

CONTRACT NO. W911KB-12-B-00XX

DQC DOCUMENTS

LAUNCH RAMP

NONDALTON, ALASKA

**SOLICITATION, OFFER, AND AWARD
SUPPLIES OR SERVICES AND PRICE/COSTS
CONSTRUCTION SPECIFICATIONS/STATEMENT OF WORK
INSPECTION AND ACCEPTANCE
SPECIAL CONTRACT REQUIREMENTS
CONTRACT CLAUSES
LIST OF DOCUMENTS, EXHIBITS, AND OTHER ATTACHMENTS
REPRESENTATIONS, CERTIFICATIONS, AND OTHER STATEMENTS OF BIDDERS
INSTRUCTIONS, CONDITIONS, AND NOTICES TO BIDDERS
EVALUATION FACTORS FOR AWARD**

12 APR 2012



**U.S. ARMY ENGINEER DISTRICT, ALASKA
CORPS OF ENGINEERS
P.O. BOX 6898
ELMENDORF AFB, ALASKA 99506-0898**



INCREASE PROFIT



SUBMIT VE CHANGES

BIDDING SCHEDULE

W911KB-12-B-00XX

LAUNCH RAMP

NONDALTON, ALASKA

<u>Item No.</u>	<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Amount</u>
<u>BASE ITEMS</u>					
0001.	Bid, Performance, and Payment Bond cost and Mobilization and Demobilization, complete.	1	Lump sum	\$_____	\$_____
0002.	Construct Boat Launch Ramp, complete.	1	Lump sum	\$_____	\$_____
Total of Base Items 0001 thru 0002					\$_____
<u>OPTIONAL ITEM</u>					
0003.	Construct Boarding Float, complete.	1	Lump sum	\$_____	\$_____
Total of Optional Item 0003					\$_____
Total of All Items 0001 thru 0003					\$_____

Notes:

1. See SECTION 01 22 00.00 10 Measurement and Payment for work included in Proposal Items.

EVALUATION OF PROPOSALS:

1. INCOMPLETE PROPOSALS: Failure to submit a proposal on all items in the schedule will result in an incomplete proposal and the proposal may be rejected. Unit or lump sum prices must be shown for each item within the schedule.

2. AWARD: Award will be made to the low, responsive, responsible offeror on the total of the Base Bid Items.

3. EXTENSIONS: All extensions of the unit prices shown will be subject to verification by the Government. In case of variation between the unit price and the extension, the unit price will be considered to be the proposal.

4. SPECIAL PROPOSAL CONDITION: If a modification to a proposal based on unit prices is submitted which provides for a lump sum adjustment to the total estimated cost, the application of the lump sum adjustment to each unit price in the proposal schedule must be stated. If it is not stated, the offeror agrees that the lump sum adjustment shall be applied on a pro rata basis to every unit price in the proposal schedule.

-- END OF BIDDING SCHEDULE --

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SECTION 00 73 00.00 29

SPECIAL CONTRACT REQUIREMENTS (SCR's)

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 within the text by the basic designation only.

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2008; Errata 1-2010; Changes 1-3 2010; Changes 4-6 2011) Safety and Health Requirements Manual

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

33 CFR 81 Navigation and Navigable Waters (International Navigation)

33 CFR 84 Navigation and Navigable Waters (Inland Navigation)

33 CFR 89 Navigation and Navigable Waters (Inland Navigation)

1.2 GENERAL SCR'S

1.2.1 SCR-GE010 Insurance - Work On A Government Installation:

In accordance with SECTION 00 72 00, 52.228-5, the Contractor shall, at its own expense, provide and maintain during the entire performance of this contract, at least the following kinds and minimum amounts of insurance:

1. Workman's Compensation and Employers' Liability Insurance: \$100,000.00.

2. General Liability Insurance: A Bodily Injury, Comprehensive policy which provides \$500,000.00 per occurrence.

3. Automobile Liability Insurance: A comprehensive policy which provides \$200,000.00 per person and \$500,000.00 per occurrence for bodily injury and \$20,000.00 per occurrence for property damage, covering the operation of its automobiles used in connection with the performance of the contract. This includes the Contractor-Furnished Vehicle for use by the Government representatives regularly employed at the job site as described in SECTION 01 19 40.00 29 SPECIAL ITEMS (CIVIL WORKS).

4. Aircraft Public and Passenger Liability Insurance: Where aircraft are used in connection with the performance of the contract; \$200,000.00 per person, \$500,000.00 per occurrence for bodily injury, other than passenger liability, and \$200,000.00 per

occurrence for property damage; \$200,000.00 per person for passenger liability bodily injury aggregate equal to the total number of seats or number of passengers, whichever is greater.

5. Vessel Collision Liability and Protection and Indemnity Liability Insurance: Where vessels are used in connection with the performance of the contract.

1.2.2 SCR-GE030 Certificates Of Compliance And Lab Test Report:

SEE SECTION 01 33 00 SUBMITTAL PROCEDURES. Any certificates required for demonstrating proof of compliance of materials with specification requirements shall be executed in 3 copies. Each certificate shall be signed by an official authorized to certify on behalf of the manufacturing company and shall contain the name and address of the Contractor, the project name and location, and the quantity and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the Contractor from furnishing satisfactory material, if, after tests are performed on selected samples, the material is found not to meet the specified requirements.

1.2.3 SCR-GE070 Requirements For Contractor's Performance Evaluation:

The Government will evaluate the contractor's performance and prepare a performance report using the Construction Contractor Appraisal Support System (CCASS), a web-based system (<http://www.cpars.csd.disa.mil/>). After an evaluation (interim or final) is generated by the Government, the contractor will have the ability to access, review and comment on the evaluation for a period of 30 days. If the Contractor fails to review, and or comment on the evaluation within the 30-day period, the Contracting Officer will take the appropriate steps to finalize the evaluation without the contractor's comments. It is the sole responsibility of the Contractor to purchase any necessary software to access the electronic system, including a Public Key Infrastructure (PKI) certificate. Contractors are encouraged to obtain and use the Public Key Infrastructure (PKI) certificate. Details and information to access the system are listed below. The contractor shall provide the Contracting Officer the primary contact name and email address in order to receive the initial email and to access the system. Additional information and training material is available at <http://www.cpars.csd.disa.mil/>. This web site will give the contractor an understanding of the system and levels of access, the policies and regulations governing CCASS and the electronic workflow with particular attention to the Contractor comment function. Contractor users are required to obtain a PKI certificate in order to log into CCASS. PKI certificates can be purchased from DoD's industries partners under External Certificate Authorities (ECAs). A list of ECAs vendors are available at http://www.cpars.csd.disa.mil/pki_info.htm.

1.3 SAFETY/SITE/SECURITY SCR'S

1.3.1 SCR-SS010 Safety And Health Requirements Manual:

EM 385-1-1 and its changes are available at <http://www.usace.army.mil/CESO/Pages/Home.aspx>. At the HQ homepage, select Safety and Occupational Health.

The Contractor shall be responsible for complying with the current edition and all changes posted on the web (see web address above) as of the effective date of this solicitation and shall comply with the version in effect on the contract award date. This EM 385-1-1 shall remain in effect throughout the life of the contract.

1.3.2 SCR-SS020 Signal Lights:

The Contractor shall display signal lights and conduct its operations in accordance with the General Regulations of the Department of the Army and of the Coast Guard governing lights and day signals to be displayed by towing vessels with tows on which no signals can be displayed; vessels working on wrecks, dredges, and vessels engaged in laying cables or pipe or in submarine or bank protection operations, lights to be displayed on dredge pipe lines, and day signals to be displayed by vessels of more than 65 feet in length moored or anchored in a fairway or channel, and the passing by other vessels of floating plant working in navigable channels, as set forth in Commandant U.S. Coast Guard Instruction M16672.2, Navigation Rules: International-inland (COMDTINST M16672.2) of 33 CFR 81 Appendix A (International) and 33 CFR 84 through 33 CFR 89 (Inland) as applicable.

1.3.3 SCR-SS030 Communication Security:

All communications with DOD organizations are subject to COMSEC review. Contractor personnel shall be aware that telecommunications networks are continually subject to intercept by unfriendly intelligence organizations. The DOD has authorized the military departments to conduct COMSEC monitoring and recording of telephone calls originating from or terminating at DOD organizations. Therefore, civilian Contractor personnel are advised that any time they place a call to or receive a call from Alaska District offices or Resident Engineer offices located on military installations, they are subject to COMSEC procedures. The Contractor will assume the responsibility for ensuring wide and frequent dissemination of the above information to all employees dealing with official DOD information.

1.3.4 SCR-SS050 Salvage Materials And Equipment (JAN 1965):

The Contractor shall maintain adequate property control records for all materials or equipment specified to be salvaged. These records may be in accordance with the Contractor's system of property control, if approved by the property administrator. The Contractor shall be responsible for the adequate storage and protection of all salvaged materials and equipment and shall replace, at no cost to the Government, all salvage materials and equipment which are broken or damaged during salvage operations as the result of its negligence, or while in its care.

1.3.5 SCR-SS060 Preservation Of Historical, Archeological & Cultural Resources:

If, during construction activities, the Contractor observes items that might have historical or archeological value, such observations shall be reported immediately to the Contracting Officer so that the appropriate authorities may be notified and a determination can be 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 the destruction of these resources and shall prevent its employees from trespassing on, removing, or otherwise damaging such resources.

1.3.6 SCR-SS070 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 entitled "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 Delay Work Days Based on a 5-Day Work Week

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
20	20	15	10	4	4	4	4	4	10	15	20

C. Upon acknowledgement of the Notice to Proceed and continuing throughout the contract, the Contractor shall record on the daily CQC report, the occurrence of adverse weather and the 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 workday. The number of actual adverse weather delay 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 in each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in Paragraph B, above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather workdays, and issue a modification in accordance with the Contract Clause entitled "DEFAULT (FIXED-PRICE CONSTRUCTION)".

1.4 CIVIL WORKS SCR'S

1.4.1 SCR-CW010 Damage To Work:

The responsibility for damage to any part of the permanent work shall be as set forth in the clause of the contract entitled "Permits and Responsibilities". However, if, in the judgment of the Contracting Officer, any part of the permanent work performed by the Contractor is damaged by flood or earthquake, which damage is not due to the failure of the Contractor to take reasonable precautions or to exercise sound engineering and construction practices in the conduct of the work, the Contractor shall make the repairs as ordered by the Contracting Officer and full compensation for such repairs will be made at the applicable contract

unit or lump sum prices as fixed and established in the contract. If, in the opinion of the Contracting Officer, there are no contract unit or lump sum prices applicable to any part of such work an equitable adjustment pursuant to Clause, "Changes", of the contract, will be made as full compensation for the repairs of that part of the permanent work for which there are no applicable contract unit or lump sum prices. Except, as herein provided, damage to all work (including temporary construction, utilities, materials, equipment and plant shall be repaired to the satisfaction of the Contracting Officer at the Contractor's expense, regardless of the cause of such damage.

1.4.2 SCR-CW020 Plant Layout Drawings:

Drawings, in triplicate, showing the layout of the plant the Contractor proposes to use on the work shall be submitted by the Contractor for review by the Contracting Officer. The drawing shall show the locations of the principal components of the construction plant; offices; shop and storage buildings; housing facilities, if any; and storage areas and yards which the Contractor proposes to construct at the site of the work and elsewhere. Drawings in triplicate showing any changes in plant made during design and erection or after the plant is in operation shall be submitted to the Contracting Officer for review. Two sets of the drawings will be retained by the Contracting Officer and one set will be returned to the Contractor with comments.

1.4.3 SCR-CW060 Environmental Litigation:

A. If the performance of all or part of the work is suspended, delayed, or interrupted due to an order of a court of competent jurisdiction as a result of environmental litigation, as defined below, the Contracting Officer, at the request of the Contractor, shall determine whether the order is due in any part to the acts or omissions of the Contractor or subcontractor at any tier not required by the terms of this contract. If it is determined that the order is not due in any part to acts or omissions of the Contractor or a subcontractor at any tier other than as required by the terms of this contract, such suspension, delay, or interruption shall be considered as if ordered by the Contracting Officer in the administration of this contract under the terms of the "Suspension of Work" clause of this contract. The period of such suspension, delay or interruption shall be considered unreasonable, and an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) as provided in that clause, subject to all the provisions thereof.

B. The term "environmental litigation", as used herein, means a lawsuit alleging that the work will have an adverse effect on the environment or that the Government has not duly considered, either substantively or procedurally, the effect of the work on the environment.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

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SECTION 01 19 40.00 29

SPECIAL ITEMS (CIVIL WORKS)

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PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

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SECTION 01 19 40.00 29

SPECIAL ITEMS (CIVIL WORKS)

PART 1 GENERAL

1.1 SCOPE

Items included in this section cover special features and/or requirements which are not otherwise specified or indicated.

1.2 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)

EM 385-1-1 (2008; Errata 1-2010; Changes 1-3 2010; Changes 4-6 2011) Safety and Health Requirements Manual

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

Government acceptance is required for submittals with a "G" designation.

SD-01 Preconstruction Submittals

Accident Prevention Plan (APP); G

Equipment Schedule

1.4 ACCIDENT PREVENTION PLAN

The Accident Prevention Plan (APP) requirements listed in this section supplement those for the APP submittal discussed in Section 01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS and EM 385-1-1.

1.4.1 Navigation Safety and Coordination Plan

The Contractor shall submit a Navigation Safety and Coordination Plan as part of the APP. This plan shall include but not be limited to temporary lights at night and/or marker buoys during construction, "Notice to Mariners" and coordination with local officials, and reference to applicable U.S. Coast Guard regulations for construction vessels as well as SECTION 19, Floating Plant and Marine Activities, of EM 385-1-1.

1.5 FIRE SAFETY

The Contractor shall obtain a permit from the organization having

jurisdiction over the job site for any welding or open flame work.

1.6 DISPOSITION OF MATERIALS

Combustible and noncombustible waste material shall be disposed of off-site. Excavated material shall be used for access road/parking fill if material meets the specified requirements, or disposed of in the Nondalton borrow pit. No burning will be permitted.

1.7 TESTS

The Contractor shall provide testing, except where specifically noted to be performed by the Government, in accordance with SECTION 01 45 04.00 29 CONTRACTOR QUALITY CONTROL.

1.8 WARRANTY OF CONSTRUCTION

The Contractor warrants that the work performed under this contract conforms to the contract requirements and is free of any defect of equipment, material, or design furnished, or workmanship performed by the Contractor or any subcontractor or supplier at any tier. This warranty shall continue for a period of 1 year from the date of final acceptance of the work. The Contractor shall remedy at the Contractor's expense any failure to conform to contract requirements, or any defect found within this period. This warranty shall include any and all restoration of government or private property damaged by the Contractor during execution of work under this contract. This warranty shall include all work performed by subcontractors.

1.8.1 Failures

Upon receipt of notice from the Government of failure of any part of warranted items during the warranty period, the affected part or parts shall be promptly replaced. Such replacement shall include furnishing and installing the necessary new part or parts, making all necessary repairs, restoring the affected item to the operating condition specified in this contract and making all such tests as are necessary to ensure that there are no remaining defects. Such tests shall be performed in the presence of representatives of the Using Agency indicated below. Upon final acceptance of the work or transfer of responsibility to the Government for operation and maintenance of the items covered, whichever is earlier, the Contractor shall be responsible to the Using Agency for the warranty provisions of this contract. A letter stating the applicable warranty provisions shall be furnished to the Contracting Officer in duplicate, in the format and text shown in the sample letter attached to this section.

U.S. Army Engineer District, Alaska
P.O. Box 6898
JBER, Alaska 99506-0898

1.9 CAMP FACILITIES

There are no Government owned camp facilities at the job site for the Contractor's use.

1.10 PARTNERING

a. 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, intended to achieve completion within budget, on schedule, and in accordance with plans and specifications.

b. This partnership will be bilateral in makeup, and participation will be totally voluntary. Implementation of this initiative will be a topic of discussion at the Preconstruction Conference. Other recurring or special purpose meetings, as agreed between the Government and the Contractor, will be held as necessary to resolve contentious issues and maintain the partnering spirit.

1.11 COORDINATION OF WORK

The Contractor shall be responsible for all coordination with the U.S. Coast Guard and all concerned State and local interests regarding its activities, and also with any other contractors as specified in the CONTRACT CLAUSES. The Contractor shall keep advised of vessel traffic near the job site and conduct operations so that interference with vessels will not occur. The Contractor shall conduct its work and dispose of its plant and equipment in a manner that will minimize interference with other construction or operations at the job site. The Government does not guarantee unrestricted availability of the site. Upon completion of the work, the Contractor shall promptly remove its plant, including ranges, buoys, piles, and other temporary structures placed by it under the contract, in navigable waters or on shore.

1.12 EQUIPMENT

The following [Equipment Schedule](#) shall be completed by the Contractor and submitted within 10 days of receipt of Notice-to-Proceed. The Contractor shall keep equipment on the job sufficient to meet the requirements of the work. The equipment shall be in satisfactory operating condition and capable of safely and efficiently performing the work as set forth in the specifications and shall be subject to inspection by the Contracting Officer at all times. The equipment used shall be of a design and have characteristics similar to equipment which has been used successfully for a minimum of 3 years under similar conditions. It shall be the responsibility of the Contractor to prove this equipment has sufficient capacity to accomplish the work in a timely manner without damaging existing facilities or obstructing navigation.

a. Number. For equipment give identifying number or name.

b. Type. Under this heading give general description. Sufficient detailed information shall be furnished to properly delineate the proposed equipment and operation.

c. Capacity. Under this heading, state the estimated capacity of the plant and equipment in cubic [yards](#) or [tons](#) per day when working materials similar to those anticipated in the work. No reduction in the stated capacity of the plant and equipment employed on the work shall be made except by written permission of the Contracting Officer. The measure of the "capacity of the plant and equipment" shall be its actual performance on the work.

PLANT AND EQUIPMENT SCHEDULE
(To Be Submitted as Indicated)

PLANT AND EQUIPMENT SCHEDULE

Number	Type	Capacity	Minimum Plant To Be Used		Location	Value
			Manufacturer	Age & Condition		

Note: In preparing the above tabulation, the Contractor shall insert the necessary information under the appropriate heading, using a separate line for each major item and additional pages if necessary.

1.13 HAUL ROADS, LOADING RAMPS, AND DOCKS

The use of existing roads for hauling shall be coordinated with Federal, State and Local agencies. It shall be the Contractor's responsibility to acquire all permits and easements for use of existing roads and docks or for construction of new haul roads, loading ramps, and docks. Prior to construction of any haul road or use of existing roads, the Contractor shall submit to the Contracting Officer, for information, a haul road plan demonstrating that the road(s) will meet the safety requirements of EM 385-1-1. Upon completion of the project, the Contractor shall remove all haul roads, loading ramps, and docks it built within the project area, to the satisfaction of the Contracting Officer. Any temporary fill used for these facilities shall be removed and placed in an acceptable disposal area. Any existing access roads shall be left in as good condition as when work started.

1.14 BLASTING

No in-water blasting will be allowed.

1.15 ATTACHMENT

(1) Sample Warranty Acknowledgement Letter

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

S A M P L E L E T T E R

Contracting Officer
Date _____
Address (as stated in Notice of Award)

SUBJECT: Warranty Provisions, Contract

GENTLEMEN:

This is to acknowledge our responsibility in connection with the warranty provisions of this contract as set forth in the contract specifications.

The following items, equipment or systems furnished or installed under this contract are hereby warranted against defective design, material and workmanship for a period as indicated:

Warranted Item, Equipment or System	Identification Serial Number, Etc.	Warranty Expires at 11:59 PM Std. Time
_____	_____	_____
_____	_____	_____
_____	_____	_____

Upon receipt of notice from the Government of failure of any part or parts of the warranted item, equipment, or system during the warranty period, the affected part or parts will be replaced promptly with new parts. Such replacement will include furnishing and installing the new part or parts, making all necessary repairs, restoring the item, equipment, or system to the operating condition specified in this contract and making all such tests as are necessary to ensure that there are no remaining defects. Such tests will be performed in the presence of the Representative of the Using Agency indicated below.

We are responsible to _____ for the warranty provisions of this contract. Correspondence regarding the failure of any of the preceding items, equipment or systems covered by the warranty provisions of this contract should be addressed to:

_____ Telephone Number:

Very truly yours,

Signed: _____
Title: _____
Organization: _____

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PART 1 GENERAL

1.1 LUMP SUM PAYMENT ITEMS

1.1.1 Bid, Performance, and Payment of Bond cost and Mobilization and Demobilization, complete.

1.1.1.1 Payment

1.1.1.2 Unit of Measure

1.1.2 Construct Boat Launch Ramp, complete.

1.1.2.1 Payment

1.1.2.2 Unit of Measure

1.1.3 Construct Boarding Float, complete

1.1.3.1 Payment

1.1.3.2 Unit of Measure

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

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SECTION 01 22 00.00 10

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 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.

1.1.1 Bid, Performance, and Payment of Bond cost and Mobilization and Demobilization, complete.

1.1.1.1 Payment

Payment will be made for costs associated with mobilization and demobilization, as defined in Special Clause PAYMENT FOR MOBILIZATION AND DEMOBILIZATION.

1.1.1.2 Unit of Measure

Unit of measure: lump sum.

1.1.2 Construct Boat Launch Ramp, complete.

1.1.2.1 Payment

Payment will be made for costs associated with operations necessary for construction of the: 20' wide gravel access road; 100' x 100' gravel parking area; and 16' wide concrete launch ramp including all associated fill, excavation, and armor rock placement.

1.1.2.2 Unit of Measure

Unit of measure: lump sum.

1.1.3 Construct Boarding Float, complete

1.1.3.1 Payment

Payment will be made for costs associated with operations necessary for construction of the: 8' x 200' boarding float and associated five steel pipe piles; widening of the concrete launch ramp planks under the boarding float; and widening the in water excavation next to the boarding floats.

1.1.3.2 Unit of Measure

Unit of measure: lump sum.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

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 - 1.5.4 Review Schedule Is Modified
- 1.6 SUBMITTAL REGISTER
 - 1.6.1 Use of Submittal Register
 - 1.6.2 Contractor Use of Submittal Register
 - 1.6.3 Approving Authority Use of Submittal Register
 - 1.6.4 Contractor Action Code and Action Code
 - 1.6.5 Copies Delivered to the Government
- 1.7 SCHEDULING
- 1.8 GOVERNMENT APPROVING AUTHORITY
- 1.9 DISAPPROVED SUBMITTALS
- 1.10 APPROVED SUBMITTALS
- 1.11 APPROVED SAMPLES
- 1.12 ATTACHMENTS

PART 2 PRODUCTS

PART 3 EXECUTION

-- End of Section Table of Contents --

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 DEFINITIONS

1.1.1 Submittal Descriptions (SD)

Submittals requirements are specified in the technical sections. Submittals are identified by Submittal Description (SD) numbers and titles as follows:

SD-01 Preconstruction Submittals

Submittals which are required prior to a **notice to proceed**.

- Certificates of insurance
- Surety bonds
- List of proposed subcontractors
- List of proposed products
- Construction Progress Schedule
- Submittal register
- Schedule of prices
- Health and safety plan
- Work plan
- Quality control(QC) 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, systems or equipment for some portion of the work.

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

SD-05 Design Data

Design 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 logs and checklists.

Final acceptance test and operational test procedure.

SD-07 Certificates

Statements printed on the manufacturer's letterhead and 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 manufacturer, 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.

Text of posted operating instructions.

SD-08 Manufacturer's Instructions

Preprinted material describing installation of a product, system or material, including special notices and Material Safety Data sheets concerning impedances, hazards and safety precautions.

SD-11 Closeout Submittals

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

Special requirements necessary to properly close out a construction contract. For example, Record Drawings and as-built drawings. Also, submittal requirements necessary to properly close out a major phase of

construction on a multi-phase contract.

1.1.2 Approving Authority

Office or designated person authorized to approve submittal.

1.1.3 Work

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

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. Submit the following in accordance with this section.

SD-01 Preconstruction Submittals

Submittal register; G

1.3 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.4 PREPARATION

1.4.1 Transmittal Form

1.5 VARIATIONS / SUBSTITUTION REQUESTS

Variations from contract requirements require Government approval pursuant to contract Clause FAR 52.236-21 and will be considered where advantageous to Government.

1.5.1 Considering Variations

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

Specifically point out variations from contract requirements in transmittal letters. Failure to point out deviations may result in the Government requiring rejection and removal of such work at no additional cost to the Government.

1.5.2 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 savings. In addition to documentation required for variation, include the submittals required for the item. Clearly mark the proposed variation in all documentation.

1.5.3 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.

1.5.4 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 SUBMITTAL REGISTER

Prepare and maintain submittal register, as the work progresses. 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. A submittal register showing items of equipment and materials for which submittals are required by the specifications is provided as an attachment. This list may not be all inclusive and additional submittals may be required. The Government will provide the initial submittal register in electronic format with 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-02 Shop 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.

Thereafter, the Contractor is to track all submittals by maintaining a complete list, including completion of all data columns, including dates on which submittals are received and returned by the Government.

1.6.1 Use of Submittal Register

Submit submittal register. Submit with QC plan and project schedule. Verify that all submittals required for project are listed and add missing submittals. Coordinate and complete the following fields on the register submitted with the QC plan and the project schedule:

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.

1.6.2 Contractor Use of Submittal Register

Update the following fields in the Government-furnished submittal register program or equivalent fields in program utilized by Contractor with each submittal throughout contract.

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.

1.6.3 Approving Authority 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 (l) List date of submittal receipt.

Column (m) through (p) List Date related to review actions.

Column (q) List date returned to Contractor.

1.6.4 Contractor Action Code and Action Code

Entries for columns (j) and (o), are to be used are as follows (others may be prescribed by Transmittal Form):

NR - Not Received

AN - Approved as noted

A - Approved

RR - Disapproved, Revise, and Resubmit

1.6.5 Copies Delivered to the Government

Deliver one copy of submittal register updated by Contractor to Government with each invoice request.

1.7 SCHEDULING

Schedule and submit concurrently submittals covering component items forming a system or items that are interrelated. Include certifications to be submitted with the pertinent drawings at the same time. No delay damages or time extensions will be allowed for time lost in late submittals.

- 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 resubmittal of requirements.

- b. Submittals called for by the contract documents will be listed on the register. If a submittal is called for but does not pertain to the contract work, the Contractor is to include the submittal in the register and annotate it "N/A" with a brief explanation. Approval by the Contracting Officer does not relieve the Contractor of supplying submittals required by the contract documents but which have been omitted from the register or marked "N/A".
- c. Re-submit register and annotate monthly by the Contractor with actual submission and approval dates. When all items on the register have been fully approved, no further re-submittal is required.
- d. Carefully control procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

1.8 GOVERNMENT APPROVING AUTHORITY

When approving authority is Contracting Officer, the Government will:

- a. Note date on which submittal was received.
- 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 "Review Notations" and with markings appropriate for action indicated.

Upon completion of review of submittals requiring Government approval, stamp and date approved submittals. Four (4) copies of the approved submittal will be retained by the Contracting Officer and one copy of the submittal will be returned to the Contractor.

1.9 DISAPPROVED SUBMITTALS

Contractor shall make corrections required by the Contracting Officer. If the Contractor considers any correction or notation on the returned submittals to constitute a change to the contract drawings or specifications; notice as required under the clause entitled, "Changes" is to be given to the Contracting Officer. Contractor is responsible for the dimensions and design of connection details and construction of work. Failure to point out deviations may result in the Government requiring rejection and removal of such work at the Contractor's expense.

If changes are necessary to submittals, the Contractor shall make such revisions and submission of the submittals in accordance with the procedures above. No item of work requiring a submittal change is to be accomplished until the changed submittals are approved.

1.10 APPROVED SUBMITTALS

The Contracting Officer's approval or acceptance of submittals is not be construed as a complete check, and indicates only that. Approval or

acceptance 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 or accepted 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.

1.11 APPROVED SAMPLES

Approval of a sample is only for the characteristics or use named in such approval and is not be construed to change or modify any contract requirements. Before submitting samples, the Contractor to assure that the materials or equipment will be available in quantities required in the project. No change or substitution will be permitted after a sample has been approved.

Match the approved samples for Materials and equipment incorporated in the work. If requested, approved samples, including those which may be damaged in testing, will be returned to the Contractor, at his expense, upon completion of the contract. Samples not approved will also be returned to the Contractor at its expense, if so requested.

Failure of any materials to pass the specified tests will be sufficient cause for refusal to consider, under this contract, any further samples of the same brand or make of that material. Government reserves the right to disapproved any material or equipment which previously has proved unsatisfactory in service.

Samples of various materials or equipment delivered on the site or in place may be taken by the Contracting Officer for testing. Samples failing to meet contract requirements will automatically void previous approvals. Contractor to replace such materials or equipment to meet contract requirements.

Approval of the Contractor's samples by the Contracting Officer does not relieve the Contractor of his responsibilities under the contract.

1.12 ATTACHMENTS

(1) Submittal Register (ENG FORM 4288)

(2) ENG Form 4025-R

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

TITLE AND LOCATION		SUBMITTAL REGISTER															
NONDALTON LAUNCH RAMP		CONTRACTOR															
CONTRACT NO. W911KB-11-R-00??																	
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH#	CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY			REMARKS			
						APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	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	MAILED TO CONTR/
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
	01 19 40.00 29		SD-01 Preconstruction Submittals														
			Accident Prevention Plan (APP)	1.4	G												
			Equipment Schedule	1.12													
	01 33 00		SD-01 Preconstruction Submittals														
			Submittal register	1.6	G												
	01 35 26		SD-01 Preconstruction Submittals														
			Accident Prevention Plan (APP)	1.6	G												
			Activity Hazard Analysis (AHA)	1.7	G												
			Crane Critical Lift Plan	1.6.1	G												
			Crane Operators	1.5.1.2	G												
			SD-06 Test Reports														
			Reports	1.11													
			Accident Reports	1.11.1													
			Crane Reports	1.11.3													
			SD-07 Certificates														
			Confined Space Entry Permit	1.8													
			Hot work permit	1.8													
	01 50 00		SD-01 Preconstruction Submittals														
			Construction site plan	1.4	G												
	01 57 20.00 10		SD-01 Preconstruction Submittals														
			Environmental Protection Plan	1.7	G												
	03 20 02		SD-02 Shop Drawings														
			Fabrication and Placement	3.1	G												
			SD-03 Product Data														
			Materials	2.1													
			Welding	3.1.2													

SUBMITTAL REGISTER																	
CONTRACT NO. W911KB-11-R-00??																	
CONTRACTOR																	
TITLE AND LOCATION	TRANS MITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	CLASSIFICATION	GOVT OR	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION	APPROVING AUTHORITY			MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
ACTIVITY NO							APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	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		
	03 20 02		Zinc-Coated (Galvanized) Reinforcing	2.1.1.1													
			SD-06 Test Reports														
			Tests, Inspections, and Verifications	2.2													
			SD-07 Certificates														
			Reinforcing Steel	3.1													
	03 31 29		SD-02 Shop Drawings														
			Drawings of precast members	1.4	G												
			SD-03 Product Data														
			Materials for curing concrete	2.2.6													
			Sealer-hardener	2.2.7													
			SD-05 Design Data														
			Mixture design	1.7.2	G												
			SD-06 Test Reports														
			Concrete mixture proportions	1.7.5.1	G												
			Fly ash	1.7.5.2													
			Natural pozzolan	1.7.5.2													
			Ground granulated blast-furnace slag	1.7.5.3													
			Silica fume	1.7.5.4													
			Aggregates	1.7.5.5													
			Admixtures	1.7.5.6													
			Cement	1.7.5.7													
			Water	1.7.5.8													
			Corrosion Inhibitor	1.7.5.6	G												

SUBMITTAL REGISTER																	
TITLE AND LOCATION		CONTRACTOR															
NONDALTON LAUNCH RAMP		CONTRACT NO. W911KB-11-R-00??															
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH#	CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY			REMARKS		
						APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	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)
	03 31 29		Corrosion Inhibitor	2.2.4.6	G												
			SD-07 Certificates														
			Reinforcement and Protective Coating	1.7.5.9													
			Curing concrete elements	1.7.4.1													
			Field testing technician and testing agency	1.7.4.3	G												
			Mixture designs	1.7.4.4													
			Construction Records	3.10													
			Quality control procedures	1.7.1													
			SD-11 Closeout Submittals														
			batch ticket	1.7.3													
	06 13 33		SD-02 Shop Drawings														
			timberwork	3.2.1	G												
			SD-06 Test Reports														
			Timber preservative inspection	1.4.2	G												
			Delivery inspection list	1.4.3													
			SD-07 Certificates														
			MSDS and CIS	1.4.1													
	31 00 00		SD-06 Test Reports														
			Testing	3.7													
			SD-07 Certificates														
			Testing	3.7													
	31 62 22		SD-02 Shop Drawings														
			Pile Installation Plan	3.2.1	G												
			SD-03 Product Data														

SUBMITTAL REGISTER																										
CONTRACT NO. W911KB-11-R-00??																										
CONTRACTOR																										
TITLE AND LOCATION NONDALTON LAUNCH RAMP	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY			REMARKS											
						GOVT OR CLASSIFICATION	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)		(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)		

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.
- | | | | |
|------|--|-------|--|
| 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.

THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

(Reverse of ENG Form 4025-R)

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DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 35 26

GOVERNMENTAL SAFETY REQUIREMENTS

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- 1.2 SUBMITTALS
- 1.3 DEFINITIONS
- 1.4 REGULATORY REQUIREMENTS
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 - 1.5.1 Personnel Qualifications
 - 1.5.1.1 Site Safety and Health Officer (SSHO)
 - 1.5.1.2 Crane Operators
 - 1.5.2 Personnel Duties
 - 1.5.2.1 Site Safety and Health Officer (SSHO)
 - 1.5.3 Meetings
 - 1.5.3.1 Preconstruction Conference
- 1.6 ACCIDENT PREVENTION PLAN (APP)
 - 1.6.1 EM 385-1-1 Contents
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- 3.4.4 Horizontal Lifelines
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SECTION 01 35 26

GOVERNMENTAL SAFETY 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 within the text by the basic designation only.

AMERICAN SOCIETY OF SAFETY ENGINEERS (ASSE/SAFE)

- ASSE/SAFE A10.32 (2004) Fall Protection
- ASSE/SAFE A10.34 (2001; R 2005) Protection of the Public on or Adjacent to Construction Sites
- ASSE/SAFE Z359.1 (2007) Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components

ASME INTERNATIONAL (ASME)

- ASME B30.22 (2005) Articulating Boom Cranes
- ASME B30.3 (2009) Construction Tower Cranes
- ASME B30.5 (2007) Mobile and Locomotive Cranes
- ASME B30.8 (2004) Floating Cranes and Floating Derricks

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

- NFPA 10 (2007; Errata 2007; AMD 1 2007) Standard for Portable Fire Extinguishers
- NFPA 51B (2009) Standard for Fire Prevention During Welding, Cutting, and Other Hot Work
- NFPA 70 (2008; AMD 1 2008) National Electrical Code - 2008 Edition
- NFPA 70E (2009; Errata 2009) Standard for Electrical Safety in the Workplace

U.S. ARMY CORPS OF ENGINEERS (USACE)

- EM 385-1-1 (2008; Errata 1-2010; Changes 1-3 2010; Changes 4-6 2011) Safety and Health Requirements Manual

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

29 CFR 1910.146	Permit-required Confined Spaces
29 CFR 1926	Safety and Health Regulations for Construction
29 CFR 1926.500	Fall Protection

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

Government acceptance is required for submittals with a "G" designation.

SD-01 Preconstruction Submittals

- Accident Prevention Plan (APP); G
- Activity Hazard Analysis (AHA); G
- Crane Critical Lift Plan; G
- Proof of qualification for Crane Operators; G

SD-06 Test Reports

Reports

Submit reports as their incidence occurs, in accordance with the requirements of the paragraph entitled, "Reports."

Accident Reports

Crane Reports

SD-07 Certificates

Confined Space Entry Permit

Hot work permit

1.3 DEFINITIONS

- a. High Visibility Accident. Any mishap which may generate publicity and/or high visibility.
- b. Medical Treatment. Treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even through provided by a physician or registered personnel.
- c. Recordable Injuries or Illnesses. Any work-related injury or illness that results in:

- (1) Death, regardless of the time between the injury and death, or the length of the illness;
 - (2) Days away from work (any time lost after day of injury/illness onset);
 - (3) Restricted work;
 - (4) Transfer to another job;
 - (5) Medical treatment beyond first aid;
 - (6) Loss of consciousness; or
 - (7) A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (1) through (6) above.
- d. "USACE" property and equipment specified in USACE EM 385-1-1 should be interpreted as Government property and equipment.
- e. Weight Handling Equipment (WHE) Accident. A WHE accident occurs when any one or more of the six elements in the operating envelope fails to perform correctly during operation, including operation during maintenance or testing resulting in personnel injury or death; material or equipment damage; dropped load; derailment; two-blocking; overload; and/or collision, including unplanned contact between the load, crane, and/or other objects. A dropped load, derailment, two-blocking, overload and collision are considered accidents even though no material damage or injury occurs. A component failure (e.g., motor burnout, gear tooth failure, bearing failure) is not considered an accident solely due to material or equipment damage unless the component failure results in damage to other components (e.g., dropped boom, dropped load, roll over, etc.) Any mishap meeting the criteria described above shall be documented in the Contractor Significant Incident Report (CSIR).

1.4 REGULATORY REQUIREMENTS

In addition to the detailed requirements included in the provisions of this contract, comply with the most recent addition of USACE EM 385-1-1, and all applicable federal, state, and local, laws, ordinances, criteria, rules and regulations. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements govern.

1.5 SITE QUALIFICATIONS, DUTIES AND MEETINGS

1.5.1 Personnel Qualifications

1.5.1.1 Site Safety and Health Officer (SSHO)

The contractor shall provide a Safety oversight team that includes a minimum of one (1) Competent Person at each project site to function as the Safety and Health Officer (SSHO). The SSHO shall be at the work site at all times, unless specified differently in the contract, to perform safety and occupational health management, surveillance, inspections, and safety

enforcement for the Contractor, and their training, experience, and qualifications shall be as required by EM 385-1-1 paragraph 01.A.17 and all associated sub-paragraphs. A Competent Personal shall be provided for all of the hazards identified in the Contractor's Safety and Health Program in accordance with the accepted Accident Prevention Plan, and shall be on-site at all times when the work that presents the hazards associated with their professional expertise is being performed. The credentials of the Competent Persons(s) shall be approved by the Contracting Officer in consultation with the Safety Office.

The Contractor Quality Control (QC) person can be the SSHO on this project.

1.5.1.2 Crane Operators

Meet the crane operators requirements in USACE EM 385-1-1, Section 16 and Appendix I. In addition, for mobile cranes with Original Equipment Manufacturer (OEM) rated capacities of 50,000 pounds or greater, designate crane operators as qualified by a source that qualifies crane operators (i.e., union, a government agency, or and organization that tests and qualifies crane operators). Provide proof of current qualification.

1.5.2 Personnel Duties

1.5.2.1 Site Safety and Health Officer (SSHO)

- a. Conduct daily safety and health inspections and maintain a written log which includes area/operation inspected, date of inspection, identified hazards, recommended corrective actions, estimated and actual dates of corrections. Attach safety inspection logs to the Contractors' daily quality control report.
- b. Conduct mishap investigations and complete required reports. Maintain the OSHA Form 300 and Daily Production reports for prime and sub-contractors.
- c. Maintain applicable safety reference material on the job site.
- d. Attend the pre-construction conference, pre-work meetings including preparatory inspection meeting, and periodic in-progress meetings.
- e. Implement and enforce accepted APPS and AHAs.
- f. Maintain a safety and health deficiency tracking system that monitors outstanding deficiencies until resolution. Post a list of unresolved safety and health deficiencies on the safety bulletin board.
- g. Ensure sub-contractor compliance with safety and health requirements.
- h. Maintain a list of hazardous chemicals on site and their material safety data sheets.
- i. Perform safety and occupational health management, surveillance, inspections, and safety enforcement for the project.
- j. Perform as the safety and occupational health "competent person" as defined by USACE EM 385-1-1.
- k. Be on-site at all times whenever work or testing is being performed.

1. Conduct and document safety inspections.

Failure to perform the above duties will result in dismissal of the superintendent, QC Manager, and/or SSHO, and a project work stoppage. The project work stoppage will remain in effect pending approval of a suitable replacement.

- 1.5.3 Meetings

- 1.5.3.1 Preconstruction Conference

- a. Contractor representatives who have a responsibility or significant role in accident prevention on the project shall attend the preconstruction conference. This includes the project superintendent, site safety and health officer, quality control supervisor, or any other assigned safety and health professionals who participated in the development of the APP (including the Activity Hazard Analyses (AHAs) and special plans, program and procedures associated with it).
- b. Discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the contract. This list of proposed AHAs will be reviewed at the conference and an agreement will be reached between the Contractor and the Contracting Officer's representative as to which phases will require an analysis. In addition, establish a schedule for the preparation, submittal, review, and acceptance of AHAs to preclude project delays.
- c. Deficiencies in the submitted APP will be brought to the attention of the Contractor at the preconstruction conference, and the Contractor shall revise the plan to correct deficiencies and re-submit it for acceptance. Do not begin work until there is an accepted APP.
- d. The functions of a Preconstruction conference may take place at the Post-Award Kickoff meeting for Design Build Contracts.

- 1.6 ACCIDENT PREVENTION PLAN (APP)

Use a qualified person to prepare the written site-specific APP. Prepare the APP in accordance with the format and requirements of USACE EM 385-1-1 and as supplemented herein. Cover all paragraph and subparagraph elements in USACE EM 385-1-1, Appendix A, "Minimum Basic Outline for Accident Prevention Plan". An APP template, form POD 284-R, is available at <http://www.pod.usace.army.mil/Links-Forms/POD248R.pdf>. Specific requirements for some of the APP elements are described below. The APP shall be job-specific and address any unusual or unique aspects of the project or activity for which it is written. The APP shall interface with the Contractor's overall safety and health program. Include any portions of the Contractor's overall safety and health program referenced in the APP in the applicable APP element and made site-specific. The Government considers the Prime Contractor to be the "controlling authority" for all work site safety and health of the subcontractors. Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. The APP shall be signed by the person and firm (senior person) preparing the APP, the Contractor, the

on-site superintendent, the designated site safety and health officer, the Contractor Quality control Manager, and any designated CSP and/or CIH.

Submit the APP to the Contracting Officer 15calendar days prior to the date of the preconstruction conference for acceptance. Work cannot proceed without an accepted APP.

Once accepted by the Contracting Officer, the APP and attachments will be enforced as part of the contract. Disregarding the provisions of this contract or the accepted APP will be cause for stopping of work, at the discretion of the Contracting Officer, until the matter has been rectified.

Once work begins, changes to the accepted APP shall be made with the knowledge and concurrence of the Contracting Officer, project superintendent, SSSH and quality control manager. Should any severe hazard exposure, i.e. imminent danger, become evident, stop work in the area, secure the area, and develop a plan to remove the exposure and control the hazard. Notify the Contracting Officer within 24 hours of discovery. Eliminate/remove the hazard. In the interim, take all necessary action to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public (as defined by ASSE/SAFE A10.34,) and the environment.

Copies of the accepted plan will be maintained at the office and at the job site.

Continuously reviewed and amended the APP, as necessary, throughout the life of the contract. Incorporate unusual or high-hazard activities not identified in the original APP as they are discovered.

1.6.1 EM 385-1-1 Contents

In addition to the requirements outlines in Appendix A of USACE EM 385-1-1, the following is required:

Crane Critical Lift Plan. Prepare and sign weight handling critical lift plans for lifts over 75 percent of the capacity of the crane or hoist (or lifts over 50 percent of the capacity of a barge mounted mobile crane's hoists) at any radius of lift; lifts involving more than one crane or hoist; lifts of personnel; and lifts involving non-routine rigging or operation, sensitive equipment, or unusual safety risks. Submit 15 calendar days prior to on-site work and include the requirements of USACE EM 385-1-1, paragraph 16.H. and the following:

- (1) For lifts of personnel, demonstrate compliance with the requirements of 29 CFR 1926.550(g).
- (2) For barge mounted mobile cranes, barge stability calculations identifying barge list and trim based on anticipated loading; and load charts based on calculated list and trim. The amount of list and trim shall be within the crane manufacturer's requirements.

1.7 ACTIVITY HAZARD ANALYSIS (AHA)

The Activity Hazard Analysis (AHA) format shall be in accordance with USACE EM 385-1-1, Section 1. A fillable AHA template, form POD 184-E, is available at <http://www.pod.usace.army.mil/Links-Forms/POD184E.pdf>. Submit the AHA for review at least 15 calendar days prior to the start of each phase. Format subsequent AHAs as amendments to the APP. The analysis should be used during daily inspections to ensure the implementation and

effectiveness of the activity's safety and health controls.

The AHA list will be reviewed periodically (at least monthly) at the Contractor supervisory safety meeting and updated as necessary when procedures, scheduling, or hazards change.

Develop the activity hazard analyses using the project schedule as the basis for the activities performed. Any activities listed on the project schedule will require an AHA. The AHAs will be developed by the contractor, supplier or subcontractor and provided to the prime contractor for submittal to the Contracting Officer.

1.8 DISPLAY OF SAFETY INFORMATION

Within 1 calendar days after commencement of work, erect a safety bulletin board at the job site. Where size, duration, or logistics of project do not facilitate a bulletin board, an alternative method, acceptable to the Contracting Officer, that is accessible and includes all mandatory information for employee and visitor review, shall be deemed as meeting the requirement for a bulletin board. Include and maintain information on safety bulletin board as required by EM 385-1-1, section 01.A.06. Additional items required to be posted include:

- a. Confined space entry permit.
- b. Hot work permit.

1.9 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in the article "References." Maintain applicable equipment manufacturer's manuals.

1.10 EMERGENCY MEDICAL TREATMENT

Contractors will arrange for their own emergency medical treatment. Government has no responsibility to provide emergency medical treatment.

1.11 REPORTS

1.11.1 Accident Reports

- a. Report all accidents as soon as practical and follow up with a POD Form 265-E within 24 hours from the time of the accident. A fillable Immediate Report of Accident template, form POD 265-E, is available at <http://www.pod.usace.army.mil/Links-Forms/POD265-E.pdf>. Conduct an accident investigation for recordable injuries and illnesses, as defined in 1.3.c and property damage accidents resulting in at least \$2,000 in damages, to establish the root cause(s) of the accident, complete the and provide the report to the Contracting Officer within 5 calendar day(s) of the accident. The Contracting Officer will provide copies of any required or special forms.
- b. Conduct an accident investigation for any weight handling equipment accident (including rigging gear accidents) to establish the root cause(s) of the accident. Do not proceed with crane operations until cause is determined and corrective actions have been implemented to the satisfaction of the contracting officer. The Contracting Officer will provide a blank copy of the accident report form.

1.11.2 Accident Notification

Notify the Contracting Officer as soon as practical, but not later than four hours, after any accident meeting the definition of Recordable Injuries or Illnesses or High Visibility Accidents, property damage equal to or greater than \$2,000, or any weight handling equipment accident. Within notification include contractor name; contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (to include type of construction equipment used, PPE used, etc.). Preserve the conditions and evidence on the accident site until the Government investigation team arrives on-site and Government investigation is conducted.

1.11.3 Crane Reports

Submit crane inspection reports required in accordance with USACE EM 385-1-1, Appendix I and as specified herein with Daily Reports of Inspections.

1.12 HOT WORK

Submit and obtain a written permit prior to performing "Hot Work" (welding, cutting, etc.) or operating other flame-producing/spark producing devices, from the Douglas Fire Department. A permit is required from the Explosives Safety Office for work in and around where explosives are processed, stored, or handled. CONTRACTORS ARE REQUIRED TO MEET ALL CRITERIA BEFORE A PERMIT IS ISSUED. The Contractor will provide at least two (2) twenty (20) pound 4A:20 BC rated extinguishers for normal "Hot Work". All extinguishers shall be current inspection tagged, approved safety pin and tamper resistant seal. It is also mandatory to have a designated FIRE WATCH for any "Hot Work" done at this activity. The Fire Watch shall be trained in accordance with NFPA 51B and remain on-site for a minimum of 30 minutes after completion of the task or as specified on the hot work permit.

When starting work in the facility, require personnel to familiarize themselves with the location of the nearest fire alarm boxes and place in memory the emergency Douglas Fire Department phone number. ANY FIRE, NO MATTER HOW SMALL, SHALL BE REPORTED TO THE DOUGLAS FIRE DEPARTMENT IMMEDIATELY.

1.13 FACILITY OCCUPANCY CLOSURE

Streets, walks, and other facilities occupied and used by the Government shall not be closed or obstructed without written permission from the Contracting Officer.

1.14 SEVERE STORM PLAN

In the event of a severe storm warning, the Contractor must:

- a. Secure outside equipment and materials and place materials that could be damaged in protected areas.
- b. Check surrounding area, including roof, for loose material, equipment, debris, and other objects that could be blown away or against existing

facilities.

- c. Ensure that temporary erosion controls are adequate.

1.15 CONFINED SPACE ENTRY REQUIREMENTS.

Contractors entering and working in confined spaces performing shipyard industry work are required to follow the requirements of OSHA 29 CFR Part 1915 Subpart B. Contractors entering and working in confined spaces performing general industry work are required to follow the requirements of OSHA 29 CFR Part 1926.

Navy personnel entering and working in confined spaces performing naval maritime facility work are required to follow the requirements of NAVSEA S6470-AA-SAF-101 Rev. 03. Navy personnel entering and working in confined spaces performing non-maritime facility work are required to follow the requirements of OPNAVINST 5100.23G Chapter 27.

PART 2 PRODUCTS

PART 3 EXECUTION

3.1 CONSTRUCTION AND/OR OTHER WORK

3.1.1 Hazardous Material Exclusions

Notwithstanding any other hazardous material used in this contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation (with the exception of radioactive material and devices used in accordance with USACE EM 385-1-1 such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocyanates, lead-based paint are prohibited. The Contracting Officer, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials. The Radiation Safety Officer (RSO) must be notified prior to excepted items of radioactive material and devices being brought on base.

3.1.2 Unforeseen Hazardous Material

The design should have identified materials such as PCB, lead paint, and friable and non-friable asbestos and other OSHA regulated chemicals (i.e. 29 CFR Part 1910.1000). If material, not indicated, that may be hazardous to human health upon disturbance during construction operations is encountered, stop that portion of work and notify the Contracting Officer immediately. Within 14 calendar days the Government will determine if the material is hazardous. If material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification pursuant to "FAR 52.243-4, Changes" and "FAR 52.236-2, Differing Site Conditions."

3.2 PRE-OUTAGE COORDINATION MEETING

Contractors are required to apply for utility outages at least 14 days in advance. As a minimum, the request should include the location of the outage, utilities being affected, duration of outage and any necessary

sketches. Special requirements for electrical outage requests are contained elsewhere in this specification section. Once approved, and prior to beginning work on the utility system requiring shut down, attend a pre-outage coordination meeting with the Contracting Officer to review the scope of work and the lock-out/tag-out procedures for worker protection. No work will be performed on energized electrical circuits unless proof is provided that no other means exist.

3.3 CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT)

Contractor shall ensure that each employee is familiar with and complies with these procedures and USACE EM 385-1-1, Section 12, Control of Hazardous Energy.

Contracting Officer will, at the Contractor's request, apply lockout/tagout tags and take other actions that, because of experience and knowledge, are known to be necessary to make the particular equipment safe to work on for government owned and operated systems.

No person, regardless of position or authority, shall operate any switch, valve, or equipment that has an official lockout/tagout tag attached to it, nor shall such tag be removed except as provided in this section. No person shall work on any energized equipment including, but not limited to activities such as erecting, installing, constructing, repairing, adjusting, inspecting, un-jamming, setting up, trouble shooting, testing, cleaning, dismantling, servicing and maintaining machines equipment of processes until an evaluation has been conducted identifying the energy source and the procedures which will be taken to ensure the safety of personnel.

When work is to be performed on electrical circuits, only qualified personnel shall perform work on electrical circuits.

A supervisor who is required to enter an area protected by a lockout/tagout tag will be considered a member of the protected group provided he notifies the holder of the tag stub each time he enters and departs from the protected area.

Identification markings on building light and power distribution circuits shall not be relied on for established safe work conditions.

Before clearance will be given on any equipment other than electrical (generally referred to as mechanical apparatus), the apparatus, valves, or systems shall be secured in a passive condition with the appropriate vents, pins, and locks.

Pressurized or vacuum systems shall be vented to relieve differential pressure completely.

Vent valves shall be tagged open during the course of the work.

Where dangerous gas or fluid systems are involved, or in areas where the environment may be oxygen deficient, system or areas shall be purged, ventilated, or otherwise made safe prior to entry.

3.3.1 Tag Placement

Lockout/tagout tags shall be completed in accordance with the regulations printed on the back thereof and attached to any device which, if operated,

could cause an unsafe condition to exist.

If more than one group is to work on any circuit or equipment, the employee in charge of each group shall have a separate set of lockout/tagout tags completed and properly attached.

When it is required that certain equipment be tagged, the Government will review the characteristics of the various systems involved that affect the safety of the operations and the work to be done; take the necessary actions, including voltage and pressure checks, grounding, and venting, to make the system and equipment safe to work on; and apply such lockout/tagout tags to those switches, valves, vents, or other mechanical devices needed to preserve the safety provided. This operation is referred to as "Providing Safety Clearance."

3.3.2 Tag Removal

When any individual or group has completed its part of the work and is clear of the circuits or equipment, the supervisor, project leader, or individual for whom the equipment was tagged shall turn in his signed lockout/tagout tag stub to the Contracting Officer. That group's or individual's lockout/tagout tags on equipment may then be removed on authorization by the Contracting Officer.

3.4 FALL HAZARD PROTECTION AND PREVENTION PROGRAM

Establish a fall protection and prevention program, for the protection of all employees exposed to fall hazards. Within the program include company policy, identify responsibilities, education and training requirements, fall hazard identification, prevention and control measures, inspection, storage, care and maintenance of fall protection equipment and rescue and evacuation procedures.

3.4.1 Training

Institute a fall protection training program. As part of the Fall Hazard Protection and Prevention Program, provide training for each employee who might be exposed to fall hazards. Provide training by a competent person for fall protection in accordance with USACE EM 385-1-1, Section 21.B.

3.4.2 Fall Protection Equipment and Systems

Enforce use of the fall protection equipment and systems designated for each specific work activity in the Fall Protection and Prevention Plan and/or AHA at all times when an employee is exposed to a fall hazard. Protect employees from fall hazards as specified in EM 385-1-1, Section 21. In addition to the required fall protection systems, safety skiff, personal floatation devices, life rings etc., are required when working above or next to water in accordance with USACE EM 385-1-1, Paragraphs 21.N through 21.N.04. Personal fall arrest systems are required when working from an articulating or extendible boom, swing stages, or suspended platform. In addition, personal fall arrest systems are required when operating other equipment such as scissor lifts if the work platform is capable of being positioned outside the wheelbase. The need for tying-off in such equipment is to prevent ejection of the employee from the equipment during raising, lowering, or travel. Fall protection must comply with 29 CFR 1926.500, Subpart M, USACE EM 385-1-1 and ASSE/SAFE A10.32.

3.4.2.1 Personal Fall Arrest Equipment

Personal fall arrest equipment, systems, subsystems, and components shall meet [ASSE/SAFE Z359.1](#). Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest body support device. Body belts may only be used as a positioning device system (for uses such as steel reinforcing assembly and in addition to an approved fall arrest system). Harnesses shall have a fall arrest attachment affixed to the body support (usually a Dorsal D-ring) and specifically designated for attachment to the rest of the system. Only locking snap hooks and carabiners shall be used. Webbing, straps, and ropes shall be made of synthetic fiber. The maximum free fall distance when using fall arrest equipment shall not exceed [6 feet](#). The total fall distance and any swinging of the worker (pendulum-like motion) that can occur during a fall shall always be taken into consideration when attaching a person to a fall arrest system.

3.4.3 Existing Anchorage

Certified (or re-certified) by a qualified person for fall protection existing anchorages, to be used for attachment of personal fall arrest equipment in accordance with [ASSE/SAFE Z359.1](#). Existing horizontal lifeline anchorages must be certified (or re-certified) by a registered professional engineer with experience in designing horizontal lifeline systems.

3.4.4 Horizontal Lifelines

Design, install, certify and use under the supervision of a qualified person horizontal lifelines for fall protection as part of a complete fall arrest system which maintains a safety factor of 2 ([29 CFR 1926.500](#)).

3.4.5 Guardrails and Safety Nets

Design, install and use guardrails and safety nets in accordance with [EM 385-1-1](#) and [29 CFR 1926](#) Subpart M.

3.4.6 Rescue and Evacuation Procedures

When personal fall arrest systems are used, the contractor must ensure that the mishap victim can self-rescue or can be rescued promptly should a fall occur. Prepare a Rescue and Evacuation Plan and include a detailed discussion of the following: methods of rescue; methods of self-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility. Include the Rescue and Evacuation Plan within the Activity Hazard Analysis (AHA) for the phase of work, in the Fall Protection and Prevention (FP&P) Plan, and the Accident Prevention Plan (APP).

3.5 SCAFFOLDING

3.6 EQUIPMENT

3.6.1 Material Handling Equipment

- a. Material handling equipment such as forklifts shall not be modified with work platform attachments for supporting employees unless specifically delineated in the manufacturer's printed operating

instructions.

- b. The use of hooks on equipment for lifting of material must be in accordance with manufacturer's printed instructions.
- c. Operators of forklifts or power industrial trucks shall be licensed in accordance with OSHA.

3.6.2 Weight Handling Equipment

- a. Equip cranes and derricks as specified in EM 385-1-1, section 16.
- c. Comply with the crane manufacturer's specifications and limitations for erection and operation of cranes and hoists used in support of the work. Perform erection under the supervision of a designated person (as defined in ASME B30.5). Perform all testing in accordance with the manufacturer's recommended procedures.
- d. Comply with ASME B30.5 for mobile and locomotive cranes, ASME B30.22 for articulating boom cranes, ASME B30.3 for construction tower cranes, and ASME B30.8 for floating cranes and floating derricks.
- e. Under no circumstance shall a Contractor make a lift at or above 90 percent of the cranes rated capacity in any configuration.
- f. When operating in the vicinity of overhead transmission lines, operators and riggers shall be alert to this special hazard and follow the requirements of USACE EM 385-1-1 Section 11 and ASME B30.5 or ASME B30.22 as applicable.
- g. Do not crane suspended personnel work platforms (baskets) unless the Contractor proves that using any other access to the work location would provide a greater hazard to the workers or is impossible. Do not lift personnel with a line hoist or friction crane.
- h. Inspect, maintain, and recharge portable fire extinguishers as specified in NFPA 10, Standard for Portable Fire Extinguishers.
- i. All employees must keep clear of loads about to be lifted and of suspended loads.
- j. Use cribbing when performing lifts on outriggers.
- k. The crane hook/block must be positioned directly over the load. Side loading of the crane is prohibited.
- l. A physical barricade must be positioned to prevent personnel from entering the counterweight swing (tail swing) area of the crane.
- m. Certification records which include the date of inspection, signature of the person performing the inspection, and the serial number or other identifier of the crane that was inspected shall always be available for review by Contracting Officer personnel.
- n. Written reports listing the load test procedures used along with any repairs or alterations performed on the crane shall be available for review by Contracting Officer personnel.

- o. Certify that all crane operators have been trained in proper use of all safety devices (e.g. anti-two block devices).

3.7 EXCAVATIONS

Perform soil classification by a competent person in accordance with [29 CFR 1926](#).

3.7.1 Utility Locations

Prior to digging, the appropriate digging permit must be obtained. All underground utilities in the work area must be positively identified by a private utility locating service in addition to any station locating service and coordinated with the station utility department. Any markings made during the utility investigation must be maintained throughout the contract.

3.7.2 Utility Location Verification

The Contractor must physically verify underground utility locations by hand digging using wood or fiberglass handled tools when any adjacent construction work is expected to come within three feet of the underground system. Digging within [2 feet](#) of a known utility must not be performed by means of mechanical equipment; hand digging shall be used. If construction is parallel to an existing utility expose the utility by hand digging every [100 feet](#) if parallel within [5 feet](#) of the excavation.

3.7.3 Shoring Systems

Trench and shoring systems must be identified in the accepted safety plan and AHA. Manufacture tabulated data and specifications or registered engineer tabulated data for shoring or benching systems shall be readily available on-site for review. Job-made shoring or shielding must have the registered professional engineer stamp, specifications, and tabulated data. Extreme care must be used when excavating near direct burial electric underground cables.

3.7.4 Trenching Machinery

Operate trenching machines with digging chain drives only when the spotters/laborers are in plain view of the operator. Provide operator and spotters/laborers training on the hazards of the digging chain drives with emphasis on the distance that needs to be maintained when the digging chain is operating. Keep documentation of the training on file at the project site.

3.8 UTILITIES WITHIN CONCRETE SLABS

Utilities located within concrete slabs or pier structures, bridges, and the like, are extremely difficult to identify due to the reinforcing steel used in the construction of these structures. Whenever contract work involves concrete chipping, saw cutting, or core drilling, the existing utility location must be coordinated with station utility departments in addition to a private locating service. Outages to isolate utility systems must be used in circumstances where utilities are unable to be positively identified. The use of historical drawings does not alleviate the contractor from meeting this requirement.

3.9 ELECTRICAL

3.9.1 Conduct of Electrical Work

Underground electrical spaces must be certified safe for entry before entering to conduct work. Cables that will be cut must be positively identified and de-energized prior to performing each cut. Positive cable identification must be made prior to submitting any outage request for electrical systems. Arrangements are to be coordinated with the Contracting Officer and Station Utilities for identification. The Contracting Officer will not accept an outage request until the Contractor satisfactorily documents that the circuits have been clearly identified. Perform all high voltage cable cutting remotely using hydraulic cutting tool. When racking in or live switching of circuit breakers, no additional person other than the switch operator will be allowed in the space during the actual operation. Plan so that work near energized parts is minimized to the fullest extent possible. Use of electrical outages clear of any energized electrical sources is the preferred method. When working in energized substations, only qualified electrical workers will be permitted to enter. When work requires Contractor to work near energized circuits as defined by the [NFPA 70](#), high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety shoes, insulating gloves with leather protective sleeves, fire retarding shirts, coveralls, face shields, and safety glasses. In addition, provide electrical arc flash protection for personnel as required by [NFPA 70E](#). Insulating blankets, hearing protection, and switching suits may also be required, depending on the specific job and as delineated in the Contractor's AHA.

3.9.2 Portable Extension Cords

Size portable extension cords in accordance with manufacturer ratings for the tool to be powered and protected from damage. Immediately removed from service all damaged extension cords. Portable extension cords shall meet the requirements of [NFPA 70E](#) and OSHA electrical standards.

3.10 WORK IN CONFINED SPACES

Comply with the requirements in Section 34 of USACE [EM 385-1-1](#), OSHA [29 CFR 1910.146](#) and OSHA [29 CFR 1926.21\(b\)\(6\)](#). Any potential for a hazard in the confined space requires a permit system to be used.

-- End of Section --

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SECTION 01 42 00

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.

AMERICAN CONCRETE INSTITUTE INTERNATIONAL (ACI)
38800 Country Club Drive
Farmington Hills, MI 48331
Ph: 248-848-3700
Fax: 248-848-3701
E-mail: bkstore@concrete.org
Internet: <http://www.concrete.org>

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
(AASHTO)
444 North Capital Street, NW, Suite 249
Washington, DC 20001
Ph: 202-624-5800
Fax: 202-624-5806
E-Mail: info@ashto.org
Internet: <http://www.aashto.org>

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Centennial, CO 80112
Ph: 303-792-9559
Fax: 303-792-0669
E-mail: info@aitc-glulam.org
Internet: <http://www.aitc-glulam.org>

AMERICAN SOCIETY FOR NONDESTRUCTIVE TESTING (ASNT)
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Columbus, OH 43228-0518

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Fax: 614-274-6899
E-mail: webmaster@asnt.org
Internet: <http://www.asnt.org>

AMERICAN SOCIETY OF SAFETY ENGINEERS (ASSE/SAFE)
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E-mail: customerservice@asse.org
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AMERICAN WOOD PROTECTION ASSOCIATION (AWPA)
P.O. Box 361784
Birmingham, AL 35236-1784
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Fax: 205-733-4075
E-mail: email@awpa.com
Internet: <http://www.awpa.com>

ASME INTERNATIONAL (ASME)
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New York, NY 10016-5990
Ph: 800-854-7179 or 800-843-2763
Fax: 212-591-7674
E-mail: infocentral@asme.org
Internet: <http://www.asme.org>

ASTM INTERNATIONAL (ASTM)
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959
Ph: 610-832-9500
Fax: 610-832-9555
E-mail: service@astm.org
Internet: <http://www.astm.org>

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Ph: 617-770-3000 or 800-344-3555
Fax: 617-770-0700
E-mail: webmaster@nfpa.org
Internet: <http://www.nfpa.org>

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Internet: <http://assist.daps.dla.mil/online/start/>; account registration required

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Whole Building Design Guide (WBDG)
National Institute of Building Sciences (NIBS)
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Tigard, OR 97281
Ph: 503-639-0651
Fax: 503-684-8928
E-mail: info@wclib.org
Internet: <http://www.wclib.org>

WESTERN WOOD PRESERVERS INSTITUTE (WWPI)
7017 N.E. Highway 99 Suite 108
Vancouver, WA 98665
Ph: 360-693-9958
Fax: 360-693-9967
E-mail: info@wwpinstitute.org
Internet: <http://www.wwpinstitute.org>

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not used

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SECTION 01 45 04.00 29

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 within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

- ASTM D 3740 (2010) 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 (2011a) Standard Specification for 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 operations, both onsite and offsite, and shall be keyed to the proposed sequence. The site project superintendent 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 site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent 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 30 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. 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. Where the applicable Code issued by the International Code Council calls for an inspection by the Building Official, the Contractor shall include the inspections in the Quality Control Plan and shall perform the inspections. The designer of Record shall develop a program for any special inspections required by the applicable International Codes and the Contractor shall perform these inspections, using qualified inspectors. Include the special inspection plan in the QC Plan.

3.2.1 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all operations, both onsite and offsite, including work by :

- 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. Also include those responsible for performing and documenting the inspections required by Codes and the special inspection program developed by the designer of record.
- 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 . These procedures shall be in accordance with Section 01 33 00 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 approved by the Contracting Officer shall be used.)
- f. Procedures for tracking preparatory, initial, and follow-up

control phases and control, verification, and acceptance tests including documentation.

- g. Procedures for tracking 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.
- j. A list of all inspections required by Codes and the special inspection program required by the Code and this contract.

3.2.2 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of . Acceptance is conditional and will be predicated on satisfactory performance during the . 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 , 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 7 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 , 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 and sufficient number of

additional qualified personnel to ensure safety and contract compliance. The Safety and Health Manager shall serve as a member of the CQC staff. The CQC System Manager, if qualified and if allowed by SECTION 00 73 00.00 29 SPECIAL CONTRACT REQUIREMENTS may serve as the Safety and Health Manager or may be a separate position. 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, shop 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. The CQC system Manager may alternately be an engineering technician with at least 2 years of college and an ICC certification as a Commercial Building Inspector (Residential Building Inspector certification will be required for Military Family housing projects). In addition, the CQC system manager shall have a minimum of 5 years construction experience on construction similar to this contract. The 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 (except may also serve as Safety and Health Manager, if qualified and if allowed by Section 00 73 00.00 29). 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 Additional Requirement

In addition to the above experience and/or education requirements the CQC System Manager shall have completed the course entitled "Construction Quality Management For Contractors". This course is periodically offered at both Anchorage and Fairbanks by the Associated General Contractors (AGC) or Associated Builders and Contractors, Inc. (ABC). Contact AGC or ABC directly for course dates and fees.

3.4.4 Organizational Changes

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 01 33 00

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 the construction 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 24 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. Procure the services of a Corps of Engineers approved testing laboratory validated to perform the tests required per the technical specification. Alternatively, at the project site establish a testing laboratory meeting these same standards. 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 \$1,375 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, f.o.b., at the following address:

For delivery by mail: TBD

For other deliveries: TBD

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 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 in writing that the facility is ready for the Government Pre-Final inspection. Within two working days of this written notification, the on-site Government Representative will validate that the punch-out inspection was completed. If the Government Representative identifies any deficiencies, the contractor shall perform additional punch-out inspections as specified in this paragraph.

3.8.2 Pre-Final Inspection

The Government will perform the pre-final inspection within 14 days of the Government Representative's validation of the contractor's punch-out inspection, described in paragraph 3.8.1, 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 Base/Post Civil Facility Engineer user groups, and major commands 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. The report 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. Provide documentation of design quality control activities. For independent design reviews, provide, as a minimum, identity of the ITR team, the ITR review comments, responses and the record of

resolution of the comments.

k. 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 24 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. The Contractor may submit these forms electronically, in lieu of hard copy.

3.10 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.

3.11 ATTACHMENT

CQC Report

CONTRACTOR'S QUALITY CONTROL REPORT (CQC) (ER 1180-1-6)	DATE	REPORT NO.
CONTRACT NO. AND NAME OF CONTRACTOR:	DESCRIPTION AND LOCATION OF THE WORK:	
WEATHER CLASSIFICATION: CLASS A No interruption of any kind from weather conditions occurring on this or previous shifts. CLASS B Weather occurred during this shift that caused a complete stoppage of all work. CLASS C Weather occurred during this shift that caused a partial stoppage of work. CLASS D Weather overhead excellent or suitable during shift. Work completely stopped due to results of previous adverse weather. CLASS E Weather overhead excellent or suitable during shift but work partially stopped due to previous adverse manner. OTHER Explain.	CLASSIFICATION: CLASS _____	
	TEMPERATURE: MAX ____ MIN ____	
	PRECIPITATION: INCHES _____	
CONTRACTOR/SUBCONTRACTORS AND AREA OF RESPONSIBILITY FOR WORK PERFORMED TODAY: (Attach list of items of equipment either idle or working as appropriate.) a. _____ b. _____ c. _____ d. _____ e. _____ f. _____		
1. WORK PERFORMED TODAY: (Indicate location and description of work performed. Refer to work performed by prime and/or subcontractors by letter in Table above.) _____ _____		
2. TYPE AND RESULTS OF INSPECTION: (Indicate whether P-Preparatory, I-Initial, or F-Followup and include satisfactory work completed or deficiencies with action to be taken.) _____ _____		
3. TESTS REQUIRED BY PLANS AND/OR SPECIFICATIONS PERFORMED AND RESULTS OF TESTS: _____ _____		

4. VERBAL INSTRUCTIONS RECEIVED: (List any instructions given by Government personnel on construction deficiencies, retesting required, etc., with action to be taken.)

5. REMARKS: (Cover any conflicts in plans, specifications or instructions: acceptability of incoming materials; offsite surveillance activities; progress of work, delays, causes and extent thereof; days of no work with reasons for same.)

6. SAFETY: (Include any infractions of approved safety plan, safety manual, or instructions from Government personnel. Specify corrective action taken).

CONTRACTOR: _____

CONTRACTOR'S CERTIFICATION: I certify that the above report is complete and correct and that all material and equipment used, work performed and tests conducted during this reporting period were in strict compliance with the contract plans and specifications except as noted above.

CONTRACTOR'S APPROVED AUTHORIZED REPRESENTATIVE

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SECTION 01 50 00

TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SUMMARY

Requirements of this Section apply to, and are a component of, each section of the specifications.

1.2 REFERENCES

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

U.S. FEDERAL AVIATION ADMINISTRATION (FAA)

FAA AC 70/7460-1 (2007; Rev K) Obstruction Marking and Lighting

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. Submitted the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Construction site plan; G

1.4 CONSTRUCTION SITE PLAN

Prior to the start of work, submit a site plan showing the locations and dimensions of temporary facilities (including layouts and details, equipment and material storage area (onsite and offsite), and access and haul routes, avenues of ingress/egress to the fenced area and details of the fence installation. Identify any areas which may have to be graveled to prevent the tracking of mud. Indicate if the use of a supplemental or other staging area is desired. Show locations of safety and construction fences, site trailers, construction entrances, trash dumpsters, temporary sanitary facilities, and worker parking areas.

PART 2 PRODUCTS

2.1 TEMPORARY SIGNAGE

2.1.1 Bulletin Board

Immediately upon beginning of work, provide a weatherproof glass-covered bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the contract, Wage Rate Information poster, and other information

approved by the Contracting Officer. Locate the bulletin board at the project site in a conspicuous place easily accessible to all employees, as approved by the Contracting Officer.

2.1.2 Project and Safety Signs

Erect signs within 15 days after receipt of the notice to proceed. Correct the data required by the safety sign daily, with light colored metallic or non-metallic numerals.

PART 3 EXECUTION

3.1 AVAILABILITY AND USE OF UTILITY SERVICES

3.1.1 Temporary Utilities

Provide temporary utilities required for construction. Materials may be new or used, must be adequate for the required usage, not create unsafe conditions, and not violate applicable codes and standards.

3.1.2 Sanitation

a. Provide and maintain within the construction area minimum field-type sanitary facilities approved by the Contracting Officer and periodically empty wastes into a municipal, district, or station sanitary sewage system, or remove waste to a commercial facility. Obtain approval from the system owner prior to discharge into any municipal, district, or commercial sanitary sewer system. Any penalties and / or fines associated with improper discharge will be the responsibility of the Contractor. Coordinate with the Contracting Officer and follow station regulations and procedures when discharging into the station sanitary sewer system. Maintain these conveniences at all times without nuisance. Include provisions for pest control and elimination of odors. Government toilet facilities will not be available to Contractor's personnel.

3.1.3 Telephone

Make arrangements and pay all costs for telephone facilities desired.

3.1.4 Obstruction Lighting of Cranes

Provide a minimum of 2 aviation red or high intensity white obstruction lights on temporary structures (including cranes) over 100 feet above ground level. Light construction and installation must comply with FAA AC 70/7460-1. Lights must be operational during periods of reduced visibility, darkness, and as directed by the Contracting Officer.

3.1.5 Fire Protection

Provide temporary fire protection equipment for the protection of personnel and property during construction. Remove debris and flammable materials daily to minimize potential hazards.

3.2 CONTRACTOR'S TEMPORARY FACILITIES

3.2.1 Security Provisions

Provide adequate outside security lighting at the Contractor's temporary

facilities. The Contractor will be responsible for the security of its own equipment; in addition, the Contractor will notify the appropriate law enforcement agency requesting periodic security checks of the temporary project field office.

3.2.2 Weather Protection of Temporary Facilities and Stored Materials

Take necessary precautions to ensure that roof openings and other critical openings in the building are monitored carefully. Take immediate actions required to seal off such openings when rain or other detrimental weather is imminent, and at the end of each workday. Ensure that the openings are completely sealed off to protect materials and equipment in the building from damage.

3.2.2.1 Building and Site Storm Protection

When a warning of gale force winds is issued, take precautions to minimize danger to persons, and protect the work and nearby Government property. Precautions must include, but are not limited to, closing openings; removing loose materials, tools and equipment from exposed locations; and removing or securing scaffolding and other temporary work. Close openings in the work when storms of lesser intensity pose a threat to the work or any nearby Government property.

3.3 PLANT COMMUNICATION

Whenever the Contractor has the individual elements of its plant so located that operation by normal voice between these elements is not satisfactory, the Contractor must install a satisfactory means of communication, such as telephone or other suitable devices and made available for use by Government personnel.

3.4 CLEANUP

Remove construction debris, waste materials, packaging material and the like from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways must be cleaned away. Store within the fenced area described above or at the supplemental storage area any materials resulting from demolition activities which are salvageable. Neatly stacked stored materials not in trailers, whether new or salvaged.

3.5 RESTORATION OF STORAGE AREA

Upon completion of the project remove the bulletin board, signs, barricades, haulroads, and any other temporary products from the site. After removal of trailers, materials, and equipment from within the fenced area, remove the fence that will become the property of the Contractor. Restore to the original or better condition, areas used by the Contractor for the storage of equipment or material, or other use. Gravel used to traverse grassed areas must be removed and the area restored to its original condition, including top soil and seeding as necessary.

-- End of Section --

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SECTION 01 57 20.00 10

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 within the text by the basic designation only.

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2008; Errata 1-2010; Changes 1-3 2010; Changes 4-6 2011) Safety and Health Requirements Manual

WETLAND MANUAL Corps of Engineers Wetlands Delineation Manual Technical Report Y-87-1

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

33 CFR 328 Definitions of Waters of the United States

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

40 CFR 68 Chemical Accident Prevention Provisions

49 CFR 171 - 178 Hazardous Materials Regulations

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 Installation Pest Management Coordinator

Installation Pest Management Coordinator (IPMC) is the individual officially designated by the Installation Commander to oversee the Installation Pest Management Program and the Installation Pest Management Plan.

1.2.5 Project Pesticide Coordinator

The Project Pesticide Coordinator (PPC) is an individual that resides at a Civil Works Project office and that is responsible for oversight of pesticide application on Project grounds.

1.2.6 Land Application for Discharge Water

The term "Land Application" for discharge water implies that the Contractor must 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" must occur. Land Application must be in compliance with all applicable Federal, State, and local laws and regulations.

1.2.7 Pesticide

Pesticide is defined as any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or intended for use as a plant regulator, defoliant or desiccant.

1.2.8 Pests

The term "pests" means arthropods, birds, rodents, nematodes, fungi, bacteria, viruses, algae, snails, marine borers, snakes, weeds and other organisms (except for human or animal disease-causing organisms) that adversely affect readiness, military operations, or the well-being of personnel and animals; attack or damage real property, supplies, equipment, or vegetation; or are otherwise undesirable.

1.2.9 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.

1.2.10 Waters of the United States

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

1.2.11 Wetlands

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

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 must be protected during the entire duration of this contract. Comply with all applicable environmental Federal, State, and local laws and regulations. Any delays resulting from failure to comply with environmental laws and regulations will be the Contractor's responsibility.

1.4 SUBCONTRACTORS

Ensure compliance with this section by subcontractors.

1.5 PAYMENT

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

1.6 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Environmental Protection Plan; G

1.7 ENVIRONMENTAL PROTECTION PLAN

Prior to commencing construction activities or delivery of materials to the site, 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 must be defined within the Environmental Protection Plan as outlined in this section. 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 are considered necessary, must be identified and discussed after those items formally identified in this section. Prior to submittal of the Environmental Protection Plan, 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 must be current and maintained onsite by the Contractor.

1.7.1 Compliance

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

1.7.2 Contents

Include in the environmental protection plan, but not limit it 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 must 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.
- 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. Include in the Spill Control plan 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 EM 385-1-1. Include in this plan, 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 will 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. Include in the plan 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.

j. A non-hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris and schedules for disposal.

- 1). Identify any subcontractors responsible for the transportation and disposal of solid waste. Submit licenses or permits for solid waste disposal sites that are not a commercial operating facility.

- 2). Evidence of the disposal facility's acceptance of the solid waste must be attached to this plan during the construction. Attach a copy of each of the Non-hazardous Solid Waste Diversion Reports to the disposal plan. Submit the report for the previous quarter on the first working day after the first quarter that non-hazardous solid waste has been disposed and/or diverted (e.g. the first working day of January, April, July, and October).

- 3). Indicate in the report the total amount of waste generated

and total amount of waste diverted in cubic yards or tons along with the percent that was diverted.

4). A recycling and solid waste minimization plan with a list of measures to reduce consumption of energy and natural resources. Detail in the plan 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.

k. 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.

m. 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 EM 385-1-1, a copy of the Material Safety Data Sheets (MSDS) and the maximum quantity of each hazardous material to be onsite at any given time must be included in the contaminant prevention plan. Update the plan as new hazardous materials are brought onsite or removed from the site. Spill containment and cleanup materials must be available on-site and be used to contain and cleanup any petroleum spilled as a result of construction activities.

n. 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 must 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 must 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, include a copy of the permit and associated documents as an attachment prior to discharging the waste water. If disposal is to a sanitary sewer, the plan must include documentation that the Waste Water Treatment Plant Operator has approved the flow rate, volume, and type of discharge.

o. 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. Include in the plan methods to assure the protection of known or discovered resources, identifying lines of communication between Contractor personnel and the Contracting Officer.

1.7.3 Appendix

Attach to the Environmental Protection Plan, as an appendix, copies of all

environmental permits, permit application packages, approvals to construct, notifications, certifications, reports, and termination documents.

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 will make a joint condition survey. Immediately following the survey, the Contractor will prepare a brief 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 will be signed by both the Contractor and the Contracting Officer upon mutual agreement as to its accuracy and completeness. The Contractor must 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 work under the contract.

To protect young salmon and eggs that may be developing in the area in the late winter and spring, and spawning salmon that may be transiting the area in the autumn, pile-driving shall be restricted to the period 30 May through 1 August.

1.9 ENVIRONMENTAL ASSESSMENT OF CONTRACT DEVIATIONS

Any deviations from the drawings, plans and specifications, requested by the Contractor and 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.

1.10 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. After receipt of such notice, the Contractor will 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 will be granted or equitable adjustments allowed 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

Obtaining and complying with all environmental permits and commitments

required by Federal, State, Regional, and local environmental laws and regulations is the Contractor's responsibility.

3.2 LAND RESOURCES

Confine all activities to areas defined by the drawings and specifications. Identify any land resources to be preserved within the work area prior to the beginning of any construction. Do not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and land forms without approval, except in areas indicated on the drawings or specified to be cleared. Ropes, cables, or guys will not be fastened to or attached to any trees for anchorage unless specifically authorized. Provide effective protection for land and vegetation resources at all times, as defined in the following subparagraphs. Remove stone, soil, or other materials displaced into uncleared areas.

3.2.1 Work Area Limits

Mark the areas that need not be disturbed under this contract prior to commencing construction activities. Mark or fence isolated areas within the general work area which are not to be disturbed. Protect monuments and markers before construction operations commence. Where construction operations are to be conducted during darkness, any markers must be visible in the dark. The Contractor's personnel must 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 must be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques. Restore landscape features damaged or destroyed during construction operations outside the limits of the approved work area.

3.2.3 Contractor Facilities and Work Areas

Place field offices, staging areas, stockpile storage, and temporary buildings in areas designated on the drawings or as directed by the Contracting Officer. Temporary movement or relocation of Contractor facilities will be made only when approved. Erosion and sediment controls must be provided for onsite borrow and spoil areas to prevent sediment from entering nearby waters. Temporary excavation and embankments for plant and/or work areas must be controlled to protect adjacent areas.

3.3 WATER RESOURCES

Monitor all water areas affected by construction activities to prevent pollution of surface and ground waters. Do not apply toxic or hazardous chemicals to soil or vegetation unless otherwise indicated. For construction activities immediately adjacent to impaired surface waters, the Contractor must be capable of quantifying sediment or pollutant loading to that surface water when required by State or Federally issued Clean Water Act permits. The Contractor shall control the pile installation to prevent any visible turbidity plume in the waters of [Six Mile Lake](#) beyond in-place control measures.

3.4 AIR RESOURCES

Equipment operation, activities, or processes will be in accordance with all Federal and State air emission and performance laws and standards.

3.4.1 Particulates

Dust particles; aerosols and gaseous by-products from construction activities; and processing and preparation of materials, such as from air rotary drilling activities; must be controlled at all times, including weekends, holidays and hours when work is not in progress. 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. Provide sufficient, competent equipment available to accomplish these tasks. Perform particulate control as the work proceeds and whenever a particulate nuisance or hazard occurs. Comply with all State and local visibility regulations.

3.4.2 Odors

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

3.4.3 Sound Intrusions

Keep construction activities under surveillance and control to minimize environment damage by noise. Comply with the provisions of the State of Alaska 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 will be subject to approval.

3.5 CHEMICAL MATERIALS MANAGEMENT AND WASTE DISPOSAL

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

3.5.1 Solid Wastes

Place solid wastes (excluding clearing debris) in containers which are emptied on a regular schedule. Handling, storage, and disposal must be conducted to prevent contamination. Employ segregation measures so that no hazardous or toxic waste will become co-mingled with solid waste. Comply with Federal, State, and local laws and regulations pertaining to the use of landfill areas.

3.5.2 Chemicals and Chemical Wastes

Dispense chemicals ensuring no spillage to the ground or water. Perform and document periodic inspections of dispensing areas to identify leakage and initiate corrective action. This documentation will be periodically reviewed by the Government. Collect chemical waste in corrosion resistant, compatible containers. Collection drums must be monitored and removed to a staging or storage area when contents are within 6 inches of the top. Wastes will 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. At a minimum, manage and store hazardous waste in compliance with 40 CFR 262. Take sufficient measures to prevent spillage of hazardous and toxic materials during dispensing. Segregate hazardous waste from other materials and wastes, protect it from the weather by placing it in a safe covered location, and take precautionary measures such as berming or other appropriate measures against accidental spillage. 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 is the Contractor's responsibility. Transport Contractor generated hazardous waste off Government property within 60 days in accordance with the Environmental Protection Agency and the Department of Transportation laws and regulations. Dispose of hazardous waste in compliance with Federal, State and local laws and regulations. Spills of hazardous or toxic materials must be immediately reported to the Contracting Officer. Cleanup and cleanup costs due to spills are 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 must be conducted in a manner that affords the maximum protection against spill and evaporation. Manage and store fuel, lubricants and oil in accordance with all Federal, State, Regional, and local laws and regulations. Used lubricants and used oil to be discarded must 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 will be in accordance with all Federal, State, and local laws and regulations.

3.5.5 Waste Water

Disposal of waste water will 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. will not be allowed to enter water ways or to be discharged prior to being treated to remove pollutants. 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 will obtain a State

or Federal permit specific for pumping and discharging ground water prior to surface discharging.

- c. Water generated from the flushing of lines after disinfection or disinfection in conjunction with hydrostatic testing will 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

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

Maintain an inventory of non-hazardous solid waste diversion and disposal of construction and demolition debris. 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. Include the following in the report:

- a. Construction and Demolition (C&D) Debris Disposed = in cubic yards or tons, as appropriate.
- b. Construction and Demolition (C&D) Debris Recycled = in cubic yards or tons, as appropriate.
- c. Total C&D Debris Generated = in cubic yards or tons, as appropriate.
- d. Waste Sent to Waste-To-Energy Incineration Plant (This amount should not be included in the recycled amount) = in cubic yards or tons, 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 will 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, 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. Cease all activities that may result in impact to or the destruction of these resources. Secure the area to the extent practical and prevent employees or other persons from trespassing on, removing, or otherwise disturbing such resources.

3.9 BIOLOGICAL RESOURCES

Minimize interference with, disturbance to, and damage to fish, wildlife, and plants including their habitat. The protection of threatened and endangered animal and plant species, including their habitat, is the Contractor's responsibility in accordance with Federal, State, Regional,

and local laws and regulations.

3.10 PREVIOUSLY USED EQUIPMENT

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

3.11 MAINTENANCE OF POLLUTION FACILITIES

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 military munitions, as defined in 40 CFR 260, are discovered or uncovered, the Contractor will immediately stop work in that area and immediately inform the Contracting Officer.

3.13 TRAINING OF CONTRACTOR PERSONNEL

The Contractor's personnel must be trained in all phases of environmental protection and pollution control. Conduct environmental protection/pollution control meetings for all personnel prior to commencing construction activities. Additional meetings must be conducted for new personnel and when site conditions change. Include in the training and meeting agenda: 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 will clean up all areas used for construction in accordance with Contract Clause: "Cleaning Up". 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 must be graded, filled and the entire area seeded unless otherwise indicated.

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PROJECT MARKER

PART 1 GENERAL

1.1 PROJECT MARKER

The project marker shall consist of one sign. The sign shall conform to the requirements shown on attached Drawing Number 40-05-12 and the requirements specified herein. The project marker shall bear the Denali Commission Logo at the lower right hand corner of the project marker. The description of this logo is attached. Both sides of the sign shall conform to the format on the referenced marker.

1.2 PAYMENT

No separate payment will be made for the project sign. Costs shall be considered incidental to and included in the contract price.

PART 2 PRODUCTS

2.1 MATERIALS

The panel shall be 3/4 inch exterior grade plywood or 16 gauge galvanized steel sheets. Posts, rails and trim shall be wood. Paint shall be exterior type oil base paint. Nails and tacks shall be galvanized.

2.2 SIZE

The sign panel shall be a minimum of 6 1/2 feet long between posts and a minimum of 4 feet high between rails. Posts shall be of such length that the top of the project marker will be located a minimum of 8 feet above ground.

2.3 FINISH

Both sides of the sign shall be painted and lettered. Letters shall be black and background shall be white. Posts and rails shall be painted white. Letters shall be upper case block type for all lettering, except that names of major sub-contractors may be upper and lower case.

2.4 DECAL

Two decals of the "Engineer Castle", 12 inches by 8-1/2 inches in size each, will be furnished to the Contractor by the Government. One decal shall be applied to each side of the sign where indicated.

PART 3 EXECUTION

3.1 INSTALLATION

Posts shall be installed in a manner which provides a firm foundation for the marker. The marker shall be located on the project site or where

directed by the Contracting Officer. The sign shall be situated to provide an unobstructed view from the access road or access area.

3.2 MAINTENANCE

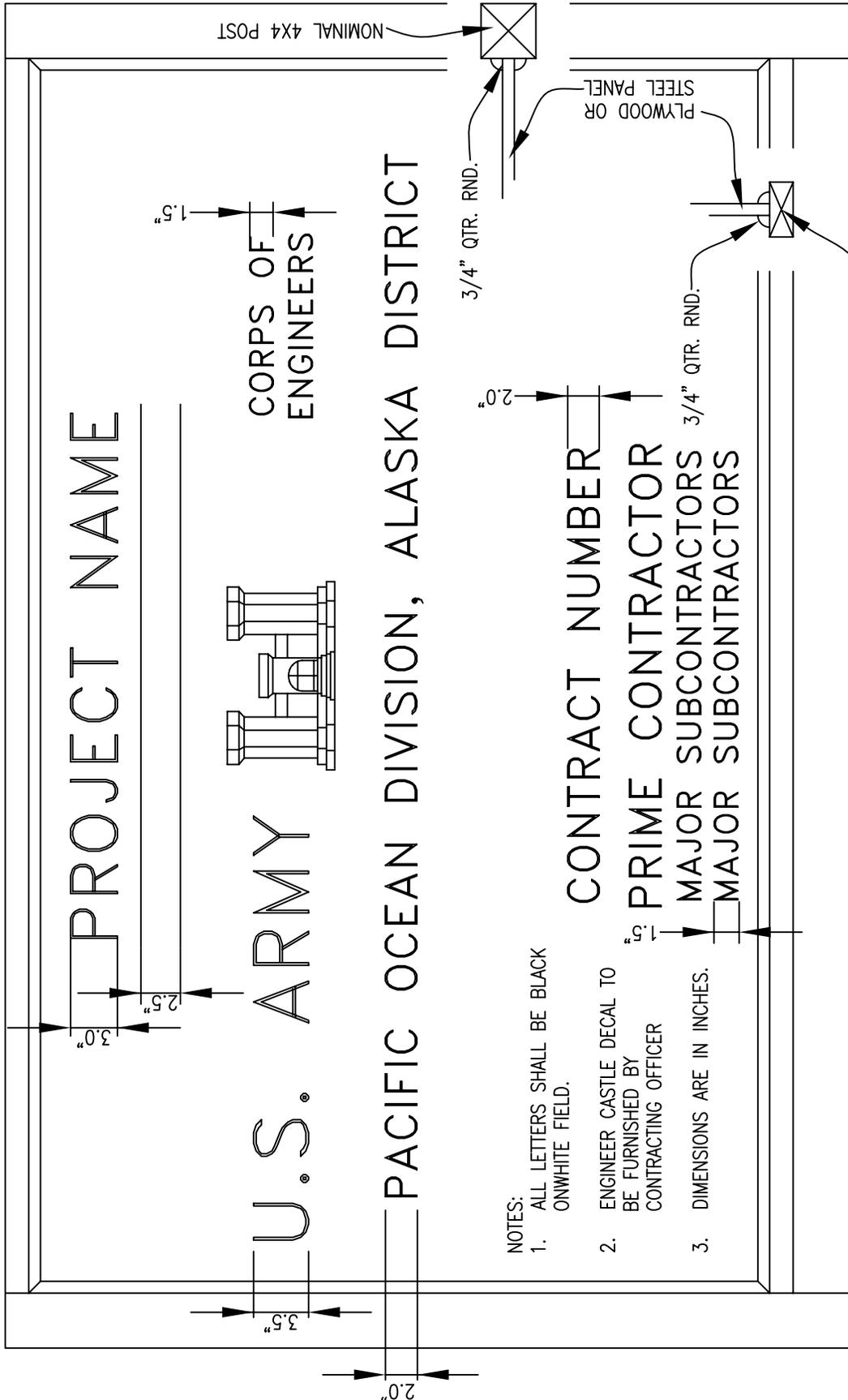
The sign shall be maintained in excellent condition throughout the life of the project. Upon completion of work, the Contractor shall remove the sign.

3.3 ATTACHMENTS

(1) Drawing Number 40-05-12

(2) Denali Commission Logo

-- End of Section --



- NOTES:
1. ALL LETTERS SHALL BE BLACK ON WHITE FIELD.
 2. ENGINEER CASTLE DECAL TO BE FURNISHED BY CONTRACTING OFFICER
 3. DIMENSIONS ARE IN INCHES.

DWG. NO. 40-05-12



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SECTION 03 20 02

STEEL BARS AND WELDED WIRE FABRIC FOR CONCRETE REINFORCEMENT FOR CIVIL WORKS

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 within the text by the basic designation only.

AMERICAN CONCRETE INSTITUTE INTERNATIONAL (ACI)

- ACI 301 (2010) Specifications for Structural Concrete
- ACI 318 (2011) Building Code Requirements for Structural Concrete and Commentary
- ACI SP-66 (2004) ACI Detailing Manual

AMERICAN WELDING SOCIETY (AWS)

- AWS D1.4/D1.4M (2011) Structural Welding Code - Reinforcing Steel

ASTM INTERNATIONAL (ASTM)

- ASTM A370 (2011) Standard Test Methods and Definitions for Mechanical Testing of Steel Products
- ASTM A615/A615M (2009b) Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
- ASTM A706/A706M (2009b) Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
- ASTM A767/A767M (2009) Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Fabrication and Placement; G

The Contractor shall submit shop drawings which include: reinforcement steel placement drawings; reinforcement steel schedules showing quantity, size, shape, dimensions, weight per foot, total weights and bending details; and details of bar supports showing types, sizes, spacing and sequence.

SD-03 Product Data

Materials

Welding

A list of qualified welders names.

Zinc-Coated (Galvanized) Reinforcing

SD-06 Test Reports

Tests, Inspections, and Verifications

Certified tests reports of reinforcement steel showing that the steel complies with the applicable specifications shall be furnished for each steel shipment and identified with specific lots prior to placement. Three copies of the heat analyses shall be provided for each lot of steel furnished and the Contractor shall certify that the steel conforms to the heat analyses.

SD-07 Certificates

Reinforcing Steel

Certified copies of mill reports attesting that the reinforcing steel furnished contains no less than 25 percent recycled scrap steel and meets the requirements specified herein, prior to the installation of reinforcing steel.

1.3 DELIVERY AND STORAGE

Reinforcement and accessories shall be stored off the ground on platforms, skids, or other supports.

PART 2 PRODUCTS

2.1 MATERIALS

Materials shall conform to the following requirements.

2.1.1 Steel Bars

Steel bars shall comply with the requirements of ASTM A615/A615M , or bars to be welded shall comply with ASTM A706/A706M, deformed, of the grades, sizes and lengths shown.

2.1.1.1 Zinc-Coated (Galvanized) Reinforcing

Zinc-coated (galvanized) bars shall comply with the requirements of ASTM A767/A767M, Class I coating, galvanized after fabrication. Where cement of North American manufacture is used in the concrete mixture, the

chromating requirements of paragraph 4.3 of ASTM A767/A767M shall not be required. Damage to the coating shall be repaired as indicated in ASTM A767/A767M using power tool cleaning to bare metal to a dry film thickness matching the thickness of the adjacent undamaged zinc-coating. Do not use uncoated reinforcing steel.

2.1.2 Accessories

2.1.2.1 Bar Supports

Bar supports shall comply with the requirements of ACI SP-66. Place reinforcement and other embedded items and secure with noncorrodible chairs, spacers, or metal hangers. Only stainless steel and plastic materials shall be considered noncorrodible. Sufficient reinforcement supports shall be provided to adequately support and secure all embedded items during all phases of construction.

2.1.2.2 Wire Ties

Wire ties shall be 16 gage or heavier and shall be zinc-coated.

2.2 TESTS, INSPECTIONS, AND VERIFICATIONS

The Contractor shall have material tests required by applicable standards, and as specified, performed by an approved laboratory and certified to demonstrate that the materials are in conformance with the specifications. Tests, inspections, and verifications shall be performed and certified at the Contractor's expense.

2.2.1 Reinforcement Steel Tests

Mechanical testing of steel shall be in accordance with ASTM A370 except as otherwise specified or required by the material specifications. Chemical analyses of steel heats shall show the percentages of carbon, phosphorous, manganese, sulphur and silicon present in the steel.

PART 3 EXECUTION

3.1 FABRICATION AND PLACEMENT

Reinforcing steel and accessories shall be fabricated and placed as specified and shown and approved shop drawings. Zinc-Coated (Galvanized) Reinforcing shall meet the requirements of ASTM A767/A767M including Appendix X1, "Guidelines for Job Site Practices" except as otherwise specified herein. Fabrication and placement details of steel and accessories not specified or shown shall be in accordance with ACI 301, ACI SP-66 and ACI 318 or as directed. Steel shall be fabricated to shapes and dimensions shown, placed where indicated within specified tolerances and adequately supported during concrete placement. At the time of concrete placement all steel shall be free from loose, flaky rust, scale (except tight mill scale), mud, oil, grease or any other coating that might reduce the bond with the concrete. Do not tack weld. Inspect placed steel reinforcing for coating damage prior to placing concrete. Repair all visible damage. Safety caps shall be placed on all exposed ends of vertical concrete reinforcement bars that pose a danger to life safety. Wire tie ends shall face away from the forms.

3.1.1 Hooks and Bends

Zinc-Coated bars shall be mill-bent prior to coating. All steel shall be bent cold unless authorized. No steel bars shall be bent after being partially embedded in concrete unless indicated or authorized.

3.1.2 Welding

Welding of steel bars will be permitted only where indicated or authorized. Welding shall be performed in accordance with AWS D1.4/D1.4M except where otherwise specified or indicated.

3.1.3 Placing Tolerances

3.1.3.1 Spacing

The spacing between adjacent bars and the distance between layers of bars may not vary from the indicated position by more than one bar diameter.

3.1.3.2 Cover

Concrete cover for reinforcement shall be as shown on the drawings, except that where not shown shall be as shown in Table 4. Placement tolerance is plus 1/4 inch. The cover to the principle reinforcing bars shall be not less than 2 times the nominal maximum aggregate size nor less than 1.5 times the effective diameter of the reinforcing bars.

Table 4 - Minimum Concrete Cover Over Reinforcement

Zone	Cover over reinforcing steel	Cover over post-tensioning ducts
Atmospheric zone not subject to salt spray	2.5 in.	3 in.
Tidal, splash, and atmospheric zone subject to salt spray	2.5 in.	3.5 in.
Submerged zone	2.5 in.	3 in.
Cover of stirrups	1/2 in. less than those listed above	-

3.1.4 Splicing

Splices in steel bars shall be made only as required. To the maximum extent practicable, reinforcing steel shall be detailed to minimize splices.

3.1.4.1 Lap Splices

Necessary splices shall be lap splices. Lapped bars may be placed in contact and securely tied or spaced transversely apart to permit the embedment of the entire surface of each bar in concrete. Lapped bars shall not be spaced farther apart than 1/5 the required length of lap or 6 inches.

3.1.4.2 Setting Miscellaneous Material

Place and secure anchors, bolts, pipe sleeves, conduits, and other such items in position before concrete placement. Plumb anchor bolts and check location and elevation. Temporarily fill voids in sleeves with readily removable material to prevent the entry of concrete. Unless otherwise shown, electrically isolate exposed steel work and its anchor systems from the primary steel reinforcement with at least 2 inches of concrete.

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PRECAST CONCRETE

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 within the text by the basic designation only.

AMERICAN CONCRETE INSTITUTE INTERNATIONAL (ACI)

ACI 117	(2010) Specifications for Tolerances for Concrete Construction and Materials and Commentary
ACI 201.2R	(2008) Guide to Durable Concrete
ACI 211.1	(1991; R 2009) Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete
ACI 214R	(2011) Evaluation of Strength Test Results of Concrete
ACI 301	(2010) Specifications for Structural Concrete
ACI 304.2R	(1996; R 2008) Placing Concrete by Pumping Methods
ACI 304R	(2000; R 2009) Guide for Measuring, Mixing, Transporting, and Placing Concrete
ACI 305R	(2010) Specification for Hot Weather Concreting
ACI 306.1	(1990; R 2002) Standard Specification for Cold Weather Concreting
ACI 308R	(2001; R 2008) Guide to Curing Concrete
ACI 309R	(2005) Guide for Consolidation of Concrete
ACI 347	(2004; Errata 2008) Guide to Formwork for Concrete
ACI SP-2	(2007; Abstract: 10th Edition) ACI Manual of Concrete Inspection

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
(AASHTO)

AASHTO M 182	(2005; R 2009) Standard Specification for
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Burlap Cloth Made from Jute or Kenaf and
Cotton Mats

ASTM INTERNATIONAL (ASTM)

ASTM A 780	(2001; R 2006) Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
ASTM A767/A767M	(2009) Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement
ASTM C 1157	(2008a) Standard Specification for Hydraulic Cement
ASTM C 1293	(2008b) Standard Test Method for Determination of Length Change of Concrete Due to Alkali-Silica Reaction
ASTM C31/C31M	(2010) Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C33/C33M	(2008) Standard Specification for Concrete Aggregates
ASTM C39/C39M	(2005e1e2) Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C94/C94M	(2011a) Standard Specification for Ready-Mixed Concrete
ASTM C143/C143M	(2010) Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C150	(2007) Standard Specification for Portland Cement
ASTM C171	(2007) Standard Specification for Sheet Materials for Curing Concrete
ASTM C172	(2010) Standard Practice for Sampling Freshly Mixed Concrete
ASTM C173/C173M	(2010b) Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method
ASTM C227	(2010) Standard Test Method for Potential Alkali Reactivity of Cement-Aggregate Combinations (Mortar-Bar Method)
ASTM C231/C231M	(2010) Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C260/C260M	(2010a) Standard Specification for Air-Entraining Admixtures for Concrete

ASTM C295	(2011) Petrographic Examination of Aggregates for Concrete
ASTM C309	(2011) Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C441	(2005) Effectiveness of Pozzolans or Ground Blast-Furnace Slag in Preventing Excessive Expansion of Concrete Due to the Alkali-Silica Reaction
ASTM C494/C494M	(2011) Standard Specification for Chemical Admixtures for Concrete
ASTM C595/C595M	(2010) Standard Specification for Blended Hydraulic Cements
ASTM C597	(2009) Pulse Velocity Through Concrete
ASTM C618	(2008a) Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C805/C805M	(2008) Rebound Number of Hardened Concrete
ASTM C989	(2010) Standard Specification for Slag Cement for Use in Concrete and Mortars
ASTM C1017/C1017M	(2007) Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C1064/C1064M	(2008) Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
ASTM C1077	(2011b) Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
ASTM C1240	(2011) Standard Specification for Silica Fume Used in Cementitious Mixtures
ASTM C1260	(2007) Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM D 512	(2010) Chloride Ion in Water
ASTM D 516	(2007) Sulfate Ion in Water
ASTM D 1179	(2010) Fluoride Ion in Water
ASTM D 1339	(1984) Sulfite Ion in Water
ASTM D 3867	(2009) Nitrite-Nitrate in Water

ASTM E 329

(2011a) Standard Specification for
Agencies Engaged in the Testing and/or
Inspection of Materials Used in
Construction

PRECAST/PRESTRESSED CONCRETE INSTITUTE (PCI)

PCI MNL-116

(1999) Manual for Quality Control for
Plants and Production of Structural
Precast Concrete Products, 4th Edition

1.2 DEFINITIONS

- a. "Blending size" is an aggregate that complies with the quality requirements in ASTM C33/C33M and paragraph entitled "Aggregates" and as modified herein and can be blended with coarse and fine aggregate to produce a well graded combined grading.
- b. "Cementitious material" as used herein shall include portland cement and any pozzolanic material such as fly ash, natural pozzolans, ground granulated blast-furnace slag and silica fume.
- c. "Design strength" (f'_c) is the specified compressive strength of concrete to meet structural design criteria.
- e. "Mixture proportioning" is a description of the proportions of a concrete mixture that were selected to enable it to meet the performance durability requirements, constructability requirements, and the initial and life-cycle cost goals.
- f. "Mixture proportions" is the concrete supplier's by-mass proportions to replicate the mixture design.
- g. "Pozzolan" is a silicious or silicious and aluminous material, which in itself possesses little or no cementitious value but will, in finely divided form and in the presence of moisture, chemically react with calcium hydroxide at ordinary temperatures to form compounds possessing cementitious properties.
- h. "Field test strength" (f_{cr}) is the required compressive strength of concrete to meet structural and durability criteria. Determine (f_{cr}) during mixture proportioning process.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Drawings of precast members; G

Reproductions of contract drawings are unacceptable.

SD-03 Product Data

Materials for curing concrete

Sealer-hardener

SD-05 Design Data

Mixture design; G

SD-06 Test Reports

Concrete mixture proportions; G

Fly ash

Natural pozzolan

Ground granulated blast-furnace slag

Silica fume

Aggregates

Admixtures

Cement

Water

Corrosion Inhibitor; G

SD-07 Certificates

Reinforcement and Protective Coating

Curing concrete elements

Field testing technician and testing agency; G

Mixture designs

Construction Records

Quality control procedures

Submit quality control procedures established in accordance with
PCI MNL-116 by the precast manufacturer.

SD-11 Closeout Submittals

Concrete batch ticket information

1.4 SHOP DRAWINGS

Submit drawings of precast members indicating complete information for the fabrication, handling, and transportation of the members. Drawings shall not be reproductions of contract drawings. The drawings shall indicate, as a minimum, the following information:

- a. Plans, elevations and other drawing views showing the following:
 - (1) Member piece marks locating and defining products furnished by the manufacturer.
 - (2) Handling requirements
- b. Elevations, sections and other details for the members showing the following:
 - (1) Dimensioned size and shape for the members with quantities, position and other details of reinforcing steel, anchors, inserts and other embedded items.
- c. Strength properties for concrete and steel materials.
- d. Methods for storage and transportation.
- e. Description of loose, cast-in and field hardware.

1.5 MODIFICATION OF REFERENCES

Accomplish work in accordance with ACI publications except as modified herein. Consider the advisory or recommended provisions to be mandatory, as though the word "shall" had been substituted for the words "should" or "could" or "may," wherever they appear. Interpret reference to the "Building Official," the "Structural Engineer," and the "Architect/Engineer" to mean the Contracting Officer.

1.6 CONCRETE DELIVERY, MATERIAL STORAGE AND HANDLING

Do not deliver concrete until forms, reinforcement, embedded items, and chamfer strips are in place and ready for concrete placement. Comply with [ACI 301](#) provisions and [ASTM A767/A767M](#), Appendix X1 guidelines and recommendations for job site or casting site storage of materials. Store reinforcement of different sizes and shapes in separate piles or racks raised above the ground. Protect materials from contaminants such as grease, oil, and dirt. Ensure materials can be accurately identified after bundles are broken and tags removed.

1.7 QUALITY ASSURANCE

1.7.1 Precast Plant Qualifications and [Quality Control Procedures](#)

[PCI MNL-116](#). Plants shall be certified by the PCI Plant Certification Program for Category C1 work. PCI Plant quality control program records shall be available for review.

Precast concrete work shall be done in a precast concrete plant having a minimum of 10 years experience and regularly engaged in the production of precast concrete work of similar scope and magnitude to that required for this contract. Such facilities do not exist at or near the project site.

1.7.2 Concrete [Mixture Design](#)

At least 30 days prior to concrete placement, submit proportions for the concrete mixture. Submit a complete list of materials including type; brand; source and amount of cement, aggregate, fly ash, (or slag

pozzolans), silica fume, ground slag, corrosion inhibitors; and applicable reference specifications. Submit additional data regarding concrete aggregates if the source of aggregate changes. Obtain approval prior to concrete placement. The mixture shall be prepared by an accredited laboratory experienced in this field and under the direction of a licensed/registered civil engineer, who shall sign all reports and designs.

1.7.3 Certificates: Record Requirement

ASTM C94/C94M. Submit mandatory **batch ticket** information for each load of ready-mixed concrete.

1.7.4 Certificates

1.7.4.1 Curing Concrete Elements

Submit proposed materials and methods for curing concrete.

1.7.4.2 Form Removal Schedule

Submit schedule for form removal indicating element and minimum length of time for form removal. Submit technical literature of forming material or liner, form release agent, form ties, and gasketing to prevent leakage at form and construction joints. Provide a full description of materials and methods to be used to patch form-tie holes.

1.7.4.3 Field Testing Technician and Testing Agency

Submit data on qualifications of proposed testing agency and technicians for approval by the Contracting Officer prior to performing any work.

- a. Work on concrete under this contract shall be performed by an ACI Concrete Field Testing Technician Grade 1 or Grade 2 qualified in accordance with **ACI SP-2** or equivalent. Equivalent certification programs shall include requirements for written and performance examinations as stipulated in **ACI SP-2**.
- b. Testing agencies that perform testing services on reinforcing steel shall meet the requirements of **ASTM E 329**.
- c. Testing agencies that perform testing services on concrete materials shall meet the requirements of **ASTM C1077**.

1.7.4.4 Mixture Designs

Provide a detailed report of materials and methods used, test results, and the field test strength (fcr) for concrete required to meet durability requirements.

1.7.5 Test Reports

1.7.5.1 Concrete Mixture Proportions

- a. Submit copies of test reports by independent test labs conforming to **ASTM C1077** showing that the mixture has been successfully tested to produce concrete with the properties specified and that mixture will be suitable for the job conditions. Test reports shall be submitted along with the concrete mixture proportions. Obtain approval before concrete placement.

- b. Fully describe the processes and methodology whereby mixture proportions were developed and tested and how proportions will be adjusted during progress of the work to achieve, as closely as possible, the designated levels of relevant properties.

1.7.5.2 Fly Ash and Natural Pozzolan

Submit test results in accordance with ASTM C618. Submit test results performed within 6 months of submittal date.

1.7.5.3 Ground Granulated Blast-Furnace Slag

Submit test results in accordance with ASTM C989 for ground granulated blast-furnace slag. Submit test results performed within 6 months of submittal date.

1.7.5.4 Silica Fume

Submit test results in accordance with ASTM C1240 for silica fume. Data shall be based upon tests performed within 6 months of submittal.

1.7.5.5 Aggregates

Submit test results for aggregate quality in accordance with ASTM C33/C33M, the combined gradation curve for grading proposed for use in the work and used in the mixture qualification, and the results of petrographic examinations in accordance with ASTM C295. Provide results of tests conducted in accordance with ASTM C227 and ASTM C1260, or in accordance with ASTM C 1293. Submit results of all tests during progress of the work in tabular and graphical form as noted above, describing the cumulative combined aggregate grading and the percent of the combined aggregate retained on each sieve.

1.7.5.6 Admixtures

Submit test results in accordance with ASTM C494/C494M and ASTM C1017/C1017M for concrete admixtures, ASTM C260/C260M for air-entraining agent, and manufacturer's literature and test reports for corrosion inhibitor. Submitted data shall be based upon tests performed within 6 months of submittal.

1.7.5.7 Cement

Submit test results in accordance with ASTM C150 portland cement and/or ASTM C595/C595M and ASTM C 1157 for blended cement. Submit current mill data.

1.7.5.8 Water

Submit test results in accordance with ASTM D 512 and ASTM D 516.

1.7.5.9 Reinforcement and Protective Coating

Provide coating applicator's certification that applied coating meets the requirements of ASTM A767/A767M.

PART 2 PRODUCTS

2.1 CONCRETE

2.1.1 Durability and Strength

Comply with [ACI 201.2R](#) and [ACI 211.1](#) provisions. Concrete shall have a minimum 28-day design strength (f`c) of **6,000 psi**.

2.1.2 Contractor-Furnished Mixture Proportions

- a. Strength and Water-Cementitious Materials Ratio. Strength requirements shall be based on 28-day compressive strength determined on **6 by 12 inch** cylindrical specimens in accordance with [ASTM C39/C39M](#). The specified compressive strength of the concrete (f'c) for each portion of the structure shall meet the requirements in the contract documents.
- b. The mixture proportions for concrete shall be developed by the Contractor to produce the design strength (f'c) and to provide durability, workability, and mixture consistency to facilitate placement, consolidation into the forms and around reinforcement without segregation or bleeding. The requirements for durability consideration specified in Table 1 shall be incorporated in the mixture proportions.

Table 1 - Concrete Quality Requirements

Zone	Exposure Condition	Maximum W/CM	Minimum quantity of cementitious material lb/yd3	Minimum quantity of portland cement lb/yd3
Submerged (1) and tidal (2)	(a) Directly exposed to water	0.40	675	505
	(b) Subject to severe abrasion	0.40	675	505
Splash (3)	(a) Directly exposed to water	0.40	675	505
Atmospheric (4)	(a) Directly exposed to atmosphere	0.40	675	505

- c. The maximum mass of fly ash, natural pozzolans, ground granulated blast-furnace slag, or silica fume that is included in the calculation of water-to-cementitious materials ratio shall not exceed the following limits:

(1) Fly ash shall not be used for more than 25 percent by mass of the cementitious material. The fly ash and other pozzolans present in a Type IP or IPM blended cement, per [ASTM C595/C595M](#), shall be included in the calculated percentage. If fly ash or other pozzolan is used in concrete with slag, the portland cement

shall not be less than 50 percent of the total mass of cementitious materials. A higher percentage of fly ash may be used if tests are made using actual job materials to ascertain the early and later age strengths and durability performance specified, and the use is approved by the Contracting Officer.

(2) The weight of ground granulated blast-furnace slag conforming to [ASTM C989](#) shall not exceed 50 percent of the weight of cement. The slag used in manufacture of a Type IS or ISM blended hydraulic cement conforming to [ASTM C595/C595M](#) shall be included in the calculated percentage. Higher percentage of ground granulated blast-furnace slag may be used if tests are made using actual job materials to ascertain the early and later age strengths and durability performance specified, and the use is approved by the owner.

(3) The maximum silica fume content shall not exceed 10 percent by mass of the cementitious material. The silica fume shall originate from the manufacture of silicon metal and ferro-silicon alloys. A high-range water reducer shall be used with silica fume for proper dispersion of the silica fume.

(4) The minimum amount of portland cement is 50 percent of the total mass of cementitious material.

- d. Air Content. Concrete shall be air entrained and shall conform to the air limits specified below in Table 3.
- e. Slump. The concrete mixture shall be proportioned to have, at the point of deposit, a maximum slump of 4 inches as determined by [ASTM C143/C143M](#). Where an [ASTM C494/C494M](#), Type F or G admixture is used, the slump after the addition of the admixture shall be no less than 6 inches nor greater than 8 inches. Slump tolerances shall comply with the requirements of [ACI 117](#).

2.1.3 Required Average Strength of Concrete

The minimum compressive strength (fcr) of the selected mixture shall equal or exceed the strength required under [ACI 301](#) for laboratory mixture designs.

The average compressive strength produced under field tests shall be the minimum compressive strength (fcr) required during construction.

2.2 MATERIALS

2.2.1 Cement

[ASTM C150](#), low-alkali, Type I, II or III and/or [ASTM C595/C595M](#), Type IP(MS) or IS(MS) and ASTM C 1157, Type MS blended cement except as modified herein. The tricalcium aluminate (C3A) content shall not be less than 4 percent to provide protection for the reinforcement and shall not be more than 8 percent to obtain concrete that is resistant to sulfate attack. Blended cements shall consist of a mixture of [ASTM C150](#) cement and one of the following materials: [ASTM C618](#) pozzolan or fly ash, or [ASTM C989](#) ground granulated blast-furnace slag. Use one manufacturer for each type of cement, ground slag, fly ash, and pozzolan.

2.2.1.1 Fly Ash and Pozzolan

[ASTM C618](#), Type N or F, except that the maximum allowable loss on ignition

shall be 6 percent for Types N and F. Add with cement.

2.2.1.2 Ground Granulated Blast-Furnace Slag

ASTM C989, Grade 120.

2.2.1.3 Silica Fume

ASTM C1240.

2.2.2 Water

Water shall comply with the requirements of ASTM C94/C94M and the chloride and sulfate limits in accordance with ASTM D 512 and ASTM D 516. Mixing water shall not contain more than 500 parts per million of chlorides as Cl and not more than 100 parts per million of sulfates as SO₄. Water shall be free from injurious amounts of oils, acids, alkalies, salts, and organic materials. Where water from reprocessed concrete is proposed for use in the work, submit results of tests to verify that the treatment has negated adverse effects of deleterious materials.

2.2.3 Aggregates

ASTM C33/C33M Class 4S, except as modified herein.

- a. The combined aggregates in the mixture (coarse, fine, and blending sizes) shall be well graded from the coarsest to the finest with not more than 18 percent nor less than 8 percent, unless otherwise permitted, of the combined aggregate retained on any individual sieve with the exceptions that the No. 50 may have less than 8 percent retained, sieves finer than No. 50 shall have less than 8 percent retained, and the coarsest sieve that retains material may have less than 8 percent retained. Use blending sizes where necessary, to provide a well graded combined aggregate. Reports of individual aggregates shall include standard concrete aggregate sieve sizes including 1 1/2 inches, one inch, 3/4 inch, 1/2 inch, 3/8 inch, No. 4, No. 8, No. 16, No. 30, No. 50, and No. 100.
- b. Do not provide aggregates that react deleteriously with alkalies in cement. Refer to the appendix of ASTM C33/C33M for expansion limits. Provide aggregate containing no deleterious material properties as identified by ASTM C295.
- c. The nominal maximum size of the coarse aggregate shall not exceed 1 inch for all concrete.
- d. Aggregate may contain materials deleteriously reactive with alkalies in the cement, if cement contains less than 0.60 percent alkalies (percent Na₂O plus 0.658 percent K₂O). Provide a material such as fly ash, slag, or silica fume as specified to be effective in preventing harmful expansion due to alkali-aggregate reaction by ASTM C441.
- e. Historical based aggregate gradations that deviate from the requirements of paragraph 2.2.3.a may be used if the Contractor provides documentation showing acceptable performance of a minimum of three completed projects having a minimum service life of 30 years in a similar environment. Where historical based aggregate

gradations are used, provide aggregates from the same sources having the same size ranges as those used in the concrete represented by historical data.

2.2.4 Admixtures

- a. Provide chemical admixtures that comply with the requirements shown below and in accordance with manufacturer's recommendations, and appropriate for the climatic conditions and the construction needs. Do not use calcium chloride or admixtures containing chlorides from other than impurities from admixture ingredients.
- b. Limit concentrations of corrosion-inducing chemicals as shown in Table 2 below.

Table 2 - Limits on Corrosion-Inducing Chemicals

Chemical*	Limits, Percent**	Test Method
Chlorides	0.10	ASTM D 512
Fluorides	0.10	ASTM D 1179
Sulphites	0.13	ASTM D 1339
Nitrates	0.17	ASTM D 3867

* Limits refer to water-soluble chemicals

** Limits are expressed as a percentage of the mass of the total cementitious materials.

- d. The total alkali content shall not increase the total sodium-oxide equivalent alkali content of the concrete by more than 0.5 lb/yd³.

2.2.4.1 Air Entraining Admixture

Provide air entraining admixtures conforming to ASTM C260/C260M. Provide the admixture of such a type and dosage that the total air content in the hardened concrete can be readily maintained within the limits specified in Table 3.

Table 3 - Air Content

Nominal maximum size of coarse aggregate, inch(es)	Size Number	Total air content, percent by volume
3/8	8	5-8
1/2	7	4.5-7.5
5/8	-	4-7
3/4	67	3.5-6.5
1	57	3.5-6.5
1 1/2	467	3-6
2	357	2.5-5.5
3	-	2-5

Air content shall target the center of the range indicated. No additional tolerance on air content shall be acceptable. Air contents indicated have been adjusted to account for specified compressive strength that is greater than 5,000 psi and are acceptable for all concrete in this project.

2.2.4.2 Accelerating

ASTM C494/C494M, Type C.

2.2.4.3 Retarding

ASTM C494/C494M, Type B, D, or G.

2.2.4.4 Water Reducing

ASTM C494/C494M, Type A, E, or F.

2.2.4.5 High Range Water Reducer (HRWR)

ASTM C494/C494M, Type F and ASTM C1017/C1017M.

2.2.4.6 Corrosion Inhibitor Admixture

Corrosion inhibitor, if used, shall be 30 percent water solution of calcium nitrite. Allow for the free water in the admixture within the total water in concrete mixture. Accelerating and set adjusted versions are acceptable, however, the concrete set time effects and mixture workability shall be considered. Refer to admixture manufacturer recommendations for dosage for chloride protection levels.

2.2.5 Materials for Forms

Provide plywood, or steel. Plywood: PS-1, B-B concrete form panels or better. Steel form surfaces shall not contain irregularities, dents, or sags. Comply with the recommendations of ASTM A767/A767M, Appendix X2 regarding electrically isolating galvanized reinforcing bars from uncoated steel or stainless steel formwork.

2.2.5.1 Form Ties and Form-Facing Material

- a. Provide a form tie system that does not leave mild steel after break-off or removal any closer than 2 inches from the exposed surface. Do not use wire alone. Form ties and accessories shall not reduce the effective cover of the reinforcement.

2.2.6 Materials for Curing Concrete

2.2.6.1 Impervious Sheeting

ASTM C171; waterproof paper, clear or white polyethylene sheeting, polyethylene-coated burlap, or natural burlap.

2.2.6.2 Pervious Sheeting

AASHTO M 182.

2.2.6.3 Liquid Membrane-Forming Compound

ASTM C309, white-pigmented, Type 2, Class B.

2.2.7 Liquid Chemical Sealer-Hardener Compound

Provide magnesium fluosilicate compound which when mixed with water seals and hardens the surface of the concrete.

PART 3 EXECUTION

3.1 FORMS

- a. Comply with **ACI 301** provisions unless otherwise specified. Set forms mortar-tight and true to line and grade. Chamfer joints, edges, and external corners of concrete **0.75 inch** unless otherwise indicated.
- b. Formwork shall be gasketed or otherwise rendered sufficiently tight to prevent leakage of paste or grout under heavy, high-frequency vibration. Use a release agent that does not cause surface dusting. Limit reuse of plywood to no more than three times **unless otherwise approved**. Reuse may be further limited by the Contracting Officer if it is found that the pores of the plywood are clogged with paste to the degree that the wood does not absorb the **excess air and water from the formwork/concrete interface**.
- c. Patch form tie holes with a nonshrink patching material in accordance with the manufacturer's recommendations and subject to approval.

3.1.1 Removal of Forms and Supports

After placing concrete, forms shall remain in place for the time periods specified in **ACI 347**. Prevent concrete damage during form removal.

3.1.1.1 Special Requirements for Reduced Time Period

Forms may be removed earlier than specified if **ASTM C39/C39M** test results of field-cured samples from a representative portion of the structure or other approved and calibrated non-destructive testing techniques show that the concrete has reached a minimum of 85 percent of the design strength.

3.2 BATCHING, MEASURING, MIXING, AND TRANSPORTING CONCRETE

ASTM C94/C94M, **ACI 301**, and **ACI 304R**, except as modified herein. Batching equipment shall be such that the concrete ingredients are consistently measured within the following tolerances: 1 per cent for cement and water, 2 percent for aggregate, and 3 percent for admixtures. Furnish mandatory batch tickets imprinted with mix identification, batch size, batch design and measured weights, moisture in the aggregates, and time batched for each load of ready mix concrete. When a pozzolan is batched cumulatively with the cement, it shall be batched after the cement has entered the weight hopper.

3.2.1 Measuring

Make measurements at intervals as specified in paragraphs entitled "Sampling" and "Testing."

Adjust batch proportions to replicate the mixture design. Base the adjustments on results of tests of materials at the batch plant for use in the work. Maintain a full record of adjustments and the basis for each.

3.2.2 Mixing

ASTM C94/C94M and ACI 301. Machine mix concrete. Begin mixing within 30 minutes after the cement has been added to the aggregates. Place concrete within 90 minutes of either addition of mixing water to cement and aggregates or addition of cement to aggregates if the air temperature is less than 85 degrees F. Reduce mixing time and place concrete within 60 minutes if the air temperature is greater than 85 degrees F except as follows: if set retarding admixture is used and slump requirements can be met, limit for placing concrete may remain at 90 minutes. Additional water may be added, if both the specified maximum slump and water-cementitious material ratio are not exceeded. When water is added, an additional 30 revolutions of the mixer at mixing speed is required. If time of discharge exceeds time required by ASTM C94/C94M, submit a request along with description of precautions to be taken, which shall include additional testing for entrained air content. If the entrained air content falls below the specified limit, add a sufficient quantity of admixture to bring the entrained air content within the specified limits. Dissolve admixtures in the mixing water and mix in the drum to uniformly distribute the admixture throughout the batch.

3.2.3 Transporting

Transport concrete from the mixer to the forms as rapidly as practicable. Prevent segregation or loss of ingredients. Clean transporting equipment thoroughly before each batch. Do not use aluminum pipe or chutes. Remove concrete which has segregated in transporting and dispose of off the project site.

3.3 PLACING CONCRETE

Place concrete as soon as practicable after the forms and the reinforcement have been inspected and approved. Do not place concrete when weather conditions prevent proper placement and consolidation; in uncovered areas during periods of precipitation; or in standing water. Prior to placing concrete, remove dirt, construction debris, water, snow, and ice from within the forms. Deposit concrete as close as practicable to the final position in the forms. Do not exceed a free vertical drop of 3 feet from the point of discharge. Place concrete in one continuous operation from one end of the structure towards the other.

3.3.1 Vibration

Comply with the requirements of ACI 309R and ASTM A767/A767M Appendix X1 using vibrators with a minimum frequency of 9000 vibrations per minute (VPM). Use only high cycle or high frequency vibrators. Motor-in-head 60 cycle vibrators may not be used. Provide a spare vibrator at the casting site whenever concrete is placed. Insert and withdraw vibrators approximately 18 inches apart. Extract the vibrator using a series of up and down motions to drive the trapped air out of the concrete and from between the concrete and the forms.

Vibrators shall be equipped with nonmetallic vibrator heads.

3.3.2 Pumping

ACI 304R and ACI 304.2R. Pumping shall not result in separation or loss of materials nor cause interruptions sufficient to permit loss of plasticity between successive increments. Loss of slump in pumping equipment shall

not exceed 2 inches. Do not use pipe made of aluminum or aluminum alloy. Avoid rapid changes in pipe sizes. Pipe size shall be no less than 3 times the maximum size of coarse aggregate. Take samples for testing at both the point of delivery to the pump and at the discharge end.

3.3.3 Cold Weather

ACI 306.1. Do not allow concrete temperature to decrease below 50 degrees F. Obtain approval prior to placing concrete when ambient temperature is below 40 degrees F or when concrete is likely to be subjected to freezing temperatures within 24 hours. Cover concrete and provide sufficient heat to maintain 50 degrees F minimum adjacent to both the formwork and the structure while curing. Limit the rate of cooling to 5 degrees F in any one hour and 50 degrees F per 24 hours after heat application.

3.3.4 Hot Weather

ACI 305R. Maintain required concrete temperature using Figure 2.1.5, "Effect of Concrete Temperatures, Relative Humidity, and Wind Velocity on the Rate of Evaporation of Surface Moisture From Concrete" in ACI 305R to prevent the evaporation rate from exceeding 0.2 pound of water per square foot of exposed concrete per hour. Cool ingredients before mixing or use other suitable means to control concrete temperature and prevent rapid drying of newly placed concrete. Shade the fresh concrete as soon as possible after placing. Start curing when the surface of the fresh concrete is sufficiently hard to permit curing without damage. Provide water hoses, pipes, spraying equipment, and water hauling equipment, where job site is remote to water source, to maintain a moist concrete surface throughout the curing period. Provide burlap cover or other suitable, permeable material with fog spray or continuous wetting of the concrete when weather conditions prevent the use of either liquid membrane curing compound or impervious sheets. For vertical surfaces, protect forms from direct sunlight and add water to top of structure once concrete is set.

3.4 SURFACE FINISHES

3.4.1 Minor Defects

All honeycombed areas, chipped corners, air pockets over 1/4 inch in diameter, and other minor defects involving less than 36 square inches of concrete shall be repaired, including visible hairline cracks wider than 0.004 inch. All unsound concrete shall be removed from defective areas prior to repairing. Cracks shall be repaired by epoxy injection.

3.4.2 Major Defects

Major defects are those which involve more than 36 square inches of concrete surface, expose reinforcing steel, or those which structurally impair the member including cracks wider than 0.01 inch. Any major defect in a member must be repaired or rebuilt to the satisfaction of the Contracting Officer or the member shall be replaced with a new member without defects. Members found to have major defects prior to transport from the casting yard shall be replaced. Obtain approval of corrective action prior to repair.

3.4.3 Formed Surfaces

3.4.3.1 Tolerances

ACI 117 and as indicated.

3.4.3.2 As-Cast Form

Provide a Grade B surface finish in accordance with PCI MNL-116 (Appendix A - Commentary), Chapter 3. Arrange facing material in an orderly and symmetrical manner and keep seams to a practical minimum. Support forms as necessary to meet required tolerances. Material with raised grain, torn surfaces, worn edges, patches, dents, or other defects which will impair the texture of the concrete surface shall not be used. Patch tie holes and defects and completely remove fins.

3.5 FINISHES FOR HORIZONTAL CONCRETE SURFACES

3.5.1 Finish

ACI 301. Place, consolidate, and immediately strike off concrete to obtain proper contour, grade, and elevation before bleedwater appears. Permit concrete to attain a set sufficient for floating and supporting the weight of the finisher and equipment. If bleedwater is present prior to floating the surface, drag excess water off or remove by absorption with porous materials. Do not use dry cement to absorb bleedwater.

3.5.1.1 Floated

After the concrete has been placed, consolidated, struck off, and leveled, do not work the concrete further, until ready for floating. Whether floating with a wood, magnesium, or composite hand float, with a bladed power trowel equipped with float shoes, or with a powered disc, float shall begin when the surface has stiffened sufficiently to permit the operation.

3.5.1.2 Concrete Containing Silica Fume

Finish using magnesium floats or darbies.

3.5.1.3 Broomed

Ramp planks shall be finished with a broomed finish. Perform a floated finish, then draw a broom or burlap belt across the surface to produce a scored texture. Permit surface to harden sufficiently to retain the scoring or ridges. Broom in the long direction of the planks such that texture ridges are formed parallel to the long axis of the plank.

3.6 CURING AND PROTECTION

- a. ACI 301 and ACI 308R unless otherwise specified. Prevent concrete from drying by misting surface of concrete. Begin curing immediately following final set. Avoid damage to concrete from vibration created by blasting, pile driving, movement of equipment in the vicinity, disturbance of formwork or protruding reinforcement, by rain or running water, adverse weather conditions, and any other activity resulting in ground vibrations. Protect concrete from injurious action by sun, rain, flowing water, frost, mechanical injury, and oil stains. Do not allow concrete to dry out from time of placement until the

expiration of the specified curing period. Do not use membrane-forming compound on surfaces where concrete or grout is to be bonded. If forms are removed prior to the expiration of the curing period, provide another curing procedure specified herein for the remaining portion of the curing period. Provide moist curing for those areas receiving liquid chemical sealer-hardener or epoxy coating.

- b. Wet cure concrete using potable water for a minimum of 7 days. Do not allow construction loads to exceed the superimposed load which the structural member, with necessary supplemental support, is capable of carrying safely and without damage.

3.6.1 Moist Curing

Remove water without erosion or damage to the structure.

3.6.1.1 Ponding or Immersion

Continually immerse the concrete throughout the curing period. Water shall not be 20 degrees F less than the temperature of the concrete. For temperatures between 40 and 50 degrees F, increase the curing period by 50 percent.

3.6.1.2 Fog Spraying or Sprinkling

Apply water uniformly and continuously throughout the curing period. For temperatures between 40 and 50 degrees F, increase the curing period by 50 percent.

3.6.1.3 Pervious Sheeting

Completely cover surface and edges of the concrete with two thicknesses of wet sheeting. Overlap sheeting 6 inches over adjacent sheeting. Sheeting shall be at least as long as the width of the surface to be cured. During application, do not drag the sheeting over the finished concrete nor over sheeting already placed. Wet sheeting thoroughly and keep continuously wet throughout the curing period.

3.6.1.4 Impervious Sheeting

Wet the entire exposed surface of the concrete thoroughly with a fine spray of water and cover with impervious sheeting throughout the curing period. Lay sheeting directly on the concrete surface and overlap edges 12 inches minimum. Provide sheeting not less than 18 inches wider than the concrete surface to be cured. Secure edges and transverse laps to form closed joints. Repair torn or damaged sheeting or provide new sheeting.

3.6.2 Liquid Membrane-Forming Curing Compound

Apply in accordance with the recommendations of the manufacturer immediately after any water sheen which may develop after finishing has disappeared from the concrete surface. Provide and maintain compound on the concrete surface throughout the curing period. Do not use this method of curing where the use of Figure 2 .1.5, "effect of Concrete Temperatures, Relative Humidity, and Wind Velocity on the Rate of Evaporation of Surface Moisture From Concrete" in ACI 305R indicates that hot weather conditions will cause an evaporation rate exceeding 0.2 pound of water per square foot per hour.

3.6.2.1 Application

Mechanically agitate curing compound thoroughly during use. Use approved power-spraying equipment to uniformly apply two coats of compound in a continuous operation. The total coverage for the two coats shall be 200 square feet maximum per gallon of undiluted compound unless otherwise recommended by the manufacturer's written instructions. The compound shall form a uniform, continuous, coherent film that will not check, crack, or peel. Immediately apply an additional coat of compound to areas where the film is defective. Respray concrete surfaces subjected to rainfall within 3 hours after the curing compound application.

3.6.2.2 Protection of Treated Surfaces

Prohibit pedestrian traffic and other sources of abrasion for at least 72 hours after compound application. Maintain continuity of the coating for the entire curing period and immediately repair any damage.

3.6.3 Liquid Chemical Sealer-Hardener

Apply the sealer-hardener in accordance with manufacturer's recommendations. The sealer-hardener shall not be applied until the concrete has been moist cured and has aged for a minimum of 30 days. Apply a minimum of two coats of sealer-hardener.

3.6.4 Curing Periods

Moist cure concrete using potable water for a minimum of 7 days. Continue additional curing for a total period of 21 days. Cure structures submerged in seawater for a minimum of 7 days prior to submerging. Begin curing immediately after placement. Protect concrete from premature drying, excessively hot temperatures, and mechanical injury; and maintain minimal moisture loss at a relatively constant temperature for the period necessary for hydration of the cement and hardening of the concrete. The materials and methods of curing shall be subject to approval by the Contracting Officer.

3.6.5 Requirements for Type III, High-Early Strength Portland Cement

The curing periods shall be not less than one-fourth of those specified for other types of Portland cement, but in no case less than 72 hours.

3.7 FIELD QUALITY CONTROL

3.7.1 Sampling

- a. ASTM C172. Collect samples of fresh concrete to perform tests specified. ASTM C31/C31M for making test specimens.
- b. Sample concrete on a random basis except where a batch appears to be deficient and the test can be used to verify the observed deviation. Identify samples so taken in a manner that they can be segmented from other tests. Obtain at least one sample for each 100 cubic yards, or fraction thereof, of each design mixture of concrete placed in any one day. When the total quantity of concrete with a given design mixture is less than 50 cubic yards, the strength tests may be waived by the Contracting Officer, if in his judgment, adequate evidence of satisfactory strength is

provided.

3.7.2 Testing

3.7.2.1 Slump Tests

ASTM C143/C143M. Take concrete samples during concrete placement. The maximum slump may be increased as specified with the addition of an approved high range water reducing (HRWR) admixture provided that the water-cement ratio is not exceeded. Perform tests at commencement of concrete placement, when test cylinders are made, and for each batch (minimum) or every 10 cubic yards (maximum) of concrete.

3.7.2.2 Temperature Tests

- a. Test the concrete delivered and the concrete in the forms. Perform tests in hot or cold weather conditions below 50 degrees F and above 80 degrees F for each batch (minimum) or every 10 cubic yards (maximum) of concrete, until the specified temperature is obtained, and whenever test cylinders and slump tests are made.
- b. Determine temperature of each composite sample in accordance with **ASTM C1064/C1064M.** When the average of the highest and lowest temperature during the period from midnight to midnight is expected to drop below 40 degrees F for more than 3 successive days, concrete shall be delivered to meet the following minimum temperature at the time of placement:
 - (1) 55 degrees F for sections less than 12 inches in the least dimension
 - (2) 50 degrees F for sections 12 to 36 inches in the least dimension
 - (3) 45 degrees F for sections 36 to 72 inches in the least dimension
 - (4) 40 degrees F for sections greater than 72 inches in the least dimension
- c. The minimum requirements may be terminated when temperatures above 50 degrees F occur during more than half of any 24 hour duration. The temperature of concrete at time of placement shall not exceed 90 degrees F.

3.7.2.3 Compressive Strength Tests

ACI 214R tests for strength - conduct strength tests of concrete during construction in accordance with the following procedures:

- a. Mold and cure six 6 by 12 inch cylinders from each sample taken in accordance with **ASTM C31/C31M.** Prevent evaporation and loss of water from the specimen.
- b. Test cylinders in accordance with **ASTM C39/C39M.** Test one cylinder at 3 days, two cylinders at 7 days, two cylinders at 28 days, and hold one cylinder in reserve. The compressive strength test results for acceptance shall be the average of the compressive strengths from the two specimens tested at 28 days.

If one specimen in a test shows evidence of improper sampling, molding or testing, discard the specimen and consider the strength of the remaining cylinder to be the test result. If both specimens in a test show any defects, the Contracting Officer may allow the entire test to be discarded.

- c. If the average of any three consecutive strength test results is less than the specified strength ($f'c$) or the minimum test strength (fcr) for durability, whichever is higher, by more than 500 psi, planks shall be rejected and replaced.
- d. Strength test reports shall include location in the work where the batch represented by a test was deposited, batch ticket number, time batched and sampled, slump, air content (where specified), mixture and ambient temperature, unit weight, and water added on the job. Reports of strength tests shall include detailed information of storage and curing of specimens prior to testing.
- e. Final reports shall be provided within 7 days of test completion.

3.7.2.4 Air Content

ASTM C173/C173M or ASTM C231/C231M for normal weight concrete. Make air content tests on samples from the first three batches in the placement and until three consecutive batches have air contents within the range of the specified air content, at which time test every fifth batch. Maintain this test frequency until a batch is not within the specified range at which time resume testing of each batch until three consecutive batches have air contents within the specified range. Perform additional tests as necessary for control. Take air content tests from planned composite samples or from samples taken in accordance with ASTM C172 at the point of concrete placement.

3.7.3 Non-Destructive Tests

Non-destructive tests - use of the rebound hammer in accordance with ASTM C805/C805M, ASTM C597, or other non-destructive processes may be permitted by the Contracting Officer in evaluating the uniformity and relative concrete strength in place.

Evaluate and validate test results conducted on properly calibrated equipment in accordance with standard ASTM procedures indicated

3.7.4 Acceptance of Concrete Strength

3.7.4.1 Standard Molded and Cured Strength Specimens

The averages of all sets of three consecutive compressive strength test results shall equal or exceed the design compressive strength ($f'c$) or the required field test strength (fcr) whichever is higher, and no individual strength test shall fall below the specified compressive strength ($f'c$) or the required field durability strength (fcr) by more than 500 psi, whichever is higher. These criteria also apply when accelerated strength testing is specified unless another basis for acceptance is specified.

3.7.4.2 Non-Destructive Tests

Non-destructive tests may be used when permitted to evaluate concrete where standard molded and cured cylinders have yielded results not meeting

the criteria.

3.7.5 Plant Inspection of Planks

At the request of the Contractor and at the option of the Contracting Officer, prior to being transported, precast units may be inspected by the Contracting Officer. The Contractor shall give notice 14 days prior to the time the units will be available for plant inspection. Neither the exercise nor waiver of inspection at the plant will affect the Government's right to enforce contractual provisions after units are transported.

3.8 EXAMINATION

Prior to placement, and again after placement, precast members shall be checked for damage, such as cracking or spalling. As directed by the Contracting Officer, precast members that do not meet the surface finish requirements specified in paragraph entitled "Surface Finishes" shall be repaired.

3.9 GALVANIZING REPAIR

Repair damage to galvanized coatings using ASTM A 780 zinc rich paint for galvanized surfaces damaged by handling, transporting, cutting, welding, or bolting. Do not heat surfaces to which repair paint has been applied.

3.10 CONSTRUCTION RECORDS

Complete construction records shall be kept of the manufacturing, handling, transportation and placement of the precast concrete members. Records shall be kept for, but not limited to, the following items:

- a. Specifications of material used in the manufacture of the members.
- b. Records of the inspection of the members each time they are moved.
- c. Records of any defects in the member and any corrective measures taken.

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SECTION 06 13 33

PRESERVATIVE TREATED TIMBERS

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 within the text by the basic designation only.

AMERICAN WOOD PROTECTION ASSOCIATION (AWPA)

AWPA U1 (2011) Use Category System: User Specification for Treated Wood

AWPA M4 (2002) Standard for the Care of Preservative-Treated Wood Products

ASTM INTERNATIONAL (ASTM)

ASTM A 123/A 123M (2009) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

ASTM A153/A153M (2009) Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

ASTM A307 (2010) Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength

U.S. DEPARTMENT OF DEFENSE (DOD)

MIL-P-21035 (1991; Rev B; Notice 2 2003) Paint, High Zinc Dust Content, Galvanizing Repair (Metric)

MIL-PRF-907 (2004; Rev F) Antiseize Thread Compound, High Temperature

AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC)

AITC 200 (2009) Manufacturing Quality Control Systems Manual

AITC 117 (2004; Errata 2004) Standard Specifications for Structural Glued Laminated Timber of Softwood Species, Design and Manufacturing Requirements

WEST COAST LUMBER INSPECTION BUREAU (WCLIB)

WCLIB 17 (2000) Standard Grading Rules

U.S. DEPARTMENT OF COMMERCE (DOC)

DOC/NIST PS56

(1973) Structural Glued Laminated Timber

WESTERN WOOD PRESERVERS INSTITUTE (WWPI)

WWPI Mgt Practices

(1996) Best Management Practices for the
Use of Treated Wood in Aquatic Environments

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Pier timberwork; G

Submit drawings of treated timber showing dimensions of cut, framed, or bored timbers.

SD-06 Test Reports

Timber preservative inspection; G

Delivery inspection list

SD-07 Certificates

MSDS and CIS

1.3 DELIVERY AND STORAGE

Open-stack untreated timber and lumber material on skids at least 12 inches aboveground, in a manner that will prevent warping and allow shedding of water. Close-stack treated timber and lumber material in a manner that will prevent long timbers from sagging or becoming crooked. Keep ground under and within 5 feet of such piles free of weeds, rubbish, and combustible materials. Protect materials from weather. Handle treated timber with ropes or chain slings without dropping, breaking outer fibers, bruising, or penetrating surface with tools. Do not use cant dogs, peaveys, hooks, or pike poles. Protect timber and hardware from damage.

1.4 QUALITY ASSURANCE

1.4.1 MSDS and CIS

Provide Material Safety Data Sheets (MSDS) and Consumer Information Sheets (CIS) associated with timber pile preservative treatment. Contractor shall comply with all safety precautions indicated on MSDS and CIS.

1.4.2 Timber Preservative Inspection

Submit the inspection report of an independent inspection agency, for approval by the Contracting Officer, that offered products complying with applicable AWWPA Standards. Identify treatment on each piece by the quality

mark of an agency accredited by the Board of Review of the American Lumber Standard Committee.

1.4.3 Delivery Inspection List

Field inspect and submit a verification list of each treated timber member and each strapped bundle of treated lumber indicating the wording and lettering of the quality control markings, the species and the condition of the wood. Do not incorporate materials damaged in transport from plant to site. Inspect all preservative-treated wood, visually to ensure there are no excessive residual materials or preservative deposits. Material shall be clean and dry or it will be rejected due to environmental concerns.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Lumber and Timbers

All timber components shall be Coastal Region, Douglas Fir No.1 or better, appearance grade, surfaced dry, with minimum fiber bending strength (fb) of 2,000 psi. All timber shall comply with the pertinent provisions of WCLIB 17 for Douglas Fir. All timber components shall not have splits, warps, or waness.

2.1.1.1 Solid Sawn

Doug Fir, Larch, grade No. 1 or better, no loose knots in accordance with WCLIB 17. Surfaced S4S or as otherwise noted on the plans.

2.1.1.2 Glue Laminated Timber

Glue Laminated Timber: Douglas Fir, Grade 24F-V8, DF/DF in accordance with AITC 117 and conforming to WCLIB 17. Glue-laminated members shall be produced in conformance with the requirements of DOC/NIST PS56. Laminating adhesives shall be waterproof. Appearance of glued-laminated members shall be Industrial Grade or better. Inspection shall be in accordance with AITC 200.

2.1.1.3 Decking

Doug Fir Larch, No. 1 or better per WCLIB 17. Surfacing shall be S1S2E, chamfered and milled as noted on the plans. Timber decking materials shall be of the highest quality and free from splits, warps, cracks, excessive knots and other defects.

2.1.1.4 Preservative Treatment

Timber members shall be pressure treated with preservative as outlined below. All timbers shall be cut to length, drilled and dapped prior to treatment. All pressure treatment processes shall be performed in accordance with WWPI Mgt Practices.

Glue Laminated Stringers: For glue laminated stringers below the decking treat with creosote in accordance with AWWA U1 Use Category 4C Commodity Specification C, Provide minimum 12 pcf.

Sawn Timbers including Decking: shall be pressure treated with ACZA (Chemonite) to not less than 0.6 pcf net dry salt retention

in accordance with AWWA U1 Use Category 4B.

2.1.2 Hardware

Bolts with necessary nuts and washers, timber connectors, drift pins, dowels, nails, screws, spikes, and other fastenings. Bolts and nuts shall conform to [ASTM A307](#). Provide cast-iron ogee, malleable iron washers, or plate or cut washers where indicated. Provide bolts with washers under nut and head, [except economy head bolts](#). Provide timber connectors and other metal fastenings of type and size shown. Hot-dip galvanize hardware .

2.1.2.1 Zinc-Coating

Galvanize steel specified or indicated by the hot-dip process in accordance with [ASTM A 123/A 123M](#) or [ASTM A153/A153M](#), as applicable.

2.1.3 Antiseize Compound

[MIL-PRF-907](#)

PART 3 EXECUTION

3.1 CONSTRUCTION

Cut, bevel, and face timbers prior to plant preservative treatment. In addition to the contract clause entitled "Accident Prevention" provide protective equipment for personnel fabricating, field treating, or handling materials treated with water-borne salts. Refer to paragraph entitled "MSDS and CIS."

3.1.1 Framing

Secure timbers and piles in alignment. Open joints are unacceptable. Shimming is not allowed. Bore holes for bolts with a bit [1/16 inch](#) larger in diameter than bolt. Counterbore for countersinking wherever smooth faces are indicated or specified.

3.1.2 Fastening

Vertical bolts shall have nuts on the lower end. Where bolts are used to fasten timber to timber, timber to concrete, or timber to steel, bolt members together when they are installed and retighten immediately prior to final acceptance of contract. Provide bolts having sufficient additional threading to provide at least [3/8 inch per foot](#) thickness of timber for future retightening.

3.2 FIELD TREATMENT

3.2.1 Timberwork

Field treat cuts, bevels, notches, refacing and abrasions made in the field in treated timbers in accordance with [AWPA M4](#), MSDS and CIS. Wood preservatives are restricted use pesticides and shall be applied according to applicable standards. Trim cuts and abrasions before field treatment. Paint depressions or openings around bolt holes, joints, or gaps including recesses formed by counterboring, with preservative treatment used for piles or timber; and after bolt or screw is in place, fill with hot pitch or a bitumastic compound.

3.2.2 Galvanized Surfaces

Repair and recoat zinc coating which has been field or shop cut, burned by welding, abraded, or otherwise damaged to such an extent as to expose the base metal. Thoroughly clean the damaged area by wire brushing and remove traces of welding flux and loose or cracked zinc coating prior to painting. Paint cleaned area with two coats of zinc oxide-zinc dust paint conforming to MIL-P-21035. Compound paint with a suitable vehicle in a ratio of one part zinc oxide to four parts zinc dust by weight.

3.2.3 Antiseize Compound

Coat threads of bolts prior to applying washers and nuts. Recoat bolt thread projection beyond nut after tightening.

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EARTHWORK

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SECTION 31 00 00

EARTHWORK

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 within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM C117 (2004) Standard Test Method for Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregates by Washing

ASTM C136 (2006) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates

ASTM D 2487 (2011) Soils for Engineering Purposes (Unified Soil Classification System)

1.2 DEFINITIONS

1.2.1 Satisfactory Materials

Satisfactory materials comprise materials classified by ASTM D 2487 as GW, GP, GP-GM, GW-GM, SW, SP. Satisfactory materials for grading comprise stones less than 3 inches.

1.2.2 Unsatisfactory Materials

Materials which do not comply with the requirements for satisfactory materials are unsatisfactory. Unsatisfactory materials also include man-made fills; trash; refuse; backfills from previous construction; and material classified as satisfactory which contains root and other organic matter or frozen material. Notify the Contracting Officer when encountering any contaminated materials.

1.2.3 Base Course

Base Course shall be hard, durable particles or fragments of stone or gravel. Do not use materials that break up when alternately frozen and thawed or wetted and dried. Do not include muck, frozen material, roots, sod, or other deleterious matter. Subbase shall conform to the Alaska Department of Transportation and Public Facilities Standard Specifications for Highway Construction 703-2.09 and meet the gradation shown below:

BASE COURSE GRADATION

SIEVE SIZE	PERCENT FINER (BY WEIGHT)
4 INCH	100

2 INCH	85 - 100
No. 4	20 - 50
No. 200	0 - 6

1.2.4 Access Road/Parking Fill

Access Road/Parking Fill shall be crushed stone or crushed gravel, consisting of sound, tough, durable pebbles or rock fragments of uniform quality. Materials shall be free from clay balls, vegetable matter, or other deleterious matters. Subbase shall conform to the Alaska Department of Transportation and Public Facilities Standard Specifications for Highway Construction 703-2.03. The material gradation shall be gradation C-1 in Table 703-2 of the Alaska Department of Transportation and Public Facilities Standard Specifications for Highway Construction.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-06 Test Reports

Testing

Submit results of gradation tests.

SD-07 Certificates

Testing

Qualifications of the Contractor's designated Engineer and Engineer's certification of testing and test results if a commercial testing laboratory is not used.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 GENERAL EXCAVATION

Perform excavation of every type of material encountered within the limits of the project to the lines, grades, and elevations indicated and as specified. Perform the grading in accordance with the typical sections shown and the tolerances specified in paragraph FINISHING. Transport satisfactory excavated materials and place in fill or embankment within the limits of the work. Excavate unsatisfactory materials encountered within the limits of the work below grade and replace with satisfactory materials as directed. Dispose surplus satisfactory excavated material not required for fill or embankment in areas approved for surplus material storage or designated waste areas. Dispose unsatisfactory excavated material in designated waste or spoil areas. During construction, perform excavation and fill in a manner and sequence that will provide proper drainage at all times. Excavate material required for fill or embankment in excess of that produced by excavation within the grading limits from approved areas selected by the Contractor as specified.

3.2 GROUND SURFACE PREPARATION

3.2.1 General Requirements

Remove and replace unsatisfactory material with satisfactory materials, as directed by the Contracting Officer, in surfaces to receive fill or in excavated areas. Level and uniformly compact with a minimum eight passes of a self-propelled vibratory compactor having a centrifugal force of 74,000 pounds or greater. The moisture content of the subgrade soils shall be adjusted to facilitate compaction.

3.2.2 Frozen Material

Do not place material on surfaces that are muddy, frozen, or contain frost.

3.3 UTILIZATION OF EXCAVATED MATERIALS

Dispose unsatisfactory materials removed from excavations into designated waste disposal or spoil areas. Use satisfactory material removed from excavations, insofar as practicable, in the construction of fills, embankments, subgrades, shoulders, bedding (as backfill), and for similar purposes. Dispose of satisfactory material in designated areas approved for surplus material storage or designated waste areas as directed. Stockpile and use coarse rock from excavations for constructing slopes or embankments adjacent to streams, or sides and bottoms of channels and for protecting against erosion. Do not dispose excavated material to obstruct the flow of any stream, endanger a partly finished structure, impair the efficiency or appearance of any structure, or be detrimental to the completed work in any way.

3.4 BACKFILLING AND COMPACTION

Place backfill adjacent to any and all types of structures. Level and uniformly compact with a minimum eight passes of a self-propelled vibratory compactor having a centrifugal force of 74,000 pounds or greater. The moisture content of the subgrade soils shall be adjusted to facilitate compaction. Prepare ground surface on which backfill is to be placed in conformance with the applicable portions of paragraphs GROUND SURFACE PREPARATION and SUBGRADE PREPARATION. Finish compaction with a minimum eight passes of a self-propelled vibratory compactor having a centrifugal force of 74,000 pounds or greater. The moisture content of the subgrade soils shall be adjusted to facilitate compaction.

3.5 SUBGRADE PREPARATION

3.5.1 Construction

Shape subgrade to line, grade, and cross section, and uniformly compact with a minimum eight passes of a self-propelled vibratory compactor having a centrifugal force of 74,000 pounds or greater. The moisture content of the subgrade soils shall be adjusted to facilitate compaction. Remove soft or otherwise unsatisfactory material and replace with satisfactory excavated material or other approved material as directed. Rock encountered in the cut section shall remain in place.

3.6 FINISHING

Finish the surface of excavations, embankments, and subgrades to a smooth and compact surface in accordance with the lines, grades, and cross

sections or elevations shown. Provide the degree of finish for graded areas within 0.1 foot of the grades and elevations indicated. Repair graded, topsoiled, or backfilled areas prior to acceptance of the work, and re-established grades to the required elevations and slopes.

3.6.1 Subgrade and Embankments

During construction, keep embankments and excavations shaped and drained. Maintain ditches and drains along subgrade to drain effectively at all times. Do not disturb the finished subgrade by traffic or other operation. Protect and maintain the finished subgrade in a satisfactory condition until ballast, subbase, base, or pavement is placed. Do not permit the storage or stockpiling of materials on the finished subgrade. Do not lay subbase, base course, ballast, or pavement until the subgrade has been checked and approved, and in no case place subbase, base, surfacing, pavement, or ballast on a muddy, spongy, or frozen subgrade.

3.7 TESTING

Perform testing by a commercial testing laboratory or the Contractor shall appoint a registered professional civil engineer to certify testing and test results. These certifications shall state that the tests and observations were performed by or under the direct supervision of the engineer and that the results are representative of the materials or conditions being certified by the tests. The following number of tests, if performed at the appropriate time, will be the minimum acceptable for each type operation.

3.7.1 Base Course

Determine gradation of Base Course material in accordance with ASTM C136 and ASTM C117. A minimum of 3 gradation tests shall be performed for each source of this material.

3.7.2 Access Road/Parking Fill

Determine gradation of Access Road/Parking Fill material in accordance with ASTM C136 and ASTM C117. A minimum of 3 gradation tests shall be performed for each source of this material.

3.8 DISPOSITION OF SURPLUS MATERIAL

Surplus material shall be disposed of in the Nondalton borrow pit.

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SECTION 31 62 22

STEEL PIPE PILES

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 within the text by the basic designation only.

AMERICAN SOCIETY FOR NONDESTRUCTIVE TESTING (ASNT)

ASNT SNT-TC-1A (2006; Supp 2010) Recommended Practice No. SNT-TC-1A: Personnel Qualification and Certification in Nondestructive Testing and ANSI/ASNT CP-105: Training Outlines for Qualification of Nondestructive Testing Personnel

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M (2010) Structural Welding Code - Steel

ASTM INTERNATIONAL (ASTM)

ASTM A252 (2010) Standard Specification for Welded and Seamless Steel Pipe Piles

ASTM A572/A572M (2007) Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. The following shall be submitted in accordance with SECTION 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

File Installation Plan; G

Submit pile installation plan for approval prior to commencement of pile related work. Plan shall describe the Contractor's anticipated means and methods for installing the piles including all necessary steps from start to finish. Plan shall include: a description of how the boarding floats will be held in place during pile installation; hammer data; drill and tooling data; equipment spread; installation sequence; specific manufacturer's information on the above items (including model numbers); and other information deemed pertinent by the Contractor. Government

approval of this plan shall not constitute Government endorsement of the specific means, methods, and equipment identified by the Contractor and shall not relieve the Contractor of the requirement to install the piles as indicated. Government approval of this plan will acknowledge that the Contractor understands the contract requirements for pile installation.

SD-03 Product Data

Pile Caps

Cutting Shoes

Welding Procedure Specifications

Welding Procedure Qualifications

Welding Procedure Qualification Test Records

Welder, Welding Operator, and Tacker Qualification

Inspector Qualifications

Pre-qualified Procedures

SD-06 Test Reports

Pile Driving Records: G

Welding Inspection Reports

SD-07 Certificates

Pipe Piles; G

Certified copies of mill reports including: chemistry; yield and tensile strength; and mill/heat numbers.

SD-08 Manufacturer's Instructions

Pile Caps

Manufacturer's installation recommendations.

Cutting Shoes

Manufacturer's installation recommendations or requirements.

1.3 EXPERIENCE

The work shall be performed by a firm specializing in the specified work and having experience installing pipe piles under similar conditions.

1.4 SUBSURFACE DATA

No subsurface soil data is available at the site.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 General

All materials shall be new.

2.1.2 Pipe Piles

2.1.2.1 Seamless or Straight Seam Pipe

Pipe piles shall be of steel, round, seamless or longitudinally welded and shall conform to ASTM A252, Grade 3, with ASTM A572/A572M, Grade 50 chemistry. Carbon equivalency shall not exceed 0.45..

Pile size shall be as shown on the drawings with only a single pile size used for all piles.

Pipe straightness shall conform to API-95 5L Section 7.6.

2.1.2.2 Pile Lengths

Piles shall be furnished by the Contractor in lengths as indicated on the drawings.

2.1.3 Cutting Shoes

Each pile shall be supplied with an inside cutting shoe, flush with the outside of the pile. Install per manufacturer's recommendations or requirements.

2.1.4 Pile Caps

Pile Caps shall be white, conical fiberglass installed per the manufacturer's recommendations.

PART 3 EXECUTION

3.1 SHOP FABRICATION

Fabricate the piles in the longest lengths practicable. All pile splice welds shall develop the full strength capacity of the pipe.

All welding shall be in accordance with and by welders currently certified in accordance with AWS D1.1/D1.1M for the type of welding specified.

3.2 INSTALLATION

3.2.1 General

Inspect piles when delivered and when in the leads immediately before driving. Cut piles to cutoff elevation by an approved method. The Pile Installation Plan shall represent the means and methods actually used to install the piles. Significant deviations, in the opinion of the Contracting Officer's representative, from the approved plan shall be considered reason to stop the work.

3.2.2 Pile Installation

3.2.2.1 General

Surveillance and inspection of the pile installation operation is required. No pile shall be drilled or driven in absence of the Contracting Officer's representative. The Contractor shall notify the Contracting

Officer of the installation schedule at least 48 hours prior to driving any piles.

Pile Driving Analysis: The Contractor shall select a method of installation that will advance the pile tips 20' into the existing soil as indicated on the contract drawings without damaging the piles. Data shall be logged in accordance with paragraph PILE DRIVING RECORDS of this section, for all piles. The Contractor shall coordinate and mark the piles as indicated.

3.2.2.2 Driving

Piles shall be driven using leads, templates, or hammer carriages constructed in such a manner as to afford freedom of movement to the hammer.

During driving, the pile driver leads or templates shall be adequately anchored to insure rigid lateral support to the pile.

The piling shall be driven to the following criteria: a minimum of 20 feet penetration into the existing soils.

Damaged Piles: Should the Contractor damage the pile top during driving so as to interfere, in the opinion of the Contracting Officer, with the satisfactory driving of the pile, the driving shall be discontinued, the pile shall be cut off perpendicular to its axis, and the driving shall then be resumed. Any pile which is damaged in driving (other than at the top) shall be withdrawn and spliced at some point such that the completed pile will be satisfactory, all at no additional expense to the Government.

3.2.3 Tolerances in Driving

Piles shall be driven through the pile sleeves in the boarding floats. Piles shall be installed such that they are not in hard contact with the boarding float pile sleeve. Plumb; Maintain 1 inch in 8 feet from vertical.

3.2.4 Marking Piles

Each pile to be driven shall be marked by the Contractor so that the Contracting Officer can monitor the embedment depth and independently record its driving record. Marks shall be at one foot intervals with lengths written above the line every five feet. The overall length shall be written at the top of each pile. Marks shall be removed by the Contractor prior to contract completion.

3.2.5 Splices

Provide splices of the full penetration butt weld type using 1/4 inch minimum backing ring and a single vee or single bevel groove weld as required by and in accordance with AWS D1.1/D1.1M. Construct splices to maintain the true alignment and position of the pile sections. Splices shall develop the full strength of the pile in bending.

3.2.6 Pile Cut-offs

After the piles are installed as required, they shall be cut off perpendicular to their axes at the elevation shown on the drawings. Cutting methods shall be used which will not damage the portion of the pile to be left in place. Pile cut-offs shall remain the property of the Contractor and shall be removed from the site at the completion of the work.

3.2.7 Welding

All welding shall be in accordance with AWS D1.1/D1.1M. Welding shall be performed by welders who possess welder's certificates that indicate they are currently certified in accordance with AWS D1.1/D1.1M for the type of welding specified. Submit copies of: the welding procedure specifications; the welding procedure qualifications; the welding procedure qualification test records; and the welder, welding operator, and tacker qualification test records. Requirements apply to both shop and field welds. Use of pre-qualified procedures is acceptable without additional procedure qualification.

All field and shop welds shall be visually inspected (100% visual inspection). All field and shop pile splice welds shall also be ultrasonically tested (10% ultrasonic testing). Inspection and testing shall be in accordance with the referenced standards by an AWS-certified welding inspector from an independent inspection service. Welding inspection reports prepared by the inspector shall be provided for each weld. The cost of this work shall be the responsibility of the Contractor.

3.2.8 Inspector Qualifications

Inspector qualifications shall be in accordance with AWS D1.1/D1.1M. Qualify all nondestructive testing personnel in accordance with the requirements of ASNT SNT-TC-1A for Levels I or II in the applicable nondestructive testing method. The inspector may be supported by assistant welding inspectors who are not qualified to ASNT SNT-TC-1A, and assistant inspectors may perform specific inspection functions under the supervision of the qualified inspector.

3.3 PILE DRIVING EQUIPMENT

3.3.1 Pile Hammers

Pile driving hammer for driving steel piles shall be of an approved type and with a capacity at least equal to the hammer manufacturer's recommendation for the total weight of the pile and character of subsurface material which is expected to be medium dense to dense sands and gravels with sporadic cobbles. Piles shall be driven with a minimum impact hammer energy rating of 30,000 ft-lbs or vibratory hammer with a minimum dynamic drive force of 200 tons. For impact hammers driving energy shall be obtained by use of a heavy ram and a short stroke with low impact velocity, rather than a light ram and a long stroke with high impact velocity. Position a pile cap or drive cap between the pile and hammer. Place hammer cushion or cap block between ram and the pile cap or drive cap. Hammer cushion or cap block shall have consistent elastic properties, shall minimize energy absorption, and shall transmit hammer energy uniformly and consistently during the entire driving period. In accordance with paragraph "submittals," submit the following information for each impact hammer proposed:

- a. Make and model.
- b. Ram weight (pounds).
- c. Anvil weight (pounds).
- d. Rated stroke (inches).
- e. Rated energy range (foot-pounds).
- f. Rated speed (blows per minute).
- g. Steam or air pressure, hammer, and boiler or compressor (psi).

- h. Pile driving cap, make, and weight (pounds).
- i. Cushion block dimensions and material type.
- j. Power pack description.

In accordance with paragraph "submittals," submit the following information for each vibratory hammer proposed:

- a. Make and model.
- b. Eccentric moment (inch-pounds).
- c. Dynamic force (tons).
- d. Steady state frequency or frequency range (cycles per minute).
- e. Vibrating weight (pounds).
- f. Amplitude (inches).
- g. Maximum pull capacity (tons).
- h. Non-vibrating weight (pounds).
- i. Power pack description.

The hammer shall be in good operating condition at all times during driving, and of sufficient size to drive piles to their required depth. Diesel powered hammers shall be operated at the rate recommended by the manufacturer throughout the entire driving period.

3.3.2 Driving Helmets

The heads of piles shall be cut square to their longitudinal axes. A driving helmet or cap shall be used between the top of the pile and the ram to prevent impact damage to the pile. The driving helmet or cap shall be capable of protecting the head of the pile, minimizing energy absorption and dissipation, and transmitting hammer energy uniformly over the top of the pile. Steel helmets shall fit snugly into the butt of the pile casing.

3.4 PILE DRIVING RECORDS

Submit a complete and accurate record of each driven pile within 3 days of completion of driving. The record shall indicate: the pile location (as driven); cross section shape and dimensions; length of each stick of pipe pile and length removed due to damage as applicable; mudline elevation; driven length prior to drilling; top of till elevation; drilled depth; embedment into drilled hole; total embedded length; final elevations of tip and top; collars, shoes, number of splices and locations; blows required for each foot of penetration throughout the entire length of the pile; and the total driving time. The record shall also include: the type and size of the hammer used including the rate of operation, and the type and dimensions of driving helmet and pile cushion used; a description of the drilling equipment used; and a description of the specific measures taken to advance the pile. Any unusual conditions encountered during pile installation (such as re-driving, heaving, weaving, obstructions, and unanticipated interruptions) shall be recorded and immediately reported to the Contracting Officer. Field notes necessary to document the required pile driving records shall be included in the daily Quality Control report for each day when pile driving operations are conducted. Preprinted forms for recording pile driving data are attached below. This form shall be modified as necessary for this specific requirements of this job.

PILE DRIVING LOG

CONTRACT NO. _____ CONTRACT NAME _____

CONTRACTOR _____ TYPE OF PILE _____

PILE LOCATION _____ PILE SIZE: BUTT/TIP: _____ LENGTH _____

MUDLINE ELEVATION _____ CUT OFF ELEVATION _____

PILE TIP ELEVATION _____ VERTICAL (_____)

SPLICES ELEVATION _____ COMPANY _____

HAMMER: MAKE & MODEL _____ WT. RAM _____

STROKE _____ RAM RATED ENERGY _____

DESCRIPTION & DIMENSIONS OF DRIVING CAP _____

CUSHION MATERIALS & THICKNESS _____

INSPECTOR _____

"DEPTH" COLUMN OF PILE DRIVING RECORD REFERENCED TO:

_____ CUT-OFF ELEVATION

TIME: START DRIVING _____ FINISH DRIVING _____ DRIVING TIME _____

INTERRUPTIONS (TIME, TIP ELEV. & REASON) _____

DRIVING RESISTANCE

DEPTH FT.	NO. OF BLOWS	DEPTH FT.	NO. OF BLOWS	DEPTH FT.	NO. OF BLOWS
0	_____	41	_____	81	_____
1	_____	42	_____	82	_____
2	_____	43	_____	83	_____
3	_____	44	_____	84	_____
4	_____	45	_____	85	_____
5	_____	46	_____	86	_____
6	_____	47	_____	87	_____
7	_____	48	_____	88	_____
8	_____	49	_____	89	_____
9	_____	50	_____	90	_____
10	_____	51	_____	91	_____
11	_____	52	_____	92	_____
12	_____	53	_____	93	_____
13	_____	54	_____	94	_____
14	_____	55	_____	95	_____
15	_____	56	_____	96	_____
16	_____	57	_____	97	_____
17	_____	58	_____	98	_____
18	_____	59	_____	99	_____
19	_____	60	_____	100	_____
20	_____	61	_____	101	_____
21	_____	62	_____	102	_____
22	_____	63	_____	103	_____
23	_____	64	_____	104	_____
24	_____	65	_____	105	_____
25	_____	66	_____	106	_____
26	_____	67	_____	107	_____
27	_____	68	_____	108	_____
28	_____	69	_____	109	_____
29	_____	70	_____	110	_____
30	_____	71	_____	111	_____
31	_____	72	_____	112	_____
32	_____	73	_____	113	_____
33	_____	74	_____	114	_____
34	_____	75	_____	115	_____
35	_____	76	_____	116	_____
36	_____	77	_____	117	_____
37	_____	78	_____	118	_____
38	_____	79	_____	119	_____
39	_____	80	_____	120	_____
40	_____				

DRIVING RESISTANCE IN BLOWS PER INCH FOR LAST FOOT OF PENETRATION:

DEPTH _____	DEPTH _____
1" ___ 2" ___ 3" ___ 4" ___ 5" ___ 6" ___ 7" ___ 8" ___ 9" ___ 10" ___ 11" ___ 12" ___	
ELEV. _____	ELEV. _____

REMARKS _____

CUT OFF ELEVATION: FROM DRAWING _____

TIP ELEVATION = MUDLINE ELEVATION - DRIVEN DEPTH = _____

DRIVEN LENGTH = CUT OFF ELEVATION - TIP ELEVATION = _____

CUT OFF LENGTH = PILE LENGTH - DRIVEN LENGTH = _____

-- End of Section --

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DIVISION 35 - WATERWAY AND MARINE CONSTRUCTION

SECTION 35 31 19

ARMOR ROCK

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SECTION 35 31 19

ARMOR ROCK

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 within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM C127	(2007) Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
ASTM C295	(2011) Petrographic Examination of Aggregates for Concrete
ASTM C535	(2009) Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM D 4992	(2007) Evaluation of Rock to be Used for Erosion Control
ASTM D 5312	(2004) Evaluation of Durability of Rock for Erosion Control Under Freezing and Thawing Conditions
ASTM D 5313	(2004) Evaluation of Durability of Rock for Erosion Control Under Wetting and Drying Conditions

U.S. ARMY CORPS OF ENGINEERS (USACE)

COE CRD-C 148	(1969) Method of Testing Stone for Expansive Breakdown on Soaking in Ethylene Glycol
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1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Quarry Development Plan; G

Appendix B provides guidance for preparation of plan concerning

the development and operation of a quarry. This submittal requires a minimum 60 day review period.

SD-06 Test Reports

Gradation Test; G

Test results using methods specified for gradation and size of materials produced.

Rock Quality Tests; G

Laboratory results of tests specified to identify quality of materials.

Rock Gradation, Size, and Angularity

Report of Petrographic examination; G

Report provided by qualified petrographer with certified and complete test results stating the rock quality requirement compliance.

PART 2 PRODUCTS

2.1 ROCK SOURCE

There is no Government furnished or designated rock source for this project. The Contractor shall obtain rock which meets all requirements specified herein. All Federal, State and local laws and regulations pertaining to surface mining, safety, and protection of the environment shall be complied with in furnishing the rock. The Contractor shall be responsible for all construction permits and/or easements for the rock source and for furnishing all pertinent information to the Government for environmental permits and approvals. The Contractor shall identify its proposed rock source within the bid package.

2.1.1 Quarry Development Plan

The Corps of Engineers, Alaska District, has entered into a Letter of Agreement (LOA) with the State of Alaska, and a separate LOA with the U.S. Fish and Wildlife Service concerning development and operation of quarry sites for Civil Works Projects administered by the Corps of Engineers. The LOA's are enclosed herein as Appendix A. These LOA's require the Contractor to submit through the Contracting Officer to the U.S. Fish and Wildlife Service and to the State of Alaska a Quarry Development Plan for review and approval under the conditions stipulated in the LOA's. The Corps will require 30 days to review the quarry development plan submittal package for adequacy. Additional information may be required. A complete package will then be forwarded for an agency review period for an additional 30 days. A standard review period is estimated at 60 days. Review periods will be extended at no cost to the Government dependent upon identified environmental issues concerning endangered species, migratory birds, cultural resources, wetlands, fish and wildlife habitat, land use restrictions, etc. The quarry development plan will not be approved until environmental issues are resolved. The Contractor shall perform all work in accordance with these LOA's. A quarry development plan is required for all new and existing quarries to be utilized for this project. Guidance for preparing a quarry development plan and items to be addressed are enclosed

herein as Appendix B. This submittal requires a minimum 60 day review period.

2.1.2 Additional Requirements

Development of a new quarry site or using an existing quarry site requires the review of permits from Local, State, and Federal agencies for furnishing rock required by this contract. A new quarry site will require the reopening of the National Environmental Policy Act (NEPA) process and a determination by the State of Alaska of consistency with its Coastal Management Program. Significant expansion of an existing quarry site may also require reopening the NEPA process. The quarry development plan review outlined in the LOA's will indicate what is required. Reopening the NEPA process and review with the State's Coastal Management Program may take a year or more to complete. For development of a new quarry site or using an existing quarry site, the Contractor is responsible for investigating and providing all information to the Government and working cooperatively with the Government to complete environmental documentation and approvals. The Corps will have final approval on any documents and for coordinating environmental approvals or permits from Local, State, and Federal agencies. The Corps will take the lead in cultural resources surveys as applicable. The Contractor is responsible for its (the Contractor's) costs and delays as a result of the reviews and permits requirements.

2.1.3 Retainage

Ten percent of payment for the base item of this contract will be withheld, in addition to any other retainages, until all environmental requirements of the quarry development plan have been complied with.

2.2 STONE

2.2.1 General

All stone shall be durable material as approved by the Contracting Officer. Selected stone from the required excavation may be used if it satisfies all requirements as to quality and dimensions. Stone shall be of a suitable quality to ensure permanence in the structure and in the climate in which it is to be used. It shall be free from cracks, blast fractures, bedding, seams and other defects that would tend to increase its deterioration from natural causes. Inspections for cracks, fractures, seams and defects shall be made by visual examination. A hairline crack that is defined as being detrimental shall have a minimum width of (4 mil) and shall be continuous for one-third the dimension of at least two sides of the stone. The stone shall be clean and adequately free from all foreign matter. Any foreign material adhering to or combined with the stone as a result of stockpiling shall be removed prior to placement.

2.2.1.1 Rock Quality Tests

Laboratory tests and visual geologic examinations shall be made to determine acceptability of materials. Rock shall be composed of hard, strong, durable materials that will not slake or deteriorate upon exposure to the action of water or atmosphere; shall not contain cracks, joints, faults, seams, laminations, or bands of minerals or deleterious materials which would result in breakage during or after placement in the work; and shall be free of expansive or other materials which would cause accelerated deterioration by exposure to project conditions. Materials shall meet the

following test requirements for quality:

- a. Bulk Specific Gravity Range. All stone shall have a minimum bulk specific gravity, saturated surface dry (SSD), of 2.65 based upon water having a unit weight of 62.4 pounds per cubic foot. The method of test for bulk specific gravity (SSD) shall be ASTM C127.
- b. Unit Weight and Absorption. The stone shall have an absorption less than 2.5 percent unless other tests and service records show that the stone is satisfactory. The method of test for unit weight and absorption shall be ASTM C127, except the unit weight shall be calculated in accordance with Note No. 5 using bulk specific gravity, saturated surface dry.
- c. Petrographic Examination. Stone shall be evaluated in accordance with ASTM C295. The procedure for examination shall include provisions appropriate for the examination of large stone in section 11 and the procedures required by ASTM D 4992, section 10 Petrographic Examination. The petrographic examination shall be used to identify micro fractures, seams, expansive minerals, or other defects which might cause accelerated deterioration from exposure to a harsh environment under freeze thaw conditions. The Petrographer shall include a narrative in the report discussing the suitability of the rock for use as scour protection in a freshwater environment. The narrative shall address any qualities that might cause accelerated deterioration. The petrographic examination shall be done by a qualified petrographer with five or more years experience in petrography.
- d. Resistance to Freezing and Thawing. Stone shall have a maximum loss of 10 percent after 100 cycles when tested in accordance with ASTM D 5312. The sample shall consist of at least five pieces per lithologic (rock) unit. Testing shall be conducted on the largest possible rock and the test samples shall be sawed so as to include at their edges as much of the surface of the material received for testing as possible. The report shall include "Before" and "After" color photographs as required in section 12.1.7 of ASTM D 5312.
- e. Resistance of Rock to Wetting and Drying. Stone shall have a maximum loss of 10 percent after 80 cycles when tested in accordance with ASTM D 5313. The sample shall consist of at least five pieces per lithologic (rock) unit. Testing shall be conducted on the largest possible rock and the test samples shall be sawed so as to include at their edges as much of the surface of the material received for testing as possible. The report shall include "Before" and "After" color photographs as required in section 11.1.7 of ASTM D 5313.
- f. Accelerated Expansion (Ethylene Glycol). Stone shall be evaluated in accordance with COE CRD-C 148. Stone shall not exhibit any breakage.
- g. Abrasion. Durability of stone shall be verified by testing in accordance with ASTM C535, with a maximum loss of 20% when subjected to 1000 revolutions of the testing apparatus.
- h. Tests. Testing shall be the responsibility of the Contractor and shall be performed by an independent commercial test laboratory currently validated by the Corps of Engineers. A current list of commercial laboratories along with the test methods they are validated to perform is available at the Engineering Research and Development Center's Materials Testing Center website

www.wes.army.mil/SL/MTC/mtc.htm. The Contractor shall furnish certified, complete copies of all test results and report of petrographic examination to the Contracting Officer. The Contracting Officer's designee shall accompany the Contractor and observe and agree to the selection of the rock samples for testing.

2.2.1.2 Material Stockpile

The Contractor's stockpile shall be a maximum of 15 feet high and formed by a series of layers of truckload dumps, where the rock essentially remains where it is placed. The stockpile shall be constructed in lifts not exceeding 7.5 feet in height. Any method of stockpiling which could cause segregation within the stockpile or excessive breakage will not be permitted. "A" rock shall not be piled more than three rocks high.

2.3 ROCK QUALITY ACCEPTANCE

All rock will be accepted or rejected at the job site based on test results and visual geologic examination by the Government. Test results shall be furnished to the Government 30 days prior to any placement of rock. No further laboratory testing of rock will be necessary if results meet the requirements specified, and a continuous visual geologic examination of the rock by the Government indicates no change in rock type or quality for rock passing the laboratory tests. Rock exhibiting significant changes in type or quality will be rejected unless additional testing shows that the rock meets the specified requirements.

2.4 ROCK GRADATION, SIZE, AND ANGULARITY

2.4.1 General

The rock, after processing, shall be angular and conform to the size requirements indicated below. Neither the breadth or thickness of any piece of "A" rock, or "B" rock shall be less than one-third its length. Operations of segregation, loading, and placement or stockpiling shall be conducted in a manner which will prevent breakage.

- a. B-Rock. B-Rock shall be graded within the following limits:

<u>Specified Rock Weight (lbs)</u>	<u>Percent Lighter by Weight of Total Mixture</u>
30	100
20	0 - 50
10	0 - 2

- b. A-Rock. A-Rock shall be graded within the following limits:

<u>Specified Rock Weight (lbs)</u>	<u>Percent Lighter by Weight of Total Mixture</u>
300	100
200	0 - 50
125	0 - 2

PART 3 EXECUTION

3.1 PRODUCTION TESTING

The Contractor shall perform the following minimum **Rock Gradation, Size, and Angularity** tests. No failing tests shall count toward meeting the minimum number of representative tests. Tests shall be evenly spaced throughout production. Tests shall be by actual weighing. Results shall be provided to the Contracting Officer within 24 hours, or sooner if requested. All samples shall be taken in the presence of the Government's Quality Assurance Representative (QAR). The rock gradation testing shall be conducted at the job site. The QAR shall be present for all **gradation tests**.

a. B-Rock: At least 2 representative tests from each rock source used to produce B-Rock for this project. The Quality Assurance representative (QAR) may request up to an additional 2 tests at any time during construction. Each sample shall consist of not less than **500 pounds**. Tests for B-Rock shall consist of determining the total weight of all the rocks and the individual weight of each rock in the sample respectively. Percent smaller by weight shall be determined by dividing the total weight of the sample into the sum of the total weight of the rocks smaller than the specified rock weight.

b. A-Rock: At least 1 representative test from each rock source used to produce A-Rock for this project. The Quality Assurance Representative (QAR) may request an additional test at any time during construction. Each sample shall consist of not less than **6,000 pounds** and contain at least 30 stones. Tests for A-Rock shall consist of weighing each individual rock within the sample. The total weight of the sample shall be divided by the number of rocks in the sample to determine the average rock weight.

3.2 PLACEMENT

All **A-Rock** materials shall be placed in such a manner as to produce a well-keyed mass of rock with individual pieces tightly in contact with each surrounding stone, and with the least practicable amount of void spaces. The finished surface shall be free from pockets of single size rock. Placement of small rock to choke the spaces between large rock, or for leveling the surface, will not be permitted. Breaking of individual pieces in place by blasting or mechanical methods will not be permitted. Each class of rock shall be placed to the full course thickness at one operation and in such manner as to avoid displacing the underlying material. Placing by methods likely to cause segregation will not be permitted. The desired distribution of the various sizes of rock throughout the mass shall be obtained by selective loading at the quarry and by controlled placement of successive loads. Rearranging of individual pieces by mechanical equipment or by hand will be required to the extent necessary to correct deficiencies, and to provide a uniform, tightly knit slope. Materials that do not meet the specified requirements for size, quality, or distribution of sizes or that have been fractured or broken shall be removed and replaced with suitable materials at no additional cost to the Government. Rock shall not be placed on frozen ground, ice, or snow.

3.2.1 A-Rock **and** B-Rock

A-Rock **and** B-Rock shall be placed on the prepared slopes within the limits shown. The finished slopes shall present a uniform and regular surface not

steeper than those shown on the drawings. The Contractor shall maintain the A-Rock and B-Rock until final acceptance. Any material displaced shall be replaced, at the Contractor's expense, to the slopes, lines, and grades shown on the drawings.

3.3 TOLERANCES

a. B-Rock. B-Rock shall be placed to the full thickness shown on the drawings. No minus tolerance will be permitted. A tolerance of plus 3 inches from the lines and grades shown on the drawings will be allowed, except that the extreme of such tolerance shall not be continuous over an area greater than 5 square yards. The outside slopes shall present a uniform appearance with a minimum of pieces projecting outside the finished slope surface.

b. A-Rock. A-Rock shall be placed to the full thickness shown on the drawings. No minus tolerance will be permitted. The total tolerance of plus 3 inches from the lines and grades shown on the drawings will be allowed, except that the extreme of such tolerance shall not be continuous over an area greater than 5 square yards. The outside slopes shall present a uniform appearance with a minimum of pieces projecting outside the finished slope surface.

3.4 APPENDICES

APPENDIX A - Letters of Agreement With the State of Alaska and U.S. Fish and Wildlife Service

APPENDIX B - Quarry Development Plan Requirements

-- End of Section --

**APPENDIX A
LETTERS OF AGREEMENT WITH THE
STATE OF ALASKA
AND
U.S. FISH AND WILDLIFE SERVICE**

LETTER OF AGREEMENT
BETWEEN THE
ALASKA GOVERNOR'S OFFICE, DIVISION OF GOVERNMENTAL COORDINATION
AND THE
U.S. ARMY CORPS OF ENGINEERS, ALASKA DISTRICT
FOR
QUARRY SITE EVALUATION

This agreement provides guidance and establishes procedures for ensuring the consistency with the Alaska Coastal Management Program of quarry sites for Civil Works Projects administered by the U.S. Army Corps of Engineers (COE) that are located within or directly affect the state's coastal zone.

GENERAL:

The U.S. Army COE, Alaska District, will require a construction contractor to select a quarry site to provide rock necessary for construction of water resources projects and will not specify a quarry site in its Plans and Specifications. All permits and/or easements will be the responsibility of the contractor and the contractor will not be allowed to proceed with quarry site development until all permits and/or easements and the necessary ACMP consistency determination have been obtained.

The Division of Governmental Coordination (DGC) will coordinate the state's review of the contractor's selection for consistency with the Alaska Coastal Management Program (ACMP). This Letter of Agreement (LOA) allows for an appropriate consistency review of the quarry site, once it is selected by the contractor, as a direct federal action as provided by Section 307 of the federal Coastal Zone Management Act. The COE is responsible for implementing the terms of this LOA and for participating in consistency reviews, as necessary.

WORK REQUIRED DURING THE PROJECT STUDY PHASE:

The National Environmental Policy Act (NEPA) documentation and associated ACMP project consistency review will assume that the construction contractor will use an existing quarry site. The environmental assessment (EA) or environmental impact statement (EIS) will assess the impacts associated with quarry operations of a "generic existing quarry site" and will identify appropriate impact mitigation measures.

The State of Alaska, DGC will conduct a consistency review for a "generic existing quarry site" at the time it reviews the associated water resources project, and will render a conclusive coastal consistency determination which will identify alternative measures (reflected as stipulations) necessary to ensure that the generic existing quarry site and project are consistent to the maximum extent practicable with the ACMP.

The Quarry and Environmental portions of the Plans and Specifications (bidding document) will inform the contractor of its responsibilities whether he or she selects an existing quarry site or opens a new quarry and will also advise them of the review requirements agreed to in this LOA. The DGC will be furnished with a copy of the Plans and Specifications.

WORK REQUIRED AFTER THE BID AWARD:

The COE will advise the contractor of the requirements outlined in the Plans and Specifications. The contractor will be required to submit to the COE a Quarry Development Plan including the exact location of the quarry site. Before the COE gives approval to proceed with quarry site development, the appropriate ACMP approval must be obtained.

If the contractor chooses an existing quarry:

Concurrent with its review of the contractor's submittal, the COE will notify DGC in writing of the contractor's quarry site selection and provide a copy of the Quarry Development Plan to DGC. In addition, except for situations described in (a) below, the contractor will provide a Coastal Project Questionnaire to DGC for review. Depending on the site selected, the following requirements apply.

- a) No review by DGC will be required if:
 - 1) a contractor purchases the rock necessary for a project from an operating commercial quarry site; or
 - 2) the quarry site from which the contractor proposes to obtain the necessary rock is located out of state, outside of the coastal zone, or does not directly affect the coastal zone.
- b) DGC will require not more than 15 days to review and comment on the selection and operation if a contractor proposes to use, without modifications, a quarry site, which has previously been found consistent with the ACMP.
- c) DGC will conduct a 30-day consistency review of the proposal, as per 6 AAC 50, if a contractor proposes to use an existing quarry site:
 - 1) with modifications, (e.g. changes to previously approved site boundaries, volumes to be removed, or other terms or conditions); or

- 2) that has not previously undergone a consistency review.

The contractor must submit to DGC all appropriate permit applications that apply to the quarry site.

If the construction contractor chooses a new quarry site (including sites that have been reclaimed):

1. The COE will notify the contractor in writing that the NEPA process has been reopened and that an ACMP consistency review is required for sites located within or directly affecting the coastal zone.
2. For those sites which require coastal consistency review, the COE will provide a copy of the notification letter, the Quarry Development Plan, and the exact location of the proposed quarry to DGC. All appropriate permit applications and a coastal project questionnaire will be submitted to DGC by the contractor.
3. The COE will prepare a NEPA document, either an EA or an EIS, covering the environmental impacts of the contractor's proposed new quarry site. DGC will coordinate the state's review of this document. Compliance with the procedural requirements of NEPA by the COE does not relieve the contractor from responsibility for obtaining necessary permits and/or easements for the proposed quarry.
4. DGC will conduct a 50-day consistency review of the proposal, as per 6 AAC 50. DGC will provide the COE the state's conclusive consistency determination for the new quarry site.

IMPLEMENTATION:

As a result of the procedures outlined in this LOA, the state and COE may agree to alternative measures (reflected as stipulations in the COE approval of the Quarry Development Plan, the conclusive consistency determination, and on State permits, if required) that will apply to the quarry operation. Where State permits are not required, the COE is responsible for monitoring compliance with these stipulations and for enforcing them during operations, as necessary.

If the quarry site stipulations needed to ensure consistency with the ACMP are not met, or if the terms and procedures outlined in the LOA are not followed, the DGC may revoke the consistency determination for the quarry site.

EFFECTIVE DATE:

This agreement takes effect upon the date of the last signature below and will continue in effect until modified or revoked by agreement of both parties, or revoked by either party alone upon two months written notice.

William W. Kakel 25 Jun 90
William W. Kakel Date
Colonel, Corps of Engineers
District Engineer

Robert L. Grogan 6/11
Robert L. Grogan Date
Director
Division of Governmental
Coordination

ss90042001kfk

LETTER OF AGREEMENT
BETWEEN THE
U.S. FISH AND WILDLIFE SERVICE
AND THE
U.S. ARMY ENGINEER DISTRICT, ALASKA
FOR
QUARRY SITE EVALUATION

This agreement provides guidance and establishes procedures for assessing the environmental impacts associated with the selection and operation of quarry sites for Civil Works Projects.

GENERAL:

The U.S. Army Engineer District, Alaska will allow the construction contractor to select a quarry site to provide specific rock necessary for construction of water resources projects.

WORK REQUIRED DURING THE PROJECT STUDY PHASE:

The National Environmental Policy Act (NEPA) documentation will reflect that the construction contractor will use an existing quarry site. The environmental assessment or impact statement and Coordination Act report will assess the impacts associated with quarry operations of a generic existing site. The Quarry and Environmental portions of the Plans and Specifications (bidding document) will inform the contractor of his responsibilities in case he chooses to open a new site. The U.S. Fish and Wildlife Service (FWS) will be furnished with a copy of the Plans and Specifications.

WORK REQUIRED AFTER THE BID AWARD:

A representative of the Alaska District Environmental Resources Section (PL-ER) will attend the pre-construction conference, advise the contractor of the NEPA procedure, and reiterate the requirements outlined in the Plans and Specifications. The contractor will be required to submit a Quarry Operation Plan (which includes the exact location of the quarry site) for review and government approval.

If the contractor chooses an existing quarry: The PL-ER representative will advise FWS of the selection and will advise the contractor of any permits which may be required or other stipulations associated with the operation. No further NEPA documentation or Fish and Wildlife Coordination Act activities will be required.

If the construction contractor chooses a new quarry site:

1. The PL-ER representative will contact FWS and advise that the NEPA process has been reopened.

2. The PL-ER representative will consult with FWS and other state and Federal environmental agencies, provide the exact location of the proposed quarry, and obtain the agencies' comments. Within 10 working days, the PL-ER representative will meet with the contracting officer's representative (COR) and contractor to advise whether the site is:

- a. acceptable;
- b. acceptable with stipulations;
- c. no decision until further data are gathered; or
- d. unacceptable.

If the site appears to be acceptable, the PL-ER representative will provide the contractor through the COR the mitigation stipulations, if any. If further information is required in order to make a decision, the COR will provide the contractor an estimate of time required for data collection.

3. The Alaska District and FWS will enter into a transfer fund agreement as mandated in the Fish and Wildlife Coordination Act only if further documentation is required. The normal Scope of Work process will be used.

4. Upon completion of the data gathering and documentation, the FWS will submit an amended Coordination Act report with mitigation recommendations to the Alaska District. The Alaska District will give a written response to the recommendations of the FWS. The Alaska District will either write an environmental assessment or supplement an existing impact statement, or write a new impact statement for all new quarry site selection(s).

UNRESOLVED PROBLEMS:

In carrying out the above agreement, every effort will be made to resolve all problems in the following order:

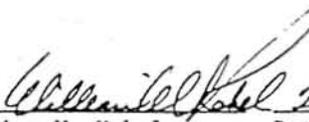
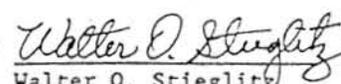
FWS and Alaska District project biologist level.

FWS Field Office Supervisor and Alaska District Planning Branch Chief level.

Assistant Alaska Regional Director for Habitat and Alaska District Engineering Division Chief.

Alaska Regional Director and Alaska District Engineer.

If a solution still cannot be achieved, the problem should be referred to the North Pacific Division and the Alaska Regional Director. Only unresolved problems that threaten the two agencies' abilities to carry out their mandated responsibilities should be referred to the Director of Civil Works, U.S. Army Corps of Engineers, and Director, Fish and Wildlife Service for resolution. Any referrals to the Washington level shall document the specific nature of the problems and efforts at the field level to resolve the disagreements.

	<u>27 MAR 89</u>		<u>4/2/89</u>
William W. Kakel	Date	Walter O. Stieglitz	Date
Colonel, Corps of Engineers		Regional Director	
District Engineer		U.S. Fish and Wildlife Service	

APPENDIX B
QUARRY DEVELOPMENT PLAN
REQUIREMENTS

1.1 Quarry Development Plan. Prior to the development of any quarry, the Contractor shall submit its plan for quarry development and operation to the Contracting Officer for acceptance. The Quarry Development Plan shall include limits of construction, disposal of quarry waste, necessary access roads and traffic routes, quarry rock stockpile area(s), and other material stockpile area(s) to be used for quarry restoration. Receipt of the plan by the Contracting Officer does not limit the Contractor's responsibility for otherwise complying with the contract requirements. All work shall be contained within the construction limits as designated in the submitted plan. The Contractor shall develop the quarry in a manner that will provide safe and efficient extraction of rock and accommodate the restoration as required. The development plan shall address all requirements of the following subparagraphs.

1.1.1 Identify quarry owner and operator, provide existing permits or approvals and summarize past operational history.

1.1.2 Show quarry legal boundaries, location of access roads, structures, and staging areas, including the upgrading or replacement of any existing access roads.

1.1.3 Include proposed blasting plan.

1.1.4 Show fuel storage locations.

1.1.5 Show location of overburden stockpiles (toe must be above maximum high tide elevation).

1.1.6 Show rock processing areas and waste stockpile areas (toe must be above maximum high tide elevation). Note: Waste stockpiles shall be located to accommodate restoration, if restoration is required.

1.1.7 Show any areas where grubbing material will be buried (toe must be above maximum high tide elevation).

1.1.8 Excavation Plan shall be prepared showing all proposed cut slopes and grades, and the final estimated configuration of the quarry at the end of the work, including areas to be cleared.

1.1.9 Quarry Operation Plan shall be prepared to include information on the following subjects: *

- (a) Method of rock removal (i.e., drilling and blasting or mechanical excavation).
- (b) Method and plan for barge loading, if applicable.
- (c) Method, schedule, and plan for burning (if permitted) and disposal of waste.

(d) Method and plan for clearing area before blasting.

*Vegetation clearing and blasting may be subject to work windows to protect migratory bird nesting periods (April 15 –July 15 [in northern regions the season begins 1 June]).

1.1.10 Work at the quarry shall comply with the EPA National Pollutant Discharge Elimination System. A storm water pollution prevention plan for the quarry site and notice of intent shall be prepared and submitted to the Contracting Officer per section 01016.

1.2 Work Area Limits. The Contractor shall keep its work areas as small as possible. If the rock quantity obtained from within the area shown in the Quarry Development Plan is insufficient, the Contractor shall request relocation of the boundary at least two weeks in advance of need for additional quarry area.

1.3 Quarry Waste Disposal. No overburden, soil, waste material, debris, vegetation, or fill material (with the exception of a barge loading ramp, if required) shall be placed at an elevation lower than the maximum high tide level or in other waters of the U.S.

All waste areas shall be covered with a minimum of 6 inches of organic overburden if any stockpile material remains for use. The maximum finished slope shall be 2 horizontal to 1 vertical, and the minimum slope shall be 4 horizontal to 1 vertical. Tree roots or limbs shall not be left sticking out of waste area(s). The final grade and appearance of the waste area shall be a smoothly contoured land form, if required.

1.4 Quarry Stockpiling. The Contractor shall identify all stockpile areas on the Quarry Development Plan. The Contractor shall save and protect all overburden material for quarry restoration purposes. Any quantities of overburden lost by negligence shall be replaced from an approved source by the Contractor.

1.5 Cleanup of Quarry Area(s). Unless otherwise specified, upon completion of rock production, all areas which have been utilized by the Contractor shall be cleared of all debris and graded smooth to match existing grade. No waste piles of any type will be permitted to remain, except for areas that are designated as waste areas in the Quarry Development Plan.

1.6 Quarry Restoration Plan. A general quarry restoration plan (for (a) new quarry site(s)) shall be submitted to the Contracting Officer for approval prior to the use of the quarry. A detailed quarry restoration plan shall be submitted for approval once the rock production operations have been completed. Restoration of the quarry shall be accomplished in a manner to produce a natural appearing condition. All disturbed areas, including refuse remaining from other activities prior to this contract, shall be included in the restoration plan. The quarry restoration plan shall be presented on drawings, and show finished elevations and grades of all features. A restoration plan will not be required if the quarry is to remain operational beyond this contract.