



STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
91-5420 Kapolei Parkway,
Kapolei, HI. 96707

Technical Specifications & Plans

FOR
**DRAINAGE AND ROAD IMPROVEMENTS
TO
KE KULA 'O SAMUEL M. KAMAKAU
CHARTER SCHOOL**

Kaneohe, Island of Oahu, Hawaii

RFQ No.: RFQ-20-LDD-019

MAY 2020



DIVISION 1 – GENERAL REQUIREMENTS

SECTION 00850 – DRAWING INDEX

1.01 CONTRACT DRAWINGS AND SPECIFICATIONS

A. The Contractor shall:

1. Check all drawings furnished immediately upon receipt;
2. Compare all drawings and verify the figures before laying out the work;
3. Promptly notify the DHHL of any discrepancies; and
4. Be responsible for any errors which might have been avoided by complying with this paragraph B.

B. Large scale drawings shall govern over small scale drawings. Figures marked on drawings shall be followed in preference to scale measurements.

C. Omissions from the drawings or specifications or the misdescription of details of work which are manifestly necessary to carry out the intent of the drawings and specifications, or which are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work. Any omission shall be performed as if fully and correctly set forth and described in the drawings and specifications.

D. The work shall conform to the specifications and the contract drawings on the following index of drawings:

<u>DRAWING #</u>	<u>TITLE</u>
C-1	Drainage Swale Plan and Section
C-2	Guardrail Installation Plan, Notes and CRM Wall Detail
C-3	Notes and Guardrail Details
C-4	Guardrail Detail

END OF SECTION

DIVISION 1 – GENERAL REQUIREMENTS

SECTION 01010 – SUMMARY OF WORK

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

The General Provisions and the Special Provisions apply to this Section. Special attention is directed to the Proposal Schedule.

1.02 SUMMARY

Section Includes:

1. Scope of Work
2. Vehicle Parking
3. Provisions for Field Office/Storage Space
4. Location of the Work
5. Hours of work
6. Safety
7. Disposal of excess soil materials
8. Construction stakes, lines and grades
9. Special project requirements
10. Unforeseen Conditions Allowances

1.03 SCOPE OF WORK

Provide the labor, materials, and equipment to perform and furnish the drainage and road improvements up to the Ke Kula 'O Samuel M. Kamakau Charter School as directed in the plans. The Contractor shall be responsible to restore the area around the worksite to its original condition prior to the construction.

1.04 VEHICLE PARKING

Parking is available along the road where the work is to be performed.

1.05 PROVISIONS FOR FIELD OFFICE/STORAGE SPACE

No Field Office is required. Any storage shall be at the risk of the Contractor.

1.06 LOCATION OF THE WORK

- A. The work to be performed under this contract is located on Haiku Plantation Drive, portion of TMK: 4-6-015:014.

- B. Conditions: Upon award of the contract, the Contractor, at their cost, shall obtain all permits required for this project.

1.07 HOURS OF WORK

- A. Work can be performed at the construction site between 8:00 am and 4:30 pm, Monday through Friday. Submit a proposed construction schedule to Project Manager for review and approval within 14 calendar days prior to start of work. The Contractor shall coordinate their schedule with the Project Manager if rescheduling of work or intermittent work is required, such work shall be performed at no extra cost to the State. If the Contractor's obligation to pay.
- B. Contractor shall clean work areas at the end of each working shift. Rubbish, loose materials, etc. shall be disposed of daily. Materials shall be safely secured and stored in an area designated by the DHHL West Hawaii District Supervisor.

1.08 SAFETY

- A. The Contractor shall take the necessary precautions to protect his workers and other personnel from injuries. The rules and regulations promulgated by the Occupational Safety and Health Acts are applicable and made a part of these specifications.
- B. Barricades and warning signs shall be erected by the Contractor in the work area to properly protect all personnel in the area.
- C. During the progress of the work debris, empty crates, waste, material drippings, etc., shall be removed by the Contractor at the end of each work day, and the work area shall be left clean and orderly.

1.09 DISPOSAL OF EXCESS SOIL MATERIALS

- A. At the Construction Manager and/or Engineers discretion, excess useable soil materials may be used as fill material for this project. Best Management Practices shall be employed at all times to control soil erosion and water pollution that may result from stockpiling activities.
- B. Off-Site Disposal of Excess Soil Material: Any excess soil material and rubbish disposed of outside the DHHL property shall be the responsibility of the Contractor. The Contractor shall make all arrangements and bear

all costs involved therewith.

1.10 CONSTRUCTION STAKES, LINES AND GRADES

- A. The Contractor shall perform all construction layout and reference staking necessary for the proper control and satisfactory completion of all structures, grading, paving, drainage, sewer, water, and all other appurtenances required for the completion of the work.
- B. Existing horizontal and vertical survey control points for the project are shown on the plans. The Contractor shall verify the location of all control points prior to the start of construction.
- C. The Department will not be responsible for delays in setting stakes and marks.
- D. All control points and stakes or marks which the Project Manager may set shall be preserved by the Contractor. If such control points, stakes or marks are destroyed or disturbed by the Contractor, the cost of replacing such stakes or marks will be charged against the Contractor and deducted from payments due the Contractor.
- E. The Contractor shall be responsible for the placement and preservation of adequate ties to all control points whether established by the Contractor or by the Project Manager.
- F. All original, additional or replacement stakes, marks, references and batter-boards which may be required for the construction operations, shall be furnished, set and properly referenced by the Contractor. The Contractor shall be solely and completely responsible for the accuracy of the line and grade of all features of the work. Any errors or apparent discrepancies found in previous surveys, the plans and specifications shall be called to the Project Manager's attention by the Contractor for correction or interpretation prior to the proceeding with the work.
- G. Before construction is started on any structure which is referenced to an existing structure or topographical feature, the Contractor shall check the pertinent locations and grades of the existing structures or topographical features to determine whether the locations and grades shown on the plans are correct.
- H. All construction staking shall be performed by qualified personnel under the direct supervision of a person with an engineering background who is

experienced in the direction of such work and is acceptable to the
Project Manager.

- I. All stakes and markers used for control staking shall be of the same quality as used by the Department for this purpose. For slope limits, pavement edges, gutter lines, etc., where so called “working” stakes are commonly used, stakes of different quality may be acceptable.
- J. The Department may check the Contractor’s control of the work at any times as the work progresses. The Contractor will be informed of the results of these checks, but the Department by doing so will in no way relieve the Contractor of his responsibility for the accuracy of the layout work. The Contractor shall at his expense correct or replace any deficient or inaccurate layout and construction work. If, as a result of these deficiencies or inaccuracies, the Department is required to make further studies, redesign, or both, all expenses incurred by the Department due to such deficiencies or inaccuracies, will be deducted from any payment due the Contractor.
- K. The Contractor shall furnish all necessary personnel, engineering equipment and supplies, materials, and transportation incidental to the accurate and satisfactory completion of this work.

Unless otherwise provided, all requirements imposed by this section and performed by the Contractor shall be considered incidental to the various contract items and not separate or additional payment will be made thereof.

1.11 SPECIAL PROJECT REQUIREMENTS

- A. Upon receipt of the Contract, the Contractor shall process and return the Contract to the DHHL office within five (5) calendar days.
- B. The State intends to issue the Notice to Proceed for the Project to the Contractor within 30 calendar days after bid opening. The Contractor shall be able to commence work on this date.

C.

1.12 UNFORSEEN CONDITIONS ALLOWANCE

- A. Included in this project is an allowance for unforeseen conditions to be used by the engineer to pay for unknown conditions from either review of the contract documents or existing exposed conditions found at the site or

anticipated from the type of work found.

- B. All unforeseen conditions that the Contractor is anticipating being compensated for must be brought to the attention of the engineer and acknowledged as an unforeseen condition that will be paid for by the State before the Contractor proceeds with his work.
- C. Work accomplished by the Contractor without prior approval by the Project Manager will be considered part of the work and incidental to the work and no additional compensation will be allowed.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

PART 4 - MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

- A. Work under this section will not be measured not paid for separately, but shall be considered incidental to and included in the bid prices for the various items of work in this project.
- B. Work under this section for unforeseen conditions shall be paid under an allowance item in the Proposal Schedule. The allowance is an estimate and the Additional charges by the Contractor for overhead, coordination, profit, included in the Contractor's lump sum bid price.

END OF SECTION

SECTION 01019 - GENERAL SPECIFICATIONS

PART 1 - GENERAL

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

1.02 GENERAL:

- A. Examination of Premises: The Contractor shall contact the Project Manager and obtain permission before visiting the site.
- B. All lines and grades shall be established by a licensed surveyor, or licensed Civil Project Manager, registered in the State of Hawaii. The Contractor shall submit evidence of current and valid registration.
- C. Notices: The Contractor shall notify the Project Manager and give at least three (3) working days notice before starting any work.
- D. Disruption of Utility Services: All work related to the temporary disconnection of electrical system shall be pre-arranged with the Project Manager so that any disruption of such services will be kept to a minimum. In the event temporary power hook-up is required, the Contractor shall provide the necessary services.
- E. Contractor's Operations:
 - 1. The Contractor must employ, insofar as possible, such methods and means of carrying out the work so as not to cause any interruption or interference to the facility's operations. Where the Contractor's operations would result in interruptions which would hamper the operations of the facilities, the Contractor shall rearrange the schedule of work accordingly.
 - 2. The Contractor shall maintain safe passageway to and from the facility for the user agency personnel and the public at all times.
- F. Lead Paint:
 - 1. When the project includes paint to be disturbed that was applied prior to 1980, it shall be assumed to contain lead. The Contractor shall inform its employees, subcontractors, and all other persons engaged in the project that lead containing paints are present in the existing buildings at the job site and to follow the requirements of the Department of Labor and Industrial Relations, Division of Occupational Safety and Health, Title 12,

Subtitle 8, Chapter 148, Lead Exposure in Construction, Hawaii
Administrative Rules (Chapter 12-148, HAR).

G. Parking Policy for Contractor:

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

H. Toilet Accommodations: The Contractor must supply their own toilet facilities and be responsible to keep it clean and in a sanitary condition at all times.

I. Protection of Property: The Contractor shall continually maintain adequate protection of all its work from damage and shall protect all property, including but not limited to buildings, equipment, furniture, grounds, and vegetation, material, utility systems located at and adjoining the job site. The Contractor shall repair, replace or pay the expense of repair of damages resulting from its operations.

J. Use of Power Driven Equipment: The Contractor is cautioned to take all necessary safety precautions to protect the facility personnel, and the public whenever power driven equipment is used.

K. Safety: The Contractor shall carefully read and strictly comply with the requirements of the Hawaii Occupational Safety and Health Law, Chapter 396, Hawaii Revised Statutes, as amended, is applicable and made a part of the Contract.

L. Clean Up Premises: The Contractor shall clean up and remove from premises all debris accumulated from operations as necessary or as directed. See also Section 7.25 of the General Conditions.

M. Responsibility:

1. The State will hold the Contractor liable for all the acts of Subcontractors and shall deal only with the prime Contractor in matters pertaining to other trades employed on the job. The Contractor shall be responsible for coordinating the work of all trades on the job.
2. Should the Contractor discover any discrepancy in the plans or specifications, the Contractor shall immediately notify the Project Manager before proceeding any further with the work, otherwise, the

Contractor will be held responsible for any cost involved in correction of work placed due to such discrepancy.

- N. Cooperation with Other Contractors: The State reserves the right at any time to contract for or otherwise perform other or additional work within the contract zone limits of this Contract. The Contractor of this project shall, to the extent ordered by the State, conduct its work so as not to interfere with or hinder the progress or completion of the work performed by other contractors.
- O. Division of the Work: The Divisions and Sections into which these Specifications are divided shall not be considered an accurate or complete segregation of work by trades. This also applies to all work specified within each Section.
- P. Drawings and Specifications:
1. The Contractor shall not make alterations in the drawings and specifications. In the event the Contractor discovers any errors or discrepancies, the Contractor shall immediately notify the Project Manager in accordance with the General Conditions.
 2. Where devices, or items, or parts thereof are referred to in the singular, it is intended that such reference shall apply to as many such devices, items or parts as are required to properly complete the work.
 3. Specifications and drawings are prepared in abbreviated form and include incomplete sentences. Omission of words or phrases such as "the Contractor shall", "as shown on the drawings", "a", "an", and "the" are intentional. Omitted words and phrases shall be provided by inference to form complete sentences.
- Q. Required Submittals:
1. Required submittals as specified in the Technical Sections of these specifications include one or more of the following: Shop drawings; color samples; material samples; technical data; schedules of materials; schedules of operations; guarantees; operating and maintenance manuals; and as-built drawings.
 2. The Contractor shall make a comprehensive list of the required submittals, by Specification Section, and submit this list to the Project Manager within 15 days after notice to proceed.
 3. As-Built Drawings: When as-built drawings are required for submittal, the following shall apply:

- a. As-built drawings, the intent of which is to record the actual in-place construction so that any future renovations or tie-ins can be anticipated accurately, shall be required.
- b. All deviations from alignments, elevations and dimensions which are stipulated on the plans shall be recorded in red on the as-built drawings.
- c. The following procedure shall be followed:
 - (1) Immediately after these changes are constructed in place, the Contractor shall record them on the field office plans.
 - (2) Within two weeks after final inspection of the project, the Contractor shall transfer the changes marked on the field office plans onto a clean copy of plans using a red pencil. Any deletions shall be so noted and redrawn as necessary. The Contractor shall stamp or mark the tracings "AS-BUILT", and also sign and date each drawing so marked.
 - (3) The Contractor shall submit the as-built drawings to the Design Consultant for review, approval and changes. After the Design Consultant approves the as-built drawings, the Design Consultant shall submit as-built drawing on velum, electronic copy of Specification in Word and drawing in AutoCad on CD ROM.
 - (4) Any as-built drawing which the Project Manager determines does not accurately record the deviation shall be corrected by the Consultant at no charges to the State for these services.

END OF SECTION

SECTION 01300 – SUBMITTALS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

Shop drawings and submittals shall be made in accordance with DHHL's General Conditions, Section 5.5.1 – "SHOP DRAWINGS" and Section 6.3 – "SUBSTITUTION OF MATERIALS AND EQUIPMENT"

1.02 OTHER SUBMITTALS REQUIRED BEFORE CONSTRUCTION

The Contractor shall submit the following items prior to or at the pre-construction meeting or unless otherwise noted:

1.03 SHOP DRAWINGS, SAMPLES, CATALOG CUTS, AND CERTIFICATES

- A. Submittal Schedule: Prior to the submission of any shop drawings or submittals, the Contractor shall submit to the Construction Manager and Design Consultant for review, a submittal schedule. The schedule shall identify the subject matter of each submittal, the corresponding specification section number and the proposed date of submission. During the progress of work, the Contractor shall revise and resubmit the submittal schedule as directed by the Project Manager.
- B. The Contractor shall submit for review to the Construction Manager, or to a representative designated by the Project Manager, electronically or submit four (4) copies, if directed by the Project Manager of all shop drawings, samples, catalog cuts and certificates. Two (2) copies will be returned to the Contractor with information of review action. The Contractor shall submit additional quantities for their subcontractor's or supplier's use. Each shop drawing, certificate of compliance, sample, and equipment list shall be checked and certified correct by the Contractor, and shall be identified with the applicable information specified hereinafter under "Submittal Identification."

Items are to be reviewed prior to commencing fabrication or delivery of material to the job site.

- C. Each copy of the drawings, certificates, catalog cuts, and lists reviewed by the Design Consultant will be stamped "REVIEW ACTION" with the appropriate action noted therein. The review of the Design Consultant shall not be construed as a complete check but will indicate only that the general method of construction and detailing is satisfactory. Acceptance of such drawings will not relieve the Contractor the responsibility of conforming to the contract drawings and specifications or for any error or omission which may exist as the Contractor shall be responsible for the dimensions and design of adequate connections, details, and satisfactory construction of all work. Each shop drawing submitted for review shall have, in the lower right-hand corner just above title, a white space 4" x 4" in which the Design Consultant can place the stamp and indicate

action taken. The Contractor shall also inform their subcontractors to provide this space in their preparation of shop drawings.

1.07 TEST REPORTS

Six copies of test reports for any material used in this Contract shall be submitted when specified or required by the Project Manager.

1.08 SUBMITTAL IDENTIFICATION

A. To avoid rejection and to clarify each submittal, the General Contractor shall have a rubber stamp made up in the following format:

B. CONTRACTOR NAME: _____
PROJECT: _____
IFB NO: _____

THIS SUBMITTAL HAS BEEN CHECKED BY THIS GENERAL CONTRACTOR. IT IS CERTIFIED CORRECT, COMPLETE, AND IN COMPLIANCE WITH CONTRACT DRAWINGS AND SPECIFICATIONS. ALL AFFECTED CONTRACTORS AND SUPPLIERS ARE AWARE OF, AND WILL INTEGRATE THIS SUBMITTAL INTO THEIR OWN WORK.

DATE RECEIVED _____

SPECIFICATION SECTION _____

SPECIFICATION PARAGRAPH _____

DRAWING NUMBER _____

SUBCONTRACTOR NAME _____

SUPPLIER NAME _____

MANUFACTURER NAME _____

CERTIFIED BY: _____

C. This stamp “filled in” should appear on each reproducible shop drawing, on the cover sheet of copies of test and mill reports, certificates of compliance, catalog

cuts, brochures, etc. The stamp should be placed on a heavy stock paper merchandise (approximately 3" x 6") and one tag tied to each sample submitted for approval. The tag on the samples should state what the sample is, so that if the tag is accidentally separated from the sample they can be matched up again.

The back of this tag will be used by the Project Manager for receipt, approval, and log stamp for any comments that relates to the sample.

- D. Submission Number: Each submission is to be sequentially numbered in the space provided in the Contractor's stamp. Correspondence and transmittal will refer to this number.
- E. The Contractor shall ensure that all submittals, including shop drawings, are complete and in conformance to the requirements of the Contract specifications prior to submissions to the State for review and acceptance. Incomplete submittals will not be processed by the State and returned to the Contractor for correction. Any cost impacts and delays in the Project schedule as a result of incomplete submittals shall be the responsibility of the Contractor.

1.10 GUARANTEES

Guarantee periods shall start at the time of acceptance in writing by the State.

All guarantees and warranties shall be made out to the "State of Hawaii." Supplier and subcontractor guarantees shall be co-signed by the Contractor.

The Contractor is solely responsible for coincidence or non-coincidence of factory warranties or equipment guarantees, and the Contractor's own warranties and guarantees as required by the contract. The Contractor is solely responsible for scheduling and coordinating the installation of equipment and materials so as to take maximum advantage of factory warranties.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately, but shall be considered incidental to and included in the bid prices for the various items of work in this project.

END OF SECTION

SECTION 01310 – CONSTRUCTION SCHEDULES & SCHEDULES OF VALUES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

Construction Schedules and Schedules of Values shall be made in accordance with Section 7.22 – “CONSTRUCTION SCHEDULES” of the DHHL General Conditions.

1.02 DETAILED CONSTRUCTION SCHEDULE – CRITICAL PATH METHOD (CPM)

- A. Contractor shall prepare and submit a detail Detailed Construction Schedule to the Project Manager for review, not later than thirty (30) calendar days after the Notice of Award or upon earlier written instructions from the DHHL. The detailed construction schedule shall be based on a detailed critical path analysis of construction activities and sequence of operations needed for the orderly performance and completion of any separable parts of any work and all work in accordance with the Contract. The schedule shall be Critical Path Method (CPM) type in the form of an arrow diagram and activity listing or comprehensive bar graph. The network diagram shall show in detail and in orderly sequence all activities on a time scale, their description, durations and dependencies, necessary and required to complete all work and any separable parts thereof. If requested by the DHHL, the Contractor shall participate in a preliminary meeting to discuss the proposed schedule and requirements prior to submission of the schedule.

The schedule shall show in detail the following information for each activity.

1. Identification by code numbers and description;
2. Duration time scaled by weeks;
3. Craft and Equipment;
4. Earliest start and early finish dates;
5. Latest start and late finish dates;
6. Total and free float time; and
7. Highlighted Critical Path

“Float” means the length of time between the early start date and the late start date, or the early finish date and late finish date for any of the activities noted on the **critical path method (CPM)** Schedule.

The “Critical Path” is made up of activities which control the total length of the project. It is by definition, the longest path through the schedule. For this project, a critical activity shall be any activity with less than five (5) days of total float.

Non-work days (e.g. Holidays, exclusionary non-work days).

- B. The detail construction schedule shall be complete in all respects, covering in addition to activities at the site of work, off-site activities such as design, fabrication, and procurement of equipment; the scheduled delivery dates of such equipment; submittal and approval of shop drawings and samples; ordering and delivery of materials; inspections; and testing. The schedule shall also include a manpower forecast by crafts. The detailed construction schedule shall be supplemented by a three (3) week schedule prepared by the Contractor and submitted to the Construction Manager & Project Manager on a weekly basis.
- C. Upon completion of the DHHL's review, the Contractor shall amend the schedule as necessary to reflect comments made by the DHHL. If necessary, the Contractor shall participate in a meeting with the DHHL to discuss the proposed schedule and changes required. The Contractor shall submit the revised schedule and cash flow for approval to the DHHL within seven (7) calendar days after receipt of the DHHL's comments

The schedule shall be kept up to date, taking into account the actual progress of work and shall be updated if necessary, every thirty (30) calendar days. The updated schedule shall, as determined by the DHHL Project Manager, be sufficient to meet the requirements for the completion of the separable parts of work and the entire projects as set forth in the contract. Upon commencing work, the Contractor shall submit at the start of each week to the DHHL Project Manager for review, a detailed two (2) week construction schedule.

- D. If at any time during the progress of the Work, the Contractor's actual progress appears to the Project Manager to be inadequate to meet the requirements of the contract, the Project Manager will notify the Contractor of such imminent or actual noncompliance with the contract. The Contractor shall thereupon take such steps as may be necessary to improve his progress and the Project Manager may require an increase in the labor force, the number of shifts, and/or overtime operations, days or work and/or the amount of construction plants all without additional cost to the State. Neither such notice by the Project Manager nor the Project Manager's failure to issue such notice shall relieve the Contractor from his obligation to achieve the quality of work and rate of progress required by the Contract. Failure of the Contractor to comply with instructions of the Project Manager under these provisions may be grounds for determination by the State that the Contractor is not prosecuting work with such diligence as will assure completion within the time specified. Upon such determination, the State may employ labor and equipment and charge the Contractor for the cost thereof, including depreciation for plant and equipment or may terminate the Contractor's right to proceed with the performance of the contract, or any separable part thereof, in accordance with the applicable provisions of the contract.
- E. The Contractor shall submit the schedule to the Project Manager in Microsoft Project Format (.mpp) and Adobe PDF Format (PDF). The Contractor shall submit a narrative explaining the reasoning behind the construction of the

schedule including but not limited to the reasons for durations, sequence of work, and a description of all critical path items. The narrative for each updated schedule shall outline all changes to the schedule and include the justification for each change.

- F. Use the approved schedule for planning, organizing and directing the work, for reporting progress, and for requesting payment for the work completed. Do not make changes to the approved schedule without written approval of the DHHL.
- G. Should changes to the schedule be desired, submit a request in writing to the DHHL and indicate the reason for the proposed change. Should the DHHL consider the change to be major, the DHHL may require the Contractor to revise and resubmit the schedule for approval at no additional cost to the DHHL. The Contractor shall mitigate the impact of all changes by re-sequencing activities, duration of time, or resources utilizing all available float.
 - 1. A change shall be considered major if, in the opinion of the DHHL, the change may affect the substantial completion date or other contractual and milestone dates.
 - 2. Minor changes are those that only affect activities with adequate float time.
- H. Once the schedule has been approved by the DHHL, the Contractor shall furnish to the DHHL one (1) electric copy of the schedule within seven (7) calendar days.
- I. Throughout the duration of the project, the DHHL reserves the right to request more detailed breakdowns of activities, logic, and schedule submittals from the Contractor at no additional cost to the DHHL.
- J. Updated schedules shall be prepared and submitted to the DHHL at monthly intervals or as directed by the DHHL. The schedule shall reflect all changes occurring since the last update including the following:
 - 1. Activities started and completed during the previous period.
 - 2. The estimated duration to complete each activity which was started but not completed.
 - 3. Percentage of cost payable for each activity.
 - 4. Notifications and pending proposed changes.
 - 5. Narrative report describing current and anticipated problem areas and/or delaying factors with their impact together with an explanation of corrective actions taken or proposed.

- K. Failure on the part of the Contractor to submit updated schedules may be grounds for the DHHL to withhold progress payments for items noted on the schedule.
- L. Contractor shall prosecute the work according to the CPM Schedule. The DHHL shall rely on the approved Contractor's CPM Schedule and regular updates for planning and coordination. The DHHL's review of the Contractor's CPM Construction Schedule does not relieve the Contractor of its obligation to complete the work within the allotted contract time. Nor does the review grant, reject or in any other way act on the Contractor's requests for adjustment(s) to complete remaining contract work, or claims of additional compensation. Such requests shall be processed in accordance with other relevant provisions of the contract.
- M. If the DHHL issues a Field Order or Change Order that affects the sequence or duration of work activities noted on the construction progress schedule, the Contractor shall promptly update the schedule. This shall be accomplished by adding, deleting or revising the work activities noted or changing the logic in the schedule to show the Contractor's plan for incorporating the change into the flow or work. All Change Orders and Time Extension requests that affect the construction schedule shall be evaluated based on their impact on the approved Construction Schedule.
- N. If the current work is behind schedule or projected to be behind schedule, such a negative float on a critical activity and/or inability to meet the Contract Completion Date, the DHHL may require the Contractor, at the Contractor's cost, to take remedial measures to get the project back on schedule. This may require increasing the work force, working overtime and weekends, air freighting materials, or other similar actions.
- O. If at any time the DHHL determines that any critical activity has fallen behind the CPM schedule by fifteen (15) calendar days or more, Contractor shall submit a remedial plan to recapture the lost schedule time. Include a revised schedule. Furnish the remedial plan no later than seven (7) calendar days from DHHL's notification.

1.03 SCHEDULE OF VALUES

- A. The Contractor shall submit the Schedule of Values to the Project Manager for review, no later than thirty (30) calendar days after award of the Contract.
- B. Format and Content: Use the Project Specifications table of contents as a guide to establish the format for the Schedule of Values. Provide at least one line item for each Specification Section. Provide a breakdown of the contract sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Break principle work or subcontract amounts down into several smaller identifiable items of work.

- C. Identification: Include the following Project identification on the schedule of values:
1. Project name and location
 2. Project number
 3. Contractor's name and address
 4. Contract No.
 5. Date of submittal
- D. Arrange the schedule of Values in tabular form with separate columns to indicate the following items listed:
1. Related Specification Section or Division
 2. Description of work
 3. Dollar value and percent complete
- E. Correlate line items in the Schedule of Values with other required administrative schedules and forms including;
1. Construction Schedule
 2. Application for Payment forms including continuation sheets
 3. List of Subcontractors
 4. List of principle suppliers and fabricators
 5. Schedule of submittals
- F. Round amount to nearest whole dollar; the total shall equal the contract sum.
- G. Provide a separate line item in the Schedule of Values for each part of the work where Applications for Payment may include materials or equipment, purchased, fabricated or stored, but not yet installed.
- H. Schedule Updating: Update and resubmit the Schedule of Values prior to the next Applications for Payment or when Charge Orders or Construction Change Directives result in a change in the Contract Sum.

END OF SECTION

SECTION 01430 - ENVIRONMENTAL PROTECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Environmental Protection shall be made in accordance with Section 40 – “POLLUTION CONTROL” of the State’s General Conditions, AG-008 103D.

1.02 GENERAL: This section covers prevention of environmental pollution and damage during and as the result of construction operations under this contract and for those measures set forth in other sections of the TECHNICAL SPECIFICATIONS. For the purpose of this specification, environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to utility of the environment for aesthetic, cultural and/or historical purposes. The control of environmental pollution and damage requires consideration of air, water, and land, and includes management of visual aesthetics, noise, solid waste, as well as other pollutants. It is the responsibility of the Contractor to investigate and comply with all applicable Federal, State and County laws and regulations concerning environmental protection and pollution control, and to secure all necessary permits.

1.03 SUBMITTALS: The Contractor shall submit an Environmental Protection Plan in accordance with the provisions as herein specified. Environmental Protection pPan shall include but not be limited to the following:

- A. Methods for protection of features to be preserved within authorized work areas. The Contractor shall prepare a listing of methods to protect resources needing protection; i.e., trees, shrubs, vines, grasses and ground cover, landscape features, air and water quality, fish and wildlife, soil, historical, archaeological, and cultural resources.
- B. Procedures to be implemented to provide the required environmental protection and to comply with all applicable laws and regulations. The Contractor shall set out the procedures to be followed to correct pollution of the environment due to accident, natural causes, or failure to follow the procedures set out in accordance with the environmental protection plan.
- C. Drawings showing locations of any proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles or spoil material.
- D. Environmental monitoring plans for the job site, including land, water, air and noise monitoring.
- E. Methods of protecting surface and groundwater during construction activities.

F. Training for his personnel during the construction period.

- 1.04 IMPLEMENTATION: After receipt of Notice to Proceed, the Contractor shall submit in writing the above environmental protection plan for approval of the Project Manager within 5 days after Notice to Proceed. Approval of the contractor's plan will not relieve the Contractor of his responsibility for adequate and continuing control of pollutants and their environmental protection measures.
- 1.05 SUBCONTRACTORS: Assurance of compliance with this section by subcontractors will be the responsibility of the Contractor.
- 1.06 NOTIFICATION: The Project Manager will notify the Contractor in writing of any observed noncompliance with the aforementioned Federal, State or local laws or regulations, permits, and other elements of the Contractor's environmental protection plan. The Contractor shall, after receipt of such notice, inform the Project Manager of proposed corrective action and take such action as may be approved. If the Contractor fails to comply promptly, the Project Manager may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions shall be granted or costs or damages allowed to the Contractor for any such suspension.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

- 3.01 PROTECTION OF ENVIRONMENTAL RESOURCES: The environmental resources within the project boundaries and those affected outside the limits of permanent work under this contract shall be protected during the entire period of this contract. The Contractor shall confine his activities to areas defined by the drawings and specifications.
- 3.02 PROTECTION OF LAND RESOURCES: Prior to the beginning of any construction, the Contractor shall identify all land resources to be preserved within the Contractor's work area. Except in areas indicated on the drawings or specified to be cleared, the Contractor shall not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and land forms without special permission from the Project Manager. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. Where such special emergency use is permitted, the Contractor shall provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs.
- A. Work Area Limits: Prior to any construction, the Contractor shall mark the areas that are not required to accomplish all work to be performed under this contract. Isolated areas within the general work area, which are to be saved and protected, shall also be marked or fenced. Monuments and

markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, the markers shall be visible. The Contractor shall convey to his personnel the purpose of marking and/or protection of all necessary objects.

- B. Protection of Landscape: Trees, shrubs, vines, grasses, land forms and other landscape features indicated and defined on the drawings to be preserved shall be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques.
- C. Reduction of Exposure of Unprotected Erodible Soils: Earthwork brought to final grade shall be finished as indicated and specified. Side slopes and back slopes shall be protected as soon as practicable upon completion of rough grading. All earthwork shall be planned and conducted to minimize the duration of exposure of unprotected soils. Runoff from the construction site shall be controlled by construction of diversion ditches, benches, and berms to retard and divert runoff to protected drainage courses.
- D. Disposal of Solid Waste by Removal From State Property: The Contractor shall transport all solid waste off State property and dispose of it in compliance with Federal, State and local requirements for solid waste disposal.
- E. Disposal of Chemical Waste: Chemical waste shall be stored in corrosion resistant containers, removed from the work area and disposed of in accordance with Federal, State, and local regulations.

3.03 PROTECTION OF WATER RESOURCES: The Contractor shall keep construction activities under surveillance, management and control to avoid pollution of surface and groundwaters. Special management techniques as shall be implemented to control water pollution.

- A. Protection of Waterways: Construction of drainage facilities as well as performance of other contract work which will contribute to the control of siltation shall be carried out in conjunction with the earthwork operations or as soon as thereafter as is practicable.

Prior to or during any suspension of construction operations for any appreciable length of time, the Contractor shall provide for any temporary erosion control measures deemed necessary. Such measures shall be continued until the permanent drainage facilities have been constructed and when called for, until the protective ground cover is sufficiently established to be an effective erosion deterrent. Should such measures fail and an appreciable quantity of material begins to erode into the natural waterway, the Contractor shall act immediately to bring the siltation under control.

- B. Pollution: The Contractor shall exercise every reasonable precaution throughout the life of the project to prevent pollution of rivers, streams or impoundments. Pollutants such as chemicals, fuels, lubricants, bitumens, raw sewage and other harmful waste shall not be discharged into or alongside of the stream, or into natural or manmade channels leading thereto. The Contractor shall also comply with the applicable regulations of the State Department of Land and Natural Resources and other statutes relating to the prevention and abatement of pollution.

The Contractor shall conduct his operations near harbors, bays, swimming and water recreation areas, to avoid and minimize pollution. He shall comply with the applicable regulations of the United States Department of Interior, State Department of Health and other authority having jurisdiction.

Monitoring of water areas affected by construction activities shall be the responsibility of the Contractor. All water areas affected by construction activities shall be monitored by the Contractor.

- 3.04 PROTECTION OF FISH AND WILDLIFE RESOURCES: The Contractor shall keep construction activities under surveillance, management and control to minimize interference with, disturbance to and damage of fish and wildlife.

- 3.05 PROTECTION OF AIR RESOURCES: The Contractor shall keep construction activities under surveillance, management and control to minimize pollution of air resources. All activities, equipment, processes, and work operated or performed by the Contractor in accomplishing the specified construction shall be in strict accordance with the State of Hawaii Public Health Regulations, Chapter 43, "Air Pollution Control." Special management techniques as set out below shall be implemented to control air pollution by the construction activities, which are included in the contract.

- A. Particulates: Dust particles, aerosols, and gaseous by-products from all construction activities and processing and preparation of materials shall be controlled at all times, including weekends, holidays and hours when work is not in progress. The Contractor shall maintain all excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and all other work areas within or outside the project boundaries free from particulates which would cause the air pollution standards mentioned above to be exceeded or which would cause a hazard or a nuisance. Sprinkling or other methods approved by the Project Manager will be permitted to control particulates in the work area. Sprinkling, to be efficient, must be repeated at such intervals as to keep the disturbed area damp at all times. The Contractor must have sufficient competent equipment available to accomplish this task. Particulate control shall be performed as the work proceeds and whenever a particulate nuisance or hazard occurs.

- B. Hydrocarbons and carbon monoxide emissions from equipment shall be controlled to Federal and State allowable limits at all times.
- C. Odors shall be controlled at all times for all construction activities, processing and preparation of materials.
- D. Monitoring of air quality shall be the responsibility of the Contractor. All air areas affected by the construction activities shall be monitored by the Contractor.

3.06 PROTECTION FROM SOUND INTRUSIONS: The Contractor shall adhere to the requirements of the Department of Health and shall implement acceptable noise abatement methods to minimize the construction noise level. Noise shall be kept within acceptable levels at all times in conformance with Title II, Administration Rules, Chapter 43, Community Noise Control, State Department of Health, Public Health Regulations. The Contractor shall obtain the pay for community noise permit from the State Department of Health when the construction equipment or other devices emit noise at levels exceeding the allowable limits.

All internal combustion engine-powered equipment shall have mufflers to minimize noise and shall be properly maintained to reduce noise to acceptable levels.

3.07 POST CONSTRUCTION CLEANUP: The Contractor shall clean up areas used for construction.

3.08 RESTORATION OF LANDSCAPE DAMAGE: The Contractor shall restore all landscape features damaged or destroyed during construction operations outside the limits of the approved work areas. Such restoration shall be in accordance with the plan submitted for approval by the Project Manager. This work will be accomplished at the Contractor's expense.

3.09 MAINTENANCE OF POLLUTION CONTROL FACILITIES: The Contractor shall maintain all constructed facilities and portable pollution control devices for the duration of the contract or for that length of time construction activities create the particular pollutant.

3.10 TRAINING OF CONTRACTOR PERSONNEL IN POLLUTION CONTROL: The Contractor shall train his personnel in all phases of environmental protection. The training shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, and installation and care of facilities (vegetative covers and instruments required for monitoring purposes) to ensure adequate and continuous environmental pollution control.

END OF SECTION

SECTION 01440 - ARCHAEOLOGICAL FINDINGS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Archaeological Finds shall be made in accordance with Section 7.18 – “ARCHAEOLOGICAL SITES” of DHHL’S General Conditions.

PRESERVATION AND RECOVERY OF HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES:

Existing historical, archaeological, and cultural resources within the Contractor's work area will be so designated by the Project Manager if any have been identified. The Contractor shall take precautions to preserve all such resources as they existed at the time they were pointed out to him. The Contractor shall provide and install all protection for these resources so designated and shall be responsible for their preservation during this contract. If during excavation or other construction activities in areas with existing or known resources, as well as in any other work area, any previously unidentified or unanticipated resources are discovered or found, all activities that may damage or alter such resources shall be temporarily suspended. Such temporary suspension of work shall not be attributable to the Contractor. These resources of cultural remains (prehistoric or historic surface or subsurface) include but are not limited to: any human skeletal remains or burials; artifacts; shell, bone, charcoal, or other deposits; rocks or coral alignments, parings, wall, or other constructed features; and any indication or agricultural or other uses. Upon such discovery or find, the Contractor shall immediately notify the Project Manager. When so notified, the Project Manager will notify the State Historic Preservation Officer (SHPO) for further direction.

As directed by the Project Manager, the Contractor may be allowed to continue any operation which would not further disturb the site(s); however, all work within the protected area shall be suspended until the Project Manager is notified by the SHPO that all investigations or salvage operations have been completed.

END OF SECTION

SECTION 01530 - BARRICADES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

Barricades shall be made in accordance with Section 7.16 – “SATITRY, HEALTH AND SAFETY PROVISIONS” of DHHL’S General Conditions.

1.02 GENERAL REQUIREMENTS:

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

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

PART 2 - PRODUCTS

2.01 MATERIALS:

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

PART 3 - EXECUTION

3.01 CONSTRUCTION REQUIREMENTS:

- A. General: Barricades shall be constructed in a first class, workmanlike manner in accordance with details shown on the plans and as specified herein.

Barricades shall be in good condition and approved by the Project Manager for use within the project limits. Barricade application and installation shall be as shown on the plans and as directed by the Project Manager in accordance with the guidelines provided in the latest edition of the FHWA publication, Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD), and any amendments or revisions thereof as may be made from time to time.

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

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

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

Barricades furnished and paid for use in temporary detours or construction phasing may be used for permanent location called for on the plans.

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

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

Both vertical faces of each barricade rail shall be reflectorized as shown on the plans.

Wooden rails shall be reflectorized with one of the following:

1. Reflective sheeting specified in Subsection 712.20(C)(4) of the "Standard

Specifications for Road and Bridge Construction" and backed with a 26 gage galvanized steel sheet, or

2. A hardened aluminum backed reflective sheeting as specified in Subsection 712.20(C)(5) of the "Standard Specifications for Road and Bridge Construction."

D. Color: Rails, frames and braces shall be white.

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

1. Orange and white stripes shall be used in the following conditions:
 - a. Construction work.
 - b. Detours.
 - c. Maintenance work.
2. Red and white stripes shall be used in the following conditions:
 - a. On roadways with no outlet (i.e. dead-ends, cul-de-sacs).
 - b. Ramps or lanes closed for operational purposes.
 - c. Permanent or semi-permanent closure or termination of a roadway.

E. Maintenance: Barricades shall be kept in good condition throughout their usage during construction until the end of the contract.

F. The Contractor shall repair, repaint, clean or replace the barricades as required and as directed by the Project Manager to maintain their effectiveness and appearance.

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

Barricades used during construction phasing, temporary detours or other temporary traffic control work shall be cleaned and repaired as necessary, prior to being relocated to a permanent location shown on the plans or as directed.

No extra payment will be made for any repair work, repainting, or cleaning of barricades. The Project Manager shall determine the suitable condition of

each barricade and shall determine when each barricade shall be repaired, repainted or cleaned.

END OF SECTION

SECTION 01567 - POLLUTION CONTROL

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Pollution Control shall be made in accordance with Section 40 – “POLLUTION CONTROL” of the State’s General Conditions, AG-008 103D.

1.02 GENERAL REQUIREMENTS:

A. Rubbish Disposal:

1. No burning of debris and/or waste materials shall be permitted on the project site.
2. No burying of debris and/or waste material except for materials which are specifically indicated elsewhere in these specifications as suitable for backfill shall be permitted on the project site.
3. All unusable debris and waste material shall be hauled away to an appropriate off-site dump area. During loading operations, debris and waste materials shall be watered down to allay dust.
4. No dry sweeping shall be permitted in cleaning rubbish and fines which can become airborne from floors or other paved areas. Vacuuming, wet mopping or wet or damp sweeping is permissible.
5. Enclosed chutes and/or containers shall be used for conveying debris from above to ground floor level.
6. Clean-up shall include the collection of all waste paper and wrapping materials, cans, bottles, construction waste materials and other objectionable materials, and removal as required. Frequency of clean-up shall coincide with rubbish producing events.

B. Dust:

1. The Contractor shall prevent dust from becoming airborne at all times including non-working hours, weekends and holidays in conformance with the State Department of Health, Administrative Rules, Title 11, Chapter 60 - Air Pollution Control.
2. The method of dust control and costs shall be the responsibility of the Contractor. Methods of dust control shall include the use of water, chemicals or asphalt over surfaces which may create airborne dust.

C. Noise:

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

D. Erosion:

1. During interim grading operations, the grade shall be maintained so as to preclude any damage to adjoining property from water and eroding soil.
2. Temporary berms, cut-off ditches and other provisions which may be required because of the Contractor's method of operations shall be installed at no cost to the State.
3. Drainage outlets and silting basing shall be constructed and maintained as shown on the plans to minimize erosion and pollution of waterways during construction.

E. Others:

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

3. No dumping of waste concrete will be permitted at the job-site.
4. Except for rinsing of the hopper and delivery chute, and for wheel washing where required, concrete trucks shall not be cleaned on the job-site.
5. Except in an emergency, such as a mechanical breakdown, all vehicle fueling and maintenance shall be done in a designated area. A temporary berm shall be constructed around the area when runoff can cause a problem.
6. When spray painting is allowed such spray painting shall be done by the "airless spray" process. Other types of spray painting will not be allowed.

F. Suspension of Work:

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

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01750 - GUARANTEE

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

Guarantee shall be made in accordance with Section 7.35 – “GUARANTEE OF WORK” of the DHHL’s General Conditions.

1.01 GUARANTEES

The Contractor guarantees all materials and equipment furnished to be in operable condition upon final acceptance of the work and that all such materials and equipment conform to the requirements of this contract and be fit for the use intended.

He further guarantees all such materials and equipment against defects and poor workmanship and, to the extent that he is responsible for design, the Contractor guarantees the design to meet the criteria and operating requirements specified against failure to perform in accordance with such criteria and operating requirements.

The period of this guarantee shall commence upon acceptance of the work by the DHHL, and shall extend through the project performance evaluation period not to exceed 1 year for all materials and equipment, provided that this period shall be extended from the time of correction of any defect or failures, corrected under the terms of this guarantee, for a like period for the corrected work.

The Contractor shall correct all defects or failures discovered within the guarantee period. The DHHL will give the Contractor prompt written notice of such defects or failures following their discovery. The Contractor shall commence corrective work within five (5) days following notification and shall diligently prosecute such work to completion. The Contractor shall bear all costs of corrective work, which shall include necessary disassembly, transportation, reassembly and retesting, as well as repair or replacement of the defective material or equipment, and any necessary disassembly and reassembly of adjacent work.

Any period that a particular equipment is not operable due to its failure shall not be considered as a part of the guarantee period. The guarantee period shall be extended for a like period. If due to failure of other equipment the equipment is unable to perform its intended function, the guarantee period shall be extended for a like period. Time that equipment is operating shall be counted as applying to the warranty. Such time shall be determined by use of plant operator's log or other suitable documentation.

If the Contractor falls to perform corrective work in the manner and within the time stated, the Department of Hawaiian Home Lands (DHHL) may proceed to have such work performed at the Contractor's expense and his sureties will be liable therefor. The DHHL shall be entitled to reasonable attorney's fees and court costs necessarily incurred by the Contractor's refusal to honor and pay such costs of corrective work. The Contractor's performance bond shall continue in full force and effect during the period of this guarantee.

The rights and remedies of the DHHL under this provision do not preclude the exercise of any other rights or remedies provided by this contract or by law with respect to unsatisfactory work performed by the Contractor.

This guarantee shall be deemed supplemental to guarantee provisions provided in other sections of the specifications for the individual units and systems of units so specified.

Guarantee periods shall start at the time of acceptance in writing by the State. All guarantees and warranties shall be made out to the "State of Hawaii." Supplier and subcontractor guarantees shall be co-signed by the Contractor. The Contractor is solely responsible for coincidence or non-coincidence of factory warranties or equipment guarantees, and the Contractor's own warranties and guarantees as required by the contract. The Contractor is solely responsible for scheduling and coordinating the installation of equipment and materials so as to take maximum advantage of factory warranties.

END OF SECTION

SECTION 01770 – CLOSE-OUT PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Close-Out Procedures shall be made in accordance with Section 7.33.1 – “SUBSTANTIAL COMPLETION” of the DHHL’s General Conditions.

1.02 SUMMARY

A. This Section outlines the DHHL Close-Out documents requirements. It includes information about the distribution process, the format and quantities of various types of information, and the internal review process for document acceptance. Fulfillment of these requirements is a condition precedent to the Contractor receiving final payment.

1. Project Record Documents.
2. Operation and Maintenance Manuals.
3. Warranties.
4. Instruction for the State’s personnel.

B. Related documents include the following:

1. SECTION 01700 - EXECUTION REQUIREMENTS.

C. Transmittal Memo

All Close-Out documents will be submitted to the designated Construction Management with a Transmittal Memo. The Transmittal Memo must include the following information:

- Date of Conveyance:
- Project Name:
- IFB Number:
- Contract Number:
- DHHL Project Manager:

- Contractor Name:
- Contractor Address:
- Name/Transmitting Signature of Contractor Agent:
- Name/Telephone Number of Document Submitter
- List of documents transmitted

D. Document Types and Formats

Materials	Format
Transmittal Summary	
Documents Transmittal Memo	Word or Excel*
Project Operations and Maintenance	
Project manual with Specifications	Searchable PFD*
Operation and Maintenance Manuals	Searchable PDF*
Guaranty / Warranty Materials	PDF*
Testing / inspection certifications	PDF*
Record Documents	
Site survey	CAD & PDF*
Shop drawings	CAD & PDF*
As-built drawings	CAD & PDF*
Scope, Cost and Schedule data	PDF
<ul style="list-style-type: none"> • Final cost summary by account 	
<ul style="list-style-type: none"> • Final schedule of valves submitted by General Contractor 	
<ul style="list-style-type: none"> • Final schedule 	
<ul style="list-style-type: none"> • Final Chart to provide project description and scope. 	
<ul style="list-style-type: none"> • Final Executive Summary 	
Other Documents	
Other documents – addenda, change order, project correspondence files, etc.	(As needed)*
Reports, including photographic records	PDF*
Electronic files (photos, scanned documents)	JPEG, PDF*
Building Information Model, if applicable	(As needed)*
*See notes on CAD / Electronic documents	

1.03 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting a Final Inspection to determine; reminds of the GENERAL CONDITIONS.
1. Advise the Project Manager of pending insurance changeover requirements.
 2. Submit specific warranties, final certifications, and similar documents.
 3. Arrange to deliver tools, spare parts, extra materials, and similar items to a location designated by the Project Manager. Label with manufacturer's name and model number where applicable.
 4. Complete startup testing of systems.
 5. Submit test, adjust, and balance records.
 6. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 7. Complete final cleaning requirements, including touch up painting.
 8. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
 9. Submit the Operation and Maintenance Manual(s) for review

1.04 FINAL COMPLETION

- A. Preliminary Procedures: Within 10 days from the Project Acceptance Date, complete the following items in addition to requirements of GENERAL CONDITIONS:
1. Instruct the State's personnel in operation, adjustment, and maintenance of products.

1.05 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit 2 copies of any updated and action taken list. In addition to requirements of GENERAL CONDITIONS, include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order.
2. Include the following information at the top of each page:
 - a. Project Name and Title.
 - b. DHHL IFB No.
 - c. DHHL Contract No.
 - d. Date and page number.
 - e. Name of Contractor.

1.06 PROJECT RECORD DOCUMENTS AND REQUIREMENTS

A. General:

1. Definition: "Project Record Documents", including Record Drawings, shall fulfill the requirements of "Field-Posted As-Built Drawings" listed in the GENERAL CONDITIONS.
2. Do not use Project Record Documents for daily construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Project Manager's reference during normal working hours. Maintain these documents as specified in paragraph entitled "Record Drawings" hereinafter.
3. The Design Consultant, under contract with the State, will update the drawings to show all addendum, PCD, and sketch changes. The Contractor will transmit these drawings to the Construction Manager who will sent to the Design Consultant to make all "red-line" corrections to these drawings to record the changes depicted on the Contractor's Field Posted Record ("As-Builts") by accepted drafting practices as approved by the Project Manager.
4. Where the recorded changes depicted on the Contractor's Field Posted Record ("As-Builts") are in the form of shop drawings, the Contractor shall provide those shop drawings in the same material and size as the drawings transmitted to the Contractor. The new drawing sheets shall be titled and numbered to conform to the construction drawings and clearly indicate what information they supercede in the actual construction drawings. For example a new drawing that replaces drawing M-3, could be numbered M3a.

5. The Contractor shall bring to the attention of the Project Manager any discrepancy between the changes made by the Design Consultant and those depicted on addendum, PCD, and sketch changes. The Project Manager will resolve any conflicts.
6. Submit final Record Documents (Field Posted Record Drawings) within 10 days after the Final Inspection Date but no later than the Contract Completion Date, unless the General conditions require an earlier submittal date.
7. The Contractor shall guarantee the accuracy of its final Record Documents. The State will hold the Contractor liable for costs the State incurs as a result of inaccuracies in the Contractor's Record Documents.
8. Prepare and submit construction photographs and electronic files, damage or settlement surveys, property surveys, and similar final record information as required by the Project Manager.
9. Deliver tools, spare parts, extra materials, and similar items to a location designated by the Project Manager. Label with manufacturer's name and model number where applicable.
10. Submit final/corrected Operation and Maintenance Manual(s).

B. Record Drawings:

1. Maintain a duplicate full-size set of Field Posted Record ("As-Built's") Drawings at the job site. Clearly and accurately record all deviations from alignments, elevations and dimensions, which are stipulated on the drawings and for changes directed by the Project Manager that deviate from the drawings.
2. Record changes immediately after they are constructed in place and where applicable, refer to the authorizing document (Addenda, Field Order, Change Order, or Contract Modification). Use red pencil to record changes. Make Field Posted Record Drawings available to the Project Manager at any time so that its clarity and accuracy can be monitored.
 - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.

- b. Accurately record information in an understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - d. Mark the contract drawings or the shop drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked, show cross-reference on contract drawings.
 - e. Mark important additional information that was either shown schematically or omitted from original Drawings.
 - f. Locate concealed building utilities by dimension from bench marks or permanent structures. Locate site utilities by dimensions, azimuth and lengths from bench marks or permanent structures.
 - g. Note field order numbers, Change Order numbers, Contract Modification numbers, Alternate numbers, post-construction drawing numbers (PCD) and similar identification (RFI numbers) where applicable.
 - h. The Contractor shall initial each deviation and each revision marking.
3. Use the final updated Contract Drawing set plus applicable shop drawings for making the final Field Posted Record Drawings submittal.
 4. Certify drawing accuracy and completeness. Label and sign the record drawings.
 5. Label the title sheet and on all sheets in the margin space to the right of the sheet number, written from the bottom upward, with the title "FIELD POSTED RECORD DRAWINGS" and certification information as shown below. Provide a signature line and company name line for each subcontractor that will also certify the respective drawing. Adjust size to fit margin space.

THESE FIELD POSTED AS-BUILT DRAWINGS ARE ACCURATE AND COMPLETE.

Certified By: _____
Date: _____
Company: _____

6. Revise the Drawing Index and label the set "FIELD POSTED RECORD DRAWINGS". Include the label "A COMPLETE SET CONTAINS [] SHEETS" in the margin at the bottom right corner of each sheet. Quantify the total number of sheets comprising the set.
7. If the Project Manager determines a drawing does not accurately record a deviation or omits relevant information, the State will correct any FIELD POSTED RECORD DRAWINGS sheet. Contractor will be charged for the State's cost to correct the error or omission.
8. Use the final Field Posted Record Drawings sheets to create one electronic version of the set. The set shall be recorded in Adobe Acrobat PDF (Portable Document Format). Create a single indexed, bookmarked PDF file of the entire set of drawings and record on the CD. Submit one set of the final Field Posted Record Drawings sheets and the complete electronic CD set(s).

1.07 WARRANTIES

- A. Submittal Time: Submit written manufacturer's warranties at request of the Project Manager for designated portions of the Work where commencement of warranties other than Project Acceptance date is indicated.
- B. Organize manufacturer's warranty documents into an orderly sequence based on the table of contents of the Specifications.
 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2 inch x 11-inch paper.
 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer and prime contractor.
 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES", Project Name and Title, IFB Number, Contract Number, and name of Contractor.

4. Use the final submittal of the warranties to create an electronic Adobe Acrobat PDF (Portable Document Format) version of the bound warranty documents files. Each sheet shall be separately scanned, at 600 DPI or better into a PDF file, indexed and recorded on a recordable compact disc (CD).
- C. Provide 3 sets of manufacturer's warranties that exceed one year and one CD as part of the closing document submittals. Provide additional copies of each warranty to include in operation and maintenance manuals.

1.08 OPERATION AND MAINTENANCE MANUALS

- A. Assemble complete sets of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:

The Contractor shall bind and turn over to the Construction Management three (3) sets of manufacturers' warranties and operating data and/or maintenance manuals of each system, subsystem, and piece of equipment not part of a system, instructions or schedules for all equipment and special materials requiring them, and associated copies of testing reports and certificates. The three (3) binders will categorize and index each piece of equipment and material included using a Construction Specifications Institute (CSI) format to be provided by the DHHL, and shall be clearly marked noting "project specific" equipment, model numbers, and equipment cut sheets, value tag charts, electrical panel charts and other applicable information. As mentioned above, all pages of the manuals must be submitted in digital format. Such manuals will be collected and organized by the Contractor and submitted to the Construction Management, after review by the Construction Management, prior to the issuance of the certificate of Substantial Completion. Except for the changes noted in this section, the Contractor will follow the procedure outlined in the Standard General Conditions. Include operation and maintenance data required in individual Specification Sections and as follows:

1. Operation Data:
 - a. Emergency instructions and procedures.

- b. System, subsystem, and equipment descriptions, including operating standards.
 - c. Operating procedures, including startup, shutdown, seasonal, and weekend operations.
 - d. Description of controls and sequence of operations.
 - e. Piping diagrams.
2. Maintenance Data:
- a. Manufacturer's information, Material Safety Data Sheets, and a list of spare parts.
 - b. Name, address, and telephone number of installer or supplier.
 - c. Maintenance procedures.
 - d. Maintenance and service schedules for preventive and routine maintenance.
 - e. Maintenance record forms.
 - f. Sources of spare parts and maintenance materials.
 - g. Copies of maintenance service agreements.
 - h. Copies of warranties and bonds.
- B. Organize the Operation and Maintenance Manuals into suitable sets of manageable size. Submit two (2) sets prior to final inspection, bound in 8-1/2 x 11 inch text pages. Bind and index data in heavy-duty, "D" type 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Binder color shall be maroon, or if not available red. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL", Project Name and Title include building number when appropriate, DHHL Contract Number, IFB Number, Prepared For: Department of Hawaiian Home Lands, Prepared By: [Contractor] and Volume Number. Each binder is a single volume.
- C. Electronic Format

1. Provide all information (narratives, drawings and manual) on a Compact Disc (CD). Provide drawings and plans prepared for the O&M Manuals drawn electronically and saved as a PDF file. Name and index the files for ease of identification and updates.
 2. Provide the complete O&M Manual using Adobe Acrobat PDF (Portable Document Format) files. Each sheet shall be separately scanned into a PDF file, indexed, bookmarked, hyperlinked to the table of contents and recorded on a compact disc (CD). Scanned documents shall be scanned at 600 DPI or better. Indexes and bookmarks may be highlighted or colored text. The final submittal shall include written instructions for installing, accessing and retrieving information from the compact disc.
- D. Pre-Final Submittal: Submit two (2) printed sets of Pre-Final Operation and Maintenance Manuals, for review by the DHHL Project Manager, at least five (5) days prior to scheduled final inspection. Manuals shall be marked as Pre-Final. Make any correction noted before submitting the final Operation and Maintenance Manuals.
1. The user and the DHHL will each keep one (1) copy of the Pre-Final submittal to operate and maintain the facility from the Project Acceptance Date through submission of the final submittal. Therefore, the submittal shall contain all the required information that is available at the time of submission.
 2. One (1) set will be returned with comments. Additional review comments may include problems discovered during the O&M Manual's review, site validation, and facility start up and will be provided to the Contractor after facility Project Acceptance Date.
- E. Final Submittal: Use the final submittal of the manuals to create the electronic PDF file version of the bound Operation and Maintenance Manuals documents. Include the Submittal (100 percent) review comments along with a response to each item. Provide six (6) Final sets of the printed manuals and six (6) Final compact discs, (CDs) as part of the closing document submittal. Final printed manual and disks shall be marked as Final.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.01 FINAL CLEANING

- A. General: Execute final cleaning prior to final inspection. Provide final cleaning for each phase of work prior to starting the next phase. In addition to requirements of Article 7 of the GENERAL CONDITIONS conduct cleaning and waste-removal operations to comply with local laws and ordinances and federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturers written instructions unless noted otherwise. Complete the following cleaning operations before requesting final inspection for entire Project or for a portion of Project:
 - 1. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - 2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits resulting from construction activities.
 - 3. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - 4. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - 5. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - 6. Remove debris and surface dust from limited access spaces, including: roofs, gutters, downspouts, drainage systems,

plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.

7. Sweep concrete floors broom clean in unoccupied spaces.
 8. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 9. Clean transparent materials, including mirrors and glass in doors and windows. Remove temporary labels, glazing compounds and other noticeable, and vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors, transparent glass, and glossy surfaces, taking care not to scratch surfaces.
 10. Remove labels that are not permanent.
 11. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 12. Replace disposable air filters and clean permanent air filters. Clean the exposed surface of diffusers, registers, and grills to a sanitary condition.
 13. Clean ducts, blowers, and coils if units were operated without filters during construction.
 14. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the State's property. Do not discharge volatile, harmful, or dangerous materials into drainage and sewer systems or onto State property. Remove waste materials from Project site and dispose of lawfully.
- D. Adjust operation Products and equipment to ensure smooth and unimpeded operation.

PART 4 – MEASUREMENT AND PAYMENT

4.01 BASIS OF MEASUREMENT AND PAYMENT

Work under this section will not be measured nor paid for separately, but shall be considered incidental to and included in the bid prices for the various items of work in this project.

END OF SECTION



GROUTED RIPRAP TO PROTECT BANK WITH 4"-8" DIA ROCKS x 1'-6" DEEP. BANK DIMENSION APPROX. 1'-6" HIGH x 15' LONG, FIELD VERIFY.

164 LF NEW DRAINAGE ROCK SWALE

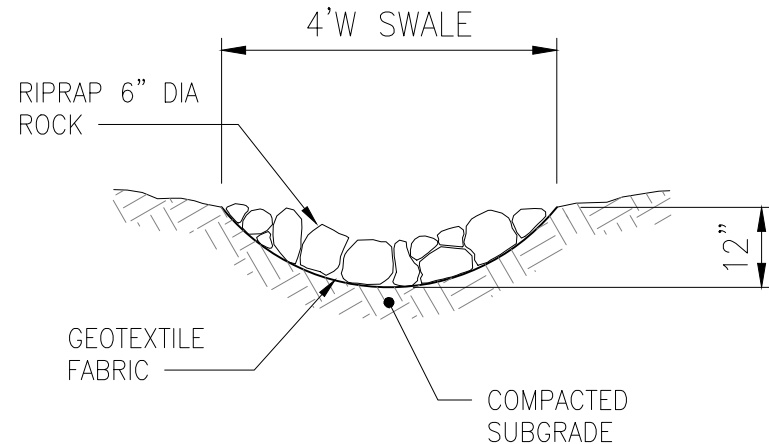
20'-0" GROUTED RIPRAP CHANNEL

16 LF NEW SPEED BUMP

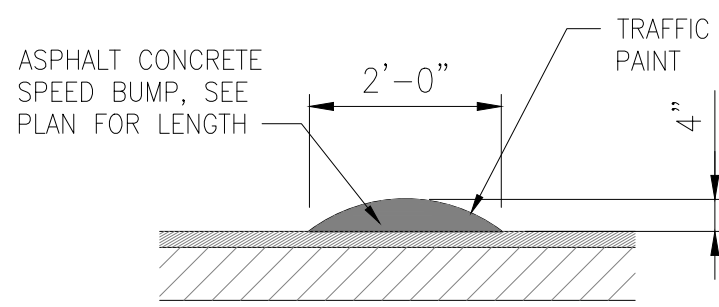
EXISTING CATTLE GATE

FOR GUARDRAIL INSTALLATION, CURB AND GUTTER REPAIR, SEE SHEET C-2

DRAINAGE SWALE PLAN
SCALE: 1" = 20'-0"



DRAINAGE SWALE SECTION
NOT TO SCALE



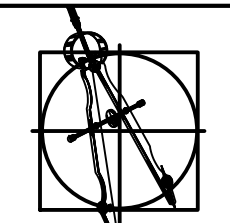
SPEED BUMP SECTION
NOT TO SCALE

NOTE:

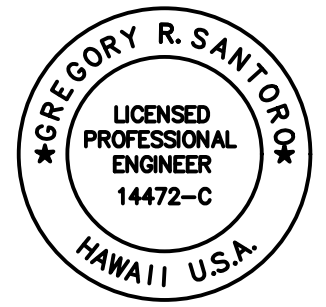
CONTRACTOR TO EXCAVATE EXISTING SOIL AND TO PROVIDE COMPACTED SUBGRADE.

NOTES:

1. CONTRACTOR TO FOLLOW EXISTING GRADE FOR SLOPING THE SWALE.
2. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS.



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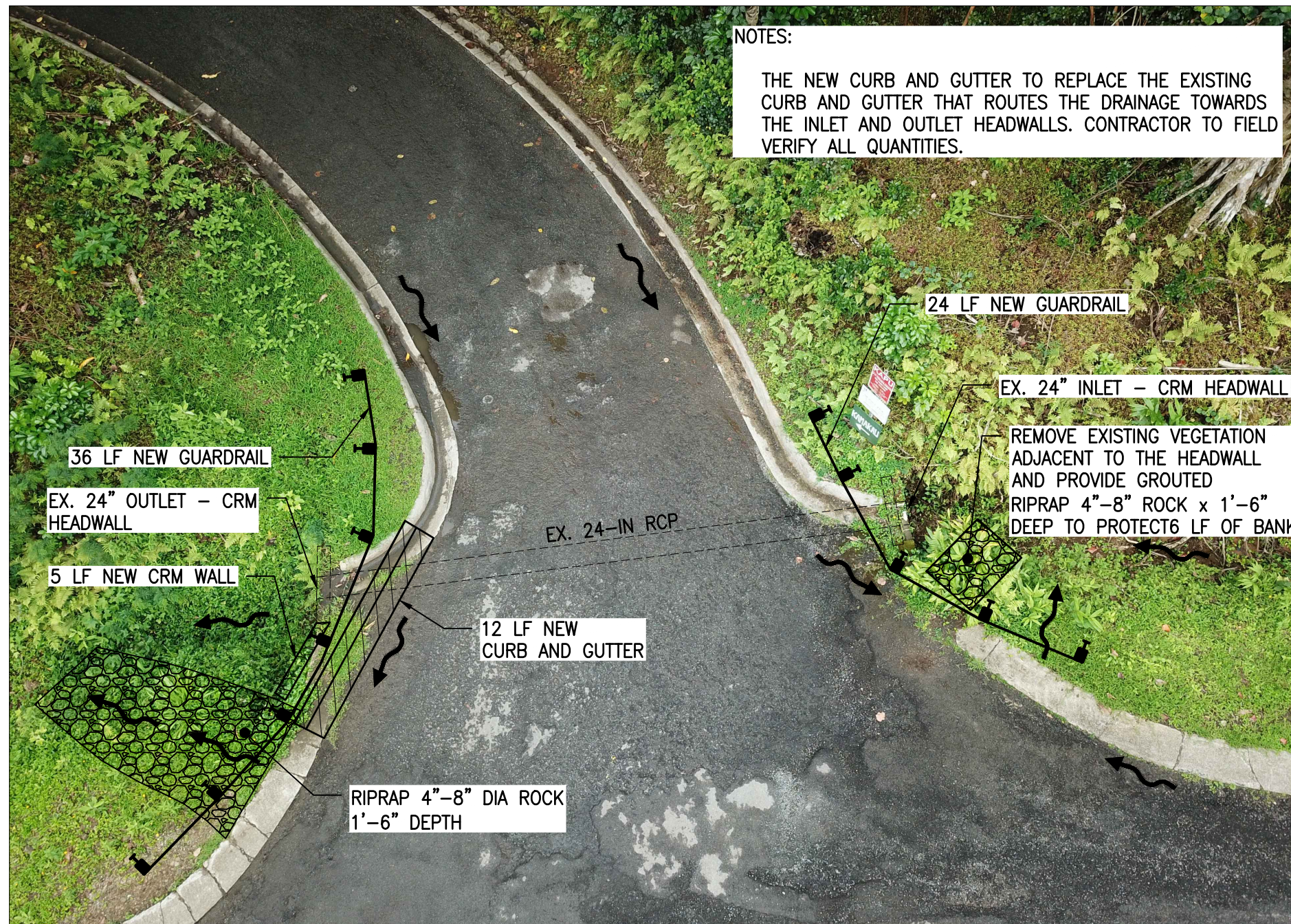
PROJECT
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T.M.K. 0-0-000:000
HAIKU VALLEY OAHU, HAWAII

SHEET TITLE
DRAINAGE SWALE PLAN AND SECTION

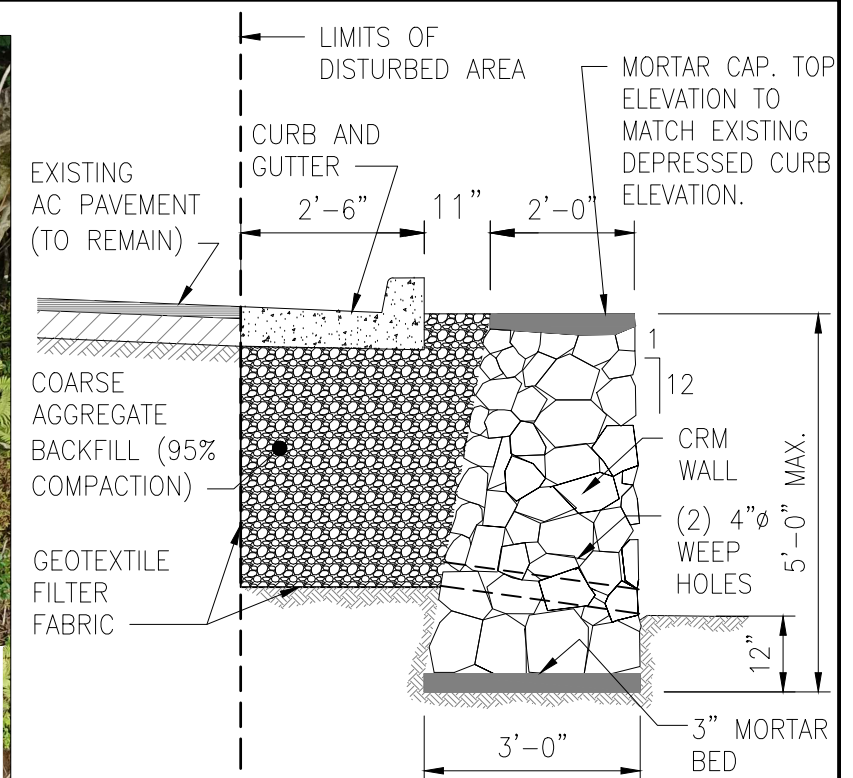
ISSUANCE/REVISIONS

Date: 05/11/2020
Drawn By: DL
Design By: GS
Job: 18-221

Sheet
C-1
1 Of 4 Sheets



NOTES:
 THE NEW CURB AND GUTTER TO REPLACE THE EXISTING CURB AND GUTTER THAT ROUTES THE DRAINAGE TOWARDS THE INLET AND OUTLET HEADWALLS. CONTRACTOR TO FIELD VERIFY ALL QUANTITIES.



TYPICAL CRM RETAINING WALL
 NOT TO SCALE

DRAINAGE NOTES:

- RE-ROUTE DRAINAGE ALONG CURB AND GUTTER FROM EAST TO WEST PAST THE INLET AND OUTLET TO THE DEPRESSED CURB AND GUTTER.
- GRADE AND DRAIN SWALE (WITH RIPRAP) TO THE EXISTING CHANNEL.

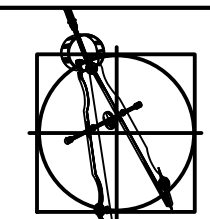
GUARDRAIL INSTALLATION PLAN
 NOT TO SCALE

CURB AND GUTTER NOTES:

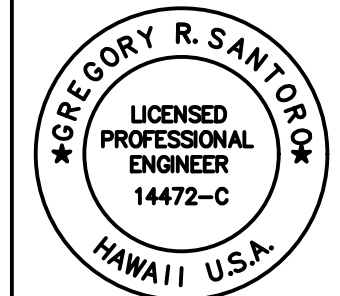
- CONCRETE CURB AND GUTTER PER SECTIONS 39 AND 41 FROM THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986, CITY AND COUNTY OF HONOLULU.
- JOINTING REQUIREMENTS SHALL FOLLOW ENGINEERING AND POLICY MEMORANDUM NO. CEB-1-09.
- FOR THE NEW CURB AND GUTTER, MATCH THE EXISTING CURB AND GUTTER SECTION. THE 4-FT SECTION OF DEPRESSED CURB AND GUTTER TO SLOPE FROM FACE OF GUTTER TOWARDS BACK OF CURB.

AC PAVEMENT NOTES:

- ALL MATERIAL FOR THE PAVEMENT SECTION SHALL BE IN ACCORDANCE WITH SECTIONS 29-32 (SUBBASES AND BASES) AND SECTIONS 33-38 (SURFACINGS AND PAVEMENTS) FROM THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986, CITY AND COUNTY OF HONOLULU.
- FOR THE NEW AC PAVEMENT, MATCH THE EXISTING AC PAVEMENT SECTION.
- THE LIMITS OF AC PAVEMENT RECONSTRUCTION SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER, BASED ON THE EXTENT OF THE UNDERMINED PAVEMENT.



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 T.M.K. 0-0-000:000
 HAIKU VALLEY OAHU, HAWAII

SHEET TITLE
 GUARDRAIL INSTALLATION PLAN, NOTES AND CRM WALL DETAIL

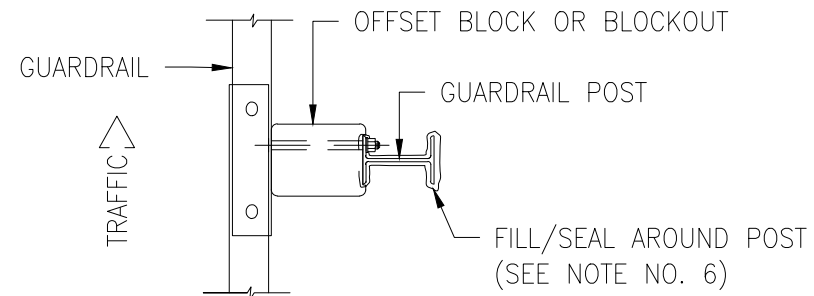
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Date 05/11/2020
Drawn By DL
Design By GS
Job 18-221

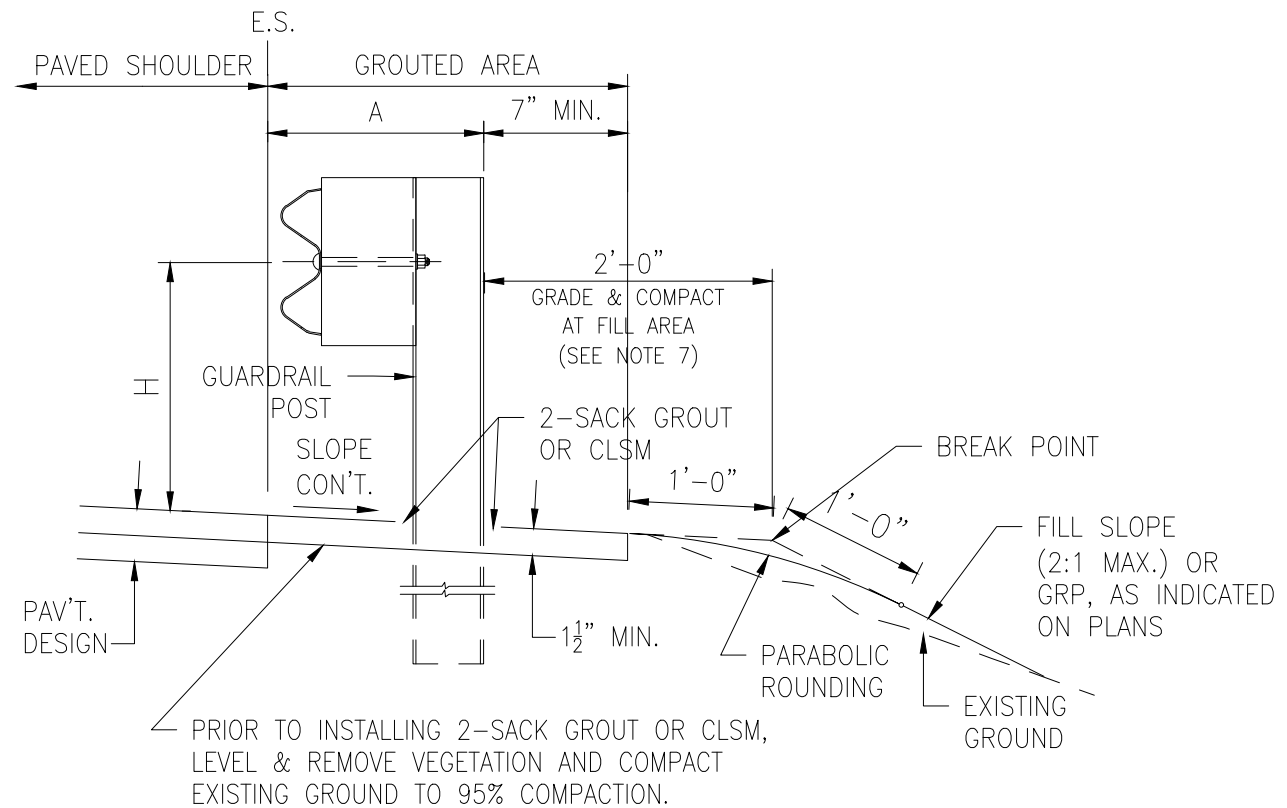
Sheet
 C-2
 2 Of 4 Sheets

GENERAL NOTES

- ALL HARDWARE, POSTS AND FASTENERS SHALL BE HOT-DIP ZINC COATED GALVANIZED AFTER FABRICATION. NO PUNCHING, DRILLING OR CUTTING WILL BE PERMITTED AFTER GALVANIZING.
- WHERE CONDITIONS REQUIRE, SPECIAL POST LENGTHS IN INCREMENTS OF 6 INCHES MAY BE SPECIFIED.
- ALL FASTENERS, POSTS, AND ALL ELEMENTS (I.E. FBB03, PWE01, RWM02B, ETC.) SHALL CONFORM TO THE LATEST EDITION AND AMENDMENTS OF "A GUIDE TO STANDARDIZED HIGHWAY BARRIER RAIL HARDWARE", A REPORT PREPARED AND APPROVED BY THE AASHTO-AGC-ARTBA JOINT COOPERATIVE COMMITTEE, SUBCOMMITTEE ON NEW HIGHWAY MATERIALS, TASK FORCE 13 REPORT. DIMENSIONS OF FASTENER, POSTS AND RAIL ELEMENTS HAVE BEEN CONVERTED FROM METRIC UNITS INTO THEIR PRESENT FORM.
- THE RECYCLED PLASTIC BLOCK OR OFFSET BLOCK SHALL BE APPROVED BY THE STATE.
- ALL NEW GUARDRAIL SYSTEMS (SYSTEM CONSISTS OF TOTAL LENGTH OF GUARDRAIL INCLUDING BOTH END TREATMENTS) SHALL INCLUDE ADDITIONAL PAVED AREA.
- AFTER THE GUARDRAIL POSTS ARE INSTALLED IN THE PAVED AREA, THE CONTRACTOR SHALL FILL/SEAL AROUND EACH GUARDRAIL POST AND ALL CRACKS IN THE PAVED AREA CAUSED DURING THE GUARDRAIL POST INSTALLATION. IF REQUIRED BY THE INSPECTOR/ENGINEER, THE CONTRACTOR SHALL TAMPER THE PAVED AREA AROUND THE GUARDRAIL POST PRIOR TO FILLING/SEALING. ALL COSTS ASSOCIATED WITH THIS WORK SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS GUARDRAIL ITEMS.
- WHEN STANDARDS FOR THE FILL SLOPE AREA CANNOT BE MET, A SITE SPECIFIC, ENGINEER APPROVED DESIGN MAY BE USED.
- NEW A.C. PAVEMENT AT GUARDRAILS SHALL EXTEND 6 FEET LONGITUDINALLY BEYOND TERMINAL ENDS.
- REFLECTOR MARKERS (RM-5) MOUNTED ON GUARDRAILS SHALL BE SPACED EVERY 25 FEET. RM-5'S SHALL NOT BE INSTALLED ON TERMINAL SECTIONS. FURNISHING AND INSTALLING OF EACH RM-5 SHALL BE CONSIDERED INCIDENTAL TO THE ADJACENT GUARDRAIL SYSTEM.
- 2-SACK GROUT AND CONTROLLED LOW STRENGTH MATERIAL (CLSM) SHALL BE CONSIDERED INCIDENTAL TO THE GUARDRAIL.



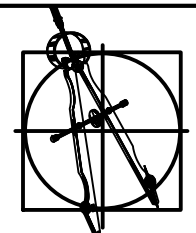
PLAN



GUARDRAIL TYPE	DIMENSION	
	H	A
STRONG POST W-BEAM	1'-9"	1'-6"
STRONG POST RUBRAIL (W-BEAM)	2'-0"	1'-6"
MODIFIED OR STRONG POST THRIE BEAM	2'-0"	2'-0"

ELEVATION

TYPICAL GUARDRAIL INSTALLATION



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T.M.K. 0-0-000:000 HAIKU VALLEY OAHU, HAWAII

SHEET TITLE
NOTES AND GUARDRAIL DETAILS

ISSUANCE/REVISIONS

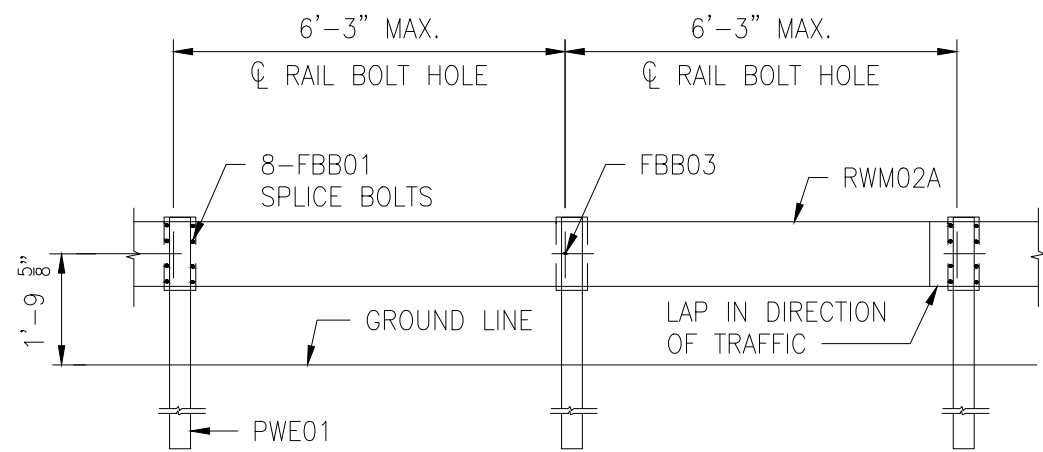
Date 05/11/2020

Drawn By DL

Design By GS

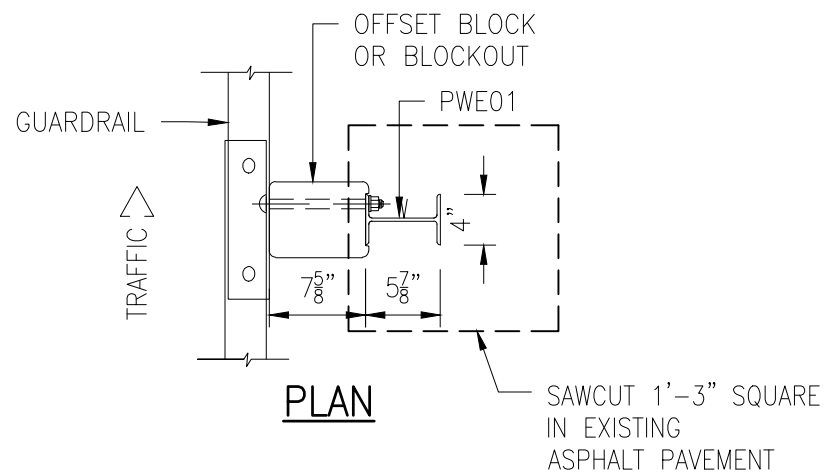
Job 18-221

Sheet **C-3**
3 Of 4 Sheets

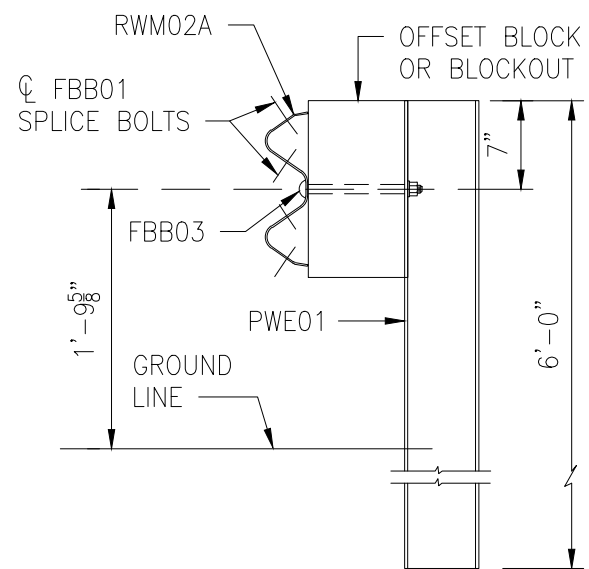


ELEVATION

STRONG POST W-BEAM GUARDRAIL WITH RECYCLED OFFSET BLOCK OR PLASTIC BLOCKOUT

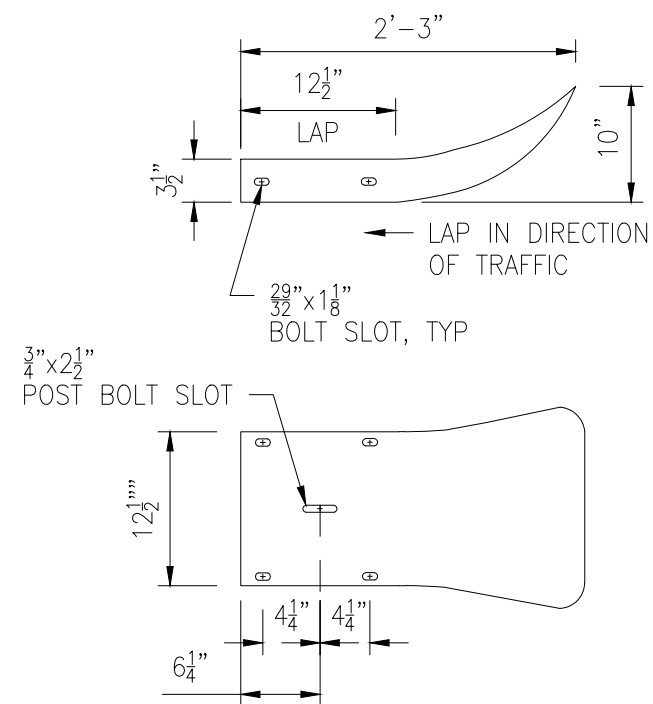


PLAN



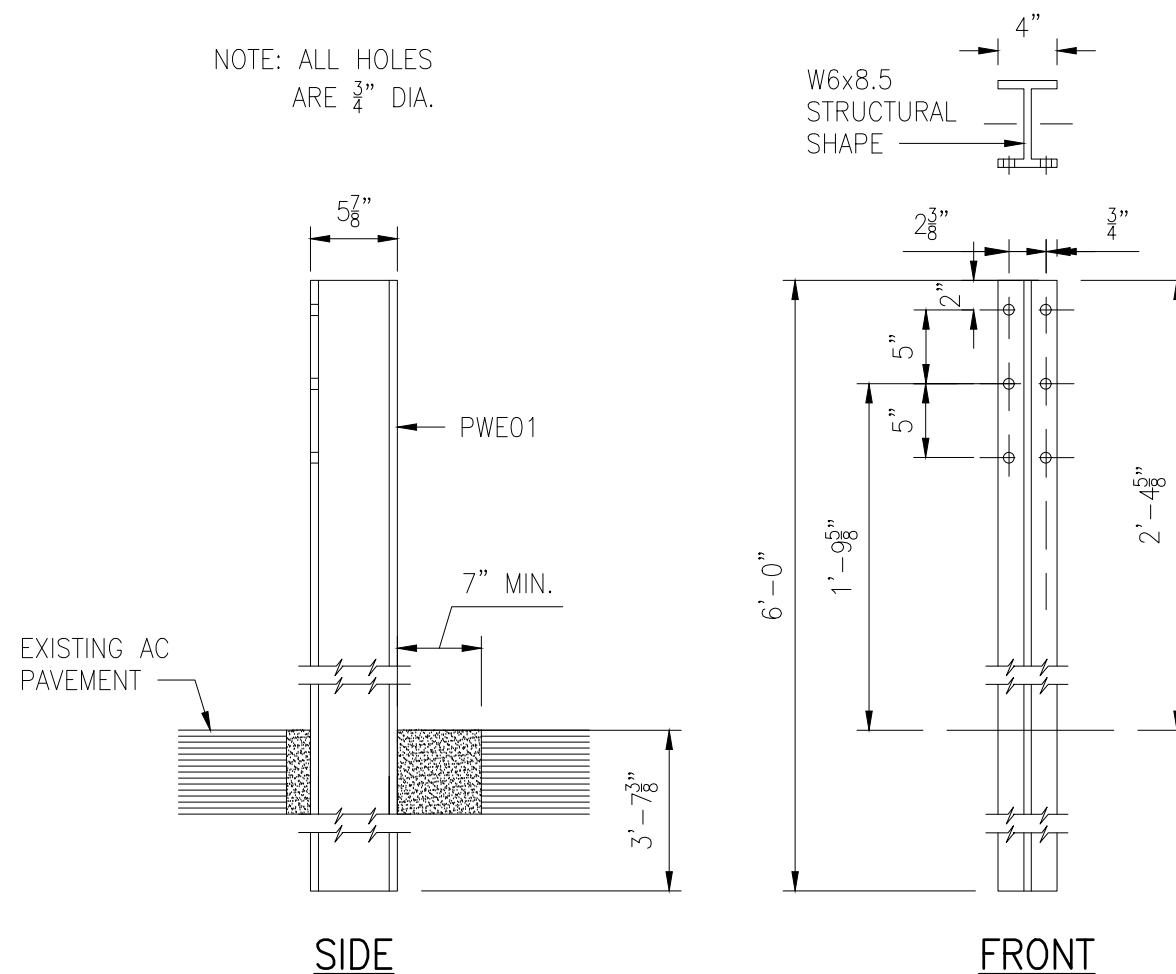
ELEVATION

STRONG POST W-BEAM GUARDRAIL (SGR04A)



W-BEAM END SECTION (FLARED)

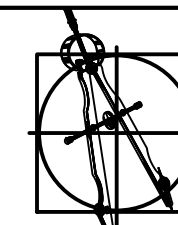
NOTE: ALL HOLES ARE 3/4\"/>



SIDE

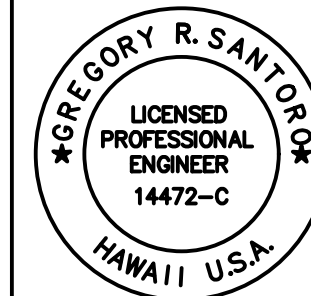
FRONT

W-BEAM STRONG POST (PWE01)



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SHEET TITLE
 GUARDRAIL DETAILS

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Date 05/11/2020
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Design By GS
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Sheet
 C-4
 4 Of 4 Sheets