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DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01200

GENERAL REQUIREMENTS

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GENERAL REQUIREMENTS

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM F 1667 (1995) Driven Fasteners: Nails, Spikes, and Staples

ASME INTERNATIONAL (ASME)

ASME B18.2.1 (1996) Square and Hex Bolts and Screws (Inch Series)

ASME B18.2.2 (1987; R 1993) Square and Hex Nuts (Inch Series)

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

NIST PS 20 (1994; Addenda Jan. 1997) American Softwood Lumber Standards

U.S. ARMY CORPS OF ENGINEERS (USACE)

COE EM 385-1-1 (1996) Safety and Health Requirements Manual

COE EM 1110-1-1003 (01 Aug 96) NAVSTAR Global Positioning System Survey

COE EM 1110-1-1005 (31 Aug 94) Topographic Surveying

U.S. DEPARTMENT OF COMMERCE (DOC)

DOC PS 1 (1996) Voluntary Product Standard - Construction and Industrial Plywood

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

DOT MUTCD Part 6 (2000) Manual on Uniform Traffic Control Devices for Streets and Highways

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

CID A-A-2246 (Rev B) Paint, Latex

CID A-A-2336 (Rev A) Primer Coating (Alkyd, Exterior
Wood, White and Tints)

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Topographic Surveyor; G, RE.

The Topographic Surveyor firm selected by the Contractor must be approved by the Contracting Officer prior to performing surveys for this contract.

1.3 PROJECT FACILITIES

The Contractor shall construct and/or erect the following project facilities as soon as possible and not less than 15 calendar days after notice to proceed.

1.3.1 Construction Signs

The signs shall include the following:

- a. Project Signs: One Project Sign at location designated by the Contracting Officer.
- b. Warning Signs: Facing approaching traffic on all haul roads crossing under overhead power transmission lines.
- c. Hard Hat Signs: Ten hard hat signs at locations directed.

1.3.2 Bulletin Board

Bulletin board shall be erected at the Contractor's office.

1.3.3 Sanitary Facilities

Suitable sanitary facilities shall be provided and maintained by the Contractor.

PART 2 PRODUCTS

2.1 CONSTRUCTION SIGNS

2.1.1 Materials

2.1.1.1 Lumber

NIST PS 20, and shall be seasoned Douglas Fir, S4S, Grade D or better except that posts, braces and spacers shall be construction Grade (WCLB).

2.1.1.2 Plywood

DOC PS 1, grade A-C, Group 1, exterior type.

2.1.1.3 Bolts, Nuts and Nails

Bolts shall conform to ASME B18.2.1, nuts shall conform to ASME B18.2.2, and nails shall conform to ASTM F 1667.

2.1.1.4 Paints and Oils

Paints shall conform to CID A-A-2336 for primer and CID A-A-2246 for finish paint and lettering.

PART 3 EXECUTION

3.1 CONSTRUCTION OF SIGNS

3.1.1 Project and Hard Hat Signs

Constructed as detailed in Figures 1, 1A, 2, 3 and Safety Signs. Decals signs will be furnished by the Contracting Officer.

3.1.2 Warning Signs

Constructed of plywood not less than 1/2 inch thick and shall be securely bolted to the supports with the bottom of the sign face 3 feet above the ground. The sign face shall be 24 in. x 48 in., all letters shall be 4 in. in height, and the wording shall be: "WARNING: OVERHEAD TRANSMISSION LINES."

3.2 PAINTING SIGNS

All exposed surfaces and edges of plywood shall be given one coat of linseed oil and be wiped prior to applying primer. All exposed surfaces of signs and supports shall be given one coat of primer and 2 finish coats of white paint. Except as otherwise indicated, lettering on all signs shall be black and sized as indicated.

3.3 PROJECT ENGINEERS'S OFFICE EQUIPMENT

Contractor shall provide computer software (3.5" floppy disc size) to the Contracting Officer for the type of scheduling system to be used and quantity/fill programs for tracking or estimating bid quantities during construction. Scheduling software must be capable of downloading completely to the COE Standard Data Exchange Format. The Contractor shall utilize a hand held radio system for communication between the Contractor's quality control representative and the Government's quality assurance representative. Radio equipment for the Governments use shall include a

hand held radio, two batteries and one charger. The Contractor shall provide Government personnel with the following equipment for the duration of the contract: 1 Cellular telephone with voice mail, 2 nickel cadmium batteries, 1 desk top charger, 1 travel charger, and 400 minutes of air time per month or portion thereof.

3.4 BULLETIN BOARD

A weatherproof bulletin board, approximately 36 inches wide and 30 inches high, with hinged glass door shall be provided adjacent to or mounted on the Contractor's project office. If adjacent to the office, the bulletin board shall be securely mounted on no less than 2 posts. Bulletin board and posts shall be painted or have other approved factory finish. The bulletin board shall be easily accessible at all times and shall contain wage rates, equal opportunity notice, and such other items required to be posted.

3.5 MAINTENANCE AND DISPOSAL OF PROJECT FACILITIES

The Contractor shall maintain the project facilities in good condition throughout the life of the project. Upon completion of work under this contract, the facilities covered under this section will remain the property of the Contractor and shall be removed from the site at his expense.

3.6 UNSATISFACTORY AND SCRAP MATERIAL

Materials characterized as unsatisfactory soil in accordance with Section 02300 EARTHWORK and materials indicated to be removed and not indicated to be salvaged, stored or reinstalled are designated as scrap shall become the property of the Contractor and be removed from the site of work. The Contractor by signing this contract hereby acknowledges that he made due allowance for value, if any, of such scrap in the contract price.

3.7 ARCHAEOLOGICAL FINDINGS DURING CONSTRUCTION

Should the Contractor or any of his employees in the performance of this contract find or uncover any archaeological remains, he shall notify the Project Engineer immediately. Such notifications will be a brief statement in writing giving the location and nature of the findings. Should the discovery site require archaeological studies resulting in delays and/or additional work, the Contractor will be compensated by an equitable adjustment under the CONTRACT CLAUSES of the contract.

3.8 PROTECTION OF EXISTING WORK

Before beginning any cutting or removal work, the Contractor shall carefully survey the existing work and examine the drawings and specifications to determine the extent of the work. The Contractor shall take all necessary precautions to insure against damage to such work to remain in place, to be reused, or to remain the property of the Government, and any damage to such work shall be repaired or replaced as approved by the Contracting Officer at no additional cost to the Government. The Contractor shall carefully coordinate the work of this section with all

other work and construct and maintain shoring, bracing and supports, as required. The Contractor shall insure that structural elements are not overloaded and be responsible for increasing structural supports or adding new supports as may be required as a result of any cutting, removal, or demolition work performed under any part of this contract.

3.9 PUBLIC UTILITIES, NOTICES, AND RESTRICTIONS

3.9.1 General

The approximate location of all railroads, pipe lines, power and communication lines, and other utilities known to exist within the limits of the work are indicated on the drawings. The sizes, locations, and names of owners of such utilities are given from available information, but their accuracy is not guaranteed. Except as otherwise indicated on the drawings, all existing utilities will be left in place and the Contractor shall conduct his operations in such a manner that the utilities will be protected from damage at all times, or arrangements shall be made by the Contractor for their relocation at the Contractor's own expense. The Contractor shall be responsible for any damage to utilities known to exist and shall reimburse the owners for such damage caused by his operations.

3.9.2 Relocation or Removal

Utilities to be relocated or removed not as part of this contract are designated "To be Relocated by Others" or "To be Removed by Others", respectively. Utilities shown on the plans and not so designated will be left in place and be subject to the provisions of the CONTRACT CLAUSE: PROTECTION OF EXISTING VEGETATION, STRUCTURES, UTILITIES, AND IMPROVEMENTS.

The Contractor may make arrangements with the owner for the temporary relocation and restoration of utilities not designated to be relocated, or for additional work in excess of the work needed to relocate utilities designated for relocation at no additional cost to the Government.

3.9.3 Utilities Not Shown

If the Contractor encounters, within the construction limits of the entire project, utilities not shown on the plans and not visible as of the date of this contract and if such utilities will interfere with construction operations, he shall immediately notify the Contracting Officer in writing to enable a determination by the Contracting Officer as to the necessity for removal or relocation. If such utilities are left in place, removed or relocated, as directed by the Contracting Officer, the Contractor shall be entitled to an equitable adjustment for any additional work or delay.

3.9.4 Coordination

The Contractor shall consult and cooperate with the owner of utilities that are to be relocated or removed by others to establish a mutual performance schedule and to enable coordination of such work with the construction work. These consultations shall be held as soon as possible after award of the contract or sufficiently in advance of anticipated interference with construction operations to provide required time for the removal or relocation of affected utilities.

3.9.5 Notices

3.9.5.1 Utilities To be Relocated or Protected

The Contractor shall notify the Contracting Officer, in writing, 14 calendar days prior to starting work on any utility to be relocated or protected. On each relocation, notification shall include dates on which the Contractor plans excavation, by-pass work, removal work and/or installation work, as applicable.

3.9.5.2 Existing Bench Marks and R/W Markers

The Contractor shall notify the Contracting Officer, in writing, 7 days in advance of the time he proposes to remove any bench mark or right-of-way marker.

3.9.5.3 Disposal Site

Excess Satisfactory excavated materials not utilized as part of the construction shall be crushed or processed to maximum particle size of 3/4 of lift thickness, hauled, placed, and compacted in the disposal site per lines and grades shown on the drawings. Unsatisfactory soils and materials designated as scrap shall be removed from project site and disposed according to paragraph UNSATISFACTORY AND SCRAP MATERIAL of this section. The Contractor shall indicate the approximate quantities of material he proposes to place in disposal site. In addition to the above requirements, the Contractor shall notify the Contracting Officer 24 hours in advance of the time he proposes to start operations in the disposal area, and 48 hours in advance of any work which he proposes to do in the disposal area on Saturday, Sunday or legal holidays.

3.9.5.4 Spill Reporting

The Contractor shall notify the Contracting Officer immediately after any spill, regardless of quantity, including all personnel exposures. The Contractor shall submit a written notification not later than 7 calendar days after the initial notification. The written notification shall include the following:

- a. Item spilled, leaked or releases in an unauthorized manner (Identification, Quantity and Manifest Numbers).
- b. Whether the amount spilled, leaked or released in an unauthorized manner is EPA reportable and, if reported, a copy of the report.
- c. Exact location of the spill, leak or unauthorized release.
- d. Nature of exposure to personnel.
- e. Containment procedures initiated.
- f. Anticipated cleanup and disposal procedure.

g. Disposal location of spill, leak or unauthorized release residue.

3.9.5.5 Environmental Assessment Requirement

In order to satisfy the Environmental Assessment for this project, the Contracting Officer is required to have a qualified biologist on site at all times while clearing and grubbing operations are in progress. The biologist will be provided by the government. The Contractor shall notify the Contracting Officer 14 calendar days prior to the start of clearing and grubbing activities so that a biological monitor shall be required to walk immediately in front of the Contractor's clearing and grubbing equipment to survey for the threatened desert tortoise. For scheduling purposes, the Contractor shall coordinate and complete all clearing and grubbing activities within one-four workday period.

3.9.6 Restrictions

3.9.6.1 Representatives of Other Agencies

Personnel representing owners and agencies may be present for various portions of the work. However, the Contractor will be responsible only to the Contracting Officer.

3.9.6.2 Traffic Control Plan

The Contractor shall develop a Traffic Control Plan and obtain an approval from the Clark County Department of Public Works prior to construction. The plan shall include vehicular detour plans, details of truck haul routes, details of roadway restriping and signage for vehicular circulation, and parking details.

3.9.6.3 Existing Roads

The work shall be planned in such a manner that traffic on the existing roads outside actual construction areas and through the construction area shall be maintained at all times. The work area shall be examined carefully relative to the order and scope of work to be performed, with respect to the limiting provisions of the plans and specifications. The construction schedule shall be prepared giving full consideration to not impacting and maintaining traffic on existing roads outside and through the construction area. Additional work on the existing roads may be done by others during the life of this contract.

3.9.6.4 Access and Haul Roads

Plans shall be submitted for approval for all proposed access and haul roads, whether within or outside the limits of the construction area, at least 15 calendar days prior to construction of such roads. The plans shall indicate width of road, direction of traffic, road markings, type of guardrail, curves, grades, runouts, and other information in sufficient detail for studying safety of the proposed roads. Haul roads shall be proposed so that use of existing residential streets and roads are minimized.

3.9.6.5 Public and Private Access Roads

When it is necessary for heavy equipment to operate on or to cross project roads or arterial roads, flaggers, signs, lights and/or other necessary safeguards shall be furnished to safely control and direct the flow of traffic. When it is necessary to operate on existing roads outside the construction area, all necessary permits shall be obtained from the appropriate private or public authority. Work shall be conducted in such manner so as to obstruct and inconvenience traffic on existing roads outside the construction limits as little as possible. Spillage of earth, dusty materials, boulders, and mud on project roads or other road will not be permitted. If spillage cannot be prevented, the spillage shall be immediately removed and such areas shall be kept clear throughout the workday. At the conclusion of each workday, such traveled areas shall be cleared of spillage, boulders, and mud.

3.9.6.6 Maintenance of Roads

All haul and access roads, within the construction area, including the borrow areas, shall be maintained to provide vehicular access for the Government's vehicles and the Contractor's vehicles and equipment. Road maintenance shall include rock/mud slides, washouts, and any incident which would restrict vehicular/equipment access. Prior to any alterations of any road alignment, the Contractor shall receive an approval from the Contracting Officer. Road maintenance and alterations shall be performed by the Contractor at no additional cost to the Government.

3.9.6.7 Traffic Safety

In accordance with CONTRACT CLAUSE: ACCIDENT PREVENTION, signs, barricades, and warning devices shall be provided, installed, and maintained as are required for protection of vehicular traffic at any location where operations interfere with public roads. Signs, barricades, lights, and signals, shall be in conformance with DOT MUTCD Part 6.

3.9.6.8 Rock and Gravel

Rock and gravel for use on haul roads and other facilities may be obtained from any source with the excavation limits or stockpiles within the project boundaries not designated for other use. The use of any such source shall be subject to approval by the Contracting Officer.

3.9.6.9 Cooperation with Others

In addition to CONTRACT CLAUSE: OTHER CONTRACTS, agreements shall be made for cooperative use and maintenance of project road directly between the Contractors concerned and shall be subject to approval by the Contracting Officer. No maintenance shall be charged for its use of the roads. During the life of this contract, the Contractor is advised that the activities of other contractors will require access to portions of the Project Limits. These activities are listed at the end of this section under, SPECIAL CONSTRUCTION REQUIREMENTS. The Contractor shall coordinate his activities and cooperate with other contractors as to not delay or interfere with their work.

3.9.6.10 Temporary Culverts

Temporary culverts shall be provided as required for road drainage. Temporary culverts shall be corrugated metal pipe of adequate diameter. Exact locations of the temporary culverts shall be subject to approval by the Contracting Officer.

a. All culverts within the construction area, including the borrow areas, shall be maintained to provide unrestricted flow through the culverts. Culvert maintenance shall include debris cleaning, repair of failures, and extension of culverts due to road alterations. Culvert maintenance shall be performed by the Contractor at no additional cost to the Government.

3.9.7 Working Hours

The Contractor shall restrict all construction activities to the following schedule:

Monday thru Friday	6:30 a.m. to 7:00 p.m.
Saturday	8:00 a.m. to 7:00 p.m.

No work will be permitted on Sundays or Federal Holidays without the prior written approval from the Contracting Officer.

3.9.8 Construction Water

There are no known developed sources for water at or in the immediate vicinity of the project site. The Contractor shall be responsible for obtaining water for construction purposes at no additional cost to the Government.

3.9.9 Lighting

The Contractor shall provide a minimum of 5 foot-candle lighting intensity for all construction areas during the contract performance period.

3.9.10 Identification of Vehicles

All the Contractor's vehicles shall display suitable permanent identification.

3.9.11 Construction Method Observation

Any construction method, plant, or piece of equipment used on this contract shall not be considered proprietary, and can be inspected or photographed at any time by the Government, regulatory agencies, or any group approved by the Government.

3.9.12 Contractor's Equipment

The planned method of transportation and operation of cranes and other heavy equipment to be used in the performance of this contract shall be

submitted for approval by the Contracting Officer. The plan shall include the type, size, loadings of equipment, the proposed transportation routes, and work areas to be used on the project.

3.10 PUBLIC SAFETY

Attention is directed to the CONTRACT CLAUSE: PERMITS AND RESPONSIBILITIES.

The Contractor shall provide temporary fencing, barricades, and/or guards, as required, to provide protection in the interest of public safety. Whenever the contractor's operations create a condition hazardous to the public, he shall furnish at his own expense and without cost to the Government, such flagmen and guards as are necessary to give adequate warning to the public of any dangerous conditions to be encountered and he shall furnish, erect, or maintain such fences, barricades, lights, signs and other devices as are necessary to prevent accidents and avoid damage or injury to the public. Flagmen and guards, while on duty and assigned to give warning and safety devices shall conform to applicable city, county, and state requirements. Should the Contractor appear to be neglectful or negligent in furnishing adequate warning and protection measures, the Contracting Officer may direct attention to the existence of a hazard and the necessary warning and protective measures shall be furnished and installed by the Contractor without additional cost to the Government. Should the Contracting Officer point out the inadequacy of warning and protective measures, such action of the Contracting Officer shall not relieve the Contractor from any responsibility for public safety or abrogate his obligation to furnish and pay for those devices. The installation of any general illumination shall not relieve the Contractor of his responsibility for furnishing and maintaining any protective facility.

3.11 OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) STANDARDS

The OCCUPATIONAL SAFETY and HEALTH ACT (OSHA) STANDARDS for CONSTRUCTION (Title 29, Code of Federal Regulations Part 1926 as revised from time to time) and the Corps of Engineers General Safety and Health Requirements Manual, COE EM 385-1-1, are both applicable to this contract. The most stringent requirement of the two standards will be applicable.

3.11.1 Accident Reporting

In accordance with COE EM 385-1-1, the Contractor shall submit a written summary of worker's compensation claims which have been filled by worker's in connection with work on the project. The summary shall be submitted at the time when the work is approximately 50 percent complete and at project completion. The summary shall include all subcontractors. The Contractor's and subcontractor's compensation insurance carrier shall certify that the summaries are "correct and true".

3.12 PERMITS

3.12.1 General

Reference is made to the article of the contract entitled "Permits and Responsibilities", which obligates the Contractor to obtain all required

licenses and permits.

3.12.2 Air Pollution Permit (APP)

The Contractor shall obtain an APP from the Clark County Health Department. For further information, contact Ms. Cynthia Mikes at telephone number (702) 383-1276.

3.12.3 National Pollutant Discharge Elimination System (NPDES) Permit

The Contractor shall obtain a NPDES permit from the United States Environmental Protection Agency (USEPA) under the Nation Wide Permit (NWP) program, which requires that a Storm Water Pollution Prevention Plan (SWPPP) shall be prepared and maintained on-site throughout the construction period. A copy of the plan will be submitted to the Contracting Officer. In accordance with the NWP, a minimum of two (2) days prior to the start of construction activities, the Contractor shall submit a Notice of Intent (NOI) with fees to the Nevada Division of USEPA. The NOI shall be submitted on the standard EPA Form 3510-6 (8-92), and copies shall be provided to the Contracting Officer. For further information, contact Mr. Robb Saunders at telephone number (702) 687-4670.

3.13 NOTICE OF PARTNERSHIP

The Government intends to encourage the foundation of a cohesive partnership with the Contractor and its subcontractors. This partnership will be structured to draw on the strengths of each organization to identify and achieve reciprocal goals. The objectives are effective and efficient contract performance and intended to achieve completion within budget, on schedule, and in accordance with plans and specifications. This partnership would be bilateral in makeup, and participation will be totally voluntary. Any cost associated with effectuating this partnership will be agreed to by both parties and will be shared equally with no change in contract price. To implement this partnership initiative it is anticipated that within 60 days of Notice to Proceed the Contractor's on-site project manager and the Government's Resident Engineer would attend a two day partnership development seminar/team building workshop together with the Contractor's key on-site staff and key Government personnel. Follow-up workshop of 1 to 2 days duration would be held periodically throughout the duration of the contract as agreed to by the Contractor and Government.

3.14 AS-BUILT DRAWINGS

3.14.1 General

The Contractor shall furnish 3 full size sets of as-built blue-line prints for use in preparation of as-built drawings by the Government. The as-built prints shall be a record of the construction as installed and completed by the Contractor. They shall include all the information shown on the contract set of drawings and a record of all deviations, modifications, or changes from those drawings, however minor, which were incorporated in the work, all additional work not appearing on the contract drawings, and all changes which are made after final inspection of the contract work. In event the Contractor accomplishes additional work which

changes the as-built conditions. The requirements for these additional drawings will be the same as for the as-built drawings included in the original submission. The prints shall show the following information, but not be limited thereto:

- a. The location and description of any utility lines or other installations of any kind or description known to exist within the construction area. The location includes dimensions to permanent features.
- b. The location and dimensions of any changes within the building or structure.
- d. Correct grade or alignment of roads, structures, or utilities if any changes were made from contract plans.
- e. Correct elevations if changes were made in site grading.
- f. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.
- g. The topography and grades of all drainage installed or affected as a part of the project construction.
- h. All changes or modifications which results from the final inspection.

3.14.2 Options

Where contract drawings or specifications allow options, only the option selected for construction shall be shown on the as-built drawings.

3.14.3 Submittal to Contracting Officer for review and approval

Not later than two weeks after acceptance of the project by the Government, the Contractor shall deliver to the Contracting Officer 3 full size sets of blue-line prints marked up to depict as-built conditions. If upon review, the drawings are found to contain errors and/or omissions, they shall be returned to the Contractor for corrections. The Contractor shall complete the corrections and return the drawings to the Contracting Officer within ten (10) calendar days.

3.15 DISPOSAL SITES

3.15.1 Disposal Site

Excess satisfactory excavated natural material not utilized as part of the construction shall be hauled, placed and compacted in disposal site per lines and grades shown on the drawings. Materials characterized as unsatisfactory soil in accordance with Section 02300 EARTHWORK shall become the property of the Contractor and shall be removed from the project site.

3.16 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (ER 415-1-15, 31 OCT 89)

a. This provision specifies the procedure for determination of time extensions for unusually severe weather in accordance with the CONTRACT CLAUSE: DEFAULT (FIXED PRICE CONSTRUCTION). In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

(1) The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

(2) The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the Contractor.

b. The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DAYS
Work Days Based on five (5) Day Work Week

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
6	2	2	1	1	0	2	2	1	1	1	3

c. Upon acknowledgement of the Notice to Proceed (NTP) and continuing throughout the contract, the Contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled work day. The number of actual adverse weather days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in subparagraph b, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the CONTRACT CLAUSE: DEFAULT (FIXED PRICE CONSTRUCTION).

3.17 REQUIRED INSURANCE

The Contractor shall procure and obtain during the entire period of his performance under this contract the following minimum insurance:

a. General Public Liability insurance for bodily injury and property

damage with minimum limits of \$1,000,000 combined single limit per occurrence and \$1,000,000 annual aggregate for bodily injury to or death, personal injury and property damage.

b. Automobile Liability insurance for bodily injury and property damage with minimum limits of \$1,000,000 combined single limit for each occurrence and \$1,000,000 annual aggregate.

c. Either Workman's Compensation or Employer's Liability insurance with a minimum limit of \$1,000,000.

In every case the insurance coverage shall amount to at least the limits stated above. However, where the Financial Responsibility Compulsory Insurance Law of the State in which the installation is located requires higher limits, the Automobile Liability Insurance Policy should provide coverage of at least those limits. County of Clark, a political subdivision of the state of Nevada, and Clark County Regional Flood Control District shall be named as additional insured parties and all policies issued in performance of work under this contract.

The Contractor does hereby agree to indemnify, defend, and save harmless Clark County and Regional Flood Control District from loss, damage, liability, costs, or expense to the proportionate extent caused by the Contractor, his employees, agents, or consultants and/or consultants arising out of its performance of this contract, including, but not limited to the negligent acts, errors, omissions, or intentional misconduct of the Contractor, its employees, agents or consultants and/or subconsultants in connection with this contract.

Contractor further does hereby agree, as a precaution to the performance of any work under this contract and as a precaution to any obligation of Clark County to make any payment under this contract, to provide Clark County with a certificate and/or a certificate issued by the State Industrial Insurance System (SIIS) in accordance with Nevada Revised Statute 616.280. Contractor agrees to maintain required workers compensation throughout the entire term of the contract. If Contractor does not maintain coverage throughout the entire term of the contract, Contractor agrees that Owner may, at any time the coverage is not maintained by Contractor, order the Contractor to stop work, assess liquidated damages as defined herein, suspend the contract, or terminate the contract. For each six month period this contract is in effect, Contractor agrees, prior to the expiration of the six month period, make another written request to SIIS for the provisions of a certificate and notice of lapse in or nonpayment of coverage. If Contractor does not make the request or does not provide the certificate before the expiration of the six month period, Contractor agrees that owner may order the Contractor to stop work, suspend the contract or terminate the contract.

3.18 SPECIAL CONSTRUCTION REQUIREMENTS

The Contractor shall restrict his operation and adapt his construction schedule to accomodate the following:

3.18.1 Project Limits

The Contractor's work, employee parking, operations, staging, equipment assembly and maintenance, and other on-site activities shall be restricted to actual areas of construction within the Project Limits. The Project Limits of the Upper Flamingo Diversion Channel are indicated on the drawings, and constitute the maximum limits of the construction area available for Contractor's operations. The Project Limits are generally defined by the Right-of-Way (ROW) and adjoining Temporary Construction Easements (TCE) as shown on the plans, unless designated otherwise (either in the plans, in these Specifications or by the Contracting Officer). The Contractor shall be solely responsible for obtaining agreements with and acquisition from adjacent land owners, when additional land or access points are required to supplement the Contractor's operations or staging needs. No appurtenances or other public access facilities (either temporary or permanent) shall be constructed beyond the Project Limits.

3.18.2 Order of Channel Construction

Any continuation of the Contractor's operations in and access to those areas following issuance of the Notice to Proceed for the adjacent contract shall be requested in writing, and shall include:

1. A detailed critical-path scheduling diagram of the activities proposed,
2. A projected date of completion, and
3. A proposed method of coordination between potentially conflicting contract operations.

This information shall be reviewed by the Contracting Officer and if deemed acceptable, shall be approved by the Contracting Officer otherwise interim completions and restrictions listed below shall remain in effect.

3.18.2.1 Storm Runoff

In consideration of the potential for high-volume storm runoff occurring during the period of time when existing runoff patterns are disrupted, but the channel is not yet in service, the order of construction needs to be set to avoid significant erosive damage to elements of the project and existing facilities downstream.

The Contractor shall make all practical efforts to:

1. stage the construction of the channel from downstream to upstream (east to west), and
2. avoid long delays between excavation of the channel (and disruption of existing runoff patterns) and construction of the cast-in-place elements of the channel.

3.18.2.2 Construction RCB channel sections.

The _____ RCB channel sections on the Upper Flamingo Diversion Channel

shall be completed within 210 calendar days from the Upper Flamingo Diversion Channel notice to proceed. The RCB channel sections are located at _____ Blvd. (Sta AA+AA.AAA to Sta BB+BB.BBB), _____ Road (Sta CC+CC.CCC to Sta DD+DD.DDD), _____ Road (Sta EE+EE.FFF to Sta GG+GG.GGG) and _____ Boulevard (Sta HH+HH.HHH to Sta II+II.III). Priority on these items of work is necessary to meet Real Estate commitments and to restore normal traffic to these areas without delay.

3.19 CONTRACTOR'S SURVEYS

3.19.1 Survey Data

Reference is made to SECTION 00800: SPECIAL CONTRACT REQUIREMENTS, QUANTITY SURVEYS, ALTERNATE I, FAR 52.236-16 which requires payments based on surveys. Progress payments will be based upon Contractor's surveys. The Contractor's survey shall provide full coverage of the entire area for which progress payment is being submitted.

It is further emphasized that survey data which does not meet all applicable requirements and quality assurance verifications will not constitute a valid request for payment.

Contractor's surveys shall be performed electronically (automated) and the data shall be provided and submitted to the Government on an electronic media (IBM compatible, ASCII format) in delimited files of easting, northing, and depth (x,y,z), where the depth is indicated as positive if recorded above mean sea level. The first lines of the data file will list the information as follows:

- * Project Name: UPPER FLAMINGO DIVERSION CHANNEL; ENTIRE PROJECT SITE 2002 AND 2003
- * Surveyor's Name and Company Name
- * Area Surveyed
- * Type of Survey and Date of Survey (i.e. Pre-construction, MM/DD/YR)
- * Vertical Datum
- * Horizontal Datum

These first 6 lines will be preceded by an asterisk (*), which indicates a comment line.

For both the pre-construction and post construction surveys, three (3) copies of the survey plotted on paper will accompany the x,y,z data (electronic file) and all data shall be collected and plotted in metric units (meters).

3.19.2 Survey Data Standards

The Contractor's surveys for progress payment shall meet or exceed the survey standards listed in COE EM 1110-1-1005, Topographic Surveying for topographic surveys. Surveys shall be in the State Plane Coordinate System of 1983 - meters (SPCS 83), State of Nevada, and be performed by an independent survey contractor with at least three (3) years of experience in topographic surveying of land features and have either a current Land Surveyor's or a Professional Engineer's license, authorized to certify

surveys in the State of Nevada. The Topographic Surveyor firm selected by the Contractor must be approved by the Contracting Officer prior to performing surveys for this contract.

3.19.3 Positioning System

It is required that surveys shall be conducted using an RTK or similar modern electronic surveying equipment using Differential Global Positioning System (DGPS) with positional accuracy equal to or exceeding the survey standards listed in COE EM 1110-1-1003 and COE EM 1110-1-1005.

3.19.4 Survey Firm Acceptance

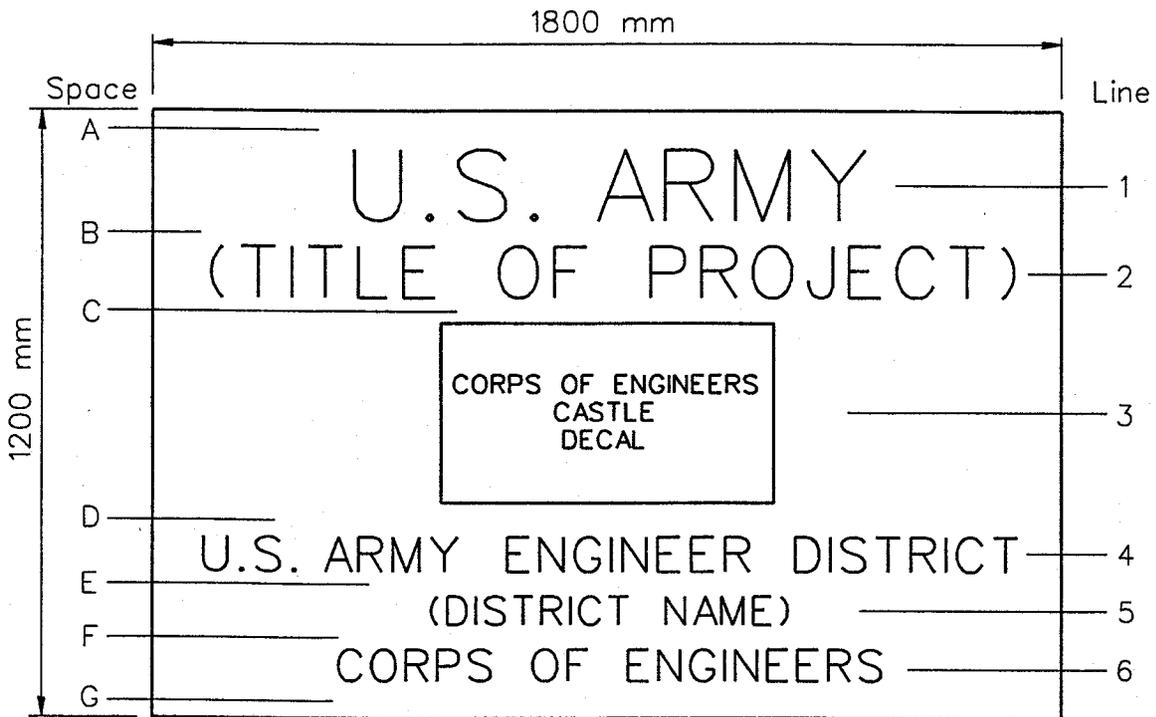
For the Contracting Officer to approve the selected survey firm, the Contractor must provide documentation indicating that modern electronic surveying equipment will be used for the surveys to be performed as well as documentation verifying the experience of the operators using the equipment. Typical information that will be required, as a minimum, includes the name, model, and year of manufacture of the electronic equipment, and the manufacturer's stated accuracies, and capability of the equipment proposed for usage. The Contractor shall submit credentials/qualifications as evidence that qualified, experienced staff are available and will be used for the operation of the electronic positioning and surveying equipment.

3.19.5 Data Processing

The Contractor shall use a Data Processing System to map the survey data and calculate quantities. Reduced survey data shall then be imported into the Data Processing System where cross-sections are compared to fill templates and volume quantities are calculated. The software shall be capable of digital terrain modeling and shall produce, as a minimum, topographic survey sheets, cross section profiles, 3-dimensional area profiles, and quantity volume calculations using the Triangulated Irregular Network (TIN) method.

-- End of Section --

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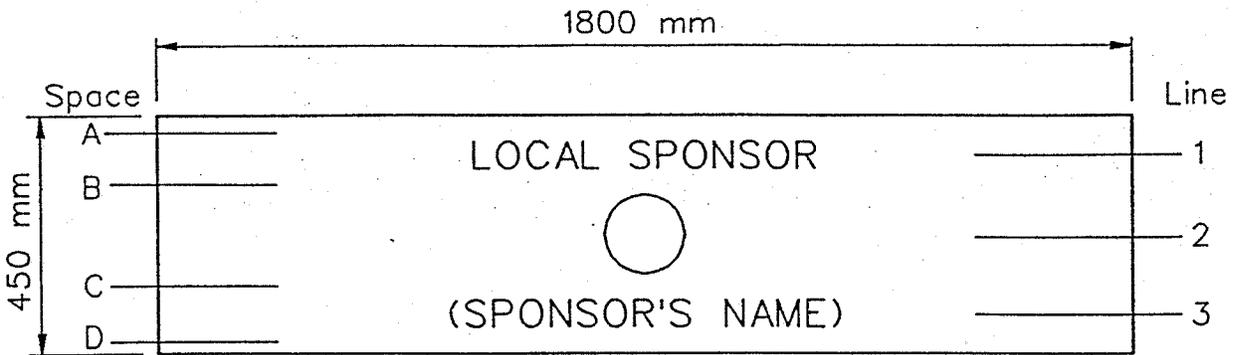
<u>Space</u>	<u>Height</u>	<u>Line</u>	<u>Description</u>	<u>Letter Height</u>	<u>Stroke</u>
A	75				
		1	U.S. ARMY	140	22
B	50				
		2	PROJECT NOMENCLATURE	100	16
C	50				
		3	CORPS OF ENGINEERS CASTLE (DECAL)	345	
D	70				
		4	U.S. ARMY ENGINEER DISTRICT	70	9
E	50				
		5	DISTRICT NAME	60	6
F	50				
		6	CORPS OF ENGINEERS	65	9
G	75				

Letter Color -- Black

PROJECT SIGN
(Army-Civil Works)

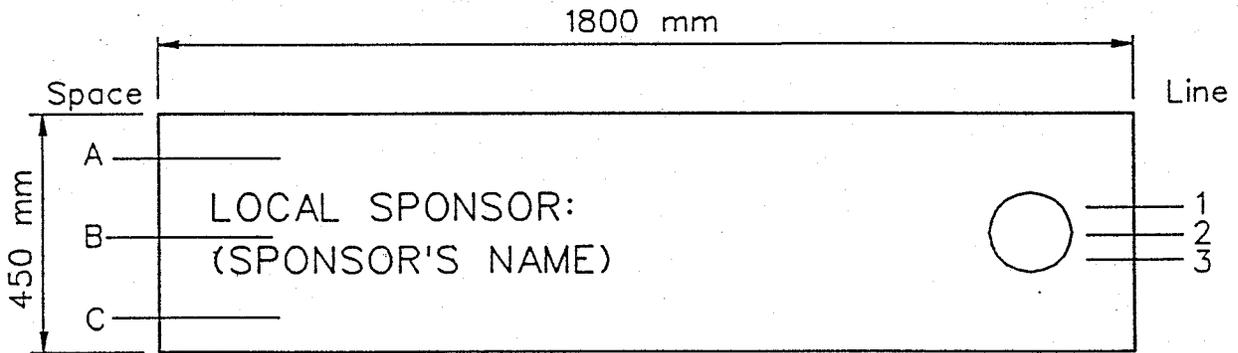
Figure 1
October 1996

All units are in millimeters.



<u>Space</u>	<u>Height</u>	<u>Line</u>	<u>Description</u>	<u>Letter Height</u>	<u>Stroke</u>
A	50	1	LOCAL SPONSOR	50	9
B	50	2	SPONSOR'S EMBLEM (DECAL)		
C	50	3	(SPONSOR'S NAME)	50	9
D	50				

- OR -

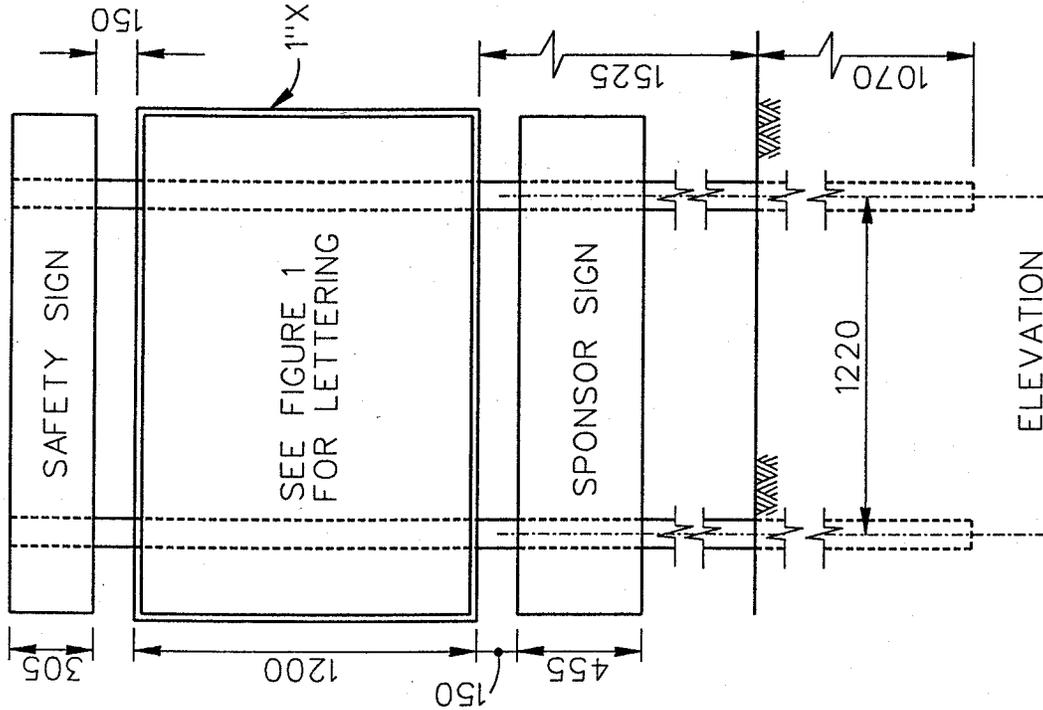
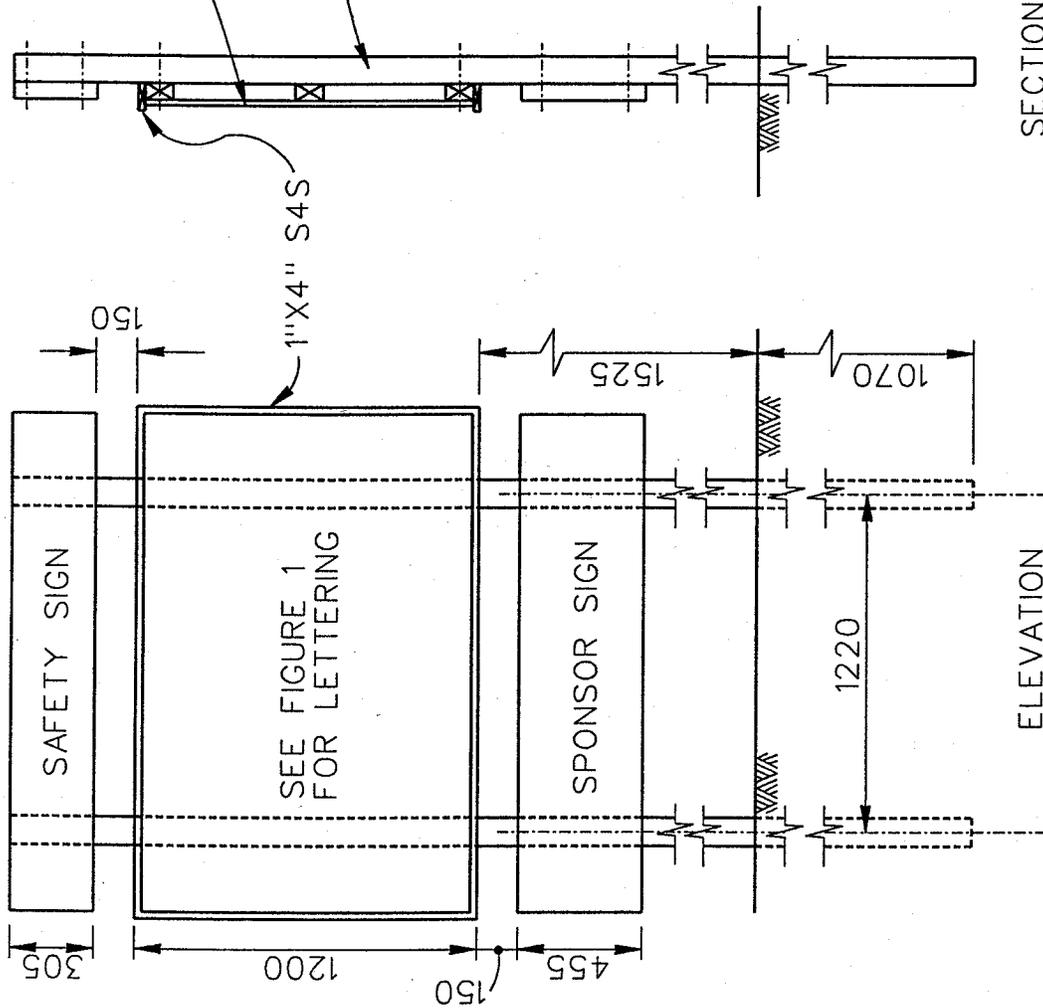
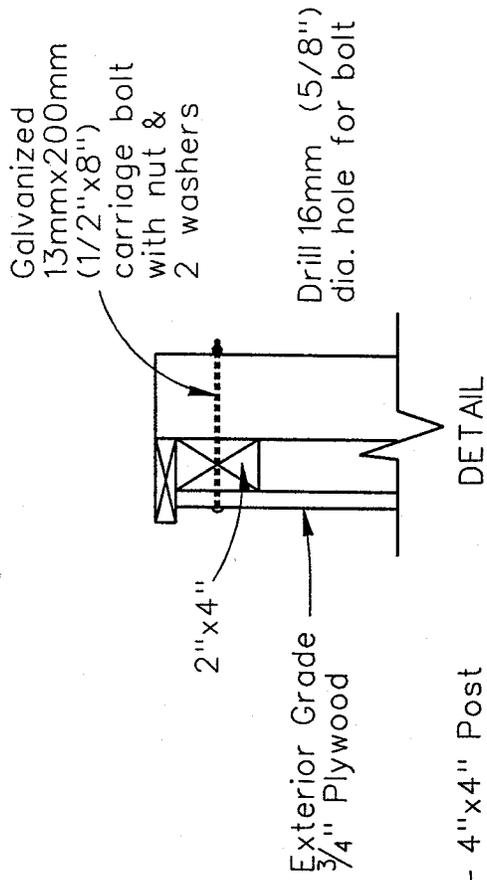


<u>Space</u>	<u>Height</u>	<u>Line</u>	<u>Description</u>	<u>Letter Height</u>	<u>Stroke</u>
A	150	1	LOCAL SPONSOR	50	9
B	50	2	SPONSOR'S EMBLEM (DECAL)		
C	150	3	(SPONSOR'S NAME)	50	9

Lettering Color -- Black

All units are in millimeters.

Figure 1A
October 1997



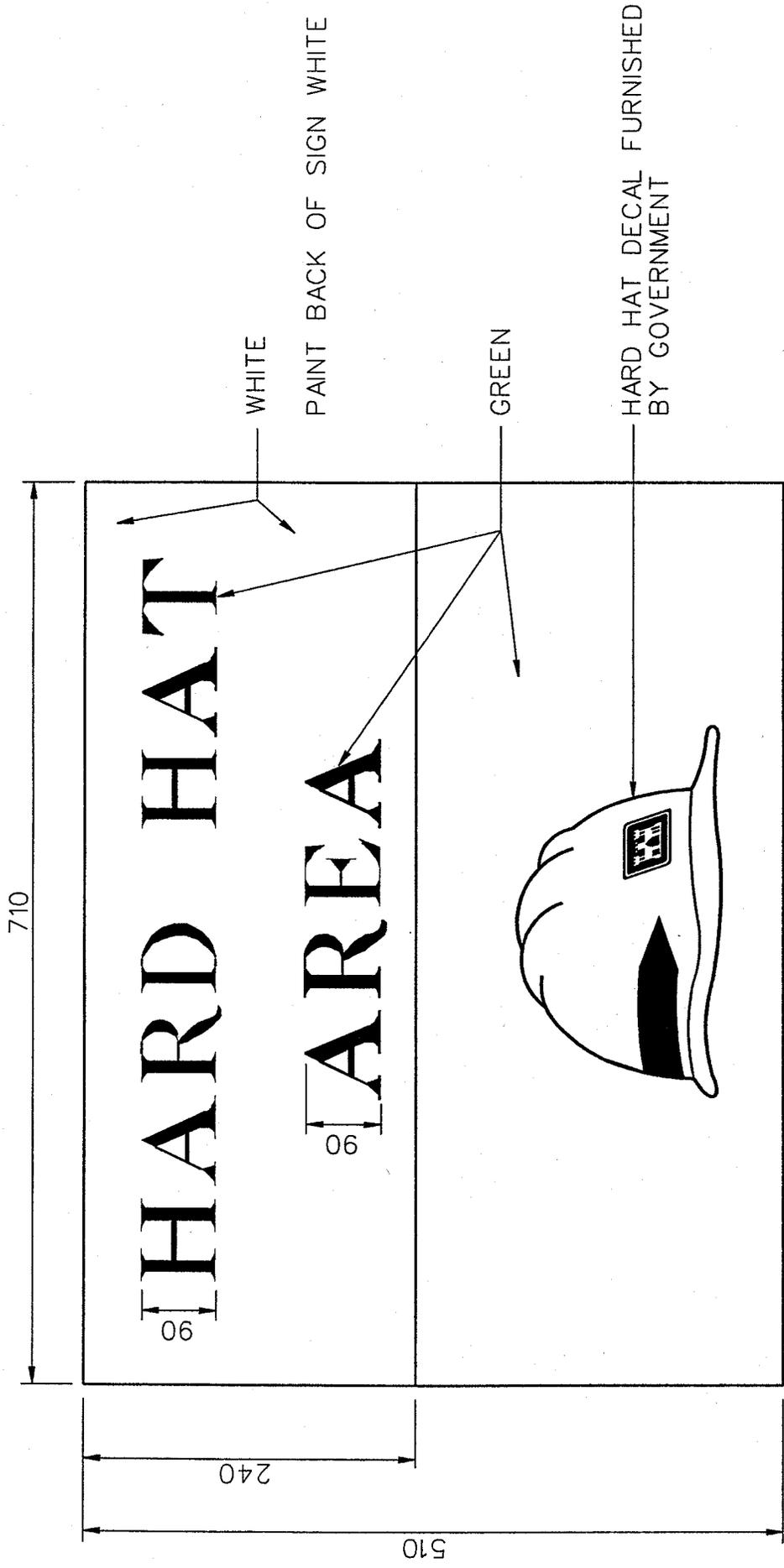
General Notes

1. Lumber to be cut & formed accurately.
2. Secure 1"x4" & plywood with 6d finish nails at not less than 305mm(12") O.C.
3. All exposed nails to be set & holes filled with putty.
4. Sign to be set in good solid ground & backfill carefully tamped into place.
5. Where necessary, posts shall be braced to provide a solid installation.

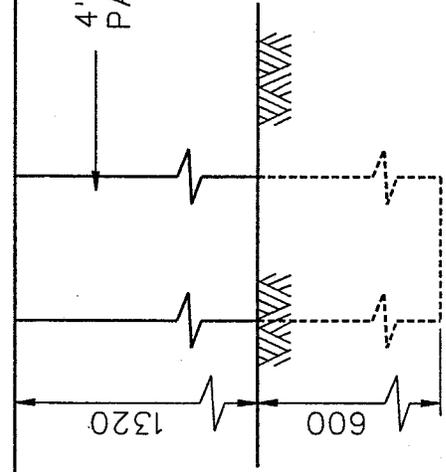
SIGN DETAILS

Figure 2
October 1996

All units are in millimeters unless otherwise indicated.



4" X 4" POST
PAINT GREEN

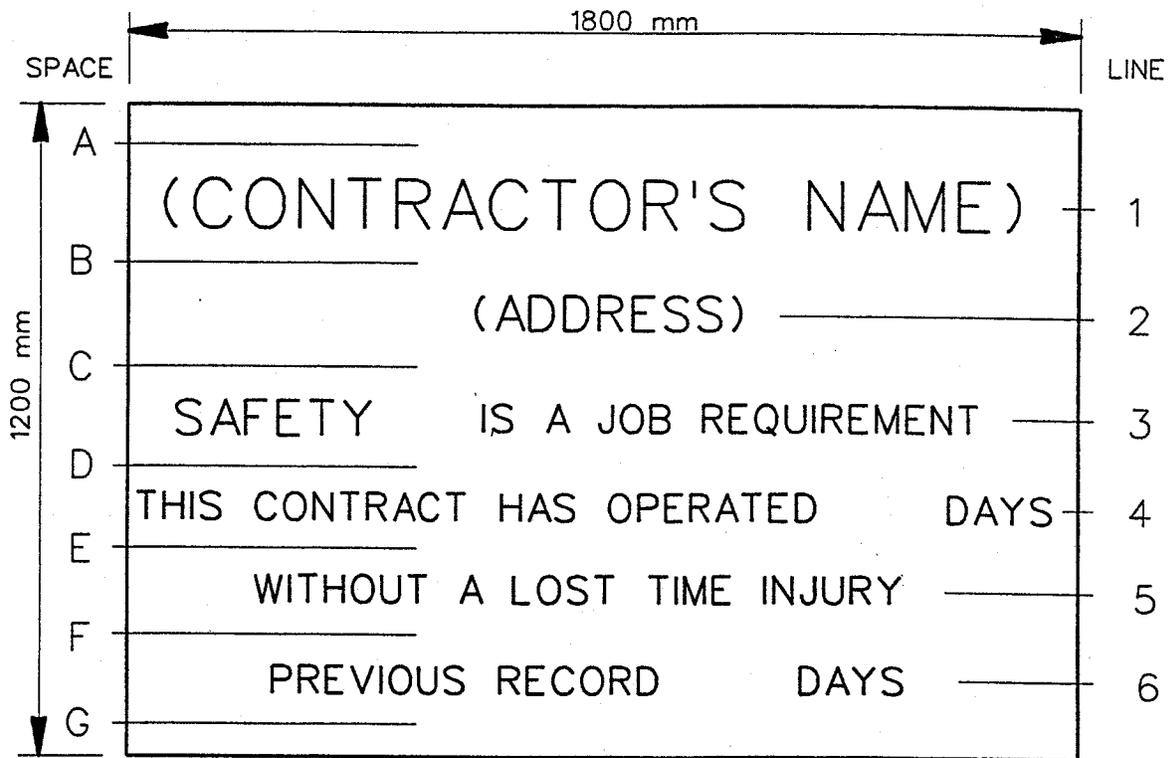


General Notes

1. Green & white paint shall be opaque glossy as specified in ANSI Z53.1
2. Bolt sign to post with two 15 mm dia. carriage bolts.

Figure 3
October 1996

All units are in millimeters unless otherwise indicated.



<u>SPACE</u>	<u>HEIGHT</u>	<u>LINE</u>	<u>DESCRIPTION</u>	<u>LETTER HEIGHT</u>
A	125			
B	75	1	CONTRATOR'S NAME	125
C	150	2	ADDRESS	75
D	75	3	SAFETY IS A JOB REQUIREMENT	115 & 75
E	75	4	ALL LETTERING	75
F	75	5	ALL LETTERING	75
G	125	6	ALL LETTERING	75

Notes

Lettering shall be black No. 27038 standard 595.
 Sign shall be installed in the same manner
 as the Project Sign.

**SAFETY SIGN
 STANDARD DETAIL**

All units are in millimeters.

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SECTION 01270

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 - 1.3 UNIT PRICE PAYMENT ITEMS
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(Bid Item 0020).

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26.2 Payment.

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27.1 Measurement

27.2 Payment

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28.1 Measurement

28.2 Payment

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29.1 Measurement

29.2 Payment.

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- 40.2.3 Trenches.
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- 41.1 Measurement.
- 41.2 Payment.
 - 41.2.1 Concrete, Invert Slab.
 - 41.2.2 Concrete, Cut-off Wall.
 - 41.2.3 Concrete, Walls.
 - 41.2.4 Concrete, Transition
 - 41.2.5 Concrete Overflows

PART 42 REINFORCING STEEL, STA. 46+51.092 TO STA. 45+18.894 (Bid Item 0053).

- 42.1 Measurement.
- 42.2 Payment.

PART 43 AGGREGATE BASE COURSE, STA. 46+51.092 TO STA. 45+18.894 (Bid Item 0054).

- 43.1 Measurement.
- 43.2 Payment.

PART 44 ASPHALT CONCRETE PAVEMENT, STA. 46+51.092 TO STA. 45+18.894 (Bid Item 0055).

- 44.1 Measurement.
- 44.2 Payment.

PART 45 WEEPHOLE SYSTEM, STA. 46+51.092 TO STA. 45+18.894 (Bid Item 0056).

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PART 48 COVERED CONFLUENCE/INVERT TRANSITION, STA. 47+04.000 to STA. 49+73.000 (Bid Item 0060).

PART 48 UNDERGROUND BOX SECTION S, STA. 49+73.000 to STA. 49+93.000 (Bid Item 0061).

PART 48 UNDERGROUND BOX, STA. 49+93.000 to STA. 50+37.018 (Bid Item 0062).

- PART 51 BOX CULVERT @ RAINBOW BLVD., STA. 50+37.018 to STA. 50+88.000
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- PART 52 TRANSITION STRUCTURE, STA. 50+88.000 to STA. 51+38.000 (Bid Item
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- PART 53 UNDERGROUND BOX, STA. 50+38.000 to 51+75.702 (Bid Item 0065).
- PART 54 RAINBOW LATERAL, STA. 10+00.000 to STA. 11+38.403 (Bid Item 0066).
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- 60.1 Measurement
 - 60.2 Payment
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- 61.1 Removal
 - 61.2 Removal and Storage for Reinstallation
 - 61.3 Protect In Place
 - 61.4 Replacement Items
 - 61.5 Restore, Replant, Install and Reinstall Items
- PART 62 0.250 M (10 INCH) WATERLINE @ RAINBOW BOULEVARD (Bid Item 0077)
- PART 63 DOUBLE SWING GATES, STA. 51+75.702 TO STA. 45+18.894 (Bid Item
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- 63.1 Measurement

63.2 Payment.

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64.1 Measurement.

64.2 Payment

PART 65 STATION MARKINGS, STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0080).

-- End of Section Table of Contents --

SECTION 01270

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 CONTRACT PRICE AND PAYMENT

The contract price and payment shall constitute full compensation as stated in the Contract Clause, CONTRACT PRICES - BIDDING SCHEDULES, for completion of the work. No separate payment will be made for any material or work necessary to complete the work that is not specifically mentioned, such materials and work shall be considered incidental to all bid items. As stated in Contract Clause, SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION, the word "provided" shall be understood to mean "furnished and installed" when used in this section or elsewhere in the technical sections.

1.2 LUMP SUM PAYMENT ITEMS

Payment items for the work of this contract for which contract lump sum payments will be made are listed in the BIDDING SCHEDULE and described below. All costs for items of work, which are not specifically mentioned to be included in a particular lump sum or unit price payment item, shall be included in the listed lump sum item most closely associated with the work involved. The lump sum price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided.

1.3 UNIT PRICE PAYMENT ITEMS

Payment items for the work of this contract on which the contract unit price payments will be made are listed in the BIDDING SCHEDULE and described below. The unit price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for each of the unit price items.

1.4 OPTIONAL BID LUMP SUM PAYMENT ITEMS

Payment items for the work of this contract for which contract lump sum payments will be made are listed in the BIDDING SCHEDULE and described below. All costs for items of work, which are not specifically mentioned to be included in a particular lump sum or unit price payment item, shall be included in the listed lump sum item most closely associated with the work involved. The lump sum price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor,

materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided. Optional bid items include channel construction work and appurtenances between Station 45+18.894 to Station 51+75.702 that may or may not be awarded depending on acquisition of right-of-way grants.

1.5 OPTIONAL BID UNIT PRICE PAYMENT ITEMS

Payment items for the work of this contract on which the contract unit price payments will be made are listed in the BIDDING SCHEDULE and described below. The unit price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for each of the unit price items. Optional bid items include channel construction work and appurtenances between Station 45+18.894 to Station 51+75.702 that may or may not be awarded depending on acquisition of right-of-way grants.

PART 2 TRAFFIC CONTROL, EXCEPT BETWEEN STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0001).

Payment for traffic control will be made at the applicable contract price, which payment shall constitute full compensation for traffic control including but not limited to earthwork and grading, construction and removal of temporary roadways; providing safety barriers; providing traffic warning and control signs and lighting; stripping; flag men as required.

PART 3 DIVERSION AND CONTROL OF WATER, EXCEPT BETWEEN STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0002).

Payment for Diversion and Control of Water will be made at the applicable contract price, which payment shall constitute full compensation for maintaining the work area in a dry condition.

PART 4 CLEAR SITE AND REMOVE OBSTRUCTIONS, EXCEPT BETWEEN STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0003).

Payment shall include all costs for clearing, removal, replacement, and restoration work (except work by others) including all existing obstructions within the construction work area. Except as otherwise specified, payment for clearing and removal work includes applicable earthwork; filling holes; removal of abandoned utility lines; removal of existing surface trash and debris, including trees and vegetation and debris piles (consisting of construction debris and/or dumped soils, dumped gravels, dumped rocks and dumped boulders), including vehicle debris (vehicle bodies and/or vehicle parts) and appliance debris (whole and/or parts), and grubbing from within the Channel right-of-way and temporary construction easement; including removal of existing riprap rock; removal protection, replacement or restoration of existing structures and features indicated and disposal of all materials. Payment for Clear Site and Remove Obstructions will be made at the applicable contract price, which payment shall constitute full compensation for clearing, obstruction removal, and

protection work, complete.

PART 5 EXCAVATION, EXCEPT BETWEEN STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0004).

5.1 Measurement.

A survey of the site shall be made prior to commencement of work, and all measurements will be based on this survey without regard to any changes in the site that may be made between the excavation lines and grades indicated on the drawings or staked in the field and the ground surfaces as indicated by the above mentioned survey. The quantity of directed excavation necessary for the removal of unsatisfactory foundation material as specified shall be included in the measurement of the excavation where the unsuitable soils are encountered. Quantities will be computed in cubic meters by the average end area method and the planimeter will be considered a precise instrument for measurement of plotted cross sections. The total quantity of excavated material for which payment will be made will be the theoretical quantity between the ground surface as determined by a survey and the grade and slope of the theoretical cross sections indicated. No allowance will be made for overdepth excavation or for the removal of any material outside the required slope lines. All excavation outside of excavation lines shown on the drawings will be considered as being for the convenience of the Contractor.

5.2 Payment.

Payment will be made for costs associated with excavation for the channel at the applicable contract price, which payment shall constitute full compensation for excavating the channel, and other areas as indicated on the drawings, including shoring, rock removal, and cemented alluvium excavation; shaping and trimming of areas to receive concrete; including foundation preparation; crushing or otherwise processing, loading, stockpiling, hauling, and placing suitable materials for compacted fill; Including crushing/processing, loading, hauling, placing excess satisfactory excavated materials at disposal site shown on drawings. Payment will not be included for excavation (including shoring) outside the excavation limits indicated on the drawings or staked in the field, and other excavation requirements for which separate payments are provided.

5.3 Unsatisfactory Soils

No separate payment will be made for the excavation, hauling, and disposal of unsatisfactory soils. When such excavation is directed, payment therefore will be included in the applicable contract price for the items of work under which the unsuitable soils are encountered. When there is no applicable contract item an adjustment will be made.

5.4 Excavation for Structures

No separate payment will be made for excavation for structures. All costs therefore shall be included in the applicable contract item to which the work applies.

5.5 Excavation for Utilities

No separate payment will be made for excavation for utilities. All costs therefore shall be included in the applicable contract item to which the work applies.

5.6 Shoring

When shoring is indicated or directed for items for which separate payment is made, payment will be included in the applicable contract price for the items of work under which the shoring is placed.

PART 6 FILLS, EXCEPT BETWEEN STA. 51+75.702 TO STA. 45+18.894 (Bid Items 0005, 0006).

6.1 Measurement.

Measurement for fills will be made between the excavation and structure lines and the fill limit lines, or between the ground lines and fill lines, as indicated or staked in the field. Quantities will be computed in cubic meters by the average end area method and the planimeter will be considered a precise instrument for measuring plotted cross sections.

6.2 Payment.

6.2.1 Compacted Fill, Channel.

Payment for compacted fill will be made at the applicable contract price, which payment shall constitute full compensation for shaping, grading, filling behind the channel walls including access ramps, over covered channels, and other areas shown on the drawings, and compacting the fill, complete. Payment will not be included for fills outside the fill limits indicated on the drawings or staked in the field, and other fill requirements for which separate payments are provided.

6.2.2 Compacted Fill, Disposal Site.

Payment for compacted fill disposal site will be made at the applicable contract price, which payment shall constitute full compensation for shaping, grading, and compacting the fill, at disposal site(s) shown on the drawings, complete. Payment will not be included for fills outside the fill limits indicated on the drawings or staked in the field, and other fill requirements for which separate payments are provided.

6.2.3 Fill for Structures.

No separate payment will be made for fill or backfill around structures. All such costs shall be included in the applicable contract prices for structure items to which the work applies.

6.2.4 Trenches.

No separate payment will be made for backfilling for utilities, side drains

and confluences. All costs in connection therewith shall be included in the contract prices for items to which the work applies.

6.2.5 Subgrade Preparation.

No separate payment will be made for subgrade preparation and all costs in connection therewith shall be included in the contract prices for items to which the work applies.

PART 7 CONCRETE, EXCEPT BETWEEN STA. 51+75.702 TO STA. 45+18.894 (Bid Items 0007, 0008, 0009, 0010).

7.1 Measurement.

Measurement of concrete will be made on the basis of the actual volume, in cubic yards, of concrete within the pay lines of the concrete invert slab, walls, top slab, and slope protection as shown on the drawings.

Measurement of concrete placed against the sides of any excavation without the use of intervening forms will be made only within the pay lines of the structures. No deductions will be made for rounded or beveled edges or space occupied by metalwork, nor voids or embedded items which are either less than 0.15 cubic meter in volume or one-tenth of square meter in cross section. Concrete placed in items of work other than those specifically mentioned above, and concrete wasted or used for the convenience of the Contractor will not be included in measurement for payment.

7.2 Payment.

Payment for the concrete items will be made at the applicable contract prices for the various items of the schedule, which payments shall constitute full compensation for labor, materials (except reinforcing steel for which separate payment is provided), joint sealant, forming, furnishing, curing, and for all equipment and tools to complete the concrete work. Embedded items shall be included in the cost of the concrete except when other payment is specifically provided. No payment will be made for concrete, as such, which is placed in structures for which payment is made on a lump sum basis.

7.2.1 Concrete, Invert Slab.

Payment for "concrete, invert slab" will be made at the applicable contract price, which shall constitute full compensation for all concrete placed for the invert slab of the channel, keys, and starter walls, complete.

7.2.2 Concrete, Side Slope.

Payment for "concrete, side slope" will be made at the applicable contract price, which payment shall constitute full compensation for all concrete placed in the trapezoidal channel side slopes, excluding the cut-off walls, complete.

7.2.3 Concrete, Cut-off Wall.

Payment for "concrete, cut-off wall" will be made at the applicable

contract price, which payment shall constitute full compensation for all concrete placed in the cut-off walls, complete.

7.2.4 Concrete, Walls.

Payment for "concrete, walls" will be made at the applicable contract price, which payment shall constitute full compensation for all concrete placed above the starter walls in the vertical walls of the channel, the walls of the warped transition structures, including wall height transitions, complete.

7.2.5 Concrete, Transition

Payment for "concrete, transition" and all costs in connection therewith shall be included in the contract prices for "concrete walls" and "concrete, invert slab" or to the applicable contract price for which the work applies.

7.2.6 Concrete Overflows

Payment for the "concrete overflows" will be made at the applicable contract price, which payment shall constitute full compensation for all concrete placed for the concrete apron, including furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete; furnishing and placing aggregate base course; furnishing and placing metal fences and metal gates where shown on the drawings (two locations), complete except earthwork and grouted stone.

PART 8 REINFORCING STEEL, EXCEPT BETWEEN STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0011).

8.1 Measurement.

Measurement of reinforcing steel in metric tonnes (1,000 kilograms) is limited to reinforcement in concrete structures paid for on a cubic meters basis. Measurement will be made of the lengths of bars actually placed in the completed work in accordance with the plans and specifications, approved bar schedules, or as directed. The measured lengths will be converted to weights for the bar numbers listed by the unit weights per linear foot contained in ASTM A 615. Steel in laps indicated on the drawings, in the specifications, or required by the Contracting Officer will be included in measurement for payment. No measurement will be made for the additional steel in laps which are authorized for the convenience of the Contractor. No measurement will be made of steel supports or spacers. All costs for furnishing and installing supports and spacers shall be included in the various structures requiring the reinforcement.

8.2 Payment.

Payment for reinforcing steel will be made at the applicable contract price, which payment shall constitute full compensation for furnishing and installing steel reinforcement, complete. No payment will be made for steel reinforcement which is placed in structures for which payment is made on a lump sum basis.

PART 9 AGGREGATE BASE COURSE, EXCEPT BETWEEN STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0012).

9.1 Measurement.

Measurement of aggregate base course will be by the metric tonne (1,000 kilograms) of aggregate base course placed within the lines and grades indicated on the drawings.

9.2 Payment.

Payment for aggregate base course will be made at the applicable contract price which payment shall constitute full compensation for earthwork required for installation of aggregate base course, furnishing and placing the aggregate base course, complete, including subgrade preparation.

PART 10 ASPHALT CONCRETE PAVEMENT, EXCEPT BETWEEN STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0013).

10.1 Measurement.

Measurement for asphalt concrete pavement will be by the metric tonne (1,000 kilograms) of asphalt concrete pavement placed within the lines and grades as indicated on the drawing.

10.2 Payment.

Payment for asphalt concrete pavement will be made at the applicable contract price which payment shall constitute full compensation for asphalt concrete pavement in place, complete including tack coat, prime coat and appurtenant work except for aggregate base course. No payment will be made for excessive thickness.

PART 11 WEEPHOLE SYSTEM, EXCEPT BETWEEN STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0014).

Payment for the weephole system will be made at the applicable contract price, which payment shall constitute full compensation for materials, and installation of the weephole system, complete including applicable earthwork, drain aggregate, geotextile, form openings and appurtenances, complete.

PART 12 BOX CULVERT @ TORREY PINES DRIVE, STA. 42+52.904 to STA. 42+95.578 (Bid Item 0015).

Payment for the "Concrete Box Culvert @ Torrey Pines Drive (Sta. 42+52.904 to Sta. 42+95.578)" will be made at the applicable contract price, which payment shall constitute full compensation for the box culvert except earthwork, complete, including furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete, and all incidentals, complete as shown on the drawings except for pipe safety hand rail, and chain link fencing.

PART 13 UNDERGROUND BOX, STA. 51+75.702 to STA. 62+00.000 (Bid Item 0016).

Payment for the "Underground Box, (Sta. 51+75.702 to Sta. 62+00.000)" will be made at the applicable contract price, which payment shall constitute full compensation for the box culvert except earthwork, complete, including furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete, and all incidentals, complete as shown on the drawings except for pipe safety hand rail, and chain link fencing.

PART 14 INVERT ACCESS RAMP, STA. 66+20.692 to STA. 66+80.000 (Bid Item 0017).

Payment for the "Invert Access Ramp, Sta. 66+20.692 to Sta. 66+80.000" also includes the adjacent open channel from Sta. **66+20.692** to Sta. **66+80.000**. Payment will be made at the applicable contract price, which payment shall constitute full compensation for the invert access ramp and open channel except earthwork, complete, including furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete; and all incidentals, complete as shown on the drawings except for pipe safety hand rail, chain link fencing, and double swing gate.

PART 15 BOX CULVERT @ TIOGA WAY, STA. 68+14.537 to STA. 68+51.113 (Bid Item 0018).

Payment for the "Concrete Box Culvert @ Tioga Way, (Sta. 68+14.537 to Sta. 68+51.113)" will be made at the applicable contract price, which payment shall constitute full compensation for the box culvert except earthwork, complete, including furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete, and all incidentals, complete as shown on the drawings except for pipe safety hand rail, and chain link fencing.

PART 16 CONFLUENCE/INVERT TRANSITION, STA. 68+76.113 to STA. 68+86.375 (Bid Item 0019).

Payment for the "Confluence/Invert Transition" (Sta. 68+76.113 to Sta. 68+86.375) will be made at the applicable contract price, which payment shall constitute full compensation for the confluence/invert transition except earthwork, complete, including furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete; and all incidentals, complete as shown on the drawings except for pipe safety hand rail, chain link fencing and double swing gate.

PART 17 BOX CULVERT @ BUFFALO DRIVE, STA. 70+15.771 to STA. 70+58.784 (Bid Item 0020).

Payment for the "Concrete Box Culvert @ Buffalo Drive, (Sta. 70+15.771 to Sta. 70+58.784)" will be made at the applicable contract price, which payment shall constitute full compensation for the box culvert except earthwork, complete, including furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete, and all incidentals, complete as shown on the drawings except for pipe safety hand rail, and chain link fencing.

PART 18 RECTANGULAR TO TRAPEZOIDAL TRANSITION, STA. 70+95.214 to STA. 71+15.521 (Bid Item 0021).

Payment for the "Rectangular to Trapezoidal Transition" (Sta. 70+95.214 to Sta. 71+15.521) will be made at the applicable contract price, which payment shall constitute full compensation for the trapezoidal to rectangular transition except earthwork, complete, including furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete, and all incidentals, complete as shown on the drawings except for pipe safety hand rail, and chain link fencing.

PART 19 BUFFALO LATERAL, STA. 10+00.000 to STA. 12+10.187 (Bid Item 0022).

Payment for "Buffalo Lateral" (Sta. 10+00.000 to Sta. 12+10.187) will be made at the applicable contract price, which payment shall constitute full compensation for the box culvert and stub-outs except earthwork, complete, including furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete; and all incidentals, complete as shown on the drawings.

PART 20 SIDE DRAINS (Bid Items 0023, 0024, 0025, 0026, 0027).

Payment for side drain and stub-outs will be made at the applicable contract price, which payment shall constitute full compensation for the side drain and stub-outs, complete, as shown on the drawings, including earthwork; furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete for the side drain junction structures and inlet structure; furnishing and placing concrete pipe, fittings and end sections; and placing temporary pipe barriers for stub-outs. The earthwork included shall be only that earthwork which is located outside the limits of earthwork for which other payment is provided and no payment will be made under this item for inlets, grates, concrete, and concrete pipe for which separate payment is provided.

PART 21 SLOTTED CHAMBER, STA. 42+62.879 (Bid Item 0029).

Payment for the Slotted Chamber, Sta. 42+62.879 will be made at the applicable contract price for each slotted chamber which payment shall constitute full compensation for the slotted chamber complete, including slabs and walls (excluding main channel wall), excavation and compacted fill; furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete, manhole frame and cover and all incidentals, complete as shown on the drawings. The earthwork included shall be only that earthwork which is located outside the limits of earthwork for which other payment is provided and no payment will be made under this item for inlets, grates, concrete, and concrete pipe for which separate payment is provided.

PART 22 INLET STRUCTURES, SINGLE AND DOUBLE RCP (Bid Item 0030, 0031).

Payment for the Inlet Structure, Single and Double RCP, will be made at the application contract lump sum price, which payment shall constitute full compensation for the inlet structure, complete, including excavation and compacted fill; furnishing and placing reinforcing steel; furnishing,

placing, finishing and curing concrete; furnishing and placing riprap; furnishing and placing all appurtenances; and all incidentals, complete as shown on the drawings.

PART 23 MANHOLES FOR BOX CULVERT, EXCEPT BETWEEN STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0032).

Manholes will be paid for according to the applicable contract lump sum price including, excavation, backfill and appurtenances complete and in place. No extra payment will be made for pipe fittings required to make connections to manholes.

PART 24 ROAD DETOURS @ DURANGO HIGH SCHOOL (Bid Item 0033).

Payment for "Road Detours @ Durango High School." will be made at the applicable contract lump sum price, and shall be considered full payment for saw cutting, demolition, removal, hauling and disposal of asphaltic concrete; demolition, removal, disposal and replacement of existing curb and gutter; protection of existing landscaping; protect and support existing water, gas, and fiber optic lines; repair/replacement of irrigation lines; all required excavation and compacted fill; furnishing and placing the aggregate base course, complete, including subgrade preparation; asphalt concrete pavement in place, complete, including tack coat, prime coat and appurtenant work such as pavement markings; and traffic control and signage, complete.

PART 25 ROAD DETOURS @ BUFFALO DRIVE (Bid Item 0034).

Payment for "Road Detours @ Buffalo Drive." will be made at the applicable contract lump sum price, and shall be considered full payment for saw cutting, demolition, removal, hauling and disposal of asphaltic concrete; demolition, removal, disposal and replacement of existing curb and gutter; protection of existing landscaping; protect and support existing water, gas, and fiber optic lines; repair/replacement of irrigation lines; all required excavation and compacted fill; furnishing and placing the aggregate base course, complete, including subgrade preparation; asphalt concrete pavement in place, complete, including tack coat, prime coat and appurtenant work such as pavement markings; and traffic control and signage, complete.

PART 26 CHAIN LINK FENCING, EXCEPT BETWEEN STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0035).

26.1 Measurement.

Measurement of chain link fencing will be by the linear meters of chain link fencing constructed as shown on the drawings.

26.2 Payment.

Payment for chain link fencing will be made at the applicable contract price, which payment shall constitute full compensation for chain link fencing, including posts with caps, rail, chain link fabric, stretcher bars, tension bands, wire ties, truss wire, sleeves, grout, grounding, and

all incidentals, complete as shown on the drawings.

PART 27 PIPE SAFETY RAILING, EXCEPT BETWEEN STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0036).

27.1 Measurement

Measurement of Pipe Safety Railing that is provided will be by the linear meter of pipe safety railing constructed as shown on the drawings.

27.2 Payment

Payment for Pipe Safety Railing will be made at the applicable contract unit price per linear meter, which payment shall constitute full compensation for Pipe Safety Railing, including pipe railing and posts, safety chain gates, galvanized anchor bolt assemblies, fabrication, grout or dry pack, surface preparation and painting, and all incidentals, complete.

PART 28 POST AND CABLE SAFETY RAILING (Bid Item 0037)

28.1 Measurement

Measurement of Post and Cable Railing will be by the linear meter, measured from end to end, of railing installed as shown on the drawings.

28.2 Payment

Payment for Post and Cable Railing will be made at the applicable contract unit price per linear meter, which payment shall constitute full compensation for railing, including posts, cable, safety chain gates, galvanized appurtenances, fabrication, post sleeves, grout or dry pack, and all incidentals, complete.

PART 29 DOUBLE SWING GATES, EXCEPT BETWEEN STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0038).

29.1 Measurement

Measurement of double swing gates will be the number of double swing gates acceptably installed.

29.2 Payment.

Payment for double swing gate will be made at the applicable contract price, which payment shall constitute full compensation for fabricating and installing the double swing gates, complete, including posts with caps, chain link fabric, frame members, tension bands, truss rods, stretcher bars, wire ties, truss wire, sleeves, hinges, grout, and all incidentals, complete, as shown on the drawings.

PART 30 SOIL STABILIZER, EXCEPT BETWEEN STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0039).

30.1 Measurement.

Measurement of "soil stabilizer" will be made on the basis of the actual area in square meters of exposed excavation and fill surfaces in the construction areas treated with soil stabilizer as indicated or directed.

30.2 Payment

Payment for "soil stabilizer" will be at the applicable contract price, which payment shall constitute full compensation for the soil stabilizer including materials, processing, hauling, and placing, complete in place.

PART 31 STATION MARKINGS, EXCEPT BETWEEN STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0040).

Payment for Channel Station Marking will be made at the applicable contract lump sum price, which shall be considered full payment for preparation, paint and marking, equipment and labor.

PART 32 AS-BUILT DRAWINGS (Bid Item 0041).

32.1 Measurement

Measurement shall be made on a lump sum basis.

32.2 Payment

Payment shall be made at the applicable contract price and shall be compensation in full for furnishing all labor, material, and equipment complete in place for the complete set of as-built drawings, including electronic MicroStation SE or MicroStation J "DGN" file format on Compact Disk, indicating installation of work items not installed according to the contract drawings.

PART 33 DEWEY STREET REMOVAL AND REPLACEMENT STATION 56+00.000 to STATION 51+75.702 (Bid Item 0042).

Payment for "Dewey Street Removal and Replacement." (Sta. 56+00.000 to Sta. 51+75.702) will be made at the applicable contract lump sum price, and shall be considered full payment as per the following.

33.1 Removal

The following items and features between Station 56+00.000 and 51+75.702 are to be removed by sawcutting, demolition, hauling and disposal as shown on the drawing DEWEY DRIVE REMOVAL PLAN: concrete valley gutter; concrete sidewalk; "L" type curb & gutter; "A" type curb & gutter; roadway plantmix bituminous surface (PBS); parking lot PBS; landscaping and landscape watering system; landscape pull box; sod; other concrete gutter w/ curbs; under sidewalk drain; 6' cmu wall.

33.2 Removal and Storage for Reinstallation

The following items and features between Station 56+00.000 and 51+75.702

are to be removed or dismantled, and stored, and maintained, and kept alive if organic, as necessary, for reinstallation as shown on the drawing DEWEY DRIVE REMOVAL PLAN and on the drawing PLAN & PROFILE STA 10+00 - STA 20+00 and on the drawing PLAN & PROFILE STA 20+00 - STA 27+26 and on the drawing LANDSCAPING, STREETLIGHT, SIGNAGE & PAVEMENT MARKING PLAN DEWEY DRIVE: Palm Trees; Ground Mounted Signs; 250 Watt HPS streetlight assemblies; water valve box assemblies; Sprint vault; 5' chain link fence; pole mounted signs.

33.3 Protect In Place

The following items and features between Station 56+00.000 and 51+75.702 are to be protected in place as shown on the drawing DEWEY DRIVE REMOVAL PLAN: parking lot light/foundation; fire hydrant.

33.4 Replacement Items

The following items and features between Station 56+00.000 and 51+75.702 are to be provided, complete, as shown on the drawing PLAN & PROFILE STA 10+00 - STA 20+00 and on the drawing PLAN & PROFILE STA 20+00 - STA 27+26 and on the drawing LANDSCAPING, STREETLIGHT, SIGNAGE & PAVEMENT MARKING PLAN DEWEY DRIVE: construct plantmix bituminous surface (PBS) per pavement section; construct 2 1/2" PBS, 4" type II, prime coat (off site); construct "L" type curb & gutter per std dwg 216; construct 5' sidewalk per std dwg 234; construct sidewalk ramp per std dwg 235(case 1); construct sidewalk drain per std dwg 236; construct valley gutter per std dwg 228; construct commercial driveway (option B) per std dwg 225; construct "A" type curb & gutter per std dwg 219; construct "on-site" concrete channel per "ON-SITE" CONCRETE CHANNEL detail on drawing PLAN & PROFILE STA 20+00 - STA 27+26; install removed 5' chain link fence;

33.5 Restore, Replant, Install and Reinstall Items

The following items and features between Station 56+00.000 and 51+75.702 are to be restored, complete, as shown on the drawing LANDSCAPING, STREETLIGHT, SIGNAGE & PAVEMENT MARKING PLAN DEWEY DRIVE: restore landscaping and landscaping watering system; install sod to match existing and surrounding; replant palm trees; reinstall removed ground mounted signs; reinstall removed pole mounted signs; install new ground mounted sign; install type 1 centerline per std dwg 244; install storage lane line per std dwg 246; install 24" white stop line (cold polymer film type 1); white pavement arrow (cold polymer film type 1) per detail on drawing LANDSCAPING, STREETLIGHT, SIGNAGE & PAVEMENT MARKING PLAN DEWEY DRIVE; white pavement "ONLY" (cold polymer film type 1) per detail on drawing LANDSCAPING, STREETLIGHT, SIGNAGE & PAVEMENT MARKING PLAN DEWEY DRIVE; white "24" longitudinal crosswalk lines, longitudinal lines shall align w/ lane lines and center of lanes (cold polymer film type 1) per std dwg 254A; 4" white paint line; reinstall removed 100 HPS streetlight per std dwg 314; 1-1/4" conduit w/ (2)#4, (1)#8 gnd, thw copper wire (connect to exist circuit in pull box @ SW corner of Rainbow/Dewey; 1-1/4" conduit only.

PART 34 0.250 M (10 INCH) SEWER @ TENAYA WAY (Bid Item 0043).

Payment for "0.250 M (10 INCH) SEWER @ TENAYA WAY." will be made at the applicable contract price, which payment shall constitute full compensation

for provision of and installation of new utility and appurtenances, as shown on the drawings, complete. The earthwork included shall be only that earthwork which is located outside the limits of earthwork for which other payment is provided.

PART 34 0.300 M (12 INCH) WATERLINE @ BUFFALO DRIVE (Bid Item 0044).

Payment for "0.300 M (12 INCH) WATERLINE @ BUFFALO DRIVE." will be made at the applicable contract price, which payment shall constitute full compensation for provision of and installation of new utility and appurtenances, as shown on the drawings, complete. The earthwork included shall be only that earthwork which is located outside the limits of earthwork for which other payment is provided.

PART 36 TRAFFIC CONTROL, STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0045).

Payment for traffic control will be made at the applicable contract price, which payment shall constitute full compensation for traffic control including but not limited to earthwork and grading, construction and removal of temporary roadways; providing safety barriers; providing traffic warning and control signs and lighting; stripping; flag men as required.

PART 37 DIVERSION AND CONTROL OF WATER, STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0046).

Payment for Diversion and Control of Water will be made at the applicable contract price, which payment shall constitute full compensation for maintaining the work area in a dry condition.

PART 38 CLEAR SITE AND REMOVE OBSTRUCTIONS, STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0047).

Payment shall include all costs for clearing, removal, replacement, and restoration work (except work by others) including all existing obstructions within the construction work area. Except as otherwise specified, payment for clearing and removal work includes applicable earthwork; filling holes; removal of abandoned utility lines; removal of existing surface trash and debris, including trees and vegetation and debris piles (consisting of construction debris and/or dumped soils, dumped gravels, dumped rocks and dumped boulders), including vehicle debris (vehicle bodies and/or vehicle parts) and appliance debris (whole and/or parts), and grubbing from within the Channel right-of-way and temporary construction easement; including removal of existing riprap rock; removal protection, replacement or restoration of existing structures and features indicated and disposal of all materials. Payment for Clear Site and Remove Obstructions will be made at the applicable contract price, which payment shall constitute full compensation for clearing, obstruction removal, and protection work, complete.

PART 39 EXCAVATION, STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0048).

39.1 Measurement.

A survey of the site shall be made prior to commencement of work, and all

measurements will be based on this survey without regard to any changes in the site that may be made between the excavation lines and grades indicated on the drawings or staked in the field and the ground surfaces as indicated by the above mentioned survey. The quantity of directed excavation necessary for the removal of unsatisfactory foundation material as specified shall be included in the measurement of the excavation where the unsuitable soils are encountered. Quantities will be computed in cubic meters by the average end area method and the planimeter will be considered a precise instrument for measurement of plotted cross sections. The total quantity of excavated material for which payment will be made will be the theoretical quantity between the ground surface as determined by a survey and the grade and slope of the theoretical cross sections indicated. No allowance will be made for overdepth excavation or for the removal of any material outside the required slope lines. All excavation outside of excavation lines shown on the drawings will be considered as being for the convenience of the Contractor.

39.2 Payment.

Payment will be made for costs associated with excavation for the channel at the applicable contract price, which payment shall constitute full compensation for excavating the channel, and other areas as indicated on the drawings, including shoring, rock removal, and cemented alluvium excavation; shaping and trimming of areas to receive concrete; including foundation preparation; crushing or otherwise processing, loading, stockpiling, hauling, and placing suitable materials for compacted fill; Including crushing/processing, loading, hauling, placing excess satisfactory excavated materials at disposal site shown on drawings. Payment will not be included for excavation (including shoring) outside the excavation limits indicated on the drawings or staked in the field, and other excavation requirements for which separate payments are provided.

39.3 Unsatisfactory Soils

No separate payment will be made for the excavation, hauling, and disposal of unsatisfactory soils. When such excavation is directed, payment therefore will be included in the applicable contract price for the items of work under which the unsuitable soils are encountered. When there is no applicable contract item an adjustment will be made.

39.4 Excavation for Structures

No separate payment will be made for excavation for structures. All costs therefore shall be included in the applicable contract item to which the work applies.

39.5 Excavation for Utilities

No separate payment will be made for excavation for utilities. All costs therefore shall be included in the applicable contract item to which the work applies.

39.6 Shoring

When shoring is indicated or directed for items for which separate payment is made, payment will be included in the applicable contract price for the items of work under which the shoring is placed.

PART 40 FILLS, STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0049).

40.1 Measurement.

Measurement for fills will be made between the excavation and structure lines and the fill limit lines, or between the ground lines and fill lines, as indicated or staked in the field. Quantities will be computed in cubic meters by the average end area method and the planimeter will be considered a precise instrument for measuring plotted cross sections.

40.2 Payment.

40.2.1 Compacted Fill, Channel.

Payment for compacted fill will be made at the applicable contract price, which payment shall constitute full compensation for shaping, grading, filling behind the channel walls including access ramps, over covered channels, and other areas shown on the drawings, and compacting the fill, complete. Payment will not be included for fills outside the fill limits indicated on the drawings or staked in the field, and other fill requirements for which separate payments are provided.

40.2.2 Fill for Structures.

No separate payment will be made for fill or backfill around structures. All such costs shall be included in the applicable contract prices for structure items to which the work applies.

40.2.3 Trenches.

No separate payment will be made for backfilling for utilities, side drains and confluences. All costs in connection therewith shall be included in the contract prices for items to which the work applies.

40.2.4 Subgrade Preparation.

No separate payment will be made for subgrade preparation and all costs in connection therewith shall be included in the contract prices for items to which the work applies.

PART 41 CONCRETE, STA. 46+51.092 TO STA. 45+18.894 (Bid Items 0050, 0051, 0052).

41.1 Measurement.

Measurement of concrete will be made on the basis of the actual volume, in cubic yards, of concrete within the pay lines of the concrete invert slab, walls, top slab, and slope protection as shown on the drawings. Measurement of concrete placed against the sides of any excavation without

the use of intervening forms will be made only within the pay lines of the structures. No deductions will be made for rounded or beveled edges or space occupied by metalwork, nor voids or embedded items which are either less than 0.15 cubic meter in volume or one-tenth of square meter in cross section. Concrete placed in items of work other than those specifically mentioned above, and concrete wasted or used for the convenience of the Contractor will not be included in measurement for payment.

41.2 Payment.

Payment for the concrete items will be made at the applicable contract prices for the various items of the schedule, which payments shall constitute full compensation for labor, materials (except reinforcing steel for which separate payment is provided), joint sealant, forming, furnishing, curing, and for all equipment and tools to complete the concrete work. Embedded items shall be included in the cost of the concrete except when other payment is specifically provided. No payment will be made for concrete, as such, which is placed in structures for which payment is made on a lump sum basis.

41.2.1 Concrete, Invert Slab.

Payment for "concrete, invert slab" will be made at the applicable contract price, which shall constitute full compensation for all concrete placed for the invert slab of the channel, keys, and starter walls, complete.

41.2.2 Concrete, Cut-off Wall.

Payment for "concrete, cut-off wall" will be made at the applicable contract price, which payment shall constitute full compensation for all concrete placed in the cut-off walls, complete.

41.2.3 Concrete, Walls.

Payment for "concrete, walls" will be made at the applicable contract price, which payment shall constitute full compensation for all concrete placed above the starter walls in the vertical walls of the channel, the walls of the warped transition structures, including wall height transitions, complete.

41.2.4 Concrete, Transition

Payment for "concrete, transition" and all costs in connection therewith shall be included in the contract prices for "concrete walls" and "concrete, invert slab" or to the applicable contract price for which the work applies.

41.2.5 Concrete Overflows

Payment for the "concrete overflows" will be made at the applicable contract price, which payment shall constitute full compensation for all concrete placed for the concrete apron, including furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete; furnishing and placing aggregate base course, complete except earthwork and

grouted stone.

PART 42 REINFORCING STEEL, STA. 46+51.092 TO STA. 45+18.894 (Bid Item 0053).

42.1 Measurement.

Measurement of reinforcing steel in metric tonnes (1,000 kilograms) is limited to reinforcement in concrete structures paid for on a cubic meters basis. Measurement will be made of the lengths of bars actually placed in the completed work in accordance with the plans and specifications, approved bar schedules, or as directed. The measured lengths will be converted to weights for the bar numbers listed by the unit weights per linear foot contained in ASTM A 615. Steel in laps indicated on the drawings, in the specifications, or required by the Contracting Officer will be included in measurement for payment. No measurement will be made for the additional steel in laps which are authorized for the convenience of the Contractor. No measurement will be made of steel supports or spacers. All costs for furnishing and installing supports and spacers shall be included in the various structures requiring the reinforcement.

42.2 Payment.

Payment for reinforcing steel will be made at the applicable contract price, which payment shall constitute full compensation for furnishing and installing steel reinforcement, complete. No payment will be made for steel reinforcement which is placed in structures for which payment is made on a lump sum basis.

PART 43 AGGREGATE BASE COURSE, STA. 46+51.092 TO STA. 45+18.894 (Bid Item 0054).

43.1 Measurement.

Measurement of aggregate base course will be by the metric tonne (1,000 kilograms) of aggregate base course placed within the lines and grades indicated on the drawings.

43.2 Payment.

Payment for aggregate base course will be made at the applicable contract price which payment shall constitute full compensation for earthwork required for installation of aggregate base course, furnishing and placing the aggregate base course, complete, including subgrade preparation.

PART 44 ASPHALT CONCRETE PAVEMENT, STA. 46+51.092 TO STA. 45+18.894 (Bid Item 0055).

44.1 Measurement.

Measurement for asphalt concrete pavement will be by the metric tonne (1,000 kilograms) of asphalt concrete pavement placed within the lines and grades as indicated on the drawing.

44.2 Payment.

Payment for asphalt concrete pavement will be made at the applicable contract price which payment shall constitute full compensation for asphalt concrete pavement in place, complete including tack coat, prime coat and appurtenant work except for aggregate base course. No payment will be made for excessive thickness.

PART 45 WEEPHOLE SYSTEM, STA. 46+51.092 TO STA. 45+18.894 (Bid Item 0056).

Payment for the weephole system will be made at the applicable contract price, which payment shall constitute full compensation for materials, and installation of the weephole system, complete including applicable earthwork, drain aggregate, geotextile, form openings and appurtenances, complete.

PART 46 INVERT ACCESS RAMP, STA. 45+18.894 to STA. 45+76.000 (Bid Item 0057).

Payment for the "Invert Access Ramp, Sta. 45+18.894 to Sta. 45+76.000" also includes the adjacent open channel from Sta. **45+18.894** to Sta. **45+76.000**. Payment will be made at the applicable contract price, which payment shall constitute full compensation for the invert access ramp and open channel except earthwork, complete, including furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete; and all incidentals, complete as shown on the drawings except for pipe safety hand rail, chain link fencing, and double swing gate.

PART 47 BOX CULVERT @ REDWOOD STREET, STA. 46+51.092 to STA. 46+87.668 (Bid Item 0059).

Payment for the "Concrete Box Culvert @ Redwood Street (Sta. 46+51.092 to Sta. 46+87.668)" will be made at the applicable contract price, which payment shall constitute full compensation for the box culvert except earthwork, complete, including furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete, and all incidentals, complete as shown on the drawings except for pipe safety hand rail, and chain link fencing.

PART 48 COVERED CONFLUENCE/INVERT TRANSITION, STA. 47+04.000 to STA. 49+73.000 (Bid Item 0060).

Payment for the "Covered Confluence/Invert Transition" (Sta. 47+04.000 to Sta. 49+73.000) will be made at the applicable contract price, which payment shall constitute full compensation for the box culvert confluence/invert transition except earthwork, complete, including furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete; and all incidentals, complete as shown on the drawings.

PART 48 UNDERGROUND BOX SECTION S, STA. 49+73.000 to STA. 49+93.000 (Bid Item 0061).

Payment for the "Underground Box Section S" (Sta. 49+73.000 to Sta. 49+93.000) will be made at the applicable contract price, which payment shall constitute full compensation for the box culvert except earthwork,

complete, including furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete; and all incidentals, complete as shown on the drawings.

PART 48 UNDERGROUND BOX, STA. 49+93.000 to STA. 50+37.018 (Bid Item 0062).

Payment for the "Underground Box" (Sta. 49+93.000 to Sta. 50+37.018) will be made at the applicable contract price, which payment shall constitute full compensation for the box culvert except earthwork, complete, including furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete; and all incidentals, complete as shown on the drawings.

PART 51 BOX CULVERT @ RAINBOW BLVD., STA. 50+37.018 to STA. 50+88.000 (Bid Item 0063).

Payment for the "Concrete Box Culvert @ Rainbow Blvd., (Sta. 50+37.018 to Sta. 50+88.000)" will be made at the applicable contract price, which payment shall constitute full compensation for the box culvert except earthwork, complete, including furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete, and all incidentals, complete as shown on the drawings.

PART 52 TRANSITION STRUCTURE, STA. 50+88.000 to STA. 51+38.000 (Bid Item 0064).

Payment for the "Transition Structure (Sta. 50+88.000 to Sta. 51+38.000) will be made at the applicable contract price, which payment shall constitute full compensation for the transition structure (box culvert) except earthwork, complete, including furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete, and all incidentals, complete as shown on the drawings except for pipe safety hand rail, and chain link fencing.

PART 53 UNDERGROUND BOX, STA. 50+38.000 to 51+75.702 (Bid Item 0065).

Payment for the "Underground Box, (Sta. 50+38.000 to Sta. 51+75.702)" will be made at the applicable contract price, which payment shall constitute full compensation for the box culvert except earthwork, complete, including furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete, and all incidentals, complete as shown on the drawings except for pipe safety hand rail, and chain link fencing.

PART 54 RAINBOW LATERAL, STA. 10+00.000 to STA. 11+38.403 (Bid Item 0066).

Payment for "Rainbow Lateral" (Sta. 10+00.000 to Sta. 11+38.403) will be made at the applicable contract price, which payment shall constitute full compensation for the box culvert and stub-outs except earthwork, complete, including furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete; and all incidentals, complete as shown on the drawings.

PART 55 SIDE DRAINS (Bid Items 0067, 0068, 0069).

Payment for side drain and stub-outs will be made at the applicable

contract price, which payment shall constitute full compensation for the side drain and stub-outs, complete, as shown on the drawings, including earthwork; furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete for the side drain junction structures and inlet structure; furnishing and placing concrete pipe, fittings and end sections; and placing temporary pipe barriers for stub-outs. The earthwork included shall be only that earthwork which is located outside the limits of earthwork for which other payment is provided and no payment will be made under this item for inlets, grates, concrete, and concrete pipe for which separate payment is provided.

PART 56 DROP INLET STRUCTURES, TYPE "A" (Bid Item 0070, 0071).

Payment for the Drop Inlet Structure, Type "A", will be made at the application contract lump sum price, which payment shall constitute full compensation for the drop inlet structure, complete, including excavation and compacted fill; furnishing and placing reinforcing steel; furnishing, placing, finishing and curing concrete; furnishing and placing grating steel structure; and all incidentals, complete as shown on the drawings.

PART 57 ROAD DETOURS @ RAINBOW BLVD (Bid Item 0072).

Payment for "Road Detours @ Rainbow Blvd." will be made at the applicable contract lump sum price, and shall be considered full payment for saw cutting, demolition, removal, hauling and disposal of asphaltic concrete; demolition, removal, disposal and replacement of existing curb and gutter; removal and replacement of existing medians in Rainbow Boulevard; protection of existing landscaping; protect and support existing water, gas, and fiber optic lines; repair/replacement of irrigation lines; all required excavation and compacted fill; furnishing and placing the aggregate base course, complete, including subgrade preparation; asphalt concrete pavement in place, complete, including tack coat, prime coat and appurtenant work such as pavement markings; and traffic control and signage, complete.

PART 58 UTILITIES @ RAINBOW BLVD (Bid Item 0073).

Payment for "Utilities at Rainbow Blvd." will be made at the applicable contract price, which payment shall constitute full compensation for relocations and protection of existing utilities, complete. The earthwork included shall be only that earthwork which is located outside the limits of earthwork for which other payment is provided.

PART 59 CHAIN LINK FENCING, STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0074).

59.1 Measurement.

Measurement of chain link fencing will be by the linear meters of chain link fencing constructed as shown on the drawings.

59.2 Payment.

Payment for chain link fencing will be made at the applicable contract

price, which payment shall constitute full compensation for chain link fencing, including posts with caps, rail, chain link fabric, stretcher bars, tension bands, wire ties, truss wire, sleeves, grout, grounding, and all incidentals, complete as shown on the drawings.

PART 60 PIPE SAFETY RAILING, STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0075).

60.1 Measurement

Measurement of Pipe Safety Railing that is provided will be by the linear meter of pipe safety railing constructed as shown on the drawings.

60.2 Payment

Payment for Pipe Safety Railing will be made at the applicable contract unit price per linear meter, which payment shall constitute full compensation for Pipe Safety Railing, including pipe railing and posts, safety chain gates, galvanized anchor bolt assemblies, fabrication, grout or dry pack, surface preparation and painting, and all incidentals, complete.

PART 61 DEWEY STREET REMOVAL AND REPLACEMENT STATION 51+75.702 to STATION 50+59.000 (Bid Item 0076).

Payment for "Dewey Street Removal and Replacement." will be made at the applicable contract lump sum price, and shall be considered full payment as per the following.

61.1 Removal

The following items and features between Station 51+75.702 and 50+59.000 are to be removed by sawcutting, demolition, hauling and disposal as shown on the drawing DEWEY DRIVE REMOVAL PLAN: concrete valley gutter; concrete sidewalk; "L" type curb & gutter; "A" type curb & gutter; roadway plantmix bituminous surface (PBS); parking lot PBS; landscaping and landscape watering system; landscape pull box; sod; other concrete gutter w/ curbs; under sidewalk drain; 6' cmu wall.

61.2 Removal and Storage for Reinstallation

The following items and features between Station 51+75.702 and 50+59.000 are to be removed or dismantled, and stored, and maintained, and kept alive if organic, as necessary, for reinstallation as shown on the drawing DEWEY DRIVE REMOVAL PLAN and on the drawing PLAN & PROFILE STA 10+00 - STA 20+00 and on the drawing PLAN & PROFILE STA 20+00 - STA 27+26 and on the drawing LANDSCAPING, STREETLIGHT, SIGNAGE & PAVEMENT MARKING PLAN DEWEY DRIVE: Palm Trees; Ground Mounted Signs; 250 Watt HPS streetlight assemblies; water valve box assemblies; Sprint vault; 5' chain link fence; pole mounted signs.

61.3 Protect In Place

The following items and features between Station 51+75.702 and 50+59.000 are to be protected in place as shown on the drawing DEWEY DRIVE REMOVAL

PLAN: parking lot light/foundation; fire hydrant.

61.4 Replacement Items

The following items and features between Station 51+75.702 and 50+59.000 are to be provided, complete, as shown on the drawing PLAN & PROFILE STA 10+00 - STA 20+00 and on the drawing PLAN & PROFILE STA 20+00 - STA 27+26 and on the drawing LANDSCAPING, STREETLIGHT, SIGNAGE & PAVEMENT MARKING PLAN DEWEY DRIVE: construct plantmix bituminous surface (PBS) per pavement section; construct 2 1/2" PBS, 4" type II, prime coat (off site); construct "L" type curb & gutter per std dwg 216; construct 5' sidewalk per std dwg 234; construct sidewalk ramp per std dwg 235(case 1); construct sidewalk drain per std dwg 236; construct valley gutter per std dwg 228; construct commercial driveway (option B) per std dwg 225; construct "A" type curb & gutter per std dwg 219; construct "on-site" concrete channel per "ON-SITE" CONCRETE CHANNEL detail on drawing PLAN & PROFILE STA 20+00 - STA 27+26; install removed 5' chain link fence;

61.5 Restore, Replant, Install and Reinstall Items

The following items and features between Station 51+75.702 and 50+59.000 are to be restored, complete, as shown on the drawing LANDSCAPING, STREETLIGHT, SIGNAGE & PAVEMENT MARKING PLAN DEWEY DRIVE: restore landscaping and landscaping watering system; install sod to match existing and surrounding; replant palm trees; reinstall removed ground mounted signs; reinstall removed pole mounted signs; install new ground mounted sign; install type 1 centerline per std dwg 244; install storage lane line per std dwg 246; install 24" white stop line (cold polymer film type 1); white pavement arrow (cold polymer film type 1) per detail on drawing LANDSCAPING, STREETLIGHT, SIGNAGE & PAVEMENT MARKING PLAN DEWEY DRIVE; white pavement "ONLY" (cold polymer film type 1) per detail on drawing LANDSCAPING, STREETLIGHT, SIGNAGE & PAVEMENT MARKING PLAN DEWEY DRIVE; white "24" longitudinal crosswalk lines, longitudinal lines shall align w/ lane lines and center of lanes (cold polymer film type 1) per std dwg 254A; 4" white paint line; reinstall removed 100 HPS streetlight per std dwg 314; 1-1/4" conduit w/ (2)#4, (1)#8 gnd, thw copper wire (connect to exist circuit in pull box @ SW corner of Rainbow/Dewey; 1-1/4" conduit only.

PART 62 0.250 M (10 INCH) WATERLINE @ RAINBOW BOULEVARD (Bid Item 0077)

Payment for "0.250 M (10 INCH) WATERLINE @ RAINBOW BOULEVARD." will be made at the applicable contract price, which payment shall constitute full compensation for provision of and installation of new utility and appurtenances, as shown on the drawings, complete. The earthwork included shall be only that earthwork which is located outside the limits of earthwork for which other payment is provided.

PART 63 DOUBLE SWING GATES, STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0078).

63.1 Measurement

Measurement of double swing gates will be the number of double swing gates acceptably installed.

63.2 Payment.

Payment for double swing gate will be made at the applicable contract price, which payment shall constitute full compensation for fabricating and installing the double swing gates, complete, including posts with caps, chain link fabric, frame members, tension bands, truss rods, stretcher bars, wire ties, truss wire, sleeves, hinges, grout, and all incidentals, complete, as shown on the drawings.

PART 64 SOIL STABILIZER, STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0079).

64.1 Measurement.

Measurement of "soil stabilizer" will be made on the basis of the actual area in square meters of exposed excavation and fill surfaces in the construction areas treated with soil stabilizer as indicated or directed.

64.2 Payment

Payment for "soil stabilizer" will be at the applicable contract price, which payment shall constitute full compensation for the soil stabilizer including materials, processing, hauling, and placing, complete in place.

PART 65 STATION MARKINGS, STA. 51+75.702 TO STA. 45+18.894 (Bid Item 0080).

Payment for Channel Station Marking will be made at the applicable contract lump sum price, which shall be considered full payment for preparation, paint and marking, equipment and labor.

-- End of Section --

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SECTION 01312

RESIDENT MANAGEMENT SYSTEM (RMS)

PART 1 GENERAL

The Government will use the Resident Management System for Windows (RMS-W) to assist in its monitoring and administration of this contract. The Contractor shall use the Government-furnished Construction Contractor Module of RMS-Windows, referred to as RMS-QC (QC for Quality Control), to record, maintain, and submit various information throughout the contract period. This joint Government-Contractor use of RMS-W and RMS-QC will facilitate electronic exchange of information and overall management of the contract. RMS-QC provides the means for the Contractor to input, track, and electronically share information with the Government in the following areas:

- Administration
- Finances
- Quality Control
- Submittal Monitoring
- Scheduling
- Import/Export of Data

1.1 REFERENCES

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

U. S. ARMY CORPS OF ENGINEERS (USACE)

COE EM 385-1-1 (1996) Safety and Health Requirements Manual

1.2 Correspondence and Electronic Communications

For ease and speed of communications, both Government and Contractor will, to the maximum extent feasible, exchange correspondence and other documents in electronic format. Correspondence, pay requests and other documents comprising the official contract record shall also be provided in paper format, with signatures and dates where necessary. Paper documents will govern, in the event of discrepancy with the electronic version.

1.3 Other Factors

Particular attention is directed to Contract Clause, "Schedules for Construction Contracts", Contract Clause, "Payments", Section 01330, SUBMITTAL PROCEDURES, and Section 01451, CONTRACTOR QUALITY CONTROL, which

have a direct relationship to the reporting to be accomplished through RMS-QC. Also, there is no separate payment for establishing and maintaining the RMS-QC database; all costs associated therewith shall be included in the contract pricing for the work.

1.4 RMS-QC SOFTWARE

RMS-QC is a Windows-based program that can be run on a stand-alone personal computer or on a network. The Government will make available the RMS-QC software to the Contractor after award of the construction contract. Prior to the Pre-Construction Conference, the Contractor shall be responsible to download, install and use the latest version of the RMS-QC software from the Government's RMS Internet Website (winrms.usace.army.mil). Upon specific justification and request by the Contractor, the Government can provide RMS-QC on 3-1/2" high-density diskettes or CD-ROM. Any program updates of RMS-QC will be made available to the Contractor via the Government RMS Website as they become available.

1.5 SYSTEM REQUIREMENTS

The following listed hardware and software is the minimum system configuration that the Contractor shall have to run RMS-QC:

Hardware

IBM-compatible PC with 200 MHz Pentium or higher processor
32+ MB RAM
4 GB hard drive disk space for sole use by the RMS-QC system
3 1/2 inch high-density floppy drive
Compact disk (CD) Reader
Color monitor
Laser printer compatible with HP LaserJet III or better, with minimum 4 MB installed memory.
Connection to the Internet, minimum 28 BPS

Software

Microsoft (MS) Access 97 or newer version database software
MS Windows 95 or newer version operating system (MS Windows NT 4.0 or newer is recommended)
Word Processing software compatible with MS Word 97 or newer
Internet browser
The Contractor's computer system shall be protected by virus

protection software that is regularly upgraded with all issued manufacturer's updates throughout the life of the contract.

Electronic mail (E-mail) compatible with MS Outlook

1.6 RELATED INFORMATION

1.6.1 RMS-QC User Guide

After contract award, the Contractor shall download instructions for the installation and use of RMS-QC from the Government RMS Internet Website; the Contractor can obtain the current address from the Government. In case of justifiable difficulties, the Government will provide the Contractor with a CD-ROM containing these instructions.

1.6.2 Contractor Quality Control(CQC) Training

The use of RMS-QC will be discussed with the Contractor's QC System Manager during the mandatory CQC Training class.

1.7 CONTRACT DATABASE

Prior to the pre-construction conference, the Government shall provide the Contractor with basic contract award data to use for RMS-QC. The Government will provide data updates to the Contractor as needed, generally by files attached to E-mail. These updates will generally consist of submittal reviews, correspondence status, QA comments, and other administrative and QA data.

1.8 DATABASE MAINTENANCE

The Contractor shall establish, maintain, and update data for the contract in the RMS-QC database throughout the duration of the contract. The Contractor shall establish and maintain the RMS-QC database at the Contractor's site office. Data updates to the Government shall be submitted by E-mail with file attachments, e.g., daily reports, schedule updates, payment requests. If permitted by the Contracting Officer, a data diskette or CD-ROM may be used instead of E-mail (see Paragraph DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM). The RMS-QC database typically shall include current data on the following items:

1.8.1 Administration

1.8.1.1 Contractor Information

The database shall contain the Contractor's name, address, telephone numbers, management staff, and other required items. Within 14 calendar days of receipt of RMS-QC software from the Government, the Contractor shall deliver Contractor administrative data in electronic format via E-mail.

1.8.1.2 Subcontractor Information

The database shall contain the name, trade, address, phone numbers, and

other required information for all subcontractors. A subcontractor must be listed separately for each trade to be performed. Each subcontractor/trade shall be assigned a unique Responsibility Code, provided in RMS-QC. Within 14 calendar days of receipt of RMS-QC software from the Government, the Contractor shall deliver subcontractor administrative data in electronic format via E-mail.

1.8.1.3 Correspondence

All Contractor correspondence to the Government shall be identified with a serial number. Correspondence initiated by the Contractor's site office shall be prefixed with "S". Letters initiated by the Contractor's home (main) office shall be prefixed with "H". Letters shall be numbered starting from 0001. (e.g., H-0001 or S-0001). The Government's letters to the Contractor will be prefixed with "C".

1.8.1.4 Requests for Information

RMS-QC includes a means for the Contractor to enter, log, and transmit requests for information (RFI) to the Government. RFIs can be exchanged electronically using the import/export functions of RMS-QC. The Contractor shall also provide the Government with a signed, printed copy of each RFI. All RFIs from the Contractor to the Government shall have the prefix "RFI" and shall be numbered sequentially beginning with RFI-0001.

1.8.1.5 Equipment

The Contractor's RMS-QC database shall contain a current list of equipment planned for use or being used on the jobsite, including the most recent and planned equipment inspection dates.

1.8.1.6 COE EM 385-1-1, Corps of Engineers Safety Manual and RMS Linkage

Upon request, the Contractor can obtain a copy of the current version of the Corps of Engineers Safety Manual, COE EM 385-1-1, on CD. Data on the CD will be accessible through RMS-QC, or in stand-alone mode.

1.8.1.7 Management Reporting

RMS-QC includes a number of reports that Contractor management can use to track the status of the project. The value of these reports is reflective of the quality of the data input, and is maintained in the various sections of RMS-QC. Among these reports are: Progress Payment Request worksheet, QA/QC comments, Submittal Register Status, Three-Phase Inspection checklists.

1.8.2 Finances

1.8.2.1 Pay Activity Data

The RMS-QC database shall include a list of pay activities that the Contractor shall develop in conjunction with the construction schedule. The sum of all pay activities shall be equal to the total contract amount, including modifications. Pay activities shall be grouped by Contract Line

Item Number (CLIN), and the sum of the activities shall equal the amount of each CLIN. The total of all CLINs equals the Contract Amount.

1.8.2.2 Payment Requests

All progress payment requests shall be prepared using RMS-QC. The Contractor shall complete the payment request worksheet and include it with the payment request. The work completed under the contract, measured as percent or as specific quantities, shall be updated at least monthly. After the update, the Contractor shall generate a payment request report using RMS-QC. The Contractor shall submit the payment requests with supporting data by E-mail with file attachment(s). If permitted by the Contracting Officer, a data diskette may be used instead of E-mail. A signed paper copy of the approved payment request is also required, which shall govern in the event of discrepancy with the electronic version.

1.8.3 Quality Control (QC)

RMS-QC provides a means to track implementation of the 3-phase QC Control System, prepare daily reports, identify and track deficiencies, document progress of work, and support other contractor QC requirements. The Contractor shall maintain this data on a daily basis. Entered data will automatically output to the RMS-QC generated daily report. The Contractor shall provide the Government a Contractor Quality Control (CQC) Plan within the time required in Section 01451, CONTRACTOR QUALITY CONTROL. Within seven calendar days of Government acceptance, the Contractor shall submit a data diskette or CD-ROM reflecting the information contained in the accepted CQC Plan: schedule, pay activities, features of work, submittal register, QC requirements, and equipment list.

1.8.3.1 Daily Contractor Quality Control (CQC) Reports.

RMS-QC includes the means to produce the Daily CQC Report. The Contractor may use other formats to record basic QC data. However, the Daily CQC Report generated by RMS-QC shall be the Contractor's official report. Data from any supplemental reports by the Contractor shall be summarized and consolidated onto the RMS-QC-generated Daily CQC Report. Daily CQC Reports shall be submitted as required by Section 01451, CONTRACTOR QUALITY CONTROL. Reports shall be submitted electronically to the Government using E-mail or diskette within 24 hours after the date covered by the report. Use of either mode of submittal shall be coordinated with the government representative. The Contractor shall also provide the Government a signed, printed copy of the daily CQC report.

1.8.3.2 Deficiency Tracking.

The Contractor shall use RMS-QC to track deficiencies. Deficiencies identified by the Contractor will be numerically tracked using QC Comments.

The contractor shall maintain a current log of its QC comments in the RMS-QC database. The Government will log the deficiencies it has identified using its QA comments. The Government's QA comments will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of both QC and QA comments.

1.8.3.3 Three-Phase Control Meetings

The Contractor shall maintain scheduled and actual dates and times of preparatory and initial control meetings in RMS-QC.

1.8.3.4 Accident/Safety Tracking.

The Government will issue safety comments, directions, or guidance whenever safety deficiencies are observed. The Government's safety comments will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of the safety comments. In addition, the Contractor shall utilize RMS-QC to advise the Government of any accidents occurring on the jobsite. This brief supplemental entry is not to be considered as a substitute for completion of mandatory reports, e.g., ENG Form 3394 and OSHA Form 200.

1.8.3.5 Features of Work

The Contractor shall include a complete list of the features of work in the RMS-QC database. A feature of work may be associated with multiple pay activities. However, each pay activity (see subparagraph "Pay Activity Data" of paragraph "Finances") will only be linked to a single feature of work.

1.8.3.6 QC Requirements

The Contractor shall develop and maintain a complete list of QC testing, transferred and installed property, and user training requirements in RMS-QC. The Contractor shall update all data on these QC requirements as work progresses, and shall promptly provide this information to the Government via RMS-QC.

1.8.4 Submittal Management

The Government will provide the initial submittal register, ENG Form 4288, SUBMITTAL REGISTER, in electronic format. Thereafter, the Contractor shall maintain a complete list of all submittals, including completion of all data columns as described in Section 01330, SUBMITTAL PROCEDURES. Dates on which submittals are received and returned by the Government will be included in its export file to the Contractor. The Contractor shall use RMS-QC to track and transmit all submittals. ENG Form 4025, submittal transmittal form, and the submittal register update, ENG Form 4288, shall be produced using RMS-QC. RMS will be used to update, store and exchange submittal registers and transmittals, but will not be used for storage of actual submittals.

1.8.5 Schedule

The Contractor shall develop a construction schedule consisting of pay activities, in accordance with Contract Clause "Schedules for Construction Contracts". This schedule shall be input and maintained in the RMS-QC database either manually or by using the Standard Data Exchange Format (SDEF). The updated schedule data shall be included with each pay request submitted by the Contractor.

1.8.6 Import/Export of Data

RMS-QC includes the ability to export Contractor data to the Government and to import submittal register and other Government-provided data, and schedule data using SDEF.

1.9 IMPLEMENTATION

Contractor use of RMS-QC as described in the preceding paragraphs is mandatory. The Contractor shall ensure that sufficient resources are available to maintain its RMS-QC database, and to provide the Government with regular database updates. RMS-QC shall be an integral part of the Contractor's management of quality control.

1.10 DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM

The Government-preferred method for Contractor's submission of updates, payment requests, correspondence and other data is by E-mail with file attachment(s). For locations where this is not feasible, the Contracting Officer may permit use of computer diskettes or CD-ROM for data transfer. Data on the disks or CDs shall be exported using the RMS-QC built-in export function. If used, diskettes and CD-ROMs will be submitted in accordance with the following:

1.10.1 File Medium

The Contractor shall submit required data on 3-1/2" double-sided high-density diskettes formatted to hold 1.44 MB of data, capable of running under Microsoft Windows 95 or newer. Alternatively, CD-ROMs may be used. They shall conform to industry standards used in the United States. All data shall be provided in English.

1.10.2 Disk or CD-ROM Labels

The Contractor shall affix a permanent exterior label to each diskette and CD-ROM submitted. The label shall indicate in English, the RMS-QC file name, full contract number, project name, project location, data date, name and telephone number of person responsible for the data.

1.10.3 File Names

The Government will provide the file names to be used by the Contractor with the RMS-QC software.

1.11 MONTHLY COORDINATION MEETING

The Contractor shall update the RMS-QC database each workday. At least monthly, the Contractor shall generate and submit an export file to the Government with schedule update and progress payment request. As required in Contract Clause "Payments", at least one week prior to submittal, the contractor shall meet with the Government representative to review the planned progress payment data submission for errors and omissions. The contractor shall make all required corrections prior to Government

acceptance of the export file and progress payment request. Payment requests accompanied by incomplete or incorrect data submittals will be returned. The Government will not process progress payments until an acceptable RMS-QC export file is received.

1.12 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the requirements of this specification. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification.

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SECTION 01321

NETWORK ANALYSIS SCHEDULES (NAS)

PART 1 GENERAL

1.1 DESCRIPTION

Prepare a progress chart pursuant to the clause entitled "FAR 52.236-15, Schedules for Construction Contracts" of the Contract Clauses that shall consist of a network analysis system. The network analysis system shall consist of the network analysis schedule (diagram), mathematical analysis, and associated reports. The scheduling of construction shall be the responsibility of the Contractor. Submission of progress and revision data will be used to measure work progress, aid to evaluate time extensions, and provide basis of all progress payments. The Critical Path Method (CPM) of network calculation shall be used to generate the project schedule and will utilize the Precedence Diagram technique to satisfy both time and cost applications. All progress payment amounts will be derived from and tied to the cost-loaded schedule activities.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Qualifications; G, RE.

Standard Activity Coding Dictionary

Schedule Development Session scheduler/planner; G, RE.

Preliminary Network Analysis Schedule; G, RE.

Network Analysis Schedule; G, RE.

Accepted Network Analysis Schedule; G, RE.

Summary Network; G, RE.

SD-07 Certificates

Monthly Network Analysis Updates; G, RE.

SD-11 Closeout Submittals

As-Built Schedule; G, RE.

1.3 SCHEDULE ACCEPTANCE

Review comments made by the Government on the Contractor's construction schedule will not relieve the Contractor from compliance with requirements of the Contract Documents. The Contractor is responsible for scheduling, sequencing, and prosecuting the Work to comply with the requirements of the Contract Documents. Government acceptance extends only to the activities of the contractor's schedule that the Government has been assigned responsibility for and agrees it is responsible. The Government will also review for contract imposed schedule constraints and conformance, and cost loading of the CPM activities. Comments offered on other parts of the schedule which the Contractor is assigned responsibility are offered as a courtesy and are not conditions of government acceptance; but are for the general conformance with established industry schedule concepts.

1.3.1 Schedule Acceptance Prior to Start of Work

The Accepted Network described in the paragraph entitled "Accepted Network Analysis Schedule" must be submitted and accepted by the government before the contractor will be allowed to start work.

1.3.2 Acceptance

- a. When the Accepted Network Analysis Schedule is submitted and accepted by the Contracting Officer, it will be considered the "Baseline CPM Schedule". The Baseline CPM Schedule will then be used by the Contractor for planning, organizing, and directing the work; reporting progress; and requesting payment for work accomplished. The schedule will be updated monthly by the Contractor and submitted monthly with the progress pay request to reflect the current status of the work. The submittal and acceptance of the Accepted Network Analysis Schedule and accurate updated schedules accompanying the pay requests are both conditions precedent to processing pay requests. Only bonds will be paid prior to acceptance of the Accepted Network Analysis Schedule.
- b. Submittal of the Network, and subsequent schedule updates, will be understood to be the Contractor's representation that the submitted schedule meets all of the requirements of the Contract Documents, accurately reflects the work accomplished, and that Work will be executed in the sequence indicated on the submitted schedule.

1.4 SOFTWARE

The scheduling software that will be utilized by the government on this project is Primavera Project Planner (P3) by Primavera Systems, Inc. If the contractor chooses to use an equally capable program, the contractor shall convert all data into Primavera Machine Readable Format (Lotus, D-Base, Excel, etc.) prior to submission of all schedule inputs, included but not limited to the initial schedule, monthly updates, and changes to

the schedule. It is the responsibility of the Contractor to ensure all data elements and logic required by this specification are kept intact during the conversion to Primavera. If scheduling software other than Primavera is being used, provide a licensed copy of the Contractor's scheduling software and data. The software will be the most current version available and will be compatible with all MS-Windows operating systems (e.g., Win 95, Win NT, Win 2000 etc.). The scheduling software package shall contain all user manuals normally provided by the software distributor. If the Contractor upgrades their software during the course of the contract, the upgrade shall also be provided to the Contracting Officer. The software will remain the property of the government.

1.4.1 Computer Hardware

The Contractor shall provide and maintain a personal computer (PC) capable of running the network analysis software specified herein. All necessary software and hardware will be provided to make the system a complete and useable package. The Contractor shall also provide a printer and plotter with necessary cables. The PC will remain the property of the Contractor.

1.4.2 Software Training

If software other than Primavera is used by the Contractor, provide schedule software training for two Government personnel. A firm accredited by the scheduling software manufacturer, as their authorized trainer shall conduct the training. The training shall last a minimum of 24 hours per individual. Provide course material the training firm normally distributes at their software classes. Provide all necessary materials and equipment to conduct the training. The Contractor shall provide training within 10 working days after notification to the Contractor, by the Contracting Officer. Unless agreed to by the Contracting Officer, the training site shall be at the Contracting Office.

1.5 QUALIFICATIONS

The Contractor shall designate a Scheduler that will be responsible for the development, preparation, and maintenance of an accurate, computerized Network Analysis Schedule. The Scheduler shall have previously developed, created and maintained at least 2 previous computerized schedules of similar size and complexity of this contract. A resume outlining the qualifications of the scheduler shall be submitted for acceptance to the Contracting Officer. If at a later date, the Contracting Officer considers the Contractor's Scheduler to be incompetent or objectionable, the Contractor will propose a new Scheduler, meeting the qualification requirements. Payments will not be processed until an acceptable Scheduler is provided.

1.6 NETWORK SYSTEM FORMAT

The system shall consist of time scaled logic diagrams accompanying mathematical analyses and specified reports.

1.6.1 Diagrams

Show the order and interdependence of activities and the sequence in which the work is to be accomplished as planned. The basic concept of a network analysis diagram will be followed to show how the start of a given activity is dependent on the completion of preceding activities and how its completion restricts or restrains the start of following activities. Diagrams shall be organized by Work Phase and sorted by Early Start Date and will show a continuous flow from left to right with no logic (relationship lines) from right to left. With the exception of the Project Start and Project Completion milestone activities, no activities will be open-ended; each activity will have predecessor and successor ties. The diagram shall clearly show the activities of the critical path. No onsite construction activity shall have duration in excess of 20 working days. Once an activity exists on the schedule it may not be deleted and must remain in the logic. No more than 20 percent of the activities may be critical or near critical. Critical will be defined as having zero days of Total Float. "Near critical" will be defined as having Total Float in the range of 1 to 14 days. Show the following information on the diagrams for each activity:

- a. Activity/Event Number
- b. Activity Description
- c. Original Duration in work days
- d. Actual Duration in Work Days
- e. Early Start Date
- f. Early Finish Date
- g. Total Float (or Slack)
- h. Responsibility Code

Provide network diagrams on ANSI E sheets. Updated diagrams shall show the date of the latest revision.

1.6.2 Quantity and Numbering of Activities

Numbering shall be assigned so that, in general, predecessor activity numbers are smaller numerically than the successor activity numbers. Skip numbering shall be used on the network to allow insertion of additional activities for contract modifications and logic changes. The minimum number of construction activities in the final network diagram shall be 20. Types of activities included in the schedule are specified below.

1.6.2.1 Procurement Activities

Tasks related to the procurement of material or equipment shall be included as separate activities in the project schedule. Examples of procurement activities include, but are not limited to: Material/equipment submittal preparation, submittal and approval of material/equipment; delivery of O&M manuals; material/equipment fabrication and delivery, delivery of extra

parts, extra stock, special tools, notification of Government Furnished Material/Equipment delivery requirement, etc. As a minimum, separate procurement activities will be provided for every specification section. If the Contractor intends on using Just-In-Time (JIT) delivery methods, the schedule will show each JIT delivery with relationship tie to the Construction Activity specifically for the JIT delivery. Material and equipment for which payment will be requested in advance of installation shall be cost-loaded with the procurement costs. All activities within a procurement process/cycle will have a unique identifier in the activity code to show their relationships and will extend to the related construction activities (i.e., Work Category).

If the Government's action on any submittal is "Disapproved" or "Revise and Resubmit", a new series of Procurement Activities will be inserted into the schedule. Predecessor for the new submittal preparation activity will be the original approval activity and the successor of the new approval activity will be the fabrication/deliver activity for the equipment or material.

1.6.2.2 Government Activities

Government and other agency activities that could impact progress shall be clearly identified. Government activities include, but are not limited to; Government approved submittal reviews, Government conducted inspections/tests, utility outages, Notice(s) to Proceed and delivery of Government Furnished Material/Equipment. Show activities indicating Government furnished materials and equipment utilizing delivery dates indicated in "FAR 52.245-2, Government Property (Fixed-Price Contracts)." Government activities will be driven by calendars that reflect Saturdays, Sundays and all Federal Holidays as non-work days.

1.6.2.3 Construction Activities

Construction activities shall include, but are not limited to: Tasks related to mobilization/demobilization; the installation of temporary or permanent work by tradesman; testing and inspections of installed work by technicians, inspectors or engineers; start-up and testing of equipment; commissioning of building and related systems; scheduling of specified manufacture's representatives; final clean-up; training to be provided; and administrative tasks necessary to start, proceed with, accomplish or finalize the contract. Contractor activities will be driven by calendars that reflect Saturdays, Sundays and all Federal Holidays as non-work days.

1.6.2.4 Anticipated Weather Delays

Schedule activity duration(s) shall be formulated with allowance for normal adverse weather conditions. Any activity duration which could be impacted by normally anticipated adverse weather (precipitation, high or low temperature, wind, etc.), due to the time period which the Contractor has scheduled the work, shall include an adjustment to include the anticipated weather delay. The Contractor shall anticipate delay by comparing the contractually imposed environmental restrictions in the Contract Documents to the National Oceanic and Atmospheric Association's (NOAA) historical monthly averages for the NOAA location. The number of anticipated adverse

weather delays allocated to an activity will be reflected in the activity's calendar. A lost workday, due to weather conditions, is defined as a day in which the contractor's workforce cannot work 50 percent or more of the day. The Contractor shall immediately notify the Contracting Officer when a lost day has occurred due to weather and will record on the Daily Reports, the occurrence of adverse weather and resultant impact to the normally scheduled work. If the number of actual adverse weather delay days exceeds the number of days anticipated, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days and issue a modification in accordance with the contract clauses.

MONTHLY ANTICIPATED ADVERSE WEATHER DATS
Work Days Based on five (5) Day Work Week

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
6	2	2	1	1	0	2	2	1	1	1	3

1.6.2.5 Activity Properties

Schedule activities will have the following properties:

- a. Standard Activity Coding Dictionary: The Contractor shall submit a coding scheme for Schedule Activity Numbers that shall be used throughout the project. The coding scheme submitted shall list the values for each activity code category and translate those values into project specific designations. Code length shall not exceed 10 characters. Once accepted, the coding scheme will be used for the duration of the project.
- b. Activity Description: Each activity shall have a narrative description consisting of a Verb or work function (e.g.; form, pour, excavate), an Object (e.g.; slab, footing, underfloor plumbing), and Area (e.g.; 3rd floor, northeast quadrant, basement).
- c. Work Phase: If phasing is specified in the contract, all activities shall be identified in the project schedule by the phase of work in which the activity occurs. Activities shall not be contained in more than one Work Phase.
- d. Work Category: All Activities shall be identified in the project schedule according to the work category which best describes the activity. Examples of work categories are procurement, government, and construction activities that are all related to a single Definable Feature of Work. Activities shall not be contained in more than one Work Category.
- e. Area Code: All activities shall be identified in the project schedule by the Area Code in which the activity occurs. Activities shall not be contained in more than one Area Code. Area is defined as a distinct separation in construction, such as a story of construction, separate structure, usage or function

difference, utility distribution systems, etc.

- f. Responsibility Code: All activities in the project schedule shall be identified with the party responsible to perform the task. Responsibility includes, but is not limited to; the prime contractor, subcontracting firm, or Government agency performing a given task. Activities shall not belong to more than one responsible party. The responsible party for each activity shall be identified by a responsibility code. For example, a responsibility code value, "ELEC", may be identified as "Electrical Subcontractor."
- g. CSI Code: All activities in the project schedule shall be identified with its respective 5-digit Specification Section number. Activities shall not belong to more than one Section number. If an activity does not have an applicable CSI Code, (such as "Mobilize"), the code will be "00000".
- h. Drawing Code: All activities in the project schedule shall be identified with its respective project drawing code. The drawing code is the Sheet Number on the primary project drawing which indicates the work to be performed. Activities shall not belong to more than one Drawing Code. Examples of Drawing Codes are "C-10", "C.10" or "C10". The code system will allow organizing all activities by drawing code in alpha and numeric order. If an activity does not have an applicable Drawing Code, (such as "Mobilize"), the code will be "00000".
- i. Modification Code: The Modification Code shall identify activities that are modified or added by contract modification. Activities shall not belong to more than one Modification Code. The Government will assign the modification number, which will be shown on the SF 30. Use a shortened version of the modification number for the code (e.g.; A00010 = 010).
- j. Request for Equitable Adjustment (REA) or Claim Code: Activities that are modified or added, as a result of a Contractor's REA or Claim shall be identified by a code generated by the Contractor. Activities shall not belong to more than one REA or Claim Code.
- k. The Three Phases of Control (Preparatory, Initial, and Follow-up):
For each Definable Feature of Work identified in the Contractor's Quality Control Plan, include an activity for the Preparatory Phase. The Initial Phase and Follow-up Phase will be represented by the Construction Activities in the schedule.
- l. Project Milestone Dates: Dates shall be shown on the diagram for the start of the project, any contract required interim start and completion dates, contract completion date and other significant milestones.
- m. Scheduled Project Duration: The schedule duration shall extend from notice-to-proceed to the contract completion date.

- n. Project Start Date Milestones: The schedule shall start no earlier than the contract award date and the project duration (Day 1) will start on the Notice-to-Proceed (NTP) date. The Contractor shall include as the first activity in the schedule, an activity named "Contract Award" and another activity on the NTP date named "Start Project". Both activities will be zero duration, with constrained start dates equal to the contract award and NTP dates.
- o. Constraint of Last Activity Milestone: The Contractor shall include as the last activity in the project schedule, an activity named "End Project". The "End Project" activity shall be zero duration with a mandatory finish constraint equal to the contract completion date for the project. Calculation of project updates shall be such that if the finish of the last activity falls after the contract completion date, then the float calculation shall reflect negative float on the critical path.
- p. Early Project Completion: In the event the Contractor's project schedule shows completion of the project prior to the contract completion date, the Contractor shall include an activity named "Contractor Early Completion". The activity shall be a zero duration milestone with an unconstrained date representing the Contractor's Early Completion date.
- q. Substantial Completion: If the contractor elects to include an activity for Substantial Completion, then it is agreed that Substantial Completion will be the point in time that the Government considers the project is complete and ready for its intended use. The activity will be named "Substantial Completion". The activity shall be a zero duration milestone with an unconstrained date representing the Contractor's Substantial Completion date.
- r. Phase Start Milestone: The Contractor shall include as the first activity for a project phase, an activity named "Start Phase X", where "X" identifies the phase of work. The "Start Phase X" activity shall be zero duration with an unconstrained start date equal to the date of the Phase NTP. This unconstrained start date is not a release from contractually required start dates, but is left unconstrained to allow the schedule logic to calculate without hindrance.
- s. End Phase Milestone: The Contractor shall include as the last activity in a project phase, an activity named "End Phase X" where "X" identifies the phase of work. The "End Phase X" activity shall be zero duration with an unconstrained late finish date equal to the contract phase completion date. This unconstrained completion date is not a release from contractually required finish dates, but is left unconstrained to allow the schedule logic to calculate without hindrance.
- t. Early Phase Completion: If the contractor expects to finish prior to the contract phase completion date, the milestone will show an early finish date equal to the Contractor's early finish date.

The name of the activity will be "Early Phase Completion" and will be zero duration with an unconstrained date representing the contractor's early phase completion date.

- u. Summary (a.k.a., Banding or Hammock) Activities: The Contractor shall include special activities that are a summary of a chain of activities. The start of the activity will be the start date of the first activity in the chain and the finish date will be the finish date of the last activity in the chain. Generalized work sequences, Categories of Work and all Phase of Work activity chains will be summarized.
- v. Activity/Event Constraints: Date/time constraint(s), other than those required by the contract, will not be allowed unless accepted by the Contracting Officer.
- w. Leads and Lags: Leads or lags will not be used when the creation of an activity will perform the same function (e.g., concrete cure time). Lag durations contained in the project schedule shall not have a negative value. The use of any lead or lag will be explained in the Narrative Report.
- x. Default Progress Data Disallowed: Actual Start and Finish dates shall not be automatically updated by default mechanisms that may be included in the CPM scheduling software system. Actual Start and Actual Finish dates on the CPM schedule shall match the dates provided from Contractor Quality Control and Production Reports. These reports will be the sole basis for updating the schedule. Work activities will be updated by actual work progression rather than being cash flow driven. The updating of the percent complete and the remaining duration of any activity shall be independent functions; program features that calculate one of these parameters from the other shall be disabled. Out-of-Sequence progress (if applicable) shall be handled through Retained Logic, not the Default Option of Progress Override. Actual labor and equipment hours used on activities will be derived from the daily reports.

1.6.3 Mathematical Analysis

The network diagram mathematical analysis shall include a tabulation of each activity shown on the detailed network diagrams. Provide the following information as a minimum for each activity:

- a. Activity/Event number
- b. Activity/Event description
- c. Estimated duration of activities (by work days)
- d. Earliest start date (by calendar date)
- e. Earliest finish date (by calendar date)
- f. Actual start date (by calendar date)

- g. Actual finish date (by calendar date)
- h. Latest start date (by calendar date)
- i. Latest finish date (by calendar date)
- j. Total float or slack
- k. Material/Equipment costs will be assigned to their respective Procurement Activities (i.e., the delivery activity). Costs for installation of the material/equipment (labor, construction equipment, and temporary materials) will be assigned to their respective Construction Activities. The value of inspection/testing activities will not be less than 10 percent of the total costs for Procurement and Construction Activities. Evenly disperse overhead and profit to each activity over the duration of the project.
- l. Responsibility code (including prime contractor, subcontractors, suppliers, Government, or other party responsible for accomplishment of an activity.)
- m. Area Code
- n. Manpower required (crew size)
- o. Percentage of activity duration completed
- p. Contractor's earnings based on accepted work-in-place.

The program or means used in making the mathematical computation shall be capable of compiling the total value of completed and partially completed activities. The program shall also be capable of accepting revised completion dates as modified by approved time extensions and recompilation of tabulation dates/costs and float accordingly. The total of all cost loaded activities; including costs for material and equipment delivered for installation on the project, and manpower and construction equipment loaded construction activities, shall total to 100 percent of the value of the contract.

1.6.4 Additional Requirements

In addition to the tabulation of activities, in the Paragraph entitled "Mathematical Analysis", include the following data:

- a. On-site manpower loading schedule: Each construction activity shall have an estimate of the number of workers per day by trade, man-hours per day by trade and total expected hours used by trade during the execution of the activity. If no workers are required for an activity, then the activity shall be identified as using zero workers per day.
- b. Equipment loading schedule: Each construction activity shall have

an estimate of the equipment used per day, number of units per day and total expected hours for each piece of equipment used during the duration of the activity. Include a description of the major items of construction equipment planned for each construction activity on the project. The description shall include the year, make, model, and capacity. If no equipment is required for an activity, then the activity shall be identified as using zero equipment per day.

1.6.5 Required Reports

The following reports will be made available in the schedule submittals and in each updated schedule submission provided on disk by the Contractor:

- a. By the preceding event number from lowest to highest and then in the order of the following activity number (Activity Identification Report) showing the current status of all activities.
- b. By the amount of total float, from lowest to highest and then in order of early start date (Total Float or Slack Report) showing all incomplete activities.
- c. By latest allowable start dates and then in order of activity numbers (Late Start Report).
- d. Earned Value Report listing all activities having a budget amount and cost. A compilation of total earnings on the project from the notice to proceed to the most recent monthly progress payment request and the difference between the previous request amount and the current payment request amount. Sort report first by resource and then by activity.
- e. By earliest allowable start dates and then in order of activity number (Early Start Report).
- f. By tasks scheduled to start and finish by the end of the next pay period (30-Day Look Ahead).
- g. With each updated schedule submission, provide a computer generated Log Report using a recognized schedule comparison software listing all changes made between the previous schedule and current updated schedule. Identify the name of the previous schedule and name of the current schedule being compared. This report will as a minimum show changes for: Added & Deleted Activities, Original Durations, Remaining Durations, Activity Percent Complete, Total Float (or Slack), Free Float, Calendars, Descriptions, Constraints (added, deleted or changed), Actual Starts/Finishes, Added/Deleted Resources, Resource Quantities, Costs, Resource Percents, Added/Deleted Relations, Changed Relation Lags, Changed Driving Relations, and Changed Critical Status.
- h. By the activity number from lowest to highest, showing preceding

and succeeding activity numbers for each activity (Predecessor/Successor Report), and showing the current status of each activity.

1.7 SUBMISSION AND ACCEPTANCE

1.7.1 Preliminary Meeting

At the Pre-Construction Conference, the Contracting Officer, Contractor and major subcontractors shall participate in a preliminary meeting to discuss the proposed schedule and requirements of this section prior to submission of the network. The definition of a "major subcontractor" is one that exceeds 5 percent of the contract value.

1.7.2 Schedule Development Session:

Prior to the submission of the Network Analysis Schedule, the Contractor shall conduct a Schedule Development Session. The Schedule Development Session shall include procurement of on site services of an expert scheduler/planner for not less than a 5 day period. The Contractor's choice of Schedule Development Session scheduler/planner is subject to the acceptance of the Contracting Officer. The scheduler/planner shall facilitate the session on site and shall be fluent in the English language.

The scheduler/planner shall have at least 10 years experience developing construction project schedules with scheduling software programs that the contractor intends to use. Unless agreed to by the Contracting Officer, the session shall be conducted at the Office of the Contracting Officer. The Contractor is responsible for providing the necessary equipment for the session which, as a minimum, includes a personal computer (PC), a computer display projector to facilitate group viewing, and a printing device. During the session the facilitator shall provide all necessary training to participants and shall lead the development of the project's schedule. As a minimum, the scheduler/planner shall facilitate development of activity coding and work breakdown structures; establishment of procurement, government, and construction activities; activity relationship; resourcing; budgeted costs; and reports to be used during the project. Members of the Contracting Officer's staff will attend the session as well as members of the designer of record, local sponsor, major subcontractors (those which exceed 5 percent of the contract value), and the Contractor's home and field project management staff. All costs associated with the Schedule Development Session are to be borne by the Construction Contractor.

1.7.3 Preliminary Network Analysis Schedule

Submit a preliminary network defining the planned operations during the first 90 calendar days after contract award within 20 days after contract award. The general approach for the balance of the project shall be indicated. Cost of activities expected to be completed or partially completed before submission and acceptance of the Accepted Network Analysis Schedule should be included. Submit three copies of both the preliminary network diagrams and required reports listed in paragraph entitled "Required Reports." In accordance with paragraph entitled "Monthly Reports," the preliminary network may be used for requesting progress payments for a period not to exceed 90 calendar days after receipt of

"Contract Award." Submittal and acceptance of the Preliminary Network is condition precedent to the processing of the Contractor's pay requests on this schedule. Payment requests after the first 90 calendar day period shall be based upon the Accepted Network Analysis Schedule. The activities and relationships of the preliminary schedule shall coincide and mesh with the activities of the Network Analysis Schedule. As part of this submittal, provide the Project Name format (and Project Group Name if used) that will be used by the Contractor to identify initial schedule submittals, updates, fragnets, changes, etc. Include 1 copy of the Preliminary Network Analysis Schedule on 100 MB Zip Disk.

1.7.4 Network Analysis Schedule

Submit the complete network system, consisting of the network mathematical analysis and network diagrams, within 40 calendar days after contract award. Submit three copies of the diagrams described in the paragraph entitled "Diagrams", the required reports listed in the paragraph entitled "Required Reports ", and the analysis described in the paragraph entitled "Mathematical Analysis" and information required by the paragraph entitled "Additional Requirements". As part of this submittal, provide the Project Name format (and Project Group Name if used) that will be used by the Contractor to identify initial schedule submittals, updates, fragnets, changes, etc. Include 1 copy of the Network Analysis Schedule on one ZIP disk formatted to hold 100 MB of data.

1.7.5 Review and Evaluation

After the Government's review, the Contractor shall meet with the Contracting Officer to discuss the review and evaluation of the NAS submittal. Revisions necessary as a result of this review shall be resubmitted for acceptance within 10 calendar days after the meeting.

1.7.6 Accepted Network Analysis Schedule

Once review comments are resolved and the network has been accepted by the Contracting Officer, the Contractor shall within 5 calendar days furnish:

- a. Two copies of the network diagrams
- b. Two copies of the required reports listed in paragraph entitled "Required Reports"
- c. Two copies of the "Mathematical Analysis".
- d. Two copies of the Cash Flow Report indicating the cash flow based upon both the early and late start schedules.
- e. Two copies of each major subcontractor's statement certifying their concurrence with the Contractor's Accepted Network Analysis Schedule. Each certifying statement will be made on the subcontractor's letterhead.
- f. Two sets of data disks containing the project schedule shall be provided for the initial submission and every periodic project

update. Data shall be submitted on zip disk, formatted to hold 100 MB of data. A permanent exterior label shall be affixed to each disk submitted. The label shall indicate the type of schedule (Preliminary, NAS Submittal, Accepted, Update, Recovery, or Change), full contract number, Project Name used to identify project in scheduling software, contract name & location, data status date, diskette number with total number of diskettes in set, software name and version used to run the schedule, and the name and telephone number of person responsible for the schedule.

For major revisions, updates or changes to the network diagrams, once accepted by the Contracting Officer, the Contractor shall submit these same diagrams and reports.

1.7.7 Monthly Network Analysis Updates

At monthly intervals the Contractor, Government representatives and major subcontractors will meet to jointly update the project schedule and agree on percentage of payment for each activity progressed during the update period. The purpose of the meeting is to determine progress payment amounts for each activity, allow all parties to evaluate project status at the data date, provide a complete and accurate update of procurement and construction progress, create an historical record of the project and establish prediction of completion date(s) based upon current status. The Contractor is responsible to gather all supporting documentation propose the update data for the schedule and record the meeting minutes. All progress payment amounts will be derived from and tied to the cost-loaded schedule activities. Submit at monthly intervals a report of the actual construction progress by updating the required reports, the time scaled logic diagram, and mathematical analysis. Meeting to update the schedule and the submission of an error free, acceptable updated schedule to the Government is a condition precedent to the processing of the Contractor's pay request. As a minimum, the following actions will be accomplished during the meeting:

- a. Identify activities started and completed during the previous period and enter the Actual Start and Actual Finish dates.
- b. Show estimated duration (in workdays) to complete each activity started but not completed (remaining duration).
- c. Indicate percentage of cost payable for each activity.
- d. Reflect changes in the network diagram. All changes (i.e., duration changes, logic changes, new logic, conformed change orders, new activities, changes due to Conformed Modifications, changes in work sequence, etc.) shall be recorded and a note added to the activity log field. The log shall include as a minimum, the date and reason for the change, and description of the change.
- e. Submit two copies of a Narrative Report describing: 1) Progress made in each area of the project; 2) Changes in the following; activities, original durations, logic interdependencies, milestones, planned sequence of operations, critical path, and

resource and loading; 3) Pending items and status thereof, including permits, change orders, and time extensions; 4) Status of Contract Completion Date and interim milestones; 5) Current and anticipated delays (describe cause of the delay and corrective action(s)); and 6) Description of current and future schedule problem areas. Each entry in the narrative report will cite the respective Activity ID and Activity Description.

- f. Submit two copies of the required reports listed in paragraph entitled "Required Reports".
- g. Submit two copies of the Update Meeting minutes.

1.7.8 Summary Network

A summary network shall have the same network form as the Accepted Network Analysis Schedule. The summary network will contain a minimal number of activities that represent the general approach of work sequence. The Summary will be a time-scaled logical sequence of Work Phases. The Contractor shall submit a summary network diagram immediately after acceptance of the Accepted Network Analysis Schedule. A summary network update shall be submitted every 6 months during the contract duration and immediately following acceptance of each major schedule change. Submit the following:

- a. Two copies of the summary network diagram.
- b. Two copies of the Activity Identification Report.
- c. Two copies of the Total Float (or Slack) Report.
- d. Two copies of the Earned Value Report indicating the actual cash flow for the current updated (not summary) network based upon both the early and late start schedules.

1.7.9 As-Built Schedule

As a condition precedent to the release of retention, the last update of the schedule submitted shall be identified by the Contractor as the "As-Built Schedule". The As Built shall reflect the exact manner in which the project was actually constructed (including actual start and finish dates, activities, sequences, and logic) and shall be certified by the Contractor's Project Manager and Construction Scheduler as being a true reflection of the way the project was actually constructed. If more than one person filled the position(s) during the course of the project, each person will provide certification for the period of time they were responsible.

1.8 CONTRACT MODIFICATION

When a contract modification to the work is required, submit proposed revisions to the network with a fragnet and a cost proposal for each proposed change. All modifications shall be incorporated into the network analysis system as separately identifiable activities broken down and

inserted appropriately on the first update following issuance of a directive to proceed with the change. Submit one copy of the Total Float Report, Log Report and a copy of the proposed Time Impact Analysis on disk, with the cost proposal. Unless the Contracting Officer requests otherwise, only conformed contract modification fragnets will be added into the subsequent monthly updates. All revisions to the current baseline schedule activities that are necessary to further refine the schedule so that the changed work activities can be logically tied to the schedule shall be made. Financial data shall not be incorporated into the schedule until the contract modification is signed by the Contracting Officer.

1.8.1 Time Impact Analysis:

Time Impact Analysis shall be used by the Contracting Officer in determining if a time extension or reduction to the contract milestone date(s) is justified. The Contractor shall provide a Time Impact Analysis to the Contracting Officer for any proposed contract change or as support for a Value Engineering Proposal, Claim or Request for Equitable Adjustment by the Contractor.

- a. The Contractor shall submit a Time Impact Analysis (TIA) illustrating the influence of each change or delay on the Contract Completion Date or milestones. Unless the Contracting Officer requests an interim update to the schedule, the current monthly updated schedule accepted by the government shall be used to display the impacts of the change. Unless requested by the Contracting Officer, no other non-conformed changes will be incorporated into the schedule being used to justify the change impact.
- b. Each TIA shall include a Fragmentary Network (fragnet) demonstrating how the Contractor proposes to incorporate the impact into the Project Schedule. A fragnet is defined as the sequence of new activities and/or activity revisions, logic relationships and resource changes that are proposed to be added to the existing schedule to demonstrate the influence of impacts to the schedule. The fragnet shall identify the predecessors to the new activities and demonstrate the impacts to successor activities. Include a narrative report describing the effects of new activities and relationships to interim and contract completion dates, with each TIA.
- c. Following the Contractor's receipt of a contract modification on a Standard Form 30 signed by the Government; all changes in the fragnet used to determine impacts, shall be incorporated into the schedule. Changes will occur during the next monthly schedule update meeting.

1.8.2 No Reservation-Of-Rights

All direct costs, indirect costs, and time extensions will be negotiated and made full, equitable and final at the time of modification issuance.

1.9 CHANGES TO THE NETWORK ANALYSIS SCHEDULE

If changes in the method of operating and scheduling are desired, the Contracting Officer shall be notified in writing stating the reasons for the change. If the Contracting Officer considers these changes to be of a major nature, the Contractor may be required to revise and submit for acceptance, without additional cost to the Government, the network diagrams and required sorts. A change may be considered of a major nature if the estimated time required or actually used for an activity or the network logic is varied from the original plan to a degree that there is a reasonable doubt as to the effect on the contract completion date. Changes that affect activities with adequate float time shall be considered a major change when their cumulative effect could extend the contract completion date.

1.10 FLOAT

Use of float suppression techniques, such as; preferential sequencing (arranging critical path through activities more susceptible to government caused delay), special lead/lag logic restraints, zero total or free float constraints, extended activity times, or imposing constraint dates other than as required by the contract, shall be cause for rejection of the project schedule or its updates. The use of Resource Leveling (or similar software features) used for the purpose of artificially adjusting activity durations to consume float and influence the critical path is expressly prohibited.

1.10.1 Definitions of Float or Slack

Free Float is the length of time the start of an activity can be delayed without delaying the start of a successor activity. Total Float is the length of time along a given network path that the actual start and finish of activity(s) can be delayed without delaying the project completion date.

Project Float is the length of time between the Contractor's Early Completion (or Substantial Completion) and the Contract Completion Date.

1.10.2 Ownership of Float

Float available in the schedule, at any time shall not be considered for the exclusive use of either the Government or the Contractor. During the course of contract execution, any float generated due to the efficiencies of either party is not for the sole use of the party generating the float; rather it is a shared commodity to be reasonably used by either party. Efficiencies gained as a result of favorable weather within a calendar month, where the number of days of normally anticipated weather is less than expected, will also contribute to the reserve of float. A schedule showing work completing in less time than the Contract time, and accepted by the Government, will be considered to have Project Float. Project Float will be a resource available to both the Government and the Contractor. No time extensions will be granted nor delay damages paid unless a delay occurs which impacts the Project's critical path, consumes all available float or contingency time, and extends the work beyond the Contract Completion Date.

1.10.3 Negative Float

Negative float will not be a basis for requesting time extensions. Any extension of time will be addressed in accordance with the Paragraph "Time Extensions". Scheduled completion date(s) that extend beyond the contract completion date(s) (evidenced by negative float) may be used in computations for assessment of payment withholdings. The use of this computation is not to be construed as a means of acceleration.

1.11 TIME EXTENSIONS

Extension of time for performance required under the clauses entitled "Changes," "Differing Site Conditions," "Default (Fixed-Price Construction)" or "Suspension of Work" will be granted only to the extent that equitable time adjustments for the activity or activities affected exceed the total float or slack along the network paths involved at the time Notice to Proceed was issued for the change. The Contractor acknowledges and agrees that delays in activities which, according to the network analysis schedule, does not in fact actually affect any milestone completion dates or the contract completion date shown on the CPM network at the time of delay, will not be a basis for a contract extension. Submit time extension requests with a Time Impact Analysis and three copies of the Total Float (or Slack) Report, Narrative Report and Log Report.

1.12 MONTHLY COORDINATION MEETING

In conjunction with receipt of the Monthly Network Update submission, a coordination meeting will be held each month in the Contracting Officer's conference room to discuss the report. The Contractor shall make a presentation of the previously submitted and current Monthly Network Update to the Contracting Officer so as to provide an overview of the project's schedule and provide an opportunity to discuss items of coordination.

1.13 BIWEEKLY WORK SCHEDULE

To provide a more detailed day-to-day planning of upcoming work, the Contractor shall prepare and issue detailed work plans that coordinate with and supplement the above defined network analysis. The work plans shall be keyed to the CPM activity numbers and shall be submitted each week and shall show the projects activities that will occur during the following two-week interval. Additionally, the critical path activities are to be identified on the Biweekly Work Plan. The detail work plans are to be bar chart type schedules prepared by the Contractor in sufficient detail to define the work to be accomplished, the crews, construction tools and equipment to be used during the current and next two-week interval. The bar charts shall be formatted to allow reproduction on 8 1/2 by 11 sheets. Three copies of the bar chart schedules shall be delivered to the Contracting Officer not less than 3 work hours prior to the start of the weekly coordination meeting.

1.14 WEEKLY COORDINATION MEETING

In conjunction with the receipt of the Bi-Weekly Work Schedule, a coordination meeting will be held each week in the Contracting Officer's conference room to discuss the work schedule. The Contractor shall make a

presentation of the previously submitted and current Bi-Weekly Work Schedule to the Contracting Officer so as to provide an overview of the project's schedule and provide an opportunity to discuss items of coordination. Consideration of materials, crews, and equipment shall be addressed to ascertain their respective availability. The meeting shall identify actions necessary to provide adherence to the Bi-Weekly Work Schedule and the overall network for the project defined above. The Contractor will take meeting minutes. All meeting minute entries will be keyed to the schedule activity number(s) being addressed. Within one day of the meeting, the Contractor will provide a draft copy of the meeting minutes to the Contracting Officer for review and comment. Final copies of the minutes containing the comments provided by the Contracting Officer, will be issued within 3 days of the meeting.

1.15 CORRESPONDENCE AND TEST REPORTS

All correspondence (e.g., letters, Requests for Information (RFIs), e-mails, meeting minutes, Production and QC Daily Reports, material delivery tickets, photographs, etc.) shall reference the Schedule Activity Number(s) that are being addressed. All test reports (e.g., concrete, soil compaction, weld, pressure, etc.) shall reference the Schedule Activity Number(s) that are being addressed.

1.16 Forecasting Expenditures

The Contracting Officer will provide a spreadsheet to the Contractor showing the different funding categories and their respective categories for each bid item for the total contract amount (see attached FIGURE 1). Each pay period the contractor shall forecast his expenditures for the following 3 pay periods, indicating funding requirements for each category.

The updated worksheet (see attached FIGURE 2) shall be submitted with each partial pay estimate (e.g. submitted for the period 15 DEC to 15 JAN will include a forecast of expenditures for the period 15 Jan to 15 Apr). Forecasting of expenditures is needed to assure sufficient funding for future progress payments.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

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**FIGURE 1
SAMPLE SPREADSHEET**

**SEVEN OAKS DAM, DAM AND APPURTENANCES
SAN BERNARDINO COUNTY, CALIFORNIA**

ITEM #	DESCRIPTION	TOTALS AMOUNT	%	FED BE069		O.C. NON-FED FW090		S.B.C NON-FED FW093		R.C. NON-FED FW092	
					%		%		%		%
1.	MOB & DEMOB	\$1,000,000.00	94,1797	\$941,797.00	5.1044	\$51,044.00	0.4092	\$4,092.00	0.3067	\$3,067.00	
2.	DIV & CONTROL WA	\$2,000,000.00	94,1797	\$1,883,594.00	5.1044	\$102,088.00	0.4092	\$8,184.00	0.3067	\$6,134.00	
3.	CLEAR SITE	\$1,000,000.00	94,1797	\$941,797.00	5.1044	\$51,044.00	0.4092	\$4,092.00	0.3067	\$3,067.00	
4.	SCALING	\$2,000,000.00	94,1797	\$1,883,594.00	5.1044	\$102,088.00	0.4092	\$8,184.00	0.3067	\$6,134.00	
5.	EXC, FOUND ALLU	\$5,000,000.00	94,1797	\$4,708,985.00	5.1044	\$255,220.00	0.4092	\$20,460.00	0.3067	\$15,335.00	
6.	EXC, FOUND ROCK	\$5,000,000.00	94,1797	\$4,708,985.00	5.1044	\$255,220.00	0.4092	\$20,460.00	0.3067	\$15,335.00	
					%	NON-FED VW090	%	NON-FED VW093	%	NON-FED VW092	
7.	PROTECT-IN-PLACE	\$1,000,000.00			87.6999	\$876,999.00	7.0306	\$70,306.00	5.2695	\$52,695.00	
8.	RELOCATE NEWPO	\$2,000,000.00			87.6999	\$1,753,998.00	7.0306	\$140,612.00	5.2695	\$105,390.00	

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FIGURE 2
SAMPLE WORKSHEET

SEVEN OAKS DAM, DAM AND APPURTENANCES
SAN BERNARDINO COUNTY, CALIFORNIA

EXPENDITURES FORECAST

	JAN 15 - FEB 15	FEB 15 - MAR 15	MAR 15 - APR 15
BE069	\$5,660,000.00	\$7,540,000.00	\$9,420,000.00
FW090	\$310,000.00	\$410,000.00	\$520,000.00
FW093	\$30,000.00	\$40,000.00	\$50,000.00
FW092	\$20,000.00	\$30,000.00	\$40,000.00
VW090	\$62,000.00	\$53,000.00	\$44,000.00
VW093	\$5,000.00	\$5,000.00	\$4,000.00
VW092	\$4,000.00	\$4,000.00	\$3,000.00

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SECTION 01330

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

1.1.1 Government-Furnished Information

Submittal register database and submittal management program will be delivered to the contractor, by contracting officer. Register database will have the following fields completed, to the extent that will be required by the Government during subsequent usage.

Column (c): Lists specification section in which submittal is required.

Column (d): Lists each submittal description (SD No. and type, e.g. SD-04 Drawings) required in each specification section.

Column (e): Lists one principal paragraph in specification section where a material or product is specified. This listing is only to facilitate locating submitted requirements. Do not consider entries in column (e) as limiting project requirements.

Column (f): Indicate approving authority for each submittal. A "G" indicates approval by contracting officer; a blank indicates approval by QC manager.

The database and submittal management program will be extractable from the disk furnished to contractor, for operation on contractor's IBM compatible personal computer with 640kb RAM, a hard drive, and 100 MB Zip Drive.

1.2 DEFINITIONS

1.2.1 Submittal

Shop drawings, product data, samples, operation and maintenance data, and administrative submittals presented for review and approval. Contract Clauses "FAR 52.236-5, Material and Workmanship," paragraph (b) and "FAR 52.236-21, Specifications and Drawings for Construction," paragraphs (d), (e), and (f) apply to all "submittals."

1.2.2 Types of Submittals

All submittals are classified as indicated in paragraph "Submittal Descriptions (SD)". Submittals also are grouped as follows:

- a. Shop drawings: As used in this section, drawings, schedules, diagrams, and other data prepared specifically for this contract, by contractor or through contractor by way of subcontractor, manufacturer, supplier, distributor, or other lower tier contractor, to illustrate portion of work.
- b. Product data: Preprinted material such as illustrations, standard schedules, performance charts, instructions, brochures, diagrams, manufacturer's descriptive literature, catalog data, and other data to illustrate portion of work, but not prepared exclusively for this contract.
- c. Samples: Physical examples of products, materials, equipment, assemblies, or workmanship that are physically identical to portion of work, illustrating portion of work or establishing standards for evaluating appearance of finished work or both.
- d. Operation and Maintenance (O&M) Data:
Data that is furnished by the manufacturer, or the system provider, to the equipment operating and maintenance personnel. This data is needed by operating and maintenance personnel for the safe and efficient operation, maintenance and repair of the item. The data is required when the item is delivered to the project site.
- e. Administrative submittals: Data presented for reviews and approval to ensure that administrative requirements of project are adequately met but not to ensure directly that work is in accordance with design concept and in compliance with contract documents.

1.3 SUBMITTAL IDENTIFICATION (SD)

Submittals required are identified by SD numbers and titles as follows:

SD-01 Preconstruction Submittals

Certificates of insurance.
Surety bonds.
List of proposed subcontractors.
List of proposed products.
Construction Progress Schedule.
Submittal schedule.
Schedule of values.
Health and safety plan.
Work plan.
Quality control plan.
Environmental protection plan.

SD-02 Shop Drawings

Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work.

Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the contractor for integrating the product or system into the project.

Drawings prepared by or for the contractor to show how multiple systems and interdisciplinary work will be coordinated.

SD-03 Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other characteristics of materials or equipment for some portion of the work.

Samples of warranty language when the contract requires extended product warranties.

SD-04 Samples

Physical examples of materials, equipment or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the work can be judged.

Color samples from the manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for the project.

Field samples and mock-ups constructed on the project site establish standards by which the ensuring work can be judged. Includes assemblies or portions of assemblies which are to be incorporated into the project and those which will be removed at conclusion of the work.

SD-05 Design Data

Calculations, mix designs, analyses or other data pertaining to a part of work.

SD-06 Test Reports

Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. (Testing must have been within three years of date of contract award for the project.)

Report which includes findings of a test required to be performed by the contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.

Report which includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.

Investigation reports

Daily checklists

Final acceptance test and operational test procedure

SD-07 Certificates

Statements signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements. Must be dated after award of project contract and clearly name the project.

Document required of Contractor, or of a supplier, installer or subcontractor through Contractor, the purpose of which is to further quality of orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel qualifications.

Confined space entry permits.

SD-11 Closeout Submittals

Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

As-built drawings.

Special warranties.

Posted operating instructions.

Training plan.

1.3.1 Approving Authority

Person authorized to approve submittal.

1.3.2 Work

As used in this section, on- and off-site construction required by contract documents, including labor necessary to produce construction and materials, products, equipment, and systems incorporated or to be incorporated in such construction.

1.4 SUBMITTALS

Submit the following in accordance with the requirements of this section.

SD-01 Preconstruction Submittals

Submittal register; G

1.5 USE OF SUBMITTAL REGISTER

Prepare and maintain submittal register, as the work progresses. Use

electronic submittal register program furnished by the Government or any other format. Do not change data which is output in columns (c), (d), (e), and (f) as delivered by government; retain data which is output in columns (a), (g), (h), and (i) as approved.

1.5.1 Submittal Register

Submit submittal register. Submit with quality control plan and project schedule required by Section 01451, "Contractor Quality Control" and Section 01321, "Network Analysis Schedules." Do not change data in columns (c), (d), (e), and (f) as delivered by the government. Verify that all submittals required for project are listed and add missing submittals. Complete the following on the register:

Column (a) Activity Number: Activity number from the project schedule.

Column (g) Contractor Submit Date: Scheduled date for approving authority to receive submittals.

Column (h) Contractor Approval Date: Date contractor needs approval of submittal.

Column (i) Contractor Material: Date that contractor needs material delivered to contractor control.

1.5.2 Contractor Use of Submittal Register

Update the following fields in the government-furnished submittal register program or equivalent fields in program utilized by contractor.

Column (b) Transmittal Number: Contractor assigned list of consecutive numbers.

Column (j) Action Code (k): Date of action used to record contractor's review when forwarding submittals to QC.

Column (l) List date of submittal transmission.

Column (q) List date approval received.

1.5.3 Approving Authority Use of Submittal Register

Update the following fields:

Column (b).

Column (l) List date of submittal receipt.

Column (m) through (p).

Column (q) List date returned to contractor.

1.5.4 Contractor Action Code and Action Code

Entries used will be as follows (others may be prescribed by Transmittal Form):

NR - Not Received

AN - Approved as noted

A - Approved

RR - Disapproved, Revise, and Resubmit

1.5.5 Copies Delivered to the Government

Deliver one copy of submitted register updated by contractor to government with each invoice request. Deliver in electronic format, unless a paper copy is requested by contracting officer.

1.6 PROCEDURES FOR SUBMITTALS

1.6.1 Reviewing, Certifying, Approving Authority

QC organization shall be responsible for reviewing and certifying that submittals are in compliance with contract requirements. Approving authority on submittals is QC manager unless otherwise specified for specific submittal. At each "Submittal" paragraph in individual specification sections, a notation "G," following a submittal item, indicates contracting officer is approving authority for that submittal item.

1.6.2 Constraints

- a. Submittals listed or specified in this contract shall conform to provisions of this section, unless explicitly stated otherwise.
- b. Submittals shall be complete for each definable feature of work; components of definable feature interrelated as a system shall be submitted at same time.
- c. When acceptability of a submittal is dependent on conditions, items, or materials included in separate subsequent submittals, submittal will be returned without review.
- d. Approval of a separate material, product, or component does not imply approval of assembly in which item functions.

1.6.3 Scheduling

- a. Coordinate scheduling, sequencing, preparing and processing of submittals with performance of work so that work will not be delayed by submittal processing. Allow for potential requirements to resubmit.
- b. Except as specified otherwise, allow review period, beginning with receipt by approving authority, that includes at least 15 working

days for submittals for QC manager approval and 20 working days for submittals for contracting officer approval. Period of review for submittals with contracting officer approval begins when Government receives submittal from QC organization. Period of review for each resubmittal is the same as for initial submittal.

1.6.4 Variations

Variations from contract requirements require Government approval pursuant to contract Clause entitled "FAR 52.236-21, Specifications and Drawings for Construction" and will be considered where advantageous to government.

1.6.4.1 Considering Variations

Discussion with contracting officer prior to submission, will help ensure functional and quality requirements are met and minimize rejections and resubmittals. When contemplating a variation which results in lower cost, consider submission of the variation as a Value Engineering Change Proposal (VECP).

1.6.4.2 Proposing Variations

When proposing variation, deliver written request to the contracting officer, with documentation of the nature and features of the variation and why the variation is desirable and beneficial to government. If lower cost is a benefit, also include an estimate of the cost saving. In addition to documentation required for variation, include the submittals required for the item. Clearly mark the proposed variation in all documentation.

1.6.4.3 Warranting That Variations Are Compatible

When delivering a variation for approval, contractor warrants that this contract has been reviewed to establish that the variation, if incorporated, will be compatible with other elements of work.

1.6.4.4 Review Schedule Is Modified

In addition to normal submittal review period, a period of 10 working days will be allowed for consideration by the Government of submittals with variations.

1.6.5 Contractor's Responsibilities

- a. Determine and verify field measurements, materials, field construction criteria; review each submittal; and check and coordinate each submittal with requirements of the work and contract documents.
- b. Transmit submittals to QC organization in accordance with schedule on approved Submittal Register, and to prevent delays in the work, delays to government, or delays to separate contractors.
- c. Advise contracting officer of variation, as required by paragraph entitled "Variations."

- d. Correct and resubmit submittal as directed by approving authority. When resubmitting disapproved transmittals or transmittals noted for resubmittal, the contractor shall provide copy of that previously submitted transmittal including all reviewer comments for use by approving authority. Direct specific attention in writing or on resubmitted submittal, to revisions not requested by approving authority on previous submissions.
- e. Furnish additional copies of submittal when requested by contracting officer, to a limit of 20 copies per submittal.
- f. Complete work which must be accomplished as basis of a submittal in time to allow submittal to occur as scheduled.
- g. Ensure no work has begun until submittals for that work have been returned as "approved," or "approved as noted", except to the extent that a portion of work must be accomplished as basis of submittal.

1.6.6 QC Organization Responsibilities

- a. Note date on which submittal was received from contractor on each submittal.
- b. Review each submittal; and check and coordinate each submittal with requirements of work and contract documents.
- c. Review submittals for conformance with project design concepts and compliance with contract documents.
- d. Act on submittals, determining appropriate action based on QC organization's review of submittal.
 - (1) When QC manager is approving authority, take appropriate action on submittal from the possible actions defined in paragraph entitled, "Actions Possible."
 - (2) When contracting officer is approving authority or when variation has been proposed, forward submittal to Government with certifying statement or return submittal marked "not reviewed" or "revise and resubmit" as appropriate. The QC organization's review of submittal determines appropriate action.
- e. Ensure that material is clearly legible.
- f. Stamp each sheet of each submittal with QC certifying statement or approving statement, except that data submitted in bound volume or on one sheet printed on two sides may be stamped on the front of the first sheet only.
 - (1) When approving authority is contracting officer, QC organization will certify submittals forwarded to contracting officer with the following certifying statement:

"I hereby certify that the (equipment) (material) (article) shown and marked in this submittal is that proposed to be incorporated with contract Number DACW09-02-C-__ __ __ __, is in compliance with the contract drawings and specification, can be installed in the allocated spaces, and is submitted for Government approval.

Certified by Submittal Reviewer _____, Date _____
(Signature when applicable)

Certified by QC manager _____, Date _____"
(Signature)

(2) When approving authority is QC manager, QC manager will use the following approval statement when returning submittals to contractor as "Approved" or "Approved as Noted."

"I hereby certify that the (material) (equipment) (article) shown and marked in this submittal and proposed to be incorporated with contract Number DACW09-02-C-__ __ __ __, is in compliance with the contract drawings and specification, can be installed in the allocated spaces, and is approved for use.

Certified by Submittal Reviewer _____, Date _____
(Signature when applicable)

Approved by QC manager _____, Date _____"
(Signature)

- g. Sign certifying statement or approval statement. The person signing certifying statements shall be QC organization member designated in the approved QC plan. The signatures shall be in original ink. Stamped signatures are not acceptable.
- h. Update submittal register database as submittal actions occur and maintain the submittal register at project site until final acceptance of all work by contracting officer.
- i. Retain a copy of approved submittals at project site, including contractor's copy of approved samples.

1.6.7 Government's Responsibilities

When approving authority is contracting Officer, the Government will:

- a. Note date on which submittal was received from QC manager, on each submittal for which the contracting officer is approving authority.
- b. Review submittals for approval within scheduling period specified and only for conformance with project design concepts and compliance with contract documents.
- c. Identify returned submittals with one of the actions defined in paragraph entitled "Actions Possible" and with markings

appropriate for action indicated.

1.6.8 Actions Possible

Submittals will be returned with one of the following notations:

- a. Submittals marked "not reviewed" will indicate submittal has been previously reviewed and approved, is not required, does not have evidence of being reviewed and approved by contractor, or is not complete. A submittal marked "not reviewed" will be returned with an explanation of the reason it is not reviewed. Resubmit submittals returned for lack of review by contractor or for being incomplete, with appropriate action, coordination, or change.
- b. Submittals marked "approved" "approved as submitted" authorize contractor to proceed with work covered.
- c. Submittals marked "approved as noted" or "approval except as noted; resubmission not required" authorize contractor to proceed with work as noted provided contractor takes no exception to the notations.
- d. Submittals marked "revise and resubmit" or "disapproved" indicate submittal is incomplete or does not comply with design concept or requirements of the contract documents and shall be resubmitted with appropriate changes. No work shall proceed for this item until resubmittal is approved.

1.7 FORMAT OF SUBMITTALS

1.7.1 Transmittal Form

Transmit each submittal, except sample installations and sample panels, to office of approving authority. Transmit submittals with transmittal form prescribed by contracting officer and standard for project. The transmittal form shall identify contractor, indicate date of submittal, and include information prescribed by transmittal form and required in paragraph entitled "Identifying Submittals." Process transmittal forms to record actions regarding sample panels and sample installations.

1.7.2 Identifying Submittals

Identify submittals, except sample panel and sample installation, with the following information permanently adhered to or noted on each separate component of each submittal and noted on transmittal form. Mark each copy of each submittal identically, with the following:

- a. Project title and location.
- b. Construction contract number.
- c. Section number of the specification section by which submittal is required.

- d. Submittal description (SD) number of each component of submittal.
- e. When a resubmission, add alphabetic suffix on submittal description, for example, SD-10A, to indicate resubmission.
- f. Name, address, and telephone number of subcontractor, supplier, manufacturer and any other second tier contractor associated with submittal.
- g. Product identification and location in project.

1.7.3 Format for Shop Drawings

- a. Shop drawings shall not be less than A4 (297 by 210 mm) nor more than AO (1189 by 841 mm).
- b. Present A4 (297 by 210 mm) sized shop drawings as part of the bound volume for submittals required by section. Present larger drawings in sets.
- c. Include on each drawing the drawing title, number, date, and revision numbers and dates, in addition to information required in paragraph entitled "Identifying Submittals."
- d. Dimension drawings, except diagrams and schematic drawings; prepare drawings demonstrating interface with other trades to scale. Shop drawing dimensions shall be the same unit of measure as indicated on the contract drawings. Identify materials and products for work shown.

1.7.4 Format for Product Data

- a. Present product data submittals for each section as a complete, bound volume. Include table of contents, listing page and catalog item numbers for product data.
- b. Indicate, by prominent notation, each product which is being submitted; indicate specification section number and paragraph number to which it pertains.
- c. Supplement product data with material prepared for project to satisfy submittal requirements for which product data does not exist. Identify this material as developed specifically for project.
- d. Provide product data in metric dimensions. Where product data are included in preprinted catalogues with inch-pound units only, submit metric dimensions on separate sheet.

1.7.5 Format of Samples

- a. Furnish samples in sizes below, unless otherwise specified or unless the manufacturer has prepackaged samples of approximately same size as specified:

- (1) Sample of Equipment or Device: Full size.
 - (2) Sample of Materials Less Than 50 by 75 mm: Built up to A4 (297 by 210 mm).
 - (3) Sample of Materials Exceeding A4 (297 by 210 mm): Cut down to A4 (297 by 210 mm) and adequate to indicate color, texture, and material variations.
 - (4) Sample of Linear Devices or Materials: 250 mm length or length to be supplied, if less than 250 mm. Examples of linear devices or materials are conduit and handrails.
 - (5) Sample of Non-Solid Materials: 750 ml. Examples of non-solid materials are sand and paint.
 - (6) Color Selection Samples: 50 by 100 mm.
 - (7) Sample Panel: 1200 by 1200 mm.
 - (8) Sample Installation: 10 square meters.
- b. Samples Showing Range of Variation: Where variations are unavoidable due to nature of the materials, submit sets of samples of not less than three units showing extremes and middle of range.
 - c. Reusable Samples: Incorporate returned samples into work only if so specified or indicated. Incorporated samples shall be in undamaged condition at time of use.
 - d. Recording of Sample Installation: Note and preserve the notation of area constituting sample installation but remove notation at final clean up of project.
 - e. When color, texture or pattern is specified by naming a particular manufacturer and style, include one sample of that manufacturer and style, for comparison.

1.7.6 Format of Operation and Maintenance (O&M) Data

- a. O&M Data format shall comply with the requirements specified in Section 01781, Operation and Maintenance Data"

1.7.7 Format of Administrative Submittals

- a. When submittal includes a document which is to be used in project or become part of project record, other than as a submittal, do not apply contractor's approval stamp to document, but to a separate sheet accompanying document.
- b. Provide all dimensions in administrative submittals in metric. Where data are included in preprinted material with inch-pound units only, submit metric dimensions on separate sheet.

1.8 QUANTITY OF SUBMITTALS

1.8.1 Number of Copies of Shop Drawings

- a. Submit six copies of submittals of shop drawings requiring review and approval only by QC organization and seven copies of shop drawings requiring review and approval by Contracting Officer.

1.8.2 Number of Copies of Product Data

Submit product data in compliance with quantity requirements specified for shop drawings.

1.8.3 Number of Samples

- a. Submit two samples, or two sets of samples showing range of variation, of each required item. One approved sample or set of samples will be retained by approving authority and one will be returned to contractor.
- b. Submit one sample panel. Include components listed in technical section or as directed.
- c. Submit one sample installation, where directed.
- d. Submit one sample of non-solid materials.

1.8.4 Number of Copies of Operation and Maintenance Data

Submit three copies of O&M Data to the Contracting Officer for review and approval

1.8.5 Number of Copies of Administrative Submittals

- a. Unless otherwise specified, submit administrative submittals compliance with quantity requirements specified for shop drawings.

1.9 FORWARDING SUBMITTALS

1.9.1 Samples Required of the Contractor

Submit samples to Contracting Officer.

1.9.2 Shop Drawings, Product Data, and O&M Data

As soon as practicable after award of contract, and before procurement of fabrication, submit, except as specified otherwise, to the Contracting Officer, the shop drawings, product data and O&M Data required in the technical sections of this specification. The designer for this project will review and provide surveillance for the Contracting Officer to determine if Contractor-approved submittals comply with the contract requirements, and will review and approve for the Contracting Officer those submittals not permitted to be Contractor approved to determine if

submittals comply with the contract requirements. One copy of the transmittal form for submittals shall be forwarded to the Resident Engineer in Charge of Construction

1.10 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.10.1 Government Approved

Government approval is required for extensions of design, critical materials, deviations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings."

1.10.2 Information Only

All submittals not requiring Government approval will be for information only. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to above.

1.11 APPROVED SUBMITTALS

The Contracting Officer's approval of submittals shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the Contractor Quality Control (CQC) requirements of this contract is responsible for dimensions, the design of adequate connections and details, and the satisfactory construction of all work. After submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.12 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the Contracting Officer and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, a notice in accordance with the Contract Clause "Changes" shall be given promptly to the Contracting Officer.

1.13 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

1.14 GENERAL

The Contractor shall make submittals as required by the specifications. The Contracting Officer may request submittals in addition to those

specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control (CQC) System Manager and each item shall be stamped, signed, and dated by the CQC System Manager indicating action taken. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

1.15 SUBMITTAL REGISTER

At the end of this section is a submittal register showing items of equipment and materials for which submittals are required by the specifications; this list may not be all inclusive and additional submittals may be required. The Government will provide the initial submittal register in electronic format. Thereafter, the Contractor shall maintain a complete list of all submittals, including completion of all data columns. Dates on which submittals are received and returned by the Government will be included in its export file to the Contractor. The Contractor shall track all submittals.

1.16 SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 30 calendar days exclusive of mailing time) shall be allowed and shown on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals.

1.17 TRANSMITTAL FORM (ENG FORM 4025)

The sample transmittal form (ENG Form 4025) attached to this section shall be used for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms are included in the RMS-QC software that the Contractor is required to use for this contract. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care shall be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

1.18 SUBMITTAL PROCEDURES

Submittals shall be made as follows:

1.18.1 Procedures

The Contractor shall complete ENG Form 4025, "Transmittal of Shop Drawings, Equipment Data, Material Samples, or Manufacturer's Certificate of Compliance," with each set of shop drawings, certificates, equipment data of samples submitted. A blank ENG Form 4025 will be furnished by the Contracting Officer upon request. Six (6) copies of each submittal will be required

1.18.2 Deviations

For submittals which include proposed deviations requested by the Contractor, the column "variation" of ENG Form 4025 shall be checked. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

1.19 CONTROL OF SUBMITTALS

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

1.20 GOVERNMENT APPROVED SUBMITTALS

Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. Four copies of the submittal will be retained by the Contracting Officer and two copies of the submittal will be returned to the Contractor.

1.21 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe.

1.22 STAMPS

Stamps used by the Contractor on the submittal data to certify that the submittal meets contract requirements shall be similar to the following:

<p>CONTRACTOR</p> <p>(Firm Name)</p> <p>_____ Approved</p> <p>_____ Approved with corrections as noted on submittal data and/or attached sheets(s).</p> <p>SIGNATURE: _____</p> <p>TITLE: _____</p> <p>DATE: _____</p>

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

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SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION					CONTRACTOR												
Upper Flamingo Diversion Channel																	
A C T I V I T Y N O	T R A N S M I T T A L N O	S P E C I F I C S E C T	D E S C R I P T I O N	P A R A M E T E R S	G O V E R N M E N T C L A S S I F I C A T I O N	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					M A I L E D T O C O N T R A C T O R	R E M A R K S
						S U B M I T	B Y	B Y	A C T I O N	D A T E	D A T E	D A T E	D A T E	D A T E	D A T E		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
	01200		SD-01 Preconstruction Submittals														
			Topographic Surveyor	3.19.2	G RE												
	01321		SD-01 Preconstruction Submittals														
			Qualifications	1.5	G RE												
			Standard Activity Coding Dictionary	1.6.2.5													
			Schedule Development Session scheduler/planner	1.7.2	G RE												
			Preliminary Network Analysis Schedule	1.7.3	G RE												
			Network Analysis Schedule	1.7.4	G RE												
			Accepted Network Analysis Schedule	1.7.6	G RE												
			Summary Network	1.7.8	G RE												
			SD-07 Certificates														
			Monthly Network Analysis Updates	1.7.7	G RE												
			SD-11 Closeout Submittals														
			As-Built Schedule	1.7.9	G RE												
	01330		SD-01 Preconstruction Submittals														
			Submittal register	1.5.1	G												
	01355		SD-01 Preconstruction Submittals														
			Environmental Protection Plan	1.7	G RE												
			Joint Condition Survey Report	1.8	G RE												
	01356		SD-07 Certificates														
			Mill Certificate or Affidavit	2.1.3	G RE												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION					CONTRACTOR												
Upper Flamingo Diversion Channel																	
A C T I V I T Y N O	T R A N S M I T T A L N O	S P E C I F I C S E C T	D E S C R I P T I O N	P A R A M E T E R S	C L A S S I F I C A T I O N	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					M A I L E D T O C O N T R A C T O R	R E M A R K S
						S U B M I T	B Y	B Y	A C T I O N	D A T E	D A T E	D A T E	D A T E	D A T E	D A T E		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
	01702		SD-11 Closeout Submittals														
			As-built Drawings	3.1.1	G RE												
	02100		SD-01 Preconstruction Submittals														
			Diversion and Control of Water Plan	1.2.1	G RE												
	02300		SD-01 Preconstruction Submittals														
			Excavation Plan	3.1	G RE												
			Excavation Plan	3.1.1	G RE												
			Haul Route Plan	3.7.1	G RE												
			SD-02 Shop Drawings														
			Shop Drawings	3.3	G RE												
			Explosive Storage Location	3.2.8.2	G RE												
			Pre-construction topographic survey of the entire project site	Part 3													
			Post-construction topographic survey of the entire project site	Part 3													
			SD-05 Design Data														
			Blast Data Report	3.2.2													
			Blast Data Report	3.2.7													
			SD-06 Test Reports														
			Field Density Tests	3.10.1	G RE												
			Treating of Compacted Fill Materials	3.10.1	G RE												
	02316		SD-06 Test Reports														
			Field Density Tests	3.4.3	G RE												
			Testing of Backfill Materials	3.4.2	G RE												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION						CONTRACTOR											
Upper Flamingo Diversion Channel																	
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION	PARAGRAPH	G O V T CLASSIFICATION	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY					REMARKS	
						APPROVAL NEEDED	MATERIAL NEEDED	DATE OF ACTION	DATE FWD TO APPR AUTH/	DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	DATE RCD FRM APPR AUTH		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
	02500		SD-03 Product Data														
			Composition Requirements	2.1	G RE												
	02510		SD-03 Product Data														
			Installation	3.1	G RE												
			Waste Water Disposal Method	3.2	G RE												
			Satisfactory Installation	3.5	G RE												
			SD-06 Test Reports														
			Bacteriological Disinfection	3.3	G RE												
			Bacteriological Disinfection	3.3.1	G RE												
			SD-07 Certificates														
			Manufacturer's Representative	1.4	G RE												
			Installation	3.1	G RE												
			Meters	2.7.8	G RE												
	02531		SD-07 Certificates														
			Portland Cement	2.7.1	G RE												
			Joints	2.3	G RE												
	02630		SD-03 Product Data														
			Placing Pipe	3.3	G RE												
			SD-04 Samples														
			Pipe for Culverts and Storm	2.1	G RE												
			Drains														
			SD-07 Certificates														
			Resin Certification	2.1.8	G RE												
			Resin Certification	2.1.9	G RE												
			Pipeline Testing	3.8	G RE												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION					CONTRACTOR												
Upper Flamingo Diversion Channel																	
A C T I V I T Y N O	T R A N S M I T T A L N O	S P E C I F I C S E C T	D E S C R I P T I O N	P A R A G R A P H G #	C L A S S I F I C A T I O N	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				M A I L E D T O C O N T R A C T O R /	R E M A R K S	
						S U B M I T	B Y	B Y	A C T I O N	D A T E O F	D A T E F R O M	D A T E F R O M	D A T E F R O M	D A T E O F			D A T E O F
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	02630		Hydrostatic Test on Watertight Joints	2.7	G RE												
			Determination of Density	3.7.5	G RE												
			Frame and Cover for Gratings	2.3.7	G RE												
	02700		SD-02 Shop Drawings														
			Placing Pipe	3.3	G RE												
			SD-06 Test Reports														
			Pipeline Testing	3.7	G RE												
	02709		SD-04 Samples														
			Filter Material	2.2													
	02710		SD-03 Product Data														
			Plant, Equipment, Machines, and Tools	1.6	G RE												
			Mix Design	2.2	G RE												
			Source of Bituminous Material	1.8	G RE												
			Operation of Aggregate Sources	3.2	G RE												
			Waybills and delivery tickets	1.3.1	G RE												
			SD-04 Samples														
			Bituminous Material	2.1.1	G RE												
			SD-06 Test Reports														
			Sampling and Testing	3.11	G RE												
	02722		SD-03 Product Data														
			Plant, Equipment, and Tools	1.6													
			Waybills and Delivery Tickets	3.3	G RE												
			SD-06 Test Reports														
			Sampling and testing	1.4	G RE												

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION

Upper Flamingo Diversion Channel

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION	PARAGRAPH	G O V T C L A S S I F I C A T I O N	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				REMARKS		
						SUBMIT	BY	MATERIAL NEEDED BY	ACTION	DATE OF ACTION	DATE FWD TO APPR AUTH/ FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION		DATE OF ACTION	DATE RCD FRM APPR AUTH
(a)	(b)	(c)	(d)	(e)	(f)												(r)
	02722		Field Density Tests	1.4.2.4	G RE												
	02741		SD-01 Preconstruction Submittals														
			Quality Control Plan for hot-mix asphalt	3.9.1	G RE												
			SD-03 Product Data														
			Waybills and Delivery Tickets	3.6.1													
			SD-04 Samples														
			Asphalt Cement Binder	2.2													
			SD-05 Design Data														
			Bituminous Pavement Mix Design	2.3	G RE												
			Job Mix Formula	2.3.1	G RE												
			Properties of Bituminous Pavement Mixture	2.3.1	G RE												
			SD-06 Test Reports														
			Asphalt Content	3.9.3.1													
			Aggregate Gradation	3.9.3.2													
			Aggregate Moisture	3.9.3.3													
			Temperatures	3.9.3.4													
			Moisture Content of Mixture	3.9.3.5													
			Laboratory Air Voids, Marshall	3.9.3.6													
			Stability and Flow														
			In-place Density	3.9.3.7													
			Thickness	3.9.3.8													
			Grade Conformance and Surface Smoothness	3.9.3.9													
			Asphalt Cement Binder	2.2													

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CONTRACT NO.

TITLE AND LOCATION

Upper Flamingo Diversion Channel

CONTRACTOR

A C T I V I T Y N O	T R A N S M I T T A L N O	S P E C T N O	DESCRIPTION	P A R A G R A P H	G O V T C L A S S I F I C A T I O N	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY				REMARKS		
						SUBMIT	BY	BY	A C T I O N C O D E	DATE OF A C T I O N	DATE FWD TO APPR AUTH/ FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	A C T I O N C O D E		DATE OF A C T I O N	DATE RCD FRM APPR AUTH
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	02741		Aggregates	2.1	G RE												
			QC Monitoring	3.9.3.11	G RE												
			SD-07 Certificates														
			Testing Laboratory	3.5	G RE												
			Certification of compliance	3.9.3.11													
			Plant Scale Calibration	1.4													
			Certification														
	02748		SD-06 Test Reports														
			Sampling and Testing	3.7													
			SD-07 Certificates														
			Waybills and Delivery Tickets	3.4	G												
	02821		SD-07 Certificates														
			Chain Link Fence	2.1.1	G RE												
	03101		SD-02 Shop Drawings														
			Shop Drawings	3.1.1	G RE												
			Shop Drawings	3.2.3	G RE												
			SD-03 Product Data														
			Materials	2.1													
			SD-07 Certificates														
			Shop Drawings	3.1.1	G RE												
			Shop Drawings	3.1.1	G RE												
			Shop Drawings	3.2.3	G RE												
			Shop Drawings	3.2.3	G RE												
			Inspection	3.3													
			Formwork Not Supporting the	3.2.1	G RE												
			Weight of Concrete														

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TITLE AND LOCATION

Upper Flamingo Diversion Channel

CONTRACTOR

A C T I V I T Y N O	T R A N S M I T T A L N O	S P E C I F I C S E C T	D E S C R I P T I O N	P A R A M E T E R S	C L A S S I F I C A T I O N	C O N T R A C T O R : S C H E D U L E D A T E S			C O N T R A C T O R A C T I O N		A P P R O V I N G A U T H O R I T Y				M A I L E D T O C O N T R A C T O R	R E M A R K S		
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	03151		SD-07 Certificates															
			Premolded Expansion Joint Filler Strips	2.1.1	G													
			Compression Seals and Lubricant	2.1.2.2	G													
			Field Molded Sealants and Primer	2.1.2.1	G													
	03200		SD-02 Shop Drawings															
			Fabrication and Placement	3.1	G RE													
			SD-06 Test Reports															
			Materials	2.1	G RE													
			Tests, Inspections, and Verifications	2.1.1														
	03301		SD-03 Product Data															
			Concrete Mixture Proportioning	2.2														
			Batch Plant	3.1.2														
			Capacity	3.1.1														
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			Conveying Equipment	3.1.4														
			Placing Equipment	3.1.1														
			Tests and Inspections	3.7														
			Testing Technicians	3.7.1														
			Concrete Transportation	3.7.1														
			Construction Inspector (CTCI)															
			Construction Joint Treatment	3.2.4	G RE													
			Curing and Protection	3.5	G RE													

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Upper Flamingo Diversion Channel																	
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						S U B M I T	B Y	B Y	A C T I O N C O D E	D A T E O F A C T I O N	D A T E F O R W A R D I N G	D A T E F O R W A R D I N G	D A T E F O R W A R D I N G	D A T E F O R W A R D I N G	D A T E F O R W A R D I N G		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
	03301		Cold-Weather Placing	3.3.4	G RE												
			Hot-Weather Placing	3.3.5	G RE												
			Finishing	3.4	G RE												
			SD-04 Samples														
			Aggregates	1.3.1.1	G RE												
			Cementitious Materials	1.3.1.2	G RE												
			Admixtures and Curing Compound														
			SD-06 Test Reports														
			Quality of Aggregates	3.7.2.3	G RE												
			Mixer Uniformity	3.7.2.13													
			Test Results and Inspection Reports	3.7													
			SD-07 Certificates														
			Cementitious Materials	2.1.1													
			Chemical Admixtures	2.1.3													
			Membrane-Forming Curing Compound	2.1.4.1													
			Epoxy Resin	2.1.8													
			Latex Bonding Compound	2.1.7													
			Nonshrink Grout	2.1.6													
	05502		SD-02 Shop Drawings														
			Miscellaneous Metal Items	3.1	G RE												

INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.
2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.
3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288-R for each entry on this form.
4. Submittals requiring expeditious handling will be submitted on a separate form.
5. Separate transmittal form will be used for submittals under separate sections of the specifications.
6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications--also, a written statement to that effect shall be included in the space provided for "Remarks".
7. Form is self-transmittal, letter of transmittal is not required.
8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I.
9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column i to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, column g, to each item submitted.

THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

- | | |
|---|---|
| A -- Approved as submitted. | E -- Disapproved (See attached). |
| B -- Approved, except as noted on drawings. | F -- Receipt acknowledged. |
| C -- Approved, except as noted on drawings.
Refer to attached sheet resubmission required. | FX -- Receipt acknowledged, does not comply
as noted with contract requirements. |
| D -- Will be returned by separate correspondence. | G -- Other (Specify) |

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

(Reverse of ENG Form 4025-R)

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-- End of Section Table of Contents --

SECTION 01355

ENVIRONMENTAL PROTECTION

PART 1 GENERAL

1.1 REFERENCES

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

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

33 CFR 328	Definitions
40 CFR 68	Chemical Accident Prevention Provisions
40 CFR 260	Hazardous Waste Management System: General
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 279	Standards for the Management of Used Oil
40 CFR 302	Designation, Reportable Quantities, and Notification
40 CFR 355	Emergency Planning and Notification
49 CFR 171 - 178	Hazardous Materials Regulations

U.S. ARMY CORPS OF ENGINEERS (USACE)

COE EM 385-1-1	(1996) Safety and Health Requirements Manual
WETLAND MANUAL	Corps of Engineers Wetlands Delineation Manual Technical Report Y-87-1

1.2 DEFINITIONS

1.2.1 Environmental Pollution and Damage

Environmental pollution and damage is the presence of chemical, physical,

or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade the environment aesthetically, culturally and/or historically.

1.2.2 Environmental Protection

Environmental protection is the prevention/control of pollution and habitat disruption that may occur to the environment during construction. The control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

1.2.3 Contractor Generated Hazardous Waste

Contractor generated hazardous waste means materials that, if abandoned or disposed of, may meet the definition of a hazardous waste. These waste streams would typically consist of material brought on site by the Contractor to execute work, but are not fully consumed during the course of construction. Examples include, but are not limited to, excess paint thinners (i.e. methyl ethyl ketone, toluene etc.), waste thinners, excess paints, excess solvents, waste solvents, and excess pesticides, and contaminated pesticide equipment rinse water.

1.2.4 Land Application for Discharge Water

The term "Land Application" for discharge water implies that the Contractor shall discharge water at a rate which allows the water to percolate into the soil. No sheeting action, soil erosion, discharge into storm sewers, discharge into defined drainage areas, or discharge into the "waters of the United States" shall occur. Land Application shall be in compliance with all applicable Federal, State, and local laws and regulations.

1.2.5 Surface Discharge

The term "Surface Discharge" implies that the water is discharged with possible sheeting action and subsequent soil erosion may occur. Waters that are surface discharged may terminate in drainage ditches, storm sewers, creeks, and/or "waters of the United States" and would require a permit to discharge water from the governing agency.

1.2.6 Waters of the United States

All waters which are under the jurisdiction of the Clean Water Act, as defined in 33 CFR 328.

1.2.7 Wetlands

Wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include

swamps, marshes, and bogs. Official determination of whether or not an area is classified as a wetland must be done in accordance with WETLAND MANUAL.

1.3 GENERAL REQUIREMENTS

The Contractor shall minimize environmental pollution and damage that may occur as the result of construction operations. The environmental resources within the project boundaries and those affected outside the limits of permanent work shall be protected during the entire duration of this contract. The Contractor shall comply with all applicable environmental Federal, State, and local laws and regulations. The Contractor shall be responsible for any delays resulting from failure to comply with environmental laws and regulations.

1.4 SUBCONTRACTORS

The Contractor shall ensure compliance with this section by subcontractors.

1.5 PAYMENT

No separate payment will be made for work covered under this section. The Contractor shall be responsible for payment of fees associated with environmental permits, application, and/or notices obtained by the Contractor. All costs associated with this section shall be included in the contract price. The Contractor shall be responsible for payment of all fines/fees for violation or non-compliance with Federal, State, Regional and local laws and regulations.

1.6 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Environmental Protection Plan; G, RE.

The environmental protection plan.

Joint Condition Survey Report; G, RE.

A report on the joint condition survey.

1.7 ENVIRONMENTAL PROTECTION PLAN

Prior to commencing construction activities or delivery of materials to the site, the Contractor shall submit an Environmental Protection Plan for review and approval by the Contracting Officer. The purpose of the Environmental Protection Plan is to present a comprehensive overview of known or potential environmental issues which the Contractor must address

during construction. Issues of concern shall be defined within the Environmental Protection Plan as outlined in this section. The Contractor shall address each topic at a level of detail commensurate with the environmental issue and required construction task(s). Topics or issues which are not identified in this section, but which the Contractor considers necessary, shall be identified and discussed after those items formally identified in this section. Prior to submittal of the Environmental Protection Plan, the Contractor shall meet with the Contracting Officer for the purpose of discussing the implementation of the initial Environmental Protection Plan; possible subsequent additions and revisions to the plan including any reporting requirements; and methods for administration of the Contractor's Environmental Plans. The Environmental Protection Plan shall be current and maintained onsite by the Contractor.

1.7.1 Compliance

No requirement in this Section shall be construed as relieving the Contractor of any applicable Federal, State, and local environmental protection laws and regulations. During Construction, the Contractor shall be responsible for identifying, implementing, and submitting for approval any additional requirements to be included in the Environmental Protection Plan.

1.7.2 Contents

The environmental protection plan shall include, but shall not be limited to, the following:

- a. Name(s) of person(s) within the Contractor's organization who is(are) responsible for ensuring adherence to the Environmental Protection Plan.
- b. Name(s) and qualifications of person(s) responsible for manifesting hazardous waste to be removed from the site, if applicable.
- c. Name(s) and qualifications of person(s) responsible for training the Contractor's environmental protection personnel.
- d. Description of the Contractor's environmental protection personnel training program.
- e. An erosion and sediment control plan which identifies the type and location of the erosion and sediment controls to be provided. The plan shall include monitoring and reporting requirements to assure that the control measures are in compliance with the erosion and sediment control plan, Federal, State, and local laws and regulations. A Storm Water Pollution Prevention Plan (SWPPP) may be substituted for this plan.
- f. Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on the site.

- g. Traffic control plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Plan shall include measures to minimize the amount of mud transported onto paved public roads by vehicles or runoff.
- h. Work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. Plan should include measures for marking the limits of use areas including methods for protection of features to be preserved within authorized work areas.
- i. Drawing showing the location of borrow areas.
- j. The Spill Control plan shall include the procedures, instructions, and reports to be used in the event of an unforeseen spill of a substance regulated by 40 CFR 68, 40 CFR 302, 40 CFR 355, and/or regulated under State or Local laws and regulations. The Spill Control Plan supplements the requirements of COE EM 385-1-1. This plan shall include as a minimum:
1. The name of the individual who will report any spills or hazardous substance releases and who will follow up with complete documentation. This individual shall immediately notify the Contracting Officer and the local Fire Department in addition to the legally required Federal, State, and local reporting channels (including the National Response Center 1-800-424-8802) if a reportable quantity is released to the environment. The plan shall contain a list of the required reporting channels and telephone numbers.
 2. The name and qualifications of the individual who will be responsible for implementing and supervising the containment and cleanup.
 3. Training requirements for Contractor's personnel and methods of accomplishing the training.
 4. A list of materials and equipment to be immediately available at the job site, tailored to cleanup work of the potential hazard(s) identified.
 5. The names and locations of suppliers of containment materials and locations of additional fuel oil recovery, cleanup, restoration, and material-placement equipment available in case of an unforeseen spill emergency.
 6. The methods and procedures to be used for expeditious contaminant cleanup.
- k. A non-hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris. The plan shall include schedules for disposal. The Contractor shall identify any subcontractors responsible for the transportation and disposal of solid waste. Licenses or permits shall be submitted for solid waste

disposal sites that are not a commercial operating facility. Evidence of the disposal facility's acceptance of the solid waste shall be attached to this plan during the construction. The Contractor shall attach a copy of each of the Non-hazardous Solid Waste Diversion Reports to the disposal plan. The report shall be submitted on the first working day after the first quarter that non-hazardous solid waste has been disposed and/or diverted and shall be for the previous quarter (e.g. the first working day of January, April, July, and October). The report shall indicate the total amount of waste generated and total amount of waste diverted in cubic meters or tons along with the percent that was diverted.

l. A recycling and solid waste minimization plan with a list of measures to reduce consumption of energy and natural resources. The plan shall detail the Contractor's actions to comply with and to participate in Federal, State, Regional, and local government sponsored recycling programs to reduce the volume of solid waste at the source.

m. An air pollution control plan detailing provisions to assure that dust, debris, materials, trash, etc., do not become air borne and travel off the project site.

n. A contaminant prevention plan that: identifies potentially hazardous substances to be used on the job site; identifies the intended actions to prevent introduction of such materials into the air, water, or ground; and details provisions for compliance with Federal, State, and local laws and regulations for storage and handling of these materials. In accordance with COE EM 385-1-1, a copy of the Material Safety Data Sheets (MSDS) and the maximum quantity of each hazardous material to be on site at any given time shall be included in the contaminant prevention plan. As new hazardous materials are brought on site or removed from the site, the plan shall be updated.

o. A waste water management plan that identifies the methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines. If a settling/retention pond is required, the plan shall include the design of the pond including drawings, removal plan, and testing requirements for possible pollutants. If land application will be the method of disposal for the waste water, the plan shall include a sketch showing the location for land application along with a description of the pretreatment methods to be implemented. If surface discharge will be the method of disposal, a copy of the permit and associated documents shall be included as an attachment prior to discharging the waste water. If disposal is to a sanitary sewer, the plan shall include documentation that the Waste Water Treatment Plant Operator has approved the flow rate, volume, and type of discharge.

p. A historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands known to be on the project site: and/or

identifies procedures to be followed if historical archaeological, cultural resources, biological resources and wetlands not previously known to be onsite or in the area are discovered during construction. The plan shall include methods to assure the protection of known or discovered resources and shall identify lines of communication between Contractor personnel and the Contracting Officer.

1.7.3 Appendix

Copies of all environmental permits, permit application packages, approvals to construct, notifications, certifications, reports, and termination documents shall be attached, as an appendix, to the Environmental Protection Plan.

1.8 PROTECTION FEATURES

This paragraph supplements the Contract Clause PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS. Prior to start of any onsite construction activities, the Contractor and the Contracting Officer shall make a joint condition survey. Immediately following the survey, the Contractor shall prepare a brief joint condition survey report including a plan describing the features requiring protection under the provisions of the Contract Clauses, which are not specifically identified on the drawings as environmental features requiring protection along with the condition of trees, shrubs and grassed areas immediately adjacent to the site of work and adjacent to the Contractor's assigned storage area and access route(s), as applicable. This survey report shall be signed by both the Contractor and the Contracting Officer upon mutual agreement as to its accuracy and completeness. The Contractor shall protect those environmental features included in the survey report and any indicated on the drawings, regardless of interference which their preservation may cause to the Contractor's work under the contract.

1.9 SPECIAL ENVIRONMENTAL REQUIREMENTS

The Contractor shall comply with the special environmental requirements listed here and included at the end of this section.

1.10 ENVIRONMENTAL ASSESSMENT OF CONTRACT DEVIATIONS

Any deviations, requested by the Contractor, from the drawings, plans and specifications which may have an environmental impact will be subject to approval by the Contracting Officer and may require an extended review, processing, and approval time. The Contracting Officer reserves the right to disapprove alternate methods, even if they are more cost effective, if the Contracting Officer determines that the proposed alternate method will have an adverse environmental impact.

1.11 NOTIFICATION

The Contracting Officer will notify the Contractor in writing of any observed noncompliance with Federal, State or local environmental laws or regulations, permits, and other elements of the Contractor's Environmental Protection plan. The Contractor shall, after receipt of such notice,

inform the Contracting Officer of the proposed corrective action and take such action when approved by the Contracting Officer. The Contracting Officer 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 equitable adjustments allowed to the Contractor for any such suspensions. This is in addition to any other actions the Contracting Officer may take under the contract, or in accordance with the Federal Acquisition Regulation or Federal Law.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 ENVIRONMENTAL PERMITS AND COMMITMENTS

This paragraph supplements the Contractor's responsibility under the contract clause "PERMITS AND RESPONSIBILITIES" to the extent that the Government has obtained environmental permits. The Contractor shall comply with the terms and conditions of the attached list of environmental commitments at the end of this section.

The Contractor shall be responsible for obtaining and complying with all environmental permits and commitments required by Federal, State, Regional, and local environmental laws and regulations.

3.2 LAND RESOURCES

The Contractor shall confine all activities to areas defined by the drawings and specifications. Prior to the beginning of any construction, the Contractor shall identify any land resources to be preserved within the 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 approval. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. The Contractor shall provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs. Stone, soil, or other materials displaced into uncleared areas shall be removed by the Contractor.

3.2.1 Work Area Limits

Prior to commencing construction activities, the Contractor shall mark the areas that need not be disturbed under this contract. Isolated areas within the general work area which are not to be disturbed shall be marked or fenced. Monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, any markers shall be visible in the dark. The Contractor's personnel shall be knowledgeable of the purpose for marking and/or protecting particular objects.

3.2.2 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. The Contractor shall restore landscape features damaged or destroyed during construction operations outside the limits of the approved work area.

3.2.3 Erosion and Sediment Controls

The Contractor shall be responsible for providing erosion and sediment control measures in accordance with Federal, State, and local laws and regulations. The erosion and sediment controls selected and maintained by the Contractor shall be such that water quality standards are not violated as a result of the Contractor's construction activities. The area of bare soil exposed at any one time by construction operations should be kept to a minimum. The Contractor shall construct or install temporary and permanent erosion and sediment control best management practices (BMPs) as specified in Section 01356 STORM WATER POLLUTION PREVENTION MEASURES. BMPs may include, but not be limited to, vegetation cover, stream bank stabilization, slope stabilization, silt fences, construction of terraces, interceptor channels, sediment traps, inlet and outfall protection, diversion channels, and sedimentation basins. The Contractor's best management practices shall also be in accordance with the National Pollutant Discharge Elimination System (NPDES) Storm Water Pollution Prevention Plan (SWPPP) which may be reviewed at the Contractors Project Office. Any temporary measures shall be removed after the area has been stabilized.

3.2.3.1 Unprotected Erodible Soils

Earthwork brought to final grade shall be finished as indicated. 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. Except in cases where the constructed feature obscures borrow areas, quarries, and waste material areas, these areas shall not initially be totally cleared. Clearing of such areas shall progress in reasonably sized increments as needed to use the developed areas as approved by the Contracting Officer.

3.2.3.2 Disturbed Areas

The Contractor shall effectively prevent erosion and control sedimentation through approved methods including, but not limited to, the following:

- a. Retardation and control of runoff. Runoff from the construction site or from storms shall be controlled, retarded, and diverted to protected drainage courses by means of diversion ditches, benches, berms, and by any measures required by area wide plans under the Clean Water Act.

3.2.4 Contractor Facilities and Work Areas

The Contractor's field offices, staging areas, stockpile storage, and temporary buildings shall be placed in areas designated on the drawings or as directed by the Contracting Officer. Temporary movement or relocation

of Contractor facilities shall be made only when approved. Erosion and sediment controls shall be provided for on-site borrow and spoil areas to prevent sediment from entering nearby waters. Temporary excavation and embankments for plant and/or work areas shall be controlled to protect adjacent areas.

3.3 WATER RESOURCES

The Contractor shall monitor construction activities to prevent pollution of surface and ground waters. Toxic or hazardous chemicals shall not be applied to soil or vegetation unless otherwise indicated. All water areas affected by construction activities shall be monitored by the Contractor. For construction activities immediately adjacent to impaired surface waters, the Contractor shall be capable of quantifying sediment or pollutant loading to that surface water when required by State or Federally issued Clean Water Act permits.

3.3.1 Cofferdams, Diversions, and Dewatering Operations

Construction operations for dewatering, removal of cofferdams, tailrace excavation, and tunnel closure shall be controlled at all times to maintain compliance with existing State water quality standards and designated uses of the surface water body. The Contractor shall comply with the State of Nevada water quality standards and anti-degradation provisions.

3.3.2 Stream Crossings

Stream crossings shall allow movement of materials or equipment without violating water pollution control standards of the Federal, State, and local governments.

3.3.3 Wetlands

The Contractor shall not enter, disturb, destroy, or allow discharge of contaminants into any wetlands.

3.4 AIR RESOURCES

Equipment operation and activities or processes performed by the Contractor in accomplishing the specified construction shall be in accordance with the State's rules and all Federal emission and performance laws and standards. The Contractor shall obtain and comply with Air Quality Permits. Ambient Air Quality Standards set by the Environmental Protection Agency shall be maintained. Monitoring of air quality shall be the Contractor's responsibility. All air areas affected by the construction activities shall be monitored by the Contractor. Monitoring results will be periodically reviewed by the Government to ensure compliance.

Special management techniques as set out below shall be implemented to control air pollution by the construction activities. These techniques supplement the requirements of Federal, State, and local laws and regulations; and the safety requirements under this Contract. If any of the following techniques conflict with the requirements of Federal, State, or local laws or regulations, or safety requirements under this contract,

then those requirements shall be followed in lieu of the following.

3.4.1 Particulates

Dust particles; aerosols and gaseous by-products from construction activities; and processing and preparation of materials, such as from asphaltic batch plants; shall be controlled at all times, including weekends, holidays and hours when work is not in progress. The Contractor shall maintain excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and other work areas within or outside the project boundaries free from particulates which would cause the Federal, State, and local air pollution standards to be exceeded or which would cause a hazard or a nuisance. Sprinkling, chemical treatment of an approved type, baghouse, scrubbers, electrostatic precipitators or other methods will be permitted to control particulates in the work area. Sprinkling, to be efficient, must be repeated to keep the disturbed area damp at all times. The Contractor must have sufficient, competent equipment available to accomplish these tasks. Particulate control shall be performed as the work proceeds and whenever a particulate nuisance or hazard occurs. The Contractor shall comply with all State and local visibility regulations.

3.4.2 Odors

Odors from construction activities shall be controlled at all times. The odors shall not cause a health hazard and shall be in compliance with State regulations and/or local ordinances.

3.4.3 Sound Intrusions

The Contractor shall keep construction activities under surveillance and control to minimize environment damage by noise. The Contractor shall comply with the provisions of the State of Nevada rules.

3.4.4 Burning

Burning will not be allowed on the project site unless specified in other sections of the specifications or authorized in writing by the Contracting Officer. The specific time, location, and manner of burning shall be subject to approval.

3.5 CHEMICAL MATERIALS MANAGEMENT AND WASTE DISPOSAL

Disposal of wastes shall be as directed below, unless otherwise specified in other sections and/or shown on the drawings.

3.5.1 Solid Wastes

Solid wastes (excluding clearing debris) shall be placed in containers which are emptied on a regular schedule. Handling, storage, and disposal shall be conducted to prevent contamination. Segregation measures shall be employed so that no hazardous or toxic waste will become co-mingled with solid waste. The Contractor shall transport solid waste off Government property and dispose of it in compliance with Federal, State, and local

requirements for solid waste disposal. A Subtitle D RCRA permitted landfill shall be the minimum acceptable off-site solid waste disposal option. The Contractor shall verify that the selected transporters and disposal facilities have the necessary permits and licenses to operate. The Contractor shall comply with Federal, State, and local laws and regulations pertaining to the use of landfill areas.

3.5.2 Chemicals and Chemical Wastes

Chemicals shall be dispensed ensuring no spillage to the ground or water. Periodic inspections of dispensing areas to identify leakage and initiate corrective action shall be performed and documented. This documentation will be periodically reviewed by the Government. Chemical waste shall be collected in corrosion resistant, compatible containers. Collection drums shall be monitored and removed to a staging or storage area when contents are within 150 mm of the top. Wastes shall be classified, managed, stored, and disposed of in accordance with Federal, State, and local laws and regulations.

3.5.3 Contractor Generated Hazardous Wastes/Excess Hazardous Materials

Hazardous wastes are defined in 40 CFR 261, or are as defined by applicable State and local regulations. Hazardous materials are defined in 49 CFR 171 - 178. The Contractor shall, at a minimum, manage and store hazardous waste in compliance with 40 CFR 262. The Contractor shall take sufficient measures to prevent spillage of hazardous and toxic materials during dispensing. The Contractor shall segregate hazardous waste from other materials and wastes, shall protect it from the weather by placing it in a safe covered location, and shall take precautionary measures such as berming or other appropriate measures against accidental spillage. The Contractor shall be responsible for storage, describing, packaging, labeling, marking, and placarding of hazardous waste and hazardous material in accordance with 49 CFR 171 - 178, State, and local laws and regulations.

The Contractor shall transport Contractor generated hazardous waste off Government property within 15 calendar days in accordance with the Environmental Protection Agency and the Department of Transportation laws and regulations. The Contractor shall dispose of hazardous waste in compliance with Federal, State and local laws and regulations. Spills of hazardous or toxic materials shall be immediately reported to the Contracting Officer. Cleanup and cleanup costs due to spills shall be the Contractor's responsibility. The disposition of Contractor generated hazardous waste and excess hazardous materials are the Contractor's responsibility.

3.5.4 Fuel and Lubricants

Storage, fueling and lubrication of equipment and motor vehicles shall be conducted in a manner that affords the maximum protection against spill and evaporation. Fuel, lubricants and oil shall be managed and stored in accordance with all Federal, State, Regional, and local laws and regulations. Used lubricants and used oil to be discarded shall be stored in marked corrosion-resistant containers and recycled or disposed in accordance with 40 CFR 279, State, and local laws and regulations. Storage of fuel on the project site shall be accordance with all Federal, State,

and local laws and regulations.

3.5.5 Waste Water

Disposal of waste water shall be as specified below.

- a. Waste water from construction activities, such as onsite material processing, concrete curing, foundation and concrete clean-up, water used in concrete trucks, forms, etc. shall not be allowed to enter water ways or to be discharged prior to being treated to remove pollutants. The Contractor shall dispose of the construction related waste water off-Government property in accordance with all Federal, State, Regional and Local laws and regulations.
- b. For discharge of ground water, the Contractor shall surface discharge in accordance with the requirements of the NPDES or State STORM WATER DISCHARGES FROM CONSTRUCTION SITES permit.
- c. Water generated from the flushing of lines after disinfection or disinfection in conjunction with hydrostatic testing shall be discharged into the sanitary sewer with prior approval and/or notification to the Waste Water Treatment Plant's Operator.

3.6 RECYCLING AND WASTE MINIMIZATION

The Contractor shall participate in State and local government sponsored recycling programs. The Contractor is further encouraged to minimize solid waste generation throughout the duration of the project.

3.7 NON-HAZARDOUS SOLID WASTE DIVERSION REPORT

The Contractor shall maintain an inventory of non-hazardous solid waste diversion and disposal of construction and demolition debris. The Contractor shall submit a report to the Contracting Officer on the first working day after each fiscal year quarter, starting the first quarter that non-hazardous solid waste has been generated. The following shall be included in the report:

- a. Construction and Demolition (C&D) Debris Disposed = _____ in cubic meters, as appropriate.
- b. Construction and Demolition (C&D) Debris Recycled = _____ in cubic meters, as appropriate.
- c. Total C&D Debris Generated = _____ in cubic meters, as appropriate.
- d. Waste Sent to Waste-To-Energy Incineration Plant (This amount should not be included in the recycled amount) = _____ in cubic meters, as appropriate.

3.8 HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

If during excavation or other construction activities any previously

unidentified or unanticipated historical, archaeological, and cultural resources are discovered or found, all activities that may damage or alter such resources shall be temporarily suspended. Resources covered by this paragraph include but are not limited to: any human skeletal remains or burials; artifacts; shell, midden, bone, charcoal, or other deposits; rock or coral alignments, pavings, wall, or other constructed features; and any indication of agricultural or other human activities. Upon such discovery or find, the Contractor shall immediately notify the Contracting Officer so that the appropriate authorities may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. The Contractor shall cease all activities that may result in impact to or the destruction of these resources. The Contractor shall secure the area and prevent employees or other persons from trespassing on, removing, or otherwise disturbing such resources.

3.9 BIOLOGICAL RESOURCES

3.9.1 Threatened and Endangered Species Protection

If during construction activities any threatened or endangered species (particularly the Desert Tortoise) are observed in or near the construction area, such observations shall be reported immediately to the Contracting Officer so that the appropriate authorities may be notified and a determination made as to what special disposition should be made. The Contractor shall strictly adhere to the relevant articles of the following Table 01355-1 found at the end of this section. In no circumstances shall any employee directly handle any tortoise unless it is in imminent danger. The Contractor shall cease all activities that may result in an impact to or the destruction of these resources. The Contractor shall prevent his employees from trespassing on private property, removing, or otherwise disturbing any threatened or endangered species.

Based on the Nevada Division of Wildlife's (NDOW) February 23, 2001 comments on the January 2001 DSEA (Draft Supplemental Environment Assessment) for the R-4 Detention Basin and Haul Road Alignment, the Corps has agreed to incorporate protocols to protect the Gila monster into its program to protect the desert tortoise in future projects such as this F-1 Channel, Hualapai Way to Beltway. Separate surveys for the Gila monster are not required. The biological monitor (for the desert tortoise) shall also be trained to recognize the Gila monster and to handle this species according to NDOW protocol. The Gila monster is not federally listed as Threatened or Endangered, but it is classified as a State of Nevada Protected Reptile and a BLM Sensitive Species. If during the preconstruction biological surveys or construction monitoring (for desert tortoise), a Gila monster is discovered, the NDOW will be notified. If the NDOW is not available, the biologist shall photograph the Gila monster, document its location, capture, and release the Gila monster out of harm's way, using precautions to avoid being bitten.

3.9.2 Protection of Biological Resources

The Contractor shall keep construction activities under surveillance, management, and control to minimize interference with, disturbance to, and damage of, native vegetation, fish, and wildlife. The Contractor shall

minimize interference with, disturbance to, and damage of wildlife and plants including their habitat. Species that require specific attention along with measures for their protection shall be listed by the Contractor prior to beginning of construction operations. The Contractor shall be responsible for the protection of threatened and endangered animal and plant species including their habitat in accordance with Federal, State, Regional, and local laws and regulations.

3.10 PREVIOUSLY USED EQUIPMENT

The Contractor shall clean all previously used construction equipment prior to bringing it onto the project site. The Contractor shall ensure that the equipment is free from soil residuals, egg deposits from plant pests, noxious weeds, and plant seeds. The Contractor shall consult with the USDA jurisdictional office for additional cleaning requirements.

3.11 MAINTENANCE OF POLLUTION FACILITIES

The Contractor shall maintain permanent and temporary pollution control facilities and devices for the duration of the contract or for that length of time construction activities create the particular pollutant.

3.12 MILITARY MUNITIONS

In the event the Contractor discovers or uncovers military munitions as defined in 40 CFR 260, the Contractor shall immediately stop work in that area and immediately inform the Contracting Officer.

3.13 TRAINING OF CONTRACTOR PERSONNEL

The Contractor's personnel shall be trained in all phases of environmental protection and pollution control. The Contractor shall conduct environmental protection/pollution control meetings for all Contractor personnel prior to commencing construction activities. Additional meetings shall be conducted for new personnel and when site conditions change. The training and meeting agenda shall include: methods of detecting and avoiding pollution; familiarization with statutory and contractual pollution standards; installation and care of devices, vegetative covers, and instruments required for monitoring purposes to ensure adequate and continuous environmental protection/pollution control; anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants; recognition and protection of archaeological sites, artifacts, wetlands, and endangered species and their habitat that are known to be in the area.

3.14 POST CONSTRUCTION CLEANUP

The Contractor shall clean up all areas used for construction in accordance with Contract Clause: "Cleaning Up". The Contractor shall, unless otherwise instructed in writing by the Contracting Officer, obliterate all signs of temporary construction facilities such as haul roads, work area, structures, foundations of temporary structures, stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work. The disturbed area shall be graded, filled and the entire area seeded unless otherwise indicated.

-- End of Section --

Table 01355-1

ENVIRONMENTAL COMMITMENTS

Significant Impact	EIS Ref.	Federal Enviro	Mitigation Commitment	Implementa
Impacts to desert tortoise	Para 2.03	NEPA, Endangered Species Act	Payment of a Compensation Fee of \$550 per acre of permanent disturbance and \$220 per acre of temporary disturbance (40 percent of the assessment for permanent disturbance). This assessment would result in a compensation of \$401,340 for permanent disturbance and \$47,214 for temporary disturbance for a total of \$448,554.	Prior to the initiation of construction. Paid by Corps of Engineers.
Impacts to desert tortoise during pre construction and construction	Para 2.03	NEPA, Endangered Species Act	The Corps will designate an individual as a contact representative who will be responsible for overseeing compliance with protective stipulations for the desert tortoise and coordination with the FWS.	Concurrent with pre construction and construction activities
			Any biologist supervising pre-construction and construction activity and/or moving tortoises or their eggs shall be a qualified tortoise biologist trained in the handling procedures specified in the Appendix A to the Biological Opinion (BO) issued by the FWS (Appendix D).	Concurrent with pre construction and construction

		<p>Prior to start of pre-construction and construction activities in any areas occupied by the desert tortoise, or in which tortoise habitat is found, all employees who will work in such areas will be informed, through an education program, developed by the Corps, of the occurrence of the desert tortoise in the project area, and of the Threatened status of the species. They will be advised of the definition of "take", of the potential for impacts to the tortoise, and of the potential penalties (up to \$25,000 in fines and 6 months in prison) for taking a threatened species. They will also be informed of the mitigation measures to which the Corps has committed and the terms and conditions included in the Biological Opinion.</p>	<p>Concurrent with pre construction and construction activities causing impacts.</p>
		<p>The contents of the education program would be coordinated with the FWS prior to its implementation. The program will also be presented to all supervisory and maintenance personnel associated with activities in tortoise habitat, and private landowners, if any, who will be responsible for maintenance of facilities on their properties. All such persons will sign a statement indicating that they have completed the education program and understand fully its provisions and the specific measures, terms, and conditions included in the EIS and Biological Opinion.</p>	<p>Concurrent with pre construction and construction activities causing impacts.</p>

		<p>Within 60 days prior to initial brushing, grubbing, grading, or other construction activity, a thorough survey of the construction site, including areas outside the facility boundaries likely to be disturbed by construction activities, will be conducted by the qualified Biologist. All tortoises, including any eggs found, will be removed from the site no more than 60 days prior to the onset of construction. Alternatively, removal efforts may occur in concert with surveys of project areas if performed no more than 60 days prior to the onset of construction.</p>	<p>Concurrent with pre construction and construction activities causing impacts.</p>
		<p>Each burrow, whether showing evidence of activity or not, will be 1) either examined using a fiberoptic scope and, if a tortoise is present, excavated by hand to remove the tortoise, or (2) excavated by hand to remove any tortoise or eggs that may be present. Burrows or dens of other species that could be used by tortoises also will be treated in the same manner. Tortoises found in these areas shall be handled and moved out of the construction zone according to the protocol provided in Appendix A to the Biological Opinion. All burrows will be excavated under the supervision of the Biologist. Only the Biologist shall handle tortoises or tortoise eggs.</p>	<p>Concurrent with pre construction and construction activities causing impacts.</p>
		<p>Tortoises removed from the wild will be relocated as specified under the section on measures to minimize mortality of desert tortoises during transportation, handling, and care following removal from project sites, below.</p>	<p>Concurrent with construction activities causing</p>

		<p>The Construction right-of-way for all primary channels and the lateral collector channel system will be inspected for tortoises and their burrows not more than one working day prior to any surface disturbing activities. The inspection will be conducted by a qualified tortoise biologist and will provide 100 percent coverage of the right-of-way. The area will be surveyed three times unless no tortoises are found on the second pass.</p>	<p>Concurrent with construction activities causing impacts.</p>
		<p>Tortoises found on all channel and lateral collector sites will be moved off the construction site for a distance of 300 to 1,000 feet and placed in the shade of a shrub, in a natural unoccupied burrow similar to the hibernaculum in which it was found, or in an artificially constructed burrow following the protocol provided in Appendix A to the Biological Assessment. Tortoises will not be placed on land not under the ownership of the Bureau of Land Management or the Flood Control District without the written permission of the landowner. If such permission is not obtained, the tortoise would be handled under the procedures outlined above.</p>	<p>Concurrent with construction activities causing impacts.</p>

		<p>Tortoises showing symptoms of Upper Respiratory Tract Disease will be left in the wild. To minimize the risk of spreading the Upper Respiratory Tract Disease, each tortoise will be handled with a separate pair of disposable gloves. All materials used to handle or contain tortoises will be used once and then discarded or sterilized. Cardboard boxes used to hold tortoises will be purchased new, used once, and then discarded. Tortoises will be purposefully moved only by qualified tortoise biologists, solely for the purpose of moving them out of harm's way. If a suitable location is not found, tortoises will be disposed of as specified under the subparagraph on measures to minimize mortality of desert tortoises during transportation, handling, and care following removal from project sites, below.</p>	<p>Concurrent with construction activities causing impacts.</p>
		<p>All vehicle traffic during construction will be restricted to existing roadways and to areas that have been cleared of tortoises. Speed limits in undeveloped areas containing tortoise habitat will not exceed 10 miles per hour from March 1 to November 15 of any year, except in emergency situations involving human health and safety. Information will be provided to construction crews and other workers regarding areas where vehicular traffic is not allowed. The ground beneath any vehicle parked in areas occupied by the desert tortoise will be carefully searched for tortoises before the vehicle is moved. If a tortoise is found beneath a vehicle, then the Biologist will move it according to the protocol specified in Appendix A to the Biological Opinion.</p>	<p>Concurrent with construction activities causing impacts.</p>

		<p>The Corps or the local sponsor, as appropriate, will deliver all tortoises that are to be removed permanently from the wild to Dewey Animal Care, Inc., in Las Vegas, Nevada. The Corps or the local sponsor will bear the cost incurred by Dewey Animal Care, Inc., of caring for and marking the tortoises. The time and date of collection, Biological Opinion number, and collector's name will be marked by the Corps or the local sponsor on each individual box containing a desert tortoise.</p> <p>The Corps or local sponsor will contact the tortoise transfer facility in writing at least 10 days in advance that tortoises are to be collected and delivered to the facility. The Corps will notify the local sponsor of this requirement.</p>	<p>Concurrent with construction activities causing impacts.</p>
		<p>The Corps is responsible for ensuring that the following provisions are implemented:</p> <ol style="list-style-type: none"> 1) All tortoises delivered from the transfer facility will be permanently and humanely marked as provided under the Short-term Habitat Conservation Plan for the Desert Tortoise. 2) Handling of tortoises by Dewey Animal Care, Inc., will be consistent with conditions authorized under Fish and Wildlife 10(a)(1)(B) Permit #756260. 	<p>Concurrent with construction activities causing impacts.</p>

			<p>The Corps and/or its designee will implement a litter control program during construction that will include the use of covered, raven-proof trash receptacles, removal of trash from the construction site to the trash receptacles following the close of each work day, and proper disposal of trash in a designated solid waste disposal facility at the end of each work week.</p>	<p>Concurrent with construction activities causing impacts.</p>
<p>Impacts to desert tortoise during operation and maintenance</p>	<p>Para 2.03</p>	<p>NEPA, Endangered Species Act</p>	<p>Prior to maintenance activities at any facility in tortoise habitat, a qualified Biologist will conduct a thorough survey of the facility not more than 1 day prior to initiation of the work and flag all tortoise burrows found within the area in which maintenance activities will take place. If the maintenance is to occur between November 1 and March 15, burrows shall either be completely avoided, or the burrows dug out and hibernating tortoises moved as specified in Appendix A of the Biological Opinion. If the maintenance is to occur between March 15 and November 1, a Biologist shall accompany the maintenance crew and move all tortoises to safety that would be affected by the activity as specified in Appendix A of the Biological Opinion.</p>	<p>Subsequent to project completion (operation and maintenance).</p>
			<p>Herbicides shall not be used in or adjacent to any facilities located in areas occupied by the desert tortoise unless approved in writing by the FWS.</p>	<p>Subsequent to project completion (operation and main-</p>

			Maintenance crews that locate a tortoise that is trapped in any flood control facility will immediately notify a person designated by the local sponsor to handle such situations. The tortoise will be moved by a person trained in tortoise handling procedures. If a live tortoise is in imminent danger of harm within a facility, a maintenance crew member may move the tortoise out of harms way using methods provided in the training program.	Subsequent to project completion (operation and maintenance).
Temporary impacts to the desert tortoise and other vegetation and wildlife	Para 2.03	NEPA, Endangered Species Act	The Corps will develop and implement a revegetation program for temporarily disturbed sites west of Durango Road in areas adjacent to tortoise habitat. The Corps also will monitor the effects of revegetation for ten years after revegetation. Revegetation and monitoring plans will be developed by the Corps and coordinated with the FWS prior to initiation of construction.	Upon completion of construction.
Temporary construction impacts	Paras 4.07a, and 4.11	NEPA	Planting of native species in disturbed areas for erosion control.	Upon completion of construction.

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SECTION 01356

STORM WATER POLLUTION PREVENTION MEASURES

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 4439	(1997) Standard Terminology for Geosynthetics
ASTM D 4491	(1996) Water Permeability of Geotextiles by Permittivity
ASTM D 4533	(1991; R 1996) Trapezoid Tearing Strength of Geotextiles
ASTM D 4632	(1991; R 1997) Grab Breaking Load and Elongation of Geotextiles
ASTM D 4751	(1995) Determining Apparent Opening Size of a Geotextile
ASTM D 4873	(1995) Identification, Storage, and Handling of Geosynthetic Rolls

1.2 GENERAL

The Contractor shall implement the storm water pollution prevention measures specified in this section in a manner which will meet the requirements of Section 01355 ENVIRONMENTAL PROTECTION, and the requirements of the National Pollution Discharge Elimination System (NPDES) permit attached to that Section.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-07 Certificates

Mill Certificate or Affidavit; G, RE.

Certificate attesting that the Contractor has met all specified requirements.

1.4 EROSION AND SEDIMENT CONTROLS

The controls and measures required by the Contractor are described below.

1.4.1 Stabilization Practices

The stabilization practices to be implemented shall include silt fences, straw bales, soil stabilizer, geotextiles, erosion control mats, etc. On his daily CQC Report, the Contractor shall record the dates when the major grading activities occur, (e.g., clearing and grubbing, excavation, embankment, and grading); when construction activities temporarily or permanently cease on a portion of the site; and when stabilization practices are initiated. Except as provided in paragraphs UNSUITABLE CONDITIONS and NO ACTIVITY FOR LESS THAN 21 DAYS, stabilization practices shall be initiated as soon as practicable, but no more than 14 days, in any portion of the site where construction activities have permanently ceased.

1.4.1.1 Unsuitable Conditions

Where the initiation of stabilization measures by the fourteenth day after construction activity temporarily or permanently ceases is precluded by unsuitable conditions caused by the weather, stabilization practices shall be initiated as soon as practicable after conditions become suitable.

1.4.1.2 No Activity for Less Than 21 Days

Where construction activity will resume on a portion of the site within 21 days from when activities ceased (e.g., the total time period that construction activity is temporarily ceased is less than 21 days), then stabilization practices do not have to be initiated on that portion of the site by the fourteenth day after construction activity temporarily ceased.

1.4.2 Structural Practices

Structural practices shall be implemented to divert flows from exposed soils, temporarily store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Structural practices shall be implemented in a timely manner during the construction process to minimize erosion and sediment runoff. Structural practices shall include the following devices as necessary.

1.4.2.1 Silt Fences

The Contractor shall provide silt fences as a temporary structural practice to minimize erosion and sediment runoff. Silt fences shall be properly installed to effectively retain sediment immediately after completing each phase of work where erosion would occur in the form of sheet and rill erosion (e.g. clearing and grubbing, excavation, embankment, and grading). Silt fences shall be installed in the locations indicated on the drawings.

Final removal of silt fence barriers shall be upon approval by the Contracting Officer.

1.4.2.2 Straw Bales

The Contractor shall provide bales of straw as a temporary structural practice to minimize erosion and sediment runoff. Bales shall be properly placed to effectively retain sediment immediately after completing each phase of work (e.g., clearing and grubbing, excavation, embankment, and grading) in each independent runoff area (e.g., after clearing and grubbing in a area between a ridge and drain, bales shall be placed as work progresses, bales shall be removed/replaced/relocated as needed for work to progress in the drainage area). Areas where straw bales are to be used shall be shown in the Storm Water Pollution Prevention Plan. Final removal of straw bale barriers shall be upon approval by the Contracting Officer. Rows of bales of straw shall be provided as follows:

- a. Along the downhill perimeter edge of all areas disturbed.
- b. Along the top of the slope or top bank of drainage ditches, channels, swales, etc. that traverse disturbed areas.
- c. Along the toe of all cut slopes and fill slopes of the construction areas.
- d. Perpendicular to the flow in the bottom of existing drainage ditches, channels, swales, etc. that traverse disturbed areas or carry runoff from disturbed areas. Rows shall be spaced as shown in the Storm Water Pollution Prevention Plan.
- e. Perpendicular to the flow in the bottom of new drainage ditches, channels, and swales. Rows shall be spaced as shown in the Storm Water Pollution Prevention Plan.
- f. At the entrance to culverts that receive runoff from disturbed areas.

1.4.2.3 Diversion Dikes

Diversion dikes shall have a maximum channel slope of 2 percent and shall be adequately compacted to prevent failure. The minimum height measured from the top of the dike to the bottom of the channel shall be 0.5 m. The minimum base width shall be 1.8 m and the minimum top width shall be 0.6 m.

The Contractor shall ensure that the diversion dikes are not damaged by construction operations or traffic. Diversion dikes shall be located as shown in the Storm Water Pollution Prevention Plan

PART 2 PRODUCTS

2.1 COMPONENTS FOR SILT FENCES

2.1.1 Filter Fabric

The geotextile shall comply with the requirements of ASTM D 4439, and shall consist of polymeric filaments which are formed into a stable network such that filaments retain their relative positions. The filament shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of ester, propylene, or amide, and shall contain stabilizers and/or inhibitors added to the base plastic to make the filaments resistance to deterioration due to ultraviolet and heat exposure. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life at a temperature range of -18 to 49 degrees C. The filter fabric shall meet the following requirements:

FILTER FABRIC FOR SILT SCREEN FENCE

PHYSICAL PROPERTY	TEST PROCEDURE	STRENGTH REQUIREMENT
Grab Tensile	ASTM D 4632	445 N min.
Elongation (%)		30 % max.
Trapezoid Tear	ASTM D 4533	245 N min.
Permittivity	ASTM D 4491	0.2 sec-1
AOS (U.S. Std Sieve)	ASTM D 4751	20-100

2.1.2 Silt Fence Stakes and Posts

The Contractor may use either wooden stakes or steel posts for fence construction. Wooden stakes utilized for silt fence construction, shall have a minimum cross section of 50 mm by 50 mm when oak is used and 100 mm by 100 mm when pine is used, and shall have a minimum length of 1.5 m. Steel posts (standard "U" or "T" section) utilized for silt fence construction, shall have a minimum mass of 1.98 kg per linear meter and a minimum length of 1.5 m.

2.1.3 Mill Certificate or Affidavit

A mill certificate or affidavit shall be provided attesting that the fabric and factory seams meet chemical, physical, and manufacturing requirements specified above. The mill certificate or affidavit shall specify the actual Minimum Average Roll Values and shall identify the fabric supplied by roll identification numbers. The Contractor shall submit a mill certificate or affidavit signed by a legally authorized official from the company manufacturing the filter fabric.

2.1.4 Identification Storage and Handling

Filter fabric shall be identified, stored and handled in accordance with ASTM D 4873.

2.2 COMPONENTS FOR STRAW BALES

The straw in the bales shall be stalks from oats, wheat, rye, barley, rice, or from grasses such as byhalia, bermuda, etc., furnished in air dry

condition. The bales shall have a standard cross section of 350 mm by 450 mm. All bales shall be either wire-bound or string-tied. The Contractor may use either wooden stakes or steel posts to secure the straw bales to the ground. Wooden stakes utilized for this purpose, shall have a minimum dimensions of 50 mm by 50 mm in cross section and shall have a minimum length of 1 m. Steel posts (standard "U" or "T" section) utilized for securing straw bales, shall have a minimum mass of 1.98 kg per linear meter and a minimum length of 1 m.

PART 3 EXECUTION

3.1 INSTALLATION OF SILT FENCES

Silt fences shall extend a minimum of 400 mm above the ground surface and shall not exceed 860 mm above the ground surface. Filter fabric shall be from a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are unavoidable, filter fabric shall be spliced together at a support post, with a minimum 150 mm overlap, and securely sealed. A trench shall be excavated approximately 100 mm wide and 100 mm deep on the upslope side of the location of the silt fence. The 100 mm by 100 mm trench shall be backfilled and the soil compacted over the filter fabric. Silt fences shall be removed upon approval by the Contracting Officer.

3.2 INSTALLATION OF STRAW BALES

Straw bales shall be placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another. Straw bales shall be installed so that bindings are oriented around the sides rather than along the tops and bottoms of the bales in order to prevent deterioration of the bindings. The barrier shall be entrenched and backfilled. A trench shall be excavated the width of a bale and the length of the proposed barrier to a minimum depth of 100 mm. After the bales are staked and chinked (gaps filled by wedging with straw), the excavated soil shall be backfilled against the barrier. Backfill soil shall conform to the ground level on the downhill side and shall be built up to 100 mm against the uphill side of the barrier. Loose straw shall be scattered over the area immediately uphill from a straw bale barrier to increase barrier efficiency. Each bale shall be securely anchored by at least two stakes driven through the bale. The first stake or steel post in each bale shall be driven toward the previously laid bale to force the bales together. Stakes or steel pickets shall be driven a minimum 450 mm deep into the ground to securely anchor the bales.

3.3 MAINTENANCE

The Contractor shall maintain the temporary and permanent vegetation, erosion and sediment control measures, and other protective measures in good and effective operating condition by performing routine inspections to determine condition and effectiveness, by restoration of destroyed vegetative cover, and by repair of erosion and sediment control measures and other protective measures. The following procedures shall be followed to maintain the protective measures.

3.3.1 Silt Fence Maintenance

Silt fences shall be inspected in accordance with paragraph INSPECTIONS. Any required repairs shall be made promptly. Close attention shall be paid to the repair of damaged silt fence resulting from end runs and undercutting. Should the fabric on a silt fence decompose or become ineffective, and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits shall be removed when deposits reach one-third of the height of the barrier. When a silt fence is no longer required, it shall be removed. The immediate area occupied by the fence and any sediment deposits shall be shaped to an acceptable grade.

3.3.2 Straw Bale Maintenance

Straw bale barriers shall be inspected in accordance with paragraph INSPECTIONS. Close attention shall be paid to the repair of damaged bales, end runs and undercutting beneath bales. Necessary repairs to barriers or replacement of bales shall be accomplished promptly. Sediment deposits shall be removed when deposits reach one-half of the height of the barrier. Bale rows used to retain sediment shall be turned uphill at each end of each row. When a straw bale barrier is no longer required, it shall be removed. The immediate area occupied by the bales and any sediment deposits shall be shaped to an acceptable grade.

3.3.3 Diversion Dike Maintenance

Diversion dikes shall be inspected in accordance with paragraph INSPECTIONS. Close attention shall be paid to the repair of damaged diversion dikes and necessary repairs shall be accomplished promptly. When diversion dikes are no longer required, they shall be shaped to an acceptable grade.

3.4 INSPECTIONS

3.4.1 General

The Contractor shall inspect disturbed areas of the construction site, areas used for storage of materials that are exposed to precipitation that have not been finally stabilized, stabilization practices, structural practices, other controls, and area where vehicles exit the site at least once every seven (7) calendar days and within 24 hours of the end of any storm that produces 13 mm or more rainfall at the site. Where sites have been finally stabilized, such inspection shall be conducted at least once every month.

3.4.2 Inspections Details

Disturbed areas and areas used for material storage that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the Storm Water Pollution Prevention Plan shall be observed to ensure that they are operating correctly. Discharge locations or points shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

Locations where vehicles exit the site shall be inspected for evidence of offsite sediment tracking.

3.4.3 Inspection Reports

For each inspection conducted, the Contractor shall prepare a report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the Storm Water Pollution Prevention Plan, maintenance performed, and actions taken. The report shall be furnished to the Contracting Officer within 24 hours of the inspection as a part of the Contractor's daily CQC REPORT. A copy of the inspection report shall be maintained on the job site.

-- End of Section --

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DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01415

METRIC MEASUREMENTS

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 - 1.3.1 Hard Metric
 - 1.3.2 Soft Metric
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-- End of Section Table of Contents --

SECTION 01415

METRIC MEASUREMENTS

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM E 380	(1993) Practice for Use of the International System of Units (SI)
ASTM E 621	(1994; R 1999e1) Practice for Use of Metric (SI) Units in Building Design and Construction

1.2 GENERAL

This project includes metric units of measurements. The metric units used are the International System of Units (SI) developed and maintained by the General Conference on Weights and Measures (CGPM); the name International System of Units and the international abbreviation SI were adopted by the 11th CGPM in 1960. A number of circumstances require that both metric SI units and English inch-pound (I-P) units be included in a section of the specifications. When both metric and I-P measurements are included, the section may contain measurements for products that are manufactured to I-P dimensions and then expressed in mathematically converted metric value (soft metric) or, it may contain measurements for products that are manufactured to an industry recognized rounded metric (hard metric) dimensions but are allowed to be substituted by I-P products to comply with the law. Dual measurements are also included to indicate industry and/or Government standards, test values or other controlling factors, such as the code requirements where I-P values are needed for clarity or to trace back to the referenced standards, test values or codes.

1.3 USE OF MEASUREMENTS

Measurements shall be either in SI or I-P units as indicated, except for soft metric measurements or as otherwise authorized. When only SI or I-P measurements are specified for a product, the product shall be procured in the specified units (SI or I-P) unless otherwise authorized by the Contracting Officer. The Contractor shall be responsible for all associated labor and materials when authorized to substitute one system of units for another and for the final assembly and performance of the

specified work and/or products.

1.3.1 Hard Metric

A hard metric measurement is indicated by an SI value with no expressed correlation to an I-P value, i.e., where an SI value is not an exact mathematical conversion of an I-P value, such as the use of 100 mm in lieu of 4 inches. Hard metric measurements are often used for field data such as distance from one point to another or distance above the floor. Products are considered to be hard metric when they are manufactured to metric dimensions or have an industry recognized metric designation.

1.3.2 Soft Metric

- a. A soft metric measurement is indicated by an SI value which is a mathematical conversion of the I-P value shown in parentheses (e.g. 38.1 mm (1-1/2 inches)). Soft metric measurements are used for measurements pertaining to products, test values, and other situations where the I-P units are the standard for manufacture, verification, or other controlling factor. The I-P value shall govern while the metric measurement is provided for information.
- b. A soft metric measurement is also indicated for products that are manufactured in industry designated metric dimensions but are required by law to allow substitute I-P products. These measurements are indicated by a manufacturing hard metric product dimension followed by the substitute I-P equivalent value in parentheses (e.g., 190 x 190 x 390 mm (7-5/8 x 7-5/8 x 15-5/8 inches)).

1.3.3 Neutral

A neutral measurement is indicated by an identifier which has no expressed relation to either an SI or an I-P value (e.g., American Wire Gage (AWG) which indicates thickness but in itself is neither SI nor I-P).

1.4 COORDINATION

Discrepancies, such as mismatches or product unavailability, arising from use of both metric and non-metric measurements and discrepancies between the measurements in the specifications and the measurements in the drawings shall be brought to the attention of the Contracting Officer for resolution.

1.5 RELATIONSHIP TO SUBMITTALS

Submittals for Government approval or for information only shall cover the SI or I-P products actually being furnished for the project. The Contractor shall submit the required drawings and calculations in the same units used in the contract documents describing the product or requirement unless otherwise instructed or approved. The Contractor shall use ASTM E 380 and ASTM E 621 as the basis for establishing metric measurements required to be used in submittals.

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

Not used

-- End of Section --

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DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01420

SOURCES FOR REFERENCE PUBLICATIONS

PART 1 GENERAL

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SECTION 01420

SOURCES FOR REFERENCE PUBLICATIONS

PART 1 GENERAL

1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the standards producing organization, (e.g. ASTM B 564 Nickel Alloy Forgings). However, when the standards producing organization has not assigned a number to a document, an identifying number has been assigned for reference purposes.

1.2 ORDERING INFORMATION

The addresses of the standards publishing organizations whose documents are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided. Documents listed in the specifications with numbers which were not assigned by the standards producing organization should be ordered from the source by title rather than by number.

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NOTE: AASHTO documents with numbers beginning with M or T are available only in Standard Specifications for Transportation Materials and Methods of Sampling and Testing, 1998 @\$289.00\X

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SECTION 01451

CONTRACTOR QUALITY CONTROL

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740 (2001) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

ASTM E 329 (2000b) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the Bidding Schedule.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The project manager will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the contract. The project manager in this context shall be the highest level manager responsible for the overall construction activities at the site, including quality and production. The project manager shall maintain a physical presence at the site at all

times, except as otherwise acceptable to the Contracting Officer, and shall be responsible for all construction and construction related activities at the site.

3.2 QUALITY CONTROL PLAN

The Contractor shall furnish for review by the Government, not later than 10 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The Government will consider an interim plan for the first 30 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.2.1 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

- a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent.
- b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.
- c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Government.
- d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01330 SUBMITTAL PROCEDURES.
- e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities will be

approved by the Contracting Officer.)

- f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.
- g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.
- h. Reporting procedures, including proposed reporting formats.
- i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

3.2.2 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.3 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 10 calendar days prior to the Coordination Meeting.

During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies

in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Personnel Requirements

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure safety and contract compliance. The Safety and Health Manager shall receive direction and authority from the CQC System Manager and shall serve as a member of the CQC staff. Personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly will also be included as part of the CQC organization. The Contractor's CQC staff shall maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the Contracting Officer. The Contractor shall provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Complete records of all letters, material submittals, show drawing submittals, schedules and all other project documentation shall be promptly furnished to the CQC organization by the Contractor. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Contracting Officer.

3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, graduate architect, or a graduate of construction management, with a minimum of 5 years construction experience on construction similar to this contract. This CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned no other duties. An alternate for the CQC System Manager shall be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager.

3.4.3 CQC Personnel

In addition to CQC personnel specified elsewhere in the contract, the Contractor shall provide as part of the CQC organization specialized personnel to assist the CQC System Manager for the following areas: civil, structural, materials technician. These individuals may be employees of the prime or subcontractor; be responsible to the CQC System Manager; be physically present at the construction site during work on their areas of responsibility; have the necessary education and/or experience in accordance with the experience matrix listed herein. These individuals may perform other duties but must be allowed sufficient time to perform their assigned quality control duties as described in the Quality Control Plan.

Experience Matrix

	Area	Qualifications
a.	Civil	Graduate Civil Engineer with 2 years experience in the type of work being performed on this project or technician with 5 yrs related experience
b.	Structural	Graduate Structural Engineer with 2 yrs experience or person with 5 yrs related experience
c.	Concrete, Pavements and Soils	Materials Technician with 2 yrs experience for the appropriate area

3.4.4 Additional Requirement

In addition to the above experience and education requirements the CQC System Manager shall have completed the course entitled "Construction Quality Management For Contractors".

3.4.5 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5 SUBMITTALS AND DELIVERABLES

Submittals, if needed, shall be made as specified in Section 01330 SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of work as follows:

3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable

feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

- a. A review of each paragraph of applicable specifications, reference codes, and standards. A copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field shall be made available by the Contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by Government personnel until final acceptance of the work.
- b. A review of the contract drawings.
- c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.
- d. Review of provisions that have been made to provide required control inspection and testing.
- e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
- f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
- g. A review of the appropriate activity hazard analysis to assure safety requirements are met.
- h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.
- i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.
- j. Discussion of the initial control phase.
- k. The Government shall be notified at least 48 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of

work. The following shall be accomplished:

- a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.
- b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.
- c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.
- d. Resolve all differences.
- e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.
- f. The Government shall be notified at least 48 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.
- g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.7 TESTS

3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to

contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

- a. Verify that testing procedures comply with contract requirements.
- b. Verify that facilities and testing equipment are available and comply with testing standards.
- c. Check test instrument calibration data against certified standards.
- d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
- e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.7.2 Testing Laboratories

3.7.2.1 Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

3.7.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of \$2,500.00 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

3.7.3 Onsite Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests, and to check the

Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.7.4 Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials shall be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the Corps of Engineers Division Laboratory, at an address to be determined.

Coordination for each specific test, exact delivery location, and dates will be made through the Area Office.

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection

Near the end of the work, or any increment of the work established by a time stated in the Special Clause, "Commencement, Prosecution, and Completion of Work", or by the specifications, the CQC Manager shall conduct an inspection of the work. A punch list of items which do not conform to the approved drawings and specifications shall be prepared and included in the CQC documentation, as required by paragraph DOCUMENTATION. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected.

Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.8.2 Pre-Final Inspection

The Government will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government, so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at the final acceptance inspection. Additional Government personnel including, but not limited to, those from major commands, as well as the local sponsors may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's

assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

- a. Contractor/subcontractor and their area of responsibility.
- b. Operating plant/equipment with hours worked, idle, or down for repair.
- c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.
- d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial, Follow-up). List of deficiencies noted, along with corrective action.
- e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.
- f. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.
- g. Offsite surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. Instructions given/received and conflicts in plans and/or specifications.
- j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall

be furnished to the Government daily within 12 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

3.10 SAMPLE FORMS

Sample forms enclosed at the end of this section.

3.11 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

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SECTION 01702

AS-BUILT DRAWINGS

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01330, SUBMITTAL PROCEDURES:

SD-11 Closeout Submittals

As-built Drawings; G, RE.

Red-line marked up blue-line drawings.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 AS-BUILT FIELD DATA

3.1.1 General

The Contractor shall prepare and furnish the as-built drawings for the project. The as-built drawings shall be a record of the construction as installed and completed by the Contractor. They shall include all the information shown on the contract set of drawings and a record of all deviations, modifications, or changes from those drawings, however minor, which were incorporated in the work, all additional work not appearing on the contract drawings, and all changes which are made after final inspection of the contract work. In event the Contractor accomplishes additional work which changes the as-built conditions of the facility after submission of the as-built drawings, the Contractor shall furnish revised and/or additional drawings as required to depict as-built conditions. The requirements for these additional drawings will be the same as for the asbuilt drawings included in the original submission. The drawings shall show the following information, but not be limited thereto:

(a) The location and description of any utility lines or other installations of any kind or description known to exist within the construction area. The location includes dimensions to permanent features.

(b) The location and dimensions of any changes within the building or structures.

- (c) Correct grade or alignment of roads, channels, structures or utilities if any changes were made from contract plans.
- (d) Correct elevations if changes were made in site grading.
- (e) Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, dimensions of equipment foundations, etc.
- (f) The topography and grades of all drainage installed or affected as a part of the project construction.
- (g) All changes or modifications which result from the final inspection.
- (h) Where contract drawings or specifications allow options, only the option actually used in the construction shall be shown on the as-built drawings. The option not used shall be deleted.

3.1.2 Preliminary As-Built Drawings

The Contractor shall maintain one (1) set of full size, blue-line prints marked up in red to show the as-built conditions. This set of as-built prints shall be kept current and available at the job site at all times. All changes from what is shown on the contract plans, whether it be from changes requested by the Contracting Officer or resulting from additional information which might be uncovered in the course of construction, shall be accurately and neatly recorded as they occur by means of details and notes. The marked-up as-built prints will be jointly inspected for accuracy and completeness by the Contracting Officer and Contractor prior to submission of each monthly pay estimate. Failure to keep the As-Built Field Data current shall be sufficient justification to withhold a retained percentage from the monthly pay estimate. Information to be included on these preliminary drawings shall conform to the requirements as stated above. Any and all as-built modifications shall be reflected on all sheets affected by the modifications.

3.1.2.1 Submittal of the As-Built Field Data

One (1) full size set of marked up drawings with the as-built field data shall be submitted to the Contracting Officer for review and approval a minimum of 20 calendar days prior to the date of final inspection. If review of the preliminary as-built drawings reveals errors and/or omissions, the drawings will be returned to the Contractor for corrections. The Contractor shall make all corrections and return the drawings to the Contracting Officer within 10 calendar days of receipt.

3.2 AS-BUILT ELECTRONIC FILE DRAWINGS

3.2.1 General

No later than 30 days after final acceptance a complete set of as-built

drawings shall be submitted in Bentley MicroStation file format (DGN files). The as-built drawings shall be done in a quality equal to that of the originals. Line work, line weights, and lettering, and use of symbols shall be the same as the original line work, line weights, and lettering, and symbols. If additional drawings are required they shall be prepared in electronic file format under the same guidance. When final revisions have been completed, each drawings shall be identified with the words "ASBUILT" in blockletters at least 3/8-inch high placed above the title block if space permits, or if not, below the title block between the border and the trim line. The date of completion and the words "REVISED AS-BUILT" shall be placed in the revision block above the latest revision notation.

3.2.2 Original Files

Upon Contractor's request the Government will provide the Contractor one set of Bentley MicroStation electronic file format (DGN Files) contract drawings, to be used for asbuilt drawings. The electronic file drawings will be available on CD-ROM media.

3.2.3 Electronic File Submittal Requirements

3.2.3.1 File Submittals

The MicroStation electronic file(s) deliverable shall be in MicroStation version J 'DGN' binary format. All support files required to display or plot the file(s) in the same manner as they were developed shall be delivered along with the files. These files include but are not limited to Font Libraries, Pen Tables, and Referenced files.

3.2.3.2 Drawing Format

Layering shall be performed in accordance with EM Standards Manual for U.S. Army Corps of Engineers Computer-Aided Design and Drafting (CADD) Systems. An explanatory list of which layer is used at which drawing and an explanatory list of all layers which do not conform to the guidelines shall be provided with each submittal.

3.2.3.3 Electronic File Deliverable Media

All electronic files shall be submitted on CD-ROM media. Two complete sets of disks shall be submitted along with one complete set of prints taken from the disks. Each disk shall be clearly marked with type written self adhesive disk labels which shall contain the following information: Contractor's firm name, project name and location, submittal type (ASBUILT), the name of each file contained within the disk or archive file, the format and version/release number of each file, a disk number indicating the numeric sequence of the disk in the submittal along with the total number of disks in the submittal, and date the disk was made. Due to the limited ability to mark on CD-ROM media, only the Contractor's firm name, project name and location, submittal type (AS-BUILT) and date will be required. Each submittal shall be accompanied by a hard copy transmittal sheet that contains the above information along with a description of each file provided in the submittal.

3.3 FINAL AS-BUILT DRAWINGS

The final as-built record drawings shall be completed and returned together with the approved preliminary as-built drawings to the Contracting Officer within 30 calendar days of final acceptance. The Contracting Officer will review all final as-built record drawings for accuracy and conformance to the drafting standards and other requirements contained in Section 01200 GENERAL REQUIREMENTS. The drawings shall be returned to the Contractor if corrections are necessary. The Contractor shall make all corrections and shall return the drawings to the Contracting Officer within 5 calendar days of receipt. Upon final approval, the Contractor shall furnish two (2) full size sets and two (2) half size sets of the final as-built plans on reproducible mylars, and the electronic as-built project files. All project files, whether revised or not, shall be provided to the Contracting Officer.

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