STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ADDENDUM NO. 1

FOR

MOANALUA FREEWAY
HIGHWAY LIGHTING IMPROVEMENTS
HALAWA HEIGHTS OFF-RAMP TO MIDDLE STREET OVERPASS
FEDERAL-AID PROJECT NO. NH-H201(005)

DISTRICT OF HONOLULU
ISLAND OF OAHU
FY 2017

Amend the Bid Documents as follows:

A. SPECIAL PROVISIONS

Replace **Special Provisions, Section 622 – Roadway and Sign Lighting System and Intelligent Transportation System (ITS)**, page **622-7a**, dated 7/18/2017, with attached page **622-7a**, dated 9/13/2017.

B. PROPOSAL

Replace original **Proposal Schedule**, pages **P-10** through **P-12**, dated 7/18/2017 with the attached **Proposal Schedule**, pages **P-10** through **P-12**, dated 9/13/2017.

C. PLANS

Replace sheets **119, 121, 126, 134, 135, 137, 139, 140,** and **169** with **ADD. 119, ADD. 121, ADD. 126, ADD. 134, ADD. 135, ADD. 137, ADD. 139, ADD. 140,** and **ADD. 169.**

D. ATTACHMENTS

Attached, for your information:

1. Meeting minutes and attendance list from September 6, 2017 non-mandatory pre-bid conference.

2. Clarification/Revision/Update to HDOT Responses During Pre-bid Meeting dated September 13, 2017.

3. Additional Questions from Bidders with HDOT Responses, dated September 13, 2017.

4. Geotechnical Technical Memorandum, dated July 21, 2017.

5. Variance for Community Noise Control, dated August 30, 2017.

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.

FORD N. FUCHIGAMI
Director of Transportation

The Engineer will measure Roadway Lighting System – HECO charge on a force account basis according to Subsection 109.06 – Force Account Provisions and Compensation and as ordered by the Engineer.

622.05 Payment. The Engineer will pay for the accepted roadway and sign lighting system work on a contract lump sum basis. Payment will be full compensation for the work prescribed in this section and the contract documents.

The Engineer will pay for the accepted Roadway Lighting System – HECO charge on a force account basis according to Subsection 109.06 Force Account provisions and Compensation. Payment will be full compensation for the work prescribed in this Section, by the Engineer and Subsection 109.04 – Full Compensation; Changes

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

Pay Item	**Pay Unit**
Roadway Lighting System _____	Lump Sum
Sign Lighting System _____	Lump Sum
ITS System _____	Lump Sum
Roadway Lighting System – HECO charge	Force Account

END OF SECTION 622

PROPOSAL SCHEDULE

ITEM #	ITEM	APPROX QUANTITY	UNIT	UNIT PRICE	AMOUNT
622.0240	Roadway Lighting System - Twin luminaire and light pole mounted at planter of median barrier	L.S.	L.S.	L.S.	$_____
622.0250	Roadway Lighting System - Luminaire and light pole mounted on retaining wall on grade	L.S.	L.S.	L.S.	$_____
622.0260	Roadway Lighting System - Luminaire and light pole mounted on bridge or retaining wall	L.S.	L.S.	L.S.	$_____
622.0270	Roadway Lighting System - Lights Under Overpass	L.S.	L.S.	L.S.	$_____
622.0300	Roadway Lighting System - 1-2"C at median parapet wall for street lights	L.S.	L.S.	L.S.	$_____
622.0310	Roadway Lighting System - 1-2"C at median planter for street lights. Trenching & backfill & conc jacket not included	L.S.	L.S.	L.S.	$_____
622.0320	Roadway Lighting System - 1-2"C ductline for street lights. Trenching & backfill & conc. Jacket not included	L.S.	L.S.	L.S.	$_____
622.0330	Roadway Lighting System - 2-2"C, PVC coated rigid conduit mounted on bridge for street lights	L.S.	L.S.	L.S.	$_____
622.0332	Roadway Lighting System - 3#2, 1#6 G for street lighting	L.S.	L.S.	L.S.	$_____
622.0334	Roadway Lighting System - Trenching, backfill & conc. jacket for street lights and telecom	L.S.	L.S.	L.S.	$_____
622.0340	ITS System - 2-2"C at median parapet wall for ITS	L.S.	L.S.	L.S.	$_____
622.0360	ITS System - 3-2"C at median planter for ITS. Trenching & backfill & conc. Jacket not included	L.S.	L.S.	L.S.	$_____
622.0370	ITS System - 3-2"C ductline for ITS. Trenching & backfill & conc. jacket not included	L.S.	L.S.	L.S.	$_____
622.0380	ITS System - 2-2"C, PVC coated rigid conduit mounted on bridge for ITS	L.S.	L.S.	L.S.	$_____

PROPOSAL SCHEDULE

ITEM #	ITEM	APPROX QUANTITY	UNIT	UNIT PRICE	AMOUNT
622.0400	Roadway Lighting System - Electrical panel, lighting controls, cabinet & TVSS	L.S.	L.S.	L.S.	$_____
622.0500	Roadway Lighting System - Type A highway lighting pullbox	L.S.	L.S.	L.S.	$_____
622.0510	ITS System - Type B communication system pullbox	L.S.	L.S.	L.S.	$_____
622.0520	Roadway Lighting System - Junction box for street lighting mounted on bridge	L.S.	L.S.	L.S.	$_____
622.0530	ITS System - Junction box for ITS mounted on bridge	L.S.	L.S.	L.S.	$_____
622.0540	ITS System - Cutout with metal covers at median parapet wall for ITS	L.S.	L.S.	L.S.	$_____
622.0700	Roadway Lighting System - HECO charge	F.A.	F.A.	F.A.	$ 40,000.00
631.7100	Construction Sign with Posts	L.S.	L.S.	L.S.	$_____
641.0100	Hydro-Mulch Seeding	L.S.	L.S.	L.S.	$_____
641.0200	Maintenance of Existing Landscape	F.A.	F.A.	F.A.	$ 80,000.00
645.0100	Traffic control	L.S.	L.S.	L.S.	$_____
645.0200	Addditional police officers, additional traffic control devices and advertisement	F.A.	F.A.	F.A.	$ 325,000.00
648.0100	Field posted drawings	L.S.	L.S.	L.S.	$_____
652.0100	Horizontal Directional Drilling	L.S.	L.S.	L.S.	$_____

PROPOSAL SCHEDULE

ITEM #	ITEM	APPROX QUANTITY	UNIT	UNIT PRICE	AMOUNT
696.0100	Maintenance of trailers	F.A.	F.A.	F.A.	$ 20,000.00
699.0100	Mobilization (Not to exceed 6% of the sum of all items excluding the bid price of this item)	L.S.	L.S.	L..S.	$_____

a. Sum of All Items $_____

b. Either Furnish Foreign Steel Not to Exceed Minimal Amount (Fill in '0') or
Furnish Foreign Steel in Excess of Minimal Amount (Fill in 25% X a) * $_____

c. Amount for Comparison of Bids (a+b) * $_____

* All bidders must fill in b and complete c.

NOTE: Bidders must complete all unit prices and amounts. Failure to do so may be grounds for rejection of bid.

PRE-BID CONFERENCE MINUTES

Project: Moanalua Freeway, Highway Lighting Improvements, Halawa Heights Off-ramp to Middle Street Overpass
Federal-aid Project No. NH-H201(005)

Subject: Non-mandatory Pre-bid Conference

Date/Time: September 6, 2017 at 9:00 AM

Held: Kakuhihewa State Office Building
601 Kamokila Boulevard, Room 282
Kapolei, HI 96707

Present: See attached lists of attendees

Discussed:

A. Mr. Yoshida introduced himself and had each meeting participant do the same as well.

B. Steven Yoshida opens meeting at 9:10 A.M. after waiting to see of others will show. The following is to be announced once the meeting began:

1. Pre-bid conference is non-mandatory and is intended for clarification prior to bidding.
2. If you haven't done so, please sign in.
3. Announcement: "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."
4. Bidders have until 12:00 PM Noon, Wednesday, September 13, 2017, to submit any further questions.
5. The minutes to this meeting and the sign-in sheet will be distributed by addendum prior to bid opening.
6. Announcement: "Confirmation of DBE forms are due at the time of bid opening. See "PROPOSAL REQUIREMENTS" of the REGULATORY REQUIREMENTS FOR FEDERAL AID PROJECS REGARDING DISADVANTAGED BUSINESS ENTERPRISES (DBEs)" section of the Special Provisions."
7. Bid opening is scheduled for 2:00 P.M., Thursday, September 28, 2017 at the Contracts Office, Department of Transportation, 869 Punchbowl Street, Honolulu, Hi 96813.

C. Open discussion with prospective bidder:

1. Reference: Traffic Control Plans.
   Question:
   (a) Are the provided traffic control plans / phasing / work hours final and approved?
   HDOT Response: Yes

   (b) If during construction, the provide traffic control plans / phasing / work hours need to be modified and such modifications cause the successful contractor to incur additional cost, will this case be treated as a change order and entitle the contractor to claim a change order?
   HDOT Response: ~~No increase in Lump Sum item cost unless scope change is substantial.~~ See CLARIFICATION/REVISIONS/UPDATE TO HDOT RESPONSES DURING PRE-BID MEETING
   Please provide clear direction to have all bidders price same / comparable scope.
   HDOT Response: See above.

2. Reference: Portable Concrete Barriers.
   Question:
   Will DOT provide concrete barriers for the successful contractor to use and return to DOT yard?
   HDOT Response: ~~Yes.~~ ~~HDOT will verify availability~~. See CLARIFICATION/REVISIONS/UPDATE TO HDOT RESPONSES DURING PRE-BID MEETING.

3. Reference: Spec Section 511-5a – Lines 195-198 reads:

   "The use of special drilling equipment and/or procedures will be necessary to drill through the cobbles, boulders, tuff and basalt. The Contractor shall anticipate an abundance of boulders of various sizes and shall make allowance for difficult drilling in his bid."

   Question:
   (a) Is there a geotechnical report available for this project?
   HDOT Response: Yes, there is a geotechnical report. HDOT is current determining the need to release it to bidder. See CLARIFICATION/REVISIONS/UPDATE TO HDOT RESPONSES DURING PRE-BID MEETING

   (b) Without having a geotechnical report / soil borings how will all bidders allocate an allowance / contingency cost for hard drilling / excavation? It is not feasible to price unknown conditions.
   HDOT Response: Evaluating. See CLARIFICATION/REVISIONS/UPDATE TO HDOT RESPONSES DURING PRE-BID MEETING

Please provide the geotechnical report to allow all bidders to "FAIRLY" price same / comparable scope.
If geotechnical report is unavailable, we respectfully request DOT to provide a separate allowance / force account bid item to cover such unforeseen conditions to have all bidders price same scope and prevent making costly assumptions to cover such immeasurable risk.
HDOT Response: Evaluating. See CLARIFICATION/REVISIONS/UPDATE TO HDOT RESPONSES DURING PRE-BID MEETING

4. Reference: Spec Section 511-5a – Lines 221-230 reads:

"(3) Unclassified Excavation. All excavation for the production drilled shafts shall be designated as unclassified. The Contractor shall anticipate the presence of cobbles and boulders within the depths of the drilled shafts. The Contractor shall provide the necessary equipment to remove and dispose of materials encountered in forming the drilled shaft excavation, including installation of temporary casing and/or use of slurry, as necessary. The Engineer will not make separate payment for excavation of materials of different densities and character (hardness) or employment of special tools and procedures necessary to excavate. The Engineer will pay for obstruction removal separately.:

Question:
(a) Is there a geotechnical report available for this project?
HDOT Response: See item 3.
(b) Without having a geotechnical report / soil borings how will all bidders accurately estimate casing / drilling of drilled shafts and all other excavations? It is not feasible to price unknown conditions.
HDOT Response: See item 3.
Please provide the geotechnical report to allow all bidders to "FAIRLY" price same / comparable scope.
HDOT Response: See item 3.
If geotechnical report is unavailable, we respectfully request DOT to provide a separate allowance / force account bid item to cover such unforeseen conditions to have all bidders price same scope and prevent making costly assumptions to cover such immeasurable risk.
HDOT Response: See item 3.

5. Reference: Spec Section 511-7a - Lines 311-315 reads:

"A minimum of 50% of the base of each shaft shall have less than 0.5 inch of sediment at the time the concrete is placed. The maximum depth of sediment or debris on the base of the shaft shall not exceed 1.5 inches. The Contractor will measure the shaft cleanliness in the presence of the Engineer ***by methods***

deemed appropriate to the Engineer."

Question:
Please define the approved / acceptable methods to measure the shaft clean cleanliness.
HDOT Response: HDOT to response later (in Addendum No. 1)

6. Reference: Bid Item 645.0200 - Additional police officers, additional traffic control devices and advertisement is indicated as a Force Account pay item.
   Question:
   Please clarify how will this force account item be implemented?
   HDOT Response: The intent of this item is for additional police officers, additional traffic control devices, and advertising, not show on the plans, which will be determined by the State.

7. Reference: Archaeological Monitoring.
   Question:
   Is it required to provide Archaeological Monitoring during excavation?
   HDOT Response: No archaeological monitoring is intended for this project. See CLARIFICATION/REVISIONS/UPDATE TO HDOT RESPONSES DURING PRE-BID MEETING
   If so, who is responsible to provide an Archaeologist?
   HDOT Response: n/a
   If it is the contractor's responsibility, please add a separate bid item for this scope. HDOT Response: n/a

8. Reference: Sheet No. E-1 – General Notes – Note No. 2 reads:

   2. *EXISTING CONDITION BASED ON LIMITED FIELD OBSERVATION AND REFERENCE DRAWINGS. CONTRACTOR TO VERIFY EXISTING CONDITION AND REPORT DISCREPANCY TO ENGINEER PRIOR TO CONSTRUCTION.*

   Question:
   (a) Please confirm if any item (are not shown on drawings) causes additional cost to the contractor shall be considered as a change in condition?
   HDOT Response: HDOT to response later (in Addendum No. 1). See CLARIFICATION/REVISIONS/UPDATE TO HDOT RESPONSES DURING PRE-BID MEETING
   (b) Please confirm that the contactor will be entitled to claim for all additional costs caused by item not shown on drawings including (but not limited) to all direct costs, indirect costs such as extended overhead, Contractor' and its Subcontractors' equipment / personnel stand by time, etc.?
   HDOT Response: HDOT to response later (in Addendum No. 1). See CLARIFICATION/REVISIONS/UPDATE TO HDOT RESPONSES DURING PRE-BID MEETING

Also, please confirm that the contractor will be entitled for time extension if such case is countered?
HDOT Response: HDOT to response later (in Addendum No. 1). See CLARIFICATION/REVISIONS/UPDATE TO HDOT RESPONSES DURING PRE-BID MEETING.

9. Reference: Sheet No. E-1 – General Notes – Note No. 16 reads:

16. EXISTING HIGHWAY LIGHTING SYSTEM SHALL REMAIN IN OPERATION AT ALL TIMES. REMOVE LIGHT POLES AND CONDUCTORS ONLY AFTER THE NEW LIGHTING SYSTEM IS IN OPERATION. REMOVE LIGHT POLE CONCRETE FOUNDATION 12" BELOW FINISH GRADE. LIGHT POLE FOUNDATIONS INTEGRATED INTO EXISTING RETAINING WALL AND CONCRETE BARRIERS SHALL REMAIN. CUT ANCHOR BOLTS FLUSH W/ SURFACE.

Question:

(a) Will demolition plans be issued in future addendum?
HDOT Response: No.
If not, how will all bidders price the removal of light pole bases and conductors?
HDOT Response: Structural/Electrical plans show removal areas. HDOT to response later (in Addendum No. 1). See CLARIFICATION/REVISIONS/UPDATE TO HDOT RESPONSES DURING PRE-BID MEETING.

(b) Is it required to remove conduits at crossings of new duct banks with existing conduits / ducts?
HDOT Response: HDOT to response later (in Addendum No. 1). See CLARIFICATION/REVISIONS/UPDATE TO HDOT RESPONSES DURING PRE-BID MEETING.
Does all conduits have concrete encasement?
HDOT Response: Only subsurface installations (underground). See CLARIFICATION/REVISIONS/UPDATE TO HDOT RESPONSES DURING PRE-BID MEETING.

(c) Are there profiles available for exiting conduits?
HDOT Response: No (available profiles). No as-built plans were available during design to provide this information. See CLARIFICATION/REVISIONS/UPDATE TO HDOT RESPONSES DURING PRE-BID MEETING.

Please provide the above missing information or provide clear directions how to price the demolition scope?
HDOT Response: HDOT to response later (in Addendum No. 1.). See CLARIFICATION/REVISIONS/UPDATE TO HDOT RESPONSES DURING PRE-BID MEETING

10. Reference: Electrical Sheets E-6 through E-21 are related to Lighting Plans. They indicate some of existing utilities crossings with new lighting ducts / conduits. However, profiles, inverts are not provided.

    Question:

    (a) We respectfully request profile of existing and new duct banks and all other existing utilities. This information is critical to all bidders and their subcontractors to estimate the cost accurately. This information will eliminate making costly assumptions that may significantly increase the cost of this project due to adding unnecessary cost to cover unforeseen conditions and immeasurable risk.
    HDOT Response: ~~See item 9.~~ See CLARIFICATION/REVISIONS/UPDATE TO HDOT RESPONSES DURING PRE-BID MEETING.

    If the above information is not available, we respectfully suggest to provide clear directions to all bidders by providing an assumed cover for new & old duct banks, also assumed sizes of existing ducts that need to be removed to have all bidders fairly price same / comparable scope, otherwise each bidder will come up with different assumptions.
    HDOT Response: One-call needs to be contacted prior to any excavation work. See CLARIFICATION/REVISIONS/UPDATE TO HDOT RESPONSES DURING PRE-BID MEETING.

    (b) If existing utilities need to be relocated to resolve possible conflicts with new duct bank, will this case be treated as an unforeseen / change in condition?
    HDOT Response: HDOT to response later (in Addendum No. 1). See CLARIFICATION/REVISIONS/UPDATE TO HDOT RESPONSES DURING PRE-BID MEETING.

11. Reference: Sheet No. E-4 Hawaiian Electric Company Notes – Note No. 10 reads:

10. Relocation of HECO Facilities

Any work required to relocate or modify HECO facilities shall be done by HECO, or by the Contractor under HECO's supervision. The Contractor shall be responsible for all coordination, and shall provide necessary support for HECO's work, which may include, but not be limited to, staking of pole/anchor locations, identifying right of way and property lines, excavation and backfill, permits and traffic control, barricading, and restoration of pavement, sidewalks, and other facilities.

All costs associated with any relocation or modification (either temporary or permanent) for the convenience of the Contractor, or to enable the Contractor to perform his work in a safe and expeditious manner in fulfilling his contract obligations shall be borne by the Contractor.

Questions:

(a) Please clarify the intent of this note? Relocation of HECO facilities is indicated in this note to be done by HECO or by the contractor. Please clarify how will all bidders estimate this ambiguous scope at bidding stage without any information?
HDOT Response: This is a HECO standard note. See CLARIFICATION/REVISIONS/UPDATE TO HDOT RESPONSES DURING PRE-BID MEETING.

(b) Does HECO has a copy of this project plans & specs?
HDOT Response: Yes.
If so, who is the contact person with HECO that all bidders need to contact to obtain HECO's cost to incorporate this cost in the bid?
HDOT Response: HDOT waives the response to this question since it has no bearing on the bid process. It may be addressed prior to NTP.

(c) **Is it possible to provide an allowance / force account bid item for this scope of work and change it from a LS to F.A. in order allow bidders to fairly price this item without making costly assumption? Please review this important item and advise.**
HDOT Response: Proposal item 622.7000 – Roadway Lighting System HECO Charges will be changed from lump sum to force account by Addendum No. 1. See CLARIFICATION/REVISIONS/UPDATE TO HDOT RESPONSES DURING PRE-BID MEETING.

Meeting Adjourned at 9:48 A.M.

Prepared by: Steven Yoshida

PRE-BID CONFERENCE ATTENDANCE LIST

PROJECT NO.: NH-H201(005) PROJECT NAME: MOANALUA FREEWAY, HIGHWAY LIGHTING IMPROVEMENTS, HALAWA HEIGHTS OFF-RAMP TO MIDDLE STREET OVERPASS

DATE: SEPTEMBER 6, 2017 TIME: 9:00 AM LOCATION: KAKUHIHEWA STATE OFFICE BUILDING, 601 KAMOKILA BLVD, ROOM 282, KAPOLEI, HI 96707

CALLED BY: STEVEN YOSHIDA, HDOT DESIGN PROJECT MANAGER

PLEASE PRINT

	PARTICIPANTS	COMPANY / ORGANIZATION	ADDRESS (Including City and Zip Code)	TELEPHONE NUMBER
1	Steven Yoshida	HDOT	601 Kamokila Blvd, Room 602 Kapolei, HI 96707	692-7682
2	CRAIG OYAMA	NOA	1314 S King St, Suite 401 Honolulu, HI 96814	591-8887
3	BRYAN LUM	KAI	50 S BERETANIA ST #C-119C HONOLULU, HAWAII 96813	791-3953
4	ANNA CAMPMANY	NAN Inc.	636 LAUMAKA ST HONOLULU, HI 96819	842-4929
5	Brett Kuamoo	WOC	907 S. Beretania St. 400 Honolulu, HI 96826	946-2277
6	Glenn Oyama	NOA	1314 S. King St, Suite 401 Honolulu, HI 96814	591-8887
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CLARIFICATION/REVISION/UPDATE TO HDOT RESPONSES DURING PRE-BID MEETING

Moanalua Freeway, Highway Lighting Improvements
Halawa Heights Off-Ramp to Middle Street Overpass
Federal-aid Project No. NH-H201(005)
September 13, 2017

1. Reference: Traffic Control Plans.
   Question:
   (a) Are the provided traffic control plans / phasing / work hours final and approved?
   HDOT Response: Yes

   (b) If during construction, the provide traffic control plans / phasing / work hours need to be modified and such modifications cause the successful contractor to incur additional cost, will this case be treated as a change order and entitle the contractor to claim a change order?
   HDOT Revised Response: Lump Sum item means no increase for the item of work described in the contract documents (See line 318-319 in Section 101.03 Definitions of the 2005 Standard Specifications. Changes to the scope of work during construction are required to comply with Section 104 of the 2005 Standard Specifications.

   Please provide clear direction to have all bidders price same / comparable scope.
   HDOT Response: See above.

2. Reference: Portable Concrete Barriers.
   Question:
   Will DOT provide concrete barriers for the successful contractor to use and return to DOT yard?
   Revised HDOT Response: HDOT will not guarantee Portable Concrete Barriers (PCB) will be available for this project. It is the bidder's responsibility to secure the required amount of PCB necessary to complete the work. PCB may be substituted with HDOT approved NCHRP Report 350, TL-3 or TL-4, steel barriers, such as ArmorGuard, BarrierGuard, Vulcan, or Zoneguard.

3. Reference: Spec Section 511-5a – Lines 195-198 reads:

   "The use of special drilling equipment and/or procedures will be necessary to drill through the cobbles, boulders, tuff and basalt. The Contractor shall anticipate an abundance of boulders of various sizes and shall make allowance for difficult drilling in his bid."

   Question:
   (a) Is there a geotechnical report available for this project?
   Updated HDOT Response: Yes, there is a geotechnical report. HDOT has included the geotechnical report into Amendment No. 1.

(b) Without having a geotechnical report / soil borings how will all bidders allocate an allowance / contingency cost for hard drilling / excavation? It is not feasible to price unknown conditions.
Updated HDOT Response: n/a
Please provide the geotechnical report to allow all bidders to "FAIRLY" price same / comparable scope.
If geotechnical report is unavailable, we respectfully request DOT to provide a separate allowance / force account bid item to cover such unforeseen conditions to have all bidders price same scope and prevent making costly assumptions to cover such immeasurable risk.
Updated HDOT Response: n/a

5. Reference: Spec Section 511-7a - Lines 311-315 reads:

"A minimum of 50% of the base of each shaft shall have less than 0.5 inch of sediment at the time the concrete is placed. The maximum depth of sediment or debris on the base of the shaft shall not exceed 1.5 inches. The Contractor will measure the shaft cleanliness in the presence of the Engineer ***by methods deemed appropriate to the Engineer."***

Question:
Please define the approved / acceptable methods to measure the shaft clean cleanliness.
HDOT Response: Bidders are directed to Special Provisions, Section 511.03 Preconstruction Requirements. Additionally, the Engineer will review and comment on the methods proposed for shaft bottom cleaning by the Contractor to be described in detail in the drilled shaft installation plan. An acceptable method to evaluate the cleanliness of the shaft bottom is by sounding using a weighted tape in the presence of the Engineer."

7. Reference: Archaeological Monitoring.
Question:
Is it required to provide Archaeological Monitoring during excavation? No archaeological monitoring is intended for this project. If so, who is responsible to provide an Archaeologist? n/a
If it is the contractor's responsibility, please add a separate bid item for this scope. n/a

Clarification to HDOT Response: Although no archaeological monitoring is required for this project, the contractor is still responsible for Mitigation measures during the construction. improvements have been and will continue to be implemented to avoid and minimize potential impacts to archaeological, cultural, and historic resources.

The following mitigation measures will be implemented during the construction, at a minimum:

- In the event that any potential historic properties or non-human remains are identified during construction activities, all activities will cease and the SHPD will be notified pursuant to HAR §13-280-3.

- In the event that human remains are identified, all earth moving activities in the area will stop, the area will be cordoned off, and the SHPD and Police Department will be notified pursuant to HAR §13-300-40.

8. Reference: Sheet No. E-1 – General Notes – Note No. 2 reads:

   2. *EXISTING CONDITION BASED ON LIMITED FIELD OBSERVATION AND REFERENCE DRAWINGS. CONTRACTOR TO VERIFY EXISTING CONDITION AND REPORT DISCREPANCY TO ENGINEER PRIOR TO CONSTRUCTION.*

   Question:
   (a) Please confirm if any item (are not shown on drawings) causes additional cost to the contractor shall be considered as a change in condition?
   Updated HDOT Response: Bidders are directed to Standard Specifications Section 104.11 Utilities and Services and Section 105.07 Examination of Contract Documents and Project Site.

   (b) Please confirm that the contactor will be entitled to claim for all additional costs caused by item not shown on drawings including (but not limited) to all direct costs, indirect costs such as extended overhead, Contractor' and its Subcontractors' equipment / personnel stand by time, etc.?
   Updated HDOT Response: Bidders are directed to Standard Specifications Section 104.11 Utilities and Services
   Also, please confirm that the contractor will be entitled for time extension if such case is countered?
   Updated HDOT Response: Bidders are directed to Standard Specifications Section 104.11 Utilities and Services

9. Reference: Sheet No. E-1 – General Notes – Note No. 16 reads:

16. EXISTING HIGHWAY LIGHTING SYSTEM SHALL REMAIN IN OPERATION AT ALL TIMES. REMOVE LIGHT POLES AND CONDUCTORS ONLY AFTER THE NEW LIGHTING SYSTEM IS IN OPERATION. REMOVE LIGHT POLE CONCRETE FOUNDATION 12" BELOW FINISH GRADE. LIGHT POLE FOUNDATIONS INTEGRATED INTO EXISTING RETAINING WALL AND CONCRETE BARRIERS SHALL REMAIN. CUT ANCHOR BOLTS FLUSH W/ SURFACE.

Question:

(a) Will demolition plans be issued in future addendum?
HDOT Response: No.
If not, how will all bidders price the removal of light pole bases and conductors?
HDOT Response: Structural/Electrical plans show removal areas. See "Flare Rate Schedule" on Structural Sheet S1.0 to determine the limits for median removal. See Note 16 and 17 on Electrical Sheet E-1 for removal instructions. Conduit embedded in existing median wall will need to be removed if it is within the limits for median removal.

(b) Is it required to remove conduits at crossings of new duct banks with existing conduits / ducts?
HDOT Response: See Note 16 and 17 on Electrical Sheet E-1. Only exposed conduit needs to be removed.
Does all conduits have concrete encasement?
HDOT Revised Response: All underground conduits shall have 3" concrete encasement per Trenching Detail on E-51.

(c) Are there profiles available for exiting conduits?
HDOT Revised Response: No. No as-built plans were available during design to provide this information. Please note that One-call needs to be contacted prior to any excavation work.

Please provide the above missing information or provide clear directions how to price the demolition scope? HDOT Response: See above. Bid accordingly.

10. Reference: Electrical Sheets E-6 through E-21 are related to Lighting Plans. They indicate some of existing utilities crossings with new lighting ducts / conduits. However, profiles, inverts are not provided.

Question:

(a) We respectfully request profile of existing and new duct banks and all other existing utilities. This information is critical to all bidders and their subcontractors to estimate the cost accurately. This information will eliminate making costly assumptions that may significantly increase the cost of this

project due to adding unnecessary cost to cover unforeseen conditions and immeasurable risk.
HDOT Revised Response: See item 9d.

If the above information is not available, we respectfully suggest to provide clear directions to all bidders by providing an assumed cover for new & old duct banks, also assumed sizes of existing ducts that need to be removed to have all bidders fairly price same / comparable scope, otherwise each bidder will come up with different assumptions.
HDOT Revised Response: Bidders are directed to Standard Specifications Section 104.11 Utilities and Services and Section 105.07 Examination of Contract Documents and Project Site. Additionally, One-call needs to be contacted prior to all excavation work. All new underground conduit shall be buried a minimum of 3' below grade, which will be clarified on the Trenching Detail on E-51. Clearances from existing utilities shall be per tables on Sheets E-4 and E-5 treating the Street Light and ITS conduits similarly to HECO conduits.

(b) If existing utilities need to be relocated to resolve possible conflicts with new duct bank, will this case be treated as an unforeseen / change in condition?
HDOT Response: Bidders are directed to Standard Specifications Section 104.11 Utilities and Services and Section 105.07 Examination of Contract Documents and Project Site. Additionally, One-call needs to be contacted prior to any excavation work. Any duct routing conflicts should be avoided by going either above or below existing utilities and following the required vertical clearances listed on Sheet E-5 while maintaining a minimum of 3' cover above the new underground ducts.

11. Reference: Sheet No. E-4 Hawaiian Electric Company Notes – Note No. 10 reads:

10. Relocation of HECO Facilities

Any work required to relocate or modify HECO facilities shall be done by HECO, or by the Contractor under HECO's supervision. The Contractor shall be responsible for all coordination, and shall provide necessary support for HECO's work, which may include, but not be limited to, staking of pole/anchor locations, identifying right of way and property lines, excavation and backfill, permits and traffic control, barricading, and restoration of pavement, sidewalks, and other facilities.

All costs associated with any relocation or modification (either temporary or permanent) for the convenience of the Contractor, or to enable the Contractor to perform his work in a safe and expeditious manner in fulfilling his contract obligations shall be borne by the Contractor.

Questions:

(a) Please clarify the intent of this note? Relocation of HECO facilities is indicated in this note to be done by HECO or by the contractor. Please clarify how will all bidders estimate this ambiguous scope at bidding stage without any information?
HDOT Revised Response: This is a HECO standard note included for coordination of any new work with HECO. Currently there is only work involving HECO with the replacement of the transformer and obtaining new service at the Fort Shafter meter center. There will also need to be coordination with HECO when replacing the equipment by the Puuloa St off-ramp.

(b) Does HECO has a copy of this project plans & specs?
HDOT Response: Yes.
If so, who is the contact person with HECO that all bidders need to contact to obtain HECO's cost to incorporate this cost in the bid?
HDOT Revised Response: Contacting HECO is not necessary. Proposal item 622.7000 – Roadway Lighting System HECO Charges will be changed from lump sum to force account by Addendum No. 1.HDOT waives the response to this question since it has no real bearing on the bid process. It can be addressed prior to NTP.

(c) **Is it possible to provide an allowance / force account bid item for this scope of work and change it from a LS to F.A. in order allow bidders to fairly price this item without making costly assumption? Please review this important item and advise.**
HDOT Response: Proposal item 622.7000 – Roadway Lighting System HECO Charges will be changed from lump sum to force account by Addendum No. 1.

ADDITIONAL QUESTIONS FROM BIDDERS WITH HDOT RESPONSES

Moanalua Freeway, Highway Lighting Improvements
Halawa Heights Off-Ramp to Middle Street Overpass
Federal-aid Project No. NH-H201(005)
September 13, 2017

1. Question: Proposal item 622.0700 – Roadway Lighting System HECO Charge is currently a lump sum item. Would it be possible to make this an allowance item since we would probably not be able to get a quote for the charges from HECO.

   HDOT Response: Proposal item 622.7000 – Roadway Lighting System HECO Charges will be changed from lump sum to force account by Addendum No. 1.

2. Question: Is there a soils report for this project?

   HDOT Response: Yes, there is a geotechnical report. HDOT has included the geotechnical report into Amendment No. 1.

3. Question: When is the NTP for this project?

   HDOT Response: Construction NTP is scheduled for January 11, 2018.

4. Question: Will the State be furnishing the portable concrete barrier?

   HDOT Response: HDOT will not guarantee Portable Concrete Barriers (PCB) will be available for this project. It is the bidder's responsibility to secure the required amount of PCB necessary to complete the work. PCB may be substituted with HDOT approved NCHRP Report 350, TL-3 or TL-4, steel barriers, such as ArmorGuard, BarrierGuard, Vulcan, or Zoneguard.

   If yes, where do we pick up the barriers from and how many will be available?

   HDOT Response: n/a

5. Question: If the State is unable to furnish portable concrete barriers will the contractor have to make new concrete barriers or be allowed to use triton (water) barriers?

   HDOT Response: Water-filled barriers, such as Triton, will not be accepted for use on HDOT high-speed roadways, such as Interstate Route H201.

6. Question: Is there any plans showing where the new work on the structural detail sheets (106 – 118) are located along with respective lengths?

   HDOT Response: Notes on E-3 shows the new structural details. Electrical plans E-6 to E-21 call out where each diamond note is needed. Any missing structural details that need calling out will be made on the Amendment 1 drawings.

Respective lengths indicating removal/rebuilt for median barriers are shown on sheet S1.0. Median Barrier Demolition plan indicate existing dimensions, along with Flare Rate Schedule (S1.0) and light foundation/barrier structure (S1.6 to S1.8) are used to determines the required removal/rebuild distances. Note that these distances vary from location to location.

7. Question: Who can we call at HECO to get their cost for the Roadway Lighting System (item 622.0700)?

   HDOT Response: Contacting HECO is not necessary. Proposal item 622.7000 – Roadway Lighting System HECO Charges will be changed from lump sum to force account by Addendum No. 1.

8. Question: Reference: Conduit Duct Details
   Sheet E-51 (169) shows several Duct Sections that are applicable to this project. However, in the lighting plans we cannot identify which duct section has to be implemented in each section of the conduits that require a duct.
   Can you indicate in the lighting plans which duct section (SL, SL1, SL2, SL3) applies to each section of the conduits?

   HDOT Response: Bidder needs to determine applicability of duct section based on the duct complements noted on the Electrical Plans.

9. Question: Reference: Item 622.0150
   Item 622.0150 states: "Roadway Lighting System – Removal of handholes, exposed junction boxes and raceways". However, there are no demolition (lighting plans indicate the pole light assemblies that need to be removed, but nothing more) neither existing plans provided, which makes it difficult to provide an estimate for this item.
   Can you provide information to estimate how many handholes, junction boxes and raceways have to be removed within this project?

   HDOT Response: As-built drawings are not available. Bidder is responsible to field verify existing condition. See Note 16 and 17 on Electrical Sheet E-1 for removal instructions.

GEOLABS, INC.

Geotechnical Engineering and Drilling Services

TECHNICAL MEMORANDUM

DATE:	July 21, 2017 @ 1:22 PM	**W.O. No.:**	7490-00
TO:	Nakamura, Oyama & Assoc.	**FROM:**	Robin M. Lim / Tim Roy
ATTN:	Mr. Calvin Kwan	**NO. OF PAGES:**	12
SUBJECT:	Highway Lighting Improvements, Moanalua Freeway Halawa Heights Off-Ramp to Middle Street Overpass F.A.P. No. NH-H201(005) Geotechnical Recommendations		
E-MAIL:	mailto:calvin@noa-engineers.com		
COPY TO:	File / Original		

This technical memorandum presents our geotechnical recommendations in support of the Highway Lighting Improvements, Moanalua Freeway, Halawa Heights Off-Ramp to Middle Street Overpass project located in Honolulu on the island of Oahu, Hawaii. The geotechnical recommendations presented herein are based on our experience in the project vicinity and limited subsurface information available.

PROJECT CONSIDERATIONS

The proposed lighting improvements project is located along Moanalua Freeway on the Island of Oahu, Hawaii. The approximate limits of the project discussed in this technical memorandum extend from the vicinity of Halawa Heights Off-Ramp (Mile Post 1.12) to the vicinity of the Middle Street Overpass (Mile Post 4.09) for a distance of about 15,700 linear feet.

The project consists of upgrading the existing lighting system to meet the current State, AASHTO, and Federal lighting standards. We understand new impact barriers will be designed for the project and some of the light poles will be constructed atop the impact barriers. In addition, some of the impact barriers are along the hillside and will function as retaining walls. Also, installation of ITS conduits for the lighting system is anticipated for this project. It should be noted that light poles located within the elevated portions of the highway (viaduct) are specifically excluded from our scope of work for this project.

SUBSURFACE CONDITIONS

Based on available information, the subsurface conditions at the project site may be generalized into four different categories: (1) Soft soil; (2) Stiff Soil; (3) Tuff; and (4) Basalt. We estimate the distribution of the soil condition categories along the project alignment is as follows:

Moanalua Freeway Stationing		Estimated Ground Conditions
From Station (Approx.)	To Station (Approx.)	
205+00	215+00	Stiff Soil
215+00	222+00	Basalt
222+00	255+00	Tuff
255+00	277+50	Stiff Soil
277+50	281+00	Tuff
281+00	298+00	Stiff Soil
298+00	322+50	Soft Soil
322+50	340+50	Stiff Soil
340+50	351+00	Soft Soil
351+00	366+00	Basalt
NOTE: The stations provided in this table are approximations only based on regional geologic maps. Variations from those indicated in this table are likely and should be expected.		

Stiff Soil

In this area, we anticipate dense granular materials and stiff cohesive materials. Based on the surface elevations in this area, groundwater is not anticipated within the foundation excavation depths.

Basalt

In this area, we anticipate a relatively thin layer of fill material overlying hard to very hard basalt. Based on the surface elevations in this area, groundwater is not anticipated within the foundation excavation depths.

Tuff

In this area, we anticipate a relatively thin layer of fill material overlying hard to very hard volcanic tuff. Based on the surface elevations in this area, groundwater is not anticipated within the foundation excavation depths.

Soft Soil

In this area, we anticipate subsurface conditions consisting of loose granular materials and soft cohesive materials. Based on available subsurface information,

groundwater in this area may be encountered at shallow depths of about 5 feet or less beneath the existing ground surface.

SEISMIC DESIGN CONSIDERATIONS

Based on the subsurface conditions anticipated at the project site and the geologic setting, the tuff and basalt areas of the project site may be classified from a seismic analysis standpoint as Site Class C, and the soil areas (soft soils and stiff soils) of the project site may be classified from a seismic analysis standpoint as Site Class E in accordance with AASHTO LRFD Bridge Design Specifications (Table No. 3.10.3.1-1), 2012 Edition. Based on these considerations, the following seismic design parameters were estimated and may be used for seismic analysis of the project.

SEISMIC DESIGN PARAMETERS 1,000-YEAR RETURN PERIOD Tuff and/or Basalt Conditions Stiff Soil Conditions	
Parameter	**Value**
Mapped MCE Spectral Response Acceleration, S_S =	0.397 g
Mapped MCE Spectral Response Acceleration, S_1 =	0.109 g
Site Class =	"C"
Site Coefficient, F_a =	1.200
Site Coefficient, F_v =	1.691
Design Spectral Response Acceleration, S_{DS} =	0.476 g
Design Spectral Response Acceleration, S_{D1} =	0.184 g
Design Peak Bedrock Acceleration, PBA (Site Class B) =	0.174 g
Design Peak Ground Acceleration, PGA (Site Class C) =	0.208 g

SEISMIC DESIGN PARAMETERS 1,000-YEAR RETURN PERIOD Soft Soil Condition	
Parameter	**Value**
Mapped MCE Spectral Response Acceleration, S_S =	0.397 g
Mapped MCE Spectral Response Acceleration, S_1 =	0.109 g
Site Class =	"E"

SEISMIC DESIGN PARAMETERS 1,000-YEAR RETURN PERIOD Soft Soil Condition	
Parameter	**Value**
Site Coefficient, F_a =	2.030
Site Coefficient, F_v =	3.473
Design Spectral Response Acceleration, S_{DS} =	0.806 g
Design Spectral Response Acceleration, S_{D1} =	0.378 g
Design Peak Bedrock Acceleration, PBA (Site Class B) =	0.174 g
Design Peak Ground Acceleration, PGA (Site Class E) =	0.332 g

EARTHWORK REQUIREMENTS

Based on the existing topography at the project site, we anticipate earthwork for the project generally will involve only site preparation and backfilling to achieve the finished grades. Items of earthwork that are addressed in the subsequent subsections include the following:

1. Site Preparation;
2. Excavation
3. Fills and Backfills; and
4. Fill Placement and Compaction Requirements.

Site Preparation

At the on-set of earthwork, areas within the contract grading limits should be cleared and grubbed (where necessary). Vegetation, debris, deleterious materials, and other unsuitable materials should be removed and disposed properly to reduce the potential for contaminating the excavated materials to be used as backfill materials.

After clearing, areas designated to receive improvements should be scarified to a depth of about 8 inches, moisture-conditioned to above the optimum moisture content, and recompacted to a minimum of 90 percent relative compaction (per AASHTO T-180). Relative compaction, in this memorandum, refers to the in-place dry density of soil expressed as a percentage of the maximum dry density of the same soil established in accordance with AASHTO T-180. Optimum moisture is the water content (percentage by weight) corresponding to the maximum dry density. Compaction should be accomplished by sheepsfoot rollers, vibratory rollers, or other types of acceptable compaction equipment.

Soft and/or loose, weak, or yielding areas (or cavities) disclosed during site preparation operations should be over-excavated to expose firm ground, and the resulting excavation should be backfilled with granular fill materials (well graded 3-inch minus materials) or aggregate subbase compacted to a minimum 95 percent relative compaction. Saturation and subsequent yielding of the exposed subgrades due to inclement weather and poor drainage may require over-excavation of the soft areas and replacement with compacted fill material.

Excavation

Excavation for this project generally will consist of excavations for foundations, ITS conduits and other infrastructure. Generally, we anticipate the site grading and infrastructure work may involve excavation into the underlying volcanic tuff and basalt. It is anticipated that the surface fill materials may be excavated with normal heavy excavation equipment. However, deeper excavations and excavations into volcanic tuff and/or basalt may require the use of hoerams. We recommend encouraging contractors bidding on this project to examine the site conditions and geotechnical data to make their own prudent interpretation.

Fills and Backfills

In general, the excavated on-site granular fill material may be used as a source of backfill material provided that deleterious materials such as vegetation are removed and over-sized materials greater than 3 inches in maximum dimension are screened. It should be noted that excavated clayey silt soils (or other cohesive soils) should not be used as a source of backfill materials due to the poor pavement support characteristics of the soils.

In the event that imported fill materials are needed for the project construction, imported fill materials should be well graded from coarse to fine with no particles larger than 3 inches in largest dimension and should contain between 10 and 30 percent particles passing the No. 200 sieve. The material should have a laboratory CBR value of 20 or more and should have a maximum swell of 1 percent or less when tested in accordance with AASHTO T-193.

Imported fill materials, if needed, should be tested for conformance with these recommendations prior to delivery to the project site for the intended use. An accredited testing laboratory should test the imported fill materials for conformance with these recommendations prior to delivery to the project site for the intended use.

Fill Placement and Compaction Requirements

Fill and backfill materials should be placed in level lifts not exceeding 8 inches in loose thickness, moisture-conditioned to above the optimum moisture content, and compacted to at least 95 percent relative compaction (AASHTO T-180).

LIGHT POLE FOUNDATIONS

We understand some of the light poles will not be attached to the new impact barriers. Based on this consideration and the anticipated subsurface conditions, the new foundations for standalone light poles generally should consist of 24-inch diameter reinforced concrete drilled shafts extending down to depths of about 10 feet below the ground surface (assuming relatively level ground).

In general, drilled shaft foundations are constructed by drilling a hole down into the bearing strata, placing reinforcing steel, and then pumping high slump concrete to fill up the hole. The result is a cast-in-place concrete drilled shaft for foundation support. Based on the subsurface conditions encountered at the project site, we envision the drilled shaft foundation would derive vertical support primarily from skin friction between the drilled shaft and the surrounding materials. For design of the drilled shaft foundations, we have assumed that a minimum concrete compressive strength of 4,000 pounds per square inch (psi) will be specified and a nominal longitudinal reinforcing steel of about 1% of the cross-sectional area of the drilled shaft will be used.

The load bearing capacities of the drilled shaft will depend largely on the relative density of the soils within the bearing strata. Because local variations in the subsurface materials likely will occur, it is imperative that our representative is present during the shaft drilling operations to confirm the subsurface conditions encountered during the drilled shaft construction and to observe the installation of drilled shaft. In addition, contract documents should include provisions (unit prices) for additional drilling and extension of the drilled shaft during construction to account for unforeseen subsurface conditions.

Based on our evaluation of the subsurface conditions and the foundation design parameters, we anticipate the drilled shaft installation for the project will require an experienced drilled shaft subcontractor to install the drilled shaft foundations. The subsequent subsections address the design and construction of the drilled shaft foundation, which include the following:

- Lateral Load Resistance
- Foundation Settlements
- Drilled Shaft Construction Considerations

Lateral Load Resistance

Lateral loads imposed on the new light poles may be resisted by the lateral load capacity of the drilled shaft. In general, lateral load resistance of the drilled shaft is a function of the stiffness of the surrounding soil, the stiffness of the drilled shaft, allowable deflection at the top of shaft, and induced moment in the shaft. The lateral load analyses were performed using the program LPILE-plus for Windows, which is a microcomputer adaptation of a finite difference, laterally loaded drilled shaft program originally developed at the University of Texas at Austin. The program solves for deflection and bending moment along a drilled shaft under lateral loads as a function of depth. The analysis was carried out with the use of non-linear "p-y" curves to represent soil moduli. The lateral deflection was then computed using the appropriate soil moduli at various depths.

Based on the structural loads provided, the following table summarizes the anticipated lateral deflection and induced moment for the new light pole drilled shaft foundations.

SUMMARY OF LATERAL LOAD ANALYSES

Shaft Length	Lateral Deflection (inches)	Max. Induced Moment (kip-feet)	Depth to Max. Moment (feet)
10 feet	0.24	21.2	1.6

NOTE: Analyses based on concrete compressive strength of 4,000 psi and a minimum of 1% longitudinal steel reinforcement.

Foundation Settlements

Settlement of the drilled shaft foundation will result from elastic compression of the shaft and subgrade response of the foundation embedded in the subsurface soils. Total settlements of the drilled shafts are estimated to be less than 0.5 inches. We believe a significant portion of the settlement is elastic and should occur as the loads are applied.

Drilled Shaft Construction Considerations

In general, the performance of drilled shaft depends significantly upon the contractor's method of installation and construction procedures. The following conditions would have a significant effect on the effectiveness and cost of the drilled shaft foundation.

The load bearing capacities of drilled shaft depend, to a significant extent, on the frictional resistance between the shaft and the surrounding soils. Therefore, proper construction techniques especially during the drilling operations are important. The

contractor should exercise care in drilling the shaft hole and in placing concrete into the drilled hole.

The subsurface materials consist of soft soils, stiff soils, tuff, and basalt formation. The soil profile may contain cobbles and boulders; therefore, some difficult drilling conditions may be encountered and should be expected in these subsurface conditions. In addition, very hard drilling conditions into the tuff and basalt formation likely will be encountered at the project site and should be expected. The drilled shaft contractor will need to have the appropriate equipment and tools to drill through the cobbles, boulders, and hard basalt formation, where encountered in the subsurface.

Based on the anticipated subsurface conditions, some loose granular materials and soft soils may be present at the site. Due to the presence of loose granular soils and soft soils, caving-in and/or sloughing of these materials likely will occur during the drilling operations. To reduce the potential for caving-in of the drilled hole, temporary casing of the drilled hole should be required during the drilled shaft installation to maintain the integrity of the drilled hole.

Drilling by methods utilizing drilling fluids may have a significant effect on the supporting capacity of the drilled shaft; therefore, use of drilling fluids for the drilling operations of the drilled shaft should be specifically accepted by Geolabs upon evaluation of the type of drilling fluids proposed.

A low-shrink concrete mix with high slump (7 to 9-inch slump range) should be used to provide close contact between the drilled shaft and the surrounding soils. Due to factors such as seasonal rainfall and perched water, groundwater may be encountered in the drilled holes. Concrete for the drilled shafts should be placed in a suitable manner to reduce the potential for segregation of the aggregates from the concrete mix. In addition, the concrete should be placed promptly after drilling (within 24 hours after drilling of the holes) to reduce the potential for softening of the sides of the drilled hole.

It is imperative for a Geolabs representative to be present at the project site to observe the drilling and installation of drilled shaft during construction. Although the drilled shaft is designed based primarily on skin friction, the bottom of the drilled hole should be relatively free of loose materials prior to placement of concrete. Therefore, it is necessary for Geolabs to observe the drilled shaft installation operations to confirm the assumed subsurface conditions.

IMPACT BARRIER FOUNDATIONS

In general, we recommend supporting the proposed impact barriers on a shallow foundation system bearing on the re-compacted on-site soils. Based on our field

exploration, we recommend utilizing the following values to evaluate the bearing support, sliding resistance, and passive pressure resistance of the planned retaining walls based on LRFD design methods.

SHALLOW FOUNDATIONS			
Description	**Extreme Event Limit State**	**Strength Limit State**	**Service Limit State**
Bearing Pressure	10,500 psf	4,700 psf	3,500 psf
Coefficient of Sliding Friction	0.45	0.36	N/A
Passive Pressure Resistance	350 pcf	175 pcf	N/A

In general, foundations should be embedded a minimum of 2 feet below the lowest adjacent finished grades. Foundations located next to utility trenches or easements should be embedded below a 45-degree imaginary plane extending upward from the bottom edge of the utility trench, or the footings should extend to a depth as deep as the inverts of the utility lines. This requirement is necessary to avoid surcharging adjacent below-grade structures with additional structural loads and to reduce the potential for appreciable foundation settlement.

Based on a service limit state bearing pressure of 3,500 pounds per square foot (psf), we estimate that foundation settlements under the anticipated design loads for the retaining wall foundations bearing on the stiff to very hard and dense fill soils to be less than 1 inch.

Lateral loads acting on the structure may be resisted by friction between the base of the foundation and the bearing soil and by passive earth pressure developed against the near-vertical faces of the embedded portion of the foundation. The values presented in the table above, expressed in pounds per square foot per foot of embedment (pcf), may be used to evaluate the passive pressure resistance for footings embedded and bearing on the stiff to very hard and dense fill soils. Unless covered by pavements or slabs, the passive pressure resistance in the upper 12 inches should be neglected.

RETAINING STRUCTURES

Where impact barriers are functioning as retaining structures, they should be designed to resist the lateral earth pressures due to the adjacent soils and surcharge effects. The recommended lateral earth pressures for design of retaining structures,

expressed in equivalent fluid pressures of pounds per square foot per foot of depth (pcf), are presented in the following table.

LATERAL EARTH PRESSURES FOR DESIGN OF RETAINING STRUCTURES			
Backfill Condition	**Earth Pressure Component**	**Active** (pcf)	**At-Rest** (pcf)
Level Backfill	Horizontal	34	53
	Vertical	None	None

The values provided in the table above assume that granular backfills will be used to backfill behind the retaining structures. It is assumed that the backfill behind retaining structures will be compacted to at least 95 percent relative compaction. In general, an active condition may be used for gravity retaining walls that are free to deflect by as much as 0.5 percent of the structure height. If the tops of the structures are not free to deflect beyond this degree, or are restrained, the retaining structures should be designed for the at-rest condition. These lateral earth pressures do not include hydrostatic pressures that might be caused by groundwater trapped behind the structures.

Surcharge stresses due to areal surcharges, line loads, and point loads within a horizontal distance equal to the depth of the retaining structures should be considered in the design. For uniform surcharge stresses imposed on the loaded side of the structure, a rectangular distribution with uniform pressure equal to 33 percent of the vertical surcharge pressure acting on the entire height of the structure, which is free to deflect (cantilever), may be used in design. For retaining structures that are restrained, a rectangular distribution equal to 50 percent of the vertical surcharge pressure acting over the entire height of the structures may be used for design. Additional analyses during design may be needed to evaluate the surcharge effects of point loads and line loads.

Dynamic Lateral Earth Pressures

Dynamic lateral earth forces due to seismic loading should be considered for impact barriers acting as retaining structures. An appropriately reduced safety factor may be used when dynamic lateral earth forces are accounted for in the design of the retaining structure.

Forces due to dynamic lateral earth pressures may be estimated using $10H^2$ pounds per linear foot of wall length for level backfill conditions, where H is the height of the wall in feet. The dynamic lateral earth forces are in addition to the static

lateral earth pressures provided above. The resultant force should be assumed to act through the mid-height of the wall. It should be noted that the dynamic lateral earth forces provided assume that the wall will be allowed to move laterally by up to about 1 to 2 inches in the event of an earthquake.

Drainage

Retaining structures should be well drained to reduce the build-up of hydrostatic pressures. A typical drainage system would consist of 1 to 2 cubic foot of permeable material, such as open-graded gravel (AASHTO M43, No. 67 gradation), wrapped with non-woven filter fabric (Mirafi 180N or equivalent) placed at each of the weep hole locations. The weep holes should be spaced not more than 6 feet apart.

Backfill behind the drainage zone should consist of the granular backfills compacted to at least 95 percent relative compaction as mentioned above. Unless covered by concrete slabs, the upper 12 inches of backfill should consist of relatively impervious materials to reduce the potential for appreciable water infiltration behind the retaining structures.

LIMITATIONS

The analyses and recommendations submitted herein are based, in part, upon information obtained from the as-built drawings. Variations of the subsurface conditions between and beyond the field data points may occur, and the nature and extent of these variations may not become evident until additional probing or construction is underway. If variations then appear evident, it will be necessary to re-evaluate the recommendations provided herein.

This report has been prepared for the exclusive use of Nakamura, Oyama and Associates, Inc. for specific application to the proposed Highway Lighting Improvements, Moanalua Freeway from Halawa Heights Off-Ramp to Middle Street Overpass on the Island of Oahu, Hawaii in accordance with generally accepted geotechnical engineering principles and practices. No warranty is expressed or implied.

This report has been prepared solely for the purpose of assisting the engineer in the project design. The owner/client should be aware that unanticipated soil and/or rock conditions are commonly encountered. Unforeseen subsurface conditions, such as soft deposits, hard layers, cavities, or perched groundwater, may occur in localized areas and may require additional probing or corrections in the field (which may result in construction delays) to attain a properly constructed project. Therefore, a sufficient contingency fund is recommended to accommodate these possible extra costs.

CLOSURE

If you have questions or need additional information, please contact our office.

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

August 30, 2017

Yoichi Ebisu
Owner
Y. Ebisu and Associates
1126 12th Avenue, Room 305
Honolulu, Hawaii 96816

Dear Mr. Ebisu:

Enclosed is the VARIANCE (Docket No. 17-NR-VN-28) for Community Noise Control which was granted on August 30, 2017. The Decision and Order specifies the conditions and restrictions that are applicable to your project.

Non-compliance with the conditions and restrictions of the Decision and Order may bring about additional restrictions or possible suspension of the variance. Should you have any questions relative to the variance, please do not hesitate to contact me at (808) 586-4700 or at james.toma@doh.hawaii.gov.

Sincerely,

James E. Toma
Noise Section Supervisor
Indoor and Radiological Health Branch

STATE OF HAWAII
DEPARTMENT OF HEALTH

In the Matter of the Application For Variance for: Y. EBISU AND ASSOCIATES Noise – Highway Lighting Improvements Along Moanalua Freeway Between the Halawa Heights Off-Ramp and the Middle Street Overpass, Honolulu, Oahu.	)	Docket No. 17-NR-VN-28 V-979

DECISION AND ORDER

Pursuant to Chapter 342F, Hawaii Revised Statutes (H.R.S.), and Chapter 11-46, Hawaii Administrative Rules (H.A.R.), Community Noise Control; and based upon the application and review by the Indoor and Radiological Health Branch, the variance request from the provisions of Section 11-46-6(a), H.A.R., is hereby GRANTED with the following restrictions and conditions:

1. The variance shall be granted to conduct highway lighting improvements along the Moanalua Freeway between the Halawa Heights Off-Ramp and the Middle Street Overpass (MP 1.12 to MP 4.09), Honolulu, Oahu.

2. The variance shall be granted from May 1, 2018 to August 31, 2019 (excluding holidays).

3. The variance shall be granted for the following days/times:

Sunday	8:00 p.m. to midnight
Monday to Thursday	midnight to 4:00 a.m. and 8:00 p.m. to midnight.
Friday	midnight to 4:00 a.m.

4. The variance shall be granted with the following restriction:

   The use of the *mounted impact hammer (hoe ram)*, *jackhammer*, *pavement breaker*, *rivet buster/chipping gun*, *sand blasting equipment*, *chain saw*, *concrete saw*, *rail saw*, *cold planning machine* and *rock drill* shall be prohibited after midnight within 500 feet of residences.

5. The applicant shall notify the Indoor and Radiological Health Branch as to the date and time of any variance hour activity as soon as the dates are confirmed, and when the project is completed.

6. Kaiser Permanente Moanalua Medical Center, residents and businesses that may be impacted by the activity shall be given sufficient notice regarding the project. The notification for the planned nighttime activity shall contain the name and telephone number of the job-site inspector. In addition, a copy of any notifications, as well as progress reports shall be sent to the Indoor and Radiological Health Branch.

7. The applicant shall make every effort to minimize noise emanating from the project.

8. The use of reverse signal alarms shall be prohibited from 8:00 p.m. to 7:00 a.m. Alternative methods such as utilizing a ground guide for signaling shall be employed.

9. Traffic noise from heavy vehicles travelling to and from the project site shall be minimized near residences.

10. The applicant shall have a job-site inspector to whom immediate complaints can be forwarded for prompt response, and who shall have the general responsibility of monitoring quiet work procedures.

11. If the noise level is such that numerous complaints are received by the Department, the applicant shall cease operations upon receipt of an order and complete the project during hours on weekdays and weekends as directed.

12. Pursuant to Section 342F-5(d)(3), H.R.S., the applicant shall be required to perform noise sampling during the variance hours and report the results of such sampling to the Indoor and Radiological Health Branch.

13. Should the duration of the project continue beyond the expiration date, the applicant shall submit a request for extension along with an updated work schedule prior to August 31, 2019.

DATED: Honolulu, Hawaii, AUG 30 2017.

Lynn M Nakasone

LYNN M. NAKASONE
Environmental Health Program Administrator
Environmental Health Services Division