STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS

Land Development Division

December 9, 2020
Date

ADDENDUM NO. 5
TO
INVITATION FOR BIDS
IFB-21-HHL-009

HONOMU SUBSISTENCE AGRICULTURAL SUBDIVISION, PHASE 1

Notice to All Prospective Offerors

This addendum is hereby made a part of the contract documents for Honomu Subsistence Agricultural Subdivision, Phase 1, IFB-21-HHL-009, and it shall amend the said contract documents as detailed within this Addendum document.

APPROVED:

Stewart Matsunaga, Acting Administrator
Land Development Division
Department of Hawaiian Home Lands

Please execute and immediately return the receipt below to the Department of Hawaiian Home Lands via facsimile to: **(808) 620-9299, Mr. Bryan Toda, Land Development Division, or scan and E-mail to: Bryan.toda@hawaii.gov.**

Receipt of Addendum No. 5 for Honomu Subsistence Agricultural Subdivision, Phase 1, Invitation for Bids No.: IFB-21-HHL-009, is hereby acknowledged.

Signature: _____ _____
Print Name: Title

_____ _____
Name of Firm/Company Date

ADDENDUM NO. 5

IFB-21-HHL-009
Honomu Subsistence Agricultural Subdivision, Phase 1

This Addendum No. 5 shall incorporate the following amendments to IFB-21-HHL-009:

1. Bid Schedule
   The following amendments will be made to the bid schedule.

   December 17, 2020, 4:00 PM:
   Bidders written questions due

   January 12, 2021, 10:00 AM:
   Bid Opening

2. Soils Investigation Report
   The attached Soils Investigation Technical Memo is added to the bid documents for additional information.

3. Bid Offer Form
   The attached Bid Offer Form, Addendum #5 shall replace the previous Bid Offer Form, Addendum #2 in its entirety.

4. Responses to RFIs
   See responses to RFIs submitted in writing.

5. Construction Plans
   The attached Plan Sheet 4, C-2.0 shall replace the previous Plan Sheet 4, C-2.0.

Kokua Geotech LLC
Soil and Foundation Engineering

TECHNICAL MEMORANDUM

PROJECT: Honomu Subsistence Agriculture Subdivision, Phase 1
TMK: (3) 2-8-011: 011
Honomu, Island of Hawaii

PROJECT NO.: 111620-00
DATE: November 30, 2020
FROM: Tim Lin, P.E.

SUBJECT: Preliminary Geotechnical Recommendations

TO: Okahara and Associates, Inc.
ATTN.: Mr. Bruce K. Meyers
EMAIL: bmeyers@okahara.com

As requested, this technical memorandum contains our findings and preliminary geotechnical recommendations in support of the design of the *Honomu Subsistence Agriculture Subdivision, Phase 1* project. The preliminary geotechnical recommendations presented herein are based on our recently completed field exploration program, pending the results from our ongoing laboratory testing program. A detailed summary of our findings and recommendations will be contained in our geotechnical engineering report for the project. The final report should be consulted when it becomes available.

Project Considerations

The Honomu Subsistence Agriculture Subdivision, Phase 1 project is generally located at the northeast end of the Akaka Falls Road in Honomu on the Island of Hawaii. Based on the information provided, we understand the project generally includes 18 agricultural lots, access Roads "A" through "D", and a new drainage system for the on-site disposal of storm water runoff.

Based on the grading plan provided, we anticipate cuts and fills up to about 8 feet deep/thick will be required to achieve the finished design grades along the planned access roads for the project. We understand minimal grading work is anticipated for the lots. In addition, four inlet box/drywell structures are anticipated along Road "A" with planned invert depths of approximately 20 feet below the finished grade.

We understand the planned pavement section along Road "A" generally consists of 3 inches of asphaltic concrete, 4 inches of aggregate base course, and 6 inches of select borrow subbase placed over a compacted subgrade. In addition, paved shoulder areas of Road "A" are anticipated to consist of 2 inches of asphaltic concrete and 6 inches of aggregate base course placed over a compacted subgrade. Conversely, the planned pavement sections along Roads "B", "C", and "D" generally consist of 1.5 inches of asphaltic concrete and 4 inches of aggregate base course placed over a compacted subgrade.

General Site Geology

The Island of Hawaii was formed by the eruptive activity of five major shield volcanoes: Kohala, Mauna Kea, Hualalai, Mauna Loa, and Kilauea. Kohala has been long extinct while Mauna Kea has had some activity during recent geologic time. Hualalai last erupted in Year 1801 and Mauna Loa and Kilauea are both considered to be active. The project site is generally located on the eastern flank of Mauna Kea on the Island of Hawaii.

Based on the geologic maps of the Island of Hawaii (Sherrod and others, 2007), the general area of the project site is underlain by Lava Flows (Qhm) of the Hamakua Volcanics Series. In general, these rocks are generally covered by a layer of palagonitized ash (Pahala Ash) that may reach a thickness of roughly 25 feet along the Wailuku River above Hilo and then gradually thins northward to roughly 6 feet near Paauilo. This ash soil typically has very high in-situ moisture contents and is generally thixotropic in nature (i.e., the soil loses shear strength when remolded) due to transient increases in soil pore pressure.

The basalt rock formation observed near the project site generally appears to be of pahoehoe type lava flow, which is characterized by a smooth, rope-like or billowy surface and an internal structure of vesicular (porous) rock. These basalt formations are typically layered with thin flows of dense basalts and scoria basalts. Clinker layers are also commonly found interbedded between the pahoehoe flows. In-situ weathering of the basalt formation has yielded layers of soft, highly weathered basalts, interbedded with more competent, hard basalt formation.

Field Exploration

We explored the subsurface conditions at the project site by drilling and sampling seven borings, designated as Boring Nos. 1 through 7, extending to depths ranging from about 6.5 to 21.5 feet below the existing ground surface. The borings were drilled utilizing a truck-mounted drill rig equipped with continuous flight augers. The approximate boring locations are shown on the Site Plan, Plate 2.

Our engineer monitored the drilling operations on a near continuous (full-time) basis and classified the materials encountered in the borings by visual and textural examination in the field in general accordance with ASTM D2488. These classifications were further reviewed visually and by testing in the laboratory. Soils were classified in general accordance with ASTM D2487 and the Unified Soil Classification System. Graphic representations of the materials encountered are presented on the Logs of Borings, Plates 3 through 10.

Soil samples were obtained in general accordance with ASTM D1586 by driving a 2-inch OD standard penetration sampler with a 140-pound hammer falling 30 inches. In addition, relatively undisturbed soil samples were obtained in general accordance with ASTM D3550 by driving a 3-inch OD Modified California sampler using the same hammer and drop. The blow counts needed to drive the sampler the second and third 6 inches of an 18-inch drive are shown as the “Sampling

Resistance" on the Logs of Borings at the appropriate sample depths. The blow counts may need to be factored to obtain the Standard Penetration Test (SPT) blow counts.

Pocket penetrometer tests were performed on selected cohesive soil samples retrieved in the field. The pocket penetrometer test provides an indication of the unconfined compressive strength of the sample. Pocket penetrometer test results are summarized on the Logs of Borings at the appropriate sample depths.

Subsurface Conditions

Our borings generally encountered volcanic ash soils overlying saprolitic soils and hard basalt rock formation extending down to the maximum depth explored of about 21.5 feet below the existing ground surface. The volcanic ash soils were encountered to depths ranging from about 11 to 13 feet below the existing ground surface and generally consisted of very soft to medium stiff clayey/sandy silt with varying amounts of sand and gravel.

Saprolitic soils were encountered underlying the volcanic ash soils to depths ranging from about 20 to 21.5 feet below the existing ground surface and generally consisted of very stiff to hard clayey silt with sand and gravel and medium dense silty gravel with sand. Hard basalt rock formation was encountered underlying the saprolitic soils in Boring No. 3 only at a depth of about and 20 feet and extended down to the maximum depth explored of about 20.8 feet below the existing ground surface.

We did not encounter groundwater in the borings at the time of our field exploration. However, it should be noted that groundwater levels are subject to change due to rainfall, time of year, seasonal precipitation, surface water runoff, and other factors.

Seismic Design Considerations

Based on the International Building Code, 2006 Edition (IBC 2006) and American Society of Civil Engineers Standard ASCE/SEI 7-10 (ASCE 7-10), the project site may be subjected to seismic activity, and seismic design considerations will need to be addressed. Based on the subsurface materials encountered at the project site and the geologic setting of the area, we anticipate the project site may be classified from a seismic analysis standpoint as being a "Stiff Soil Profile" site corresponding to a Site Class D soil profile type based on the 2006 International Building Code (Table No. 1613.5.2).

Based on Site Class D, the following seismic design parameters were estimated and may be used for seismic analysis of the project.

SUMMARY OF SEISMIC DESIGN PARAMETERS	
Mapped MCE Spectral Response Acceleration, S_S	1.352g
Mapped MCE Spectral Response Acceleration, S_1	0.545g
Site Class	D
Site Coefficient, F_a	1.000
Site Coefficient, F_v	1.500
Design Spectral Response Acceleration, S_{DS}	0.902g
Design Spectral Response Acceleration, S_{D1}	0.545g
Peak Ground Acceleration, PGA	0.500g
Site Modified Peak Ground Acceleration, PGA_M	0.500g

Based on the subsurface conditions encountered, the phenomenon of soil liquefaction is not a design consideration for this project site.

DISCUSSION AND RECOMMENDATIONS

Based on the results of our field exploration, the project site is generally underlain by volcanic ash soils overlying saprolitic soils and hard basalt rock formation extending down to the maximum depth explored of about 21.5 feet below the existing ground surface. The volcanic ash soils were encountered to depths ranging from about 11 to 13 feet below the existing ground surface and generally consisted of very soft to medium stiff clayey/sandy silt with varying amounts of sand and gravel.

Saprolitic soils were encountered underlying the volcanic ash soils to depths ranging from about 20 to 21.5 feet below the existing ground surface and generally consisted of very stiff to hard clayey silt with sand and gravel and medium dense silty gravel with sand. Hard basalt rock formation was encountered underlying the saprolitic soils in Boring No. 3 only at a depth of about and 20 feet and extended down to the maximum depth explored of about 20.8 feet below the existing ground surface.

We did not encounter groundwater in the borings at the time of our field exploration. However, it should be noted that groundwater levels are subject to change due to rainfall, time of year, seasonal precipitation, surface water runoff, and other factors. In addition, subterranean seepage may be encountered during construction due to high rainfall in the area, sloping terrain and relict structure in the saprolitic soils and basalt rock formation encountered.

The surface volcanic ash soils encountered at the site, locally referred to as Pahala Ash, generally consist of soft friable clayey silts extending to depths ranging from about 11 to 13 feet below the existing ground surface. In general, volcanic ash soils are characterized as having very high in-situ moisture contents and are highly compressible. In addition, volcanic ash soils exhibit thixotropic properties (i.e., the material loses strength) when disturbed by remolding (during earthwork operation) or when subjected to earthquake vibrations (which can be expected on the Big Island) or dynamic loads (from vehicular traffic).

Based on the subsurface conditions encountered, we believe the near-surface volcanic ash soils would not provide adequate subgrade support for the new pavements without appreciable settlements under the anticipated vehicular loads. Due to the thickness of volcanic ash soils anticipated underlying the planned roadway areas (up to about 13 feet thick in our borings), we believe completely removing the compressible volcanic ash soils may not be feasible and/or practical. Therefore, we recommend placing the new pavement sections on a minimum 2-foot thick layer of structural fill material.

Alternatively, a stabilization layer generally consisting of a minimum of 12 inches of well-compacted aggregate subbase material with a layer of triaxial geogrid, such as Tensar TriAx Grid TX7 or equivalent, may be used in cut-to-grade areas of the roadway subgrade in lieu of the minimum 2-foot thick layer of structural fill material. In general, ,we recommend placing the layer of triaxial geogrid at the mid-point of the stabilization layer. In addition, a non-woven geotextile fabric, such as Mirafi 180N or equivalent, should be provided below the 12-inch thick stabilization layer to reduce the potential for penetration of the granular fill material into the soft volcanic ash soils anticipated underlying these areas.

Due to the soft consistency and high in-situ moisture contents, our experience in the past with similar material suggests that the contractor will have a difficult time when working with these volcanic ash soils during the earthwork operations. Therefore, we generally recommend utilizing the on-site volcanic ash soils as a source of fill materials in landscape areas only.

In general, fills required for the project should consist of imported structural fill materials. Structural fill should be imported, generally well-graded granular materials less than 6 inches in maximum dimension with sufficient fines to prevent the occurrence of voids in the compacted mass. Consideration also should be given to limiting the maximum particle size (maximum particle size of 6 inches) of the fill materials placed within utility line corridors (if known) to facilitate future excavations for utility line trenches.

Detailed discussion of these items and our geotechnical recommendations for design of site grading, pavement design, drainage systems, and other geotechnical aspects of the project are further discussed in the following sections.

Site Grading

Based on the grading plan provided, we anticipate cuts and fills up to about 8 feet deep/thick will be required to achieve the finished design grades along the planned access roads for the project. In addition, we understand minimal grading work is anticipated for the lots. Site grading items that are addressed in the subsequent subsections include the following:

1. Site and Subgrade Preparation
2. Volcanic Ash Soils
3. Excavations
4. Fill Materials

5. Fill Compaction Requirements
6. Cut and Fill Slopes

A Kokua Geotech LLC representative should monitor site grading operations to observe whether undesirable materials are encountered during the excavation and scarification process, and to confirm whether the exposed soil conditions are similar to those assumed in this report.

Site Preparation

At the on-set of earthwork, the area within the contract grading limits should be cleared and grubbed thoroughly. Surface vegetation, debris, deleterious materials, and other unsuitable materials should be removed and disposed of properly off-site. Volcanic ash soils encountered in cut areas may be stockpiled and re-used as a source of fill materials in landscape areas only.

Soft and yielding areas encountered during clearing and grubbing below areas designated to receive fill should be over-excavated to expose firm material, and the resulting excavation should be backfilled with well-compacted structural fill material. The excavated soft soils should be properly disposed of off-site and/or used in landscape areas, where appropriate. A Kokua Geotech LLC field representative should evaluate the need for over-excavation due to soft subgrade soil conditions.

Volcanic Ash Soils

As previously mentioned, the surface volcanic ash soils encountered at the site, locally referred to as Pahala Ash, consist of soft friable clayey silts generally extending to depths ranging from about 11 to 13 feet below the existing ground surface. In general, volcanic ash soils are characterized as having very high in-situ moisture contents and are highly compressible.

Volcanic ash soil, when wetted, generally has relatively low strength characteristics and is highly susceptible to erosion in a dry state. In addition, if the in-situ moisture contents are high enough, they become thixotropic, i.e., they lose strength temporarily when remolded and/or disturbed. Therefore, appropriate soil erosion protection, dust control provisions, and construction procedures should be observed and implemented during the earthwork operations when volcanic ash soils are involved. In addition, volcanic ash soils may exhibit thixotropic properties when subjected to earthquake vibrations (which can be expected on the Big Island) or dynamic loads (from vehicular traffic).

Due to the soft consistency and high in-situ moisture contents, our experience in the past with similar material suggests that the contractor will have a difficult time when working with these volcanic ash soils during the earthwork operations. Therefore, we generally recommend utilizing the on-site volcanic ash soils as a source of fill materials in landscape areas only. We believe the volcanic ash soils may be left in place in new fill areas and pavement areas, provided the volcanic ash soils are capped with a minimum 2-foot thick layer of structural fill material or the 12-inch thick stabilization layer with geogrid described herein.

Excavations

All excavations should be made in accordance with applicable Occupational Safety and Health Administration (OSHA) and state regulations. The contractor should determine the method and equipment to be used for the excavations, subject to practical limits and safety considerations. In addition, the excavations should comply with the applicable federal, state, and local safety requirements. The contractor should be responsible for trench shoring design and installation.

Based on the information provided, we envision excavations for the project will generally consist of excavations for the roadway construction and drainage system installation. Based on our borings and field observations, these excavations will likely encounter very soft to medium stiff volcanic ash soils overlying clayey saprolitic soils that grade to basalt rock formation with increased depth. Although not encountered, boulders and cobble clusters may also be encountered in the planned excavations.

It is anticipated that most of the material may be excavated with normal heavy excavation equipment. However, excavations encountering large boulders and hard basalt rock formation may require the use of hoerams. Contractors should be encouraged to examine the site conditions and the subsurface data to make their own reasonable and prudent interpretation.

Fill Materials

In general, fills required for the project should consist of imported structural fill materials. Structural fill should be imported, generally well-graded granular materials less than 6 inches in maximum dimension with sufficient fines to prevent the occurrence of voids in the compacted mass. Consideration also should be given to limiting the maximum particle size (maximum particle size of 6 inches) of the fill materials placed within utility line corridors (if known) to facilitate future excavations for utility line trenches. In general, excavated on-site volcanic ash soils may be used as a source of fill materials in landscape areas only.

Fill Compaction Requirements

Structural fill materials, consisting of granular fill materials with a maximum particle size of 6 inches, should be moisture-conditioned to above the optimum moisture content, placed in level lifts not exceeding 12 inches in loose thickness, and compacted to a minimum of 90 percent relative compaction. In addition, the final lift (finished subgrade) of structural fill materials placed in areas subjected to vehicular traffic should be compacted to a minimum of 95 percent relative compaction.

Relative compaction 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 ASTM D1557 test procedures. Optimum moisture is the water content (percentage by dry weight) corresponding to the maximum dry density.

Site grading operations should be observed by a representative from Kokua Geotech LLC. It is important that a representative from our office observe the site grading operations to evaluate whether undesirable materials are encountered during the scarification process and whether the exposed soil conditions are similar to those encountered in our field exploration.

Cut and Fill Slopes

Permanent fill slopes may be designed with a slope inclination of two horizontal to one vertical (2H:1V) or flatter. This assumes that the fill slopes will be constructed using generally well-graded granular materials (structural fill materials). Fills placed on slopes steeper than 5H:1V should be keyed and benched into the existing slope to provide stability of the new fill against sliding. The filling operations should start at the lowest point and continue up in level horizontal compacted layers in accordance with the above fill placement recommendations.

Fill slopes should be constructed by overfilling and cutting back to the design slope ratio to obtain a well-compacted slope face. Track-rolling of slopes should not be permitted. If over-cutting of a slope occurs, keying and benching requirements should be implemented instead of backfilling the slope to the design grade with sliver fills.

Based on the grading plan provided, we understand cut slopes up to about 8 feet high are planned for the project with maximum slope inclinations of 2H:1V. Based on the borings drilled, it appears that most of the cut slopes would expose volcanic ash soils consisting of very soft to medium stiff clayey silt with high in-situ moisture contents. In general, we believe that the proposed cut slope grading would not be stable in terms of long-term slope stability with a slope inclination of 2H:1V and will also be susceptible to slope erosion. Therefore, we recommend cut slopes exposing volcanic ash soils be designed based on a slope inclination of 3H:1V or flatter.

Surface water should be diverted away from the tops of slopes. In addition, slope planting or other means of slope protection should be provided as soon as possible to reduce the potential for significant erosion of the finished slopes.

Pavement Design

Based on the information provided, we understand the planned pavement section along Road “A” generally consists of 3 inches of asphaltic concrete, 4 inches of aggregate base course, and 6 inches of select borrow subbase placed over a compacted subgrade. In addition, paved shoulder areas of Road “A” are anticipated to consist of 2 inches of asphaltic concrete and 6 inches of aggregate base course placed over a compacted subgrade. Conversely, the planned pavement sections along Roads “B”, “C”, and “D” generally consist of 1.5 inches of asphaltic concrete and 4 inches of aggregate base course placed over a compacted subgrade.

In general, we anticipate vehicle loading for the project primarily will consist of passenger vehicles, light pick-up trucks, and occasional large trucks. We have assumed that the pavement subgrade will consist of the on-site volcanic ash soils encountered in our borings. As discussed

above, we believe the near-surface volcanic ash soils would not provide adequate subgrade support for the new pavements without appreciable settlements under the anticipated vehicular loads.

Due to the thickness of volcanic ash soils anticipated underlying the planned roadway areas (up to about 13 feet thick in our borings), we believe completely removing the compressible volcanic ash soils may not be feasible and/or practical. Therefore, we recommend placing the new pavement sections on a minimum 2-foot thick layer of structural fill material. Structural fill should be imported, generally well-graded granular materials less than 6 inches in maximum dimension with sufficient fines to prevent the occurrence of voids in the compacted mass.

Alternatively, a stabilization layer generally consisting of a minimum of 12 inches of well-compacted aggregate subbase material with a layer of triaxial geogrid, such as Tensar TriAx Grid TX7 or equivalent, may be used in cut-to-grade areas of the roadway subgrade in lieu of the minimum 2-foot thick layer of structural fill material. In general, ,we recommend placing the layer of triaxial geogrid at the mid-point of the stabilization layer. In addition, a non-woven geotextile fabric, such as Mirafi 180N or equivalent, should be provided below the 12-inch thick stabilization layer to reduce the potential for penetration of the granular fill material into the soft volcanic ash soils anticipated underlying these areas.

Based on these assumptions, we believe the following pavement sections may be used for preliminary design purposes:

Flexible Pavements – Road "A"
3.0-Inch Asphaltic Concrete
4.0-Inch Aggregate Base Course (95 Percent Relative Compaction)
6.0-Inch Aggregate Subbase Course (95 Percent Relative Compaction)
13.0-Inch Total Pavement Thickness on 2-foot thick layer of imported structural fill materials or 12-inch thick stabilization layer with geogrid

Flexible Pavements – Road "A" Shoulder Areas
2.0-Inch Asphaltic Concrete
6.0-Inch Aggregate Base Course (95 Percent Relative Compaction)
8.0-Inch Total Pavement Thickness on 2-foot thick layer of imported structural fill materials or 12-inch thick stabilization layer with geogrid

Flexible Pavements – Roads "B", "C", and "D"
2.0-Inch Asphaltic Concrete
6.0-Inch Aggregate Base Course (95 Percent Relative Compaction)
8.0-Inch Total Pavement Thickness on 2-foot thick layer of imported structural fill materials or 12-inch thick stabilization layer with geogrid

Structural fill materials, consisting of granular fill materials with a maximum particle size of 6 inches, should be moisture-conditioned to above the optimum moisture content, placed in level lifts not exceeding 12 inches in loose thickness, and compacted to a minimum of 90 percent relative compaction. In addition, the final lift (finished subgrade) of structural fill materials placed in areas subjected to vehicular traffic should be compacted to a minimum of 95 percent relative compaction.

Aggregate base and subbase course materials should be compacted to at least 95 percent relative compaction and meet the material requirements as specified in the Standard Specifications for Public Works Construction, County of Hawaii, September 1986. CBR and field density tests should be performed on the actual materials used during construction to confirm the adequacy of the above section. The recommended section also assumes that adequate drainage will be provided for the paved areas.

As an additional check for stability and uniform compaction, we recommend proof-rolling the top of the 2-foot thick layer of structural fill material prior to placing the aggregate base/subbase course materials using a pneumatic tired vehicle with a gross vehicle weight of at least 30,000 pounds, such as a fully-loaded water truck.

The equipment used for proof-rolling should be operated at a speed of about 300 feet per minute and make at least two passes over each area designated for proof-rolling. Proof-rolling should also be performed on successive lifts of aggregate base/subbase course materials. Areas with excessive rutting and/or pumping should be over excavated to expose firm material, and the resulting excavation should be backfilled with well-compacted aggregate base course material.

Paved areas should be sloped, and drainage gradients should be maintained to carry the surface water off the site. Surface water ponding should not be allowed on the site during or after construction. Where concrete curbs are used to isolate landscaping in or adjacent to the pavement areas, we recommend that the curbs be extended a minimum of 2 inches into the soils below the subgrade to reduce the potential for appreciable landscape water migration into the pavement section.

Field Permeability Testing

Two field permeability tests were conducted in the Boring Nos. 3 and 5 drilled at the site at depths of about 20 feet below the existing ground surface to evaluate the infiltration characteristics of the subsurface materials encountered at the proposed drywell locations. Falling head permeability tests were performed in the drilled borings to determine the average hydraulic conductivity of the underlying subsurface materials. In general, clear water was introduced into the boreholes and the drop of the water level in the boreholes were measured along with time.

The field data for the falling head test data were analyzed using formulae shown in "Seepage, Drainage and Flow Nets, 3rd Edition", Cedergren, 1989. Based on the falling head field permeability test results, the estimated hydraulic conductivity (k) at each test location is summarized in the following table. The results of our field permeability tests are presented on Plates 11 and 12.

FIELD PERMEABILITY TEST RESULTS			
Test Location	**Testing Depth** (feet)	**Estimated Hydraulic Conductivity** (feet/minute)	**Estimated Hydraulic Conductivity** (centimeters/second)
B-3	0 – 20	7.9×10^{-4}	4.0×10^{-4}
B-5	0 – 20	1.2×10^{-2}	5.9×10^{-3}

Using an average coefficient of permeability of 6.4×10^{-3} feet per minute from the falling head tests, preliminary calculations based on formulae presented in "Seepage, Drainage and Flow Nets, 3rd Edition", Cedergren, 1989, indicate capacities of about 205, 270, and 335 gallons per minute (gpm) for 5-foot diameter wells with depths of 20, 30, and 40 feet, respectively, and filled with a constant head to a depth of about 1.5 feet below the top of the drywell.

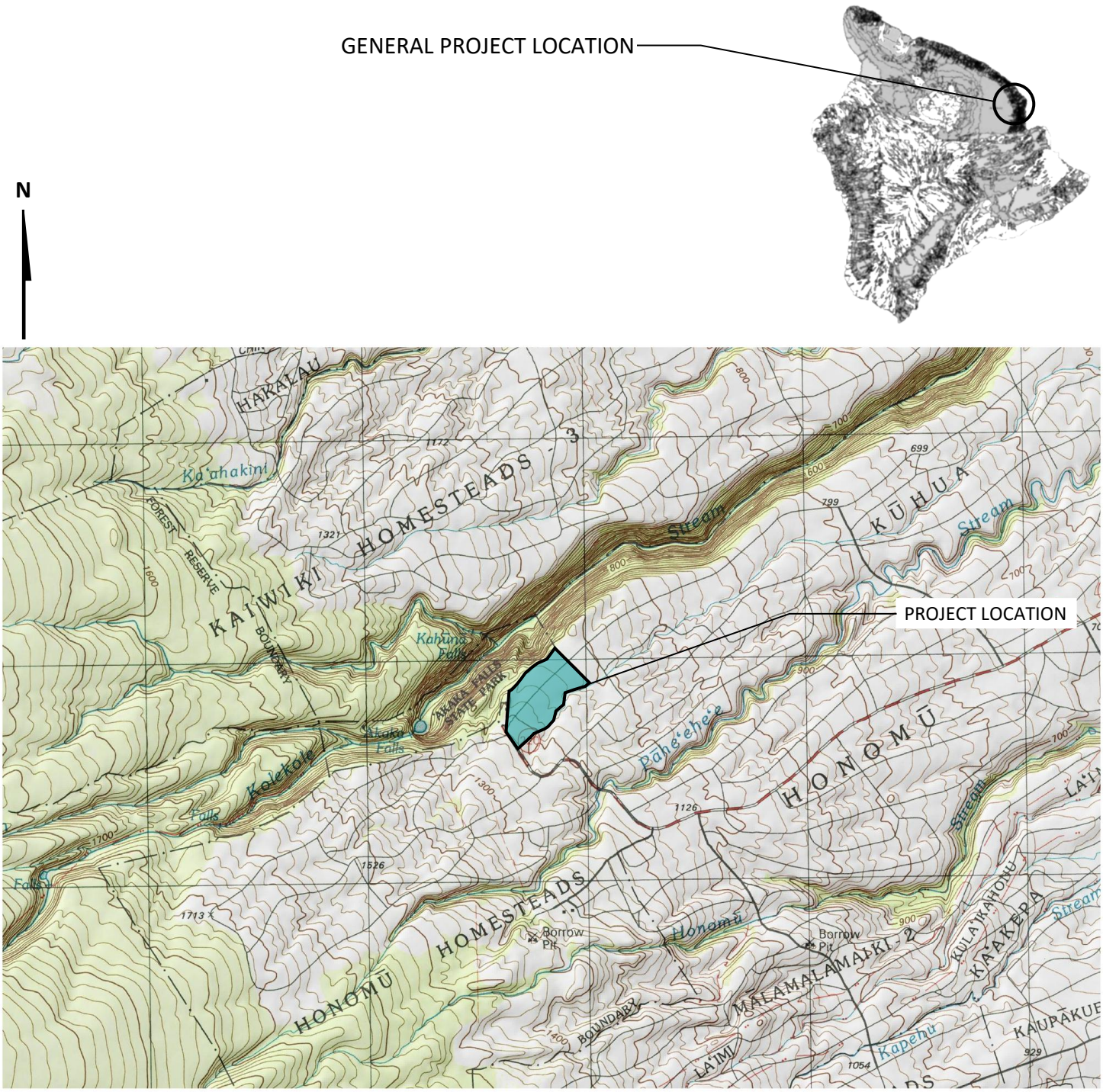
The table below provides estimated capacities for various well configurations. These estimated capacities do not account for head losses through the drywell rings or gravel pack and do not allow for long term clogging. Suitable factor of safety should be included in the drywell design.

ESTIMATED DRYWELL CAPACITIES			
Drywell Diameter (feet)	**20-Foot Deep Drywell** (gpm)	**30-Foot Deep Drywell** (gpm)	**40-Foot Deep Drywell** (gpm)
5	205	270	335
Notes: 1. All capacities in gallons per minute (gpm) 2. Assumed coefficient of permeability of 6.4×10^{-3} feet per minute 3. Assumed wells filled to a depth of about 1.5 feet below the top of the drywell			

It should be emphasized that the hydraulic conductivity of the on-site materials is highly variable due to the varying amounts of sand and gravel in the underlying soils. We recommend performance of injection tests in the constructed drywells to confirm the design capacities.

Closure

If you have questions regarding the content of this memorandum, please contact our office.

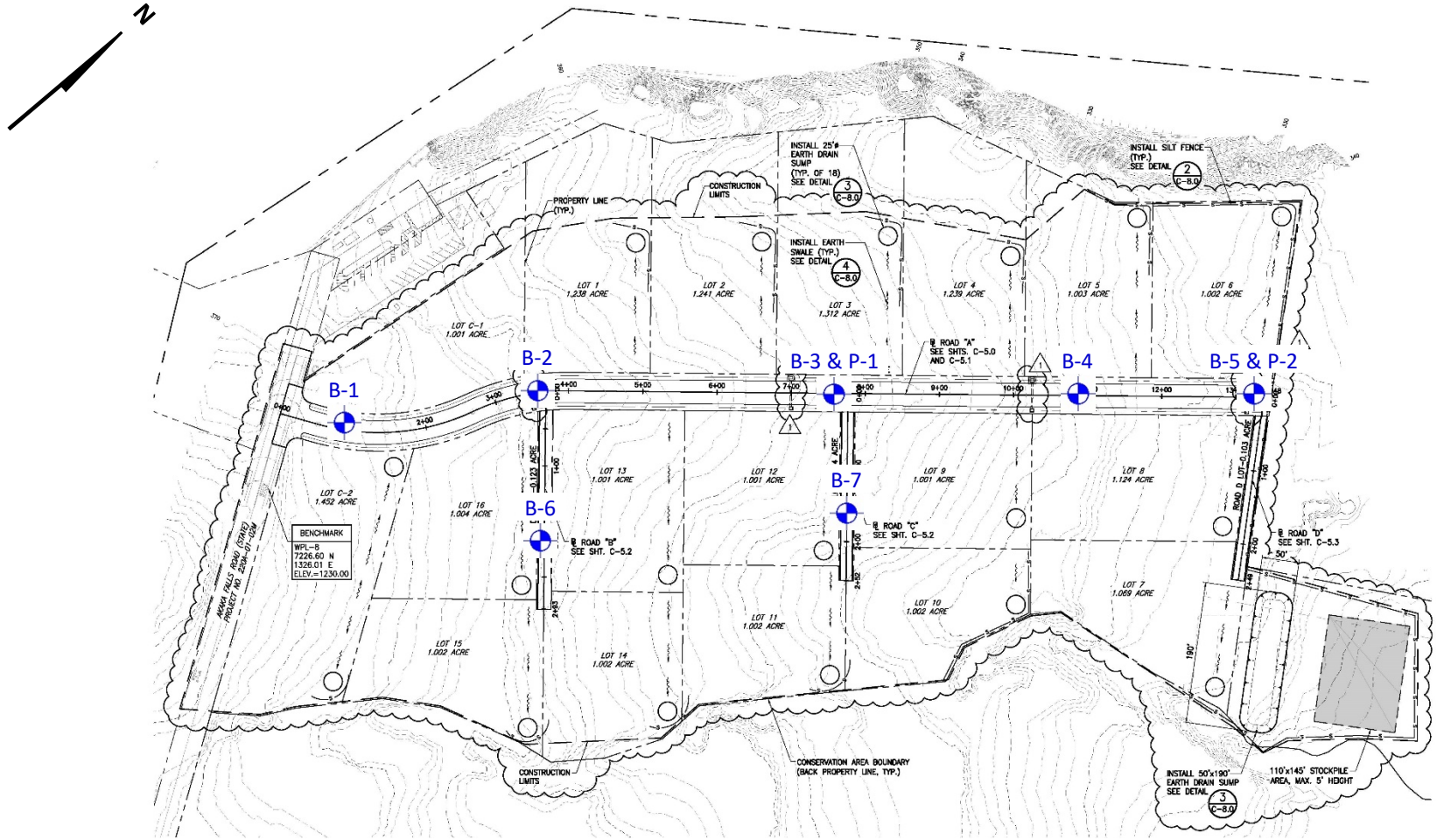


PROJECT LOCATION MAP

HONOMU SUBSISTENCE AGRICULTURE
SUBDIVISION, PHASE 1
TMK: (3) 2-8-011: 011
HONOMU, ISLAND OF HAWAII

Kokua Geotech LLC
Soil and Foundation Engineering

PROJECT NO.: 111620-00	**PLATE** 1
DATE: NOVEMBER 2020	



REFERENCE: GRADING, EROSION CONTROL AND SITE DRAINAGE PLAN
TRANSMITTED BY OKAHARA AND ASSOCIATES, INC. ON NOVEMBER 16, 2020

SCALE: 1 INCH = APPROX. 60 FEET

APPROXIMATE BORING AND PERCOLATION TEST LOCATION

SITE PLAN

HONOMU SUBSISTENCE AGRICULTURE
SUBDIVISION, PHASE 1
TMK: (3) 2-8-011: 011
HONOMU, ISLAND OF HAWAII

PROJECT NO.: 111620-00

DATE: NOVEMBER 2020

PLATE
2

Kokua Geotech LLC
Soil and Foundation Engineering

Project: Honomu Subsistence Agriculture Subdivision, Phase 1 Project Location: Honomu, Island of Hawaii Project Number: 111620-00	**Kokua Geotech LLC** 94-974 Pakela Street, Suite 109 Waipahu, HI 96797 (808) 397-6974	Log of Boring No. 1 Sheet 1 of 1

Date(s) Drilled **11/18/20**	Logged By **JL**	Checked By **AJF**
Drilling Method **CF Auger**	Drill Bit Size/Type **4-inch Solid Stem Auger**	Total Depth of Borehole **6.5 feet**
Drill Rig Type **Mobile B-53**	Drilling Contractor **Kokua Geotech LLC**	Approximate Surface Elevation **+1,216 feet MSL***
Groundwater Level and Date Measured **Not Encountered**	Sampling Method(s) **MCS & SPT**	Hammer Data **140 lbs. with 30-inch drop**
Borehole Backfill **Soil Cuttings and Gravel**	Location **See Site Plan (Plate 2)**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	U.S.C.S	Graphic Log	MATERIAL DESCRIPTION	Pocket Pen./Torvane, tsf	Water Content, %	Dry Unit Weight, pcf	Remarks and Other Tests
1216	0				ML		Brown CLAYEY SILT with sand, very soft, very moist (volcanic ash)				
			1	2							
							grades to soft				
			2	6							
1211	5										
			3	5							
							Boring terminated at approximately 6.5 feet below the existing ground surface				
							*Elevations of borings estimated from Grading, Erosion Control, and Site Drainage Plan transmitted by Okahara and Associates, Inc. on November 16, 2020				
1206	10										
1201	15										
1196	20										
1191	25										

C:\Users\ajfel\Desktop\Working\PROJECTS\2020 Series\111620-00.DHHL Honomu AG Subdivision\LOGS\DHHL Honomu AG Subdivision.bg4[KG 12-29-18.tpl]

PLATE 3

Project: Honomu Subsistence Agriculture Subdivision, Phase 1 Project Location: Honomu, Island of Hawaii Project Number: 111620-00	**Kokua Geotech LLC** 94-974 Pakela Street, Suite 109 Waipahu, HI 96797 (808) 397-6974	Log of Boring No. 2 Sheet 1 of 1

Date(s) Drilled **11/18/20**	Logged By **JL**	Checked By **AJF**
Drilling Method **CF Auger**	Drill Bit Size/Type **4-inch Solid Stem Auger**	Total Depth of Borehole **6.5 feet**
Drill Rig Type **Mobile B-53**	Drilling Contractor **Kokua Geotech LLC**	Approximate Surface Elevation **+1,198 feet MSL***
Groundwater Level and Date Measured **Not Encountered**	Sampling Method(s) **MCS & SPT**	Hammer Data **140 lbs. with 30-inch drop**
Borehole Backfill **Soil Cuttings and Gravel**	Location **See Site Plan (Plate 2)**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	U.S.C.S	Graphic Log	MATERIAL DESCRIPTION	Pocket Pen./Torvane, tsf	Water Content, %	Dry Unit Weight, pcf	Remarks and Other Tests
1198	0				ML		Brown CLAYEY SILT with sand, very soft to soft, very moist to wet (volcanic ash)				
			1	4							
							grades to medium stiff				
			2	8							
1193	5										
			3	6							
							Boring terminated at approximately 6.5 feet below the existing ground surface				
1188	10										
1183	15										
1178	20										
1173	25										

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Project: Honomu Subsistence Agriculture Subdivision, Phase 1 Project Location: Honomu, Island of Hawaii Project Number: 111620-00	**Kokua Geotech LLC** 94-974 Pakela Street, Suite 109 Waipahu, HI 96797 (808) 397-6974	Log of Boring No. 3 Sheet 1 of 1

Date(s) Drilled **11/19/20**	Logged By **JL**	Checked By **AJF**
Drilling Method **CF Auger**	Drill Bit Size/Type **4-inch Solid Stem Auger**	Total Depth of Borehole **20.8 feet**
Drill Rig Type **Mobile B-53**	Drilling Contractor **Kokua Geotech LLC**	Approximate Surface Elevation **+1,175 feet MSL***
Groundwater Level and Date Measured **Not Encountered**	Sampling Method(s) **MCS & SPT**	Hammer Data **140 lbs. with 30-inch drop**
Borehole Backfill **Soil Cuttings and Gravel**	Location **See Site Plan (Plate 2)**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	U.S.C.S	Graphic Log	MATERIAL DESCRIPTION	Pocket Pen./Torvane, tsf	Water Content, %	Dry Unit Weight, pcf	Remarks and Other Tests
1175	0				ML		Brown CLAYEY SILT with sand, soft, very moist to wet (volcanic ash)				
			1	4							
			2	4							
1170	5		3	2			grades to very soft				
1165	10		4	2							
					MH		Dark brown with multi-color mottling CLAYEY SILT with sand and decomposed gravel, stiff, very moist (saprolite)				
1160	15		5	44			grades to hard				
1155	20		6	20/3" 10/0" Ref.			Brownish gray with multi-color mottling BASALT, highly to moderately weathered, hard (basalt rock formation)				
							Boring terminated at approximately 20.8 feet below the existing ground surface				
1150	25										

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PLATE 5

Project: Honomu Subsistence Agriculture Subdivision, Phase 1 Project Location: Honomu, Island of Hawaii Project Number: 111620-00	**Kokua Geotech LLC** 94-974 Pakela Street, Suite 109 Waipahu, HI 96797 (808) 397-6974	Log of Boring No. 4 Sheet 1 of 1

Date(s) Drilled **11/18/20**	Logged By **JL**	Checked By **AJF**
Drilling Method **CF Auger**	Drill Bit Size/Type **4-inch Solid Stem Auger**	Total Depth of Borehole **6.5 feet**
Drill Rig Type **Mobile B-53**	Drilling Contractor **Kokua Geotech LLC**	Approximate Surface Elevation **+1,150 feet MSL***
Groundwater Level and Date Measured **Not Encountered**	Sampling Method(s) **MCS & SPT**	Hammer Data **140 lbs. with 30-inch drop**
Borehole Backfill **Soil Cuttings and Gravel**	Location **See Site Plan (Plate 2)**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	U.S.C.S	Graphic Log	MATERIAL DESCRIPTION	Pocket Pen./Torvane, tsf	Water Content, %	Dry Unit Weight, pcf	Remarks and Other Tests
1150	0				ML		Brown CLAYEY SILT with sand, soft, very moist to wet (volcanic ash)				
			1	4							
			2	2			grades to very soft to soft				
1145	5		3	2							
							Boring terminated at approximately 6.5 feet below the existing ground surface				
1140	10										
1135	15										
1130	20										
1125	25										

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Project: Honomu Subsistence Agriculture Subdivision, Phase 1 Project Location: Honomu, Island of Hawaii Project Number: 111620-00	**Kokua Geotech LLC** 94-974 Pakela Street, Suite 109 Waipahu, HI 96797 (808) 397-6974	Log of Boring No. 5 Sheet 1 of 1

Date(s) Drilled **11/19/20**	Logged By **JL**	Checked By **AJF**
Drilling Method **CF Auger**	Drill Bit Size/Type **4-inch Solid Stem Auger**	Total Depth of Borehole **21.5 feet**
Drill Rig Type **Mobile B-53**	Drilling Contractor **Kokua Geotech LLC**	Approximate Surface Elevation **+1,135 feet MSL***
Groundwater Level and Date Measured **Not Encountered**	Sampling Method(s) **MCS & SPT**	Hammer Data **140 lbs. with 30-inch drop**
Borehole Backfill **Soil Cuttings and Gravel**	Location **See Site Plan (Plate 2)**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	U.S.C.S	Graphic Log	MATERIAL DESCRIPTION	Pocket Pen./Torvane, tsf	Water Content, %	Dry Unit Weight, pcf	Remarks and Other Tests
1135	0				ML		Brown CLAYEY SILT with sand, soft, moist to very moist (volcanic ash)				
			1	4							
			2	3			grades to soft				
1130	5		3	2			grades to very soft				
1125	10		4	2							
					MH		Dark brown with multi-color mottling CLAYEY SILT with sand and decomposed gravel, stiff, very moist (saprolite)				
1120	15		5	17							
					GM		Brown with multi-color mottling SILTY GRAVEL with sand, dense, very moist to wet (saprolite)				
1115	20		6	37							
							Boring terminated at approximately 21.5 feet below the existing ground surface				
1110	25										

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Project: Honomu Subsistence Agriculture Subdivision, Phase 1 Project Location: Honomu, Island of Hawaii Project Number: 111620-00	**Kokua Geotech LLC** 94-974 Pakela Street, Suite 109 Waipahu, HI 96797 (808) 397-6974	Log of Boring No. 6 Sheet 1 of 1

Date(s) Drilled **11/18/20**	Logged By **JL**	Checked By **AJF**
Drilling Method **CF Auger**	Drill Bit Size/Type **4-inch Solid Stem Auger**	Total Depth of Borehole **6.5 feet**
Drill Rig Type **Mobile B-53**	Drilling Contractor **Kokua Geotech LLC**	Approximate Surface Elevation **+1,196 feet MSL***
Groundwater Level and Date Measured **Not Encountered**	Sampling Method(s) **MCS & SPT**	Hammer Data **140 lbs. with 30-inch drop**
Borehole Backfill **Soil Cuttings and Gravel**	Location **See Site Plan (Plate 2)**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	U.S.C.S	Graphic Log	MATERIAL DESCRIPTION	Pocket Pen./Torvane, tsf	Water Content, %	Dry Unit Weight, pcf	Remarks and Other Tests
1196	0				ML		Brown CLAYEY SILT with sand, very soft to soft, very moist (volcanic ash)				
			1	2							
			2	2							
1191	5		3	2							
							Boring terminated at approximately 6.5 feet below the existing ground surface				
1186	10										
1181	15										
1176	20										
1171	25										

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Project: Honomu Subsistence Agriculture Subdivision, Phase 1 Project Location: Honomu, Island of Hawaii Project Number: 111620-00	**Kokua Geotech LLC** 94-974 Pakela Street, Suite 109 Waipahu, HI 96797 (808) 397-6974	Log of Boring No. 7 Sheet 1 of 1

Date(s) Drilled **11/18/20**	Logged By **JL**	Checked By **AJF**
Drilling Method **CF Auger**	Drill Bit Size/Type **4-inch Solid Stem Auger**	Total Depth of Borehole **6.5 feet**
Drill Rig Type **Mobile B-53**	Drilling Contractor **Kokua Geotech LLC**	Approximate Surface Elevation **+1,167 feet MSL***
Groundwater Level and Date Measured **Not Encountered**	Sampling Method(s) **MCS & SPT**	Hammer Data **140 lbs. with 30-inch drop**
Borehole Backfill **Soil Cuttings and Gravel**	Location **See Site Plan (Plate 2)**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	U.S.C.S	Graphic Log	MATERIAL DESCRIPTION	Pocket Pen./Torvane, tsf	Water Content, %	Dry Unit Weight, pcf	Remarks and Other Tests
1167	0				ML		Brown CLAYEY SILT with sand, very soft to soft, very moist (volcanic ash)				
			1	2							
							grades to medium stiff				
			2	6							
1162	5						grades to very soft to soft				
			3	2							
							Boring terminated at approximately 6.5 feet below the existing ground surface				
1157	10										
1152	15										
1147	20										
1142	25										

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Project: Honomu Subsistence Agriculture Subdivision, Phase 1 Project Location: Honomu, Island of Hawaii Project Number: 111620-00	**Kokua Geotech LLC** 94-974 Pakela Street, Suite 109 Waipahu, HI 96797 (808) 397-6974	Key to Log of Boring Sheet 1 of 1

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	U.S.C.S	Graphic Log	MATERIAL DESCRIPTION	Pocket Pen./Torvane, tsf	Water Content, %	Dry Unit Weight, pcf	Remarks and Other Tests
1	2	3	4	5	6	7	8	9	10	11	12

COLUMN DESCRIPTIONS

1 Elevation (feet): Elevation (MSL, feet).
2 Depth (feet): Depth in feet below the ground surface.
3 Sample Type: Type of soil sample collected at the depth interval shown.
4 Sample Number: Sample identification number.
5 Sampling Resistance, blows/ft: Number of blows to advance driven sampler one foot (or distance shown) beyond seating interval using the hammer identified on the boring log.
6 U.S.C.S: Type of material encountered.
7 Graphic Log: Graphic depiction of the subsurface material encountered.
8 MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.
9 Pocket Pen./Torvane, tsf: the reading from Poecket Penetrometer or Torvane.
10 Water Content, %: Water content of the soil sample, expressed as percentage of dry weight of sample.
11 Dry Unit Weight, pcf: Dry weight per unit volume of soil sample measured in laboratory, in pounds per cubic foot.
12 Remarks and Other Tests: Other Tests

FIELD AND LABORATORY TEST ABBREVIATIONS

CHEM: Chemical tests to assess corrosivity
COMP: Compaction test
CONS: One-dimensional consolidation test
LL: Liquid Limit, percent
PI: Plasticity Index, percent
SA: Sieve analysis (percent passing No. 200 Sieve)
UC: Unconfined compressive strength test, Qu, in ksf
WA: Wash sieve (percent passing No. 200 Sieve)

MATERIAL GRAPHIC SYMBOLS

Basalt Rock Formation
Silty GRAVEL (GM)
SILT, SILT w/SAND, CLAYEY SILT (MH)
SILT, SILT w/SAND, SANDY SILT (ML)

TYPICAL SAMPLER GRAPHIC SYMBOLS

Auger sampler
Grab Sample
3-inch OD Modified California w/ brass liners
PQ Coring
Probing w/ Pointed Tip
2-inch OD unlined split spoon (SPT)

OTHER GRAPHIC SYMBOLS

Water level (at time of drilling, ATD)
Water level (after waiting)
Minor change in material properties within a stratum
Inferred/gradational contact between strata
Queried contact between strata

GENERAL NOTES

1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2: Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

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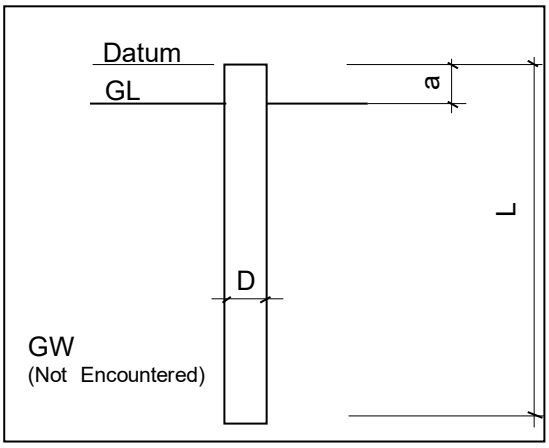
FIELD PERMEABILITY TEST CALCULATION SHEET

(FALLING HEAD METHOD: OPEN HOLE IN UNIFORM SOIL)

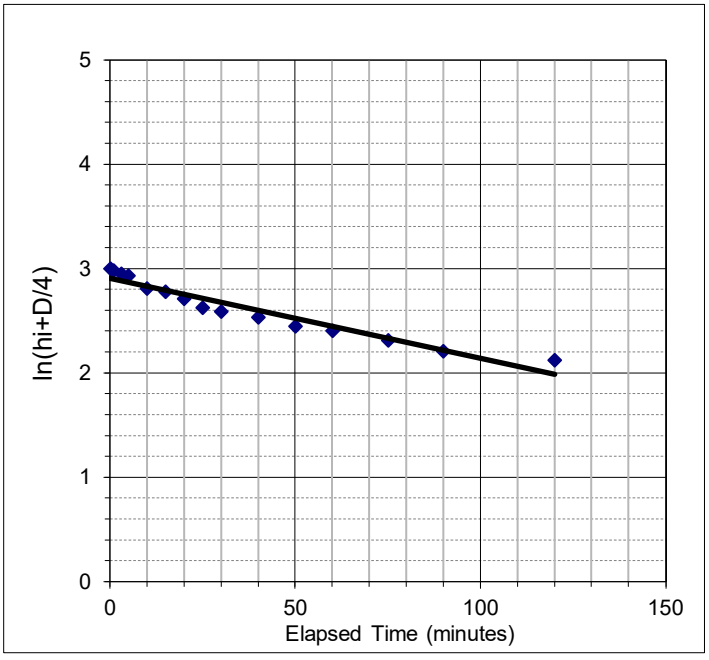
Honomu Subsistence Agriculture Subdivision, Phase 1

TMK: (3) 2-8-011: 011

Honomu, Island of Hawaii



Boring:	**B-3**	
GW table, (not encountered):	**N/A**	feet
Datum, a (above ground):	**0.00**	feet
Open hole Length, L:	**20.00**	feet
Diameter of open hole (D):	**5**	inches
Factor of m ($\sqrt{k_h / k_v}$	1.00	



Time (min)	Depth of water (from datum) (feet)	$\ln(h_i+D/4)$
0.0	**0.00**	**3.00**
1.0	**0.33**	**2.98**
3.0	**1.00**	**2.95**
5.0	**1.33**	**2.93**
10.0	**3.50**	**2.81**
15.0	**4.00**	**2.78**
20.0	**5.00**	**2.71**
25.0	**6.25**	**2.63**
30.0	**6.75**	**2.59**
40.0	**7.50**	**2.53**
50.0	**8.50**	**2.45**
60.0	**9.00**	**2.41**
75.0	**10.00**	**2.31**
90.0	**11.00**	**2.21**
120.0	**11.75**	**2.12**

Constant factor of the trendline y = Slope *x+c

$$Slope: \frac{\left[\ln\left(h_i+\frac{D}{4}\right)-\ln\left(h_{i+1}+\frac{D}{4}\right)\right]}{t_{i+1}-t_i}$$ **-0.008**

$$K_{fs}=\frac{D}{4}\times\frac{\left[\ln\left(h_i+\frac{D}{4}\right)-\ln\left(h_{i+1}+\frac{D}{4}\right)\right]}{t_{i+1}-t_i}$$

30

7.9E-04	ft/min
4.0E-04	cm/s

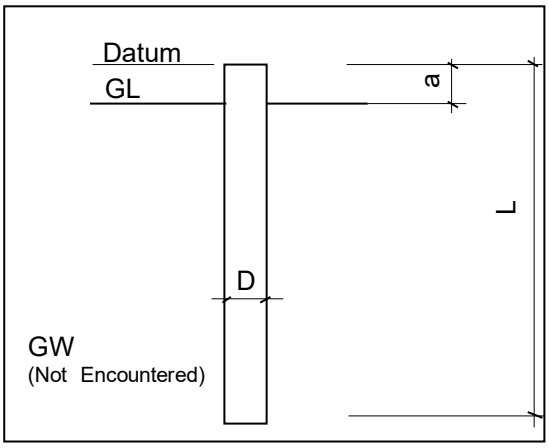
FIELD PERMEABILITY TEST CALCULATION SHEET

(FALLING HEAD METHOD: OPEN HOLE IN UNIFORM SOIL)

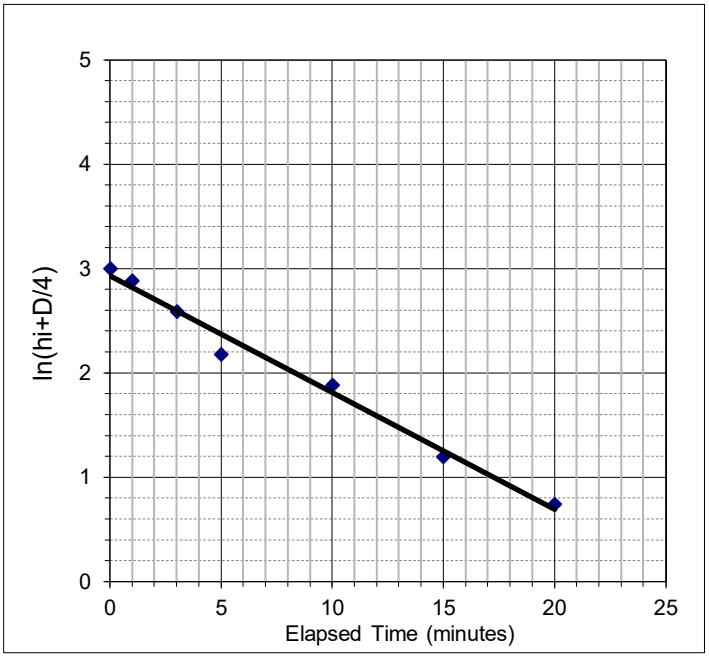
Honomu Subsistence Agriculture Subdivision, Phase 1

TMK: (3) 2-8-011: 011

Honomu, Island of Hawaii



Boring:	**B-5**	
GW table, (not encountered):	**N/A**	feet
Datum, a (above ground):	**0.00**	feet
Open hole Length, L:	**20.00**	feet
Diameter of open hole (D):	**5**	inches
Factor of m ($\sqrt{k_h / k_v}$	1.00	



Time (min)	Depth of water (from datum) (feet)	$\ln(h_i+D/4)$
0.0	**0.00**	**3.00**
1.0	**2.25**	**2.88**
3.0	**6.75**	**2.59**
5.0	**11.25**	**2.18**
10.0	**13.50**	**1.89**
15.0	**16.80**	**1.20**
20.0	**18.00**	**0.74**

Constant factor of the trendline y = Slope *x+c

$$Slope: \frac{\left[\ln\left(h_i+\frac{D}{4}\right)-\ln\left(h_{i+1}+\frac{D}{4}\right)\right]}{t_{i+1}-t_i}$$ **-0.112**

$$K_{fs}=\frac{D}{4}\times\frac{\left[\ln\left(h_i+\frac{D}{4}\right)-\ln\left(h_{i+1}+\frac{D}{4}\right)\right]}{t_{i+1}-t_i}$$

30

1.2E-02	ft/min
5.9E-03	cm/s

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS

BID OFFER FORM FOR

HONOMU SUBSISTANCE AGRICULTURAL SUBDIVISION – PHASE 1

HONOMU, ISLAND OF HAWAII, HAWAII

TAX MAP KEYS: (3) 2 – 8 – 011: 011

IFB NO.: IFB-21-HHL-009

Mr. William Aila, Jr., Chairman
Hawaiian Homes Commission
Department of Hawaiian Home Lands
91-5420 Kapolei Parkway
Kapolei, Hawaii 96707

Dear Mr. Aila:

The undersigned has carefully examined, read, and understands the terms and conditions in the Plans and Specifications, Special Conditions attached hereto, DHHL Construction General Conditions, and General Conditions specified in the Invitation for Bids (IFB) No. IFB-21-HHL-009. The State of Hawaii's (State) Contract for Goods and Services Based on Competitive Sealed Bids AG-003 Rev. 6/22/2009, AG-008 103D General Conditions, are included by reference and made part hereof and available upon written request to the Procurement Officer. The undersigned herby submits the following offer to perform the work for IFB No. IFB-21-HHL-009 as specified herein, all in accordance with the true intent and meaning thereof.

The undersigned understands and agrees that:

1. The State reserves the right to reject any and all offers and to waive any items that are defective when, in the State's opinion, such rejection or waiver will be in the best interest of the State. A solicitation may be rejected in whole or part when in the best interest of the State.

2. If awarded the contract, all services will be in accordance with Hawaii Revised Statutes (HRS) § 103-55.5.

3. In submitting this offer, the Offeror is not in violation of HRS Chapter 84, Standards of Conduct.

4. By submitting this offer, the Offeror certifies that the offer was independently arrived at without collusion and the Offeror did not participate in any practices to restrict competition.

5. It is understood that the failure to receive any addendum shall not relieve the Offeror from any obligation under this IFB.

Date:_____

The undersigned represents that it is: **(Check ✓ one only)**

□ A **Hawaii business** incorporated or organized under the laws of the State of Hawaii; **OR**

□ A **Compliant Non-Hawaii business** not incorporated or organized under the laws of the State of Hawaii, is or shall be registered at the State of Hawaii Department of Commerce and Consumer Affairs Business Registration Division (DCCA-BREG) to do business in the State of Hawaii.

State of incorporation: _____

Offeror is:

□ Sole Proprietor □ Partnership □ Corporation □ Joint Venture □ Other: _____

Federal ID No.:_____

Hawaii General Excise Tax ID No.:_____

Telephone No.:_____

Fax No.:_____

E-Mail Address.:_____

Payment address (other than street address below)

_____

(Street Address, City, State, Zip Code)

Business address

_____

(Street Address, City, State, Zip Code)

Respectfully submitted:

_____

Authorized (Original) Signature

_____

Name and Title (Please Type or Print)

*_____

Exact Legal Name of Company (Offeror)

*If Offeror shown above is a "dba" or a "division" of a corporation, furnish the exact legal name of the corporation under which the awarded contract will be executed:

_____

The following bid is hereby submitted for IFB-21-HHL-009 to the Department of Hawaiian Home Lands.

HONOMU SUBSISTANCE AGRICULTURAL SUBDIVISION, PHASE 1

Item No.	Estimated Quantity		Description	Unit Price		Total
			MASS GRADING			
1.	2.5		Acres, Clearing and Grubbing, including handling and removal of vegetation, unsuitable material, and debris off of DHHL Lands. Per Acre	$		$
2.	5,780		Cu. yds., Unclassified excavation for roads (embankment = 4,350 cu. yds.). Per Cu. Yd.	$		$
2a.	3,200		Cu. yds., Unclassified over-excavation for roads. Per Cu. Yd.	$		$
2b.	3,200		Cu. yds., Imported 6-inch minus structural fill for roads. Per Cu. Yd.	$		$
2c.	9,600		Sq. yds., Triaxial geogrid Per Sq. Yd.	$		$
2d.	10,100		Sq. yds., Non-woven geotextile fabric Per Sq. Yd.	$		$
3.	3,200		Cu. yds., Unclassified excavation for drainage improvements (embankment = 0 cu. yds.). Per Cu. Yd.	$		$
			SUBTOTAL – MASS GRADING (Items 1 to 3 inclusive)			**$**
			ROAD CONSTRUCTION			
4.	83,280		Sq. ft., Fine grading of roadway. Per Sq. Ft.	$		$
5.	4,900		Sq. yds., Base Course, 4" thick. Per Sq. Yds.	$		$
6.	4,950		Sq. yds., Base Course, 6" thick. Per Sq. Yds.	$		$

6a.	205		Sq. yds., Asphalt Concrete Base Course 8" thick Per Sq. Yds.	$ _____		$ _____
7.	3,295		Sq. yds., Subbase Course, 6" thick. Per Sq. Yds.	$ _____		$ _____
7a.	205		Sq. yds., Subbase Course, 12" thick. Per Sq. Yds.	$ _____		$ _____
8.	1,553		Sq. yds., Asphaltic concrete pavement, 1-1/2" thick. Per Sq. Yds.	$ _____		$ _____
9.	4,950		Sq. yds., Asphaltic concrete pavement, 2" thick. Per Sq. Yds.	$ _____		$ _____
10.	3,295		Sq. yds., Asphaltic concrete pavement, 3" thick. Per Sq. Yds.	$ _____		$ _____
10a.	205		Sq. yds., Asphaltic concrete pavement, 4" thick. Per Sq. Yds.	$ _____		$ _____
11.	L.S.		Remove existing pipe gate. Lump Sum	L.S.		$ _____
12.	L.S.		Remove existing asphalt concrete pavement. Lump Sum	L.S.		$ _____
13.	5		Each, Standard County street survey monument. Each	$ _____		$ _____
14.	2		Each, Standard street name sign. Each	$ _____		$ _____
15.	10		Each, Traffic sign with post. Each	$ _____		$ _____
16.	L.S.		End-of-Road Barrier, including guard rail, reflector signs and posts, as shown in the plans, in place complete. Lump Sum	L.S.		$ _____
17.	L.S.		Centerline pavement striping, intersection markings and raised pavement markers. Lump Sum	L.S.		$ _____

18.	L.S.		Edge of pavement striping and raised pavement markers. Lump Sum	L.S.		$
18a.	7		Each, Street Light Each	$		$
			SUBTOTAL – ROAD CONSTRUCTION (Items 4 to 18a inclusive)			**$**

DRAINAGE SYSTEM

19.	4		Each, V-Grate 20-foot Deep Drywell, as shown in the plans, in place complete. Each	$		$
20.	4		Each, V-Grate Drain Inlet Box, as shown on the plans, in place complete. Each	$		$
21.	80		Lin. ft., 18-inch dia. Connector Drainpipe, as shown on the plans, in place complete. Lin. Ft.	$		$
22.	2,000		Sq. yds., Grassing of Drainage Swales, including Hydro-Mulch Seeding and 90-day Maintenance, in place complete. Sq. Yds.	$		$
			SUBTOTAL – DRAINAGE SYSTEM (Items 19 to 22 inclusive)			**$**

MISCELLANEOUS ITEMS

23.	L.S.		Field office. Lump Sum	L.S.		$
24.	L.S.		Project Sign including installation and removal; In place complete. Lump Sum	L.S.		$
25.	L.S.		Temporary Traffic Control. Lump Sum	L.S.		$
26.	L.S.		Installation, Maintenance, Monitoring and Removal of BMP, Including Silt Fence, Filter Sock, Temporary Erosion Control, Sediment Control Filter, Dust Control, and 8" Thick	L.S.		$

			Ingress/Egress Gravel Access (13'x20'); In place complete. Lump Sum			
27.	L.S.		Permanent Erosion Control Measures for all graded areas, including grassing, watering and maintenance; In place complete. Lump Sum	L.S.		$
28.	Allowance		Archaeological work, including monitoring and miscellaneous work as directed by the archaeologist with the approval of DHHL. Allowance			$ 50,000
29.	Allowance		Removal of abandoned vehicles, trash, or dumped items, including hauling and disposal. Allowance			$ 50,000
30.	Allowance		Additional drainage improvements or other work as directed by the Engineer. Allowance			$ 50,000
31.	L.S.		Remove all Albizia Trees within the construction limits. Lump Sum	L.S.		$
32.	Allowance		Joint Pole Agreement Fees Allowance			$ 16,800
33.	Allowance		HECO-HI Installation Fees Allowance			$ 400,000
34.	L.S.		Mobilization/Demobilization (Not to exceed 6% of Total Sum Bid) Lump Sum	L.S.		$
			SUBTOTAL – MISCELLANEOUS ITEMS (Items 23 to 34 inclusive)			**$**

RECAPITULATION

SUBTOTAL – MASS GRADING (Items 1 to 3, inclusive) **$**

SUBTOTAL – ROAD CONSTRUCTION (Items 4 to 18a, inclusive) **$**

SUBTOTAL – DRAINAGE SYSTEM (Items 19 to 22, inclusive) **$**

SUBTOTAL – MISCELLANEOUS ITEMS (Items 23 to 34, inclusive) **$_____**

TOTAL SUM BID = _____

_____

Dollars ($_____).

The prices herein for the above items shall include all materials, labor, tools, equipment, machinery and all incidentals necessary, inclusive of general excise tax to install or to construct these items in place complete and in accordance with the plans and specifications contained in this IFB.

The CONTRACTOR shall complete all work as specified or indicated in the Contract Documents on or before three hundred sixty-five (365) calendar days after receiving written Notice to Proceed, subject to extensions, as may be granted.

HAWAII PRODUCTS PREFERENCE

Section 103D-1002, Hawaii Revised Statutes (HRS), as amended by Act 175 (Session Laws of Hawaii 2009), provides preference for Hawaii products. The previous Hawaii products list established pursuant to HRS §103D-1002 was suspended effective July 1, 2009, and a new list has been published by the State Procurement Office (SPO). DHHL will be supplementing the list with additional approved products for this solicitation.

Pursuant to HRS §103D-1002(b) (2) and Procurement Circular No. 2009-13, bidders intending to use Hawaii products should distribute the attached SPO-38, *Certification for Hawaii Product Preference*, to each of the manufacturers and producers of such products which bidders intend to use if the manufacturers and producers and their products are not listed on the SPO Hawaii Products List or in the DHHL's list below. The manufacturers and producers must complete and submit SPO-38 to DHHL. The form must be received by DHHL no later than **4:00 p.m., December 4, 2020**. Submittal by facsimile (808 620-9299) is acceptable. If DHHL receives and approves SPO-38s relating to this solicitation DHHL will issue an addendum listing the additional certified and qualified Hawaii products by no later than eight (8) days prior to the bid opening.

Bidders may claim a Hawaii product preference for products that it manufactures or produces with its own workforce and equipment. The SPO-38, *Certification for Hawaii Product Preference*, must be submitted in accordance with the procedures described above in order for Bidder to claim a Hawaii product preference for such Hawaii products Bidder intends to use in this work.

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

Change in Availability of Hawaii product. In the event of any change that materially alters the offeror's ability to supply Hawaii products, the offeror shall notify the procurement officer in writing no later than five working days from when the offeror knows of the change and the parties shall enter into discussions for the purposes of revising the contract or terminating the contract for convenience.

SCHEDULE OF ACCEPTABLE HAWAII PRODUCTS AND DESIGNATION OF HAWAII PRODUCTS TO BE USED			
ACCEPTABLE HAWAII PRODUCTS		HAWAII PRODUCTS TO BE USED Cost FOB Jobsite, Unloaded Including Applicable General Excise and Use Taxes	
Description	Manufacturer	Base Bid	Additive Alternate
		$_____	$_____
		$_____	$_____
		$_____	$_____
		$_____	$_____
		$_____	$_____
		$_____	$_____
		$_____	$_____
		$_____	$_____
		$_____	$_____
		$_____	$_____

It is further understood by the Bidder that if upon being granted Hawaii Products, and being awarded the contract, if the Bidder fails to use such products or meet the requirements of such preference, the Bidder shall be subject to penalties, if applicable.

APPRENTICESHIP AGREEMENT PREFERENCE

Section 103-55.6, HRS, (ACT 17, SLH 2009) provides for a Hawai'i Apprenticeship Preference for public works contracts having an estimated value of $250,000.00 or more. The preference shall be in the form of a 5% bid adjustment applied to the bidder's amount for bidders that are parties to apprenticeship agreements. The estimated value of this public works contract is $250,000.00 or more and the apprenticeship agreement preference **shall** apply.

To be eligible for the preference, the bidder shall:

1. Be a party to an apprenticeship agreement registered with the DLIR at the time the bid is made for each apprenticeable trade the bidder will employ to construct the public works project for which the bid is being made.

    a. The apprenticeship agreement shall be registered and conform to the requirements of HRS Chapter 372.

    b. Subcontractors do not have to be a party to an apprenticeship agreement for the bidder to obtain the preference.

    c. The bidder is not required to have apprentices in its employ at the time the bid is submitted to qualify for the preference.

    d. If a bidder's employee is multi-skilled and able to perform work in more than one trade (for example, a project requires a carpenter and a laborer, and the employee is a carpenter, but is also able to perform the work of a laborer), the bidder need only be a party to the carpenter's apprenticeship agreement and does not need to be a party to the laborer's apprenticeship agreement in order to qualify for the preference. The bidder is not "employing" a laborer, only a carpenter, and so only needs to be a party to the carpenter's apprenticeship agreement.

    e. Qualification for the preference is given on a project-by-project basis and depends upon the specific offer for a specific project. A bidder's employees may vary from project to project and may qualify for the preference on one project but may not qualify on another project. For example, on one project, if the bidder only employs carpenters to perform work in the carpentry and labor trades, then the bidder only needs to be a party to the carpenter's apprenticeship agreement in order to qualify for the preference. However, on another project if the same bidder employs both carpenters and laborers, then the bidder will not qualify for the preference if the bidder is only a party to the carpenter's apprenticeship agreement and not the laborer's apprenticeship agreement.

2. State the trades the bidder will employ to perform the work;

3. For each trade to be employed to perform the work, the bidder shall submit a completed signed original *CERTIFICATION OF BIDDER'S PARTICIPATION IN APPROVED APPRENTICESHIP PROGRAM UNDER ACT 17* (*Certification Form 1)* verifying the

participation in an apprenticeship program registered with the State Department of Labor and Industrial Relations (DLIR);

4. The *Certification Form 1* shall be authorized by an apprenticeship sponsor of the DLIR list of registered apprenticeship programs. The authorization shall be an original signature by an authorized official of the apprenticeship sponsor; and

5. The completed *Certification Form 1* for each trade must be submitted by the bidder with the offer. A facsimile or copy is acceptable to be submitted with the offer; however, the completed **signed original** must be submitted within five (5) working days of the due date of the offer. If the signed original is not received within this timeframe, the preference may be denied. Previous certifications shall not apply.

Failure to comply with ALL of the conditions noted above, without exception, shall disqualify the Bidder from qualifying for, and thus receiving, benefit of the Hawai‘i Apprenticeship Preference.

The *Certification Form 1* and the List of Construction Trades in Registered Apprenticeship Programs is available on the DLIR website at: http://labor.hawaii.gov/wdd/.

Upon receiving *Certification Form 1*, the DHHL will verify with DLIR that the apprenticeship program is on the list of apprenticeship programs registered with the DLIR. If the program(s) are not confirmed by the DLIR, the bidder will not qualify for the preference.

If the bidder is certified to participate in an apprenticeship program for each trade which will be employed by the bidder for the project, a preference will be applied to decrease the bidder's total bid amount by five per cent (5%) for evaluation purposes.

Should the bidder qualify for other preferences (for example, Hawaii Products Preference), all applicable preferences shall be applied to the bid amount.

While the Hawai‘i Apprenticeship Agreement Preference will be taken into consideration to determine the low bidder, the contract awarded shall be the original bid amount, exclusive of any preferences. The preference is only for evaluation purposes.

The bidder hereby certifies that it will employ the following apprenticeable trades to perform the work for this project:

LIST OF APPRENTICEABLE TRADES TO BE EMPLOYED	
TRADE	APPRENTICESHIP PROGRAM SPONSOR

(Add additional sheets if necessary)

ALL JOINT CONTRACTORS OR SUBCONTRACTORS TO BE ENGAGED ON THIS PROJECT

The Bidder certifies that the following is a complete listing of all joint Contractors or Subcontractors covered under Chapter 444, HRS, who will be engaged by the Bidder on this project to perform the nature and scope of work indicated pursuant to Section 103D-302, HRS, and understands that failure to comply with this requirement shall be just cause for rejection of the bid.

The Bidder further understands that only those joint Contractors or Subcontractors listed shall be allowed to perform work on this project and that all other work necessary shall be performed by the Bidder with his own employees. If no joint Contractor or Subcontractor is listed, it shall be construed that all of the work shall be performed by the Bidder with his own employees.

The Bidders must be sure that they possess and that the Subcontractors listed in the bid possess all the necessary licenses needed to perform the work for this project. The bidder shall be solely responsible for assuring that all the specialty licenses required to perform the work are covered in his bid.

The Bidder shall include the license number of the joint Contractors or Subcontractors listed below. Failure to provide the correct names and license numbers as registered with the Contractor's Licensing Board may cause rejection of the bid submitted.

Complete Firm Name of Joint Contractor or Subcontractor	License Number	Hawaii Tax ID Number	Nature and Scope of Work to be Performed

(Add additional sheets if necessary)

METHOD OF AWARD

Bidder is required to bid on the entire project. The low bidder shall be determined by the procedures outlined in items 1) through 4) below:

1) Prior to opening of bids, the State will determine the amount of funds available for the project. This amount will be designated the "control amount". The control amount shall be announced at, and prior to the opening of bids.

2) The Base Bid and Alternate, if any, of each Bidder will be adjusted to reflect the applicable preferences in accordance with Chapter 103D, HRS. The Alternate, if any, will then be added to the Base Bid and compared with the control amount.

3) The low bidder shall be the Bidder having the lowest aggregate amount, within the control amount (after application of the various preferences), for the Base Bid plus the Alternate, if any.

4) If adding the Alternate, if any, would make the aggregate amount exceed the control amount for all Bidders, the low bidder shall be the Bidder having the lowest Base Bid after application of the various preferences.

It is further understood and agreed that:

1) The Chairman reserves the right to reject any and/or all bids and waive any defects when, in his opinion, such rejection or waiver will be in the best interest of the State.

2) After determining the low bidder, an award may be made either on the amount of the Base Bid alone, or including the Alternate (exclusive of preferences), if:

   a. It is in the best interest of the State;

   b. Funds are available at time of the award; and

   c. The combination of the Base Bid plus Alternate does not change the apparent low bidder.

3) In the event the Base Bid for all Bidders exceed the control amount, the Chairman reserves the right to negotiate with the lowest responsible and responsive bidder to award a contract within available funds.

4) In the event the award is made for the Base Bid alone, the Chairman reserves the right to amend the contract at a later date to include the Alternate should funds subsequently become available.

OTHER CONDITIONS

1) The liquidated damages per working day for failure to complete the work on time have been determined and are noted in the Special Conditions of the sample contract.

2) By submitting this bid, the undersigned is declaring that his firm has not been assisted or represented on this matter by an individual who has, in a State capacity, been involved in the subject matter of this contract in the past one (1) year.

3) By submitting this bid, the undersigned is declaring that Bidder's own organization will perform at least 20% of the contractor's work. For the purposes of this section, the Contractor's work is defined as: direct cost labor for contractor's forces; direct cost materials installed by the contractor's direct cost labor force; direct cost equipment, either owned or leased, used by the contractor's direct cost labor force; and field overhead cost to include: field supervision, field office trailer (if any), field office equipment and supplies, etc.

4) Upon the acceptance of the bid by the Chairman, the undersigned must enter into and execute a contract for the same and furnish a Performance and Payment Bond, as required by law. These bonds shall conform to the provisions of Sections 103D-324 and 325, Hawaii Revised Statutes, and any law applicable thereto.

5) The quantities given herewith are approximate only and are subject to increase or decrease.

6) The estimated quantities shown for items for which a UNIT PRICE is asked in this bid are only for the purpose of comparing on a uniform basis bids offered for the work under this contract. No claim shall be filed for anticipated profit or loss because of any difference between the quantities of the various classes of work done or the materials and equipment actually installed and the said estimated quantities. Payment on UNIT PRICE items will be made only for the actual number of units incorporated into the finished project at the contract UNIT PRICE.

7) If the product of the UNIT PRICE BID and the number of units does not equal the total amount stated by the undersigned in the Bid for any item, it will be assumed that the error was made in computing the total amount. For the purpose of determining the lowest Bidder, the stated UNIT PRICE alone will be considered as representing the Bidder's intention and the total amount bid on such items shall be considered to be the amount arrived at by multiplying the UNIT PRICE by the number of units.

8) Certification for Safety and Health Programs for Bids in Excess of $100,000. In accordance with Sections 103D-327 and 396-18, HRS, by submitting this bid, the undersigned certifies that his firm will have a written Safety and Health Plan for this project that will be available and implemented by the Notice to Proceed date of this project. Details of the requirements of this plan may be obtained from the Department of Labor and Industrial Relations, Occupational, Safety and Health Division.

9) Any contract arising out of this offer is subject to the approval of the Department of the Attorney General as to form, and to all further approvals, including the approval of the Governor, required by statute, regulation, rule, order, or other directive.

Receipt of the following addenda issued by the Department is acknowledged by the date(s) of receipt indicated below:

	Date		Date
Addendum No. 1	_____	Addendum No. 5	_____
Addendum No. 2	_____	Addendum No. 6	_____
Addendum No. 3	_____	Addendum No. 7	_____
Addendum No. 4	_____	Addendum No. 8	_____

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

Bid Security in the amount of:_____

_____ DOLLARS ($_____)

as required by law, is enclosed herewith in the form of:

(____) Surety Bond (*1)
(____) Legal Tender (*2)
(____) Cashier's Check (*3)
(____) Certificate of Deposit (*3)
(____) Certified Check (*3)
(____) Official Check (*3)
(____) Share Certificate (*3)
(____) Teller's Check (*3)
(____) Treasurer's Check (*3)

Respectfully submitted,

_____
Name of Company, Joint Venture or Partnership

_____
License No.

By_____
Signature (*4)

Title:_____

Date:_____

Address:_____

_____

Telephone No.:_____

IF A CORPORATION, AFFIX CORPORATE SEAL TO SIGNATURE.

THIS BID FORM MAY NOT BE ALTERED AND BIDDERS MAY NOT QUALIFY OR CONDITION THEIR BIDS IN ANY WAY.

PLEASE FILL OUT THE ATTACHED CERTIFICATE OF RESOLUTION GIVING EVIDENCE OF THE AUTHORITY OF THIS OFFICER TO SUBMIT BIDS ON BEHALF OF THE COMPANY.

NOTES:

*1. Surety bond underwritten by a company licensed to issue bonds in this State;

*2. Legal tender; or

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

A. These instruments may be utilized only to a maximum of $100,000.

B. If the required security or bond amount totals over $100,000, more than one instrument not exceeding $100,000 each and issued by different financial institutions shall be accepted.

*4. Please attach to this page evidence of the authority of this officer to submit bids on behalf of the Company, and also the names and residence addresses of all officers of the Company.

*5. Fill in all blank spaces with information asked for or bid may be invalidated. <u>BID MUST BE INTACT; MISSING PAGES MAY INVALIDATE YOUR BID.</u>

CERTIFICATE OF RESOLUTION

I, _____, Secretary of _____, a Hawaii Corporation, do hereby certify that the following is a full, true and correct copy of a resolution duly adopted by the Board of Directors of said Corporation, at its meeting duly called and held at the office of the Corporation _____, Hawaii, on _____ day of _____, 20_____, at which a quorum was present and acting throughout; and that said resolution has not been modified, amended or rescinded and continues in full force and effect.

"RESOLVED that any individual at the time holding the position(s) of _____, be, and each of them hereby is, authorized to execute on behalf of the Corporation any bid, proposal or contract for the sale or rental of the products of the Corporation or for the services to be performed by the Corporation and to execute any bond required by any such bid, proposal or contract with the United States Government or the State of Hawaii or the City and County of Honolulu, or any County of Municipal Government of said State, or any department or subdivision of any of them."

IN WITNESS THEREOF, I have hereunto set my hand and affixed the corporate seal of said

_____ this _____ day of _____, 20___.____.

_____
Secretary

END OF BID

RFIs Part 2

From Bidder 1:

1. Please provide proposed grades for the grading plan sheet C2.-See answers to questions 8a to 11

2. Please provide proposed grades for the Drainage Improvements - Swales, and Earth Drain Sumps. -See answers to questions 8a to 11

3. Is the stockpile area intended for disposal of all grubbed material? Reference Add 2 sheet C-2 shows 110' x 145' Stockpile Area, Max Height 5' – No, for excess excavated material only.

4. Is the stockpile area intended for disposal of all excess excavated material? Reference Add 2 sheet C-2 shows 110' x 145' Stockpile Area, Max Height 5' -yes.

5. Is the stockpile area max height to be measured from the uphill side (existing elev 1121 ±), with the top leveled off (at elevation 1126±)? [See attached stockpile sketch] Reference Add 2 sheet C-2 shows 110' x 145' Stockpile Area, Max Height 5' – yes.

6. Is the 30' x 170' Rectangular Earth Drain sump bottom to follow existing contours and be set at 5 ft below existing grade throughout bottom? – Large drain sump finish contours shown on grading plan now. See attached Addendum No. 5 drawings.

7. If not, is the 30' x 170' Rectangular Earth Drain sump bottom level and depth to be measured from the lowest edge at top of 2:1 slope elevation (existing elev 1122 ±)? [See attached Dtl 3/C-8.0] – See attached Addendum No. 5 drawings.

8a. Are the 5' Diameter Circular Earth Drain sump bottoms to follow existing contours and be set at 5 ft below existing grade throughout bottom? – No. See 8b below.

8b. If not, are the 5' Diameter Circular Earth Drain sump bottoms level and depth to be measured from the lowest edge at top of 2:1 slope elevation? [See attached Dtl 3/C-8.0] – Yes.

9. Are the 6" Deep Earth Swales to have a continuous slope towards Earth Drain Sumps? – Yes, graded to drain.

10. Are the 6" Deep (depth varies) Earth Swales to be measured from the lowest edge at top of slope? [See attached Dtl 4/C-8.0] - Yes but try to keep the swale

within the property shown.

11. Are the 6” Deep Earth Swales to have 1:6 side slope? [See attached Dtl 4/C-8.0] – Go up to 4:1 if necessary, to keep swale in the property.

12. Please clarify quantity of Road Excavation.Per addendum 2 sheet C-1.0 - Total Road Earthwork Excavation is 5,780 C.Y. Per Bid Proposal Mass Grading Item 2.) 7,980 CY Unclassified Excavation for Roads (Embankment = 4,350 CY) – Plans are correct. See Addendum No. 5 for revised bid offer form.

13. Will the Main Road be Dedicated to County or State? The electricians are having problems with wood pole mounted lights on Helco Poles. Helco will allow only County Traffic Joint Pole Share. According to Helco no one else can have Joint Pole Share. So if Roads is not Dedicated, the county will not do Joint Pole Share. Road A will be dedicated to the County. Roads B, C, and D will remain private.

14. Will the Main Road be Private like side streets? No, it will be dedicated to the County.

15. Bid Item 18a. shows Qty -7 Each, Street Light. But plan sheet C-3.0 shows Qty - 8 Each, Street Light (including six (6) on Road “A”, one (1) on Road “D” and one (1) on Akaka Falls Road) The quantity is 7, not 8. The light in the private road has been removed from the plans.

16. Plan sheet C-3.0 shows “HECO Poles (Typ. Of 15)” Will the poles be HECO Poles from Oahu Electric Utility Company, or HELCO Poles from Big Island Electric Utility Company HELCO is now HECO-HI. The work will be coming out of the HECO-HI, which is their Hilo office at their main plant.

From Bidder 2:

1. Is there a geotechnical report available for this project? Please provide this report, it is critical to estimating. – See Geotech memo in Addendum No. 5

2. If geotechnical report is not available, please provide clear direction to all bidders to base the bid on with regards to the following:
(a) If rock will be encountered or not? If it will be encountered at what depth?
(b) Is onsite soil suitable for fill for mass grading & utility trench? – See Geotech memo in Addendum No. 5

3. It was mentioned during pre-bid that plans will be revised in upcoming addendum, please advise that the bid date will be extended for a week / two weeks. – See revised schedule in Addendum No. 5.

4. What is the length of street light arms? The plans say 8-12 feet however there may be a sizable price difference between a 8 and a 12 feet arm. Please confirm exactly what length arm is required. – Use 8' arm.

5. If the arms are longer than 10 feet, are the arms to be a Truss type? n/a.

6. Detail 4/C-8.1 Note says submit letter confirming that joint pole shares have been paid for by the contractor. We have never paid for the joint pole fees and have no idea how much that will cost. Usually the owner pays this fee. They should provide an allowance for this. – Allowance added. $2,400 per pole in dedicable road (Road A). See Addendum No. 5 for revised bid offer form.

7. Detail 4/C-8.1 Note says to submit a sketch to traffic division indicating total pole height, contact heights, contact heights for HTCO, CATV, Neutrals, Secondary, Primary, and street light prior to installation. We are not the designers and have no idea what the design parameters are. Every subdivision is different and should be designed accordingly. A drawing should be provided by the designer.

8. Is the HELCO estimated cost of $374,050 to be included in the contractor's proposal? – Included as an allowance. See Addendum No. 5 for revised bid offer form.

9. Has an UIC Permit been filed for the drywells? – Not yet. One is being filed now. Assume contractor to apply for permit to operate. Assume two drywells will need to be tested and report filed per DOH requirements.

10. Has the State Historic Preservation Division letter been acquired for the Grading Permit? – Not yet. Second round of review plans to be submitted to County shortly. Once approved, SHPD will be engaged per the grading permit process. Archaeological study completed for environmental assessment and on file at SHPD.

11. Please confirm there are four drywells and four inlets. The proposal has different quantities. – Confirmed. See Addendum No. 5 for revised bid offer form.

From Bidder 3:

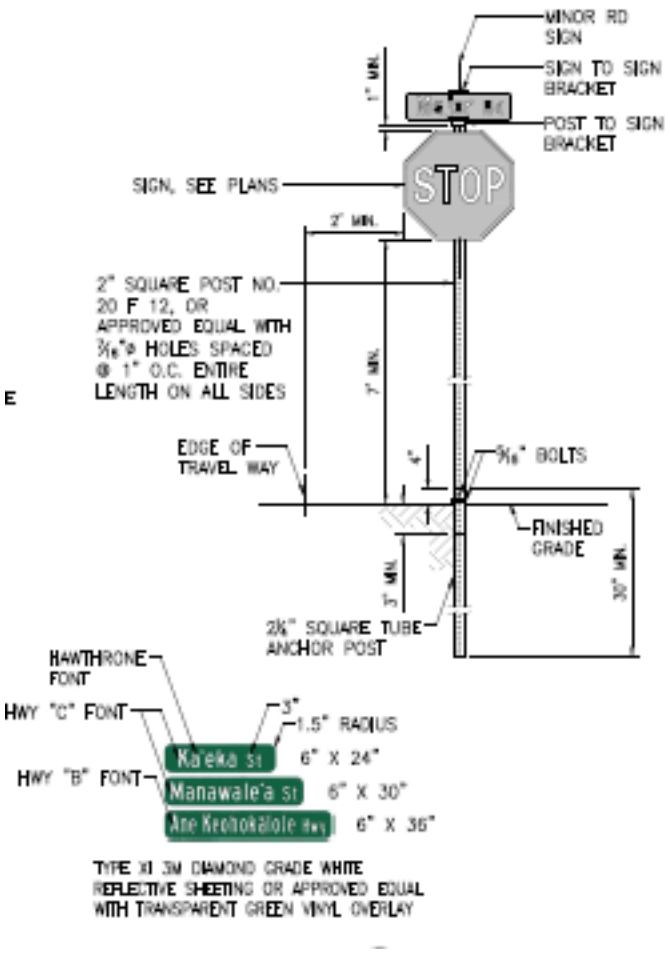
1. There seems to be some discrepancy between the plans and the proposal The proposal has 2 each street name signs and 4 each traffic signs. – See Addendum No. 5 for revised bid offer form.

14.	2	Each, Standard street name sign.			
			Each	$_____	$_____
15.	4	Each, Traffic sign with post.			
			Each	$_____	$_____

The plans have 10 each traffic signs

Ref. Sht.	Description	QTY
C-7.0	No Outlet	1
C-7.0	Stop	2
C-7.0	Private Road	1
C-7.0	Speed Limit 25	1
C-7.1	Stop	2
C-7.1	Private Road	2
C-7.1	Speed Limit 25	1

And if each stop sign is to have 2 each street name signs per sheet C-7.1 Then there would be a total of 8 street name signs. – Provide street name signs only at the main intersection with Akaka Falls Road. Do not provide street name signs at private roads.



Can you please clarify?

From Bidder 4:

1. Bid Item #2 has 7,980 cy of Excavation for Roads and 4,350 cy of Embankment. Sht C-1.0 has Total Road Earthwork; 5,780cy of Excavation and 4,350 cy of Embankment. The embankment quantities match but there is a difference of 2,200 cy of excavation? Why is there a difference? – Plans are correct. See Addendum No. 5 for revised bid offer form.

2. What is the 110' x 145' Stockpile Area for? Does any work need to be done for / or at the Stockpile Area? – Excavated material of project is not suitable for road fill. Excess material to be stockpiled in this area. Area to be grubbed and silt fences installed to protect for erosion and sedimentation control.

3. Detail 4/C-8.0 Earth Swale may work when going downhill but some of the Earth Swales looks like they go up slope and some go up and down. With these conditions they will not work unless additional grading is done. Can you provide a grading plan for this? – See Addendum No. 5 for revised grading plan and this

response sheet for answer. Swales will not be graded out. Is the grading area for the Earth Swale included in the 2.5 acres of Clear & Grub? – Yes.

4. Is the area of grading for the Earth Drain Sumps included in the 2.5 acres of Clear & Grub? – Yes.
5. Can the Silt Fence be changed to Biosock? – Yes.

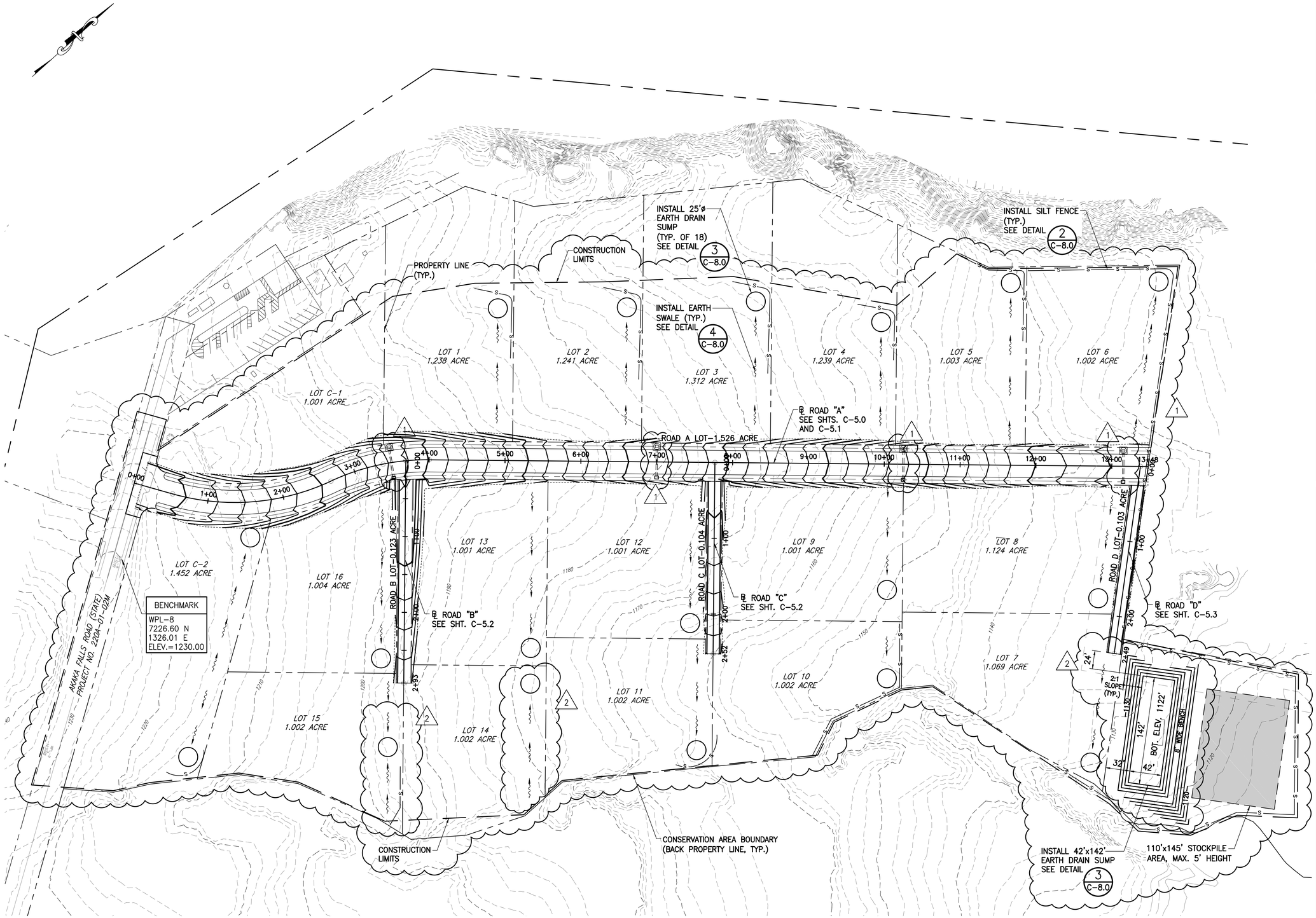
6. The specifications calls for structural fill under new concrete or AC paving with a 3" maximum particle size. Normally this is not done for deep embankments. Using the 3" minus material will be more costly than using the 6" minus material for the deep embankments up to 3' below the finish grade as mentioned in the Yard Fill specification. Please advise if acceptable to use the 6" minus material (Yard Fill) for under the Roadways keeping it 3' below finish grade? – Yes. Do not use excavated material for road fill. Need to import all road fill material.

7. With Addendum 3 still to be issued and the responses to the RFIs from today, would it be possible to postpone the bid for a week or so? – See Addendum No. 5 for new schedule.

From Bidder 5:

1. Will the contractor be responsible for supplying power to the street lights? If so, who will be responsible for payment of supplying the power to each street light? Once the road is dedicated to the County, the lights will be energized by HECO-HI and paid for by the County of Hawaii.

2. When can we expect soils report to be published? – See Addendum No. 5 for soils report.



GRADING, EROSION CONTROL AND SITE DRAINAGE PLAN

SCALE: 1"=60'

SCALE: 1" = 60' 60' 30' 0 60' 120'

IF THIS SHEET IS LESS THAN 36"x24", IT IS A REDUCED PRINT. SCALE REDUCED ACCORDINGLY.

Okahara and Associates, Inc.
ENGINEERS AND LANDSCAPE ARCHITECTS

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BRUCE K. MEYERS
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No. 8336-C
HAWAII, U.S.A.

This work was prepared by me or under my supervision and construction to this project will be under my observation

Expiration Date of License 4/30/22

Revisions

No.	Date	Description
4	11/24/20	RELOCATION AND/OR REDESIGN OF EARTH DRAIN SUMP
3	11/11/20	CONSTRUCTION AREA LIMITS AND LOCATION OF STOCK PILE AREA
2	10/29/20	REVISED INLET BOX AND DRYWELL,

Project

HONOMŪ SUBSISTENCE AGRICULTURE SUBDIVISION PHASE 1

TMK: (3) 2-8-011 :011
AKAKA FALLS ROAD
HONOMU, HAWAI'I 96728

Sheet Title

GRADING, EROSION CONTROL AND SITE DRAINAGE PLAN

LOK	218-026
Project Director	Project No.
SLP/LG BKM	
Drawn By Checked By	CAD File Name:
AS SHOWN	
Scale:	
MAY 2020	C-2.0
Date	
Const. Issue Date	

4 Of 19 Sheets

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