

| FED. ROAD DIST. NO. | STATE | PROJ. NO.   | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
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| HAWAII              | HAW.  | HWY-0-12-00 | 2004        | 4         | 82           |

GENERAL NOTES

- The scope of work for this project includes constructing reinforced concrete foundations and floor slabs, concrete unit masonry walls, steel frame building, metal decking, standing seam steel roofing, roof insulation, flashing and sheet metal, doors, rolling service doors, metal wall louvers, architectural finishes, building specialties, plumbing, compressed air system, window air conditioning unit, lubrication hose reels, electrical work and incidental related work. Site work includes clearing and grubbing, demolition, constructing recycling system equipment enclosure, vehicle wash down area, underground collection pit/separator, underground sump pit/catch basin, open material storage, concrete apron and ramp, asphalt concrete parking area, chain link fence gate, water and sanitary sewerage connections, electrical distribution, landscaping, and miscellaneous site improvements.
- All construction work with the exception of grading shall be done in accordance with the State of Hawaii Standard Specifications for Road, Bridge and Public Works Construction, 1994, as amended.
- The existence and location of underground utilities, manholes, monuments and structures as shown on the plans are from the latest available data but the accuracy is not guaranteed. The encountering of other obstacles during the course of work is possible. The Contractor shall be held liable for any damages incurred to the existing facilities and/or improvements as a result of his operations.
- The exact locations and limits or areas to be filled with leveling course, reconstructed and cold planed shall be determined in the field by the Engineer.
- The Contractor shall notify the Engineer in writing, two (2) weeks prior to starting paving operations.
- Smooth riding connections shall be constructed at all limits of paving, and/or as directed by the Engineer.
- Existing drainage system will be functional at all times during construction. The Contractor is to furnish materials, equipment, labor, tools and incidentals necessary to maintain flow. This work shall be considered incidental to various contract items.
- All saw cutting work shall be considered incidental to the respective demolition work.
- The Contractor shall be responsible for conformance with the applicable provisions of Chapter 54, Water Quality Standards and Chapter 55, Water Pollution Control of Title 11, Administrative Rules of the State Department of Health.
- For Bench Mark, see "Site Plan", sheet no. C1.02.

PAVEMENT MARKING NOTES

- Layout of pavement markings and striping shall be done by the Contractor and approved by the Engineer prior to any installation work.
- Existing pavement markings not incorporated in the final traffic pattern shall be removed as directed by the Engineer. Costs shall be incidental for the various pavement marking items.

PAVEMENT MARKING NOTES (CONT'D)

- Raised pavement markers shall not be installed within crosswalks.
- Final locations of all signs shall be approved by the Engineer prior to any installation work.
- Existing signs not shown on these plans shall remain as posted unless otherwise directed by the Engineer. Removal and disposal of existing signs and/or posts as designated on these plans shall be incidental to the various signing items.
- Final locations of all Stop Lines shall be approved by the Engineer prior to installation.
- All pavement striping shall be 4" white stripe unless otherwise noted.
- The Contractor shall erect at the beginning of the project and at the end of the project advanced construction warning signs placed indicated on the plans or as directed by the Engineer for the duration of the building project and shall be maintained by the Contractor. These signs shall be placed in addition to the required traffic control signs called for in Section 645 - Traffic Control. Write, in black indelible ink, the Contractor's name and the project number on the back of the sign. The advance construction warning signs shall be new and become the property of the State. The Contractor shall remove, clean and deliver the signs and posts to the District Baseyard, or as directed by the Engineer, upon the completion of the project.

WATER NOTES (PRIVATE SYSTEM)

- Unless otherwise specified, all materials and construction of water system facilities and appurtenances shall be in accordance with the State of Hawaii Standard Specifications for Road, Bridge and Public Works Construction, 1994, as amended.
- Test pressure shall be 150 PSI.
- The Contractor shall chlorinate the entire inside surface of each pipe and fitting with disinfection solution of 5 ounces of sodium hypochlorite mixed with 10 gallons of water. (For connection only)
- The Contractor shall be responsible for the protection of all water lines during construction. The Contractor shall be especially careful when excavating behind water lines, tees, and bends wherever there is a possibility of water line movement due to the removal of earth beyond the existing reaction blocks. The Contractor shall take whatever measure necessary to protect the water lines, such as constructing special reaction blocks (with the Engineer's approval) and/or modifying his construction method.
- The existence and location of underground utilities and structures shown on the plans are from the latest available data but is not guaranteed as to the accuracy or the encountering of other obstacles during the course of the work. The Contractor shall be responsible for and pay for all damages to the existing utilities. The Contractor shall not assume that where no utilities are shown, that none exist.
- Polygon shape for mechanical joint glands as described in AWWA Standard C111 shall be "straight-sided" or an approved equal on a job to job basis.

WATER NOTES (PRIVATE SYSTEM) (CONT'D.)

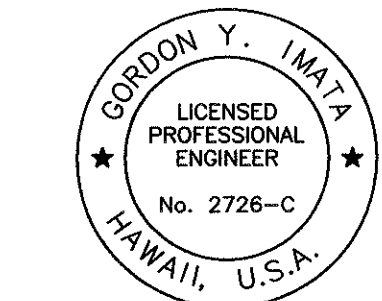
- Pipe cushion shall be of high resistivity material. The Contractor shall submit a soil certification that high resistant cushion material has a resistivity greater than 5,000 Ohm-cm. Remainder of the backfill material shall be as specified in the State of Hawaii Standard Specifications for Road, Bridge and Public Works Construction. Pipe cushion and backfill material shall contain no hazardous substances above regulatory action levels including but not limited to lead, asbestos, mercury, chromium, cadmium, zinc, strontium, and polychlorinated biphenyls (PCB).
- All ductile iron pipe, fittings, and valves shall be wrapped with two layers of 8 mil. polyethylene wrap.
- Cleaning shall be by the use of "pigs" introduced into the pipeline and run completely through all installed pipelines and all branch lines for fire hydrants. "Pigging" of service laterals is not required. Bare foam "pigs" shall be used to swab piping clean as each length of pipeline is installed. Each "pig" shall consist of a cylindrical piece of polyurethane foam with a density of 3-7 pounds per cubic foot and a vinyl coated nose. Outside diameter of the "pig" shall be equal to 1/4 to 1/2 times the inside diameter of the pipe being installed. The length of the "pig" shall be 1/2 to 2 times its diameter. Prior to use, the "pig" shall be submerged in a chlorine solution of 1 oz. of 5% chlorine bleach in 5 gallons of water. "Pigging" of the pipeline shall be considered incidental to the installation of the new pipeline.

DEMOLITION NOTES

Asbestos and Lead Paint Removal

- Contractor to use a certified hazardous materials abatement contractor and crew to perform asbestos removal.
- All work performed shall comply with current OSHA, EPA, and applicable guidelines pertaining to ACM and lead paint abatement, storage, and removal from site.
  - ACM (Asbestos-Containing Materials) Locations
    - Bathroom Outhouse - Gray caulking at roof edge and overlapping capsheet seams beneath metal roofing
    - Quonset Hut - Black caulking on metal roofing seam
  - Lead Paint Locations
    - Bathroom Outhouse - Green paint at wood roof rafters
    - Garage - Metal pole painted orange

Location and material results obtained from "Asbestos and Lead Paint Facility Survey" as prepared by EnvironMETeo Services Inc. (EMET), 94-520 Uke'e Street Suite A, Waipahu, Hawaii 96797 Dated June 25, 2001



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4/30/04

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| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION |                 |
| NOTES  |                 |
| WAHIAWA BASEYARD<br>IMPROVEMENTS                                     |                 |
| Project No. HWY-0-12-00  |                 |
| Scale: No Scale  | Date: Jan. 2003 |
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GRADING NOTES

- All grading work shall be done in accordance with Chapter 14, Articles 13, 14, 15 and 16, as related to grading, soil erosion and sediment control of the revised ordinances of Honolulu, 1990, as amended, and soils report by Geolabs Hawaii, dated October 16, 2001.
- No Contractor shall perform any grading operation so as to cause falling rocks, soil or debris in any form to fall, slide or flow onto adjoining properties, streets or natural watercourses. Should such violations occur, the Contractor may be cited and the Contractor shall immediately make all remedial actions necessary.
- The Contractor, at his own expense, shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the air pollution control Standards contained in the Hawaii Administrative Rules, Title 11, Chapter 60.1, "Air Pollution Control".
- The underground pipes, cables or ductlines known to exist by the Engineer from his search of records are indicated on the plans. The Contractor shall verify the locations and depths of the facilities and exercise proper care in excavating the area. Wherever connections of new utilities are shown on the plans, the Contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavations for the new lines.
- Adequate provisions shall be made to prevent surface waters from damaging the cut face of an excavation or the sloped surfaces of a fill. Furthermore, adequate provisions shall be made to prevent sediment-laden runoff from leaving the site.
- All slopes and exposed areas shall be sodded or planted as soon as final grades have been established. Planting shall not be delayed until all grading work has been completed. Grading to final grade shall be continuous, and an area within which work has been interrupted or delayed shall be planted.
- Fills on slopes steeper than 5:1 shall be keyed.
- The City shall be informed of the location of the borrow/disposal site for the project when the application for a grading permit is made. The borrow/disposal site must also fulfill the requirements of the Grading Ordinance.
- No grading work shall be done on Saturdays, Sundays and holidays at any time without prior notice to the Director, D.P.P., provided such grading work is also in conformance with the community noise control standard contained in the Hawaii Administrative Rules, Title 11, Chapter 46, "Community Noise Control".
- The limits of the area to be graded shall be flagged before commencement of the grading work.
- All grading operations shall be performed in conformance with the applicable provisions of the water quality and water pollution control standards contained in Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards" and Title 11, Chapter 55, "Water Pollution Control" and if applicable, the NPDES permit for the project.
- Where applicable and feasible the measures to control erosion and other pollutants shall be in place before any earth moving phase of the grading is initiated.
- Temporary erosion controls shall not be removed before permanent erosion controls are in-place and established.

GRADING NOTES (CONT'D.)

- Temporary erosion control procedures shall be submitted for approval prior to application for grading permit.
- If the grading work involves contaminated soil then all grading work shall be done in conformance with applicable State and Federal requirements.
- For non-City projects, the Contractor shall notify the Civil Engineering Branch, D.P.P. at 523-4881 to arrange for inspectional services and submit three (3) sets of approved construction plans seven (7) days prior to commencement of construction work. For City projects, the Contractor shall coordinate inspectional services with the responsible City agency.
- Pursuant to Chapter 6E, HRS, in the event any artifacts or human remains are uncovered during construction operations, the Contractor shall immediately suspend work and notify the Honolulu Police Department, the State Department of Land and Natural Resources-Historic Preservation Division (692-8015). In addition, for non-City projects, the Contractor shall notify the Civil Engineering Branch D.P.P. (523-4881), and for City projects, notify the responsible City agency.
- Non-compliance to any of the above requirements shall mean immediate suspension of all work and remedial work shall commence immediately. All costs incurred shall be billed to the violator. Furthermore, violators shall be subjected to administrative, civil and/or criminal penalties.
- For Bench Mark, see "Site Plan", sheet no. C1.02.

SEWER NOTES (PUBLIC SEWERS)

- All sewer construction shall be performed in accordance with the City's Standard Specifications, Sept. 1986, the Department of Public Works Standard Details, Sept. 1984, current City practices and Revised Ordinances of Honolulu, 1990 as amended, and the Design Standards of the Department of Wastewater Management Vol. 1, July 1993.
- The Contractor shall notify the Inspection Sections, Wastewater Branch, DDC, at 527-5855 or 523-4345 to arrange for inspection services and submit four (4) sets of approved construction plans seven (7) days prior to commencement of sewer work. The Contractor shall pay for all inspection costs.
- The underground pipes, cables or ductlines known to exist by the engineer from his research of records are indicated on the plans. The Contractor shall verify the location of depth of the facilities, including and affecting sewer lines, in the presence of the Wastewater Inspector and exercise proper care in excavating the area. The Contractor shall be responsible and pay for all damaged utilities.
- Building plumbing facilities shall be controlled by sewer lateral inverts.
- The Contractor shall be responsible for maintaining continuous sewer service to all affected areas during construction.
- The Contractor shall be responsible for any sewage spills caused during construction. The Contractor shall immediately notify the State Department of Health and utilize appropriate sampling and analyzing procedures. The Contractor shall be responsible for all public notification and press releases.

SEWER NOTES (PRIVATE SYSTEM) (CONT'D.)

- The Contractor shall install "Rainstopper" manhole inserts in all sewer manholes with Type "SA" frame and cover.
- Confined Space  
  
For entry by City personnel, including inspectors, into a permit required confined space as defined in 29 CFR part 1910.146(b), the Contractor shall be responsible for providing:
  - All safety equipment required by the confined space regulations applicable to all parties other than the construction industry, to include, but not limited to, the following:
    - Full body harnesses for up to two personnel.
    - Lifeline and associated clips.
    - Ingress/egress and fall protection equipment.
    - Two-way radios (walkie-talkies) if out of line-of-sight.
    - Emergency (escape) respirator (10 minute duration).
    - Cellular telephone to call for emergency assistance.
    - Continuous gas detector (calibrated) to measure oxygen, hydrogen sulfide, carbon monoxide, and flammables (capable of monitoring at a distance at least 20-feet away).
    - Personal multi-gas detector to be carried by Inspector.
  - Continuous forced air ventilation adequate to provide safe entry conditions.
  - One attendant/rescue personnel topside (two, if conditions warrant it).
- When connecting to a live sewer line, the Contractor shall notify the State Department of Health, Clean Water Branch in writing of the impending connection to a live sewer line. The Contractor shall abide by all conditions that the State Department of Health sets forth to mitigate any wastewater spill that may occur. Copies of all correspondences with the State Department of Health shall be submitted to the Engineer prior to the actual connection.

APPROVED:

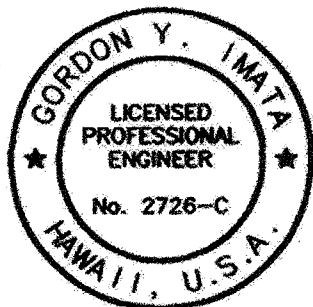
M. J. [Signature] 12/8/06  
DIRECTOR, DEPARTMENT OF PLANNING AND PERMITTING DATE  
(FOR CONSTRUCTION WITHIN CITY R/W AND GRADING ONLY)

M. J. [Signature] 7/28/06  
CHIEF, CIVIL ENGINEERING BRANCH, DPP DATE

Dennis M. Nukunuma 7/24/06  
CHIEF, WASTEWATER BRANCH, DPP DATE

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| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
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12/15/08  
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Comment dated 7/9/07



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[Signature]  
LICENSE EXPIRATION DATE 4/30/08

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| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION |                 |
| NOTES  |                 |
| WAHIAWA BASEYARD IMPROVEMENTS  |                 |
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WATER POLLUTION AND EROSION CONTROL NOTES:

A. GENERAL:

- The Contractor is reminded of the requirements of Section 209 – Water Pollution and Erosion Control, in the "Hawaii Standard Specifications for Road, Bridge and Public Works Construction". Section 209 describes but is not limited to: submittal requirements; scheduling of a water pollution and erosion control conference with the Engineer; construction requirements; method of measurement; and basis of payment.
- The Contractor shall follow the guidelines in the "Best Management Practices Manual for Construction Sites in Honolulu", dated May 1999 in developing, installing and maintaining the Best Management Practices (BMP) for the project.
- The Engineer may assess liquidated damages of up to \$25,000 for non-compliance of each BMP requirement and each requirement stated in Section 209, for every day of non-compliance. There is no maximum limit on the amount assessed per day.
- The Engineer will deduct the cost from the progress payment for all citations received by the Department for non-compliance, or the Contractor shall reimburse the State for the full amount of the outstanding cost incurred by the State.

B. WASTE DISPOSAL:

- Waste Materials**  
All waste materials shall be collected and stored in a securely lidded metal dumpster. The dumpster shall meet all local and State solid waste management regulations. All trash and construction debris from the site shall be deposited in the dumpster. The dumpster shall be emptied a minimum of twice per week or as often as is deemed necessary. No construction waste materials shall be buried onsite. The Contractor's supervisory personnel shall be instructed regarding the correct procedure for waste disposal. Notices stating these practices shall be posted in the office trailer and the Contractor shall be responsible for seeing that these procedures are followed.
- Hazardous Waste**  
All hazardous waste materials shall be disposed of in the manner specified by local or State regulation or by the manufacturer. The Contractor's site personnel shall be instructed in these practices and shall be responsible for seeing that these practices are followed.
- Sanitary Waste**  
All sanitary waste shall be collected from the portable units a minimum of once per week, or as required.

C. EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:

- All control measures shall be inspected at least once each week and following any rainfall event of 0.5 inches or greater.

WATER POLLUTION AND EROSION CONTROL NOTES (CONT'D.):

C. EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES (CONT'D.):

- All measures shall be maintained in good working order. If repair is necessary, it shall be initiated within 24 hours after the inspection.
- Built-up sediment shall be removed from the silt fence when it has reached one-third the height of the fence.
- Silt screen or fence shall be inspected for depth of sediment, tears, to verify that fabric is securely attached to the fence posts or concrete slab and to verify that fence posts are firmly in the ground.
- Temporary and permanent seeding and planting shall be inspected for bare spots, washouts and healthy growth.
- A maintenance inspection report shall be made promptly after each inspection by the Contractor.
- The Contractor shall select a minimum of three personnel who shall be responsible for inspections, maintenance and repair activities and filling out the inspections and maintenance report.
- Personnel selected for the inspection and maintenance responsibilities shall receive training from the Contractor. They shall be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.

D. GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES:

1. Materials Pollution Prevention Plan

- Applicable materials or substances listed below are expected to be present onsite during construction. Other materials and substances not listed below shall be added to the inventory.

|                           |                          |
|---------------------------|--------------------------|
| Concrete                  | Fertilizers              |
| Detergents                | Petroleum Based Products |
| Paints (enamel and latex) | Cleaning Solvents        |
| Metal Studs               | Wood                     |
| Tar                       | Masonry Block            |

- Material Management Practices shall be used to reduce the risk of spills or after accidental exposure of materials and substances to storm water runoff. An effort shall be made to store only enough product as is required to do the job.
- All materials stored onsite shall be stored in a neat, orderly manner in their appropriate containers and if possible under a roof or other enclosure.
- Products shall be kept in their original containers with the original manufacturer's label.
- Substances shall not be mixed unless recommended by the manufacturer.

WATER POLLUTION AND EROSION CONTROL NOTES (CONT'D.):

D. GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES (CONT'D.):

1. Materials Pollution Prevention Plan (Cont'd.)

- Whenever possible, a product shall be used up completely before disposing of the container.
  - Manufacturer's recommendations for proper use and disposal shall be followed.
  - The Contractor shall conduct a daily inspection to ensure proper use and disposal of materials onsite.
2. Hazardous Material Pollution Prevention Plan
- Products shall be kept in original containers unless they are not resealable. Sote the containers in spill pans or a similar type of spill containment, and protected from the elements.
  - Original labels and material safety data sheets (MSDS) shall be retained.
  - Surplus products shall be disposed of according to manufacturer's instructions or local and State recommended methods.

3. Onsite and Offsite Product Specific Plan

- The following product specific practices shall be followed onsite:

1) Petroleum Based Products:

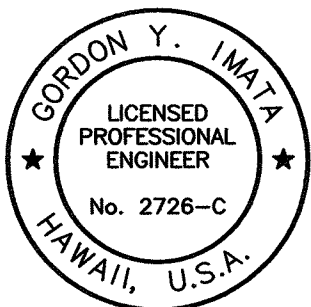
All onsite vehicles shall be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products shall be stored in tightly sealed containers which are clearly labeled and within spill pans or a berm lined with a non-permeable material. The product shall also be covered to protect it from the elements. Any asphalt substances used onsite shall be applied according to the manufacuturer's recommendation.

2) Fertilizers:

Fertilizers used shall be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer shall be worked into the soil to limit exposure to storm water. Storage shall be in a ventilated covered shed. The contents of any partially used bags of fertilizer shall be transferred to a sealable plastic bin to avoid spills.

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12/15/08  
This sheet replaces the original sheet  
DPP/DLU  
Comments dated 7/9/07



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.  
License Expiration Date 4/30/2010

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| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION             |                 |
| WATER POLLUTION AND<br>EROSION CONTROL NOTES<br>WAHIAWA BASEYARD<br>IMPROVEMENTS |                 |
| Project No. HWY-0-12-00  |                 |
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WATER POLLUTION AND EROSION CONTROL NOTES (CONT'D.):

D. GOOD HOUSEKEEPING BES MANAGEMENT PRACTICES (CONT'D.):

3. Onsite and Offsite Product Specific Plan (Cont'd.)

a. The following product specific practices shall be followed onsite:

3) Paints:  
All containers shall be tightly sealed and stored when not required for use. Excess paint shall not be discharged to the highway drainage system but shall be properly disposed of according to manufacturer's instructions or State and local regulations.

4) Concrete Trucks:  
Concrete trucks shall be allowed to wash out or drum wash water only at designated site. Water shall not be discharged in the highway drainage system or waters of the United States. The Contractor shall contact Drinking Water Branch, Department of Health at 586-4258 to receive permission to designate a disposal site. The Contractor shall clean disposal site as required or as requested by the Owner's representative.

b. Offsite Vehicle Tracking:

A stabilized construction entrance shall be provided to help reduce vehicle tracking of sediments. The paved street adjacent to the site entrance shall be cleaned daily or as required to remove any excess mud, cold planed materials, dirt or rock tracked from the site. Dump trucks hauling material from the construction site shall be covered with a tarpaulin.

4. Spill Control Plan

- a. A spill prevention plan shall be posted and adjusted to include a description and cause of each spill, measures to prevent and clean up each spill.
- b. The Contractor shall be the spill prevention and cleanup coordinator. The Contractor shall designate at least three site personnel who shall receive spill prevention and cleanup training. These individuals shall each become responsible for a particular phase of prevention and cleanup. The names of the responsible spill personnel shall be posted in the material storage area and in the office trailer onsite.
- c. Manufacturer's recommended methods for spill cleanup shall be clearly posted and site personnel shall be made aware of the procedures and the location of the information and cleanup supplies.
- d. Materials and equipment necessary for spill cleanup shall be kept in the material storage area onsite.
- e. All spills shall be cleaned up immediately after discovery.
- f. The spill area shall be kept well ventilated and personnel shall wear appropriate protective clothing to prevent injury from contact with a hazardous substance.

WATER POLLUTION AND EROSION CONTROL NOTES (CONT'D.):

D. GOOD HOUSEKEEPING BES MANAGEMENT PRACTICES (CONT'D.):

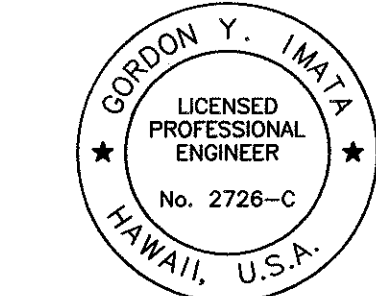
4. Spill Control Plan (Cont'd.)

g. Spills of toxic hazardous material shall be reported to the appropriate State or local government agency, regardless of size.

E. PERMIT REQUIREMENTS:

1. If a National Pollutant Discharge Elimination System (NPDES) Permit is required for Construction Activities, the Contractor shall submit to the Engineer four sets of the Water Pollution and Erosion Control Submittals as detailed in Subsection 209.04 of the specifications.
2. The Contractor shall comply with all applicable State and Federal Permit conditions. Permits may include but are not limited to the following:
- a. NPDES Permit for Construction Activities.


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ME OR UNDER MY SUPERVISION.  
Gordon Y. Imaizumi  
LICENSE EXPIRATION DATE 4/30/04


STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
  
WATER POLLUTION AND  
EROSION CONTROL NOTES  
  
WAHIAWA BASEYARD  
IMPROVEMENTS  
  
Project No. HWY-0-12-00  
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|   | <b>GEOLABS, INC.</b><br>Geotechnical Engineering | <b>Boring Log Legend</b>   |   |   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
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| <b>UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)</b>   |  |  |   |   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
| <table><thead><tr><th colspan="3">MAJOR DIVISIONS</th><th>USCS</th><th>TYPICAL DESCRIPTIONS</th></tr></thead><tbody><tr><td rowspan="4">COARSE-GRAINED SOILS</td><td rowspan="2">GRAVELS</td><td>CLEAN GRAVELS<br/>LESS THAN 5% FINES</td><td>GW</td><td>WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES</td></tr><tr><td>GRAVELS WITH FINES<br/>MORE THAN 5% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE</td><td>GP</td><td>POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES</td></tr><tr><td rowspan="2">SANDS</td><td>CLEAN SANDS<br/>LESS THAN 5% FINES</td><td>GM</td><td>SILT GRAVELS, GRAVEL-SAND SILT MIXTURES</td></tr><tr><td>SANDS WITH FINES<br/>50% OR MORE OF COARSE FRACTION PASSING THROUGH NO. 4 SIEVE</td><td>GC</td><td>CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES</td></tr><tr><td rowspan="4">FINE-GRAINED SOILS</td><td rowspan="2">SILTS AND CLAYS</td><td>CLEAN SANDS<br/>LESS THAN 5% FINES</td><td>SW</td><td>WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES</td></tr><tr><td>SANDS WITH FINES<br/>50% OR MORE OF COARSE FRACTION PASSING THROUGH NO. 4 SIEVE</td><td>SP</td><td>POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES</td></tr><tr><td rowspan="2">SILTS AND CLAYS</td><td>LIQUID LIMIT LESS THAN 50</td><td>SM</td><td>SILT SANDS, SAND-SILT MIXTURES</td></tr><tr><td>LIQUID LIMIT 50 OR MORE</td><td>SC</td><td>CLAYEY SANDS, SAND-CLAY MIXTURES</td></tr><tr><td rowspan="4">HIGHLY ORGANIC SOILS</td><td rowspan="2">SILTS AND CLAYS</td><td>LIQUID LIMIT LESS THAN 50</td><td>ML</td><td>INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILT OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY</td></tr><tr><td>LIQUID LIMIT 50 OR MORE</td><td>CL</td><td>INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS</td></tr><tr><td rowspan="2">SILTS AND CLAYS</td><td>LIQUID LIMIT LESS THAN 50</td><td>OL</td><td>ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY</td></tr><tr><td>LIQUID LIMIT 50 OR MORE</td><td>MH</td><td>INORGANIC SILT, MICACEOUS OR DIATOMEACEOUS FINE SAND OR SILTY SOILS</td></tr><tr><td rowspan="2">SILTS AND CLAYS</td><td>LIQUID LIMIT 50 OR MORE</td><td>CH</td><td>INORGANIC CLAYS OF HIGH PLASTICITY</td></tr><tr><td>LIQUID LIMIT 50 OR MORE</td><td>OH</td><td>ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS</td></tr><tr><td colspan="2">SILTS AND CLAYS</td><td>LIQUID LIMIT 50 OR MORE</td><td>PT</td><td>PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS</td></tr></tbody></table> |  |  | MAJOR DIVISIONS   |   |  | USCS | TYPICAL DESCRIPTIONS | COARSE-GRAINED SOILS | GRAVELS | CLEAN GRAVELS<br>LESS THAN 5% FINES | GW | WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES | GRAVELS WITH FINES<br>MORE THAN 5% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE | GP | POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES | SANDS | CLEAN SANDS<br>LESS THAN 5% FINES | GM | SILT GRAVELS, GRAVEL-SAND SILT MIXTURES | SANDS WITH FINES<br>50% OR MORE OF COARSE FRACTION PASSING THROUGH NO. 4 SIEVE | GC | CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES | FINE-GRAINED SOILS | SILTS AND CLAYS | CLEAN SANDS<br>LESS THAN 5% FINES | SW | WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES | SANDS WITH FINES<br>50% OR MORE OF COARSE FRACTION PASSING THROUGH NO. 4 SIEVE | SP | POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES | SILTS AND CLAYS | LIQUID LIMIT LESS THAN 50 | SM | SILT SANDS, SAND-SILT MIXTURES | LIQUID LIMIT 50 OR MORE | SC | CLAYEY SANDS, SAND-CLAY MIXTURES | HIGHLY ORGANIC SOILS | SILTS AND CLAYS | LIQUID LIMIT LESS THAN 50 | ML | INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILT OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY | LIQUID LIMIT 50 OR MORE | CL | INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS | SILTS AND CLAYS | LIQUID LIMIT LESS THAN 50 | OL | ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY | LIQUID LIMIT 50 OR MORE | MH | INORGANIC SILT, MICACEOUS OR DIATOMEACEOUS FINE SAND OR SILTY SOILS | SILTS AND CLAYS | LIQUID LIMIT 50 OR MORE | CH | INORGANIC CLAYS OF HIGH PLASTICITY | LIQUID LIMIT 50 OR MORE | OH | ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS | SILTS AND CLAYS |  | LIQUID LIMIT 50 OR MORE | PT | PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS |
| MAJOR DIVISIONS  |  |  | USCS  | TYPICAL DESCRIPTIONS  |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
| COARSE-GRAINED SOILS   | GRAVELS  | CLEAN GRAVELS<br>LESS THAN 5% FINES  | GW  | WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
|  |  | GRAVELS WITH FINES<br>MORE THAN 5% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE  | GP  | POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
|  | SANDS  | CLEAN SANDS<br>LESS THAN 5% FINES  | GM  | SILT GRAVELS, GRAVEL-SAND SILT MIXTURES   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
|  |  | SANDS WITH FINES<br>50% OR MORE OF COARSE FRACTION PASSING THROUGH NO. 4 SIEVE | GC  | CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
| FINE-GRAINED SOILS   | SILTS AND CLAYS                                  | CLEAN SANDS<br>LESS THAN 5% FINES  | SW  | WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
|  |  | SANDS WITH FINES<br>50% OR MORE OF COARSE FRACTION PASSING THROUGH NO. 4 SIEVE | SP  | POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
|  | SILTS AND CLAYS                                  | LIQUID LIMIT LESS THAN 50  | SM  | SILT SANDS, SAND-SILT MIXTURES  |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
|  |  | LIQUID LIMIT 50 OR MORE  | SC  | CLAYEY SANDS, SAND-CLAY MIXTURES  |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
| HIGHLY ORGANIC SOILS   | SILTS AND CLAYS                                  | LIQUID LIMIT LESS THAN 50  | ML  | INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILT OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
|  |  | LIQUID LIMIT 50 OR MORE  | CL  | INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS                 |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
|  | SILTS AND CLAYS                                  | LIQUID LIMIT LESS THAN 50  | OL  | ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
|  |  | LIQUID LIMIT 50 OR MORE  | MH  | INORGANIC SILT, MICACEOUS OR DIATOMEACEOUS FINE SAND OR SILTY SOILS   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
| SILTS AND CLAYS  | LIQUID LIMIT 50 OR MORE                          | CH   | INORGANIC CLAYS OF HIGH PLASTICITY                        |   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
|  | LIQUID LIMIT 50 OR MORE                          | OH   | ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS |   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
| SILTS AND CLAYS  |  | LIQUID LIMIT 50 OR MORE  | PT  | PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
| NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS  |  |  |   |   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
| <b>LEGEND</b>  |  |  |   |   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
| 2-INCH O.D. STANDARD PENETRATION TEST  |  |  |   |   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
| 3-INCH O.D. MODIFIED CALIFORNIA SAMPLE   |  |  |   |   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
| SHELBY TUBE SAMPLE   |  |  |   |   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
| GRAB SAMPLE  |  |  |   |   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
| CORE SAMPLE  |  |  |   |   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
| LL LIQUID LIMIT  |  |  |   |   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
| PI PLASTICITY INDEX  |  |  |   |   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
| TV TORVANE SHEAR (lb)  |  |  |   |   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
| PEN POCKET PENETROMETER (lb)   |  |  |   |   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |
| WATER LEVEL OBSERVED IN BORING   |  |  |   |   |  |      |                      |                      |         |                                     |    |   |   |    |   |       |                                   |    |   |  |    |   |                    |                 |                                   |    |   |  |    |   |                 |                           |    |                                |                         |    |                                  |                      |                 |                           |    |   |                         |    |   |                 |                           |    |   |                         |    |   |                 |                         |    |                                    |                         |    |   |                 |  |                         |    |   |


|   | <b>GEOLABS, INC.</b><br>Geotechnical Engineering | <b>WAHIAWA BASE YARD IMPROVEMENTS</b><br>TMK: 7-3-07: 5<br>WAHIAWA, OAHU, HAWAII | <b>Log of Boring</b><br><b>B-1</b> |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
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| <table><thead><tr><th colspan="2">Laboratory</th><th colspan="2">Field</th><th colspan="2">Approximate Ground Surface Elevation (feet MSL): 867 *</th></tr><tr><th>Other Tests</th><th>Moisture Content (%)</th><th>Dry Density (pcf)</th><th>Core Recovery (%)</th><th>Penetration Resistance (Blow/ft)</th><th>Depth (feet)</th></tr></thead><tbody><tr><td></td><td></td><td></td><td></td><td></td><td>0</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>1</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>2</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>3</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>4</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>5</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>6</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>7</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>8</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>9</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>10</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>11</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>12</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>13</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>14</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>15</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>16</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>17</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>18</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>19</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>20</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>21</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>22</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>23</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>24</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>25</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>26</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>27</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>28</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>29</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>30</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>31</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>32</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>33</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>34</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>35</td></tr></tbody></table> |  |  |                                    | Laboratory   |              | Field |  | Approximate Ground Surface Elevation (feet MSL): 867 * |  | Other Tests | Moisture Content (%) | Dry Density (pcf) | Core Recovery (%) | Penetration Resistance (Blow/ft) | Depth (feet) |  |  |  |  |  | 0 |  |  |  |  |  | 1 |  |  |  |  |  | 2 |  |  |  |  |  | 3 |  |  |  |  |  | 4 |  |  |  |  |  | 5 |  |  |  |  |  | 6 |  |  |  |  |  | 7 |  |  |  |  |  | 8 |  |  |  |  |  | 9 |  |  |  |  |  | 10 |  |  |  |  |  | 11 |  |  |  |  |  | 12 |  |  |  |  |  | 13 |  |  |  |  |  | 14 |  |  |  |  |  | 15 |  |  |  |  |  | 16 |  |  |  |  |  | 17 |  |  |  |  |  | 18 |  |  |  |  |  | 19 |  |  |  |  |  | 20 |  |  |  |  |  | 21 |  |  |  |  |  | 22 |  |  |  |  |  | 23 |  |  |  |  |  | 24 |  |  |  |  |  | 25 |  |  |  |  |  | 26 |  |  |  |  |  | 27 |  |  |  |  |  | 28 |  |  |  |  |  | 29 |  |  |  |  |  | 30 |  |  |  |  |  | 31 |  |  |  |  |  | 32 |  |  |  |  |  | 33 |  |  |  |  |  | 34 |  |  |  |  |  | 35 |
| Laboratory   |  | Field  |                                    | Approximate Ground Surface Elevation (feet MSL): 867 * |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Other Tests  | Moisture Content (%)                             | Dry Density (pcf)  | Core Recovery (%)                  | Penetration Resistance (Blow/ft)                       | Depth (feet) |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 0            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 1            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 2            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 3            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 4            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 5            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 6            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 7            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 8            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 9            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 10           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 11           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 12           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 13           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 14           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 15           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 16           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 17           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 18           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 19           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 20           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 21           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 22           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 23           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 24           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 25           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 26           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 27           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 28           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 29           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 30           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 31           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 32           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 33           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 34           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 35           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Date Started: July 3, 2001   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Date Completed: July 3, 2001   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Logged By: K. Gronseth   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Total Depth: 21.5 feet   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Work Order: 4711-00  |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Water Level: Not Encountered   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Plate  |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| A - 1  |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |


|   | <b>GEOLABS, INC.</b><br>Geotechnical Engineering | <b>WAHIAWA BASE YARD IMPROVEMENTS</b><br>TMK: 7-3-07: 5<br>WAHIAWA, OAHU, HAWAII | <b>Log of Boring</b><br><b>B-2</b> |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|--|--|--|------------------------------------|--|--------------|-------|--|--|--|-------------|----------------------|-------------------|-------------------|----------------------------------|--------------|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|
| <table><thead><tr><th colspan="2">Laboratory</th><th colspan="2">Field</th><th colspan="2">Approximate Ground Surface Elevation (feet MSL): 867 *</th></tr><tr><th>Other Tests</th><th>Moisture Content (%)</th><th>Dry Density (pcf)</th><th>Core Recovery (%)</th><th>Penetration Resistance (Blow/ft)</th><th>Depth (feet)</th></tr></thead><tbody><tr><td></td><td></td><td></td><td></td><td></td><td>0</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>1</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>2</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>3</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>4</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>5</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>6</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>7</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>8</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>9</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>10</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>11</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>12</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>13</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>14</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>15</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>16</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>17</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>18</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>19</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>20</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>21</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>22</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>23</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>24</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>25</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>26</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>27</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>28</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>29</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>30</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>31</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>32</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>33</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>34</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>35</td></tr></tbody></table> |  |  |                                    | Laboratory   |              | Field |  | Approximate Ground Surface Elevation (feet MSL): 867 * |  | Other Tests | Moisture Content (%) | Dry Density (pcf) | Core Recovery (%) | Penetration Resistance (Blow/ft) | Depth (feet) |  |  |  |  |  | 0 |  |  |  |  |  | 1 |  |  |  |  |  | 2 |  |  |  |  |  | 3 |  |  |  |  |  | 4 |  |  |  |  |  | 5 |  |  |  |  |  | 6 |  |  |  |  |  | 7 |  |  |  |  |  | 8 |  |  |  |  |  | 9 |  |  |  |  |  | 10 |  |  |  |  |  | 11 |  |  |  |  |  | 12 |  |  |  |  |  | 13 |  |  |  |  |  | 14 |  |  |  |  |  | 15 |  |  |  |  |  | 16 |  |  |  |  |  | 17 |  |  |  |  |  | 18 |  |  |  |  |  | 19 |  |  |  |  |  | 20 |  |  |  |  |  | 21 |  |  |  |  |  | 22 |  |  |  |  |  | 23 |  |  |  |  |  | 24 |  |  |  |  |  | 25 |  |  |  |  |  | 26 |  |  |  |  |  | 27 |  |  |  |  |  | 28 |  |  |  |  |  | 29 |  |  |  |  |  | 30 |  |  |  |  |  | 31 |  |  |  |  |  | 32 |  |  |  |  |  | 33 |  |  |  |  |  | 34 |  |  |  |  |  | 35 |
| Laboratory   |  | Field  |                                    | Approximate Ground Surface Elevation (feet MSL): 867 * |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Other Tests  | Moisture Content (%)                             | Dry Density (pcf)  | Core Recovery (%)                  | Penetration Resistance (Blow/ft)                       | Depth (feet) |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 0            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 1            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 2            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 3            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 4            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 5            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 6            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 7            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 8            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 9            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 10           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 11           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 12           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 13           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 14           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 15           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 16           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 17           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 18           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 19           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 20           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 21           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 22           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 23           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 24           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 25           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 26           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 27           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 28           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 29           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 30           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 31           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 32           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 33           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 34           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 35           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Date Started: July 2, 2001   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Date Completed: July 2, 2001   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Logged By: K. Gronseth   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Total Depth: 18 feet   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Work Order: 4711-00  |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Water Level: Not Encountered   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Plate  |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| A - 2  |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |

|   | <b>GEOLABS, INC.</b><br>Geotechnical Engineering | <b>WAHIAWA BASE YARD IMPROVEMENTS</b><br>TMK: 7-3-07: 5<br>WAHIAWA, OAHU, HAWAII | <b>Log of Boring</b><br><b>B-3</b> |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|--|--|--|------------------------------------|--|--------------|-------|--|--|--|-------------|----------------------|-------------------|-------------------|----------------------------------|--------------|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|
| <table><thead><tr><th colspan="2">Laboratory</th><th colspan="2">Field</th><th colspan="2">Approximate Ground Surface Elevation (feet MSL): 867 *</th></tr><tr><th>Other Tests</th><th>Moisture Content (%)</th><th>Dry Density (pcf)</th><th>Core Recovery (%)</th><th>Penetration Resistance (Blow/ft)</th><th>Depth (feet)</th></tr></thead><tbody><tr><td></td><td></td><td></td><td></td><td></td><td>0</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>1</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>2</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>3</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>4</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>5</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>6</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>7</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>8</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>9</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>10</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>11</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>12</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>13</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>14</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>15</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>16</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>17</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>18</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>19</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>20</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>21</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>22</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>23</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>24</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>25</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>26</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>27</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>28</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>29</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>30</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>31</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>32</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>33</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>34</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>35</td></tr></tbody></table> |  |  |                                    | Laboratory   |              | Field |  | Approximate Ground Surface Elevation (feet MSL): 867 * |  | Other Tests | Moisture Content (%) | Dry Density (pcf) | Core Recovery (%) | Penetration Resistance (Blow/ft) | Depth (feet) |  |  |  |  |  | 0 |  |  |  |  |  | 1 |  |  |  |  |  | 2 |  |  |  |  |  | 3 |  |  |  |  |  | 4 |  |  |  |  |  | 5 |  |  |  |  |  | 6 |  |  |  |  |  | 7 |  |  |  |  |  | 8 |  |  |  |  |  | 9 |  |  |  |  |  | 10 |  |  |  |  |  | 11 |  |  |  |  |  | 12 |  |  |  |  |  | 13 |  |  |  |  |  | 14 |  |  |  |  |  | 15 |  |  |  |  |  | 16 |  |  |  |  |  | 17 |  |  |  |  |  | 18 |  |  |  |  |  | 19 |  |  |  |  |  | 20 |  |  |  |  |  | 21 |  |  |  |  |  | 22 |  |  |  |  |  | 23 |  |  |  |  |  | 24 |  |  |  |  |  | 25 |  |  |  |  |  | 26 |  |  |  |  |  | 27 |  |  |  |  |  | 28 |  |  |  |  |  | 29 |  |  |  |  |  | 30 |  |  |  |  |  | 31 |  |  |  |  |  | 32 |  |  |  |  |  | 33 |  |  |  |  |  | 34 |  |  |  |  |  | 35 |
| Laboratory   |  | Field  |                                    | Approximate Ground Surface Elevation (feet MSL): 867 * |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Other Tests  | Moisture Content (%)                             | Dry Density (pcf)  | Core Recovery (%)                  | Penetration Resistance (Blow/ft)                       | Depth (feet) |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 0            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 1            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 2            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 3            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 4            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 5            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 6            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 7            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 8            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 9            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 10           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 11           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 12           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 13           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 14           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 15           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 16           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 17           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 18           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 19           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 20           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 21           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 22           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 23           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 24           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 25           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 26           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 27           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 28           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 29           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 30           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 31           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 32           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 33           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 34           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 35           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Date Started: July 2, 2001   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Date Completed: July 2, 2001   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Logged By: K. Gronseth   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Total Depth: 21.5 feet   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Work Order: 4711-00  |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Water Level: Not Encountered   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Plate  |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| A - 3  |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |

|   | <b>GEOLABS, INC.</b><br>Geotechnical Engineering | <b>WAHIAWA BASE YARD IMPROVEMENTS</b><br>TMK: 7-3-07: 5<br>WAHIAWA, OAHU, HAWAII | <b>Log of Boring</b><br><b>B-4</b> |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|--|--|--|------------------------------------|--|--------------|-------|--|--|--|-------------|----------------------|-------------------|-------------------|----------------------------------|--------------|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|
| <table><thead><tr><th colspan="2">Laboratory</th><th colspan="2">Field</th><th colspan="2">Approximate Ground Surface Elevation (feet MSL): 867 *</th></tr><tr><th>Other Tests</th><th>Moisture Content (%)</th><th>Dry Density (pcf)</th><th>Core Recovery (%)</th><th>Penetration Resistance (Blow/ft)</th><th>Depth (feet)</th></tr></thead><tbody><tr><td></td><td></td><td></td><td></td><td></td><td>0</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>1</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>2</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>3</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>4</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>5</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>6</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>7</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>8</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>9</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>10</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>11</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>12</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>13</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>14</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>15</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>16</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>17</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>18</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>19</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>20</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>21</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>22</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>23</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>24</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>25</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>26</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>27</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>28</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>29</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>30</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>31</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>32</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>33</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>34</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>35</td></tr></tbody></table> |  |  |                                    | Laboratory   |              | Field |  | Approximate Ground Surface Elevation (feet MSL): 867 * |  | Other Tests | Moisture Content (%) | Dry Density (pcf) | Core Recovery (%) | Penetration Resistance (Blow/ft) | Depth (feet) |  |  |  |  |  | 0 |  |  |  |  |  | 1 |  |  |  |  |  | 2 |  |  |  |  |  | 3 |  |  |  |  |  | 4 |  |  |  |  |  | 5 |  |  |  |  |  | 6 |  |  |  |  |  | 7 |  |  |  |  |  | 8 |  |  |  |  |  | 9 |  |  |  |  |  | 10 |  |  |  |  |  | 11 |  |  |  |  |  | 12 |  |  |  |  |  | 13 |  |  |  |  |  | 14 |  |  |  |  |  | 15 |  |  |  |  |  | 16 |  |  |  |  |  | 17 |  |  |  |  |  | 18 |  |  |  |  |  | 19 |  |  |  |  |  | 20 |  |  |  |  |  | 21 |  |  |  |  |  | 22 |  |  |  |  |  | 23 |  |  |  |  |  | 24 |  |  |  |  |  | 25 |  |  |  |  |  | 26 |  |  |  |  |  | 27 |  |  |  |  |  | 28 |  |  |  |  |  | 29 |  |  |  |  |  | 30 |  |  |  |  |  | 31 |  |  |  |  |  | 32 |  |  |  |  |  | 33 |  |  |  |  |  | 34 |  |  |  |  |  | 35 |
| Laboratory   |  | Field  |                                    | Approximate Ground Surface Elevation (feet MSL): 867 * |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Other Tests  | Moisture Content (%)                             | Dry Density (pcf)  | Core Recovery (%)                  | Penetration Resistance (Blow/ft)                       | Depth (feet) |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 0            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 1            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 2            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 3            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 4            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 5            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 6            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 7            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 8            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 9            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 10           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 11           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 12           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 13           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 14           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 15           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 16           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 17           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 18           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 19           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 20           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 21           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 22           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 23           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 24           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 25           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 26           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 27           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 28           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 29           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 30           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 31           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 32           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 33           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 34           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 35           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Date Started: July 2, 2001   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Date Completed: July 2, 2001   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Logged By: K. Gronseth   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Total Depth: 21.5 feet   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Work Order: 4711-00  |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Water Level: Not Encountered   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Plate  |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| A - 4  |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |

|   | <b>GEOLABS, INC.</b><br>Geotechnical Engineering | <b>WAHIAWA BASE YARD IMPROVEMENTS</b><br>TMK: 7-3-07: 5<br>WAHIAWA, OAHU, HAWAII | <b>Log of Boring</b><br><b>B-5</b> |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|--|--|--|------------------------------------|--|--------------|-------|--|--|--|-------------|----------------------|-------------------|-------------------|----------------------------------|--------------|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|
| <table><thead><tr><th colspan="2">Laboratory</th><th colspan="2">Field</th><th colspan="2">Approximate Ground Surface Elevation (feet MSL): 867 *</th></tr><tr><th>Other Tests</th><th>Moisture Content (%)</th><th>Dry Density (pcf)</th><th>Core Recovery (%)</th><th>Penetration Resistance (Blow/ft)</th><th>Depth (feet)</th></tr></thead><tbody><tr><td></td><td></td><td></td><td></td><td></td><td>0</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>1</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>2</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>3</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>4</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>5</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>6</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>7</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>8</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>9</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>10</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>11</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>12</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>13</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>14</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>15</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>16</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>17</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>18</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>19</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>20</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>21</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>22</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>23</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>24</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>25</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>26</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>27</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>28</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>29</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>30</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>31</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>32</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>33</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>34</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>35</td></tr></tbody></table> |  |  |                                    | Laboratory   |              | Field |  | Approximate Ground Surface Elevation (feet MSL): 867 * |  | Other Tests | Moisture Content (%) | Dry Density (pcf) | Core Recovery (%) | Penetration Resistance (Blow/ft) | Depth (feet) |  |  |  |  |  | 0 |  |  |  |  |  | 1 |  |  |  |  |  | 2 |  |  |  |  |  | 3 |  |  |  |  |  | 4 |  |  |  |  |  | 5 |  |  |  |  |  | 6 |  |  |  |  |  | 7 |  |  |  |  |  | 8 |  |  |  |  |  | 9 |  |  |  |  |  | 10 |  |  |  |  |  | 11 |  |  |  |  |  | 12 |  |  |  |  |  | 13 |  |  |  |  |  | 14 |  |  |  |  |  | 15 |  |  |  |  |  | 16 |  |  |  |  |  | 17 |  |  |  |  |  | 18 |  |  |  |  |  | 19 |  |  |  |  |  | 20 |  |  |  |  |  | 21 |  |  |  |  |  | 22 |  |  |  |  |  | 23 |  |  |  |  |  | 24 |  |  |  |  |  | 25 |  |  |  |  |  | 26 |  |  |  |  |  | 27 |  |  |  |  |  | 28 |  |  |  |  |  | 29 |  |  |  |  |  | 30 |  |  |  |  |  | 31 |  |  |  |  |  | 32 |  |  |  |  |  | 33 |  |  |  |  |  | 34 |  |  |  |  |  | 35 |
| Laboratory   |  | Field  |                                    | Approximate Ground Surface Elevation (feet MSL): 867 * |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Other Tests  | Moisture Content (%)                             | Dry Density (pcf)  | Core Recovery (%)                  | Penetration Resistance (Blow/ft)                       | Depth (feet) |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 0            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 1            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 2            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 3            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 4            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 5            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 6            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 7            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 8            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 9            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 10           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 11           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 12           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 13           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 14           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 15           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 16           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 17           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 18           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 19           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 20           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 21           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 22           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 23           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 24           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 25           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 26           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 27           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 28           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 29           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 30           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 31           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 32           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 33           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 34           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 35           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Date Started: July 3, 2001   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Date Completed: July 3, 2001   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Logged By: K. Gronseth   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Total Depth: 21.5 feet   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Work Order: 4711-00  |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Water Level: Not Encountered   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Plate  |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| A - 5  |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |

|   | <b>GEOLABS, INC.</b><br>Geotechnical Engineering | <b>WAHIAWA BASE YARD IMPROVEMENTS</b><br>TMK: 7-3-07: 5<br>WAHIAWA, OAHU, HAWAII | <b>Log of Boring</b><br><b>B-6</b> |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|--|--|--|------------------------------------|--|--------------|-------|--|--|--|-------------|----------------------|-------------------|-------------------|----------------------------------|--------------|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|
| <table><thead><tr><th colspan="2">Laboratory</th><th colspan="2">Field</th><th colspan="2">Approximate Ground Surface Elevation (feet MSL): 867 *</th></tr><tr><th>Other Tests</th><th>Moisture Content (%)</th><th>Dry Density (pcf)</th><th>Core Recovery (%)</th><th>Penetration Resistance (Blow/ft)</th><th>Depth (feet)</th></tr></thead><tbody><tr><td></td><td></td><td></td><td></td><td></td><td>0</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>1</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>2</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>3</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>4</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>5</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>6</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>7</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>8</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>9</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>10</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>11</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>12</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>13</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>14</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>15</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>16</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>17</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>18</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>19</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>20</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>21</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>22</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>23</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>24</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>25</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>26</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>27</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>28</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>29</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>30</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>31</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>32</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>33</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>34</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>35</td></tr></tbody></table> |  |  |                                    | Laboratory   |              | Field |  | Approximate Ground Surface Elevation (feet MSL): 867 * |  | Other Tests | Moisture Content (%) | Dry Density (pcf) | Core Recovery (%) | Penetration Resistance (Blow/ft) | Depth (feet) |  |  |  |  |  | 0 |  |  |  |  |  | 1 |  |  |  |  |  | 2 |  |  |  |  |  | 3 |  |  |  |  |  | 4 |  |  |  |  |  | 5 |  |  |  |  |  | 6 |  |  |  |  |  | 7 |  |  |  |  |  | 8 |  |  |  |  |  | 9 |  |  |  |  |  | 10 |  |  |  |  |  | 11 |  |  |  |  |  | 12 |  |  |  |  |  | 13 |  |  |  |  |  | 14 |  |  |  |  |  | 15 |  |  |  |  |  | 16 |  |  |  |  |  | 17 |  |  |  |  |  | 18 |  |  |  |  |  | 19 |  |  |  |  |  | 20 |  |  |  |  |  | 21 |  |  |  |  |  | 22 |  |  |  |  |  | 23 |  |  |  |  |  | 24 |  |  |  |  |  | 25 |  |  |  |  |  | 26 |  |  |  |  |  | 27 |  |  |  |  |  | 28 |  |  |  |  |  | 29 |  |  |  |  |  | 30 |  |  |  |  |  | 31 |  |  |  |  |  | 32 |  |  |  |  |  | 33 |  |  |  |  |  | 34 |  |  |  |  |  | 35 |
| Laboratory   |  | Field  |                                    | Approximate Ground Surface Elevation (feet MSL): 867 * |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Other Tests  | Moisture Content (%)                             | Dry Density (pcf)  | Core Recovery (%)                  | Penetration Resistance (Blow/ft)                       | Depth (feet) |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 0            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 1            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 2            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 3            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 4            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 5            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 6            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 7            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 8            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 9            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 10           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 11           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 12           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 13           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 14           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 15           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 16           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 17           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 18           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 19           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 20           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 21           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 22           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 23           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 24           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 25           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 26           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 27           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 28           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 29           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 30           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 31           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 32           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 33           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 34           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 35           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Date Started: July 3, 2001   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Date Completed: July 3, 2001   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Logged By: K. Gronseth   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Total Depth: 6.5 feet  |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Work Order: 4711-00  |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Water Level: Not Encountered   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Plate  |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| A - 6  |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |

|   | <b>GEOLABS, INC.</b><br>Geotechnical Engineering | <b>WAHIAWA BASE YARD IMPROVEMENTS</b><br>TMK: 7-3-07: 5<br>WAHIAWA, OAHU, HAWAII | <b>Log of Boring</b><br><b>B-7</b> |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|--|--|--|------------------------------------|--|--------------|-------|--|--|--|-------------|----------------------|-------------------|-------------------|----------------------------------|--------------|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|---|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|--|--|--|--|--|----|
| <table><thead><tr><th colspan="2">Laboratory</th><th colspan="2">Field</th><th colspan="2">Approximate Ground Surface Elevation (feet MSL): 867 *</th></tr><tr><th>Other Tests</th><th>Moisture Content (%)</th><th>Dry Density (pcf)</th><th>Core Recovery (%)</th><th>Penetration Resistance (Blow/ft)</th><th>Depth (feet)</th></tr></thead><tbody><tr><td></td><td></td><td></td><td></td><td></td><td>0</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>1</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>2</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>3</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>4</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>5</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>6</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>7</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>8</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>9</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>10</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>11</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>12</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>13</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>14</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>15</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>16</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>17</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>18</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>19</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>20</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>21</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>22</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>23</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>24</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>25</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>26</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>27</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>28</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>29</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>30</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>31</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>32</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>33</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>34</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>35</td></tr></tbody></table> |  |  |                                    | Laboratory   |              | Field |  | Approximate Ground Surface Elevation (feet MSL): 867 * |  | Other Tests | Moisture Content (%) | Dry Density (pcf) | Core Recovery (%) | Penetration Resistance (Blow/ft) | Depth (feet) |  |  |  |  |  | 0 |  |  |  |  |  | 1 |  |  |  |  |  | 2 |  |  |  |  |  | 3 |  |  |  |  |  | 4 |  |  |  |  |  | 5 |  |  |  |  |  | 6 |  |  |  |  |  | 7 |  |  |  |  |  | 8 |  |  |  |  |  | 9 |  |  |  |  |  | 10 |  |  |  |  |  | 11 |  |  |  |  |  | 12 |  |  |  |  |  | 13 |  |  |  |  |  | 14 |  |  |  |  |  | 15 |  |  |  |  |  | 16 |  |  |  |  |  | 17 |  |  |  |  |  | 18 |  |  |  |  |  | 19 |  |  |  |  |  | 20 |  |  |  |  |  | 21 |  |  |  |  |  | 22 |  |  |  |  |  | 23 |  |  |  |  |  | 24 |  |  |  |  |  | 25 |  |  |  |  |  | 26 |  |  |  |  |  | 27 |  |  |  |  |  | 28 |  |  |  |  |  | 29 |  |  |  |  |  | 30 |  |  |  |  |  | 31 |  |  |  |  |  | 32 |  |  |  |  |  | 33 |  |  |  |  |  | 34 |  |  |  |  |  | 35 |
| Laboratory   |  | Field  |                                    | Approximate Ground Surface Elevation (feet MSL): 867 * |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Other Tests  | Moisture Content (%)                             | Dry Density (pcf)  | Core Recovery (%)                  | Penetration Resistance (Blow/ft)                       | Depth (feet) |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 0            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 1            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 2            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 3            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 4            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 5            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 6            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 7            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 8            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 9            |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 10           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 11           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 12           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 13           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 14           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 15           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 16           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 17           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 18           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 19           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 20           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 21           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 22           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 23           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 24           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 25           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 26           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 27           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 28           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 29           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 30           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 31           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 32           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 33           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 34           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  | 35           |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Date Started: July 2, 2001   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Date Completed: July 2, 2001   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Logged By: K. Gronseth   |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
| Total Depth: 6.5 feet  |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |
|  |  |  |                                    |  |              |       |  |  |  |             |                      |                   |                   |                                  |              |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |   |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |  |  |  |  |  |    |



| FED. ROAD DIST. NO. | STATE | PROJ. NO.   | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HWY-0-12-00 | 2003        | 9         | 82           |

NOTE:

- SEE LANDSCAPE PLANS FOR RELOCATION OF EXISTING PLANTS, TREES, GROUND COVER AND IRRIGATION SYSTEM.
- SEE ELECTRICAL PLANS FOR RELOCATION OF ELECTRICAL, COMMUNICATION AND FIRE ALARM SYSTEMS
- SEE MECHANICAL PLANS FOR DISPOSITION OF EXISTING BUILDING SEWER, WATER, GAS, ETC.
- ALL EROSION CONTROL MEASURES SHALL BE IN PLACE AS SHOWN ON SHEET C1.04 PRIOR TO BEGINNING ANY DEMOLITION WORK.

LEGEND

- APPROXIMATE BORING LOCATION
- APPROXIMATE BULK SAMPLE LOCATION

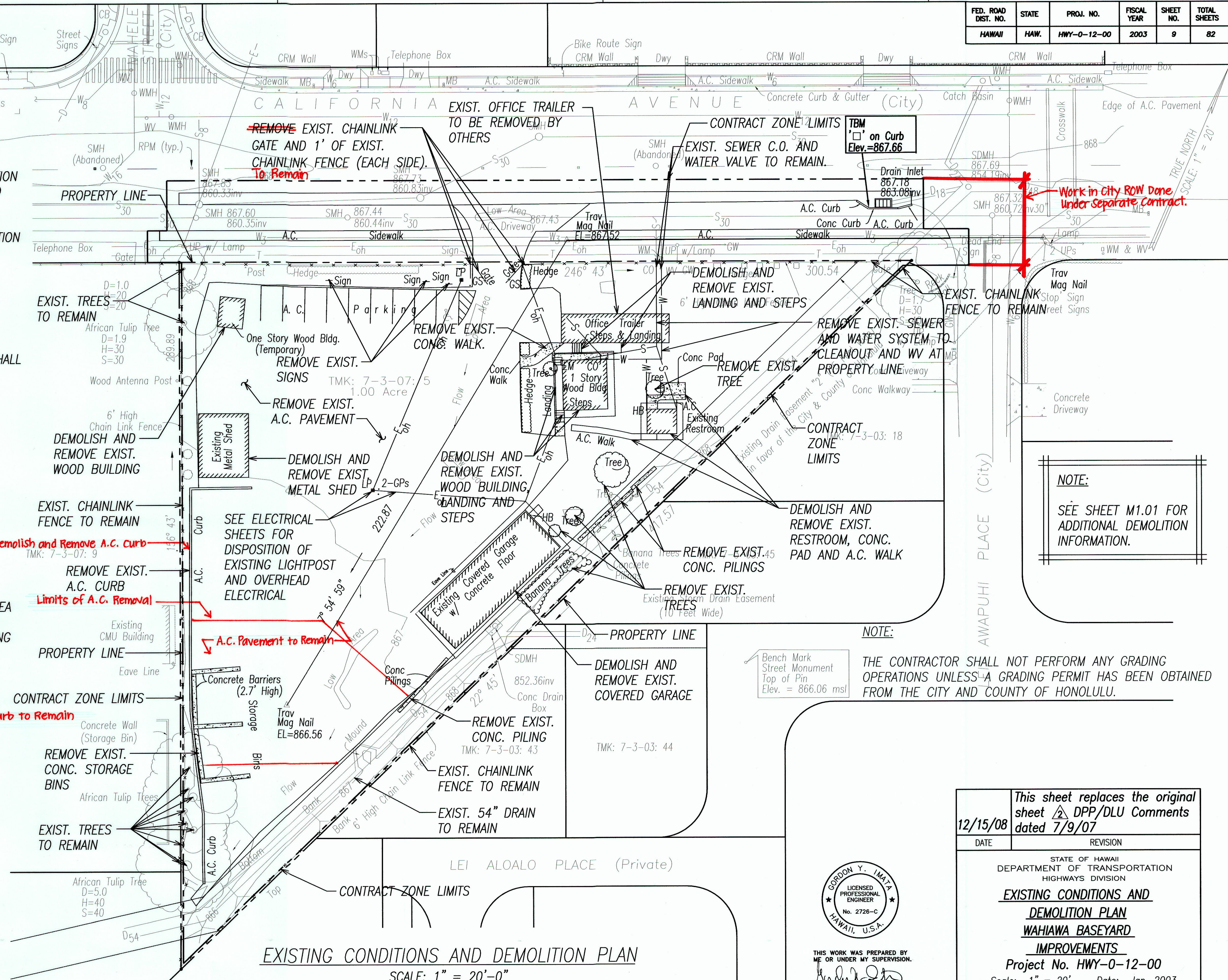
NOTE:

THE CONTRACTOR SHALL MODIFY THE AREA OF A.C. PAVEMENT TO BE REMOVED AS NECESSARY TO PROVIDE A SMOOTH RIDING CONNECTION TO EXISTING.

NOTES:

- Trav
- Abbreviations:
    - b Bottom
    - bc Bottom Curb
    - CO Clean-out
    - D Drain
    - D,H,S Diameter, Height, Spread
    - E<sub>oh</sub> Overhead Electric/Utility Lines
    - EM Electric Meter
    - g Ground
    - HB Hose Bib
    - inv Invert
    - S Sewer
    - SDMH Storm Drain Manhole
    - SMH Sewer Manhole
    - T Telephone Ductline
    - t Top
    - tc Top Curb
    - tp Top Pipe
    - UP Utility Pole
    - W Water
    - WM Water Meter
  - Origin of elevation: Street monument on Lei Awapuhi Place.
  - Date of survey: May 19, 2001.

|                   |      |
|-------------------|------|
| SURVEY PLOTTED BY | DATE |
| DRAWN BY          |      |
| DESIGNED BY       |      |
| CHECKED BY        |      |
| ORIGINAL PLAN     |      |
| NOTE BOOK         |      |
| No.               |      |



NOTE:

SEE SHEET M1.01 FOR ADDITIONAL DEMOLITION INFORMATION.

NOTE:

THE CONTRACTOR SHALL NOT PERFORM ANY GRADING OPERATIONS UNLESS A GRADING PERMIT HAS BEEN OBTAINED FROM THE CITY AND COUNTY OF HONOLULU.

This sheet replaces the original sheet 2 DPP/DLU Comments dated 7/9/07

| DATE   | REVISION     |
|--|--------------|
| 12/15/08   |              |
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION                     |              |
| <b>EXISTING CONDITIONS AND<br/>DEMOLITION PLAN<br/>WAHIAWA BASEYARD<br/>IMPROVEMENTS</b> |              |
| Project No. HWY-0-12-00  |              |
| Scale: 1" = 20' Date: Jan. 2003  |              |
| SHEET No. C1.01  | OF 82 SHEETS |



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Gordon Y. Inata  
LICENSE EXPIRATION DATE 4/30/2010

EXISTING CONDITIONS AND DEMOLITION PLAN  
SCALE: 1" = 20'-0"

"AS-BUILT"

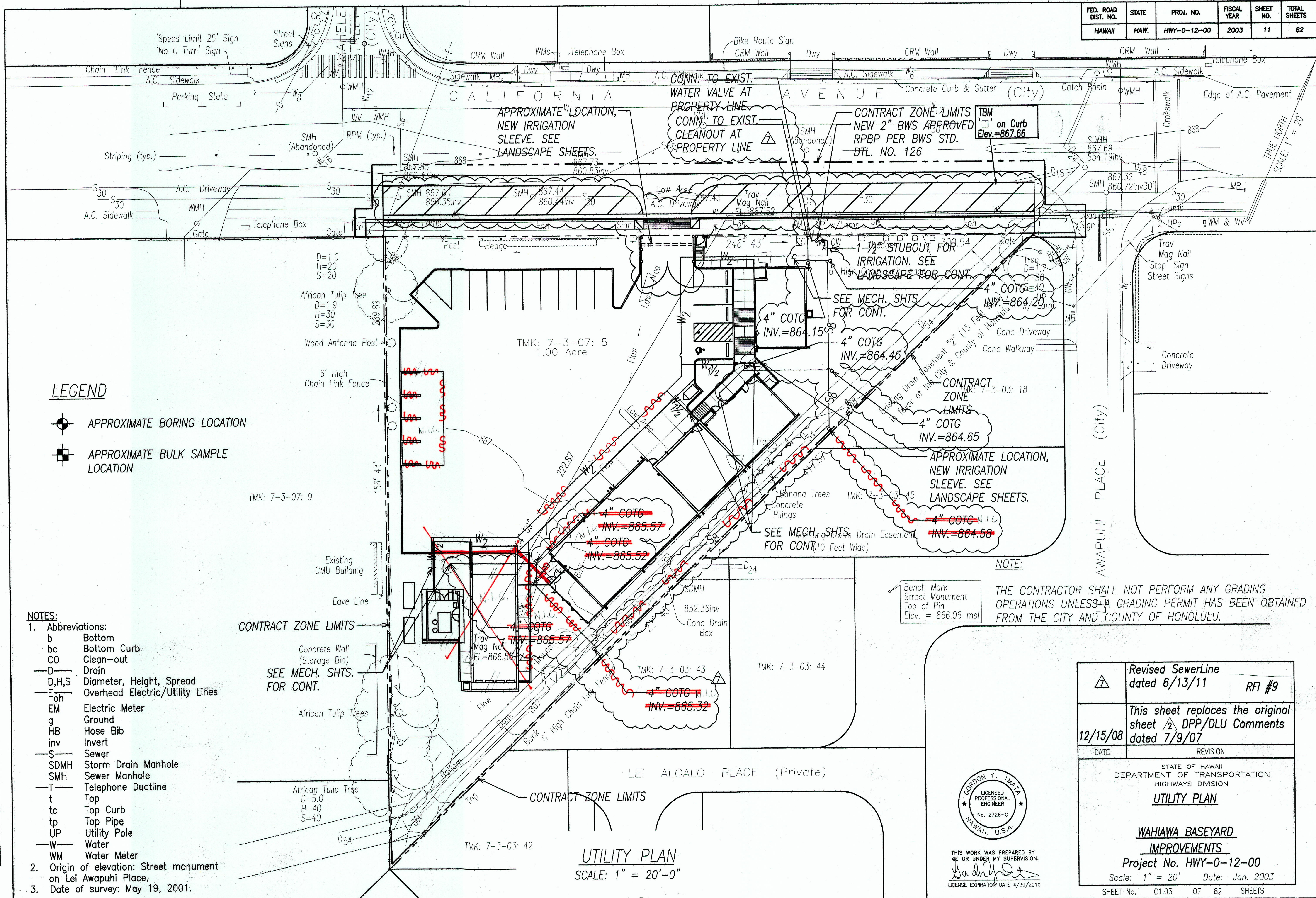
C.O.9







| FED. ROAD DIST. NO. | STATE | PROJ. NO.   | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HWY-0-12-00 | 2003        | 11        | 82           |



**LEGEND**

- APPROXIMATE BORING LOCATION
- APPROXIMATE BULK SAMPLE LOCATION

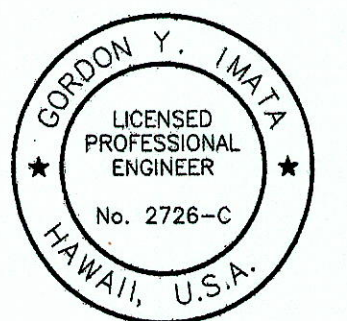
**NOTES:**

- Abbreviations:
  - b Bottom
  - bc Bottom Curb
  - CO Clean-out
  - D Drain
  - D,H,S Diameter, Height, Spread
  - E<sub>oh</sub> Overhead Electric/Utility Lines
  - EM Electric Meter
  - g Ground
  - HB Hose Bib
  - inv Invert
  - S Sewer
  - SDMH Storm Drain Manhole
  - SMH Sewer Manhole
  - T Telephone Ductline
  - t Top
  - tc Top Curb
  - tp Top Pipe
  - UP Utility Pole
  - W Water
  - WM Water Meter
- Origin of elevation: Street monument on Lei Awapuhi Place.
- Date of survey: May 19, 2001.

**NOTE:**

THE CONTRACTOR SHALL NOT PERFORM ANY GRADING OPERATIONS UNLESS A GRADING PERMIT HAS BEEN OBTAINED FROM THE CITY AND COUNTY OF HONOLULU.

|   |       |              |
|---|-------|--------------|
| Revised SewerLine dated 6/13/11   |       | RFI #9       |
| This sheet replaces the original sheet  DPP/DLU Comments dated 7/9/07   |       |              |
| 12/15/08  | DATE  | REVISION     |
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION<br><b>UTILITY PLAN</b><br><b>WAHIAWA BASEYARD IMPROVEMENTS</b><br>Project No. HWY-0-12-00<br>Scale: 1" = 20' Date: Jan. 2003 |       |              |
| SHEET No.   | C1.03 | OF 82 SHEETS |



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*[Signature]*  
 LICENSE EXPIRATION DATE 4/30/2010

**"AS-BUILT"**

**C.O.11**



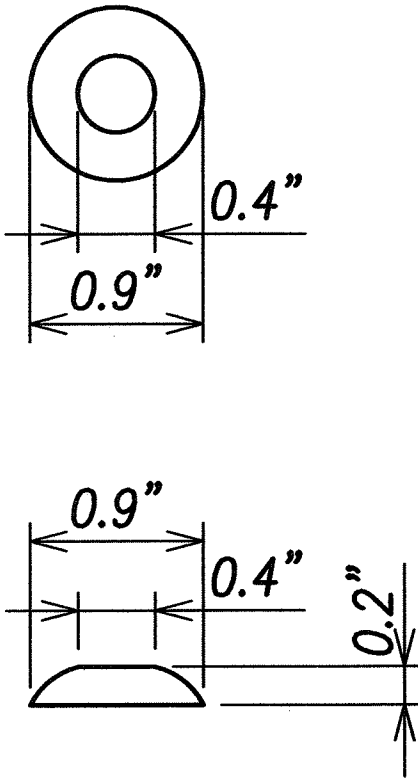
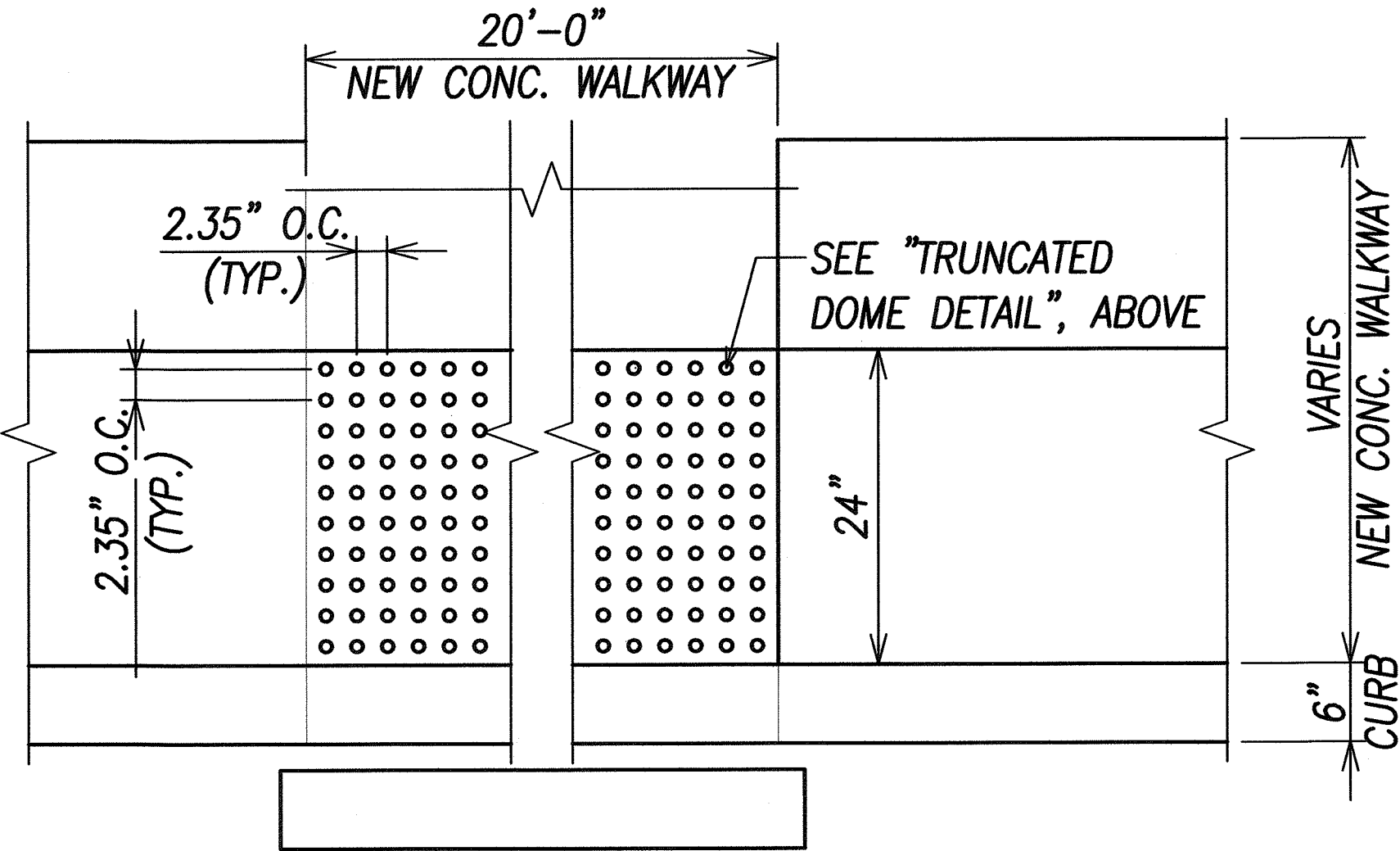






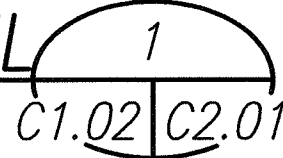


| FED. ROAD DIST. NO. | STATE | PROJ. NO.   | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HWY-0-12-00 | 2003        | 13        | 82           |



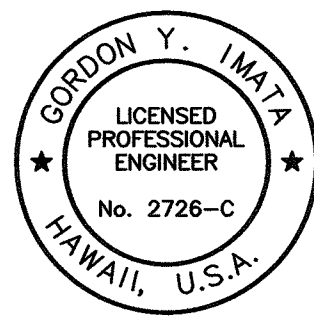
TRUNCATED DOME DETAIL  
SCALE: 1" = 1"

DETECTABLE WARNING DETAIL  
SCALE: 1" = 1'-0"



|               |                   |      |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK     | DESIGNED BY       |      |
|               | QUANTITIES BY     |      |
|               | CHECKED BY        |      |

ADDED THIS SHEET



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Gordon Y. Ima  
LICENSE EXPIRATION DATE 4/30/2010

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

DETAILS

WAHIAWA BASEYARD  
IMPROVEMENTS

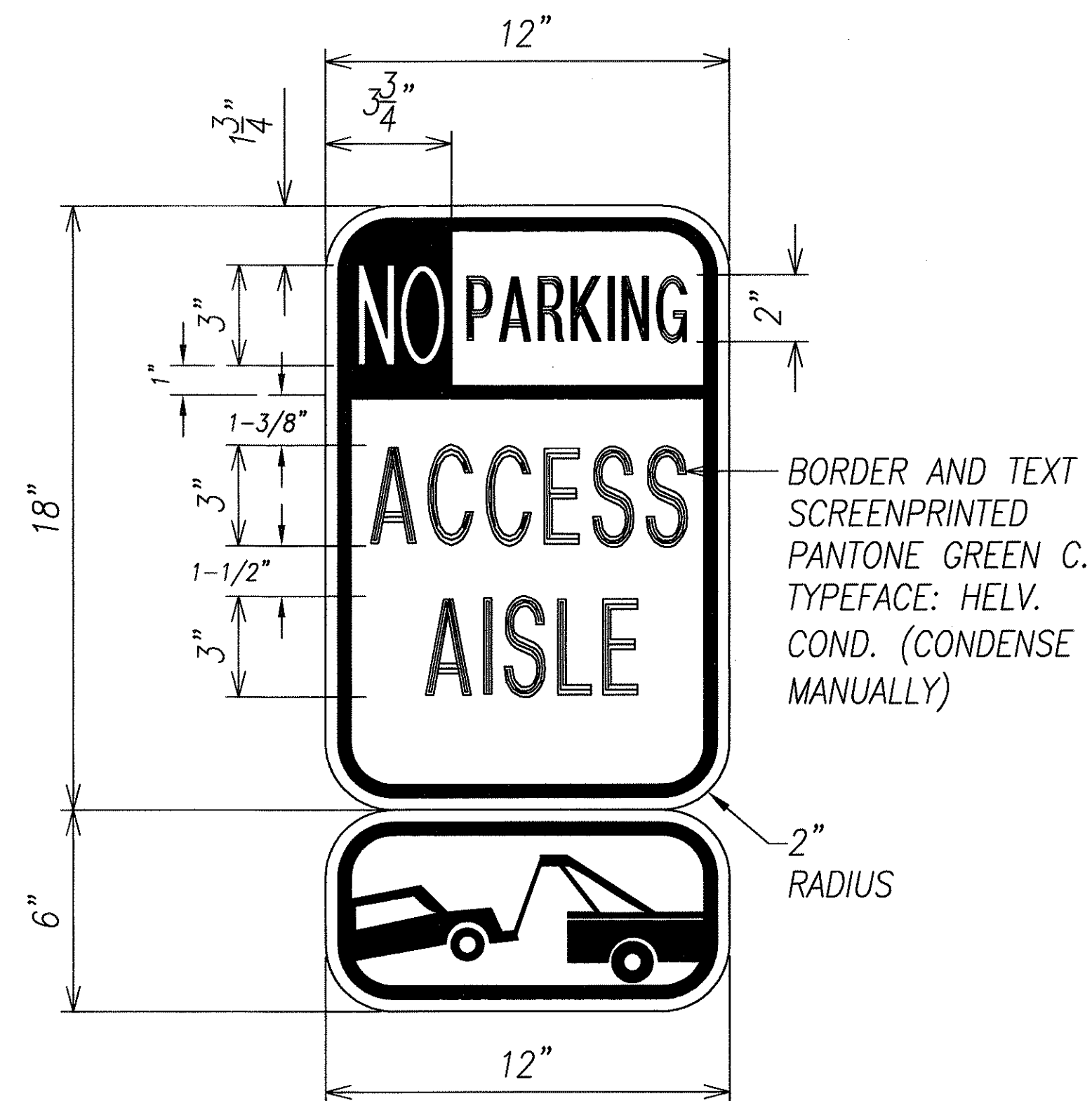
Project No. HWY-0-12-00

Scale: As Noted Date: Jan. 2003

SHEET No. C2.01A OF 82 SHEETS



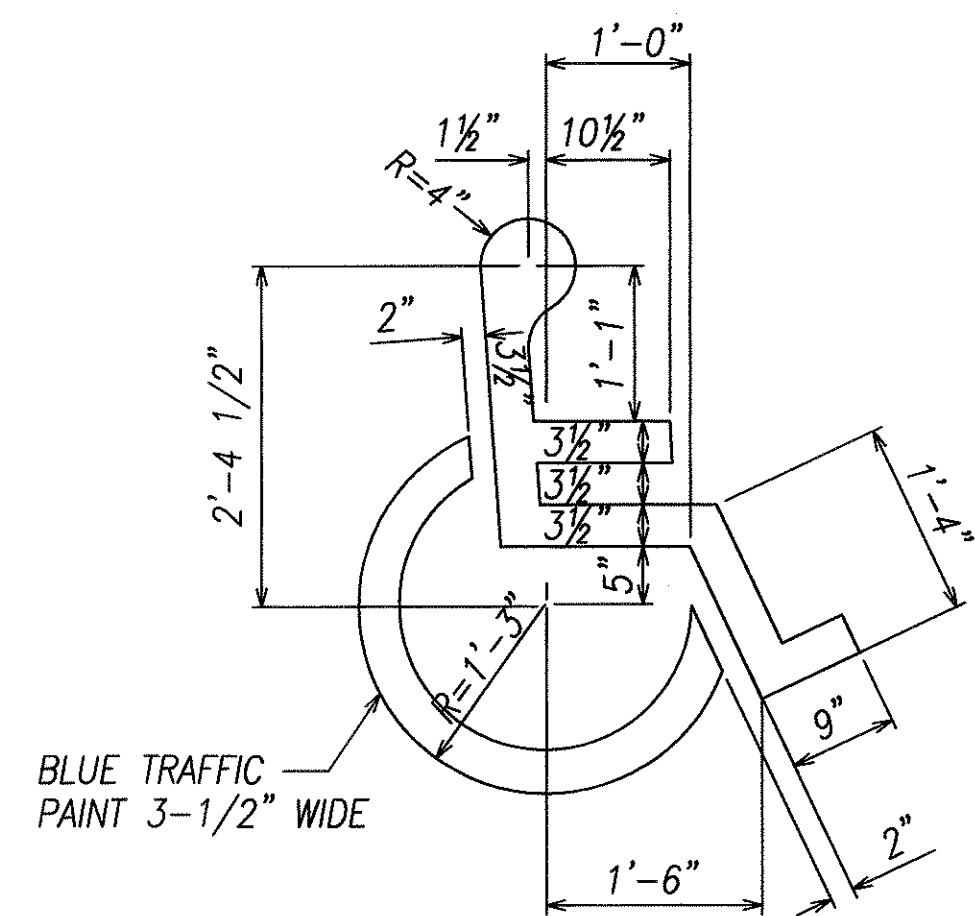
| FED. ROAD DIST. NO. | STATE | PROJ. NO.   | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HWY-0-12-00 | 2004        | 14        | 82           |



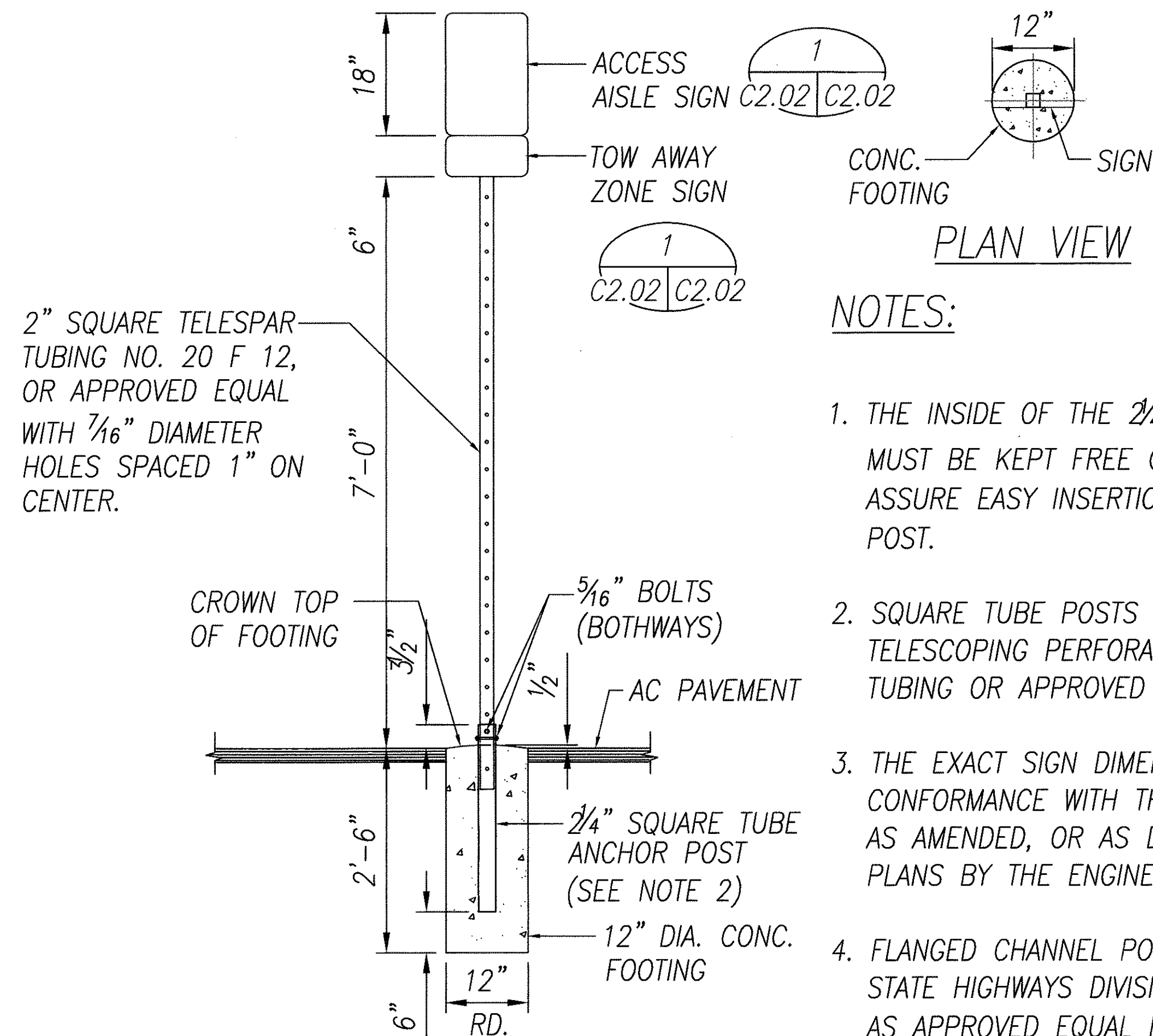
NOTES:

1. SIGNS SHALL BE ALUM T6061 SHEET COVERED WITH ENGINEERING GRADE REFLECTIVE SHEETING.
2. SIGN LETTERING SHALL BE UPPER-CASE LETTERS OF THE TYPE APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION

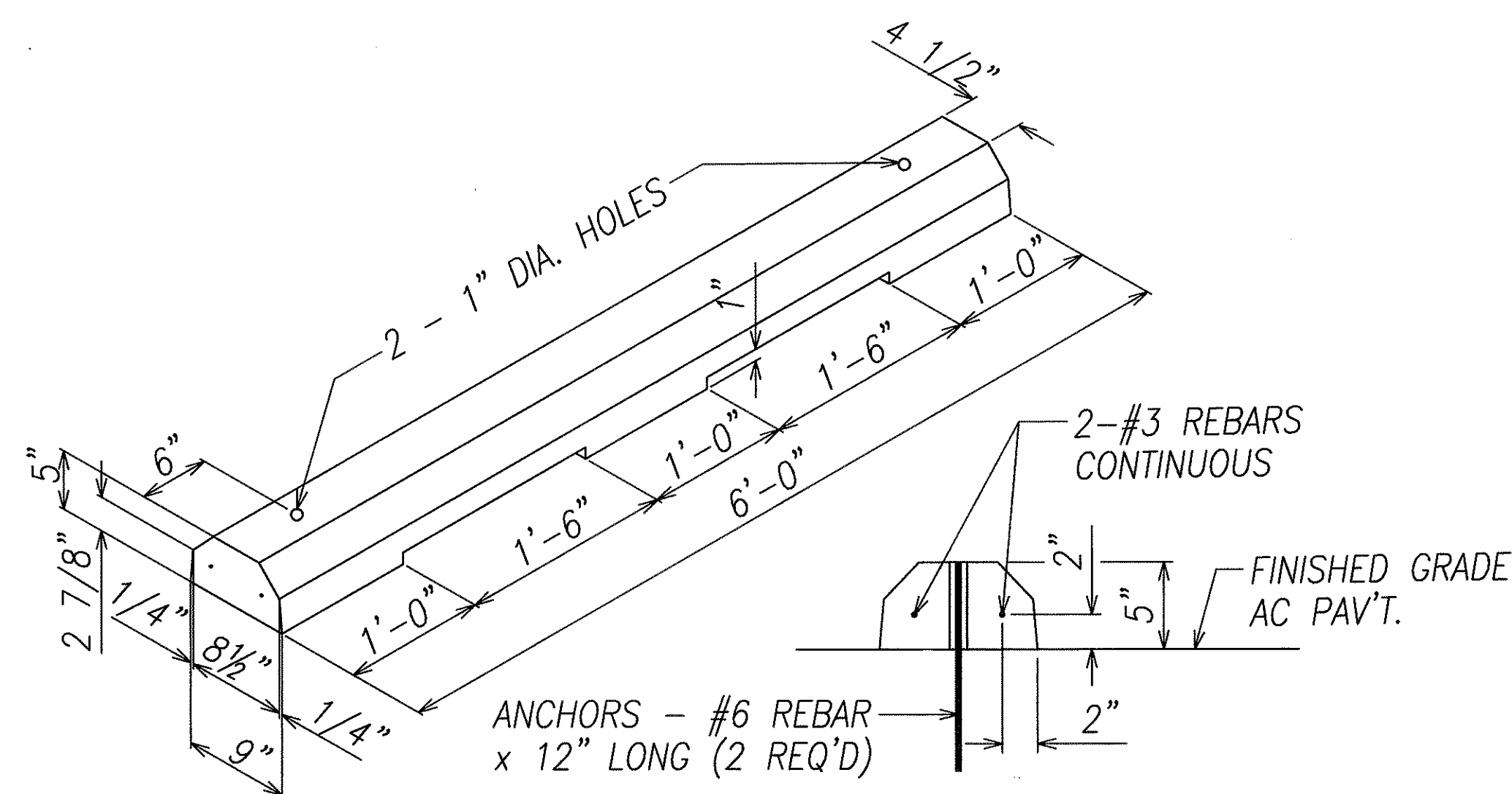
TYPICAL ACCESS AISLE SIGN 1  
SCALE: 3" = 1'-0" C2.01/C2.02/C2.02



ACCESSIBLE MARKING 4  
SCALE: 1' = 1'-0" C2.01/C2.02



BREAK AWAY SIGNPOST DETAIL 2  
SCALE: 3/4" = 1'-0" C2.01/C2.02

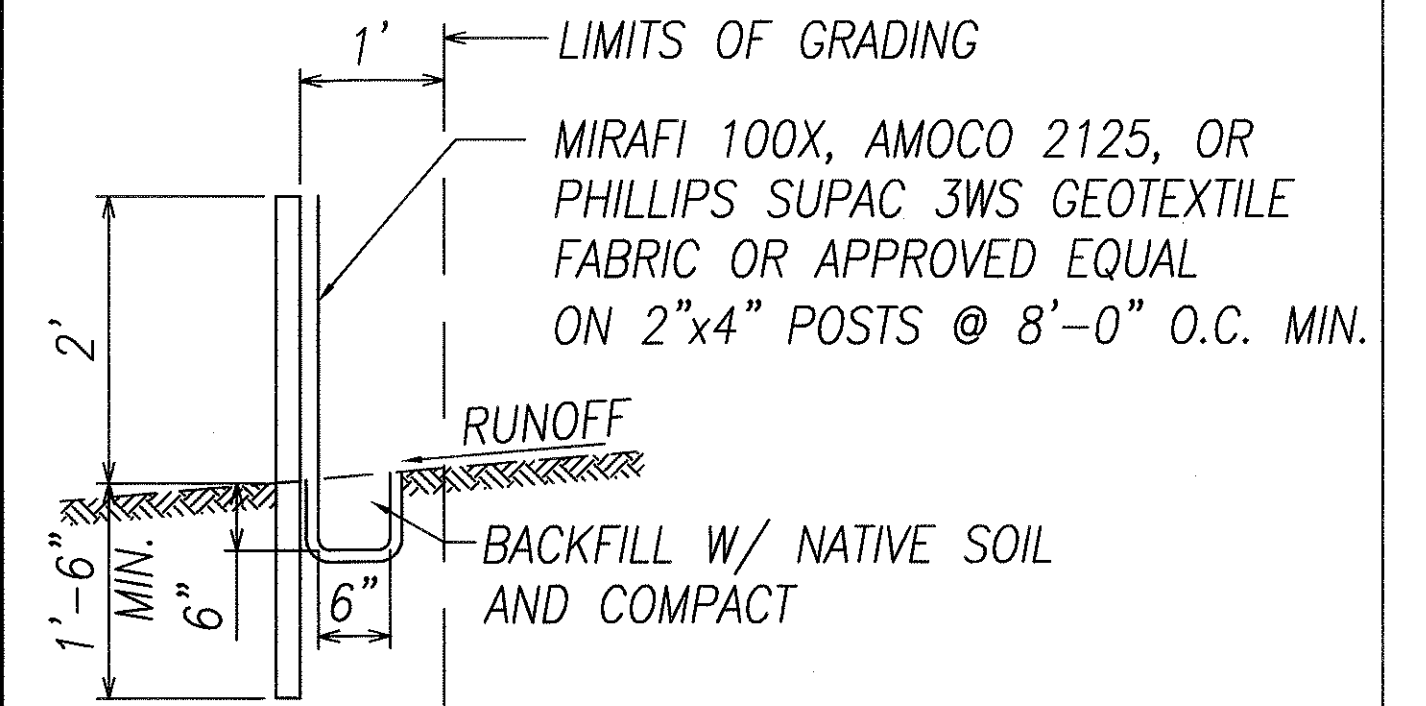


TYPICAL SECTION  
SCALE: 1 1/2" = 1'-0"

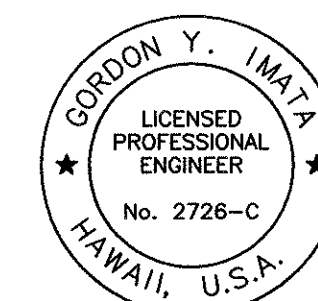
CONCRETE WHEELSTOP 5  
SCALE: 1" = 1'-0" C2.01/C2.02

NOTES:

1. THE INSIDE OF THE 2 1/4" ANCHOR POST MUST BE KEPT FREE OF IMPEDIMENTS TO ASSURE EASY INSERTION OF THE 2" SIGN POST.
2. SQUARE TUBE POSTS SHALL BE TELESCOPING PERFORATED TELES PAR TUBING OR APPROVED EQUAL.
3. THE EXACT SIGN DIMENSION WILL BE IN CONFORMANCE WITH THE CURRENT MUTCD, AS AMENDED, OR AS DESIGNATED ON THE PLANS BY THE ENGINEER.
4. FLANGED CHANNEL POST APPROVED BY STATE HIGHWAYS DIVISION IS ACCEPTABLE AS APPROVED EQUAL FOR 2" SQUARE TUBING.



SILT FENCE DETAIL 3  
SCALE: 3/4" = 1'-0" C1.03/C2.02



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Gordon Y. Imaizumi  
LICENSE EXPIRATION DATE 4/30/04

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

DETAILS

WAIHAWA BASEYARD

IMPROVEMENTS

Project No. HWY-0-12-00

Scale: As Noted Date: Jan. 2003

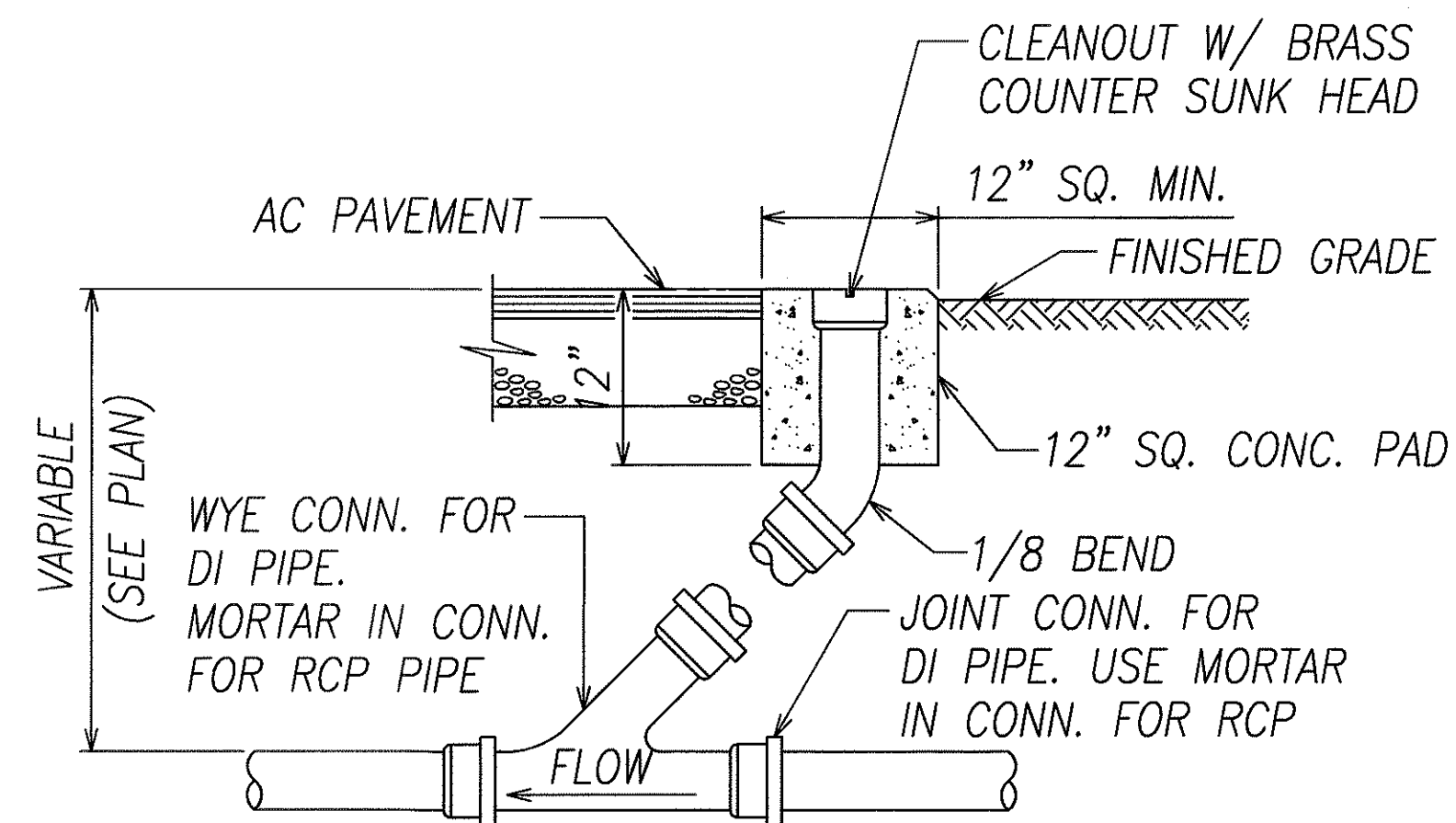
SHEET No. C2.02 OF 82 SHEETS



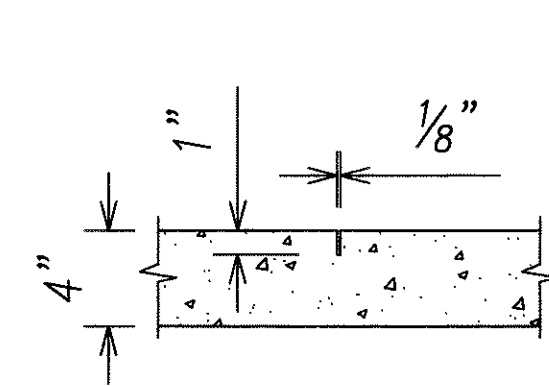




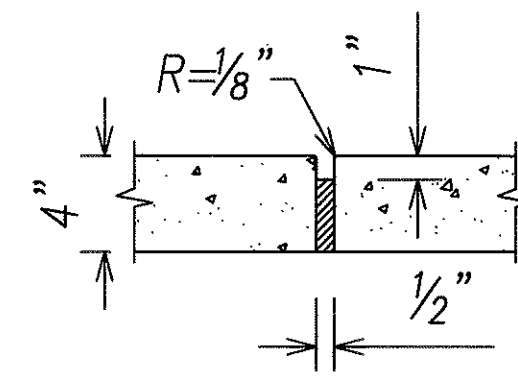
| FED. ROAD DIST. NO. | STATE | PROJ. NO.   | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HWY-0-12-00 | 2004        | 16        | 82           |



CLEAN-OUT TO GRADE  
SCALE: 1" = 1'-0"



CONTRACTION JOINT  
SCALE: 1/2" = 1'-0"

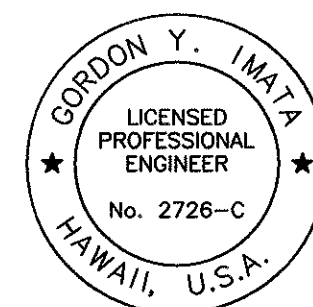


EXPANSION JOINT  
SCALE: 1/2" = 1'-0"

NOTES:

1. ALL JOINTS SHALL BE SLIGHTLY UNDERFILLED WITH JOINT FILLER.
2. EXPANSION JOINTS SHALL BE PLACED AT ALL JUNCTIONS OF CONCRETE AND AT JUNCTIONS WITH CONCRETE AND STRUCTURES.

|                   |      |
|-------------------|------|
| SURVEY PLOTTED BY | DATE |
| DRAWN BY          | X    |
| DESIGNED BY       |      |
| QUANTITIES BY     |      |
| CHECKED BY        |      |
| ORIGINAL PLAN     |      |
| NOTE BOOK         |      |
| No.               |      |



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*Gordon Y. Imata*  
LICENSE EXPIRATION DATE 4/30/04

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

DETAILS

WAIHAWA BASEYARD

IMPROVEMENTS

Project No. HWY-0-12-00

Scale: As Noted Date: Jan. 2003

SHEET No. C2.04 OF 82 SHEETS



| FED. ROAD DIST. NO. | STATE | PROJ. NO.   | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HWY-0-12-00 | 2003        | 17        | 82           |

CONSTRUCTION NOTES

1. All applicable construction work shall be done in accordance with the Standard Specifications For Public Works Construction, September 1986 and Standard Details For Public Works Construction, September 1984, as amended, of the Department of Public Works, City and County of Honolulu and the Counties of Kauai, Maui, and Hawaii.
2. The underground pipes, cables or ductlines known to exist by the Engineer from his search of records are indicated on the plans. The Contractor shall verify the locations and depths of the facilities and exercise proper care in excavating in the area. Wherever connections of new utilities to existing utilities are shown on the plans, the Contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for the new lines.
3. No Contractor shall perform any construction operation so as to cause falling rocks, soil or debris in any form to fall, slide or flow into existing City drainage systems, or adjoining properties, streets or natural watercourses. Should such violations occur, the Contractor may be cited and the Contractor shall immediately make all remedial actions necessary.
4. The Contractor shall be responsible for conformance with the applicable provisions of the water quality and water pollution control standards contained in Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards" and Title 11, Chapter 55, "Water Pollution Control", as well as Chapter 14 of the Revised Ordinances of Honolulu, as amended. Best management practices shall be employed at all times during construction.
5. The Contractor shall notify the Civil Engineering Branch, D.P.P. at 523-4881 to arrange for inspectional services and submit four (4) sets of approved construction plans seven (7) days prior to commencement of construction work.
6. Confined Space

For entry by City personnel, including inspectors, into a permit required confined space as defined in 29 CFR Part 1910.146(b), the Contractor shall be responsible for providing:

- i. All safety equipment required by the confined space regulations applicable to all parties other than the construction industry, to include, but not limited to, the following:
  - a. Full body harnesses for up to two personnel.
  - b. Lifeline and associated clips.
  - c. Ingress/egress and fall protection equipment
  - d. Two-way radios (walkie-talkies) if out of line-of-sight.
  - e. Emergency (escape) respirator (10 minute duration).
  - f. Cellular telephone to call for emergency assistance.
  - g. Continuous gas detector (calibrated) to measure oxygen, hydrogen sulfide, carbon monoxide and flammables (capable of monitoring at a distance of least 20-feet away).
  - h. Personal multi-gas detector to be carried by inspector.
- ii. Continuous forced air ventilation adequate to provide safe entry conditions.
- iii. One attendant/rescue personnel topside (two, if conditions warrant it).

CONSTRUCTION NOTES (CONT'D.)

7. Pursuant to Chapter 6E, HRS, in the event any artifacts or human remains are uncovered during construction operations, the Contractor shall immediately suspend work and notify the Honolulu Police Department, the State Department of Land and Natural Resources-Historic Preservation Division (692-8015). In addition, for non-City projects, the Contractor shall notify the Civil Engineering Branch D.P.P. (523-4881), and for City projects, notify the responsible City agency.
8. For projects abutting State highways, the Owner or his authorized representative shall notify the State Department of Transportation, Highways Division, Oahu District, Drainage Discharge Unit at 831-6973 for an assessment of State Highways permit requirements.
9. For bench mark see "Site Plan", C1.02.

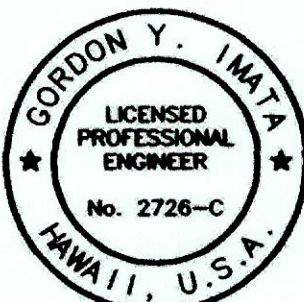
APPROVED:

M. [Signature]  
CHIEF, CIVIL ENGINEERING BRANCH, DPP

9/28/06  
DATE

|             |      |
|-------------|------|
| DESIGNED BY | DATE |
| DRAWN BY    |      |
| CHECKED BY  |      |
| NOTED BY    |      |
| DATE        |      |

|          |   |
|----------|---|
| 12/15/08 | This sheet replaces the original sheet $\Delta$ DPP/DLU Comments dated 7/9/07 |
| DATE     | REVISION  |



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[Signature]  
LICENSE EXPIRATION DATE 4/30/08

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**ORDINANCE 2412 IMPROVEMENTS**  
**TO CALIFORNIA AVENUE**  
**WAIHANA BASEYARD**  
**IMPROVEMENTS**  
**Project No. HWY-0-12-00**  
Scale: No Scale      Date: Jan. 2003  
SHEET No. C3.01 OF 82 SHEETS



| FED. ROAD DIST. NO. | STATE | PROJ. NO.   | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HWY-0-12-00 | 2004        | 18        | 82           |

TRAFFIC NOTES FOR WORK ON CITY AND COUNTY STREETS

1. A permit shall be obtained from the Department of Transportation Services before work on any portion of a public street or highway may begin. Construction traffic control plans approved by the Department of Transportation Services and/or the Department of Planning and Permitting must be provided when applying for the permit.
2. The contractor shall provide, install, and maintain all necessary signs and other protective facilities, which shall conform with the "Hawaii Administration Rules Governing The Use Of Traffic Control Devices At Work Sites On Or Adjacent To Public Streets And Highways" adopted by the Director of Transportation, and the current U.S. Federal Highways Administration's "Manual On Uniform Traffic Control Devices For Streets And Highways, Part VI - Traffic Controls For Street And Highway Construction And Maintenance Operations."
3. Work on any City street area may be performed only between the hours of 8:30 a.m. to 3:00 p.m., Monday through Friday, unless otherwise permitted by the Department of Transportation Services.
4. During working hours, the Contractor shall provide for through traffic. During non-working hours, all trenches shall be covered with a safe non-skid bridging material and all lanes shall be open to traffic.
5. As required by the Department of Transportation Services, the Contractor shall provide off-duty police officers to control the flow of traffic.
6. Where pedestrian walkways exist, they shall be maintained in passable condition or other facilities for pedestrians shall be provided. Passage between walkways at intersections shall likewise be provided.
7. Driveways shall be kept open unless the owners of the property using these rights-of-way are otherwise provided for satisfactorily.
8. Contractor shall reference to the approval of the Department of Transportation Services and the Department of Planning and Permitting, all existing traffic signs, posts and pavement markings prior to the commencement of construction. The Contractor shall replace or repair all traffic signs, posts and pavement markings disturbed by his activities.
9. The Contractor shall notify the Department of Planning and Permitting at 523-4881 one (1) week prior to any work to be done on signs, posts and pavement markings.
10. No material and/or equipment shall be stockpiled or otherwise stored within street rights-of-way except at locations designated in writing and approved by the Department of Transportation Services.
11. The State DOT Engineer shall ensure that the Contractor installs the construction traffic control devices in accordance with the MUTCD and the Hawaii Administration Rules as specified in traffic note #2.

TRAFFIC NOTES FOR WORK ON CITY AND COUNTY STREETS (CONT'D.)


PUBLIC TRANSIT DIVISION (DTS) NOTE

The Contractor shall notify Oahu Transit Services, Inc., (OTS-TheBus Contractor), Ed Sniffen (848-4571) or Lowell Tom (848-4578), two weeks prior to construction, informing them of location, scope of work, proposed closure of any street or traffic lanes, and the need to relocate any bus stops.

MECHANICAL/ELECTRICAL DESIGN AND ENGINEERING DIVISION NOTES:

1. The Contractor shall notify the joint pole committee two (2) weeks in advance of any relocation of utility pole(s) that may be necessary.
2. The Contractor shall notify the Mechanical/Electrical Design and Engineering Division, Department of Design and Construction, three (3) working days prior to commencing work on the street lighting system (phone: 527-5002).
3. The street lighting system shall be kept operational during construction. Any relocation required shall be approved by the Mechanical/Electrical Design and Engineering Division, Department of Design and Construction and paid for by the Contractor.
4. The Contractor shall be responsible for any damages to the existing street lighting facilities. Any and all damages to these facilities shall be repaired by the Contractor at his cost in accordance with the requirements of the City and County of Honolulu.
5. The Contractor shall be responsible for any damages to the City's existing communications fiber optic cable system. Any and all damages to these facilities shall be repaired by the Contractor at his cost in accordance with the requirements of the City and County of Honolulu.

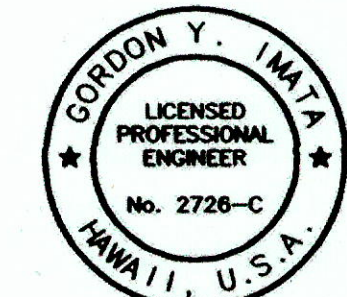
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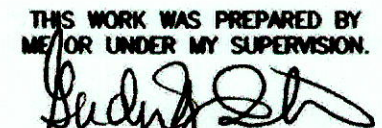
  
CHIEF, TRAFFIC REVIEW BRANCH, DPP

  
DATE

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| ORIGINAL<br>PLAN | SURVEY PLOTTED BY | DATE |
|                  | DRAWN BY          |      |
|                  | NOTED BY          |      |
|                  | CHECKED BY        |      |

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| 12/15/08 | This sheet replaces the original sheet $\Delta$ DPP/DLU Comments dated 7/9/07 |
| DATE     | REVISION  |



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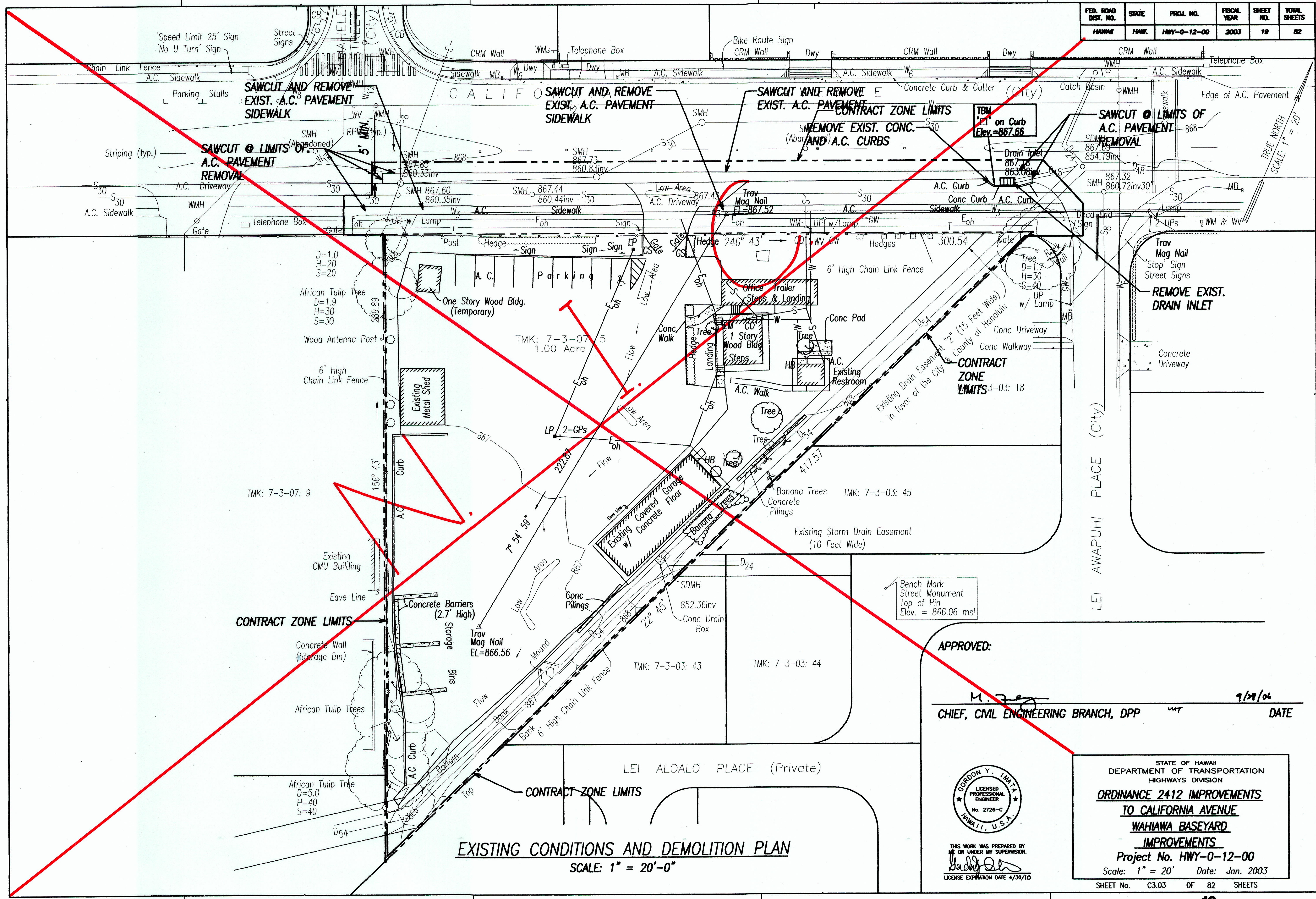
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| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION |                 |
| <b>ORDINANCE 2412 IMPROVEMENTS</b>                                   |                 |
| <b>TO CALIFORNIA AVENUE</b>  |                 |
| <b>WAIHAWA BASEYARD</b>  |                 |
| <b>IMPROVEMENTS</b>  |                 |
| <b>Project No. HWY-0-12-00</b>                                       |                 |
| Scale: No Scale  | Date: Jan. 2003 |
| SHEET No. C3.02  | OF 82 SHEETS    |

"AS-BUILT"

C.O.18



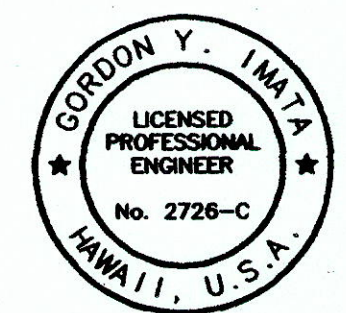
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| TRACED BY     |      |   |
| DESIGNED BY   |      |   |
| QUANTITIES BY |      |   |
| CHECKED BY    |      |   |
| ORIGINAL PLAN |      |   |
| NOTE BOOK     |      |   |
| No.           |      |   |

APPROVED:

*M. J. [Signature]* 1/28/04  
CHIEF, CIVIL ENGINEERING BRANCH, DPP DATE



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LICENSE EXPIRATION DATE 4/30/10

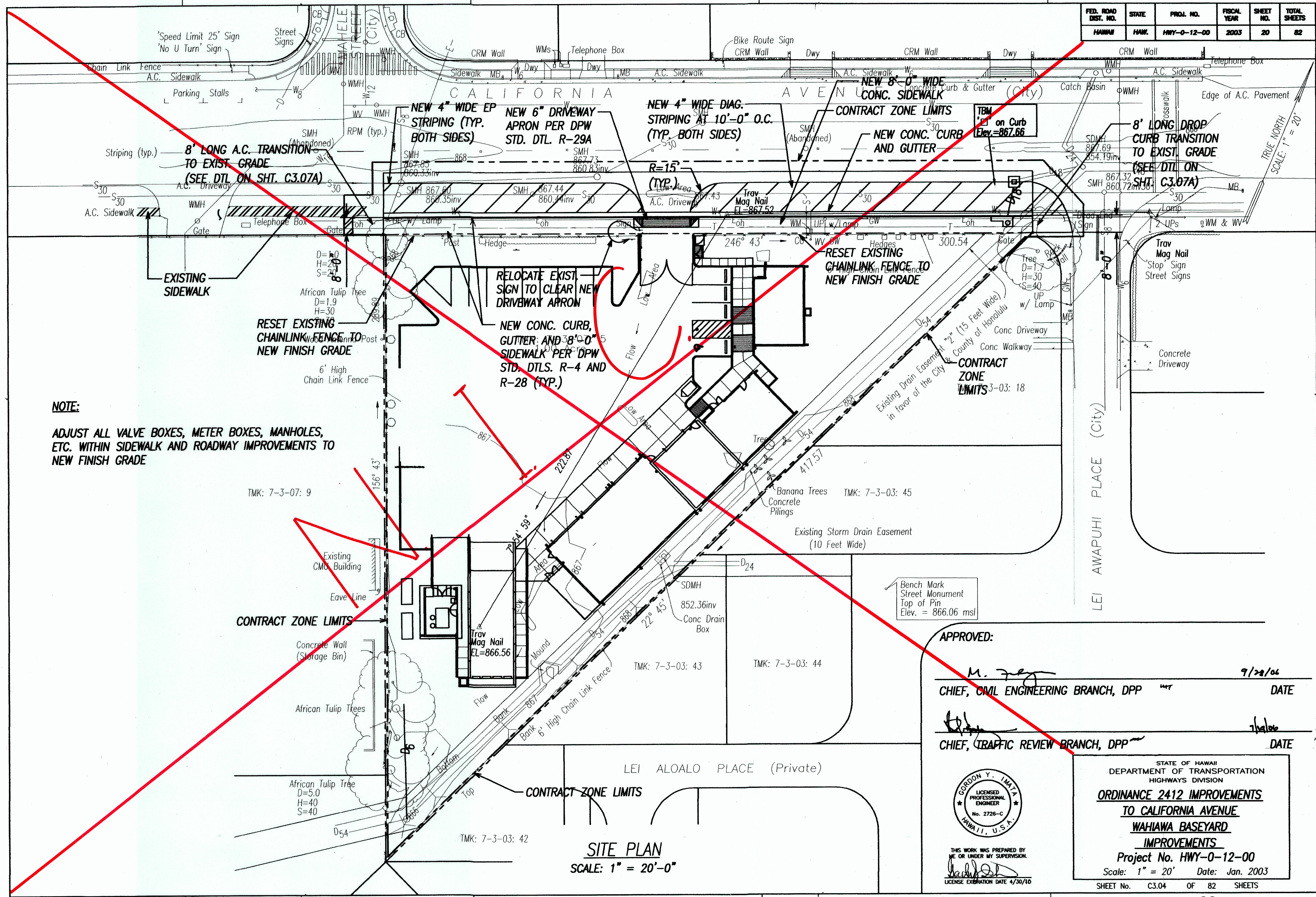
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**ORDINANCE 2412 IMPROVEMENTS  
TO CALIFORNIA AVENUE  
WAHIAWA BASEYARD  
IMPROVEMENTS**  
Project No. HWY-0-12-00  
Scale: 1" = 20' Date: Jan. 2003  
SHEET No. C3.03 OF 82 SHEETS

**EXISTING CONDITIONS AND DEMOLITION PLAN**  
SCALE: 1" = 20'-0"

"AS-BUILT"



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**NOTE:**  
ADJUST ALL VALVE BOXES, METER BOXES, MANHOLES, ETC. WITHIN SIDEWALK AND ROADWAY IMPROVEMENTS TO NEW FINISH GRADE

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| SURVEY PLOTTED BY | DATE |
| DESIGNED BY       |      |
| NOTED BY          |      |
| CHECKED BY        |      |

**APPROVED:**

*M. Fey* 9/28/04  
CHIEF, CML ENGINEERING BRANCH, DPP DATE

*Thelma*  
CHIEF, TRAFFIC REVIEW BRANCH, DPP DATE



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ORDINANCE 2412 IMPROVEMENTS TO CALIFORNIA AVENUE WAHIAWA BASEYARD IMPROVEMENTS**

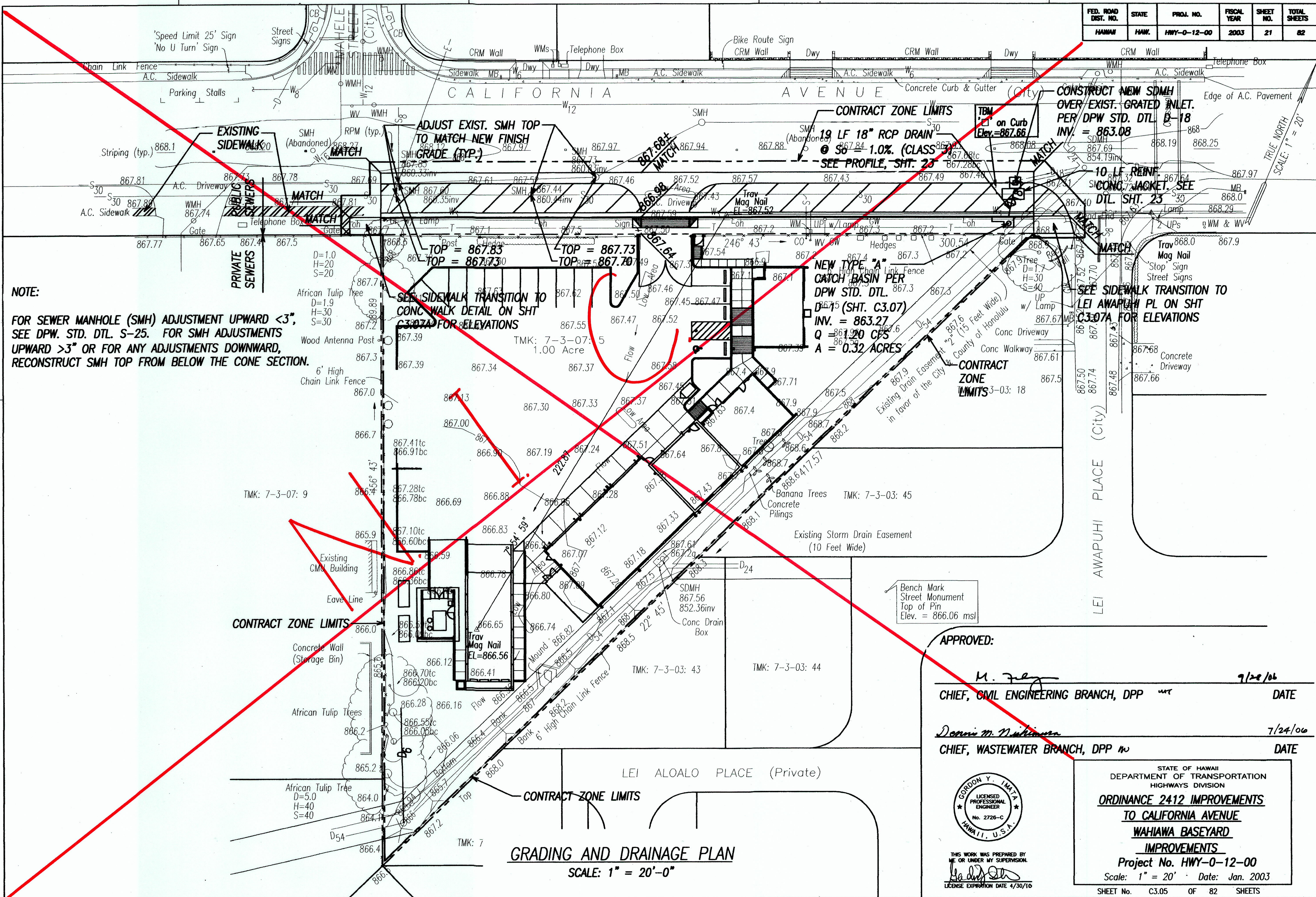
Project No. HWY-0-12-00  
Scale: 1" = 20' Date: Jan. 2003

**SITE PLAN**  
SCALE: 1" = 20'-0"

**"AS-BUILT"**



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**NOTE:**  
 FOR SEWER MANHOLE (SMH) ADJUSTMENT UPWARD <3", SEE DPW. STD. DTL. S-25. FOR SMH ADJUSTMENTS UPWARD >3" OR FOR ANY ADJUSTMENTS DOWNWARD, RECONSTRUCT SMH TOP FROM BELOW THE CONE SECTION.

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| DESIGNED BY       |      |
| CHECKED BY        |      |
| NOTE BOOK         |      |
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*M. J. [Signature]* 7/28/06  
 CHIEF, CIVIL ENGINEERING BRANCH, DPP *mt* DATE

*Donna M. [Signature]* 7/24/06  
 CHIEF, WASTEWATER BRANCH, DPP *mw* DATE



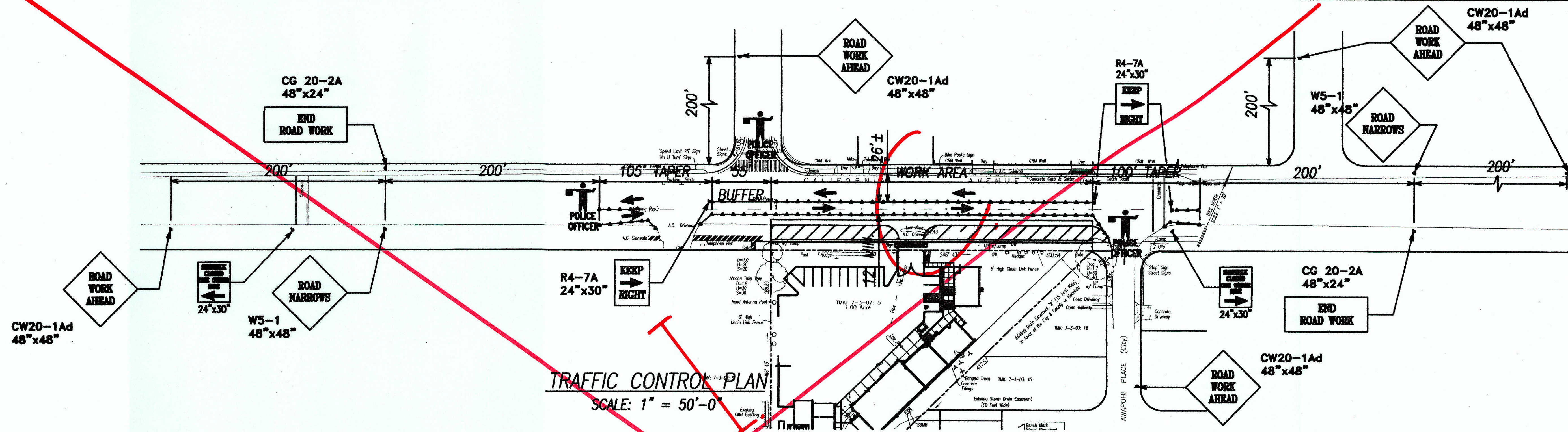
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**ORDINANCE 2412 IMPROVEMENTS  
 TO CALIFORNIA AVENUE  
 WAHIAWA BASEYARD  
 IMPROVEMENTS**  
 Project No. HWY-0-12-00  
 Scale: 1" = 20' Date: Jan. 2003  
 SHEET No. C3.05 OF 82 SHEETS

**GRADING AND DRAINAGE PLAN**  
 SCALE: 1" = 20'-0"

**"AS-BUILT"**





### TRAFFIC CONTROL PLAN

SCALE: 1" = 50'-0"

#### GENERAL NOTES FOR TRAFFIC CONTROL PLAN:

1. THE PERMITTEE SHALL MAKE MINOR ADJUSTMENT AT INTERSECTIONS, DRIVEWAYS, BRIDGES, STRUCTURES, ETC. TO FIT FIELD CONDITIONS.
2. CONES OR DELINEATORS SHALL BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
3. TRAFFIC CONTROL DEVICES SHALL BE INSTALLED SUCH THAT THE SIGN OR DEVICE FARTHEST FROM THE WORK AREA SHALL BE PLACED FIRST. THE OTHERS SHALL THEN BE PLACED PROGRESSIVELY TOWARD THE WORK AREA.
4. REGULATORY AND WARNING SIGNS WITHIN THE CONSTRUCTION ZONE THAT ARE IN CONFLICT WITH THE TRAFFIC CONTROL PLANS SHALL BE REMOVED OR COVERED.
5. FLAGGERS AND/OR POLICE OFFICERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES.
6. WHEN REQUIRED BY THE ISSUING OFFICE, THE PERMITTEE SHALL INSTALL A FLASHING ARROW SIGNAL AS SHOWN ON THE TRAFFIC CONTROL PLAN.
7. ALL TRAFFIC LANES SHALL BE A MINIMUM OF 10 FEET WIDE.
8. ALL CONSTRUCTION WARNING SIGNS SHALL BE PROMPTLY REMOVED OR COVERED WHENEVER THE MESSAGE IS NOT APPLICABLE OR NOT IN USE.
9. THE BACKS OF ALL SIGNS USED FOR TRAFFIC CONTROL SHALL BE APPROPRIATELY COVERED TO PRECLUDE THE DISPLAY OF INAPPLICABLE SIGN MESSAGES (IE., WHEN SIGNS HAVE MESSAGES ON BOTH FACES.)

#### GENERAL NOTES FOR TRAFFIC CONTROL PLAN (CONT'D):

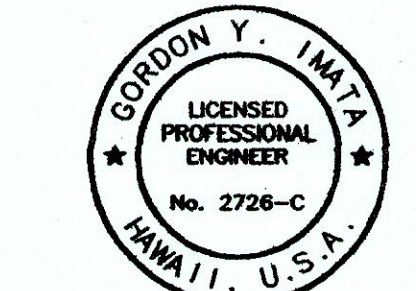
10. LANE CLOSURE SHALL BE LIMITED ONLY TO THE EXTENT OF ACCOMPLISHING EACH DAY'S WORK. AS SOON AS EACH DAY'S WORK IS COMPLETED, THE PERMITTEE SHALL REMOVE ALL TRAFFIC CONTROL DEVICES NO LONGER NEEDED TO PERMIT FREE AND SAFE PASSAGE OF PUBLIC TRAFFIC. REMOVAL SHALL BE IN THE REVERSE ORDER OF INSTALLATION. EXISTING FADED OR OBLITERATED PAVEMENT MARKINGS THAT ARE NECESSARY FOR SAFE TRAFFIC FLOW IN THE CONSTRUCTION AREA SHALL BE REPLACED WITH TEMPORARY OR PERMANENT MARKINGS BEFORE OPENING THE ROADWAY TO PUBLIC TRAFFIC EACH DAY.
11. PERMANENT PAVEMENT MARKINGS AND TRAFFIC SIGNS SHALL BE REPLACED UPON COMPLETION OF EACH PHASE OF WORK.
12. CONES AND DELINEATORS SHALL BE SPACED AT A MAXIMUM DISTANCE OF 20 FEET APART. A MINIMUM OF SIX CHANNELIZING DEVICES SHALL BE USED FOR EACH TAPER LENGTH.
13. DRIVEWAYS SHALL BE KEPT OPEN UNLESS THE OWNERS OF THE PROPERTY USING THE RIGHT-OF-WAY ARE OTHERWISE PROVIDED FOR SATISFACTORILY. FURTHER, THE PERMITTEE SHALL CONTROL TRAFFIC GOING IN AND OUT OF THE DRIVEWAYS.
14. A HIGH LEVEL WARNING DEVICE (FLAG TREE) SHALL BE INSTALLED ON APPROACH TO ALL WORK AREAS.
15. "NO PARKING" SIGNS SHALL BE POSTED WITHIN ANY WORK AREA AND FOR THE BUFFER AND TAPER AREAS APPROACHING THE WORK AREA.
16. TRAFFIC CONTROL PLANS ARE APPROVED FOR WORK ON ANY CITY STREET AREA ONLY BETWEEN THE HOURS OF 8:30 AM AND 3:00 PM.

#### LEGEND:

- ▲ CONE
- ⬇ TRAFFIC SIGN
- ⬆ POLICE OFFICER

APPROVED:

*[Signature]*  
CHIEF, TRAFFIC REVIEW BRANCH, DPP *[Signature]*  
DATE



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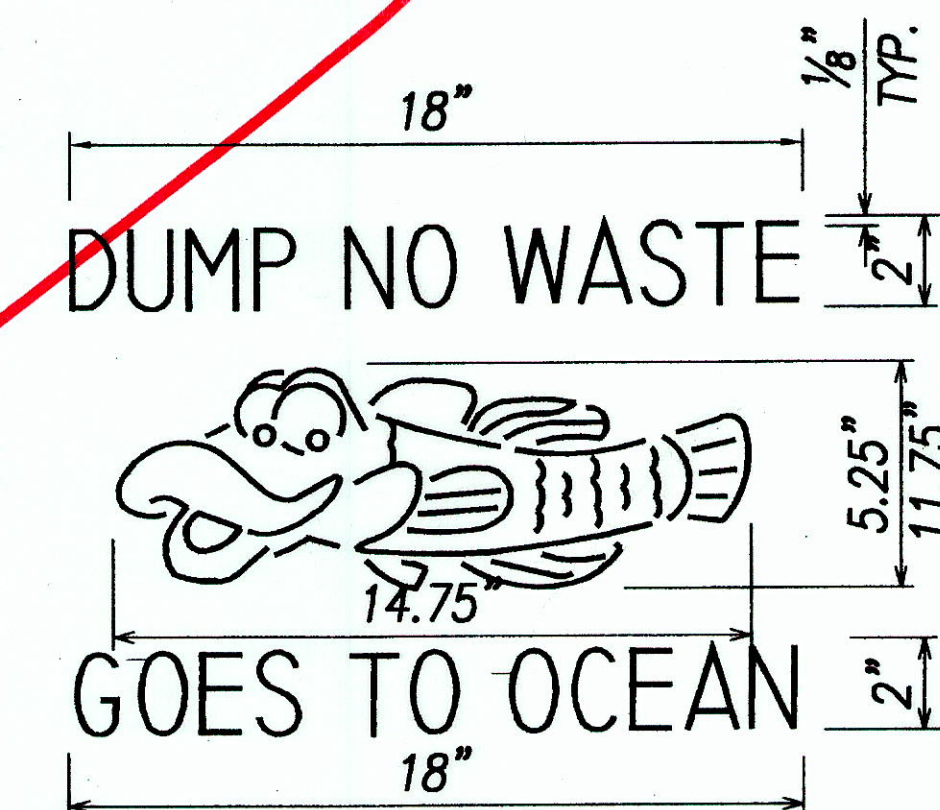
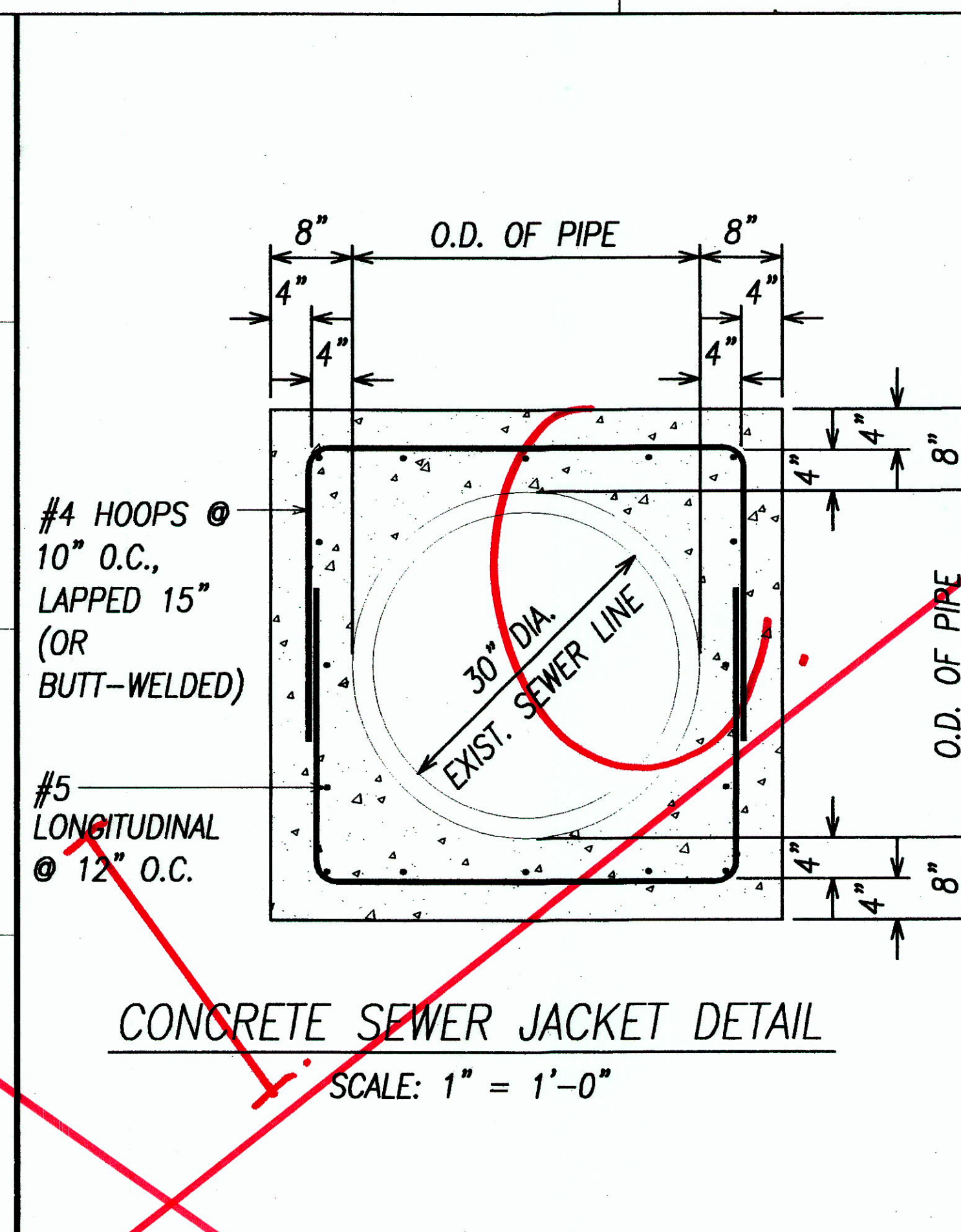
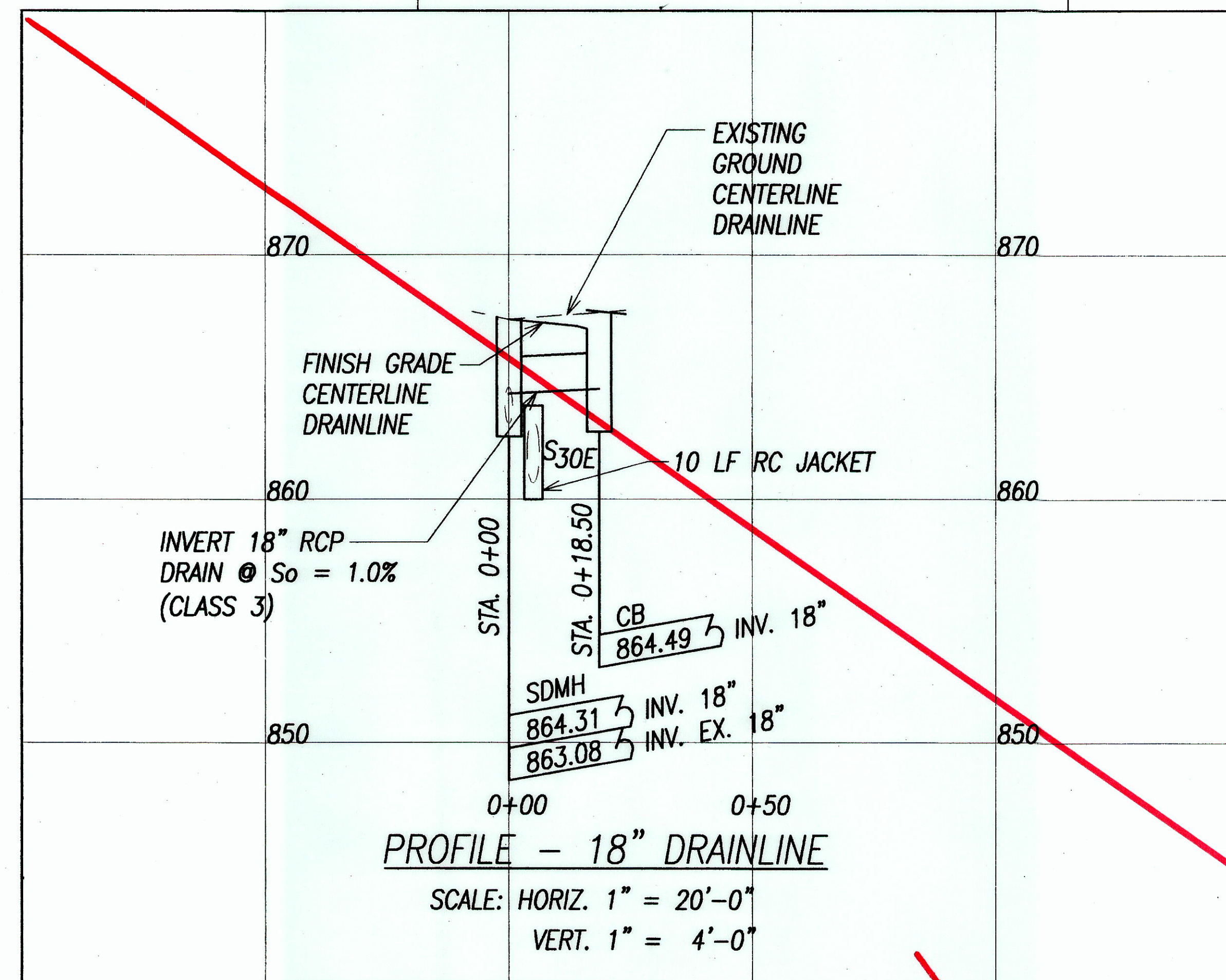
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**ORDINANCE 2412 IMPROVEMENTS  
TO CALIFORNIA AVENUE  
WAHIAWA BASEYARD  
IMPROVEMENTS**

Project No. HWY-0-12-00  
Scale: 1" = 50' Date: Jan. 2003



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#### SPECIFICATIONS

MATERIAL: ALUMINUM ALLOY (CAST ALUMINUM), LEAD, OR EQUAL.

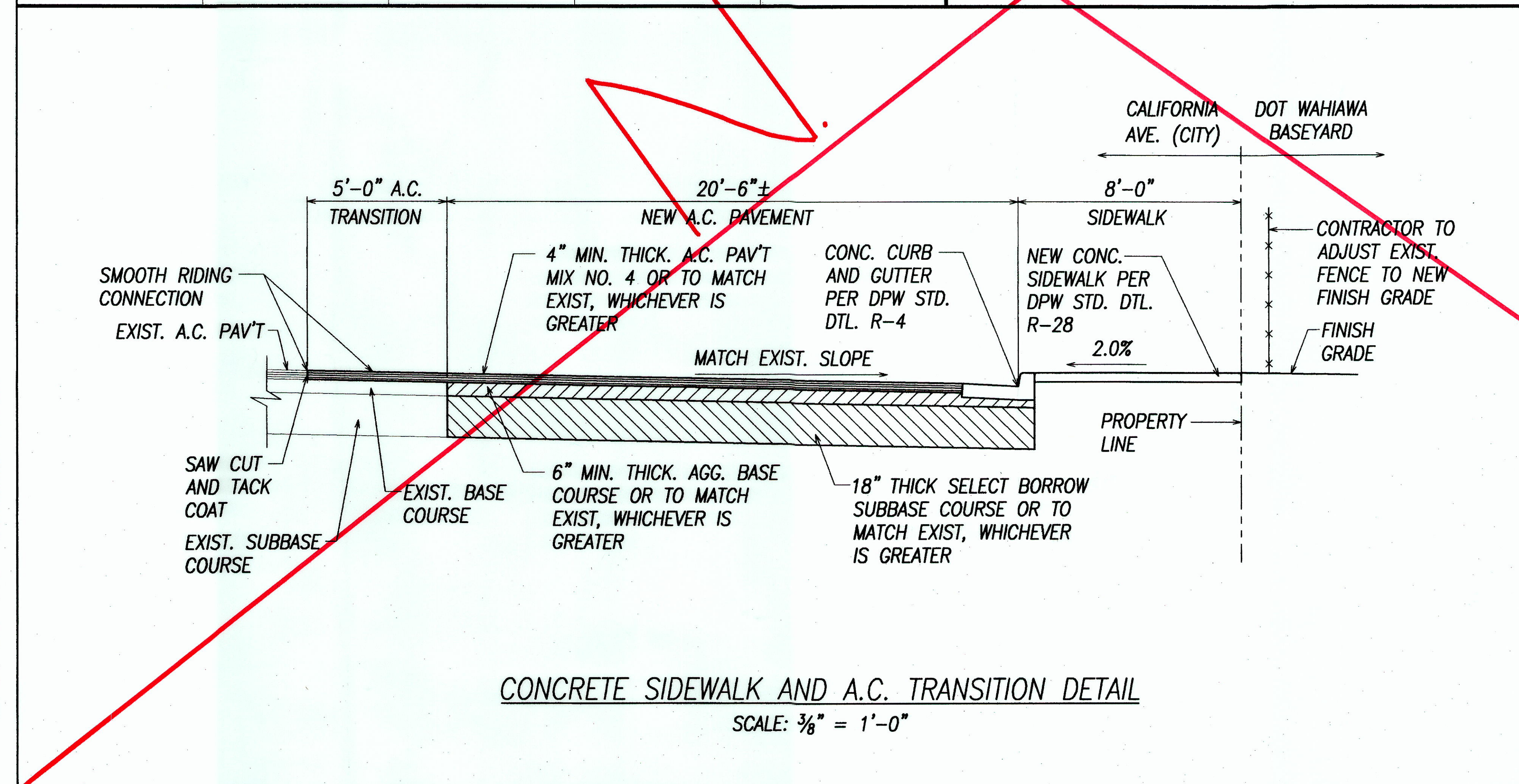
LETTERING: HEIGHT OF LETTERS SHALL BE 2" HIGH AND 1/8" WIDE, THE UNDER SIDE OF ALL LETTERING SHALL BE V-SHAPED.

LINE WORK: ALL LINE WORK FOR THE FISH DIAGRAM SHALL BE MADE OUT OF 1/8" THICK. THE UNDER SIDE OF THE LINE WORK SHALL BE V-SHAPED.

PLACEMENT: THE STENCIL SHALL BE CENTERED ON THE TOP DECK OF THE CATCH BASIN AND SHALL BE A MINIMUM OF 3" AWAY FROM THE FRONT FACE OF THE INLET.

IMPRESSION: THE STENCIL SHALL BE PRESSED 1/4" INTO THE GREEN CONCRETE WHEN THE INLET IS MADE.

#### STENCIL DETAIL FOR CATCH BASIN NOT TO SCALE



APPROVED:

*M. J. [Signature]* 9/28/06  
CHIEF, CIVIL ENGINEERING BRANCH, DPP DATE

*Donna M. [Signature]* 7/24/06  
CHIEF, WASTEWATER BRANCH, DPP DATE

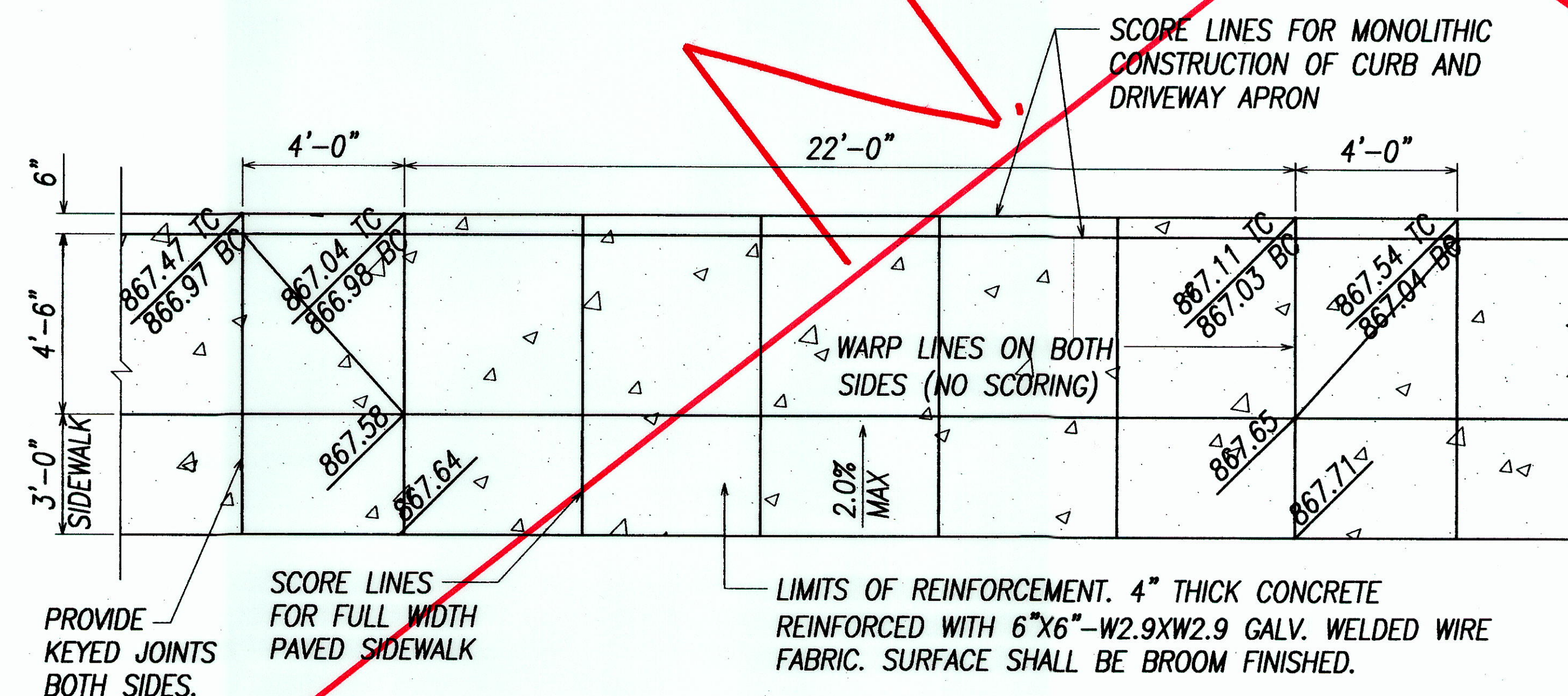
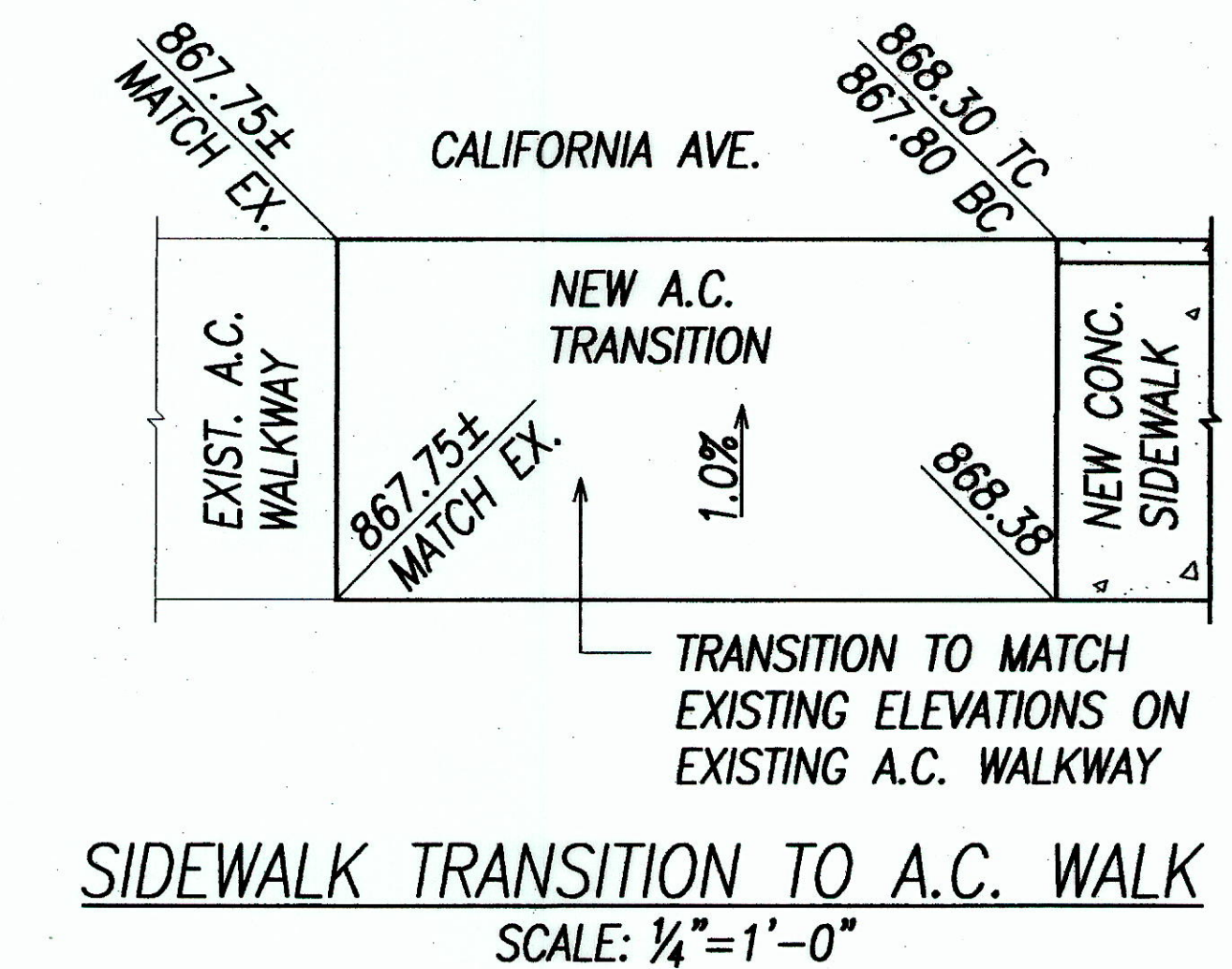
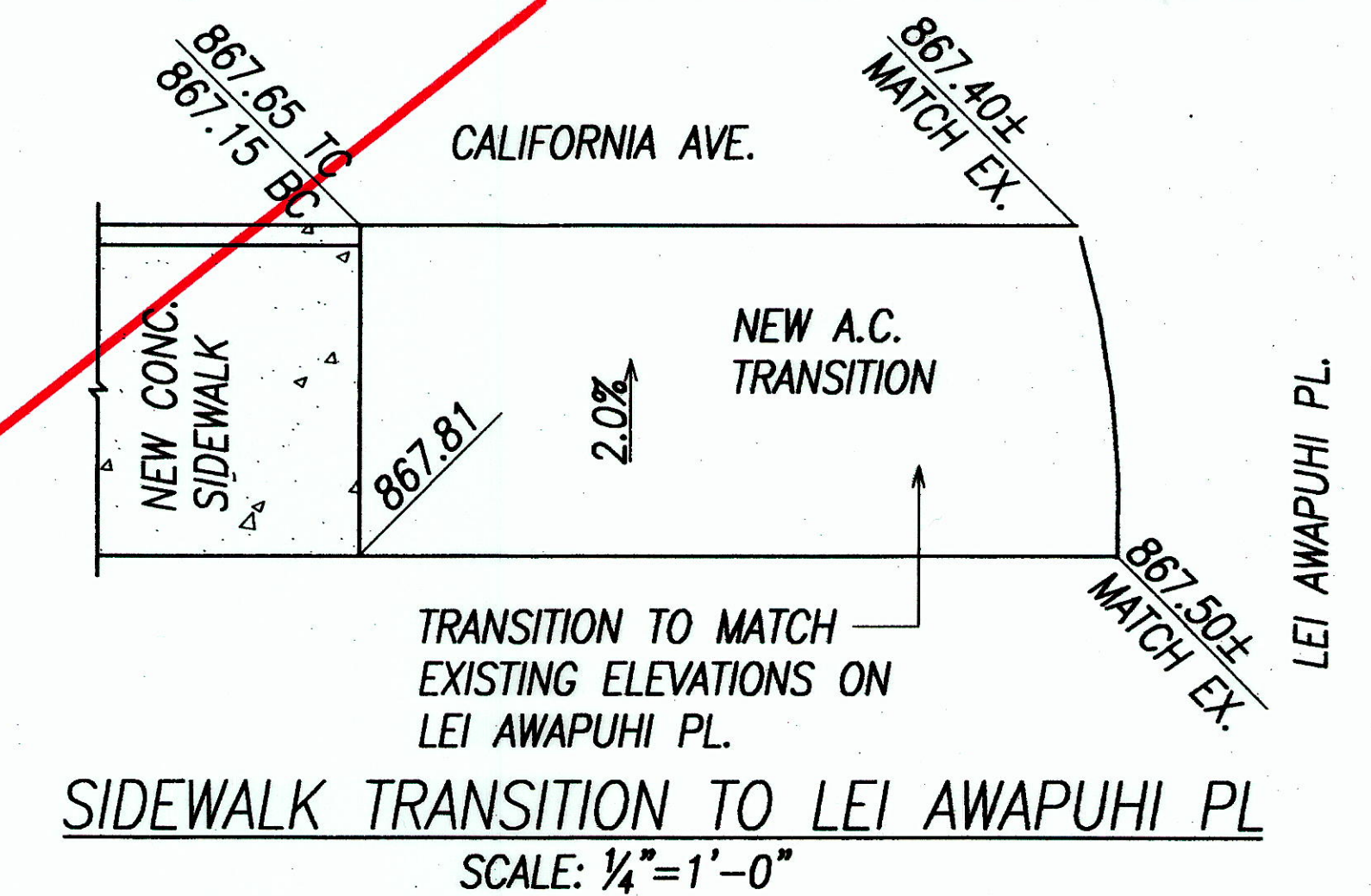
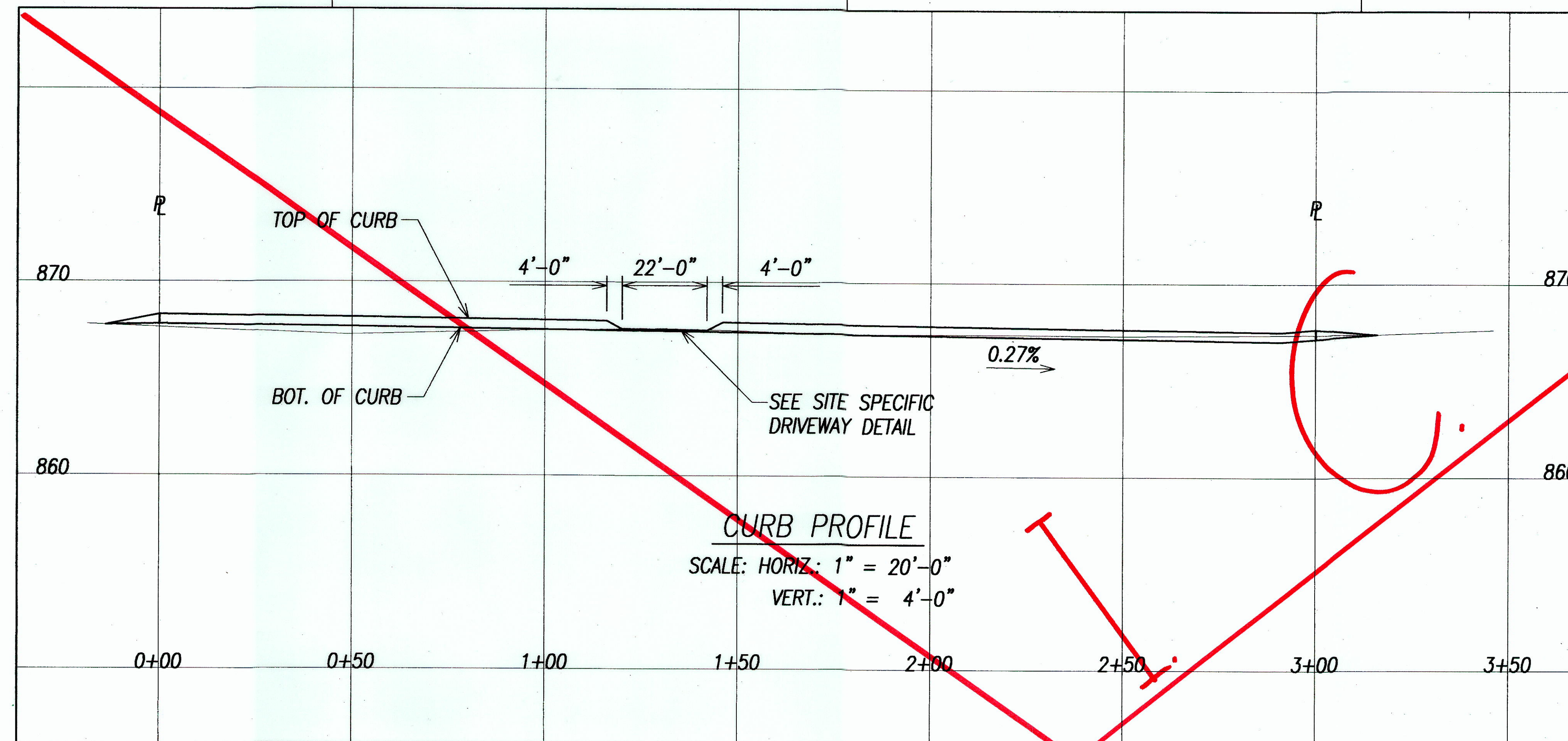


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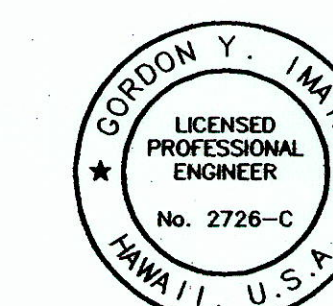
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7/28/04  
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"AS-BUILT"

C.O.23 S-2

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