Ribbon Bike Rack.
- B. Bicycle racks are based on products as manufactured by the Bike Rack Company, Model BRC - 1005 (11 bikes), to establish the basis of design.

2.2 MATERIALS

- A. 2-inch Schedule 40 Steel Pipe (2.375-inch OD) per ASTM A 53/A 53M.
- B. In-ground Wave Style Bike Rack shall have a 1/2-inch x 6-inch steel rod welded to the bottom to ensure the rack doesn't pull out after the concrete cures.
- C. Surface mount Wave Style Bike Racks shall have two circular plates (0.25-inch x 6-inch OD with four 9/16-inch mounting holes).

2.3 FINISHES

Powder coated bike rack finish process shall be as follows:

- 1. Sanded down to prep it for painting.
- 2. Washed/Dried to prep it for painting.
- 3. Zinc primer is applied.
- 4. Powder coat color is applied.
- 5. UV Clear Topcoat is applied.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. In-Ground Mount: Embedded into concrete as per manufacturer's written instructions.

- B. Surface Mount: Mounted to the surface as per manufacturer's written instructions.
- C. Installer shall ensure that all base materials into which the rack will be installed can support the rack and will not be damaged by any required installation procedures.

END OF SECTION

SECTION 02890

PARKING SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide all signage as indicated on the plans and as specified herein.

1.2 REFERENCES

- A. State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended (Paragraphs concerning Measurements and Payments in the sections are not applicable to this project.)
- B. U.S. Department of Justice's 2010 ADA Standards for Accessible Design dated 2010 as amended.
- C. U.S. Federal Highways Administration's Manual of Uniform Traffic Control Devices for Streets and Highways dated 2009 as amended.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01300 - Submittals.
- B. Manufacturer's Product Data Sheets for signs, fittings and post materials.
- C. Shop Drawings for signage and installation details.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Materials for signs, post, fasteners and footings shall be in accordance with Section 750 – Traffic Control Sign and Marker Details of the State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General:
 - 1. Installation of all signage shall be in strict accordance with manufacturer's printed instructions and accepted shop drawings. Installation shall be accomplished by experienced mechanics and in a workmanlike manner.

2. Locate sign units and accessories using mounting methods of the type described and in compliance with the manufacturer's instructions.
 3. Install signs level, plumb, and at the required height, with sign surfaces free from distortion or other defects in appearance.
- B. Sign Mounting Locations: Signs shall be mounted as indicated on the drawings or if not indicated as directed by the Engineer.

3.2 PROTECTION

- A. At completion of the installation, clean soiled sign surfaces in accordance with the manufacturer's instructions. Protect units from damage until project acceptance. Replace damaged portions of the sign and post at no additional cost to the State. Remove all tools, equipment, debris, and surplus material.

END OF SECTION

SECTION 02960

EXISTING PAVEMENT REMOVAL

PART 1 - GENERAL

1.1 SUMMARY

- A. This section covers the requirements for removal of asphalt concrete pavement in driveways and parking areas including cleaning up, removal and disposal of the excavated materials as indicated by the plans and as specified herein.

1.2 REFERENCES

- A. State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended. (Paragraphs concerning Measurements and Payments in the sections are not applicable to this project.)

PART 2 – PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

- A. Remove existing wheel stops in the contract area.
- B. For removal of asphalt concrete walkways refer to Section 02100 – Site Preparation.
- C. Sawcut and excavate existing asphalt pavement areas at the locations and depths shown on the plan. Edges of pavement removal boundary shall be “squared-off” unless impractical or otherwise as shown on the plan.
- D. Inspect and locate all manholes, inlets, handholes, valve boxes, survey monuments, and/or other such items (conflicts), prior to commencement of the project, which would interfere with pavement removal operations. Damage to any of the above stated items shall be repaired or replaced within twenty-four (24) hours of damage, or by the time frame requested by the owner of the damaged item and the Engineer.
- E. Keep traffic off exposed base course, except for construction equipment directly connected to compaction and primer operations.
- F. If unsuitable material is encountered at bottom of specified excavation, it shall be removed and replaced with suitable aggregate base course and subgrade. The preparation, application and compaction of aggregate base course and subgrade shall be in accordance with the below-listed sections of the State of Hawaii Department of Transportation's Hawaii Standard Specifications for Road & Bridge Construction dated 2005 as amended and this section.

1. Excavation and Embankment.....Section 203
2. Aggregate Base Course..... Section 304
3. Aggregate Subgrade..... Section 305

3.2 REPAIR AND CLEANING

- A. Clean up shall be in accordance with Section 01019 – General Specifications, Section 01567 – Pollution Control and as described herein.
- B. All debris and waste material shall become the property of the contractor and be removed daily from the project site. All debris and waste material shall be properly disposed of at a location approved by the Engineer.
- C. Any existing infrastructure such as asphaltic concrete pavements, curbs and walkways that are damaged by construction activities shall be repaired to the original condition and to the satisfaction of the Engineer. Damage by heavy equipment, on roads and yards not stable for such equipment, shall be repaired to the original condition and to the satisfaction of the Engineer.

END OF SECTION

DIVISION 3 - CONCRETE

SECTION 03300 – CONCRETE AND CONCRETE REPAIR

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

This specification covers the requirements for furnishing, hauling, mixing, placing, and curing of concrete.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01300 – SUBMITTALS.
- B. The Contractor shall submit concrete mix design for approval.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Portland cement shall conform to the requirements of ASTM C150, Type I, for all concrete work.
- B. Concrete
 - 1. Fine aggregates shall be calcareous or basalt sands, or a combination thereof. They shall meet the grading requirements of ASTM C33 unless the concrete producer can provide past data that show that a proposed non-conforming gradation will produce concrete with the required strength and suitable workability.

If manufactured sands are used in the concrete mix, the Contractor may select and use a water-reducing and/or admixture which helps with workability as required. The cement content of a mix shall be as specified hereinafter, and the use of an admixture shall in no way result in the reduction of the cement factor.

- 2. Coarse aggregates shall be crushed close-grained, blue lava rock meeting the grading requirements of sizes 57 or 67 (ASTM D448) or both. The maximum size of aggregate shall not be larger than 1/5 of the narrowest dimensions between sides of the forms of the member for which the concrete is to be used not larger than 3/4 of the minimum clear spacing between individual reinforcing bars or bundles of bars.
- 3. Water-Cement Ratio of all concrete shall not exceed 0.42.
- 4. Corrosion Resisting Admixture in the form of KIM by Kryton International shall be added to the concrete where steel reinforcing is specified. Dosage to effective as recommended by the manufacturer.

C. Patching Concrete

1. Concrete used for patching spalls on slab-on-grade or stairs or other elements to be repaired with concrete specified in this section.
2. Concrete used for patching shall be a factory pre-packaged dry blend of material which contains polymer admixture and a compressive strength of not less than 4,000 psi. Pre-packaged dry blend shall meet or exceed the requirements of ASTM C387.
3. Latex Polymer Admixture and Bonding Agent: Latex polymer liquid shall be used to improve adhesion to existing material and improve other physical properties of concrete. Physical properties shall be conform to the following:

Appearance:	White, milky liquid
Solid Content:	25%
Specific Gravity:	1.03
Bond Strength:	700 psi at 14 days per ASTM C 1042

D. Concrete Reinforcement

1. Steel reinforcing steel shall be deformed bars conforming to ASTM A615, grade 60 shall be used only as indicated on the plans. All steel reinforcing shall be epoxy coated with per ASTM A775.
2. Glass Fiber Reinforcing: Where indicated on plans "GLASS FIBER REINFORCING" or more commonly called "FIBER GLASS REINFORCING" shall be used.. The Glass Fiber Reinforcing shall in conformance to the American Concrete Institute, ACI 440.6-08, "Specification for Carbon and Glass Fiber-Reinforced Polymer Reinforcing Bars" and ACI 440-1R-06. Reinforcing shall be Grade F60 and have a modulus of elasticity of E5.7.
3. Synthetic Fiber Reinforcement: Fibrillated or monofilament polypropylene fiber engineered and designed for use in concrete complying with ASTM C1116, Type III, 2-1/4 inch long. Synthetic fiber shall be uniformly dispersed into concrete at a dosage rate of not less than 5 lbs. per cubic foot of concrete. The dosage rate shall be sufficient enough to provide resistance to temperature and shrinkage crack formation. The Average Residual Strength as tested per ASTM C 1399 shall be not less than 200 psi.
4. Metal accessories such as spaces, chairs, ties, and other devices necessary for properly placing, supporting and fastening reinforcement in place shall be provided. Chairs shall be non-metallic.

E. Water used in mixing concrete shall be potable.

- F. Admixtures, if used, shall conform to ASTM C494 or ASTM C260 and shall be mixed in proper amount in accordance with directions of manufacturer.
- G. Curing compound shall conform to ASTM C309.
- H. All slabs on grade shall have a minimum of 6 inch of compacted base course material beneath it. Base course as indicated on the plans may "Aggregate for Untreated Base as described in the "State Standard Specification for Road and Bridge Construction". Base course shall be laid in 6 inch loose lifts and compacted to 95% relative compaction in accordance ASTM D-1557.
- I. Joint filler shall be provided as described in Section 705.01 of the "State Standard Specification for Road and Bridge Construction".

PART 3 - EXECUTION

3.1 DESIGN OF CONCRETE MIX

- A. All concrete throughout shall be either job or plant mixture in an approved type of power operated mixer that will insure uniformity and homogeneity of the concrete produced.
- B. Mixing at jobsite shall be done in accordance with ACI 614.
- C. Ready-mixed and mixed-in-transit concrete shall be mixed to conform to the provisions of ASTM C94.
- D. Concrete shall be mixed only in such quantity as is required for immediate use. No retempering will be permitted and concrete that has started to harden shall be discarded and promptly removed from the job.
- E. Admixtures conforming to paragraph 2.01 may be used in the concrete as recommended by the supplier and approved by the Engineer.

3.2 PLACING CONCRETE

- A. No concrete shall be placed in the absence of the Engineer or his representative who shall be given one day advance notice of starting time of concrete pour.
- B. Hot-Weather Placement: Place concrete according to recommendation in the ACI 305R and as follows, when hot-weather condition exist:
 - 1. Cool ingredients before mixing to maintain concrete temperature below 90 degree F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's Option.
 - 2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.

3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, dry areas.

C. Preparation

1. Concrete shall be placed upon clean, damp surfaces with no free water, or upon properly compacted fills but never upon soft mud or dry, porous earth.

D. Conveying

1. Concrete shall be conveyed from mixer to augured holes as rapidly as practicable by methods that will prevent segregation.
2. Concrete shall be deposited as nearly as practicable in its final position. Extensive spading as a means of transportation shall be avoided.
3. The concrete shall not be allowed to drop freely more than six feet except where specifically authorized by the Engineer. When placing operations would involve the dropping of concrete from a height of more than six feet it shall be conveyed through pipes or flexible drop chutes.
4. If any appreciable segregation occurs through the conveying methods employed, their use shall be ordered discontinued by the Engineer and some other satisfactory method of placing concrete shall be used.
5. All chutes, troughs, pipes and other means of conveyance shall keep clean and free from coatings of hardened cement or concrete by thoroughly cleaning with water and chipping after each pour. Water used for flushing shall be discharged away from the vicinity of the concrete or forms already in place.

E. Depositing

1. Unless adequate protection is provided, concrete shall not be placed during rain. Rainwater shall not be allowed to increase the mixing water nor to damage the surface finish. Fresh concrete that has been deposited but has not attained its initial set shall be protected in the event of rain.

F. Compaction

1. All concrete shall be consolidated by vibration so that the concrete is thoroughly worked around the reinforcement, around embedded items, and into corners of forms, eliminating all air or stone pockets which may cause honey-combing, pitting, or planes of weakness. All compaction shall be done by use of high frequency internal vibrators. Where the vibrator cannot be inserted into the concrete, compaction shall be done by spading, rodding, or forking.

2. Frequency of vibrator shall be not less than 7,000 impulses per minute. The Contractor shall provide a sufficient number of vibrators to properly consolidate all concrete immediately after placing. At least one standby vibrator shall be on hand at all times during placement of the concrete.

3.3 PLACING OF PATCHING CONCRETE

- A. Clean existing dust and debris from after the existing spalled, cracked and unsound concrete has been removed. Mix pre-packaged concrete patching compound as recommended by the manufacturer. Addition latex polymer admixture may be added to patching mix for added enhancing properties. Apply latex bonding agent to existing surface immediately prior to applying patching concrete. Apply patching concrete such that there are no air pockets or voids. Rod concrete as necessary. Apply curing compound as for regular concrete above.

3.4 REINFORCEMENT

- A. Reinforcing steel bars shall be provided in the sizes, length and configurations as indicated on plans and shall be thoroughly cleaned, before placing, of loose mill scale, loose flaky rust, oil, and all coatings that will destroy or reduce bond. If necessary, they shall be cleaned again before placing of concrete. All items shall be fabricated, positioned and secured in place as indicated in the plans and as herein specified. Annealed steel wire of not less than 16-gauge shall be used to secure reinforcement steel reinforcing and non-metallic ties to secure glass fiber reinforcing.
- B. Bars shall be tied at all intersections, and distances from the sides of the augured hole shall be maintained by means of pre-cast concrete blocks, ties, hangers or other approved supports.
- C. Steel bars shall be bent cold to the shapes shown on the plans. Bends shall be made around a pin having a diameter not less than 6 times the bar diameter except that for bars of larger than 1-inch diameter the pin diameter shall be 8 times the bar diameter. If required, bars may be bent in the field using a "hickey" bar.
- D. All reinforcing steel bars shall be furnished in the lengths indicated on the plans. Splicing of bars, except where shown, will not be permitted without the approval of the Engineer.

3.5 REPAIR OF DEFECTS

- A. Any concrete which is not constructed as shown on the plans or is out of alignment or level beyond required tolerances or which shows a defective surface which in the opinion of the Engineer cannot be properly repaired or patched shall be removed.
- B. Where concrete which is exposed to view requires repairing or patching, the texture of the surface of such repair or patch shall closely match that of the surrounding surface.

3.6 CURING AND PROTECTION

- A. All concrete shall be cured for a period of not less than seven (7) days by one of the methods listed below. During this curing period, the concrete shall be maintained with minimal moisture loss at a relatively constant temperature. Fresh concrete shall be protected from heavy rains, flowing water, mechanical injury, and injurious action of the sun. Comply with recommendations in ACI 305R for hot-weather protection during curing. Curing method selected must be compatible with the finish to be applied to the concrete.

Curing shall immediately follow the finishing operation.

- B. Water Curing: If cured with water, concrete shall be kept wet by mechanical sprinklers, by ponding, or by any other method which will keep the surfaces continuously wet.
- C. Saturated Sand Curing: Surfaces cured with sand shall be covered with a minimum of one inch thickness of sand which shall be kept uniformly distributed and continuously saturated during the entire curing period.
- D. Curing Compounds: Curing compounds shall not be used on concrete surfaces that are to receive paint finish, acid stain or resilient flooring, except those that are recommended by the manufacturer to be compatible with the applied finish. The Contractor shall submit to the Engineer a letter certifying that the curing compound is compatible with the applied finish. Application shall be in accordance with the manufacturer's recommendations. If curing, sealing or other compounds are used which are incompatible with applied finish, such compound shall be thoroughly removed by grinding with a terrazo grinder.
- E. Waterproof Paper: Waterproof paper or opaque polyethylene film conforming to ASTM C171 may be used. The paper or film shall be anchored securely and all edges sealed or applied in such a manner as to prevent moisture escaping from the concrete.

3.7 SAMPLING AND TESTING

- A. Sampling - ASTM C 172: Collect samples of fresh concrete to perform tests specified. ASTM C 31 for making test specimens.
- B. Slump Tests - ASTM C 143: Take concrete samples during concrete placement. The maximum slump may be increased as specified with the addition of an approved admixture provided that the water-cement ratio is not exceeded. Perform tests at commencement of concrete placement, when test cylinders are made, and for each batch (minimum) or every 10 cubic yards (maximum) of concrete.
- C. Compressive Strength Tests - ASTM C 39: Make four test cylinders for each set of tests in accordance with ASTM C 31. Test one cylinder at 7 days, two cylinders at 28 days, and hold one cylinder in reserve. Provide concrete cylinders for compression tests not less than once a day, nor less than once for each 100 cubic yards of concrete, nor less than once for each 5,000 square feet of surface for slabs or walls. If the average strength of the 28-day test cylinders is less than f_c and a maximum of one single cylinder is less than f_c minus 300 psi, take three

ASTM C 42 core samples and test. If the average strength of the 28-day test cylinders is less than f'_c and two or more cylinders are less than f'_c minus 300 psi, take six core samples and test. Concrete represented by core tests shall be considered structurally adequate if the average of the three cores is equal to at least 85 percent of f'_c and if no single core is less than 80 percent of f'_c . Locations represented by erratic core strengths shall be retested. Remove concrete not meeting strength criteria and provide new, acceptable concrete at no additional cost to the State. Repair core holes with nonshrink grout.

- D. Testing: All sampling and testing shall be performed by an independent testing agency and all test results submitted to the Engineer for approval. All cost of sampling and testing shall be borne by the contractor.

END OF SECTION

DIVISION 4 - MASONRY

SECTION 04220 - CONCRETE UNIT MASONRY

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Submit in accordance to Section 01300-SUBMITTALS.
- B. The masonry manufacturer's certification that the masonry units comply with ASTM C90 and the curing requirements specified herein shall be submitted to the Engineer upon request.

1.2 SAMPLE BLOCKS

A sample of each of the masonry units required shall be submitted for approval to the Engineer upon request.

1.3 DELIVERY, STORAGE AND HANDLING

- A. **Masonry Units:** Masonry units delivered to the jobsite shall conform to the moisture content requirements as specified under ASTM C90. Masonry units shall be stored off the ground and protected from inclement weather and physical damage. All units shall be handled with reasonable care to prevent marring or damaging of faces, edges and corners of units. In no case shall dumping of units from hand trucks or wheelbarrows be permitted.

Where used in exposed wall construction, any unit with exposed face or faces having chips, cracks, or other imperfections more than 1 inch in dimension shall be rejected.

- B. **Mortar and Grout Materials:** Portland cement, masonry cement, mortar cement, lime and admixtures shall be stored in such a manner as to prevent deterioration or contamination with foreign matter. Cement which has become caked, partially set or otherwise deteriorated, or any material which becomes damaged or contaminated, shall be rejected.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. **Asbestos Prohibition:** No asbestos containing materials or equipment shall be used under this section. The Contractor shall ensure that all materials and equipment incorporated in the project are asbestos-free.

- B. Hollow Concrete Masonry Units shall be load-bearing units and shall conform to the requirements of ASTM C90 "Standard Specification for Load-Bearing Concrete Masonry Units," Type II, nonmoisture-controlled units. Units shall be standard and split faced (see plans for locations), 2-core type, 8-inch nominal height, 16-inch nominal length and width as indicated on the plans. Units for jamb, corner sill, lintel and other special shapes shall be provided as required.

All units shall be sound, free of cracks, straight and true. They shall be either steam-cured or cured under atmospheric conditions for a minimum of 30 days. Color shall be standard with manufacturer.

- C. Portland Cement shall conform to ASTM C-150, Type I or Type II.
- D. Mortar Cement (Type M) shall conform to the requirements of UBC Standard No. 24-19 "Mortar Cement". Conformance to this standard shall be noted on the material package. ("Supermortar" by Hawaiian Cement, or approved equal.)
- E. Hydrated Lime shall conform to the ASTM C-207, Type S.
- F. Aggregate for use in mortar shall conform to ASTM C-144.
- G. Aggregate for use in grout shall conform to ASTM C-404, with grading in accordance with ASTM D-448, No. 10.
- H. Water use in mixing mortar or grout shall be clean and free from injurious amounts of oils, acids, alkalis, salts, organic materials or other substances that may be deleterious to either the mortar or reinforcement. Non-potable water shall not be used.
- I. Horizontal Reinforcement shall be trussed or ladder design with #9 gauge, deformed side rods and welded #12 gauge or larger cross rods ("Dur-O-Wal", "Block-Mesh", or approved equal), or as otherwise indicated on the plans.
- J. Reinforcing Steel shall be deformed bars conforming to ASTM A-615, grade as shown on plans with no epoxy coating necessary.
- K. Rebar Wire Positioners shall be galvanized, No. 9 gauge wire, manufactured positioners per ASTM A82 or other suitable devices.
- L. Additives/Admixtures for mortar shall be "Easy Spred" by American Colloid Co., "MRF" by Gibco Industries, Inc., or approved equal.

PART 3 - EXECUTION

3.1 MORTAR AND GROUT

- A. The proportioning of materials for mortar and grout shall be by volume and done in such manner that the specified proportions can be controlled and accurately maintained. Fine aggregate shall be measured in a damp loose condition. Mixing shall be by a mechanical batch mixer for at least 3 minutes for mortar and 5 minutes for grout, but for not more than 10 minutes. Hand mixing shall be permitted only for small batches of 3 cubic feet or less.
- B. Mortar shall be freshly prepared and uniformly mixed in one of the following proportions.

1. Type M - Cement-lime Mortar:
1 part portland cement
1/4 part hydrated lime
3 to 3-3/4 parts mortar aggregate

2. Type S - Cement-lime Mortar:
1 part portland cement
1/4 to 1/2 part hydrated lime

Mortar aggregate: Not less than 2-1/4 and not more than 3 times the sums of the separate volumes of cementitious materials.

3. Type M - Mortar Cement Mortar
1 part mortar cement
2-1/4 to 3 parts mortar aggregate

Sufficient water shall be used to provide a workable consistency. Mortar shall be used and placed in final position within 1-1/2 hours after mixing.

4. Type M Mortar
2 sacks portland cement
1/2 to 1 - 7 lb. bag Easy Spred
6 cu. ft. mortar aggregate
5. Type M Mortar
1 sack portland cement
3 ounces MRF
2-1/4 to 2-3/4 cu. ft. mortar aggregate
6. Type S Mortar
2 sacks portland cement
1 - 7 lb. bag Easy Spred
9 cu. ft. mortar aggregate

7. Type S Mortar
 - 1 sack portland cement
 - 3 ounces MRF
 - 2-1/2 to 3 cu. ft. mortar aggregate

The above mixes 5 through 7 shall be prepared strictly in accordance with the manufacturer's instructions. Placement of the mortar shall be completed within 2-1/2 hours after mixing. No materials which start to set shall be retempered.

- C. Grout (coarse) mixed on-site shall conform to ASTM C 476 and shall be freshly prepared and uniformly mixed in the following proportion:

- 1 part portland cement
- 0 to 1/10 part hydrated lime

Fine Aggregate: 2-1/4 to 3 times the sum of the volumes of the cementitious materials.

Coarse Aggregate: 1 to 2 times the sum of the volumes of the cementitious materials.

Grout designed by Ready-mix suppliers may be used upon approval of the Engineer.

Sufficient water shall be used to produce a consistency just fluid enough for pouring or pumping without segregation. Grout shall be used and placed in final position within 90 minutes after mixing, but shall in no case be used after initial set has occurred.

In any event, the grout shall attain not less than 2,500 psi 28-day compressive strength per ASTM C 1019 unless noted otherwise on drawings.

3.2 REINFORCEMENT

- A. Reinforcement shall be free from scale, loose flaky rust or other coatings that will destroy bond. It shall be straight except for bends around corners or where bends or hooks are detailed. Size and spacing shall be as indicated on the drawings.
- B. Vertical reinforcement shall be accurately placed and secured against displacement by rebar wire positioners at top and bottom and at intervals not to exceed 200 diameters of the reinforcement (8 feet for #4 bars; 10 feet for #5 bars). Dowels and splices shall be lapped as indicated but not less than 40 diameters or 24 inches, whichever is longer. At jambs of doors, windows and other openings, and corners and ends of walls, including those abutting concrete, one #5 bar shall be installed

in the end cell unless heavier reinforcement is otherwise called for on the plans and that cell shall be filled with grout.

Bars adjacent to all openings and at corners and ends of walls shall extend the full height of walls.

- C. At intersections, corners and splices, horizontal reinforcing shall be placed, bent and lapped as shown on the plans. End laps shall be at least 30 diameters.

3.3 ANCHORS

Work with other trades shall be coordinated as necessary to set into tile walls all anchors, bolts, nailing blocks, etc. Anchors shall be grouted around with sufficient mortar to make them secure.

3.4 LAYING

- A. General: All masonry units shall be clean and dry and shall be handled so that edges and faces will not be chipped, spalled, or cracked. All beds on which masonry is to be laid shall be cleaned. All work shall be built plumb, level, and true, within the tolerances specified below, and shall be laid up with whole units except at closures.

Masonry units in walls shall be laid so that one face of the wall is a true flat plane. Unless otherwise indicated on the plans, this shall be on the inside face. Where one face of a wall is to be plastered or covered, the exposed face shall be the true flat plane. All cutting and fitting as may be required for and necessary to accommodate other trades shall be done neatly using a power driven Carborundum saw. It shall be the responsibility of the Contractor to control any dust pollution caused by the cutting operations. All drilling and cutting of small holes shall be neatly done. Bolts, anchors, ties, conduits, and similar items required for the installation of work under other sections of these specifications shall, as far as practicable, be placed as the work progresses. All walls and partitions shall be carried to the underside of beams, slabs, or joists, as the case may be, and shall be connected at the top as shown on the plans.

- B. Allowable Tolerances:

- 1. Variation from the Plumb.

- a. In the lines and surfaces of columns, walls and arises:

- in 10 ft. 1/4"
 - in any story or 20 ft. max. 3/8"
 - in 40 ft. or more 1/2"

- b. For external corners, control joints and other conspicuous lines:

in any story or 20 ft. max. 1/4"
in 40 ft. or more 1/2"

2. Variation from the level or grades indicated on the plans:

For exposed lintels, sills, parapets, horizontal grooves and other conspicuous lines:

in any bay or 20 ft. max. 1/4"
in 40 ft. or more 1/2"

3. Variation of the linear building lines from established position in plan and related portion of columns, walls and partitions:

in any bay or 20 ft. max. 1/2"
in 40 ft. or more 3/4"

4. Variation in cross-sectional dimensions of columns and in the thickness of walls:

minus 1/4"; plus 1/2"

5. For window and door openings:

- a. Maximum variations as specified in Paragraphs B.1. and B.2. for plumb and level of masonry work.
- b. Maximum variation of 3/8" in each dimension from that specified or dimensioned.
- c. Tolerance requirements for both dimensions and plumb-and-level must be met.

6. Checking and setting:

The following tools and methods shall be the minimum or acceptable type:

- a. Plumb and level shall be determined by level and/or pull string method.
- b. An instrument at least 4 feet long shall be used for leveling or runs. A shorter level may be used for cross-leveling of units.

C. Masonry units shall not be wet before being used and units which have gotten wet shall be thoroughly dried before being used. Where no bond pattern is shown, the wall shall be laid up in straight uniform course with regular running bond.

- D. Masonry units in first course shall be laid with shell mortar beds not exceeding 3/4" in thickness. Webs of adjoining cells containing reinforcement shall also be bedded in mortar to prevent escape of grout.

Vertical head joints shall be mortared well for a thickness equal to the face shell of the block and these joints shall be shoved tightly so that the mortar bonds well to both blocks. Joints shall be solidly filled from the face of the block to the depth of the face shell.

- E. If it is necessary to move a block so as to open a joint, the block shall be removed from the wall, cleaned and reset in fresh mortar.
- F. Mortar joints shall be straight, clean and in a thickness of 3/8" + 1/8". All exposed horizontal and vertical joints shall be struck flush unless otherwise noted.

All horizontal joints between split-faced block and concrete beam shall be "raked" as shown on the drawings.

Where walls are to receive plaster or where they are not exposed, such as below finish grade and where special glazed finish is indicated, the joints shall be struck flush.

- G. All hollow masonry units shall be built to preserve the unobstructed vertical continuity of the cells to be filled. Walls and cross webs forming such cells shall be full-bedded in mortar to prevent the leakage of grout.
- H. All cells containing reinforcement shall be filled solidly with grout in lifts not exceeding 8 feet unless otherwise shown on the plans. Other cells, where indicated to be solid for anchors or such items, shall also be filled. When grouting is stopped for one hour or longer, horizontal construction joints shall be formed by stopping the pour of grout 1-1/2" below the top of the uppermost unit.
- I. Care shall be taken to prevent mortar splashes. All forms shall be made tight and concrete or grout spilled on the wall shall be washed off immediately before it can set up. Walls shall be protected against stains and excess mortar shall be wiped off the surface as the work progresses. After the wall is constructed, it shall not be saturated with water for curing, cleaning, etc.

3.5 PROTECTION AND CLEANING

- A. While masonry walls are being built, they shall be protected when not being worked on to prevent rain from saturating the wall. Covering of suitable materials such as canvas or plastic sheeting shall be placed atop the wall and shall extend at least two feet on either side of the wall. Covering shall be weighted down to prevent it from being lifted by the wind.

- B. At the completion of the work, all holes or defective mortar joints in exposed masonry shall be pointed and where necessary defective joints shall be cut out and repointed. All exposed masonry shall be thoroughly cleaned of mortar drippings, sand and splotches during the course of the work. No smoothing of a wall surface which produces a "bright spot" when painted will be accepted. All adjoining work subject to damage shall be carefully protected.
- C. Upon completion of work, all surplus, waste materials, rubbish and debris shall be removed from the premises, leaving same in clean and satisfactory condition.

END OF SECTION

DIVISION 5- METALS

SECTION 05500 – METAL FABRICATIONS

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

This section covers the requirements for furnishing and installing metal fabrications which are not part of structural steel or other metal systems.

1.2 REFERENCES

A. American Institute of Steel Construction (AISC):

M011-80 Manual of Steel Construction, "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings."

B. American Society for Testing and Materials (ASTM):

A 36-84a Structural Steel.

A 123-84 Zinc (Hot-Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip.

A 143-74 (84) Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement.

A 153-82 Zinc Coating (Hot Dip) on Iron and Steel Hardware..

A 780-80 Repair of Damaged Hot-Dip Galvanized Coatings.

A 240 Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications

A 167 Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip

A 500 Steel Tubes. Hot dipped galvanized

A 53 Pipes. Grade B. Hot dipped galvanized

A 193 Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications

A 194 Standard Specification for Carbon Steel, Alloy Steel, and Stainless Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both

C. American Welding Society (AWS):

B 3.0-77 Welding Procedure and Performance Qualification.

D 1.1-86 Structural Welding Code, Steel.

D. Occupational Safety and Health Standards, State of Hawaii (OSHS):

Chapter 126 Welding, Cutting and Brazing.

E Stainless Steel Pipe Railing shall be 316 or 316L

1.3 QUALITY ASSURANCE

A. Qualification of Welding Work: AWS B 3.0, for welding processes and welding operations.

B. Codes and Standards: Comply with codes, specifications and standards, referred to in this specification, except where provisions in this specification or drawings exceed such requirements.

1.4 SUBMITTALS

A. Submit in accordance with Section 01300 – SUBMITTALS.

B. Shop Drawings: Shop drawings for each fabricated items showing fabrication, assembly and erection details, sizes of members, fastening, supports, anchors, clearances, and necessary connections to work of other trades.

1.5 PRODUCT HANDLING

A. Transport and store material with adequate protection against damage. Store items in an enclosed area free from contact with soil and weather.

B. Remove and replace damaged items with new items.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Rolled Steel Shapes, Plates and Bars: ASTM A 36, unless otherwise indicated. All steel shall be hot dipped galvanized per ASTM A123 after fabrication. Tubes and pipes shall conform to ASTM A500 Grade B.

- B. Anchor Bolts, Bolts and Nuts: 316 Stainless Steel ASTM A193 Bolt grade B8M Class2, Nut ASTM A194 Grade 8M, Washer 316 SS, unless otherwise indicated.
- C. Cold Formed Prefabricated Cold Form Stainless Steel Connectors: 316 or 316L, conforming to ASTM A167 and ASTM A240, shall be prefabricated by a reputable manufacturer such as Simpson Strong Tie or equal.
- D. Welding Electrodes: AWS D1.1, E 70 Series Electrodes, unless otherwise indicated.
- E. Galvanizing Repair Material: ASTM A 780, zinc based alloys, zinc rich paint or zinc for spraying.
- F. Steel and Iron: AISC "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings"; if not specified otherwise, use standard mill finished structural steel shapes or bar iron.
- G. Galvanic Isolating Washer and Sleeves: Galvanic isolating elements shall be used to prevent contact between metals with different galvanic potentials in all connections, for example between ASTM A36 and 316 stainless steel bolts and washers. Galvanic isolation sleeves may be of the following material:
- Mylar
 - Polyethylene
 - Phenolic
 - Nomex®
 - G-7 Silicon Glass
 - G-10 Epoxy Glass
 - G-11 Epoxy Glass
- Washer may be made of the following material:
- High Strength Glass Clad Phenolic
 - G-3 High Temp. Phenolic
 - G-7 Silicon Glass
 - G-10 Epoxy Glass
 - G-11 Epoxy Glass
- H. Metal Surface, General: For fabrication of work of this Section which will be exposed to view, use only those materials which are smooth and free from surface blemishes including pitting, seam marks, roller marks, rolled trade names, and roughness.

2.2 FABRICATION

- A. Shop Fabrication: Fabricate and assemble items in shop to greatest extent possible by mechanics skilled in trade and in accordance with manufacturer's directions. Form metalwork to shape and size, with sharp lines, angles, and true curves. Fabricate work to allow for expansion and contraction of materials. Provide welding and bracing of adequate strength and durability, with tight, flush joints, dressed smooth and clean.

- B. Metal Surfaces: Shall be clean and free from mill scale, flake rust and rust pitting; well-formed and finished to shape and size, with sharp lines, angles, and smooth surfaces. Shearing and punching shall leave clean true lines and surfaces. Weld permanent connections. Use welds and smooth on surfaces that will be exposed after installation. Do not use screws or bolts where they can be avoided.
- C. Construction: Thickness of metal and details of assembly and supports shall give strength and stiffness for minimum loads specified or indicated.
- D. Welding: AWS D1.1 for welding of steel. Weld to prevent permanent distortion of connected parts. Weld continuously along entire area of contact (except where tack welding is permitted. Do not tack weld exposed connections). Grind smooth visible welds in finished installation and clean welds immediately by chipping or wire brushing. Comply with OSHS, Chapter 126.
- E. Hot dipped all ferrous steel after fabrication in accordance to ASTM A123.

2.3 TREATMENT

A. Galvanizing New Steel :

1. Surface Preparation:
 - a. Prepare surfaces as required by initial surface condition.
 - b. Pre-clean steelwork utilizing an alkaline cleaner, acid pickle and flux.
2. Coating Application:
 - a. ASTM A 123, galvanize steel members, fabrications, and assemblies after fabrication where practicable by the hot dip process.
 - b. ASTM A 143, safeguard products against steel embrittlement.
3. Coating Weight:
 - a. ASTM A 123, paragraph 5.1 of ASTM A 123 or ASTM A 153, Table 1 as appropriate.
4. Surface Finish: Continuous, adherent, as smooth and evenly distributed as possible and free from any defect detrimental to stated end use of coated article.
5. Adhesion: Withstand normal handling consistent with nature and thickness of coating and normal use of article.
6. Treatment: Do not treat freshly galvanized or passivated surfaces with oils, grease,

or chemicals which might interfere with adhesion of subsequent paint primers and coatings.

7. Galvanizing Repair: ASTM A 780, whenever damage exceeds 3/16 inch in width, repair galvanized items damaged by welding cutting or by excessively rough handling during shipping or installation. Do not heat surfaces that repair paint has been applied to.

B. Treatment of Existing Corroded Ferrous Metal Surface :

1. Where indicated on plan to remove existing corrosion and recoat, remove existing surface corrosion where accessible with wire brush. Scrape of all existing corrosion. Apply two coats of Galvanized Repair as noted above. Then apply two epoxy coats paint containing zinc rich dust.

2.4 ANCHORAGE, FASTENINGS, AND CONNECTIONS

- A. Anchorage: Provide anchorage for fastening work securely in place as indicated.
- B. Fastenings: Provide fasteners securely as indicated. Provide galvanic isolators between stainless steel bolt and washer, and ASTM A36 steel to prevent galvanic corrosion.
- C. Threaded Connections: Make bolted work up tight.
- D. Grouting: Grout metal fabrications and anchors to assure filling of spaces and intimate contact of grouting materials with surface to be grouted. Place grout rapidly and continuously so as to avoid cold joints and voids.
- E. Secure and install prefabricated cold formed stainless steel connectors per manufacturer's recommendation.

2.5 TEMPLATES

- A. Furnish templates, other devices and instructions necessary for the setting of anchors and anchor bolts where required to accurate locations.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine areas and conditions under which metal fabrications are to be installed. Should any condition be found unsuitable, no work shall be done until unsuitable conditions have been corrected and are acceptable to Contractor. Proceeding with work will imply acceptance of the conditions by Contractor.

3.2 PREPARATION

- A. Field Verification: Verify measurements in field, as required, for work fabricated to fit job conditions. Examine adjoining work on which metal fabrication work is in any way dependent on for workmanship or fit. Provide corrective work as may be necessary.

3.3 INSTALLATION

- A. General: Install plumb, square, straight, rigid, and true; accurately fit with tight joints and intersections. Brace work adequately, reinforce, and anchor in place.
- B. Isolation of Metals: Where dissimilar metals are in contact with one another, or with concrete, separate for prevention of corrosion by approved methods and/or materials.
- C. Support and Anchors: Provide supporting members, fastenings, framing, hangers, bracing, brackets, straps, bolts, angles and similar items required to set or connect miscellaneous metal items including suitable anchors, expansion shields and similar items for attachment to structure. Install expansion anchor bolts as recommended by manufacturer.
- D. False Work: Provide guys, braces and false work for temporary support of parts of the work and remove when work is self-supporting.

3.4 FIELD TOUCH UP AND FINAL PAINTING

- A. Provide field touch up on galvanized metals not embedded in concrete or masonry as specified under item "Galvanizing Repair."
- B. After erection, prime bolts, anchors, field welds and abrasions with same primer as used for metal work.
- C. Provide 2 coats of an epoxy with zinc rich primer after all final field touch ups are completed. If required see Painting Section 09901 of specification for final coat(s).

END OF SECTION

DIVISION 6 - WOOD AND PLASTICS

SECTION 06070 - WOOD TREATMENT

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Provide plant preservative and insecticide treatment of lumber products specified in other sections of this Specification by pressure and dip methods.
- B. Field treatment of field cut or drilled lumber.
- C. Related Work Specified Elsewhere: Section 06100 - ROUGH CARPENTRY: Lumber products treatment.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01300 - SUBMITTALS.
- B. Product Data: Provide data on all treatment products, including field application instructions if applicable. Provide manufacturer's Material Safety Data Sheets on all products and hazardous materials.
- C. Preserver Certifications: Provide a Certificate of Treatment showing compliance with these specifications for the following:
 - 1. Kiln drying.
 - 2. Method of treatment performed.
- D. Contractor's Certification: Provide a certification letter stating that all wood used on this job, including cuts and penetration were treated and coated with preservatives in compliance with requirements of this contract.
- E. Guarantee: Submit guarantee as noted under item entitled "GUARANTEE" hereinbelow.

1.3 GUARANTEE

- A. Provide a 2 year written guarantee to replace all treated wood which is attacked by subterranean termites.
- B. Provide a 5 year guarantee to replace all treated wood which is attacked by dry wood termites or deteriorates due to dry rot. The Surety shall not be held liable beyond 2 years from the project acceptance date.

1.4 REGULATORY REQUIREMENTS

Comply with State OSHL (Occupancy Safety and Health Law) and pollution controls regulations of the State Department of Health and EPA.

1.5 DELIVERY, STORAGE, AND HANDLING

Protect AWWA C31 inorganic boron treated wood from contact with the ground, rain or other sources of liquid water until permanent installation of covering construction.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Mill lumber to finish size and shape prior to treating, and treat before assembly.
- B. Mark each treated item with the treatment quality mark of an inspection agency approved by the American Lumber Standards Committee Board of Review. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece, or omit marking and provide certificates of treatment compliance issued by inspection agency.

2.2 PRESSURE TREATMENT WITH WATER-BORNE PRESERVATIVES

- A. Treating Solutions: Inorganic boron (SBX).
- B. Treatment Methods:
 - 1. General: Choice of treatment method and conditions of use of each treating solution shall conform to the treatment schedule contained in PART 3 - EXECUTION.
 - 2. SBX: Treatment method shall conform to AWWA C31. Treating solution retention shall be a minimum of 0.28 pounds per cubic foot (equivalent to 0.42 DOT). Do not incise exposed lumber.
- C. Drying:
 - 1. Before SBX Treatment: Wood having a moisture content higher than 28 percent is acceptable when treating with SBX.
 - 2. After Treatment: All 1-inch and 2-inch lumber shall be dried to a moisture content of 19 percent or less after treatment.

2.3 FIELD TREATMENT

Treatment Method: Treat in accordance with AWWA Standard M4 using 2 heavy brush coats of a treating solution.

PART 3 - EXECUTION

3.1 SCHEDULE OF TREATMENTS

A. Species:

1. Treat all wood species.
2. All water-borne treatment solutions are applicable to douglas-fir and hem-fir species.

B. Application:

1. Pressure Treatment:

- a. General: Unless otherwise stipulated, all lumber shall be pressure treated.
- b. Exposed lumber that will be unpainted or receive a clear finish shall be pressure treated with oil-borne preservative. Do not incise lumber.
- c. SBX treated wood shall not be used in areas exposed to direct precipitation unless painted or covered with a finish material.
- d. Do not incise exposed lumber.

2. Field Cuts: Treat end cuts, notches, and penetrations into treated lumber. Exception: Cuts and penetrations made in SBX treated wood 2-inches or less in nominal thickness need not be field treated.

END OF SECTION

SECTION 06100 - CARPENTRY

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Provide all carpentry, including, but not limited to, the following items as indicated on the drawings and specified herein:
 - 1. Framing lumber.
 - 2. Posts.
 - 3. Fasteners and anchorages.
 - 4. Moisture barrier.
 - 5. Birdscreen.
- B. Related Work Described Elsewhere:
 - 1. Section 06070 - WOOD TREATMENT: Lumber product treatment.
 - 2. Section 09901 - PAINTING: Field applied painting.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01300 - SUBMITTALS.
- B. Birdscreen: Submit 12-inch by 12-inch woven mesh with frame.
- C. Certificates: Submit certificate of wood treatment showing compliance with the specifications.

1.3 QUALITY ASSURANCE

Grading Marks: Factory mark each piece of lumber with type, grade, mill, and grading agency identification. Certificate of inspection and grading by a recognized agency may be submitted with each shipment in lieu of factory marking, at Contractor's option.

1.4 PRODUCT HANDLING

Delivery and Storage: Keep materials dry at all times. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber and provide air circulation within stacks.

1.5 JOB CONDITIONS

Coordination: Fit carpentry work to other work; scribe and cope as required for accurate fit. Correlate location of furring, rough bucks, blocking, and similar supports to allow proper attachment of other work.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Lumber, General: Factory-mark each piece of lumber with type, grade, mill, and grading agency, except omit marking from surfaces to be exposed with transparent finish or without finish. Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by DOC PS 20, for moisture content specified for each use.
 - 1. Provide dressed lumber, S4S, unless otherwise indicated.
 - 2. Provide seasoned lumber with 15 percent maximum moisture content at time of dressing.
- B. Framing Lumber: Unless otherwise indicated on the structural drawings, provide the following:
 - 1. Light Framing Lumber: 2-inches through 4-inches thick, less than 6-inches wide, such as nailers, plates, blocking, rough bucks, furring, etc., provide No. 2 Grade, Douglas Fir/Larch.
 - 2. Posts: 2-inches through 4-inches thick, 6-inches and wider, provide No. 1 Grade, Douglas Fir, (WCLB or WWPA).
- C. Fasteners and Anchorages: Provide size, type, material, and finish as recommended by applicable standards, for nails, staples, screws, bolts, nuts, washers, and anchoring devices. Provide galvanized metal hangers and framing anchors of the size and type recommended by the manufacturer for each use, including recommended nails. Provide all fasteners and anchorages with a hot-dip zinc coating, ASTM A 153/A 153M.
- D. Moisture Barrier: ASTM D 226/D 226M, Type I, No. 15 or Type II, No. 30, asbestos free, asphalt saturated roofing felt as required to separate wood from concrete surface and as required.
- E. Birdscreen:
 - 1. McNichols Chateau 3115 Type 316 stainless steel woven mesh or accepted equal.
 - 2. Type 316 stainless steel frame with stainless steel fasteners.

2.2 WOOD TREATMENT

Treat all rough lumber in accordance with Section 06070 - WOOD TREATMENT.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Discard units of material with defects which might impair quality of work, and units which are too small to use in fabricating work with minimum joints or optimum joint arrangement.
 - 1. Set carpentry work accurately to required levels and lines, with members plumb and true and accurately cut and fitted.
 - 2. Securely attach carpentry work to substrate by anchoring and fastening as shown, or if not shown, as required by recognized standards. Countersink nail heads on exposed carpentry work and fill holes.
 - 3. Use common wire nails, except as otherwise indicated. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood; predrill as required.
- B. Wood Framing, General:
 - 1. Provide framing members of sizes and on spacings wherever shown, and frame openings as shown, or if not shown, comply with recommendations of AFPA's "Manual for Wood Frame Construction". Do not splice structural members between supports.
 - 2. Anchor and nail as shown, or where not shown, as required and to comply with the current International Building Code.
 - 3. Provide moisture barrier below all wood plates resting on concrete.
- C. Wood Nailers, Plates, Blocking, Rough Bucks, Furring, etc.: Provide wherever shown and where required for attachment of other work. Form to shapes and cuts as required for true line and level of work to be attached. Coordinate location with other work involved. Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise shown.
- D. Posts: Provide as indicated on the drawings.
- E. Retreat cut and penetrated lumber in accordance with Section 06070 - WOOD TREATMENT.

F. Fabricate and install birdscreen as indicated on the drawings.

END OF SECTION

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

SECTION 07920 - JOINT SEALANTS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Provide all sealants to completely close all joints indicated on the drawings or specified to be sealed to a watertight condition.
- B. Related Work Specified Elsewhere: Section 09901 - PAINTING: Coordinate work.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01300 - SUBMITTALS.
- B. Product Data: Submit manufacturer's product data and specifications for each type of sealant.
- C. Samples: Submit color finish samples of each type of sealant for approval.
- D. Product Certificates: Submit certificates signed by manufacturers of joint sealants certifying that products furnished comply with requirements and are suitable for the use indicated.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
- C. Preconstruction Compatibility and Adhesion Testing: Use manufacturers standard test methods to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
- D. Compatibility: Verify that each of the sealants are compatible for use with joint substrates.

1.4 PERFORMANCE REQUIREMENTS

- A. Provide exterior joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

- B. Provide joint sealants for interior applications that establish and maintain airtight and water resistant continuous joint seals without staining or deteriorating joint substrates.

1.5 PRODUCT HANDLING

- A. Delivery: Deliver sealants to the jobsite in sealed containers labeled to show the designated name, formula, or specification number, lot number, color, date of manufacture, shelf life, curing time, manufacturer's directions, and name of manufacturer.
- B. Storage: Store and handle materials in compliance with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high temperatures, contaminants, or other causes.

1.6 PROJECT CONDITIONS

- A. Inspection: Examine joint surfaces and backing, joint widths, and their anchorage to the structure, and conditions under which joint sealer work is to be performed, and notify Contractor in writing of conditions detrimental to proper completion of the work and performance of sealers. Do not proceed with joint sealer work until unsatisfactory conditions have been corrected in a manner acceptable to installer.
- B. Weather Conditions: Do not proceed with installation of sealants under adverse weather conditions. Proceed with the work only when forecasted weather conditions are favorable for proper cure and development of high early bond strength.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

Products: Subject to compliance with requirements, products that may be incorporated into the work include, but are not limited to, products listed hereinbelow.

2.2 MATERIALS

- A. Materials: Provide joint sealants, backing, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as approved by sealant manufacturer. Provide all joint sealants with low VOC.
- B. Sealants:
 - 1. Sealant No. 1, At Exterior Joints: One-component polyurethane sealant, conforming to ASTM C 920, Type S, Grade NS, Use NT, Class 25 or 35 as applicable. Provide one of the following, or approved equal products of other manufacturers:
 - a. Masterseal NP-1; BASF.

- b. Dymonic; Tremco.
 - c. Sikaflex - 1a; Sika.
2. Sealant No. 2, At Interior Joints: One-component acrylic latex sealant, conforming to ASTM C 834. Provide one of the following, or approved equal products of other manufacturers:
- a. AC-20 Acrylic Latex; Pecora Corp.
 - b. Acrylic Latex; DAP.
 - c. Tremflex 834; Tremco.
- C. Sealant Backer Rod: Compressible rod stock of polyethylene foam, polyurethane foam, butyl rubber foam, neoprene foam or other flexible, permanent, durable, nonabsorptive material as recommended for compatibility with sealant by the sealant manufacturer to control the joint depth for sealant placement, to break bond of sealant at bottom of joint, to form optimum shape of sealant bead on back side, and to provide a highly compressible backer which will minimize the possibility of sealant extrusion when joint is compressed.
- D. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure.
- E. Primer for Sealants: Non-staining, as recommended by the sealant manufacturer.
- F. Masking Tape: Non-staining, non-absorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

Comply with manufacturer's printed instructions except where more stringent requirements are shown or specified, and except where manufacturer's technical representative directs otherwise.

3.2 EXAMINATION

Examine joints indicated to receive joint sealers, with installer present, for compliance with requirements for joint configuration, installation tolerances and other conditions affecting joint sealer performance. Do not proceed with installation of joint sealers until unsatisfactory conditions have been corrected.

3.3 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:
 - 1. Remove all foreign material from joint substrates which could interfere with adhesion of joint sealer, including dust; paints, except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer; oil; grease; water; and surface dirt.
 - 2. Clean concrete, masonry, and similar porous joint substrate surfaces, by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealers. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
 - 3. Remove laitance and form release agents from concrete.
 - 4. Clean metal and other nonporous surfaces by chemical cleaners or other means which are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealers.
- B. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealer manufacturer based on preconstruction joint sealer-substrate tests or prior experience. Apply primer to comply with joint sealer manufacturer's recommendations. Confine primers to areas of joint sealer bond, do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces which otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.4 INSTALLATION OF JOINT SEALERS

- A. General: Comply with joint sealant manufacturers' printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply. Do not apply sealants on wet surfaces.
- B. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions.
- C. Latex Sealant Installation Standard: Comply with requirements of ASTM C 1193 for use of latex sealants.

- D. Installation of Sealant Backings: Install sealant backings to comply with the following requirements:
1. Install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths which allow optimum sealant movement capability.
 - a. Do not leave gaps between ends of joint fillers.
 - b. Do not stretch, twist, puncture, or tear joint fillers.
 - c. Remove absorbent joint fillers which have become wet prior to sealant application and replace with dry material.
 2. Install bond breaker tape between sealants and joint fillers, compression seals, or back of joints where adhesion of sealant to surfaces at back of joints would result in sealant failure.
 3. Install compressible seals serving as sealant backings to comply with requirements indicated above for joint fillers.
- E. Primer: Immediately prior to application of the sealant, clean out all loose particles from joints. Where recommended by sealant manufacturer, apply primer to joints in concrete, masonry units, wood, and other porous surfaces in accordance with compound manufacturer's instructions. Do not apply primer to exposed finish surfaces.
- F. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.
- G. Tooling of Nonsag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents which discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.
1. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
 2. Provide flush joint configuration per Figure 5B in ASTM C 1193, where indicated.

3.5 CLEANING

Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur.

3.6 PROTECTION

Protect joint sealers during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of project acceptance. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealers immediately and reseal joints with new materials to produce joint sealer installations with repaired areas indistinguishable from original work.

END OF SECTION

DIVISION 9 - FINISHES

SECTION 09300 - CERAMIC TILE

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

Provide all ceramic tile where indicated on the drawings and as specified herein.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01300 - SUBMITTALS.
- B. Product Data: Submit product data for each type of product indicated.
- C. Samples for Initial Selection: Submit manufacturer's full range of samples for each type of tile and grout indicated. Include samples of accessories involving color selection.
- D. Samples for Verification: Submit required samples as follows:
 - 1. Full-size units of each type and composition of tile and for each color and finish required.
 - 2. Full-size units of each type of trim and accessory for each color and finish required.
- E. Warranty: Submit warranty as noted under item entitled "WARRANTY" hereinbelow.

1.3 WARRANTY

Ceramic Tile Warranty: Provide written warranty for a period of 2 years against defects resulting from the use of defective or inferior materials, equipment or workmanship from the project acceptance date. Defects shall include, but not be limited to, tile and grout that has delaminated from the substrate, popped-out, or fallen-off. Defective materials and workmanship shall be redone at Contractor's own expense.

1.4 QUALITY ASSURANCE

- A. Source Limitations for Tile: Obtain all tile of same type and color or finish from one source or producer. Obtain tile from same production run and of consistent quality in appearance and physical properties for each contiguous area.
- B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar and grout component from a single manufacturer and each aggregate from one source or producer.

- C. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and qualities of materials and execution.
 - 1. Build mockup of each type of floor tile installation.
 - 2. Build mockup of each type of wall tile installation.
 - 3. Approved mockups may become part of the completed Work if undisturbed at time of project acceptance.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement in ANSI A137.1 for labeling sealed tile packages.
- B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Store liquid products in unopened containers and protected from deterioration.

1.6 PROJECT CONDITIONS

Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

Subject to compliance with requirements, provide products as indicated on the drawings, or if not indicated, as selected by the Engineer.

2.2 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, "Specifications for Ceramic Tile", for types, compositions, and other characteristics indicated.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI standards referenced in item entitled "SETTING AND GROUTING MATERIALS" hereinbelow.

- C. Colors, Textures, and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials as selected from manufacturer's full range.
- D. Factory Blending: For tile exhibiting color variations within ranges selected during sample submittals, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved samples.
- E. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer, unless otherwise indicated. Where tile is indicated for installation in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.
- F. ADAAG Requirements: Floor surfaces of accessible routes, exterior and interior, shall be stable, firm, and slip resistant and shall comply with ADAAG 302.
- G. Provide all tiles to match existing adjacent tiles.

2.3 TILE PRODUCTS

- A. Ceramic Tile: Floor and wall tiles shall be of composition, dimensions, thickness, edges, and color as indicated on the drawings, or if not indicated, as selected from the manufacturer's price range group 2 standards.
- B. Wall Tile Trim Units: Matching characteristics of adjoining flat tile and coordinated with sizes and coursing of adjoining flat tile where applicable. Provide shapes as follows, selected from manufacturer's standard shapes unless otherwise indicated or selected.
 - 1. Base for Thinset Mortar Installations: Straight.
 - 2. Wainscot Cap for Thinset Mortar Installations: Surface bullnose.
 - 3. External Corners for Thinset Mortar Installations: Surface bullnose.
 - 4. Internal Corners, Where Applicable: Field-buttet square corners except with coved base and cap angle pieces designed to fit with stretcher shapes.

2.4 SETTING AND GROUTING MATERIALS

- A. Portland Cement Mortar (Thickset) Installation Materials: ANSI A108.1A and as specified below:

Latex Additive: Manufacturer's standard water emulsion, serving as replacement for part or all of gaging water, of type specifically recommended by latex-additive manufacturer for use with field-mixed Portland cement and aggregate mortar bed.

- B. Latex-Portland Cement Mortar (Thinset): ANSI A118.4, consisting of one of the following:
 - 1. Prepackaged dry-mortar mix containing dry, redispersible, ethylene vinyl acetate additive to which only water must be added at Project site.
 - 2. Prepackaged dry-mortar mix combined with acrylic resin or styrene-butadiene-rubber liquid-latex additive. For wall applications, provide nonsagging mortar that complies with Paragraph F-4.6.1 in addition to the other requirements in ANSI A118.4.
- C. Standard Sanded Cement Grout: ANSI A118.6, with latex additive, for joints 1/8-inch and larger, color as indicated or if not indicated, as selected.
- D. Standard Unsanded Cement Grout: ANSI A118.6, with latex additive, for joints narrower than 1/8-inch, color as indicated or if not indicated, as selected.

2.5 ELASTOMERIC SEALANTS

- A. General: Provide manufacturer's standard chemically curing, elastomeric sealants.
- B. One-Part, Mildew-Resistant Silicone Sealant: ASTM C 920; Type S; Grade NS; Class 25; Uses NT, G, A, and, as applicable to nonporous joint substrates indicated, O; formulated with fungicide, intended for sealing interior ceramic tile joints and other nonporous substrates that are subject to in-service exposures of high humidity and temperature extremes.
- C. Colors: Provide products where colors of exposed sealants match colors of grout in tile adjoining sealed joints, unless otherwise indicated.

2.6 MISCELLANEOUS MATERIALS

- A. Trowelable Underlayments and Patching Compounds: Latex-modified, Portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
- B. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.
- C. Grout Sealer: Manufacturer's deep penetrating product for sealing grout joints that does not change color or appearance of grout.

2.7 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.
- B. Add materials, water, and additives in accurate proportions.

- C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
 - 1. Verify that substrates for setting tile are firm; dry; clean; free of oil, waxy films, and curing compounds; and within flatness tolerances required by referenced ANSI A108 Series of tile installation standards for installations indicated.
 - 2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.
 - 3. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with manufacturer's representative.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Coatings: Remove coatings, including curing compounds and other substances that contain soap, wax, oil, or silicone, that are incompatible with tile-setting materials.
- B. Substrates: Provide concrete substrates for tile floors installed with latex-Portland cement mortars that comply with flatness tolerances specified in referenced ANSI A108 Series of tile installation standards.
 - 1. Fill cracks, holes, and depressions with trowelable leveling and patching compound according to tile-setting material manufacturer's written instructions. Use product specifically recommended by tile-setting material manufacturer.
 - 2. Remove protrusions, bumps, and ridges by sanding or grinding.
- C. Blending: For tile exhibiting color variations within ranges selected during sample submittals, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

3.3 INSTALLATION, GENERAL

- A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.
- B. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation". Comply with TCA installation methods indicated in tile installation schedules.
- C. Coverage into Recesses, etc.: Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- D. Intersections, Returns, etc.: Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- E. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise indicated. Where applicable for tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.
- F. Grout tile to comply with ANSI A108.10.

3.4 FLOOR TILE INSTALLATION

- A. General: Install tile to comply with requirements in the Floor Tile Installation Schedule, including those referencing TCA installation methods and ANSI A108 Series of tile installation standards. For installations indicated below where applicable, follow procedures in ANSI A108 Series tile installation standards for providing 95 percent mortar coverage.
 - 1. Tile floors composed of tiles 8-inches by 8-inches or larger.
 - 2. Tile floors composed of rib-backed tiles.
- B. Joint Widths: Install tile on floors with joint widths as recommended by the tile manufacturer.
- C. Grout Sealer: Apply grout sealer to grout joints according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer that has gotten on tile faces by wiping with soft cloth.

3.5 WALL TILE INSTALLATION

- A. General: Install types of tile designated for wall installations to comply with requirements in the Wall Tile Installation Schedule, including those referencing TCA installation methods and ANSI setting-bed standards.
- B. Joint Widths: Install tile on walls with joint widths as recommended by the tile manufacturer.

3.6 CLEANING AND PROTECTING

- A. Cleaning: On completion of placement and grouting, clean all tile surfaces so they are free of foreign matter.
 - 1. Remove all grout residue from tile as soon as possible.
 - 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions, but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.
- B. When recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.
- C. Prohibit foot and wheel traffic from tiled floors for at least 7 days after grouting is completed.
- D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

3.7 FLOOR TILE INSTALLATION SCHEDULE

- A. Interior Floor Tile Installation: Interior floor installation on concrete; cement mortar bed (thickset) bonded to concrete; TCA F112 and ANSI A108.1B.
- B. Interior Floor and Concrete Bench Tile Installation: Interior floor and bench installation on concrete; thinset mortar; TCA F113 and ANSI A108.5.

3.8 WALL TILE INSTALLATION SCHEDULE

Interior Wall Tile Installation: Interior wall installation over sound, dimensionally stable masonry or concrete; thinset mortar; TCA W202 and ANSI A108.5.

END OF SECTION

SECTION 09901 - PAINTING

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Provide all painting and finishing of new and existing interior and exterior items and surfaces throughout the project. Paint all new work whether scheduled or not, except as otherwise indicated. Paint existing items and surfaces where indicated. Surface preparation, priming, and coats of paint specified are in addition to shop-priming and surface treatment specified under other sections of the work and is included in this section.
- B. "Paint" as used herein means all coating systems materials, including primers, enamels, sealers, and fillers, and other applied materials whether used as prime, intermediate or finish coats, except as specifically noted herein.
- C. Paint all new and selected existing exposed surfaces whether or not colors are designated in "schedules". Where items or surfaces are not specifically mentioned, paint these the same as adjacent similar materials or areas. If color or finish is not designated, the Engineer will select these from standard colors available for the materials systems specified.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01300 - SUBMITTALS.
- B. Schedule of Finishes: Submit painting finish schedule. The schedule shall indicate surface to be painted, manufacturer, product no., the spread rate which the proposed paint/coating will be applied that are necessary to achieve the final dry film thickness indicated under item entitled "SCHEDULE OF FINISHES" hereinbelow.
- C. Color Samples:
 - 1. Submit color finish samples for approval.
 - 2. Submit, after the color finish sample has been approved, one set of color finish samples painted onto 8-1/2 inch x 11-inch cardboard. The cardboard shall be divided into 4 horizontal strips and painted as follows:
 - a. Prime 3 strips starting from the bottom.
 - b. 1st coat bottom 2 strips.
 - c. 2nd coat bottom strip.

- D. Submit samples on the following substrates to be used on the project:
 - 1. Painted and Stained Wood: 8-inch square.
 - 2. Metal: 3-inch square sample for flat metal and 6-inch long sample for bars, pipes, etc.
- E. Schedule of Operations: Submit, before work on the project is commenced, work schedule showing his sequence of operations and dates.
- F. Certifications: Submit asbestos-free, lead-free, zinc-chromate-free, strontium-chromate-free, cadmium-free, and mercury-free paint certificates. Should the Contractor require additional copies for distribution to his suppliers and subcontractors, he shall include these additional copies along with his submittal.
- G. Manufacturer's Product Data Sheets: Submit Manufacturer's Product Data Sheets for the primers, paints, coatings, solvents, sealing and patching materials, sealants, and caulking. Data sheets shall indicate thinning and mixing instructions, required film thickness (mil) and application instructions. Should the Contractor require additional copies for distribution to his suppliers and subcontractors, he shall include these additional copies along with his submittal.
- H. Manufacturer's Material Safety Data Sheets: Submit Manufacturer's Material Safety Data Sheets for coatings, solvents, and other hazardous materials. Should the Contractor require additional copies for distribution to his suppliers and subcontractors, he shall include these additional copies along with his submittal.
- I. Warranty: Submit written warranty as noted under item entitled "WARRANTY" hereinbelow.

1.3 WARRANTY

- A. The Contractor shall provide written warranty that the work performed under this Section conforms to the contract requirements and is free of any defect of material or workmanship performed by the Contractor. Such warranty shall continue for a period of two (2) years from the project acceptance date during which period the Contractor shall remedy at his own expense any such failure to conform or any such defect.
- B. The State shall notify the Contractor in writing within a reasonable time after discovery of any failure or defect.
- C. Should the Contractor fail to remedy any failure or defect described in Paragraph A. above within 10 working days after receipt of notice thereof, the State shall have the right to repair or otherwise remedy such failure or damage at the Contractor's expense.

1.4 QUALITY ASSURANCE

- A. Applicator Qualifications: A firm and individuals experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
- B. Field Samples (Mockups): Provide a full-coat field sample panel for each type of coating and substrate at locations as directed by the Engineer. Provide samples at least 4-feet long by 8-feet high.

1.5 ANALYZING AND TESTING

- A. All paints and their applied thickness shall be subject to testing whenever the Engineer deems necessary to determine conformation to the requirements of these specifications. Should testing by a laboratory be required, the laboratory shall be selected by the State and the cost of testing shall be borne by the Contractor. However, should test results show that the paint is in compliance with this specifications, the cost will also be borne by the Contractor.
- B. All rejected material shall be removed from the job site immediately. Surfaces painted with the rejected material shall be redone at Contractor's own expense.
- C. Where the required paint thickness is deficient, the affected surface(s) shall be recoated as necessary to provide the required paint thickness at Contractor's own expense.

1.6 PAINTING NOT INCLUDED

The following categories of work are not included as part of field applied paint and finish work.

- 1. Pre-Finished Items: Unless otherwise indicated, do not include painting for factory-finished or installer finished items such as (but not limited to) solid phenolic, plastic laminate, acoustic materials, high performance organic coated metal, finished mechanical and electrical equipment, including light fixtures, switchgear, and distribution cabinets, etc.
- 2. Finished Metal Surfaces: Metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, and similar finished materials will not require finish painting, unless otherwise indicated.
- 3. Labels: Do not paint over any code-required labels, such as Underwriters' Laboratories, or any equipment identification, performance rating, name, or nomenclature plates.

1.7 GENERAL REQUIREMENTS

- A. **Inspection and Approvals:** The Contractor shall obtain written approval from the Engineer upon completion of each phase of work (phases of work are surface preparation and spot prime, prime, first finish coat, second finish coat) before proceeding into the next phase or work. The Contractor shall give the Engineer one day (24 hours minimum) advance notice of completion of any phase of work for a work area when he deviates from the previously submitted work schedule noted under paragraph entitled "Schedule of Operations" hereinabove. The Contractor shall provide necessary access to areas to be inspected. Failure to obtain approval of any phase of work for a work area may result in redoing the operation at Contractor's own expense.
- B. **Right of Rejection:** The Engineer shall have the right to reject all work which is not in compliance with the plans and specifications. Rejected work shall be redone at Contractor's own expense. In addition, the Engineer shall have the right to require the immediate removal of any paint applicator who demonstrates negligence, lack of competence or repeated non-compliance with the contract requirements.

1.8 DELIVERY

Deliver materials to Project site in manufacturer's original, unopened packages, and containers bearing manufacturer's name and label.

1.9 SPECIAL REQUIREMENTS

- A. **Codes:** The Contractor shall comply with the State OSHL (Occupational Safety and Health Law) and all pollution control regulations of the State Department of Health.
- B. **Protection:**
 - 1. **Persons:**
 - a. The Contractor shall take all necessary precautions to protect public pedestrians, including tenants from injury.
 - b. The Contractor shall provide, erect and maintain safety barricades around scaffolds, hoists, and wherever Contractor's operations create hazardous conditions in order to properly protect the public and tenants.
 - 2. **Completed Work:** The Contractor shall provide all necessary protection for wet paint surfaces.

3. Protective Covering and Enclosures: The Contractor shall provide and install protective covering over furniture, equipment, floor, and other areas that are not scheduled for treatment. Protective covering shall be clean sanitary drop cloth or plastic sheets. Paint applied to surfaces not scheduled for treatment shall be completely removed and surfaces shall be returned to their original condition.
4. Safeguarding of Property: The Contractor shall take whatever steps may be necessary to safeguard his work and also the property of the State and other individuals in the vicinity of his work area during the execution of this Contract. He shall be responsible for and make good on any and all damages and for losses to work or property caused by his or his employee's negligence. Where the damaged property cannot be cleaned and restored to its original condition (i.e. prior to being damaged) it shall be replaced with a new product of equal quality. No proration or use of "used" products will be permitted.
5. Fire Safety: The Contractor shall direct his employees not to smoke in the vicinity and exercise precautions against fire at all times. Waste rags, plastic (polyester sheets), empty cans, etc. shall be removed from the site at the end of each day.

C. Storage Area for Materials:

1. No paint material, empty cans, paint brushes, and rollers may be stored in the building(s). They shall be stored in separate storage facilities away from the building(s).
2. The Contractor may furnish a job site storage facility. Such facility shall comply with the requirements of the local Fire Department. The storage area shall be kept clean and the facility shall be locked when not in use or when no visual supervision is possible.

D. Sequence of Operations: The sequence of operations shall divide the surfaces into work areas and present a schedule for:

1. Surface preparation.
2. Prime coat.
3. First finish coat.
4. Second finish coat.

1.10 AREAS (SURFACES/STRUCTURES) TO BE PAINTED

Surfaces to be Painted:

1. Interior: All new and existing interior painted surfaces shall be painted unless otherwise indicated on the plans and/or specifically deleted in these specifications. Interior surfaces to be painted shall be those surfaces not exposed to weather in an area enclosed by 4 walls. Also, a surface shall be considered an interior surface and painted as such whenever the color is that of the existing interior color. Paint all areas damaged or exposed during construction.
2. Exterior: All new and existing exterior painted surfaces shall be painted unless otherwise indicated on the plans and/or specifically deleted in these specifications. Exterior surfaces to be painted shall be any surface exposed to weather in an area not enclosed by 4 walls and a roof. Also, a surface shall be considered and painted as an exterior surface whenever the color is that of the existing exterior color. Paint all areas damaged or exposed during construction.

1.11 OTHER INCIDENTAL WORK TO BE PERFORMED BY CONTRACTOR

A. General:

1. Unless otherwise specified, the Contractor is responsible for moving about all furniture and equipment to provide himself with sufficient working space. The Contractor shall protect these items and make good any damage to them at his own expense. After the painting of the room is completed, the Contractor shall replace all furniture and equipment to their original locations.
2. The Contractor shall carefully remove from surfaces to be painted framed and mounted pictures and charts, curtains, blinds, etc. and neatly store away. All items shall be reinstalled to the same locations after completion of painting.

- B. Areas Inaccessible to Normal Painting: The Contractor shall remove and reinstall items as required to paint area(s) where indicated or required.

1.12 COMPATIBILITY OF PAINTING SYSTEMS AND SUBSTRATES

- A. The Contractor shall ensure that painting systems specified are compatible with existing painted surfaces. Alkyd paints shall not be used directly over bare cementitious surfaces. Latex paints shall not be applied directly over alkyd paints without proper surface conditioner and approval by the Engineer.
- B. It is the Contractor's responsibility to ensure that specified painting systems are compatible with existing painted surfaces. Should there be any discrepancy between specified and existing paint systems, the Contractor shall notify the Engineer in writing for alternate recommendations and/or submit revised paint systems for approval by the Engineer.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Asbestos Prohibition: All paints shall be asbestos-free.
- B. Lead Prohibition: All paints shall be lead-free.
- C. Mercury Prohibition: All paint shall be mercury-free.
- D. Chromate Prohibition: All paint shall be free of zinc-chromate and/or strontium-chromate.
- E. Cadmium Prohibition: All paint shall be cadmium-free.
- F. Material shall be equal in quality to that specified under the Schedule of finishes and any given finish shall be as labeled by one manufacturer.
- G. All materials shall be delivered to the job site in undamaged original containers bearing the manufacturer's label and shall be stored in such a manner as to prevent damage. All rejected materials shall be removed from the job site immediately.
- H. Paints shall be as manufactured by Benjamin Moore, Carboline, Glidden Professional, Pittsburg, Pratt & Lambert, Rust-Oleum, Sherwin-Williams, or accepted equal.
- I. Thinning of paint shall be done using material recommended by the manufacturer. Mix proprietary products according to manufacturer's printed specifications. Compound thinner, mineral oil, kerosene, refined linseed oil, or gasoline shall not be used for thinning.
- J. Except for metal primers all exterior and interior paint shall contain the maximum amount of mildewcide per gallon of paint permitted by the mildewcide manufacturer without adversely affecting the quality of the paint.
- K. The supplier shall submit a signed certificate indicating the amounts of mildewcide added by both the paint manufacturer and the paint supplier.
- L. Provide all patching and repair materials compatible with paint finishes and substrates. Use weather resistant materials for exterior surfaces and surfaces exposed to moisture.
- M. Provide all other materials not specified but required to achieve the finishes specified.

PART 3 - EXECUTION

3.1 SURFACE PREPARATION OF EXISTING SURFACES

A. General:

1. Mildew Removal: Remove all mildew and sterilize the surface to be painted. Apply a commercial mildew treatment solution such as Purex, Jomax Remover or equal in strict accordance with the manufacturer's recommendations and instructions. Following treatment, the surface shall be cleaned with potable water and allowed to thoroughly dry before priming, painting or the applying of sealing and caulking compounds.
2. Cracks and openings found at joints and where different materials abut each other (e.g. CMU/concrete, CMU or concrete/wood, etc.) shall be sealed with a caulking compound compatible with the substrate and primer/paint. The caulking shall be applied and allowed to set in accordance with the manufacturer's recommendations and instructions.

B. Wood to be Repainted:

1. Remove from surfaces to be repainted all foreign matter such as nails, screws, staples, tape, and gum.
2. Remove all loose, blistered, scaled, crazed or chalky finish to an existing tight and firm finish.
3. Remove all mildew as noted in paragraph entitled "Mildew Removal" hereinabove.
4. Where the existing finish remains tight and firm, prepare the surface by lightly sanding. Where the paint has been removed, sand the edges of scarred areas to a smooth feathered edge.
5. Wash all surfaces with a solution of T.S.P. (trisodium phosphate) and water or other appropriate solution to remove any accumulated film of wax, oil, grease, smoke, dust, dirt, chalking or other foreign matter which would impair the bond of, or bleed through the new paint finish. After washing, rinse the surface with potable water and allow to thoroughly dry.
6. After cleaning and/or washing of the surface with water, the wood shall not be primed, painted or sealed unless it has been allowed to thoroughly dry for a minimum of 24 hours and until the moisture content of the wood is less than 15 percent when measured with an electronic moisture meter.

7. Fill holes (nail, tack, staple, etc.), cracks, open joints, and other imperfections with appropriate compound and allow to set (door and trim included). Seal and caulk all openings which will permit the entrance of water. Sealing and caulking compounds shall be compatible with the substrate and primer/paint and shall be applied and allowed to set in accordance with the manufacturer's recommendations and instructions.
8. Spot prime areas where bare wood or fill material is exposed with the specified primer and feather out onto adjacent paint.
9. Follow up with primer and finish coats over entire surface.

C. Concrete, Masonry, and Plaster to be Repainted:

1. Remove from surfaces to be repainted all foreign matter such as nails, screws, staples, tape, and gum.
2. Remove all loose, blistered, scaled, crazed or chalky finish to an existing tight and firm finish.
3. Remove all mildew as noted in paragraph entitled "Mildew Removal" hereinabove.
4. Where the existing finish remains tight and firm, prepare the surface by lightly sanding. Where paint has been removed, sand the edges of scarred areas to a smooth feathered edge.
5. Wash all surfaces with a solution of T.S.P. (trisodium phosphate) and water or other appropriate solution to remove any accumulated film of wax, oil, grease, smoke, dust, dirt, chalking or other foreign matter which would impair the bond of, or bleed through the new paint finish. After washing, rinse with potable water and allow to thoroughly dry for a minimum of 24 hours.
6. Seal all cracks hairline to 1/8-inch in width with concrete patching compound. All cracks over 1/8-inch in width or holes 1/4-inch diameter or greater shall be sealed with latex modified or epoxy modified reinforced patching compound before paint application. All patching shall be done in accordance with the manufacturer's recommendations and instructions.
7. Spot prime areas where bare surface, seal or patch material is exposed with the specified primer and feather out onto adjacent paint.
8. Follow up with primer and finish coats over entire surface.

D. Ferrous Metal and Galvanized Metal to be Repainted:

1. Remove from surfaces to be repainted all foreign matter such as tape and gum.
2. Remove all loose, blistered, scaled, crazed or chalky paint finish to an existing tight and firm finish.
3. Remove all mildew as noted in paragraph entitled "Mildew Removal" hereinabove.
4. Remove all rust, loose mill scale and loose and blistering paint by power tool chipping, de-scaling, sanding, wire brushing and grinding down to bare metal (only tightly adhering surface rust, mill scale and paint which cannot be removed with a dull putty knife remaining) in accordance with Steel Structures Painting Council (SSPC) Standard SP3. Care shall be taken so that the surface is not burnished during cleaning.
5. Where paint has been removed, sand scarred areas to a smooth feathered edge.
6. Completely wipe all surfaces with mineral spirits or other appropriate solution as required to remove accumulated film of wax, oil, grease, smoke, dust, dirt, chalky or other foreign matter which would impair the bond of, or bleed through the new finish.
7. Allow the surfaces to thoroughly dry and immediately spot prime bare metal areas with the specified primer and feather out onto adjacent paint.
8. Follow up with primer and finish coats over entire surface.

3.2 SURFACE PREPARATION OF NEW SURFACES

- A. The painting contractor shall be wholly responsible for the finish of his work and shall not commence any part of it until surfaces are in proper condition. If painting contractor considers any surfaces unsuitable for proper finish of his work, he shall notify the Engineer of this fact in writing and he shall not apply any material until the unsuitable surfaces have been made satisfactory. Major defects shall be restored by the proper trades. In general, follow the manufacturer's direction for surface preparation for the paint to be applied.
- B. All knots or sappy spots shall be given one coat of shellac before painting. All necessary puttying of nail holes, cracks, and blemishes shall be done after priming coat has become hard and dry and before second coat is applied. On stain work, putty shall match color of finish.
- C. Concrete and concrete masonry unit surfaces shall be cured and dry and shall be wire brushed clean to remove all dust and loose mortar, efflorescence, and laitance. Test for alkalinity level and provide remedy where alkalinity exceeds manufacturer's acceptable level.
- D. Unprimed galvanized metal shall be cleaned with nonpetroleum-based solvents so surface is free of oil and surface contaminants.

- E. All metal surfaces shall be made clean and free of any defects or condition that may produce unsatisfactory finish.

3.3 PAINT APPLICATION

A. General:

1. All work shall be done in a workmanlike manner by skilled and experienced mechanics and shall conform to the best painting practices.
2. All materials shall be applied in strict accordance with the manufacturer's specifications, including spread rates, and the finished surfaces shall be free from runs, sags, drops, ridges, waves, laps, streaks, brush marks, and variations in color, texture, and finish (glossy or dull). The coverage shall be complete and each coat shall be so applied as to produce a film of uniform thickness. No paint shall be applied until the preceding coat is thoroughly dry and approved.
3. Completely paint entire new and existing surfaces for each sequence of operation; prime coat, first finish coat, and second finish coat, unless otherwise indicated on the paint schedule hereinafter.
4. No exterior painting of unprotected surfaces shall be done in rainy, damp weather. Coats shall be applied only to surfaces that are thoroughly dry and only under such combination of humidity and temperature that will ensure proper paint application.
5. Any mixing shall be done outside the building.

B. Application: Paint application shall be by brush and roller only.

C. Colors: Each coat shall be tinted a different shade from the preceding coat. Colors shall be in accordance with the schedule on the drawings. Where a color is not indicated, the color shall be selected by the Engineer.

D. Finish Film Thickness: Apply primer, intermediate, and finish coats in dry film thickness, as scheduled unless recommended otherwise in writing by the manufacturer, for each coat and in accordance with the manufacturer's recommendations. Verify mil thickness by use of a suitable wet film gauge. Use a Tooke or other dry film gauge to test for total dry film thickness.

3.4 MISCELLANEOUS

A. Installation of Removed Items: After completion of final paint coat, removed items shall be reinstalled.

B. Clean-up:

1. During the progress of the work, all debris, empty crates, waste, drippings, etc. shall be removed by the Contractor and the grounds about the areas to be painted shall be left clean and orderly at the end of each work day.
2. Upon completion of the work, staging, scaffolding, containers, and all other debris shall be removed from the site. All paint splashed or spilled upon adjacent surfaces not requiring treatment (hardware, fixture, floor, glass) shall be removed and the entire job left clean and acceptable.

3.5 SCHEDULE OF FINISHES

- A. The Schedule of Finishes is made for the convenience of the Contractor and indicates the types and quality of finishes to be applied to the surfaces.
- B. Any existing painted surfaces not specifically noted in the finish schedule shall be finished to match adjoining work.
- C. Paint schedule is based on the products of Benjamin Moore catalog, unless otherwise called for and are so named to establish quality and standard of materials. Paint materials equal to those mentioned may be used provided they are acceptable to the Engineer.
- D. The painting schedule shall apply to new and previously painted surfaces of designated materials, unless specified otherwise, in conformity with instructions of the paint products used. Test for Alkyd or Latex paint when painting over previously painted surfaces.
- E. The following schedule represents the general character of the paint systems necessary to complete the work. Provide additional comparable systems and sheens as required. At the option of the Engineer, paint systems and sheens may be revised at Contractor's own expense.

3.6 PAINT SCHEDULE

A. Exterior Primers:

1. Ferrous Metal:

Corotech V131 Low VOC Universal Metal Primer
2.1 mils DFT @ 458 sf/gal.

2. Galvanized Metal:

P04 Super Spec HP Acrylic Metal Primer
1.7 mils DFT @ 406 sf/gal.

3. Existing Painted Concrete or Masonry:
 - a. With Existing Solvent-Based Finish:

CLF 29/30 Waterborne Epoxy Masonry Primer
2.0 mils DFT @ 315 sf/gal.
 - b. With Existing Latex-Based Finish:

N066 Super Spec Masonry Interior/Exterior
100% Acrylic Masonry Sealer
0.95 mils @ 300 sf/gal.
 4. Existing Painted Ferrous Metal or Galvanized Metal:
 - a. With Existing Solvent-Based Finish:

Corotech V131 Low VOC Universal Metal Primer
2.1 mils DFT @ 458 sf/gal.
 - b. With Existing Latex-Based Finish:

P04 Super Spec HP Acrylic Metal Primer
1.7 mils DFT @ 406 sf/gal.
 5. Existing Painted Wood:
 - a. With Existing Solvent-Based Finish:

INSL-X Prime Lock Plus Primer Sealer Stain Keller PS-800
2.6 mils DFT @ 346 sf/gal.
 - b. With Existing Latex-Based Finish:

N023 Fresh Start Multi-Purpose Latex Primer
1.2 mils DFT @ 425 sf/gal.
- B. Exterior Finish (Revise Paint Sheen as Required to Match Existing Adjacent Finish):
1. Semi-Gloss Two Coats:

N403 Regal Select Exterior Paint - High Build Soft Gloss Finish
2.0 mils DFT @ 325 sf/gal. per coat

C. Interior Primers:

1. Ferrous Metal:

Corotech V131 Low VOC Universal Metal Primer
2.1 mils DFT @ 458 sf/gal.

2. Galvanized Metal:

P04 Super Spec HP Acrylic Metal Primer
1.7 mils DFT @ 406 sf/gal.

3. Existing Painted Concrete or Masonry:

a. With Existing Solvent-Based Finish:

CLF 29/30 Waterborne Epoxy Masonry Primer
2.0 mils DFT @ 315 sf/gal.

b. With Existing Latex-Based Finish:

N534 Ultra Spec 500 Interior Latex Primer
1.8 mils DFT @ 267 sf/gal.

4. Existing Painted Ferrous Metal or Galvanized Metal:

a. With Existing Solvent-Based Finish:

Corotech V131 Low VOC Universal Metal Primer
2.1 mils DFT @ 458 sf/gal.

b. With Existing Latex-Based Finish:

P04 Super Spec HP Acrylic Metal Primer
1.7 mils DFT @ 406 sf/gal.

5. Existing Painted Wood:

a. With Existing Solvent-Based Finish:

INSL-X Prime Lock Plus Primer Sealer Stain Killer PS-800PRIME
2.6 mils DFT @ 346 sf/gal.

b. With Existing Latex-Based Finish:

N023 Fresh Start Multi-Purpose Latex Primer
1.2 mils DFT @ 425 sf/gal.

D. Interior Finish (Revise Paint Sheen as Required to Match Existing Adjacent Finish):

1. Semi-Gloss Two Coats:

N539 Ultra Spec 500 Interior Semi-Gloss Finish
1.8 mils DFT @ 365 sf/gal. per coat

E. Wood Stain - Solid Body (Opaque):

640 Arborcoat Waterborne Exterior Stain Solid Color
1.4 - 1.9 mil @ 300-400 sf/gal.

END OF SECTION

DIVISION 10 - SPECIALTIES

SECTION 10211 - TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

Provide all toilet compartments work as indicated on the drawings and specified herein, including the following:

1. Type: Solid phenolic material.
2. Compartment Style: Floor anchored.
3. Screen Style: Wall hung.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01300 - SUBMITTALS.
- B. Product Data: Submit manufacturer's product data for each type and style of toilet compartments specified. Include details of construction relative to materials, fabrication, and installation. Include details of anchors, hardware, and fastenings.
- C. Shop Drawings: Submit shop drawings for fabrication and installation of toilet compartment assemblies. Include plans, elevations, sections, details, and attachments to other work. Show locations of reinforcement and where applicable, cutouts for compartment-mounted toilet accessories.
- D. Samples for Initial Selection: Submit manufacturer's color charts consisting of sections of actual units showing the full range of colors, textures, and patterns available for each type of compartment indicated for selection.
- E. Samples for Verification: Submit samples of each compartment color and finish required, prepared on 6-inch square Samples of same thickness and material indicated for Work.
- F. Certificates: Submit manufacturer's certificate attesting that his materials meet or exceed the specified requirements.
- G. Warranty: Submit warranty as noted under item entitled "WARRANTY" hereinbelow.

1.3 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: A company regularly engaged in manufacture of products specified in this section, and whose products have been in satisfactory use under similar service conditions for not less than 5 years.

- B. Installer's Qualifications: A Company or Individual, regularly engaged in installation of products specified in this Section, with a minimum of 5 years experience.
- C. ADAAG Compliance: Toilet compartments which are accessible to the physically handicapped shall be in conformance with the criteria noted in the Americans with Disabilities Act Accessibility Guidelines (ADAAG), including, but not limited to, ADAAG 604.8.

1.4 PROJECT CONDITIONS

- A. Field Measurements: Verify dimensions in areas of installation by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating units without field measurements. Coordinate supports, adjacent construction, and fixture locations to ensure actual dimensions correspond to established dimensions.

1.5 PRODUCT HANDLING

- A. Materials shall be delivered to the job-site in their original sealed containers bearing the name of the manufacturer and brand designation.
- B. Items shall be delivered and stored in a manner that ensures they will be protected against damage.

1.6 WARRANTY

Manufacturer shall submit a written warranty covering all solid phenolic components and hardware against breakage, corrosion, delamination, and defects in workmanship for a period of 15 years from project acceptance date. The Surety shall not be held liable beyond 2 years from the project acceptance date.

PART 2 - PRODUCTS

2.1 MATERIALS AND CONSTRUCTION

- A. General: Provide materials that have been selected for surface flatness and smoothness. Exposed surfaces that exhibit pitting, seam marks, roller marks, stains, discolorations, telegraphing of core material, or other imperfections on finished units are unacceptable.
- B. Phenolic Plastic Doors, Partitions, Stiles, Pilasters, and Screens:
 - 1. Shall be fabricated with a solid phenolic core with a matte finish melamine facing on both sides, fused under high temperature and pressure without visible glue line or seam and with eased edges.

2. Provide minimum nominal thicknesses for components as follows:
 - a. Partitions and Screens: 1/2-inch.
 - b. Doors, Stiles, and Pilasters: 3/4-inch.
3. Phenolic Plastic shall have a Class A or B Flame Spread Rating and a maximum Smoke Developed Rating of 450 in conformance with ASTM E 84.
4. Edges shall be machined smoothed with 1/16-inch radius corners.
5. Color: Color as selected as per submittals.

C. Doors:

1. Unless otherwise indicated, provide 24-inch wide in-swinging doors for standard toilet compartments.
2. Unless otherwise noted on the drawings, a minimum clear door opening width of 32-inch shall be provided at the door leading to an accessible toilet compartment. This clear width shall be measured between the edge of the door bumper/keeper and the face of the door when opened 90 degrees. Door shall be self-closing.
3. ADAAG 604.8.1.2 Doors. Toilet compartment doors, including door hardware, shall comply with ADAAG 404 except that if the approach is to the latch side of the compartment door, clearance between the door side of the compartment and any obstruction shall be 42-inches minimum. Doors shall be located in the front partition or in the side wall or partition farthest from the water closet. Where located in the front partition, the door opening shall be 4-inches maximum from the side wall or partition farthest from the water closet. Where located in the side wall or partition, the door opening shall be 4-inches maximum from the front partition. The door shall be self-closing. A door pull complying with ADAAG 404.2.7 shall be placed on both sides of the door near the latch. Toilet compartment doors shall not swing into the minimum required compartment area.

D. Partitions, Stiles, and Pilasters:

1. Pilasters and stiles for compartments shall have manufacturer's standard corrosion-resistant adjustable anchors with leveling devices, studs, and locking nuts to firmly secure pilasters and stiles to the floor. Provide shoe to conceal anchorages as specified hereinbelow.
2. The structural strength of grab bars, fasteners, and mounting devices attached to partitions, stiles, and pilasters shall be in accordance with ADAAG 609.8.

E. Hardware and Fittings:

1. General: Doors, partitions, pilasters, and screens shall be furnished with the necessary hardware and fittings to provide a complete installation. They shall be pre-cut to facilitate erection and minimize field errors.
2. Materials: Hardware and fittings shall be satin-finish stainless steel unless otherwise specified herein.
3. Door Hinges: Stainless steel, minimum 16 gauge, continuous the full height of the door, through-bolted to the door and stile with 12 theft-resistant one-way stainless steel screws at approximately 12-inches on center.
4. Brackets: Stainless steel, 18 gauge minimum, Type 304, approximately 1/8-inch thick, continuous the full height of the partition or stile. Acceptable bracket sections are "L", "T", and "F". Brackets shall be secured to solid grouted masonry walls using theft-resistant one way stainless steel bolts with lead or steel expansion shields spaced approximately 12-inches on center. Brackets attached to masonry wall at un-grouted cells or at metal stud walls shall be with theft-resistant stainless steel toggle-bolts at approximately 12-inches on center. The number of fasteners to be provided at each connection are as follows:
 - a. Bracket to Partition: 6.
 - b. Bracket to Stile/Pilaster: 12.
 - c. Bracket to Wall: 12.
5. Latches: The latch shall be of a shape which is easy to grasp with one hand and which does not require tight grasping, tight pinching or twisting of the wrist to operate and shall be operable by a person on the outside in the event of an emergency. Mechanisms such as slide bolts with a projecting handle on the inside of the stall which can be opened by a person on the outside reaching over the door with a stick are acceptable.
6. Door Pulls: Handicap accessible toilet stall doors shall be furnished with U-shaped door pulls complying with ADAAG 404.2.7 on both sides of the door, adjacent to the latch.
7. Coat Hook/Door Bumper: Furnish one each per door. At handicap accessible stalls, coat hooks shall be mounted maximum of 48-inches to the top from the finish floor complying with ADAAG 308.2.1 and 308.3.1.
8. Shoe: All pilaster and stiles shall have a 3-inch high minimum trim cover or shoe of Type 302 or 304 stainless steel at the floor.

9. Hardware Mounting Heights: The highest part of any handle, pull, grab bar, latch or operating mechanism shall be at 36-inches maximum above the finished floor.
 10. Anchors and Fasteners: Hardware and fittings shall be fastened with theft-resistant one-way stainless steel through-bolts or machine screws in factory installed steel inserts.
 11. Headrails: Manufacturer's standard headrails for overhead-braced compartment shall be anodized aluminum with satin finish.
- F. Urinal Screens: Wall anchored screens shall be as specified hereinabove with heavy-duty brackets, same as that for toilet partition, and shall be continuous the full height of the screen.

2.2 FABRICATION

- A. General: Provide standard doors, partitions, screens, and pilasters fabricated for compartment system. Provide units with cutouts and drilled holes to receive compartment-mounted hardware and accessories as indicated.
- B. Floor-Anchored Compartments: Provide manufacturer's standard corrosion-resistant anchoring assemblies complete with threaded rods, lock washers, and leveling adjustment nuts at pilasters for structural connection to floor. Provide shoes at pilasters to conceal anchorage.

PART 3 - EXECUTION

3.1 INSPECTION

The installer together with the Contractor shall examine the areas and conditions under which toilet compartments are to be installed. Should any condition be found unsuitable, no work shall be performed until the unsatisfactory conditions have been corrected and are acceptable to the installer. Proceeding with the work will imply acceptance of the conditions by the installer.

3.2 INSTALLATION

- A. Compartments shall be erected in strict accordance with the manufacturer's instructions.
- B. All parts shall be securely screwed and/or bolted tight, well-anchored to the wall, true to line, level, and plumb, with doors and hardware placed at the proper heights and in proper operating condition.
- C. Anchorage to masonry at grouted cells shall be bolts with lead or steel expansions.

- D. The following uniform clearances shall be provided:
 - 1. 1/2-inch max. between stiles/pilasters and partitions.
 - 2. 1-inch max. between stiles/pilasters and walls.
 - 3. 3/16-inch max. between stiles/pilasters and doors.

E. Re-install toilet compartments where indicated.

3.3 CLEANING AND PROTECTION

- A. Protect the work of other trades against damage, injury or soiling.
- B. After installation, clean exposed surfaces with cleaners recommended and approved by the manufacturer and protect from damage.
- C. Adjust hardware and lubricate moving parts as necessary to ensure smooth operation.
- D. Repair and restore adjacent surfaces that are marred or damaged as a result of the installation of toilet compartments to their original condition. Leave adjacent surfaces in a neat and clean condition.

END OF SECTION

SECTION 10281 - TOILET ACCESSORIES

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

Provide all toilet accessories as indicated on the drawings and as specified herein.

1.2 SUBMITTALS

- A. Submit in accordance with Section 01300 - SUBMITTALS.
- B. Product Data: Submit manufacturer's current product data, specifications, and installation instructions for each toilet accessory. Include material description, thickness, dimensions, profiles, fastening and mounting methods, and finishes for each type of accessory.
- C. Samples: Submit when requested, full-size samples of units for review of finishes. Acceptable samples will be returned and may be used in the work. Compliance with all other requirements is the exclusive responsibility of the Contractor.
- D. Setting Drawings: Submit shop drawings for cutouts required in other work; include templates, substrate preparation instructions, and directions for preparing cutouts and installing anchoring devices.

1.3 QUALITY ASSURANCE

- A. Products:
 - 1. Provide products of the same manufacturer for each type of accessory unit and for units exposed in the same areas, wherever possible.
 - 2. Coordinate for acceptable designs and finishes.
 - 3. Stamped names of labels on exposed faces of units will not be permitted, except where otherwise specified.
- B. Inserts and Anchorages: Furnish inserts and anchoring devices for toilet accessories. Provide setting drawings, templates, instructions, and directions for installation of anchorage devices. Coordinate delivery with other work to avoid delay.

1.4 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by disabled persons, proper installation, adjustment, operation, cleaning, and servicing of accessories.

- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Bobrick Washroom Equipment Co.
2. Bradley Corp., Washroom Accessories Division
3. McKinney Co.
4. Royco Rolls Ringer Co.

2.2 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304 stainless steel. Provide No. 4 satin finish, unless otherwise specified.
- B. Fasteners: Screws, bolts, and other devices of same material as accessory unit, tamper and theft resistant when exposed, and of stainless steel when concealed.

2.3 LIST OF TOILET ACCESSORIES (Refer to drawings for locations where indicated)

- A. For convenience and to establish standards of quality and design, the following are the list of toilet accessories. Provide the minimum as noted below unless otherwise indicated on the drawings.
- B. Grab Bar: Bobrick Washroom Equipment Co., B-5806 Series, both standard and custom fabricated, at each accessible water closet.
- C. Toilet Paper Dispenser: Royce Rolls Ringer Co., Model TP-3, 18 gauge, Type 304, stainless steel, Master Lock #510, surface mounted at each water closet.
- D. Mounting Accessories: Provide manufacturer's recommended mounting accessories, including, but not limited to, mounting kit, anchor device, and fasteners for each mounting condition.

PART 3 - EXECUTION

3.1 INSPECTION

Installer must examine the areas and conditions under which toilet accessories are to be installed. Notify the Contractor in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

3.2 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated and/or in accordance with applicable codes.
- B. Fasten accessories to concealed wood blocking secured between studs or metal backplate secured to studs. Fasten accessories in masonry construction with lead expansion shields, toggle bolts, or other approved fasteners as required by the construction.
- C. Install grab bars to withstand a downward load of at least 250 lbs, when tested according to method in ASTM F 446.
- D. Install exposed mounting devices and fasteners finished to match accessories.

3.3 CLEANING

- A. Remove temporary labels and protective coatings.
- B. Clean and polish exposed surfaces according to manufacturer's written recommendations.

END OF SECTION

DIVISION 15 – MECHANICAL

SECTION 15400 - PLUMBING

PART 1 - GENERAL

1.1 GENERAL CONDITIONS

- A. As specified in Division 1.

1.2 SCOPE

- A. Provide all labor, materials, equipment, services and related work to complete all plumbing work as shown on the drawings and as specified. The work shall include the following:

1. Removal of existing plumbing equipment and piping, as indicated.
2. Plumbing fixtures and supports and connections thereto.
3. Domestic cold water piping.
4. Sanitary waste and vent piping.
5. Connections to existing utilities exterior of the building and to new plumbing systems all fixtures and equipment.
6. Disinfection of water supply lines.
7. Testing and adjusting.
8. Manufacturer's literature, shop drawings, and record drawings.

1.3 GENERAL REQUIREMENTS

- A. It is the intent of the plans and specifications to provide a complete installation. Should there be omissions or discrepancies in the plans and specifications, the Contractor shall call the attention of the Engineer to such omissions and discrepancies in advance of the date of bid opening so that the necessary corrections can be made. Otherwise the Contractor shall furnish and install the omissions or discrepancies as if the same were specified and provided for.

1. Standards:

- a. All work shall be done in accordance with the latest edition of the Uniform Plumbing Code and applicable codes of the County of Hawaii.

- b. All plumbing fixtures shall comply with the Board of Water Supply requirement for water conservation.
- c. Work shall comply with applicable regulations of the State of Hawaii Health Department.
- d. All plumbing fixtures and installation shall comply with the Americans with Disabilities Act Accessibility Guidelines (ADAAG).
- e. Contractor shall obtain all permits, licenses, and certificates and pay for all fees.

1.4 SUBMITTALS

1. Approval of Materials, Fixtures and Equipment: As soon as practicable and within 30 days after award of contract and before commencement of installation of any materials and plumbing equipment, a complete schedule of the materials and equipment proposed for installation shall be submitted for the approval of the Engineer. The schedule shall include catalogs, cuts, diagrams, drawings and such other descriptive data as may be required by the Engineer. No consideration will be given to partial lists submitted from time to time. Any scheduled materials, fixtures and equipment not conforming to the specifications may be rejected.
2. Drawings: The drawings and specifications are intended to cover the complete installation of systems to function as described. The omission of reference to any necessary item of labor or material shall not relieve the Contractor from providing such labor or material. Drawings do not attempt to show exact details of piping and ductwork. Provide offsets as necessary to avoid local obstructions or interferences with other trades.
 - a. Contract Drawings: Mechanical plans are essentially diagrammatic, showing locations of pipes and other plumbing equipment. Where locations are not dimensioned, they are approximate, and before installing, Contractor shall study existing conditions and make installation in most logical manner.
 - b. Shop Drawings: The Contractor shall submit 6 copies of shop drawings and brochures or catalog cuts of plumbing fixtures for review and reply prior to start of work. Drawings shall show complete dimensioned installation, including all piping in building, plumbing fixtures and support installation, elevation, invert, supports and foundations. The Contractor shall show the entire work with inverts, sleeves and dimensions. Contractor shall check project drawings to avoid interferences with structural features and with work of other trades. No plumbing or piping work shall commence until plans have been reviewed by the Engineer. Any deviations from the shop drawings shall require prior approval by the Engineer.

- c. Record Drawings: The Contractor shall keep at the job site a complete, neat and accurate record of all approved deviations from the contract drawings, shop drawings and specifications, indicating the work as actually installed. These changes shall be recorded on prints of the drawings affected and the shop drawings. As-builts shall be submitted to the Engineer after final acceptance.

1.5 WARRANTY AND CERTIFICATE

- A. Warranty: All work and materials executed under this section shall be under warranty to be free from defects of materials and workmanship for one (1) year from date of final acceptance of project as a whole by the State. All work of repair and replacement required, including other work damaged by this work's defects shall be performed without cost to the State.
- B. Certificates: Furnish certificates for evidence of proper performance or compliance with code for the following:
 - 1. Sterilization of domestic water piping.
 - 2. Water leak testing of sanitary piping.
 - 3. Water leak testing of domestic water piping.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. All materials shall be new and of the best quality available in their respective kinds, free from all defects and shall be of the make and types specified or approved equal.
- B. Sanitary Waste, Drain, and Vent Piping:
 - 1. Acrylonitrile Bultadiene Styrene (ABS) plastic pipe and fittings for drainage waste and vent systems. ABS Solid Wall DWV shall conform to ASTM D-2661 and National Sanitation Foundation Standard NSF 14, IAPMO and the Uniform Plumbing Code. Composition must be of virgin ABS compounds. Identified as Schedule 40 pipe grade for installation above ground to three stories or less and below ground. Install with solvent cemented joints and tracer line and provide adequate fire protection. Avoid prolonged exposure to sunlight.
 - 2. Cast iron service weight hub and spigot pipe and fittings, ASTM A74, with ASTM C564 rubber compression fittings or caulked and leaded joints. (above and below ground)
 - 3. Cast iron service weight hubless pipe and fittings, CISPI 301, with CISPI 310 coupling joints. (above ground only)

4. Cast iron service weight hubless pipe and fittings, CISPI 301, with cast iron couplings with neoprene gasket and stainless steel nuts and bolts, MG Coupling Co, (above and below ground) Nuts and bolts installed underground shall be field coated with a bituminous coating, 4 mils minimum thickness.
- C. Domestic Water Piping:
1. Copper tubing, ASTM B88, Type K for buried underground piping and Type L for above ground piping, with ANSI B16.18 or B16.22 solder joint fittings.
 2. Exposed piping in finished areas shall be chromium plated brass pipe to the shut off or stop valve of each fixture.
- D. Water Valves: Ball valve. bronze body, 125 lb. pressure rated valves, with solder joint ends. Nibco, Stockham, Crane, Lunkenheimer, or approved equal.
- E. Drainage System Specialties: Josam, Zurn, or Smith.
- F. Miscellaneous Materials:
1. Nipples: Nipples shall be the same material as the piping in which installed.
 2. Unions: Unions shall be brass or bronze, either threaded or with solder joint ends, for use in copper tubing.
 3. Wall and Ceiling Escutcheon Plates: Provide split hinged, locked type, or one-piece escutcheon plates of pressed steel with heavy coating of copper, nickel or chromium.
 4. Solder: 95-5 tin antimony or 10% silver solder.
 5. Supports: MSS SP-58 and SP-69, types 1,6,9 or 11 for suspended piping. Provide turnbuckles Type 13 and 15 where required for vertical adjustment. Maximum spacing shall be as specified in SP-69.
 6. Piping Isolators: Standard commercial products, consisting of metal-clad hair felt manufactured specifically for isolating pipe from hangers.
 7. Dielectric Fittings: Dielectric union with galvanized or plated steel female pipe threaded end and copper solder-joint end. Union shall have a water-impervious insulation barrier capable of limiting galvanic current to one percent of the short-circuit current in a corresponding bimetallic joint and, when dry, shall also be able to withstand a 600-volt breakdown test.

2.2 FIXTURES

- A. Provide chrome plated stops for each fixture. Brand names where used are given to indicate style and quality. Similar and equivalent fixtures by the following manufacturers

will be acceptable, subject to approval by the Engineer. No substitutions shall be considered after the bid opening.

Fixtures:	Kohler, American Standard, Crane, Delta
Drainage:	Smith, Zurn, Josam
Seats:	Beneke, Olsonite, Church
Trim:	Chicago Faucet, Speakman, Price-Pfister, Delta, Moen
Fittings:	Eastman, Frost

1. **WC/WC-A: Water Closet, Flush Valve Type (1.6 gallon per flush) WALL HUNG:**

American Standard Afwall 2257.103: Vitreous china, low-consumption 1.6 gpf, wall-mounted elongated bowl, fully glazed trapway, condensation channel, direct-fed siphon jet action, 1-1/2" inlet spud, 2" ballpass trapway, 10"x12" water surface area, side-mounted chrome trip lever, close-coupled flushometer tank, 100% factory flush tested; ADA mounting height shall meet the minimum 17 in. top of seat to floor requirement.

Olsonite 95 open front seat less cover, china bolt caps;

Sloan Royal 111 Flush Valve, 1.6 gallons per flush; wax gasket.

2. **UR: Urinal Wall Hung (Standard) (1.0 gallon per flush):** American Standard Lynbrook 6601.012 vitreous china wall hung urinal, blowout flush action, flushing rim, privacy shields, 1-1/4" inlet spud, two wall hangers; (For ADA, install so that top of rim is 14" from finished floor.)

Sloan Royal 180-1 flush valve with vacuum breaker, 1.0 gallon per flush.

3. **LAV/LAV-A: Lavatory (Standard & Accessible):** (wall-mounted)

American Standard Lucerne 0356.041 wall hung lavatory, vitreous china, front overflow, D-shaped bowl, self draining deck area with contoured back and side splash shields, faucet ledge, single center faucet, wall hangers; Zurn single basin faucet Z82701-16M chrome plated vandal resistant 1.0 gpm flow rate. Quarter turn angle supplied with stops; cast brass P-trap, tubing outlet and wall flange, chrome plated. For accessible lavatories, provide offset lavatory drain. Mount lavatory at 34" max to rim above the finished floor. Provide safety covers where required by ADA for exposed drainage and water pipes and water fittings and valves.

4. **RINSING SHOWER RS/RS-A: Column Rinsing Shower:**
(SEE PLUMBING DETAIL SHEET P502 FOR RINSING SHOWER DETAILS).

5. **DF-A: Drinking Fountain (Accessible):** Halsey Taylor model 4540 double bubbler, self-closing lever handle stop, chrome plated fitting, 10"Wx6"Dx3"H satin finish stainless steel basin.
6. **FD: Floor Drain:** Smith Fig. 3101 cast iron body floor sink with sediment bucket, rim and grate, bottom outlet.
7. **WHA: Water Hammer Arrestor:** Smith Hydrotrol stainless steel water hammer arrestor with compression chamber, bellows, and nipple. Water hammer arrestors shall be PDI certified and sized as indicated on the drawings.
8. **WALL HYDRANT WH: Interior Hose Bibbs in Toilet Rooms:** Wade Hydrant 8707 wall hydrant with 3/4" inlet connection, bronze casing, 3/4", interior sill faucet connection, vacuum breaker, hose-threaded outlet, removable tee handle, bronze finish.
9. **HB: Exterior Hose Bibbs:** Rough brass, 3/4" with non-removable vacuum breaker, hose thread outlet, removable tee handle, Arrowhead 351-BFP-LK, with square head service cock immediately upstream.
10. **FS: Foot Shower Rinse:**
(SEE PLUMBING DETAIL SHEET P502 FOR FOOT SHOWER RINSING DETAILS).

PART 3 - EXECUTION

3.1 INSTALLATION AND WORKMANSHIP

- A. All workmanship shall be of the highest standard. Vertical piping lines shall be plumbed and lines that are grouped shall be parallel and as direct as possible. Galvanized sheet metal thimbles shall be provided where pipes pass through masonry, and cutting shall be avoided as much as possible. Exposed pipe, where indicated, shall be run parallel with walls.
- B. The installation shall comply with the latest accepted edition of the Plumbing Code, the Fire Marshal's regulations of the State of Hawaii, the regulations of the Department of Health of the State of Hawaii and all other applicable codes.
- C. The Contractor shall obtain and pay for all permits and licenses for the work. At completion, transmit to the Engineer, applicable certificates of inspections.

3.2 EXCAVATION, BACKFILL AND CONCRETE WORK

- A. All excavation and backfill in connection with plumbing work and mechanical work shall be accomplished in accordance with the Plumbing Code. Provide proper support along the pipe length where rocks are encountered, provide a minimum of 3" of backfill properly tamped for pipe. Coral shall not be used as backfill material for underground piping. Pipes shall be buried a minimum of 12" below grade.

3.3 CROSS CONNECTIONS AND INTERCONNECTIONS

- A. No plumbing fixtures, device, or piping shall provide a cross connection or interconnection between a distributing supply for drinking or domestic purposes and a polluted supply such as a drainage system or a soil or waste pipe, so as to make possible the backflow of sewage, polluted water, or waste into the water supply system.

3.4 CUTTING AND REPAIRING

- A. The work shall be carefully laid out in advance providing sleeves, templates or details for chases and openings to be left in the walls, floors, structural members or partitions. Any access cutting of construction will not be permitted. Cutting shall be carefully done, and damage to buildings, piping, wiring or equipment as a result of cutting for installation shall be repaired by skilled mechanics of the trade involved at no additional expense to the State. Written permission from the State's representative shall be obtained before any cutting is done.

3.5 PROTECTION TO FIXTURES, MATERIALS AND EQUIPMENT

- A. Pipe openings shall be closed with caps or plugs during installation. Fixtures and equipment shall be tightly covered and protected against dirt, water and chemical or mechanical injury. Upon completion of all work the fixtures, materials and equipment shall be thoroughly cleaned, repainted as required, adjusted and operated.

3.6 HOSE BIBBS

- A. Hose bibbs shall be installed 18" above grade or floor unless otherwise indicated. Install a service cock before the hose bibb, 6" above ground.

3.7 CHLORINATION

- A. Domestic hot and cold water lines shall be sterilized with chlorine before acceptance of the work. Dosage of chlorine shall be not less than 50 ppm. Chlorinating material shall be introduced into the water lines in a manner approved by the Engineer. After a contact period of not less than twenty four (24) hours the system shall be flushed with clean water until the residual chlorine content is not greater than 0.2 ppm. All valves in the lines being sterilized shall be opened and closed several times during the contact period. A certificate shall be furnished to the Engineer evidencing proper performance of sterilizations.

3.8 PIPE INSTALLATION

- A. No pipe shall be closed up, furred in, buried or otherwise hidden until it has been inspected, tested and approved by the Engineer.
 - 1. Sanitary piping shall slope not less than 1/4" per foot of horizontal run unless otherwise noted.

2. Vent pipes shall be graded to expel water.
3. Drain pipes shall be run with easy bends and long radius turns. Offsets shall be made at an angle of 45-degrees or less except where cleanouts are provided for shorter turns.
4. All copper water piping joints shall be 95-5 soldered or 10% silver solder.
5. All piping shall be inspected inside and out before installation and no obstructions shall be allowed. Pipe ends shall be taper reamed to full I. D. and all burrs removed.
6. All exposed piping shall be carefully handled to avoid excessive tool marking and polished fittings shall be handled with extra care so that tool marks do not show. All exposed piping shall be in one length, where possible, fittings shall be in walls under counter cabinet or in furred space.
7. Escutcheons: Shall be installed around all exposed pipe passing through a finished floor, wall or ceiling. Escutcheons shall be of sufficient outside diameter to cover the sleeve opening and shall fit snugly around the pipe.
8. Anchor piping in building with approved clamps or adjustable hangers spaced in accordance with the Plumbing Code. Straps for copper tubing shall be copper or brass, or copper plated. Where copper contacts ferrous material, wrap with two layers of plastic tape.
9. Provide dielectric unions where copper piping is connected to ferrous pipe.

3.9 PLUMBING FIXTURES

- A. Furnish, install and properly connect all plumbing fixtures and fittings and/or trims herein specified.
- B. Setting of all fixtures shall be done in an approved workmanlike manner. Special attention shall be exercised to the fixture heights, especially for urinals, drinking fountains, electric water coolers, and wash basins. Where definite dimensions are not indicated, consult Engineer for exact heights. Joints between fixtures and wall shall be neatly caulked.
- C. Fastenings: Where trimmings and fixtures are secured to concrete block or concrete, they shall be fastened with 1/4" minimum brass machine screw type expansion bolts sufficiently long to insure that the shield shall be wholly within sound concrete. Where trimmings and fixtures are to be mounted on concrete block or concrete, each fixture shall have the proper cast iron fixture bracket set anchored to the masonry wall with 1/4" diameter toggle bolts. Where fixtures are mounted on metal stud wall, provide 1/4" x 5" steel backing plates, spot welded to at least two studs. All exposed bolt head and nuts

shall be chrome plated hexon brass with round tops. All escutcheons on walls and floors shall be chrome plated cast brass with chrome plated set screws.

- D. No wood grounds shall be used for supports of plumbing fixtures.
- E. Fixture supports shall be furnished by the Contractor as recommended by the manufacturer.
- F. Provide and install shutoff valve to water supply branches to fixtures whether specifically mentioned or not.
- G. If fixtures are supplied with hot water supply openings when not required, such openings are to be closed permanently with chrome plated faucet hole covers.

3.10 TESTING AND INSPECTION

- A. Contractor shall furnish all equipment for tests and any required retests and pay for all cost of repairing any damage resulting from such tests. Contractor shall adjust systems until they are approved. Tests shall be performed in the presence of, and to the satisfaction of, the Engineer and inspector of the official agency involved.
- B. Acid waste Sanitary and water piping shall be tested in accordance with the Plumbing Code. Sanitary shall be tested with a minimum of 10 feet of water for 15 minutes. Water piping shall be tested at 150 psi.

3.11 CLEAN UP

- A. Debris shall not be allowed as a result of this work. Upon completion of this work, remove all debris and excess materials, tools, etc., resulting from this work from the job site and leave the location of this work broom-cleaned in an acceptable manner as approved by the Engineer. All work including plumbing fixtures, traps and mechanical equipment shall be thoroughly cleaned and ready for use.

END OF SECTION

DIVISION 16 – ELECTRICAL

SECTION 16001 – ELECTRICAL DEMOLITION

PART 1 - GENERAL

1.1 PROJECT DESCRIPTION

A. General Requirements

1. The electrical scope of work for this project is to demolish lighting and unused electrical equipment at Hapuna Beach State Park. The park is closed at night so lighting is not required and there are no plans to reinstall the lights in the future.
2. Pole mounted area lighting will be disconnected and removed. Concrete foundations and unused electrical handholes will be demolished to a minimum of 24 inches below finished grade.
3. Unused power conductors will be removed back to the power source and unused ducts will be abandoned in place. Unused circuit breakers will remain and be labeled as spare.
4. The Contractor will be required to dispose of mercury containing lamps and possible polychlorinated biphenyl (PCB) containing ballasts in accordance to applicable codes and regulations.
5. Remove interior lighting, exterior lighting and unused electrical equipment at the comfort stations.

1.2 GENERAL REQUIREMENTS

- A. Do not begin demolition or deconstruction until authorization is received from the Engineer. Remove rubbish and debris from the project site; do not allow accumulations inside or outside the buildings. The work includes demolition of identified items and materials, and removal of resulting rubbish and debris. Remove rubbish and debris from State property daily, unless otherwise directed. Store materials that cannot be removed daily in areas specified by the Engineer.

1.3 ITEMS TO REMAIN IN PLACE

- A. Take necessary precautions to avoid damage to existing items to remain in place, to be reused, or to remain the property of the State. Repair or replace damaged items as approved by the Engineer. Coordinate the work of this section with all other work indicated.

1.4 EXISTING CONSTRUCTION LIMITS AND PROTECTION

- A. Do not disturb existing construction beyond the extent indicated or necessary for installation of new construction. Provide protective measures to control accumulation and migration of dust and dirt in all work areas. Remove dust, dirt, and debris from work areas daily.

1.5 TREES

- A. Protect trees within the project site which might be damaged during demolition. Replace any tree designated to remain that is damaged during the work under this contract with like-kind or as approved by the Engineer.

1.6 UTILITY SERVICE

- A. Maintain existing utilities indicated to stay in service and protect against damage during demolition operations.

PART 2 - PRODUCTS

2.1 FILL MATERIALS

- A. Comply with excavating, backfilling, and compacting procedures for soils used as backfill material to fill basements, voids, depressions or excavations resulting from demolition or deconstruction of structures. Fill material shall be provided as specified in Section 02100 – SITE PREPARATION.

PART 3 - EXECUTION

3.1 STRUCTURES

- A. Remove existing concrete light pole bases and handholes indicated to be removed to 24 inches below grade.

3.2 UTILITIES AND RELATED EQUIPMENT

A. General Requirements

- 1. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by the Engineer.

B. Disconnecting Existing Utilities

- 1. Remove existing utilities, as indicated and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the Engineer. When utility lines are encountered but are not indicated on the drawings, notify the Engineer prior to further work in that area. Remove meters

and related equipment and deliver to a location in accordance with instructions of the Engineer.

3.3 PATCHING

- A. Where removals leave holes and damaged surfaces exposed in the finished work, patch and repair these holes and damaged surfaces to match adjacent finished surfaces. Finished surfaces of patched area shall be flush with the adjacent existing surface and shall match the existing adjacent surface as closely as possible as to texture and finish. Patching shall be as specified and indicated, and shall include:
 - 1. Concrete and Masonry: Completely fill holes and depressions, caused by previous physical damage or left as a result of removals in existing masonry walls to remain, with an approved masonry patching material, applied in accordance with the manufacturer's printed instructions.
 - 2. Patch acoustic lay-in ceiling where light fixtures and electrical equipment have been removed.

3.4 FIXTURES

- A. Remove and dispose electrical fixtures. Remove unprotected glassware from the fixture and dispose separately. Salvage incandescent, mercury-vapor, and fluorescent lamps and fluorescent ballasts manufactured prior to 1978, boxed and tagged for identification, and protected from breakage.

3.5 ELECTRICAL DEVICES

- A. Remove and dispose switches, switchgear, transformers, conductors including wire and nonmetallic sheathed and flexible armored cable, regulators, meters, instruments, plates, circuit breakers, panelboards, outlet boxes, and similar items.

3.6 CONDUIT AND MISCELLANEOUS ITEMS

- A. Remove and dispose conduit except where embedded in gypboard, concrete or masonry. Supports, knobs, tubes, cleats, and straps shall be removed and disposed.

3.7 ITEMS WITH UNIQUE/REGULATED DISPOSAL REQUIREMENTS

- A. Remove and dispose of items with unique or regulated disposal requirements in the manner dictated by law or in the most environmentally responsible manner.

3.8 CLEAN UP

- A. Upon completion of this work, remove all debris and excess materials, tools, etc., resulting from this work from the job site and leave the location of this work broom-

cleaned in an acceptable manner as approved by the Engineer. All work that affected existing electrical equipment to remain shall be thoroughly cleaned and ready for use.

3.9 REGULATION OF REMOVED MATERIALS

- A. Dispose of debris, rubbish, scrap, and other nonsalvageable materials resulting from removal operations with all applicable federal, state and local regulations as contractually specified. Storage of removed materials on the project site is prohibited.

END OF SECTION