STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ADDENDUM NO. 1

for

ALA MOANA BOULEVARD ELEVATED PEDESTRIAN WALKWAY
ISLAND OF OAHU
FEDERAL AID PROJECT NO. BLD-092-1(029)

The following amendments shall be made to the Bid Documents:

A. NOTICE TO BIDDERS

i. Prospective Bidders are hereby notified that the receiving of sealed bids scheduled for 2:00 P.M. HST, September 10, 2021, is hereby POSTPONED until 2:00 P.M. HST, Tuesday, September 21, 2021.

ii. Prospective bidders are hereby notified that additional questions and requests for information regarding this project may now be submitted through HIePRO until 2:00 P.M. HST, Tuesday, September 7, 2021.

iii. Prospective bidders are hereby notified that the DBE Forms must be emailed to the Project Manager by 4:30 P.M. HST, September 27, 2021.

iv. The attached NOTICE TO BIDDERS shall be incorporated and made part of the NOTICE TO BIDDERS.

B. SPECIAL PROVISIONS

i. Replace Special Provision Section 102 dated 12/15/2020 with the attached Special Provision Section 102 dated r8/30/2021.

ii. Replace Special Provision Section 203 dated 12/15/2020 with the attached Special Provision Section 203 dated r8/30/2021.

iii. Replace Special Provision Section 503 dated r07/13/2021 with the attached Special Provision Section 503 dated r08/30/2021.

iv. Revise Subsection 511.03(A)(1) Drilled Shaft Experience, Line 91 through 94, replace the sentence to read as follows:

> "The drilled shaft Contractor shall have installed at least three projects completed in the last five years on which the Contractor has installed a minimum of five drilled shafts per project of a diameter and length similar to those shown in the contract."

v. Replace Special Provision Section 601 dated r07/13/2021 with the attached Special Provision Section 601 dated r08/30/2021.

vi. Replace Special Provision Section 622 dated r07/13/2021 with the attached Special Provision Section 622 dated r08/30/2021.

vii. Replace Special Provision Section 623 dated r07/13/2021 with the attached Special Provision Section 623 dated r08/30/2021.

C. PROPOSAL SCHEDULE

i. Replace Proposal Schedule pages P-8 through P-23 dated r07/13/2021 with the attached revised Proposal Schedule pages P-8 to P-23 dated r08/30/2021.

CI. PLANS

i. Replace Plan Sheets No. 025, 042, 119, 124, 142, 144, 147, 148, 152, 153, 158, 161, 162, 167, 170, 171, 172, 173, 186, 190, 191, 192, 199, 200, 202, 203, 204, 205, 206, 207, 208, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 239 and 258 with ADD 025; ADD 042; ADD. 119, ADD. 124, ADD. 142, ADD. 144, ADD. 147, ADD. 148, ADD. 152, ADD. 153, ADD. 158, ADD. 161, ADD. 162, ADD. 167, ADD. 170, ADD. 171, ADD. 172, ADD. 173, ADD. 186, ADD. 190, ADD. 191, ADD. 192, ADD. 199, ADD. 200, ADD. 202, ADD. 203, ADD. 204, ADD. 205, ADD. 206, ADD. 207, ADD. 208, ADD. 219, ADD. 220, ADD. 221, ADD. 222, ADD. 223, ADD. 224, ADD. 225, ADD. 226, ADD. 227, ADD. 228, ADD. 229, ADD. 239; and ADD 258.

The following is provided for information:

E. PRE-BID MEETING MINUTES

i. Prebid Meeting was held on August 18, 2021 at 10:00 A.M. The meeting minutes and attendance are attached for information.

F. ANSWERS TO QUESTIONS FROM PROSPECTIVE BIDDERS

i. Attached are RFIs and responses for your information.

G. AS-BUILT PLANS

i. Attached are as-built plans for "The Ward Warehouse, 1050 Ala Moana Blvd., Honolulu, Hawaii" dated April 1973 prepared for Victoria Ward Limited (Owner).

H. GEOTECHNICAL REPORT

i. Attached is a copy of the Geotechnical Engineering Report entitled "Geotechnical Engineering Exploration, Ala Moana Boulevard Elevated Pedestrian Walkway, Federal Aid Project No. BLD-092-1(029) Honolulu, Oahu, Hawaii" dated June 1, 2021.

Please acknowledge receipt of this Addendum No.1 by recording the date of its receipt in the space provided on page P-4 of the Proposal.

JADE T. BUTAY
Director of Transportation

NOTICE TO BIDDERS
(Chapter 103D, HRS)

The receiving of sealed bids for **ALA MOANA BOULEVARD ELEVATED PEDESTRIAN WALKWAY, FEDERAL AID PROJECT NO. BLD-092-1(029)**, through HIePRO, scheduled for 2:00 P.M. Hawaii Standard Time (HST), September 10, 2021, is hereby POSTPONED UNTIL 2:00 P.M. HST, Tuesday, September 21, 2021. Bids received after said due date and time shall not be considered. All requests for information (RFI) shall be received through HIePRO by 2:00 P.M. HST, September 7, 2021.

The submission of the Disadvantaged Business Enterprise (DBE) Contract Goal Verification and Good Faith Efforts (GFE) Documentation for Construction, Disadvantaged Business Enterprise (DBE) Confirmation and Commitment Agreement – Trucking Company and Disadvantaged Business Enterprise (DBE) Confirmation and Commitment Agreement – Subcontractor, Manufacturer or Supplier scheduled for September 15, 2021, 2:00 P.M. HST, is POSTPONED UNTIL September 27, 2021, 4:30 P.M. HST.

JADE T. BUTAY
Director of Transportation

Make this section a part of the Standard Specifications:

"**SECTION 102 - BIDDING REQUIREMENTS AND CONDITIONS**

102.01 Prequalification of Bidders. Prospective bidders shall be capable of performing the work for which they are bidding.

In accordance with HRS Chapter 103D-310, the Department may require any prospective bidder to submit answers to questions contained in the 'Standard Qualification Questionnaire For Prospective Bidders On Public Works Contracts' furnished by the Department, properly executed and notarized, setting forth a complete statement of the experience of such prospective bidder and its organization in performing similar work and a statement of the equipment proposed to be used, together with adequate proof of the availability of such equipment. Whenever it appears to the Department, from answers to the questionnaire or otherwise, that the prospective bidder is not fully qualified and able to perform the intended work, the Department will, after affording the prospective bidder an opportunity to be heard and if still of the opinion that the bidder is not fully qualified to perform the work, refuse to receive or consider any bid offered by the prospective bidder. All information contained in the answers to the questionnaire shall be kept confidential. Questionnaire so submitted shall be returned to the bidders after serving their purpose.

No person, firm or corporation may bid where (1) the person, firm, or corporation, or (2) a corporation owned substantially by the person, firm, or corporation, or (3) a substantial stockholder or an officer of the corporation, or (4) a partner or substantial investor in the firm is in arrears in payments owed to the State or its political subdivisions or is in default as a surety or failure to do faithfully and diligently previous contracts with the State.

102.02 Contents of Proposal Forms. The Department will furnish prospective bidders with proposal forms posted in HIePRO stating:

(1) The location,

(2) Description of the proposed work,

(3) The approximate quantities,

(4) Items of work to be done or materials to be furnished,

(5) A schedule of items, and

(6) The time in which the work shall be completed.

Papers bound with or attached to the proposal form are part of the proposal. The bidder shall not detach or alter the papers bound with or attached to the proposal when the bidder submits its proposal through HIePRO.

Also, the bidder shall consider other documents including the plans and specifications a part of the proposal form whether attached or not.

102.03 (Unassigned).

102.04 Estimated Quantities. The quantities shown in the contract are approximate and are for the comparison of bids only. The actual quantity of work may not correspond with the quantities shown in the contract. The Department will make payment to the Contractor for unit price items in accordance with the contract for only the following:

(1) Actual quantities of work done and accepted, not the estimated quantities; or

(2) Actual quantities of materials furnished, not the estimated quantities.

The Department may increase, decrease, or omit each scheduled quantities of work to be done and materials to be furnished. When the Department increases or decreases the estimated quantity of a contract item by more than 15% the Department will make payment for such items in accordance with Subsection 104.06 - Methods of Price Adjustment.

102.05 Examination of Contract and Site of Work. The bidder shall examine carefully the site of the proposed work and contract before submitting a proposal.

By the act of submitting a bid for the proposed contract, the bidder warrants that:

(1) The bidder and its Subcontractors have reviewed the contract documents and found them free from ambiguities and sufficient for the purpose intended;

(2) The bidder and its workers, employees and subcontractors have the skills and experience in the type of work required by the contract documents bid upon;

(3) Neither the bidder nor its employees, agents, suppliers or subcontractors have relied upon verbal representations from the Department, its employees or agents, including architects, engineers or consultants, in assembling the bid figure; and

(4) The basis for the bid figure are solely on the construction contract documents.

Also, the bidder warrants that the bidder has examined the site of the work. From its investigations, the bidder acknowledges satisfaction on:

(1) The nature and location of the work;

(2) The character, quality, and quantity of materials;

(3) The difficulties to be encountered; and

(4) The kind and amount of equipment and other facilities needed.

Subsurface information or hydrographic survey data furnished are for the bidders' convenience only. The data and information furnished are the product of the Department's interpretation gathered in investigations made at the specific locations. These conditions may not be typical of conditions at other locations within the project area or that such conditions remain unchanged. Also, conditions found at the time of the subsurface explorations may not be the same conditions when work starts. The bidder shall be solely responsible for assumptions, deductions, or conclusions the bidder may derive from the subsurface information or data furnished.

If the Engineer determines that the natural conditions differ from that originally anticipated or contemplated by the Contractor in the items of excavation, the State may treat the difference in natural conditions, as falling within the meaning of Subsection 104.02 – Changes.

102.06 Preparation of Proposal. The submittal of its proposal shall be on forms furnished by the Department. The bidder shall specify in words or figures:

(1) A unit price for each pay item with a quantity given;

(2) The products of the respective unit prices and quantities;

(3) The lump sum amount; and

(4) The total amount of the proposal obtained by adding the amounts of the several items.

The words and figures shall be in ink or typed. If a discrepancy occurs between the prices written in words and those written in figures, the prices written in words shall govern.

When an item in the proposal contains an option to be made, the bidder shall choose in accordance with the contract for that particular item. Determination of an option will not permit the Contractor to choose again.

The bidder shall sign the proposal properly in ink. A duly authorized representatives of the bidder or by an agent of the bidder legally qualified and acceptable to the Department shall sign, including one or more partners of the bidder and one or more representatives of each entity comprising a joint venture.

When an agent, other than the officer(s) of a corporation authorized to sign contracts for the corporation or a partner of a partnership, signs the proposals, a 'Power of Attorney' shall be on file with the Department or submitted with the proposal. Otherwise, the Department will reject the proposal as irregular and unauthorized.

The bidder shall submit acceptable evidence of the authority of the partner, member(s) or officer(s) to sign for the partnership, joint venture, or corporation respectively with the proposal. Otherwise, the Department will reject the proposal as irregular and unauthorized.

102.07 Irregular Proposals. The Department may consider proposals irregular and may reject the proposals for the following reasons:

(1) The proposal is a form not furnished by the Department, altered, or detached;

(2) The proposal contains unauthorized additions, conditions, or alternates. Also, the proposal contains irregularities that may tend to make the proposal incomplete, indefinite, or ambiguous to its meaning;

(3) The bidder adds provisions reserving the right to accept or reject an award. Also, the bidder adds provisions into a contract before an award;

(4) The proposal does not contain a unit price for each pay item listed except authorized optional pay items; and

(5) Prices for some items are out of proportion to the prices for other items.

(6) If in the opinion of the Director, the bidder and its listed subcontractors do not have the Contactor's licenses or combination of Contractor's licenses necessary to complete the work.

Where the prospective bidder is bidding on multiple projects simultaneously and the proposal limits the maximum gross amount of awards that the bidder can accept at one bid letting, the proposal is not irregular if the limit on the gross amount of awards is clear and the Department selects the awards that can be given.

102.08 Proposal Guaranty. The Department will not consider a proposal of $25,000 or more unless accompanied by:

(1) A deposit of legal tender; or

(2) A valid surety bid bond, underwritten by a company licensed to issue bonds in the State of Hawaii, in the form and composed, substantially, with the same language as provided herewith and signed by both parties; or

(3) A certificate of deposit, share certificate, cashier's check, treasurer's check, teller's check, or official check drawn by, or a certified check accepted by and payable on demand to the State by a bank, savings institution, or credit union insured by the Federal Deposit Insurance Corporation (FDIC) or the National Credit Union Administration (NCUA).

(a) The bidder may use these instruments 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 acceptable.

(c) The instrument shall be made payable at sight to the Department.

In accordance with HRS Chapter 103D-323, the above shall be in a sum not less than 5% of the amount bid.

102.09 Delivery of Proposal. The bidder shall submit the proposal in HIePRO. Bids received after said due date and time shall not be considered.

102.10 Withdrawal or Revision of Proposals. A bidder may withdraw or revise a proposal after the bidder submits the proposal in HIePRO. Withdrawal or revision of proposal must be completed before the time set for the receiving of bids.

102.11 Public Opening of Proposals. Not applicable.

102.12 Disqualification of Bidders. The Department may disqualify a bidder and reject its proposal for the following reasons:

(1) Submittal of more than one proposal whether under the same or different name.

(2) Evidence of collusion among bidders. The Department will not recognize participants in collusion as bidders for any future work of the Department until such participants are reinstated as qualified bidders.

(3) Lack of proposal guaranty.

(4) Submittal of an unsigned or improperly signed proposal.

(5) Submittal of a proposal without a listing of subcontractors or containing only a partial or incomplete listing of subcontractors.

(6) Submittal of an irregular proposal in accordance with Subsection 102.07 - Irregular Proposals.

(7) Evidence of assistance from a person who has been an employee of the agency within the preceding two years and who participated while in State office or employment in the matter with which the contract is directly concerned, pursuant to HRS Chapter 84-15.

(8) Suspended or debarred in accordance with HRS Chapter 104-25.

(9) Failure to complete the prequalification questionnaire, if applicable.

(10) Failure to attend the mandatory pre-bid meeting, if applicable.

102.13 Material Guaranty. The successful bidder may be required to furnish a statement of the composition, origin, manufacture of materials, and samples.

102.14 Substitution of Materials and Equipment Before Bid Opening. See Subsection 106.13 for Substitution Of Materials and Equipment After Bid Opening.

(A) General. When brand names of materials or equipment are specified in the contract documents, they are to indicate a quality, style, appearance, or performance and not to limit competition. The bidder shall base its bid on one of the specified brand names unless alternate brands are qualified as equal or better in an addendum. Qualification of such proposed alternate brands shall be submitted via email to the contact person in HIePRO for the solicitation and also post a question in HIePRO under the question/answer tab referencing the email with the request. The request must be posted in HIePRO no later than 14 calendar days before the bid opening date, not including the bid opening date

An addendum will be issued to inform all prospective bidders of any accepted substitution in accordance with Subsection 102.17 – Addenda.

(B) Statement of Variances. The statement of variances must list all features of the proposed substitution that differ from the contract documents and must further certify that the substitution has no other variant features. The brochure and information submitted shall be clearly marked showing make, model, size, options, and any other features requested by the Engineer and must include sufficient evidence to evaluate each feature listed as a variance. A request will be denied if submitted without sufficient evidence. If after installing the substituted product, an unlisted variance is discovered, the Contractor shall immediately replace the product with a specified product at no increase in contract price and contract time.

(C) Substitution Denial. Any substitution request not complying with the above requirements will be denied.

102.15 Preferences. Hawaii Products and Recycled Products shall not apply to this project.

102.16 Certification for Safety and Health Program for Bids in excess of $100,000. In accordance with HRS Chapter 396-18, the bidder or offeror, by signing and submitting this proposal, certifies that a written safety and health plan for this project will be available and implemented by the notice to proceed date for this project. Details of the requirements of this plan may be obtained from the State Department of Labor and Industrial Relations, Occupational Safety and Health Division (HIOSH).

102.17 Addenda. Addenda issued shall become part of the contract documents. Addenda to the bid documents will be provided to all prospective bidders via HIePRO. Each addendum shall be an addition to the contract documents. The terms and requirements of the bid documents (i.e., drawings, specifications and other bid and contract documents) cannot be changed prior to the bid opening except by a duly issued addendum."

END OF SECTION 102

SECTION 203 – EXCAVATION AND EMBANKMENT

Make the following amendments to said Section:

(I) Amend **203.03(C)(2)(a) – Maximum Dry Unit Weight** from line 245 to line 255 to read as follows:

> "**(a) Maximum Dry Unit Weight.** Test for maximum dry unit weight according to AASHTO T 180, and apply the correction for fraction larger than 3/4 inch. Use Hawaii Test Method HDOT TM 5 for sample preparation of sensitive soils when so designated by the Engineer."

(II) Amend **203.04 – Measurement** by revising lines 345 to 366 to read as follows:

"**203.04 Measurement.**

(A) Load Transfer Platform will be paid on a lump sum basis. The lump sum price includes excavating, removing and disposing of excavated materials, placing geotextiles and geogrids, backfilling with specified materials, and furnishing labor, materials, equipment, tools and incidentals necessary to complete the work in place. Measurement for payment will not apply.

(B) The Engineer will measure roadway excavation per cubic yard. The Engineer will compute quantities of roadway excavation by average end area method and centerline distances. Curvature correction will not be applied to quantities within roadway prism, as indicated in the contract documents. In computing excavation quantities from outside the roadway prism, where roadway centerline is used as a base, curvature correction will be applied when centerline radius is 1,000 feet or less.

When roadway excavation quantities by average end area method cannot be computed due to the nature of a particular operation or changed conditions, the Engineer will determine and use computation method that will produce an accurate quantity estimate.

(C) The Engineer will measure imported borrow per cubic yard or per ton in accordance with the contract documents. The Engineer will compute quantities of imported borrow incorporated into the work on a volume basis, using average end area method in place at work site.

(D) The Engineer will only measure potholing and location of obstructions required and requested by the Engineer on a force account

basis in accordance with Subsection 109.06 – Force Account Provisions and Compensation."

(III) Amend **203.05 – Payment** by revising lines 368 to 457 to read as follows:

"**203.05 Payment.** The Engineer will pay for the accepted pay items listed below at the contract price per pay unit, as shown in the proposal schedule. Payment will be full compensation for the work prescribed in this section and the contract documents.

The Engineer will pay for each of the following pay items when included in the proposal schedule:

Pay Item	**Pay Unit**
Roadway Excavation	Cubic Yard

The Engineer will pay for:

(1) 15 percent of the contract bid price upon completion of obliterating old roadways and hauling.

(2) 30 percent of the contract bid price upon completion of preparing subgrade.

(3) 40 percent of the contract bid price upon completion of placing selected material in final position, rounding of slopes, and using water for compaction.

(4) 15 percent of the contract bid price upon completion of disposing of surplus excavation material.

Imported Borrow	Cubic Yard
Load Transfer Platform No. ___	Lump Sum
Potholing and Location of Obstructions	Force Account

The Engineer will not pay for stockpiling selected material, placing selected material in final position, or placing selected material in windrows along tops of roadway slopes for erosion control work, separately and will consider the cost as included in the unit prices for the various excavation contract pay items. The cost is for work prescribed in this section and the contract documents.

The Engineer will not pay for overhaul separately and will consider the cost as included in the unit prices for the various excavation contract pay items. The cost is for work prescribed in this section and the contract documents.

The Engineer will not pay for embankment separately and will consider the cost as included in the unit price for roadway excavation. The cost is for work prescribed in this section and the contract documents.

An estimated amount for force account is allocated in proposal schedule under 'Potholing and Location of Obstructions', but actual amount to be paid will be the sum shown on accepted force account records, whether this sum be more or less than estimated amount allocated in proposal schedule. The Engineer will pay for Potholing and Location of Obstructions measures requested by the Engineer on a force account basis."

END OF SECTION 203

SECTION 503 - CONCRETE STRUCTURES

Make the following amendments to said Section:

(I) Amend **503.01 Description** by revising the word culverts in line 4 to read "box culverts".

(II) Amend **503.02 Materials** by deleting Abrasive Coating 712.11 at line 31 and by adding the following after line 32:

"Grout 712.04"

(III) Amend **503.03(B) Falsework, Formwork, or Centering** as follows:

Delete the word formwork from line 59.

Replace the words "AASHTO LRFD Bridge Specifications" with "AASHTO Guide Design Specifications for Bridge Temporary Works at line 78.

Add the following two sentences at the end of the first paragraph at line 63: "Formwork is a temporary structure or mold used to retain the plastic on fluid concrete in its designated shape until it hardens. Formwork must have enough strength to resist the fluid pressure exerted by plastic concrete and any additional fluid pressure effects generated by vibrations."

(IV) Amend **503.03(B) Falsework, Formwork, or Centering** by adding the following sentences to the seventh paragraph at line 106:

"Temporary bracing shall be provided, as necessary to withstand all imposed loads during erection, construction and removal of falsework."

(V) Amend **503.03(B) Falsework, Formwork, or Centering** by revising the ninth paragraph from lines 112 to 122 as follows:

"Show stresses and deflection of load supporting members in design calculations. Show anticipated total settlements of falsework and forms on falsework drawings, including falsework footing pressure and settlement, and joint take-up. Construct deck slab form between girders with no allowance for settlement relative to girders. Do not exceed 1 inch for anticipated settlements of falsework. Provide tell-tales attached to soffit forms, readable from the ground, at sufficient locations to determine total settlements and deflections resulting form concrete placement. Check for any movement or deformation of forms and falsework that may exceed the calculated or anticipated deflection or settlement. If the movement or deformation is exceeded, take appropriate action. This action may include halting concrete placement to install additional bracing or changing the rate or sequence of concrete placement to achieve the required lines and

grade. Discontinue concrete placement when settlements deviate more than ± 3/8 inch from those indicated on falsework drawings. In such affected areas, provide corrective measures prior to initial set of concrete. Remove unacceptable concrete."

(VI) Amend **503.03(C)(1) Construction** by revising the first paragraph between lines 169 and 172 as follows:

(1) Construction. "Use wood or metal forms that are impervious to moisture, non-staining to concrete, mortar tight and sufficiently rigid to prevent distortion due to pressure of concrete and other loads, including vibration, incidental to construction. Construct and maintain forms to prevent joints from opening. Formwork joints shall be filled with approved material that is impervious to moisture, will not stain concrete, and produces tight joints."

(VII) Amend **503.03(C)(1) Construction** by revising the second paragraph between lines 174 and 176 to read as follows:

"Unless otherwise indicated in the contract documents, place minimum ¾ inch by ¾ inch chamfer at sharp edges of exposed concrete surfaces. Give girder and coping forms bevels or drafts to ensure easy removal."

(VIII) Amend **503.03(C)(1) Construction** by adding the following sentence to the ninth paragraph at line 209:

"The Engineer will stop the use of the forms or forming systems which produce a concrete surface with excessive undulations until the Contractor makes modification acceptable to the Engineer."

(IX) Amend **503.03(C)(2) Form Lumber** by adding the following sentence to the first paragraph after line 223:

"When requested by the Engineer, submit certificates verifying grade and species of any piece of lumber which does not have a grade or species stamp."

(X) Amend **503.03(D) Removal of Falsework and Forms** by revising Table 503.03-1 – Removal of Falsework and Forms at line 297 to read as follows:

“TABLE 503.03-1 – REMOVAL OF FALSEWORK AND FORMS						
Railing and Barriers – 12 Hours Removal Time						
Beams, Arches, and Other Members – 14 days Removal Time						
Slabs With Maximum Thickness of (Inches)	9		12		More Than 12	
Removal Time (Days)	7		10		14	
Walls, Columns, and Vertical Sides of Beams With Maximum Height of (Feet)	2	5	10	20	30	**40 or More**
Removal Time (Days)	0.5	1	2	3	5	7
Note: Where forms also support vertical or horizontal loads imposed on slab or beam soffits, use 14 days for removal time.”						

(XI) Amend **503.03(D) Removal of Falsework and Forms** by deleting the last paragraph between lines 329 and 334.

(XII) Amend **503.03(E) Loading** by deleting the words, “except abutment walls and wing walls” in line 337.

(XIII) Amend **503.03(F)(1) General** by adding the following paragraphs after line 419:

“At the time of placement, the concrete temperature shall not exceed 85 degrees Fahrenheit.

The rate of evaporation shall be measured by using the nomograph: ACI 308R Figure 4.1 Nomograph for Estimating the Maximum Potential Rate of Evaporation of the Environment Assuming a Water-Covered Surface in Which the Water Temperature Is Equal to the Concrete Temperature or by using an evaporation rate calculator e.g., Kestrel 5200 hat has been reviewed and accepted by the Engineer. Use procedures as stated in ACI 308R Chapter 4 – Monitoring Curing and Curing Effectiveness. Approximately 30 minutes prior to the scheduled start of concrete placement measure the ambient air temperature, relative humidity and wind velocity with industrial grade weather monitoring instruments or with an evaporation rate calculator to determine the on-site evaporation rate. When the rate of evaporation is equal to or exceeds 0.05 lb/sq

ft/h fogging shall begin. During the placement of the concrete recalculate evaporation rate every 15 minutes using new real-time data including actual temperature of concrete being placed. The concrete shall be fogged before, during and after finishing. Fogging shall start at the point the bleed water starts to evaporate. Fogging may stop when the curing compound application is complete. Fogging shall be accomplished by self-powered atomized mister, e.g. BossTek DustBoss, that creates a mist of water droplets above the concrete surface that will float in the air. The droplets should float in the air, not fall on the concrete. The goal is to humidify the air, not wet the concrete. Let the water evaporate before finishing. If the concrete is fogger before floating, brooming or trowelling, do not finish the accumulated surface water into the concrete surface or it will weaken it. Do not allow water to run off the concrete surface. Adjust foggers or pause its operation. Foggers shall not drip water on the poured concrete surface. Point foggers into the air above the concrete pour not at it and not in the direction of the incoming wind. It shall not be acceptable to use a water hose to spray water into the air as a substitute. This will be considered adding additional water to the deck surface. If plastic shrinkage cracks appear during the finishing, the cracks shall be closed by striking each side of the crack with a float and refinishing the concrete."

(XIV) Amend **503.03(F)(3) Box Girder Spans** by revising the title Box Girder Spans at line 431 to read Sequence.

(XV) Amend **503.03(F)(7) Hot Weather Concreting** with:

"When the ambient temperature is expected to meet or exceed 75 degrees F or the concrete construction involves flatwork concrete construction, ACI 305 R-20 guide to hot weather concreting or its latest edition or variant shall be part of the contractor's means and methods. Submit hot weather concreting action plan to the Engineer for review and acceptance. Do not place concrete where the temperature is above 90 degrees F unless the design mix and placement method comply with ACI 305 R-20 Guide to Hot Weather Concreting or its latest edition or variant. Evaporation retarders and finishing aid solutions may be used. Adjust dilution rates to fit the local climate. Evaporation retarders and finishing aids shall be "stand-alone" products no product that is both evaporation retarder and finishing aid shall be used. They shall be designed for highway pavement use. Evaporation retarders and finishing aids shall not deleteriously change the water to cementitious material ratio (w/cm) or affect the physical properties of the surface it is being applied to causing defects, e.g., chalking, color change, dusting, weaken surface, popouts, brittleness, spalling, cracking, or other unacceptable properties, submit test results that show compliance to these requirements. Evaporation retarders and finishing aids shall not be used interchangeably, using them interchangeably will damage the concrete surface and shall be cause for the pavement being non-compliant and shall be removed or an engineer accepted remedial repair be performed. The engineer will solely decide what method is to be used."

(XVI) Amend **503.03(F) Placing Concrete** by adding the following Subsection after line 565:

"(8) Certified Concrete Flatwork Finisher Requirement. Perform the placement, and finishing operations of concrete flatwork with a minimum ratio of one certified ACI Concrete Flatwork Finisher and Technician with 4,500 hours of acceptable work experience (certified craftsman) per three concrete finishers (concrete finishers without ACI Concrete Flatwork Finisher and Technician certification and 4,500 hours of acceptable work experience) at each location having flatwork done. The concrete flatwork shall be under the direct supervision of a certified craftsman. Designate the certified craftsman who will be supervising and responsible for determining the quality of the finish of the concrete flatwork being performed. No flatwork shall be performed without the required amount of certified craftsman present.

(a) Flatwork concrete is defined as any concrete work that requires tools or machines to be used during the placement and finishing operations of concrete. Concrete flatwork includes concrete work that requires a specified finishing, smoothness or rigid surface tolerances such as sidewalks, walkways, Portland cement concrete pavement, concrete white-topping, girder seats, pier caps, bridge decks, on-grade concrete slabs, approach slabs, concrete overlays, and concrete repairs which exceed one square foot per day.

(b) Areas that are not considered flatwork concrete are the top of foundations or structures that will have backfill material placed directly on the concrete surface.

(c) Submit copies of the craftsman's current ACI certification 30 days before concrete flatwork begins for the Engineer's review and acceptance. The Engineer has the right to require the removal, replacement, retraining and re-certification of a certified craftsman if that person does not, in the opinion of the Engineer, demonstrate the ability to place and finish concrete in accordance with the practices recommended in the ACI Concrete Flatwork Finisher Certification Program and to meet the finishing standards required by the contract documents.

(d) Any cost or impact to the contractor in providing, training, certification, retraining, replacement or re-certification is incidental to the contract items that require concrete flatwork."

(XVII) Amend **503.03(G) Joints** by adding the following sentence after line 566:

"Prior to backfilling with earth or other materials against the joints, all construction, expansion, contraction, and control joints shall be waterproofed with flashing compound waterproofing as detailed in the Standard Plans."

(XVIII) Amend **503.03(G)(1) Construction Joints** by revising the second paragraph between lines 572 and 579 to read as follows:

"Before placing concrete on substrate concrete at construction joint, the following work shall be performed:

(a) Remove laitance, loose particles, dust, dirt, impervious membrane curing compound, and any other material foreign to the construction joint and projecting reinforcement.

(b) Roughen horizontal construction joint by abrasive blast cleaning or other approved methods to full amplitude of approximately ¼ inch."

(XIX) Amend **503.03(G)(3) Contraction Joints** by revising the first paragraph from lines 661 to 665 to read as follows:

"(3) Contraction Joints. Contraction joints in walls and in other structures shall be spaced at not more than 20 feet on centers and shall be spaced, at abrupt changes in height or thickness and at obtuse corners unless otherwise directed by the Engineer."

(XX) Amend **503.03(I)(3) Flashing Compound for Joints** between lines 755 and 757 by deleting this subsection.

(XXI) Amend **503.03(L) Curing Methods** by adding the following paragraph after line 794:

"The Contractor shall have the option to use curing compound SINAK WCE or SINAK LITHIUM for bridge structures when approved by the Engineer. Six copies of the manufacturer's brochure and certificates of test results shall be submitted. All work shall conform with the manufacturer's recommendations."

(XXII) Amend **503.03(L)(2) Impervious Membrane Curing** by revising the third sentence of the first paragraph from lines 818 to 819, to read as follows:

"Use ratio of at least one gallon for each 100 square feet of concrete surface."

(XXIII) Amend **503.03(L)(2) Impervious Membrane Curing** by adding the following sentences to the first paragraph after line 819:

"The curing compound shall be applied to the concrete following the surface finishing operation, immediately before the moisture sheen disappears from the surface, but before any drying shrinkage or craze cracks begin to appear. In the event of any drying or cracking of the surface, application of water with an atomizing nozzle (fog spray) as specified in Section 503.03(L)(1), "Water Curing", shall be started immediately and shall be continued until application of the compound is resumed or started; however, the compound shall not be applied over any resulting freestanding water. Should the film of compound be damaged from any cause before the expiration of 7 days after the concrete is placed in the case of structures and 72 hours in the case of pavement, the damaged portion shall be repaired immediately with additional compound."

(XXIV) Amend **503.03(L)(2) Impervious Membrane Curing** by revising the last sentence of the second paragraph between lines 822 and 825 as follows:

"Do not apply membrane curing compound on surfaces to which concrete is to be bonded or to which waterproofing or epoxy is to be applied."

(XXV) Amend **503.03(M) Finishing Concrete Surfaces** by adding the following sentences at line 841:

"No additional water shall be added to the concrete surfaces in an effort to aid the finishing operation as the application of water to aid the finishing operation will result in the rejection of the concrete pour. Finishing aids or evaporation retarders may be used only with written authorization by the Engineer. Only finishing aids shall be used to finish the concrete surface and only evaporation retarders used to minimize the evaporation rate of the plastic concrete. These solutions shall not be used interchangeably."

(XXVI) Amend **503.03(M)(3)(a)1. Machine Finishing** by adding the following sentences at the end of the second paragraph at line 1021:

"The screed rails shall be adjustable for elevations. The screed shall be set to elevations, with allowances for anticipated settlement, camber and deflection, as required to form the surface of the bridge deck to the line and grade shown in the contract. The Contractor shall install screed rail type such that the rails shall not deflect appreciably under the applied loads. The supports for the screed rails shall not be placed within the full width of the bridge.

The Contractor shall not apply any additional water to the deck surface in an effort to aid his finishing operation. The unauthorized application of water will result in the rejection of that day's concrete placement."

(XXVII) Amend **503.03(M)(3)(a)1. Machine Finishing** by deleting the last three paragraphs between lines 1098 to 1111 and adding the following paragraph:

"The upper 1/8 inch of the concrete surface shall be removed by blanket grinding for all concrete bridge decks, concrete sleeper slabs, and concrete approach slabs. Grinding shall be the full width of the bridge deck from railing to railing.

A working drawing to control, collect and dispose of run-off water at an accepted off-site facility shall be submitted to the Engineer.

The requirements of Section 411.03(N) Surface Test shall apply to concrete bridge decks and concrete approach slabs. If additional grinding is required to achieve the specified profile index, the grinding shall be performed in the longitudinal direction."

(XXVIII) Amend **503.03(M)(3)(b) Sidewalk and Median Strip** by revising the first and second paragraphs from lines 1182 to 1191 to read as follows:

(b) Sidewalks and Median Strips. "Provide final finish for concrete sidewalks and median strips using wooden float and broom finish. Do not plaster surface. Use edging tool with ¼-inch radius to finish outside edges of sidewalk. Finish sidewalk as plane surface with 2-percent (allowable construction tolerance of plus or minus 0.4 percent maximum) cross slope towards roadway. Test surface of concrete sidewalk with 10-foot straightedge. Correct any deviation in excess of ¼ inch."

(XXIX) Amend **503.03 Construction** by adding subsection 503.03(0) beginning at line 1200 as follows:

"**(0) Tolerance for Concrete Construction and Materials.** Conform to the stricter of tolerances specified in the specifications, ACI 117 Standard Specifications for Tolerance for Concrete Construction and Materials, PCI Tolerance for Precast and Prestressed Concrete, and PCI MNL-116 Manual for Quality Control of Plants and Production of Structural Precast Concrete Products."

(XXX) Amend **503.04 Measurement** by revising lines 1201 to 1205 to read as follows:

"503.04 Measurement. The Engineer will measure the concrete by cubic yard according to the dimensions shown in the contract or as ordered by the Engineer.

The Engineer will not make deductions for the volume occupied by reinforcing steel, piles, floor drains, weepholes, timber bumpers, pipes less than eight (8) inches, conduits, or expansion joint materials."

(XXXI) Amend **503.05 Payment** by revising lines 1206 to 1223 to read as follows:

"**503.05 Payment.** The Engineer will pay for the accepted quantities of concrete complete in place at the contract unit price per cubic yard for the pay items listed below and contained in the proposal.

The contract unit price paid shall be full compensation for the concrete; for placing, curing, finishing, and grinding; for furnishing materials including admixtures and cement (including extra cement added to concrete deposited under water); for furnishing and installing drains, scuppers, premolded joint fillers, joint seals, waterproofing at construction joints, waterstops, pipes and conduits; for furnishing and installing metal rockers, anchor bolts, structural shapes for expansion joints and other similar items; for timber bumpers, forms, form lining and falsework or centering, bearing pads, structural steel bearing plates; reinforcing bars conforming to ASTM A1035 Type CS Grade 100; and for equipment, tools, labor, materials and incidentals necessary to complete the work.

The Engineer will pay for the following pay item when included in the proposal schedule:

Pay Item	**Pay Unit**
Concrete for _____ (Class _____ if applicable)	Cubic Yard

The Engineer will pay for excavation and backfill for foundations in accordance with and under Section 205 – Excavation and Backfill for Bridge and Retaining Structures and Section 206 – Excavation and Backfill for Drainage Facilities."

END OF SECTION 503

DIVISION 600 - MISCELLANEOUS CONSTRUCTION

Amend **Section 601 - STRUCTURAL CONCRETE** to read as follows:

SECTION 601 - STRUCTURAL CONCRETE

601.01 Description. This section describes structural concrete consisting of Portland Cement, fine aggregate, coarse aggregate, and water. This will include adding admixtures for the purpose of entraining air, retarding or accelerating set, tinting, and other purposes as required or permitted. To reduce the embodied carbon footprint of concrete, concrete design on the island of Oahu shall include the use of carbon dioxide mineralization or equivalent technology. Other methods to reduce the cement content such as use of supplementary cementitious materials (SCMs) or admixtures such as C-S-H nanoparticle-based strength-enhancing admixture (CSH-SEA) or equivalent may also be used to reduce the embodied carbon footprint including the combination thereof the previously mentioned methods.

601.02 Materials.

Portland Cement	701.01
Fine Aggregate for Concrete	703.01
Coarse Aggregate for Portland Cement Concrete	703.02
Admixtures	711.03
Water	712.01

Use coarse aggregate for lightweight concrete conforming to ASTM C330 except Sections 5, 7 and 9.

601.03 Construction.

(A) Quality Control. Portland Cement concrete production requires Contractor responsibility for quality control of materials during handling, blending, mixing, curing, and placement operations.

Sample, test, and inspect concrete to ensure quality control of component materials and concrete. Sampling and testing for quality control in accordance with standard methods shall be performed by certified ACI Concrete Field Technician Grade I. Perform quality control tests for slump, air content, temperature, and unit weight during production of structural concrete other than concrete for incidental construction. Submit quality control test results.

(B) Design and Designation of Concrete. Design concrete mixture for concrete work specified. Submit mix design using State Highways Division form DOT 4-151 or an Engineer accepted equivalent form. Do not start work until the Engineer accepts mix design. The Engineer will accept concrete mix design using information given in Table 601.03-1 - Design of Concrete, and other pertinent requirements.

Whenever 28-day compressive strength, f'_c, is 4,000 psi or greater, designate concrete by required minimum 28-day compressive strength.

The 28-day compressive strength, f'_c, less than 4,000 psi listed in Table 601.03-1 – Design of Concrete, is for design information and designation of class only.

Proportion concrete designated by compressive strength such that concrete conforms to required strength.

Design concrete placed in bridge decks and pavements exposed to traffic wear, with air content of 3 percent, including entrapped and entrained air. Maintain air content for plastic concrete within tolerance of 1 percent air content, plus or minus, during the work.

Use concrete Type SBD where specified in the plans with special requirements as listed below:

(a) A shrinkage reducing admixture (SRA), Master Life SRA35 by BASF or Eclipse by W.R. Grace & Co., or approved equal shall be added to the concrete. The minimum dosage requirement shall be 128 ounces per cubic yard of concrete.

(b) A migrating, corrosion-inhibiting, amine-carboxylate, water-based admixture shall be added to the concrete. The minimum dosage shall be 24 ounces per cubic yards of concrete.

(c) The concrete shall have a maximum water to cement ratio of 0.40. The weight of the SRA shall be included in the total water when computing the water to cement ratio. The maximum amount of water shall be 268 pounds per cubic yard.

(d) The 28 day compressive strength of the concrete shall be not less than 6,000 psi.

(e) The concrete shall contain 15 pounds of alkali resistant structural glass fiber such as CEMFIL ANTI-CRAK HP67/36 or approved equal per cubic yard.

(f) The final concrete mix design shall be based on field trial batches to determine the most suitable materials and proportions that will provide a concrete mixture having the least amount of segregation and bleeding, and at the same time provide the necessary workability to meet placing requirements**.**

Type SBD concrete shall utilize CO_2 Mineralization technology, Supplementary cementitious materials (SCMs), CSH-SEA, or equivalent as stated in this section.

Class A concrete shall be used when type of concrete is not indicated in the contract documents.

Design concrete as specified in Table 601.03-1 – Design of Concrete.

TABLE 601.03-1 - DESIGN OF CONCRETE
(800 Maximum Cement Content lbs./c.y.)

Class of Concrete	28-Day Strength f'_C, psi.	Minimum Cement Content lbs./c.y.	Maximum Water-Cement Ratio, lb./lb.	Minimum Cement Content with Mineralized CO2 lbs./c.y.	Maximum Water-Cement Ratio with Mineralized CO2 lb./lb.
A	3000	532	0.59	504	0.62
B	2500	475	0.66	450	0.70
C	2000	418	0.75	396	0.79
D	1500	380	0.85	360	0.87
SEAL	3000	610	0.55	NA	NA
Designated by Strength f'_c or $^*f'_r$	As Specified	610	0.49	NA	NA

$^*f'_r$ = Specified Modulus of Rupture

Concrete Design – Projects on Oahu will utilize CO_2 Mineralization technology or equivalent. Supplementary cementitious materials (SCMs), CSH-SEA or equivalent or combination thereof the previously mentioned methods may also be used. Concrete design shall allow a reduction of portland cement content while maintaining the concrete design strength, durability and other requirements. See Table 601.03-1 Design of Concrete specified limits for adjusted minimum cement content and water cement ratio when using CO_2 mineralization. Material certifications for the above shall include a list of at least 3 projects that used the technology, SCMs, admixtures or combination thereof.

Use the absolute volume method to proportion concrete materials in accordance with requirements of concrete designated by class, cement content in pounds per cubic yards, or specified 28-day compressive strength. Use absolute volumetric proportioning methods as outlined in the American Concrete Institute (ACI) Standard 211.1, "Recommended Practices for Selecting Proportions for Normal and Heavyweight Concrete."

Use coarse aggregate size No. 57 (one inch to No. 4) or No. 67 (3/4 inch to No. 4) for concrete. For concrete placed in bottom slabs and stems of box girders, use No. 67 size aggregate. Smaller size aggregates may be permitted when encountering limited space between forms and reinforcement or between reinforcement when accepted by the Engineer in writing. Maximum aggregate size shall not be greater than 1/3 of the space between reinforcing steel bars or reinforcing steel and the form.

Use the following standard methods in Table 601.03-2 – Standard Methods for determining compliance with requirements indicated in this subsection:

TABLE 601.03-2 – STANDARD METHODS	
Sampling Fresh Mixed Concrete	AASHTO T 141
Mass Per Cubic Meter (Cubic Foot) Yield and Air Content (Gravimetric) of Concrete	AASHTO T 121
Slump of Hydraulic Cement Concrete	AASHTO T 119
Air Content of Freshly Mixed Concrete by the Pressure Method	AASHTO T 152
Specific Gravity and Absorption of Fine Aggregate	AASHTO T 84
Specific Gravity and Absorption of Coarse Aggregate	AASHTO T 85
Temperature of Freshly Mixed Portland Cement Concrete	ASTM C1064
Making and Curing Concrete Test Specimens in the Field	AASHTO T 23
Compressive Strength of Molded Concrete Cylindrical Specimens	AASHTO T 22 (4 inch by 8 inch or 6 inch by 12 inch cylinders)
Flexural Strength of Concrete (Using Simple Beam	AASHTO T 97

with Third-Point Loading)	

When concrete is designated by compressive strength, f'_c, or flexural strength, f'_r, or includes CO2 Mineralization technology, CSH-SEA or SCMs, the Engineer will require prequalification of materials and mix proportions proposed for use before placing such concrete. The Engineer will prequalify concrete based on past performance records using statistical computations of population sizes and (n-1) weighting, or trial batch test reports in compliance with computed minimum average strength for material and mix proportions. The Engineer will determine minimum average strength on probability of not more than one in 20 tests falling below specified strength for the following conditions:

(1) When past performance records are available, furnish the following documented performance records:

(a) Minimum of 15 consecutive 28-day strength tests from projects having same materials and mix proportions.

(b) Two groups totaling 30 or more test results representing similar materials in which mix proportion strengths are within 20 percent of specified strength, from data obtained within one year of proposed use.

The Engineer will analyze performance records to establish standard deviation.

(2) When sufficient past performance records are not provided, the Engineer will assume current standard deviation to be 500 psi for compressive strength, f'_c, and 50 psi for flexural strength, f'_r.

Unless sufficient performance records are available from other projects at DOT Materials Testing and Research Branch, submit test performance records or trial test reports for prequalifications, based on data of most recent tests made on concrete of proposed mix design, and data obtained within one year of proposed use.

When shrinkage reducing admixtures are used, submit test results showing compliance to the Contract Documents' requirements.

Include the following information in test data and trial batch test reports: date of mixing; mixing equipment and procedures used; size of batch in cubic yards and weight, type, and source of ingredients used; slump of concrete; air content of concrete when using air entraining agent; age at time of testing; and strength of concrete cylinders tested.

Show that concrete strength tests equal or exceed minimum average strength in trial test reports. Test is average 28-day test results of five consecutive concrete cylinders or concrete beams taken from single batch. No cylinder or beam shall have strength less than 85 percent of minimum average strength.

Submit test data and trial test reports signed by official of firm that performed tests.

The Engineer reserves the right to stop work when a series of low strength tests occur. Do not continue concrete work until cause is established and the Engineer is informed of and accepts, necessary corrective action to be taken.

(C) Batching. Measure and batch materials in accordance with the following provisions:

(1) Portland Cement. Either sacked or bulk cement may be used. Do not use fraction of sack of cement in concrete batch unless cement is weighed.

Weigh bulk cement on weighing device accepted by the Engineer. Seal and vent bulk cement-weighing hopper properly to preclude dusting during operation. Do not suspend discharge chute from weighing hopper. Arrange discharge chute so that cement will not lodge in hopper or leak from hopper.

Batching accuracy shall be within 1 percent, plus or minus, of required weight.

(2) Water. Measure water by volume or by weight. Use readily adjustable device for measurement of water, with accuracy within 1 percent, plus or minus, of quantity of water required for batch. Arrange device so that variable pressure in water supply line does not affect measurements. Equip measuring tanks with outside taps and valves or other accepted means to allow for checking calibration.

(3) Aggregates. When storing and stockpiling aggregates, avoid separation of coarse and fine particles within each size, and do not intermix various sizes before proportioning. Protect stored or stockpiled aggregates from dust or other foreign matter. Do not stockpile together, aggregates from different sources and of different gradations.

When transporting aggregates from stockpiles or other sources to batching plant, ensure uniform grading of material is maintained. Do not use aggregates that have become segregated or mixed with earth or foreign matter. Stockpile or bin aggregates at least 12 hours before batching. Produce or handle aggregates by hydraulic methods and wash and drain aggregates. If aggregates exhibit high or non-uniform moisture content, the Engineer will order storage or stockpiling for more than 12 hours.

Proportion aggregates by weight, with the exception that aggregates in concrete for minor structures, curbs, and sidewalks may be proportioned by either volume or weight. For volumetric proportioning, use measuring boxes of known capacity to measure quantity of each aggregate size.

Use batch weight based on dry materials plus total weight of moisture (both absorbed and surface) contained in aggregate. Measure individual aggregates to within 2 percent, plus or minus, of required weight, and total weight of aggregates to within 1 percent, plus or minus, of required weight.

(4) Admixtures. All admixtures shall be compatible with each other. Admixtures which significantly increase the drying shrinkage or creep in the concrete may be rejected by the Engineer. Store, proportion, and dispense admixtures in accordance with the following provisions:

(a) Liquid Admixtures. Dispense chemical admixtures, air entraining admixtures, and corrosion inhibiting admixtures in liquid form. Use mechanical dispensers for liquid admixtures with sufficient capacity to measure prescribed quantity for each batch of concrete. Include graduated measuring unit in each dispenser to measure liquid admixtures to within 5 percent, plus or minus, of prescribed quantity for each batch. Read graduations accurately from point of measuring unit, and control proportioning operations to permit visual check of batch accuracy before discharging. Mark each measuring unit clearly for type and quantity of admixture.

Arrange with supplier to provide sampling device consisting of valve located in safe and accessible location for sampling admixtures.

When using more than one liquid admixture for concrete mix, use separate measuring unit for each liquid admixture and dispense separately to avoid interaction that may interfere with admixture efficiency and adversely affect concrete. Dispense

liquid admixture by injecting so as not to mix admixture at high concentrations.

When using liquid admixtures in concrete that is completely mixed in paving or continuous mixers, operate dispensers automatically with batching control equipment. Equip such dispensers with automatic warning system that shall provide visible or audible signals at points where proportioning operations are controlled, when the following occurs:

a. Quantity of admixture measured for each batch of concrete varies from pre-selected dosage by more than 5 percent; or

b. Entire contents of measuring unit from dispenser is not emptied into each batch of concrete.

Unless liquid admixtures are added to batch with pre-measured water, discharge liquid admixtures into stream of water that disperses admixtures uniformly throughout batch. An exception is that air-entraining admixtures may be dispensed directly into moist sand in batching bins, provided adequate control of concrete air content can be maintained.

Measure and disperse special admixtures, as recommended by admixture manufacturer, and as accepted by the Engineer. Special admixtures include high-range water reducers requiring dosages greater than capacity of conventional dispensing equipment. For site-added, high-range water reducers, use calibrated, portable dispenser supplied by manufacturer.

(b) Mineral Admixtures. Protect mineral admixtures from exposure to moisture until used. Pile sacked material of each shipment to permit access for tally, inspection, and identification.

Provide adequate facilities to ensure that mineral admixtures meeting specified requirements are kept separate from other mineral admixtures and that only specified mineral admixtures are allowed to enter into the work. Provide safe and suitable facilities for sampling mineral admixtures at weigh hopper or in feed line immediately in advance of hopper.

Incorporate mineral admixtures into concrete using equipment conforming requirements for Portland Cement weigh hoppers and charging and discharging mechanisms specified in ASTM C94 and Subsection 601.03(C) - Batching.

When concrete is completely mixed in stationary paving or continuous mixers, weigh mineral admixture in separate weigh hopper. Introduce mineral admixture and cement simultaneously into mixer, proportionately with aggregate.

When interlocks are required for cement-charging mechanisms, and cement and mineral admixtures are weighed cumulatively, interlock their charging mechanisms to prevent introduction of mineral admixture until mass of cement in weigh hopper is within tolerances specified in Subsection 601.03(C)(1) - Portland Cement.

In determining maximum quantity of free water that may be used in concrete, consider mineral admixture and supplementary cementitious materials (SCMs) to be cement.

(5) Color. At locations designated to receive a lava rock formlined finish, the concrete shall be pigmented or stained with either an acid based or water based stain to produce the desired look as shown in Figure 1. All remaining areas of concrete that have not received a formlined finish shall remain natural concrete gray. All materials used to produce the colored concrete shall be compatible with the anti-graffiti coating applied.

The Contractor shall submit detailed information to the Engineer for review and approval concerning the method and materials used to produce the desired colors and effects. Additionally, the Contractor shall provide a letter from the anti-graffiti coating manufacturer stating that their product is compatible with the materials used to produce the colored concrete.

Figure 1 - Concrete Color at Lava Rock Locations

(6) Bins and Scales. At batching plant, use individual bins, hoppers, and scale for each aggregate size. Include separate bin, hopper, and scale for bulk cement and fly ash.

Except when proportioning bulk cement for pavement or structures, cement weigh hopper may be attached to separate scale for individual weighing or to aggregate scale for cumulative weighing. If cement is weighed cumulatively, weigh cement before other ingredients.

When proportioning for pavement or structures, keep bulk cement scale and weigh hopper separate and distinct from aggregate weighing equipment.

Use springless-dial or beam-type batching scales. When using beam-type scales, make provisions to show operator that required load in weighing hopper is approaching. Use devices that show condition within last 200 pounds of load and within 50 pounds of overload.

Maintain scale accuracy to 0.5 percent throughout range of use. Design poises to lock to prevent unauthorized change of position. Use scales inspected by the State Measurement Standards Branch of the Department of Agriculture to ensure their continued accuracy. Provide not less than ten 50-pound weights for testing scales.

Batching plants may be equipped to proportion aggregates and bulk cement by automatic weighing devices.

(7) Batching and Hauling. When mixing is to be performed at work site, transport aggregates from batching plant to mixer in batch boxes, vehicle bodies, or other containers of adequate capacity and construction. Use partitions to separate batches and prevent spilling from one compartment to another while in transit or during dumping.

Transport bulk cement to mixer in tight compartments carrying full quantity of cement required for batch. Once cement is placed in contact with aggregates, batches shall be mixed and placed within 1-1/2 hours of contact. Cement in original shipping packages may be transported on top of aggregates. Ensure that each batch contains number of sacks required by job mix.

Deliver batches to mixer intact. Charge each batch into mixer without loss of cement. When carrying more than one batch on truck, charge batch into mixer without spilling material from one batch compartment into another.

(D) Mixing. Mix concrete in mechanically operated mixers.

Use stationary or truck mixers that distribute materials thoroughly and produce concrete uniform in color and appearance. When there is variation in mixed concrete attributable to worn pickup or throw-over blades, the Engineer will inspect mixer. If inspection reveals that blades are worn more than one inch below original height of manufacturer's design, repair or replace blades. Upon request, make copy of manufacturer's design, showing dimensions and arrangement of blades.

Charge batches into central or truck mixers so that portion of mixing water enters ahead of cement and aggregates. Deliver uniform flow of water. Place entire amount of batch water in mixer by end of first quarter of mixing period. When mixers with multiple compartment drums are used, time required to transfer material between compartments will be included as mixing time. Use drum rotation speed as designated by manufacturer. If mixing does not produce concrete of uniform and smooth texture, provide additional revolutions at same speed until thorough mixing of each concrete batch is attained. Begin measuring mixing time from time cement, aggregates, and 60 percent of water are in drum. Do not exceed manufacturer's rated capacity for volume of concrete mixed in each batch.

Equip central or truck mixers with attachment for automatically timing mixing of each concrete batch. Timing device shall include automatic feature

for locking discharge chute and device for warning operator when required mixing duration has been met. If timing or locking device fails to operate, immediately furnish clock or watch that indicates seconds, to mixer operator. If timing device is not repaired within three days after becoming inoperative, shut down batching operation until timing device is repaired.

For stationary mixers, use mixing time between 50 seconds and 5 minutes. Select mixing time, as necessary, to produce concrete that meets uniformity criteria when tested in accordance with Section 11.3.3 of ASTM C94. The Contractor may designate mixing time for which uniformity tests are to be performed, provided mixing time is not less than 50 seconds or more than 5 minutes. Before using concrete for pavements or structures, mix concrete to meet specified uniformity requirements. The Contractor shall furnish labor, sampling equipment, and materials required for conducting uniformity tests of concrete mixture. The Engineer will furnish required testing equipment, including scales, cubic measure, and air meter; and will perform tests. The Engineer will not pay separately for labor, equipment, materials, or testing, but will consider the costs incidental to concrete. After batching and mixing operational procedures are established, the Engineer will not allow changes in procedures without the Contractor re-establishing procedures by conducting uniformity tests. Repeat mixer performance tests whenever appearance of concrete or coarse aggregate content of samples is not conforming to requirements of ASTM C94. For truck mixers, add four seconds to specified mixing time if timing starts as soon as skip reaches its maximum raised position.

Unless otherwise indicated in the contract documents or accepted by the Engineer, concrete shall be mixed at proportioning plant. Operate mixer at agitating speed while in transit. Concrete may be truck-mixed only when cement or cement and mixing water are added at point of delivery. Begin mixing truck-mixed concrete immediately after introduction of mixing water to cement and aggregates, or introduction of cement to aggregates.

Inclined-axis, revolving drum truck mixers shall conform to Truck Mixer, Agitator and Front Discharge Concrete Carrier Standards TMMB 100-01, 15th Revision, published by Truck Mixer Manufacturers Bureau. Truck mixers shall produce thoroughly mixed and uniform mass of concrete and shall discharge concrete without segregation.

Manufacturer's standard metal rating plate shall be attached to each truck mixer, stating maximum rating capacity in terms of volume of mixed concrete for various uses and maximum and minimum mixing speeds. When using truck mixers for mixing, adhere to maximum capacity shown on metal rating plate for volume of concrete in each batch.

Operate truck mixers at mixing speed designated by manufacturer, but at not less than 6 or more than 18 revolutions per minute. Mix truck-mixed

concrete initially between 70 and 100 revolutions at manufacturer-designated mixing speed, after ingredients, including water, are in mixer. Water may be added to mixture not more than two times after initial mixing is completed. Each time that water is added, turn drum an additional 30 revolutions or more at mixing speed until concrete is mixed uniformly.

When furnishing shrink-mixed concrete, transfer partially mixed concrete at central plant to truck mixer. Apply requirements for truck-mixed concrete. The Engineer will not credit number of revolutions at mixing speed for partial mixing in central plant.

When accepted by the Engineer, hand mixing may be allowed. The entire concrete placement at one location shall not exceed 1/3 cubic yard. It shall be hand mixed on a watertight, level platform. Use no aluminum to construct platform. Measure proper amount of coarse aggregate in measuring boxes and spread on platform. Spread fine aggregate on that coarse aggregate layer. Limit coarse and fine aggregate layers to total depth of one foot. Spread dry cement on this mixture. Turn whole mass not less than two times dry. Add sufficient clean water, distributed evenly. Turn whole mass again, not less than three times, not including placing in carriers or forms.

(E) Transporting Mixed Concrete. Transport central-mixed concrete to delivery point in truck agitators or truck mixers operating at speed designated by equipment manufacturer as agitating speed; or in non-agitating hauling equipment, provided consistency and workability of mixed concrete upon discharge at delivery point is suitable for placement and consolidation in place; and provided mixed concrete after hauling to delivery point conforms to uniformity criteria when tested as specified in ASTM C94.

For revolving drum truck mixers transporting central-mixed concrete, limit concrete volume to manufacturer's rated capacity for agitator operation. Maintain agitating speed for both revolving drum mixers and revolving blade type agitators as designated on manufacturer's data plate. Equip truck mixers or truck agitators with electrically or mechanically actuated counters. Actuate counters after introducing cement to aggregates.

Bodies of non-agitating hauling equipment shall be smooth, watertight, metal containers equipped with gates to permit control of concrete discharge. Protect open-topped haul vehicle against weather with cover accepted by the Engineer.

When hauling concrete in non-agitating trucks, complete discharge within 30 minutes after introducing mixing water to cement and aggregates.

When truck mixer or agitator is used for transporting central-mixed

concrete to delivery point, complete discharge within 1-1/2 hours, or before 250 revolutions of drum or blades, whichever comes first after introduction of mixing water to cement and aggregates, or cement to aggregates. For truck-mixed concrete, complete concrete discharge within 1-1/2 hours, or before 300 revolutions of drum or blades, whichever comes first. These limitations are permitted to waived if concrete is of such slump after the 1-1/2 hour time or 300-revolution limit has been reached, that it can be placed, without addition of water to the batch.

Submit delivery tickets from manufacturers of truck-mixed concrete and central-mixed concrete with each truckload of concrete before unloading at jobsite. Printed, stamped, or written delivery ticket shall include the following information:

(1) Name of concrete plants.

(2) Serial number of ticket.

(3) Date and truck number.

(4) Name of Contractor.

(5) Specific project, route, or designation of job (name and location), and truck overweight permit number when required.

(6) Specific class or designation of concrete in accordance with contract documents.

(7) Quantity of concrete in cubic yards.

(8) Time of loading batch or mixing of cement and aggregates.

(9) Water added by receiver of concrete and receiver's initials.

(10) Information necessary to calculate total mixing water added by producer. Total mixing water includes free water on aggregates, water, and water added by truck operator from mixer tank.

(11) Readings of non-resettable revolution counters of truck mixers after introduction of cement to aggregates, or introduction of mixing water to cement aggregates.

(12) Supplier's mix number or code.

Furnish additional information designated by the Engineer and required by job specifications upon request.

(F) Consistency. Regulate quantity of water used in concrete mixes so that concrete consistency, as determined by AASHTO T 119 test method, is within nominal slump range specified in Table 601.03-3 - Slump for Concrete or as stated on the accepted concrete mix design. If concrete slump exceeds nominal slump, adjust mixture of subsequent batches. If slump exceeds maximum slump, the Engineer will reject concrete unless deemed satisfactory for its use.

The Engineer will also reject harsh or unworkable concrete that cannot be properly placed. Remove rejected concrete at no increase in contract price or contract time.

Slump for concrete shall be as specified in Table 601.03-3 – Slump for Concrete.

TABLE 601.03-3 - SLUMP FOR CONCRETE

Type of Work	Nominal Slump Inches	Maximum Slump Inches
Concrete Pavements	0 – 3	3-1/2
Reinforced Concrete Structures:		
Sections Over 12 Inches	0 – 4	5
Sections 12 Inches Thick or Less	2 – 5	6
Non-Reinforced Concrete Facilities	1 – 3	4
Concrete Placed Underwater	6 – 8	9
Bridge Decks	4 – 6	7
Walls Using Formliners	5 – 7	8

If the slump of the ready mix concrete upon delivery is below the design slump, water may be added provided:

(1) Water shall not be added to the concrete if more than ¼ cubic of concrete has been discharged from the mixer.

(2) Water may be added only up to 30 minutes after the average travel time to the jobsite.

(3) The maximum slump, the maximum water/cement ratio, and the maximum water per cubic yard shall not be exceeded.

(4) Not more than 1 ½ gallons of water per cubic yard shall be added to the concrete, but not more than the amount of “held-back” water.

(5) The amount of “held-back” water from the approved mix design shall be shown on the delivery ticket.

In adverse or difficult conditions that may affect placement of concrete, the above slump limitations may be exceeded for placement workability, with the addition of admixture conforming to Subsection 711.03 - Admixtures, if accepted by the Engineer in writing and provided water-cement ratio is maintained. Provide additional cement and water, or admixture at no increase in contract price or contract time.

(G) Forms. Construct forms in accordance with applicable sections.

(H) Placing Concrete. Place concrete in accordance with applicable sections.

(I) Finishing Concrete Surfaces. Finish concrete surfaces in accordance with applicable sections.

(J) Curing Concrete. Cure concrete in accordance with applicable sections.

601.04 Measurement. The Engineer will measure concrete in accordance with the applicable sections.

601.05 Payment. The Engineer will pay for the accepted concrete under the applicable sections.

END OF SECTION 601

SECTION 622 – ROADWAY AND SIGN LIGHTING SYSTEM

Make the following amendment to said Section:

(I) Amend **Section 622.04 Measurement** by replacing lines 402 to 403 to read:

"622.04 Measurement. The Engineer will measure the various components of roadway and pedestrian walkway lighting systems per contract unit price in accordance with the contract documents."

(II) Amend **Section 622.05 Payment** by replacing lines 405 to 421 to read:

"622.05 Payment. The Engineer will pay for the accepted quantities of the various components of roadway and pedestrian walkway lighting systems at the contract unit price, complete in place.

The Engineer will pay for the pedestrian walkway wall recessed light, remote driver, pedestrian walkway pole light and foundation, decorative type "B" highway light standard and foundation, removal, salvage, and delivery of existing decorative type "B" highway light standard, Kewalo Basin street light and foundation, demolition of Kewalo street light, type "A" pullboxes, type "C" pullboxes, receptacles, lightgrid nodes, junction boxes, pedestrian walkway lighting control system, and pedestrian walkway lighting equipment cabinet and foundation at the contract unit price per each complete in place. The price shall include furnishing and installing the items, all tools, labor, materials, equipment, and incidentals necessary to complete the work.

The Engineer will pay for the RHW-USE conductors at the contract unit price per linear foot complete in place. The price includes full compensation for furnishing, installing, splicing and taping conductors; making the connections; and furnishing equipment, tools, labor, materials and other incidentals necessary to complete the work.

The Engineer will pay for the Kewalo Basin lighting ductlines, highway lighting ductlines, and conduits at the contract unit price per linear foot complete in place. The price includes full compensation for saw cutting; trenching; excavating and backfilling, including asphalt concrete pavement, aggregate base course and aggregate subbase course for trench repair; concrete curb and/or gutter and concrete sidewalk repair; furnishing, installing, bonding, and grounding the conduits; concrete encasement of conduits; and furnishing equipment, tools, labor, materials and other incidentals necessary to complete the work.

The Engineer will pay for the following pay items when included in the proposal schedule:

Pay Item	**Pay Unit**
Pedestrian Walkway Wall Recessed Light	Each

Remote Driver For Pedestrian Walkway Wall Recessed Light	Each
Pedestrian Walkway Pole Light	Each
Foundation For Pedestrian Walkway Pole Light	Each
Decorative Type “B” Highway Light Standard (Single Arm)	Each
Decorative Type “B” Highway Light Standard (Dual Arm)	Each
Foundation For Decorative Type “B” Highway Light Standard	Each
Remove, Salvage, & Deliver to HDOT Baseyard Existing Decorative Type “B” Highway Light Standard	Each
Relocate Existing Kewalo Basin Street Light	Each
Foundation For Kewalo Basin Street Light	Each
Demolish Existing Kewalo Basin Street Light Foundation	Each
Demolish Existing Kewalo Basin Street Light & Foundation (Dual Arms & Fixtures)	Each
3/4” Conduit (For Pedestrian Walkway Wall Recessed Lighting)	Linear Feet
1” Conduit (For Pedestrian Walkway Wall Recessed Lighting)	Linear Feet
3/4” Conduit (For Pedestrian Walkway Pole Lighting)	Linear Feet
1” Conduit (For Pedestrian Walkway Pole Lighting)	Linear Feet
#10 AWG, RHW-USE Conductor	Linear Feet
#8 AWG, RHW-USE Conductor	Linear Feet
#2 AWG, RHW-USE Conductor	Linear Feet
Kewalo Basin Lighting 1-2” Ductline, Concrete Encased, Trench & Backfill	Linear Feet

Kewalo Basin Lighting 2-2” Ductline, Concrete Encased, Trench & Backfill	Linear Feet
Highway Lighting 6-1” Ductline, Concrete Encased, Trench & Backfill	Linear Feet
Highway Lighting 1-2” Ductline, Concrete Encased, Trench & Backfill	Linear Feet
Highway Lighting 2-2” Ductline, Concrete Encased, Trench & Backfill	Linear Feet
Highway Lighting 4-2” Ductline, Concrete Encased, Trench & Backfill	Linear Feet
Type “A” Highway Lighting Pullbox	Each
Type “C” Highway Lighting Pullbox	Each
Receptacle, 7-Pin	Each
LightGrid Node (HDOT Network)	Each
Junction Boxes, 12”Sq x 6” Deep, Nema 4X Stainless Steel (Pedestrian Walkway Lighting)	Each
Pedestrian Walkway Lighting Control System (Panelboard, Contactors, & Appurtenances)	Each
Pedestrian Walkway Lighting Equipment Cabinet And Foundation	Each

The Engineer will pay for the accepted hauling and stockpiling of salvaged materials and equipment off the right-of-way, as ordered by the Engineer in accordance with Subsection 104.02 – Changes.

END OF SECTION 622”

SECTION 623 – TRAFFIC SIGNAL SYSTEM

Make the following amendment to said Section:

(I) Add the following after line 577:

" **(J) CCTV System.** The CCTV and signal control system shall consist of remotely controlled color cameras, remote video switching, IP communications system, and a fiber optic link.

All camera equipment shall be identical and/or compatible with the existing Honolulu system in terms of hardware and software.

There shall be a locally based supplier of the CCTV system and fiberoptic hardware who shall have at least 3 (three) years experience from the project advertisement in installing and setting up of CCTV and fiberoptic systems over $200,000 specifically for traffic-highway applications. The CCTV firm shall be responsible for testing all fiberoptic hardware and cables to provide a documented optical budget loss analysis for each link to and from a hub station. The CCTV supplier will be responsible for all hookup, assignments, dedication, testing, matching, and splicing of the fiberoptic cables. All fiberoptic splice points shall be spliced color-for-color whenever matching pairs are available. Pigtails on all fiberoptic members which attach to fiberoptic hardware and components with SC-connectors. The CCTV supplier shall be fully responsible for all splices, budget loss, attenuators, appropriate fiber hardware, accessories, and pigtail connections for a fully operational system. All other hardware, equipment, and labor necessary shall be considered incidental.

The Fiberoptic Cable Contractor shall be a locally based installer who shall have at least 3 (three) years experience from the project advertisement in installing fiberoptic cables over $250,000 specifically for outdoor overhead joint-pole and underground applications. The firm shall also track and document the installation data and tension measurements when installing the fiberoptic cables. Any tension measurements which exceeds the manufacturer's recommendations will be considered means for the cable rejection. The Fiberoptic Contractor shall be fully responsible for the quality and integrity of the installed cable and the operability of the final fiber optic cable product.

(1) Video, Signal Control and Fiberoptic Hardware. The CCTV Supplier shall furnish and install the following items and quantity. All other equipment necessary to complete a fully operational system will be considered incidental.

(2) Camera Equipment. The Contractor shall furnish and install, but not limited to, the following items:

(a) 2 Each, Color Camera Package, Y2' Format, Zoom Lens, Auto-Iris/Manual Override, 7.5 to 75mm FL, Video Output 1 volt p-p, 75

ohms, MIL connectorized.

(b) 2 Each, Side or top mount bracket for camera.

(c) 2 Each, Video/Data IP Encoder meeting the following requirements:

1. H264 encoding
2. Adjustable IP Packet size streams.
3. Flash memory.
4. Remote user reset via all modes of interface.
5. NTSC video format at 30 frames per second
6. Max pixel resolution of 720x480
7. Less than 200 msec video latency
8. 75-ohm, unbal BNC (f) connectors
9. RJ-45 Ethernet connectors, 10/100BaseT-TX
10. Auto sensing, half/full duplex
11. One static IP address for the Encoder, Classes A, B, or C configurable by the user.
12. Gateway needs to be user configurable or can be left blank.
13. User configurable RS232/RS422/RS485 asynchronous port
- Data rates from 300 bps to 57600 Kbps
- Stop bits 1
- Databits 5, 6, 7, 8 or 9
- None, even odd, parity
- IP socket to Encoder serial port in both UDP and TCP/IP
- Encoder serial port to Decoder serial port data stream
- Local and remote Loopback Test Capability

14. -40 degrees C to +75 degrees C operating temperature

(d) 2 Each, Video/Data IP Encoder meeting the following requirements:

1. H264 encoding
2. Adjustable IP Packet size streams.
3. Flash memory.
4. Remote user reset via all modes of interface.
5. NTSC video format at 30 frames per second capability
6. Max pixel resolution of 720x480
7. Less than 200 msec video latency
8. 75-ohm, unbal BNC (f) connectors
9. RJ-45 Ethernet connectors, 10/100BaseT-TX
10. Auto sensing, half/full duplex
11. One static IP address for the Encoder, Classes A, B, or C configurable by the user.
12. Gateway needs to be user configurable or can be left blank.
13. Two RS232/RS422/RS485 asynchronous port
- Standard data rates from 300 bps to 115,200 bps, 8N1
- Stop bits 1 and 2
- Databits 5, 6, 7, 8, 9, 10, 11, 12

- None, even odd, space or mark parity
- IP socket to Encoder serial port
- Encoder serial port to Decoder serial port data stream
- Local and remote Loopback Test Capability

14. -40 degrees C to +75 degrees C operating temperature

(e) 1 Ea., Hardened Managed Ethernet Switch meeting the following requirements:

1. Shall support the transmission of a minimum of 3 channels of 1000 Mbps over two single-mode fibers.

2. Shall support the transmission of a minimum of 7 channels of 10/100 Mbps over Cat-6 cable.

3. Shall support the Ethernet data IEEE 802.3 protocol using Auto-negotiating and Auto-MDI/MDI-X features.

4. Features a 1000 Base-FX optical port.

5. Shall require no in-field electrical or optical adjustments or in-line attenuators to ease installation.

6. Shall provide power, link speed, and fiber port status indicating LED's for monitoring proper system operation.

7. Provides a contact closure for an over temperature alarm.

8. Shall provide automatic re-settable solid-state current limiters and independent voltage regulators on each module to reduce the chance of a single point failure of the system.

9. Shall have redundant power supply connections to minimize single point failure.

10. Shall provide a serial connection for local management of the device.

11. Shall operate in an environment with relative humidity of 0% to 95% (non-condensing).

12. Shall operate in an environment with an ambient temperature range of –40° C to +74° C without the assistance of fan-forced cooling.

13. Shall be rack mountable.

14. Shall have a lifetime warranty.

(f) 1 Each, Rack Mounted 72 Splice Capacity ST Compatible Patch Panel, ADC FDM-SB36000 with all necessary splice fittings and pigtails.

Incidentals: Furnish and install all necessary cables and hardware for power, control data, and video. Local CCTV Power requires 2-Type TC, 3#16 stranded conductors XHHW, 60OV, PE jacket; Control requires 2 pair, 18 AWG stranded, shielded outdoor PE jacket; Video requires RG6 outdoor, 20 gage solid copper, coaxial-cable inline electrical protection and isolation device will be included, and

2-outdoor Cat 6 U/UTP. All other equipment and labor necessary to complete a fully operational system will be the Contractor's responsibility and considered incidental.

(3) CCTV TRAFFIC CAMERA ASSEMBLY. The camera assembly shall be an integrated camera unit consisting of a receiver, pan & tilt, housing, and cables built as a single assembly having 360 degree of continuous pan rotation. The camera shall have full HD 1080p30 image resolution with integral 30x optical zoom lens. The positioning device shall include true day-night with variable speed pan and tilt technology with a minimum sensitivity of 0.0 lux @30 IRE. The camera shall provide up to 5 independent output video streams configurable for H.264 and MJPEG and analog video output, electronic image stabilization, and wide dynamic range. Camera assembly shall be furnished with components assembled, complete, and a ready-to-install system. Camera system shall meet FHWA's Buy America requirement.

CAMERA IMAGING

1. Image Sensor: Progressive Scan CMOS
2. Image Size: Diagonal 6mm
3. Image Resolution: 1920 horizontal x 1080 vertical pixels
4. Picture Elements (total) 1920 (H) x 1440 (V)
5. Sensitivity: Scene Illumination; F1.4 @ 50% Video
    a. 0.4 Lux (0.04 fc) @ 1/30 shutter, color mode
    b. 0.0025 Lux (0.00025 fc) @ 1/2 shutter, mono mode
6. Day/Night Operation: Adjustable (Auto, Color and Mono Modes)
7. Optical Zoom Range: 30x, minimum
8. Digital Zoom: 1x to 12x in 1x increments. The camera system shall support digital zoom limit setting
9. Auto Focus: Selectable Auto/Manual; Minimum Scene Illumination for Reliable Auto Focus shall be no more than 50% video output.
10. Auto Iris; Selectable auto/manual; Iris shall automatically adjust to compensate for changes in scene illumination to maintain constant video level output.
11. Electronic Image Stabilization: Shall support On/Off mode.
12. Backlight Compensation: Shall support On/Off mode.
13. White Balance: Shall support Auto/Manual Mode.
14. IR Correction: Shall support On/Off mode.
15. Sharpness: Shall provide user control of increases or decreases in image sharpness through 4 user selectable settings of soft, normal, sharp and sharpest.

H.264/MJPEG ENCODING ENGINE

1. The video encoding shall allow the following possible video stream configurations:
    a. H.264 Streams: (1) 1920x1080 @ 30fps, (1) 1280x720 @ 30 fps, (1)

720x480 @ 15 fps
   b. MJPEG Streams: 1920x1080 @ 10 fps, 1280x720 @ 20 fps
   c. Analog Video Output: (1)
2. Each video encoder channel shall provide the following configurable properties:
   a. Codec
   b. Video frame shall be adjustable from 30 fps to 1 fps in increments of 1 fps
   c. Bite Rate control
3. Video Stream Protocols; the camera system shall support the following protocols:
   a. RTSP/RTP; The RTSP communication shall occur over a TCP socket. RTP video packets shall be sent over UDP.
   b. RTSP Interleaved; RTSP commands and the RTP video packets shall be transmitted over a single TCP connection.
   c. HTTP tunneling; this mode shall use two separate TCP connections for sending and the other for received data from the client over port 80.
   d. RTP multicast; this mode shall send RTP video packets to the user assigned multicast destination. This mode shall be required to be enabled or disabled.
4. Network Protocol Layers: TCP, UDP, IPv4, IGMP, ICMP, DNS, DHCP, RTP, RTSP, NTP, HTTP, HTTPS, ARP, and ONVIF Profile S as a minimum.

PAN AND TILT DRIVE UNIT SPECIFICATIONS

1. Pan Movement; 360 degrees continuous rotation
2. Pan Speed; Variable from 0.05 to 45 degrees/second
3. Pan Repeatability; +/- 0.05 degree precision
4. Pan Preset Speed; 180 degree movement 2.5 < Seconds
5. Tilt Movement; Minimum of +90 to –90 degrees
6. Tilt Speed; Variable from 0.05 to 45 degrees/second.
7. Tilt Repeatability; +/- 0.05 degree precision
8. Tilt Preset Speed; 180 degree movement < 2.5 Seconds
9. Proportional Zoom Control; Positioning control shall allow variable pan/tilt speeds based on zoom position.
10. Home Position: Shall be a user defined point
11. The (IPCS) shall not have any exposed wiring from the positioning drive to the camera head enclosure.

ELECTRICAL:

Operating Voltage; The camera system shall provide flexible power input options as required by the installation to include:

1. Power over Ethernet, LTPoE++™ @ 60W
2. Optional 24Vac
3. Optional 120Vac

CERTIFICATIONS/RATINGS

A. FCC Class A
B. IEC/CE CISPR 22 24
C. RoHs

ENCLOSURE

- Aluminum
- Dust-tight
- Waterproof & Pressurized

CONTROLS

- Shall be controllable or interoperable by a Pelco analog switcher and control
- System using Pelco P protocol

ADAPTER PLATE

- A Stainless Steel, ¼" minimum, adapter plate shall be provided to integrate the supplied camera mounting to the existing mounting.

WARRANTY

- Manufacturer's warranty period shall be three (3) years

MOUNT

- Outdoor type
- Aluminum or stainless steel components
- Mount cantilever style on pole shafts using straps, or on horizontal mast arm shaft
- Constructed of marine grade stainless steel
- Has cable feed-through
- Supports up to 100 lbs
- Painted White
- Wall to pole mount adapter, as required
- Provide ability to level and adjust camera to plumb

(K) CCTV Cabinet. Cabinet shall be a Caltrans Traffic Signal 332A anodized aluminum cabinet with a 19" rack, 20amp circuit breaker set-up, surge-protected and noise-isolation 6-outlet strip, and thermo-control fan. Furnish and install power cables from existing traffic signal meter."

(II) Amend **Section 623.04 Measurement** by replacing lines 578 to 579 to read:

"623.04 Measurement. The Engineer will measure the various components of the systems per contract unit price in accordance with the contract documents."

(III) Amend **Section 623.05 Payment** by replacing lines 581 to 597 to read:

"623.05 Payment. The Engineer will pay for the accepted quantities of the various components of the systems at the contract unit price, complete in place.

The Engineer will pay for the camera cable at the contract unit price per linear foot complete in place. The price includes full compensation for furnishing and installing the camera cables from the camera to the cabinet; and furnishing equipment, tools, labor, materials and other incidentals necessary to complete the work.

The Engineer will pay for the RHW-USE conductors at the contract unit price per linear foot complete in place. The price includes full compensation for furnishing, installing, splicing and taping conductors; making the connections; and furnishing equipment, tools, labor, materials and other incidentals necessary to complete the work.

The Engineer will pay for conduits at the contract unit price per linear foot complete in place. The price includes full compensation for saw cutting; trenching; excavating and backfilling, including asphalt concrete pavement, aggregate base course and aggregate subbase course for trench repair; concrete curb and/or gutter and concrete sidewalk repair; furnishing, installing, bonding, and grounding the conduits; concrete encasement of conduits; and furnishing equipment, tools, labor, materials and other incidentals necessary to complete the work.

The Engineer will pay for the traffic signal ductlines and communications ductlines at the contract unit price per linear foot complete in place. The price includes full compensation for saw cutting; trenching; excavating and backfilling, including asphalt concrete pavement, aggregate base course and aggregate subbase course for trench repair; concrete curb and/or gutter and concrete sidewalk repair; furnishing, installing, bonding, and grounding the conduits and interconnect subducts; concrete encasement of conduits; and furnishing equipment, tools, labor, materials and other incidentals necessary to complete the work.

The Engineer will pay for the traffic signal cables at the contract unit price per linear foot complete in place. The price includes full compensation for furnishing, installing, splicing, and taping the cable; furnishing and installing interconnect fabric subducts; making the connections; providing turn-on service; and furnishing equipment, tools, labor, materials and other incidentals necessary to complete the work.

The Engineer will pay for the pullboxes at the contract unit price per each complete in place. The price includes full compensation for submitting the equipment list and drawing; furnishing and installing the pullbox at the designated locations; saw cutting; excavating and backfilling; restoration of concrete sidewalks, asphalt concrete pavement and landscaping; coating the frames and covers; and furnishing equipment, tools, labor, materials and other incidentals necessary to complete the work.

The Engineer will pay for the CCTV cabinet and foundation at the contract unit price per each complete in place. The price includes full compensation for submitting the equipment list and drawing; furnishing and installing the CCTV cabinet and foundation at the designated locations; saw cutting; excavating and backfilling; restoration of concrete sidewalks, asphalt concrete pavement and landscaping; coating the frames and covers; and furnishing equipment, tools, labor, materials and other incidentals necessary to complete the work.

The Engineer will pay for the CCTV cameras at the contract unit price per each complete in place. The price includes full compensation for furnishing and installing the CCTV cameras at the designated locations; and furnishing equipment, tools, labor, materials and other incidentals necessary to complete the work.

The Engineer will pay for junction boxes at the contract unit price per each complete in place. The price includes full compensation for furnishing and installing the junction boxes at the designated locations; and furnishing equipment, tools, labor, materials and other incidentals necessary to complete the work.

The Engineer will pay for the following pay items when included in the proposal schedule:

Pay Item	**Pay Unit**
CCTV Cabinet & Foundation (HDOT)	Each
CCTV Cameras (HDOT)	Each
CCTV Camera Cables (HDOT)	Linear Feet
#6 AWG, RHW-USE Conductor	Linear Feet
HDOT Communications (Power) 1-2” Ductline, Concrete Encased, Trench & Backfill	Linear Feet
HDOT Communications 1-2” Ductline, Concrete Encased, Trench & Backfill	Linear Feet
HDOT Communications 1-4” Ductline, Concrete Encased, Trench & Backfill	Linear Feet
Replace Existing Pullbox With New Type “C” Traffic Signal Pullbox	Each

Traffic Signal 2-2” Ductline, Concrete Encased, Trench & Backfill	Linear Feet
Type 3 Interconnect Cable	Linear Feet
1.5” Conduit (For Private Security System)	Linear Feet
Private Security System 1-1.5” Ductline, Concrete Encased, Trench & Backfill	Linear Feet
Private Security System Pullbox	Each
Junction Boxes, 4”Sq x 4”Deep, Nema 4X, Stainless Steel (Private Security System)	Each

The Engineer will pay for the accepted hauling and stockpiling of salvaged materials and equipment off the right-of-way, as ordered by the Engineer in accordance with Subsection 104.02 – Changes.

END OF SECTION 623”

PROPOSAL SCHEDULE					
ITEM NO.	**ITEM**	**APPROX. QUANTITY**	**UNIT**	**UNIT PRICE**	**AMOUNT**
201.1000	Clearing and Grubbing	5100	S.Y.	$ _____	$ _____
202.1000	Removal of Existing Grade Beams and Piles	F.A.	F.A.	F.A.	$300,000.00
203.1000	Roadway Excavation	1100	C.Y.	$ _____	$ _____
203.2000	Imported Borrow	5500	C.Y.	$ _____	$ _____
203.9000	Potholing and Location of Obstructions	F.A.	F.A.	F.A.	$300,000.00
203.9400	Load Transfer Platform For Abutment No. 1	L.S.	L.S.	L.S.	$ _____
203.9500	Load Transfer Platform No. 1	L.S.	L.S.	L.S.	$ _____
203.9600	Load Transfer Platform No. 2	L.S.	L.S.	L.S.	$ _____
203.9700	Load Transfer Platform No. 3	L.S.	L.S.	L.S.	$ _____
203.9800	Load Transfer Platform No. 4	L.S.	L.S.	L.S.	$ _____
203.9900	Load Transfer Platform No. 5	L.S.	L.S.	L.S.	$ _____
205.1000	Structure Backfill for Lightweight Cellular Concrete Fill	2603	C.Y.	$ _____	$ _____

PROPOSAL SCHEDULE					
ITEM NO.	**ITEM**	**APPROX. QUANTITY**	**UNIT**	**UNIT PRICE**	**AMOUNT**
209.1000	Installation, Maintenance, Monitoring, and Removal of BMP	L.S.	L.S.	L.S.	$ _____
209.1100	Additional Water Pollution, Dust, and Erosion Control	F.A.	F.A.	F.A.	$88,000.00
304.1000	Aggregate Base	350	C.Y.	$ _____	$ _____
503.0000	Concrete for Skeg Walls and Retaining Walls B, D, E, F, G, H, J, and K	400	C.Y.	$ _____	$ _____
503.1000	Concrete for Planter Walls	86	C.Y.	$ _____	$ _____
503.2000	Concrete for Foundation Slabs	567	C.Y.	$ _____	$ _____
503.3000	Concrete for Drilled Shaft Cap Beam and Barriers	25	C.Y.	$ _____	$ _____
503.4000	Concrete for Pier	37	C.Y.	$ _____	$ _____
503.5000	Concrete for Abutments	130	C.Y.	$ _____	$ _____
503.6000	Concrete for End Beams, Corbels, and Pier Diaphragm	16	C.Y.	$ _____	$ _____
503.7000	Concrete for Deck Topping and Edge Beams	70	C.Y.	$ _____	$ _____
503.8000	Concrete for Approach Slabs and Sleeper Slabs	33	C.Y.	$ _____	$ _____

PROPOSAL SCHEDULE					
ITEM NO.	**ITEM**	**APPROX. QUANTITY**	**UNIT**	**UNIT PRICE**	**AMOUNT**
503.9000	Concrete for Stairs and Curb	26	C.Y.	$ _____	$ _____
504.1000	Prestressed Concrete Planks P-1, P-2, P-3, and P-4	4	EACH	$ _____	$ _____
504.2000	Prestressed Concrete Planks P-5, P-6, P-7, and P-8	4	EACH	$ _____	$ _____
507.1000	Concrete Pedestrian Railing	L.S.	L.S.	L.S.	$ _____
511.1000	Furnishing Drilled Shaft Drilling Equipment	L.S.	L.S.	L.S.	$ _____
511.2000	Obstruction	16	HOURS	$ _____	$ _____
511.3000	Load Test	1	EACH	$ _____	$ _____
511.4100	Unclassified Shaft Excavations (36-inch diameter)	240	L.F.	$ _____	$ _____
511.4200	Unclassified Shaft Excavations (48-inch diameter)	150	L.F.	$ _____	$ _____
511.5100	Drilled Shafts (36-inch diameter)	240	L.F.	$ _____	$ _____
511.5200	Drilled Shafts (48-inch diameter)	150	L.F.	$ _____	$ _____
511.6000	Coring for Integrity Testing for Acceptable Drilled Shaft	140	L.F.	$ _____	$ _____

PROPOSAL SCHEDULE					
ITEM NO.	**ITEM**	**APPROX. QUANTITY**	**UNIT**	**UNIT PRICE**	**AMOUNT**
602.0000	Reinforcing Steel for Skeg Walls and Retaining Walls B, D, E, F, G, H, J, and K	L.S.	L.S.	L.S.	$ _____
602.1000	Reinforcing Steel for Planter Walls	L.S.	L.S.	L.S.	$ _____
602.2000	Reinforcing Steel for Foundation Slabs	L.S.	L.S.	L.S.	$ _____
602.3000	Reinforcing Steel for Drilled Shaft Cap Beam and Barriers	L.S.	L.S.	L.S.	$ _____
602.4000	Reinforcing Steel for Pier	L.S.	L.S.	L.S.	$ _____
602.5000	Reinforcing Steel for Abutments	L.S.	L.S.	L.S.	$ _____
602.6000	Reinforcing Steel for End Beams, Corbels, and Pier Diaphragm	L.S.	L.S.	L.S.	$ _____
602.7000	Reinforcing Steel for Deck Topping and Edge Beams	L.S.	L.S.	L.S.	$ _____
602.8000	Reinforcing Steel for Approach Slabs and Sleeper Slabs	L.S.	L.S.	L.S.	$ _____
602.9000	Reinforcing Steel for Stairs	L.S.	L.S.	L.S.	$ _____
603.2000	12-inch High Density Polyethylene Pipe, Type S	72	L.F.	$ _____	$ _____

PROPOSAL SCHEDULE					
ITEM NO.	**ITEM**	**APPROX. QUANTITY**	**UNIT**	**UNIT PRICE**	**AMOUNT**
603.8000	Vertical Drain	6	EACH	$ _____	$ _____
603.9000	Clean Existing Culverts	F.A.	F.A.	F.A.	$25,000.00
604.1300	Grated Drop Inlet	2	EACH	$ _____	$ _____
604.1400	Outlet Structure	1	EACH	$ _____	$ _____
608.1000	Handrail - Wall-Mounted	1060	L.F.	$ _____	$ _____
608.2000	Handrail - Free-Standing	670	L.F.	$ _____	$ _____
616.0001	New Automatic Irrigation System	L.S	L.S	L.S.	$ _____
616.0002	Temporary Above-Grade Irrigation	L.S.	L.S.	L.S.	$ _____
617.0001	Imported Planting Soil - 4" Layer	375	C.Y.	$ _____	$ _____
617.0002	Imported Lightweight Planting Soil - 30" Layer, Min.	800	C.Y.	$ _____	$ _____
617.0003	Imported Compost - 2" Layer	32,951	S.F.	$ _____	$ _____
617.0004	Soil Amendment (Over all planting areas)	32,951	S.F.	$ _____	$ _____
619.0001	Tree - Relocated Monkeypod (*Samanea saman*)	2	EACH	$ _____	$ _____

PROPOSAL SCHEDULE					
ITEM NO.	**ITEM**	**APPROX. QUANTITY**	**UNIT**	**UNIT PRICE**	**AMOUNT**
619.0002	Tree - Relocated Singapore Plumeria (*Plumeria obtusa*)	3	EACH	$ _____	$ _____
619.0003	Tree - Relocated Coconut Palm (*Cocos nucifera*)	5	EACH	$ _____	$ _____
619.0004	Tree (New Monkeypod (*Samanea saman*) - Field Stock, 8'-0" Clear Trunk Height Min., 12" Caliper Min.)	3	EACH	$ _____	$ _____
619.0005	Tree (New Beach Heliotrope (*Tournefortia argentia*) - Field Stock, 6'-0" to 8'-0" Clear Trunk Height Min.)	5	EACH	$ _____	$ _____
619.0006	Tree (New Coconut Palm (*Cocos nucifera*) - Field Stock, 10'-0" to 25'-0" Brown Trunk Height Min.)	12	EACH	$ _____	$ _____
619.0007	Tree (New Areca Palm (*Dypsis lutescens*) - 30 Gal, 3 Canes Min., Bushy)	3	EACH	$ _____	$ _____
619.0008	Tree (New Loulu Palm (*Pritchardia hillebrandii*) - Field Stock, 6'-0" to 8'-0" Clear Trunk Height Min.)	9	EACH	$ _____	$ _____
619.0009	Tree (New Rhapis Palm (*Rhapis excelsa*) - 10 Gal, 4 Canes Min., Bushy)	6	EACH	$ _____	$ _____
619.0010	Shrub (New Giant Spider Lily (*Crinum amabile*) - 3 Gal, Bushy)	53	EACH	$ _____	$ _____

PROPOSAL SCHEDULE					
ITEM NO.	**ITEM**	**APPROX. QUANTITY**	**UNIT**	**UNIT PRICE**	**AMOUNT**
619.0011	Shrub (New Queen Emma Spider Lily (*Crinum augustum 'Queen Emma'*) - 3 Gal, Bushy)	61	EACH	$ _____	$ _____
619.0012	Shrub (New Dwarf Hau (*Hibiscus tiliaceus 'Dwarf'*) - 5 Gal @ 4'-0" o.c.)	42	EACH	$ _____	$ _____
619.0013	Shrub (New Tricolor Hau (*Hibiscus tiliaceus 'Tricolor'*) - 15 Gal, Bushy)	11	EACH	$ _____	$ _____
619.0014	Shrub (New Beach Naupaka (*Scaevola taccada*) - 1 Gal @ 3'-0" o.c.)	530	EACH	$ _____	$ _____
619.0015	Groundcover (New Laua'e Fern (*Microsorium grossum*) - 6" Pot @ 1'-0" o.c., Tri. Spacing)	1,400	EACH	$ _____	$ _____
619.0017	Vine (New Pohinahina Groundcover (*Vitex rotundifolia*) - 6" Pots at 1'-0" o.c.	4,500	EACH	$ _____	$ _____
619.0020	Composite Header	L.S.	L.S.	L.S.	$ _____
619.0021	Plastic Root Barrier	960	L.F.	$ _____	$ _____
619.0022	Wood Bark Mulch - 2" Layer	80	C.Y.	$ _____	$ _____

PROPOSAL SCHEDULE					
ITEM NO.	**ITEM**	**APPROX. QUANTITY**	**UNIT**	**UNIT PRICE**	**AMOUNT**
619.0023	Maintenance Period (9 Months Total)	L.S.	L.S.	L.S.	$ _____
622.0100	Pedestrian Walkway Wall Recessed Light	115	EACH	$ _____	$ _____
622.0200	Remote Driver For Pedestrian Walkway Wall Recessed Light	14	EACH	$ _____	$ _____
622.0300	Pedestrian Walkway Pole Light	10	EACH	$ _____	$ _____
622.0400	Foundation For Pedestrian Walkway Pole Light	10	EACH	$ _____	$ _____
622.0500	Decorative Type "B" Highway Light Standard (Single Arm)	1	EACH	$ _____	$ _____
622.0600	Decorative Type "B" Highway Light Standard (Dual Arm)	1	EACH	$ _____	$ _____
622.0700	Foundation For Decorative Type "B" Highway Light Standard	2	EACH	$ _____	$ _____
622.0800	Remove, Salvage, & Deliver to HDOT Baseyard Existing Decorative Type "B" Highway Light Standard	2	EACH	$ _____	$ _____
622.0900	Relocate Kewalo Basin Street Light	1	EACH	$ _____	$ _____

PROPOSAL SCHEDULE					
ITEM NO.	**ITEM**	**APPROX. QUANTITY**	**UNIT**	**UNIT PRICE**	**AMOUNT**
622.1000	Foundation For Kewalo Basin Street Light	1	EACH	$ _____	$ _____
622.1100	Demolish Existing Kewalo Basin Street Light Foundation	1	EACH	$ _____	$ _____
622.1200	Demolish Existing Kewalo Basin Street Light & Foundation (Dual Arms & Fixtures)	1	EACH	$ _____	$ _____
622.1300	3/4" Conduit (For Pedestrian Walkway Wall Recessed Lighting)	4000	L.F.	$ _____	$ _____
622.1400	1" Conduit (For Pedestrian Walkway Wall Recessed Lighting)	2000	L.F.	$ _____	$ _____
622.1500	3/4" Conduit (For Pedestrian Walkway Pole Lighting)	150	L.F.	$ _____	$ _____
622.1600	1" Conduit (For Pedestrian Walkway Pole Lighting)	450	L.F.	$ _____	$ _____
622.1700	#10 AWG, RHW-USE Conductor	11500	L.F.	$ _____	$ _____
622.1800	#8 AWG, RHW-USE Conductor	6500	L.F.	$ _____	$ _____
622.1900	#2 AWG, RHW-USE Conductor	3150	L.F.	$ _____	$ _____

PROPOSAL SCHEDULE					
ITEM NO.	**ITEM**	**APPROX. QUANTITY**	**UNIT**	**UNIT PRICE**	**AMOUNT**
622.2000	Kewalo Basin Lighting 1-2" Ductline, Concrete Encased, Trench & Backfill	30	L.F.	$ _____	$ _____
622.2100	Kewalo Basin Lighting 2-2" Ductline, Concrete Encased, Trench & Backfill	150	L.F.	$ _____	$ _____
622.2200	Highway Lighting 6-1" Ductline, Concrete Encased, Trench & Backfill	50	L.F.	$ _____	$ _____
622.2300	Highway Lighting 1-2" Ductline, Concrete Encased, Trench & Backfill	60	L.F.	$ _____	$ _____
622.2400	Highway Lighting 2-2" Ductline, Concrete Encased, Trench & Backfill	215	L.F.	$ _____	$ _____
622.2500	Highway Lighting 4-2" Ductline, Concrete Encased, Trench & Backfill	85	L.F.	$ _____	$ _____
622.2600	Type "A" Highway Lighting Pullbox	1	EACH	$ _____	$ _____
622.2700	Type "C" Highway Lighting Pullbox	2	EACH	$ _____	$ _____
622.2800	Receptacle, 7-Pin	6	EACH	$ _____	$ _____

PROPOSAL SCHEDULE					
ITEM NO.	**ITEM**	**APPROX. QUANTITY**	**UNIT**	**UNIT PRICE**	**AMOUNT**
622.2900	LightGrid Node (HDOT Network)	6	EACH	$ _____	$ _____
622.3000	Junction Boxes, 12"Sq x 6" Deep, Nema 4X, Stainless Steel (Pedestrian Walkway Lighting)	15	EACH	$ _____	$ _____
622.3100	Pedestrian Walkway Lighting Control System (Panelboard, Contactors, & Appurtenances)	1	EACH	$ _____	$ _____
622.3200	Pedestrian Walkway Lighting Equipment Cabinet & Foundation	1	EACH	$ _____	$ _____
623.0100	CCTV Cabinet & Foundation (HDOT)	1	EACH	$ _____	$ _____
623.0200	CCTV Cameras (HDOT)	2	EACH	$ _____	$ _____
623.0300	CCTV Camera Cables (HDOT)	500	L.F.	$ _____	$ _____
623.0400	#6 AWG, RHW-USE Conductor	450	L.F.	$ _____	$ _____
623.0500	HDOT Communications (Power) 1-2" Ductline, Concrete Encased, Trench & Backfill	150	L.F.	$ _____	$ _____
623.0600	HDOT Communications 1-2" Ductline, Concrete Encased, Trench & Backfill	425	L.F.	$ _____	$ _____

PROPOSAL SCHEDULE					
ITEM NO.	**ITEM**	**APPROX. QUANTITY**	**UNIT**	**UNIT PRICE**	**AMOUNT**
623.0700	HDOT Communications 1-4" Ductline, Concrete Encased, Trench & Backfill	200	L.F.	$ _____	$ _____
623.0800	Replace Existing Pullbox With New Type "C" Traffic Signal Pullbox	3	EACH	$ _____	$ _____
623.0900	Traffic Signal 2-2" Ductline, Concrete Encased, Trench & Backfill	50	L.F.	$ _____	$ _____
623.1000	Type 3 Interconnect Cable	1400	L.F.	$ _____	$ _____
623.1100	1.5" Conduit (For Private Security System)	700	L.F.	$ _____	$ _____
623.1200	Private Security System 1-1.5" Ductline, Concrete Encased, Trench & Backfill	20	L.F.	$ _____	$ _____
623.1300	Private Security System Pullbox	4	EACH	$ _____	$ _____
623.1400	Junction Boxes, 4"Sq x 4"Deep, Nema 4X, Stainless Steel (Private Security System)	3	EACH	$ _____	$ _____
628.1000	Shotcrete for Retaining Wall A - Interim Shotcrete Facing	220	S.Y.	$ _____	$ _____

PROPOSAL SCHEDULE					
ITEM NO.	**ITEM**	**APPROX. QUANTITY**	**UNIT**	**UNIT PRICE**	**AMOUNT**
628.2000	Shotcrete for Retaining Wall A - Permanent Facing (including Sculpted Shotcrete)	200	S.Y.	$ _____	$ _____
628.3000	Shotcrete for Retaining Wall C - Interim Shotcrete Facing	160	S.Y.	$ _____	$ _____
628.4000	Shotcrete for Retaining Wall C - Permanent Facing	130	S.Y.	$ _____	$ _____
631.1000	Regulatory Sign (10 Square Feet or Less) with Post	6	EACH	$ _____	$ _____
631.9000	Additional Miscellaneous Signs	F.A.	F.A.	F.A.	$30,000.00
634.1000	Portland Cement Concrete Sidewalk	1340	S.Y.	$ _____	$ _____
636.1000	E-Construction license	F.A.	F.A.	F.A.	$283,000.00
638.1000	Curb, Type 2D Modified	450	L.F.	$ _____	$ _____
638.3000	Curb and Gutter, Type 2DG Modified	100	L.F.	$ _____	$ _____
641.0001	Hydro-mulch Sprigging	L.S.	L.S.	L.S.	$ _____
645.1000	Traffic Control	L.S.	L.S.	L.S.	$ _____

PROPOSAL SCHEDULE					
ITEM NO.	**ITEM**	**APPROX. QUANTITY**	**UNIT**	**UNIT PRICE**	**AMOUNT**
645.2000	Additional Police Officers, Additional Traffic Control Devices, And Advertisement	F.A.	F.A.	F.A.	$250,000.00
647.0100	Fiber Optic Cable, 24 Strand, Multi Mode (Ward Ave To Kewalo Basin Intersection)	1800	L.F.	$ _____	$ _____
647.0200	Fiber Optic Cable, 72 Strand, Single Mode (Ward Ave To Kewalo Basin Intersection)	1800	L.F.	$ _____	$ _____
647.0300	Backpull Existing 24-Strand Multi-Mode Fiber Optic Cable From Existing CCTV Cabinet At Kamakee Street To New CCTV Cabinet At Kewalo Basin Intersection	1	EACH	$ _____	$ _____
647.0400	Backpull Existing 72-Strand Single Mode Fiber Optic Cable From Existing CCTV Cabinet At Piikoi Street To New CCTV Cabinet At Kewalo Basin Intersection	1	EACH	$ _____	$ _____
648.1000	Field Posted Drawings	L.S.	L.S.	L.S.	$ _____
657.1000	Furnishing Jet Grouting Equipment	L.S.	L.S.	L.S.	$ _____
657.2000	Jet Grout Test Program	L.S.	L.S.	L.S.	$ _____
657.3000	Jet Grout Columns	4600	L.F.	$ _____	$ _____

PROPOSAL SCHEDULE					
ITEM NO.	**ITEM**	**APPROX. QUANTITY**	**UNIT**	**UNIT PRICE**	**AMOUNT**
658.1000	Archaeological Monitor	F.A.	F.A.	F.A.	$100,000.00
671.1000	Protection of Endangered Species	F.A.	F.A.	F.A.	$25,000.00
680.1000	Surface Treatment for Concrete Walkway	5625	S.F.	$ _____	$ _____
686.1000	GRS for Mauka Abutment	L.S.	L.S.	L.S.	$ _____
686.2000	GRS for Makai Abutment	L.S.	L.S.	L.S.	$ _____
686.3000	GRS for Retaining Wall A	L.S.	L.S.	L.S.	$ _____
686.4000	GRS for Retaining Wall C	L.S.	L.S.	L.S.	$ _____
693.0500	Terminal Impact Attenuator (Quadguard M10 or Approved Equal)	2	EACH	$ _____	$ _____
693.0600	Replacement Diaphragm Assembly, Fender Panel Assembly, and Cartridge Cells	2	EACH	$ _____	$ _____
693.0700	Replacement Nose Assembly and Cartridge Cells	2	EACH	$ _____	$ _____
693.0800	Replacement Unit	2	EACH	$ _____	$ _____

PROPOSAL SCHEDULE					
ITEM NO.	**ITEM**	**APPROX. QUANTITY**	**UNIT**	**UNIT PRICE**	**AMOUNT**
696.1000	Field Office Trailer (Not to Exceed $32,000.00)	L.S.	L.S.	L.S.	$ _____
696.2000	Maintenance of Trailers	F.A.	F.A.	F.A.	$50,000.00
699.1000	Mobilization (Not to Exceed 6 Percent of the Sum of All Items Excluding the Bid Price of this Item)	L.S.	L.S.	L.S.	$ _____
	Sum of all Items ……....				$ _____

NOTES:
1. Bidders must complete all unit prices and amounts. Failure to do so may be grounds for rejection of bid.
2. Bids shall include all Federal, State, County and other applicable taxes and fees.
3. The Sum of all Items will be used to determine the lowest responsible bidder.
4. If a discrepancy occurs between unit bid price and the bid price, the unit bid price shall govern.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

Pre-Bid Meeting Minutes and Attendance

Project Title: Ala Moana Boulevard Elevated Pedestrian Walkway

Federal-Aid Project Number: BLD-092-1(029)

Date, Time & Place: August 18, 2021 10:00 A.M., Pre-bid meeting was held virtually through Microsoft Teams

Attendees:

Name	Company/Office	Email
Andrew Hignite	Geolabs, Inc.	ahignite@geolabs.net
Shane Lee	HDCC	spasion@hdcc.com
Jeremy Lee	HDCC	jtlee@hdcc.com
Kellen Miyasato	HDCC	kmiyasato@hdcc.com
Jillian Chen	HDOT HWY-DD	jillian.m.chen@hawaii.gov
Michelle Kwan	HDOT HWY-DD	michelle.s.kwan@hawaii.gov
Li Nah Okita	HDOT HWY-DD	li.nah.okita@hawaii.gov
Justin Ching	HDOT HWY-O	justin.y.ching@hawaii.gov
Terence Yoshida	HDOT HWY-O	terence.h.yoshida@hawaii.gov
Karen Awana	HDOT OCR	karen.l.awana@hawaii.gov
Daniel Williams	HDOT OCR	daniel.k.williams@hawaii.gov
Melanie Martin	HDOT OCR	melanie.martin@hawaii.gov
Paul Sturtevant	Healy Tibbitts Builders, Inc.	pasturtevant@healytibbitts.com
Nathan Young	Healy Tibbitts Builders, Inc.	(not provided)
Micah McMillen	PBR Hawaii	mmcmillen@pbrhawaii.com
Peter Nguyen	Ron Ho & Asssociates	anguyen@rnsha.com
Lee Cranmer	Victoria Ward Ltd.	lee.cranmer@howardhughes.com
Randall Urasaki	WSP	randall.urasaki@wsp.com
Milissa Ceria	Kiewit	Milissa.Ceria@kiewit.com
Blake Edwards	Kiewit	Blake.Edwards@kiewit.com
Katrina Pacunayen	Index Builders, Inc.	Katrina@indexbuilders.com
Robin Lim	Geolabs, Inc.	robin@geolabs.net
Noah Fujita -CNSLT	Healy Tibbitts Builders, Inc.	(not provided)
Lisa Powell	FHWA	lisa.powell@dot.gov
18082083526	n/a	n/a
18084574524	n/a	n/a
18087657128	n/a	n/a

Items of Discussion:

1. Michelle Kwan (HDOT HWY-DD) opened the meeting at 10:03 A.M. The following was reminders announced:
    a. As a reminder, anything said at this meeting is for clarification only. The bid documents shall govern over anything said today and discrepancies shall be clarified by addendum.
    b. The scope of work was described to the prospective bidders.
2. Items to note in Plan and Specifications:
    a. There is a Noise Variance and Noise Permit for the project and the Noise Variance covers work within or above the roadway. Activities allowed under the noise variance were described as listed in the Noise Variance. All other activities are covered by the Noise Permit.
    b. Related to the work to be done under the Noise Variance, prospective bidders were informed to refer to Special Provisions Section 645 for the allowable lane closure hours for the drilled shafts and pier work and installing the concrete planks and pouring concrete for the superstructure. The allowable lane closures under Special Provisions Section 645 were described as written.
    c. Prospective bidders were informed to refer to Special Provisions Section 105.14(F) and to take note of the dates that the Contractors have for Construction Parcels C1 to C5.
3. Daniel Williams of the HDOT Office of Civil Rights (OCR) discussed Disadvantage Business Enterprise (DBE) requirement reminders. See attached for a summary of the reminders. Daniel included in the chat box feature of the Microsoft Teams Meeting the following links:
    a. Bidder Registration Form can be found at: https://hidot.hawaii.gov/administration/files/2019/03/Bidder-Registration-Fillable-Form.pdf\
    b. Be sure to check the DBE Directory online at: https://hdot.dbesystem.com/ to ensure the DBEs listed are certified
4. Opened up to questions from prospective bidders, however there were no questions.
5. Additional reminders were given:
    a. All RFIs (requests for information) shall be submitted in writing on HIePRO no less than 14 calendar days before bid opening or August 27, 2021 at 2:00 p.m. Hawaii Standard Time. All questions and RFIs are to be submitted via HIePRO only. Questions received after the deadline will not be addressed, and verbal RFIs will not receive a response. Once all questions are received by the due date an addendum will be issued to answer the questions.
    b. Bids are due at 2:00 P.M. on Friday, September 10, 2021 and must be submitted via HIePRO. All documents must be submitted via HIePRO by that date and time.
    c. DBE Forms are due within 5 calendar days after bid opening (September 15, 2021 2:00 p.m.) via email. Email address for submission is shown in the Notice to Bidders.
6. Meeting was adjourned at 10:18 A.M.

State of Hawaii, Dept. of Transportation – Administration Division (HDOT OCR)
Disadvantaged Business Enterprises (DBE) Program

Pre – Bid Meeting – 8-18-21 – BL092-1(029)
Ala Moana Blvd Elevated Pedestrian Walkway

Policy of the State of Hawaii, Department of Transportation's (HDOT) DBE Program:

To ensure equal opportunity and non-discrimination in the award and administration of United States DOT-assisted contracts. Contractors shall take all necessary and reasonable steps in accordance with the regulations (49 CFR, Part 26) to ensure that DBE's have an equal opportunity to compete for and perform on contracts.

DBE Goal for this project: **5.6%**

Be sure to document discussions, phone calls, faxes or memos relating to your efforts in meeting the DBE goal.

DBEs must be certified by the bid opening date.

DBE subcontractors, manufacturers, suppliers, trucking companies and any second tier subcontractors shall be listed on the respective DBE forms as specified below in order to receive credit.

The following forms are due **five (5) days after bid opening:**

1. **DBE Confirmation and Commitment Agreement**. This form must be **signed by the bidder/offeror and each DBE** subcontractor, manufacturer, supplier, or trucking company and submitted to the State Project Manager. Information to be provided on the form shall include, among other things, the project number, the DBE's NAICS codes, description of work, bid items with corresponding price information, prime contractor name and contact information DBE name and contact information and subcontractor name and contact information if the DBE is a second tier subcontractor.

2. **DBE Contract Goal Verification and Good Faith Efforts (GFE) Documentation for Construction**. List the dollar amount of all subcontractors, manufacturers, suppliers, and trucking companies (both DBE and non-DBE firms). Bidder/offeror must also list the DBE project goal on this form (See paragraph D below regarding goal calculation). If the project goal is not met, the bidder/offeror shall submit documentation of good faith efforts including quotations for both DBE and non-DBE subcontractors when a non-DBE is selected over a DBE for the project.

   Failure to provide any of the above shall be cause for bid/proposal rejection.

In determining calendar days, the day from which the period begins to run is not counted, and when the last day of the period is a Saturday, Sunday, or Federal or State holiday, the period extends to the next day that is not a Saturday, Sunday, or holiday.

- Calculation of the DBE contract goal for this project is the proportionate contract dollar value of work performed, materials, and goods to be supplied by DBEs. DBE credit shall not be given for mobilization, force account items and allowance items. This DBE contract goal is applicable to all the contract work performed for this project and is calculated as follows:

  DBE contract goal percentage = Contract Dollar Value of the work to be performed by DBE subcontractors and manufacturers, plus 60% of the contract dollar value of DBE suppliers, divided by the sum of all contract items (sum of all contract items is the total amount for comparison of bids less mobilization, force account items, and allowance items).

  The Department shall adjust the bidder's/offeror's DBE contract goal to the amount of the project goal if it finds that the bidder/offeror met the goal but erroneously calculated a lower percentage. If the amount the bidder/offeror submits as its contract goal exceeds the project goal, the bidder/offeror shall be held to the higher goal.

- Refer to DBE Requirements section in the bid documents and pay special attention to Section VIII. Demonstration of Good Faith Efforts for Contract Award, which summarizes the kinds of efforts that will be considered demonstrative of good faith efforts.

- All federally funded projects awarded after October 1, 2017 are required to use the Certification and Contract Compliance Management System program, an online payment tracking system. This project will be required to use the Certification and Contract Compliance Management System program. HDOT OCR will work with the Project Engineer and selected bidder to get the contract information to create a contract record for the project.

- BIDDER REGISTRATION FORM. All firms bidding or quoting on DOT projects, including vendors, subcontractors, manufacturers, truckers, etc., must register as a bidder. Certified DBEs are automatically registered as a bidder with the HDOT.
  Bidder Registration Form can be found at:
  https://hidot.hawaii.gov/administration/files/2019/03/Bidder-Registration-Fillable-Form.pdf

- Be sure to check the DBE Directory online at: https://hdot.dbesystem.com/ to ensure the DBEs listed are certified.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

Project: ALA MOANA BOULEVARD ELEVATED PEDESTRIAN WALKWAY
FEDERAL AID PROJECT NO. BLD-092-1(029)

The following RFIs/questions were submitted via HIePRO by prospective bidders as of August 27, 2021. The questions and responses are as follows:

1. Is it possible to add the interested list vendors tab to the solicitation. Please advise.

   Response: The interested vendors list tab has been activated in HIePRO.

2. Are Advisory Boards (Notice to Motorist) Required Per Spec 645.03(G) Advisory Signs; Submit advisory sign shop drawings. Construct, install, maintain, and remove two advisory signs as ordered by the engineer. Place signs at locations designated by the engineer. Provide signs, minimum 8 feet wide by 4 feet high, with black letters on orange background, and with three 4,000 pounds/foot flanged channel posts for each sign? If so can you please provide the locations?

   Response: Yes, Advisory Boards are required. Advisory Board locations to be coordinated in the field with HDOT during construction.

3. Are post mounted Construction Signs (Road Work Ahead & End Road Work) required per spec 645.03 (B) Construction Signs. Erect construction signs at the beginning of project and end of project at the location indicated by the engineer. These signs shall remain for the duration of the highway project. Place these signs besides the required traffic control signs called for herein? If so can you please provide the quantity and location?

   Response: Yes, post mounted Construction Signs are required. Provide 6 of each sign. Construction Sign locations to be coordinated in the field with HDOT during construction.

4. For pay item 693.0600 - can you please clarify if this is for one replacement diaphragm, one fender panel assembly, one cartridge cell? If not can you please provide the quantity required?

   Response: Yes, provide 2 of each per the Proposal Schedule.

5. For pay item 693.700 - Can you please clarify if this is for one nose assembly, one cartridge cell, and one object marker? if not can you please provide the quantity required?
   Response: Yes, provide 2 of each per the Proposal Schedule.

6. For pay item 693.0800 Replacement unit - is this for a complete unit of the Quadguard M10?

Response: Yes, provide 2 of each per the Proposal Schedule.

7. 622.0700 - Bid Item has a quantity of 3. However, there are only 2 light bases. Please confirm and change the quantity on the bid proposal to 2 each.

Response: Bid item 622.0700 quantity revised to 2 each.

8. 622.1100 - The description for this bid item should be changed to demolish existing Kewalo Basin street light base since the light is being relocated.

Response: Bid item 622.1100 description revised to "Demolish Existing Kewalo Basin Street Light Foundation."

9. 622.2800 - 7-pin receptacle on the bid proposal has a quantity of 6. However, we count only 2 for the two decorative street lights. Where are the other 4 seven pin receptacles located? If the count is in error please change on the proposal to 2 each.

Response: See response to RFI Question 14.

10. 622.2900 - LightGrid Node has a quantity of 6 on the bid proposal. However, we count only 2 for the two decorative street lights. Where are the other 4 nodes located? If the count is in error please change on the proposal to 2 each.

Response: See response to RFI question 14.

11. 622.2900 - Please confirm that the cost to integrated the new LightGrid nodes into the existing LightGrid node system will be covered by the State and not the contractor.

Response: Question will be addressed in a future addendum.

12. What is the anticipated start date for the project?

Response*: *The anticipated Start Work Date for the project is January 2022.

13. Please confirm that testing covered in spec section 511 does not apply to the concrete light bases (Bid Items 622.0400, 622.0700 and 622.1000).

Response: Integrity testing and load test will not be required for light pole foundation shafts.

14. Correction to Questions 9 & 10. We are coming out with 5 seven pin receptacles and 5 LightGrid nodes instead of 6 on the bid proposal. There are 2 for the two decorative lights and 3 for the pedestrian walkway lighting at the lighting cabinet. Please advise where the 6th seven pin receptacle and LightGrid node is or change count to 5 accordingly for both bid items.

Response: Contractor to provide lightgrid node and receptacle for each decorative light fixture/luminaire. E.G. decorative light standard with dual heads require two lightgrid nodes and receptacles.

15. Plans call for some existing electrical ductlines to be removed. Please confirm that existing ductlines are to be removed as required only for installation of new work. Remaining ductline not interfering with new construction can be abandoned in place.

Response: Remaining ductline shall be removed per HDOT policy.

16. Drawing E23 - The one-line shows 2 - #8, #8G for the pedestrian walkway lighting. However, Drawings E-4 & E-5 show 2 - #10, #10G for the same lighting. Please advise on which is the correct wire size.

Response: See sheets E-24 and E-25 indicating wire size for pedestrian walkway lighting.

17. Sheet DM-2: In what Bid Item will the removal of the Existing St. Light/Utility Pole be paid under?

Response: All items to be removed without a bid item will not be measured separately and payment will be considered incidental to the various pay items.

18. Sheet R-4: Please provide detail for the Quadguard Pad.

Response: Quadguard Pad shall be constructed per manufacturer's recommendation. Also, additional information has been included on Sheet R-4 (ADD. 42).

19. Sheets DM-3 & R-4: Please clarify if the tree and street light pole in the median are to be removed.

Response: The tree and street light pole in the median shall be removed. See Sheet ADD. 25.

20. Sheet R-10: Please clarify if reinforcing mat is required on the entire sidewalk area or only where it's called out.

Response: Where called out on Sheets R-10 and R-11, reinforcing mat shall be included in the entire sidewalk panel.

21. Sheet S6.1 calls for 4” thick shotcrete. In what Bid Item will it be paid under?
Response: This will be incidental to Pay Item 628.2000 – Shotcrete for Retaining Wall C. See Sheets S6.1 (ADD. 170), S10.3 (ADD. 190), and S10.4 (ADD. 191).

22. Sheet B-13: In what Bid Item will the Load Transfer Platform for Abutment #1 be paid under?

Response: Item No. 203.9400 has been added to the Proposal Schedule.

23. Total quantity of the 48” Shaft on Sheet S9.4 does not match the proposal quantity. Please clarify.

Response: Quantities for Item Nos. 511.4200 and 511.5200 have been revised in the Proposal Schedule.

24. Sheets S12.1 through S12.10. In what bid item will the 6” thick subbase be paid under?

Response: Aggregate Subbase revised to Aggregate Base and paid for under Item No. 304.1000 Aggregate Base. See Sheets S12.1 (ADD. 199) to S12.10 (ADD. 208).

25. Sheet T-2 Typical Sections call for aggregate base under the 6” thick slab. Sheets S12.1 through S12.10 call for aggregate subbase. Please clarify.

Response: Aggregate beneath the concrete slab shall be aggregate base.

26. Please provide a copy of the Geotechnical Report prepared by Geolabs dated June 1, 2021 for contractor’s review.

Response: The Geotechnical Report is included with Addendum No. 1 for information only.

27. Reference Special Provisions of Specification *Section* 511- Drilled Shafts.

    a. Section 511.03 (A) states that the drilled shaft contractor to have project experience of at least 3 projects completed in the last 3 years. Section 511.03 (B) makes mention of projects within the past 10 years. Please clarify the correct years requirement for drilled shaft contractor qualification? At minimum, it is requested that the experience qualification to be amended to at least 3 projects completed in the last 5 years.

    Response: Experience qualification has been amended to at least 3 projects completed in the last 5 years. See Addendum No.1 Cover Sheet for revision.

b. Section 511.03 (E) (3) and Section 511.04 (E) (4) (g) call for CSL testing to be performed for the load test shaft. If required, please confirm that CSL tubes do not need to extend beyond the bi-directional cell level shown on Sheet S9.3 of the provided plans. CSL tubes are not able to be continuously installed for the full length of the load test reinforcing steel cage similar to the production shaft cages due to the presence of the bi-directional cell and CSL test results would be distorted at the level of the bi-directional cell cage if tubes were to be installed past this point.

Response: For the load test shaft, CSL tubes shall extend down to the top of the bi-directional load cell. CSL testing must be performed and accepted prior to load test.

c. Section 511.03 (G) (g) states that "any drilled shaft concrete over the theoretical amount required to fill any excavations for the shafts dimensioned on the plans shall be furnished at no additional cost". So that all bidders assess and evaluate the same parameters, please provide the recommended concrete overage volume/percentage beyond theoretical volume for drilled shaft construction that contractors should base their bids on.

Response: For the load test shaft, CSL tubes shall extend down to the top of the bi-directional load cell. CSL testing must be performed and accepted prior to load test.

d. Section 511.03 (L) states that the CSL testing for drilled shafts will be performed by the Engineer. Please confirm that CSL testing of all load test and production drilled shafts will not be the responsibility of the contractor.

Response: Confirmed.

28. See Sheet S9.3: Cross Section Detail B of the provided load test shaft cage shows 32 each, #9 vertical reinforcing steel bars. Detail A calls out 12 each, #11 vertical reinforcing steel bars. Please clarify the correct vertical bar requirement for the load test drilled shaft reinforcing cage.

Response: Revised reinforcing callout, see Sheet S9.3 (ADD. 186)

29. Reference Special Provisions of Specification Section 654-Work Zone Traffic Control, amended Section 645.03 (F) (1): Due to limited available space and safe constructability purposes for the public, it is requested that the contractor have the option to construct the median 48" diameter drilled shafts and pier under a full traffic lane closure similar to bridge work outlined under Section 645.03 (F) (2) or the partial lane closure under Section 645.03 (F) (1). The intended shut down of one lane in each direction as outlined in the traffic control plans would not provide the contractor enough room to adequately and safely stage equipment

and concrete trucks to construct drilled shafts. The single lane closure in each direction also would not provide enough room for the contractor to safely truck in a rebar cage, lift cage to a vertical position and install reinforcing steel cages within the drilled shaft without disturbance or posing a safety risk to traffic.

Response: Bid per the specifications. No changes shall be made in the specifications.

30. In reference to Bid Items 503.0000 and 507.1000: It appears that the quantity for Bid Item 507.1000 is included in bid item 503.0000. Please clarify.

Response: Item 503.0000 quantity has been adjusted, see Proposal Schedule.

31. Bid Item 203.1000 quantity is significantly higher than the excavation quantity on Sheet X-2. Please clarify what shall be included in this Bid Item.

Response: Item 203.1000 excavation quantity has been revised in the proposal schedule. Excavation for the Load Transfer Platforms are not included in this pay item.

32. Due to the complexity of this project, we request a 2 week extension to the bid date.

Response: Please see Addendum No. 1 for bid opening schedule.

33. Please disregard Question 16. We figured it out. the #8 Wire goes from the Cabinet to the JBox, and after that it is #10.

Response: See response to RFI question 16.

34. How do we submit a substitution request for material and equipment?

Response: In accordance with the revised Special Provisions Section 102.14(A) in Addendum No. 1, "Qualification of such proposed alternate brands shall be submitted via email to the contact person in HIePRO for the solicitation and also post a question in HIePRO under the question/answer tab referencing the email with the request. The request must be posted in HIePRO no later than 14 calendar days before the bid opening date, not including the bid opening date".

35. 622.1800 - #8 RHW-USE Wire, please check the quantity. We are coming out with about 4,000 LF of wire vs 6,500 LF on the proposal.

Response: Bid item 622.1800 quantity not changed.

36. 647.0300 - 24 Str MM Fiber Optic Cable, please check the quantity. We are coming out with about 1,900 LF vs 1,500 LF on the proposal.

Response: Bid item 647.0100 quantity revised to 1800 LF.

37. Can the MS Excel format be provided for the Proposal Schedule P-8 to P-24?
Response: The MS Excel format of the Proposal Schedule will not be provided.

38. 622.1300 - The quantity for the 3/4" conduit looks high. We are coming out with about 3,000 LF. Please check.

Response: Bid item 622.1300 quantity not changed.

39. 622.1400 - The quantity for the 1" conduit looks high. We are coming out with about 1,200 LF. Please check.

Response: Bid item 622.1400 quantity not changed.

40. 622.1500 - The quantity for the 3/4" conduit looks low. We are coming out with about 350 LF. Please check.

Response: Bid item 622.1500 quantity not changed.

41. 622.1600 - The quantity for the 1" conduit looks high. We are coming out with about 200 LF. Please check.

Response: Bid item 622.1600 quantity not changed.

42. 622.1800 - The quantity for the #8 wire looks high. We are coming out with about 4,400 LF. Please check.

Response: Bid item 622.1800 quantity not changed.

43. 623.0400 - The proposal has #8 wire for the CCTV power to the cabinet. However, the plans call for #6. Please confirm and change the description.

Response: Bid item 623.0400 description revised to "#6 AWG, RHW-USE Conductor."

44. 647.0200 - The quantity for the 72 Strand SM Fiber Optic cable looks too low. We are coming out with about 1,900 LF. Please check.

Response: Bid item 647.0200 quantity revised to 1800 LF.

45. If not already completed, please confirm that the Victoria Place Park Project, specifically the 42" Dia. HDPE will be completed prior to NTP for the Ala Moana Pedestrian Walkway project.

Response: The Victoria Place General Contractor will complete all pre-cursor work required, including the 42-in storm drain, and vacate Easement P-1 and Construction Parcels C1 & C2 before Dec. 31, 2021.

46. Sheet S14.12 has a call out "Top of Conc. Curb". Section B on the same sheet shows a detail with no curb. Please provide a detail for the referenced curb.

Response: Reference to Curb callout removed.

47. Sheet M-1 shows Easements P-1 and P-2. Sheet M-1 shows construction parcels for the work. Please clarify if Contractor, that is presently occupying the Mauka Property will move their construction railing and fence to the limits of the Construction Parcels and Easements.

Response: Confirmed, construction railing & fence will be moved to the limits of the construction parcels & limits.

48. Sheet M-1 shows Easements P-1 and P-2. Section 105.14(F) of the Special Provisions give dates on Construction Parcels. Please confirm that the Easements will be allowed to be used for the entire duration of the project.

Response: The Contractor will have use of Easements P-1 and P-2 for the entire duration of the project.

49. Please provide a schedule of work for the Nimitz Highway and Ala Moana Boulevard Resurfacing Project. (Reference,SP-105.09 (A)). This will help bidders understand the dates, times, locations of the work to be coordinated.

Response: The tentative Notice to Proceed date for the Nimitz Highway and Ala Moana Boulevard Resurfacing Project is October 2021.

50. Basis of Payment talks about a Trial Shaft. There is no bid item for a Trial Shaft. Please confirm that there is no Trial Shaft required for this project.

Response: Confirmed, there is no requirement for a Trial Shaft for this project.

51. On Sheet S9.3, Detail A shows that 12-#11 bars are to be used for vertical reinforcement on the Load Test Shaft. This is in conflict with Detail B on Sheet S9.3 which shows that 32-#9 bars are to be used for vertical reinforcement on the same shaft. Please clarify which detail should be used for the Load Test Shaft.

Response: Revised reinforcing callout, see Sheet S9.3 (ADD. 186).

52. General Provisions Section 107.01 (I) (A) Obligation of Contractor, line 13-15 states that the contractor must maintain all insurance policies until final acceptance. Builder's risk coverage ends upon Substantial Completion or when the Work is put to its intended use, whichever occurs earlier. We specifically cannot carry builders' risk past Substantial Completion, into the Planting and Plant Establishment Period. We recommend adding the following to recognize insurance industry practices: "The Contractor shall maintain and ensure all insurance policies are current for the full period of the contract until final acceptance of the work by the State. This requirement excludes builders' risk, which will end at substantial completion."

Response: Bid per the specifications. No changes shall be made in the specifications.

53. General Provisions Section 107.01 (I) (B) (4) requires builders risk insurance for the full replacement value of the project work. Contractor requests confirmation that it is acceptable to have sub-limits for the perils of Earthquake and Flood, as this is common practice in the insurance market.

Response: Bid per the specifications. No changes shall be made in the specifications.

54. General Provisions Section 108.16 requires the Contractor to maintain the Risk of Loss or Damage until the written notice of final acceptance has been received. Per Section 108.14, Final Acceptance is when the Engineer finds that the Contractor has satisfactorily completed all contract work in compliance with the contract including all plant establishment requirements, and all the materials have been accepted by the State, the Engineer will issue a Final Acceptance Letter. While we acknowledge our responsibility to maintain and protect the plant work after Substantial Completion, we specifically cannot accept the risk of loss for all Work during the 9-month Plant Establishment Period. Builder's risk coverage ends upon Substantial Completion or when the Work is put to its intended use, whichever occurs earlier. It is not equitable to give the Contractor the risk for loss(es) it cannot insure. Contractor's risk of loss should end upon Substantial Completion or at the point the Work is put to its intended use by the State, whichever is earlier. Please amend to: "Contractor's Responsibility for Work; Risk of Loss or Damage. Until Substantial Completion or when the Work is put to its intended use, whichever occurs earlier, the Contractor shall take every precaution against loss or damage to any part of the work from any cause whatsoever, whether arising from the performance or from the non-performance of the work. The Contractor shall rebuild, repair, restore, and make good all loss or damage to any portion of the work resulting from any cause before Substantial Completion or when the Work is put to its intended use, whichever occurs earlier and shall bear the risk and expense thereof."

Response: Bid per the specifications. No changes shall be made in the specifications.

55. Hawaiian Cement would like to submit a request for information (RFI) regarding the structural concrete for the ALA MOANA BOULVARD – ELEVATED PEDESTRIAN WALKWAY project. Specification 601 Structural Concrete specifies a shrinkage strain value of 0.00006 at 28 days and 0.000146 at 56 days. Currently there are no local private testing labs that can measure concrete shrinkage strain. Industry standard for determining concrete shrinkage has typically been per ASTM C157/157M as a percentage value (example: 0.0045%). My question is: 1. Will the design team change the shrinkage strain requirements to reflect as indicated in ASTM C157/157M?

Response: Shrinkage strain requirements have been removed from Special Provisions Section 601.