

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>
T-1.0	Title Sheet and Drawing Index
C-1.0	Civil Notes
C-1.1	Civil Notes
C-2.0	Overall Site Plan
C-3.0	Site Plan - Lot No. 3-C
C-4.0	Site Plan - Lot No. 52
C-5.0	Site Plan - Lot No. 5-A
C-6.0	Details

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 preparation, clearing, grading, water lateral and installation of CRM wall with a 4-foot chainlink fence and incidental work for the development of scattered lots in the Kaumana Subdivision. The Contractor shall be responsible to restore any damaged area around the work sites to its original condition after the construction completed.

1.04 VEHICLE PARKING

Street parking is available along each identified Lot or on the work site of each TMK.

1.05 PROVISIONS FOR FIELD OFFICE/STORAGE SPACE

No field office is necessary. Equipment may be stored at the contractors own risk.

1.06 LOCATION OF THE WORK

- A. The work to be performed under this contract is located at TMK: (3) 2-5-005:154 / 010 / 060. Refer to the project plans for the jobsite locations.

- 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 East Hawaii District Representative or the Project Manager.

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.

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 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 01505 – MOBILIZATION AND DEMOBILIZATION

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

This section covers the requirements for mobilization and demobilization are hereby incorporated into and made a part of these specifications by reference unless otherwise modified hereinafter.

1.02 MOBILIZATION

The Contractor shall mobilize and transport his construction plant and equipment including materials and supplies for operation to the site of work, construct temporary buildings and facilities as necessary, and assemble the equipment at the site as soon as possible after receipt of Notice to Proceed, subject to the provisions of the General Provisions.

1.03 DEMOBILIZATION

The Contractor shall demobilize and transport his construction plant and equipment including materials, supplies and temporary buildings off the site as soon as possible after construction is completed. Demobilization shall include all cleanup required under this contract and as directed by the Engineer. Demobilization and final cleanup shall be completed prior to final acceptance.

1.04 PERFORMANCE BOND

The Contractor shall file and pay for the performance and payment bonds according to the Instruction for Bid Submittal, except that the value of the bonds shall equal one hundred percent (100%) of the amount of the contract basic bid amount plus one hundred percent (100%) of the amount of the extra work.

Payment for the Contractor's bond premium will be made in accordance to the terms stated in Part 4 below.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

PART 4 – MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

- A. Mobilization shall not be measured for payment. The maximum bid allowed for "Mobilization" is an amount not to exceed size (6) percent of the sum of all items (excluding this item and all Allowances). If the proposal submitted by the bidder indicates an amount in excess of the allowable maximum, the indicated amount

or amounts shall be reduced to the allowable maximum; the "Sum of All Items," in the proposal schedule shall be adjusted to reflect any such reduction. For the purpose of comparing bids and determining the contract price to be inserted in the contract awarded to the bidder, if any is so awarded, the "Sum of All Items" adjusted in accordance with the foregoing shall be used and the bidder's proposal shall be deemed to have been submitted for the amounts as reduced and adjusted in accordance herewith.

- B. Demobilization will not be measured for payment. A separate line item called "Demobilization" will be added to the Contractor's Schedule of Values after the contract has been awarded. The total amount for this item shall be 2.5% of the Contractor's total bid amount and will be deducted from other line items in the schedule of values as negotiated between the Contractor and the State. **THE CONTRACTOR SHALL NOT MODIFY THE PROPOSAL SCHEDULE BY ADDING A "DEMobilIZATION" BID ITEM TO THE PROPOSAL SCHEULE.**

4.02 BASIS OF PAYMENT

- A. Mobilization will be paid for at the contract lump sum price under Mobilization. Partial payment will be made as follows:
1. When 2 ½ percent of the original contract amount is earned, 50 percent of the bid amount will be paid.
 2. When 5 percent of the original contract amount is earned, 75 percent of the bid amount will be paid.
 3. When 10 percent of the original contract amount is earned, 100 percent of the bid amount will be paid.
- Nothing herein shall be construed or limit or preclude partial payments otherwise provided by the contract.
- B. Partial payment will not be paid for Demobilization. Full payment will be made on the Contractor's final payment request. This will occur after the Contractor has fulfilled all of the requirements of the Contract bid documents to the satisfaction of the State and issuance of the Final Acceptance letter to the Contractor by the State.

END OF SECTION

SECTION 01525 – SAFETY REQUIREMENTS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

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

1.02 REFERENCES: The latest publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

A. ANSI A10.14 – Construction and Demolition Operations – Requirements for Safety Belts, Harnesses, Lanyards and Lifelines for Construction and Demolition Use.

1.03 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. 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.

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 • Final schedule of valves submitted by General Contractor • Final schedule • Final Chart to provide project description and scope. • 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

DIVISION 2 – SITE WORK

SECTION 02050 – DEMOLITION AND REMOVAL

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

As specified in section 01010.

1.02 SUMMARY

Provide all equipment, materials, tools, labor, etc., as required to perform all demolition, removal work, and clearing and grubbing of the construction area, complete, as indicated on the drawings and as specified herein, including careful removal and disposal of material.

1.03 SPECIAL REQUIREMENTS

- A. Visit the site, examine the areas and note all existing conditions and extent of work involved for the complete removal and surface preparation work required.
- B. Accept obvious conditions of existing premises on date of bid opening as part of the work, even though they may not be indicated on the drawings or may vary there from.
- C. Exercise every precaution to preserve and protect from damage all existing structures, plants, trees, walls and utilities above and below ground, etc., that are to remain. Damages shall be repaired to the satisfaction of the University.
- D. The existence of underground utility lines other than those shown is not definitely known. Should any be encountered, immediately notify the University and follow directions as to procedures at no additional cost to the University. The locations of underground utilities are shown on the plans for reference purposes and the locations are approximate only.

1.04 PERMITS AND NOTICES

- A. Procure and pay for all necessary permits or certificates required in connection with this work.
- B. Comply with pollution control regulations and safety code.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 GENERAL

- A. All work shall be executed in an orderly and careful manner with due consideration of the existing buildings and septic tanks.
- B. Existing utility lines, etc., on/in the buildings shall be protected from damage. Removal of same where required to facilitate renovation work shall be permitted, however, same shall be reinstalled to original location and condition.
- C. Backfill all voids, trenches, holes, depressions and pits created by the removal of such miscellaneous improvements as required in other specification sections referenced herein.
- D. Any damage caused by the use of motorized equipment, shall be the Contractor's responsibility regardless of permission granted by the University for use of such equipment. All damages shall be repaired or replaced to the satisfaction of the Engineer and at no cost to the Engineer.

3.02 REMOVAL WORK

- A. Remove existing buildings, concrete slabs, and asphaltic concrete pavements, as indicated on the drawings. The resulting base shall be scarified in accordance with Section 02200 – EARTHWORK. Repair existing adjacent, asphaltic concrete pavements, concrete, CMU, or other features that may be damaged during removal.
- B. Sawcut existing asphaltic concrete to create clean transitions between existing and new surfaces.
- C. Items may be removed to implement removal of items noted in this section or elsewhere in these specifications and/or as indicated on the drawings. Such items to be removed and reinstalled shall be carefully removed to avoid damage and securely reinstalled.
- D. All removed materials having no salvage value as determined by the Engineer shall become the property of the Contractor and shall be completely removed and hauled away from the premises.

3.03 RESURFACE PREPARATION WORK

- A. The entire area shall be inspected by the Engineer before any new work can be started. Should the Contractor start the new work without the Engineer's approval, the Engineer may have the Contractor remove and repair the area at no cost to the Engineer.
- B. Repair any damages occurring during the progress of the work.

3.04 PATCHWORK

- A. All areas or surfaces damaged as a result of removal work shall be patched to match existing adjacent surfaces and/or areas to the satisfaction of the University.

3.05 TEMPORARY BARRICADES

- A. Provide, erect and maintain safety barricades and dust barriers around the project areas during the execution of work under this contract including work done by other sections. At the discretion and approval of the University, alternative means to provide safety around the project area are acceptable.
- B. Barricades shall be constructed from durable materials to provide necessary protection and security of the project site.
- C. The barricades shall remain until final acceptance of the project or until the hazardous condition no longer remains and approval is given by the University for their removal.

3.06 MAINTENANCE OF TRAFFIC

Conduct operations and schedule work for minimum interference to streets, driveways, sidewalks, etc. To the extent possible, confine all work, equipment, materials, and personnel to the work area as indicated so as not to interfere with the normal operations of the school.

3.07 CLEAN-UP

- A. From time to time, as directed by the Engineer and at the completion of the removal work, remove from the site all rubbish, debris, fines, etc., accumulated from this work and leave the area neat and clean to the satisfaction of the Engineer.
- B. After the completion of the repair work and before the final acceptance of the project, the Contractor shall clean all areas of all rubbish, debris, fines, etc.

PART 4 – MEASUREMENT AND PAYMENT (Not Applicable)

END OF SECTION

SECTION 02200 – EARTHWORK

PART 1 - GENERAL

1.01 GENERAL CONDITIONS

- A. As specified in Section 01010.

1.02 GENERAL REQUIREMENTS

- A. Furnish all labor, materials, tools, and equipment necessary for site excavation, backfilling, rough and finish grading, and related items necessary to complete all work shown on the drawings and/or specified item.
- B. Specifications for Public Works Construction, dated September 1986 is hereby incorporated into and made part of these specifications by reference unless otherwise modified hereinafter with the exception of paragraphs Method of Measurement and Payment.

1.03 WORK SPECIFIED IN OTHER SECTIONS

- A. Demolition and removal as specified in SECTION 02050 – DEMOLITION AND REMOVAL.

1.04 ORDINANCES AND PERMITS

- A. The Contractor shall comply with all applicable ordinances and regulations and obtain the required permits. All grading work shall comply with Chapter 10 of the Hawaii County Code, as amended.
- B. The Contractor shall comply with the provisions of Chapter 11-55 Water Pollution Control and Chapter 11-54 Water Quality Standards of the Hawaii Administrative Rules, Department of Health, State of Hawaii.

1.05 EXISTING UTILITY LINES

- A. The existence of active underground utility lines within the construction area is not definitely known other than those indicated in their approximate locations on the drawings. Should any unknown line be encountered during excavation, the Contractor shall immediately notify the Project Manager of such discovery. The Project Manager shall then investigate and issue instructions for the preservation or disposition of the unknown line. Authorization for extra work shall be issued by the Project Manager only as he deems necessary.

1.06 LAYOUT OF PROJECT

- A. The Contractor shall verify all lines, levels, elevations and improvements indicated on the drawings before any excavation begins. All lines and grades shall be verified by a Surveyor or Civil Engineer licensed in the State of Hawaii. Any discrepancy shall be immediately brought to the attention of the Project Manager and any change shall be made in accordance with his instruction. Commencement of clearing and grubbing operations shall be construed to mean that the Contractor agrees that the existing

grades and improvements are essentially correct as shown. The Contractor shall not be entitled to extra payment if existing grades and improvements are in error after his verification thereof, or if he fails to report the discrepancies before proceeding with any work whether within the area affected or not.

1.07 DOCUMENTS

- A. The Contractor shall have the following documents available for the use of the Project Manager at the job site:
 - 1. Grading Ordinance (Chapter 10 of the Hawaii County Code).
 - 2. Hawaii Administrative Rules, Chapter 11-55 Water Pollution Control and Chapter 11-54 Water Quality Standards, Department of Health, State of Hawaii
 - 3. ASTM D1557.
 - 4. Grubbing or Grading permit from the County of Hawaii, if required.
 - 5. Hawaii Standard Specifications for Road and Bridge Construction, dated 2005 with the latest applicable amended sections.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. All materials excavated shall be considered to be unclassified and shall be paid for as such, whether earth, boulders, solid rock, concrete, steel, rubbish, wood, or other materials.
- B. Fill and Backfill Material
 - 1. Yard fill: Yard fill shall be used for all areas where no concrete or A.C. pavement is to be constructed. Fill materials shall be non-expansive soil, free from debris, perishable or combustible materials, sod, and stones larger than 6 inches in maximum dimension and shall have a plasticity index not greater than 20. Any rock shall be well distributed in earth or other fine material with all voids filled and shall not be placed within 3 feet of the finished grade.

In the event that insufficient amount of yard fill is delivered from earthwork operations, the Contractor shall import the necessary materials without any additional cost to the County. Such imported materials shall be subject to approval of the Project Manager and shall meet the requirements as specified for the materials.

- 2. Structural fill: Structural fill shall be used in areas where new concrete or A.C. paving is to be constructed and shall be non-expansive, granular, well-graded material with a 3 inch maximum particle size and less than 20 percent by weight passing the No. 200 sieve. The fill material shall be free from clumps of soil, organic debris, adobe or other deleterious matter.

The plasticity index for that portion of soil passing the #40 sieve shall not be greater

than 10. The CBR shall not be less than 25. Recycled asphalt pavement shall not be used as structural fill.

3. Topsoil: Topsoil shall meet the requirements as defined in Section 617 of the "2005 Standard Specifications for Road and Bridge Construction". All references to measurement and payment do not apply.
 4. Materials excavated within the project boundary may be used as a source of fill provided that they are processed to meet gradation requirements herein.
- C. Temporary geotextile silt fencing shall have the following properties:
1. Geotextile shall be a woven fabric made of polypropylene fibers.
 2. Minimum Roll Width: 3 ft.
 3. Grab Tensile Strength: 100 lbs. (ASTM D-4632)
 4. Elongation: 15% (ASTM D-4632)
 5. Mullen Burst Strength: 275 psi (ASTM D-3786)
 6. Coefficient of Water Permeability: 15 gal/min/SF
 7. Trapezoidal Tear Strength: 50 lbs. (ASTM D-4533)
 8. Puncture Strength: 60 lbs. (ASTM D-4833)

PART 3 - EXECUTION

3.01 GENERAL

- A. No excavation or filling shall be undertaken until the area has been cleared and grubbed.
- B. Install temporary erosion, dust and siltation control measures as shown on the drawings or ordered by the Project Manager. Remove temporary measures after permanent erosion control measures have been established.
- C. All excavation shall be protected and guarded against danger to life, limb and property.
- D. Shoring, cribbing and lagging, as required to safely preserve the excavations and earth banks from damages resulting from the work shall be provided and installed by the Contractor.
- E. The Contractor shall at all times control the grading around building areas so that the ground is adequately sloped to prevent any water from flowing into building areas and open trench excavations. All excavations shall be kept free from standing water. The Contractor shall do all pumping and draining that may be necessary to remove water to the extent required in carrying on the work. The Contractor shall obtain the NOI (Notice of Intent) permit from the State Department of Health for any dewatering activities.

Lowering or rising of water table in areas where ground settlement or other detrimental effects may be induced is expressly prohibited. In such areas, the excavated spaces shall be sealed prior to the pumping of water or other approved means employed by the Contractor. The Contractor shall be responsible for disposal of the pumped liquids. Water from dewatering and other construction operations shall not be discharged directly into the storm drainage system. The method of discharge shall comply with Department of Health Regulations.

Construction equipment which requires water in their operation shall not be used in the vicinity or within the building area without the approval of the Project Manager.

- F. Caution shall be exercised in all excavation work adjacent to existing trees which are to remain. All exposed fibrous and branch type roots shall be carefully pruned or saw-cut to the extent required for excavation work. Every effort shall be taken to preserve the existing trees and to minimize damage to said trees.
- G. The Contractor shall use the best management practices to reduce the amount of soil erosion resulting from the grading work.

The work areas and haul roads, including roadways leading to the project site, shall be continuously watered to prevent the generation of dust. Granular materials shall be spread over all unpaved haul routes. An 8-inch thick layer of #2 crushed rock shall be installed at delivery access points to reduce tracking mud onto public roadways.

All truck tires shall be free of mud before leaving the job site and entering a public roadway. The Contractor will clean all roads of mud and dirt resulting from his operations at no additional cost to the DHHL.

- H. The areas not covered by concrete or A.C. pavements shall be graded to conform to finish contours with allowance for topsoil.
- I. Laying Out
 - 1. The laying out of base lines, establishment of grades and staking out the entire work shall be done by a surveyor or a civil engineer licensed in the State of Hawaii, at the Contractor's expense. The Contractor shall be solely responsible for their accuracy. The Contractor shall erect and maintain substantial batterboards showing construction of lines and levels.
 - 2. Should any discrepancies be discovered in the dimensions given in the plans, the Contractor shall immediately notify the Project Manager before proceeding any further with the work.
 - 3. The Contractor shall be responsible for re-establishing property corners or survey control points which are destroyed by his operations.

3.02 EXCAVATION

A. General Requirements

- 1. Excavation shall be done so as to obtain the elevations called for on drawings, allowing for fill, grading, topsoil and drainage away from buildings.

2. Usable Materials as approved by the Project Manager shall be stockpiled (for later use as fill material) in a location designated by the Project Manager. Crushing basalt fragments may be necessary prior to reuse in compacted fills. This material may also be excavated directly to fill at the Contractor's option, provided that the materials conform to the requirements of the intended use as specified hereinbefore and sub grade preparation requirements have been met in the fill areas.
3. Non-usable Material such as mud, soft material, and expansive soils and excess materials shall become the property of the Contractor and shall be disposed of outside the project boundary limits at locations that have been approved by the County of Hawaii.
4. Blasting as a means of excavation shall not be permitted.
5. Unsuitable subgrade soil, as determined by the Project Manager shall be excavated and removed by the Contractor.

B. Structural Excavation

1. As specified by Section 206 of the "2005 Standard Specifications for Road and Bridge construction" except as modified herein.

3.03 FILL AND BACKFILL

A. General Requirements

1. Filling operations shall be performed so as to bring the entire project area to the finished grades shown on the drawings, allowing for topsoil, concrete slab, or A.C. paving and base course.
2. At the time of compaction, the moisture content of fill and backfill material shall be such that the relative compactions specified can be obtained with the compacting equipment being used. At all times, it shall be the responsibility of the Contractor to employ such means as may be necessary to obtain a uniform optimum moisture content throughout the material being compacted.
3. Soft or loose soils that do not readily compact should be excavated and replaced with compacted structural fill at no cost to the County. All surface clayey silt/volcanic ash material shall be removed to the basalt or gravel strata prior to placement of the yard or structural fill.
4. All areas to receive fill shall be scarified, moisture conditioned to near optimum moisture content and compacted to a minimum of 95 percent relative compaction as determined by ASTM D1557 for a minimum depth of eight (8) inches.
5. In areas with gravelly material, the exposed gravelly material should be scarified to a depth of 6 inches and recompacted to a minimum of 95 percent compaction, as determined by ASTM D 1557, prior to placement of the fill.
6. All fill slopes shall be at 2:1 or flatter as shown on plans.

B. Yard Fill

1. Yard fill shall be placed in layers, 8 inches or less in compacted thickness, and compacted to 95 percent of maximum density as determined by the ASTM D1557 procedure.

C. Structural Fill for Pavement Areas

1. Structural fill shall be placed in layers, 8 inches or less in loose thickness, moisture conditioned to near optimum moisture content, and compacted to at least 95 percent of maximum density as determined by ASTM D1557 procedure.

D. Structural Backfill

1. Structure backfill shall be placed as specified in Section 206 of the "2005 Hawaii Standard Specifications for Road and Bridge construction".

E. Placing, Spreading, and Compacting Fill Material

1. When moisture content of the fill material is below optimum, water shall be added until the moisture content is optimum to ensure that the proper compaction can be obtained. When the moisture content of the fill material is above optimum, the fill material shall be aerated until the optimum moisture content is obtained.
2. Recomaction: Where test results indicate that the moisture content of the fill is not suitable, or that insufficient compaction has been obtained, the fill shall be reconditioned and recompacted prior to placing additional fill material.

The Contractor shall be responsible for placing and compacting approved fill material in accordance with these Specifications. If the Contractor fails to meet the compaction requirements, he shall stop hauling or reduce his rate of haul, furnish additional spreading, watering and/or compaction equipment as may be required, or make any other adjustments necessary to produce a satisfactory compacted fill. When the work is stopped by rain, filling shall not resume until the Project Manager has verified that the moisture content and the density of the fill surface are satisfactory.

3. During construction, all fill surfaces shall be sloped to provide positive surface drainage and to prevent ponding of water. If it appears that rain is imminent, the Contractor shall roll the surface with smooth rollers or rubber-tired equipment to seal the surface against excessive infiltration of water. Temporary surface drains and ditches shall be provided by the Contractor as necessary to expedite runoff and to prevent erosion.

F. Slopes and Final Grading

1. The Contractor will be required to obtain a minimum relative compaction of 95 percent of maximum dry density out to the finish fill slope face. Fill slopes shall be constructed by over-building and cutting-back to the finished grades to expose a well-compacted surface.

2. Excavation and embankment shall be finished with all slopes cut true and straight, in accordance with the lines and grades shown in the drawings. All slopes, whether old or new, shall be maintained with true and smooth surfaces. Over breaks shall be trimmed smoothly and neatly. The tops and ends of all slopes shall be flared and rounded.
3. All cut and fill slopes shall be protected from erosion by approved methods immediately upon their completion.
4. Cut Slopes
 - a. If any conditions not anticipated, such as perched water, seepage, lenticular or confined strata of a potentially adverse nature are encountered during grading, these conditions shall be analyzed by the Project Manager and recommendations shall be made to treat these problems. The Contractor shall halt the grading work in such areas until the recommendations are made.
 - b. Unless otherwise specified in the drawings, no cut shall be excavated higher or steeper than that allowed by the County Ordinances. If there are substantial discrepancies in the elevations of the existing ground at the top of the slope which could result in a higher or steeper slope or could affect the location of the toe of slope, the Contractor shall immediately inform the Project Manager of such conditions, so that the drawings can be revised accordingly.
 - c. Cut slopes shall be 2H:1V or flatter, unless otherwise recommended by the Project Manager.

3.04 GRADING TOLERANCES

- A. All graded surfaces shall be finished to within 0.10 feet from the grades and cross sections indicated on the plans.

3.05 PROTECTION

- A. Protect benchmarks, property monuments, fences, and roads.
- B. Protect any above and below grade utilities that are to remain.
- C. Protect newly graded surface from traffic and erosion; keep areas free of trash and debris. Repair and re-establish grades in settled, rutted, and eroded area.
- D. Repair all damages caused by and resulting from construction activities in accordance with the requirements these specification and as directed by the Project Manager.

3.06 TOPSOIL

Topsoil shall be placed as specified. The Contractor shall deposit and spread a 4-inch layer of topsoil areas as shown on the drawings. The topsoil shall be lightly compacted to the finish elevations shown on the drawings. The topsoil shall meet the requirements as defined in Sections 50 and 51 of the Standard Specifications for Public Works Construction, dated September 1986.

3.07 CLEAN UP

Clean up and remove all debris accumulated from construction operations from time to time, when and as directed by the Project Manager. Upon completion of the construction work and before final acceptance of the work, remove all surplus materials, equipment, etc., and leave entire job site clean and neat.

END OF SECTION